FINAL SITE PLAN / CONSTRUCTION PLAN

FOR

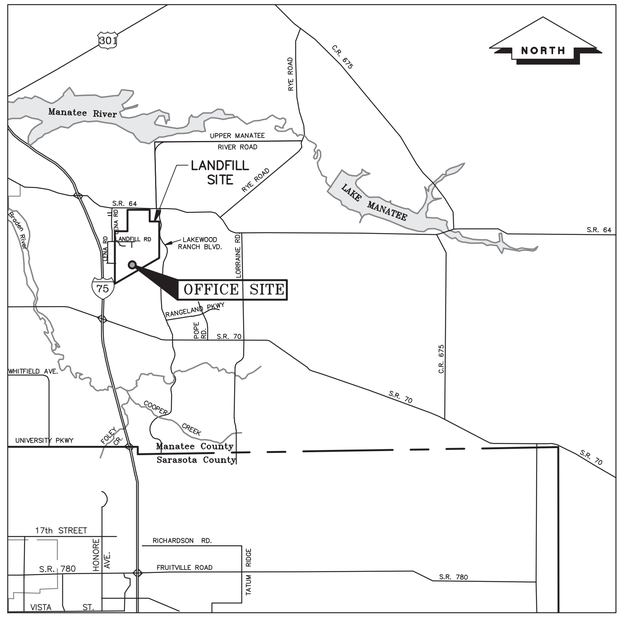
LENA ROAD OFFICE SITE

GENERAL NOTES

1. THE LANDFILL SITE CONSISTS OF APPROXIMATELY 1,170 ACRES. THE OFFICE SITE PROJECT AREA WILL BE 3.28 ACRES.
2. THE LENA LANDFILL SITE HAS ZONING CLASSIFICATIONS OF PD-C, NC-S, PD-R, PR-M, A-1, A, PD-PI, LM, PD-I AND PD-MU. FUTURE LAND USES INCLUDE: MU, RES-6, IL, P/SP-1, ROR AND UF-3.
3. THE OFFICE SITE IS TOTALLY CONTAINED WITHIN THE LANDFILL SITE.
4. TOPOGRAPHIC INFORMATION TAKEN FROM SURVEY INFORMATION PROVIDED BY LF&K, (AUGUST 2013). ELEVATIONS BASED ON 1929 NGVD. THE CONVERSION FACTOR FROM NGVD 1929 DATUM TO NAVD 1988 DATUM IS - 0.96 FT. AS CALCULATED UTILIZING THE NATIONAL GEODETIC SURVEYS "VERTCON" CONVERSION PROGRAM.
5. THE OFFICE SITE LIES IN FLOOD ZONE X, MAP NO. 12081C0329E (2014). THIS OFFICE SITE IS NOT IN THE 100 YR. FLOODPLAIN.
6. VEGETATION AND WILDLIFE REPORT BY ECO CONSULTANTS, DATED AUGUST 2013.
7. THE OFFICE SITE WILL CONSIST OF A 2 STORY STRUCTURE WITH OFFICE, STORAGE AND WAREHOUSE USES. TWO (2) COVERED PARKING AREAS ARE ALSO PROPOSED.
8. OPEN SPACE CONSISTING OF GRASS, LANDSCAPING AND DRY RETENTION AREAS IS 1.89 ACRES OR 58%.
9. BUILDING INFORMATION:
   - OFFICE AREA ..... 4,050 S.F.
   - MEZZANINE (STORAGE) ..... 3,517 S.F.
   - WAREHOUSE ..... 9,347 S.F.
   - 16,914 S.F.

   IN ADDITION, A 468 S.F. SCREENED PORCH AND TWO (2) COVERED PARKING AREAS (2,046 S.F. AND 1,432 S.F.) ARE PROPOSED.
10. THE PARKING REQUIREMENTS FOR THIS SITE ARE 1 SPACE PER 250 S.F. OF GROSS OFFICE AREA PLUS 1 SPACE PER 1,000 S.F. OF REMAINING GROSS FLOOR AREA, PLUS 1 SPACE PER COMPANY VEHICLE. A BREAKDOWN IS AS FOLLOWS:
    - OFFICE AREA ..... 4,050 S.F. / 250 = 16 SPACES
    - OTHER GROSS FLOOR AREA ..... 12,864 / 1000 = 13 SPACES
    - COMPANY VEHICLES (MAX.) ..... = 7 SPACES
    - TOTAL ..... 36 SPACES

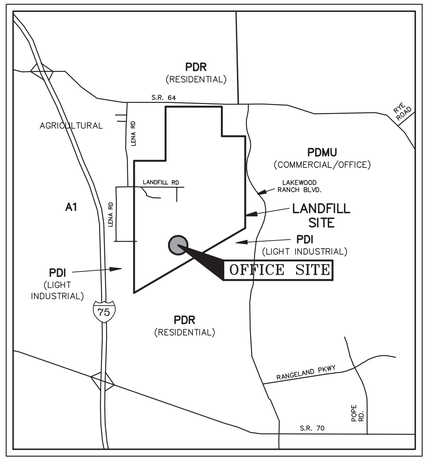
    PARKING PROVIDED = 36 SPACES (2 HC.)
11. THERE ARE NO KNOWN HISTORIC RESOURCES OR BUILDINGS ON OFFICE SITE.
12. ALL PROPOSED SIGNAGE WILL MEET THE REQUIREMENTS OF SECTION 724 OF THE LAND DEVELOPMENT CODE.
13. COMMON OPEN SPACE WILL BE OWNED, MAINTAINED AND CONTROLLED BY THE COUNTY.
14. MAXIMUM BUILDING HEIGHT IS 35'.
15. NO TREE REMOVAL IS REQUIRED.
16. ALL SITE LIGHTING TO MEET MANATEE COUNTY LAND DEVELOPMENT CODE REQUIREMENTS.
17. THERE ARE NO WETLAND IMPACTS PROPOSED WITH THIS PROJECT.
18. CONSTRUCTION SCHEDULE: START - OCTOBER 2014, END - JUNE 2015.
19. OFFICE SITE WATER & SEWER SERVICE WILL BE PROVIDED V/A CONNECTION TO EXISTING MANATEE COUNTY SYSTEMS. ALL WATER AND SEWER LINES ON SITE WILL BE COUNTY MAINTAINED.
20. SOLID WASTE FACILITIES SHALL BE PROVIDED AS REQUIRED BY SECTION 728 OF THE LAND DEVELOPMENT CODE. MANATEE COUNTY TO PROVIDE PICKUP SERVICE.
21. THERE ARE NO EXISTING WELLS ON THE OFFICE SITE.
22. NO EASEMENTS FOR ABOVE GROUND UTILITIES ARE PRESENT.
23. NO PERENNIAL STREAMS ARE ON, OR ADJACENT TO THE OFFICE SITE.
24. SEE LANDSCAPE PLAN FOR LOCATION AND DESCRIPTION OF PLANT MATERIAL.
25. SEE LANDSCAPE IRRIGATION PLAN FOR IRRIGATION SOURCE.



LOCATION MAP

0 1 2 4

SCALE IN MILES



ZONING MAP
N.T.S.

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UTILITY CONSTRUCTION DETAILS	10 – 12
BEST MANAGEMENT PRACTICES DETAILS	13
LANDSCAPE AND IRRIGATION PLANS	LS-01 – LS-05
LIGHTING PLAN	E201 – E202

SECTION 1, TWP. 35S., RGE. 18E.
SECTION 6, TWP. 35S., RGE. 19E.
Manatee County, Florida

DATE: AUGUST, 2014

Manatee County Building and Development Services Department Signature Block

Project number: _____ Project Name: LENA RD. OFFICE SITE

Approval Type: FINAL SITE PLAN / CONSTRUCTION PLAN DTS Number: _____

PROJECT PLANNER	_____	DATE _____
PROJECT ENGINEER	_____	DATE _____
CONCURRENCY	_____	DATE _____
ENVIRONMENTAL PLANNING	_____	DATE _____
ENVIRONMENTAL HEALTH	_____	DATE _____
FIRE DISTRICT	_____	DATE _____

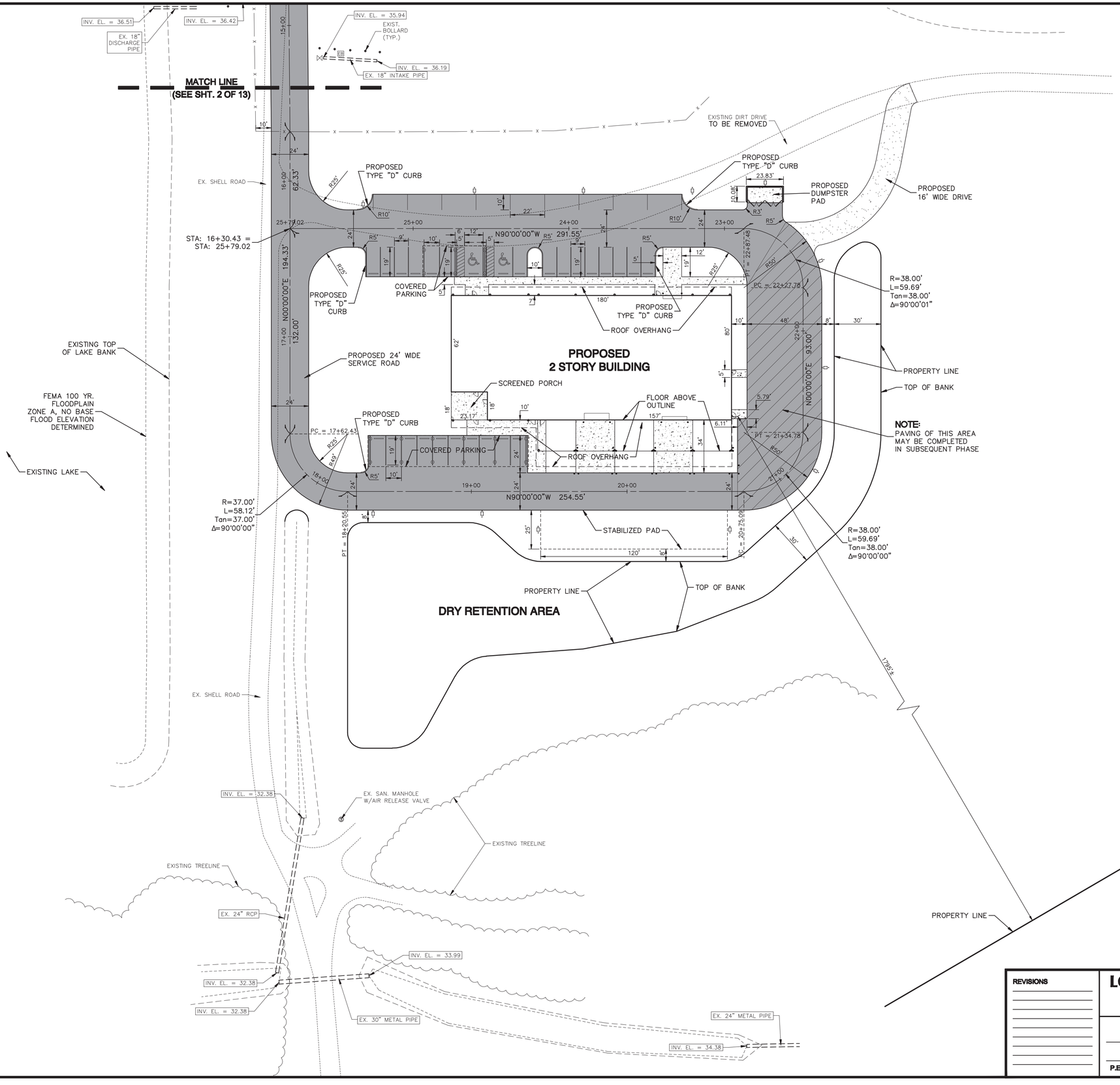
Attention: The combination of this signed plan and accompanying approval letter constitutes the complete approval document. Both documents should be provided to interested parties and submitted with any building permit application. There may be other documents, including a CLOS that affect this project approval.

Rec'd by OWNER/AGENT: _____ DATE _____

CLIENT: MANATEE COUNTY

LOMBARDO, FOLEY & KOLARIK, INC.
Consulting Engineers, Surveyors and Planners
P.O. Box 188 • 825 4th Street West • Palmetto, Florida 34221 • (941) 722-4561

Z:\Master Drawings\LENA RD LANDFILL\LENA RD LANDFILL-FT.dwg, 8/28/2014 8:58:08 AM, pete, 1:1000



LEGEND

- NEW PAVEMENT
- PROPOSED SIDEWALK OR CONCRETE SLAB
- EXISTING DRAINAGE
- PROPOSED PARKING LIGHTING (SEE MECHANICAL LIGHTING PLAN FOR EXACT POLE LOCATION)

NOTES

1. BOUNDARY DATA SHOWN FOR INFORMATION PURPOSES ONLY, AND THEREFORE, DOES NOT CONSTITUTE A BOUNDARY SURVEY.
2. DIMENSIONS TO ALL PAVEMENT AND CURB RADII SHOWN ARE TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.
3. ALL EDGE OF PAVEMENT RADII ARE 5' UNLESS OTHERWISE NOTED.
4. THE DIMENSIONS SHOWN ON THESE DRAWINGS ARE DISPLAYED ONLY TO THE NEAREST HUNDREDTH OF A FOOT (0.01 FT.) BECAUSE OF AUTOMATIC ROUNDING FEATURES USED IN THE CALCULATION PROCESS, A PARTICULAR STRING OF NUMBERS MAY NOT NECESSARILY ADD UP TO EQUAL THE LENGTH OF AN ENTIRE LINE.

NORTH

0 15 30 60
SCALE IN FEET

FINAL SITE PLAN / PROJECT CONTROL

LENA ROAD OFFICE SITE

REVISIONS

LOMBARDO, FOLEY & KOLARIK, INC.
Consulting Engineers, Surveyors and Planners
P.O. Box 188 • 825 4th Street West • Palmetto, Florida 34221 • (941) 722-4561

PROJECT ENGINEER
JOHN R. FOLEY
38630
P.E. REG. NO.

DESIGN JRF. DATE 06/24/14
DRAWN PG. SCALE 1"=30'
APPR. JRF. JOB NO. 7851

SHEET NO. 1 / 13

Z:\Master Drawing\LENA RD LANDFILL\LANDFILL-PC.dwg, 8/20/2014 8:23:28 AM, pete, 1:30

PowerSecure

SUBMITTAL FOR APPROVAL

Construction Drawing
Manatee County
Water Treatment

66000-0655 REV A

PowerSecure | 4068 Stirrup Creek Dr, Durham, NC 27703 | 919.556.3056 | powersecure.com

Project ID: 104474 Release Date: 12/17/2025

For Customer Completion:

- ☐ Approved
- ☐ Approved as Noted
- ☐ Revise and Resubmit
- ☐ Not Approved
- ☐ For Record

Reviewer Name	Reviewer Title	Review Date

Disclaimer

PowerSecure, Inc. (“PowerSecure”) provides the following submittal pursuant to its contractual agreement with Florida Power and Light Lake Manatee Water Plant (“Customer”). This submittal was prepared based on the information contained in PowerSecure submittal drawings.

Upon approval, PowerSecure will proceed with manufacturing the equipment as shown in this submittal. The enclosed drawings show the dimensions of the equipment that will be manufactured. This submittal does not reflect all installation requirements for the equipment or required construction practices, means, or methods. To the extent this submittal was developed based on Customer-supplied information or design documents, PowerSecure shall not be responsible for errors or omissions in such Customer-supplied data. To the extent PowerSecure is not installing the equipment covered by this submittal, the installing contractor shall be responsible for installing the equipment in accordance with industry standards and the installation manuals, including without limitation verifying all field conditions and site measurements prior to installation.

Any comments, requests, or changes after PowerSecure, Inc. receives a “Reviewed” or “Approved” stamp require an official change order from Customer and may result in a change to PowerSecure’s contract price or time for performance. Any requests for acceleration to deliverables requires an additional Purchase Order and is not guaranteed. For submittals marked “Revise and Resubmit" or "Approved as Noted" etc., PowerSecure will review all notes and provide feedback in written form or via meeting minutes.

GOVERNING AGENCIES CONTACTS:

BUILDING & INSPECTIONS DEPARTMENT:
MANATEE COUNTY BUILDING DIVISION
9000 TOWN CENTER PARKWAY
LAKEWOOD RANCH, FL, 34202
PHONE: (941) 749-3012

FIRE DEPARTMENT:
BRADENTON FIRE DEPARTMENT
1010 9TH AVENUE WEST
BRADENTON, FL, 34205
PHONE: (941) 932-9600

UTILITY CONTACTS:
ELECTRIC COMPANY:
FLORIDA POWER & LIGHT COMPANY
508 44TH AVENUE E STE E 19
BRADENTON, FL, 34203
PHONE: (941) 917-0708

CODE STANDARDS

1. NFPA 70: NATIONAL ELECTRIC CODE (2020)
2. NFPA 30: FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE (2021)
3. NFPA 37: STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES (2021)
4. FFPC: FLORIDA FIRE PREVENTION CODE (2023)
5. FBC: FLORIDA BUILDING CODE (2023)

VICINITY MAP
Scale: NTS

N

9,375kW STANDBY/8,100kW LTP DISTRIBUTED GENERATION SYSTEM

FOR

FLORIDA POWER AND LIGHT LAKE MANATEE WATER PLANT

FPL

17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PowerSecure

POWERSECURE:
4068 STIRRUP CREEK DR.
DURHAM, NC 27703
PHONE: (919) 556-3056

DECEMBER 17, 2025

PROJECT NUMBER: 104474

POWERSECURE CONTACT

PROJECT MANAGER:
NAME: CHRIS FAUSEL
PHONE: (770) 776-9561

ELECTRICAL ENGINEER:
NAME: MARTIN LEIBOLD
P.E.: #58668
PHONE: (919) 818-8337

PERMIT/SEAL

PRELIMINARY
NOT FOR CONSTRUCTION

CONFIDENTIAL & PROPRIETARY

REVISIONS

REV. ID	REVISION DESCRIPTION	REV. DATE

SHEET INDEX

SHEET INDEX	DESCRIPTION	REVISION
E1	GENERAL NOTES, LEGEND, & ABBREVIATIONS	
E1.1	DESCRIPTION OF PROJECT SCOPE & OPERATION	
E1.2	PROJECT SPECIFICATIONS	
E2	KEY NOTES	
E2.1	ELECTRICAL DISTRIBUTION DIAGRAM - EXISTING 'SWGR-1'	
E2.2	ELECTRICAL DISTRIBUTION DIAGRAM - NEW 'MVSWGR-1'	
E2.3	ELECTRICAL DISTRIBUTION DIAGRAM - NEW GENERATION	
E3	SITE REFERENCE PLAN	
E4	ENLARGED PARTIAL SITE PLAN	

GENERAL NOTES

GENERAL NOTES:

A. THE DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTIALLY DIAGRAMMATIC, THEY ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS, OR TO SERVE AS SHOP DRAWINGS OR PORTIONS THEREOF.

B. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR AND ALL THE SUBCONTRACTORS SHALL VERIFY ALL GRADES, LINES, LEVELS, DIMENSIONS AND COORDINATE EXISTING CONDITIONS AT THE JOB SITE WITH THE PLANS AND SPECIFICATIONS. THEY SHALL REPORT ANY INCONSISTENCIES OR ERRORS IN THE ABOVE TO THE ENGINEER BEFORE COMMENCING WORK. THE CONTRACTOR AND SUBCONTRACTORS SHALL LAY OUT THEIR WORK FROM ESTABLISHED REFERENCE POINTS AND BE RESPONSIBLE FOR ALL LINES, ELEVATIONS AND MEASUREMENTS IN CONNECTION WITH THEIR WORK.

C. IF ANY ERRORS OR OMISSIONS APPEAR IN THE DRAWINGS, GENERAL NOTES OR OTHER DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH OMISSION OR ERROR PRIOR TO PROCEEDING WITH ANY WORK WHICH APPEARS IN QUESTION. IN THE EVENT OF THE CONTRACTOR'S FAILING TO GIVE SUCH AN ADVANCED NOTICE, HE OR SHE SHALL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS OR OMISSIONS AND THE COST OF RECTIFYING THE SAME.

D. THE CONTRACTOR SHALL USE THE STRUCTURAL DRAWINGS AND SPECIFICATIONS TOGETHER WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND OTHER TRADE DRAWINGS AND SHOP DRAWINGS, TO LOCATE DEPRESSED SLABS, SLOPES, DRAINS, OUTLETS, RECESSES, OPENINGS, BOLT SETTING, SLEEVES, DIMENSIONS, ETC. NOTIFY ENGINEER, IN WRITING, OF ANY POTENTIAL CONFLICTS BEFORE PROCEEDING WITH THE WORK.

E. EXISTING STRUCTURES AND/OR EXISTING STRUCTURAL CONDITIONS SHOWN IN THESE DOCUMENTS HAVE BEEN OBTAINED BY THE ENGINEER TO THE EXTENT POSSIBLE DURING THE DESIGN OF THE PROJECT, AND IS BASED ON EXISTING LEGIBLE PLANS (IF AVAILABLE) AND/OR LIMITED FIELD INVESTIGATION. THIS INFORMATION MAY BE PARTIAL, INCOMPLETE OR INACCURATE. AS SOON AS THE CONTRACTOR HAS GAINED ACCESS TO THE SITE, THE EXISTING ELEMENTS THAT ARE AFFECTED BY, OR AFFECT THE NEW CONSTRUCTION, SHALL BE EXPOSED AND FULLY INVESTIGATED AS REQUIRED TO DETERMINE THEIR STRUCTURAL INTEGRITY, CAPACITY AND GENERAL CONDITION. NO NEW WORK SHALL COMMENCE UNTIL EXISTING CONDITIONS HAVE BEEN CONFIRMED, REPORTED TO THE ENGINEER OR OBSERVED BY THE ENGINEER FOR A POSSIBLE MODIFICATION OR REDESIGN.

F. ALL REFERENCED STANDARDS REFER TO THE EDITION IN FORCE AT THE TIME THESE PLANS AND SPECIFICATIONS ARE ISSUED FOR PERMIT.

G. DETAILS LABELED "TYPICAL" SHALL APPLY TO ALL SITUATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY DETAILED. SEE DETAIL TITLES FOR APPLICABILITY OF A PARTICULAR DETAIL. TYPICAL DETAILS SHALL APPLY WHETHER OR NOT THEY ARE SPECIFICALLY KEYED AT EACH LOCATION. THE ENGINEER SHALL HAVE FINAL AUTHORITY TO DETERMINE APPLICABILITY OF TYPICAL DETAILS.

H. THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM ALL DAMAGE.

I. JOB SAFETY AND CONSTRUCTION PROCEDURES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

LEGEND & ABBREVIATIONS

TRANSFORMER

GENERATOR

METER

DISCONNECT SWITCH

FUSED DISCONNECT SWITCH

FUSE

CURRENT TRANSFORMER (CT)

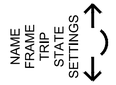
POTENTIAL TRANSFORMER (PT)

FUSED DISCONNECT SWITCH

DISCONNECT SWITCH

LV CIRCUIT BREAKER

LV DRAWOUT CIRCUIT BREAKER



LV POWER CIRCUIT BREAKER

RECLOSER

KIRK KEY

GROUND

ANSI IDENTIFICATION

SPARE CONDUIT

INVERTER

PV CELL

BATTERY

1P	1 POLE
2P	2 POLE
3P	3 POLE
4P	4 POLE
3W	3 WIRE
4W	4 WIRE
ϕ	PHASE
A	AMPERES
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AL	ALUMINUM
AT	AMPERE TRIP
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
BAS	BUILDING AUTOMATION SYSTEM
BESS	BATTERY ENERGY STORAGE SYSTEM
BOL	BEGINNING OF LIFE
°C	CELSIUS
C	CONDUIT
CN	CHASE NIPPLE
CONC	CONCRETE
CTT	CLOSED TRANSITION TRANSFER
CU	COPPER
DC	DIRECT CURRENT
DIA	DIAMETER
DIM	DIMENSION
EX	EXISTING
°F	FAHRENHEIT
G	GROUND
kAIC	KILO AMPERE INTERRUPTING CAPACITY
kcmil	KILO CIRCULAR MILS
kVA	KILO-VOLT-AMPERES
kW	KILO-WATT
kWh	KILO-WATT HOUR
LTP	LIMITED-TIME-POWER
LV	LOW VOLTAGE
LSI	LONGTIME/ SHORTTIME/ INSTANTANEOUS
LSIG	LONGTIME/ SHORTTIME/ INSTANTANEOUS/ GROUND
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
ms/MS	MILLISECOND
MSB	MAIN SWITCHBOARD
MV	MEDIUM VOLTAGE
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N.C.	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
N.O.	NORMALLY OPEN
NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY
NTS	NOT TO SCALE
OTT	OPEN TRANSITION TRANSFER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
PSI	POUNDS PER SQUIRE INCH
PSF	POUNDS PER SQUARE FOOT
PU	PER UNIT
PV	PHOTOVOLTAIC
QTY	QUANTITY
REQ'D	REQUIRED
SEC	SECOND
SCH/SH	SCHEDULE
SF	SQUARE FOOTAGE
SS	STAINLESS STEEL
TBD	TO BE DETERMINED
TCC	TIME CURRENT CURVE
TYP	TYPICAL
UG	UNDERGROUND
UTIL	UTILITY
UPR	UTILITY PROTECTIVE RELAY
V	VOLTS
VA	VOLT-AMPERE
VLDD	VISIBLE LOCKABLE DISCONNECT DEVICE
XFMR	TRANSFORMER

PowerSecure
4068 STIRRUP CREEK DR.
DURHAM, NC 27703
1-866-DG-SKILL

A/E/C:

NOTES:

CONFIDENTIAL & PROPRIETARY

REV.	DATE	DESCRIPTION

DWN. BY: ST
CHK. BY: CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

TITLE:

GENERAL NOTES, LEGEND & ABBREVIATIONS

DATE: DECEMBER 17, 2025

DRAWING:

E1

Plot Date:12/17/2025

PROJECT SCOPE & OPERATION

I. Description of Project Scope & Operation

A. General

1. The purpose of this Project is to provide Manatee County Water Treatment Plant with an Interactive Distributed Generation (iDG) System for electrical Load Management and Optional Standby purposes in accordance with NEC article 702.

2. The iDG® System will consist of the following:

Item #	Equipment ID	General Description	Qty
		Manufactured Equipment	
1.0	PowerBlock Generator "PBGE_"	3125kW, T4F,Level II SA, WP1	3
1.1	Powerblock 'TCC_'	5000A, 480/277V, 100kAIC, UL891	3
1.2	Generator Control Cabinet 'GCC'	1200A, 480/277V, 100kAIC, UL891	15
1.3	PowerBlock Fuel Tank	7500 Gallon UL142 double-walled sub-base tank	3
1.4	PowerBlock Def Tank	675 Gallon DEF tank	3
2.0	E-Stop	N3R, Break-glass style	3
3.0	Fuel Polishing Equipment	NEMA 3R	3
4.0	Power Equipment Center 'PEC-1'	Waterproof Walk-in Enclosure w/HVAC, House Power System & 125VDC Battery System	1
4.1	Switchboard 'MVSWGR-1'	2000A, 50kAIC, 5kV Class, Nema 1	1
4.2	Control Cabinet 'CC-1'	NEMA 1	1
5.0	Fuel/DEF Pumping System Control Panel	NEMA 1	1
6.0	Transformer 'T-G_'	3750kVA, Step-up, Oil Filled, Pad-mount Xmfr, 4.16kV, 480/277V, 5.75%Z	3
7.0	Transformer TX 'HP-_'	150kVA,Distribution Xmfr, 4.16kV, 208/120V	2
8.0	Switch 'SW-_'	15kV Class, 3-Way Switch, Pad Mounted	2
9.0	Bulk Fuel Tank	20000 Gallon Bulk Diesel Fuel Tank	2
10.0	Bulk DEF Tank	6000 Gallon Bulk DEF Fuel Tank	1

3. The Electronic Generator Controllers will include the following functions:
   - (A) Engine control
   - (B) Gen-set synchronizing (volts & phase)
   - (C) Automatic start/stop control
   - (D) Digital display of engine and generator data
   - (E) kW load control
   - (F) kVAR load control
   - (G) Gen-set protection
   - (H) Over/under voltage (27/59)
   - (I) Over/under frequency (81O/U)
   - (J) Overcurrent (50/51)
   - (K) Loss of the utility power detection

4. The Main Breakers 52-M1 and 52-M2 will be provided with Utility Grade Protective Relays with the following minimum functions:
   - (A) Phase overcurrent (50/51)
   - (B) Ground overcurrent (50G/51G)

5. Refer to sheet E5 for the iDG® System Grounding detail. The system will be grounded in accordance with all applicable provisions of NEC articles 702 and 250.

6. This Project will include the minor site work and concrete pads necessary to install the iDG® System as shown in this drawing set.

B. iDG® System Sequence of Operation

1. The iDG® System will have the following modes of operation:
   a. Standby Mode - Enables the iDG® System to send power to a dead and isolated Switchboard primary feeder for the duration of an outage with an Automatic Closed Transition (<100ms) return to the utility once service is restored.
   b. Load Curtailment Mode/Isolate (LCM) - Enables Closed Transition (<100ms) operation of the iDG® System with the utility to enable 'blipless' isolated operation of the iDG® System.

2. Normal Conditions
   a. Under Normal Conditions, Manatee Water Treatment Plant will receive power from the Utility.
   b. The iDG® System engine-generators will be at rest during Normal Conditions.
   c. Generator circuit Breakers 52-G1 through 52-G15 will be normally open.
   d. 'MVSWGR-1' main circuit breakers 52-M1 and 52-M2 shall be normally closed.
   e. 'MVSWGR-1' circuit breakers 52-T1 and 52-T2 shall be normally open.
   f. 'MVSWGR-1' circuit breakers 52-F1A, 52-F2A, 52-F1B, and 52-F2B shall be normally closed.
   g. 'MVSWGR-1' circuit breakers 52-GT1, 52-GT2 and 52-GT3 shall be normally closed.
   h. 'SW-1' and 'SW-2' way 3 shall be normally open and all other switched ways shall be normally closed.
   i. The iDG® System is equipped with redundant transfer controllers, each with redundant fail-safe timers.
   j. Redundant fail-safe parallel trip timers (62) will be automatically activated following the failure of a 100ms closed transition transfer. When a breaker designated to open does not open (52-M_ or 52-T_), the system will open the alternate breaker within 215ms and will lockout thereby requiring a manual reset.

3. Standby Mode - Failure of source 52-M1
   a. If loss of voltage and/or frequency is sensed at 52-M1 or 52-M1 trips, the iDG® System shall automatically enter Standby mode to provide automatic restoration of power to the loads. The following shall occur automatically:
      (1) The 'MVSWGR-1' will sense loss of voltage and frequency and send a start signal to generators G1 through G15.
      (2) Circuit breaker 52-M1 will open, isolating the iDG® System from the utility.
      (3) Circuit breakers 52-TCC1 through 52-TCC3 will open.
      (4) The first engine-generator to reach rated voltage and frequency shall be activated through the closing of its respective breaker (52-G1 through 52-G15).
      (5) The remaining engine-generators shall parallel with the first and close their respective circuit breaker (52-G1 through 52-G15).
      (6) The first Powerblock to have at least 4 engine-generators online shall close its respective generator tie breaker (52-TCC1 through 52-TCC3).
      (7) The remanining Powerblocks shall synchronize across and close their respective tie breakers (52-TCC1 through 52-TCC3).
      (8) If at least eight (8) engine generators have synchronized together, 'MVSWGR-1' circuit breaker 52-T1 will close thereby restoring power to failed service.
      (9) If eight (8) generators do not come online after 30 seconds, 'MVSWGR-1' circuit breaker 52-T1 will close and the generators will attempt to carry the facility load.
      (10) The engine-generators can be loaded to their Standby Rating.

   b. If normal power is returned, the iDG® System shall monitor utility availability and automatically initiate a return to normal mode after a predetermined time period of continuous utility availability, set at 5 minutes. "Return to Normal" shall cause the following:
      (1) Synchronize the iDG® System with utility source across 52-M1.
      (2) Close circuit breaker 52-M1 and open circuit breaker 52-T1 via closed transition transfer.
      (3) Open circuit breakers 52-G1 through 52-G15.
      (4) The generators will run through a 5 minute cool-down cycle and shutdown the iDG® System.

4. Standby Mode - Failure of source 52-M2
   a. If loss of voltage and/or frequency is sensed at at 52-M2 or 52-M2 trips, the iDG® System shall automatically enter Standby mode to provide automatic restoration of power to the loads. The following shall occur automatically:
      (1) The 'MVSWGR-1' will sense loss of voltage and frequency and send a start signal to generators G1 through G15.
      (2) Circuit breaker 52-M2 will open, isolating the iDG® System from the utility.
      (3) Circuit breakers 52-TCC1 through 52-TCC3 will open.
      (4) The first engine-generator to reach rated voltage and frequency shall be activated through the closing of its respective breaker (52-G1 through 52-G15).
      (5) The remaining engine-generators shall parallel with the first and close their respective circuit breaker (52-G1 through 52-G15).
      (6) The first Powerblock to have at least 4 engine-generators online shall close their respective generator tie breaker (52-TCC1 through 52-TCC3).
      (7) The remanining Powerblocks shall synchronize across and close their respective tie breakers (52-TCC1 through 52-TCC3).
      (8) If at least eight (8) engine generators have synchronized together, 'MVSWGR-1' circuit breaker 52-T2 will close thereby restoring power to failed service.
      (9) If eight (8) generators do not come online after 30 seconds, 'MVSWGR-1' circuit breaker 52-T2 will close and the generators will attempt to carry the facility load.
      (10) The engine-generators can be loaded to their Standby Rating.

   b. If normal power is returned, the iDG® System shall monitor utility availability and automatically initiate a return to normal mode after a predetermined time period of continuous utility availability, set at 5 minutes. "Return to Normal" shall cause the following:
      (1) Synchronize the iDG® System with utility source across 52-M2.
      (2) Close circuit breaker 52-M2 and open circuit breaker 52-T2 via closed transition transfer.
      (3) Open circuit breakers 52-G1 through 52-G15.
      (4) The generators will run through a 5 minute cool-down cycle and shutdown the iDG® System.

5. Standby Mode - Failure of 52-M1 and 52-M2
   a. If loss of voltage and/or frequency is sensed at both utility services 52-M1 and 52-M2, the iDG® System shall automatically enter Standby mode to provide automatic restoration of power to the loads. The following shall occur automatically:
      (1) The 'MVSWGR-1' will sense loss of voltage and frequency and send a start signal to generators G1 through G15.
      (2) Circuit breakers 52-M1 and 52-M2 will open, isolating the iDG® System from the utility.
      (3) Circuit breakers 52-TCC1 through 52-TCC3 will open.
      (4) The first engine-generator to reach rated voltage and frequency shall be activated through the closing of its respective breaker (52-G1 through 52-G15).
      (5) The remaining engine-generators shall parallel with the first and close their respective circuit breaker (52-G1 through 52-G15).
      (6) The first Powerblock to have at least 4 engine-generators online shall close its respective generator tie breaker (52-TCC1 through 52-TCC3).
      (7) The remanining Powerblocks shall synchronize across and close their respective tie breakers (52-TCC1 through 52-TCC3).
      (8) If at least twelve (12) engine-generators have synchronized together, 'MVSWGR-1' circuit breaker 52-T1 will close.
      (9) After 1 second delay, 'MVSWGR-1' circuit breaker 52-T2 will close thereby restoring power to the facility.
      (10) If twelve (12) generators do not come online after 30 seconds, 'MVSWGR-1' circuit breaker 52-T2 will close and the generators will attempt to carry facility load.
      (9) The engine-generators can be loaded to their Standby Rating.

   b. If normal power is returned to only utility source 52-M1 or 52-M2, the iDG® System shall monitor utility availability and automatically initiate a return to normal mode after a predetermined time period of continuous utility availability, set at 5 minutes. "Return to Normal" shall cause the following:
      (1) Synchronize the iDG® System with the active utility source breaker 52-M_.
      (2) Close active circuit breaker 52-M_ and open respective circuit breaker 52-T_ via closed transition transfer.

   c. If normal power is returned to both utility source 52-M1 and 52-M2, the iDG® System shall monitor utility availability and automatically initiate a return to normal mode after a predetermined time period of continuous utility availability, set at 5 minutes. "Return to Normal" shall cause the following:
      (1) Synchronize the iDG® System with the utility source breaker 52-M1.
      (2) Close circuit breaker 52-M1 and open circuit breaker 52-T1 via closed transition transfer.
      (3) Synchronize the iDG® System with the utility source breaker 52-M2.
      (4) Close circuit breaker 52-M2 and open circuit breaker 52-T2 via closed transition transfer.
      (5) Open circuit breakers 52-G1 through 52-G15.
      (6) The generators will run through a 5 minute cool-down cycle and shutdown the iDG® System.

6. Load Curtailment Mode (Isolate)
   a. The Load Curtailment Mode shall be locally initiated. Once the Load Curtailment Mode is initiated, the following shall occur automatically:
      (1) A Start Signal will be sent to Generators G1 and G15.
      (2) Circuit breakers 52-TCC1 through 52-TCC3 will open.
      (4) The first engine-generator to reach rated voltage and frequency shall be activated through the closing of its respective breaker (52-G1 through 52-G15).
      (5) The remaining engine-generators shall parallel with the first and close their respective circuit breaker (52-G1 through 52-G15).
      (6) The first Powerblock to have at least 4 engine-generators online shall close its respective generator tie breaker (52-TCC1 through 52-TCC3).
      (7) The remanining Powerblocks shall synchronize and close their respective tie breakers (52-TCC1 through 52-TCC3).
      (8) The iDG® System will measure the actual load for 5 minutes (adjustable) and based on that level determine the minimum number of engine-generators required to support loading.
      (9) If the iDG® System determines sufficient generation is available and the minimum number of engines is online, 'MVSWGR-1' circuit breaker 52-T1 will close and 51-M1 will open via closed transition transfer.
      (10) Circuit breaker 52-T2 will close and 52-M2 will open via closed transition transfer.
      (11) If the iDG® System determines sufficient generation is not available, all generators will shut down and the system will revert to Normal Conditions, the Load Curtailment Event will cancel and an alarm shall be created.
      (12) The engine-generators are now carrying the full facility load isolated from the utility.

   b. The iDG® System will remain in this mode until a signal is received signifying the end of a Load Curtailment Period.

   c. Upon receipt of a signal to terminate the Load Curtailment Mode, the following shall occur automatically:
      (1) Synchronize the iDG® System across 52-M1.
      (2) Close circuit breaker 52-M1 and open 52-T1 via closed transition transfer.
      (3) Synchronize the iDG® System across 52-M2.
      (4) Close circuit breaker 52-M2 and open 52-T2 via closed transition transfer.
      (5) Open circuit breakers 52-G1 through 52-G15.
      (6) The generators will run through a 5 minute cool-down cycle and shutdown the iDG® System.

7. Additional System Description
   a. While in any mode and with the Load Dependent Start Stop 'LDSS' switch in the ON position, the Engine-Generation System will maintain a 'N' load capacity. After an adjustable delay (set at 30 minutes), the engine-generators will come off-line (in the order of highest runtime first), while serving capacity. With the 'LDSS' switch in the OFF position, all active engine-generators will run to share load.

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NOTES:

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REV.	DATE	DESCRIPTION

DWN. BY: ST | CHK. BY: CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

TITLE:

DESCRIPTION OF PROJECT SCOPE & OPERATION

DATE: DECEMBER 17, 2025

DRAWING:

E1.1

Plot Date:12/17/2025

PROJECT SPECIFICATIONS

RACEWAYS AND CONDUIT SYSTEMS

A. PROVIDE A COMPLETE CONDUIT SYSTEM WITH ASSOCIATED COUPLINGS, CONNECTORS, AND FITTINGS. RIGID AND EMT CONDUIT SHALL BE HOT DIPPED, GALVANIZED, OR ELECTROGALVENIZED STEEL BY ALLIED, GENERAL ELECTRIC, REPUBLIC, TRIANGLE, OR WHEATLAND. CONDUIT, CONNECTORS, COUPLINGS, AND FITTINGS SHALL BE UL LISTED AND LABELED.
B. PVC CONDUIT SHALL BE FISCHER OR APPROVED EQUIVALENT, SCHEDULE 40 OR 80, 90°C RATED.
C. ASSOCIATED COUPLINGS, CONNECTORS, AND FITTINGS SHALL BE PVC AS MANUFACTURED BY CARLON, FISCHER, OR APPROVED EQUIVALENT.
D. ELECTRICAL METAL TUBING (EMT) WILL BE USED AS FOLLOWS:
    1. ABOVE GRADE FEEDERS, 600V AND BELOW.
E. GALVANIZED RIGID STEEL CONDUIT SHALL BE USED AS FOLLOWS:
    1. FEEDERS EXPOSED TO SEVERE MECHANICAL DAMAGE.
F. POLYVINYL CHLORIDE (PVC) SHALL BE USED AS FOLLOWS:
    1. UNDERGROUND
    2. ABOVE GROUND EXPOSED TO PHYSICAL DAMAGE SHALL BE SCHEDULE 80 PVC
G. CONDUITS WHICH ENTER FROM OUTSIDE A STRUCTURE SHALL BE SLEEVED AND GROUTED-IN TO PREVENT ENTRY OF GASES, VAPORS, INSECTS, AND RODENTS.
H. CONDUITS SHALL BE MECHANICALLY AND ELECTRICALLY CONTINUOUS FROM CABINET TO CABINET PULL OR JUNCTION BOXES.
I. PROVIDE CONDUIT BUSHINGS WHERE THE TERMINATING ENCLOSURE DOES NOT PROVIDE PROTECTION.

CONDUCTORS 600V AND BELOW

A. ALL WIRING FOR A COMPLETE WORKING SYSTEM.
B. CONDUCTORS SHALL BE 98% CONDUCTIVITY CONDUCTORS WITH 600 VOLT INSULATION. CONDUCTORS SHALL BE STRANDED CU TYPE THW, THWN OR STRANDED AL TYPE AA-8000 SERIES XHHW, XHHW-2, RHW
(NO AL FOR #1 AND SMALLER). REFER TO PLANS.
C. COLOR CODE CONDUCTORS FOR 480/277 VOLT SYSTEMS AS FOLLOWS:
    1. PHASE A - BROWN
    2. PHASE B - ORANGE
    3. PHASE C - YELLOW
    4. NEUTRAL - GRAY
    5. GROUND - GREEN
D. COLOR CODE CONDUCTORS FOR 208/120 VOLT SYSTEMS AS FOLLOWS:
    1. PHASE A - BLACK
    2. PHASE B - RED
    3. PHASE C - BLUE
    4. NEUTRAL - WHITE
    5. GROUND - GREEN
E. CABLE SHALL BE ALCAN, GENERAL CABLE, OKONITE, ROME, TRIANGLE, PRIORITY OR SOUTHWIRE.
F. CONDUCTORS OUTDOORS SHALL BE LISTED FOR USE IN WET LOCATIONS.
G. FINE-STRANDED CONDUCTORS TO UTILIZE COMPRESSION LUGS.
H. TERMINATIONS AT GENERATOR TO BE COMPRESSION LUGS.

MEDIUM VOLTAGE CABLE

A. PROVIDE 5KV SHIELDED POWER CABLE BY OKONITE, KERITE, OR PRYSMIAN. CABLE INTO SUBSTATION SHALL BE OKONITE.
B. PROVIDE SINGLE CONDUCTOR INSULATED TO 100% LEVEL, PVC JACKETED, SHIELDED POWER CABLE SUITABLE FOR WET AND DRY LOCATIONS AND FOR INSTALLATION IN CONDUIT AND UNDERGROUND DUCT BANKS.
C. CABLE SHALL MEET OR EXCEED LATEST VERSIONS OF ICEA AND UL FOR TYPE MV-90.
D. CABLE CONSTRUCTION SHALL BE AS FOLLOWS:
    1. CLASS B STANDARD BARE COPPER AND ALUMINUM CONDUCTOR IN SIZES SPECIFIED.
    2. EXTRUDED THERMOSETTING EPR SEMICONDUCTING STRAND SHIELD.
    3. THERMOSETTING ETHYLENE PROPYLENE RUBBER INSULATION.
    4. EXTRUDED THERMOSETTING EPR INSULATION SHIELD AND PVC OUTER PROTECTION.
    5. BLACK PVC JACKET, THICKNESS AS SPECIFIED IN ICEA.
E. ETHYLENE CONTENT OF ELASTOMER IN THE INSULATION SHALL NOT EXCEED 72% BY WEIGHT OF ETHYLENE NOR SHALL INSULATION CONTAIN ANY POLYETHYLENE FILLERS.
F. MEDIUM VOLTAGE CABLE INSTALLATION AND TERMINATION SHALL BE PERFORMED BY CONTRACTOR HAVING MINIMUM 5 YEARS OF MEDIUM VOLTAGE EXPERIENCE.
    1. CONDUCTORS SHALL BE CONTINUOUS, WITHOUT SPLICE.
    2. DELIVER CABLE NEW, IN ORIGINAL WRAPPING ON REEL AND STORE IN ENCLOSED, WEATHER PROTECTED SPACE.
    3. CABLE TERMINATION KITS SHALL BE COLD-SHRINK, 3M OR EQUAL.
    4. CONNECTORS SHALL BE SEAMLESS COPPER COMPRESSION, BURNDY YA/YCA SERIES OR EQUAL. SS-HH HARDWARE SHALL BE UTILIZED FOR ALL CONNECTIONS TO CITY EQUIPMENT.
    5. SHALL BE INSTALLED IN CONDUIT.
G. MEDIUM VOLTAGE CABLE SPLICING IS NOT PERMITTED.
H. MV CABLE TO BE LASHED PER MANUFACTURER'S RECOMMENDATIONS.

OPTICAL FIBER

A. OPTICAL FIBER SHALL BE AMP, BELDEN, BERK-TEK, CORNING, SIEMONS OR EQUAL.
B. MULTI-MODE CONNECTION FIBER SHALL BE 50/125MM, ISO/IEC 11801 - OM2
C. SINGLE-MODE CONNECTION FIBER SHALL BE 9/125MM, ISO/IEC 11801 - OS1 (INDOORS) & OS2 (OUTDOORS)
D. CONDUIT FOR FIBER SHALL BE 2"C MIN AND USE LONG SWEEP ELBOWS. BENDING RADIUS SHALL BE PER MANUFACTURERS RECOMMENDATION.
E. CONSTRUCTION SHALL BE AS FOLLOWS:
    1. OUTDOOR FIBER SHALL BE LOOSE TUBE CONSTRUCTION AND COMPLIANT WITH ANSI/ICEA-640
    2. INDOOR FIBER SHALL BE TIGHT BUFFER CONSTRUCTION AND COMPLIANT WITH ANSI/ICEA-596
    3. INDOOR/OUTDOOR FIBER SHALL BE TIGHT BUFFER CONSTRUCTION AND COMPLIANT WITH ANSU/ICEA-696
    4. NON-CONDUCTIVE OPTICAL FIBER SHALL BE USED WHEN INSTALLED WITH ELECTRIC LIGHT OR POWER CIRCUITS
F. CONNECTORS SHALL BE TYPE SC AND TERMINATED/FUSION SPLICED BY QUALIFIED TECHNICIANS PER MANUFACTURERS INSTRUCTIONS.

COMMUNICATIONS CABLE - CATEGORY 5E

A. MULTI-CONDUCTOR CAT-5E TWISTED PAIR CABLE SHALL BE BELDEN, BERK-TERK, COMMSCOPE, SUPERIOR ESSEX OR EQUAL.
B. 4 PAIR, 24AWG BONDED PAIRS, SOLID BARE COPPER CONDUCTORS, POLYOLEFIN INSULATION, INDUSTRIAL GRADE SUNLIGHT AND OIL-RESISTANT PVC JACKET WITH RIP CORD.
C. CABLE SHALL HAVE SEQUENTIAL MARKING ALONG ENTIRE LENGTH.
D. CMR, CMX-OUTDOOR, UL444, SHALL MEET TIA-568-B.2 FOR CATEGORY 5E CABLE.
E. NON-PLENUM UNLESS SPECIFIED OTHERWISE.

OUTLET BOXES PULL AND JUNCTION

A. OUTLET BOXES SHALL BE NATIONAL, STEEL CITY, APPLETON, RACO, OR GENERAL ELECTRIC.
B. PROVIDE JUNCTION BOXES AS SHOWN ON DRAWINGS AND OTHERWISE WHERE REQUIRED, SIZED ACCORDING TO NUMBERS OF CONDUCTORS IN BOX OR TYPE OF SERVICE TO BE PROVIDED.

GROUNDING

A. THE ENTIRE SYSTEM OF EXTENSION OF RACEWAYS AND EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE #702 AND #250 OF THE NATIONAL ELECTRICAL CODE.
B. REFER TO GROUNDING DETAIL ON SHEET E5.
C. MAINTAIN 18" FROM GRADE IF AL EQUIPMENT GROUNDING CONDUCTOR IS USED.

MV TRANSFORMER

A. BIL RATINGS PER IEEE C57.12.90. VOLTAGE, KVA AND GROUNDING SHALL BE PER SHEET E2.
B. PAD-MOUNT TRANSFORMER ENCLOSURE SHALL BE NEMA 3R, HIGH SECURITY CABINET WITH PENTAHEAD DOOR BOLTS AND STAINLESS-STEEL DOOR SECURING HARDWARE.
C. ALUMINUM COILS WITH OIL FILLED (MINERAL OIL) INSULATION.
D. LOOP FED WITH LIGHTNING ARRESTORS PER SHEET E2.
E. HIGH VOLTAGE BUSHING WELL & INSERTS WITH BUSHING PARKING STAND.
F. LOW VOLTAGE BUSHING W/ 12 HOLE SPADE SUPPORTED.
G. WYE-WYE TRANSFORMERS SHALL NOT HAVE X0/H0 INTERNALLY BONDED OR GROUNDED. INCLUDE REMOVABLE GROUND STRAPS.
H. HV/LV BARRIER (STEEL).
I. BAYONET AND CURRENT-LIMITING PRIMARY SIDE FUSING AND TAP CHANGER +/- 2.5%.
J. OIL IMMERSED FOUR POSITION LOAD BREAK SWITCH.
K. MAGNETIC OIL LEVEL, THERMOMETER, PRESSURE VACUUM GAUGES, 1" FILL PLUG / 1" DRAIN PLUG/VALVE WITH SAMPLER LOCATED IN EXTERNAL PAD-LOCKABLE CABINET.
L. GROUND PAD IN HV & LV COMPARTMENTS.
M. NRTL LISTED.
N. THE LV COMPARTMENT SHALL BE OVERSIZED FOR 2000KVA AND GREATER TO ACCOMMODATE LARGE QUANTITY OF CONDUIT AND CONDUCTOR.
O. PROVIDE 1/4" BY 4" COPPER GROUND BAR WITH NEMA 2-HOLE LUG PROVISIONS, QUANTITY TO MATCH PHASE LUG PROVISIONS.

OPEN TRANSITION ATS(S)

A. POWERSECURE WILL FURNISH ATS PER SHEET E2.
B. ATS SHALL BE ASCO SERIES 300 OR EQUAL.
C. ATS SHALL MEET NFPA 70 ARTICLES 702 AND BE NRTL LISTED.
D. FACTORY MICROPROCESSOR CONTROLLER TO HAVE THE FOLLOWING SETTINGS (ALL OTHER SETTINGS REMAIN AT FACTORY SETTINGS):
    1. TIME DELAY NORMAL TO EMERGENCY: 2 SECONDS
    2. TIME DELAY ENGINE START: 2 SECONDS
    3. TIME DELAY EMERGENCY TO NORMAL: 300 SECONDS
    4. TIME DELAY ENGINE COOL OFF: 300 SECONDS
E. PHASE ROTATION SHALL BE CLOCKWISE.

SWITCHGEAR (5kV CLASS)

A. POWERSECURE WILL FURNISH SWITCHGEAR PER SHEET E2.
B. BUS BARS WILL BE RIGIDLY BRACED TO COMPLY WITH INTEGRATED EQUIPMENT RATING OF SWITCHGEAR PER SHEET E2.
C. BREAKERS SHALL BE VACUUM CIRCUIT BREAKERS.
D. THE SWITCHGEAR INCLUDES MULTIFUNTION, DIGITAL, UTILITY GRADE RELAY.
E. SWITCHGEAR CABLE COMPARTMENTS SHALL HAVE IR VIEWING WINDOWS.
F. ROTATION FROM UTILITY AND GENERATOR INTO SWITCHGEAR MUST BE CLOCKWISE. ROTATION TO EXISTING FACILITY MUST MATCH PREVIOUS ROTATION.
G. PROVIDE BREAKER LIFT TRUCK.

MV PAD MOUNTED GEAR (15KV CLASS)

A. THE MV PAD MOUNTED GEAR SHALL BE DEAD-FRONT, AIR-INSULATED DISTRIBUTION SWITCHGEAR CONTAINING INTERRUPTER SWITCHES WITH THE NECESSARY ACCESSORY COMPONENTS FACTORY ASSEMBLED TO FURNISH 4 WAYS FOR USE ON DISTRIBUTION SYSTEMS UP TO 15KV.
B. THE MV PAD MOUNTED GEAR SHALL PROVIDE THREE PHASE OVERCURRENT PROTECTION AT 600A CONTINUOUS AND A 12.5KA INTERRUPTING RATING.
C. BUSHING AND BUSHING-WELL INTERFACES SHALL BE IN ACCORDANCE WITH ANSI/IEEE STANDARD 386.
D. THE PADMOUNT ENCLOSURE SHALL BE MADE OF 11-GAUGE HOT-ROLLED, PICKLED AND OILED STEEL AND SHALL FEATURE A PAD-LOCKABLE, TAMPER-RESISTANT HINGED ACCESS DOOR. ENCLOSURE SHALL BE PAINTED MUNSELL 7.0GY3.29/1.5 GREEN.
E. THE MV PAD MOUNTED GEAR SHALL BE A S&C PME-6 SWITCH OR EQUAL.

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REV.	DATE	DESCRIPTION

DWN. BY: ST
CHK. BY: CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

TITLE:

PROJECT SPECIFICATIONS

DATE: DECEMBER 17, 2025

DRAWING:

E1.2

Plot Date:12/17/2025

KEY NOTES

KEY NOTES:	
1	iDG SYSTEM CONTROL WIRING, SEE SHEET E6.
2	FURNISH LABEL: 'SERVICE DISCONNECT'. THE SYSTEM WILL HAVE A ROTARY SERVICE DISCONNECT SWITCH FOR SHUNT TRIPPING 52-M1, 52-M2, AND 52-GT1, 52-GT2 AND 52-GT3 AND DISABLING THE OPTIONAL STANDBY CONTROLLER.
3	WIRELESS CONNECTION TO NETWORK FOR REMOTE MONITORING
4	3#4 (5kV-AL), 1#8 (600V-CU) G IN 6"C.
5	2 SETS OF 3#600 KCMIL (AL) AND 1#1/0 (CU) SSBJ, IN 4"C EACH.
6	3#250KCMIL (5kV-AL), 1#4 (600V-CU) G IN 6"C PLUS 2-6" SPARE CONDUIT.
7	3 SETS OF 3#500KCMIL (5kV-AL) AND 1#1/0 (600V-CU) G IN 6"C.
8	PAD MOUNTED, OIL-FILLED TRANSFORMER WITH 3kV LIGHTING ARRESTORS.
9	15 SETS OF 3#600 KCMIL (AL), 1#600 KCMIL (AL) N AND 1#700 KCMIL (CU) G, IN 4"C EACH, CONCRETE ENCASED AS REQUIRED.
10	PROVIDE FIELD LABELING PER SHEET 7.1.
11	2" SPARE WITH PULL CORD CAPPED AT 2" AFG FOR FUTURE USE.
12	THREE PHASE, PAD MOUNTED TRANSFORMER WITH 3kV LIGHTING ARRESTORS.
13	PROVIDE TRIP UNIT WITH MAX SETTING OF 984A.
14	THREE 600V CURRENT TRANSFORMERS, 1000:5A RATIO
15	2#4/0 (CU), 1#4/0 (CU) N, AND 1#2 (CU) G IN 2"C.
16	600V FUSE BLOCKS.
17	1#10 (CU), 1#10 (CU) N, 1#10 (CU) G AND 1#12 (CU), 1#12 (CU) N, 1#12 (CU) G IN 2"C.
18	POWERSECURE TO PROVIDE SPARE PORTS FOR SUPPLEMENTAL TANK FILL PIPING AND CONTROLS.
19	3-6" SPARE WITH PULL CORD CAPPED AT 2" AFG FOR FUTURE USE.
20	600AS/600AF/600V/N1/3P/200kAIC SERVICE ENTRANCE RATED DISCONNECT SWITCH.
21	2 SETS OF 3#600 KCMIL (AL), 1#600 KCMIL (AL) N, AND 1#1/0 (CU) G, IN 4"C EACH.
22	1#12 (CU), 1#12 (CU) N, AND 1#12 (CU) G IN 1"C.
23	THREE 5kV CLASS CURRENT TRANSFORMERS, 1200:5A RATIO
24	THREE 5kV CLASS CURRENT TRANSFORMERS, 600:5A RATIO
25	THREE 5kV CLASS CURRENT TRANSFORMERS, 800:5A RATIO
26	THREE 5kV CLASS CURRENT TRANSFORMERS, 2000:5A RATIO
27	THREE SINGLE PHASE POTENTIAL TRANSFORMERS, 2400:120 RATIO Y-Y.
28	INTERCEPT CONDUIT FROM EXISTING 'SWGR-1' AT JUNCTION BOX OUTSIDE THE BUILDING, AND PULL NEW 3 SETS OF 3#1000 KCMIL (5kV-AL) AND AND 1#350 KCMIL (600V-AL) N/G IN BY OTHERS/NEW 6"C EACH TO NEW SWITCHGEAR 'MVSWGR-1'.
29	INTERCEPT CONDUIT FROM BUS COLLECTOR IN UTILITY VAULT AT JUNCTION BOX OUTSIDE THE BUILDING, AND PULL NEW 3 SETS OF 3#1000 KCMIL (5kV-AL) AND AND 1#350 KCMIL (600V-AL) N/G IN BY OTHERS/NEW 6"C EACH PLUS 3-6" SPARE CONDUIT TO NEW SWITCHGEAR 'MVSWGR-1'.
30	1#12 (CU), 1#12 (CU) N, AND 1#12 (CU) G IN 2"C.
31	3kV LIGHTING ARRESTORS.
32	THREE 5kV CLASS CURRENT TRANSFORMERS, XXXX:5A RATIO DEDICATED FOR DIFFERENTIAL BUS SYSTEM.

SHEET NOTE: AMBIENT AIR TEMPERATURE IS 91°F, ALL ABOVE GROUND LV CONDUCTORS IN NON-CONDITIONED SPACES SHALL HAVE A CORRECTION FACTOR OF 0.94 APPLIED PER NEC TABLE 310.15(B)(1).

RELAY SETTINGS FOR 52-M

PU BASED ON CT RATIO AND NOMINAL VOLTAGE OF 120V	TIME DELAY	
	RELAY SETPOINT	TOTAL CLEARING TIME
50/50G - See TCC		
51/51G - See TCC		
25- 3%V 10° 1Hz Live Util Dead Bus		

RELAY SETTINGS FOR 52-GT_ & 52-T_

PU BASED ON CT RATIO AND NOMINAL VOLTAGE OF 120V	TIME DELAY	
	RELAY SETPOINT	TOTAL CLEARING TIME
50/50G - See TCC		
51/51G - See TCC		
25- 3%V 10° 1Hz Live Util Dead Bus		

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PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

TITLE:

KEY NOTES

DATE: DECEMBER 17, 2025

DRAWING:

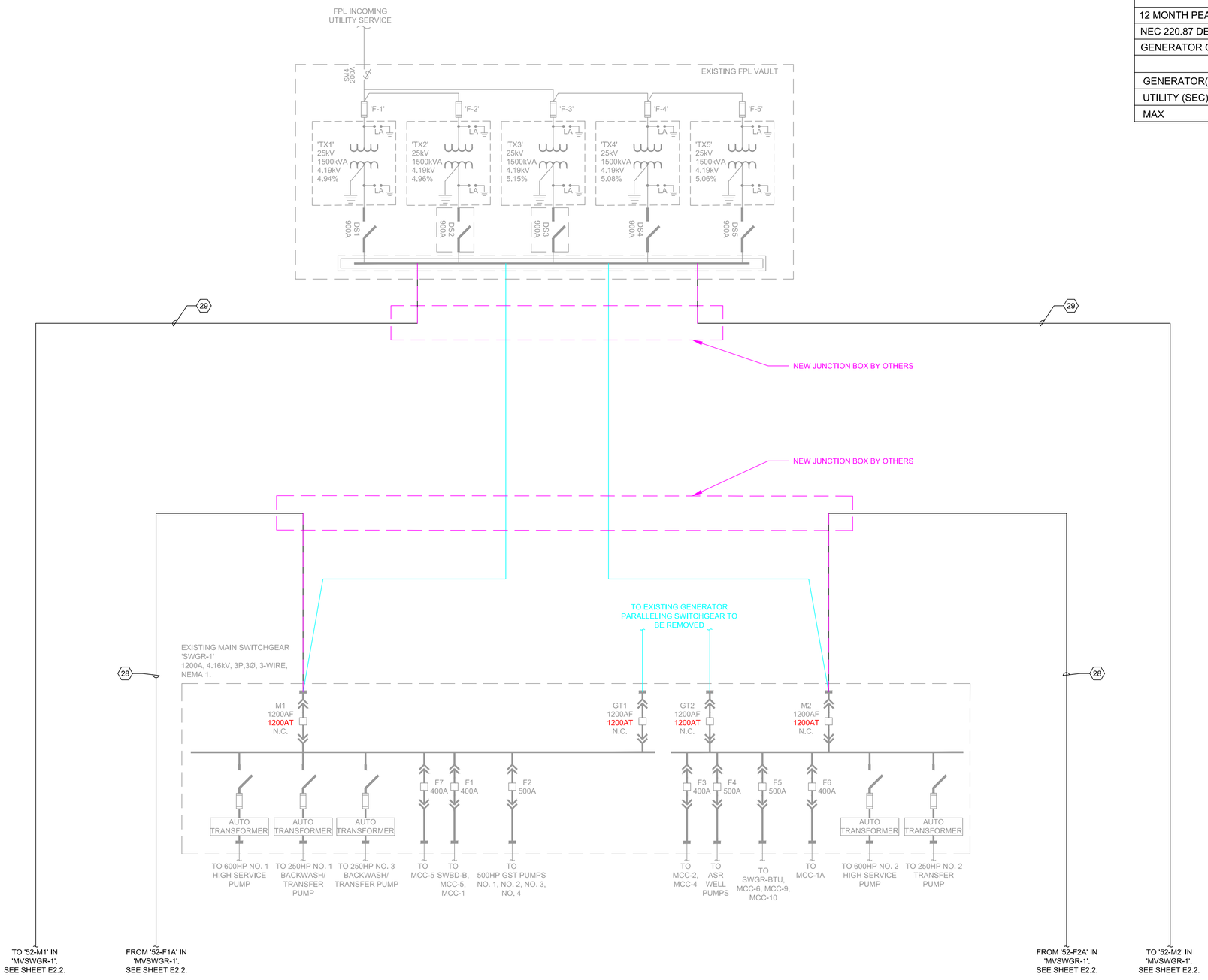
E2.0

Plot Date:12/17/2025

LEGEND

- EXISTING WIRING/EQUIPMENT
- NEW WIRING/EQUIPMENT
- NEW CONTROL WIRING/EQUIPMENT
- WIRING/EQUIPMENT BY OTHERS
- WIRING/EQUIPMENT TO BE REMOVED BY OTHERS
- TEMPORARY WIRING/EQUIPMENT

LOAD DATA	
12 MONTH PEAK DEMAND	6,840kW
NEC 220.87 DEMAND	1.25 x 6,840kW = 8,550kW
GENERATOR CAPACITY	9,375kW
AVAILABLE FAULT CURRENT CALCULATIONS	
GENERATOR(S)	13,782A
UTILITY (SEC)	XX,XXXA
MAX	XX,XXXA



ELECTRICAL DISTRIBUTION DIAGRAM - EXISTING 'SWGR-1'

NO SCALE

PowerSecure
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DURHAM, NC 27703
1-866-DG-SKILL

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BRADENTON, FL, 34212

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ELECTRICAL DISTRIBUTION DIAGRAM - EXISTING 'SWGR-1'

DATE: DECEMBER 17, 2025

DRAWING:

E2.1

Plot Date:12/17/2025

LEGEND

- EXISTING WIRING/EQUIPMENT
- NEW WIRING/EQUIPMENT
- NEW CONTROL WIRING/EQUIPMENT
- WIRING/EQUIPMENT BY OTHERS
- WIRING/EQUIPMENT TO BE REMOVED BY OTHERS
- TEMPORARY WIRING/EQUIPMENT

LOAD DATA	
12 MONTH PEAK DEMAND	6,840kW
NEC 220.87 DEMAND	1.25 x 6,840kW = 8,550kW
GENERATOR CAPACITY	9,375kW
AVAILABLE FAULT CURRENT CALCULATIONS	
GENERATOR(S)	13,782A
UTILITY (SEC)	XX,XXXA
MAX	XX,XXXA

FROM EXISTING FPL VAULT FEED 1. SEE SHEET E2.1.

TO 'M1' IN EXISTING 'SWGR-1'. SEE SHEET E2.1.

TO 'M2' IN EXISTING 'SWGR-1'. SEE SHEET E2.1.

FROM EXISTING FPL VAULT FEED 2. SEE SHEET E2.1.

52-M1 2000AF 1200AT N.C.

52-F1A 1200AF 1200AT N.C.

52-GT2 1200AF 800AT N.C.

PREPARED SPACE

52-F2A 1200AF 1200AT N.C.

52-M2 2000AF 1200AT N.C.

PROTECTIVE BUS DIFFERENTIAL RELAY INCLUDES RELAY FUNTIONS: 50 50BF 51 87

PROTECTIVE FEEDER RELAY SEE RELAY CHART FOR SETTINGS

PROTECTIVE RELAY SEE RELAY CHART FOR SETTINGS

PROTECTIVE 52-GT2 RELAY SEE RELAY CHART FOR SETTINGS

UTILITY GRADE MULTI FUNCTION PROTECTIVE RELAY SEE RELAY CHART FOR SETTINGS

52-T1 2000AF 1200AT N.O.

52-T2 2000AF 1200AT N.O.

PROTECTIVE 52-T2 RELAY SEE RELAY CHART FOR SETTINGS

PROTECTIVE 52-GT3 RELAY SEE RELAY CHART FOR SETTINGS

PROTECTIVE 52-GT1 RELAY SEE RELAY CHART FOR SETTINGS

52-F1B 1200AF 65AT N.C.

52-GT1 1200AF 800AT N.C.

52-GT3 1200AF 800AT N.C.

52-F2B 1200AF 65AT N.C.

PLC

SYSTEM CONTROLLER A

SYSTEM CONTROLLER B

TOUCH SCREEN USER INTERFACE

SYSTEM CONTROL SWITCHES

REMOTE MONITORING/ DISPATCH INTERFACE

WIRELESS ROUTER

SERVICE DISCONNECT SWITCH

CONTROL CABINET 'CC-1'. NEMA 1.

DC LOAD CENTER

125VDC BATTERY BANK

BATTERY CHARGER

ATS-HP 600A 208/120V 3P OTT 65kWCR /W SWITCHED NEUTRAL

HP-PEC 600A

FUEL FILL CONTROL PANEL

TO FUEL SYSTEM

NEW SWITGEAR 'MVSWGR-1' 2000A, 5kV, 3P,3Ø, 3-WIRE, NEMA 1, METALCLAD, 50kAIC, FRONT/REAR ACCESS.

POWER EQUIPMENT CENTER 'PEC-1'

TO 'T-G1'. SEE SHEET E2.3.

TO 'T-G2'. SEE SHEET E2.3.

TO 'T-G3'. SEE SHEET E2.3.

TO 'PBGE1'. SEE SHEET E2.3.
TO 'PBGE2'. SEE SHEET E2.3.
TO 'PBGE3'. SEE SHEET E2.3.

TO 'HP-G1' IN 'PBGE1'. SEE SHEET E2.3.
TO 'HP-G2' IN 'PBGE2'. SEE SHEET E2.3.
TO 'HP-G3' IN 'PBGE3'. SEE SHEET E2.3.
TO 20,000 GALLON BULK TANK 1
TO 20,000 GALLON BULK TANK 2
TO EXISTING 20,000 GALLON TANK
TO 6,000 GALLON DEF TANK

NEW PAD MOUNTED GEAR 'SW-1' 600A, 15kV, 12.5kAIC, N3R

2 600A N.C. 65A 1 N.C. 3 600A N.O.

TX 'HP-1' 4.16kV 150kVA/3ø 208/120V

NEW PAD MOUNTED GEAR 'SW-2' 600A, 15kV, 12.5kAIC, N3R

2 600A N.C. 65A 1 N.C. 3 600A N.O.

