

**ADDENDUM NO. 1 TO
SPECIFICATIONS AND CONTRACT DOCUMENTS FOR
MARYSVILLE WATER FILTRATION PLANT
CHEMICAL CONTAINMENT ROOM IMPROVEMENTS
CITY OF MARYSVILLE, MICHIGAN**

Issued: July 3, 2023

HRC Job No. 20220350

Intent:

This Addendum No. 1 is issued prior to receipt of Bids to provide clarification relative to the Bidding Documents. Failure to include this Addendum No. 1 and included Specification pages within the Bidding Documents may result in disqualification of the bid.

CLARIFICATION REGARDING BID DOCUMENTS:

Q. Who is responsible for emptying the fluoride from the bulk tank before removal?

A. Plant staff will drain and rinse the bulk fluoride tank prior to removal by contractor.

Q. Are roof hatches available to use to remove bulk tank?

A. There are no roof hatches, however a garage-style door in the chemical containment room can be used to remove the bulk fluoride tank.

Q. What is the material of the existing bulk fluoride tank?

A. The existing bulk fluoride tank is made of fiberglass.

Q. Does the tank have to be removed whole or can it be cut into smaller pieces?

A. The tank can be cut into smaller manageable pieces.

CHANGES TO BID DOCUMENTS:

1. Specification Section 00030- Advertisement

- a. **BID DATE**—Change “...will be received by the City of Marysville City Clerk until **2:00 p.m., Local Time on Monday June 19, 2023**” to “...will be received by the City of Marysville City Clerk until **2:00 p.m., Local Time on Monday July 17, 2023**”

2. Specification Section 00300- Proposal

- a. **BID DUE**—Change “Bids Due: **2:00 p.m., Local Time on Monday June 19, 2023**” to “Bids Due: **2:00 p.m., Local Time on Monday July 17, 2023.**”

3. ADD Plan Sheets E-1 and E-2

- a. Sheet E-1: Electrical Plan
b. Sheet E-2: Electrical Notes and Specifications

4. Cover Sheet adds Electrical Section

Bloomfield Hills
555 Hulet Drive
Bloomfield Hills, MI 48302
248-454-6300

Delhi Township
2101 Aurelius Rd.
Suite 2A
Holt, MI 48842
517-694-7760

Grand Rapids
1925 Breton Road SE
Suite 100
Grand Rapids, MI 49506
616-454-4286

Howell
105 W. Grand River
Howell, MI 48843
517-552-9199

Jackson
401 S. Mechanic St.
Suite B
Jackson, MI 49201
517-292-1295

Kalamazoo
834 King Highway
Suite 107
Kalamazoo, MI 49001
269-665-2005

Lansing
215 S. Washington
SQ
Suite D
Lansing, MI 48933
517-292-1488

5. Plan Sheet P-1 adds “Existing Chemical Feed Plan” view
6. Plan Sheet P-2 removes section view A
7. Plan Sheet P-2 add section view “Proposed Chemical Feed Plan” view
8. Plan Sheet P-3 adds callout for bulk and day tank elevated pedestal surface.

ATTACHMENTS

Specification Section 00030- Advertisement

Specification Section 00300- Proposal

Plan Cover Sheet

Plan Sheet P-1

Plan Sheet P-2

Plan Sheet P-3

Plan Sheet E-1

Plan Sheet E-2

The Bidder shall acknowledge receipt of this Addendum No. 1 on Page 3 of the Proposal or the bid may not be considered.

ADVERTISEMENT FOR BIDS
MARYSVILLE WATER FILTRATION PLANT
CHEMICAL CONTAINMENT ROOM IMPROVEMENTS
MARYSVILLE, MICHIGAN

Sealed proposals for the construction of the Chemical Containment Room Improvements will be received by the City of Marysville City Clerk **until 2:00 p.m., Local Time on Monday, July 17, 2023**, at the City of Marysville City Hall, 1255 Delaware Ave. Marysville, MI 48040 at which time and place all bids will be publicly opened and read.

Bidders shall review and comply with the Instructions to Bidders, which are incorporated by reference, and carefully review all Contract Documents, as defined in the Instructions to Bidders. Bids submitted after the exact time specified for, receipt will not be considered.

The Contracts will consist of the following principal items of work and appurtenances as specified herein and shown on the Contract Drawings.

Description of Work

The Marysville Water Filtration Plant (WFP) is making updates to their bulk chemical storage room. The project shall include the work listed below as well as work called for on plans:

- Removal and Replacement stair and platform
- Coating of bulk Alum containment area
- Removal of existing bulk fluoride storage tank and Replacement with a new tank
- Installation of a new fluoride day tank, and containment tank
- Coating of bulk fluoride containment area
- Removal and Replacement of the emergency eye wash station and rerouting of water supply lines
- Rerouting of chemical supply lines and relocation of pumps

A mandatory pre-bid meeting is scheduled for **June 13, 2023 at 10:00 a.m.**, local time, at the Marysville Water Filtration Plant, 1535 River Rd, Marysville, MI 48040. This meeting will be attended by the Owner, Engineer, and other interested parties. At this meeting, questions regarding the bid documents will be answered and Contractors will be allowed to inspect the work site.

Copies of Plans and Specifications and Proposal Forms shall be available on or after **May 29, 2023** at the offices of Hubbell, Roth & Clark, Inc., Consulting Engineers, 555 Hulet Drive, Bloomfield Hills, Michigan 48302-0360.

Copies thereof for bidding purposes may be obtained for a non-refundable payment of One-Hundred (\$100.00) Dollars, will be required for each set of Contract Documents. An electronic copy (USB) and hard copy will be provided. **CHECK or CREDIT CARD will be acceptable. CREDIT CARD information can be provided over the telephone or via email, or CHECKS, payable to "Hubbell, Roth & Clark, Inc." can be mailed to the office.** Drawings and Specifications can be shipped by UPS ground for a shipping and handling charge of Twenty (\$20.00) Dollars, CHECK or CREDIT CARD, non-refundable, to Hubbell, Roth & Clark, Inc. The Bidder is advised that to submit a bid on this project, the Bidder must have purchased a set of Plans and Specifications from Hubbell, Roth & Clark, Inc.

Proposals submitted by Bidders who have been debarred, suspended, or made ineligible by any Federal Agency will be rejected.

Each bidder agrees to waive any claim it has or may have against the Owner, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.

Each bid proposal shall be submitted on the proposal forms provided and shall be accompanied by a certified check, cashier's check or bid bond, executed by the bidder and Surety Company, payable to the City of Marysville in the amount of Five Percent (5%) of the accompanying bid. Proposal Guarantee shall provide assurance that the bidder will, upon acceptance of the bid, execute the necessary Contract with the City of Marysville. No bid may be withdrawn after scheduled closing time for receiving bids for at least sixty (60) days.

The successful bidder will be required to furnish satisfactory Performance, Labor and Material, and Maintenance and Guarantee Bonds.

The City of Marysville reserves the right to reject all bids and to waive irregularities in bidding.

No Proposal will be received unless made on blanks furnished and delivered to the City of Marysville Clerk **on or before 2:00 p.m., Local time, Monday, June 19, 2023.**

City of Marysville

Published in the Times Herald **May 23, 2023**, and Michigan Infrastructure & Transportation Association (MITA) on **May 22, 2023.**

PROPOSAL
FOR
MARYSVILLE WATER FILTRATION PLANT
CHEMICAL CONTAINMENT ROOM IMPROVEMENTS
CITY OF MARYSVILLE
ST. CLAIR COUNTY, MICHIGAN

City of Marysville
1255 Delaware Ave,
Marysville, MI, 48040

Bids Due: Monday, July 17, 2023
On or Before 2:00 pm, Local Time
HRC Job No. 20220350

To Prospective Bidders:

Name of Bidder: _____

Address: _____

Date: _____ Telephone: _____ Fax: _____

The above, as Bidder, hereby declares this bid is made in good faith without fraud or collusion with any persons bidding, and that the Drawings, Specifications, and all other information referenced in the Instructions to Bidders have been examined. Further, the Bidder is familiar with the location of the work described herein and is fully informed as to the nature of the work and the conditions relating to the performance of the Contract.

The Bidder acknowledges that no representations or warranties of any nature whatsoever have been received, or are relied upon from the City of Marysville, its agents or employees, as to any conditions to be encountered in accomplishing the work and that the bid is based solely upon the Bidder's own independent judgment.

The above, as Bidder, hereby certifies that the Drawings, Specifications, and other data provided by the Owner for bidding purposes have been examined. Further, the undersigned certifies that the proposed construction methods have been reviewed and found acceptable for the conditions which can be anticipated from the information provided for bidding.

The Bidder hereby affirms that the site of work has been inspected and further declares that no charges in addition to the Individual Unit Prices shall be made on account of any job circumstances or field conditions which were present and/or ascertainable prior to the bidding. In addition, The Contractor, as such and as Bidder, shall make the determination as to existing soil conditions and shall also complete the work under whatever conditions created by the Contractor/Bidder's sequence of construction, construction methods, or other conditions the Contractor/Bidder may create, at no additional cost to the Owner.

The above, as Bidder, confirms knowledge of the location of the proposed Chemical Containment Tank Project and appurtenant construction in the City of Marysville, St. Clair County, Michigan, and the conditions under which it must be constructed; and also declares to have carefully examined the Drawings, Specifications, and Contract Documents which the Bidder understands and accepts as sufficient for the purpose of constructing said Chemical Containment Tank Project, and appurtenant work, and agrees to contract with the City of Marysville to furnish all labor, materials, tools, equipment, facilities and supervision necessary to do all the work specified and prescribed for the City of Marysville, in strict accordance with the Owner's General Conditions, and with the

full intent of the Drawings and Specifications, prepared by Hubbell, Roth & Clark, Consulting Engineers, and will accept in full payment therefore the sum of:

BASE BID

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total Cost</u>
1. Stair and Platform Remove & Replace	1 LS	@ \$ _____	= \$ _____
2. Alum Containment Area Coating			
3. Fluoride Bulk Tank Remove & Replace	1 LS	@ \$ _____	= \$ _____
4. Install Fluoride Day Tank & Secondary Containment tank	1 LS	@ \$ _____	= \$ _____
5. Fluoride Containment Area Coating			
6. Emergency Eye Wash Station Remove & Replace	1 LS	@ \$ _____	= \$ _____
7. Chemical Supply Line Rerouting & Pump Relocation	1 LS	@ \$ _____	= \$ _____
8. Concrete Fill in Fluoride Containment Area	1 LS	@ \$ _____	= \$ _____
Total Amount of Bid			\$ _____

The Owner reserves the right to add or delete quantities from the Contract and adjustments will be subject to the availability of funds at the time of bid letting. Deletion of quantities shall not be grounds for the low qualified bidder to adjust unit prices for the project that the Owner intends to execute as a Contract, nor shall the Contractor be entitled to compensation from unrealized profits resulting from the deletion of quantities.

The Owner, at its sole discretion, reserves the right to award to the Bidder who, in the sole determination of the Owner, will best serve the interest of the Owner. The Owner reserves the right to accept any bid, to reject any or all bids, to waive any and all informalities involving price, time, or changes in the work, and to negotiate contract terms with the successful Bidder, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional bids. However, it is the intention of the Owner to award to the low total bid to one bidder. Also, the Owner reserves the right to reject the bid of any Bidder if the Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the bid is not responsive or the Bidder is unqualified, of doubtful financial ability, or fails to meet any other pertinent standard or criteria established by the Owner.

Each bidder agrees to waive any claim it has or may have against the Owner, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.

Each Proposal must be accompanied by a bid deposit in the form of a certified check, cashier's check or bid bond, executed by the bidder and Surety Company, payable to the City of Maysville in the amount of Five Percent (5%) of the amount of the Proposal. See Instructions to Bidders – Bid Deposit for more information.

TAXES

The Bidder affirms that all applicable Federal, State and Local taxes of whatever character and description are included in all prices stated in this Form of Proposal.