TX 'HP-2' 4.16kV 150kVA/3ø 208/120V

ELECTRICAL DISTRIBUTION DIAGRAM - NEW 'MVSWGR-1'

NO SCALE

Plot Date:12/17/2025

PowerSecure
4068 STIRRUP CREEK DR.
DURHAM, NC 27703
1-866-DG-SKILL

A/E/C:

NOTES:

CONFIDENTIAL & PROPRIETARY

REV.	DATE	DESCRIPTION

DWN. BY ST | CHK. BY CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

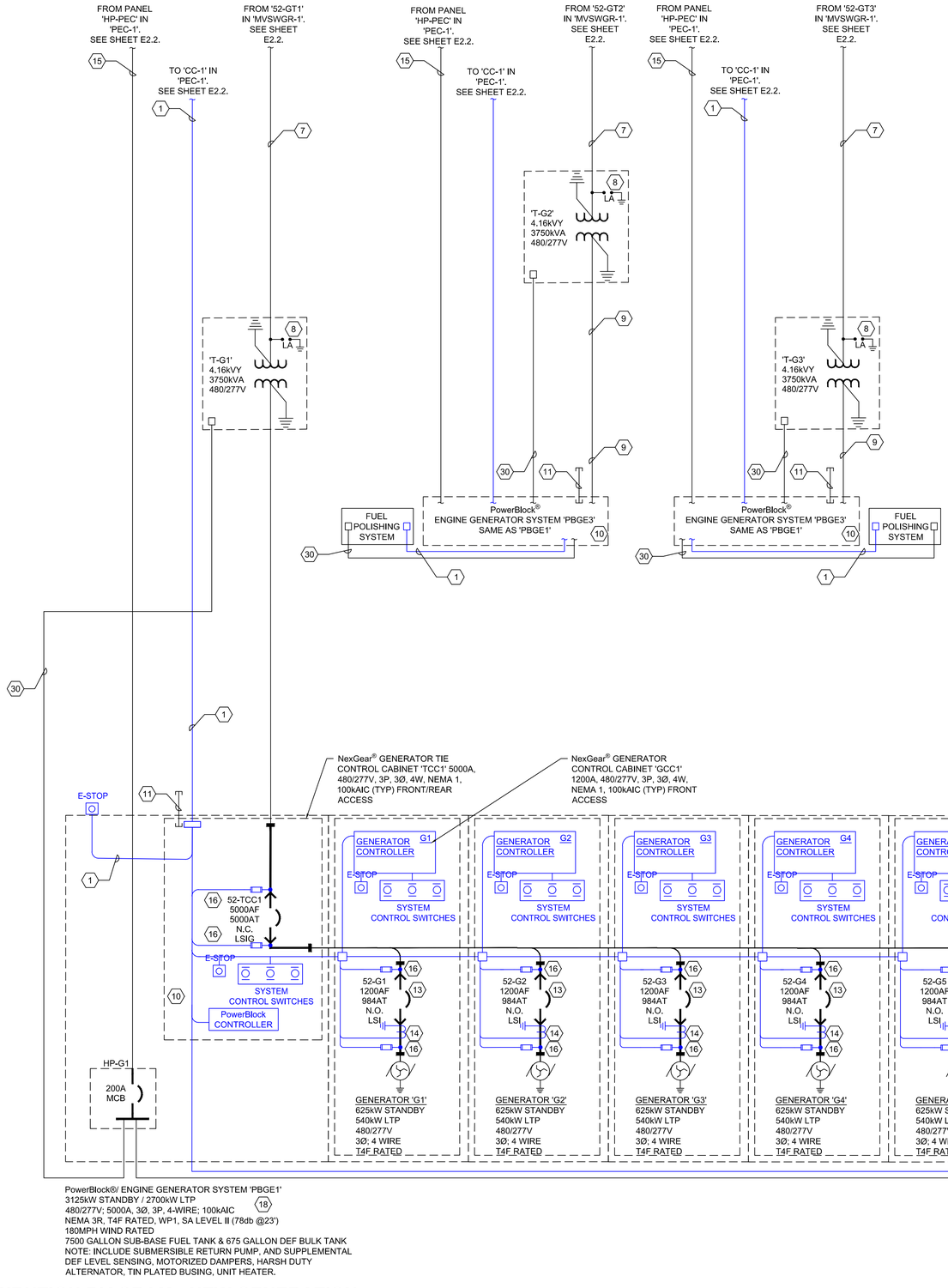
TITLE:

ELECTRICAL DISTRIBUTION DIAGRAM - NEW 'MVSWGR-1'

DATE: DECEMBER 17, 2025

DRAWING:

E2.2



ELECTRICAL DISTRIBUTION DIAGRAM - NEW GENERATION

NO SCALE

LEGEND

- EXISTING WIRING/EQUIPMENT
- NEW WIRING/EQUIPMENT
- NEW CONTROL WIRING/EQUIPMENT
- WIRING/EQUIPMENT BY OTHERS
- WIRING/EQUIPMENT TO BE REMOVED BY OTHERS
- TEMPORARY WIRING/EQUIPMENT

LOAD DATA	
12 MONTH PEAK DEMAND	6,840kW
NEC 220.87 DEMAND	1.25 x 6,840kW = 8,550kW
GENERATOR CAPACITY	9,375kW
AVAILABLE FAULT CURRENT CALCULATIONS	
GENERATOR(S)	13,782A
UTILITY (SEC)	XX,XXXA
MAX	XX,XXXA

PowerSecure
4068 STIRRUP CREEK DR.
DURHAM, NC 27703
1-866-DG-SKILL

A/E/C:

NOTES:

CONFIDENTIAL & PROPRIETARY

REV.	DATE	DESCRIPTION

DWN. BY: ST
CHK. BY: CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

TITLE:

ELECTRICAL DISTRIBUTION DIAGRAM - NEW GENERATION

DATE: DECEMBER 17, 2025

DRAWING:

E2.3

Plot Date:12/17/2025

LEGEND

- EXISTING WIRING/EQUIPMENT
- NEW WIRING/EQUIPMENT
- NEW CONTROL WIRING/EQUIPMENT
- WIRING/EQUIPMENT BY OTHERS
- WIRING/EQUIPMENT TO BE REMOVED BY OTHERS
- TEMPORARY WIRING/EQUIPMENT

ENVIRONMENTAL SITE CONDITIONS & DESIGN LOADS		
ASHRAE DESIGN TEMPS	44.5-91.1°F	
ELEVATION	57'	AMSL (FT)
FLOOD ZONE	X	BFE: N/A
GROUND SNOW LOAD	3	LB/SQFT
RISK CATERGORY	II	
WIND SPEEDS (3s GUST)	145MPH	
SEISMIC DESIGN CATEGORY	A	

330'-6"
TO PROPERTY LINE

PROPERTY LINE

740'-4"
TO PROPERTY LINE

650'-10"
TO PROPERTY LINE

779'-7"
TO PROPERTY LINE

NEW GRAVEL ACCESS ROAD

NEW PowerSecure® GENERATOR SYSTEM 'PBGE3'

NEW PowerSecure® GENERATOR SYSTEM 'PBGE2'

NEW PowerSecure® GENERATOR SYSTEM 'PBGE1'

NEW TRANSFORMER 'T-3'

NEW 10,000 GALLON BULK FUEL TANK

NEW 10,000 GALLON BULK FUEL TANK

NEW 6,000 GALLON DEF TANK

EXISTING 10,000 GALLON BULK FUEL TANK

NEW TRANSFORMER 'T-2'

NEW TRANSFORMER 'T-1'

BIBBY ROAD

NEW 'SW-2'

NEW 'SW-1'

NEW TX 'HP-2'

NEW TX 'HP-1'

WATERLINE ROAD

NEW SWITCHBOARD 'MVSWGR-1'

NEW POWER EQUIPMENT CENTER 'PEC-1'

AREA OF CONSTRUCTION

EXISTING GENERATOR ROOM

EXISTING UTILITY VAULT

EXISTING 'SWGR-1'

N

0 40' 80' 160'

SITE REFERENCE PLAN

SCALE: 1"=40'

Plot Date:12/17/2025

PowerSecure
4068 STIRRUP CREEK DR.
DURHAM, NC 27703
1-866-DG-SKILL

A/E/C:

NOTES:

CONFIDENTIAL & PROPRIETARY

REV.	DATE	DESCRIPTION

DWN. BY: ST
CHK. BY: CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

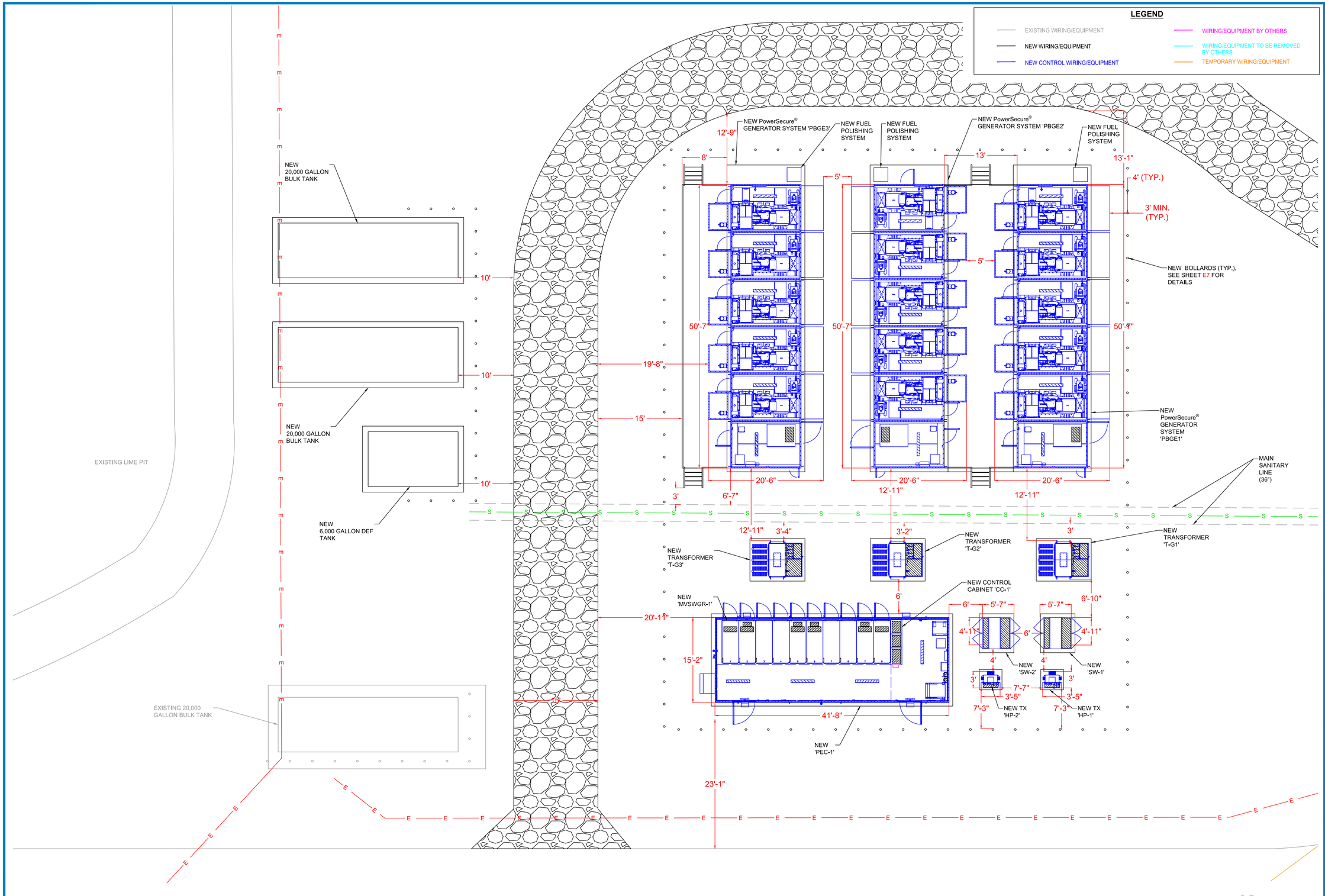
TITLE:

SITE REFERENCE PLAN

DATE: DECEMBER 17, 2025

DRAWING:

E3



ENLARGED PARTIAL SITE PLAN

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

0 8' 16' 32'

N

Plot Date:12/17/2025

PowerSecure
4068 STIRRUP CREEK DR.
DURHAM, NC 27703
1-866-DG-SKILL

A/E/C:

NOTES:

CONFIDENTIAL & PROPRIETARY

REV.	DATE	DESCRIPTION

DWN. BY: ST
CHK. BY: CH

PERMIT/SEAL:

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:

MANATEE COUNTY WTP
17915 WATER LINE SERVICE RD.
BRADENTON, FL, 34212

PROJECT NUMBER: 104474

TITLE:

ENLARGED PARTIAL SITE PLAN

DATE: DECEMBER 17, 2025

DRAWING:

E4

66000-0655 REV A

PowerSecure

DECEMBER 2025

PowerSecure | 4068 Stirrup Creek Dr, Durham, NC 27703 | 919.556.3056 | powersecure.com

Plot Date: 04-APR-2025 10:26:14 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

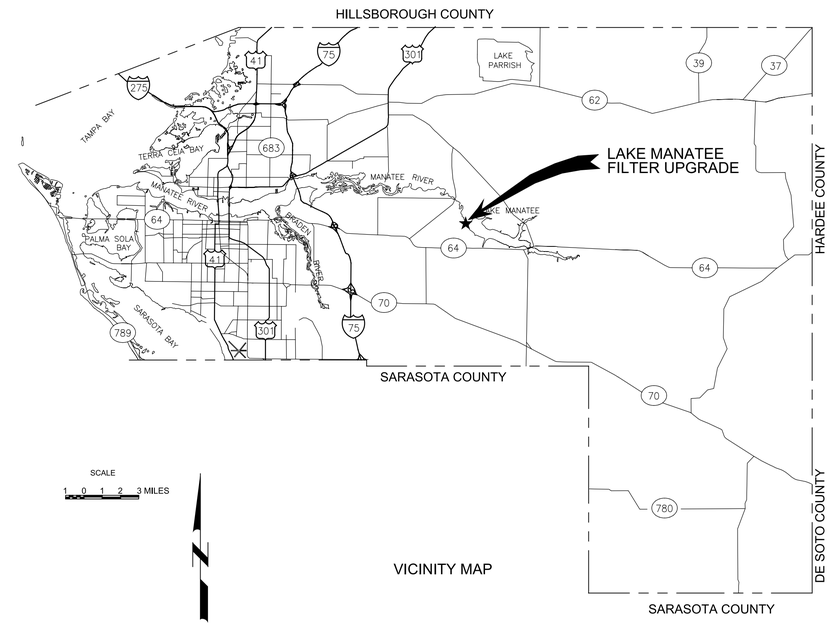
COUNTY PROJECT NO. 6050470

APRIL 2025

VOLUME 2

RECORD DOCUMENTS

LOCATION MAP



VICINITY MAP

DEAN MILTON LICENSE No 52719 STATE OF FLORIDA PROFESSIONAL ENGINEER

carollo®
301 N. CATTLEMEN RD., SUITE 302
SARASOTA, FL. 34232
PHONE: (941)371-9832
FAX: (941)371-9873
CA 00008571

RECORD DOCUMENTS
THESE RECORD DOCUMENTS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS, AND IN ACCORDANCE WITH ENGINEER'S CONTRACTUAL SCOPE OF SERVICES. THESE RECORD DOCUMENTS WERE PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND ARE NOT TO BE USED ELSEWHERE.
ENGINEER'S NAME: _____
DATE: _____

JOB NO. 09520I.10

DRAWING NO. 00G01

DWG NO.	DESCRIPTION
	GENERAL
00G01	COVER SHEET
00G02	DRAWING INDEX
00G03	SYMBOLS AND GENERAL NOTES
00G04	ABBREVIATIONS
00G05	VICINITY AND LOCATION MAPS
00G06	DESIGN CRITERIA
00G07	PROCESS FLOW DIAGRAM I
00G08	PROCESS FLOW DIAGRAM II
00G09	PROCESS FLOW DIAGRAM III
00G10	HYDRAULIC PROFILE - EXISTING SURFACE WATER TREATMENT
00G11	HYDRAULIC PROFILE - PROPOSED SURFACE WATER TREATMENT
	CIVIL
00C01	CIVIL NOTES
00C02	CIVIL SYMBOLS, ABBREVIATIONS
00C03	OVERALL SITE PLAN
00C04	DEMOLITION PLAN
00C05	PAVING, GRADING AND DRAINAGE PLAN I
00C06	PAVING, GRADING AND DRAINAGE PLAN II
00C07	YARD PIPING PLAN I
00C08	YARD PIPING PLAN II
00C09	YARD PIPING DETAILS
00C10	16" NWW PROFILE
00C11	12" BWR PROFILE
00C12	STORMWATER POLLUTION PREVENTION PLAN
00GC01	CIVIL TYPICAL DETAILS
00GC02	CIVIL TYPICAL DETAILS
00GC03	CIVIL TYPICAL DETAILS
00GC04	CIVIL TYPICAL DETAILS
00GC05	CIVIL TYPICAL DETAILS
	ARCHITECTURAL
00A01	PROJECT INFO
02A00	CHEMICAL BUILDING CODE ANALYSIS AND LIFE SAFETY PLAN
02A01	CHEMICAL BUILDING FLOOR PLAN AND SCHEDULES
02A02	CHEMICAL BUILDING DIMENSIONED FLOOR PLAN
02A03	CHEMICAL BUILDING ROOF PLAN
02A04	CHEMICAL BUILDING REFLECTED CEILING PLAN
02A05	CHEMICAL BUILDING EXTERIOR ELEVATIONS
02A06	CHEMICAL BUILDING BUILDING SECTIONS
02A07	CHEMICAL BUILDING BUILDING SECTIONS
02A08	CHEMICAL BUILDING WALL SECTIONS
02A09	CHEMICAL BUILDING WALL SECTIONS
02A10	CHEMICAL BUILDING WALL SECTIONS
03A00	FILTER BUILDING CODE ANALYSIS AND LIFE SAFETY PLAN
03A01	FILTER BUILDING FIRST FLOOR DEMOLITION PLAN
03A02	FILTER BUILDING SECOND FLOOR DEMOLITION PLAN
03A03	FILTER BUILDING ROOF DEMOLITION PLAN
03A04	FILTER BUILDING FIRST FLOOR PLAN
03A05	FILTER BUILDING SECOND FLOOR PLAN
03A06	FILTER BUILDING FIRST FLOOR DIMENSIONS PLAN
03A07	FILTER BUILDING SECOND FLOOR DIMENSIONS PLAN
03A08	FILTER BUILDING ROOF PLAN
03A09	FILTER BUILDING FIRST FLOOR REFLECTED CEILING PLAN
03A10	FILTER BUILDING SECOND FLOOR REFLECTED CEILING PLAN
03A11	FILTER BUILDING NORTH ELEVATION
03A12	FILTER BUILDING EAST ELEVATION
03A13	FILTER BUILDING SOUTH ELEVATION
03A14	FILTER BUILDING WEST ELEVATION
03A15	FILTER BUILDING LONGITUDINAL SECTION
03A16	FILTER BUILDING TRANSVERSE SECTION
03A17	FILTER BUILDING WALL SECTIONS
03A18	FILTER BUILDING WALL SECTIONS
99A01	CHEMICAL BUILDING AND FILTER BUILDING DOOR AND LOUVRE SCHEDULE
99A02	CHEMICAL AND FILTER BUILDING DETAILS
99A03	CHEMICAL AND FILTER BUILDING DETAILS
	STRUCTURAL
00S01	GENERAL STRUCTURAL NOTES
02S01	CHEMICAL BUILDING FOUNDATION LOWER PLAN
02S02	CHEMICAL BUILDING UPPER PLAN
02S03	CHEMICAL BUILDING ROOF PLAN
02S04	CHEMICAL BUILDING SECTIONS I
02S05	CHEMICAL BUILDING SECTIONS II
02S06	CHEMICAL BUILDING SECTIONS III
02S07	CHEMICAL BUILDING DETAILS I
02S08	CHEMICAL BUILDING DETAILS II
02S09	CHEMICAL BUILDING DETAILS III
02S10	CHEMICAL BUILDING DETAILS IV
02S11	NEUTRALIZATION TANK FOUNDATION PLAN
02S12	NEUTRALIZATION TANK ROOF PLAN
02S13	NEUTRALIZATION TANK SECTIONS
02S14	NEUTRALIZATION TANK SECTIONS AND DETAILS
02S15	EQUALIZATION TANK FOUNDATION SECTION
03S01	UF FILTER BUILDING PLAN AT EL 58.29
03S02	UF FILTER BUILDING PLAN AT EL 60.79
03S03	UF FILTER BUILDING PLAN AT EL 69.46
03S04	UF FILTER BUILDING PLAN AT EL 71.54
03S05	UF FILTER BUILDING ROOF PLAN

DWG NO.	DESCRIPTION
03S06	UF FILTER BUILDING SECTIONS
03S07	UF FILTER BUILDING SECTIONS DETAILS I
03S08	UF FILTER BUILDING SECTIONS DETAILS II
03S09	UF FILTER BUILDING SECTIONS DETAILS III
03S10	UF FILTER BUILDING SECTIONS DETAILS IV
03S11	UF FILTER BUILDING SECTIONS DETAILS V
03S12	UF FILTER BUILDING SECTIONS DETAILS VI
04S01	POST MIX BASIN A PLAN AND SECTIONS
04S02	POST MIX BASIN B PLAN
04S03	POST MIX BASIN B SECTIONS
04S04	POST MIX BASIN A AND B DETAILS
00GA01	TYPICAL ARCHITECTURAL DETAILS
00GA02	TYPICAL ARCHITECTURAL DETAILS
00GA03	TYPICAL ARCHITECTURAL DETAILS
00GA04	TYPICAL ARCHITECTURAL DETAILS
00GS01	TYPICAL STRUCTURAL DETAILS
00GS02	TYPICAL STRUCTURAL DETAILS
00GS03	TYPICAL STRUCTURAL DETAILS
00GS04	TYPICAL STRUCTURAL DETAILS
00GS05	TYPICAL STRUCTURAL DETAILS
00GS06	TYPICAL STRUCTURAL DETAILS
00GS07	TYPICAL STRUCTURAL DETAILS
	MECHANICAL DRAWINGS
00M01	NOTES AND SYMBOLS
00M02	PIPE AND MATERIAL SCHEDULE
00M03	EQUIPMENT SCHEDULE
00M04	PROCESS FLOW DIAGRAM POST MIX BASINS
00M05	PROCESS FLOW DIAGRAM HYDROCHLORIC ACID STORAGE AND FEED
00M06	PROCESS FLOW DIAGRAM CITRIC ACID STORAGE AND FEED
00M07	PROCESS FLOW DIAGRAM CAUSTIC SODA STORAGE AND FEED I
00M08	PROCESS FLOW DIAGRAM CAUSTIC SODA STORAGE AND FEED II
00M09	PROCESS FLOW DIAGRAM SODIUM BISULFITE STORAGE AND FEED
00M10	PROCESS FLOW DIAGRAM SODIUM HYPOCHLORITE STORAGE AND FEED
00M11	PROCESS FLOW DIAGRAM WASTE SUMP/PUMP STATION
02M01	CHEMICAL FEED BUILDING PLAN
02M02	CHEMICAL FEED BUILDING SECTIONS
02M03	SODIUM HYPOCHLORITE ROOM PLAN AND SECTION
02M04	SODIUM BISULFITE ROOM PLAN AND SECTION
02M05	CITRIC ACID ROOM PLAN
02M06	CITRIC ACID ROOM SECTION
02M07	CAUSTIC SODA ROOM PLAN
02M08	CAUSTIC SODA ROOM SECTION
02M09	HYDROCHLORIC ACID ROOM PLAN
02M10	HYDROCHLORIC ACID ROOM SECTIONS
02M11	HOT WATER SYSTEM PLAN
02M12	HOT WATER SYSTEM SECTION I
02M13	HOT WATER SYSTEM SECTION II
02M14	CLEAN IN PLACE SYSTEM PLAN
02M15	CLEAN IN PLACE SYSTEM SECTION I
02M16	CLEAN IN PLACE SYSTEM SECTION II
02M17	AIR COMPRESSOR SYSTEM PLAN
02M18	AIR COMPRESSOR SYSTEM SECTION I
02M19	AIR COMPRESSOR SYSTEM SECTION II
02M20	PERMEATE STORAGE TANK PLAN AND SECTIONS
02M21	NEUTRALIZATION SYSTEM PLAN
02M22	NEUTRALIZATION SYSTEM SECTION
02M23	NEUTRALIZATION SYSTEM SECTION AND DETAIL
02M24	WASTE EQUALIZATION TANK PLAN AND SECTION
02M25	WASTE EQUALIZATION TANK DETAILS I
02M26	WASTE EQUALIZATION TANK DETAILS II
02M27	WASTE EQUALIZATION TANK DETAILS III
02M28	WASTE EQUALIZATION TANK DETAILS IV
02M29	WASTE SUMP/PUMP STATION DETAILS
02M30	CHEMICAL BUILDING DETAILS
02M31	CHEMICAL BUILDING DRAINAGE PLAN
03DM01	UPPER DEMOLITION PLAN
03DM02	INTERMEDIATE DEMOLITION PLAN
03DM03	LOWER DEMOLITION PLAN
03DM04	DEMOLITION SECTIONS
03M01	UF FILTER BUILDING LOWER KEY PLAN
03M02	UF FILTER BUILDING LOWER ENLARGED PLAN I
03M03	UF FILTER BUILDING LOWER ENLARGED PLAN II
03M04	UF FILTER BUILDING INTERMEDIATE KEY PLAN
03M05	UF FILTER BUILDING INTERMEDIATE ENLARGED PLAN I
03M06	UF FILTER BUILDING INTERMEDIATE ENLARGED PLAN II
03M07	UF FILTER BUILDING UPPER KEY PLAN
03M08	UF FILTER BUILDING UPPER ENLARGED PLAN I
03M09	UF FILTER BUILDING UPPER ENLARGED PLAN II
03M10	UF FILTER BUILDING SECTION I
03M11	UF FILTER BUILDING SECTION AND DETAILS II
03M12	UF FILTER BUILDING SECTION III
03M13	UF FILTER BUILDING SECTION IV
03M14	UF FILTER BUILDING SECTION AND DETAILS V
03M15	UF FILTER BUILDING SECTION VI
03M16	UF FILTER BUILDING SECTION VII
03M17	UF FILTER BUILDING SECTION VIII
03M18	UF FILTER BUILDING SECTION IX
03M19	BLOWER ROOM PLAN AND SECTION
03M20	PERMEATE PUMP PLAN AND SECTIONS
03M21	UF FILTER BUILDING DETAILS
03M22	BETWEEN BUILDINGS PLAN

DWG NO.	DESCRIPTION
03M23	BETWEEN BUILDINGS SECTION
04M01	POST MIX BASIN A PLAN AND SECTION
04M02	POST MIX BASIN B PLAN AND SECTION
05DM01	BLEND CHAMBER DEMOLITION PLAN
05DM02	BLEND CHAMBER DEMOLITION SECTION
05M01	BLEND CHAMBER PLAN I
05M02	BLEND CHAMBER PLAN II
00GM01	MECHANICAL TYPICAL DETAILS I
00GM02	MECHANICAL TYPICAL DETAILS II
00GM03	MECHANICAL TYPICAL DETAILS III
00GM04	MECHANICAL TYPICAL DETAILS IV
00GM05	MECHANICAL TYPICAL DETAILS V
00GM06	MECHANICAL TYPICAL DETAILS VI
00GM07	MECHANICAL TYPICAL DETAILS VII
1 00GM08	MECHANICAL TYPICAL DETAILS VIII
	HVAC DRAWINGS
00H01	HVAC LEGEND AND GENERAL NOTES
00H02	HVAC SCHEDULES
00H03	HVAC SCHEDULES
02H01	HVAC CHEMICAL FEED PLAN
02H02	HVAC CHEMICAL FEED ROOF PLAN
03H01	HVAC FILTER BUILDING 1ST FLOOR PLAN
03H02	HVAC FILTER BUILDING 2ND FLOOR PLAN
03H03	HVAC FILTER BUILDING ROOF PLAN
00GH01	HVAC DETAILS
00GH02	HVAC DETAILS
	ELECTRICAL DRAWINGS
00E01	ELECTRICAL LEGEND AND SYMBOLS
00E02	ELECTRICAL GENERAL NOTES
00E03	SWGR-1 DEMOLITION ONE LINE DIAGRAM
00E04	SWGR-1 MODIFIED ONE LINE DIAGRAM
00E05	MCC-9 ONE LINE DIAGRAM
00E06	MCC-10 ONE LINE DIAGRAM
00E07	MCC-9 AND MCC-10 ELEVATION
00E08	MCC-1A ONE LINE DIAGRAM
00E09	B-MCC-3 DEMOLITION ONE LINE DIAGRAM
00E10	EXISTING B-MCC-3 ELEVATION
00E11	B-MCC-3 NEW ONE LINE DIAGRAM
00E12	B-MCC-3 NEW ELEVATION
00E13	COMMUNICATION RISER
00E14	INSTRUMENTATION RISER DIAGRAMS
00E15	INSTRUMENTATION RISER DIAGRAMS
00E16	INSTRUMENTATION RISER DIAGRAMS
00E17	RISER DIAGRAMS
00E18	RISER DIAGRAMS
00E19	SCHEDULES
00E20	SCHEDULES
00E21	SCHEDULES
00E22	SCHEDULES
00E23	SCHEDULES
00E24	SCHEDULES
00E25	ELECTRICAL SCHEMATIC - SHEET 1
00E26	ELECTRICAL SCHEMATIC - SHEET 2
00E27	ELECTRICAL SCHEMATIC - SHEET 3
00E28	ELECTRICAL SCHEMATIC - SHEET 4
00E29	ELECTRICAL SCHEMATIC - SHEET 5
00E30	ELECTRICAL SITE PLAN - ENLARGED DEMOLITION PLAN 1
00E31	ELECTRICAL SITE PLAN - KEY PLAN
00E32	ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 1
00E33	ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 2
00E34	ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 3
00E35	ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 4
02E01	CHEMICAL BUILDING - KEY PLAN
02E02	CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 1
02E03	CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 2
02E04	CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 3
02E05	CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 4
02E06	CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 5
02E07	CHEMICAL BUILDING - ELECTRICAL ROOM LIGHTING PLAN
02E08	CHEMICAL BUILDING - ENLARGED POWER PLAN 1
02E09	CHEMICAL BUILDING - ENLARGED POWER PLAN 2
02E10	CHEMICAL BUILDING - ENLARGED POWER PLAN 3
02E11	CHEMICAL BUILDING - ENLARGED POWER PLAN 4
02E12	CHEMICAL BUILDING - ENLARGED POWER PLAN 5
02E13	CHEMICAL BUILDING - ELECTRICAL ROOM POWER PLAN
02E14	CHEMICAL BUILDING - GROUNDING PLAN
02E15	CHEMICAL BUILDING - ELECTRICAL ROOM GROUNDING PLAN
02E16	NEUTRALIZATION - POWER PLAN
02E17	NEUTRALIZATION - GROUNDING PLAN
03E01	UF FILTER BUILDING - FIRST LEVEL KEY PLAN
03E02	UF FILTER BUILDING - FIRST LEVEL ENLARGED DEMOLITION PLAN 1
03E03	UF FILTER BUILDING - FIRST LEVEL ENLARGED DEMOLITION PLAN 2
03E04	UF FILTER BUILDING - FIRST LEVEL ENLARGED LIGHTING PLAN 1
03E05	UF FILTER BUILDING - FIRST LEVEL ENLARGED LIGHTING PLAN 2
03E06	UF FILTER BUILDING - FIRST LEVEL ENLARGED POWER PLAN 1
03E07	UF FILTER BUILDING - FIRST LEVEL ENLARGED POWER PLAN 2
03E08	UF FILTER BUILDING - SECOND LEVEL KEY PLAN
03E09	UF FILTER BUILDING - SECOND LEVEL ENLARGED DEMOLITION PLAN 1
03E10	UF FILTER BUILDING - SECOND LEVEL ENLARGED DEMOLITION PLAN 2

DWG NO.	DESCRIPTION
03E11	UF FILTER BUILDING - SECOND LEVEL ENLARGED LIGHTING PLAN 1
03E12	UF FILTER BUILDING - SECOND LEVEL ENLARGED LIGHTING PLAN 2
03E13	UF FILTER BUILDING - SECOND LEVEL ENLARGED POWER PLAN 1
03E14	UF FILTER BUILDING - SECOND LEVEL ENLARGED POWER PLAN 2
03E15	UF FILTER BUILDING - ROOF LEVEL
04E01	POST MIX BASIN A - ELECTRICAL PLAN
04E02	POST MIX BASIN B - ELECTRICAL PLAN
00ED01	ELECTRICAL DETAILS - SHEET 1
00ED02	ELECTRICAL DETAILS - SHEET 2
00ED03	ELECTRICAL DETAILS - SHEET 3
00ED04	ELECTRICAL DETAILS - SHEET 4
00ED05	ELECTRICAL DETAILS - SHEET 5
00ED06	ELECTRICAL DETAILS - SHEET 6
00ED07	ELECTRICAL DETAILS - SHEET 7
	FIRE ALARM/PROTECTION DRAWINGS
00F01	FIRE ALARM LEGENDS AND GENERAL NOTES
00F02	FIRE ALARM SITE PLAN
00F03	FIRE ALARM RISER DIAGRAMS - SHEET 1
00F04	FIRE ALARM RISER DIAGRAMS - SHEET 2
00F05	FIRE ALARM FACP -1 CALCULATIONS
00F06	FIRE ALARM FACP -2 CALCULATIONS
00F07	FIRE ALARM INSTALLATION DETAILS
02F01	CHEMICAL BUILDING - FIRE ALARM PLAN
02F02	CHEMICAL BUILDING - PLAN
03F01	UF FILTER BUILDING - FIRST LEVEL FIRE ALARM PLAN
03F02	UF FILTER BUILDING - SECOND LEVEL FIRE ALARM PLAN
	INSTRUMENTATION DRAWINGS
00N01	INSTRUMENTATION LEGEND AND SYMBOLS
00N02	COMMUNICATION BLOCK DIAGRAM
00N03	P&ID - SHEET 1 TRAIN A POST MIX BASINS/MEMBRANE PRESCREENS
00N04	P&ID - SHEET 2 TRAIN B POST MIX BASINS/MEMBRANE PRESCREENS
00N05	P&ID - SHEET 3 INFLUENT CHANNEL NO.1
00N06	P&ID - SHEET 4 INFLUENT CHANNEL NO.2
00N07	P&ID - SHEET 5 MEMBRANES & ASSOCIATED EQUIPMENT
00N08	P&ID - SHEET 6 PREMEATE PUMP & ASSOCIATED EQUIPMENT
00N09	P&ID - SHEET 7 PREMEATE TURBIDIMETERS - SHEET 1
00N10	P&ID - SHEET 8 PREMEATE TURBIDIMETERS - SHEET 2
00N11	P&ID - SHEET 9 COMMON PREMEATE HEADER
00N12	P&ID - SHEET 10 BACKPULSE PUMPS AND ASSOCIATED EQUIPMENT
00N13	P&ID - SHEET 11 CIP SYSTEM 1
00N14	P&ID - SHEET 12 CIP SYSTEM 2
00N15	P&ID - SHEET 13 NEUTRALIZATION TANKS
00N16	P&ID - SHEET 14 NEUTRALIZATION TRANSFER
00N17	P&ID - SHEET 15 AIR SYSTEM FOR PDT EQUIPMENT AND VALVES
00N18	P&ID - SHEET 16 P.D. BLOWERS AND ASSOCIATED EQUIPMENT
00N19	P&ID - SHEET 17 HEATER WASH WATER SYSTEM
00N20	P&ID - SHEET 18 HYDROCHLORIC ACID STORAGE AND FEED
00N21	P&ID - SHEET 19 CITRIC ACID STORAGE AND FEED
00N22	P&ID - SHEET 20 CAUSTIC SODA STORAGE AND FEED SHEET 1
00N23	P&ID - SHEET 21 CAUSTIC SODA STORAGE AND FEED SHEET 2
00N24	P&ID - SHEET 22 SODIUM BISULFITE STORAGE AND FEED
00N25	P&ID - SHEET 23 SODIUM HYPOCHLORITE STORAGE AND FEED
00N26	CHEMICAL BUILDING PACKAGED SUMP PUMP STATIONS
00N27	P&ID - EYEWASH AND MISCELLANEOUS
00N28	INSTRUMENTATION DETAILS - SHEET 1
00N29	INSTRUMENTATION DETAILS - SHEET 2
00N30	INSTRUMENTATION DETAILS - SHEET 3
00N31	INSTRUMENTATION DETAILS - SHEET 4
00N32	INSTRUMENTATION DETAILS - SHEET 5
00N33	AIR SUPPLY AND EJECTOR ASSEMBLY (TEMPORARY SYSTEM FOR STARTUP)

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY DEAN MILTON 05/12/2019 FL 52719 **

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
DRAWING INDEX

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 9520I.10
DRAWING NO. 00G02

PROJECT NO. 9520I10 FILE NAME: 9520I1000G02.dgn

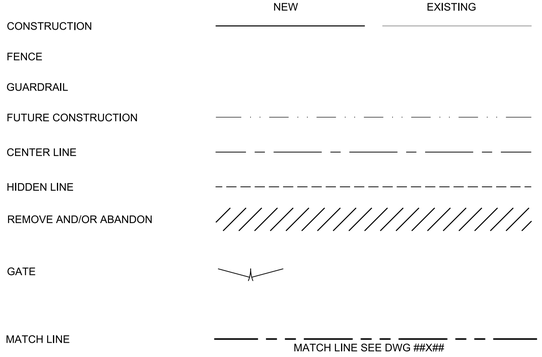
LAST SAVED BY: eparker
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
User: svcPW Plot Date: 04-APR-2025 10:26:16 AM

Plot Date: 04-APR-2025 6:20:12 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

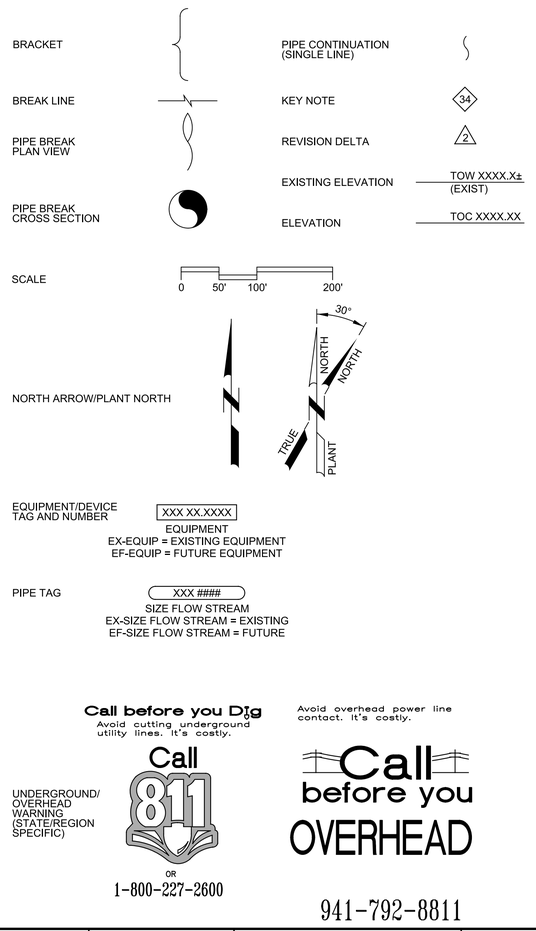
GENERAL NOTES

1. FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE BID DOCUMENTS AS IF THEY WERE WRITTEN IN THEIR ENTIRETY ON EACH SHEET.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE BID DOCUMENTS AND EXISTING CONSTRUCTION.
3. UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.
4. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK. DETAILS SHALL BE IN THE SAME AS FOR OTHER SIMILIAR WORK.
5. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.
6. THESE DRAWINGS INCLUDE REFERENCED BACKGROUND INFORMATION FROM THE PROJECT: "WTP BIOLOGICAL TREATMENT UNIT, COUNTY PROJECT NO. 6085870. THE RELATED FACILITIES, INCLUDING STRUCTURES, ELECTRICAL, BURIED PIPING AND ELECTRICAL DUCTWORK AND OTHER APPURTENANCES SHOWN ARE BASED ON THE CONFIRMED DRAWINGS THAT WERE AVAILABLE AT THE TIME OF DESIGN AND DO NOT REPRESENT AS-BUILT OR RECORD INFORMATION. BEFORE PERFORMING ANY FIELD-WORK OR LAYOUT OF NEW FACILITIES, THE CONTRACTOR MUST REQUEST AND REVIEW THE WTP BIOLOGICAL TREATMENT UNIT PROJECT RECORD DRAWINGS FROM COUNTY IF/AS AVAILABLE AT THAT TIME, AND PROVIDE CONFIRMATION ACCORDINGLY TO THE ENGINEER. IF RECORD DRAWINGS ARE NOT AVAILABLE AT THAT TIME, CONTRACTOR SHALL CONDUCT EXPLORATORY SITE INVESTIGATIONS (I.E. SUES AND/OR MINIMAL EXCAVATIONS AS NEEDED) TO LOCATE/CONFIRM THE PERTINENT ELEMENTS.
7. CONTRACTOR SHALL COMPLY WITH LOCAL CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS.
8. PRIOR TO EXCAVATION FOR NEW STRUCTURES, ELECTRICAL CONDUIT, FABRICATION OF NEW PIPING AND/OR OTHER PROPOSED UTILITIES, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING PIPING AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL TEMPORARILY RELOCATE CONFLICTING EXISTING UTILITIES AT TIE-IN/CONNECTION LOCATIONS AND REINSTALL THEM AS REQUIRED TO ELIMINATE THE CONFLICT AT NO ADDITIONAL COST TO THE OWNER.
9. ALL PIPELINES SHALL HAVE A MINIMUM COVER OF 36" UNLESS THE COVER DEPTH IS SPECIFICALLY INDICATED ON THE DRAWINGS.
10. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES, MATERIAL TYPES, AND ELEVATIONS SHOWN AROUND OR NEAR AREAS OF NEW CONSTRUCTION PRIOR TO START OF CONSTRUCTION.
11. CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING PIPE, EQUIPMENT, AND STRUTURES. AS REQUIRED AND SHALL PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES REQUIRED TO MAKE THE CONNECTIONS. PROVIDE ALL SUPPORTS REQUIRED FOR A RIGIDLY SUPPORTED COMPLETE AND WORKING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINING ALL EXISTING PIPE LIQUIDS AND LEGALLY DISPOSE OF AS PART OF THE TIE-IN EFFORTS.
12. ADJUST ALL VALVE BOXES, VAULTS, PULL BOXES, AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED. MANHOLES IN OPEN FIELDS SHALL BE SET TWELVE INCHES ABOVE FINISHED GRADE AND VAULTS SHALL BE SIX INCHES ABOVE FINISHED GRADE.
13. THE CONTRACTOR SHALL CONTACT THE PROPER UTILITY REPRESENTATIVE FOR QUESTIONS OR COORDINATION OF CONSTRUCTION RELATED TO EXISTING UTILITIES.
14. CONTRACTOR SHALL VERIFY THAT PIPING SHOWN TO BE ABANDONED OR REMOVED IS CURRENTLY NOT IN SERVICE. LINES IN SERVICE SCHEDULED TO BE ABANDONED OR REMOVED SHALL BE MAINTAINED UNTIL NO LONGER REQUIRED BY THE FACILITY OPERATIONS. REFER TO SECTION 01140 FOR ADDITIONAL REQUIREMENTS.
15. ALL EXISTING PIPES THAT ARE TO BE ABANDONED IN PLACE OR REMOVED MAY NOT BE SHOWN. WHERE PIPING IS TO BE ABANDONED AND MUST REMAIN IN SERVICE UNTIL COMPLETION OF OTHER PHASES OF WORK, AND IT CONFLICTS WITH NEW PIPING, TEMPORARILY RELOCATE PIPING AS REQUIRED TO MAINTAIN SERVICE BY THE PLANT. ALL PIPE TO BE ABANDONED SHALL BE FILLED WITH GROUT PER SECTION 02005 AND CAPPED IN PLACE.
16. CONTRACTOR SHALL REROUTE THE EXISTING PIPING IF REQUIRED TO MISS THE PROPOSED STRUCTURES. THE EXISTING PIPE SHALL REMAIN IN SERVICE UNTIL NEW PIPING IS READY TO BE PLACED INTO SERVICE. DOWNTIME SHALL BE A MAXIMUM OF 2 HOURS, UNLESS SPECIFIED OR SHOWN OTHERWISE.
17. ALL SIDEWALKS TO BE 3'-0" WIDE UNLESS SHOWN OTHERWISE.
18. THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS IN THE VICINITY OF ANY OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL ABIDE BY THE NATIONAL ELECTRIC CODE AND ANY REQUIREMENT BY THE OWNER OF THE ELECTRIC LINES.
19. PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES.
20. CONTRACTOR SHALL VERIFY LOCATION OF ALL ARCHITECTURAL, MECHANICAL, AND ELECTRICAL ITEMS BEFORE PLACING ANY STRUCTURAL STEEL OR CONCRETE. ALSO, STRUCTURAL DIMENSIONS AND OPENINGS CONTROLLED BY ARCHITECTURAL, MECHANICAL, OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
21. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT ARE REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.
22. MAINTAIN ACCESS AND OPERATION TO ALL EXISTING FACILITY PROCESSES UNTIL NEW FACILITIES ARE FUNCTIONAL TO THE OWNER'S SATISFACTION.
23. ALL DISTURBED AREAS SHALL BE SODDED PER SECTION 02810.
24. CONSTRUCTION AREA SHALL BE CLEANED UP DAILY. ALL EXCAVATIONS SHALL BE BACKFILLED BY END OF DAY, OR WITH PERMISSION FROM THE OWNER, MAY BE LEFT OPEN WITH PROPER SAFETY PRECAUTIONS.
25. STORM DRAIN IMPROVEMENTS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS. THE CONTRACTOR SHALL NOT ADVERSELY IMPACT DRAINAGE SYSTEMS DURING CONSTRUCTION. TEMPORARILY RECONFIGURE THE DRAINAGE SYSTEMS; WHICH MIGHT BE IMPACTED BY CONSTRUCTION AS THE WORK PROCEEDS TO NOT CAUSE ADVERSE IMPACTS TO SURFACE WATER DRAINAGE EFFICIENCY. DO NOT IMPAIR SURFACE WATER DRAINAGE CAPACITY, PREPARE AND FOLLOW THE REQUIREMENTS OF THE APPROVED POLLUTION PREVENTION PLAN FOR THE PROJECT.

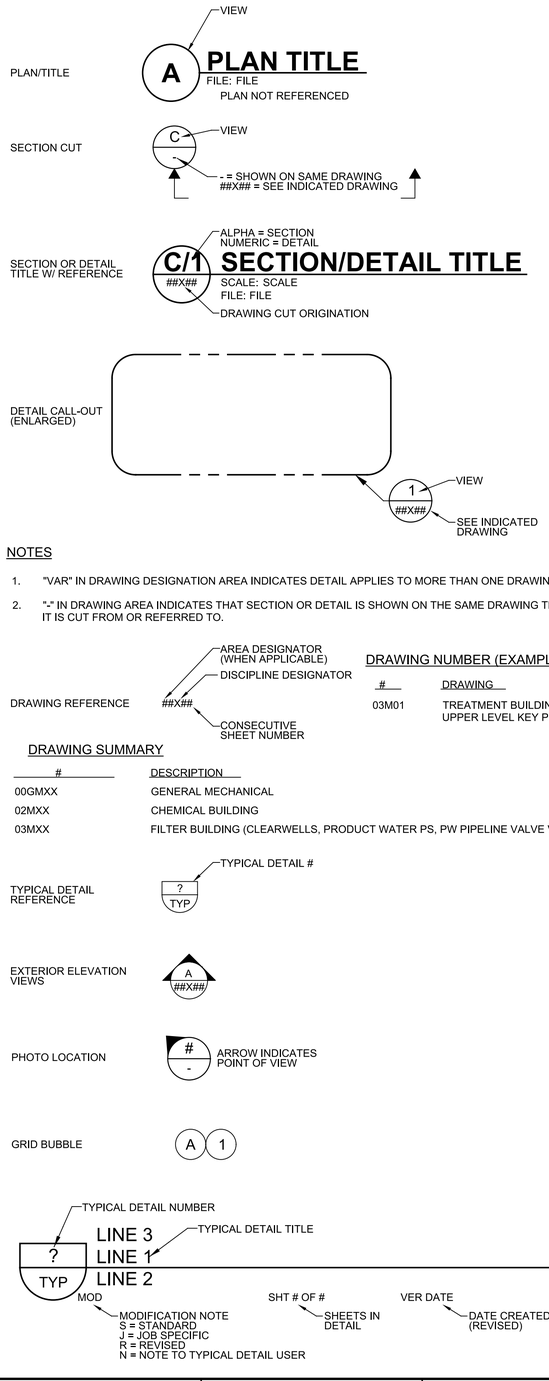
LINE WORK



SYMBOLS



DETAIL REFERENCES



NOTES

1. "VAR" IN DRAWING DESIGNATION AREA INDICATES DETAIL APPLIES TO MORE THAN ONE DRAWING.
2. "-" IN DRAWING AREA INDICATES THAT SECTION OR DETAIL IS SHOWN ON THE SAME DRAWING THAT IT IS CUT FROM OR REFERRED TO.

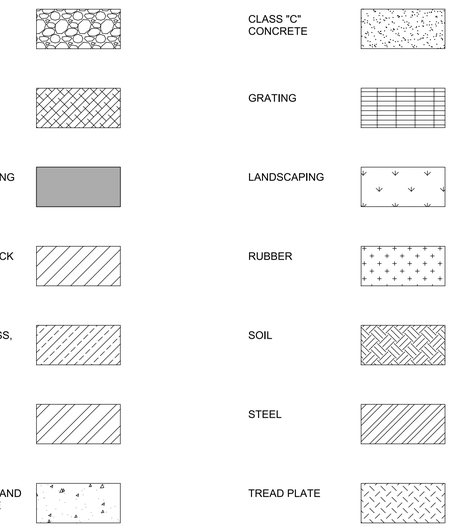
DRAWING NUMBER (EXAMPLE)

#	DRAWING
03M01	TREATMENT BUILDING UPPER LEVEL KEY PLAN

DRAWING SUMMARY

#	DESCRIPTION
00GMXX	GENERAL MECHANICAL
02MXX	CHEMICAL BUILDING
03MXX	FILTER BUILDING (CLEARWELLS, PRODUCT WATER PS, PW PIPELINE VALVE VAULT)

HATCH PATTERNS



MISCELLANEOUS

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
SYMBOLS AND GENERAL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00G03

@	AT (MEASUREMENT)	
△	DEFLECTION ANGLE, CENTRAL ANGLE	
#	NUMBER (REBAR Ø)	

A

AA	ANHYDROUS AMMONIA
AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ABS	ACRYLONITRILE BUTADIENE STYRENE
AC	ASPHALTIC CONCRETE
ACB	AIR CIRCUIT BREAKER
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ASBESTOS CEMENT PIPE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUST, ADJUSTABLE
ADMIN	ADMINISTRATION
ADR	ACCESS DOOR
AED	AREA EQUIPMENT DRAIN
AER	AERAT(ION)(OR)
AFC	AFTERCOOLER
AFF	ABOVE FINISHED FLOOR
AFM	AIR FLOW MONITOR
AHU	AIR HANDLING UNIT
AIC	AIR COMPRESSOR
AIL	AIR INTAKE LOUVER
ALM	ALUM
ALT	ALTERNATE
AL	ALUMINUM
ANCH	ANCHOR
ANV	ANGLE VALVE
APPROX	APPROXIMATE, APPROXIMATELY
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
AS	AIR SCOUR
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AV	ACID VENT, AIR VALVE
AVG	AVERAGE
AVV	AIR AND VACUUM VALVE
AW	ACID WASTE

B

BC	BEGIN CURVE, BRASS CAP, BACK OF CURB, BOLT CIRCLE
BCKR	BACKER BOARD
BCB	BLEND CHAMBER BYPASS
BCM	BATCHMETER
BD	BOARD
BDD	BACKDRAFT DAMPER
BDR	BASIN DRAIN LINE
BF	BLIND FLANGE
BFG	BELOW FINISHED GRADE
BFP	BELT FILTER PRESS, BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BG	BREAK GLASS HAND SWITCH
BKW	BACKWASH
BLDG	BUILDING
BLK	BLOCK
BLKHD	BULKHEAD
BLR	PROCESS BLOWER
BM	BEAM, BENCH MARK
BOTT	BOTTOM
BOTTS	BOTTOM SLUDGE
BPD	BACKWASH POND
BPV	BACK PRESSURE VALVE
BRG	BEARING
BSP	BLACK STEEL PIPE
BTU	BRITISH THERMAL UNITS
BTWN	BETWEEN
BWS	BACKWASH SUPPLY
BV	BALL VALVE

C

C	CLOSE, CONDUIT CHANNEL (STRUCTURAL)
CA	CONCRETE ANCHOR, CITRIC ACID
CB	CATCH BASIN
CBS	CHEMICAL BUILDING TANK SUPPLY
CC	CENTER OF CURVATURE, CENTER TO CENTER
CCB	CHLORINE CONTACT BASIN
CD	CEILING DIFFUSER, CONDENSATE DRAIN
CDL	CHEMICAL DRAIN LINE
CDT	CONDUIT
CEF	CEILING EXHAUST FAN
CF	CUBIC FEET, CARTRIDGE FILTER
CFL	COMBINED FILTRATE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CH	CALCIUM HYDROXIDE (LIME)
CHF	CHEMICAL FEEDER
CHKD PL	CHECKERED PLATE
CI	CAST IRON OR CORROSION INHIBITOR
CIP	CLEAN IN PLACE
CIPS	CLEAN IN PLACE SUPPLY
CIPR-F	CLEAN IN PLACE RETURN - FEED
CIPR-P	CLEAN IN PLACE RETURN - PERMEATE
CIPWW	CLEAN IN PLACE WASTEWATER
CIRC	CIRCUMFERENTIAL/CIRCUMFERENCE
CJ	CONSTRUCTION JOINT
CKA	CHECK VALVE, ANGLE
CKB	CHECK VALVE, BALL
CKF	CHECK VALVE, FLAP
CKS	CHECK VALVE, SWING
CL	CENTER LINE
CLK	CHAIN LINK
CLD	CHLORINE LEAK DETECTOR
CLL	CHLORINE LIQUID
CLP	CHLORINE GAS (PRESSURE)
CLR	CLEAR
CLS	CHLORINE SOLUTION
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CL2	CHLORINE
CLV	CHLORINE GAS (VACUUM)
CML	CEMENT MORTAR LINED
CMLC	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE, COMPRESSOR
CMU	CONCRETE MASONRY UNIT
CNV	CONVEYOR
CO	CLEANOUT
COL(S)	COLUMN(S)
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUATION OR (D) (OUS)
CORR	CORRUGATE(D), CORROSION
CP	CONTROL POINT, CARRIER PIPE, CONTROL PANEL
CPA	COMPRESSED AIR
CPA-V	COMPRESSED AIR FOR PNEUMATIC VALVES
CPLG	COUPLING
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CRP	CAST IRON PIPE
CS	CARBON STEEL, CAUSTIC SODA
CSP	CHEMICAL SUMP PUMP, CORRUGATED STEEL PIPE
CT	CURRENT TRANSFORMER, CERAMIC TILE
CTJ	CONTROL JOINT
CTL	CONTROL
CTR	CENTER, CENTERED
CTSK	COUNTERSUNK
CU	CUBIC
CUP	COPPER PIPE
CV	CHECK VALVE
CW	COLD WATER
CWV	COMBINATION WASTE AND VENT
CY	CUBIC YARD

D

D	DEPTH, DIGITAL OR DISCRETE, DRAIN
D/W	DRIVEWAY
DBL	DOUBLE
DDR	DESICCANT DRYER
DEG or °	DEGREE
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DFL	DECANT/FILTRATE
DG	DOOR GRILLE
DIA or Ø	DIAMETER
DIAG	DIAGONAL
DIF	DIFFUSER
DIG	DIGESTER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIW	DEIONIZED WATER
DL	DEAD LOAD, DRAIN LINE
DLV	DOOR LOUVER
DMP	DAMPER
DMS	DIAPHRAGM SEAL
DN	DOWN
do	DITTO
DO	DOOR OPENING
DP	DEEP (OR DEPTH)
DPV	DIAPHRAGM VALVE
DR	DOOR, DRAIN
DRT	DRIP TRAP
DRV	DRAIN VALVE
DS	DIGESTED SLUDGE, DOWN SPOUT
DSW	DISTILLED WATER, DOOR SWITCH
DUC	DUST COLLECTOR
DUH	DUCT HEATER UNIT
DW	DISTILLED WATER
DWD	DEWATERING DRAIN
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)

E

E	EAST
EA	EACH
EC	END OF CURVE
ECC RED	ECCENTRIC REDUCER
ECU	EVAPORATOR COOLING UNIT
ED	EQUIPMENT DRAIN
EF	EXHAUST FAN, EACH FACE
EFF	EFFLUENT
EG	EXHAUST GRILLE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EJR	EDUCTOR
EL	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
EMBED	EMBEDMENT
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPS	EXPANDED POLYSTYRENE
EPV	ECCENTRIC PLUG VALVE
EQ	EQUALIZATION
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EACH SIDE
ESEW	EMERGENCY SHOWER AND EYE WASH
ESS	EMERGENCY HAND SWITCH
ET	ELECTRICALLY HEAT TRACED
EUH	ELECTRIC UNIT HEATER
EVR	EVAPORATOR
EW	EACH WAY, EYE WASH
EWC	ELECTRIC WATER COOLER
EWEF	EACH WAY EACH FACE
EWH	ELECTRIC WATER HEATER, EXHAUST
EX	EXISTING
EXIST	EXISTING
EXP	EXPANSION, EXPANSION TANK
EXPO	EXPOSED
EXT	EXTERIOR

F

F	FLUORIDE, FAN
FACT	FACTORY
FAD	FOUL AIR DUCT
FB	FLAT BAR
FBW	FILTER BACKWASH
FC	FACE OF CURB, FLEXIBLE COUPLING
FCA	FLANGE COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER, FLOOR DRAIN, FOUND
FDC	FIRE DEPARTMENT CONNECTION
FDL	FLOOR DRAIN LINE
FDR	FEEDER
FEFF	FINAL EFFLUENT
FG	FLAP GATE
FH	FIRE HYDRANT
FIN	FINISH
FIN FL	FINISHED FLOOR
FIN GR	FINISHED GRADE
FL	FLOOR, FLOW LINE
FLA	FOUL AIR
FLD	FILTER DRAIN
FLE	FILTER EFFLUENT
FLEX	FLEXIBLE
FLG	FLANGE, OR FLANGED
FLR	FILTER
FM	FORCE MAIN
FND	FOUNDATION
FO	FUEL OIL
FPM	FEET PER MINUTE
FPP	FLEXIBLE PLASTIC PIPE
FRP	FIBERGLASS REINFORCED PLASTIC
FRPP	FIBERGLASS REINFORCED PLASTIC PIPE
FRS	FROTH SPRAY
FS	FAR SIDE
FSTN	FASTEN(ED)
FT or '	FOOT, FEET
FTG	FOOTING
FUP	FUEL DISPENSER
FV	FLAP VALVE
FW	FLUSHING WATER
FX	FIRE EXTINGUISHER
FXC	FIRE EXTINGUISHER CABINET
FXE	FIRE EXTINGUISHER - ELECTRICAL

G

G	GAS, GROUND, GUTTER
GA	GAUGE or GAGE
GAL	GALLONS
GALV	GALVANIZE(D)
GAV	GRAVITY VENTILATOR
GB	GRADE BREAK
GBT	GRAVITY BELT THICKENER
GC	GROOVED COUPLING
GEL	GRAVITY EXHAUST LOUVER
GEN	GENERAL, GENERATOR
GL	GLASS
GLV	GLOBE VALVE
GM	GAS METER
GND	GROUND
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
GRTG	GRATING
GRV	GRAVITY VENTILATOR
GSP	GALVANIZED STEEL PIPE
GST	GROUND STORAGE TANK
GV	GATE VALVE
GYP	GYPSUM

H

H	EXPLOSION-PROOF, HIGH, HORIZONTAL
H1E	HOOK ONE END
H2E	HOOK TWO ENDS
HAS	HEADED ANCHOR STUD
HB	HOSE BIBB
HCL	HYDROCHLORIC ACID
HDPE	HIGH DENSITY POLYEHTYLENE
HDW	HARDWARE
HDWL	HEADWALL
HEF	HOOD EXHAUST FAN
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HEAT PUMP, HORSEPOWER, HIGH PRESSURE
HPA	HIGH PRESSURE AIR
HPT	HIGH POINT
HPU	HEAT PUMP UNIT AIR
HR	HANDRAIL, HOSE REEL, HOUR
HSF	HOOD SUPPLY FAN
HSS	HOLLOW STRUCTURAL SECTION (STEEL)
HTX	HEAT EXCHANGER
HV	HOSE VALVE
HW	HOT WATER
HWL	HIGH WATER LEVEL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HxW	HEIGHT BY WIDTH
HYD	HYDRANT

I

IA	INSTRUMENT AIR
ID	INSIDE DIAMETER, INSIDE DIMENSION, IDENTIFICATION
I.F.	INSIDE FACE
IN or "	INCHES
INCL	INCLUDE, INCLUDING
INF	INFLUENT
INJ	INJECTOR
INSTR	INSTRUMENTATION
INSUL	INSULAT(E)(ED)(ING)(ION)
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
ISR	INTRINSICALLY SAFE RELAY
IXS	ION EXCHANGE SUPPLY

J

JST	JOIST
JT	JOINT

K

KGV	KNIFE GATE VALVE

L

L	ANGLE (STRUCTURAL), LENGTH, LOUVER
LAB	LABORATORY
LAV	LAVATORY
LB(S)	POUND(S)
LDF	LIQUID DIESEL FUEL
LDFR	LIQUID DIESEL FUEL RETURN
LF	LINEAL FEET
LG	LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LT	LEFT
LWL	LOW WATER LEVEL
LHRA	LEFT HAND REVERSE ACTIVE
LHRB	LEFT HAND REVERSE BEVEL
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW PRESSURE, LIGHTING PANEL
LPA	LOW PRESSURE AIR
LPG	LIQUIFIED PROPANE GAS
LPT	LOW POINT
LR	LONG RADIUS
LS	LAB SINK

M

M	MOTOR
MAINT	MAINTENANCE
MAN	MANUAL
MASY	MASONRY
MATL	MATERIAL
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MECHANICAL COUPLING
MCJ	MASONRY CONTROL JOINT
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MFL	MEMBRANE FILTRATE
MFW	MEMBRANE FEED WATER
MG/L	MILLIGRAMS PER LITER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MIT	MEMBRANE INTEGRITY TEST
MIX	MIXER
MJ	MECHANICAL JOINT
MK	MARK
ML	MIXED LIQUOR
MO	MASONRY OPENING
MOD	MODIFIED
MOIST	MOISTURE
MON	MONUMENT
MOS	MOISTURE SEPARATOR
MPM	METERING PUMP
MS	MOP SINK, MOTOR STARTER
MSS	MEMBRANE SYSTEM SUPPLIER
MTD	MOUNTED
MWW	MEMBRANE WASTE WASHWATER

N

N	NORTH, NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEV	VALVE, NEEDLE
NG	NATURAL GRADE, NATURAL OR LP GAS
NIC	NOT IN CONTRACT
NO., #	NUMBER
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NS	NEAR SIDE
NTS	NOT TO SCALE

O

O	OPEN
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
OED	OPEN EQUIPMENT DRAIN
O.F.	OUTSIDE FACE
OFL	OVERFLOW
OPNG	OPENING
OPP	OPPOSITE
OPP HND	OPPOSITE HAND
OZ	OUNCE

P

P	POLE
PA	PHOSPHORIC ACID
PAC	POWDERED ACTIVATED CARBON
PBL	POLYMER BLENDER
PC	POINT OF CURVATURE, PRIMARY COAGULANT
PCC	PLANT CONTROL CENTER
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCP	PROGRESSIVE CAVITY PUMP
PD	POSITIVE DISPLACEMENT, PLANT DRAIN
PD, PLD	PULSATION DAMPENER
PDP	POSITIVE DISPLACEMENT PUMP
PE	PLAIN END
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PHASE, PHYSICALLY HANDICAPPED
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PL	PLATE, PROPERTY LINE
PLAS	PLASTIC
PLCS	PLACES
PLS	POLYMER SOLUTION
PLW	PLANT WATER
PLWD	PLYWOOD
PMP	PUMP
PNL(S)	PANEL(S)
POL	POLYMER
POLY	POLYETHYLENE
POS	POSITION
POW	POTABLE WATER
PP	POTASSIUM PERMANGANATE OR POWER POLE
PPMV	PARTS PER MILLION (VOLUME)
PRC	POINT OF REVERSE CURVATURE
PREFAB	PREFABRICATED
PRG	PRESSURE REGULATOR
PRI	PRIMARY
PROJ	PROJECTION
PRR	PRESSURE OR VACUUM RELIEF VALVE
PRV	PRESSURE REDUCING VALVE, PRESSURE REGULATION VALVE, PRESSURE RELIEF VALVE
PS	PUMP STATION, PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSG	PRESSURE GAUGE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT, POINT OF TANGENCY
PV	PLUG VALVE
PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENEFLUORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY, PROCESS VENT

Q

QTY	QUANTITY

R

R/W	RIGHT OF WAY
RAD	RADIUS, RADIAL
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RDL	ROOF DRAIN LINE
RDOF	ROOF DRAIN OVERFLOW
RECIRC	RECIRCULATING
RED	REDUCER, ROOF EQUIPMENT DRAIN
REF	REFERENCE
REG	REGULATOR, REGULATING
REINF	REINFORCE(D)(ING)(MENT)
REJ	RUBBER EXPANSION JOINT
REQD	REQUIRED
RER	REACTOR
RES	RESERVOIR
REV	REVISION, REVERSE
RF	RETURN FAN
RG	RETURN GRILLE RUBBER GASKET
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RHRA	RIGHT HAND REVERSE ACTIVE
RHRB	RIGHT HAND REVERSE BEVEL
RLS	REGISTERED LAND SURVEYOR
RM	ROOM
RO	ROUGH OPENING
ROT	ROTAMETER
RP	RADIUS POINT
RPM	REVOLUTIONS PER MINUTE
RPMP	REINFORCED PLASTIC MORTAR PIPE
RR	RETURN REGISTER
RSR	RISER
RT	RIGHT
RTF	ROTARY FEEDER
RTU	ROOF TOP UNIT
RUD	RUPTURE DISK
RW	RECLAIMED WATER, REUSE WATER, RAW WATER
RWR	RECLAIMED WATER RETURN
RWW	RAW WASTEWATER

S

S/W	SIDEWALK
S	SOUTH, SWITCH, SLOPE
SA	SAMPLE
SBS	SODIUM BISULFITE
SC	SECONDARY CLARIFIER
SCB	SCRUBBER
SCD	SMOKE CONTROL DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SCO	SURFACE CLEANOUT
SCR	BAR SCREEN
SCR	SILICON CONTROL RECTIFIER
SD	SMOKE DETECTOR, SPLITTER DAMPER, STORM DRAIN
SDL	SUMP DISCHARGE DRAIN LINE
SDO	SLUDGE DRAWOFF
SE	SECONDARY EFFLUENT
SEC	SECONDARY, SECOND
SECT	SECTION
SED	SEDIMENTATION
SEP	SEPTAGE
SF	SUPPLY FAN
SFW	SOFTENED WATER
SG	SUPPLY GRILLE
SGS	STORE FRONT GLAZING SYSTEM
SH	SODIUM HYPOCHLORITE
SHD	SHOWER DRAIN
SHDR	SOLIDS HANDLING-RECYCLE
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SK	SKIMMINGS
SL	SLOPE, SLUDGE
SLC	SLUDGE COLLECTOR DRIVE
SLG	SLIDE GATE
SLV	SLEEVE VALVE
SMP	SAMPLER, SUMP PUMP
SN	SUPERNATANT OR SUBNATANT
SOL	SOLUTION
SP	STATIC PRESSURE, SET POINT
SPD	SUMP PUMP DRAIN
SPDT	SINGLE POLE DOUBLE THROW
SPEC(S)	SPECIFICATION(S)
SPL	SPLITTER BOX
SPR	SPARE
SPS	SAMPLE SINK
SPW	SAMPLE WATER, SOFTENED POTABLE WATER
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN(S)	SQUARE INCH(ES)
SR	SHORT RADIUS, SUPPLY REGISTER
SRL	SCRUBBER RECIRCULATION LIQUID (CAUSTIC)
SS	SANITARY SEWER, SELECTOR SWITCH
SSK	SERVICE SINK
SSL	SECONDARY SLUDGE
ST	SLUDGE TRANSFER
ST STL	STAINLESS STEEL
STA	STATION
STB	STABILIZER
STD(S)	STANDARDS(S)
STIFF	STIFFENER
STIR	STIRRUPS
STL	STEEL
STM	STEAM
STP	STEEL PIPE
STR	STRAINER
STRUCT	STRUCTURAL
SUG	SLUICE GATE
SUPT	PIPE SUPPORT, SUPPORT
SV	SERVICE VALVE, SHUTOFF VALVE, SOLENOID VALVE
SW	SANITARY WASTE
SWR	SEAL WATER
SYM	SYMMETRICAL
SYN	SYNTHETIC

T

T	TANGENT LENGTH, THERMOSTAT, TIMER
T&B	TOP AND BOTTOM
TAS	THREADED ANCHOR STUD
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TCV	TEMPERATURE CONTROL VALVE
TDH	TOTAL DYNAMIC HEAD
TDR	TIME DELAY RELAY, TOWEL DISPENSER/RECEPTACLE, THICKENER DECANT RETURN
TEL	TELEPHONE
TH	TEST HOLE
THK	THICKENER, THICKNESS, THICK
TKS	THICKENED SLUDGE
TLV	TELESCOPING VALVE
TMH	TELEPHONE MANHOLE
TMP	TEMPERATURE
TNK	TANK
TO	TOP OF
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TOW	TOP OF WALL
TR	TRIAD (THREE CONDUCTOR SHIELDED CABLE), TIMING RELAY
TRD	TREAD
TS	THICKENER SUPERNATANT OR SUBNATANT
TSD	THICKENED SLUDGE DECANT
TSPL	TURBIDIMETER SAMPLE
TSTAT	THERMOSTAT
TTB	TELEPHONE TERMINAL BOARD
TUR	TURBINE
TV	TURNING VANES
TWV	THREE-WAY VALVE
TYP	TYPICAL

U

UC	UNDERCUT
UF	ULTRAFILTRATION
UG	UNDERGROUND
UHMWPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
UHMW	ULTRA HIGH MOLECULAR WEIGHT
UNO	UNLESS NOTED OTHERWISE
US	UTILITY SINK
UW	UTILITY WATER

V

V	VALVE
VAR	VARIES
VB	VALVE BOX
VCP	VITRIFIED CLAY PIPE
VEC	VINYL ESTER COATING
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VFR	VOLUMETRIC FEEDER
VG	VACUUM GAUGE, VALLEY GUTTER
VOL	VOLUME
VRV	VACUUM REGULATING VALVE
VTR	VENT THROUGH ROOF

W

W	WEST, WIDTH
W/	WITH
W/O	WITHOUT
WAS	WASTE ACTIVATED SLUDGE
WCO	WALL CLEANOUT
WEF	WALL EXHAUST FAN
WF	WALL FITTING, WASH FOUNTAIN
WH	WATER HEATER
WI	WEIGHT INDICATOR
WL	WALL LOUVER, WATER LEVEL
WM	WATER METER
WOD	WASTE OIL DRAIN
WP	WEATHERPROOF, WATERPROOF
WPT	WORKING POINT
WRG	WEIR GATE
WRS	WATER SOFTENER
WS	WATER SURFACE
WSTP	WATERSTOP
WT	WALK THROUGH, WEIGHT
WTF	WATER TREATMENT FACILITY
WTP	WATER TREATMENT PLANT
WTR	WATER
WV	WATER CONTROL VALVE
WW	WASTEWATER
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT

X

XFER	TRANSFER

Y

YH	YARD HYDRANT
YCO	YARD CLEANOUT
YH	YARD HYDRANT

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
ABBREVIATIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00G04

PROJECT NO. 9520I10 FILE NAME: 9520I1000G04.dgn

Plot Date: 04-APR-2025 6:19:38 AM
User: svcPW
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker
PlotScale: 1:1

Plot Date: 04-APR-2025 6:19:46 AM
User: svcPW
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DesignScript: Carollo_Std_Pen_v0905.pen
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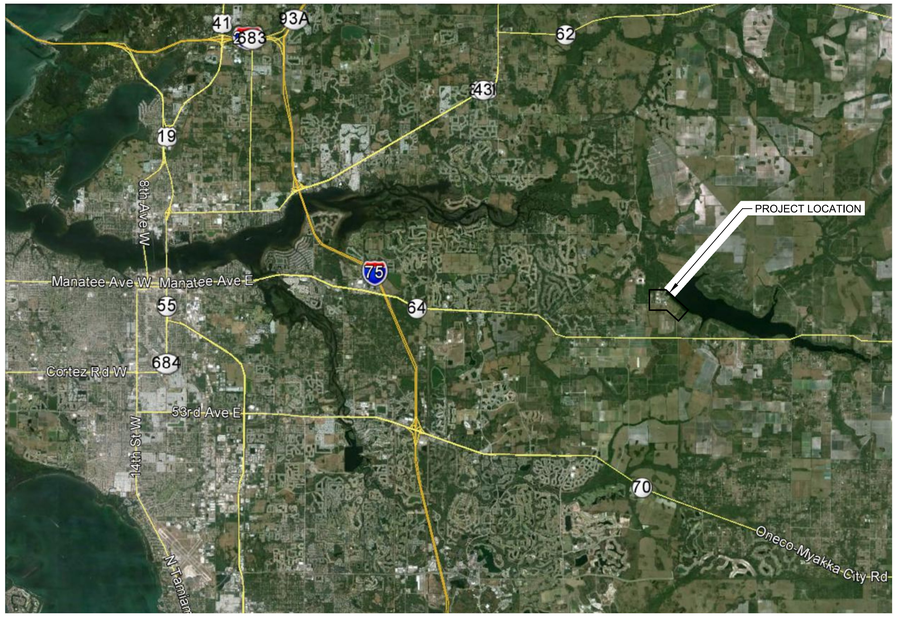

A **VICINITY MAP**
FILE: MANATEE VICINITY MAP.JGP

B **LOCATION MAP**
FILE: MANATEE LOCATION MAP.JGP

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
VICINITY AND LOCATION MAPS

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 00G05

Plot Date: 04-APR-2025 6:20:45 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

LAKE MANATEE WTP FILTER UPGRADE DESIGN CRITERIA

DESCRIPTION	UNITS	CRITERIA
SURFACE WATER PLANT CAPACITY		
RAW WATER DESIGN CAPACITY, TOTAL	MGD	54
TRAIN A DESIGN CAPACITY	MGD	24
TRAIN B DESIGN CAPACITY	MGD	30
RAW WATER PUMP STATION NO. 1		
EXISTING		
TYPE: AXIAL SPLIT CASE		
NUMBER OF PUMPS	NO.	5
CAPACITY, EACH (NO. 1)	GPM	9,000
CAPACITY, EACH (NO. 2-5)	GPM	6,800
TDH (NO. 1)	FT	55
TDH (NO. 2-5)	FT	56
MOTOR SIZE (NO. 1)	HP	150
MOTOR SIZE (NO. 2-5)	HP	125
RAW WATER PUMP STATION NO. 2		
EXISTING		
TYPE: VERTICAL TURBINE		
NUMBER OF PUMPS	NO.	3
CAPACITY, EACH	GPM	10,400
TDH	FT	63
MOTOR SIZE	HP	200
RAPID MIX – TRAIN A		
EXISTING		
MIXING TYPE: VERTICAL MIXERS		
NUMBER OF MIXERS	NO.	1
MOTOR SIZE, EACH	HP	3
NUMBER OF TRAINS	NO.	1
BASIN SIZE, TOTAL	FT X FT (W X L)	6 X 6
WATER DEPTH	FT	14.9
BASIN VOLUME	GAL	4,020
DETENTION TIME (@ 24 MGD)	MIN	0.24
G-VALUE	1/SEC	383
RAPID MIX – TRAIN B		
EXISTING		
MIXING TYPE: VERTICAL MIXERS		
NUMBER OF MIXERS	NO.	1
MOTOR SIZE, EACH	HP	10
NUMBER OF TRAINS	NO.	1
BASIN SIZE, TOTAL	FT X FT (W X L)	10 X 10
WATER DEPTH	FT	9.8
BASIN VOLUME	GAL	7,360
DETENTION TIME (@ 30 MGD)	MIN	0.35
G-VALUE	1/SEC	517
FLOCCULATION – TRAIN A		
EXISTING		
TYPE: VERTICAL MIXERS		
NUMBER OF MIXERS	NO.	16
MOTOR POWER, EACH	HP	3
NUMBER OF TRAINS	NO.	2
NUMBER OF STAGES PER TRAIN	NO.	2
BASIN SIZE, STAGE 1	FT X FT (W X L)	22.5 X 12.2
BASIN SIZE, STAGE 2	FT X FT (W X L)	22.5 X 36.5
BASIN SIZE, TOTAL	FT X FT (W X L)	45 X 48.7
WATER DEPTH	FT	14.6
BASIN VOLUME, TOTAL	GAL	239,001
DETENTION TIME (@ 24 MGD)	MIN	14.3
G-VALUE	1/SEC	199
FLOCCULATION – TRAIN B		
EXISTING		
TYPE: HORIZONTAL PADDLE MIXERS		
NUMBER OF MIXERS	NO.	12
MOTOR POWER, PER 6 MIXERS	HP	3
NUMBER OF TRAINS	NO.	2
NUMBER OF STAGES PER TRAIN	NO.	2
BASIN SIZE, EACH TRAIN	FT X FT (W X L)	48 X 46
BASIN SIZE, TOTAL	FT X FT (W X L)	96 X 46
WATER DEPTH	FT	13.5
BASIN VOLUME, TOTAL	GAL	447,249
DETENTION TIME (@ 30 MGD)	MIN	21.5
G-VALUE	1/SEC	51
SEDIMENTATION – TRAIN A		
EXISTING		
SETTLER TYPE: RECTANGULAR		
NUMBER OF TRAINS	NO.	2
NUMBER OF BASINS PER TRAIN	NO.	1
BASIN SIZE, EACH	FT X FT (W X L)	22.5 X 400
WATER DEPTH	FT	14.6
VOLUME, EACH	GAL	979,506
VOLUME, TOTAL	GAL	1,959,012
DETENTION TIME (@ 24 MGD)	MIN	118
SURFACE LOADING RATE (@ 24 MGD)	GPM/SF	0.93
SLUDGE REMOVAL TYPE: TRAVELING BRIDGE COLLECTOR		
SEDIMENTATION – TRAIN B		
EXISTING		
SETTLER TYPE: CIRCULAR		
NUMBER OF TRAINS	NO.	1
NUMBER OF BASINS PER TRAIN	NO.	2
BASIN DIAMETER, EACH	FT	105
WATER DEPTH	FT	13.6
VOLUME, EACH	GAL	1,213,407
VOLUME, TOTAL	GAL	2,426,814
DETENTION TIME (@ 30 MGD)	MIN	116
SURFACE LOADING RATE (@ 30 MGD)	GPM/SF	0.94
SLUDGE REMOVAL TYPE: HOPPER		