ADDENDA

The Bidder acknowledges the following Addenda, covering revisions to the drawings or specifications and the cost, if any, of such revision has been included in the quoted proposal:

Addendum No. _____	Dated _____
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____

FEES

The Bidder shall refer to the General Conditions for allowable Fees for additional work performed, upon Owner's written authorization, by Bidder's own forces and/or for additional work, upon Owner's written authorization, by Bidder's subcontractors.

TIME OF COMPLETION

If awarded the Contract for the Chemical Containment Tank Project, we agree to have all work substantially completed **90 Days from the Notice to Proceed**. Substantial Completion is defined that the facility is ready to use for its intended purpose with all utility systems fully functional.

The Bidder hereby agrees to furnish the required Bonds, Insurance Certificates, and Policies within ten (10) days after acceptance of this Proposal.

Final Completion with all clean-up and punch-list items shall be completed **120 Days from Notice to Proceed**.

LIQUIDATED DAMAGES

Time is of the essence for completion of this project in order to have the Project ready for the City of Marysville. The Bidder guarantees that the work will be completed within the time limit stated herein before or within the time as extended as provided elsewhere in the Specifications. Inasmuch as the damage and loss to the Owner which will result from the failure of the Bidder to complete the work within the stipulated time, will be most difficult or impossible to accurately determine, it is mutually agreed that the damages to the Owner for such delay and failure on the part of the Bidder shall be liquidated in the amount of eight-hundred Dollars (\$800.00), for each and every calendar day by which the Bidder shall fail to complete the work or any part thereof within the provisions hereof, and such liquidated damages shall not be considered as a penalty.

The Owner will deduct and retain out of any money due or to become due hereunder the amount of the liquidated damages, and in case those amounts are less than the amount of actual liquidated damages, the Bidder shall pay the difference upon demand of the Owner.

We understand that liquidated damages may be assessed should we fail to meet the stipulated completion dates. Specifically, liquidated damages will be assessed daily beginning **91 Days from Notice to Proceed** until such a time that Substantial Completion is achieved and further if all work is not completed by the Final Completion Date.

BIDS TO REMAIN FIRM

The price stated in this Proposal shall be guaranteed for a period of not less than 60 days from the bid due date and if authorized to proceed within that period, the bidder agrees to complete the work covered by the Proposal at said price.

If this Proposal is accepted by the Owner and the undersigned shall fail to contract as aforesaid and to furnish the required surety bonds within fifteen (15) days after being notified of the acceptance of their bid, then the undersigned shall be considered to have abandoned the contract, and the Certified Check, Cashier's Check or Bid Bond accompanying this Proposal shall be forfeited to the City of Marysville.

If the undersigned enters into the contract in accordance with their proposal, or if their proposal is not accepted, then the accompanying bid guarantee shall be returned to the undersigned.

Company Name: _____

Signature: _____ Title: _____

Address: _____

County: _____ State: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

LEGAL STATUS OF BIDDER

This Bid is submittal in the name of:

(Print) _____

The undersigned hereby designates below the business address to which all notices, directions or other communications may be served or mailed:

Street _____

City _____

State _____ Zip Code _____

The undersigned hereby declares the legal status checked below:

- ☐ INDIVIDUAL
- ☐ INDIVIDUAL DOING BUSINESS UNDER AN ASSUMED NAME
The Assumed Name of the Co-Partnership is registered in the County of _____, Michigan
- ☐ CO-PARTNERSHIP
The Assumed Name of the Co-Partnership is registered in the County of _____, Michigan
- ☐ CORPORATION INCORPORATED UNDER THE LAWS OF THE STATE OF _____
_____. The Corporation is
- ☐ LICENSED TO DO BUSINESS IN MICHIGAN
- ☐ NOT NOW LICENSED TO DO BUSINESS IN MICHIGAN

The name, titles, and home addresses of all persons who are officers or partners in the organization are as follows:

A corporation duly organized and doing business under the laws of the State of _____

NAME AND TITLE

HOME ADDRESS

Signed and Sealed this _____ day of _____, 20__.

By (Signature) _____

Printed Name of Signer _____

_____ Title

y : \ 2 0 2 2 0 3 \ 2 0 2 2 0 3 5 0 \ 0 4 - d e s i g n \ c h e m i c a l c o n t a i n m e n t \ s p e c s \ 0 0 3 0 0 - p r o p o s a l . d o c x 0 7 / 0 3 / 2 3 : 2 3 : 2 8 P M

BID BOND

We, the undersigned, _____

As Principal, hereinafter called the Principal, and _____

A corporation duly organized under the laws of the State of _____

As surety, hereinafter called the SURETY, are held and firmly bound unto:

The Owner: _____

in the sum of _____ Dollars (\$ _____),

For the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for _____

NOW, THEREFORE, if the OWNER shall accept the bid of the Principal and the Principal shall enter into a contract with the OWNER in accordance with the terms of such bid, and give such bond or bonds as may be specified in the CONTRACT DOCUMENTS with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such contract and give such bond or bonds, if the Principal shall pay to the OWNER the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the OWNER may in good faith contract with another party to perform the work covered by said bid, then the obligation of the Principal shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____, 20____

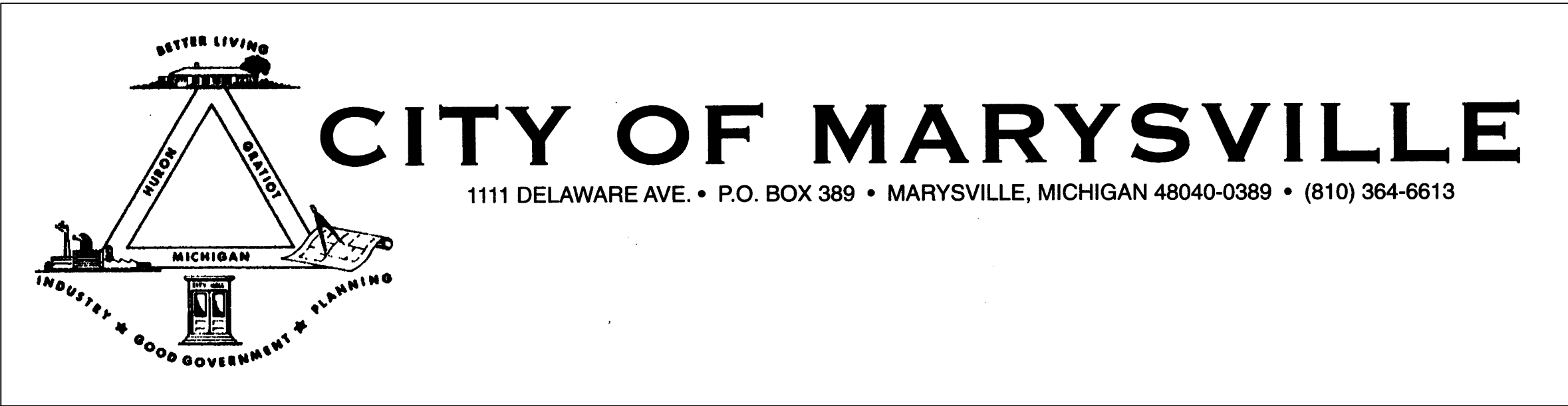
_____ (Witness)	_____ (Principal)	_____ (Seal)
	_____ (Title)	
_____ (Witness)	_____ (Surety)	
	_____ (Title)	

END OF SECTION

7/3/2023 3:13 PM
V:\202203\20220350\CoverSheet.dwg
Leon, Josh

LIST OF DRAWINGS	
SHEET NO.	SHEET TITLE
COVER	COVER SHEET
PROCESS	
P-1	REMOVAL PLAN
P-2	CHEMICAL CONTAINMENT AREA LINING & PIPE REROUTING PLANS AND DETAILS
P-3	PLATFORM AND STAIR DETAIL
ELECTRICAL	
E-1	ELECTRICAL PLAN
E-2	ELECTRICAL NOTES AND SPECIFICATIONS

WATER FILTRATION PLANT CHEMICAL CONTAINMENT ROOM IMPROVEMENTS

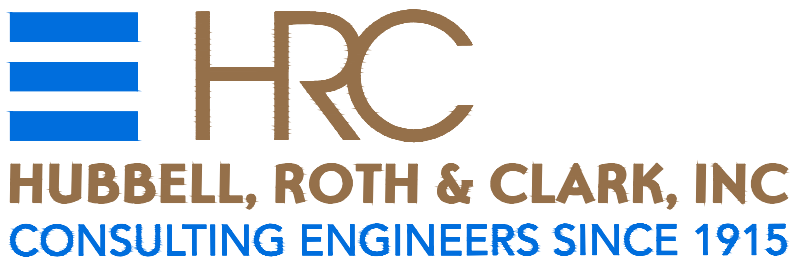


CITY OF MARYSIVLLE, MICHIGAN WATER AND WASTEWATER DEPARTMENT

ISSUED FOR BIDS
MAY 29, 2023

PREPARED BY:

JOB NO. 20220350



555 HULET DRIVE
BLOOMFIELD HILLS, MI.

P.O. BOX 824
48303 - 0824

PHONE: (248) 454-6300
FAX (1st. Floor): (248) 454-6312
FAX (2nd. Floor): (248) 454-6359
WEB SITE: www.hrcengr.com



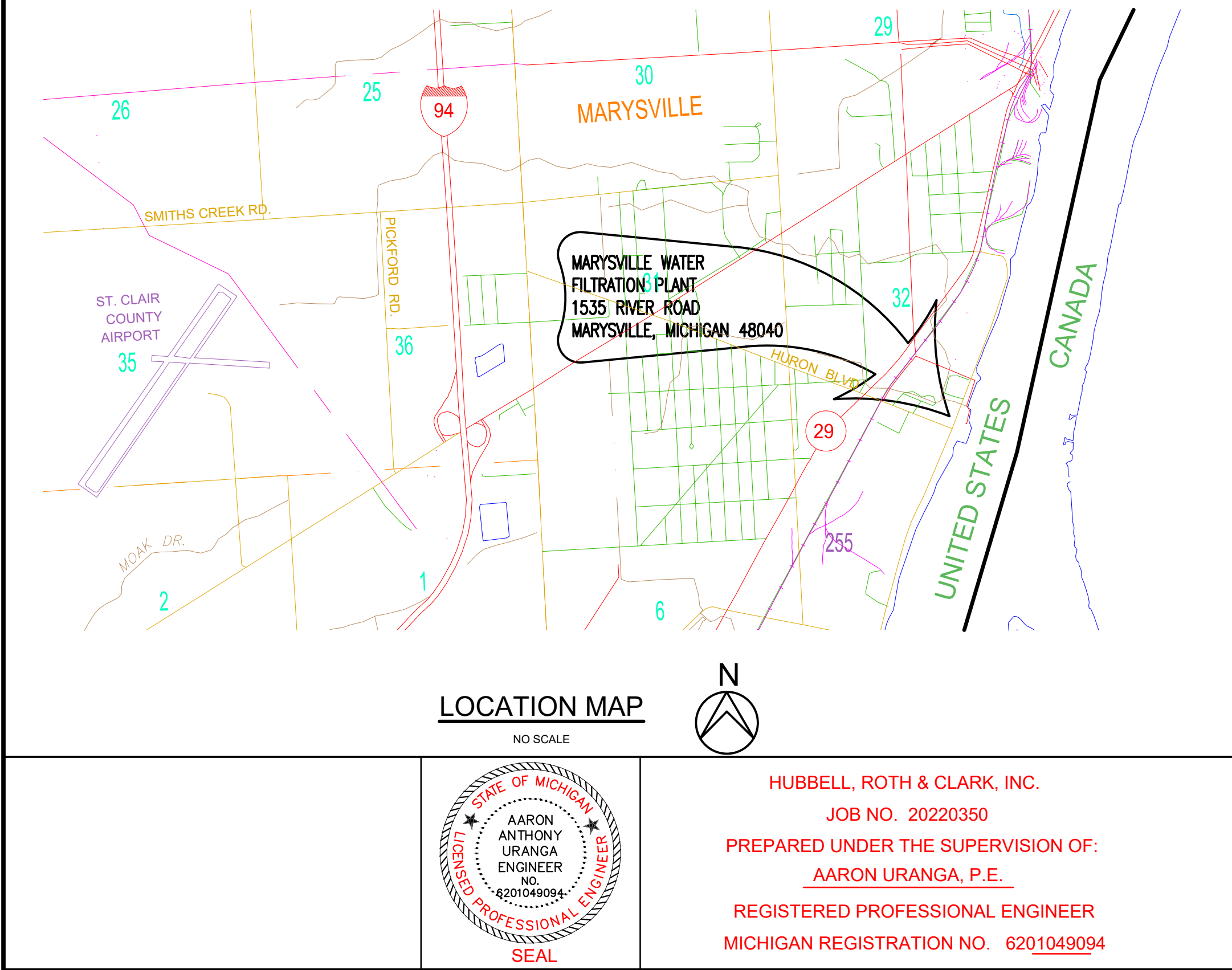
MARYSVILLE CITY COUNCIL

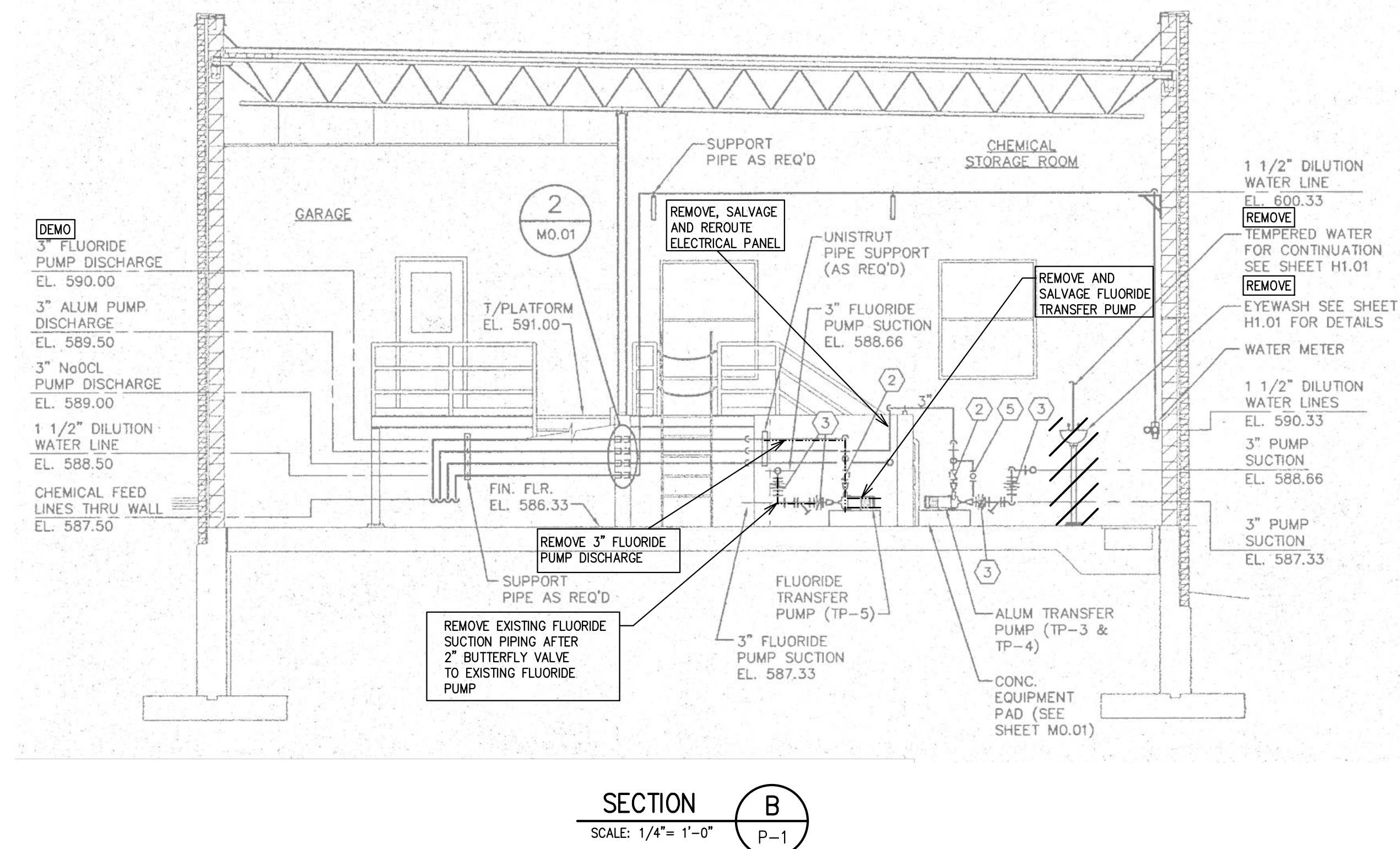
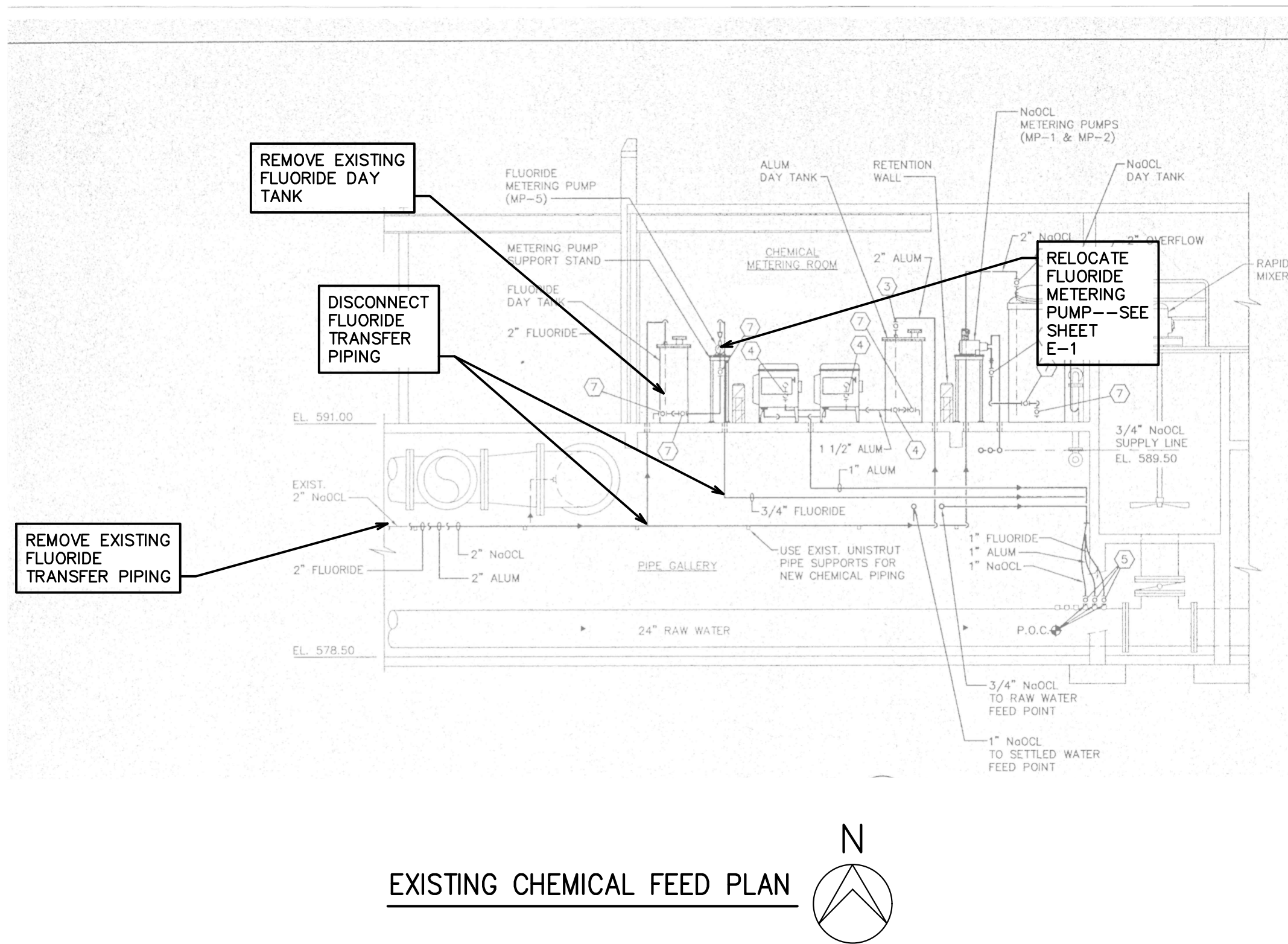
KATHY HAYMAN - MAYOR

DAVID C. BARBER
DUKE DUNN
DANIEL SHIRKEY
DAVID WATSON
PAUL A. WESSEL

CITY ADMINISTRATION

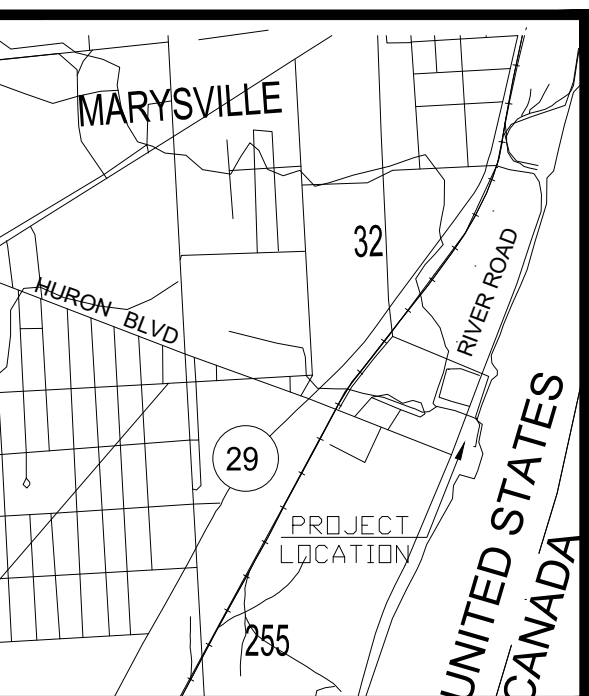
RANDALL S. FERNANDEZ - CITY MANAGER
RENE STOIA - CITY CLERK
BARI WRUBEL - SUPERINTENDENT WATER FILTRATION PLANT
WASTEWATER TREATMENT PLANT
BARRY KREINER - DIRECTOR OF PUBLIC WORKS