DESCRIPTION	UNITS	CRITERIA
POST MIX BASIN – TRAIN A		
EXISTING		
NUMBER OF TRAINS	NO.	2
BASIN SIZE, EACH	FT X FT (W X L)	22.5 X 20.0
WATER DEPTH	FT	14.2
BASIN VOLUME, EACH	GAL	44,579
BASIN VOLUME, TOTAL	GAL	89,159
DETENTION TIME (@ 24 MGD)	MIN	5.3
NEW		
MIXING TYPE: VERTICAL MIXERS		
NUMBER OF MIXERS PER TRAIN	NO.	1
MOTOR SIZE, EACH	HP	7.5
G VALUE	1/SEC	182
POST MIX BASIN – TRAIN B		
EXISTING		
MIXING TYPE: VERTICAL MIXERS		
NUMBER OF MIXERS	NO.	2
MOTOR SIZE, EACH	HP	7.5
NUMBER OF TRAINS	NO.	1
BASIN SIZE	FT X FT (W X L)	50 X 29
WATER DEPTH	FT	12.6
BASIN VOLUME, TOTAL	GAL	121,777
DETENTION TIME (@ 30 MGD)	MIN	5.8
G-VALUE	1/SEC	156
SCREENS (POST MIX A AND B)		
NEW		
TYPE: TRAVELING BAND SCREENS		
FILTRATION DEGREE	MICRONS	500
SCREEN MOTOR POWER, EACH	HP	0.5
NUMBER OF SCREENS, POST MIX A1	NO.	2
NUMBER OF SCREENS, POST MIX A2	NO.	2
NUMBER OF SCREENS, POST MIX B	NO.	4
NUMBER OF SCREENS, TOTAL	NO.	8
FLOW RATE PER SCREEN, POST MIX A1	MGD	12
FLOW RATE PER SCREEN, POST MIX A2	MGD	12
FLOW RATE PER SCREEN, POST MIX B	MGD	15
SCREEN DIMENSIONS (BASIN A1)	FT X FT (W X H)	3 X 9
SCREEN DIMENSIONS (BASIN A2)	FT X FT (W X H)	3 X 9
SCREEN DIMENSIONS (BASIN B)	FT X FT (W X H)	3 X 11
SCREEN A1 HEADLOSS, 10% OBSTRUCTED WITH ONE OFFLIN	IN	6.7
SCREEN B HEADLOSS, 10% OBSTRUCTED WITH TWO OFFLIN	IN	7.0
SUBMERGED UF MEMBRANE SYSTEM		
NEW		
TYPE: POLYMERIC HOLLOW FIBER		
NUMBER OF UF TRAINS	NO.	12
MINIMUM SURFACE AREA PER TRAIN	SF	176,000
PEAK INSTANTANEOUS RAW WATER DEMAND	MGD	54
NET PRODUCTION CAPACITY	MGD	52
FEED WATER FLOW CONTROL STRATEGY: CONSTANT FEED FLOW SYSTEM		
NUMBER OF MEMBRANE BASINS, TOTAL	NO.	12
MAXIMUM NUMBER OF BASINS OFFLINE AT CAPACITY	NO.	2
MINIMUM FEED WATER RECOVERY	%	96.3
FLUX (ALL BASINS IN SERVICE)	GFD	26
FLUX (ONE BASIN OUT OF SERVICE)	GFD	28
FLUX (TWO BASINS OUT OF SERVICE)	GFD	32
OPERATING MODE: PARTIAL SIPHON		
NUMBER OF PERMEATE PUMPS WITH VFD	NO.	12
PUMP CAPACITY, EACH	GPM	3,950
TDH	FT	25
PUMP SIZE, EACH	HP	40
MEMBRANE INTEGRITY TEST INTERVAL (EACH TRAIN)	HR	24
PROCESS VALVES		
NEW		
TYPE: VANE TYPE PNEUMATIC ACTUATED BUTTERFLY VALVES		
AIR SUPPLY		
NEW		
AIR SUPPLY SOURCE: ROTARY VANE COMPRESSOR		
NO. OF COMPRESSORS	NO.	2
MOTOR SIZE, EACH	HP	20
COMPRESSOR CAPACITY, EACH	SCFM	72
DISCHARGE PRESSURE	PSI	150
NO. OF WET RECEIVER TANKS (MOUNTED)	NO.	2
WET RECEIVER TANK CAPACITY, EACH	GAL	120
NO. OF RECEIVER TANKS	NO.	2
RECEIVER TANK CAPACITY, EACH	GAL	660
FILTER BACKWASH SYSTEM		
NEW		
STORAGE TYPE: LINED CONCRETE TANK		
NUMBER OF TANKS	NO.	1
NUMBER OF COMPARTMENTS IN TANK	NO.	3
CAPACITY OF TANK, TOTAL	GAL	30,000
PUMP TYPE: VERTICAL TURBINE WITH VFD		
NUMBER OF PUMPS	NO.	3
MOTOR HORSEPOWER, EACH	HP	100
CAPACITY, EACH	GPM	5,072
TDH	FT	46
FILTER AIR SCOUR SYSTEM		
NEW		
BLOWER TYPE: ROTARY LOBE WITH VFD		
NUMBER OF BLOWERS	NO.	3
BLOWER CAPACITY, EACH	SCFM	576
BLOWER MOTOR SIZE, EACH	HP	20
DISCHARGE PRESSURE	PSI	3.8
FILTER CLEAN IN PLACE (CIP)		
NEW		

DESCRIPTION	UNITS	CRITERIA
RECOVERY CLEAN		
MAKE-UP WATER: MEMBRANE FILTRATE, HEATED AND SOFTENED		
(SOFTENED WATER FOR SODIUM HYPOCHLORITE/CAUSTIC CLEAN ONLY)		
TYPE: SEQUENTIAL SODIUM HYPOCHLORITE/CAUSTIC AND CITRIC ACID/HCl AT 104 DEG. F		
FREQUENCY (MAX.)	#/YEAR	12
MAINTENANCE CLEAN (MC)		
MAKE-UP WATER: MEMBRANE FILTRATE		
TYPE: SODIUM HYPOCHLORITE/CAUSTIC OR CITRIC/HYDROCHLORIC ACID AT AMBIENT TEMPERATURE		
FREQUENCY (MAX.)	#/DAY	2
HOT WATER TANK		
TYPE: FRP TANK		
SOURCE: IMMERSION HEATERS		
NO. OF TANKS	NO.	2
VOLUME, EACH	GAL	8,000
NO. OF HEATERS, SOFTENED HOT WATER TANK	NO.	3
POWER, EACH	KW	36
NO. OF HEATERS, UNSOFTENED HOT WATER TANK	NO.	3
POWER, EACH	KW	36
HOT WATER PUMPS		
TYPE: HORIZONTAL END-SUCTION CENTRIFUGAL		
NUMBER OF PUMPS	NO.	2
PUMP CAPACITY, EACH	GPM	1,000
TDH	FT	19
MOTOR SIZE, EACH	HP	10
CIP SOLUTION STORAGE TANK		
TYPE: FRP TANK		
NO. OF TANKS	NO.	2
VOLUME, EACH	GAL	8,000
CIP TRANSFER PUMPS		
TYPE: 316 SST END SUCTION CENTRIFUGAL WITH VFD		
NUMBER OF PUMPS	NO.	4
PUMP CAPACITY, EACH	GPM	1,140
TDH	FT	38
MOTOR SIZE, EACH	HP	20
CIP WASTE NEUTRALIZATION		
NEW		
NEUTRALIZATION STORAGE TANK		
TYPE: FRP TANK		
NO. OF TANKS	NO.	2
VOLUME, EACH	GAL	19,870
MIXER SIZE, EACH	HP	2
NEUTRALIZATION TRANSFER PUMPS		
TYPE: END SUCTION CENTRIFUGAL		
NUMBER OF PUMPS	NO.	3
PUMP CAPACITY, EACH	GPM	2,000
TDH	FT	22
MOTOR SIZE, EACH	HP	20
EQUALIZATION TANK		
TYPE: CONCRETE TANK		
NO. OF TANKS	NO.	1
VOLUME, EACH	GAL	200,000
CIP/HOT WATER TANK REFILL PUMPS		
NEW		
TYPE: VERTICAL TURBINE		
NUMBER OF PUMPS	NO.	2
MOTOR HORSEPOWER, EACH	HP	10
CAPACITY, EACH	GPM	800
TDH	FT	28
SOFTENING SYSTEM		
NEW		
FEED PUMP		
TYPE: CENTRIFUGAL		
NUMBER OF PUMPS	NO.	1
PUMP CAPACITY, EACH	GPM	35
TDH	FT	126
MOTOR SIZE, EACH	HP	2
SOFTENER		
TYPE: ION EXCHANGE		
NUMBER OF SOFTENERS	NO.	2
NOMINAL FLOW CAPACITY	GPM	35
RESIN: STRONG ACID CATION		
BLEND CHAMBER AND CLEARWELLS		
EXISTING		
BLEND CHAMBER VOLUME	GAL	320,975
CLEARWELL A VOLUME	GAL	459,534
CLEARWELL B VOLUME	GAL	644,830
CLEARWELL C VOLUME	GAL	1,169,488
NEW		
TOTAL CONTACT TIME AT MAXIMUM FLOW	MINS	31
FREE CHLORINE CT	MG/L-MIN	2.0
CHLORAMINE CT	MG/L-MIN	157.5
TOTAL CRYPTOSPORIDIUM INACTIVATION	LOGS	2.0
TOTAL GIARDIA INACTIVATION	LOGS	3.0
TOTAL VIRUS INACTIVATION	LOGS	5.0
SODIUM HYPOCHLORITE		
EXISTING		
CHARACTERISTICS: LIQUID, 10.5%, 1.005 LB/GAL (AS NaOCl)		
STORAGE TYPE: BULK LIQUID TANK		
NO. OF BULK TANKS	NO.	2
VOLUME, EACH	GAL	20,000
SODIUM HYPOCHLORITE TRANSFER PUMPS		
TYPE: CENTRIFUGAL MAGNETIC DRIVE		
NUMBER OF PUMPS	NO.	1
PUMP CAPACITY, EACH	GPM	7
TDH	FT	20
MOTOR SIZE, EACH	HP	0.5
NEW		
DAY TANK STORAGE		

DESCRIPTION	UNITS	CRITERIA
TYPE: FRP DAY TANK		
NO. OF DAY TANKS	NO.	1
STORAGE CAPACITY, EACH	GAL	200
DAYS STORAGE	DAYS	1
SODIUM HYPOCHLORITE FEED PUMPS		
TYPE: DIAPHRAGM METERING PUMP		
NO. OF PUMPS	NO.	3
PUMP CAPACITY, EACH	GPM	16.6
CITRIC ACID		
NEW		
CHARACTERISTICS: LIQUID, 50%, 5.17 LB/GAL		
STORAGE TYPE: BULK LIQUID FRP TANK		
NO. OF TANKS	NO.	1
STORAGE CAPACITY, EACH	GAL	3,500
DAYS STORAGE	DAYS	56
FEED PUMP TYPE: DIAPHRAGM METERING PUMP		
NO. OF PUMPS	NO.	3
PUMP CAPACITY, EACH	GPM	6.1
HYDROCHLORIC ACID		
NEW		
CHARACTERISTICS: LIQUID, 15%, 1.34 LB/GAL		
STORAGE TYPE: BULK LIQUID FRP TANK		
NO. OF TANKS	NO.	1
STORAGE CAPACITY, EACH	GAL	4,700
DAYS STORAGE	DAYS	30
FEED PUMP TYPE: DIAPHRAGM METERING PUMP		
NO. OF PUMPS	NO.	5
PUMP CAPACITY, EACH	GPM	4.1
CAUSTIC SODA		
NEW		
CHARACTERISTICS: LIQUID, 50%, 6.4 LB/GAL		
STORAGE TYPE: BULK LIQUID FRP TANK		
NO. OF TANKS	NO.	1
STORAGE CAPACITY, EACH	GAL	8,400
DAYS STORAGE	DAYS	25
FEED PUMP TYPE: DIAPHRAGM METERING PUMP		
CIP/NEUTRALIZATION SYSTEM		
NO. OF PUMPS	NO.	5
PUMP CAPACITY, EACH	GPM	0.9 - 2.4
POST-MIX BASIN A		
NO. OF PUMPS	NO.	3
PUMP CAPACITY, EACH	GPM	0.06
POST-MIX BASIN B		
NO. OF PUMPS	NO.	2
PUMP CAPACITY, EACH	GPM	0.16
SODIUM BISULFITE		
NEW		
CHARACTERISTICS: LIQUID, 38%, 4.2 LB/GAL		
STORAGE TYPE: BULK LIQUID FRP TANK		
NO. OF TANKS	NO.	1
STORAGE CAPACITY, EACH	GAL	3,150
DAYS STORAGE	DAYS	40
FEED PUMP TYPE: DIAPHRAGM METERING PUMP		
NO. OF PUMPS	NO.	2
PUMP CAPACITY, EACH	GPM	4.0
BACKWASH WASTE STORAGE		
EXISTING		
NO. OF PONDS	NO.	2
STORAGE (WORKING) CAPACITY, EACH	GAL	300,000
NO. OF RETURN PUMPS	NO.	2
PUMP CAPACITY, EACH	GPM	600
TDH	FT	70
MOTOR SIZE, EACH	HP	25
FUTURE (PART OF SEPARATE PROJECT)		
NO. OF TANKS	NO.	2
STORAGE (WORKING) CAPACITY, EACH	GAL	110,794
NO. OF RETURN PUMPS	NO.	4
PUMP CAPACITY, EACH	GPM	2,100
TDH	FT	43
MOTOR SIZE, EACH	HP	40
CHEMICAL DRAIN LIFT STATION		
NEW		
PUMP TYPE: SUBMERSIBLE		
NO. OF PUMPS	NO.	2
PUMP CAPACITY, EACH	GPM	125
TDH	FT	35.4
MOTOR SIZE, EACH	HP	1.5

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			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
DESIGN CRITERIA

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 00G06

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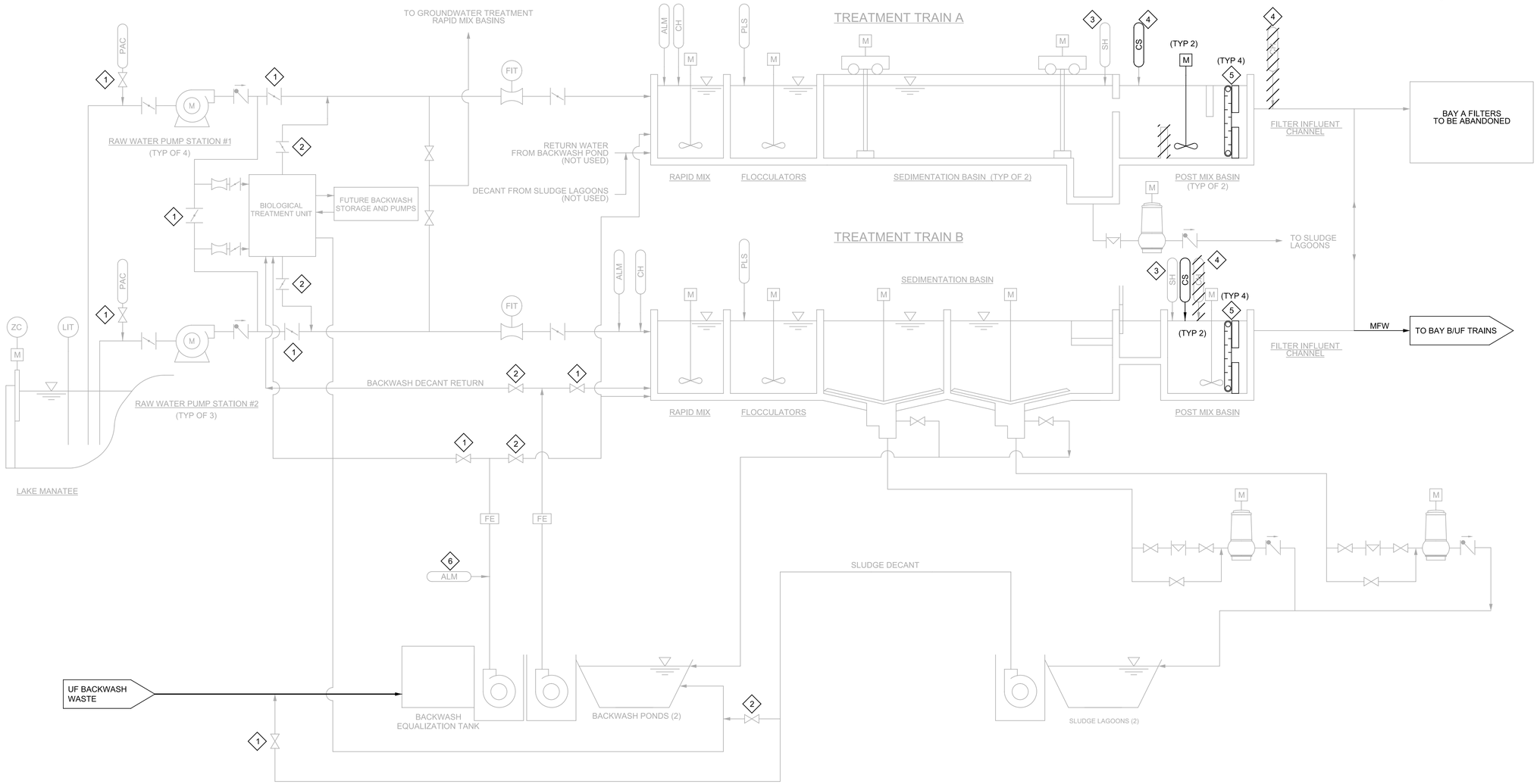
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

ALM — ALUM
PAC — POWDERED ACTIVATED CARBON
CH — CALCIUM HYDROXIDE (LIME)
SH — SODIUM HYPOCHLORITE
PLS — POLYMER SOLUTION
CS — CAUSTIC SODA

KEY NOTES:

1. NORMALLY CLOSED WHEN BIOLOGICAL ROUGHING FILTERS ARE IN OPERATION.
2. NORMALLY OPEN WHEN BIOLOGICAL ROUGHING FILTERS ARE IN OPERATION.
3. SH ADDITION TO POST-MIX BASINS USED TO MAINTAIN FREE CHLORINE RESIDUAL IN MEMBRANE FEED WATER.
4. EXISTING LIME ADDITION TO BE REPLACED WITH CAUSTIC SODA ADDITION.
5. SCREENINGS REMOVED TO DUMPSTER.
6. FUTURE ALUM FEED, IF NEEDED.



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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
PROCESS FLOW DIAGRAM I
SURFACE WATER TREATMENT

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JOB NO. 09520I.10
DRAWING NO. 00G07

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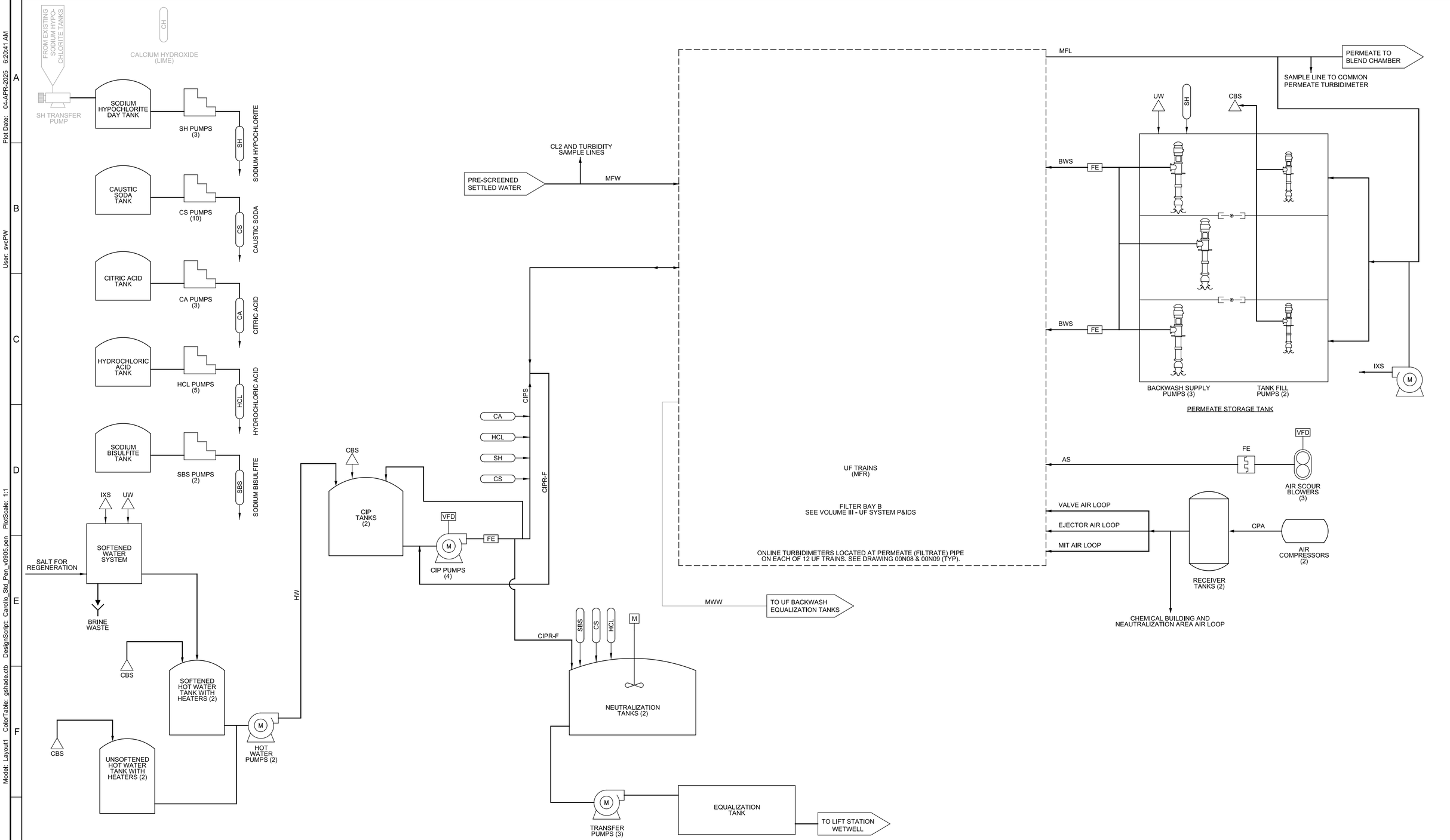

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

GENERAL

PROCESS FLOW DIAGRAM II SURFACE WATER TREATMENT

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JOB NO. 09520I.10

DRAWING NO. 00G08

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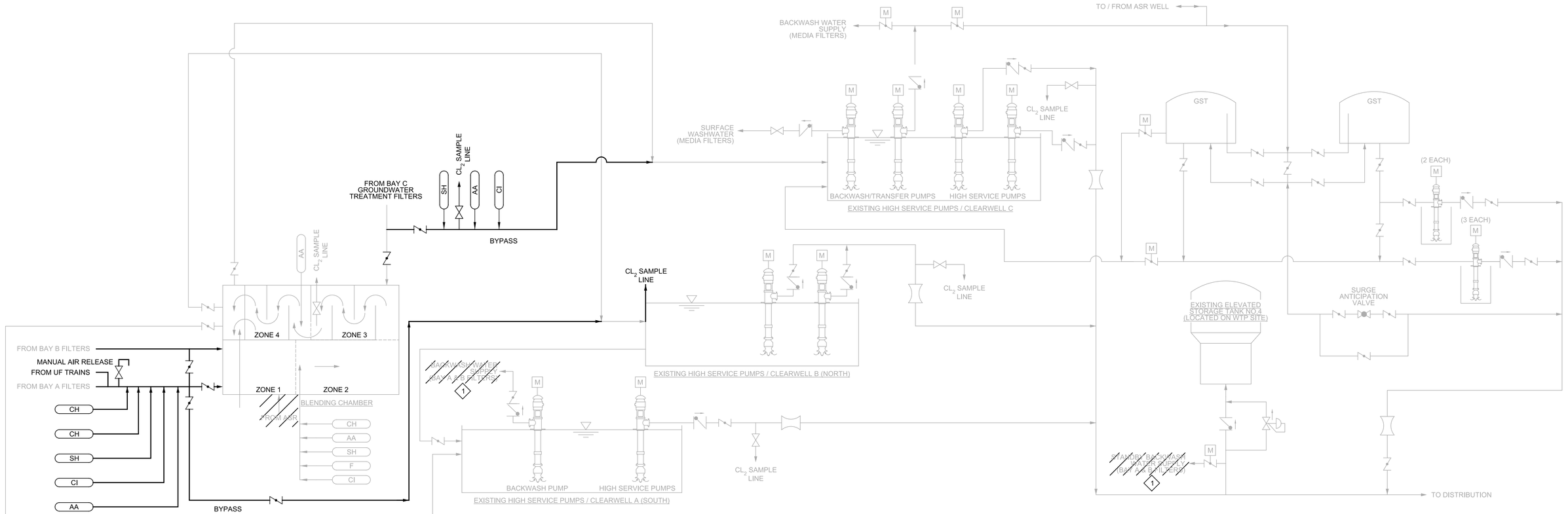
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

AA — ANHYDROUS AMMONIA
F — FLUORIDE
CH — CALCIUM HYDROXIDE (LIME)
SH — SODIUM HYPOCHLORITE
CI — CORROSION INHIBITOR

KEY NOTES:
1. NOT USED



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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
PROCESS FLOW DIAGRAM III SURFACE WATER TREATMENT

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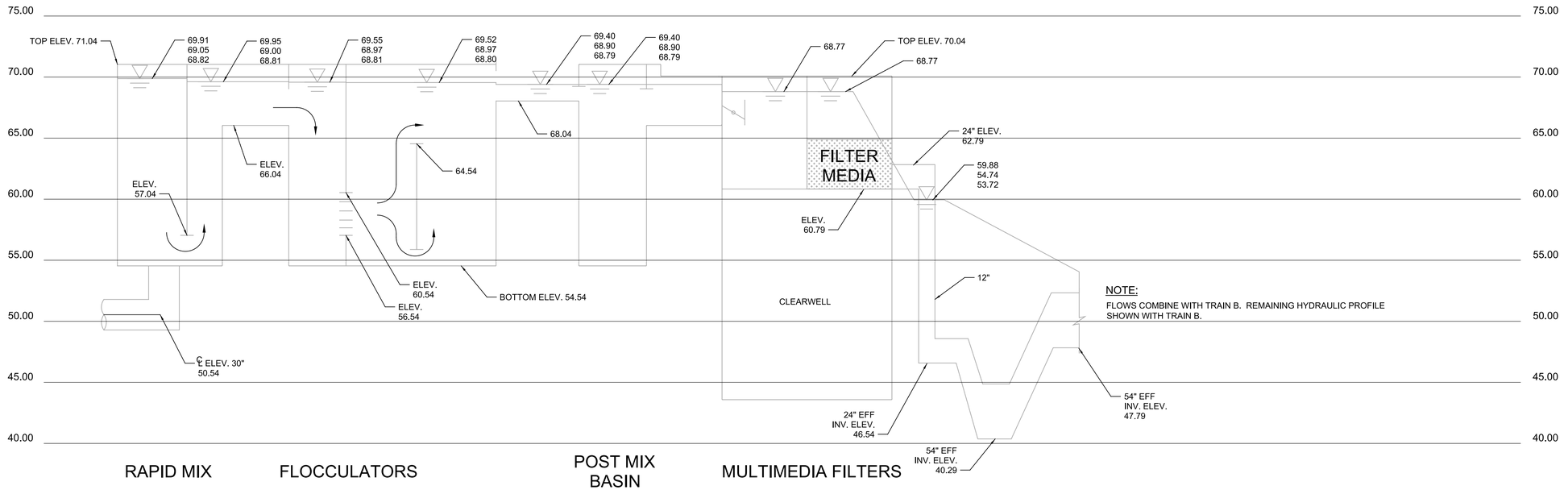
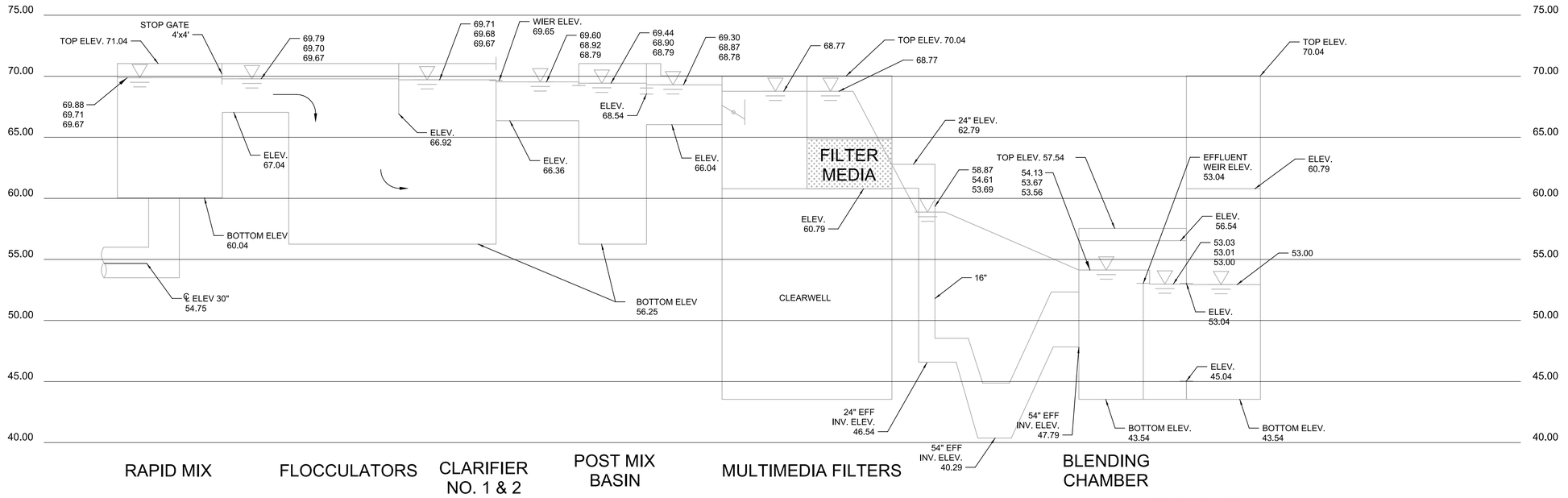
JOB NO. 09520I.10
DRAWING NO. 00G09



NOTE:

FLOWS COMBINE WITH TRAIN B. REMAINING HYDRAULIC PROFILE SHOWN WITH TRAIN B.

TRAIN A



TRAIN B

GENERAL NOTES:

1. THREE NUMBERS ARE SHOWN ABOVE THE HYDRAULIC GRADE LINE (HGL) TO REPRESENT THE PEAK, AVERAGE, AND MINIMUM FLOW CONDITIONS. THE HGL AS DRAWN DEPICTS THE PEAK FLOW CONDITION.
   - A. TOP NUMBER ASSUMES 54 MGD PEAK FLOW WITH ALL UNITS IN SERVICE EXCEPT ONE MULTIMEDIA FILTER ON EACH TRAIN.
   - B. MIDDLE NUMBER ASSUMES 24 MGD AVERAGE FLOW WITH ALL UNITS IN SERVICE EXCEPT ONE MULTIMEDIA FILTER ON EACH TRAIN.
   - C. BOTTOM NUMBER ASSUMES 10.8 MGD MINIMUM FLOW WITH ALL UNITS IN SERVICE.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
HYDRAULIC PROFILE - EXISTING SURFACE WATER TREATMENT

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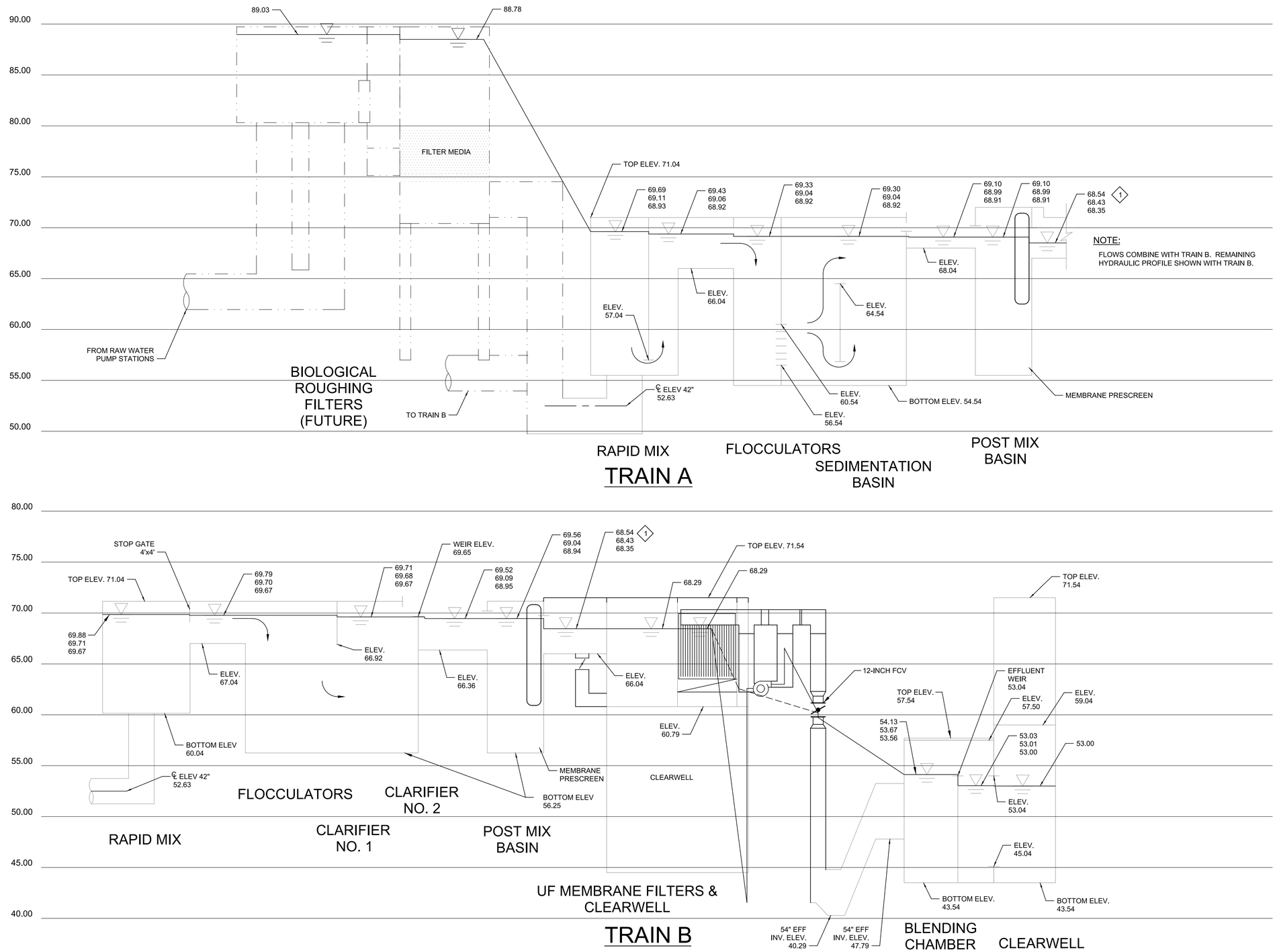

GENERAL NOTES:

1. THREE NUMBERS ARE SHOWN ABOVE THE HYDRAULIC GRADE LINE (HGL) TO REPRESENT THE PEAK, AVERAGE, AND MINIMUM FLOW CONDITIONS. THE HGL AS DRAWN DEPICTS THE PEAK FLOW CONDITION.
   - A. TOP NUMBER ASSUMES 54 MGD PEAK FLOW WITH ALL UNITS IN SERVICE EXCEPT 2 MEMBRANE FILTRATION BASINS.
   - B. MIDDLE NUMBER ASSUMES 24 MGD AVERAGE FLOW WITH ALL UNITS IN SERVICE EXCEPT 6 MEMBRANE FILTRATION BASINS.
   - C. BOTTOM NUMBER ASSUMES 10.8 MGD MINIMUM FLOW WITH ALL UNITS IN SERVICE EXCEPT 8 MEMBRANE FILTRATION BASINS.

KEY NOTE:

◇1 ELEVATION IN THE MEMBRANE FILTRATION BASIN FEED CHANNEL MAY DROP AS LOW AS 69.19 FT WHEN ADJACENT BASIN IS FILLING.

——— HYDRAULIC GRADE LINE PUMPED OPERATION

– – – – – HYDRAULIC GRADE LINE SIPHON OPERATION

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
GENERAL
HYDRAULIC PROFILE - PROPOSED SURFACE WATER TREATMENT

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JOB NO. 09520I.10
DRAWING NO. 00G11

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LAST SAVED BY: eparker

GENERAL PIPELINE NOTES

1. DIMENSIONS TO STRUCTURES, REFERENCED PIPING, PAVING, AND OTHER IMPROVEMENTS IS APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS 14 DAYS IN ADVANCE OF THE CONSTRUCTION PROGRESS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.
2. CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 10 FEET HORIZONTAL AND 3 FEET VERTICAL BETWEEN THE SEWER LINES AND EXISTING WATER LINES.
3. REFER TO THE GEOTECHNICAL REPORT LOCATED IN THE APPENDIX OF THE SPECIFICATIONS FOR ADDITIONAL INFORMATION ON THE GEOTECHNICAL CONDITIONS AND BORING INFORMATION.
4. IN ALL LOCATIONS WHERE TRENCH PLATE IS USED FOR VEHICULAR OR PEDESTRIAN TRAFFIC, THE CONTRACTOR SHALL APPLY SKID RESISTANT COATING ON THE TRENCH PLATES AND COLD MIX ASPHALT CONCRETE AT THE EDGES. THE TRENCH PLATES SHALL BE NOTCHED INTO THE ASPHALT, CONCRETE, OR TRAVELED SURFACE TO PREVENT SLIPPAGE AND ROCKING UNDER TRAFFIC.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK, THROUGHOUT THE CONSTRUCTION PERIOD.
6. ALL OPEN TRENCHES, WORK AREAS AND SHAFTS SHALL HAVE A SHORING SYSTEM IN ACCORDANCE WITH OSHA, STATE AND LOCAL REQUIREMENTS.
7. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, COUNTY, AND LOCAL LAWS AND ORDINANCES RELATING TO THE SAFETY AND CHARACTER OF WORK, EQUIPMENT AND PERSONNEL. THIS INCLUDES BUT IS NOT LIMITED TO SHEETING, SHORING, BRACING, VENTILATION, CONFORMANCE WITH TRAFFIC CONTROL AND MAINTENANCE OF BARRICADES AND WARNING DEVICES.
8. LAYOUT DRAWINGS ARE REQUIRED FOR PIPING INSTALLED.
9. ALL ROAD DITCHES, FENCE LINES, PASTURES AND SIMILAR AREAS SHALL BE RESTORED PER SPECIFICATION 02925.
10. ALL CROPPED AREAS DISTURBED SHALL HAVE THE TOPSOIL REPLACED AND THE ENTIRE AREA DISTURBED SHALL BE RIPPED 2 FT DEEP PER THE LAND OWNERS REQUIREMENTS.
11. CONTRACTOR SHALL TAKE ALL PRACTICAL PRECAUTIONS TO MINIMIZE DISTURBANCES TO STREAMS, VEGETATION, TREES AND CROP LANDS. WHEREVER PRACTICAL LEAVE EXISTING TREES AND VEGETATED AREAS UNDISTURBED.
12. ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT MANAGEMENT DIVISION. THE PROJECT MANAGER IS: ANTHONY RUSSO.
13. SITE VISITS ARE MANDATORY FOR ALL BIDDERS. THESE SITE VISITS CAN BE ARRANGED THROUGH THE PROJECT MANAGER.
14. ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.
15. THE FOLLOWING NGS VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR THE ELEVATION SHOWN HEREIN: "MYRTLE GROVE" NAVD 1988, ELEVATION 56.29'. SURVEY WAS REFERENCED TO A PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE NAD 1983/2007 ADJUSTMENT). SURVEY WAS NOT A BOUNDARY SURVEY. SURVEY IS SUBJECT TO PERTINENT EASEMENT, RIGHT-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY. SURVEY PREPARED BY HYATT SURVEY SERVICES, INC.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
17. THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATION THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
18. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
19. AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALLOF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.
20. ALL STATIONS AND OFFSETS REFER TO BASELINE OF CONSTRUCTION, UNLESS OTHERWISE NOTED.
21. THE CONSTRUCTION LENGTHS IN THESE PLANS ARE APPROXIMATE. ACTUAL LIMITS MAY BE SET IN THE FIELD AS DIRECTED BY THE ENGINEER.
22. SEPARATE PAYMENT SHALL BE MADE ONLY FOR THE ITEMS OF WORK LISTED AND IDENTIFIED BY APPROPRIATE PAY ITEM ON THE BID FORM. THE COST OF ANY RELATED WORK NOT SPECIFICALLY IDENTIFIED, BUT WHICH IS REQUIRED FOR SATISFACTORY COMPLETION OF THE WORK, SHALL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT PRICE FOR THE APPROPRIATE BID ITEM.
23. THE CONTRACTOR SHALL HAVE A FOREMAN, OR RESPONSIBLE PARTY, ON SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. ALL WORKERS ON THE JOB SITE WILL BE COURTEOUS TO THE PUBLIC AT ALL TIMES, AND SHALL REFER ANY QUESTIONS OR CONCERNS TO THE CONTRACTOR'S FOREMAN OR THE COUNTY INSPECTOR. THE FOREMAN SHALL SPEAK AND UNDERSTAND ENGLISH AND SHALL BE AVAILABLE AT ALL TIMES FOR TIMELY RESOLUTION OF PROJECT-RELATED ISSUES.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE COORDINATION OF CONSTRUCTION SCHEDULING BETWEEN CONTRACTOR AND ALL UTILITY AGENCIES.
NOTE:
THIS INCLUDES MEETING WITH UTILITY AGENCIES PRIOR TO THE PRE-CONSTRUCTION CONFERENCE TO ADJUST THEIR SCHEDULES TO COINCIDE WITH THE CONTRACTORS CONSTRUCTION SCHEDULE. (REFERENCE CONTRACT DOCUMENTS)
25. ANY DAMAGE TO STATE, COUNTY, OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTORY OF THE COUNTY PROJECT MANAGER. PAYMENT SHALL NOT BE MADE FOR THIS WORK.
26. ALL CONSTRUCTION WITHIN FDOT RIGHT-OF-WAY IS TO BE IN ACCORDANCE WITH CURRENT FDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION AND THE DESIGN STANDARDS.
27. ALL SIGNING, STRIPING AND RPM PLACEMENT WITHIN THE FDOT RIGHT-OF-WAY IS TO BE IN ACCORDANCE WITH FDOT STANDARD INDEX 17346.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
29. TO CONVERT TO NAVD88 ELEVATION: NGVD(29)-0.958FT = NAVD88

UTILITY NOTES

1. EXISTING UTILITIES IN THE PROJECT MAY BE IN A FRAGILE CONDITION. THE CONTRACTOR SHALL EXERCISE NECESSARY CAUTION WHEN WORKING NEAR EXISTING UTILITIES.
2. PLAN LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE BASED ON RECORD DRAWINGS, POTHOLING AND SURVEY INFORMATION AND ARE CONSIDERED APPROXIMATE ONLY. WHERE NO ELEVATIONS ARE SHOWN, NO INFORMATION WAS AVAILABLE DURING THE DESIGN PERIOD.
3. SOME UTILITY SERVICES MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO LOCATE AND PROTECT SERVICE DURING CONSTRUCTION.
4. CONTRACTOR SHALL CONTACT SUNSHINE 811 AND/OR WTP STAFF PRIOR TO ANY EXCAVATION ACTIVITIES.
5. THE LOCATION, SIZE, AND MATERIALS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND IS SHOWN FOR BIDDING PURPOSES. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE UTILITY OWNERS SO THAT THOSE UTILITIES MAY MARK THE LOCATION OF THEIR UTILITIES PRIOR TO ANY EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT EXISTING UTILITIES.
6. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY AFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION. UTILITIES DESIGNATED VV, VH, AND VVH ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATIONS/ELEVATIONS APPLY ONLY AT THE POINTS SHOWN. INTERPOLATIONS BETWEEN THESE POINTS HAVE NOT BEEN VERIFIED. EXTREME CAUTION SHALL BE EXERCISED WHEN WORKING NEAR THE 24" WATERLINE.
7. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, WATER AND SEWER LINES, STORM DRAINS,UTILITIES, DRIVEWAYS, SIDEWALKS, SIGNS, MAIL BOXES, FENCES, TREES, LANDSCAPING, AND ANY OTHER IMPROVEMENT OR FACILITY IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
8. ANY TEMPORARY SHUTDOWNS FOR MODIFICATIONS OF EXISTING UTILITY SYSTEMS THAT MUST REMAIN IN SERVICE DURING CONSTRUCTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH AND APPROVED BY THE MANATEE COUNTY UTILITIES DEPARTMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IT IS NOTED THAT TEMPORARY SHUTDOWNS MAY BE RESTRICTED TO CERTAIN HOURS AT ANY TIME OF THE DAY OR NIGHT AND WILL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
9. FOR WORK BEING DONE ON EXISTING SANITARY SEWER LINES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE FLOW OF ALL SEWAGE DURING CONSTRUCTION, WHICH MAY REQUIRE BY-PASS PUMPING AND/OR PUMPER TRUCKS. THE CONTRACTOR SHALL SUBMIT A DETAILED BY-PASS PUMPING PLAN PER SECTION 02720.

EARTHWORK NOTES

1. CLEAR THE CONSTRUCTION AREA OF NATURAL OBSTRUCTIONS EXISTING FOUNDATIONS, BUILDINGS, FENCES, LUMBER, WALLS, STUMPS, BRUSH, WEEDS, RUBBISH, TREES, BOULDERS, AND ANY OTHER ITEMS WHICH INTERFERES WITH CONSTRUCTION OPERATIONS OR ARE DESIGNATED FOR REMOVAL.
2. GRUB OUT AND DISPOSE OF TREE TRUNKS AND ROOT MATERIAL BELOW THE GROUND SURFACE REMAINING AFTER CLEARING.
3. DISPOSE OF THE UNACCEPTABLE BACKFILL MATERIAL FROM THE CLEARING AND GRUBBING OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.
4. STRIP AND STOCKPILE THE TOPSOIL. THE DEPTH OF STRIPPING SHALL BE ESTIMATED TO BE 12-INCHES BUT WILL BE DETERMINED IN THE FIELD AS SOIL CONDITIONS DICTATE.
5. REPLACE STOCKPILED SOIL AND RESTORE SITE AS SPECIFIED.
6. ROCK AND AGGREGATE STORAGE AREAS SHALL BE RESTORED BY EXCAVATING ANY SOILS CONTAINING ROCK OR AGGREGATE AND BACKFILLING WITH TOPSOIL. SOIL REMOVED MAY BE USED FOR TRENCH BACKFILL ABOVE THE PIPE ZONE AND 3 FEET BELOW FINISHED GRADE.

ENVIRONMENTAL

1. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION ALL SEDIMENT AND EROSION CONTROL (SEC) DEVICES (E.G., BARRIERS, SEDIMENT TRAPS/BASINS, VEGETATIVE BUFFERS, ETC.) AS SPECIFIED IN THE FINAL APPROVED PLANS FOR THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SEC DEVICES UTILIZED DURING THE PROJECT, AS WELL AS INSTALLATION & MAINTENANCE OF ANY ADDITIONAL MEASURES DEEMED NECESSARY DURING PROJECT IMPLEMENTATION, TO PREVENT EROSION AND OFF-SITE SEDIMENT MIGRATION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ALL SEC DEVICES UPON CONCLUSION OF THE PROJECT, AND UPON ADEQUATE STABILIZATION OF DISTURBED SOILS.
2. STOCKPILES SHALL BE PROTECTED AT ALL TIMES BY ON-SITE DRAINAGE CONTROLS WHICH PREVENT EROSION OF THE STOCKPILED MATERIAL. CONTROL OF DUST FROM SUCH STOCKPILES IS REQUIRED, DEPENDING UPON THEIR LOCATION AND THE EXPECTED LENGTH OF TIME THE STOCKPILES WILL BE PRESENT. IN NO CASE SHALL ANY STOCKPILED MATERIAL REMAIN AFTER THIRTY (30) CALENDAR DAYS.
3. STORM WATER INLETS IN THE VICINITY OF THE PROJECT SHALL BE PROTECTED BY SEDIMENT TRAPS SUCH AS SECURED HAY BALES, SOD, STONE, ETC., WHICH SHALL BE MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS, AND WHICH MUST BE APPROVED BY THE ENGINEER BEFORE INSTALLATION. THIS WILLBE MAINTAINED TO PREVENT DEGRADATION OF THE WATERS OF THE COUNTY AND STATE.
4. SEDIMENT BASINS AND TRAPS, PERIMETER BERMS, SEDIMENT BARRIERS, VEGETATIVE BUFFERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT AND/OR PREVENT THE TRANSPORT OF SEDIMENT ONTO ADJACENT PROPERTIES, OR INTO EXISTING BODIES OF WATER, MUST BE INSTALLED, CONSTRUCTED, OR IN THE CASE OF VEGETATIVE BUFFERS, PROTECTED FROM DISTURBANCE, AS A FIRST STEP IN THE LAND ALTERATION PROCESS. SUCH SYSTEMS SHALL BE FULLY OPERATIVE BEFORE ANY OTHER DISTURBANCE OF THE SITE BEGINS. EARTHEN STRUCTURES INCLUDING BUT NOT LIMITED TO BERMS, EARTH FILTERS, DAMS OR DIKES SHALL BE STABILIZED AND PROTECTED FROM DRAINAGE DAMAGE OR EROSION WITHIN ONE (1) WEEK OF INSTALLATION.
5. ALL SWALES, DITCHES, AND CHANNELS LEADING FROM THE SITE SHALL BE PROTECTED FROM SILTATION AND EROSION DURING CONSTRUCTION AND BE SODDED WITHIN THREE (3) DAYS OF EXCAVATION.
6. SOIL DISPLACED BY CONSTRUCTION WILL BE REMOVED. EROSION CONTROL SHALL BE IMPLEMENTED IN AREAS WHICH ARE CONSIDERED ENVIRONMENTALLY SENSITIVE. EROSION CONTROL SYSTEMS SHALL BE REQUIRED FOR ALL WORK WITHIN JURISDICTIONAL AREAS. THESE SYSTEMS MAY INCLUDE STAKED HAY BALES, SILT SCREENS, FILTER FABRIC, AND TURBIDITY SCREENS.
7. ALL EROSION AND POLLUTION CONTROL DEVICES SHALL BE CHECKED REGULARLY, ESPECIALLY AFTER EACH RAINFALL AND SHALL BE CLEANED OUT AND/OR REPAIRED AS REQUIRED.
8. THE CONTRACTOR SHALL NOT ENTER UPON OR IN ANY WAY ALTER WETLAND AREAS THAT MAY BE ON OR NEAR THE CONSTRUCTION SITE. ALL WORK IN THE VICINITY OF OPEN WATER AND/OR WETLANDS IS TO BE PERFORMED IN COMPLIANCE WITH THE ENVIRONMENTAL REGULATIONS AND/OR PERMITS FOR THE SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES RESULTING FROM HIS VIOLATION OF ANY REGULATIONS OR PERMIT CONDITIONS.

DRAINAGE AND GRADING

1. ALL CONSTRUCTION IS TO BE STAKED IN THE FIELD BY OR UNDER THE SUPERVISION OF A FLORIDA REGISTERED LAND SURVEYOR. ALL IMPROVEMENT LOCATIONS AND ELEVATIONS IN ACCORDANCE WITH LATEST MANATEE COUNTY TRANSPORTATION DEPARTMENT STANDARDS AND SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) STANDARDS. THE CONTRACTOR SHALL ALSO PROVIDE FIVE SETS OF PRINTS, SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR, OF THE RECORD DRAWINGS TO THE ENGINEER OF RECORD. THESE RECORD DRAWINGS SHALL BE CERTIFIED TO THE OWNER, APPROPRIATE GOVERNMENTAL AGENCIES. RECORD DRAWINGS SHALL SPECIFICALLY INCLUDE STORMWATER FACILITY LOCATIONS, INCLUDING TOP OF BANK, UNDERDRAIN AND CONTROL STRUCTURES, SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR AND REVIEWED BY THE ENGINEER OF RECORD PRIOR TO ACCEPTANCE AND PAYMENT. BENCH MARKS WITH THE ELEVATION CLEARLY AND PERMANENTLY MARKED ARE TO BE PLACED ON THE TOP OF ALL PROPOSED OUTFALL CONTROL STRUCTURES. RECORD DRAWINGS OF ALL MITIGATION AREAS INCLUDING ELEVATIONS, ZONES AND LIMITS SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR AND REVIEWED BY THE ENGINEER OF RECORD PRIOR TO ACCEPTANCE AND PAYMENT. THE RECORD DRAWINGS SHALL SPECIFICALLY INCLUDE THE SURFACE AREA OF STORMWATER FACILITY AREAS AT NORMAL WATER), TOP OF BANK AND ELEVATION (NWL SHELF AREAS.
2. TO PREVENT SEDIMENTARY RUNOFF DURING CONSTRUCTION, STAKED HAY BALES, STAKED SILT SCREENS OR INLET DEBRIS CONTROL SCREENS ARE TO BE PLACED AT STORM INLETS, OUTFALL LOCATIONS AND ADJACENT PROPERTY LINES AS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES. SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSTALLED AND THEN VERIFIED/INSPECTED BY MANATEE COUNTY INFRASTRUCTURE INSPECTIONS RESOURCES DIVISION (708-7450) PRIOR TO COMMENCEMENT OF MAINTAINING THE SEDIMENTATION BARRIERS IN A WORKING MANNER FOR THE DURATION OF CONSTRUCTION AND SHOULD BE CHECKED DAILY. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE-HALF OF THE DEPTH OF THE SEDIMENTATION BARRIER SHALL BE IMMEDIATELY REMOVED AND REPLACED IN UPLAND AREAS. IN ADDITION TO SPECIFIED EROSION CONTROL LOCATIONS, THE CONTRACTOR SHALL PERFORM DAILY SITE INSPECTIONS FOR POTENTIAL EROSION PROBLEMS. IF PROBLEMS OCCUR, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING APPROPRIATE EROSION CONTROL IMMEDIATELY. AN INSPECTION LOG SHALL BE MAINTAINED AND AVAILABLE ONSITE AT ALL TIMES. STORMWATER TREATMENT FACILITIES INCLUDING OUTFALL PER DETAIL ARE TO BE CONSTRUCTED EARLY IN SITE DEVELOPMENT, WITH NO OFF- SITE UNTREATED RUN-OFF OCCURRING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING TEMPORARY EROSION CONTROL DEVICES FOLLOWING COMPLETION OF ALL CONSTRUCTION AND FINAL STABILIZATION.
3. ALL PIPE LENGTHS SHOWN ON PLAN VIEW ARE TO THE END OF THE MITERED END SECTION. REFER TO MITERED END SECTION DETAIL FOR LENGTH OF PIPE TO BE INCLUDED IN PRICE FOR MITERED END SECTION.
4. TOPOGRAPHIC AND PROPERTY SURVEYS GIVING LOT SIZE, GROUND ELEVATIONS, OBSTRUCTIONS ON SITE, LOCATIONS AND DEPTHS OF SEWERS, CONDUITS, PIPES, EXISTING STRUCTURES, CURBS, PAVEMENTS, TRACTS, AND SOIL BORING DATA GIVING THE NATURE OF GROUND AND SUBSURFACE CONDITIONS HAVE BEEN OBTAINED FROM RELIABLE SOURCES. THE ACCURACY OF THIS DATA IS NOT GUARANTEED, AND IS FURNISHED SOLELY AS AN ACCOMMODATION TO THE CONTRACTOR. USE OF THIS DATA SHALL BE MADE AT THE CONTRACTOR'S DISCRETION. NO ADDITIONAL COMPENSATION WILL BE GRANTED DUE TO THE CONTRACTOR'S LACK OF KNOWLEDGE OF SITE CONDITIONS. PRIOR TO BID SUBMISSION, THE CONTRACTOR SHALL CONDUCT ANY ADDITIONAL SURVEYS AND SOILS TESTS HE MAY DEEM NECESSARY TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED.
5. THE CONTRACTOR SHALL VERIFY TOPOGRAPHY AND SATISFY HIMSELF AS TO THE EXTENT OF FILL NECESSARY TO ACHIEVE FINISHED GRADE PRIOR TO AWARD OF CONTRACT. THERE SHALL BE NO CLAIM FOR EXTRAS NOTWITHSTANDING SITE PLAN REVISIONS PROMULGATED SUBSEQUENT TO AWARD OF CONTRACT.
6. SUITABLE FILL MATERIAL FROM EXCAVATION SHALL BE UTILIZED FOR PROJECT FILL PER GRADING SPECIFICATIONS. UNSUITABLE MATERIAL SHALL BE PLACED IN OPEN AREAS ONLY AS DIRECTED BY THE PROJECT ENGINEER AND SOILS ENGINEER IN ACCORDANCE WITH FDOT INDEX 505.
7. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL STRUCTURES PRIOR TO INSTALLATIONS.
8. REFER TO CONSTRUCTION TECHNICAL SPECIFICATIONS FOR COMPACTION REQUIREMENTS, GRASSING/SODDING REQUIREMENTS, AND PAVING CONSTRUCTION MATERIAL SPECIFICATIONS.
9. ALL FILL AREAS ARE TO BE CONSTRUCTED IN 12" MAXIMUM LIFTS.
10. THE CONTRACTOR IS TO PROVIDE THE ENGINEER OF RECORD WITH REPRODUCIBLE RECORD DRAWINGS SHOWING, AT HIGH WATER ELEVATION (HWL ALL MITIGATION AND/OR LITTORAL CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR)
11. THE CONTRACTOR SHALL REVIEW SOILS TESTS AS PERFORMED BY THE SOIL CONSULTANT AND IS ENCOURAGED TO CONDUCT ON-SITE TESTING TO SATISFY HIMSELF AS TO ACTUAL LIMITS OF REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIALS PRIOR TO BIDDING.
12. ON SLOPES GREATER THAN 3:1 PEGGING OR PINNING OF SOD MAY BE REQUIRED.
13. DURING DEWATERING OPERATIONS, THE CONTRACTOR SHALL NOT DISCHARGE DIRECTLY TO RECEIVING WATERS, EXISTING CONVEYANCES TO RECEIVING WATERS, OR WETLAND SYSTEMS. TEMPORARY SEDIMENT BASINS, TRAPS, OR SILTATION REDUCTION DEVICES SHALL BE UTILIZED TO COLLECT THE DISCHARGE FROM DEWATERING ACTIVITIES TO ELIMINATE THE POTENTIAL FOR OFFSITE SEDIMENT TRANSPORT AND TO ENSURE THAT DIRECT DISCHARGE DOES NOT OCCUR.

SAFETY

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA EFFECTIVE OCTOBER 1, 1990 AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.
2. THE CONTRACTOR SHALL USE SHEET PILING, SHEETING, BRACING, ETC., AS REQUIRED IN ALL EXCAVATION AREAS AND CONFORM TO ALL OSHA REQUIREMENTS.
3. THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
4. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVIATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.

RESTORATION

1. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS SHOWN OTHERWISE.
2. ALL DISTURBED GRASSED AREAS SHALL BE SODDED. THE TYPE OF SOD USED TO REPLACE OWNER MAINTAINED AREAS IN RIGHT-OF-WAY SHALL BE COORDINATED WITH THE PROPERTY OWNER. ALL EXISTING SHRUBS, TREES, PLANTINGS AND OTHER VEGETATION, OUTSIDE OF RIGHT-OF-WAY DISTURBED DURING CONSTRUCTION SHALL BE REPLACED WITH EQUIVALENT MATERIAL BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. CONCRETE DRIVEWAYS OR SIDEWALKS THAT ARE CUT SHALL BE RESTORED TO MATCH EXISTING ACCORDING TO THE CURRENT EDITIONS OF THE F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE DESIGN, SECTION 522, AND SECTION 310 OF THE F.D.O.T. DESIGN STANDARDS LATEST REVISION.
4. WHENEVER A PERMANENT ROADWAY SURFACE IS NOT PLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OF THE NEWLY INSTALLED PIPE LINE IN AREAS WHERE TRAFFIC MUST PASS, THE CONTRACTOR SHALL INSTALL A TEMPORARY SURFACE CONSISTING OF NINE INCHES OF COMPACTED LIME ROCK BASE AND A COAT OF ASPHALT EMULSION. PERMANENT ROADWAY REPAIR SHALL BE PERFORMED A MAXIMUM OF TWENTY-ONE CALENDAR DAYS AFTER THE INITIAL OPEN CUTTING.
5. RESTORATION OF CURBS, DRIVEWAYS, SIDEWALKS, AND PLACEMENT OF SOD SHALL BE COMPLETED WITHIN FORTY-FIVE CALENDAR DAYS OF INITIAL DISTURBANCE, OR TWENTY-ONE CALENDAR DAYS OF SUBSTANTIAL COMPLETION, WHICHEVER OCCURS FIRST.
6. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING EQUIPMENT NECESSARY TO KEEP ALL EXCAVATIONS DRY. DEWATERING IS REQUIRED TO 18" BELOW TRENCH BOTTOM. THE CONTRACTOR SHALL SUBMIT DEWATERING PLAN TO DISTICT FOR APPROVAL PRIOR TO CONSTRUCTION.
7. ALL ROCKS OR STONES LARGER THAN SIX INCH DIAMETER SHALL BE REMOVED FROM THE BACKFILL MATERIAL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES SHALL NOT CONTAIN ANY STONES LARGER THAN TWO INCH DIAMETER.
8. ALL PENETRATION OF EXISTING STRUCTURES SHALL BE BY THE MECHANICAL ROTARY CORE BORING METHOD.
9. ALL CONCRETE AND REBAR PENETRATED OR DISTURBED SHALL BE COATED WITH TWO COATS OF EPOXY.
10. CONTRACTOR IS RESPONSIBLE FOR ALL UNSUITABLE MATERIAL REMOVAL WITHIN PROJECT LIMITS. EXCAVATION, EMBANKMENT, INCLUDING UTILIZATION, AND UNSUITABLE MATERIAL REMOVAL SHALL BE IN ACCORDANCE WITH FDOT DESIGN STANDARDS, LATEST VERSION.
11. ALL MATERIALS NOT CLAIMED BY THE COUNTY SHALL BECOME PROPERTY OF THE CONTRACTOR, AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN AREAS PROVIDED BY THE CONTRACTOR. THIS WORK SHALL BE INCLUDED IN AND PAID UNDER THE PAY ITEM CLEARING AND GRUBBING.
12. THE CONTRACTOR SHALL PROVIDE ALL SHEETING, SHORING, AND BRACING REQUIRED TO PROTECT ADJACENT STRUCTURES OR TO MINIMIZE TRENCH WIDTH. WHERE A SEPARATE PAY ITEM IS NOT PROVIDED, THE COST OF ALL SHEETING, SHORING, AND BRACING REQUIRED SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE ITEM OF WORK FOR WHICH SHEETING, SHORING, AND BRACING IS REQUIRED.
13. THE CONTRACTOR SHALL DISTURB NO MORE GROUND THAN WHAT IS NECESSARY FOR CONSTRUCTION. NO OPEN EXCAVATED TRENCH, OR OTHER UNSAFE CONDITION WILL BE LEFT OVERNIGHT. ALL WORK SITES WILL BE COMPLETELY RESTORED WITHIN SEVEN (7) CALENDAR DAYS OF THE CONCRETE POUR FOR SIDEWALK.THE INTENT OF THIS PROVISION IS TO "SAFE-UP" THE PROJECT SITE AS WORK PROGRESSES, AND SHALL INCLUDE REMOVING FORMS, FILLING HOLES, GRADING, AND REMOVAL OF DEBRIS.
14. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED IN THE PLANS, OR AS DIRECTED BY THE ENGINEER.
15. ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED OR RELOCATED DURING CONSTRUCTION SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET, AND METHOD OF INSTALLATION AT NO ADDITIONAL COST TO THE COUNTY.
16. ALL EXISTING SWALES NOT DESIGNATED FOR RECONSTRUCTION SHALL BE REGRADED TO PROMOTE POSITIVE DRAINAGE AND MATCH PROPOSED CENTERLINE SWALE ELEVATION AND ALIGNMENT.
17. ALL STORM DRAINS AND STRUCTURES TO REMAIN SHALL BE CLEANED OF DEBRIS, DIRT, VEGETATION AND OTHER MATERIAL. STORM SEWER INLETS SHALL BE MODIFIED (RAISED/LOWERED) TO MATCH PROPOSED FINISHED GRADE.
18. ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AND REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST. (EXISTING FENCES WITHIN R/W TAKING LIMITS SHALL BE RECONSTRUCTED TO THE NEW R/W LINE AND ARE TO BE REIMBURSED UNDER THE MISCELLANEOUS BID ITEM).
19. ALL EXISTING BUILDINGS SHALL REMAIN UNLESS OTHERWISE NOTED.
20. REMOVE AND REPLACE BASE AND SUB-BASE ACCORDING TO FDOT STANDARDS.

CONSTRUCTION

1. ALL PIPE SHALL BE COLOR CODED TO CONFORM TO MANATEE COUNTY STANDARDS. NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEPT DAILY AS PART OF DAILY CLEAN UP.
2. ALL PIPE SHALL BE COLOR CODED TO CONFORM TO MANATEE COUNTY STANDARDS.
3. ONLY MANATEE COUNTY UTITLITIES DEPARTMENT STAFF ARE AUTHORIZED TO OPERATE VALVES ON COUNTY OWNED AND MAINTAINED UTILITY SYSTEMS.
4. ALL NEW PIPE LINES SHALL BE PIG CLEANED (4" AND LARGER), FLUSHED, PRESSURE TESTED, DISINFECTED AND CERTIFIED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PIG CLEANING AND PRESSURE TESTING.
5. ALL TEST POINT PIPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. A CORPORATION STOP PLUG SHALL BE INSTALLED AND THE CORPORATION STOP SHALL REMAIN IN PLACE.
6. WATER MAINS CROSSING OVER OR UNDER SANITARY SEWERS, FORCE MAINS, AND RECLAIMED WATER LINES SHALL BE LAID PER CURRENT EDITION OF "10 STATE STANDARDS" AND MANATEE COUNTY UTILITY STANDARDS UNLESS NOTED OTHERWISE ON THE PLANS.
7. FIELD CONDITIONS MAY NECESSITATE MINOR ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED UTILITIES TO AVOID OBSTACLES, AS ORDERED BY THE ENGINEER.
8. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS IN ACCORDANCE WITH SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS AT NO COST TO THE OWNER. RECORD DRAWINGS SHALL BE SIGNED & SEALED BY A SURVEYOR CURRENTLY LICENSED BY THE STATE OF FLORIDA. ALL RECORD DRAWING INFORMATION REQUIREMENTS IN SECTION 14 SHALL BE ENFORCED. A COPY OF SECTION 14 WILL BE PROVIDED UPON REQUEST.

RIGHT-OF WAY

1. THE CONTRACTOR SHALL COORDINATE THE CUTTING OF DRIVEWAYS WITH THE PROPERTY OWNER PRIOR TO CUT. ALL DRIVEWAYS WILL BE IN PASSABLE CONDITION AT THE END OF THE WORK DAY AND FULLY RESTORED PER SECTION 02575.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED: BRW
DRAWN: FAO
CHECKED: SS
DATE: APRIL 2025

**
ORIGINAL
SEALED BY
BRENT R. WHITE
05/30/2019
FL 75588
**

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
CIVIL
CIVIL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00C01

PLOT DATE: 4/4/2025 6:48:15 AM
PLOT STYLE: CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: FOsorio

PROJECT NO. 9520I10 FILE NAME: 9520I1000C01.dwg

PLOT DATE: 4/4/2025 6:48:13 AM

PLOT STYLE: CAROLLO_STD_F_V0905.CTB

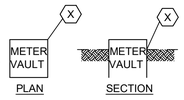
LAST SAVED BY: FOscario

LINE WORK

- NEW STRUCTURES
- EXISTING STRUCTURES (SCREENED)
- NEW PIPING (TRIPLE LINES)
- NEW PIPING (SINGLE LINE)
- EXISTING PIPING (TRIPLE LINES) (SCREENED)
- EXISTING PIPING (SINGLE LINE)(SCREENED)
- HIDDEN LINE
- CENTER, MONUMENT, OR SURVEY LINE
- GUARDRAIL
- EXISTING CONTOURS (SCREENED) — 310
- NEW CONTOURS (MAJOR) — 310
- NEW CONTOURS (MINOR)
- NEW FENCE — X X X
- EXISTING FENCE (SCREENED) — X X X
- REMOVE OR ABANDONED (CROSS HATCHING: FENCE SHOWN AS EXAMPLE)
- POWER POLE & LINE — E PP E
- PROPERTY LINE OR RIGHT OF WAY
- EDGE OF PAVEMENT
- SLOPE
- NEW ROAD
- FUTURE ROAD
- EXISTING ROAD (SCREENED)
- CURB & GUTTER
- CURB
- ROAD CENTERLINE SWALE (3' WIDE)
- ROAD CROSS GUTTER (10' WIDE)
- FLOWLINE
- FUTURE IMPROVEMENTS

COORDINATES

PLANT COORDINATES AT STRUCTURES (OUTSIDE FACE AT FINISHED GRADE)



COORDINATES (IN FEET)

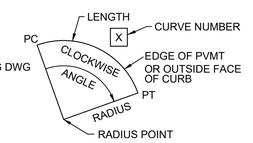
ELEVATION/SLOPES

- CONTROL POINT — XX
- SPOT ELEVATION (AT PAVEMENT) — XX.XX / PVMT
- SPOT ELEVATION (AT DIRT) — XX.X
- SPOT ELEVATION (AT FLOWLINE) — XX.XX / FL
- SPOT ELEVATION (AT HIGH POINT) — XX.XX / (HP)
- SPOT ELEVATION (AT TOP CURB) — XX.XX / TC
- SPOT ELEVATION (FINISH ELEV) — XX.XX / FIN SLAB/ FIN SLAB
- ELEVATION — X 1325.00 NEW; 1328.2 EXISTING
- SLOPE CALLOUT — 2:1 = 2/1; 3:1 = 3/1
- SURFACE SLOPE — 2%
- ROADWAY GRADE — S=0.0100 (FT/FT)
- DRAINAGE DITCH OR CHANNEL GRADE — S=0.0020 (FT/FT)

ROADWAY/PIPE CURVES

ROADWAY/PIPE CURVE

(SEE TABLE ON EACH GRADING & PAVING OR CIVIL PIPING DWG WITH ROADWAY/PIPE CURVES.)



PATTERNING

- STABILIZED CONSTRUCTION ENTRANCE
- STAGING AREA
- CONCRETE PAVEMENT
- RIP RAP
- ASPHALT PAVEMENT

SYMBOLS

SYMBOL	DESCRIPTION
	BENCH MARK
	VERTICAL CONTROL POINT
	MONUMENT
XX	SOIL BORING LOCATIONS
X	TEST BORING LOCATIONS
X	PERCOLATION TEST LOCATIONS
PH PHXX	POTHOLE/ POTHOLE NUMBER
IP	IRON PIN
IR	IRON ROD
	DATUM POINT
	FLOW ARROW
	FLOW/SLOPE DIRECTION
	DIRECTION ARROW
	PROPERTY HOOK
	MANHOLE (PLAN)
	MANHOLE (PROFILE)
	CURB MANHOLE
	CATCH BASIN (SQUARE)
	CATCH BASIN (ROUND)
	DROP INLET
	DROP MANHOLE
	ELECTRICAL MANHOLE AND PULL BOX
P	PULL BOX
T	TELEPHONE PEDESTAL
CTV	CABLE TV
	X JUNCTION BOX
	/ JUNCTION BOX
	I JUNCTION BOX
	POWER TOWER
	GATE

SYMBOL	DESCRIPTION
	TRANSIT POINT
	ANCHOR POINT
	PARSHALL FLUME
	GUARD POST
	HEADWALL
	ROCK WALL
	RIP RAP
	SHRUB/HEDGE
	TREE
	SIGN/SIGN POST
	LIGHT
	LIGHT POLE
	HIGH LIGHT POLE
	TRAFFIC LIGHT POLE
	TRAFFIC LIGHT POLE
	SINGLE TRAFFIC LIGHT POLE
	GUYED LIGHT POLE
	UTILITY POLE
	UTILITY POLE GUY WIRE
PP	POWER POLE
MC MC	PA SPEAKER
	2 WAY PA SPEAKER
	3 WAY PA SPEAKER
	4 WAY PA SPEAKER
	FIRE HYDRANT - 2 WAY
	FIRE HYDRANT - 3 WAY
	YARD HYDRANT
CO	CLEANOUT
	AIR RELEASE VALVE
	BLOW OFF VALVE
	HOSE BIBB
	SERVICE CONNECTION
	BURIED VALVE
	GAS VALVE OPEN/CLOSED
	GAS METER

SYMBOL	DESCRIPTION
	FLANGE
	VALVE
	CLOSED VALVE
	VALVE W/ CONNECTION
	CLOSED VALVE W/ CONNECTION
	OPERATOR/ OPERATOR CLOSED
	VALVE W/ OPERATOR
	CLOSED VALVE W/ OPERATOR
	VALVE W/ OPERATOR AND CONNECTION
	CLOSED VALVE W/ OPERATOR AND CONNECTION
	VALVE W/ TWO CONNECTIONS
	CLOSED VALVE W/ TWO CONNECTIONS
	VALVE W/ OPERATOR AND TWO CONNECTIONS
	CLOSED VALVE W/ OPERATOR AND TWO CONNECTIONS
	GATE VALVE W/ BLIND FLANGE AND CONNECTION
	CHECK VALVE
	PLUG VALVE
	CLOSED PLUG VALVE
	PIPE CAP OR CONNECTION
	CAP OR TURN DOWN
	CROSS
	REDUCER
	REDUCER W/ CONNECTION
	REDUCER W/ CONNECTION
	REDUCER FLANGED
	REDUCER W/ FLANGE AND CONNECTION
	REDUCER W/ TWO CONNECTIONS
	FLANGED TEE
	TEE W/ CONNECTIONS
	TEE W/ FLANGE AND CONNECTIONS

*** ALL SYMBOLS SHOWN AS NEW. EXISTING SYMBOLS ARE SCREENED.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

CIVIL

CIVIL SYMBOLS, ABBREVIATIONS

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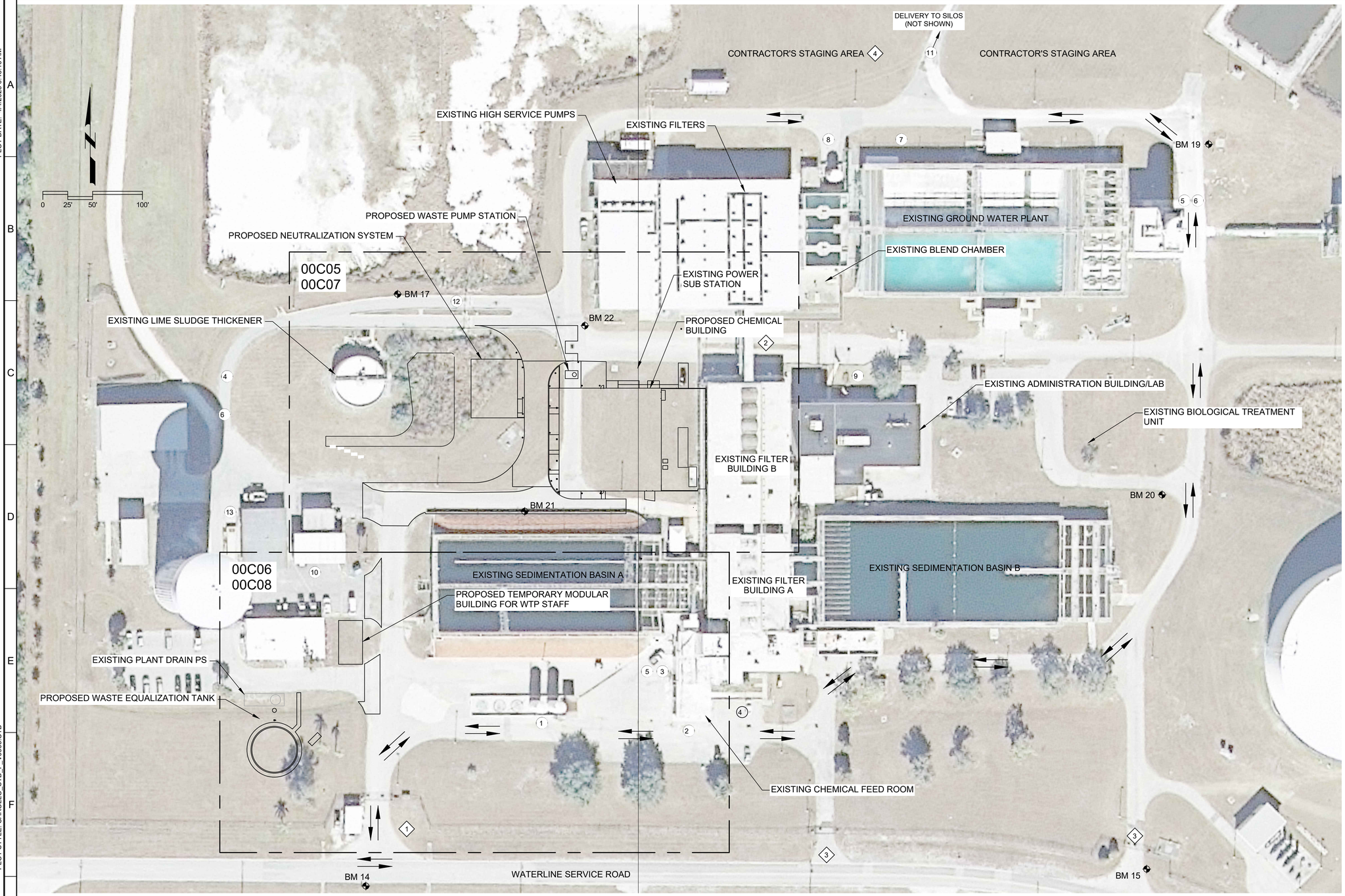
JOB NO. 09520I.10

DRAWING NO. 00C02

PROJECT NO. 9520I10 FILE NAME: 9520I1000C02.dwg



A PLAN
FILE: 2012-14-1855.dwg

GENERAL NOTES

1. CONTRACTOR'S VEHICULAR TRAFFIC SHALL BE COORDINATED WITH COUNTY STAFF AND LIMITED TO ROUTE SHOWN.
2. AFTER CONSTRUCTION, CONTRACTOR'S STAGING AREA SHALL BE RESTORED TO ORIGINAL CONDITIONS.
3. ACCESS TO THE CHEMICAL DELIVERY AND TRUCK LOADING/UNLOADING POINTS SHOWN SHALL BE MAINTAINED AT ALL TIMES.