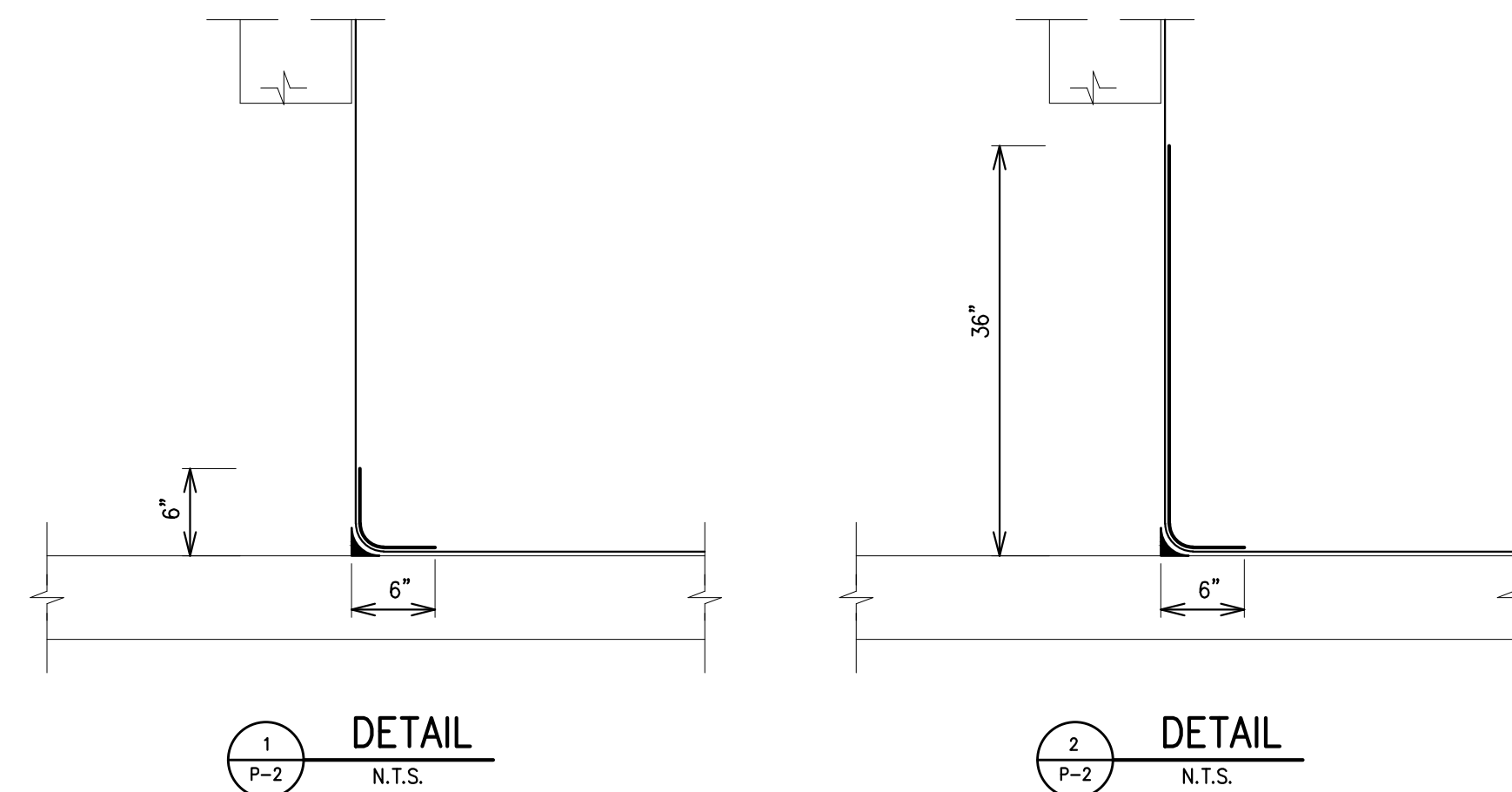
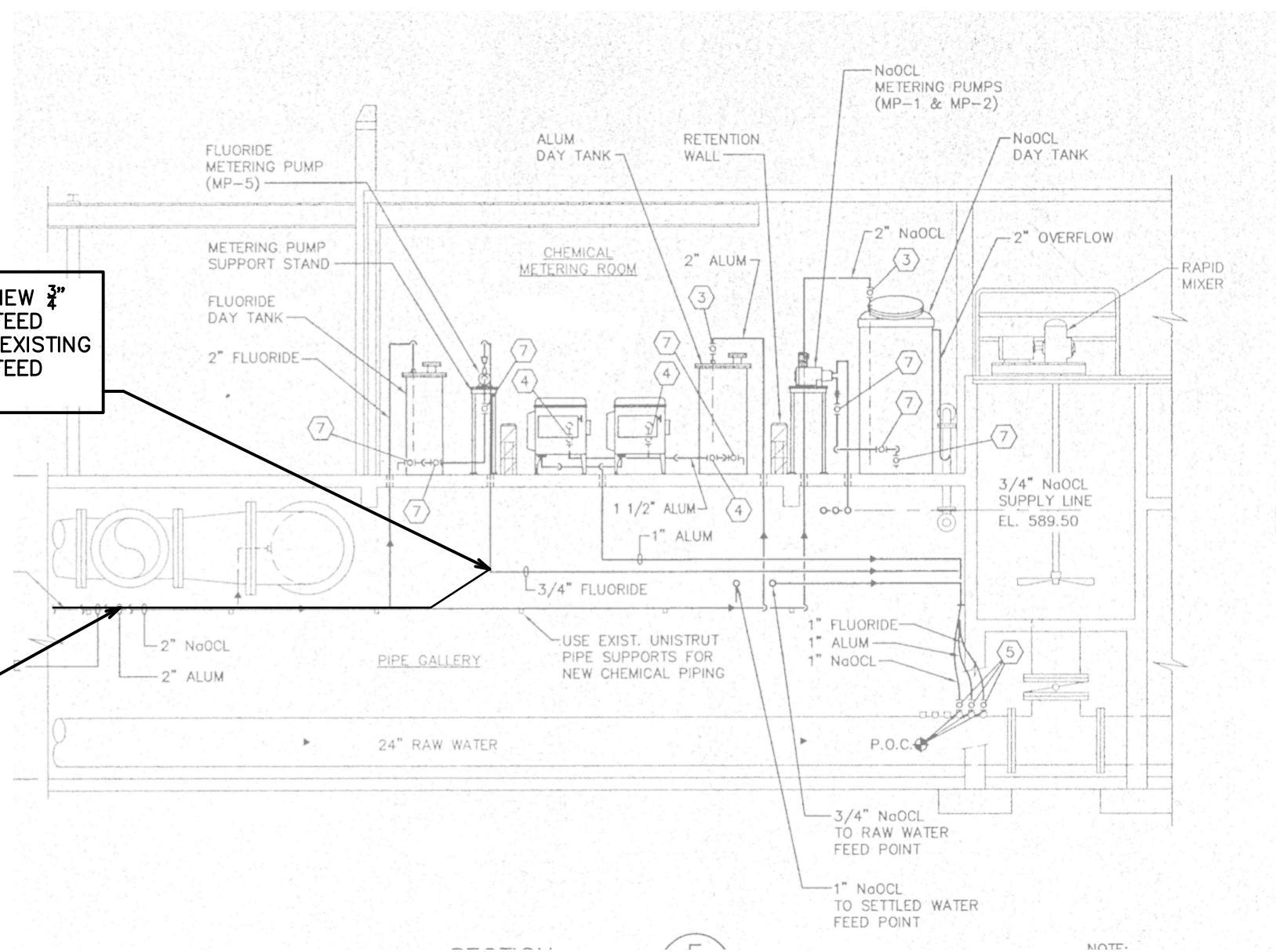
1. EXISTING DRAWING IS PROVIDED FOR REFERENCE AND TO DEPICT CHEMICAL FEED PIPING. SUBSEQUENT MODIFICATIONS HAVE BEEN MADE TO THIS AREA.
2. REMOVE EXISTING COATINGS FROM ALL CONCRETE (INCLUDING EQUIPMENT PADS, FLOORS, AND SUMPS) AND BRICK AND BLOCK MASONRY CONTAINMENT AREA WALLS IN ACCORDANCE WITH SPECIFICATION SECTION 09900.
3. DEMO EXISTING FLUORIDE TRANSFER PUMP, 2-INCH FLUORIDE PUMP SECTION FROM THE EXISTING 2-INCH BUTTERFLY VALVE TO THE PUMP, AND 2-INCH FLUORIDE DISCHARGE PIPING AND CAP.

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.