KEY NOTES = (#)

1 MAIN ENTRANCE

2 LOW OVERHEAD WALKWAY. VEHICULAR TRAFFIC LIMITED

3 SECONDARY FACILITY ENTRANCES (RESTRICTED)

4 WITH OWNERS APPROVAL THE AREA NORTH OF THE CONTRACTOR'S STAGING AREA MAY BE USED FOR TEMPORARY STORAGE OF SOIL AND ROCK REMOVED DURING CONSTRUCTION, DEPENDING ON AMOUNT. OWNER'S APPROVAL. ALL MATERIAL SHALL BE CLEARED BY THE END OF THE PROJECT.

CHEMICAL DELIVERY AND TRUCK LOADING/UNLOADING POINTS = (#)

1 ALUM
2 SODIUM HYPOCHLORITE
3 ANHYDROUS AMMONIA
4 CORROSION INHIBITOR
5 LIME
6 POLYMER
7 CARBON DIOXIDE
8 HYDROFLUOROSILIC ACID
9 NITROGEN GAS FOR LAB
10 DRY CHEMICAL STORAGE
11 POWDERED ACTIVATED CARBON
12 LIME SLUDGE
13 LOADING DOCK/RAMP

GENERAL SITE AND DEVELOPMENT NOTES

1. THE PREVIOUS SITE DEVELOPMENT PLAN SHOWED GREATER THAN 80% OPEN SPACE AND THE IMPROVEMENTS SHOWN HEREIN WILL REDUCE THE OPEN SPACE BY 5.1%. THEREFORE A MINIMUM OF 30% LANDSCAPED OPEN SPACE WILL BE MAINTAINED ON THE SITE IN ACCORDANCE WITH THE MANATEE COUNTY LAND DEVELOPEMENT CODE SECTIONS 603.15.4 AND 604.2.2.12.
2. SITE LIES IN ZONES X AND AE PER FIRM PANEL 12081C0355E, EFFECTIVE 3/17/2014. ALL PROPOSED WORK IS IN ZONE X.
3. FEMA 100 YEAR FLOOD ELEVATION FOR ZONE AE 44' NAVD.
4. NONE OF THE PROPOSED PROJECTS INCLUDE DWELLING UNITS.
5. ALL BUILDING PERMITES WILL BE ISSUED PRIOR TO THE EXPIRATION OF THE CERTIFICATE OF LEVEL OF SERVICE OR FINAL SITE PLAN, WHICHEVER OCCURS FIRST.

BENCHMARKS				
BM	NORTHING	EASTING	ELEVATION	DESCRIPTION
14	1146667.51	539727.93	57.21	IRC
15	1146684.51	540512.14	58.80	IRC
17	1147262.06	539759.79	56.20	IRC
19	1147412.62	540574.42	56.42	IRC
20	1147060.45	540527.57	57.46	IRC
21	1147043.82	539887.48	55.99	IRC
22	1147230.37	539947.90	55.73	PKD

LEGEND:

PROPOSED CONTRACTOR VEHICLE TRAFFIC ROUTE

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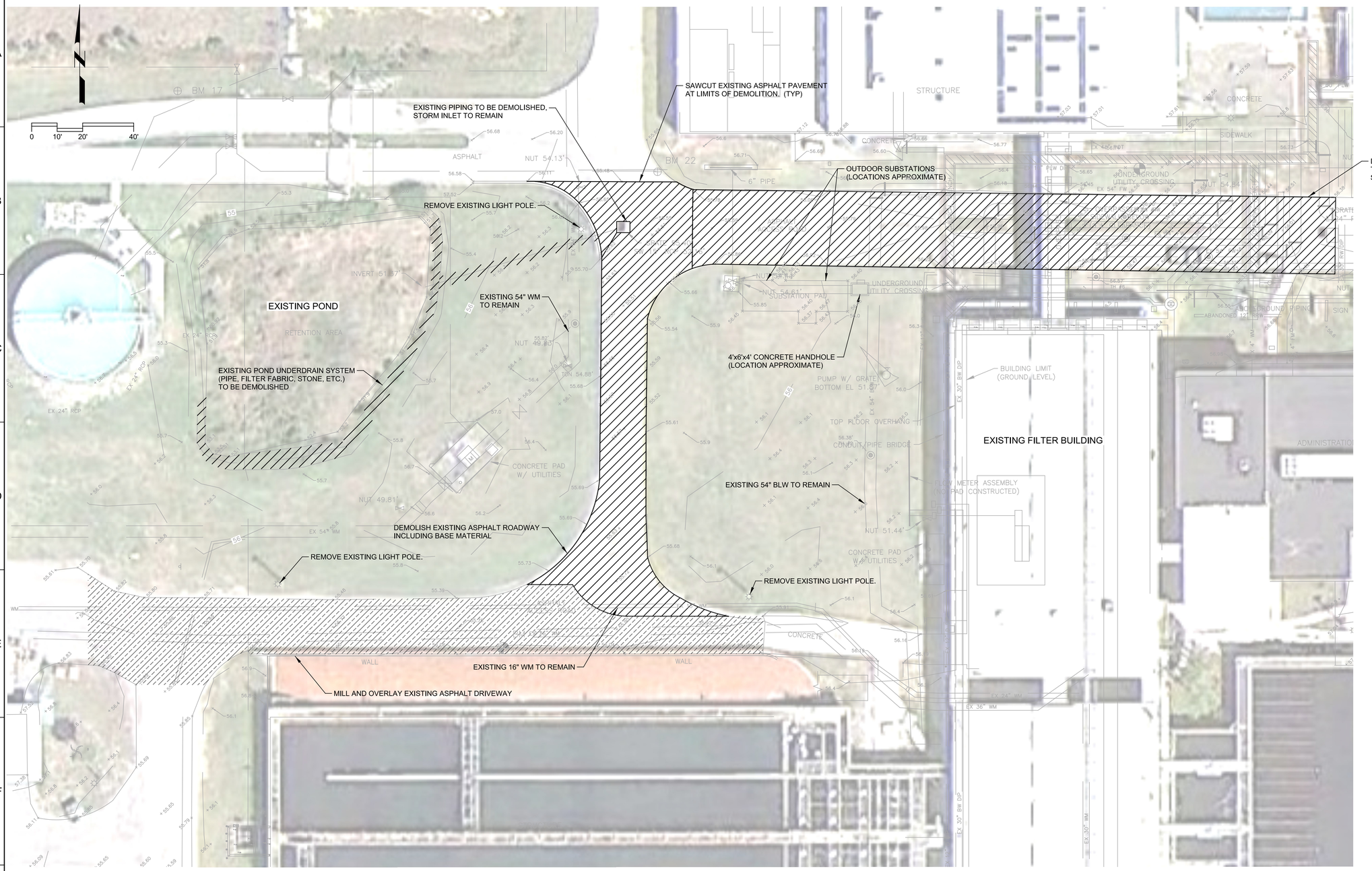
JOB NO. 09520I.10
DRAWING NO. 00C03

PROJECT NO. 9520I10 FILE NAME: 9520I1000C03.dwg

PLOT DATE: 4/4/2025 6:48:16 AM
PLOT STYLE: CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: FOsorio

Plot Date: 04-APR-2025 7:33:30 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A PLAN

FILE: 2012-14-1855.dwg

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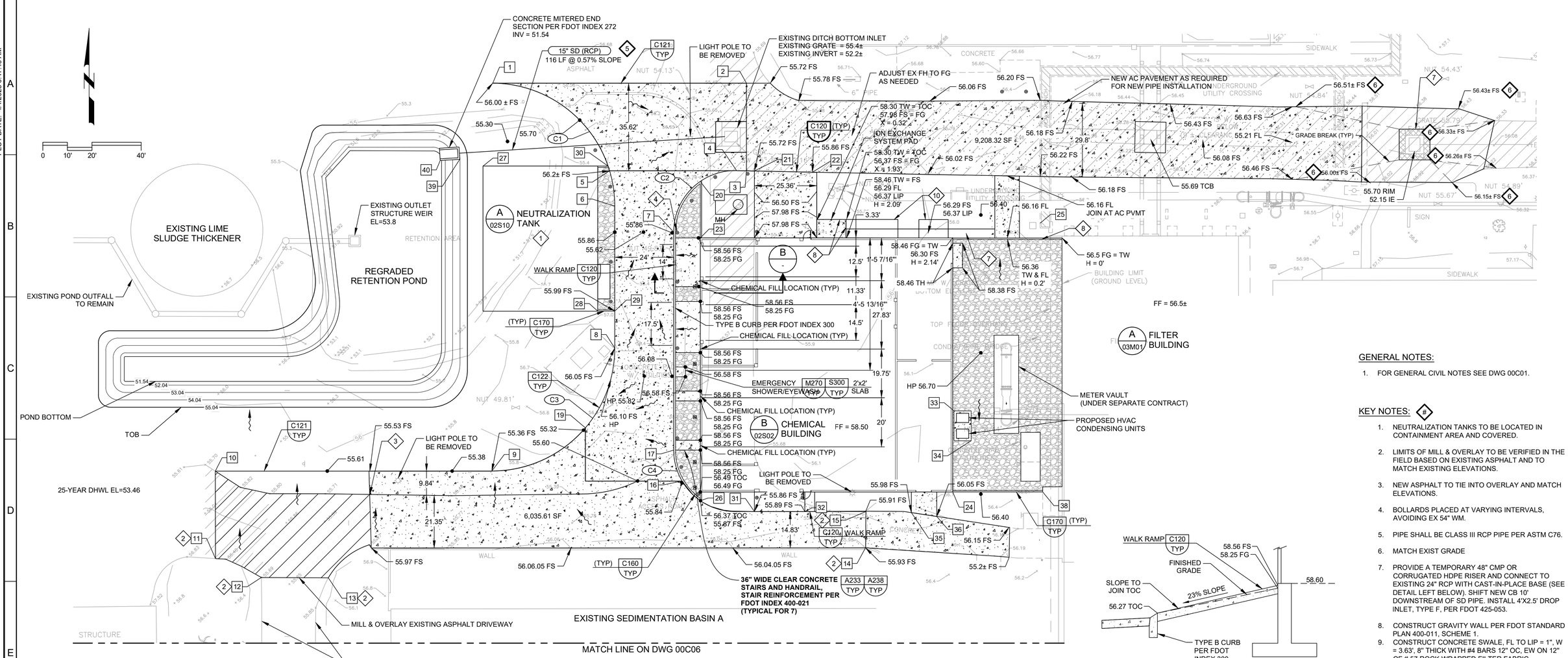
DRAWING NO. 00C04

PROJECT NO. 9520I10 FILE NAME: 9520I1000C04.dgn



A PLAN
FILE: 2012-14-1855.dwg

B SECTION
SCALE: NTS
FILE: -

GENERAL NOTES:

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01.

KEY NOTES:

1. NEUTRALIZATION TANKS TO BE LOCATED IN CONTAINMENT AREA AND COVERED.
2. LIMITS OF MILL & OVERLAY TO BE VERIFIED IN THE FIELD BASED ON EXISTING ASPHALT AND TO MATCH EXISTING ELEVATIONS.
3. NEW ASPHALT TO TIE INTO OVERLAY AND MATCH ELEVATIONS.
4. BOLLARDS PLACED AT VARYING INTERVALS, AVOIDING EX 54" WM.
5. PIPE SHALL BE CLASS III RCP PIPE PER ASTM C76.
6. MATCH EXIST GRADE
7. PROVIDE A TEMPORARY 48" CMP OR CORRUGATED HDPE RISER AND CONNECT TO EXISTING 24" RCP WITH CAST-IN-PLACE BASE (SEE DETAIL LEFT BELOW). SHIFT NEW CB 10' DOWNSTREAM OF SD PIPE. INSTALL 4'X2.5' DROP INLET, TYPE F, PER FDOT 425-053.
8. CONSTRUCT GRAVITY WALL PER FDOT STANDARD PLAN 400-011, SCHEME 1.
9. CONSTRUCT CONCRETE SWALE, FL TO LIP = 1", W = 3.63', 8" THICK WITH #4 BARS 12" OC, EW ON 12" OF # 57 ROCK WRAPPED FILTER FABRIC.
10. CONSTRUCT CONCRETE WALKWAY 4" THICK, MIN WITH ON 4" 98% COMPACTER NATIVE SOIL.

CONCRETE

CONCRETE

CONCRETE

STONE

ABBREVIATIONS

FF	FINISHED FLOOR
FG	FINISHED GRADE (NON PAVED)
FL	FLOW LINE
FS	FINISHED SURFACE (PAVED)
LIP	EDGE OF GUTTER
TOC	TOP OF CONCRETE
TW	TOP OF WALL

CURVE DATA				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	50.00	89°37'01"	78.21	49.67
C2	25.00	91°14'44"	39.81	25.55
C3	50.00	90°00'00"	78.54	50.00
C4	25.00	30°14'08"	13.19	6.75

GRADING AND STRUCTURE COORDINATE POINTS			
POINT	NORTHING	EASTING	DESCRIPTION
1	1147230.46	539837.51	BC C01
2	1147230.46	539940.72	PI
3	1147194.81	539940.72	PI
4	1147194.89	539936.72	EC C02
5	1147194.81	539885.07	PI
6	1147180.46	539887.17	EC C01
7	1147169.89	539911.17	BC C02
8	1147122.67	539887.17	BC C03
9	1147072.67	539837.17	EC C03
10	1147072.67	539724.68	ASPHALT

GRADING AND STRUCTURE COORDINATE POINTS			
POINT	NORTHING	EASTING	DESCRIPTION
11	1147037.11	539724.75	ASPHALT
12	1147029.40	539743.43	ASPHALT
13	1147029.26	539770.65	ASPHALT
14	1147041.46	539989.18	ASPHALT
15	1147056.22	539989.30	ASPHALT
16	1147068.63	539914.58	BC C04
17	1147081.22	539911.17	EC C04
18	1147068.63	539875.23	PI
19	1147090.24	539875.23	PI
20	1147190.81	539922.47	CURB

GRADING AND STRUCTURE COORDINATE POINTS			
POINT	NORTHING	EASTING	DESCRIPTION
21	1147194.74	539943.97	RAMP
22	1147194.27	539967.60	SIDEWALK
23	1147167.52	539921.97	BLDG CORNER
24	1147064.19	540024.64	BLDG CORNER & CURB
25	1147167.52	540069.06	CURB
26	1147060.31	539922.47	CURB
27	1147196.74	539833.55	BLDG CORNER
28	1147137.74	539880.22	BLDG CORNER
29	1147137.74	539887.17	CURB
30	1147196.74	539884.45	CURB

GRADING AND STRUCTURE COORDINATE POINTS			
POINT	NORTHING	EASTING	DESCRIPTION
31	1147056.22	539943.97	RAMP
32	1147056.22	539964.47	RAMP
33	1147097.19	540025.14	CONC PAD
34	1147085.02	540032.14	CONC PAD
35	1147055.80	540007.81	SIDEWALK
36	1147054.23	540018.14	SIDEWALK
37	NOT USED		
38	1147064.19	540061.22	CURB
39	1147199.50	539824.14	STR COOR
40	1147199.01	539816.16	STR COOR

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PLOT STYLE: CAROLLO_STD_F_V0905.CTB
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PROJECT NO. 9520I10 FILE NAME: 9520I1000C05.dwg

MATCH LINE ON DWG 00C05

EXISTING MAINTENANCE BUILDING

STRUCTURE

24'X44' MODULAR BUILDING

EXISTING SEDIMENTATION BASIN A

STRUCTURE

EXISTING ASPHALT DRIVE

EXISTING PLANT DRAIN PS

MH

17.01'

15.55'

12.5'

56.97

55.21

54.97

56.87

C160 4' WIDE TYP

APP. LOCATION OF FLOW METER

A 02M24 WASTE EQUALIZATION TANK

WET WELL 56.94'

EX 8" FM

53'-2"

NUT 55.57'

NUT 56.40'

WALL

ASPHALT

CONCRETE

WALL

CONCRETE

UNDERGROUND UTILITY CROSSING

ANTENNA

SIDEWALK

INVERT 54.16

GRATE 55.02'
NE 4" PVC 53.98'
S 8" PVC 53.93'
E 12"x18" RCP 53.48'

GRATE
W 12"x18" F
E 14"x23" F
N 12" PVI

ASPHALT

CONCRETE

PID 560700007

SECURITY FENCE

SECURITY SHACK

CANOPY

FUTURE ROW SETBACK

MONUMENTED R/W LINE
(ORB 320 PG 297)
S 89°36'16" E

12"x18" RCP
55.18

12"x18" RCP
55.37'

40'-0"

80'-0"

40'-0"

ROW CENTERLINE

WATERLINE

ROAD

80'

MONUMENTED R/W LINE
(ORB 320 PG 297)
S 89°36'16" E

ASPHALT ROADWAY

BM 14

19"x30" RCP
54.43'

FUTURE ROW SETBACK

14"x23" RCP
54.90'

14"x23" RCP
54.59'

12"x18" RCP
54.83'

CATCH BASIN

19"x30" RCP

12"x18" RCP

0 10' 20' 40'

GENERAL NOTES:

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01.

KEY NOTES:

1. DEMOLISH AND REPLACE EXISTING ASPHALT ROADWAY INCLUDING BASE MATERIAL (FULL DEPTH REPLACEMENT).
2. SAWCUT AT CURB RETURN.

GRADING AND STRUCTURE COORDINATE POINTS			
POINT	NORTHING	EASTING	DESCRIPTION
42	1146804.34	539636.06	TANK CENTER
43	1146822.32	539656.87	SIDEWALK
44	1146828.04	539662.59	SIDEWALK
45	1146861.7±	539662.6±	SIDEWALK
46	1146997.0±	539743.6±	ASPHALT
47	1146926.9±	539743.6±	ASPHALT
48	1146900.3±	539742.1±	ASPHALT
49	1146840.24	539742.12	ASPHALT
50	1146840.2±	539727.3±	ASPHALT

MILL AND OVERLAY

CONCRETE

AC PAVEMENT

STONE

B PLAN
FILE: 2012-14-1855.dwg

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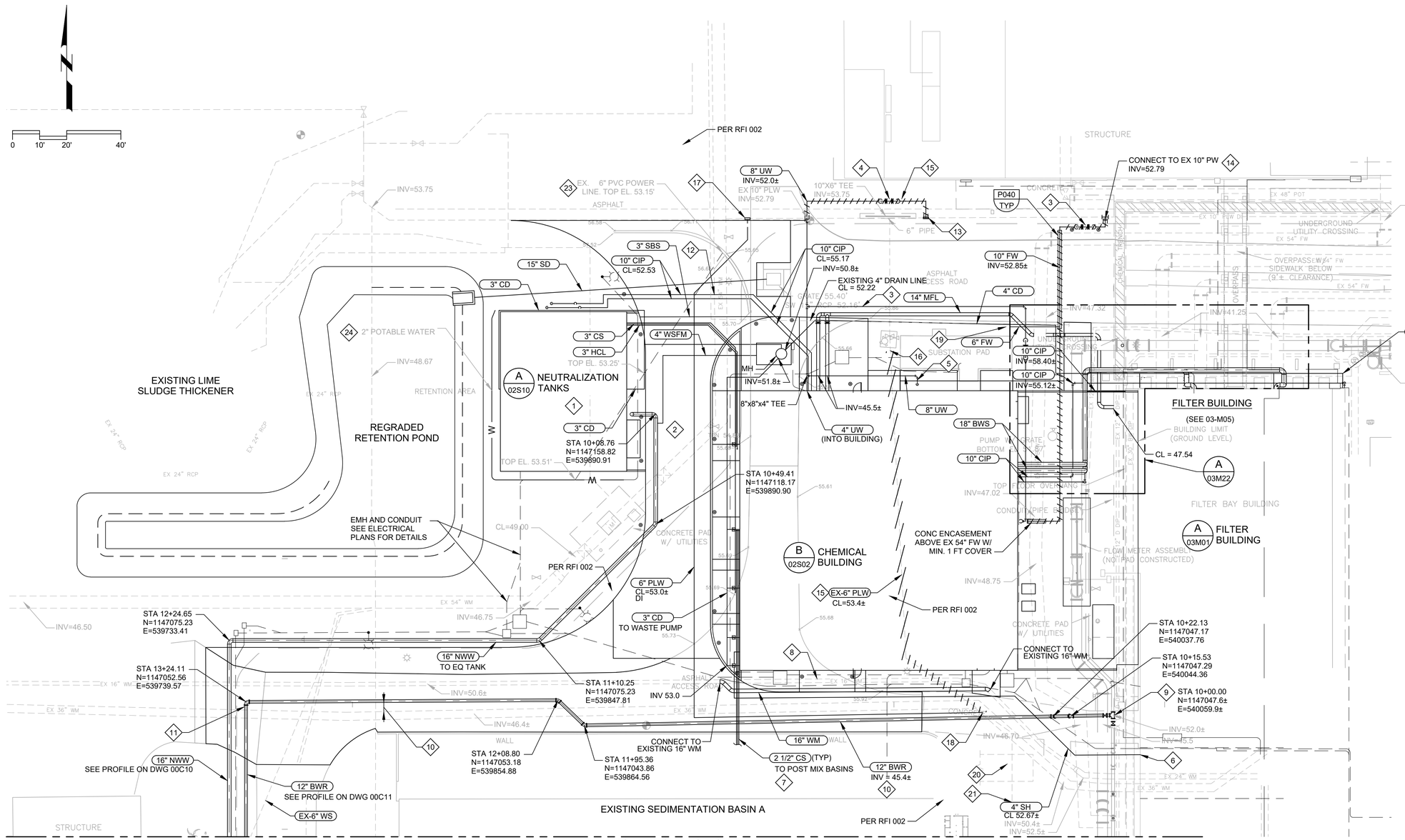

A PLAN
FILE: 2012-14-1855.dwg

GENERAL NOTES

1 FOR GENERAL CIVIL NOTES SEE DWG 00C01.

2 SIZES SHOWN FOR BURIED CHEMICAL PIPING (SBS, CS, HCL, AND SH) REPRESENT THE SIZE OF THE OUTER CONTAINMENT PIPE. REFER TO MECHANICAL DRAWINGS FOR SIZE OF CHEMICAL CARRIER PIPE.

KEY NOTES = ◇#

1 NEUTRALIZATION TANKS TO BE LOCATED IN CONTAINMENT AREA AND COVERED.LOW OVERHEAD WALKWAY. VEHICULAR TRAFFIC LIMITED.

2 CONNECT 4" SSFM TO 16 NWW WITH TAP AND SADDLE. INSTALL BALL VALVE IN VAULT ON 4" WSFM PRIOR TO CONNECTION.

3 10" DOUBLE CHECK VALVE ASSEMBLY PER MCPWD DETAIL UW-14.

4 8" DOUBLE CHECK VALVE ASSEMBLY PER MCPWD PER DETAIL UW-14.

5 INSTALL SPOOL PIECE FOR COMMISSIONING. SPOOL PIECE TO BE REMOVED DURING NORMAL OPERATION.

6 NEW INDPENEDENT 1" SCH 80 BACK TO SODIUM HYPO ROOM.

7 FIELD ROUTE CS PIPING TO POST MIX BASIN INJECTION POINTS SHOWN ON DRAWINGS 04M01 AND 04M02.

8 RELOCATE 16" WM 3.5 FT SOUTH. ISOLATE EXISTING 16" WM AT CONTROL VALVE VAULT AND AT EXISTING WATER TOWER.

9 CUT-IN 12" TEE/RJ AND TWO GATE VALVES

10 MAINTAIN 3' HORIZONTAL AND 12" VERTICAL SEPARATION BETWEEN THE EXISTING 36" WM AND THE PROPOSED 12" BWR

11 BEGIN DEFLECTION OF 12" BWR TO MEET PIPE INVERT ELEVATIONS SHOWN

12 LOWER 10" CIP TO CL EL 48.00±

13 10"X8" TAPPING SLEEVE AND VALVE

14 CUT IN 10"X10" TEE AND GATE VALVE

15 DEMOLISH APPROXIMATELY 150 LF OF 6" WATER LINE

16 CUT AND CAP EXISTING 6" PLW

17 10"X6" TAPPING SLEEVE AND VALVE

18 CONNECT TO EXISTING 6" PLW

19 6" FIRE DEPARTMENT CONNECTION (FDC) TO BE LOCATED DOWNSTREAM OF DOUBLE CHECK VALVE ASSEMBLY. LOCATE WITHIN 50' OF EXISTING FIRE HYDRANT. HEIGHT OF FDC TO BE INSTALLED PER FLORIDA FIRE CODE. ELKHART 15-2W 6" OR APPROVED EQUAL.

20 6" DOUBLE CHECK VALVE ASSEMBLY PER MCPWD DETAIL UW-14. CONTRACTOR TO FIELD LOCATE WITH ENGINEER'S FIELD PERSONNEL.

21 CONNECTION TO EXISTING 4" PLW, DI MOUNTED TO WALL OF SEDIMENTATION BASIN A.

22 ROUTING REVISED PER 057

23 6" PVC POWER CONDUIT ENCASED IN CONCRETE UNDER NEUTRALIZATION SLAB, PER RFI 015

24 2" POTABLE WATER LINE ALIGNMENT AROUND NEUTRALIZATION BUILDING PER RFI 023

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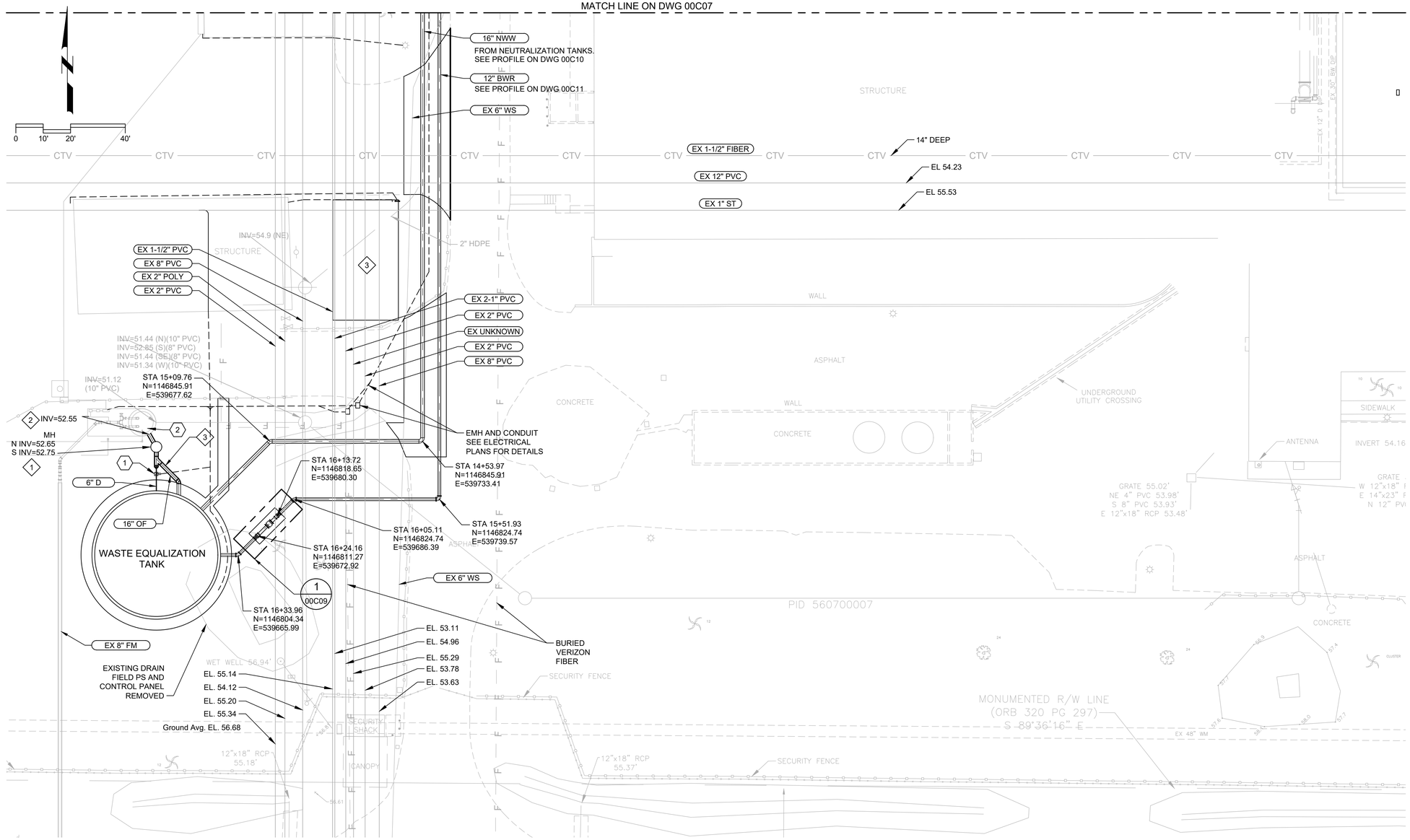
JOB NO. 09520I.10
DRAWING NO. 00C07

PLOT DATE: 4/4/2025 9:48:23 AM
PLOT STYLE: CAROLLO_STD_F_V1703.CTB
FOsorio
9520I10 9520I1000C07.dwg



B PLAN
FILE: 2012-14-1855.dwg

GENERAL NOTES

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01

KEY NOTES = ◇#

1 PRE-CAST MANHOLE PER MANATEE COUNTY UTILITY DESIGN STANDARDS, DETAIL US-3

2 CORE DRILL EXISTING PUMP STATION WET WELL AND PROVIDE DROP PIPE PER UTILITY DESIGN STANDARDS, DETAIL US-20

3 TEMPORARY OWNER'S OFFICE DURING CONSTRUCTION

KEY TAGS = ⬡#

1	6" BUTTERFLY VALVE	20-HV-798
2	LEVEL SWITCH	20-LSHH-799
3.	CONCRETE CAP PLACED OVER 16" PIPE IN DITCH LINE PER RFI 053	

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED BRW
DRAWN FAO
CHECKED SS
DATE MAY 2019

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
CIVIL
YARD PIPING PLAN II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00C08

PLOT DATE: 4/4/2025 9:47:32 AM
PLOT STYLE: CAROLLO_STD_F_V1703.CTB
LAST SAVED BY: FOsorio

PROJECT NO. 9520I10 FILE NAME: 9520I1000C08.dwg

Plot Date: 6/5/2025 1:46:13 PM

0 20' 40' 80'

SCALE: 1" = 40'

EX. 30" RW

3" ELEC. LINE AT CROSSING. APPROX. EL.51.75

30" DIP FLANGE
N=1147507.895
E=540157.034
T.O.P. EL. 55.01

1.) TOP OF EX. DIP AT CROSSING APPROX. 51.50.
2) INV. EL. AT CROSSING 52.00

30" DIP
N=1147507.450
E=540126.455
T.O.P. EL. 54.40

BEND 45 DEG 30"
STA 1+21.96
N 1147507.24
E 540103.50

BEND 45 DEG 30"
STA 1+09.00
N 1147498.28
E 540094.14

30" GV
N=1147433.478
E=540060.281
TOP NUT EL. 49.97

1.) APPROX. INV. EL. 50.25 - AT 36" TIE IN
2.) CAPPED OFF TEE ON NORTH SIDE

30" DIP TEE
N=1147433.478
E=540053.479
T.O.P. EL. 52.47

30"X36" DIP TEE
N=1147429.478
E=540053.479
T.O.P. EL. 52.47

30" DIP
N=1147384.219
E=540052.607
T.O.P. EL. 57.27

30" DIP 45 BEND
N=1147379.550
E=540052.517
T.O.P. EL. 61.35

30" DIP
N=1147377.379
E=540052.580
T.O.P. EL. 61.56

30" DIP
N=1147508.138
E=540176.395
T.O.P. EL. 54.86

30" DIP FLANGE
N=1147508.482
E=540193.024
T.O.P. EL. 54.96

30" DIP FLANGE
N=1147508.169
E=540175.458
T.O.P. EL. 55.03

30" DIP FLANGE
N=1147507.765
E=540138.667
T.O.P. EL. 54.83

ARV
N=1147508.780
E=540244.728
T.O.P. EL. 55.07

30" DIP FLANGE
N=1147508.645
E=540246.948
T.O.P. EL. 55.30

30" DIP 45 BEND
N=1147508.707
E=540261.801
T.O.P. EL. 54.85

30" DIP FLANGE
N=1147508.547
E=540229.321
T.O.P. EL. 54.98

T.O.P. OF 30" AT CROSSING APPROX. 48.50

30" DIP 45 BEND
T.O.P. EL. 48.58

30" DIP 45 BEND
T.O.P. EL. 48.58

30" DIP TEE
tie-in INV. EL. 46.00

BEND 45 DEG 30"
STA 0+52.82
N 1147442.12
E 540092.73

BEND 45 DEG 30"
STA 0+42.75
N 1147434.86
E 540085.75

BEND 45 DEG 30"
STA 5+39.47
N 1147508.65
E 540521.01

Roadway Approx. EL 56.75

BUTTERFLY VALVE 30"

GATE VALVE 30"
N=1147429.478
E=540062.120
T.O.P. EL. 52.61

30" DIP
EX 30" DIP
TEE 30"
BIBBY RD

GENERAL NOTES:

1. RECORD DRAWINGS FOR NEW PIPING DRAWN BASED ON INFORMATION PROVIDED FROM THE CONTRACTOR. OTHER EXISTING FEATURES SHOWN BASED ON PREVIOUS RECORD DRAWINGS.

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED DES
DRAWN FAO
CHECKED CHK
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

CIVIL

YARD PIPING PLAN III

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00C08A

X

LAST SAVED BY: FOsorio

PROJECT NO. 12345A.10 FILE NAME: 9520I1000C08A.dwg

PLOT DATE: 4/4/2025 6:48:27 AM

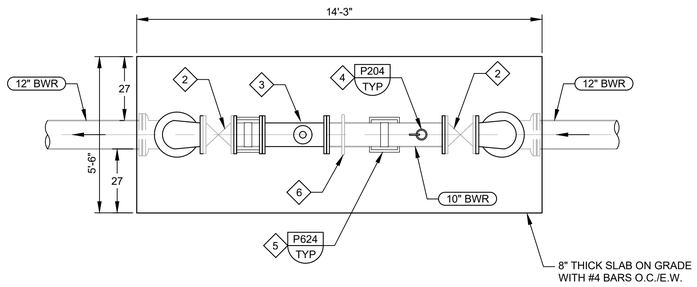
GENERAL NOTES

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01.

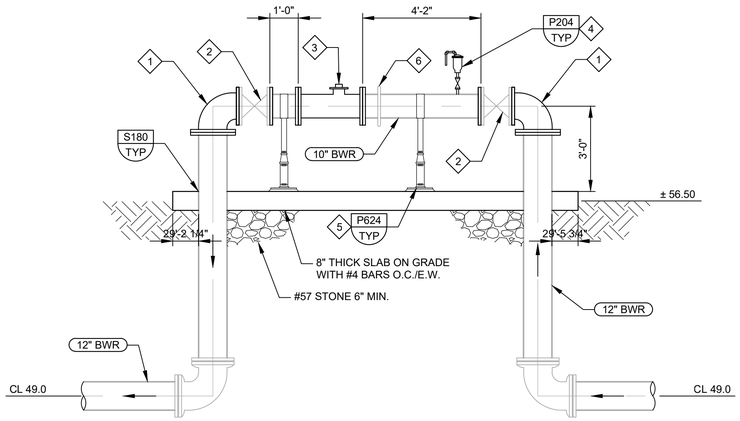
KEY TAGS = ◇#

1 12" x 10" REDUCING ELBOW
2 10" OS&Y GATE VALVE
3 10" PROPELLER FLOW METER
4 1" AIR RELEASE VALVE
5 ADJUSTABLE PIPE SUPPORT WITH STRAP
6 GROOVED COUPLING

.



PLAN



SECTION

1 - BWR FLOW METER ASSEMBLY

SCALE: 3/8" = 1'-0"
FILE: 9520I1000C401

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED BRW
DRAWN FAO
CHECKED SS
DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
CIVIL
YARD PIPING DETAILS

VERIFY SCALES
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0 1"
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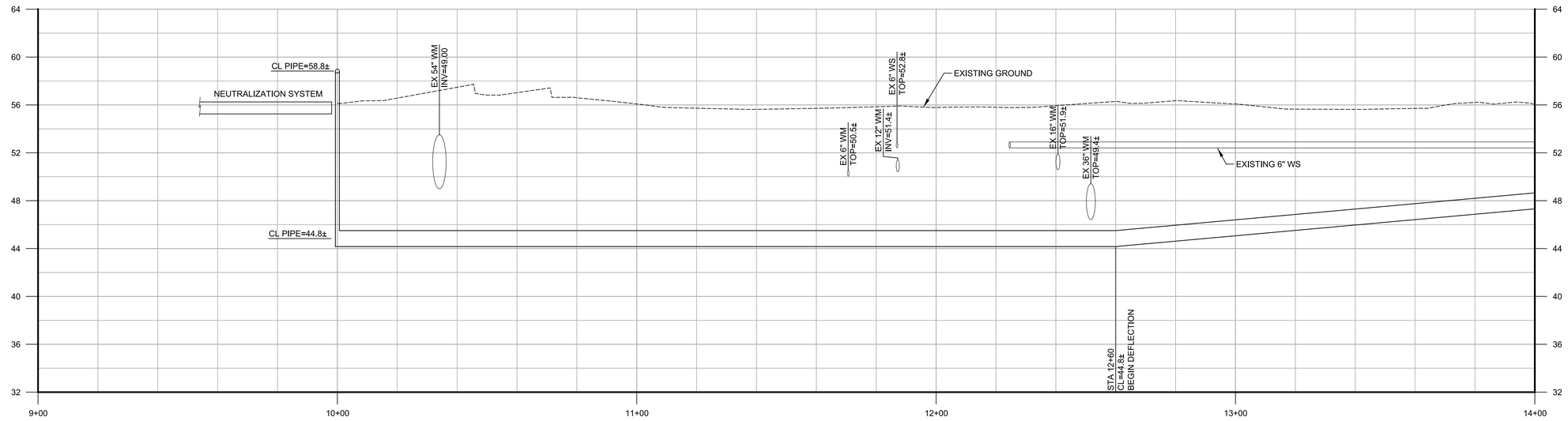
JOB NO. 09520I.10
DRAWING NO. 00C09

PLOT STYLE: CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: FOsorio

Plot Date: 04-APR-2025 7:02:13 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

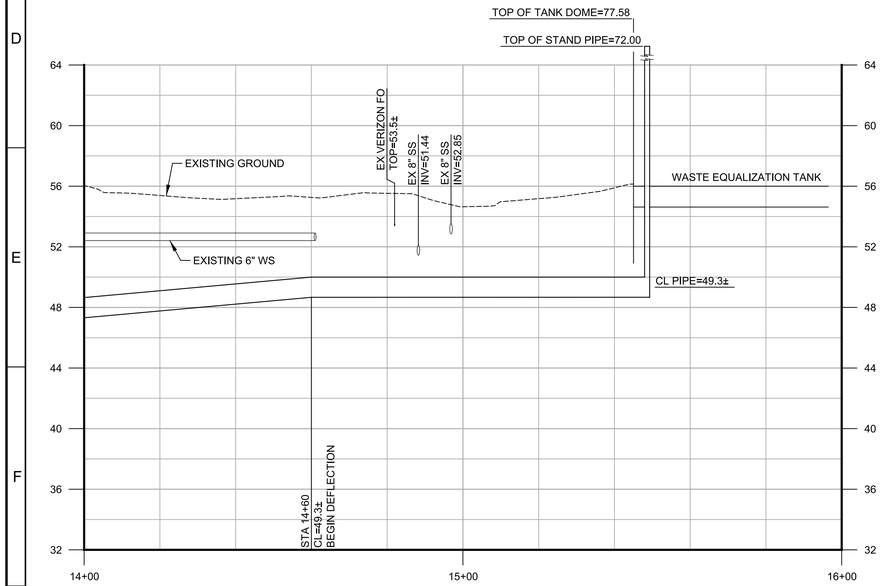
GENERAL NOTES:

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01.



PROFILE

HORIZ SCALE: 1"=20'
VERT SCALE: 1"=5'
FILE: 9520I1000C101



PROFILE

HORIZ SCALE: 1"=20'
VERT SCALE: 1"=5'
FILE: 9520I1000C101

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
CIVIL
16 NWW PROFILE

VERIFY SCALES
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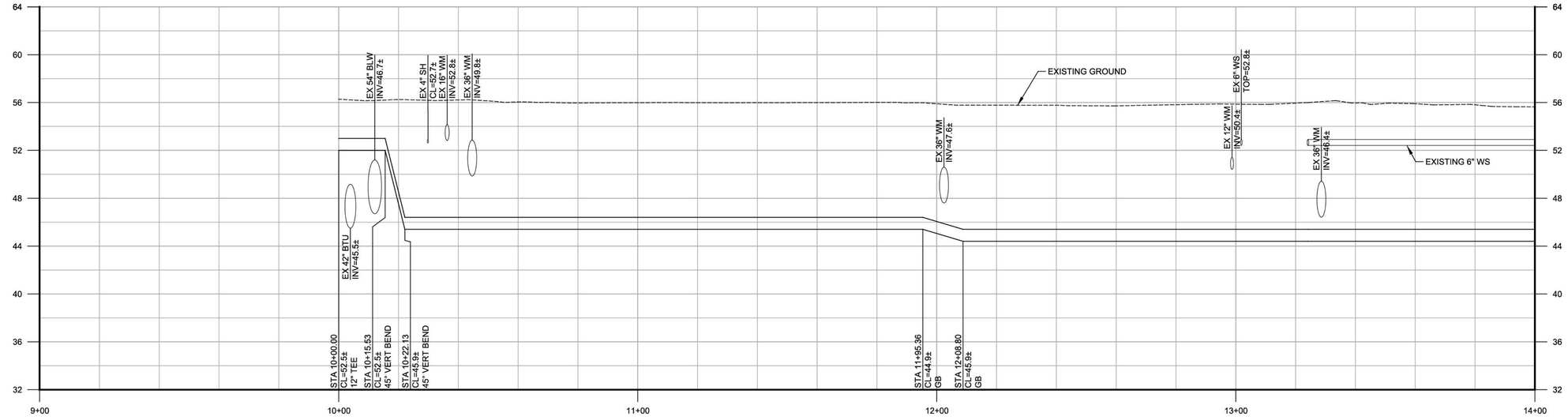
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00C10

Plot Date: 04-APR-2025 7:02:22 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

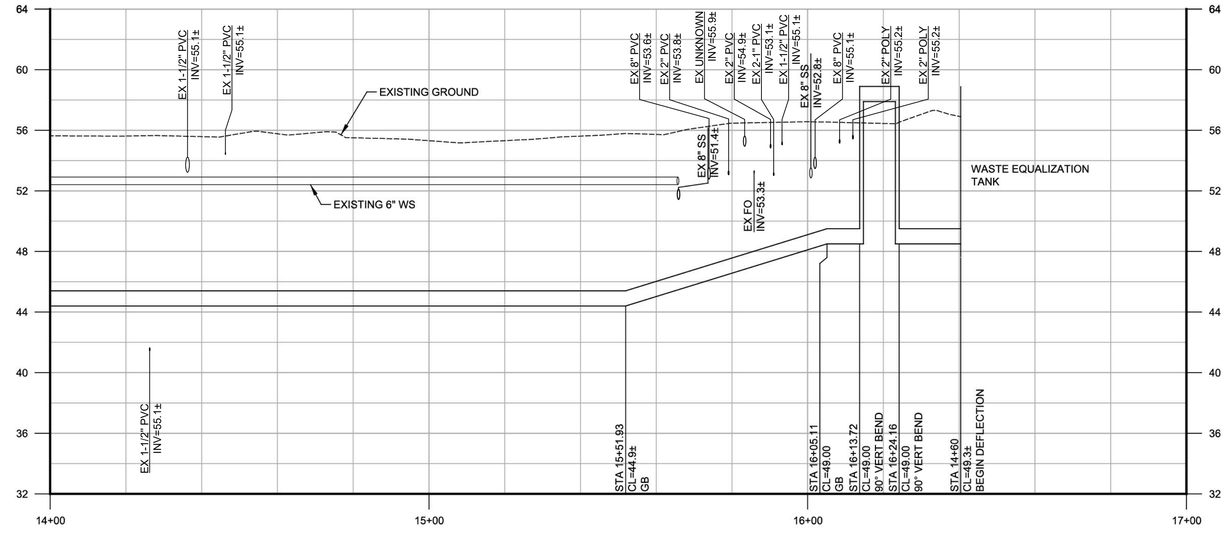
GENERAL NOTES:

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01.



PROFILE

HORIZ SCALE: 1"=20'
VERT SCALE: 1"=5'
FILE: 9520I1000C101



PROFILE

HORIZ SCALE: 1"=20'
VERT SCALE: 1"=5'
FILE: 9520I1000C101

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN BWH
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
CIVIL
12 BWR PROFILE

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00C11

Plot Date: 04-APR-2025 7:02:09 AM
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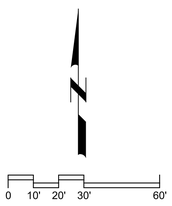
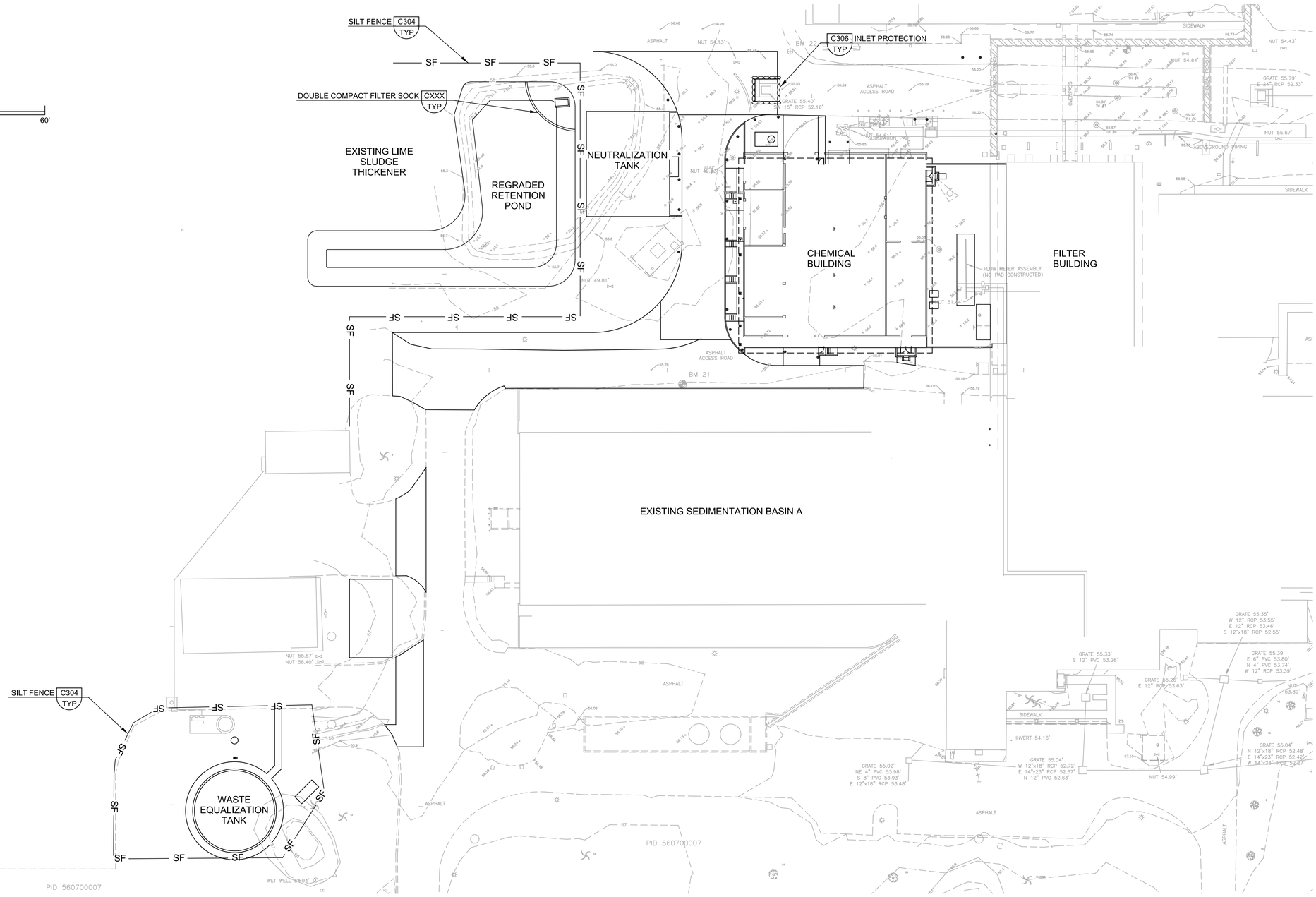
LAST SAVED BY: eparker



GENERAL NOTES:

1. FOR GENERAL CIVIL NOTES SEE DWG 00C01.



A PLAN
FILE: 2012-14-1855.dwg

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED BRW
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
CIVIL
STORMWATER POLLUTION PREVENTION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00C12

Plot Date: 04-APR-2025 10:45:45 AM
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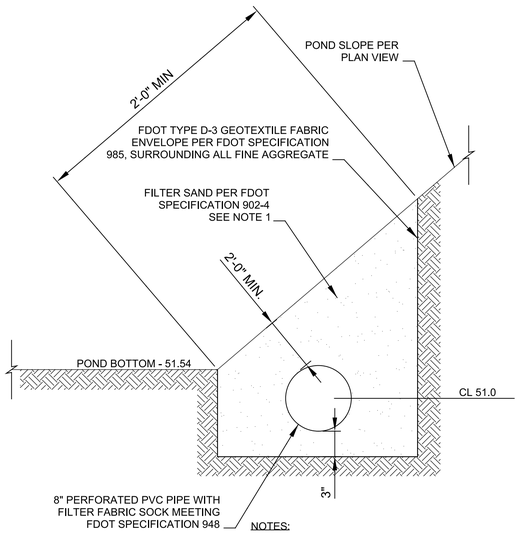
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

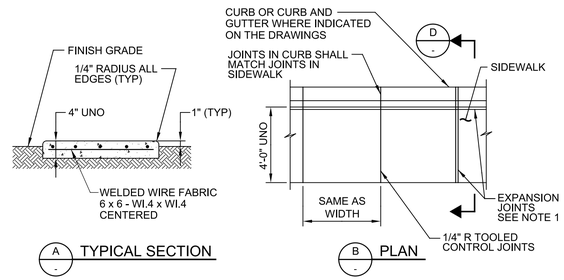


NOTES:

1. UNDERDRAIN SAND SHALL HAVE A UNIFORMITY COEFFICIENT OF 1.5 OR GREATER AND AN EFFECTIVE GRAIN SIZE OF 0.2 TO 0.55MM IN DIAMETER.

C030 TYP — POND UNDERDRAIN DETAIL

10/17

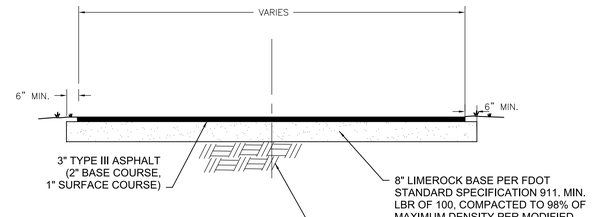


NOTES:

1. PROVIDE 3/4" EXPANSION JOINTS AT ENDS OF CONCRETE PLACEMENT, AT POINTS OF CURVATURE, AT BOTH SIDES OF DRIVEWAYS, AT INTERSECTIONS, AT STRUCTURES, AND AT MAXIMUM SPACING OF 30 FEET. EXPANSION JOINTS SHALL BE 3/4" WIDE WITH 1/4" RADIUS CONCRETE EDGES AT EACH SIDE OF JOINT. USE BITUMINOUS FIBER EXPANSION JOINT MATERIAL.
2. EXPANSION JOINT: 3/8" WIDE WITH 1/4" RADIUS CONCRETE EDGES EACH SIDE. USE BITUMINOUS FIBER EXPANSION JOINT MATERIAL.
3. PROVIDE WEAKENED PLANE JOINTS AT 10 FEET OC MAXIMUM. AT FRONT, TOP AND BACK FACES, PROVIDE 1/2" RADIUSED EDGE EACH SIDE AT JOINTS.
4. ELEVATIONS AS INDICATED ON THE DRAWINGS.

C120 TYP N — SIDEWALK

07/25/13

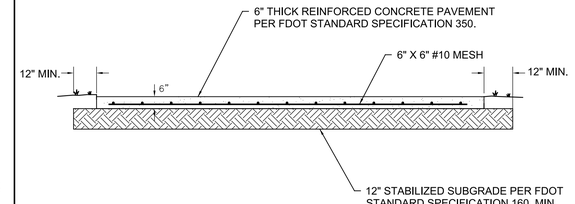


NOTES:

1. SEE PAVING, GRADING AND DRAINAGE PLAN FOR ROADWAY SLOPE.

C121 TYP — NEW ASPHALT PAVEMENT

05-17-2017

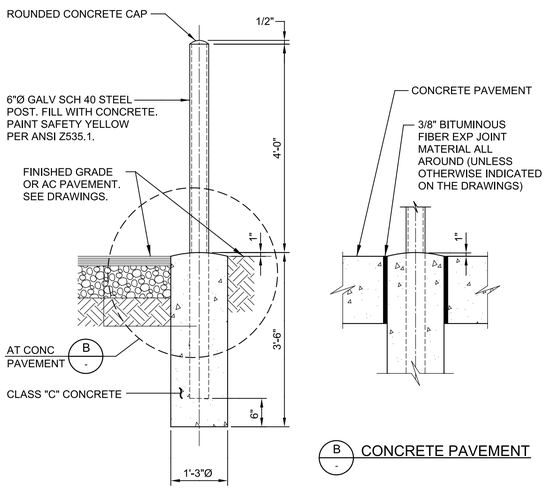


NOTES:

1. SEE PAVING, GRADING AND DRAINAGE PLAN FOR ROADWAY SLOPE.

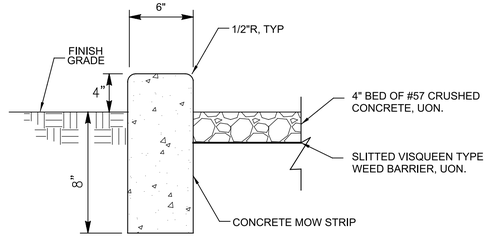
C122 TYP — NEW CONCRETE PAVEMENT

05-17-2017



C160 TYP N — BOLLARD

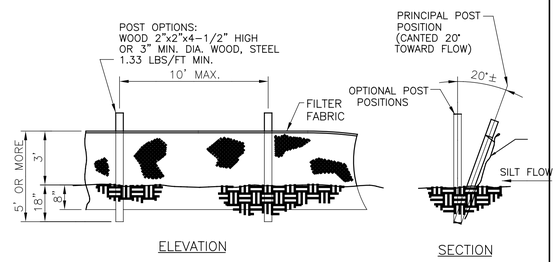
01/13/14



NOTES:

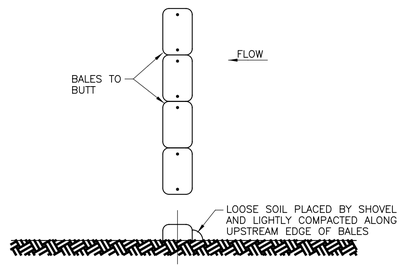
1. PROVIDE EXPANSION JOINT MATERIAL AT 15' CENTER TO CENTER IN CURB, OR WHERE ABUTS SIDEWALK OR OTHER STRUCTURES.
2. SAWCUT CONTRACTION JOINTS AT 7.5' CENTER TO CENTER.
3. VEHICLE/EQUIPMENT STORAGE LOTS, THE SLITTED VISQUEEN SHALL BE REPLACED WITH GEOGRID FABRIC, TYPAR 3401, OR EQUAL.

C170 TYP — CONCRETE RIBBON CURB



C304 TYP J — TYPICAL SILT FENCE

02/2018



C305 TYP J — TYPICAL STAKED HAY BALES

02/2018

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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CA 00008571

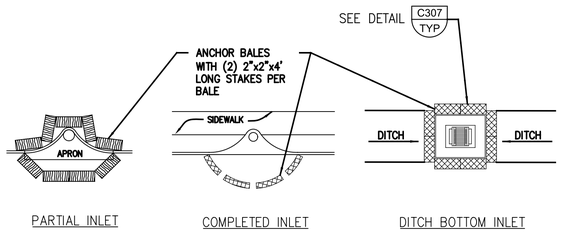
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL CIVIL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GC01

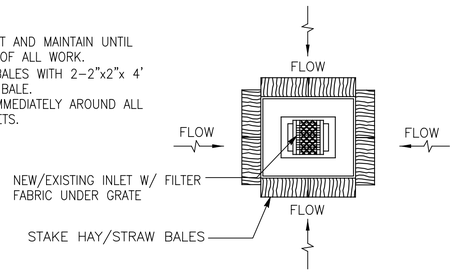
PROJECT NO.
FILE NAME: 9520I1000GC01.dgn



C306 TYP J PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

02/2018

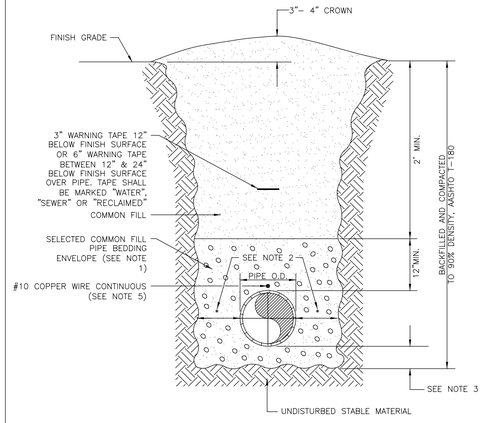
NOTES:
1. CONSTRUCT AND MAINTAIN UNTIL COMPLETION OF ALL WORK.
2. ANCHOR BALES WITH 2-2"x2"x 4' STAKES PER BALE.
3. INSTALL IMMEDIATELY AROUND ALL EXISTING INLETS.



C307 TYP J PROTECTION AROUND DITCH BOTTOM INLETS

02/2018

NOTES:
1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



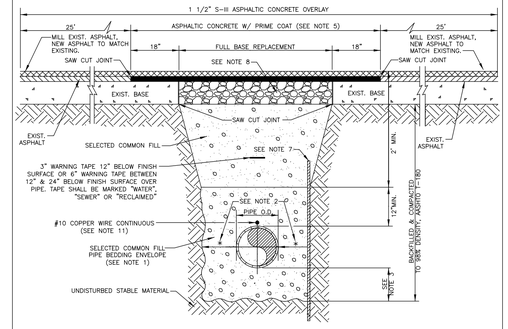
MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV.BY	DATE
WRT/KE	03/11

MAY 10, 2011 — DATE OF APPROVAL

TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING — UG-11

NOTES:
1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1 1/4 INCH, WHICHEVER IS GREATER.
6. MILL 25' BACK FROM TRENCH SAW CUT. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY LIMITS ARE FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCERNABLE "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
7. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
8. BASE SHALL BE 8" MINIMUM THICKNESS CRUSHED CONCRETE.
9. TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
10. RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FDOT STANDARDS, LATEST EDITION.
11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
12. NOTES 5. THRU 10. ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



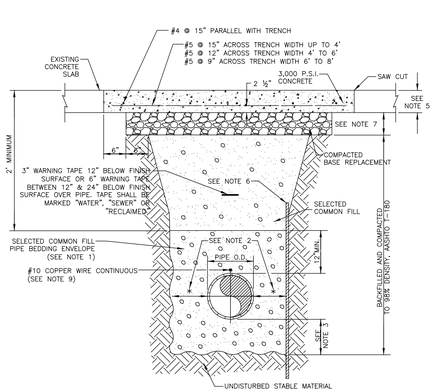
MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV.BY	DATE
WRT/KE	03/11

MAY 10, 2011 — DATE OF APPROVAL

TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING — UG-12

NOTES:
1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.
6. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISH GRADE OR 12" BELOW SUBGRADE.
7. BASE SHALL BE 8" MINIMUM THICKNESS CRUSHED CONCRETE.
8. TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
9. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
10. NOTES 5. THRU 8. ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



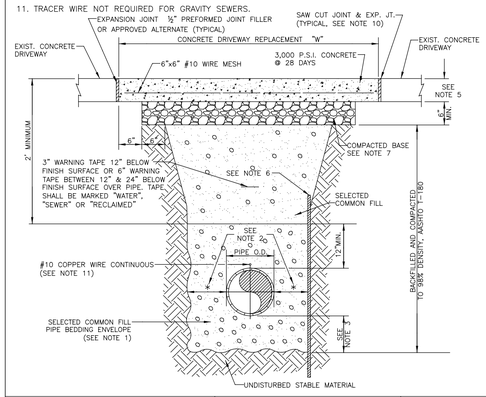
MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/BR	11/10

MAY 10, 2011 — DATE OF APPROVAL

TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING — UG-13

NOTES:
1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.
6. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISH GRADE OR 12" BELOW SUBGRADE.
7. BASE SHALL BE COMPACTED 6" MINIMUM THICKNESS OF APPROVED MATERIAL.
8. DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST ADOPTED CONSTRUCTION STANDARDS OF THE MANATEE COUNTY TRANSPORTATION DEPARTMENT.
9. IF THE DRIVEWAY IS 12' OR WIDER, SAWCUT AN EXPANSION JOINT ALONG THE CENTER OF THE DRIVEWAY (3/16" WIDE AND 1½ " DEEP) AFTER THE CONCRETE HAS SET.
10. IF THERE IS AN EXISTING EXPANSION JOINT WITHIN 3' OF THE PROPOSED JOINT, EXTEND DRIVEWAY REPLACEMENT TO THE EXISTING JOINT.
11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



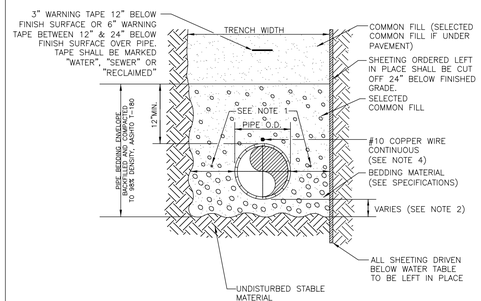
MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/BR	11/10

MAY 10, 2011 — DATE OF APPROVAL

TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING — UG-14

NOTES:
1. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
2. TYPICALLY 4" TO 6".
3. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
4. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



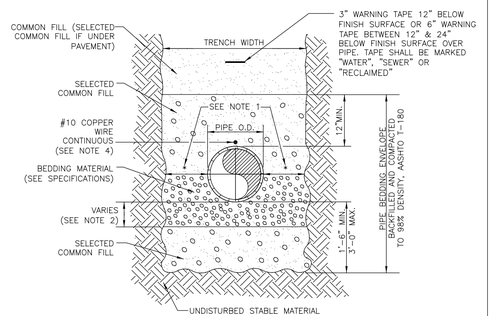
MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/BR	11/10

MAY 10, 2011 — DATE OF APPROVAL

TRENCH WITH TYPE A-2 PIPE BEDDING — UG-15

NOTES:
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REV.BY	DATE
CLB/BR	11/10

MAY 10, 2011 — DATE OF APPROVAL

TRENCH WITH TYPE A-3 PIPE BEDDING — UG-16

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY DEAN MILTON 05/12/2019 FL 52719 **

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

DETAILS

TYPICAL CIVIL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00GC02

PROJECT NO.

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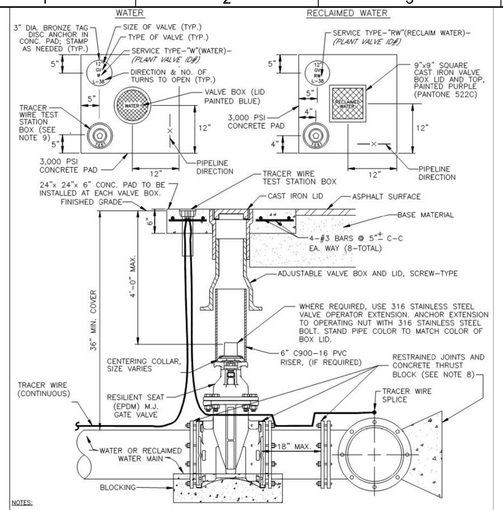
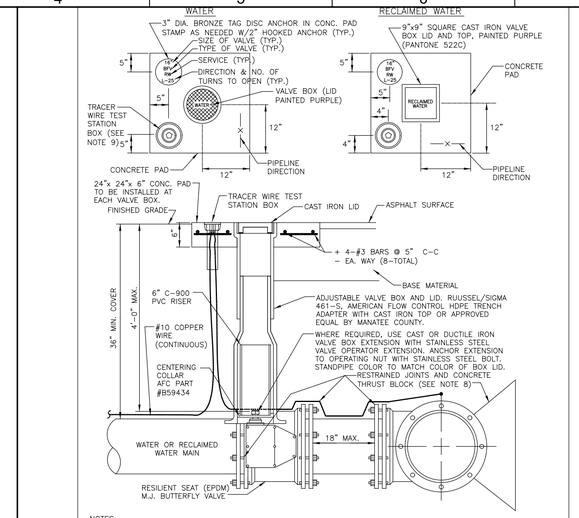


NOTES:

1. "WV" OR "RWV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A BLUE DISC WITH "WV" OR PURPLE DISC WITH "RWV" USING A 1/8" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
3. VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS, CURBS, OR GUTTERS.
4. PRECAST CONCRETE PADS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. PIPELINE DIRECTION TO BE IMPRESSED INTO NEWLY POURED CONCRETE PAD.
7. TRACER WIRE TEST STATION BOX IS NOT REQUIRED IN VALVE BOX PAD IF THE GATE VALVE IS LOCATED WITHIN 200 FEET OF A WATER SERVICE, BLOW-OFF, BACKFLOW PREVENTER OR FIRE HYDRANT THAT HAS A TRACER WIRE BOX.
8. WHERE THRUST BLOCK DO NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR "TEES."
9. USE NON-TRAFFIC RATED BOXES FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE TRAFFIC RATED BOXES. WHERE POSSIBLE, LOCATE TRACE WIRE TESTING STATION OUTSIDE OF TRAVEL LANE OR IN MEDIAN, CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.
10. THE BRASS TAG SHALL HAVE A "PLANT VALVE ID# WHEN VALVES ARE INSTALLED WITHIN THE COUNTY TREATMENT PLANT LIMITS. THE PLANT VALVE ID# SHALL BE SHOWN ON THE CONSTRUCTION PLANS AND RECORD DRAWINGS.
11. REFER TO SECTION 1.11. GATE VALVES FOR FURTHER DETAILS.

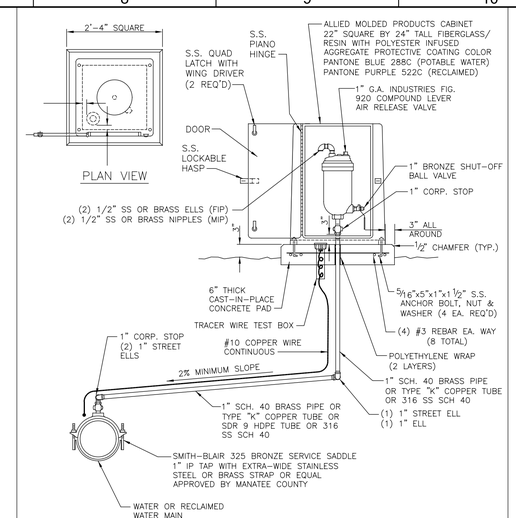
MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	GATE VALVE, BOX, LID AND TAG	UW-2
		DATE OF APPROVAL	



NOTES:

1. "WV" OR "RWV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH IF NO CURB, INSTALL A BLUE DISC WITH "WV" OR PURPLE DISC DISTANCE IN FEET TO THE VALVE. WITH "RWV" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
3. WATER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
4. PRECAST CONCRETE PADS & THRUST BLOCKS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. FOR VALVES 16" AND LARGER, USE BUTTERFLY VALVES.
7. PIPELINE DIRECTION TO BE IMPRESSED INTO NEWLY POURED CONCRETE PAD.
8. WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR "TEES."
9. BINGHAM & TAYLOR P200NFG OR EQUAL FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE P525RD CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

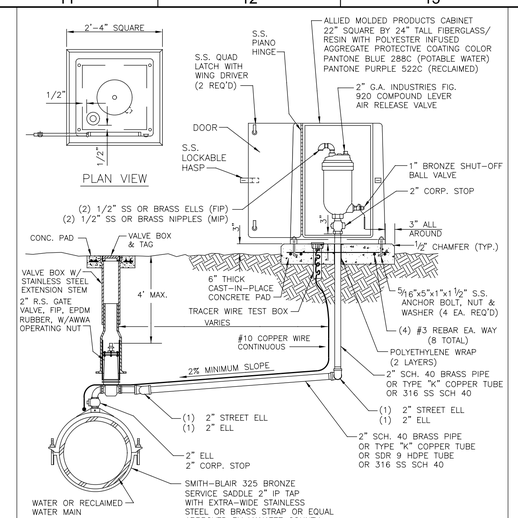
MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	BUTTERFLY VALVE, BOX, LID AND TAG	UW-3
CLB/KE	11/10		
		MAY 10, 2011 DATE OF APPROVAL	PAGE 121



NOTES:

1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS ALONG WATER MAINS WHERE SPECIFICALLY INDICATED ON THE PLAN.
2. ARV VENT ORIFICE TO BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR WATER MAIN SIZE.
3. ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL, BRASS OR COPPER.
4. ALL PIPE THREADS TO BE SEALED AIR TIGHT.
5. VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.

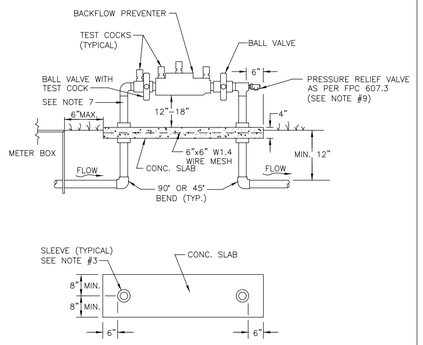
MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR 12-INCH AND SMALLER WATER MAINS	UW-9
CLB/KE	11/10		
		MAY 10, 2011 DATE OF APPROVAL	PAGE 127



NOTES:

1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS ALONG WATER MAINS WHERE SPECIFICALLY INDICATED ON THE PLAN.
2. ARV VENT ORIFICE TO BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR WATER MAIN SIZE.
3. ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL, BRASS OR COPPER.
4. ALL PIPE THREADS TO BE SEALED AIR TIGHT.
5. VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
6. SEE GATE VALVE, BOX, LID AND TAG STANDARD DETAIL. CENTERING COLLAR IS NOT REQUIRED ON 2" GATE VALVES.

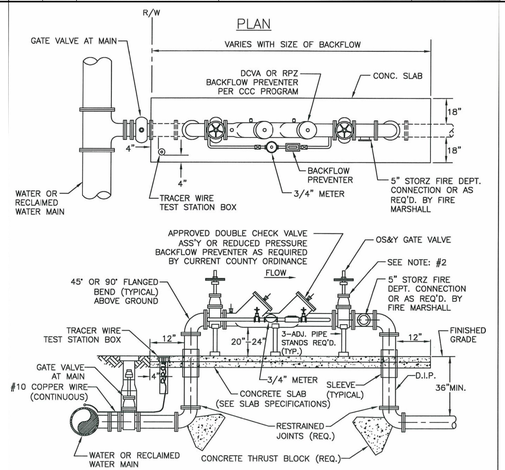
MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	AIR RELEASE ASSEMBLY FOR 16-INCH AND LARGER MAINS	UW-10
CLB/KE	11/10		
		MAY 10, 2011 DATE OF APPROVAL	PAGE 128



NOTES:

1. BACKFLOW DEVICE MUST BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER, AS SHOWN ABOVE
2. COPPER PIPE TYPE "K" OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 12" BELOW GRADE.
3. PIPES PASSING THROUGH OR ENCASED IN CONCRETE MUST BE PROPERLY PROTECTED AND SLEEVED.
4. THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND THE MANATEE COUNTY BACKFLOW PREVENTION ORDINANCE (LATEST EDITION).
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. BACKFLOW PREVENTER SHALL BE TESTED AT THE TIME OF INSTALLATION.
7. PRESSURE REDUCING VALVE REQUIRED UPSTREAM OF BACKFLOW IF SYSTEM PRESSURE EXCEEDS 80 PSI.
8. 3' MINIMUM CLEARANCE FROM LANDSCAPING PLANTS TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
9. IN ADDITION TO THE PRV, THE BUILDING DEPT. MAY REQUIRE AN APPROVED DEVICE FOR THERMAL EXPANSION CONTROL.
10. REFER TO DETAIL WATER METER & BACKFLOW PREVENTER FOR LIFT STATIONS FOR WATER SERVICE AT SEWAGE PUMPING STATION.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	3/4" & 1" BACKFLOW PREVENTER	UW-12
CLB/BR	11/10		
		MAY 10, 2011 DATE OF APPROVAL	PAGE 130



SECTION

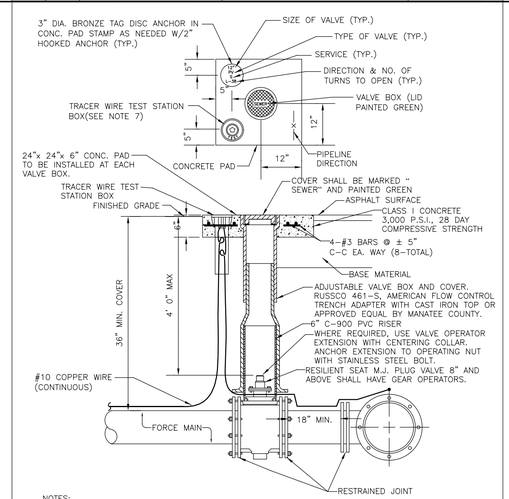
NOTES:

1. THIS DETAIL FOR FIRE PROTECTION ONLY.
2. WHEN PRESSURE TESTING FIRE LINE, TEST AGAINST DOWNSTREAM GATE VALVE.
3. THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION), THE MANATEE COUNTY BACKFLOW PREVENTION ORDINANCE (LATEST EDITION) AND THE MANATEE COUNTY FIRE MARSHALL REQUIREMENTS.
4. ABOVE GROUND PIPING SHALL BE FLANGED DUCTILE IRON CLASS 53 AND PAINTED RED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 1/2" CHAMFER.
6. LANDSCAPE VEGETATION SHALL BE 6 FEET MIN. FROM EDGE OF CONCRETE SLAB. STREET SIDE OF ASSEMBLY SHALL REMAIN OPEN.
7. ALL ANCILLARY BOLTS & FASTENERS TO BE STAINLESS STEEL.
8. SEE GATE VALVE, BOX, LID AND TAG DETAIL.
9. PIPE STANDS SHALL BE BOLTED TO SLAB.

SLAB SPECIFICATIONS

PIPE DIAMETER	SLAB THICKNESS	REINFORCEMENT
3" TO 10"	4"	6x6 W1.4 WIRE MESH
12" TO 18"	4"	6x6 W3 WIRE MESH

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	3" AND ABOVE FIRE LINE BACKFLOW PREVENTER	UW-14
CLB/BR	11/10		
		MAY 10, 2011 DATE OF APPROVAL	PAGE 132



NOTES:

1. "SV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A GREEN DISC WITH "SV" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE DISTANCE (FT.) FROM THE DISC TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.
3. SEWER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
4. PRECAST CONCRETE PADS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. PLUG VALVES SHALL NOT BE USED AS A TAPPING VALVE. WHERE AN EXISTING FORCE MAIN IS TO BE TAPPED, USE A TAPPING GATE VALVE PER THE TAPPING SLEEVE AND VALVE DETAIL.
7. TEST BOX TO BE BINGHAM & TAYLOR P200NFG OR EQUAL FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR UNDER VEHICLE TRAFFIC, USE P525RD CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	PLUG VALVE, BOX, COVER AND TAG	US-12
CLB/DOM	11/10		
		MAY 10, 2011 DATE OF APPROVAL	PAGE 152

GENERAL NOTES

(1) COMPLETE APRON, INCLUDING SIDEWALK, IS TO BE 6" REINFORCED CONCRETE (3,000 PSI) SEE SECTION 300 "SIDEWALKS".

(2) 1/2" THICK FIBERBOARD EXPANSION MATERIAL IS TO BE PLACED BETWEEN THE CURB AND THE APRON. MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR ASHTO M213.

(3) CATCH BASINS, WHEN REQUIRED, WILL BE CONSTRUCTED IN COMPLIANCE WITH MANATEE COUNTY TRANSPORTATION DEPT. SECTION 200, STD. 202.0.

(4) DRIVEWAYS SHALL NOT INTERSECT A STREET CORNER RADIUS NOR BE CLOSER TO THE INTERSECTION THAN THE EXTENDED STREET LINES (RIGHT OF WAY) AS PROVIDED BELOW:

USE OF LOT SERVICED	CLASSIFICATION OF INTERSECTING STREETS	MINIMUM REQ'D DISTANCE
RESIDENTIAL GREATER THAN FOUR DWELLING UNITS / ACRE	ARTERIAL	60'
	MAJOR COLLECTOR	40'
	MINOR COLLECTOR	30'
	LOCAL	30'
ALL OTHER USES	ARTERIAL	75'
	MAJOR COLLECTOR	60'
	MINOR COLLECTOR	50'
	LOCAL	50'

(5) CONSTRUCTION STANDARDS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ADOPTED CONSTRUCTION STANDARDS OF THE TRANSPORTATION DEPARTMENT. AS A MINIMUM, ALL DRIVEWAYS LOCATED ALONG PAVED STREETS SHALL BE PROVIDED AND MAINTAINED WITH A SMOOTH, DUSTLESS SURFACE FROM THE EDGE OF THE ROAD PAVEMENT TO THE RIGHT-OF-WAY LINE.

(6) DRIVEWAYS CONSTRUCTED OF BRICK, STONE, OR OTHER SEMI - PERMANENT MATERIAL (LIMESTONE, SHELL AND SIMILAR MATERIALS ARE NOT ALLOWED) MUST BE PLACED UPON A COMPACTED BASE OF SUCH THICKNESS SO AS TO EQUAL A COMBINED 6" OF BASE AND SURFACE MATERIAL OR PER MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS MORE STRINGENT. THESE DRIVES MUST BE MAINTAINED AND REPAIRED BY THE ABUTTING PROPERTY OWNER. NO EXPANSION JOINT IS REQUIRED.

(7) SEE MANATEE COUNTY LAND DEVELOPMENT CODE, ORD. 92-60.

(8) ALL REFERENCED STANDARDS SHALL BE LATEST REVISION.

(9) ALL STORMWATER PIPE SHALL BE INSTALLED BEHIND THE CURB OR EDGE OF PAVEMENT AND WITHIN THE RIGHT OF WAY AND WITHIN DRAINAGE EASEMENT.

*NOTE: FOR COMPLETE DRIVEWAY DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 310, SHEETS 1 & 2 AND INDEX 515, SHEETS 2 THROUGH 6.

MANATEE COUNTY TRANSPORTATION DEPARTMENT			
REV.BY	DATE	GENERAL NOTES	100.1
		6/12/07 DATE OF B.O.C.C. APPROVAL	

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY DEAN MILTON 05/12/2019 FL 52719 **

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL CIVIL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GC03

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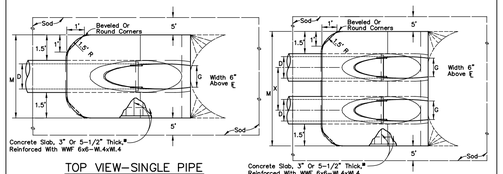
LAST SAVED BY: eparker

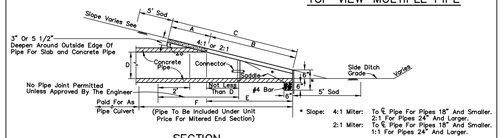
ROUND PIPE

	DIMENSIONS AND QUANTITIES								M			
	D	X	A	B	C	E	F	G	Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
2:1 Slope	15"	2'-7"	1.92'	2.18'	4.10'	2.06'	5'	1.22'	4.63'	7.21'	9.79'	12.37'
	18"	2'-10"	1.97'	2.74'	4.71'	2.56'	6'	1.41'	4.92'	7.75'	10.58'	13.42'
	24"	3'-5"	2.06'	3.85'	5.91'	3.56'	7'	1.73'	5.50'	8.92'	12.33'	15.75'
	30"	4'-3"	2.15'	4.95'	7.10'	4.56'	8'	2.00'	6.08'	10.33'	14.58'	18.83'
	36"	5'-1"	2.25'	6.08'	8.33'	5.56'	9'	2.24'	6.67'	11.75'	16.83'	21.92'
	42"	6'-0"	2.34'	7.21'	9.55'	6.56'	10'	2.45'	7.25'	13.25'	19.25'	25.25'
	48"	6'-9"	2.43'	8.33'	10.76'	7.56'	11'	2.65'	7.83'	14.58'	21.33'	28.08'
	54"	7'-8"	2.52'	9.44'	11.96'	8.56'	12'	2.83'	8.42'	16.08'	23.75'	31.42'
	60"	8'-6"	2.62'	10.56'	13.18'	9.56'	14'	3.00'	9.00'	17.50'	26.00'	34.50'
	66"	9'-3"	2.71'	11.68'	14.39'	10.56'	15'	3.18'	9.58'	18.75'	27.92'	37.08'
	72"	10'-0"	2.80'	12.80'	15.60'	11.56'	16'	3.30'	10.16'	20.16'	30.16'	40.16'
4:1 Slope	15"	2'-3"	2.27'	4.09'	6.36'	4.03'	8'	1.22'	4.63'	7.21'	9.79'	12.37'
	18"	2'-10"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.92'	7.75'	10.58'	13.42'
	24"	3'-5"	2.53'	7.18'△	9.71'	7.03'△	11'	1.73'	5.50'	8.92'	12.33'	15.75'
	30"	4'-3"	2.70'	9.25'	11.95'	9.03'	13'	2.00'	6.08'	10.33'	14.58'	18.83'
	36"	5'-1"	2.87'	11.31'◇	14.18'	11.03'◇	15'	2.24'	6.67'	11.75'	16.83'	21.92'
	42"	6'-0"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	7.25'	13.25'	19.25'	25.25'
	48"	6'-9"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	7.83'	14.58'	21.33'	28.08'
	54"	7'-8"	3.39'	17.50'	20.88'	17.03'	21'	2.83'	8.42'	16.08'	23.75'	31.42'
	60"	8'-6"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	9.00'	17.50'	26.00'	34.50'
	66"	9'-3"	3.73'	21.62'	25.35'	21.03'	25'	3.18'	9.58'	18.75'	27.92'	37.08'
	72"	10'-0"	3.91'	22.68'	26.59'	23.03'	27'	3.30'	10.16'	20.16'	30.16'	40.16'



TOP VIEW–SINGLE PIPE

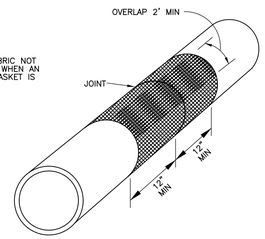
TOP VIEW–MULTIPLE PIPE



SECTION

* Slope: 4:1 Miter: To ⅚ Pipe For Pipes 18" And Smaller. 2:1 For Pipes 24" And Larger.
2:1 Miter: To ⅚ Pipe For Pipes 18" And Smaller. 1:1 For Pipes 24" And Larger.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	MITERED END SECTION FOR ROUND, SINGLE & MULTIPLE PIPES	102.2

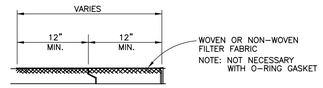


NOTE: FILTER FABRIC NOT REQUIRED WHEN AN O-RING GASKET IS USED.

ISOMETRIC VIEW

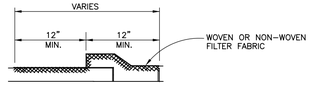
NOTE: FILTER FABRIC MATERIAL MUST MEET THE FOLLOWING ASTM REQUIREMENTS:

ASTM D 4595
ASTM D 4632
ASTM D 4533
ASTM D 4833
ASTM D 4491



NOTE: NOT NECESSARY WITH O-RING GASKET

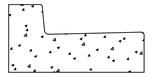
BUTT JOINT



BELL JOINT

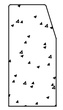
MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	FILTER FABRIC JACKET	104.0

TYPE "A"
MIAMI CURB & GUTTER
STD. 201.1

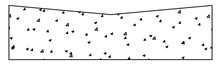


TYPE "F"
CURB & GUTTER
STD. 201.2

TYPE "AB"
MODIFIED CURB & GUTTER
STD. 201.3



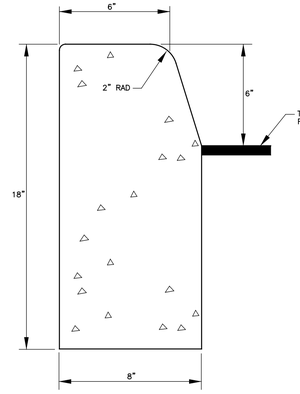
TYPE "D"
CURB
STD. 201.4



INVERTED CROWN
CURB & GUTTER
STD. 201.5

1. ALL CURB & GUTTER SHALL PROVIDE A 0.125" TO 0.25" CONTRACTION JOINT AT 10' CENTERS.
2. ALL CURB & GUTTER SHALL BE CONSTRUCTED IN COMPLIANCE WITH FLORIDA D.O.T. STANDARD SPECIFICATIONS PER F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS INDEX NO. 300, LATEST REVISION.
3. TOP OF FINISHED PAVEMENT SHALL BE 0.25" ABOVE LIP OF GUTTER, LOW SIDE.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	CURB & GUTTER CONTROL SHEET	201.0



TYPE "D"
HIGH BACK CURB

A) CLASS 1 CONCRETE, 3,000 P.S.I. AT 28 DAYS.

B) CURB SHALL MEET THE SPECIFICATIONS ESTABLISHED BY F.D.O.T. STANDARD SPECIFICATIONS PER F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS INDEX NO. 300, LATEST REVISION.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	TYPE D CURB	201.4

GENERAL NOTES

1. ALL REFERENCED STANDARDS SHALL BE LATEST REVISION.
2. CONCRETE SHALL BE CLASS "1" AS SPECIFIED IN SECTION 345 OF F.D.O.T. SPECIFICATIONS
3. SEE SECTION 425-2.2 "MORTAR" OF FLORIDA D.O.T. SPECIFICATIONS.
4. IRON CASTING SHALL BE AS SPECIFIED IN SECTION 962-8 OF F.D.O.T. SPECIFICATIONS. SEE SECTION 425-5.
5. ALL REINFORCEMENT STEEL SHALL BE AS SPECIFIED IN SECTIONS 415 & 931.1 OF F.D.O.T. SPECIFICATIONS.
6. SEE FLORIDA D.O.T. SPECIFICATIONS FOR GRATINGS.
7. SEE FLORIDA D.O.T. SPECIFICATIONS FOR SECTION 125 "EXCAVATION FOR STRUCTURES."
8. PRECAST TOP AND BOTTOM TO BE F.D.O.T. STANDARDS WITH MINIMUM TRAFFIC BEARING 8" THICKNESS.
9. ALL STORMWATER PIPE SHALL BE INSTALLED BEHIND THE CURB OR EDGE OF PAVEMENT AND WITHIN THE RIGHT OF WAY AND WITHIN THE DRAINAGE EASEMENTS.
10. THE FOLLOWING IS THE DRAINAGE STRUCTURE WALL MINIMUM THICKNESS:

PRECAST	BLOCK
NON-TRAFFIC 6"	8" EITHER WAY

NOTE: FOR DRAINAGE STRUCTURES WITH PIPE DIAMETERS UP TO AND INCLUDING 24", 6" PRECAST WALLS ARE ACCEPTABLE FOR TRAFFIC BEARING.

DIMENSION INDEX

PIPE SIZE	TYPE	"C"	"D"	"E"	"F"	"G"	"H"
15"	RCP	2'8"	4'	5'	4'	5'4"	6'4"
12"x18"	RCP	"	"	"	"	"	"
18"	RCP	"	"	"	"	"	"
14"x23"	RCP	"	"	"	"	"	"
24"	RCP	3'4"	4'8"	5'8"	"	"	"
19"x30"	RCP	4'	5'4"	6'4"	"	"	"
30"	RCP	"	"	"	"	"	"
24"x38"	RCP	5'	6'4"	7'4"	"	"	"
36"	RCP	5'	6'4"	"	"	"	"
66"	RCP	8'5"	9'9"	10'9"	4'8"	6'0"	7'0"

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	DRAINAGE CONTROL SHEET	202.0

METAL STORM SEWER PIPE, GENERAL NOTES

A. SHALL MEET REQUIREMENTS OF SECTION 430 AND 943 OF THE F.D.O.T.'s LATEST REVISION/UPDATE SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ITS SUPPLEMENT. ALL PIPE SHALL BE TYPE 'A', FULLY BITUMINOUS COATED.

B. SHALL HAVE GASKETED WATER TIGHT JOINTS AT ALL LOCATIONS.

C. SHALL HAVE THE PROJECT SITE TESTED BY A CERTIFIED LAB FOR pH, RESISTIVITY, SULFATES AND CHLORIDES. TESTS SHALL BE IN ACCORDANCE WITH FLORIDA METHOD OF TEST FM 5-550, 551, 552 & 553 AND SUBMITTED TO THE TRANSPORTATION DEPARTMENT FOR REVIEW.

D. SHALL HAVE A MINIMUM COVER OF 18".

E. SHALL NOT BE ALLOWED WITHIN THE ROAD RIGHT-OF-WAY OR CARRY RIGHT-OF-WAY RUNOFF.

F. ALL STORMWATER PIPE SHALL BE INSTALLED BEHIND THE CURB OR EDGE OF PAVEMENT AND WITHIN THE RIGHT OF WAY.

HDPE STORM SEWER PIPE GENERAL NOTES

A. HDPE SHALL MEET CURRENT F.D.O.T. STANDARD SPECIFICATIONS.

B. MINIMUM COVER – 9" (TOP OF PIPE TO BOTTOM OF RIDGED PAVEMENT OF DRIVEWAY)
– 15" (TOP OF PIPE TO BOTTOM OF FLEXIBLE BASE OF DRIVEWAY)

C. SIZES ARE LIMITED TO CURRENT F.D.O.T. STANDARD SPECIFICATIONS.

D. HDPE PIPE IS NOT ALLOWED UNDER ROADWAY.

FIBER OR WIRED REINFORCED CONC. PIPE, GENERAL NOTES

A. FRCP SHALL MEET CURRENT F.D.O.T. STANDARD SPECIFICATIONS.

B. SIZES LIMITED TO F.D.O.T. CURRENT STANDARD SPECIFICATIONS.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	STORM SEWER PIPE GENERAL NOTES	205.0

GENERAL NOTES

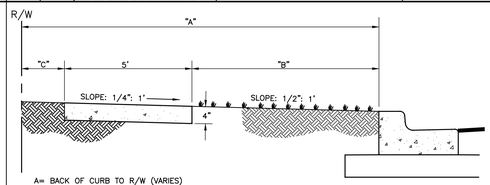
1. SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 psi CONCRETE. WHERE SIDEWALK BISECTS A DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS I CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.
   * SEE SHEETS #101.2 & 101.3.
2. ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, SECTION 722. A MINIMUM (5) FOOT WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF (5) FEET IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO F.D.O.T. ROADWAY AND TRAFFIC STANDARDS, LATEST REVISION FOR CURB CUT RAMP SPECIFICATIONS.
3. THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE-FOOT TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
4. EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG POORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
5. CONTRACTION JOINTS:

   OPEN TYPE JOINTS
   OPEN TYPE CONSTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.

   SAWED JOINTS
   A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
6. SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
7. HANDICAP RAMPS SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.
8. ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR CENTERED VERTICALLY AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.

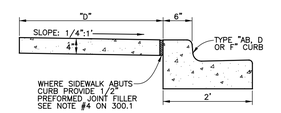
*NOTE: FOR COMPLETE SIDEWALK DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 304, SHEETS 1 THROUGH 6 AND INDEX 310, SHEETS 1 & 2.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	SIDEWALKS GENERAL NOTES	301.0



A= BACK OF CURB TO R/W (VARIES)
B= UNPAVED AREA (VARIES), REFER TO F.D.O.T. GREEN BOOK, TABLE 3-12, LATEST REVISION.
C= VARIES, SEE 401 SERIES

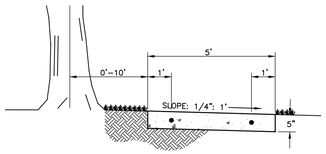
TYPICAL SIDEWALK LOCATION



D= SIDEWALK WIDTH SHALL BE 6' STANDARD, WHERE WALK ABUTS TYPE "AB, D OR F" CURB. WHERE SPEED LIMIT IS 25 MPH OR LESS, WIDTH CAN BE 5'-6".

* SEE SHEET 300.1 "GENERAL NOTES" FOR FURTHER INFORMATION

ALTERNATE SIDEWALK LOCATION



SIDEWALK LOCATION CLOSE TO TREES

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	SIDEWALK REQUIREMENTS	301.1

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY DEAN MILTON 05/12/2019 FL 52719 **

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PHONE (941) 371-9832 FAX (941) 371-9873
CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL CIVIL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GC04

PROJECT NO. FILE NAME: 9520I1000GC04.dgn

GENERAL NOTES

(1) All county road construction shall conform to these Manatee County Department Of Transportation Standards.

(2) Asphaltic Concrete Type S: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 331

Asphaltic Concrete Type III: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 333.

(A) Superpave mixes equivalent to F.D.O.T. Type S mixes are an accepted alternative upon directors approval.

(B) Surface material will be consistent with existing surface, or better.

(3) Limerock Base Course: Shall be per Florida Department Of Transportation 2000 Standard Specifications: Section 200.

(4) Crushed concrete base course is acceptable unless otherwise noted.

(5) Stabilized Sub-Grade: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Sections 160, and 914.

(6) Drainage: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 941.

Soft, yielding or super-saturated material that will not readily compact shall be considered unacceptable for backfill. This is at the discretion of the field engineer. This type of existing material must be excavated from the road footprint to a depth as set by an approved testing lab.

(7) Soil Cement: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 270, excluding Sub-Section 270-4.3.1 ("Mix in place").

(8) Concrete Gutters; Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 520.

(9) Topsoil: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 987.

Sodding: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 575.

Grassing: Shall be per Florida Department Of Transportation 2000 Standard Specifications; Section 570.

(A) Entire R/W between road and property line, including median, shall be fertilized (1000 lbs. of slow-release 8-12-6 per acre), and seeded (30 lbs. Bahia and 30 lbs. of Rye per acre) and mulched, or sodded, as directed by the engineer.

(B) Hydromulch: Shall be per Florida Department Of Transportation Specifications Section 571.

(10) Visibility Triangles: Shall be in accordance with the Manatee County Land Development Code 1994; Section 713, latest revision, and Section 600.7-600.9.

(11) Handicap Ramps shall meet Florida Accessibilities Standards, and Section 302 series.

(12) Prime coat shall be applied @ a rate of 0.2 gal/sy. Tack coat of 0.08 gal/sy rate to be applied for overlay of existing roads.

MANATEE COUNTY
TRANSPORTATION DEPARTMENT

REV.BY	DATE

6/12/07
DATE OF B.O.C.C. APPROVAL

GENERAL NOTES — 400.1

GENERAL NOTES (CONT.)

(13) All the signage, striping and signals (FDOT) shall conform to the latest revision of the Florida Department Of Transportation Standard Specifications For Road And Bridge Construction, the Manual On Uniform Traffic Control Devices, F.D.O.T. Design Standards and the Manatee County Transportation And Drainage Standards, Traffic Supplemental Specifications.

(14) Prime coat shall be applied @ a rate of 0.2 gal/sy. Tack coat of 0.08 gal/sy rate to be applied for overlay of existing roads.

(15) In general, all signing, marking, and traffic control devices shall conform to the Florida Department Of Transportation Roadway And Traffic Standard Specifications For Road And Bridge Construction (latest revision) and the Manual On Uniform Traffic Control Devices For Streets And Highways (latest revision), as well as the Manatee County Traffic Supplemental Specifications.

(16) Street radii requirement shall be in accordance with page 402.0, however radius should be a minimum of 50' where industrial or bus traffic (of 5% AADT or greater) is anticipated.

(17) Cement treated aggregate base, see section 403.3.

(18) Two lifts of asphalt is the preferred method of construction in area where extensive construction equipment will utilize the roads. A performance bond may be required for second lift. The first lift shall be 1-1/4", the second lift shall be 3/4" for residential. The second lift for industrial shall be 1-1/4". Lift thickness shall be specified for each road type.

(19) Any road widening (including divided roads) will require full width milling.

(20) All stormwater pipe shall be installed behind the curb or edge of pavement and within the right of way.

(21) The base, sub-base and asphalt thickness shown for 6-lane, 4-lane, Minor Collector, Rural Industrial and Urban Industrial are minimums. If the engineer can demonstrate a reduction based upon an analysis of equal single axle load, then it may be considered.

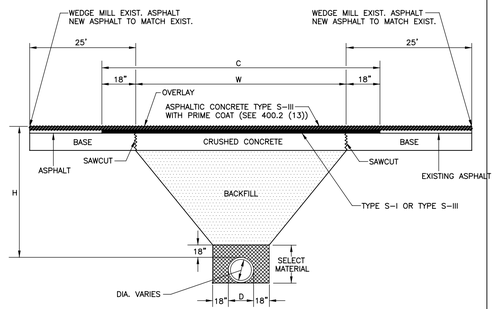
(22) Minimum of two pvc schedule 40 conduits (2.0" min. dia.) shall be installed for all directions at the intersections of all thoroughfare roadways per the direction of the Manatee County's Traffic Engineer. Additional signal inter-connect conduit may be required between intersections at the direction of Manatee County.

MANATEE COUNTY
TRANSPORTATION DEPARTMENT

REV.BY	DATE

6/12/07
DATE OF B.O.C.C. APPROVAL

GENERAL NOTES — 400.2



A. CRUSHED CONCRETE BASE SHALL BE A MINIMUM OF 8" THICK AND A MINIMUM OF "W" IN WIDTH, OR GREATER, WHERE DISTURBED AREA IS GREATER THAN "W" FROM EQUATION: W=(2 X H) + D + (2 X 18"). SAND ASPHALT BASE WILL BE AN ACCEPTABLE ALTERNATE.

B. BACKFILL, AASHTO M145-66 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6", EACH LAYER WILL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% OF MODIFIED PROCTOR MAXIMUM DENSITY (AASHTO T-180). NON-SHRINK, HIGH SLUMP, 1,500 PSI CONC. BACKFILLL MAY BE USED AS AN ALTERNATIVE IF APPROVED BY TRANSPORTATION DEPARTMENT.

C. SELECT MATERIAL, AASHTO M-146-70, SHALL BE PLACED ON BOTH SIDES OF THE PIPE SIMUTANEOUSLY, COMPACT AREA UNDER HAUNCHES OF THE PIPE W/ MECHANICAL TAMPERS, AND THROUGHOUT THE REMAINDER OF THE SELECT MATERIAL.

D. ASPHALTIC CONCRETE FRICTION COURSE, SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF ONE INCH, WHICHEVER IS GREATER. C = W+36

E. "H" = THE DEPTH FROM TOP OF PIPE TO THE CENTERLINE OF THE ROAD (MINIMUM OF 36") MINIMUM OF 30" UNDER FLOWLINE OF SIDE DITCHES.

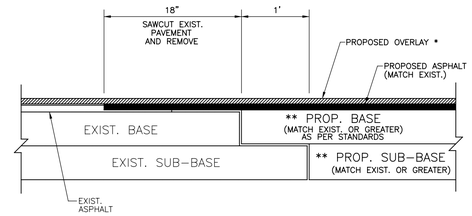
F. RESTORE EXISTING SIGNAGE & MARKING WITH THERMOPLASTIC PER F.D.O.T. STANDARDS.

MANATEE COUNTY
TRANSPORTATION DEPARTMENT

REV.BY	DATE

6/12/07
DATE OF B.O.C.C. APPROVAL

UTILITY ROAD CUT REPLACEMENT — 403.2



* NOTE: LIMITS OF OVERLAY – EDGE OF PAVEMENT TO EDGE OF PAVEMENT AND 25' BEYOND LIMITS OF CONSTRUCTION.

** NOTE: CONNECTION TO OLDER (SUBSTANDARD THICKNESS) ROADS MAY REQUIRE THICKER PROPOSED BASE AND SUB-BASE TO MEET CURRENT STANDARDS.

SIGNAGE AND MARKING PLAN SHALL ACCOMPANY CONSTRUCTION PLAN.

ROAD CONNECTION DETAIL

N.T.S.

MANATEE COUNTY
TRANSPORTATION DEPARTMENT

REV.BY	DATE

6/12/07
DATE OF B.O.C.C. APPROVAL

ROAD CONNECTION DETAIL — 403.3

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY DEAN MILTON 05/12/2019 FL 52719 **

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carollo®
301 NORTH CATTLEMEN ROAD, SUITE 302
SARASOTA, FLORIDA 34232
PHONE (941) 371-9832 FAX (941) 371-9873
CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL CIVIL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GC05

PROJECT NO.
FILE NAME: 9520I1000GC05.dgn

Plot Date: 04-APR-2025 10:45:26 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

ABBREVIATIONS

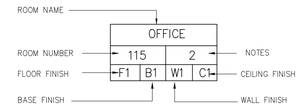
&	AND	EA.	EACH	L.H.	LEFT HAND	R.O.W.	RIGHT-OF-WAY
°	DEGREES	EB.	EXPANSION BOLT	LIN.	LINEN	R.P.M.	REVOLUTION PER MINUTE
° F	DEGREES (FAHRENHEIT)	E.F.	EXHAUST FAN	LKR.	LOCKER	R.R.	REST ROOM
'	FEET	EIFS	EXTERIOR INSULATION FINISH SYSTEM	L.L.	LIVE LOAD		
"	INCHES	E.J.	EXPANSION JOINT	LOC.	LOCATION		
±	PLUS OR MINUS	ELEC.	ELECTRIC (AL)	LOUV.	LOUVER, LOUVERED	SAN.	SANITARY
#	POUNDS, NUMBERS	ELEV.	ELEVATOR	LT.	LIGHT	S.B.C.	STANDARD BUILDING CODE
%	PERCENT	ELEV., EL.	ELEVATION	LTG.	LIGHTING	S.C.	SOLID CORE
		EMERG.	EMERGENCY	LTWT.	LIGHTWEIGHT	SCHED.	SCHEDULE
		EQ.	EQUAL			S.C.R.	SHOWER CURTAIN ROD
AC	ALTERNATING CURRENT	EQUIP.	EQUIPMENT			SCRN.	SCREEN
A/C	AIR CONDITIONED	EQUIV.	EQUIVALENT	MAS.	MASONRY	S.C.W.	SOLID CORE WOOD
ACCOM.	ACCOMMODATE	E.W.	EACH WAY	MAT.	MATERIAL	S.D.	SOAP DISH, STORM DRAIN
ACOUST.	ACOUSTIC, ACOUSTICAL	E.W.C.	ELECTRIC WATER COOLER	MAX.	MAXIMUM	SEC., SECT.	SECTION
A.C.T.	ACOUSTIC CEILING TILE	EXH.	EXHAUST	M.B.	MARKER BOARD	SERV.	SERVICE
ADJ.	ADJUSTABLE	EXIST.	EXISTING	M.C.	MEDICINE CABINET	S.F.	SQUARE FEET
A.F.F.	ABOVE FINISH FLOOR	EXP.	EXPOSED, EXPANSION	MECH.	MECHANIC (AL)	S.F.T.U.	STRUCTURAL FACING TILE UNIT
A.H.	AIR HANDLER	EXT.	EXTERIOR, EXTRUDED	MED.	MEDIUM	SHLV.	SHELVING, SHELF
ALT.	ALTERNATE			MEMB.	MEMBER	SHT.	SHEET
ALUM.	ALUMINUM			MEZZ.	MEZZANINE	SIM.	SIMILAR
AMP.	AMPERE	F.A.I.	FRESH AIR INTAKE	MFGR.	MANUFACTURER	S.L.	SHIPS LADDER
ANOD.	ANODIZED	FB	FACE OF BRICK (BLOCK)	M.H.	MANHOLE	S.M.	SHEET METAL
A.P.	ACCESS PANEL	F.C.	FURRING CHANNEL	MHz	MEGAHERTZ	SPEC. (S)	SPECIFICATION (S)
APPROX.	APPROXIMATE	F.C.U.	FAN COIL UNIT	MIN.	MINIMUM, MINUTE	SQ.	SQUARE
ARCH.	ARCHITECTURAL	F.D.	FLOOR DRAIN	MIR.	MIRROR	SQ.FT.	SQUARE FEET
ASPH.	ASPHALT	F.E.	FIRE EXTINGUISHER	MISC.	MISCELLANEOUS	SQ.IN.	SQUARE INCH
AVG.	AVERAGE	F.E.C.	FIRE EXTINGUISHER CABINET	MLDG.	MOULDING, MOLDING	SQ.YD.	SQUARE YARD
		F.F.	FINISH FLOOR	M.L.W.	MEAN LOW WATER	S.S.	STAINLESS STEEL
		FG.	FIBERGLASS	MM.	MILLIMETER	S.S.	SANITARY SEWER
B.B.	BULLETIN BOARD	F.H.	FIRE HYDRANT	M.O.	MASONRY OPENING	STA.	STATION
B.C.	BOOK CASE	F.H.C.	FIRE HOSE CABINET	MOD.	MODIFIED	STD.	STANDARD
BD.	BOARD	FIG.	FIGURE	MPH	MILES PER HOUR	STL.	STEEL
BF	BOARD FEET	FIN.	FINISH	M.R.	MOISTURE RESISTANT	STO.	STORAGE
B.G.	BUMPER GUARD	FL.	FLOOR	M.S.	METAL STUD	STRUCT.	STRUCTURAL
BITU.	BITUMINOUS	FLUOR.	FLUORESCENT	M.S.L.	MEAN SEA LEVEL	SUSP.	SUSPEND (ED)
BLDG.	BUILDING	F.N.D.	FEMININE NAPKIN DISPOSAL	MTD.	MOUNTED	S.V.	SHEET VINYL
BLK.	BLOCK	F.O.S.	FACE OF STUDS	MTL.	METAL	S.W.	STORM WATER
BM.	BENCH MARK	F.P.	FIRE PROTECTION	MV	MEGAVOLT		
BOT.	BOTTOM	F.R.	FIRE RATED	MW	MEGAWATT		
BTU	BRITISH THERMAL UNITS	FR.	FRAME			T.B.	TOWEL BAR
B.U.	BUILT UP	FT.	FOOT, FEET			T. & B.	TOP & BOTTOM
B.U.R.	BUILT-UP ROOFING	FTG.	FOOTING	N.	NORTH	TEL.	TELEPHONE
		FURR.	FURRING	N.I.C.	NOT IN CONTRACT	TEMP.	TEMPERED, TEMPERATURE
		FUT.	FUTURE	NO.	NUMBER	TERR.	TERRAZZO
CAB.	CABINET			NOM.	NOMINAL	T. & G.	TONGUE AND GROOVE
C.B.	CHALK BOARD, CATCH BASIN			N.R.(C)	NOISE REDUCTION (COEFFICIENT)	THK.	THICK (NESS)
C/C	CENTER TO CENTER	G.	GAS.	N.T.S.	NOT TO SCALE	THRESH.	THRESHOLD
CCTV	CLOSED-CIRCUIT TELEVISION	GA.	GAUGE			THRU	THROUGH
CEM.	CEMENT	GALV.	GALVANIZED			T.O.C.	TOP OF CONCRETE
CER.	CERAMIC	G.B.	GRAB BAR	O	DIAMETER ROUND	TOIL.	TOILET
C.F.	CUBIC FOOT	G.C.	GENERAL CONTRACTOR	O.C.	ON CENTER	T.O.S.	TOP OF STEEL, SLAB OR STRUCTURE
C.I.	CAST IRON	GEN.	GENERATOR	O.D.	OUTSIDE DIMENSION OUTSIDE DIAMETER	T.P.D.	TOILET PAPER DISPENSER
C.I.P.	CAST IN PLACE	GENL.	GENERAL	OFF.	OFFICE	TR.	TREAD
C.I.P.	CAST IRON PIPE	GL.	GLASS, GLAZING	O.H.	OPPOSITE HAND, OVER HEAD	TREAT.	TREATMENT
C.J.	CONTROL JOINT	G.M.U.	GLASS MASONRY UNIT	OPG.	OPENING	TV.	TELEVISION
℄	CENTER LINE	GPH	GALLONS PER HOUR	OPP.	OPPOSITE	TYP.	TYPICAL
CLG.	CEILING	G.P.M.	GALLONS PER MINUTE	OZ.	OUNCE		
CLO.	CLOSET	GR.	GRADE				
CLR.	CLEAR	G.S.	GYPSUM SHEATHING			UC.	UNDERCUT
CM	CENTIMETER	G.S.P.	GALVANIZED STEEL PIPE	PAR.	PARALLEL	U.O.N.	UNLESS OTHERWISE NOTED
C.M.U.	CONCRETE MASONRY UNIT	G.W.B.	GYPSUM WALLBOARD	PARTN.(S)	PARTITION(S)	UR.	URINAL
CNTR.	COUNTER	GYP.	GYPSUM VENTILATION & AIR CONDITIONING	P.C.	PRECAST CONCRETE	UTIL.	UTILITY
C.O.	CLEAN OUT			P.C.F.	POUNDS PER CUBIC FOOT		
COL.	COLUMN			PIL.	PILASTER		
COM.	COMMON	H., HT.	HEIGHT	PL.	PLASTIC	V.	VOLT
CONC.	CONCRETE	H.B.	HOSE BIBB	PLAS., PL.	PLASTER, PLASTIC	V.B.	VINYL BASE
CONST.	CONSTRUCTION	H.C.	HOLLOW CORE	PL.LAM.	PLASTIC LAMINATE	V.C.T.	VINYL COMPOSITION TILE
CONT.	CONTINUOUS	HCAP.	HANDICAPPED	P.L.F.	POUNDS PER LINEAL FOOT	VERT.	VERTICAL (LY)
COORD.	COORDINATE	HDWR	HARDWARE	PLYWD.	PLYWOOD	VEST.	VESTIBULE
CORR.	CORRIDOR, CORRUGATED	H.M.	HOLLOW METAL	PNL.	PANEL	V.I.F.	VERIFY IN FIELD
CPM	CUBIC FOOT PER MINUTE	HORIZ.	HORIZONTAL	POL.	POLISHED	VIN.	VINYL
CPT.	CARPET	HR.	HOUR	PORT.	PORTABLE	V.T.R.	VENT THROUGH ROOF
CPS	CYCLES PER SECOND	H.S.	HEAT STRENGTHENED	P.P.	POWER POLE	V.T.S.	VINYL TRANSITION STRIP
C.R.	COLD ROLLED	HTG.	HEATING	PR.	PAIR		
C.T.P.	CERAMIC TILE PANEL	H.V.A.C.		P.R.V.	POWER ROOF VENTILATOR		
CTR.	CENTER	H.W.	HOT WATER	P.S.F.	POUNDS PER SQUARE FOOT	W.	WATER
CTS.	COPPER TUBE SIZE	HZ	HERTZ (CYCLES PER SECOND)	P.S.I.	POUNDS PER SQUARE INCHES	W/	WITH
CTSK.	COUNTERSINK			P.T.	PRESSURE TREATED	WAINS.	WAINSCOT
CU.	CUBIC			PT.	PAINT	W.B.	WALL BUMPER GUARD
C.W.	COLD WATER	I.D., ID	INSIDE DIAMETER	P.T.D.	PAPER TOWEL DISPENSER	W.C.	WATER CLOSET
C.Y.	CUBIC YARD	IN.	INCHES	P.V.C.	POLYVINYL CHLORIDE PIPE	W/C	WHEEL CHAIR
		INCL.	INCLUDE, INCLUSIVE	PWMT.	PAVEMENT	WD.	WOOD
		INSUL.	INSULATION			WDW	WINDOW
DBL.	DOUBLE	INT.	INTERIOR			W.F.	WIDE FLANGE BEAM
DEPT.	DEPARTMENT	INV.	INVERT	Q.T.	QUARRY TILE	W.H.	HOT WATER HEATER
D.F.	DRINKING FOUNTAIN	I/O CPT.	INDOOR / OUTDOOR CARPET	QTR.	QUARTER	W.I.	WROUGHT IRON
DIA.	DIAMETER					W.M.	WATER METER
DIAG.	DIAGONAL					W/O	WITHOUT
DIM.	DIMENSION	JAN	JANITOR	R.A.	RETURN AIR	W.P.	WATERPROOF (ING)
D.I.P.	DUCTILE IRON PIPE	J.B.	JUNCTION BOX	RAD	RADIUS	W.R.	WASTE RECEPTACLE
DISP.	DISPENSER	JT.	JOINT	R.C.P.	REINFORCED CONCRETE PIPE	WT.	WEIGHT
DIV.	DIVISION, DIVIDED			R.D.	ROOF DRAIN	W.W.F.	WELDED WIRE FABRIC
D.L.	DEAD LOAD			RECEP.	RECEPTACLE		
DN.	DOWN	KIT.	KITCHEN	RECP.	RECEPTION		
DP.	DAMPROOFING	K.O.	KNOCK OUT	REG.	REGISTER	YD.	YARD
DR.	DOOR	K.P	KICK PLATE	REINF.	REINFORCING (ED)		
DRWR.	DRAWER			REQ'D.	REQUIRED		
D.S.	DOWNSPOUT			RES.	RESILIENT		
DTL.	DETAIL	LAB.	LABORATORY	REV.	REVERSE, REVISED (SION)		
D.W.	DISHWASHER	LAM.	LAMINATE	RFG.	REFRIGERATOR, REFERENCE		
DWG.	DRAWING	LAT.	LATITUDE	R.H.	RIGHT HAND		
DWGS.	DRAWINGS	LAV.	LAVATORY	R.L.	ROOF LEADER, RAIN LEADER		
		LB., LBS.	POUND(S)	RM.	ROOM		
		LBL.	LABEL	R.O.	ROUGH OPENING		
		L.F.	LINEAR FEET				
		LG.	LONG				

SYMBOL LEGEND

WALL LEGEND

SYMBOL	DESCRIPTION
	EXISTING WALL CONSTRUCTION. REPAIR EXISTING TO MATCH NEW AS REQUIRED
	NEW REINFORCED CMU WALLS
	NEW 2x6 STUD WALLS @ 16" O.C. WITH 5/8" DRYWALL EACH SIDE, OR AS NOTED
	NEW 2x4 STUD WALLS @ 16" O.C. WITH 5/8" DRYWALL EACH SIDE, OR AS NOTED
	NEW 2x4 STUD WALLS @ 16" O.C. WITH BATT INSULATION AND 5/8" DRYWALL EACH SIDE, OR AS NOTED

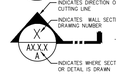
ROOM DESCRIPTION LEGEND



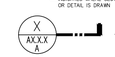
TAGS

WALL ORIENTATION INDEX
FOR INTERIOR ELEVATIONS

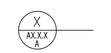
EXTERIOR ELEVATION



BUILDING SECTION



WALL SECTION



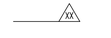
DETAIL

DOOR NUMBER

WINDOW TYPE

BATHROOM FIXTURE NUMBER

LOUVER NUMBER



WALL TYPE

ELEVATION

DRAWING NOTES

WINDOW / LOUVER CLERESTORY

GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY ACQUAINT HIMSELF WITH THE DRAWINGS AND SPECIFICATIONS CONCERNING OTHER TRADES AND SUB CONTRACTS AND SHALL COORDINATE ALL SUBCONTRACTORS TO ENSURE PROPER SEQUENCING OF WORK AND SCHEDULING OF TRADES TO AVOID CONFLICT WITH HIS WORK.

2. ITEMS, MATERIALS OR EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS FURNISHED BY OWNER AND INSTALLED IN THE CONTRACT SHALL BE UNLOADED, UNCRATED, ASSEMBLED, INSTALLED AND CONNECTED BY THE CONTRACTOR AND SHALL BE COMPLETE AND PLACED IN OPERATING ORDER.

3. BEFORE ORDERING MATERIAL OR STARTING ANY WORK, THE CONTRACTOR SHALL IN ALL CASES VERIFY MEASUREMENTS AT THE SITE OR PREMISES AND CHECK SAME AGAINST DRAWINGS. ANY DIFFERENCE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

4. THE DRAWINGS ARE DESCRIPTIVE IN NATURE AND REPRESENT BASIC REQUIREMENTS NECESSARY TO PROPERLY CONSTRUCT THE PROJECT. CONTRACTOR SHALL INSPECT AND VERIFY THE SCOPE OF WORK. ANY ADDITIONAL WORK NOT SPECIFICALLY NOTED ON THE DRAWINGS BUT YET APPARENT TO FIELD INSPECTION OR NECESSARY TO SATISFY APPLICABLE CODES IN ORDER TO OBTAIN A CERTIFICATE OF OCCUPANCY SHALL BE CONSIDERED AS PART OF THIS CONTRACT. CONTRACTORS SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR OMISSIONS.

5. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

6. ALL PRODUCT AND MATERIAL INSTALLATIONS SHALL MEET OR EXCEED MANUFACTURER'S RECOMMENDED STANDARDS AND SHALL BE EFFECTIVELY WARRANTED TO OWNER.

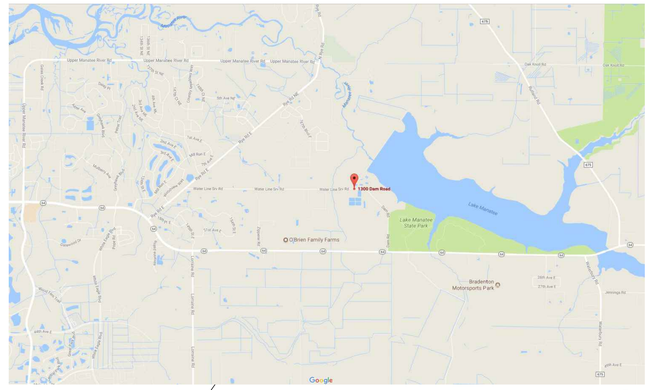
7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE LABOR LAWS OF FLORIDA AND WITH ALL OTHER APPLICABLE ORDINANCES, CODES, AND LEGAL REQUIREMENTS BY STATE OR LOCAL AUTHORITIES AS THEY MAY APPLY TO THE PROJECT.

8. IN CASE OF DISCREPANCY CONCERNING QUALITY AND OR QUANTITY WITHIN THE DOCUMENTS, THE CONTRACTOR SHALL INCLUDE THE BETTER QUALITY AND/OR THE GREATER QUANTITY UNLESS OTHERWISE DETERMINED IN WRITING BY THE ARCHITECT.

9. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL PROPOSED MATERIALS AND PRODUCTS TO BE USED ON THE PROJECT FOR REVIEW AND APPROVAL BY THE ARCHITECT

10. ALL SURFACES NOT INDICATED BY OMISSION SHALL BE PAINTED.

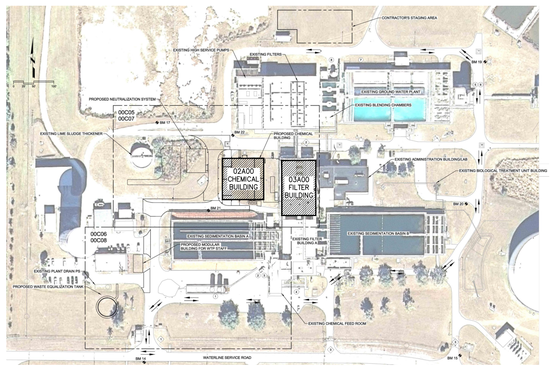
VICINITY MAP



17915 Waterline Road,
Bradenton, FL

VICINITY MAP
N.T.S

NORTH



KEY PLAN
N.T.S

NORTH

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0003450
To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

C. ALAN ANDERSON ARCHITECT, P.A.
3908 Midland Road Sarasota, Florida 34231
Phone (941) 929-0329 Fax (941) 929-0328

2023 © C. Alan Anderson Architect, P.A.

FL #AA0003450

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
PROJECT INFO

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00A01

FLORIDA BUILDING CODE 6th EDITION (2017) CODE ANALYSIS

BUILDING AREA SUMMARY

GROSS FLOOR AREA _____ 10,336 SQ.FT. (BY REF. TO 1002 OF FBC 6TH ED. 2017)
BUILDING AREA _____ 10,608 SQ.FT. (BY REF. TO 502.1 OF FBC 6TH ED. 2017)

A. BUILDING OCCUPANCY CLASSIFICATION– Chapter 3 — CHEMICAL BUILDING

GROUP "H-4" – HIGH-HAZARD – CHEMICAL STORAGE
GROUP "U" – UTILITY – ELECTRICAL ROOM

B. GENERAL BUILDING LIMITATIONS – Chapter 5 – TABLE 503

ALLOWABLE BUILDING AREA

GROUP H-4 (TYPE II B, SPRINKLERED) 70,000 S.F. _____ 9,353 SQ. FT. (BY REF. TO 503 OF FBC 2017)
GROUP U (TYPE II B, SPRINKLERED) 34,000 S.F. _____ 1,256 SQ. FT. (BY REF. TO 503 OF FBC 2017)

ALLOWABLE BUILDING HEIGHT

GROUP H-4 (TYPE II B, SPRINKLERED) 4 STORIES 75 FT. _____ ACTUAL (1 STORIES) 23'-0" FT±
GROUP U (TYPE II B, SPRINKLERED) 3 STORIES 75 FT. _____ ACTUAL (1 STORIES) 23'-0" FT±

DISTANCES TO ASSUMED PROPERTY LINES

FRONT _____ ± / ....±
REAR _____ ± / ....±
SIDES _____ ± / ....±

C. CONSTRUCTION TYPE– Chapter 6 TABLE 601

CLASSIFICATION BY TYPE OF CONSTRUCTION

TYPE OF CONSTRUCTION _____ TYPE II B, SPRINKLERED

FIRE–RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours) (EXISTING)
Chapter 6 TABLE 601

BUILDING ELEMENT	TYPE I A	TYPE I B	TYPE II A[d]	TYPE II B	TYPE III A[d]	TYPE III B	TYPE IV HT	TYPE V A[d]	TYPE V B
PRIMARY STRUCTURAL FRAME[g] (SEE SECTION 202)	3[c]	2[c]	1	0	1	0	HT	1	0
BEARING WALLS EXTERIOR[e,g] / INTERIOR	3 / 3[c]	2 / 2[c]	1 / 1	0 / 0	2 / 2	2 / 0	2 / 1 HT	1 / 1	0 / 0
NONBEARING WALLS AND PARTITIONS EXTERIOR	SEE TABLE 602								
NONBEARING WALLS AND PARTITIONS INTERIOR[f]	0	0	0	0	0	0	SEE SECTION 602.4.6	0	0
FLOOR CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202)	2	2	1	0	1	0	HT	1	0
ROOF CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

FIRE–RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS
BASED ON FIRE SEPARATION DISTANCE[a,e,h]– Chapter 6 TABLE 602 (EXISTING)

FIRE SEPARATION DISTANCE	TYPE OF CONSTRUCTION	GROUP H[i]	GROUP F-1, M, S-1[j]	GROUP A, B, E, F-2, I, R, S-2[j], U[j]
x ≤ 5[c]	ALL	3	2	1
5 ≤ x < 10	I-A OTHERS	3 2	2 1	1 1
10 ≤ x < 30	I-A, I-B II-B, V-B OTHERS	2 1 1	1 0 1	1[c] 0 1[c]
x ≥ 30	ALL	0	0	0

D. MAXIMUM AREA OF EXTERIOR WALLS OPENINGS BASED ON FIRE SEPERATION DISTANCE AND DEGREE OF OPENING PROTECTION – Chapter 7 TABLE 705.8 (EXISTING)

CLASSIFICATION OF OPENING	FIRE SEPARATION DISTANCE: 0 to less than 3 ft[c,d]	3 to less than 5 ft[e]	5 to less than 10 ft[c,f]	10 to less than 15 ft[c,g]	15 to less than 20 ft[g]	20 to less than 25 ft[g]	25 to less than 30 ft[g]	greater than 30
UNPROTECTED NONSPRINKLERED	NOT PERMITTED	NOT PERMITTED	10%[b]	15%[b]	25%	45%	70%	NO LIMIT
UNPROTECTED SPRINKLERED	NOT PERMITTED	15%	25%	45%	75%	NO LIMIT	NO LIMIT	NO LIMIT
PROTECTED	NOT PERMITTED	15%	25%	45%	75%	NO LIMIT	NO LIMIT	NO LIMIT

E. INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k] – Chapter 8 TABLE 803.9

GROUP	SPRINKLERED[1]: EXIT ENCLOSURES AND EXIT PASSAGEWAYS[a,b]	SPRINKLERED[1]: CORRIDORS	SPRINKLERED[1]: ROOMS AND ENCLOSED SPACES[c]	UNSPRINKLERED: EXIT ENCLOSURES AND EXIT PASSAGEWAYS[a,b]	UNSPRINKLERED: CORRIDORS	UNSPRINKLERED: ROOMS AND ENCLOSED SPACES
A-1 & A-2	B	B	C	A	A[d]	B[d]
A-3[j], A-4 & A-5	B	B	C	A	A[d]	C
B, E, M, R-1	B	C	C	A	B	C
R-4	B	C	C	A	B	C
F	C	C	C	B	C	C
H	B	B	C[g]	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B[h, i]	A	A	B
I-3	A	A[i]	C	A	A	B
I-4	B	B	B[h, i]	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	NO RESTRICTIONS			NO RESTRICTIONS		

F. MEANS OF EGRESS – CHAPTER 10

MINIMUM OCCUPANT LOAD TABLE 1004.1.1

CHEMICAL STORAGE AREA _____ (300 GROSS) _____ 31 OCCUPANTS
ELECTRICAL ROOM _____ (300 GROSS) _____ 4 OCCUPANTS

GROUP "H-4" – HIGH-HAZARD

MAXIMUM TRAVEL DISTANCE	REQUIRED	PROVIDED
TO EXIT (FT) SPRINKLERED	175'-0" MAX.	130'-4" ±
MAXIMUM DEAD END CORRIDOR (FT)	20'-0"	N/A
EGRESS WIDTH PER PERSON SERVED	0.2 x 35 =7"	2@ 36"=360 & 2@ 72"=720
MINIMUM CORRIDOR / AISLE WIDTH (IN.)	44"	N/A
MINIMUM CLEAR OPENING OF EXIT DOORS (IN.)	32"	36" & 72"

GROUP "U" – UTILITY

MAXIMUM TRAVEL DISTANCE	REQUIRED	PROVIDED
TO EXIT (FT) NON-SPRINKLERED	300'-0" MAX.	102'-7" ±
MAXIMUM DEAD END CORRIDOR (FT)	20'-0"	N/A
EGRESS WIDTH PER PERSON SERVED	0.2 x 35 =7"	2@ 72"=720
MINIMUM CORRIDOR / AISLE WIDTH (IN.)	44"	N/A
MINIMUM CLEAR OPENING OF EXIT DOORS (IN.)	32"	72"

STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES – TABLE 1021.2(2)

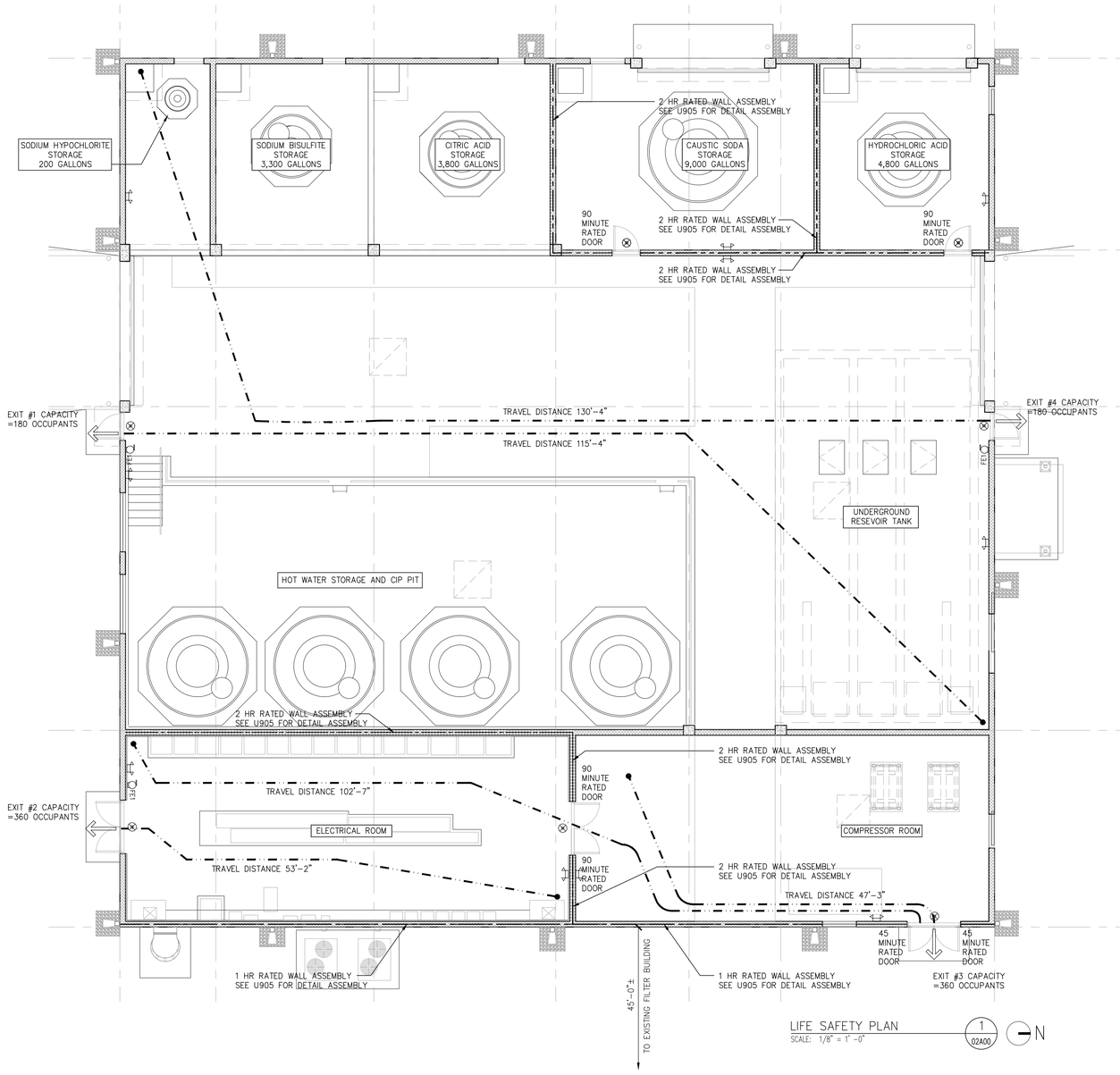
STORY	OCCUPANCY	MAX. OCCUPANTS PER STORY	MAX. EXIT ACCESS TRAVEL DISTANCE
FIRST STORY OR BASEMENT	A, B[c], E, J[c], M, U, S[b]	49 OCCUPANTS	75 FEET
	H-2, H-3	3 OCCUPANTS	25 FEET
	H-4, H-5, I, R-1 R-2[c], R-4	10 OCCUPANTS	75 FEET
	S	29 OCCUPANTS	100 FEET
SECOND STORY	B, F, M, S	29 OCCUPANTS	75 FEET
THIRD STORY AND ABOVE	NP	NA	NA

GROUP "H-4" – HIGH-HAZARD

OCCUPANT LOAD _____ 31 TOTAL
REQUIRED NUMBER OF EXITS _____ 2
EXITS PROVIDED _____ 2

GROUP "U" – UTILITY

OCCUPANT LOAD _____ 4 TOTAL
REQUIRED NUMBER OF EXITS _____ 2
EXITS PROVIDED _____ 2



LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0" (1 / 02A00)

LIFE SAFETY LEGEND

⇨	FIRE EXIT
----	TRAVEL PATH
E	INDICATES EXISTING UNIT
R	INDICATES RELOCATED UNIT
⊗	EXIT SIGN
⊗	LITHONIA COMBO EXIT / EMERGENCY LIGHT WITH BATTERY BACKUP
⌓	BATTERY BACKUP EMERGENCY LIGHT
(F)	VISUAL SIGNALLY UNIT, FLASHING "FIRE" (NO AUDIO DEVICE) MOUNTED AT 7'-6" A. F. F.
●	MANUAL PULL STATION MOUNTED AT 4'-0" A. F. F.
F*	COMBINATION AUDIBLE/VISUAL SIGNALING UNIT (Chime/flashing "FIRE" light) MOUNTED AT 7'-6" A. F. F. * – INDICATES NEW UNIT
⧓	CEILING SMOKE DETECTOR DD – INDICATES DUCT DETECTOR
(H)	HEAT DETECTOR
FE1	FIRE EXTINGUISHER (WALL MOUNTED) (MP–10 UL RATING OF 4A – 60BIC)
FE2	FIRE EXTINGUISHER CABINET SHALL BE BY "LARSEN MANUFACTURING CO.", ARCHITECTURAL SERIES, MODEL #2409-6R, SEMI–RECESSED 2 1/2", STANDARD WHITE FINISH, DUO BREAK GLASS WITH MP–10 FIRE EXTINGUISHER (UL RATING OF 4A–60B:C) OR APPROVED EQUAL.
FACP	FIRE ALARM CONTROL PANEL
- - -	1 HR REQUIRED RATING (SEE UL ASSEMBLY U905)
—·—	2 HR REQUIRED RATING (SEE UL ASSEMBLY U905)

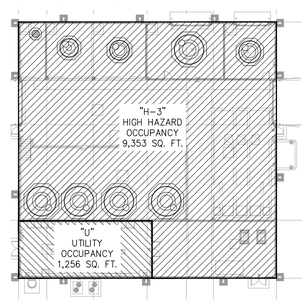
GENERAL NOTES:

1. INFORMATION PROVIDED ON FIRE ALARM SYSTEM AND EMERGENCY LIGHTING SHOWN IS FOR INTENT, REFER TO ELECTRICAL DRAWINGS FOR MORE SPECIFIC INFORMATION. PROVIDE SIGNED & SEALED SHOP DRAWINGS AS REQUIRED FOR SUBMITTAL TO FIRE MARSHALL APPROVAL

X:\2015.30 Enclave at Laurel Park\DWG\ul905.jpg

DESIGN NO. U905
BEARING WALL RATING – 2 HR.

1. CONCRETE BLOCKS* — VARIOUS DESIGNS. CLASSIFICATION D–2 (2 HR). SEE CONCRETE BLOCKS CATEGORY FOR LIST OF ELIGIBLE MANUFACTURERS.
2. MORTAR — BLOCKS LAID IN FULL BED OF MORTAR, NOM. 3/8 IN. THICK, OF NOT LESS THAN 2–1/4 AND NOT MORE THAN 3–1/2 PARTS OF CLEAN SHARP SAND TO 1 PART PORTLAND CEMENT (PROPORTIONED BY VOLUME) AND NOT MORE THAN 50 PERCENT HYDRATED LIME (BY CEMENT VOLUME). VERTICAL JOINTS STAGGERED.
3. PORTLAND CEMENT STUCCO OR GYPSUM PLASTER — ADD 1/2 HR TO CLASSIFICATION IF USED. WHERE COMBUSTIBLE MEMBERS ARE FRAMED IN WALL, PLASTER OR STUCCO MUST BE APPLIED ON THE FACE OPPOSITE FRAMING TO ACHIEVE A MAX. CLASSIFICATION OF 1–1/2 HR. ATTACHED TO CONCRETE BLOCKS (ITEM 1).
4. LOOSE MASONRY FILL — IF ALL CORE SPACES ARE FILLED WITH LOOSE DRY EXPANDED SLAG, EXPANDED CLAY OR SHALE (ROTARY KILN PROCESS), WATER REPELLANT VERMICULITE MASONRY FILL INSULATION, OR SILICONE TREATED PERLITE LOOSE FILL INSULATION ADD 2 HR TO CLASSIFICATION.



OCCUPANCY KEY PLAN
SCALE: NOT TO SCALE (02A00)

RECORD DOCUMENTS

REV	DATE	BY	DESCRIPTION

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CHECKED CAA
DATE APRIL 2025

Issued By: C. ALAN ANDERSON, FLAA0003471
To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable portions of the Florida Building Code in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
CHEMICAL BUILDING CODE ANALYSIS AND LIFE SAFETY PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02A00

ELEVATION TARGET NOMENCLATURE

TOFF = SLAB ELEVATION AT FACILITY FLOOR
TOMG = TOP OF METAL GRATE SYSTEM
TOPL = SLAB ELEVATION AT EQUIPMENT PLATFORMS
TOPT = SLAB ELEVATION AT PITS
TOTR = SLAB ELEVATION AT TRENCHES

GENERAL FLOOR PLAN NOTES:

1.– CONTRACTOR SHALL BE RESPONSIBLE TO FULLY ACQUAINT HIMSELF WITH THE DRAWINGS AND SPECIFICATIONS CONCERNING OTHER TRADES AND SUBCONTRACTS AND SHALL COORDINATE ALL SUBCONTRACTORS TO INSURE PROPER SEQUENCING OF WORK AND SCHEDULING OF TRADES TO AVOID CONFLICT WITH HIS WORK.

2.– ITEMS, MATERIALS OR EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS FURNISHED BY OWNER AND INSTALLED IN THE CONTRACT SHALL BE UNLOADED, UNCRATED, ASSEMBLED, INSTALLED AND CONNECTED BY THE CONTRACTOR AND SHALL BE COMPLETE AND PLACED IN OPERATING ORDER.

3.– BEFORE ORDERING MATERIAL OR STARTING ANY WORK, THE CONTRACTOR SHALL IN ALL CASES VERIFY MEASUREMENTS AT THE SITE OR PREMISES AND CHECK SAME AGAINST DRAWINGS. ANY DIFFERENCE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

4.– THE DRAWINGS ARE DESCRIPTIVE IN NATURE AND REPRESENT BASIC REQUIREMENTS NECESSARY TO PROPERLY CONSTRUCT THE PROJECT. CONTRACTOR SHALL INSPECT AND VERIFY THE SCOPE OF WORK. ANY ADDITIONAL WORK NOT SPECIFICALLY NOTED ON THE DRAWINGS BUT YET APPARENT TO FIELD INSPECTION OR NECESSARY TO SATISFY APPLICABLE CODES IN ORDER TO OBTAIN A CERTIFICATE OF OCCUPANCY SHALL BE CONSIDERED AS PART OF THIS CONTRACT. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR OMISSIONS.

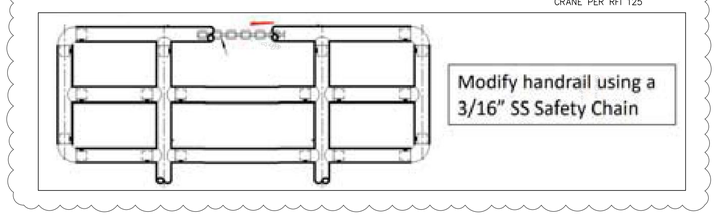
5.– CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

6.– ALL PRODUCT AND MATERIAL INSTALLATIONS SHALL MEET OR EXCEED MANUFACTURER'S RECOMMENDED STANDARDS AND SHALL BE EFFECTIVELY WARRANTED TO OWNER.

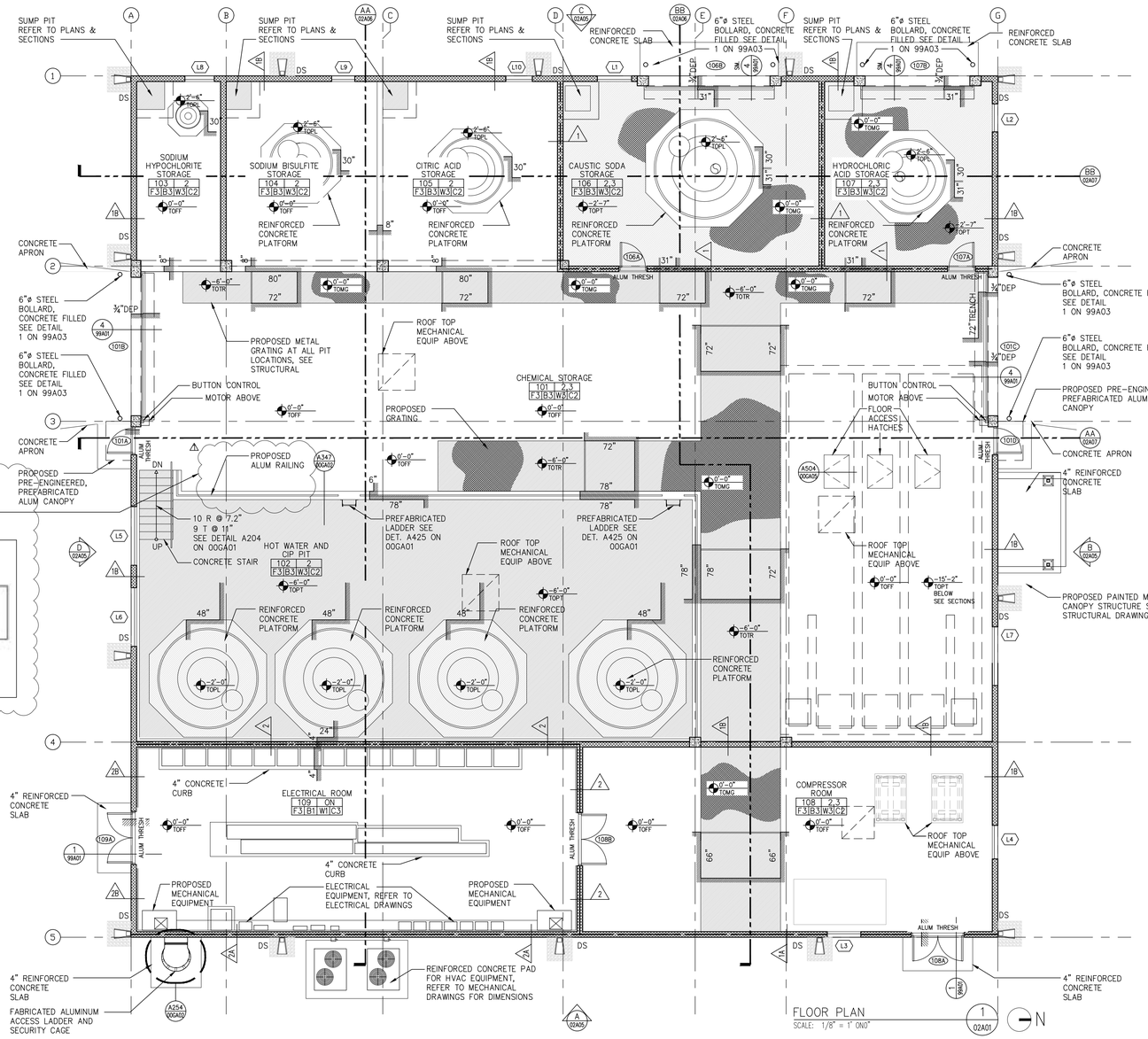
7.– THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE LABOR LAWS OF FLORIDA AND WITH ALL OTHER APPLICABLE ORDINANCES, CODES, AND LEGAL REQUIREMENTS BY STATE OR LOCAL AUTHORITIES AS THEY MAY APPLY TO THE PROJECT.

8.– IN CASE OF DISCREPANCY CONCERNING QUALITY AND OR QUANTITY WITHIN THE DOCUMENTS, THE CONTRACTOR SHALL INCLUDE THE BETTER QUALITY AND/OR THE GREATER QUALITY UNLESS OTHERWISE DETERMINED IN WRITING BY THE ARCHITECT.

9.– ALL SURFACES NOT INDICATED BY OMISSION SHALL BE PAINTED.



HANDRAIL MODIFIED TO ACCOMMODATE DAVIT CRANE PER RFI 125



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

FINISH SCHEDULE

SYMBOL: FLOOR FINISH:

F1	SEALED CONCRETE
F2	OWNER SELECTED TILE
F3	EPOXY FLOOR COATING – THIN SET
F4	EPOXY FLOOR COATING – 1/4" TROWEL ON

SYMBOL: BASE FINISH:

B1	VINYL BASE
B2	CERAMIC TILE COVE BASE (O.S.)
B3	NO BASE

SYMBOL: WALL FINISH:

W1	5/8" GYP. BD. LIGHT SPRAY TEXTURE, PTD.
W2	5/8" MR GYP. BD. LT. SPRAY TEXT. PTD.
W3	EXPOSED BLOCK, PAINTED (EPOXY)
	ALL EXPOSED JOINTS RODDED
W4	EXTERIOR PLASTER FINISH

SYMBOL: CEILING FINISH:

C1	5/8" GYP. BD. LIGHT SPRAY TEXTURE, PTD.
C2	EXPOSED CONC. STRUCTURE W/ EPOXY PAINT
C3	2X2 ACOUSTICAL TILE AND GRID

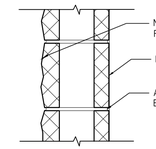
NOTE:

1. PROVIDE SUB FRAMING @ 12" O.C. MIN. AS REQ. BY MANUF. FOR M.R. GYPSUM DRYWALL CEILINGS.

2. ALL EXPOSED BLOCK ARE TO RODDED FOR.....

3. PROVIDE DIAMOND PLATE FLOORING IN LOCATIONS SHOWN OVER PIPING AND OVERFLOW PITS. PROVIDE STRUCTURAL REINFORCEMENT AS REQUIRED.

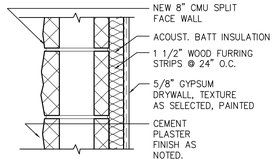
WALL TYPE SCHEDULE



WALL TYPE 1
PROPOSED NEW 2 HOUR FIRE WALL ASSEMBLY W/ 8" CMU BLOCK. (UL LISTING U905)

WALL TYPE 1A
PROPOSED NEW 1 HOUR FIRE WALL ASSEMBLY W/ 8" CMU BLOCK. (UL LISTING U905)

WALL TYPE 1B
PROPOSED NEW 8" CMU WALL ASSEMBLY WITH EXTERIOR SPLIT FACE AND INTERIOR RODDED JOINTS



WALL TYPE 2
PROPOSED NEW 2 HOUR FIRE WALL ASSEMBLY W/ 8" CMU BLOCK (UL LISTING U905) AND LT. GA. METAL FURRING AND WALLBOARD.

WALL TYPE 2A
PROPOSED NEW 1 HOUR FIRE WALL ASSEMBLY W/ 8" CMU BLOCK (UL LISTING U905) AND LT. GA. METAL FURRING AND WALLBOARD.

WALL TYPE 2B
PROPOSED NEW 8" CMU BLOCK WALL ASSEMBLY AND LT. GA. METAL FURRING AND WALLBOARD.

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0003450
To the best of the architect's or engineer's knowledge, said plans and specifications have been prepared in conformity with the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
CHEMICAL BUILDING FLOOR PLAN AND SCHEDULES

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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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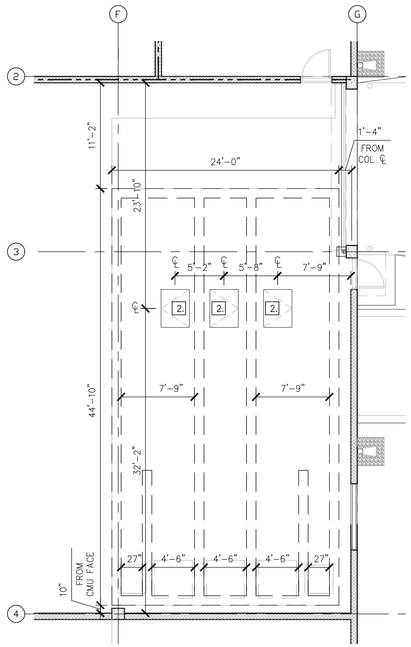
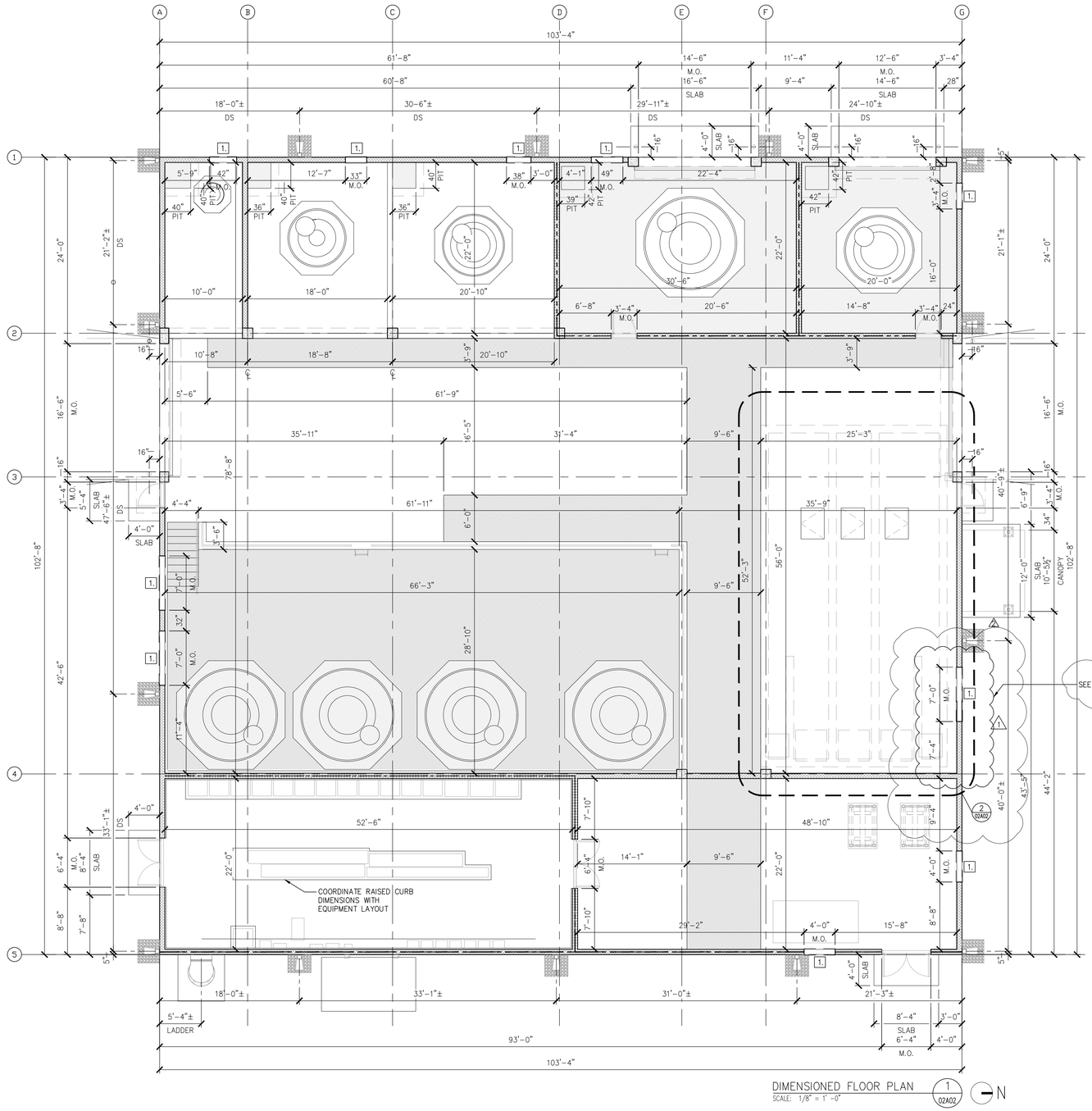


RESEVOIR TANK
DIMENSIONED FLOOR PLAN
SCALE: 1/8" = 1'-0"
2 / 02A02

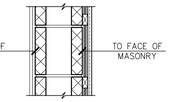


DIMENSIONED FLOOR PLAN
SCALE: 1/8" = 1'-0"
1 / 02A02

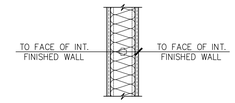
N

DIMENSION NOTE:

MASONRY WALL DIMENSIONS – ALL MASONRY WALL DIMENSION EITHER INTERIOR OR EXTERIOR ARE FROM FACE OF MASONRY WALL AND NOT FROM FINISHED WALL.