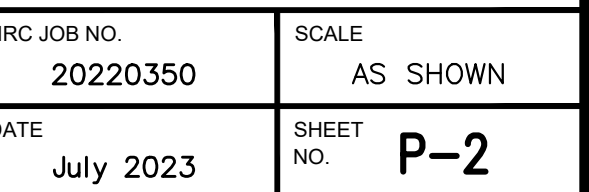


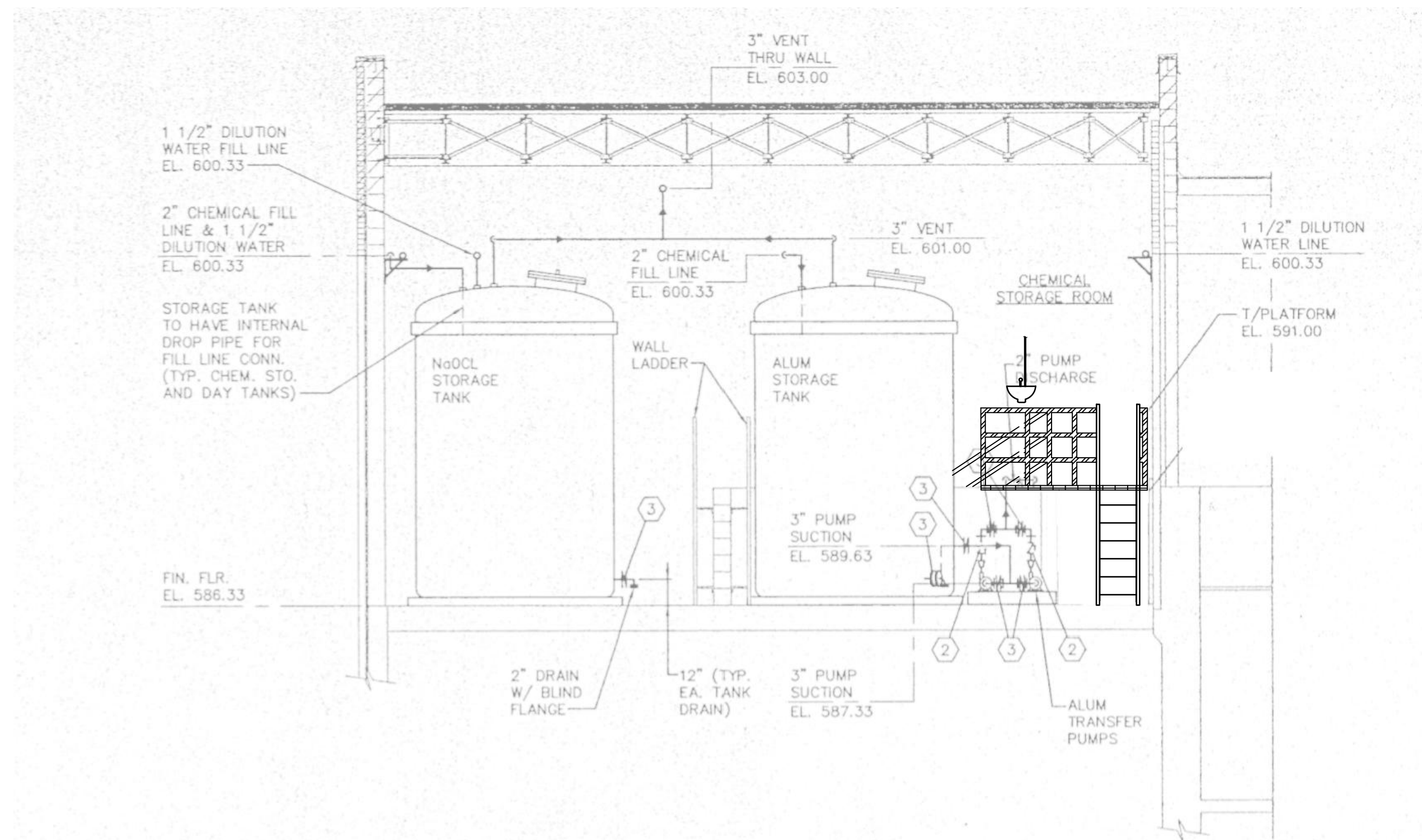
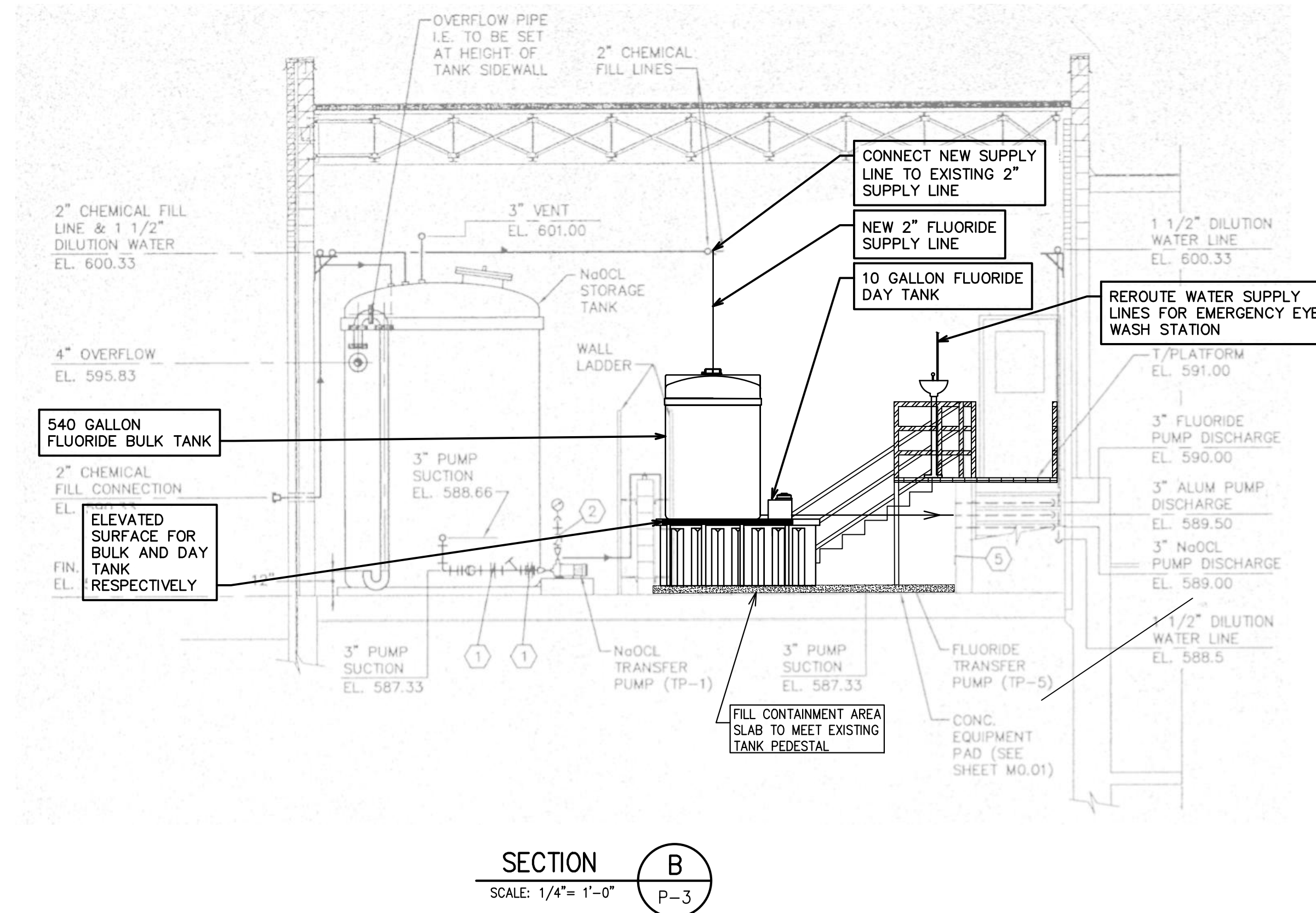
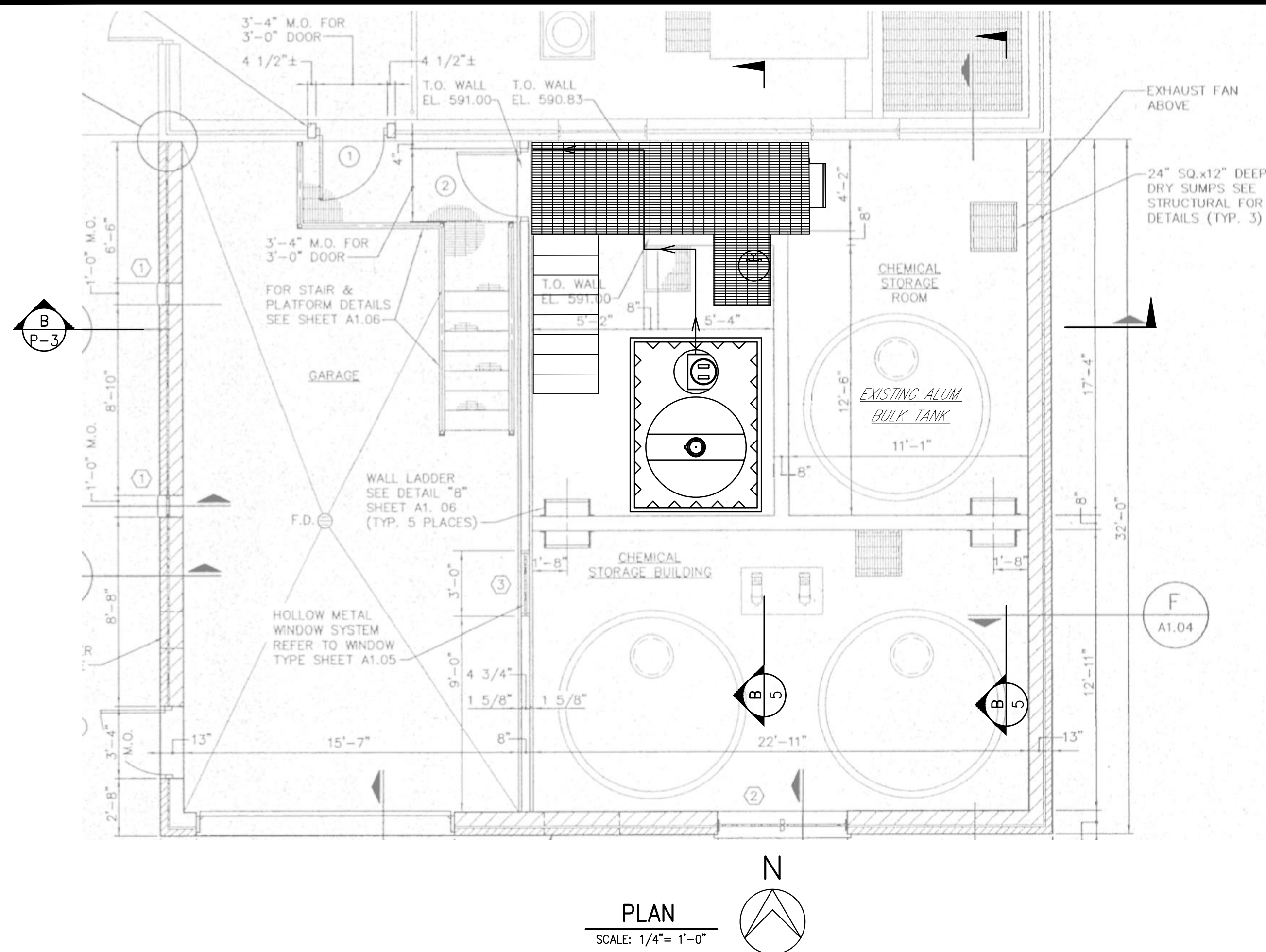
REMOVAL PLAN

SRC JOB NO. 20220350	SCALE AS-SHOWN
DATE July 2023	SHEET NO. P-1



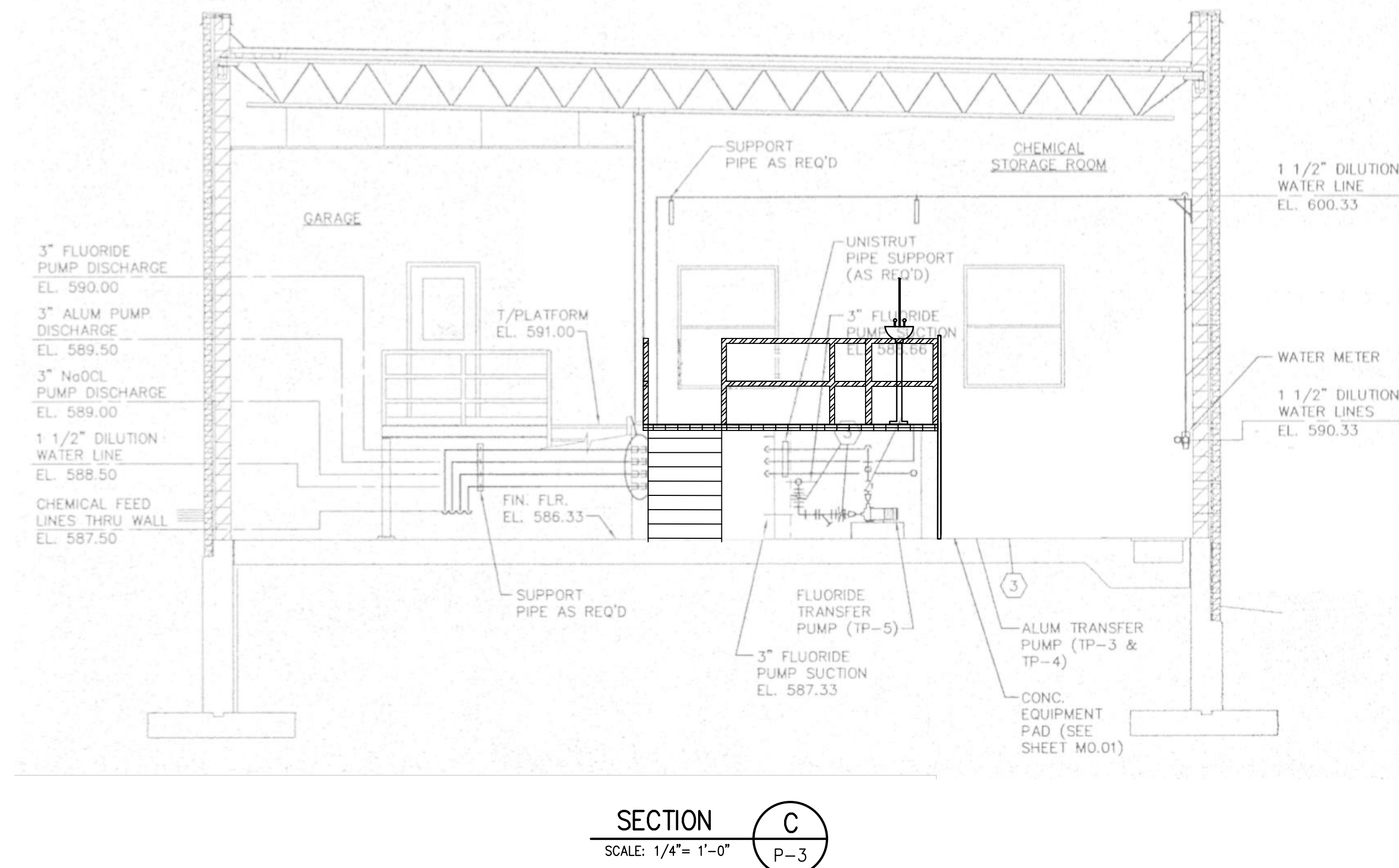
1. EXISTING DRAWING IS PROVIDED FOR REFERENCE AND TO DEPICT CONTAINMENT AREA LAYOUT. SUBSEQUENT MODIFICATIONS HAVE BEEN MADE TO THIS AREA.
2. PREPARE SURFACE FOR LINING IN A MANNER CONSISTENT WITH MANUFACTURER'S RECOMMENDATION
3. APPLY LINING PER MANUFACTURER'S RECOMMENDATION.
4. PROTECT ALL EQUIPMENT AND SURFACES NOT MEANT FOR LINING.
5. REMOVE EXISTING CAULK FROM PERIMETER JOINTS BETWEEN CONTAINMENT AREA WALLS AND FLOOR.
6. FOR ADDITIONAL DETAILS, REFER TO SPECIFICATION SECTION 09900-PAINTING.
7. COATING CONTRACTOR MUST CAREFULLY WORK AROUND EXISTING PIPING, VALVES CONDUIT, EQUIPMENT AND TANKAGE, TAKING CARE TO AVOID DAMAGE TO ALL EXISTING COMPONENTS.