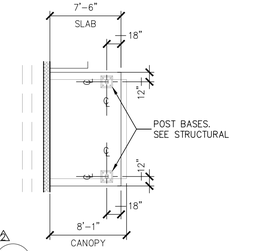


FRAMED WALL DIMENSIONS – ALL FRAMED WALL DIMENSION ARE FROM FACE OF FINISHED WALL AND NOT FROM WALL FRAMING.



DIMENSION PLAN CONSTRUCTION NOTES:

1. PROPOSED MECHANICAL LOUVRE VENT IN MASONRY OPENING, REFER TO MECHANICAL DRAWINGS FOR VENT SIZING. REFER TO ELEVATIONS FOR INSTALLATION HEIGHT ABOVE FINISHED FLOOR.
2. PROPOSED FLOOR HATCH AS SELECTED TO SERVICE RESERVOIR TANK.
3. VERIFY EQUIPMENT PLATFORM DIMENSION REQUIREMENTS AND FINAL LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO LOCATING EQUIPMENT PLATFORMS.
4. REVISED LOCATION PER RFI 056



CANOPY POST BASE
DIMENSIONED PLAN
SCALE: 1/8" = 1'-0"
3 / 02A02

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			RECORD DOCUMENTS

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To the best of the architect's or engineer's knowledge, said plans and specifications conform to the minimum requirements and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
CHEMICAL BUILDING DIMENSIONED FLOOR PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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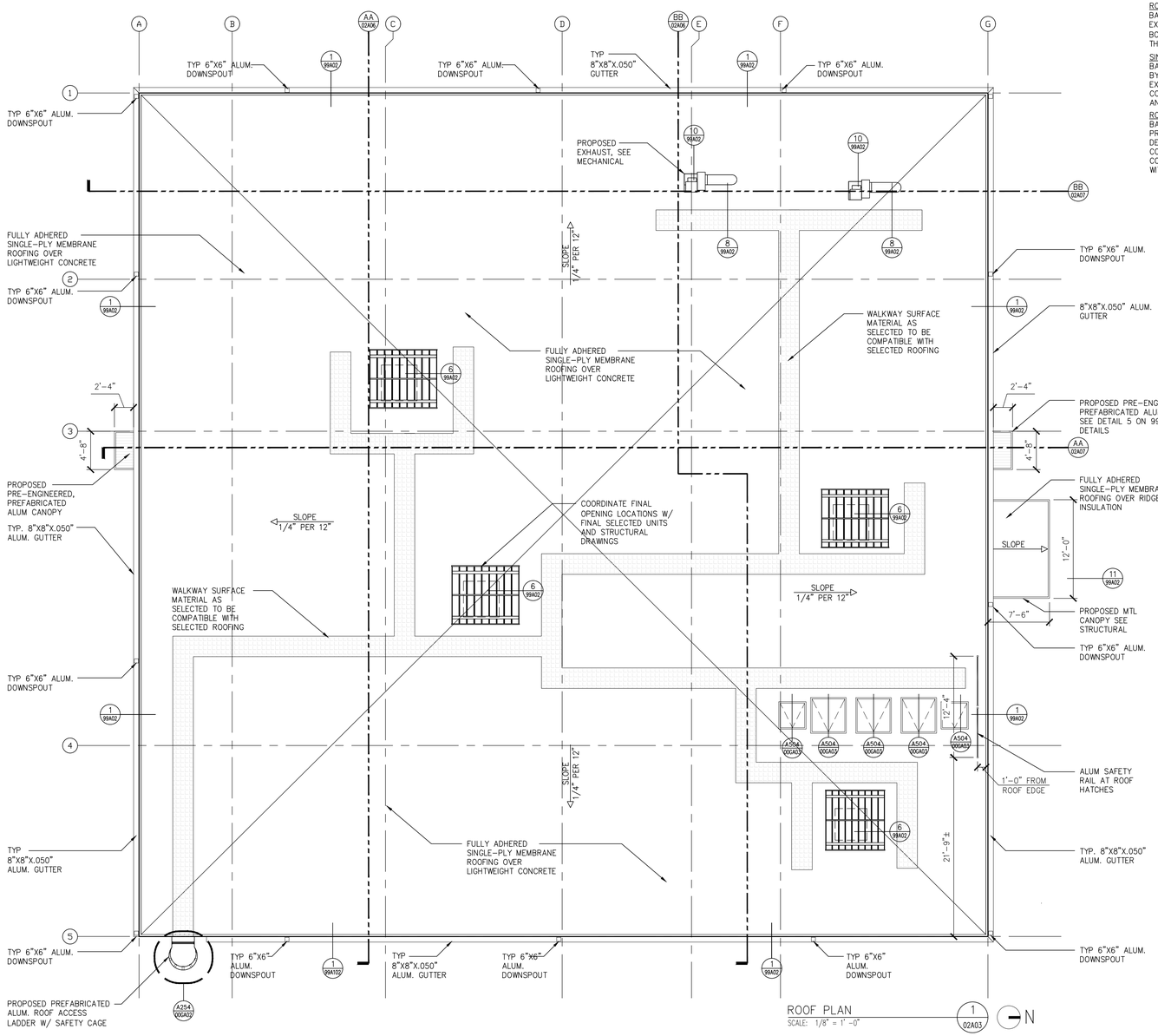
DRAWING NO. 02A02

INSULATED LIGHTWEIGHT CONCRETE:
BASIS OF DESIGN SHALL BE INSULCEL INSULATING CONCRETE BY SIPLAST OR APPROVED EQUAL. INSULCEL CONCRETE IS A MIXTURE OF CELLULAR FOAM AND PORTLAND CEMENT/WATER SLURRY AND IS PLACED AT A MINIMUM OF 2" THICKNESS OVER THE INSULPERM RIGID INSULATION. INSULCEL CONCRETE HAS A MINIMUM DRY DENSITY OF 30 PCF (481 kg/m³) AND PROVIDES A MINIMUM COMPRESSION STRENGTH OF 200 PSI (1378.96 kPa)

ROOF INSULATION:
BASIS OF DESIGN SHALL BE INSULPERM RIGID EXPANDED POLYSTYRENE FOAM INSULATION BOARD (MIN. R-38) BY SIPLAST AS PART OF THE INSULCEL ROOF SYSTEM.

SINGLE PLY MEMBRANE
BASIS OF DESIGN SHALL BE FIBERTITE 8540 SM BY SEAMANS, 45 MIL MINIMUM THICKNESS, EXPOSED COLOR BEIGE OR WHITE. SUBMIT COMPLETE SHOP DRAWINGS ON ATTACHMENT AND TEST DATA, DETAILS, & SAMPLES.

ROOFING PROTECTION MATERIAL
BASIS OF DESIGN SHALL BE FIBERTITE TUFF-TRAC PROTECTION MATERIAL 46 X 44/1,000 X 1,000 DENIER WOVEN POLYESTER FABRIC REINFORCEMENT, COATED WITH A PROPRIETARY YELLOW SEAMAN CORPORATION KEE FORMULATION AND EMBOSSED WITH A LOW PROFILE DIAMOND PLATE DESIGN.



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			RECORD DOCUMENTS

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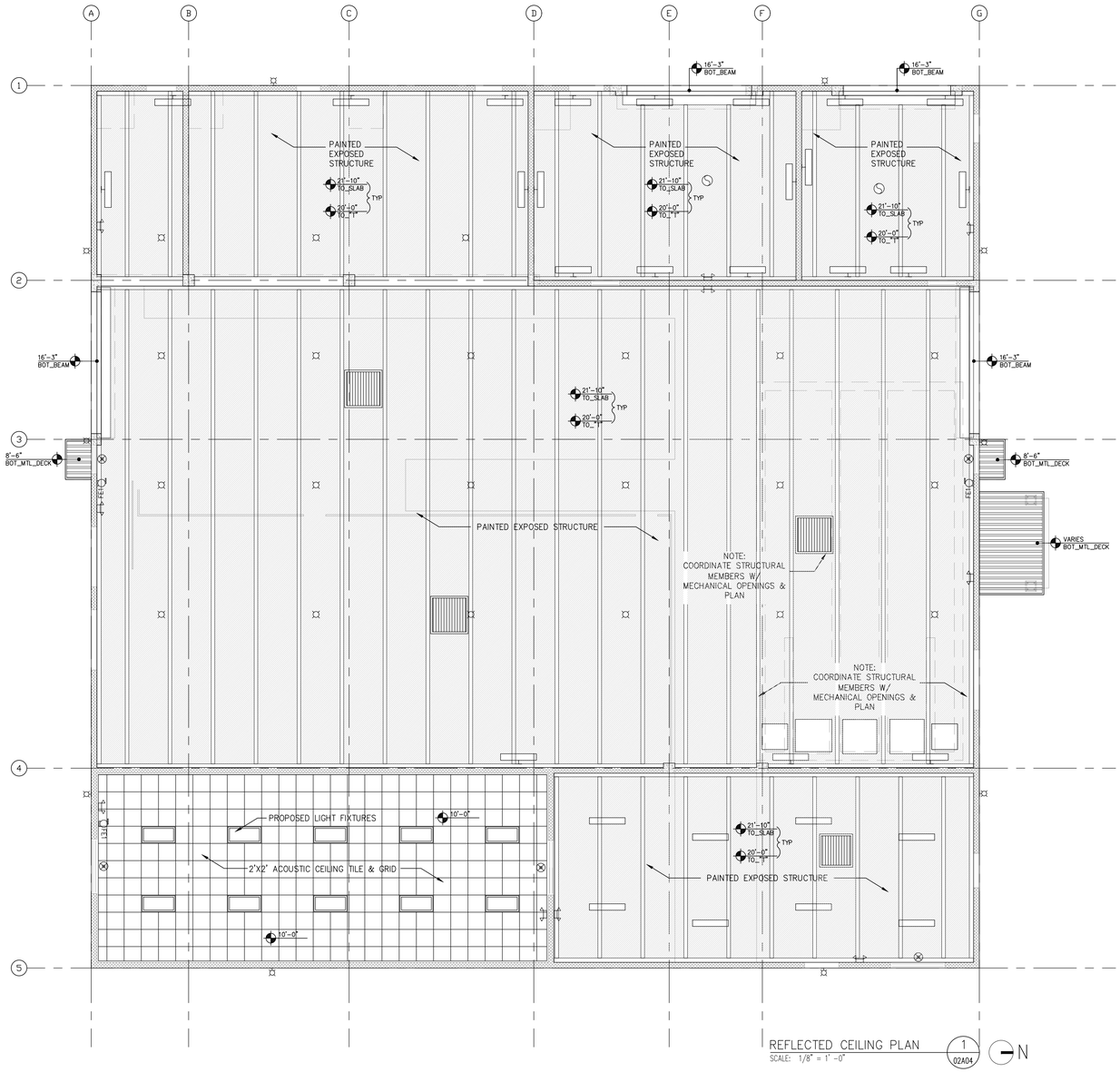
DRAWING NO. 02A03



REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

1 / 02A04

N

REFLECTED CEILING – LEGEND	
	2 x 4 LAY–IN FLUORESCENT LIGHT FIXTURE
	2 x 1 CEILING HUNG LED LIGHT FIXTURE
	WALL MOUNTED LED STRIP
	WALL MOUNTED WALL PAC LIGHT
	CEILING HUNG PENDANT LED LIGHT FIXTURE
	EXHAUST FAN UNIT ON ROOF
	DE–HUMIDIFIER UNIT ON ROOF
	EXPOSED STRUCTURAL STEEL DECK
	EXPOSED STRUCTURAL CEILING
	ACOUSTICAL LAY–IN TILE GRID

ELECTRICAL ROOM CEILING GRID/TILE BASIS OF DESIGN:

TILE: 2x2 ARMSTRONG – DUNE SQUARE LAY–IN CEILING TILE OR AS SELECTED BY OWNER.

GRID: ARMSTRONG – PRELUDE XL 15/16" EXPOSED "T" SYSTEM GRID OR AS EXISTING.

SPRINKLER NOTES:

SUB–CONTRACTOR TO SUBMIT COMPLETE SHOP DRAWINGS AS REQUIRED FOR SPRINKLER SYSTEM MODIFICATIONS FOR PROPOSED LAYOUT AS REQUIRED.

HVAC NOTES:

HVAC COMPONENTS SHOWN ARE DIAGRAMMATIC FOR INTENT ONLY. MECHANICAL SUB CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL SELECTED COMPONENTS. REFER TO MECHANICAL DRAWINGS FOR TECHNICAL INFORMATION.

LIGHTING NOTES:

REFER TO ELECTRICAL DRAWINGS FOR FIXTURE SCHEDULES AND FOR SWITCHING LOCATIONS. COORDINATE FINAL WALKTHROUGH OF SWITCHING LOCATIONS WITH ARCHITECT AND CLIENT PRIOR TO START OF ANY ELECTRICAL INSTALLATION.

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			RECORD DOCUMENTS

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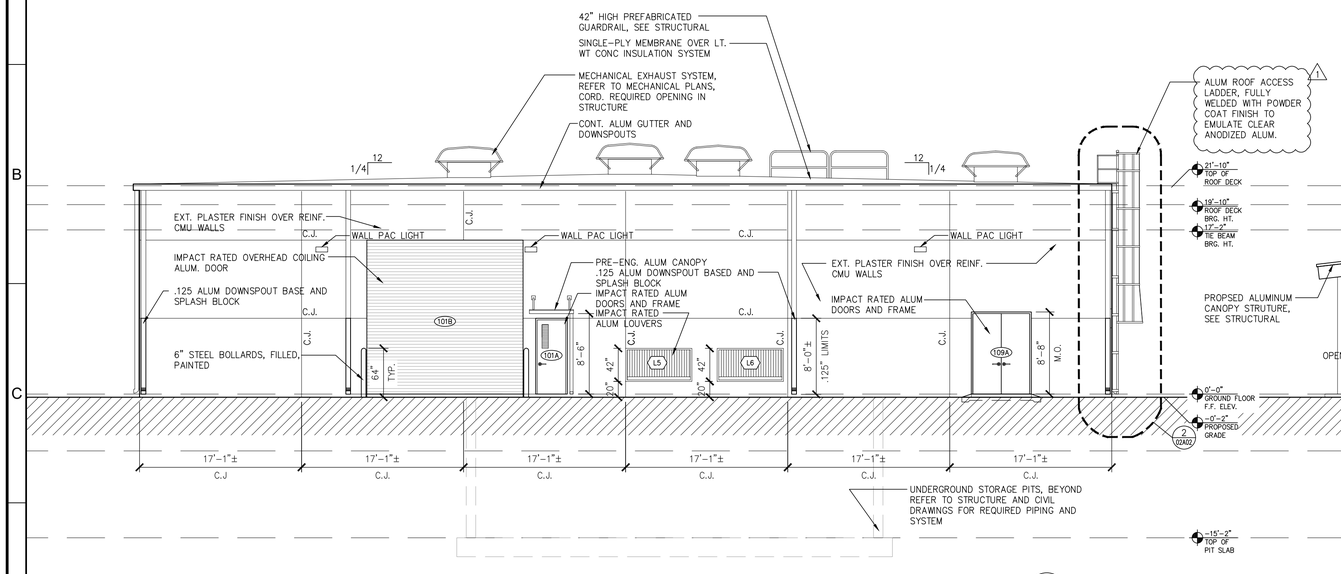
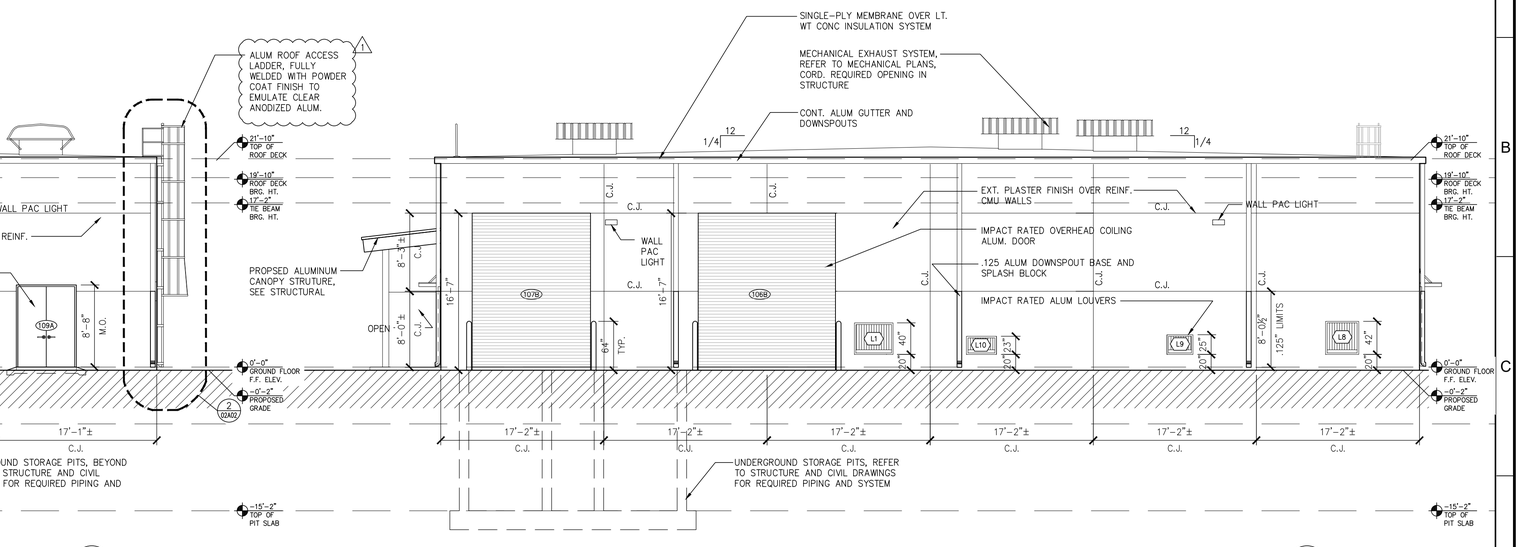


BUILDING ELEVATION D 02A05
SCALE: 1/8" = 1'-0"



BUILDING ELEVATION C 02A05
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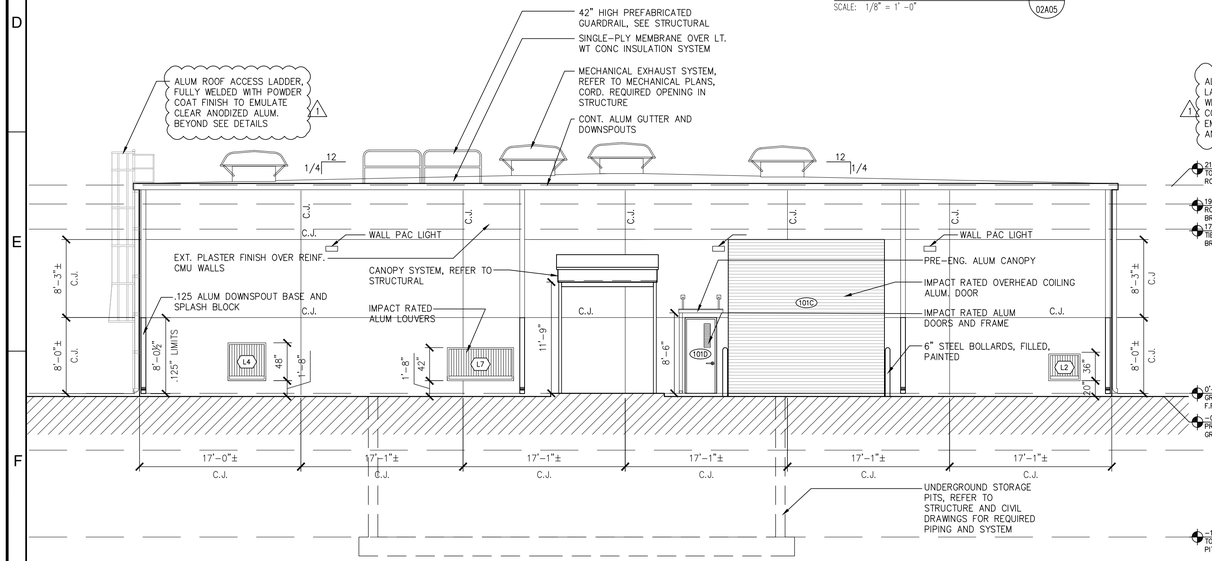
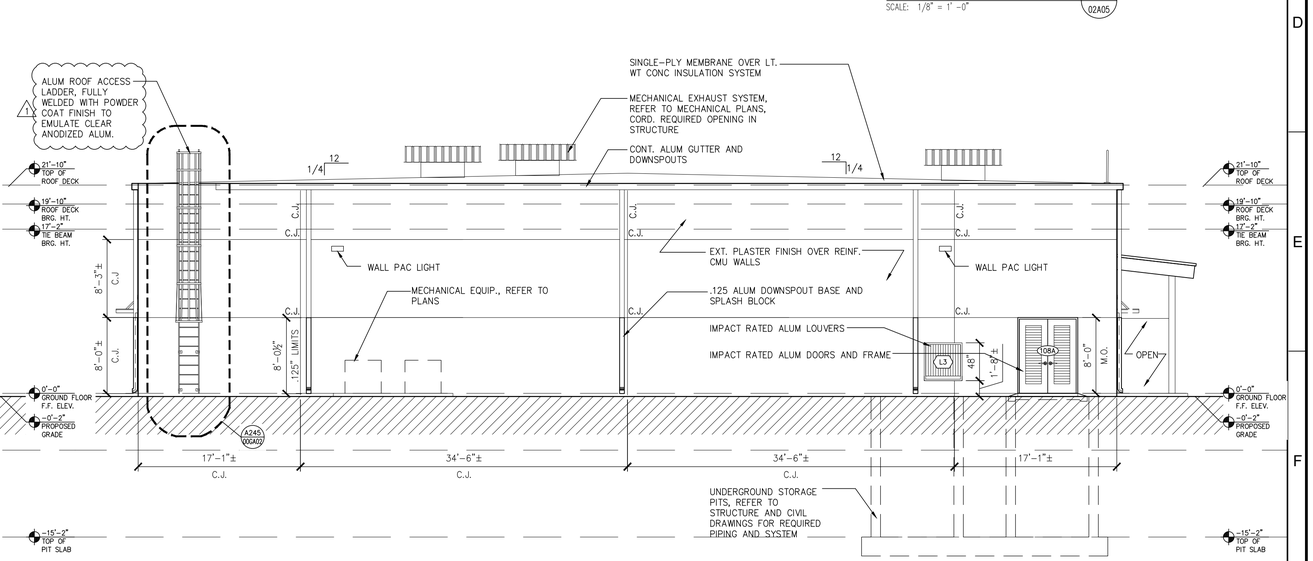


BUILDING ELEVATION B 02A05
SCALE: 1/8" = 1'-0"



BUILDING ELEVATION A 02A05
SCALE: 1/8" = 1'-0"

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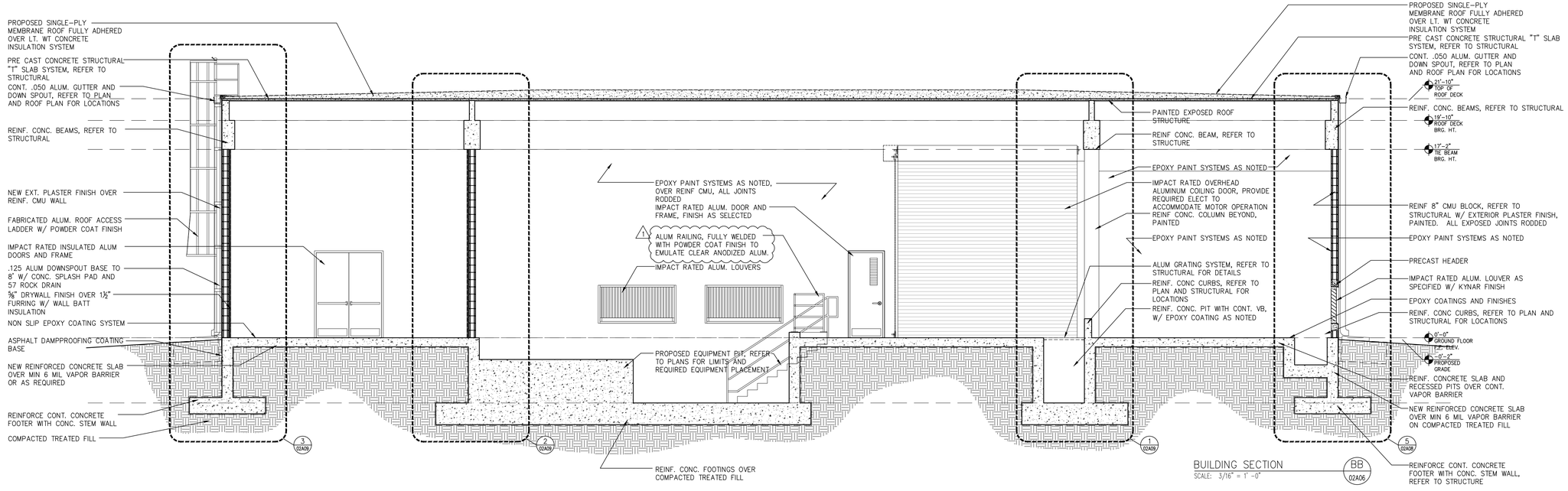
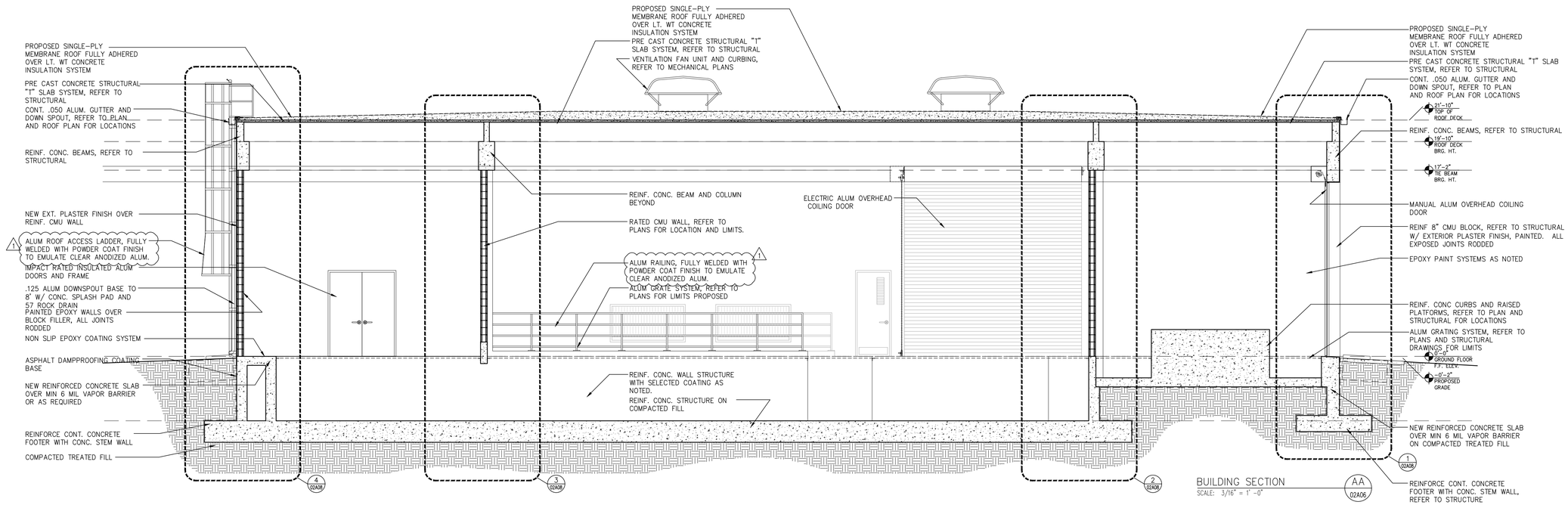


BUILDING SECTION — BB — 02A06
SCALE: 3/16" = 1'-0"



BUILDING SECTION — AA — 02A06
SCALE: 3/16" = 1'-0"

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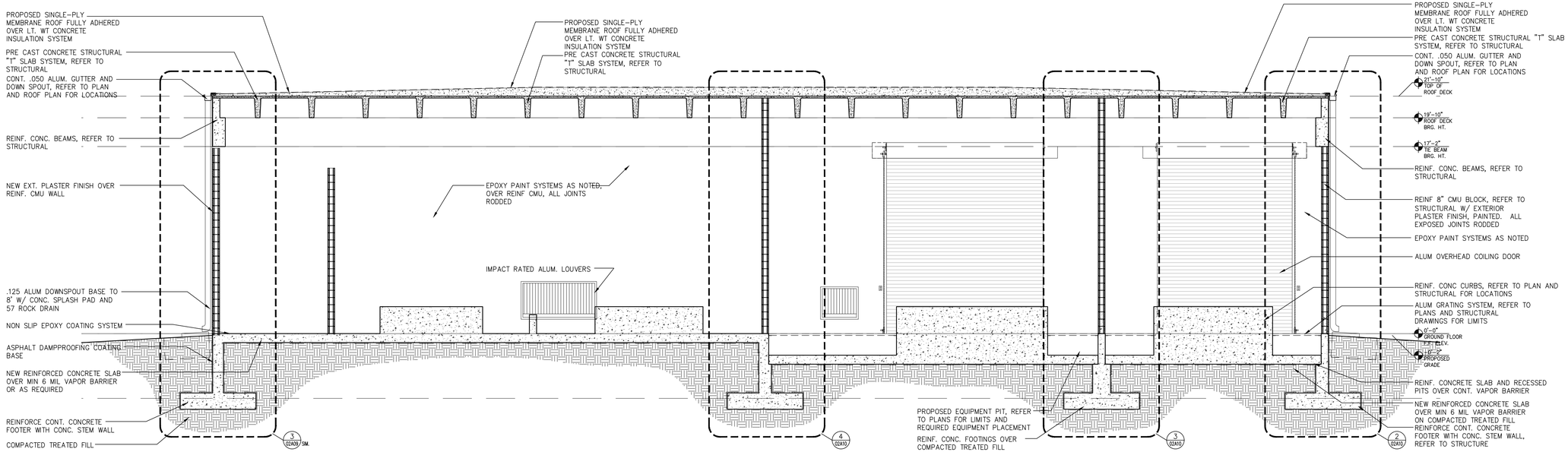
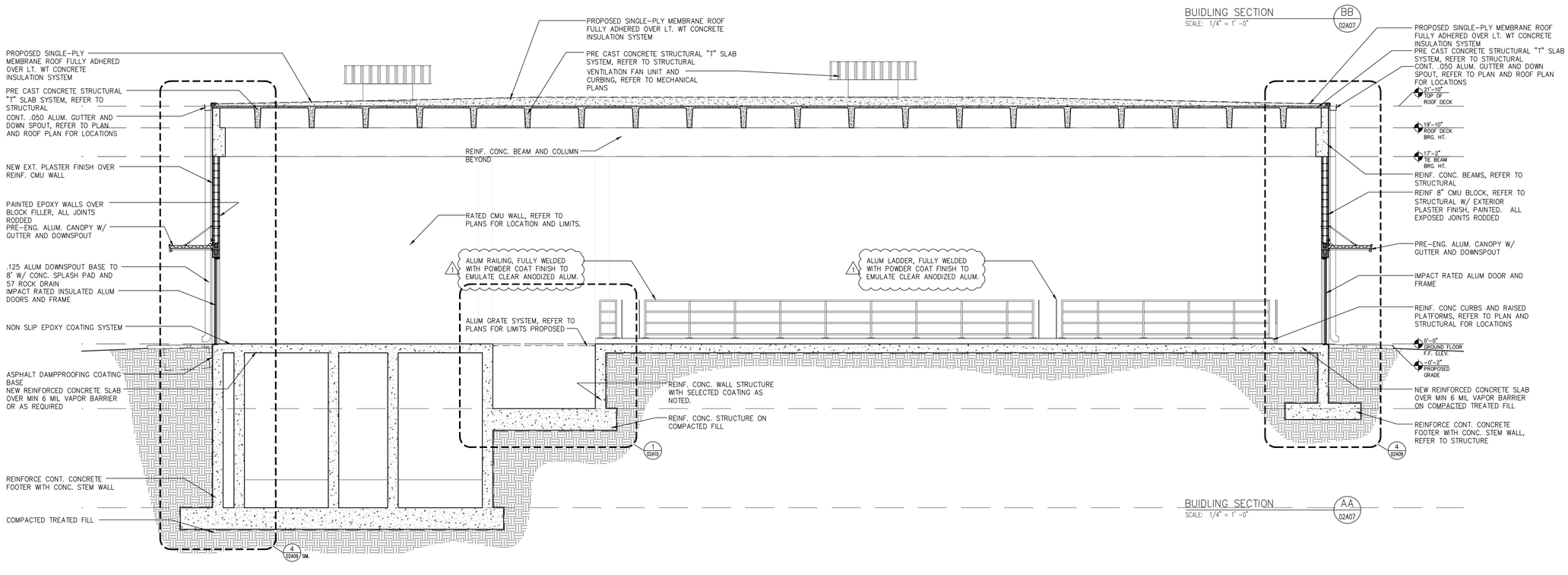


BUILDING SECTION BB
SCALE: 1/4" = 1'-0"
02A07



BUILDING SECTION AA
SCALE: 1/4" = 1'-0"
02A07

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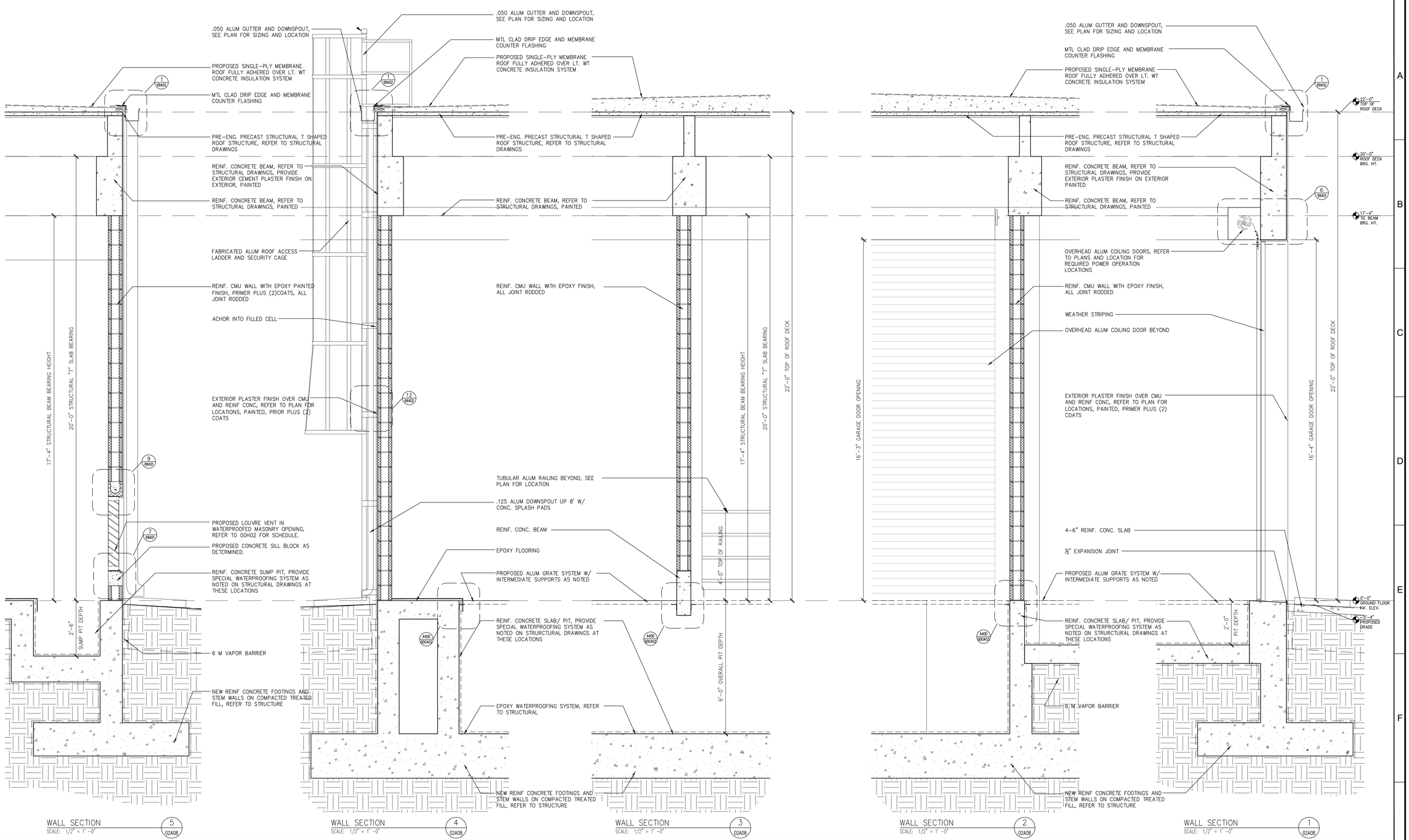

WALL SECTION 5 / 02A08 — SCALE: 1/2" = 1'-0"

WALL SECTION 4 / 02A08 — SCALE: 1/2" = 1'-0"

WALL SECTION 3 / 02A08 — SCALE: 1/2" = 1'-0"

WALL SECTION 2 / 02A08 — SCALE: 1/2" = 1'-0"

WALL SECTION 1 / 02A08 — SCALE: 1/2" = 1'-0"

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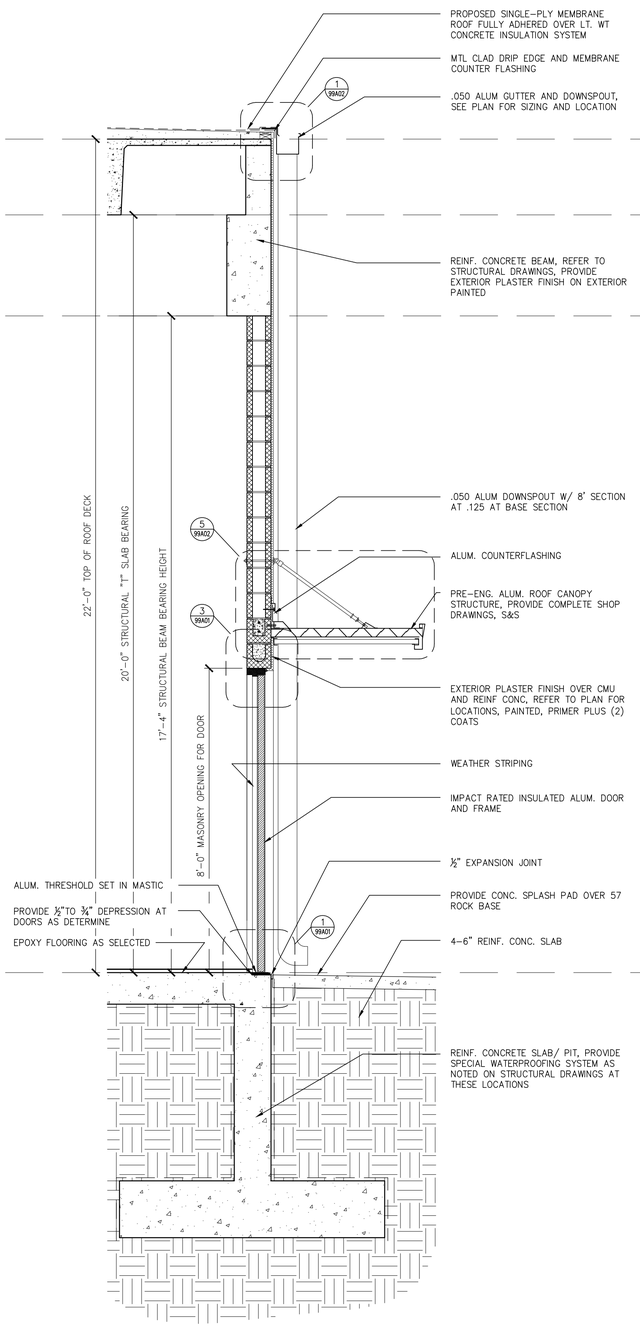

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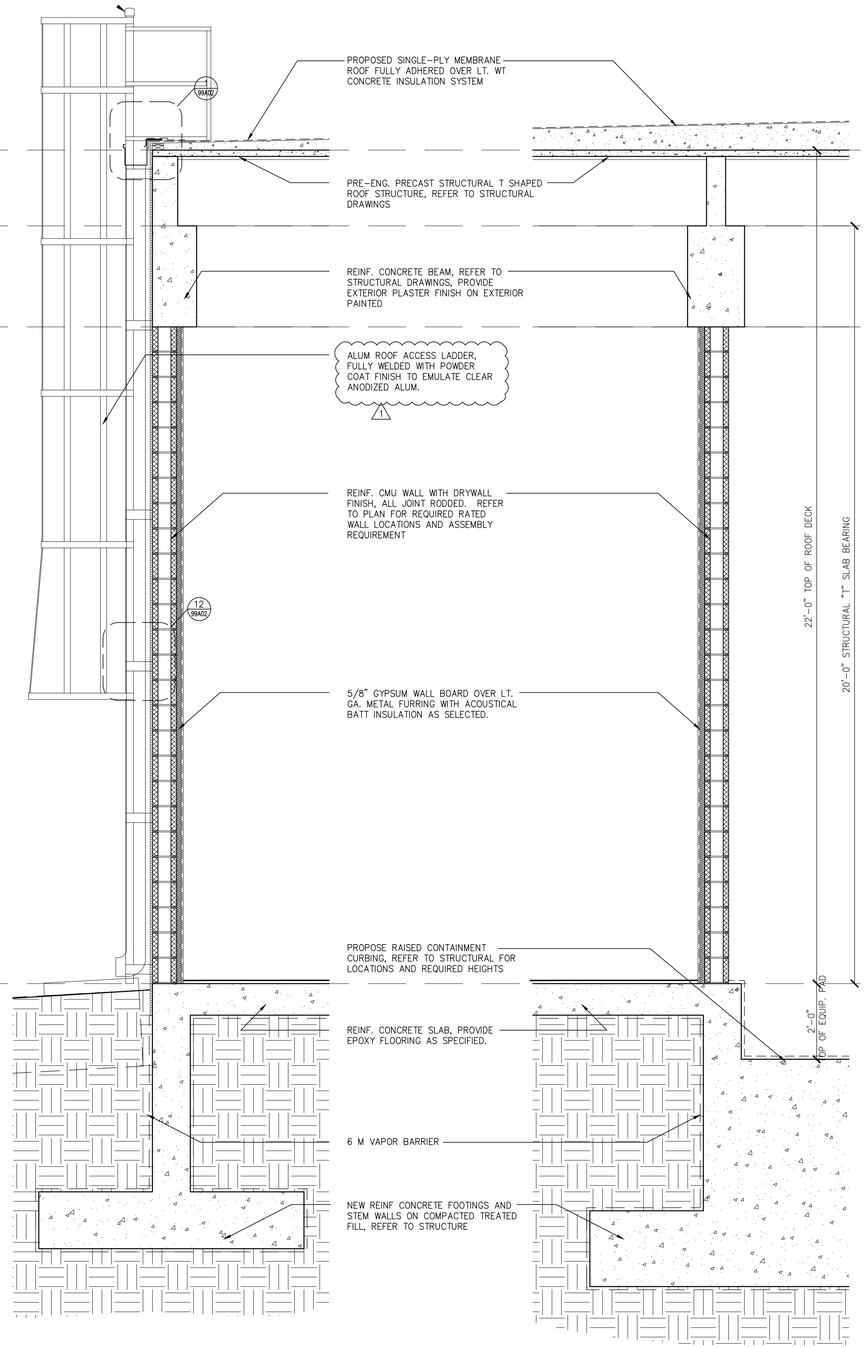

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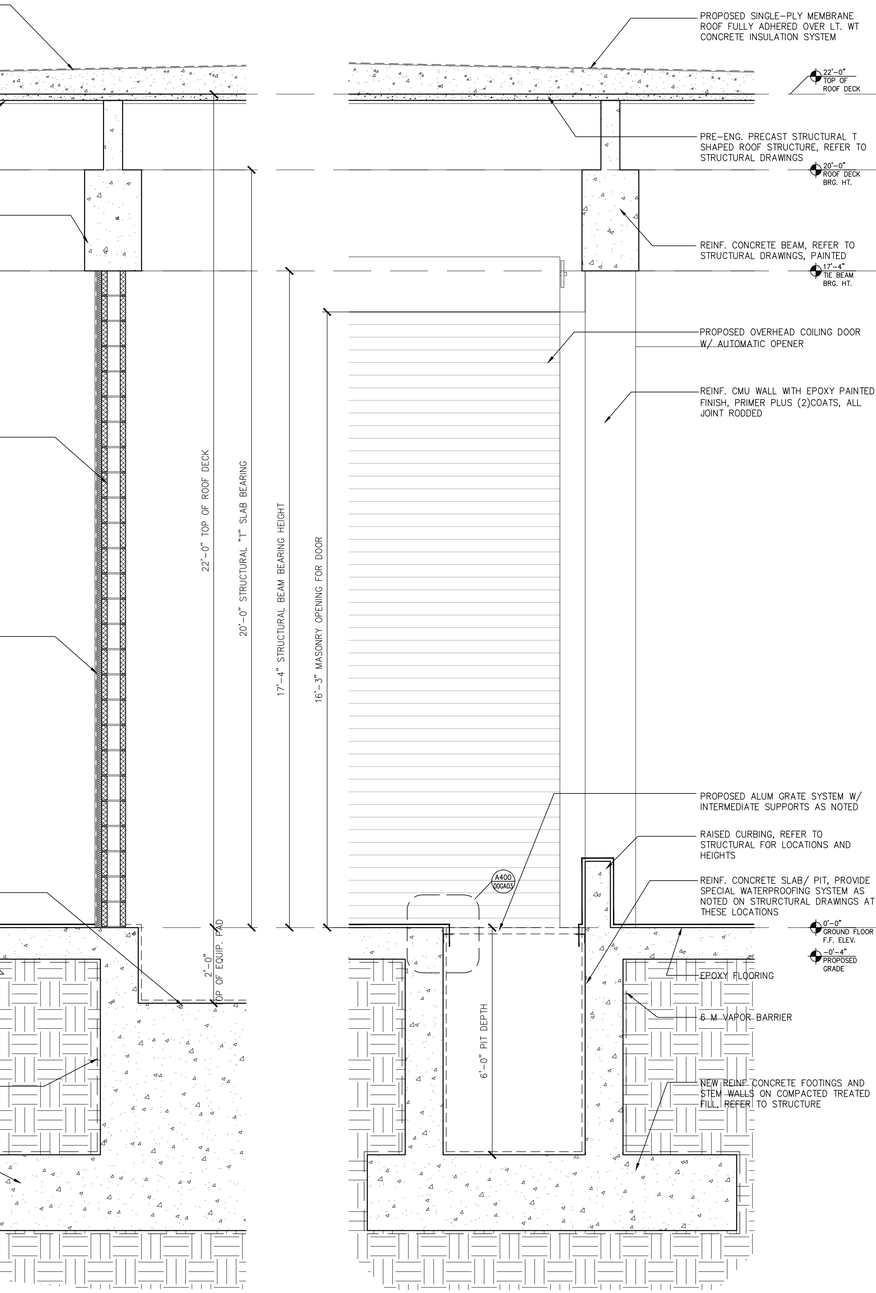

WALL SECTION 2 02A09
SCALE: 1/2" = 1'-0"

WALL SECTION 1 02A09
SCALE: 1/2" = 1'-0"

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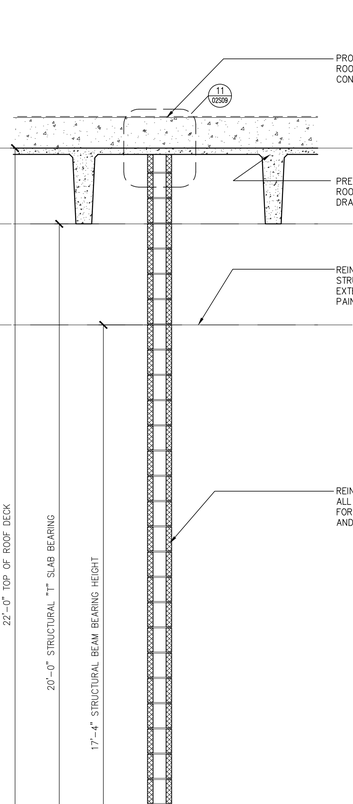

WALL SECTION 4 02A10
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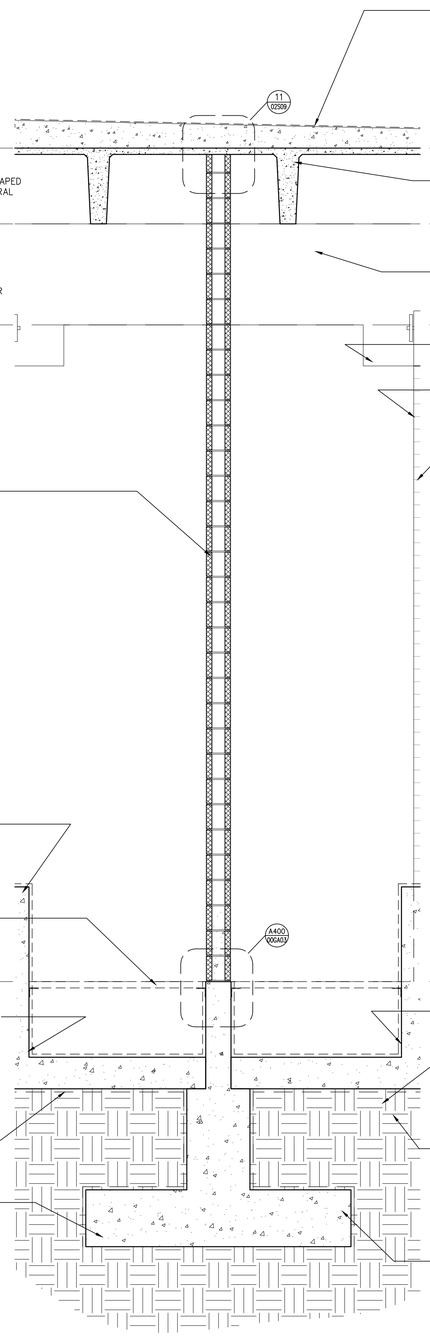

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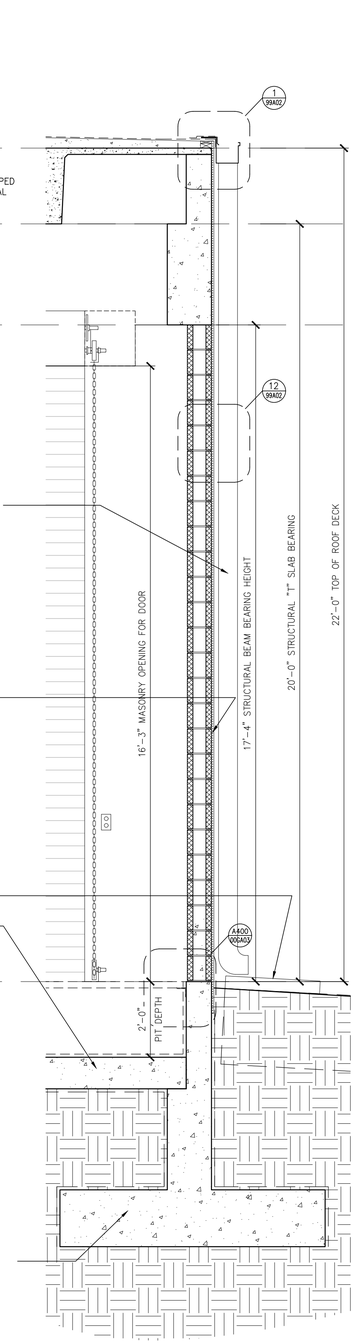

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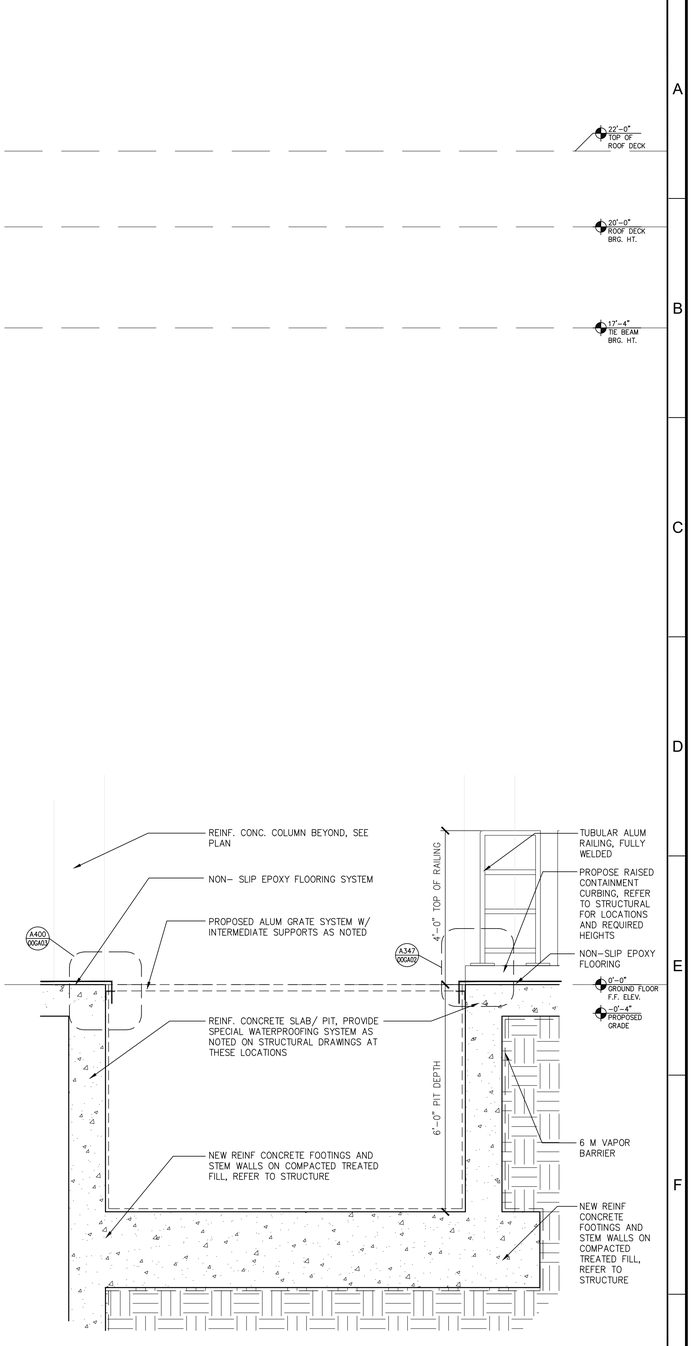

WALL SECTION 1 02A10
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FLORIDA BUILDING CODE 6th EDITION (2017) CODE ANALYSIS

EXISTING BUILDING - ALTERATION LEVEL 3

BUILDING AREA SUMMARY

GROSS FLOOR AREA – FIRST FLOOR _____ 9,113 SQ.FT. (BY REF. TO 1002 OF FBC 6TH ED. 2017)
GROSS FLOOR AREA – SECOND FLOOR _____ 8,139 SQ.FT. (BY REF. TO 1002 OF FBC 6TH ED. 2017)
BUILDING AREA – FIRST FLOOR _____ 11,417 SQ.FT. (BY REF. TO 502.1 OF FBC 6TH ED. 2017)
BUILDING AREA – SECOND FLOOR _____ 11,409 SQ.FT. (BY REF. TO 502.1 OF FBC 6TH ED. 2017)

A. BUILDING OCCUPANCY CLASSIFICATION– Chapter 3 — EXISTING FILTER BUILDING
GROUP "U" – UTILITY

B. GENERAL BUILDING LIMITATIONS – Chapter 5 – TABLE 503

ALLOWABLE BUILDING AREA
GROUP U (TYPE I B, NON–SPRINKLERED) 35,500 S.F./FLOOR _____ 11,417 SQ. FT. (FIRST FLOOR)
11,409 SQ. FT. (SECOND FLOOR)
(BY REF. TO 503 OF FBC 2017)

ALLOWABLE BUILDING HEIGHT
GROUP U (TYPE I B, NON–SPRINKLERED) 5 STORIES 55 FT. _____ EXISTING (2 STORIES) 25'–2" FT±
PROPOSED (2 STORIES) 33'–0" FT±

DISTANCES TO ASSUMED PROPERTY LINES
FRONT _____ EXISTING
REAR _____ EXISTING
SIDES _____ EXISTING

C. CONSTRUCTION TYPE– Chapter 6 TABLE 601

CLASSIFICATION BY TYPE OF CONSTRUCTION
TYPE OF CONSTRUCTION _____ TYPE I B, NON–SPRINKLERED

FIRE–RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours) (EXISTING)
Chapter 6 TABLE 601

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III	TYPE IV	TYPE V	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B
PRIMARY STRUCTURAL FRAME[g] (SEE SECTION 202)	3[e]	2[e]	1	0	1	0	HT	1	0
BEARING WALLS EXTERIOR[c,f,g]	3	2	1	0	2	2	2	1	0
BEARING WALLS INTERIOR	3[e]	2[e]	1	0	1	0	1 HT	1	0
NONBEARING WALLS AND PARTITIONS EXTERIOR	SEE TABLE 602								
NONBEARING WALLS AND PARTITIONS INTERIOR[d]	0	0	0	0	0	0	SEE SECTION 602.4.6	0	0
FLOOR CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202)	2	2	1	0	1	0	HT	1	0
ROOF CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

FIRE–RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS
BASED ON FIRE SEPARATION DISTANCE[c,e,f,h] Chapter 6 TABLE 602 (EXISTING)

FIRE SEPARATION DISTANCE	TYPE OF CONSTRUCTION	GROUP H[i]	GROUP F–1, M, S–1[g]	GROUP A, B, E, F–2, I, R, S–2[g], U[b]
x ≤ 5[a]	ALL	3	2	1
5 ≤ x < 10	I–A OTHERS	3 2	2 1	1 1
10 ≤ x < 30	I–A, I–B II–B, V–B OTHERS	2 1 1	1 0 1	1[c] 0 1[c]
x ≥ 30	ALL	0	0	0

D. MAXIMUM AREA OF EXTERIOR WALLS OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION – Chapter 7 TABLE 705.8 (EXISTING)

CLASSIFICATION OF OPENING	FIRE SEPARATION DISTANCE							
	0 to less than 3 ft.[c,k]	3 to less than 5 ft.[e]	5 to less than 10 ft.[c,j]	10 to less than 15 ft.[c,j]	15 to less than 20 ft.[c,j]	20 to less than 25 ft.[j]	25 to less than 30 ft.[c,j]	greater than 30
UNPROTECTED NONSPRINKLERED	NOT PERMITTED	NOT PERMITTED	10%[b]	15%[b]	25%	45%	70%	NO LIMIT
UNPROTECTED SPRINKLERED	NOT PERMITTED	15%	25%	45%	75%	NO LIMIT	NO LIMIT	NO LIMIT
PROTECTED	NOT PERMITTED	15%	25%	45%	75%	NO LIMIT	NO LIMIT	NO LIMIT

E. INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k] – Chapter 8 TABLE 803.9

GROUP	SPRINKLERED[1]			UNSPRINKLERED		
	EXIT ENCLOSURES AND EXIT PASSAGEWAYS[h,j]	CORRIDORS	ROOMS AND ENCLOSED SPACES[c]	EXIT ENCLOSURES AND EXIT PASSAGEWAYS[c,j]	CORRIDORS	ROOMS AND ENCLOSED SPACES
A–1 & A–2	B	B	C	A	A[g]	B[g]
A–3[f], A–4 & A–5	B	B	C	A	A[g]	C
B, E, M, R–1	B	C	C	A	B	C
R–4	B	C	C	A	B	C
F	C	C	C	B	C	C
H	B	B	C[g]	A	A	B
I–1	B	C	C	A	B	B
I–2	B	B	B[h, i]	A	A	B
I–3	A	A	C	A	A	B
I–4	B	B	B[h, i]	A	A	B
R–2	C	C	C	B	B	C
R–3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	NO RESTRICTIONS			NO RESTRICTIONS		

F. MEANS OF EGRESS – CHAPTER 10

MINIMUM OCCUPANT LOAD TABLE 1004.1.1
MECHANICAL EQUIPMENT AREA _____ (6,568÷300 GROSS) _____ 22 OCCUPANTS
OFFICE AREA _____ (1,548÷100 GROSS) _____ 15 OCCUPANTS
MECHANICAL EQUIPMENT AREA _____ (6,538÷300 GROSS) _____ 22 OCCUPANTS
TOTAL OCCUPANCY LOAD _____ 59 OCCUPANTS

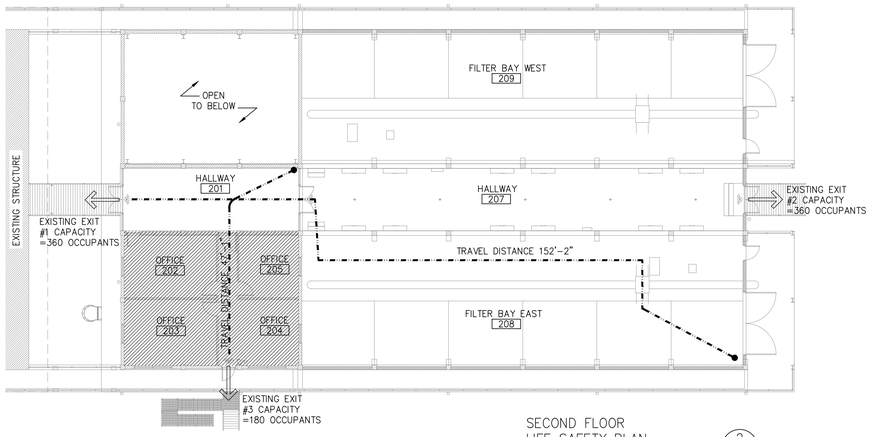
GROUP "U" – UTILITY

MAXIMUM TRAVEL DISTANCE	REQUIRED	PROVIDED
TO EXIT (FT) NON–SPRINKLERED	300'–0" MAX.	152'–2" ±
MAXIMUM DEAD END CORRIDOR (FT)	20'–0"	N/A
EGRESS WIDTH PER PERSON SERVED	0.2 x 59 =11.8"	4@ 72"=1440 / 1@ 36"=180
MINIMUM CORRIDOR / AISLE WIDTH (IN.)	44"	N/A
MINIMUM CLEAR OPENING OF EXIT DOORS (IN.)	32"	72"

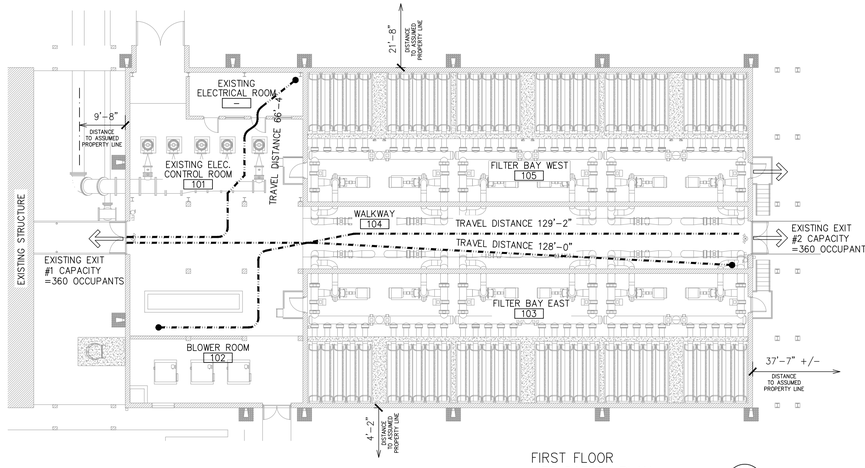
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES – TABLE 1021.2(2)

STORY	OCCUPANCY	MAX. OCCUPANTS PER STORY	MAX. EXIT ACCESS TRAVEL DISTANCE
FIRST STORY OR BASEMENT	A, B[c] E, J[b] M, U, S[b]	49 OCCUPANTS	75 FEET
	H–2, H–3	3 OCCUPANTS	25 FEET
	H–4, H–5, I, R–1 R–2[c] R–4	10 OCCUPANTS	75 FEET
	S	29 OCCUPANTS	100 FEET
SECOND STORY	B, F, M, S	29 OCCUPANTS	75 FEET
THIRD STORY AND ABOVE	NP	NA	NA

GROUP "U" – UTILITY
OCCUPANT LOAD _____ 55 TOTAL
REQUIRED NUMBER OF EXITS _____ 2
EXITS PROVIDED _____ 5 (EXISTING)



SECOND FLOOR
LIFE SAFETY PLAN
SCALE: 1/16" = 1'–0"
2
03A00



FIRST FLOOR
LIFE SAFETY PLAN
SCALE: 1/16" = 1'–0"
1
03A00

NOTE:
FOR CLARITY, REFER TO SECTION AND OTHER DRAWINGS TO BETTER UNDERSTAND VERTICAL LEVELS AND ACTUAL OCCUPIED SPACES.

LIFE SAFETY LEGEND

⇒	FIRE EXIT
- - - -	TRAVEL PATH
E	INDICATES EXISTING UNIT
R	INDICATES RELOCATED UNIT
⊗	EXIT SIGN
⊗	LITHONIA COMBO EXIT / EMERGENCY LIGHT WITH BATTERY BACKUP
⊓	BATTERY BACKUP EMERGENCY LIGHT
(F)	VISUAL SIGNALLY UNIT, FLASHING "FIRE" (NO AUDIO DEVICE) MOUNTED AT 7'–6" A. F. F.
●	MANUAL PULL STATION MOUNTED AT 4'–0" A. F. F.
F*	COMBINATION AUDIBLE/VISUAL SIGNALING UNIT (Chime/flashing "FIRE" light) MOUNTED AT 7'–6" A. F. F. * – INDICATES NEW UNIT
⧓	CEILING SMOKE DETECTOR DD – INDICATES DUCT DETECTOR
ⓘ	HEAT DETECTOR
FE1	FIRE EXTINGUISHER (WALL MOUNTED) (MP–10 UL RATING OF 4A – 60BIC)
FE2	FIRE EXTINGUISHER CABINET SHALL BE BY "LARSEN MANUFACTURING CO.", ARCHITECTURAL SERIES, MODEL #2409–6R, SEMI–RECESSED 2 1/2", STANDARD WHITE FINISH, DUO BREAK GLASS WITH MP–10 FIRE EXTINGUISHER (UL RATING OF 4A–60B:C) OR APPROVED EQUAL.
FACP	FIRE ALARM CONTROL PANEL

GENERAL NOTES:

1. INFORMATION PROVIDED ON FIRE ALARM SYSTEM AND EMERGENCY LIGHTING SHOWN IS FOR INTENT, REFER TO ELECTRICAL DRAWINGS FOR MORE SPECIFIC INFORMATION. PROVIDE SIGNED & SEALED SHOP DRAWINGS AS REQUIRED FOR SUBMITTAL TO FIRE MARSHALL APPROVAL

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0004571
To the best of the architect's or engineer's knowledge, said plans and documents comply with the applicable minimum building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
FILTER BUILDING CODE ANALYSIS AND LIFE SAFETY PLAN

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

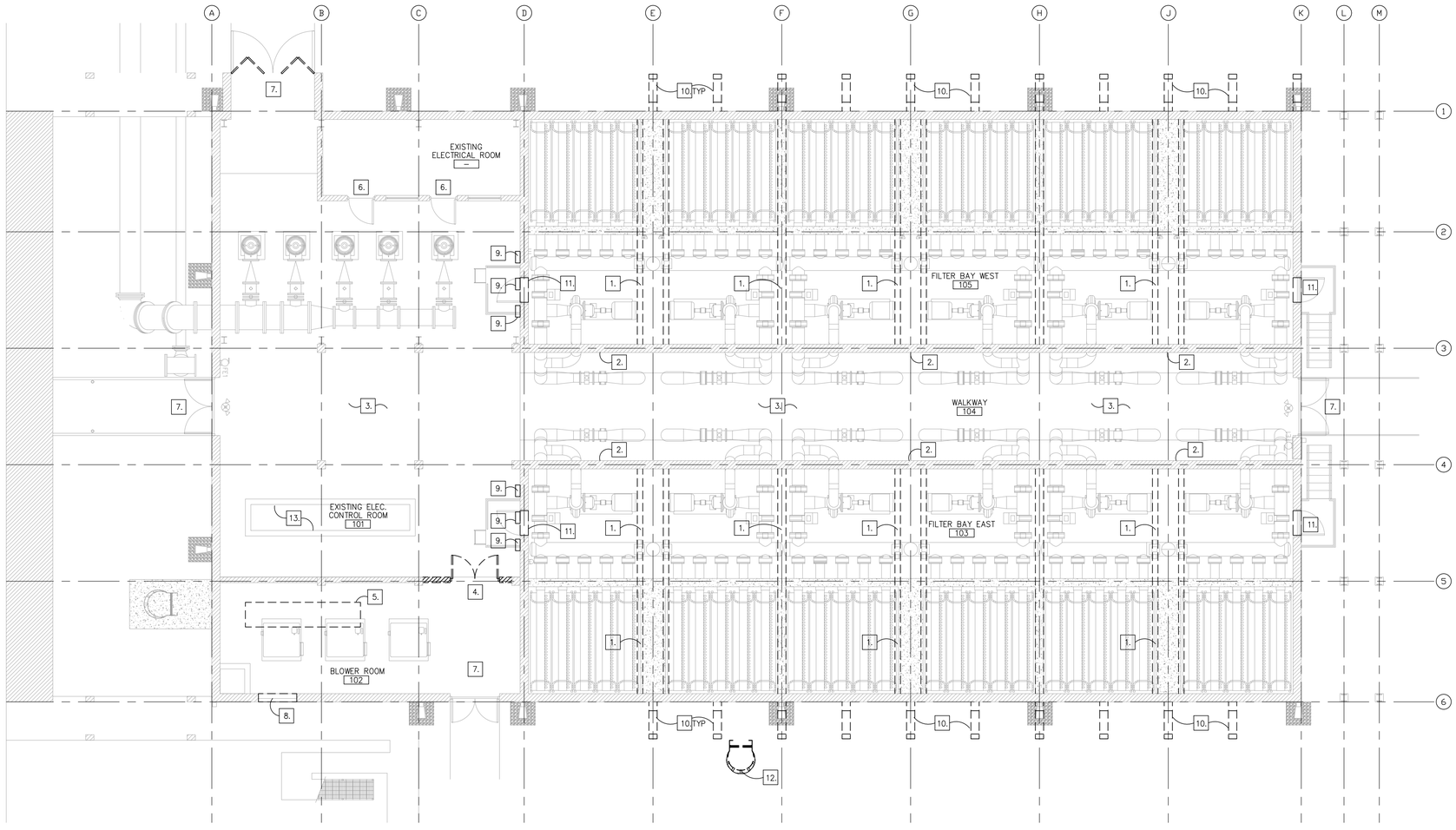
JOB NO. 09520I.10
DRAWING NO. 03A00

DEMOLITION NOTES:

1. REMOVE EXISTING WALL AS SHOWN ON ENGINEERS PLANS TO ACCOMMODATE PROPOSED NEW SYSTEM.
2. REMOVE EXISTING TILE FINISH TO ACCOMMODATE PROPOSED NEW FINISH AS INDICATED.
3. REMOVE EXISTING FLOORING TO ACCOMMODATE PROPOSED NEW AS INDICATED.
4. REMOVE EXITING WALL AND DOORS, CONFIRM EXISTING BEARINGS CONDITIONS.
5. REMOVE EXISTING LOCKERS AND CONCRETE CURB TO ACCOMMODATE PROPOSED NEW EQUIPMENT AS SHOWN.
6. REPLACE EXISTING WITH PROPOSED NEW DOOR.
7. REMOVE EXISTING DOORS AND FRAME AND PROVIDE NEW AS INDICATED.
8. REMOVE PORTIONS OF EXISTING CMU WALL ASSEMBLY TO ACCOMMODATE PROPOSED NEW LOUVER AS SHOWN.
9. REMOVE/RE-WORK EXISTING ELECTRICAL CONTROL PANELS TO ACCOMMODATE PROPOSED NEW PLATFORMS AS SHOWN. COORDINATE W/ ELECTRICAL DRAWINGS FOR NEW ROUTING.
10. DEMOLISH EXISTING CHANNEL SUPPORTS AS REQUIRED TO ACCOMMODATE PROPOSED NEW PIPING LAYOUT. REINFORCE CHANNEL AS REQUIRED, REFER TO STRUCTURAL DRAWINGS.
11. REMOVE PORTION OF EXISTING CMU WALL ASSEMBLY TO ACCOMMODATE PROPOSE NEW DOOR AND FRAME AS NOTED.
12. REMOVE EXISTING ROOF ACCESS LADDER TO ACCOMMODATE PROPOSED NEW RENOVATION.
13. REMOVE EXISTING ELECTRICAL CONTROLS AND SYSTEMS ON TOP OF EXISTING CURB TO ACCOMMODATE PROPOSED NEW ELECTRICAL SYSTEMS, REFER TO ELECTRICAL DRAWINGS FOR MORE DETAIL.