NOTES:

- EXISTING DRAWING IS PROVIDED FOR REFERENCE AND TO DEPICT CHEMICAL FEED PIPING. SUBSEQUENT MODIFICATIONS HAVE BEEN MADE TO THIS AREA.
- REMOVE & RELOCATE EXISTING FLUORIDE TRANSFER PUMP. REFER TO SHEET 6.
- REMOVE EXISTING 2-INCH FLUORIDE PUMP DISCHARGE AND TEMPORARILY CAP AT EXISTING PUMP.
- REMOVE EXISTING 2-INCH FLUORIDE PUMP SUCTION PIPING TO THE NEW 90 DEGREE ELBOW. TEMPORARILY CAP 90 DEGREE ELBOW TO KEEP EXISTING FLUORIDE BULK TANK AND FLUORIDE PUMP IN SERVICE UNTIL DEMOLITION WORK AND NEW WORK ARE COMPLETED.

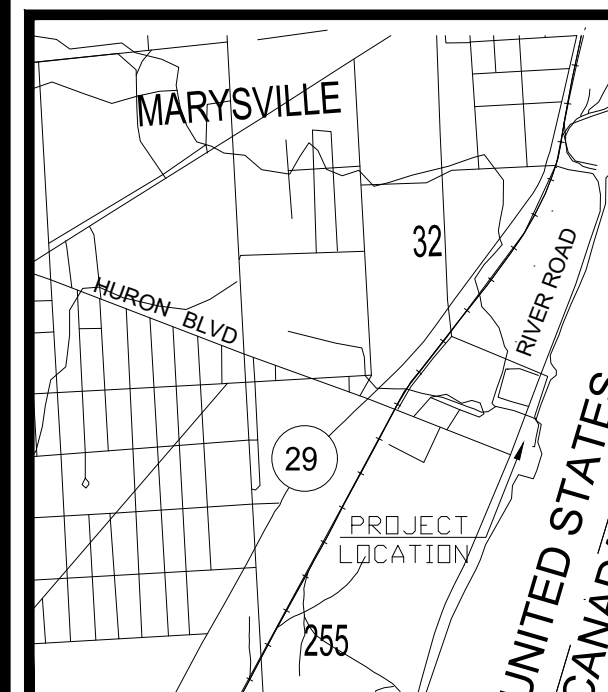


HRC
HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915
555 HULET DRIVE
BLOOMFIELD HILLS, MICH. P.O. BOX 824
48303 - 0824

PHONE: (248) 454-6300
FAX (1st. Floor): (248) 454-6312
FAX (2nd. Floor): (248) 454-6359
WEB SITE: www.hrcengr.com



07/03/2023	ISSUED FOR ADDENDUM 1
05/29/2023	ISSUED FOR BIDS
05/22/2023	100% PLAN REVIEW
05/03/2023	90% PLAN REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	JSL
DRAWN	JSL/MH
CHECKED	JSL/AAU
APPROVED	AAU

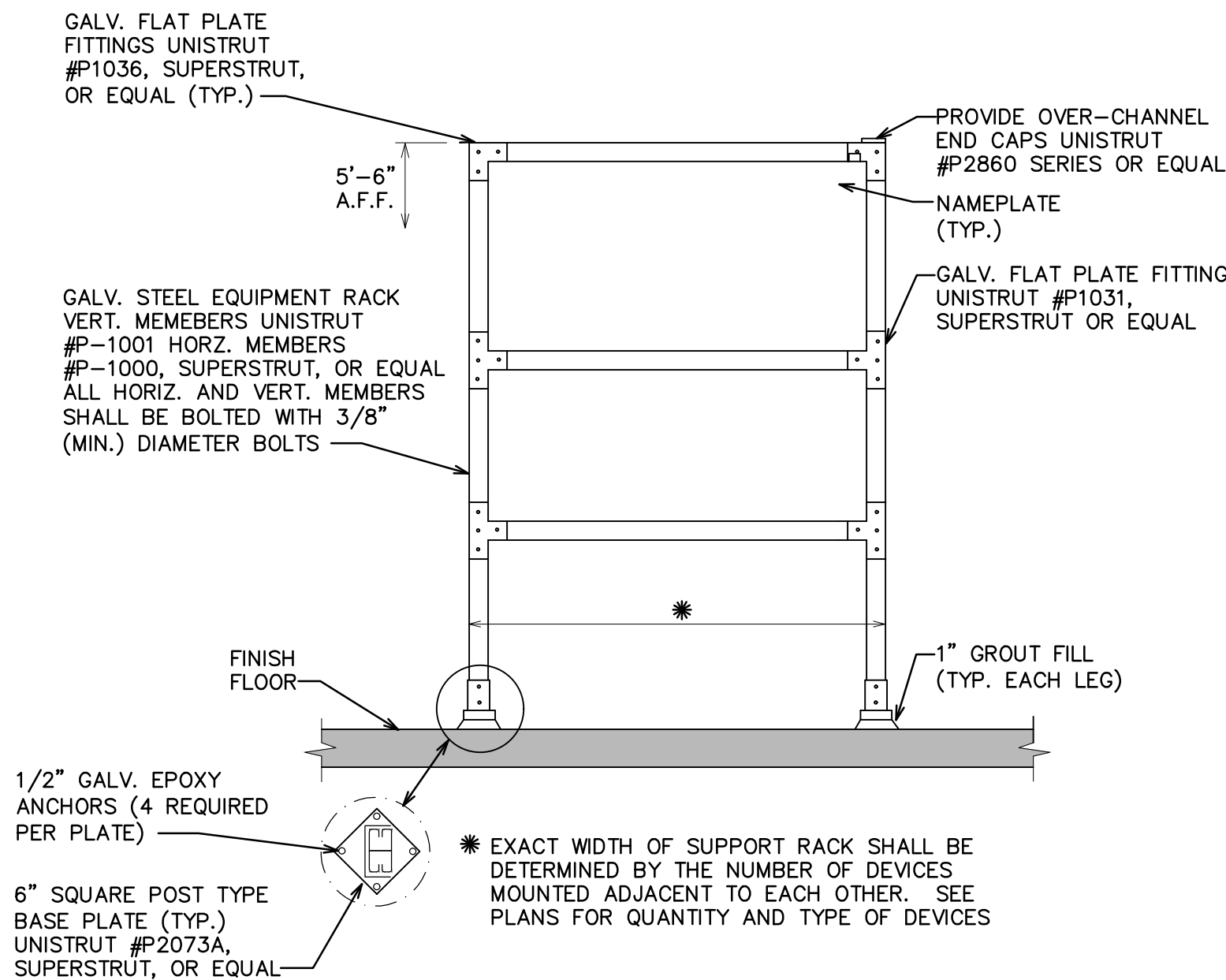
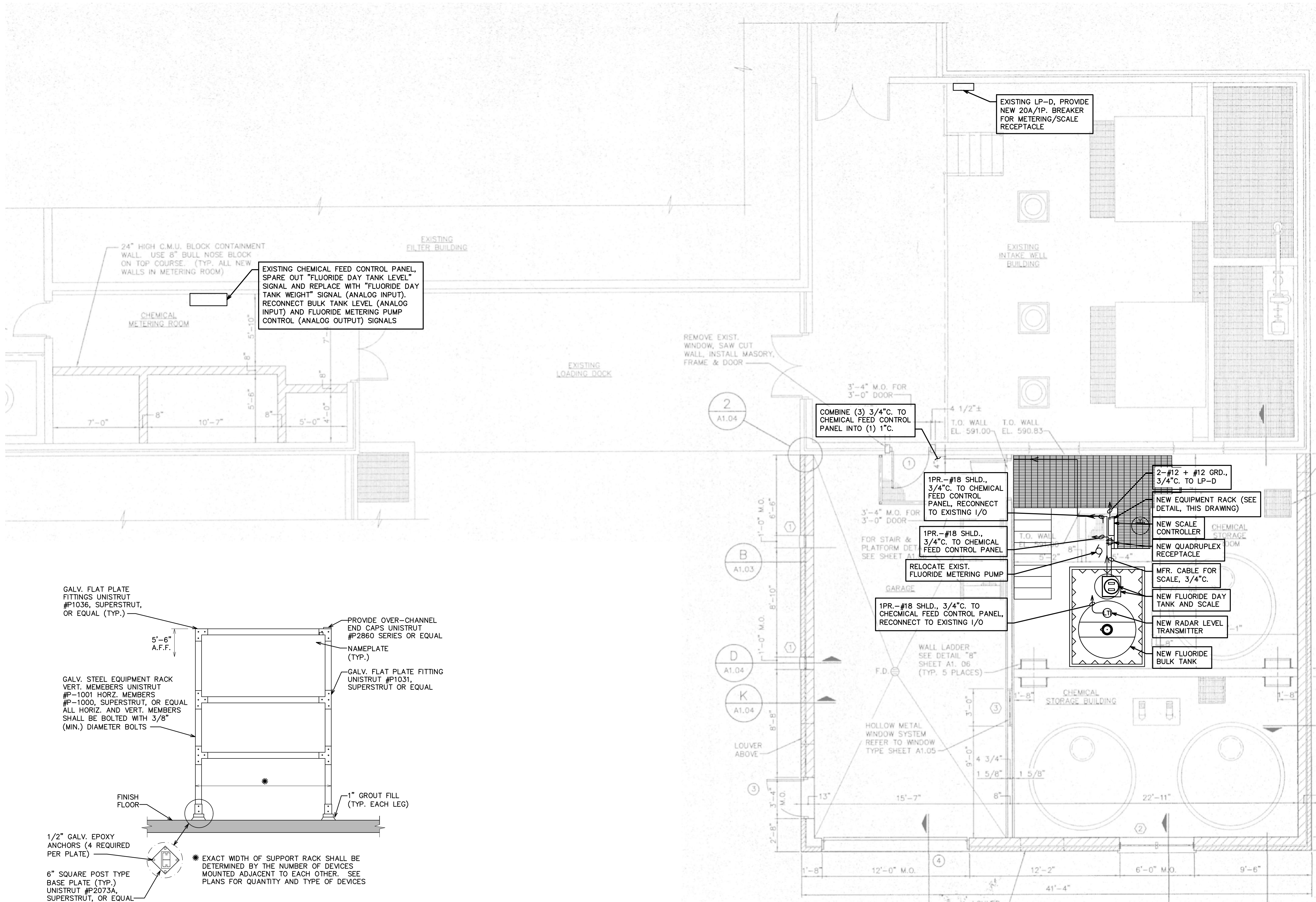


**MARYSVILLE WATER
FILTRATION PLANT**

CHEMICAL CONTAINMENT ROOM IMPROVEMENTS

PLATFORM AND STAIR
PLAN

HRC JOB NO. 20220350	SCALE AS SHOWN
DATE July 2023	SHEET NO. P-3



TYPICAL EQUIPMENT SUPPORT RACK
ON CONCRETE FLOOR SLAB DETAIL

N.T.S.

ELECTRICAL AND INSTRUMENTATION PLAN

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



THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS
CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION
ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE
NOT TO SCALE. NO GUARANTEE IS MADE, OR SHOULD BE
ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE
INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING
THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND
COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.



HRC
HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915
555 HULET DRIVE BLOOMFIELD HILLS, MICH. P.O. BOX 824 48303 - 0824

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07/03/2023	ISSUED FOR ADDENDUM NO. 1
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	MJR
DRAWN	MJR
CHECKED	MJR
APPROVED	AAU



MARYSVILLE WATER
FILTRATION PLANT

**CHEMICAL CONTAINMENT
ROOM IMPROVEMENTS**

ELECTRICAL
PLAN

HRC JOB NO. 20220350	SCALE AS SHOWN
DATE June 2023	SHEET NO. E-1



SCALETRON™ SETS THE STANDARD
IN CORROSION RESISTANCE™

Model 4021™ Ultra-Low Profile Drum Scale

- Standard base sizes: 18" and 26"
- Net capacity: Up to 1,000 lbs. (454 kg)
- High accuracy of $\pm 0.25\%$ of capacity
- Single or multi-channel controllers with easy readability to 0.1 lb. (kg)
- Readout in pounds, kilograms, gallons or liters



Ultra-Low Profile Weighing Solution for Applications Requiring Frequent On/Off Loading of Carboys and Drums

Model 4021 is designed for weighing carboys and drums up to 26" in diameter. Featuring an economical single load cell design, the ultra-low profile base and adjustable backstop allows for safe and easy handling and centering of containers. MADE IN USA.

Standard Features

- AccuPro 5000 Digital Controller with one or 2 channels, encoder knob or 3 button keypad, audible alarm and 4-20 mA output signal – scale or loop powered
- Model 1099 Chemical Process Controller with 1 to 4 channels, 20 button keypad and 4-20 mA output signal – scale or loop powered
- Ultra-low profile platform (1.81" design) increases safety and ease of drum handling
- Designed for centered loads – includes heavy-duty steel backstop with measuring guides to help position the drum
- NTEP stainless steel shear beam, temperature compensated load cell
- Electronic indicator housed in NEMA 4X, UL approved enclosure to provide protection from acids
- 20 ft. of 4 conductor wire cable

Available Controllers

- AccuPro 5000 Digital Controller with one or 2 channels, encoder knob or 3 button keypad, audible alarm and 4-20 mA output signal – scale or loop powered
- Model 1099 Chemical Process Controller with 1 to 4 channels, 20 button keypad and 4-20 mA output signal – scale or loop powered

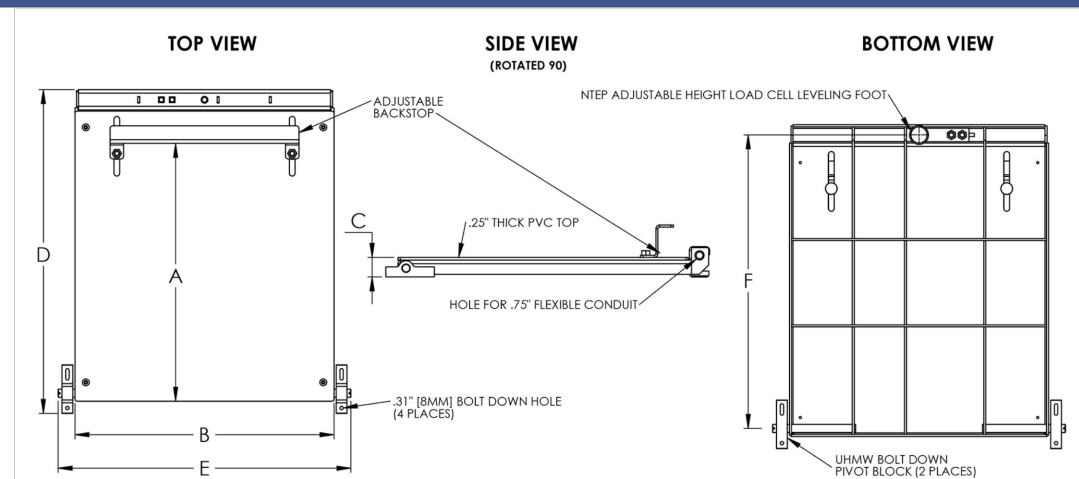
Options

- High and low level set points
- 0-5V or 0-10V output signal
- Remote mounting of indicator box up to 200 feet away

Chemicals

- Scale is designed to accurately measure weight of alum, ammonia, caustic, fluoride, phosphate, polymers, sodium aluminate, sodium bisulfate, sodium hydroxide, sodium hypochlorite and other liquids or powders

Model 4021™ Ultra-Low Profile Drum Scale Specifications



Scale Base

PART NUMBER	4021-18	4021-18
Platform Length (A)	20" (508 mm)	26.8" (681 mm)
Platform Width (B)	18" (457 mm)	24.0" (610 mm)
Platform Height (C)	1.81" (46 mm)	1.81" (46 mm)
D	21.12" (536 mm)	27.13" (689 mm)
E	21.12" (536 mm)	27.13" (689 mm)
F	20.44" (519 mm)	27.19 (691 mm)
Net Capacity	Up to 400 lbs. (181 kg) (150% overload protection is provided)	Up to 1000 lbs. (454 kg) (150% overload protection is provided)
Weight	80 lbs.	110 lbs.

Digital Controllers

PART NUMBER	ACCUPRO 5000-EK	ACCUPRO 5000-PB	1099 C.P.C.
Interface	Encoder knob	Keypad with three (3) push buttons	20 Button keypad
Accuracy	$\pm 0.1\%$ to $\pm 0.25\%$ of full scale capacity	$\pm 0.1\%$ to $\pm 0.25\%$ of full scale capacity	$\pm 0.1\%$ to 0.25% of full scale capacity
Display	6 Digit alphanumeric backlit LCD	6 Digit alphanumeric backlit LCD	6 Digit LED & alphanumeric backlit LCD
Display Units	Pounds, kilograms, gallons or liters	Pounds, kilograms, gallons or liters	Pounds, kilograms, gallons or liters
Channels	1 or 2 - One scale base per channel	1 or 2 - One scale base per channel	Up to 4
4-20 mA	4-20mA Standard, 0-5V or 0-10V optional - 1 Output per channel, scale or loop powered	4-20mA Standard, 0-5V or 0-10V optional - 1 Output per channel, scale or loop powered	Standard on channel 1 - Loop powered (available for channels 2 thru 4)
Set Points	2 or 4 Per channel (high or low)	2 or 4 Per channel (high or low)	1 to 4 (high or low)
Remote Mounting	Up to 200 feet from base frame	Up to 200 feet from base frame	Up to 200 feet from base frame
Audible Alarm	Piezo buzzer with adjustable volume	Piezo buzzer with adjustable volume	Optional piezo buzzer with adjustable volume
Power	120/240 VAC, 50/60 Hz, 0.10/0.05A	120/240 VAC, 50/60 Hz, 0.10/0.05A	120/240 VAC, 50/60 Hz, 0.10/0.05A
Enclosure	NEMA 4X, UL approved enclosure	NEMA 4X, UL approved enclosure	NEMA 4X, UL approved enclosure
Weight	7 lbs.	7 lbs.	9 lbs.

Scaleton Industries Ltd.

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ELECTRICAL GENERAL NOTES AND SPECIFICATIONS:

GENERAL NOTES

- OBTAIN AND PAY FOR ALL PERMITS, LICENSES, INSPECTIONS, APPROVALS AND FEES REQUIRED AND ENSURE THAT THE ENTIRE ELECTRICAL INSTALLATION CONFORMS TO CODES AND REGULATIONS REQUIRED BY AUTHORITY OR AGENCY HAVING JURISDICTION OVER THE INSTALLATION, ALTERATION OR CONSTRUCTION OF WORK INCLUDED. ALL FEES SHALL BE INCLUDED IN THE BASE PROPOSAL.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (N.E.C.), N.F.P.A., O.S.H.A., LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.
- ALL POWER WIRING 120 VOLTS AND GREATER SHALL BE INSTALLED IN CONDUIT AND SHALL BE NEW. UNLESS NOTED OTHERWISE, RIGID GALVANIZED STEEL SHALL BE USED WHERE CONDUIT IS EXPOSED. PVC COATED RGS CONDUIT SHALL BE USED IN AREAS THAT ARE CORROSIVE AND/OR CLASSIFIED.
- ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A 1/4" DIA. POLYPROPYLENE FISHLINE.
- ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
- ALL ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS AND METALLIC SUPPORT RACKS SHALL HAVE A MINIMUM #2 BARE COPPER GROUND CONDUCTOR BETWEEN THE MOTOR, FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
- ALL MATERIALS USED SHALL BE NEW AND BEAR THE U.L. LABEL WHERE SUCH SERVICE AND LABEL ARE REGULARLY PROVIDED AND BE OF THE APPROPRIATE NEMA STANDARD.
- THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR AS INDICATED ON PLANS AND AS REQUIRED FOR A COMPLETE, REVISED ELECTRICAL SYSTEM.
- ALL THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION. ALL HARDWARE SHALL BE STAINLESS STEEL.
- EACH OF THE SPECIFIED EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL BY REFERENCE TO MANUFACTURER AND SPECIFIC CATALOG AND MODEL NUMBER.
- THE CONTRACTOR SHALL VISIT THE JOB SITE, THOROUGHLY CHECK THE EXISTING FIELD CONDITIONS AND EXISTING ELECTRICAL INSTALLATIONS, AND CLARIFY ALL DISCREPANCIES WITH THE ENGINEER BEFORE SUBMITTING A BID, AS NO EXTRAS WILL BE ALLOWED FOR OMITTED WORK DUE TO FAILURE TO INSPECT THE PREMISES.
- ON COMPLETION OF WORK AND BEFORE FINAL PAYMENT IS MADE, THIS CONTRACTOR SHALL PREPARE "AS-BUILT DRAWINGS" CLEARLY INDICATE ON A SET OF CONTRACT DRAWINGS ALL THE CHANGES MADE DURING CONSTRUCTION, DUE TO FIELD CONDITIONS, ADDENDA, BULLETINS, ETC. DRAWINGS SHALL INDICATE THE INSTALLED LOCATION OF ALL EQUIPMENT, OUTLETS, ETC.
- WHEN THE JOB IS COMPLETE, CONTRACTOR SHALL PROVIDE THE OWNER WITH CERTIFICATE OF APPROVAL FROM THE ELECTRICAL INSPECTION AUTHORITY AND SHALL PROVIDE THE OWNER WITH A ONE YEAR WRITTEN GUARANTEE ON ALL NEW MATERIALS AND LABOR.
- RE-SUPPORT EXISTING CONDUIT, BOXES, ETC. WHERE CEILING OR SUPPORT REVISIONS NECESSITATES NEW SUPPORTS. ALL WORK SHALL BE COORDINATED WITH OTHER DISCIPLINES.
- ALL DEMOLISHED ITEMS SHALL BE DISPOSED OF AWAY FROM THE SITE.

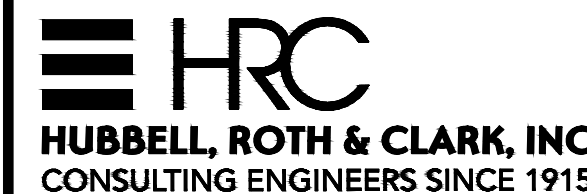
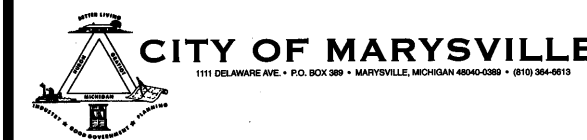
BASIC MATERIALS AND METHODS

- WIRE FOR GENERAL USE SHALL BE COPPER, TYPE THHN/THWN, 90 DEGREES C. ALUMINUM WIRE SHALL NOT BE USED. ALL WIRE SHALL BE RATED AT 600 VOLTS, WET AND DRY LOCATION, MINIMUM SIZE NO. 12 A.W.G. INSTALLED IN CONDUIT, SIZED AS SHOWN ON THE DRAWINGS, MINIMUM SIZE 3/4".
- INSTRUMENTATION CABLE SHALL BE SINGLE TWISTED PAIR, NO. 18 GAUGE, STRANDED CONDUCTORS WITH SHIELD, DRAIN WIRE, AND OVERALL JACKET. CONDUCTORS SHALL BE TINNED COPPER, INSULATION SHALL BE POLYETHYLENE, AND RATED 300 VOLTS. CABLE SHALL BE AS MANUFACTURED BY BELDEN NO. 8760, SOUTHWIRE CORPORATION, OR GENERAL CABLE/CAROL BRAND NO. C2534.
- BOXES SHALL BE GALVANIZED STEEL, CODE THICKNESS, A MINIMUM OF 1" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICES THEY SERVE. ACCORDING TO N.E.C. REQUIREMENTS. PULL BOXES FOR ALL CONDUIT RUNS FOR ALL SYSTEMS SHALL BE INSTALLED AT INTERVALS NOT EXCEEDING 100 FEET OR AFTER 360 DEGREES OF BENDS.