GENERAL NOTES:

1. CONTRACTOR SHOULD TAKE NECESSARY PRECAUTION TO PROTECT AREAS WHERE NO WORK OR MINIMAL WORK IS REQUIRED TO PROTECT EXISTING TO REMAIN.
2. NOTED DEMOLITION MAY NOT SHOW ALL ASSOCIATED WORK REQUIRED WITH PROPOSED DEMOLITION INCLUDING BUT NOT LIMITED TO ELECTRICAL, MECHANICAL, FLOORING AND CEILINGS TO COMPLETE IMPROVEMENTS, BUT ARE REQUIRED TO BE ADDRESSED TO COMPLETE WORK TO A FINISHED PRODUCT.
3. CONTRACTOR SHALL REFER TO OTHER DRAWINGS FOR FULL SCOPE OF WORK REQUIRED THAT MAY NOT BE REFLECTED BUT REQUIRED TO COMPLETE PROJECT.



FIRST FLOOR DEMOLITION PLAN
SCALE: 1/8" = 1'-0"
1 / 03A01

RECORD DOCUMENTS

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CAA	DNB	CAA	APRIL 2025

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MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

ARCHITECTURAL

FILTER BUILDING
FIRST FLOOR DEMOLITION PLAN

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JOB NO. 09520I.10

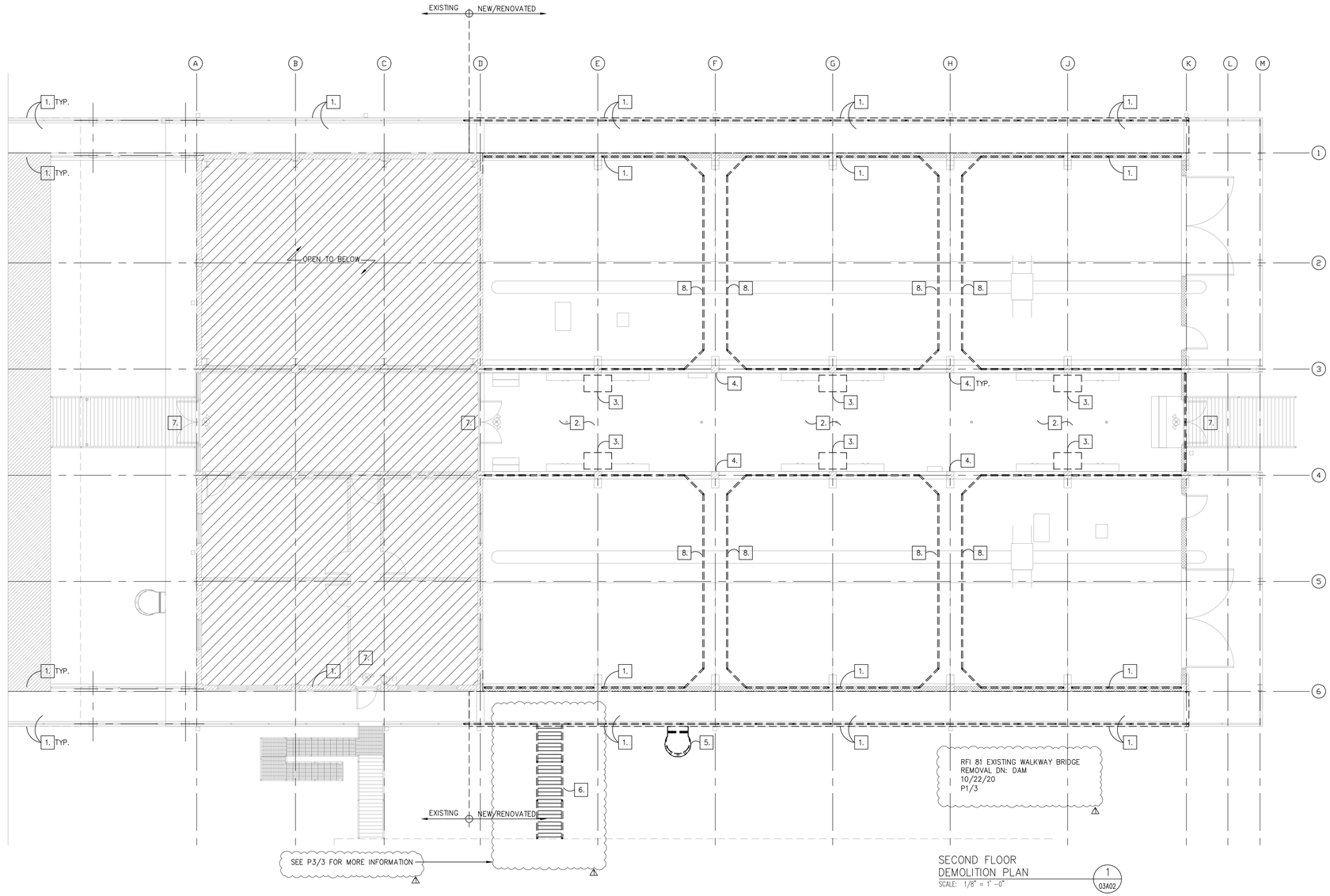
DRAWING NO. 03A01

DEMOLITION NOTES:

1. REMOVE EXISTING GRATE/RAILING TO ACCOMMODATE PROPOSED RAISED CURBING.
2. REMOVE EXISTING TILE FLOOR (SAVE UNBROKEN TILE FOR OWNER) PREP AS REQUIRED TO ACCOMMODATE PROPOSED NEW FLOORING.
3. REMOVE ABANDONED CONTROL BOX AND RAISED CURB TO ACCOMMODATE NEW FLOOR SYSTEM.
4. REMOVE COLUMNS AND PROVIDE NEW AS NOTED.
5. REMOVE EXISTING ROOF ACCESS LADDER TO ACCOMMODATE PROPOSED NEW RENOVATION.
6. REMOVE EXISTING METAL WALKWAY BRIDGE TO ACCOMMODATE PROPOSED NEW RAISED CURB.
7. REMOVE EXISTING DOORS AND FRAME AND PROVIDE NEW AS INDICATED.
8. REMOVE EXISTING RAILING TO ACCOMMODATE PROPOSED NEW MEMBRANE FILTER TANKS.

GENERAL NOTES:

1. CONTRACTOR SHOULD TAKE NECESSARY PRECAUTION TO PROTECT AREAS WHERE NO WORK OR MINIMAL WORK IS REQUIRED TO PROTECT EXISTING TO REMAIN.
2. NOTED DEMOLITION MAY NOT SHOW ALL ASSOCIATED WORK REQUIRED WITH PROPOSED DEMOLITION INCLUDING BUT NOT LIMITED TO ELECTRICAL, MECHANICAL, FLOORING AND CEILINGS TO COMPLETE IMPROVEMENTS, BUT ARE REQUIRED TO BE ADDRESSED TO COMPLETE WORK TO A FINISHED PRODUCT.
3. CONTRACTOR SHALL REFER TO OTHER DRAWINGS FOR FULL SCOPE OF WORK REQUIRED THAT MAY NOT BE REFLECTED BUT REQUIRED TO COMPLETE PROJECT.



SECOND FLOOR
DEMOLITION PLAN
SCALE: 1/8" = 1'-0"
1 / 03A02

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			RECORD DOCUMENTS

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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

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FILTER BUILDING
SECOND FLOOR DEMOLITION PLAN

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JOB NO. 09520I.10
DRAWING NO. 03A02

DEMOLITION NOTES:

1. REMOVE EXISTING ROOF SYSTEM AND DECK TO ACCOMMODATE PROPOSED ADDITION/NEW ROOF SYSTEM.
2. REMOVE EXISTING ROOF SYSTEM DOWN TO LIMITS OF EXISTING AND PROVIDE NEW SINGLE PLY MEMBRANE OVER LIGHT WEIGHT CONCRETE INSULATION AS NOTED. ← NOTE 2: REVISED PER RFI 141, SEE BELOW
3. REMOVE AND RELOCATE EXISTING CONDUIT AS SHOWN. REFER TO ELEVATIONS FOR LIMITS OF DEMOLITION.

GENERAL NOTES:

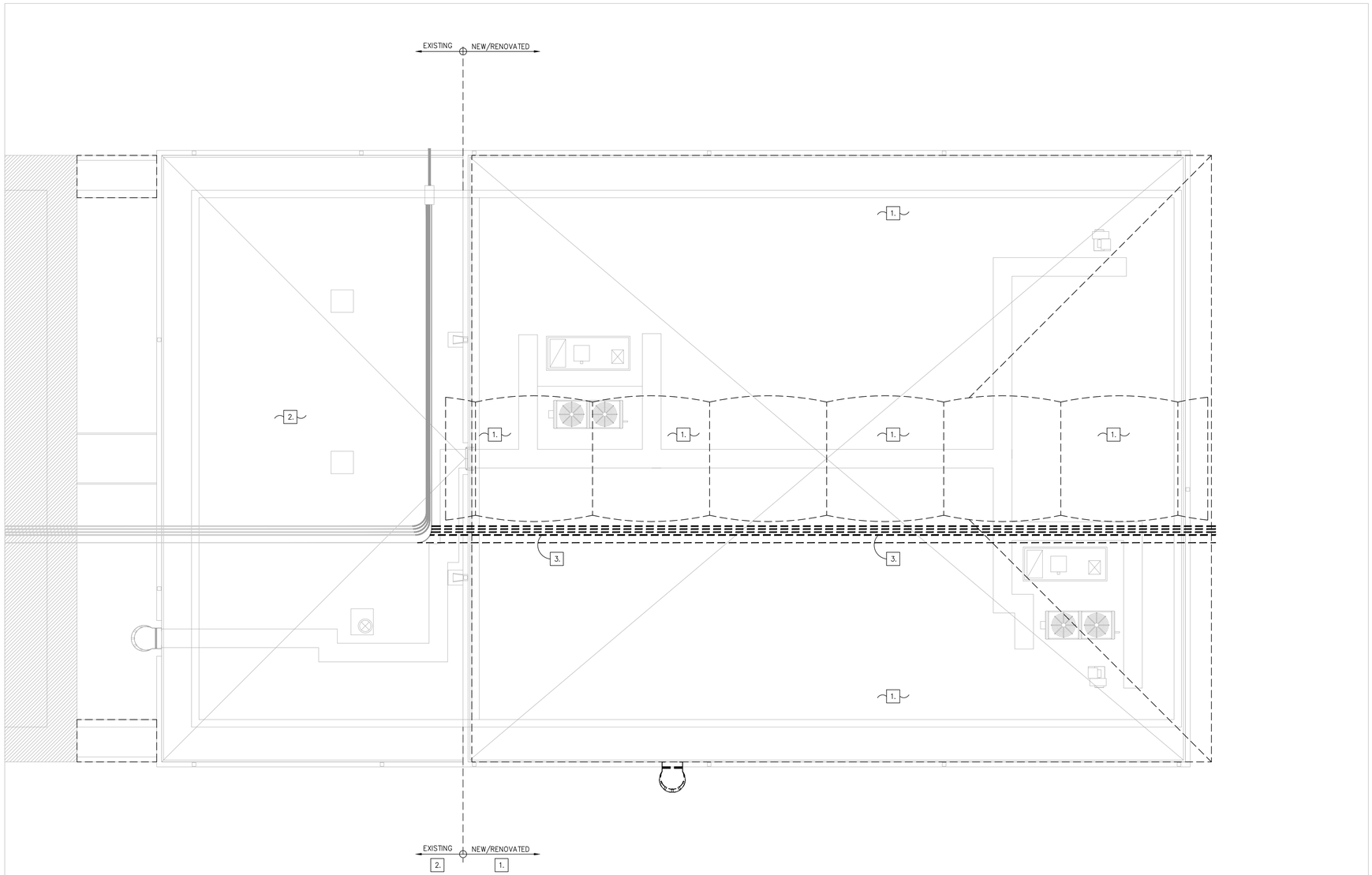
1. CONTRACTOR SHOULD TAKE NECESSARY PRECAUTION TO PROTECT AREAS WHERE NO WORK OR MINIMAL WORK IS REQUIRED TO PROTECT EXISTING TO REMAIN.
2. NOTED DEMOLITION MAY NOT SHOW ALL ASSOCIATED WORK REQUIRED WITH PROPOSED DEMOLITION INCLUDING BUT NOT LIMITED TO ELECTRICAL, MECHANICAL, FLOORING AND CEILINGS TO COMPLETE IMPROVEMENTS, BUT ARE REQUIRED TO BE ADDRESSED TO COMPLETE WORK TO A FINISHED PRODUCT.
3. CONTRACTOR SHALL REFER TO OTHER DRAWINGS FOR FULL SCOPE OF WORK REQUIRED THAT MAY NOT BE REFLECTED BUT REQUIRED TO COMPLETE PROJECT.

THE REVISED SCOPE OF WORK WOULD BE AS FOLLOWS:

IN LIEU OF REMOVING THE AND RE-POURING THE EXISTING TAPERED LIGHTWEIGHT SYSTEM WE WOULD REMOVE THE EXISTING FLEECEBACK MEMBRANE, FULLY ADHERE A LAYER OF NEW ¾" DENSDECK (OR IN KIND BRAND) USING 6" BEAD SPACING AND THEN FULLY ADHERE THE NEW FIBERTITE FLEECEBACK MEMBRANE TO THE NEWLY INSTALLED DENSDECK.

FOR THE AREA WHERE THE TAPERED SYSTEM WAS ALREADY REMOVED WE WILL FULLY ADHERE A TAPERED ISO SYSTEM TO MARRY TO THE EXISTING TAPERED LIGHTWEIGHT TO MATCH THE HEIGHT AND SLOPE

WE WILL INCLUDE A PRESCRIBED NUMBER (FIBERTITE WILL DEFINE WHAT THEY WANT) OF ONE WAY DRIER VENTS THAT WILL ALLOW ANY MOISTURE THAT MAY BE ENTRAPPED IN THE EXISTING SYSTEM TO ESCAPE



ROOF DEMOLITION PLAN (1 / 03A03)
SCALE: 1/8" = 1'-0"

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ROOF DEMOLITION PLAN

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JOB NO. 09520I.10
DRAWING NO. 03A03

GENERAL FLOOR PLAN NOTES:

1.– CONTRACTOR SHALL BE RESPONSIBLE TO FULLY ACQUAINT HIMSELF WITH THE DRAWINGS AND SPECIFICATIONS CONCERNING OTHER TRADES AND SUBCONTRACTS AND SHALL COORDINATE ALL SUBCONTRACTORS TO INSURE PROPER SEQUENCING OF WORK AND SCHEDULING OF TRADES TO AVOID CONFLICT WITH HIS WORK.

2.– ITEMS, MATERIALS OR EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS FURNISHED BY OWNER AND INSTALLED IN THE CONTRACT SHALL BE UNLOADED, UNCRATED, ASSEMBLED, INSTALLED AND CONNECTED BY THE CONTRACTOR AND SHALL BE COMPLETE AND PLACED IN OPERATING ORDER.

3.– BEFORE ORDERING MATERIAL OR STARTING ANY WORK, THE CONTRACTOR SHALL IN ALL CASES VERIFY MEASUREMENTS AT THE SITE OR PREMISES AND CHECK SAME AGAINST DRAWINGS. ANY DIFFERENCE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

4.– THE DRAWINGS ARE DESCRIPTIVE IN NATURE AND REPRESENT BASIC REQUIREMENTS NECESSARY TO PROPERLY CONSTRUCT THE PROJECT. CONTRACTOR SHALL INSPECT AND VERIFY THE SCOPE OF WORK. ANY ADDITIONAL WORK NOT SPECIFICALLY NOTED ON THE DRAWINGS BUT YET APPARENT TO FIELD INSPECTION OR NECESSARY TO SATISFY APPLICABLE CODES IN ORDER TO OBTAIN A CERTIFICATE OF OCCUPANCY SHALL BE CONSIDERED AS PART OF THIS CONTRACT. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR OMISSIONS.

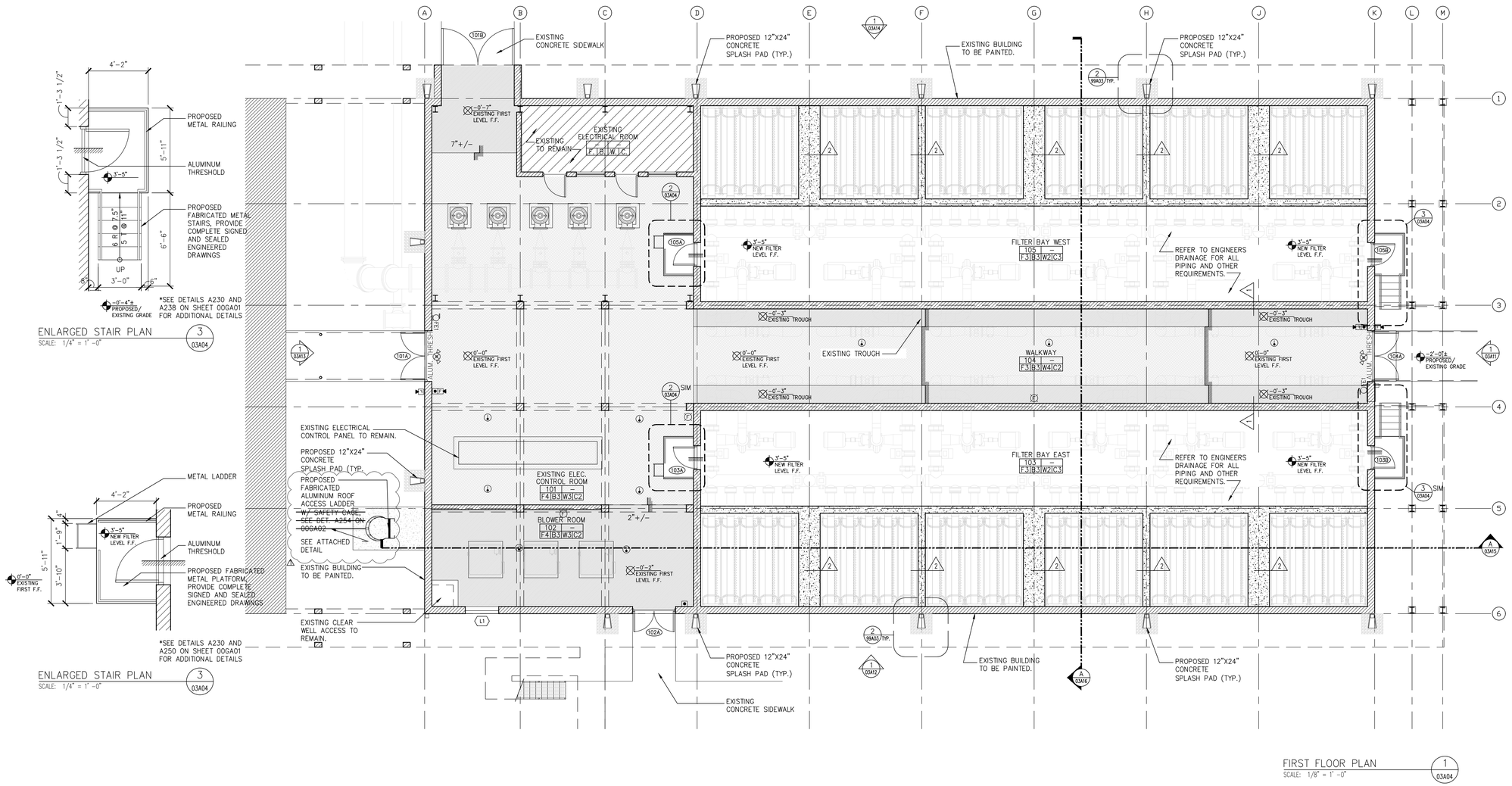
5.– CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

6.– ALL PRODUCT AND MATERIAL INSTALLATIONS SHALL MEET OR EXCEED MANUFACTURER'S RECOMMENDED STANDARDS AND SHALL BE EFFECTIVELY WARRANTED TO OWNER.

7.– THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE LABOR LAWS OF FLORIDA AND WITH ALL OTHER APPLICABLE ORDINANCES, CODES, AND LEGAL REQUIREMENTS BY STATE OR LOCAL AUTHORITIES AS THEY MAY APPLY TO THE PROJECT.

8.– IN CASE OF DISCREPANCY CONCERNING QUALITY AND OR QUANTITY WITHIN THE DOCUMENTS, THE CONTRACTOR SHALL INCLUDE THE BETTER QUALITY AND/OR THE GREATER QUALITY UNLESS OTHERWISE DETERMINED IN WRITING BY THE ARCHITECT.

9.– ALL SURFACES NOT INDICATED BY OMISSION SHALL BE PAINTED.



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

FINISH SCHEDULE

SYMBOL: FLOOR FINISH:

F1	SEALED CONCRETE
F2	OWNER SELECTED TILE
F3	NON SKID 1/4" TROWELED EPOXY FLOOR COATING
F4	THIN MILLAGE EPOXY FLOOR COATING
F5	ALUMINUM GRATING

SYMBOL: BASE FINISH:

B1	VINYL BASE
B2	CERAMIC TILE COVE BASE (O.S.)
B3	NO BASE

SYMBOL: WALL FINISH:

W1	5/8" GYP. BD. LIGHT SPRAY TEXTURE–PTD.
W2	LIQUID APPLIED WATERPROOFING, SEE STRUCT.
W3	EXPOSED BLOCK/CONCRETE, PAINTED (EPOXY)
W4	EXTERIOR PLASTER FINISH

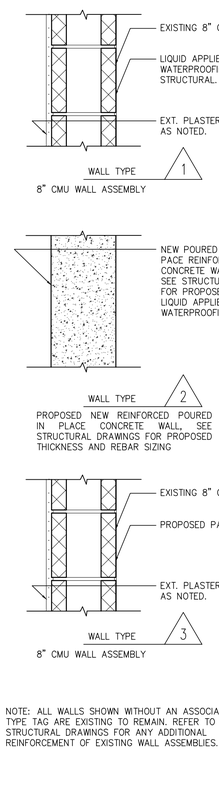
SYMBOL: CEILING FINISH:

C1	5/8" GYP. BD. LIGHT SPRAY TEXTURE–PTD.
C2	EXPOSED CONC. STRUCTURE W/ EPOXY PAINT
C3	OPEN TO STRUCTURE ABOVE

NOTE:

1. PROVIDE SUB FRAMING @ 12" O.C. MIN. AS REQ. BY MANUF. FOR M.R. GYPSUM DRYWALL CEILINGS.
2. ALL EXPOSED BLOCK TO BE PAINTED WITH EPOXY PAINT ARE TO BE RODDED.
3. PROVIDE DIAMOND PLATE FLOORING IN LOCATIONS SHOWN OVER PIPING AND OVERFLOW PITS. PROVIDE STRUCTURAL REINFORCEMENT AS REQUIRED.

WALL TYPE SCHEDULE



WALL TYPE 1
8" CMU WALL ASSEMBLY

WALL TYPE 2
PROPOSED NEW REINFORCED POURED IN PLACE CONCRETE WALL, SEE STRUCTURAL DRAWINGS FOR PROPOSED THICKNESS AND REBAR SIZING

WALL TYPE 3
8" CMU WALL ASSEMBLY

NOTE: ALL WALLS SHOWN WITHOUT AN ASSOCIATED WALL TYPE TAG ARE EXISTING TO REMAIN. REFER TO STRUCTURAL DRAWINGS FOR ANY ADDITIONAL REINFORCEMENT OF EXISTING WALL ASSEMBLIES.

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

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DATE APRIL 2025

Issued By: C. ALAN ANDERSON, FLAA0003471
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FIRST FLOOR PLAN

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JOB NO. 09520I.10
DRAWING NO. 03A04

FLOOR PLAN CONSTRUCTION NOTES:

1. PROPOSED ELECTRICAL CONDUIT TRAY SURFACE MOUNTED TO OVERFLOW CHANNEL AS NOTED ON DETAIL 2 ON DRAWING 0.M.M21. COORDINATE AND ACCOMMODATE DOWNSPOUTS AS REQUIRED TO PROVIDE POSITIVE DRAINAGE FROM PROPOSED NEW GUTTER SYSTEMS ON HIGH ROOF.
2. EXISTING FLOOR DRAINS TO REMAIN, CONTRACTOR TO COORDINATE AND MAINTAIN USE OF FLOOR DRAINS THROUGHOUT CONSTRUCTION. NOTE, FLOOR DRAINS ARE TIED TO GREY WATER STORAGE, SO CONTRACTOR TO ENSURE NO CONSTRUCTION RUNOFF ENTERS FLOOD DRAINS AT ANY POINT DURING CONSTRUCTION.

GENERAL FLOOR PLAN NOTES:

1.– CONTRACTOR SHALL BE RESPONSIBLE TO FULLY ACQUAINT HIMSELF WITH THE DRAWINGS AND SPECIFICATIONS CONCERNING OTHER TRADES AND SUBCONTRACTS AND SHALL COORDINATE ALL SUBCONTRACTORS TO INSURE PROPER SEQUENCING OF WORK AND SCHEDULING OF TRADES TO AVOID CONFLICT WITH HIS WORK.

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3.– BEFORE ORDERING MATERIAL OR STARTING ANY WORK, THE CONTRACTOR SHALL IN ALL CASES VERIFY MEASUREMENTS AT THE SITE OR PREMISES AND CHECK SAME AGAINST DRAWINGS. ANY DIFFERENCE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

4.– THE DRAWINGS ARE DESCRIPTIVE IN NATURE AND REPRESENT BASIC REQUIREMENTS NECESSARY TO PROPERLY CONSTRUCT THE PROJECT. CONTRACTOR SHALL INSPECT AND VERIFY THE SCOPE OF WORK. ANY ADDITIONAL WORK NOT SPECIFICALLY NOTED ON THE DRAWINGS BUT YET APPARENT TO FIELD INSPECTION OR NECESSARY TO SATISFY APPLICABLE CODES IN ORDER TO OBTAIN A CERTIFICATE OF OCCUPANCY SHALL BE CONSIDERED AS PART OF THIS CONTRACT. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR OMISSIONS.

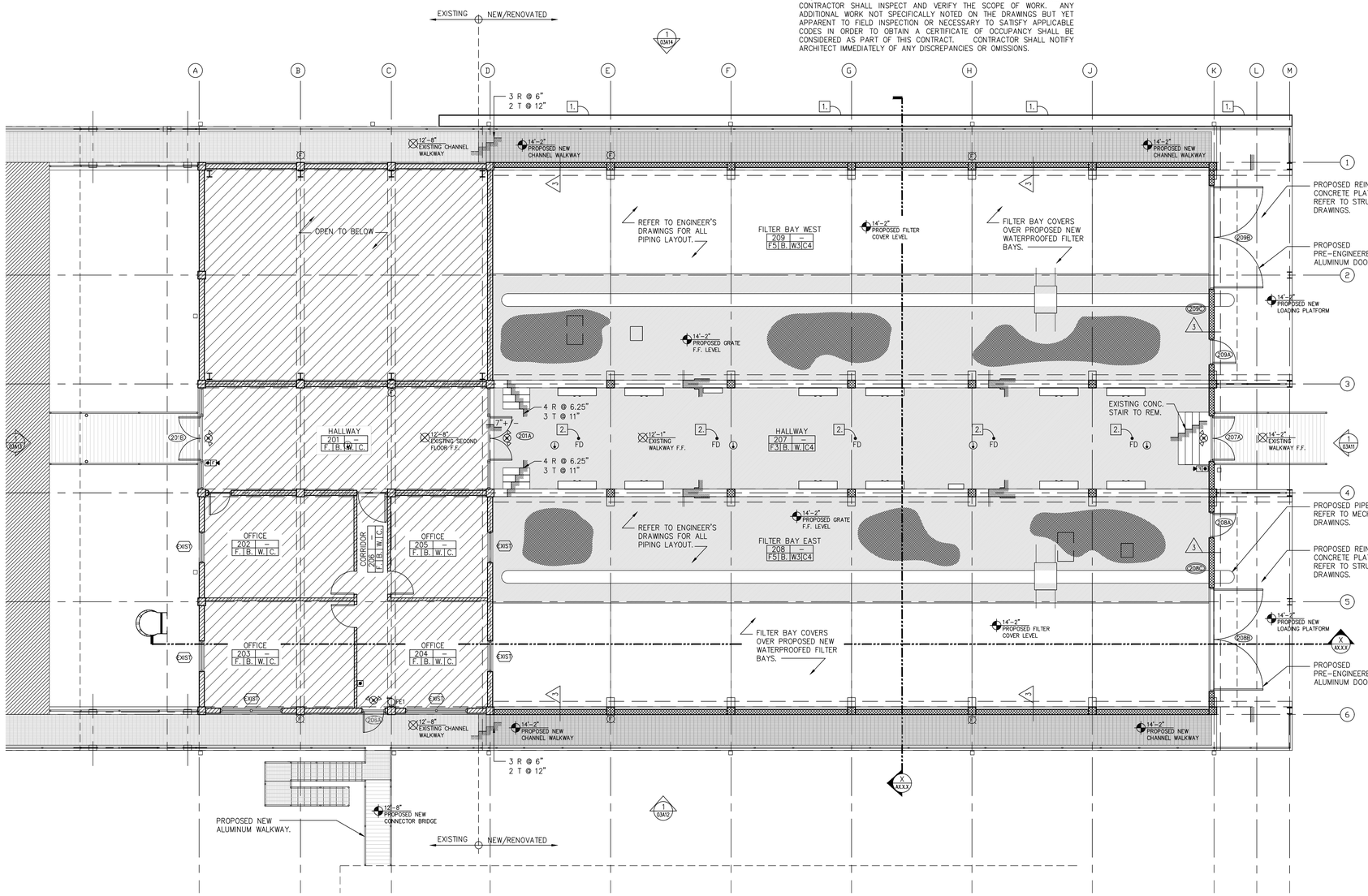
5.– CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

6.– ALL PRODUCT AND MATERIAL INSTALLATIONS SHALL MEET OR EXCEED MANUFACTURER'S RECOMMENDED STANDARDS AND SHALL BE EFFECTIVELY WARRANTED TO OWNER.

7.– THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE LABOR LAWS OF FLORIDA AND WITH ALL OTHER APPLICABLE ORDINANCES, CODES, AND LEGAL REQUIREMENTS BY STATE OR LOCAL AUTHORITIES AS THEY MAY APPLY TO THE PROJECT.

8.– IN CASE OF DISCREPANCY CONCERNING QUALITY AND OR QUANTITY WITHIN THE DOCUMENTS, THE CONTRACTOR SHALL INCLUDE THE BETTER QUALITY AND/OR THE GREATER QUALITY UNLESS OTHERWISE DETERMINED IN WRITING BY THE ARCHITECT.

9.– ALL SURFACES NOT INDICATED BY OMISSION SHALL BE PAINTED.



SECOND FLOOR PLAN (1 / 03A05)
SCALE: 1/8" = 1'-0"

FINISH SCHEDULE

SYMBOL:	FLOOR FINISH:
F1	SEALED CONCRETE
F2	OWNER SELECTED TILE
F3	NON SKID 1/4" TROWELED EPOXY FLOOR COATING
F4	THIN MILLAGE EPOXY FLOOR COATING
F5	ALUMINUM GRATING

SYMBOL:	BASE FINISH:
B1	VINYL BASE
B2	CERAMIC TILE COVE BASE (O.S.)
B3	NO BASE

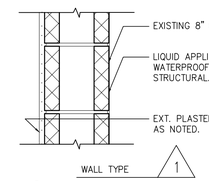
SYMBOL:	WALL FINISH:
W1	5/8" GYP. BD. LIGHT SPRAY TEXTURE-PTD.
W2	LIQUID APPLIED WATERPROOFING, SEE STRUCT.
W3	EXPOSED BLOCK/CONCRETE, PAINTED (EPOXY)
W4	EXTERIOR PLASTER FINISH

SYMBOL:	CEILING FINISH:
C1	5/8" GYP. BD. LIGHT SPRAY TEXTURE-PTD.
C2	EXPOSED CONC. STRUCTURE W/ EPOXY PAINT
C3	OPEN TO STRUCTURE ABOVE

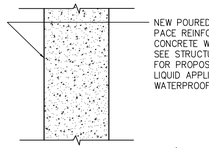
NOTE:

1. PROVIDE SUB FRAMING @ 12" O.C. MIN. AS REQ. BY MANUF. FOR M.R. GYPSUM DRYWALL CEILINGS.
2. ALL EXPOSED BLOCK TO BE PAINTED WITH EPOXY PAINT ARE TO BE RODDED.
3. PROVIDE DIAMOND PLATE FLOORING IN LOCATIONS SHOWN OVER PIPING AND OVERFLOW PITS. PROVIDE STRUCTURAL REINFORCEMENT AS REQUIRED.

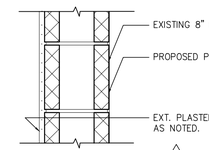
WALL TYPE SCHEDULE



WALL TYPE 1
8" CMU WALL ASSEMBLY



WALL TYPE 2
PROPOSED NEW REINFORCED POURED IN PLACE CONCRETE WALL, SEE STRUCTURAL DRAWINGS FOR PROPOSED THICKNESS AND REBAR SIZING



WALL TYPE 3
8" CMU WALL ASSEMBLY

NOTE: ALL WALLS SHOWN WITHOUT AN ASSOCIATED WALL TYPE TAG ARE EXISTING TO REMAIN. REFER TO STRUCTURAL DRAWINGS FOR ANY ADDITIONAL REINFORCEMENT OF EXISTING WALL ASSEMBLIES.

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0004471
To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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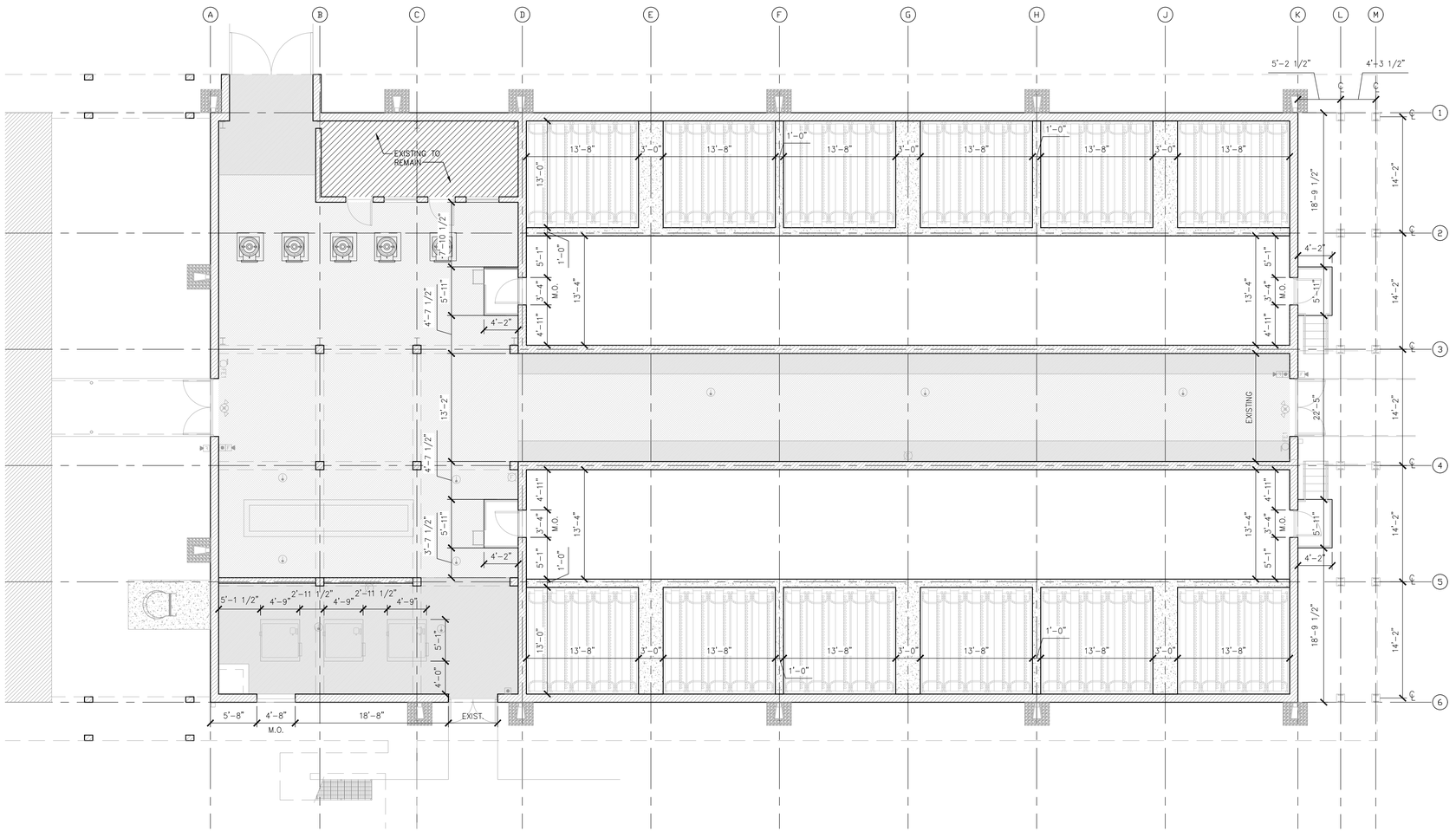
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
FILTER BUILDING
SECOND FLOOR PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03A05

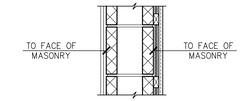


FIRST FLOOR
DIMENSIONS PLAN
SCALE: 1/8" = 1'-0"

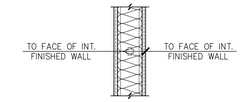
1
03A06

DIMENSION NOTE:

MASONRY WALL DIMENSIONS – ALL MASONRY WALL DIMENSION EITHER INTERIOR OR EXTERIOR ARE FROM FACE OF MASONRY WALL AND NOT FROM FINISHED WALL.



FRAMED WALL DIMENSIONS – ALL FRAMED WALL DIMENSION ARE FROM FACE OF FINISHED WALL AND NOT FROM WALL FRAMING.



DIMENSION PLAN CONSTRUCTION NOTES:

1. PROPOSED MECHANICAL LOUVRE VENT IN MASONRY OPENING, REFER TO MECHANICAL DRAWINGS FOR VENT SIZING. REFER TO ELEVATIONS FOR INSTALLATION HEIGHT ABOVE FINISHED FLOOR.
2. PROPOSED FLOOR HATCH AS SELECTED TO SERVICE RESERVOIR TANK.

RECORD DOCUMENTS

REV	DATE	BY	DESCRIPTION

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

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To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable minimum fire and life safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

MANATEE COUNTY
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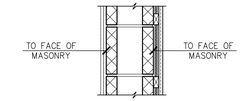
FIRST FLOOR DIMENSIONS PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

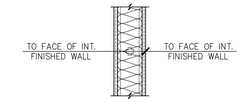
JOB NO. 09520I.10
DRAWING NO. 03A06

DIMENSION NOTE:

MASONRY WALL DIMENSIONS – ALL MASONRY WALL DIMENSION EITHER INTERIOR OR EXTERIOR ARE FROM FACE OF MASONRY WALL AND NOT FROM FINISHED WALL.

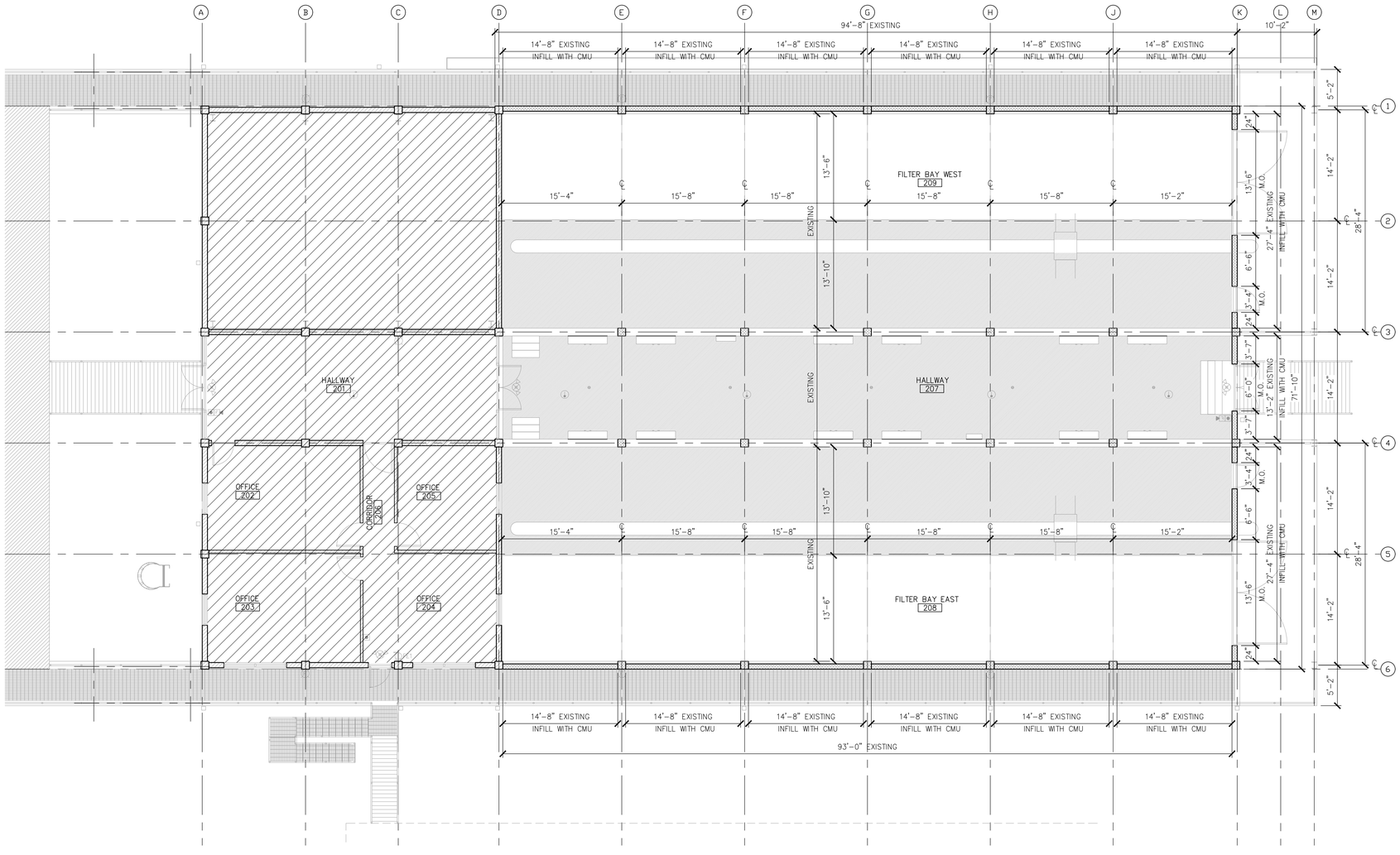


FRAMED WALL DIMENSIONS – ALL FRAMED WALL DIMENSION ARE FROM FACE OF FINISHED WALL AND NOT FROM WALL FRAMING.



DIMENSION PLAN CONSTRUCTION NOTES:

1. PROPOSED MECHANICAL LOUVRE VENT IN MASONRY OPENING, REFER TO MECHANICAL DRAWINGS FOR VENT SIZING. REFER TO ELEVATIONS FOR INSTALLATION HEIGHT ABOVE FINISHED FLOOR.
2. PROPOSED FLOOR HATCH AS SELECTED TO SERVICE RESERVOIR TANK.



SECOND FLOOR DIMENSIONS PLAN
SCALE: 1/8" = 1'-0"
1 / 03A07

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
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DATE APRIL 2025

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To the best of the architect's or engineer's knowledge, said plans and documents comply with the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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SECOND FLOOR DIMENSIONS PLAN

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03A07

INSULATED LIGHTWEIGHT CONCRETE:
BASIS OF DESIGN SHALL BE INSULCEL INSULATING CONCRETE BY SIPLAST OR APPROVED EQUAL. INSULCEL CONCRETE IS A MIXTURE OF CELLULAR FOAM AND PORTLAND CEMENT/WATER SLURRY AND IS PLACED AT A MINIMUM OF 2" THICKNESS OVER THE INSULPERM RIGID INSULATION. INSULCEL CONCRETE HAS A MINIMUM DRY DENSITY OF 30 PCF (481 kg/m³) AND PROVIDES A MINIMUM COMPRESSION STRENGTH OF 200 PSI (1378.96 kPa)

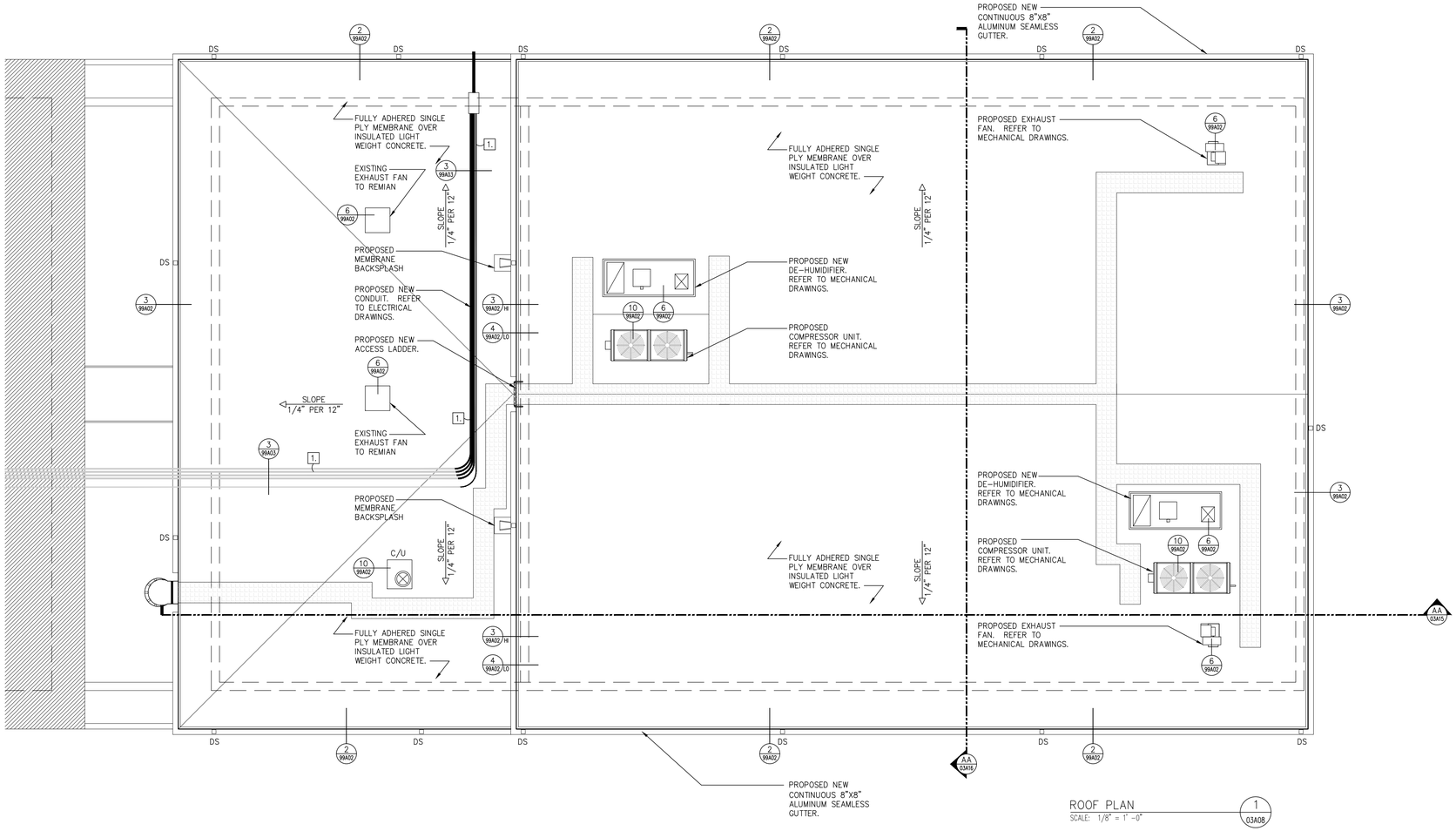
ROOF INSULATION:
BASIS OF DESIGN SHALL BE INSULPERM RIGID EXPANDED POLYSTYRENE FOAM INSULATION BOARD (MIN. R-38) BY SIPLAST AS PART OF THE INSULCEL ROOF SYSTEM.

SINGLE PLY MEMBRANE
BASIS OF DESIGN SHALL BE FIBERTITE 8540 SM BY SEAMANS, 45 MIL MINIMUM THICKNESS, EXPOSED COLOR BEIGE OR WHITE. SUBMIT COMPLETE SHOP DRAWINGS ON ATTACHMENT AND TEST DATA, DETAILS, & SAMPLES.

ROOFING PROTECTION MATERIAL
BASIS OF DESIGN SHALL BE FIBERTITE TUFF-TRAC PROTECTION MATERIAL 46 X 44/1,000 X 1,000 DENIER WOVEN POLYESTER FABRIC REINFORCEMENT, COATED WITH A PROPRIETARY YELLOW SEAMAN CORPORATION KEE FORMULATION AND EMBOSSED WITH A LOW PROFILE DIAMOND PLATE DESIGN.

ROOFING CONSTRUCTION NOTE:

1. PROPOSED NEW AND EXISTING MEDIUM VOLTAGE CONDUIT TO BE RUN OVER PROPOSED NEW ROOFING SYSTEM AS SHOWN. SEQUENCING AND COORDINATION OF THE CONDUIT REPLACEMENT AND RE-ROOFING OVER EXISTING OFFICE SPACE AND HALLWAY IS THE RESPONSIBILITY OF THE CONTRACTOR.



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			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0004571
To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable portions of the Florida Accessibility Code for Building Construction in accordance with Chapters 553 and 633, Florida Statutes.

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MANATEE COUNTY
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FILTER BUILDING ROOF PLAN

VERIFY SCALES
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0 1"
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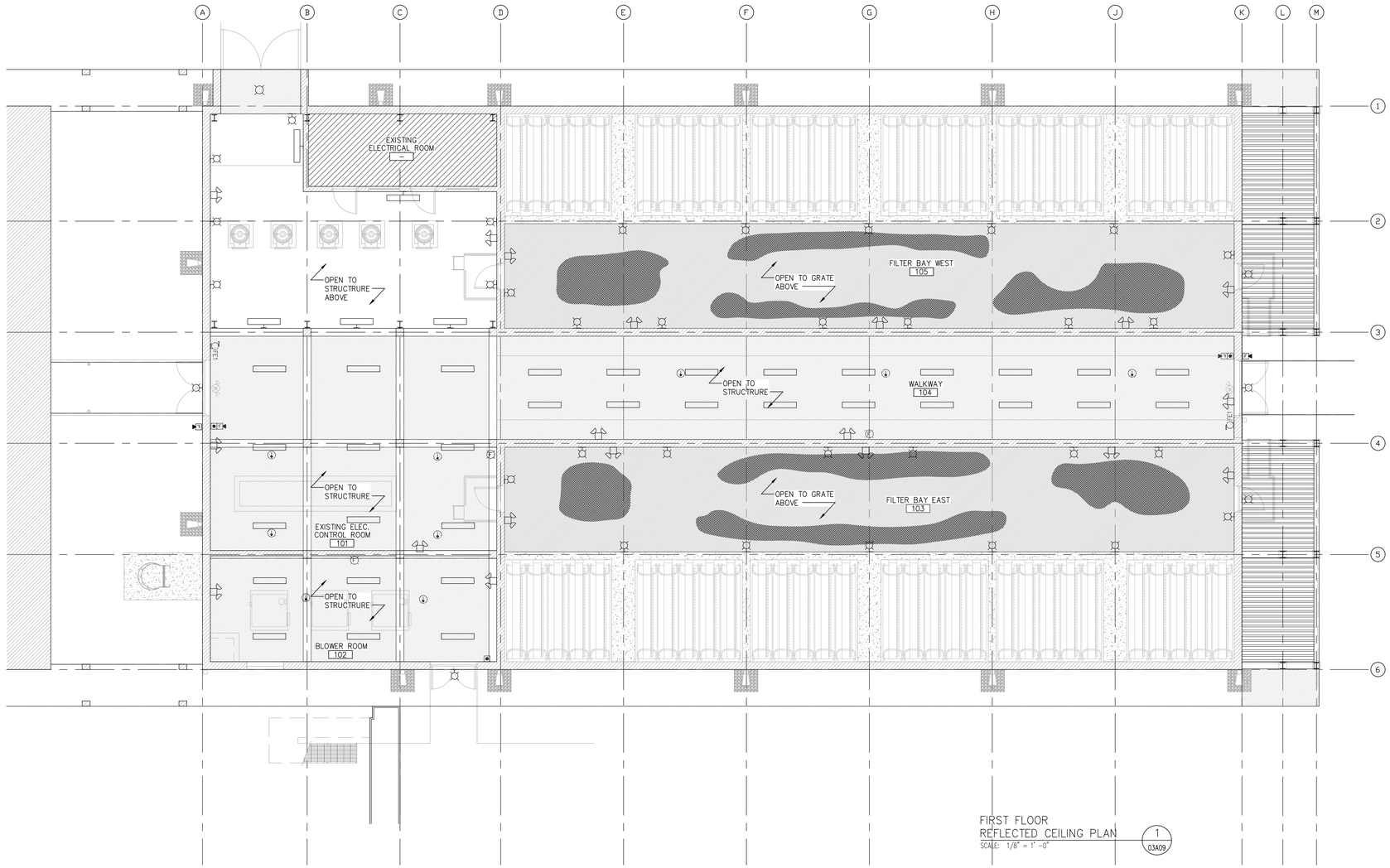
JOB NO. 09520I.10
DRAWING NO. 03A08



FIRST FLOOR
REFLECTED CEILING PLAN (1 / 03A09)
SCALE: 1/8" = 1'-0"

REFLECTED CEILING – LEGEND	
	2 x 4 LAY-IN FLUORESCENT LIGHT FIXTURE
	2 x 1 CEILING HUNG LED LIGHT FIXTURE
	WALL MOUNTED LED STRIP
	WALL MOUNTED WALL PAC LIGHT
	CEILING HUNG PENDANT LED LIGHT FIXTURE
	EXHAUST FAN UNIT ON ROOF
	DE-HUMIDIFIER UNIT ON ROOF
	EXPOSED STRUCTURAL STEEL DECK
	EXPOSED STRUCTURAL CEILING
	ACOUSTICAL LAY-IN TILE GRID

ELECTRICAL ROOM CEILING GRID/TILE BASIS OF DESIGN:

TILE: 2x2 ARMSTRONG – DUNE SQUARE LAY-IN CEILING TILE OR AS SELECTED BY OWNER.

GRID: ARMSTRONG – PRELUDE XL 15/16" EXPOSED "T" SYSTEM GRID OR AS EXISTING.

ALTERNATE CEILING TILE BASIS OF DESIGN:

AS AN ALTERNATE SUB-CONTRACTOR SHALL PROVIDE SEPERATE PRICING FOR SPECIFIED WASHABLE TILE THROUGHOUT.

SPRINKLER NOTES:

INFORMATION IS DIAGRAMMATIC FOR INTENT ONLY. FIRE SPRINKLER SUB-CONTRACTOR TO SUBMIT COMPLETE SHOP DRAWINGS AS REQUIRED FOR SPRINKLER SYSTEM MODIFICATIONS FOR PROPOSED LAYOUT AS REQUIRED.

HVAC NOTES:

HVAC GRILLS AS SHOWN ARE DIAGRAMMATIC FOR INTENT ONLY. MECHANICAL SUB CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REDISTRIBUTION ON AC FROM EXISTING UNITS. EXISTING UNITS TO BE FLUSHED W/ NEW FILTERS.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0014171
To the best of the architect's or engineer's knowledge, said plans and specifications conform to the minimum requirements and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
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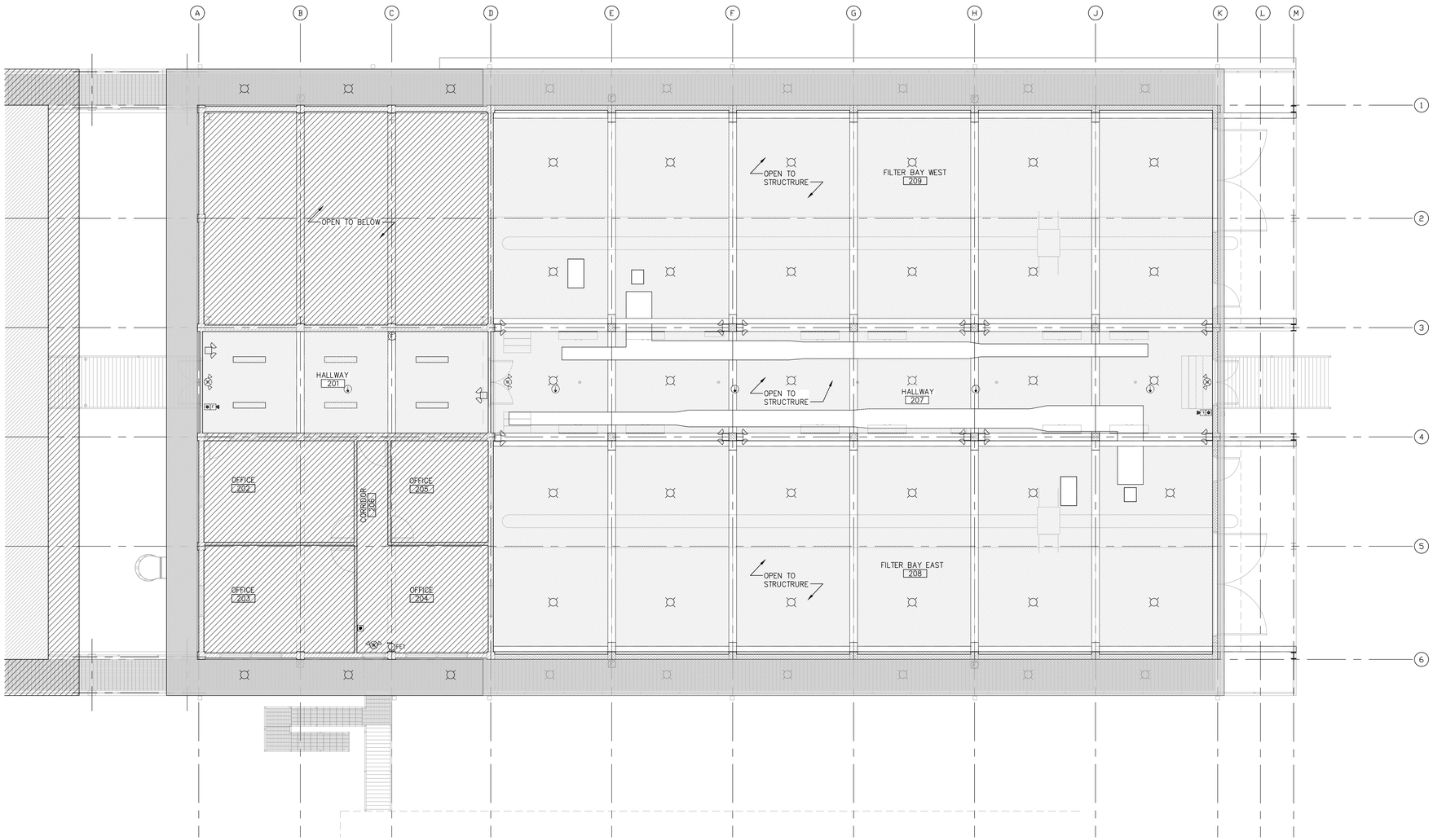
FIRST FLOOR REFLECTED CEILING PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03A09



SECOND FLOOR
REFLECTED CEILING PLAN (1 / 03A10)
SCALE: 1/8" = 1'-0"

REFLECTED CEILING – LEGEND	
	2 x 4 LAY-IN FLUORESCENT LIGHT FIXTURE
	2 x 1 CEILING HUNG LED LIGHT FIXTURE
	WALL MOUNTED LED STRIP
	WALL MOUNTED WALL PAC LIGHT
	CEILING HUNG PENDANT LED LIGHT FIXTURE
	EXHAUST FAN UNIT ON ROOF
	DE-HUMIDIFIER UNIT ON ROOF
	EXPOSED STRUCTURAL STEEL DECK
	EXPOSED STRUCTURAL CEILING
	ACOUSTICAL LAY-IN TILE GRID

ELECTRICAL ROOM CEILING GRID/TILE BASIS OF DESIGN:

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GRID: ARMSTRONG – PRELUDE XL 15/16" EXPOSED "T" SYSTEM GRID OR AS EXISTING.

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SPRINKLER NOTES:

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HVAC NOTES:

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REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

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SECOND FLOOR REFLECTED CEILING PLAN

VERIFY SCALES
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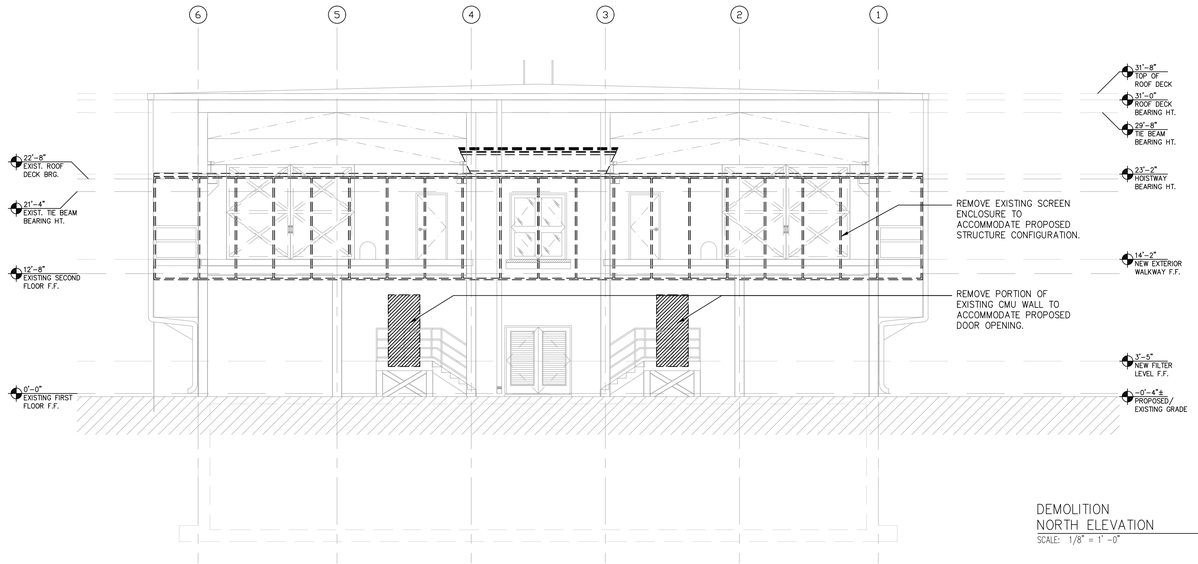
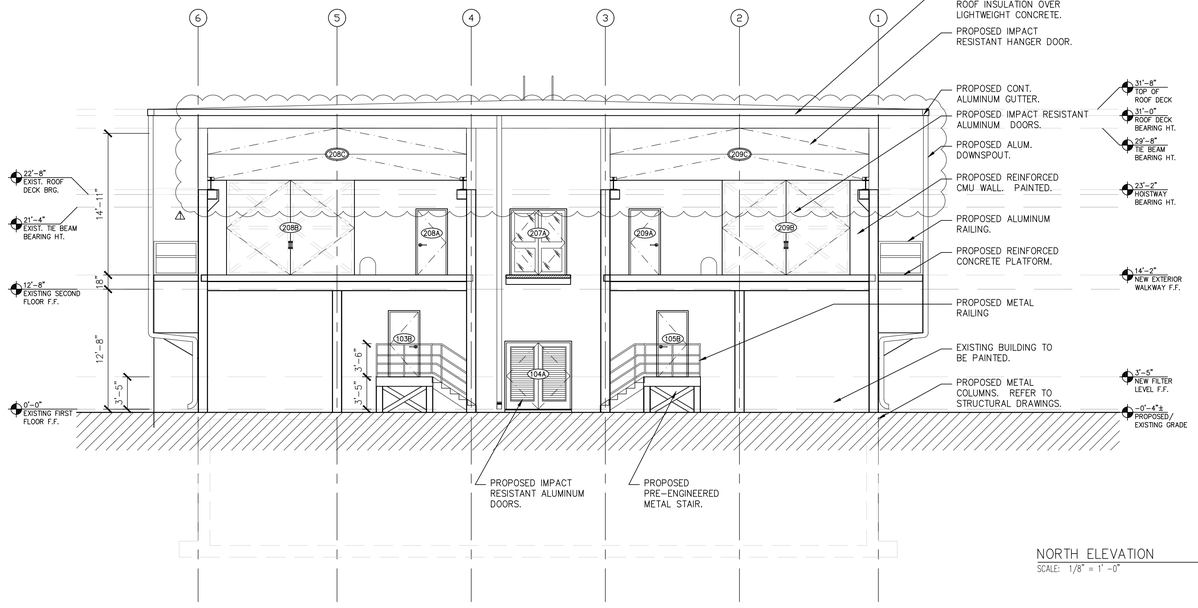
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03A10



DEMOLITION
NORTH ELEVATION
SCALE: 1/8" = 1'-0"

2
03A11



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

1
03A11

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
FILTER BUILDING
NORTH ELEVATION

VERIFY SCALES
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0 1"
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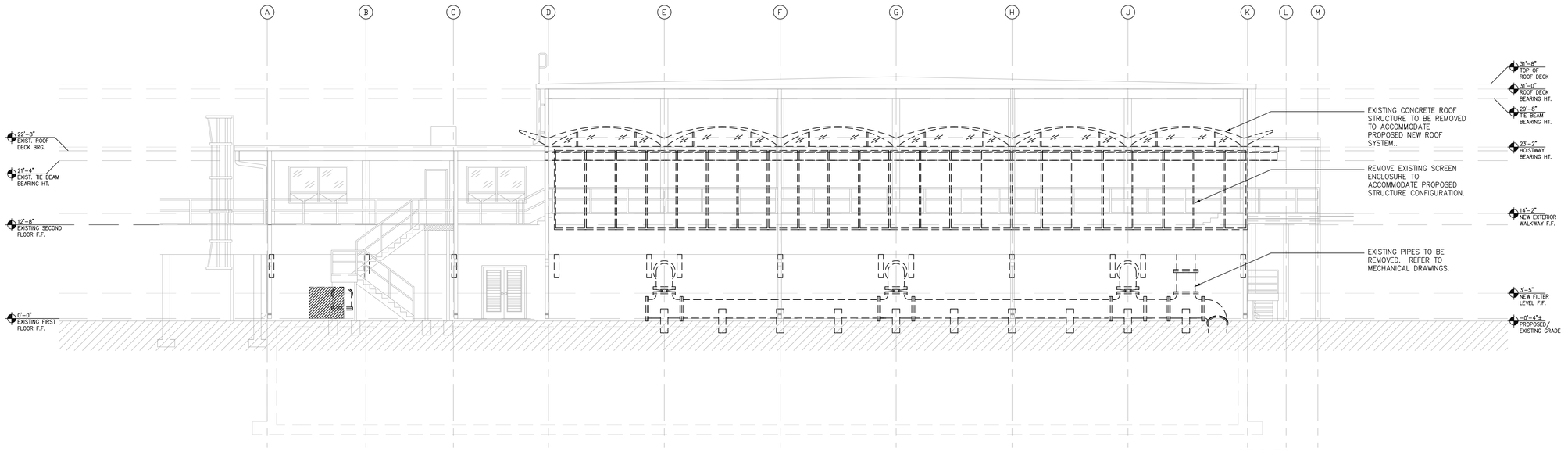
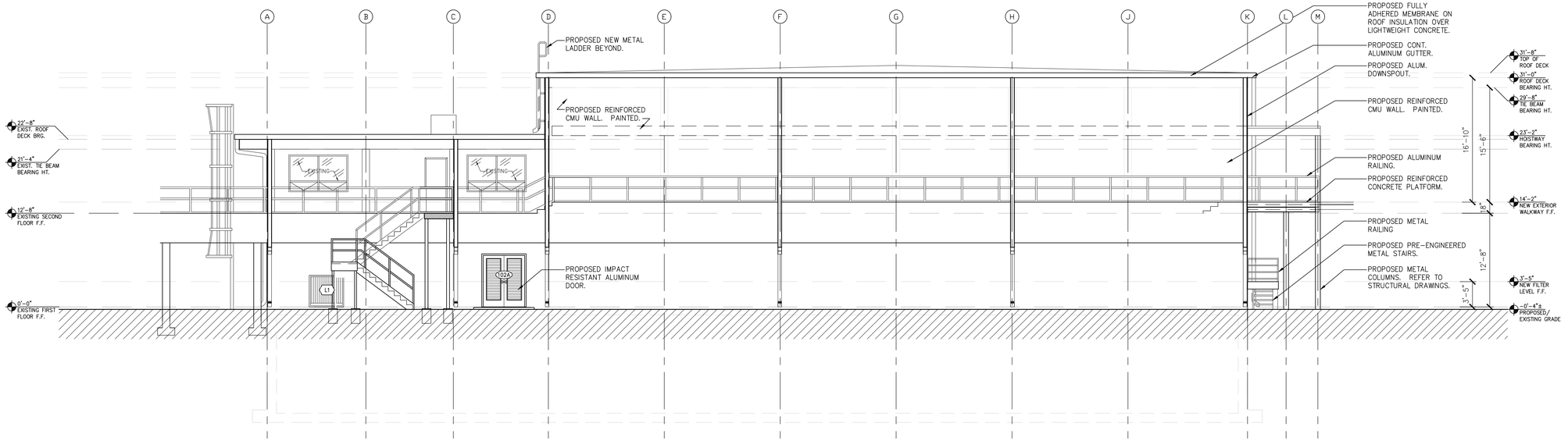
JOB NO. 09520I.10
DRAWING NO. 03A11



DEMOLITION
EAST ELEVATION
SCALE: 1/8" = 1'-0"

2
03A12



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

1
03A12

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0034471
To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable portions of the Florida Building Code in accordance with Chapters 553 and 633, Florida Statutes.

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MANATEE COUNTY
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FILTER BUILDING
EAST ELEVATION

VERIFY SCALES
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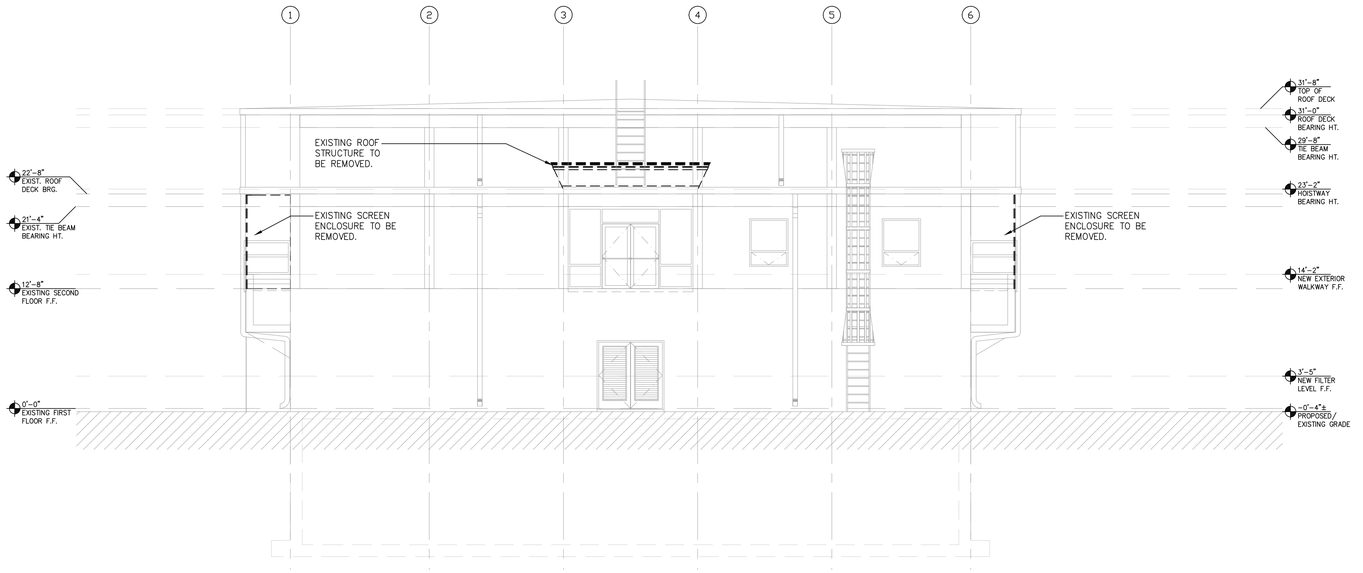
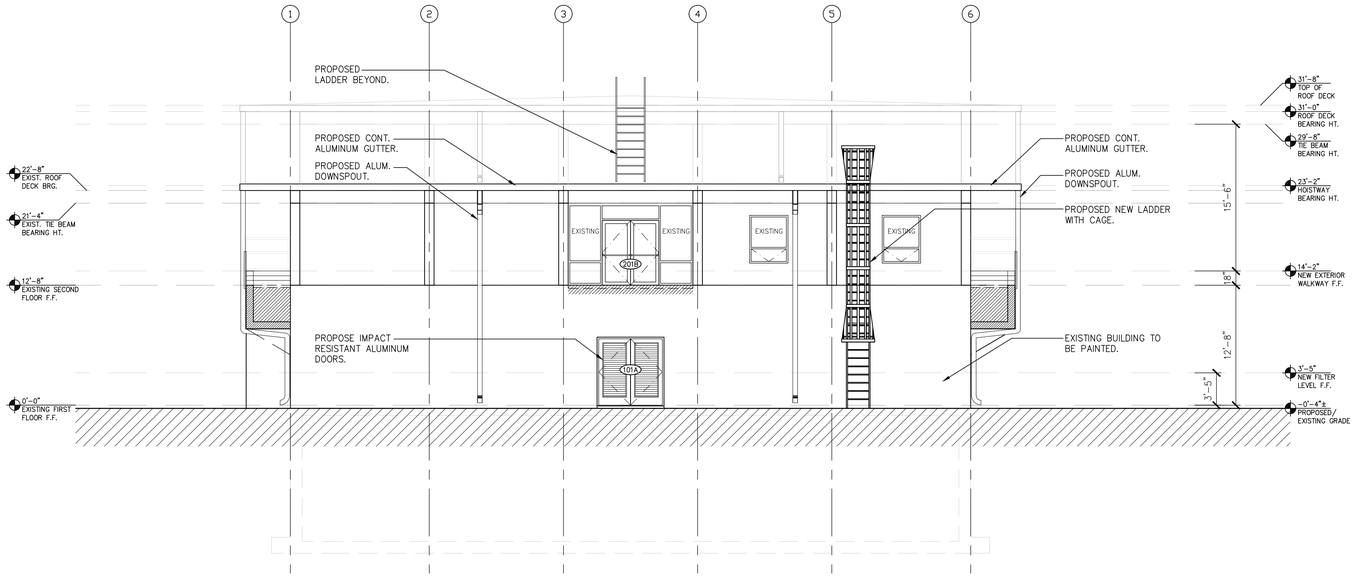
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03A12



DEMOLITION
SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

2
03A13



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

1
03A13

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0034371
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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
FILTER BUILDING
SOUTH ELEVATION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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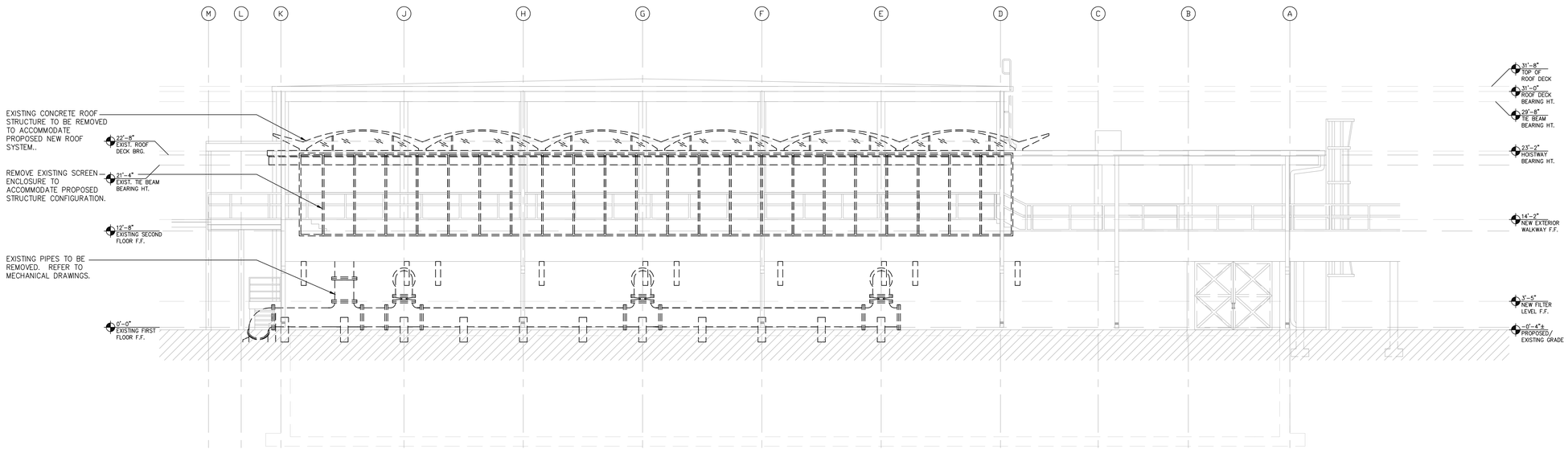
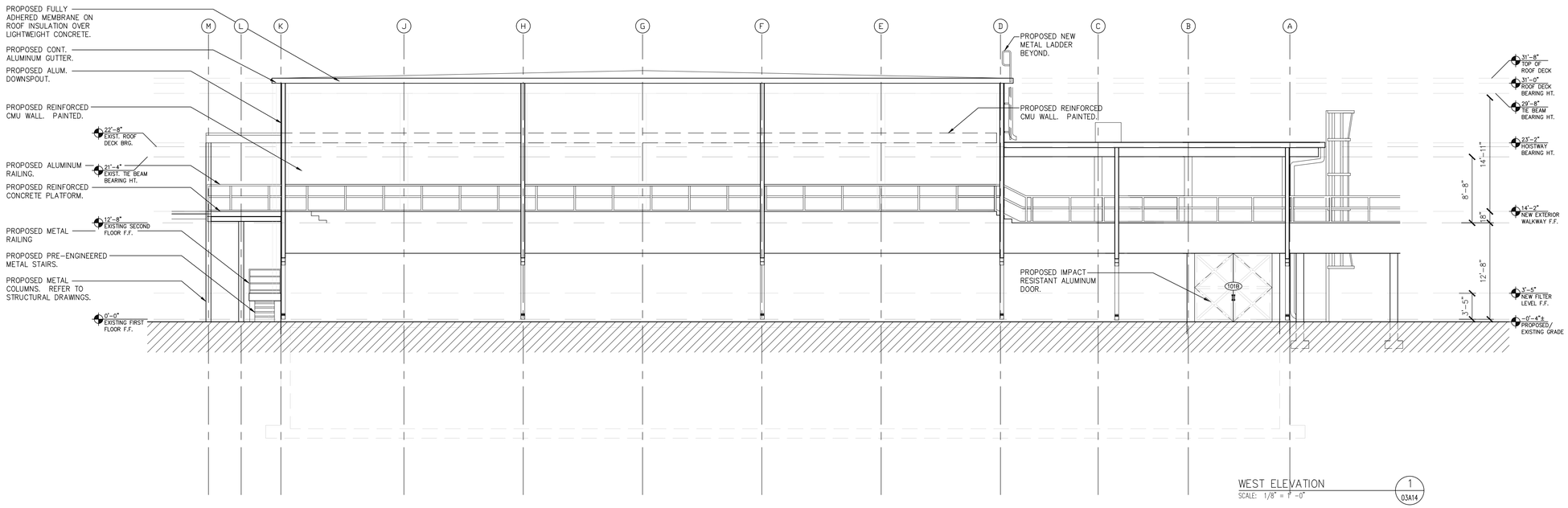
JOB NO. 09520I.10
DRAWING NO. 03A13



DEMOLITION
WEST ELEVATION
SCALE: 1/8" = 1'-0"
2
03A14



WEST ELEVATION
SCALE: 1/8" = 1'-0"
1
03A14

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable portions of the Florida Accessibility Code in accordance with Chapters 553 and 633, Florida Statutes.