- CONDUITS SHALL NOT BE SUPPORTED FROM MECHANICAL DUCTS, PIPE, OR PIPE AND DUCT SUPPORTS.
- ELECTRIC SYSTEM GROUNDING SHALL IN ALL INSTANCES COMPLY WITH THE MINIMUM REQUIREMENTS OF THE N.E.C. ALL CONDUITS SERVING WRING OF 120 VOLTS OR GREATER SHALL INCLUDE A GROUND WIRE.
- ELECTRICAL ENCLOSURES, CONDUIT SYSTEMS, ETC., SHALL BE THOROUGHLY GROUNDED IN ACCORDANCE WITH THE N.E.C. AND ALL LOCAL CODES.
- QUADRUPLX RECEPTACLES SHALL BE 20 AMP, 125 VOLT, 3 WIRE, GROUNDING TYPE BY HUBBELL, GE, COOPER, OR EQUAL.
- WHERE INDICATED ON THE DRAWINGS, PROVIDE MODIFICATIONS TO EXISTING PANELBOARDS AS REQUIRED. PANELBOARDS SHALL BE MODIFIED BY THE ADDITION OF NEW DEVICES, CONNECTIONS TO EXISTING DEVICES, AND/OR DISCONNECTION FROM EXISTING DEVICES. CIRCUIT BREAKERS FOR ADDITION TO EXISTING PANELBOARDS SHALL BE THE PANELBOARD MANUFACTURER'S COMPATIBLE REPLACEMENT PARTS AND SHALL MATCH THE PANELBOARD'S EXISTING BREAKER INTERRUPTING RATINGS. BREAKER TRIP RATINGS AND NUMBER OF POLES SHALL BE INDICATED ON THE DRAWINGS.
- RIGID STEEL CONDUITS SHALL CONSIST OF HEAVY WALL, MILD STEEL TUBE, HOT-DIPPED GALVANIZED WITH THREADS ELECTROGALVANIZED AFTER CUTTING, AS MANUFACTURED BY WHEATLAND TUBE, ALLIED TUBE, OR EQUAL. PVC SCHEDULE 80 CONDUIT SHALL BE EXTRA HEAVY WALL WITH INTEGRAL BELL AND SHALL BE BY THOMAS & BETTS - CARLON, JM EAGLE, OSBURN, OR EQUAL.
- PVC COATED RIGID METAL CONDUIT AS MANUFACTURED BY ABB OCAL BLUE OR ROBOY INDUSTRIES PLASTI-BOND RED H20T IN CLASS 1, DIVISION 1 AREAS. THE RIGID METAL CONDUIT SHALL BE ENCASED ON THE EXTERIOR WITH 0.040 INCH (40 MILS) THICK PVC AND HAVE A 0.002 INCH (2 MILS) THICK URETHANE COATING OR 0.003 INCH (3 MILS) THICK PHENOLIC COATING ON THE INTERIOR. ALL FITTINGS AND FASTENERS SHALL HAVE THE SAME PVC COATING AS ON THE EXTERIOR OF THE CONDUIT.
- LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE INTERLOCKED STEEL CONSTRUCTION WITH PVC JACKET AS MANUFACTURED BY ANACONDA "SEALTITE" TYPE LA, ELECTRIFLEX, AFC, THOMAS & BETTS CORP. OR APPROVED EQUAL.
- ALL CONDUIT RUNS (POWER AND CONTROL) SHALL BE LABELED IN ACCORDANCE WITH ANSI 13.1 WITH LABELS THAT ARE WATER-RESISTANT. CIRCUIT NUMBER MARKERS SHALL CONSIST OF SELF-ADHESIVE VINYL CLOTH OR POLYVINYL FLUORIDE FILM MARKERS WITH 1/8" HIGH (MINIMUM), BLACK LETTERING ON A YELLOW BACKGROUND, W.H. BRADY CO. MARKERS MAY ALSO CONSIST OF COMPUTER GENERATED, VINYL CLOTH, PERMANENT, NON-SMEARING, SELF-ADHESIVE MARKERS SUCH AS BRADY DATAB, BRADYMARKER XC PLUS, 3M SCOTCHCODE SCS OR STS, OR EQUAL. CIRCUIT NUMBER MARKERS FOR PANELBOARD CIRCUIT BREAKERS MAY BE THE MANUFACTURER'S STANDARD.
- RADAR TYPE LEVEL TRANSMITTERS SHALL BE AS MANUFACTURED BY VEGA "VEGAPULS 31". TRANSMITTER SHALL INCLUDE 4-20MA OUTPUT, ON-SITE DISPLAY, PROGRAMMING VIA BLUETOOTH, NON-CONTACT 80GHZ RADAR, 1 1/2" NPT PROCESS CONNECTION. SEE CUTSHEETS, THIS DRAWING.
- SCALE SHALL BE AS MANUFACTURED BY SCALETRON, MODEL 4021-18 WITH ACCUPRO 5000-EK CONTROLLER. CONTROLLER SHALL BE PROVIDED WITH 4-20MA OUTPUT, 120V CORD CONNECTION, AND MANUFACTURER'S CABLE BETWEEN SCALE AND CONTROLLER. SCALE BASE SHALL BE 18" BASE WITH A CAPACITY UP TO 400 LBS. SEE CUTSHEETS, THIS DRAWING.

SEQUENCE OF OPERATION

- THE EXISTING CHEMICAL FEED CONTROL PANEL SHALL BE REPROGRAMMED TO ACCEPT THE NEW LEVEL SIGNAL FROM THE FLUORIDE BULK TANK, AND THE WEIGHT FROM THE FLUORIDE DAY TANK. THE EXISTING PROGRAMMING OF THE FLUORIDE METERING PUMP SHALL BE REVISED SUCH THAT IT RUNS ONLY WHEN THE FLOW METER IS READING FLOW, AND THE LOW SERVICE PUMP IS RUNNING. THE OWNER WILL PERFORM THE PROGRAMMING, COORDINATE WITH THE OWNER.



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Specification sheet

VEGAPULS 31

Two-wire 4 ... 20 mA/HART

Radar sensor for continuous level measurement



Technical data

Measuring range up to	15 m (49.21 ft)
Deviation	≤ 2 mm
Beam angle	8°
Measuring frequency	W-band (80 GHz technology)
Output signal	4 ... 20 mA/HART
Process fitting	Thread G1½, 1½ NPT, R1½
Process pressure	-1 ... +3 bar (-100 ... +300 kPa/-14.5 ... +43.5 psig)
Process temperature	-40 ... +80 °C (-40 ... +176 °F)
Bluetooth standard	Bluetooth 5.0
Bluetooth range	typically 25 m (82 ft)
Operating voltage	12 ... 36 V DC
Protection rating	IP66/IP67 acc. to IEC 60529, Type 4X acc. to UL 50

Materials

The wetted parts of the instrument are made of PVDF. The process seal is made of FKM.
A complete overview of the available materials and seals can be found on our homepage under "Products" and "Configure & Order".

Housing versions

The housing is made of PBT plastic and is available in protection rating IP66/IP67.

Electronics versions

The instrument is available in the 4 ... 20 mA/HART electronics version.

Approvals

Worldwide approvals are available for VEGA instruments, e.g. for use in hazardous areas, on ships or in hygienic applications.
For approved devices (e.g. with Ex approval) the technical data in the respective safety instructions are applicable.

You can find detailed information in the available approvals on our homepage under "Downloads".

Application area

The VEGAPULS 31 is the ideal radar sensor for non-contact level measurement in standard applications in all industrial plants. It is particularly suitable for level measurement and measured value visualization in water treatment, storage tanks with acids and lyes, additives in all industrial areas or for measuring levels through a plastic tank or IBC container.

The sensor is suitable both for measuring liquids and for use on small bulk solids silos or bulk solids containers.

Your benefit

- Maintenance-free operation due to non-contact 80 GHz radar technology
- Exact measurement results independent of medium properties and process conditions
- Local display for easy checking of the level. Maintenance-free operation due to non-contact measuring principle

Function

The sensor emits a continuous radar signal through the antenna. The emitted signal is reflected by the medium and received as an echo by the antenna.

The frequency difference between the emitted and received signal is proportional to the distance and depends on the filling height. The determined filling height is converted into a respective output signal and output as measured value.



Specification sheet

Adjustment

Adjustment on site
On-site adjustment of the device is carried out via the integrated display and adjustment unit.

Adjustment via the signal cable
The adjustment of the instrument is carried out via the interface adapter VEGACONNECT and a PC with the adjustment software PACTware and corresponding DTM.

Wireless adjustment via Bluetooth

The Bluetooth version of the device enables wireless connection to smartphones/tablets (iOS/Android) or Windows PCs.



Wireless connection to standard operating devices

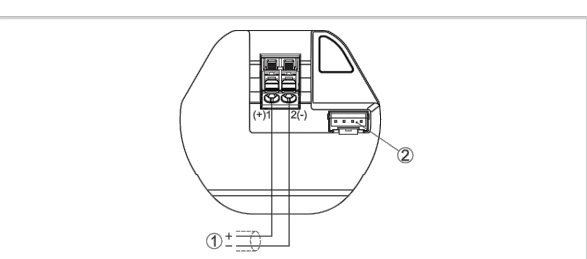
Operation is via a free app from the "Apple App Store", the "Google Play Store" or the "Baidu Store". Alternatively, adjustment can also be carried out via PACTware/DTM and a Windows PC.



Adjustment via PACTware or app

Adjustment via remote systems
Further adjustment options are possible via a HART Communicator as well as manufacturer-specific programs such as AMS™ or PDM.

Electrical connection

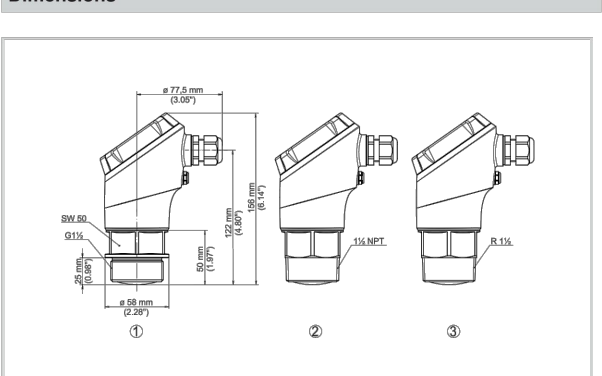


Connection compartment VEGAPULS 31

- Voltage supply, signal output
- Plug connector for the display and adjustment module or interface adapter

You can find details on electrical connection in the instrument operating instructions at www.vega.com/downloads.

Dimensions

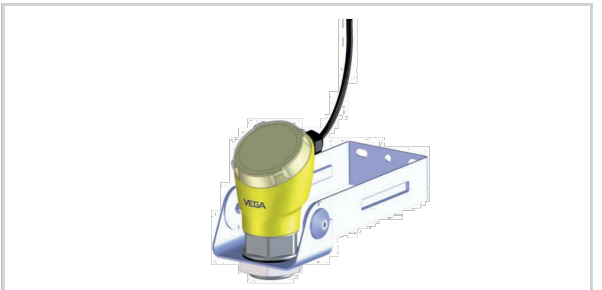


Dimensions VEGAPULS 31

- Thread G1½
- Thread 1½ NPT
- Thread R1½

Mounting accessories

For the VEGAPULS 31 the suitable mounting accessories for ceiling or wall mounting is available.



Mounting strap with adjustable sensor holder for sensors with lateral cable outlet - Wall mounting (example)
You can find further information on the mounting accessory on our homepage.

Information

You can find further information on the VEGA product line on our homepage.

In the download section of our homepage you'll find operating instructions, product information, industry brochures and approval documents as well as device and adjustment software.

Instrument selection

On our homepage under "Products" you can select the suitable measuring principle and instrument for your application.
There you will also find detailed information on the available device versions.

Contact

You can find your personal contact person at VEGA on our homepage under "Contact".