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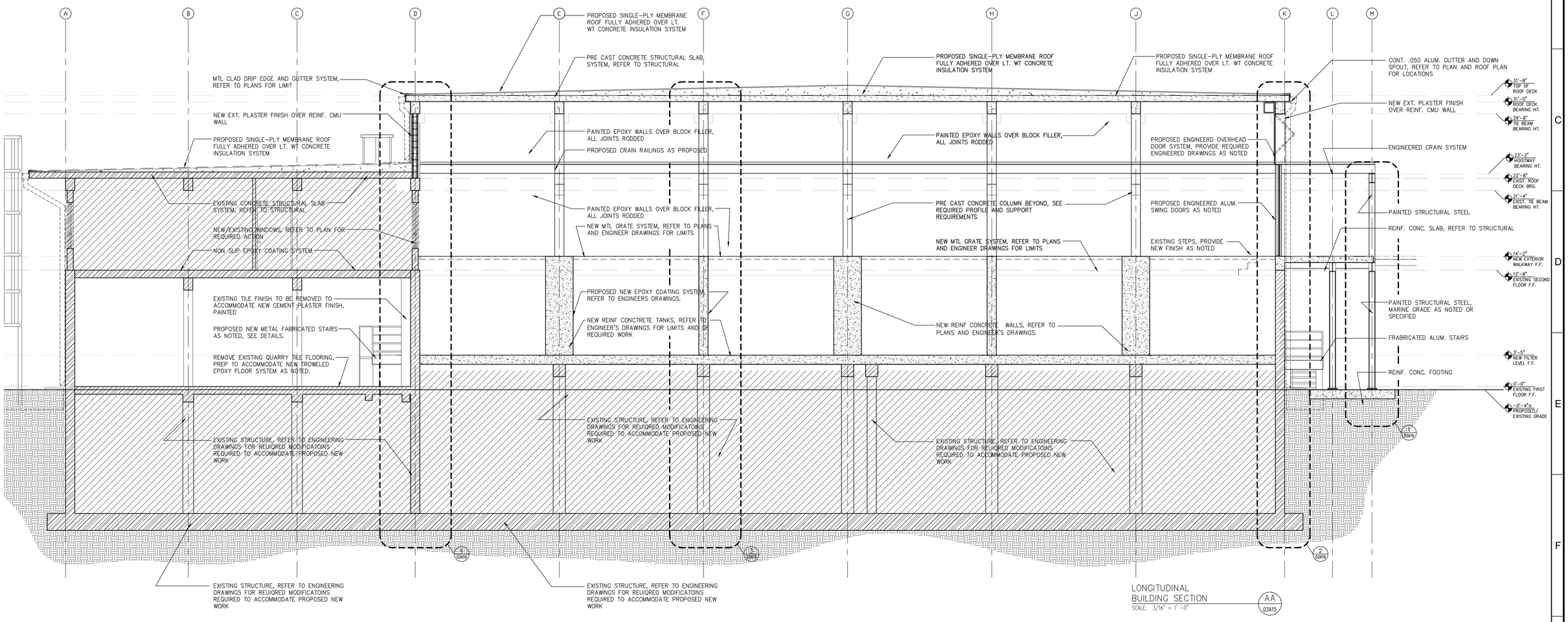

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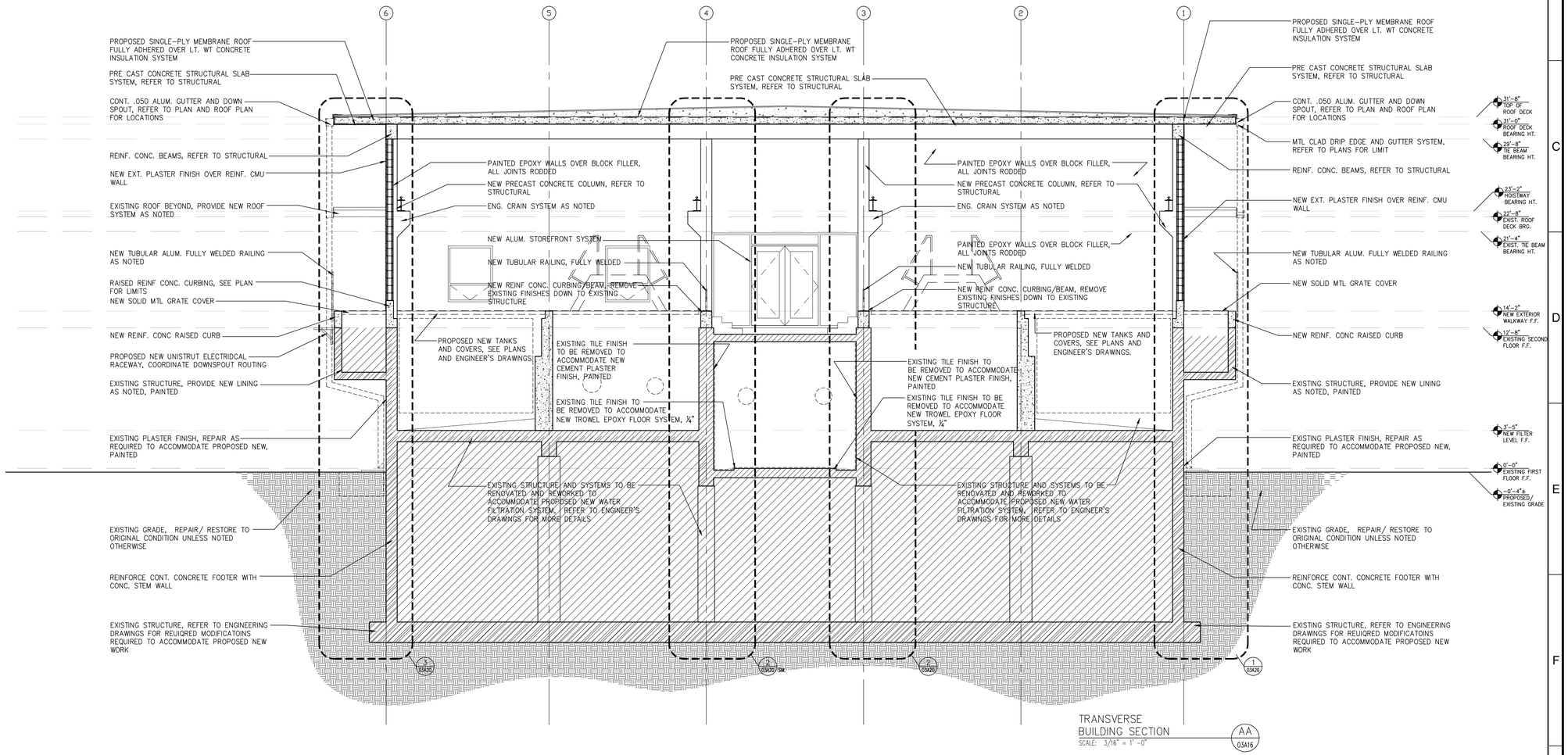

TRANSVERSE BUILDING SECTION — AA 03A16
SCALE: 3/16" = 1'-0"

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			RECORD DOCUMENTS

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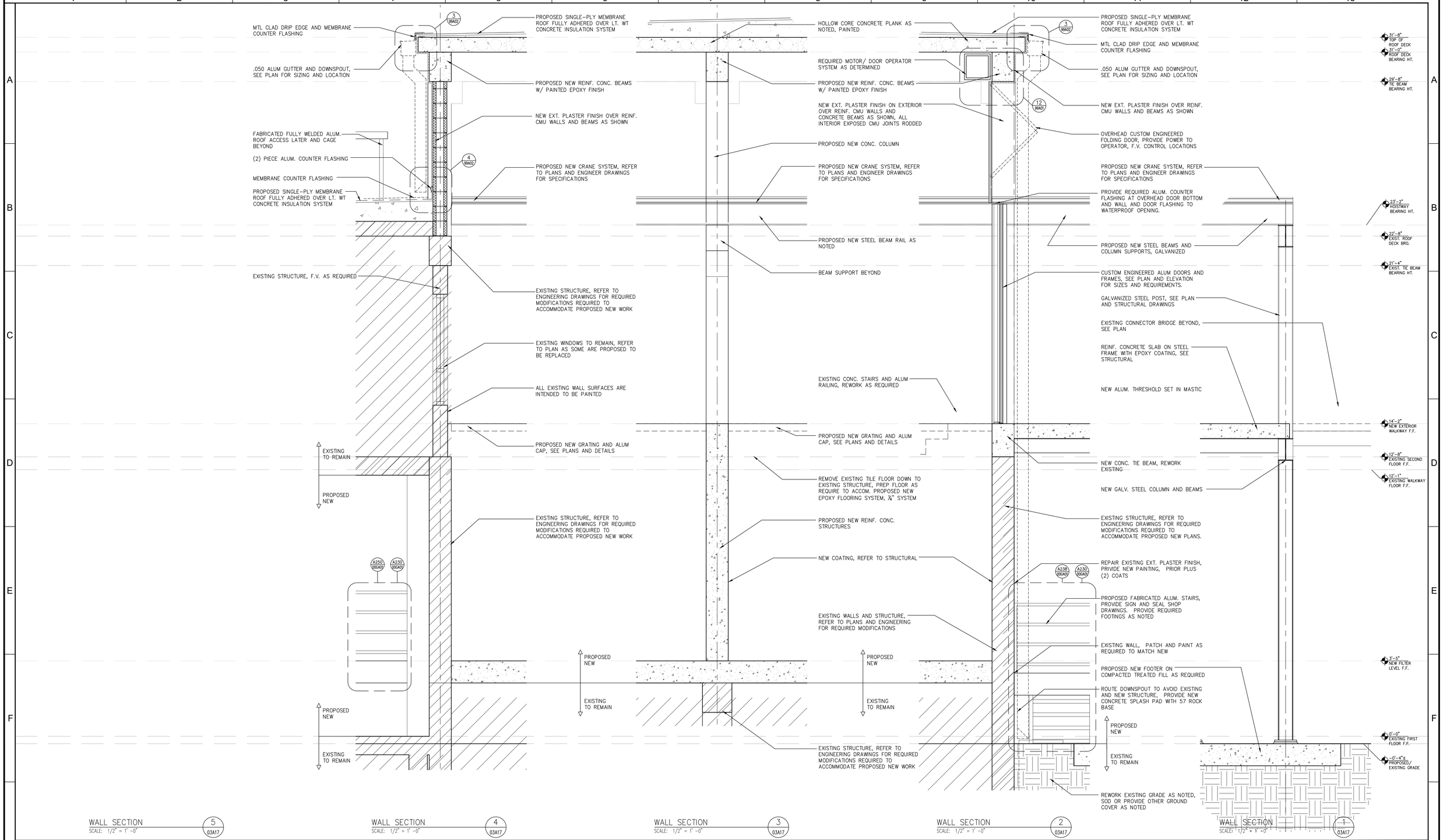

WALL SECTION 5 / 03A17 — SCALE: 1/2" = 1'-0"

WALL SECTION 4 / 03A17 — SCALE: 1/2" = 1'-0"

WALL SECTION 3 / 03A17 — SCALE: 1/2" = 1'-0"

WALL SECTION 2 / 03A17 — SCALE: 1/2" = 1'-0"

WALL SECTION 1 / 03A17 — SCALE: 1/2" = 1'-0"

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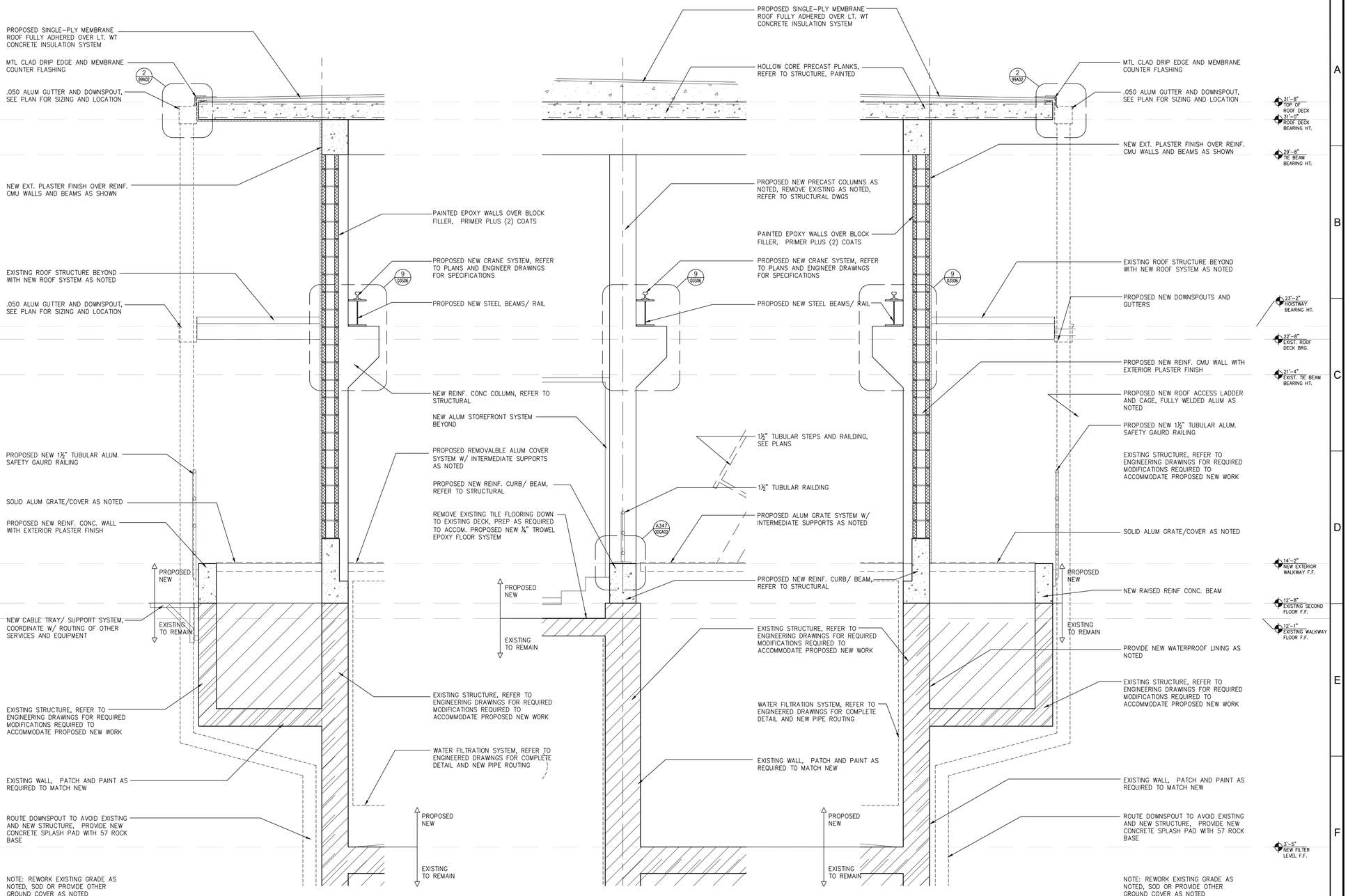
DRAWING NO. 03A17



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			RECORD DOCUMENTS

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JOB NO. 09520I.10

DRAWING NO. 03A18

DOOR SCHEDULE – CHEMICAL BUILDING

DOOR NUMBER	DOOR TYPE	DOOR WIDTH x HEIGHT x THICKNESS	DOOR MATERIAL	DOOR FINISH	GLAZING	FIRE RATING	HARDWARE SET	FRAME MATERIAL	FRAME TYPE	FRAME FINISH	FRAME SILL	FRAME JAMB	FRAME HEAD	WIND LOAD (ZONE 4)	REMARKS
101A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	3	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
101B		16'–6" x 16'–3"	ALUMINUM COILING DOOR	PAINTED	–	–––	4	OVERHEAD COILING DOOR	N/A	PAINTED	4/99A01	5/99A01	6/99A01		3, 4, 5
101C		16'–6" x 16'–3"	ALUMINUM COILING DOOR	PAINTED	–	–––	4	OVERHEAD COILING DOOR	N/A	PAINTED	4/99A01	5/99A01	6/99A01		3, 4, 5
101D		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	3	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
106A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	90 MIN.	7	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
106B		12'–6" x 16'–3"	ALUMINUM COILING DOOR	PAINTED	–	–––	4	OVERHEAD COILING DOOR	N/A	PAINTED	4/99A01	5/99A01	6/99A01		2, 3, 5
107A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	90 MIN.	7	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
107B		14'–6" x 16'–3"	ALUMINUM COILING DOOR	PAINTED	–	–––	4	OVERHEAD COILING DOOR	N/A	PAINTED	4/99A01	5/99A01	6/99A01		2, 3, 5
108A		3'–0" x 7'–10" x 1 3/4"(PR)	ALUMINUM INSULATED	PRE–FINISHED	–	45 MIN.	1	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
108B		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	90 MIN.	5	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
109A		3'–0" x 8'–6" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	1	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1

DOOR SCHEDULE – FILTER BUILDING

DOOR NUMBER	DOOR TYPE	DOOR WIDTH x HEIGHT x THICKNESS	DOOR MATERIAL	DOOR FINISH	GLAZING	FIRE RATING	HARDWARE SET	FRAME MATERIAL	FRAME TYPE	FRAME FINISH	FRAME SILL	FRAME JAMB	FRAME HEAD	WIND LOAD (ZONE 4)	REMARKS
101A		3'–4" x 7'–0" x 1 3/4" (PR)	ALUMINUM INSULATED	PRE–FINISHED	–	–––	1	ALUM.	N/A	PRE–FIN.	4/99A01	5/99A01	6/99A01		1
101B		5'–1" x 9'–0" x 1 3/4" (PR)	ALUMINUM ENGINEERED	PAINTED	–	–––	2	ENG. ALUM.	N/A	PAINTED	ENGINEER	ENGINEER	ENGINEER		1
102A		2'–10" x 7'–0" x 1 3/4" (PR)	ALUMINUM INSULATED	PRE–FINISHED	–	–––	1	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
103A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	7	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
103B		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	3	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
104A		3'–4" x 7'–0" x 1 3/4" (PR)	ALUMINUM INSULATED	PRE–FINISHED	–	–––	1	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
105A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	7	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
105B		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	3	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
201A		2'–10" x 6'–10" x 1 3/4"(PR)	ALUMINUM STOREFRONT	PRE–FINISHED	G1	–––	6	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
207A		2'–10" x 6'–10" x 1 3/4"(PR)	ALUMINUM STOREFRONT	PRE–FINISHED	G1	–––	1	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
208A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	3	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
208B		6'–9" x 10'–0" x 1 3/4" (PR)	ALUMINUM ENGINEERED	PRE–FINISHED	–	–––	2	ENG. ALUM.	N/A	PRE–FIN.	ENGINEER	ENGINEER	ENGINEER		1
208C		27'–4" x 5'–6"	ALUMINUM HANGAR DOOR	PAINTED	–	–––	4	OVERHEAD HANGAR DOOR	N/A	PAINTED	10/99A01	11/99A01	12/99A01		3, 4, 5
209A		3'–0" x 7'–10" x 1 3/4"	ALUMINUM INSULATED	PRE–FINISHED	–	–––	3	ALUM.	N/A	PRE–FIN.	1/99A01	2/99A01	3/99A01		1
209B		6'–9" x 10'–0" x 1 3/4" (PR)	ALUMINUM ENGINEERED	PRE–FINISHED	–	–––	2	ENG. ALUM.	N/A	PRE–FIN.	ENGINEER	ENGINEER	ENGINEER		1
209C		27'–4" x 5'–6"	ALUMINUM HANGAR DOOR	PAINTED	–	–––	4	OVERHEAD HANGAR DOOR	N/A	PAINTED	10/99A01	11/99A01	12/99A01		3, 4, 5

HARDWARE SETS

SET 1:	SET 2:	SET 3:	SET 4:	SET 5:	SET 6:	SET 7:
8EA HINGE 2EA RIM CYLINDER 2EA PANIC HARDWARE 2EA SURFACE CLOSER FREE EGRESS AT ALL TIMES. PRESSING PUSH BAR RETRACTS LATCHBOLTS SELF–CLOSING	10EA HINGE 2EA SURFACE CLOSER SELF–CLOSING	4EA HINGE 1EA RIM CYLINDER 1EA PANIC HARDWARE 1EA SURFACE CLOSER FREE EGRESS AT ALL TIMES. PRESSING PUSH BAR RETRACTS LATCHBOLTS SELF–CLOSING	ALL HARDWARE PROVIDED BY DOOR MANUFACTURER	6EA HINGE 1SET AUTO FLUSH BOLT 1EA CYLINDRICAL LOCKS 2EA SURFACE CLOSER AUTOMATIC TOP AND BOTTOM BOLTS (PAIR) FOR METAL DOORS SELF–CLOSING	8EA HINGE 1SET CONST LATCHING BOLT 1EA CYLINDRICAL LOCKS 2EA SURFACE CLOSER CONSTANT LATCHING TOP AND AUTOMATIC BOTTOM BOLTS (PAIR) FOR METAL DOORS SELF–CLOSING	4EA HINGE 1EA CYLINDRICAL LOCKS 1EA SURFACE CLOSER SELF–CLOSING

BASIS OF DESIGN: LOCKSET SHALL BE BEST LOCKS WITH BEST CORES, NO SUBSTITUTION ON CORES, BEST ONLY, W/ ADA LEVER HANDLES. ALL OPENINGS TO BE HURRICANE COMPLAINT. BALANCE OF HARDWARE PROVIDED BY DOOR MANUFACTURER.
HINGES: ALL EXTERIOR HINGES TO BE STAINLESS STEEL.

REMARKS

1. ADD CLOSURE WEATHER STRIPING AND THRESHOLD TO HARDWARE.
2. PROVIDE MANUAL CHAIN PULLEY.
3. ~~NOTE OVERHEAD DOOR MOUNTING TO BE FLUSH ON OUTSIDE FOR RECURED CLEARANCES.~~
4. PROVIDE MOTORIZED CONTROLS, STOP / UP / DOWN CONTROLS W/ EMERGENCY CHAIN PULLEY.
5. ~~OVERHEAD DOORS ARE WEATHERPROOF EXTERIOR FACE MOUNT.~~

GLAZING SCHEDULE:

G1. 7/16" LAMINATED IMPACT GLAZING, TINTED.

G2. 7/16" LAMINATED IMPACT GLAZING, WITH OBSCURE GLASS

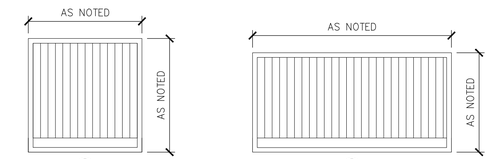
LOUVER SCHEDULE – CHEMICAL BUILDING

MARK	SIZE	DESCRIPTION	FRAME	COLOR	ELEVATION	WIND LOAD	REMARKS
L1	4'–1" w X 3'–4" h	CAUSTIC SODA STORAGE LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.
L2	3'–4" w X 2'–10" h	HYDROCHLORIC ACID STORAGE LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.
L3	4'–0" w X 4'–0" h	COMPRESSOR ROOM LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.
L4	4'–0" w X 4'–0" h	COMPRESSOR ROOM LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.
L5	7'–0" w X 3'–6" h	WATER ROOM LOUVRE	ALUMINUM	PRE– FINISHED	AA	+40.05/–45.56	SEE MECH.
L6	7'–0" w X 3'–6" h	WATER ROOM LOUVRE	ALUMINUM	PRE– FINISHED	AA	+40.05/–45.56	SEE MECH.
L7	7'–0" w X 3'–6" h	WATER ROOM LOUVRE	ALUMINUM	PRE– FINISHED	AA	+40.05/–45.56	SEE MECH.
L8	3'–6" w X 3'–6" h	SODIUM HYPOCHLORITE STORAGE LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.
L9	2'–9" w X 2'–1" h	SODIUM BISULFITE STORAGE LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.
L10	3'–2" w X 1'–11" h	CITRIC ACID STORAGE LOUVRE	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.

LOUVER SCHEDULE – FILTER BUILDING

MARK	SIZE	DESCRIPTION	FRAME	COLOR	ELEVATION	WIND LOAD	REMARKS
L1	4'–8" w X 4'–10" h	BLOWER RM. LOUVER	ALUMINUM	PRE– FINISHED	BB	+40.05/–45.56	SEE MECH.

LOUVRE ELEVATIONS – CHEMICAL AND FILTER BUILDING



BB — ALUMINUM LOUVRE SEE HVAC DRAWINGS

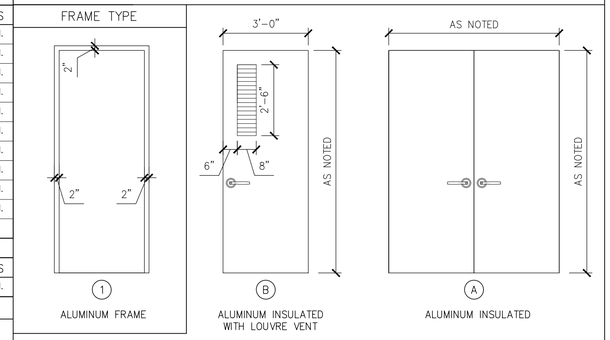
AA — ALUMINUM LOUVRE SEE HVAC DRAWINGS

NOTE: REFER TO MECHANICAL DRAWINGS FOR ALL SPECIFICATIONS AND ADDITIONAL INFORMATION ON MECHANICAL LOUVERS

DOOR SCHEDULE GENERAL NOTES:

1. ALL DOOR SIZES IN FILTER BUILDING WHICH ARE TO MATCH EXISTING MASONRY OPENINGS NEED TO BE BE FIELD VERIFIED PRIOR TO THE START OF CONSTRUCTION.
2. ALL DOOR SIZES INDICATED ARE NOMINAL, ACTUAL DOOR SIZES MAY VARY UPON FINAL SELECTION OF DOOR MANUFACTURER.

DOOR ELEVATIONS – CHEMICAL BUILDING AND FILTER BUILDING



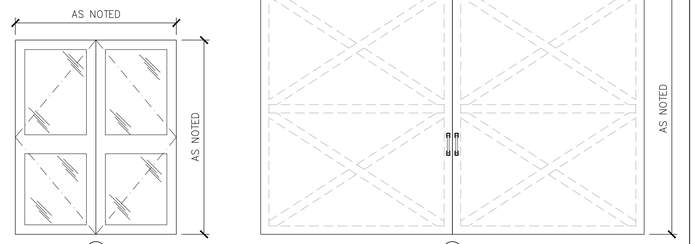
1 — ALUMINUM FRAME

B — ALUMINUM INSULATED WITH LOUVRE VENT

A — ALUMINUM INSULATED

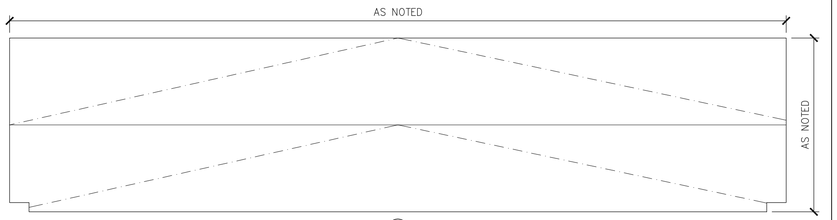
D — ALUMINUM OVERHEAD COILING DOOR

C — ALUMINUM INSULATED WITH LOUVRE VENT



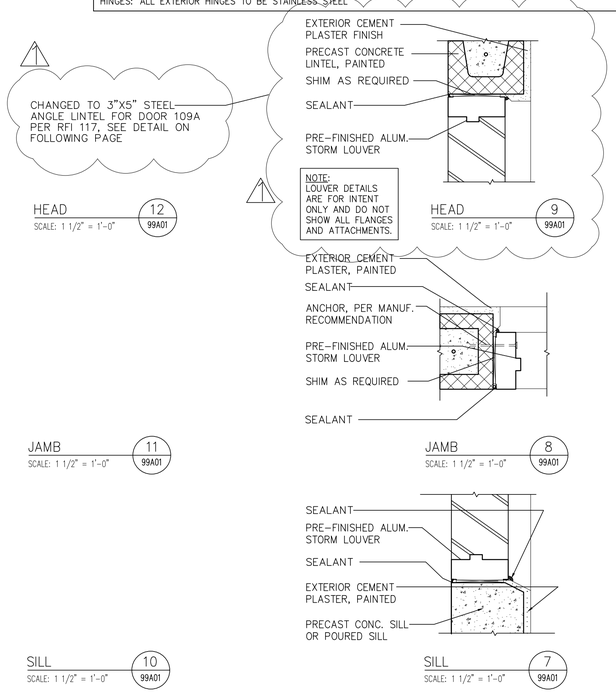
F — ALUMINUM DOOR WITH GLASS LIGHTS MATCH EXISTING

E — ALUMINUM ENGINEERED FILTER BAY DOOR (PAIR)



G — ALUMINUM ENGINEERED HANGAR DOOR

NOTE: ALL EXTERIOR DOORS TO BE INSULATED.
ALUMINUM DOOR AND FRAMES: PROVIDE ALUMINUM DOORS AND FRAMES WHERE INDICATED, DOOR SHALL BE MINIMUM 18 GAUGE INSULATED ALUMINUM DOOR WITH 16 GAUGE ALUMINUM FRAME. HINGES SHALL BE STAINLESS STEEL WITH VANDAL RESISTANT NON–REMOVEABLE HINGE PINS.



HEAD 12 99A01 — SCALE: 1 1/2" = 1'–0"

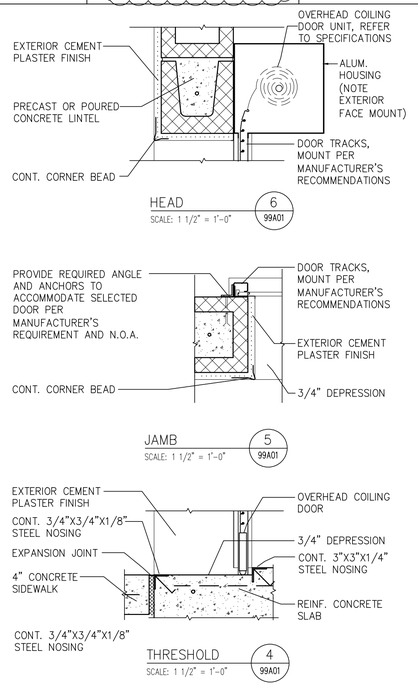
HEAD 9 99A01 — SCALE: 1 1/2" = 1'–0"

JAMB 11 99A01 — SCALE: 1 1/2" = 1'–0"

JAMB 8 99A01 — SCALE: 1 1/2" = 1'–0"

SILL 10 99A01 — SCALE: 1 1/2" = 1'–0"

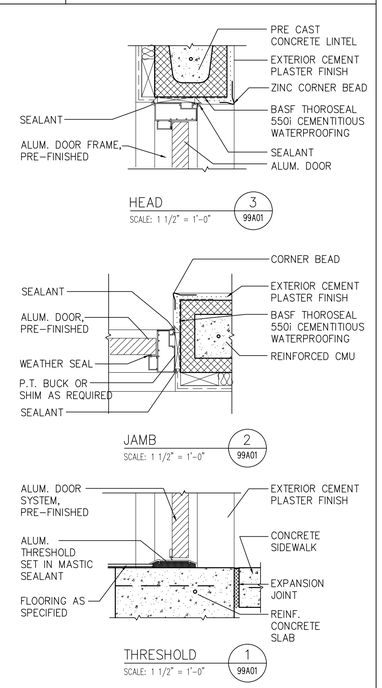
SILL 7 99A01 — SCALE: 1 1/2" = 1'–0"



HEAD 6 99A01 — SCALE: 1 1/2" = 1'–0"

JAMB 5 99A01 — SCALE: 1 1/2" = 1'–0"

THRESHOLD 4 99A01 — SCALE: 1 1/2" = 1'–0"



HEAD 3 99A01 — SCALE: 1 1/2" = 1'–0"

JAMB 2 99A01 — SCALE: 1 1/2" = 1'–0"

THRESHOLD 1 99A01 — SCALE: 1 1/2" = 1'–0"

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED CAA
DRAWN DNB
CHECKED CAA
DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLA#0004071
To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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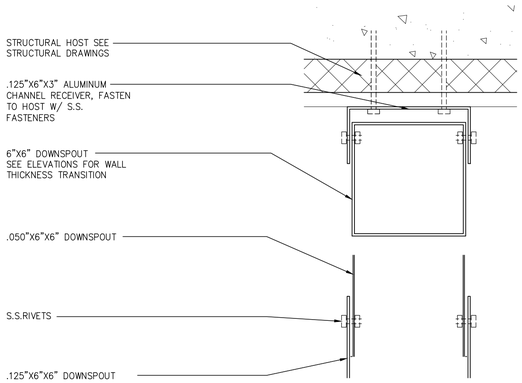
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
CHEMICAL BUILDING AND FILTER BUILDING DOOR AND LOUVRE SCHEDULE

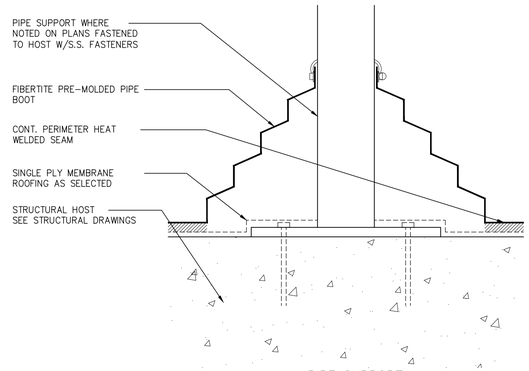
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 99A01



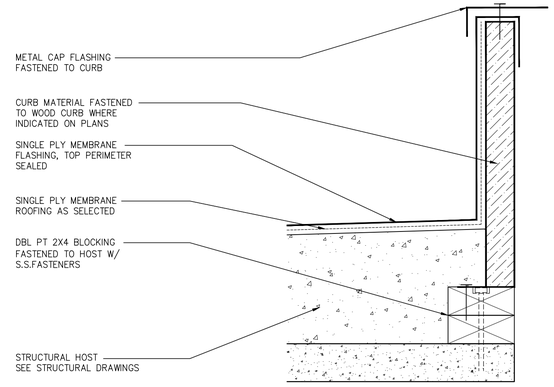
DOWNSPOUT DETAIL(S) STRAPPING, .050/.125 TRANS 12 99A02

SCALE: 3" = 1'-0"



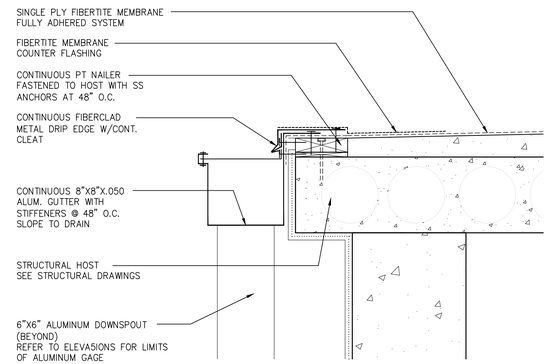
PIPE SUPPORT STANCHION DTL 9 99A02

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



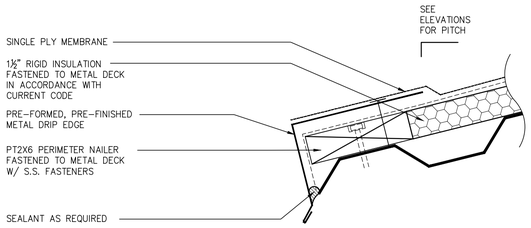
PENETRATION CURB DETAIL 6 99A02

SCALE: 3" = 1'-0"



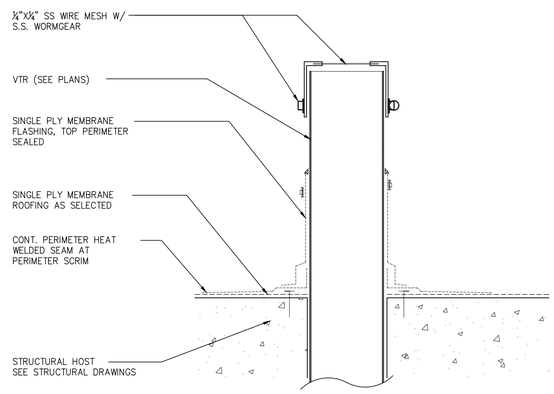
ROOF EDGE DETAIL 3 99A02

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



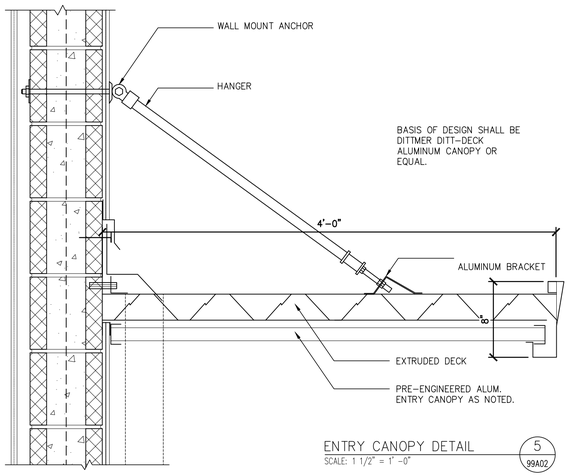
METAL CANOPY (STRUCTURAL) ROOF EDGE DETAIL 11 99A02

SCALE: 3" = 1'-0"



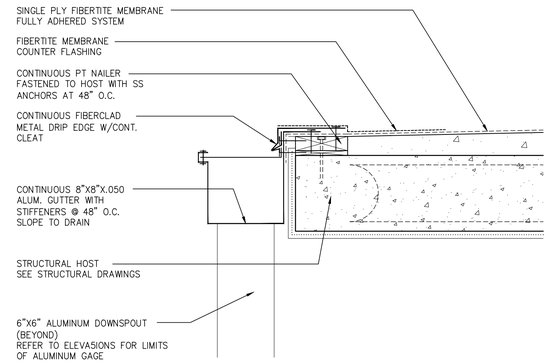
FIELD FLASH VTR DETAIL 8 99A02

SCALE: 3" = 1'-0"



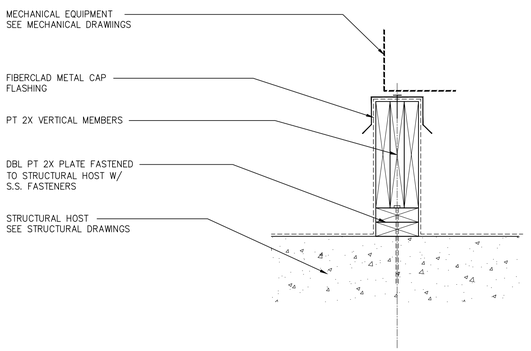
ENTRY CANOPY DETAIL 5 99A02

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



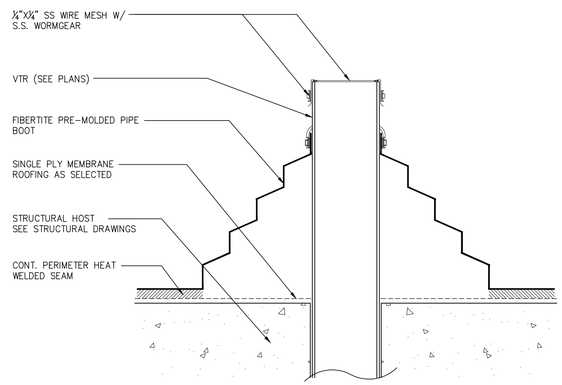
ROOF EDGE DETAIL 2 99A02

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



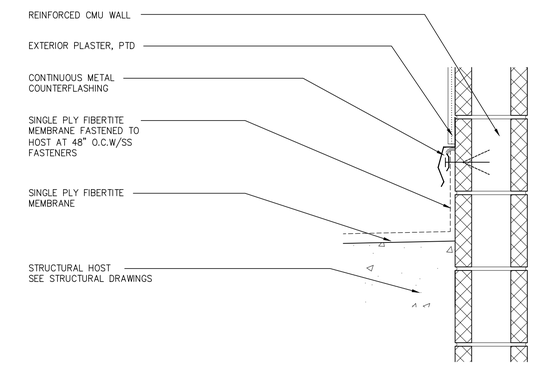
EQUIPMENT CURB DETAIL 10 99A02

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



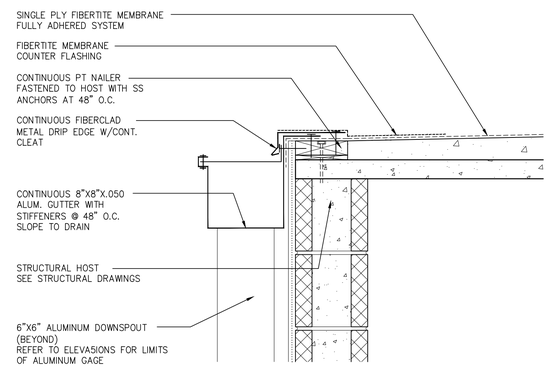
BOOT WRAP VTR DETAIL 7 99A02

SCALE: 3" = 1'-0"



WALL FLASHING DETAIL 4 99A02

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



ROOF EDGE DETAIL 1 99A02

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

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To the best of the architect's or engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable portions of the Florida Building Code as determined in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ARCHITECTURAL
CHEMICAL & FILTER BUILDING DETAILS

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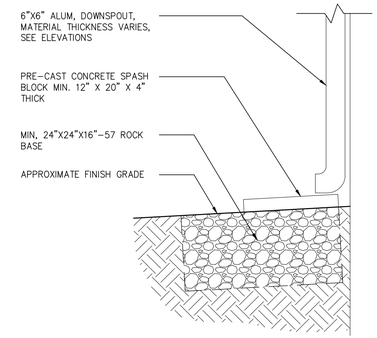
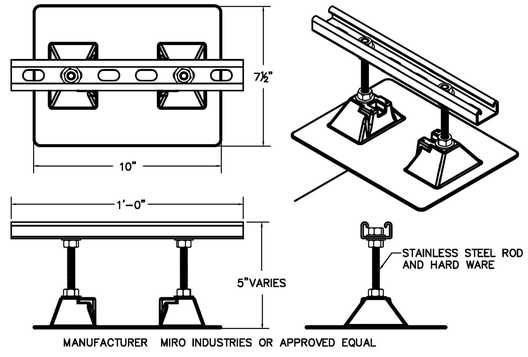
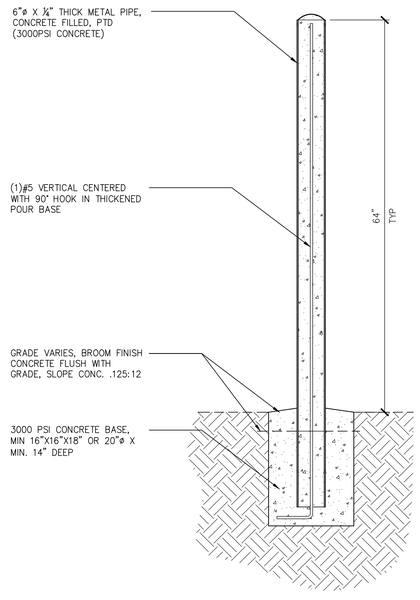


DOWNSPOUT / SPLASH (2 / 99A03)
SCALE: 3/4" = 1'-0"



CONDUIT & PIPE SUPPORT DETAIL (3 / 99A03)
SCALE: NTS



BOLLARD DETAIL (1 / 99A03)
SCALE: 3/4" = 1'-0"

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

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DATE APRIL 2025

Sealed By C. ALAN ANDERSON, FLorA0001471
To the best of the architect's or engineer's knowledge, said plans and documents comply with the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

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Manatee County FLORIDA

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JOB NO. 09520I.10
DRAWING NO. 99A03

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DesignScript: Carollo_Std_Pen_v0905.pen
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Model: Layout1
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GENERAL NOTES:

1. USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH PROJECT DRAWINGS BY OTHER DISCIPLINES AND WITH THE SPECIFICATIONS.

2. UNLESS DETAILED, SPECIFIED, OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE GENERAL NOTES AND TYPICAL DETAILS.

3. PRESENTATION CONVENTIONS FOR STRUCTURAL DRAWINGS:

   A. SCREENED LINE WORK INDICATES EXISTING CONDITIONS.
   B. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED SIZES.
   C. PLANS ARE TREATED AS HORIZONTAL SECTIONS. (I.E.: "PLAN AT ELEVATION 110" SHOWS CONSTRUCTION AT AND BELOW ELEVATION 110.)

4. VERIFY DIMENSIONS AND CONDITIONS BEFORE BEGINNING WORK. ADVISE ENGINEER IMMEDIATELY OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DIMENSIONS, AND INFORMATION SHOWN ON THESE DRAWINGS. CONFIRM THE FOLLOWING BEFORE PREPARATION AND SUBMITTAL OF SHOP DRAWINGS:

   A. DIMENSIONS AND WEIGHTS FOR EQUIPMENT SELECTED.
   B. SIZES AND LOCATIONS OF EQUIPMENT PADS FOR EQUIPMENT SELECTED.

5. TYPICAL DETAILS ARE INCLUDED ON THE "GS" DRAWINGS.

   A. TYPICAL DETAILS ARE INTENDED TO APPLY AT LOCATIONS DESCRIBED BY THEIR TITLES, EVEN WHEN NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.
   B. IN STRUCTURAL TYPICAL DETAILS, ORIENTATION OF BARS IN EACH MAT OF REINFORCEMENT (WHETHER "LINES" OR "DOTS"ARE CLOSER TO THE FACE OF THE CONCRETE) IS GENERALLY ARBITRARY. SEE DRAWINGS OF EACH STRUCTURE FOR ORIENTATION REQUIRED AT THAT STRUCTURE.

6. SEE CIVIL DRAWINGS FOR STRUCTURE COORDINATES. POINTS ON THE STRUCTURES TO WHICH SITE COORDINATES REFER ARE SHOWN ON THE STRUCTURAL PLANS.

7. DRAWINGS PREPARED BY OTHER DISCIPLINES INCLUDE OPENINGS, ANCHORS, PIPES, CONDUITS, AND OTHER ITEMS THAT ARE EMBEDDED INTO OR PASS THROUGH STRUCTURES.

   A. CONFIRM SIZE AND LOCATIONS OF OPENINGS, PENETRATIONS AND EMBEDMENT FOR ITEMS AND EQUIPMENT FURNISHED.
   B. IN GENERAL, OPENINGS, EMBEDMENTS, AND PENETRATIONS LESS THAN 12 INCHES IN DIAMETER ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS.
   C. SEE MECHANICAL DRAWINGS FOR DETAILS OF PIPE PENETRATIONS, PIPE SUPPORTS, AND ASSOCIATED STRUCTURAL REQUIREMENTS.
   D. SEE MECHANICAL DRAWINGS FOR EQUIPMENT PADS AND PIPE SUPPORTS.

8. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND SIZES OF DOOR AND WINDOW OPENINGS.

STRUCTURAL DESIGN CRITERIA - GENERAL:

SEE DRAWINGS OF INDIVIDUAL STRUCTURES FOR SPECIFIC DESIGN CRITERIA BASED ON THESE OVERALL CRITERIA FOR THE SITE.

1. BUILDING CODE:

   A. FLORIDA BUILDING CODE 2017

2. STRUCTURE RISK CATEGORY: III

3. DEAD LOADS: CALCULATED FOR STRUCTURE SELF-WEIGHT.

4. LIVE LOADS: (REDUCTIONS NOT USED)

   A. FLOOR LIVE LOAD: SEE PLANS.
   B. GRATING AND CHECKERED PLATE: 100 PSF (UNO).
   C. ROOF LIVE LOAD: SEE PLANS (20 PSF MINIMUM).
   D. EQUIPMENT LOADS: SEE PLANS.
   E. CONCENTRATED AND IMPACT LOADS: SEE PLANS.

5. FLUID PRESSURE LOADS: 63 PSF/FT (UNO).

6. WIND DESIGN DATA:

   A. SPECIAL WIND REGION: NO
   B. WIND-BORNE DEBRIS REGION: YES
   C. BASIC WIND SPEED (3 SEC GUST, 33 FEET ABOVE GROUND): 154 MPH.

7. EARTHQUAKE DESIGN DATA:

		0.2 SECOND	*1.0 SECOND
A.	SITE CLASS: D.		
B.	MAPPED SPECTRAL RESPONSE ACCELERATIONS:	Ss = 0.051 g	S1 = 0.028 g
C.	SITE COEFFICIENTS:	Fa = 1.6	Fv = 2.4
D.	MAXIMUM CONSIDERED ACCELERATIONS:*	Sms = 0.081 g	Sm1 = 0.066 g
E.	DESIGN SPECTRAL RESPONSE ACCELERATIONS:* (* 5% DAMPED)	Sds = 0.054 g	Sd1 = 0.044 g

8. FLOOD LOADS:

   A. FLOOD HAZARD AREA: NO
      1) REFERENCE MAP ("FIRM"): 12081C0355E

9. RAIN LOADS:

   A. DESIGN RAINFALL INTENSITY: i = 4.5 INCHES / HOUR. (100 YEAR/1 HOUR EVENT)

10. CONSTRUCTION LOADS:
    STRUCTURES HAVE BEEN DESIGNED FOR OPERATING LOADS ON COMPLETED FACILITIES. UNTIL CONSTRUCTION IS COMPLETE AND MEMBERS HAVE ACHIEVED THEIR DESIGN STRENGTH, PROTECT STRUCTURES AS REQUIRED BY SHORING, BRACING, AND BALANCING.

GEOTECHNICAL REPORT / FOUNDATION DESIGN CRITERIA:

1. GEOTECHNICAL INVESTIGATION REPORT:

   TITLE: LAKE MANATEE WTP W/ SUPPLEMENTAL EVALUATIONS.
   PREPARED BY: DRIGGER ENGINEERING SERVICES INC.
   REPORT NO: DES 147542 DATED: 01-29-15, 05-04-18 & 05-18-18.

2. FOUNDATION DESIGNS ARE BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL INVESTIGATION REPORT.

   A. NET ALLOWABLE BEARING PRESSURE: 2000 PSF (MISC EQUIPMENT PADS 1500 PSF).

   B. LATERAL EARTH PRESSURE (UNO):
      SURCHARGE: EQUIVALENT TO 2 FEET OF SOIL ABOVE FINISHED GRADE.

	STATIC
ACTIVE (PSF/FT):	80.4
AT REST (PSF/FT):	90.3
PASSIVE (PSF/FT):	396.0
SLIDING COEFFICIENT OF FRICTION:	0.45

TYPICAL STRUCTURAL MATERIALS:

1. MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

2. SEE PROJECT SPECIFICATIONS AND NOTES ON DRAWINGS OF SPECIFIC STRUCTURES FOR DETAILED AND LOCATION-SPECIFIC REQUIREMENTS.

REINFORCING STEEL (FOR CONCRETE AND MASONRY):

1. DEFORMED BARS:
   A. TYPICAL: ASTM A 615, GRADE 60.
   B. WHERE INDICATED ON THE DRAWINGS: ASTM A 706.

2. WELDED WIRE FABRIC: ASTM A 185.

3. PRESTRESSING STRANDS: ASTM A 416, 270 KSI YIELD STRENGTH, 7-WIRE.

4. HORIZ JOINT REINF (FOR MASONRY: ASTM A 951, 3/16"DIA x 2 RODS), GALV.

CONCRETE:

1. NORMAL DENSITY.

2. MINIMUM SPECIFIED CONCRETE COMPRESSIVE STRENGTH, f'c (AT 28 DAYS UNO).

   A. STRUCTURES: "CLASS A"OR "CLASS B" f'c = 4500 PSI.
   B. FILL, THRUST BLOCKS, PIPE ENCASEMENT: "CLASS C" f'c = 2500 PSI.
   C. ELECTRICAL DUCT ENCASEMENT: "CLASS CE" f'c = 2500 PSI.
   D. PRECAST AND PRECAST-PRESTRESSED MEMBERS: "CLASS D" f'c = 5000 PSI.

MASONRY:

1. CONCRETE MASONRY

   A. UNITS: ASTM C 90, NORMAL WEIGHT.
   B. MORTAR: ASTM C 270, MINIMUM 28-DAY COMPRESSIVE STRENGTH = 1800 PSI.
   C. GROUT: ASTM C 476. MINIMUM 28-DAY COMPRESSIVE STRENGTH = 2000 PSI.

   D. MINIMUM SPECIFIED COMPRESSIVE STRENGTH, f'm (AT 28 DAYS).
      1) SOLID GROUTED: f'm = 1500 PSI.

STRUCTURAL STEEL:

1. SECTIONS

   A. SHAPES W, WT: ASTM A 992 (Fy = 50 KSI)
   B. SHAPES S, ST, M, MT, HP, C, MC, L: ASTM A 36 (Fy = 36 KSI)
   C. PLATES AND BARS: ASTM A 36 (Fy = 36 KSI)
   D. PIPES: ASTM A 53, GRADE B (Fy = 35 KSI)
   E. HOLLOW STRUCTURAL SECTIONS:
      ROUND: ASTM A 500, GRADE B (Fy = 42 KSI)
      SQUARE AND RECTANGULAR: ASTM A 500, GRADE B (Fy = 46 KSI)

2. CONNECTIONS:

   A. BOLTS - STEEL TO-STEEL:
      ASTM A 325 HIGH-STRENGTH BOLTS, WITH LOAD INDICATOR WASHERS.
   B. BOLTS - STEEL TO CONCRETE OR MASONRY:
      ANCHOR BOLTS WITH HEX FORGED HEAD.
      ASTM A193, STAINLESS TYPE 316 (304)
      ASTM F 1554, GRADE 36 GALVANIZED.
   C. WELDS - SHIELDED METAL ARC PROCESS USING E70-XX ELECTRODES.

STAINLESS STEEL:

1. ANSI TYPE 316/316L EXCEPT WHERE TYPE 304/304L IS INDICATED ON THE DRAWINGS.

2. SECTIONS: SHAPES AND BARS: ASTM A 276.

3. BOLTED CONNECTIONS - BOLTS AND ANCHOR BOLTS:

   A. MATCH ALLOY OF THE STRUCTURAL MEMBERS CONNECTED.
   B. TYPE 316/316L: ASTM A 193, GRADE B8M, CLASS 1, HEAVY HEX.
   C. TYPE 304/304L: ASTM A 193, GRADE B8, CLASS 1, HEAVY HEX.

4. WELDED CONNECTIONS:

   A. TYPE 316L: E316L-15 ELECTRODES.
   B. TYPE 304L: E304L-15 ELECTRODES.

STRUCTURAL ALUMINUM:

1. SECTIONS

   A. SHAPES: ASTM B 308, ALLOY 6061-T6.
   B. SHEET AND PLATE: ASTM B 209, ALLOY 6061-T6.

2. BOLTED CONNECTIONS - BOLTS AND ANCHOR BOLTS:

   A. STAINLESS STEEL - TYPE 316, ASTM A 193, GRADE B8M, CLASS 1, HEAVY HEX.

3. WELDED CONNECTIONS:

   A. GAS METAL ARC (MIG) OR GAS TUNGSTEN ARC (TIG) PROCESS USING FILLER ALLOY 4043 ELECTRODES.

CONSTRUCTION:

CONFORM TO THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

EXCAVATION AND BACKFILLING:

1. EXPOSE AND PREPARE SUBGRADE AS SHOWN ON THE DRAWINGS AND SPECIFIED. OBTAIN ENGINEER'S OBSERVATION OF SUBGRADE SURFACES, AS EXPOSED AND AS PREPARED, BEFORE PROCEEDING WITH FOUNDATION CONSTRUCTION.

2. DO NOT PLACE BACKFILL AGAINST WALLS UNTIL STRUCTURES SUPPORTING THE TOP OF THE WALL ARE IN PLACE, ARE COMPLETE, AND (IN THE CASE OF CONCRETE) HAVE CURED TO THEIR MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

3. WHERE BACKFILL MUST BE PLACED AGAINST WALLS BEFORE STRUCTURES ABOVE ARE COMPLETE, PROVIDE BRACING FOR WALLS. KEEP BRACING IN PLACE UNTIL THE STRUCTURE ABOVE IS COMPLETE AND (IN THE CASE OF CONCRETE) HAS CURED TO ITS MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

4. AVOID EXCESSIVE VIBRATION NEAR EXISTING STRUCTURES.

5. SUBGRADE PREPARATION SHOULD EXTEND A MARGIN OF NOT LESS THAN 5'-0" BEYOND THE FOUNDATION PERIMETER.

CONCRETE:

1. SEE S101/TYP FOR CONCRETE NOTES, INCLUDING CLEAR COVER AND LAP SPLICE LENGTH REQUIREMENTS FOR REINFORCING.

2. SUBMIT LOCATIONS OF CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS FOR ACCEPTANCE BY THE ENGINEER BEFORE FORM LAYOUT.

3. PROVIDE CHAMFER AT EXPOSED EDGES OF CAST-IN-PLACE CONCRETE. SEE SPECIFICATION 03_11_07 FOR CHAMFERS.

4. PROVIDE REINFORCING:

   A. AT CORNERS AND JUNCTIONS - AS INDICATED IN S144/TYP, SUPPLEMENT WITH ADDED BARS WHERE INDICATED ON THE DRAWINGS.
   B. AT OPENINGS - AS INDICATED IN S180/TYP.

5. WELDING OF REINFORCING IS NOT PERMITTED UNLESS DETAILED ON THE DRAWINGS OR ACCEPTED IN ADVANCE BY THE ENGINEER.

6. MAINTAIN MINIMUM 3 INCHES CLEAR CONCRETE COVER BETWEEN REINFORCING AND EMBEDMENTS.

7. FINISH CONCRETE AS SPECIFIED IN SECTION 03_36_60.

MASONRY:

1. SEE S400/TYP FOR MASONRY NOTES, INCLUDING LAP SPLICE LENGTHS.

2. PROVIDE REINFORCING:

   A. AT CORNERS AND JUNCTIONS AS INDICATED IN S412/TYP.
   B. AT OPENINGS AS INDICATED IN S410/TYP.

3. WELDING OF REINFORCING IS NOT PERMITTED UNLESS DETAILED ON THE DRAWINGS OR ACCEPTED IN ADVANCE BY THE ENGINEER.

4. GROUTING:

   A. FULLY GROUTED.

STEEL, STAINLESS STEEL, AND ALUMINUM - CONNECTIONS:

1. BOLTED:

   A. MADE USING 3/4-INCH DIAMETER BOLTS.
   B. HAVING A MINIMUM OF 2 BOLTS, SPACED NOT CLOSER THAN 3 INCHES ON CENTER.
   C. WITH A DISTANCE OF AT LEAST 1 1/2 INCHES FROM CENTER OF BOLT TO ANY EDGE OF A PLATE OR STRUCTURAL ELEMENT.

2. WELDED:

   A. FILLET WELDS: PER AWS CODE BASED ON THE THICKNESS OF THE MATERIALS BEING JOINED, AND FULL LENGTH OF THE JOINT.

3. INTERFACE BETWEEN MATERIALS:

   A. AT BOLTED CONNECTIONS THAT INCLUDE DIFFERENT METALS (E.G.: STEEL AND STAINLESS STEEL, OR ALUMINUM AND STAINLESS STEEL) PROVIDE ISOLATING SLEEVES AND WASHERS AS SPECIFIED IN SECTION 05_05_24.
   B. WHERE ALUMINUM IS IN CONTACT WITH MASONRY OR CONCRETE, COAT ALUMINUM SURFACES AS SPECIFIED IN SECTION 09_96_01.

4. POST-INSTALLED ANCHORS IN CONCRETE AND MASONRY:

   A. INSTALL IN FULL COMPLIANCE WITH ACCEPTED BUILDING CODE EVALUATION REPORT AND MANUFACTURER'S INSTRUCTIONS.
   B. DO NOT CUT, DAMAGE, OR INTERRUPT EXISTING REINFORCEMENT TO INSTALL ANCHORS. USE NON-DESTRUCTIVE TESTING EQUIPMENT TO IDENTIFY LOCATIONS OF REINFORCEMENT IN MEMBERS BEFORE DRILLING HOLES FOR ANCHORS.

METAL FABRICATIONS:

1. HANDRAILS AND GUARDRAILS:

   A. ALUMINUM, EXCEPT WHERE OTHER MATERIALS ARE NOTED.

2. GRATING:

   A. ALUMINUM WITH TYPE 316 STAINLESS STEEL FASTENERS, UNLESS OTHERWISE NOTED.
   B. GRATING AND ITS SEATS OR SUPPORTS SHALL BE OF THE SAME MATERIAL.
   C. UNLESS INDICATED ON THE DRAWINGS AS "REMOVABLE GRATING", SECURELY FASTEN GRATING TO SUPPORTS AS INDICATED IN A414/TYP.

3. COVER PLATES:

   A. ALUMINUM WITH TYPE 316 STAINLESS STEEL FASTENERS, UNLESS OTHERWISE NOTED.
   B. COVER PLATE AND ITS SEATS OR SUPPORTS SHALL BE OF THE SAME MATERIAL.

SPECIAL INSPECTION:

1. SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING STRUCTURAL MATERIALS AND CONSTRUCTION. SEE SPECIFICATION SECTION 01_45_24 FOR DETAILS.

2. DIVISION 31 SITE CONSTRUCTION (EARTHWORK)

   A. EXCAVATION DEPTH.
   B. ADEQUACY OF EXPOSED SURFACE TO PROVIDE REQUIRED SUPPORT.
   C. PREPARATION OF SOILS/SURFACES SUPPORTING CONSTRUCTION.
   D. FILL AND BACKFILL.

3. DIVISION 03 CONCRETE:

   A. LOCATIONS.
   B. FORMWORK AND MEMBER SIZES.
   C. REINFORCING STEEL.
   D. ANCHORS: CAST-IN AND POST-INSTALLED.
   E. CONCRETE MIX AND PLACEMENT.
   F. PROTECTION AND CURING PROCEDURES.
   G. PRESTRESSED CONCRETE.
   H. PRECAST CONCRETE.

4. DIVISION 04 MASONRY

   A. LOCATIONS.
   B. MEMBER SIZES.
   C. REINFORCING STEEL.
   D. ANCHORS: BUILT-IN AND POST-INSTALLED.
   E. MORTAR AND JOINTS.
   F. GROUT AND GROUTING.
   G. PROTECTION AND CURING PROCEDURES.

5. DIVISION 05 METALS

   A. GENERAL ALL METALS:
      1) MEMBER LOCATIONS.
      2) MEMBER SIZES/TYPES.
      3) ANCHORS - CAST-IN AND BUILT-IN ANCHOR BOLTS.
      4) ANCHORS - POST-INSTALLED MECHANICAL AND ADHESIVE.

   B. STRUCTURAL STEEL (CARBON AND STAINLESS).
      1) HIGH-STRENGTH BOLTING.
      2) WELDING.

   C. STRUCTURAL ALUMINUM.
      1) BOLTING.
      2) WELDING.

   D. STEEL JOISTS AND JOIST GIRDERS.
      1) CONNECTIONS.
      2) BRACING.

   E. STEEL DECKING.
      1) CONNECTIONS TO SUPPORTS.
      2) SIDE CONNECTIONS BETWEEN ADJACENT SHEETS.

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATION IS REQUIRED DURING AND AT SPECIFIC STAGES OF CONSTRUCTION. SEE SPECIFICATION SECTION 01_45_24 FOR DETAILS.

STRUCTURAL SYMBOLS:

1. SEE SHEET 00G04 FOR KEY TO DRAWING TITLES AND SECTION CUTS, AND FOR DEFINITION OF MATERIALS SHADING PATTERNS.

2. WELDING: SYMBOLS: IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) A2.4.

STRUCTURAL ABBREVIATIONS:

1. SEE SHEET 00G04 FOR GENERAL LIST OF ABBREVIATIONS USED ON DRAWINGS.

2. ABBREVIATIONS FOR NAMES OF TECHNICAL GROUPS MAY BE FOUND IN THE PROJECT SPECIFICATIONS.

3. STRUCTURAL MEMBERS:

   A. STEEL: ABBREVIATIONS AND DESIGNATIONS ARE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S STEEL CONSTRUCTION MANUAL, CURRENT EDITION.

   B. ALUMINUM: ABBREVIATIONS AND DESIGNATIONS ARE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION'S ALUMINUM DESIGN MANUAL, CURRENT EDITION.

4. ABBREVIATIONS FOR STRUCTURAL DRAWINGS:
   WHEN USED ON THE STRUCTURAL DRAWINGS, THE FOLLOWING ABBREVIATIONS HAVE THE MEANINGS LISTED.

REINFORCEMENT:		OTHER:	
BO	BOTTOM OF	L	ANGLE
EF	EACH FACE	PL	PLATE
I.F.	INSIDE FACE	AB	ANCHOR BOLT
O.F.	OUTSIDE FACE	DBA	DEFORMED BAR ANCHOR
T.O.	TOP OF		
#	NUMBER (REINFORCING BAR SIZE)		

DEFERRED DESIGN SUBMITTALS

AS DEFINED IN THE BUILDING CODE, DEFERRED DESIGN SUBMITTALS ARE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION, AND THAT ARE TO BE REVIEWED BY THE REGISTERED DESIGN PROFESSIONAL AND SUBSEQUENTLY SUBMITTED TO THE BUILDING OFFICIAL.

DEFERRED DESIGN SUBMITTALS FOR THIS PROJECT INCLUDE:

1. DIVISION 03 CONCRETE.

   A. 03_41_32 - DOUBLE TEE.
   B. 03_41_32 - HOLLOW CORE SLAB.
   C. 03_41_32 - PRECAST COLUMN AND BEAM.

2. DIVISION 05 METALS.

   A. 05_50_00 HANDRAILS AND GUARDRAILS.
   B. 05_50_00 GRATING

3. DIVISION 13

   A. 13_34_19 METAL BUILDING SYSTEM

4. DIVISION 43

   A. 43_41_68 PRESTRESSED CONCRETE TANK

5. DIVISION 46

   A. 46_47_13 ENGINEERED ALUMINUM COVERS.

6. LIFTING EYES: SUBMIT DETAILS WITH CALCULATIONS DEMONSTRATING THE SPECIFIED LOAD CAPACITY TO ENGINEER. DELIVER REMOVABLE EYES TO OWNER AFTER INSTALLATION OF REMOVABLE PANELS.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN TJD
CHECKED KD
DATE APRIL 2025

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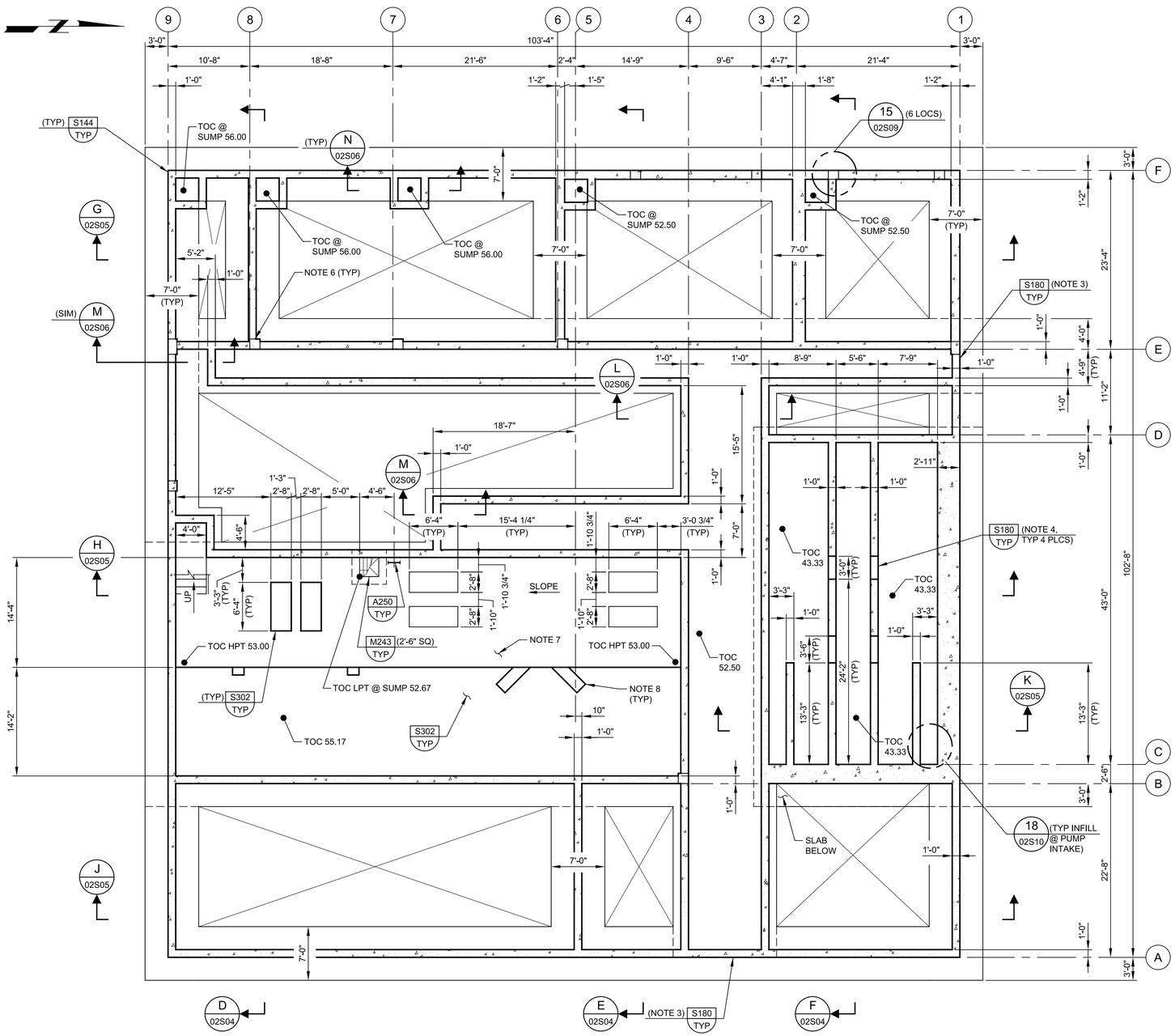
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
GENERAL STRUCTURAL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00S01



GENERAL NOTES:

1. CONTRACTOR TO LOCATE ALL PENETRATIONS PRIOR TO STARTING WORK.
2. CONTRACTOR TO COORDINATE EQUIPMENT PAD SIZES WITH SUPPLIED EQUIPMENT.
3. AT PIPE PENETRATIONS PROVIDE DIAGONAL CORNER BARS.
4. AT OPENING PROVIDE DIAGONAL CORNER BARS.
5. LIVE LOAD = 200 PSF.
6. CONTINUE HORIZONTAL REINFORCEMENT THROUGH COLUMN.
7. PROVIDE GROUT TOPPING ON SLAB AND SLOPE TO SUMP AS INDICATED ON PLAN. MINIMUM 2" GROUT TOPPING THICKNESS AT LOW POINT.
8. CONTRACTOR TO COORDINATE BLOCKOUT WITH TANK DRAIN PER MECHANICAL DRAWINGS.

A FOUNDATION LOWER PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-02-040-103

0 4' 8' 16'

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FOUNDATION LOWER PLAN

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JOB NO. 9520I.10
DRAWING NO. 02S01

PROJECT NO. 9520I10 FILE NAME: 9520I1002S01.dgn

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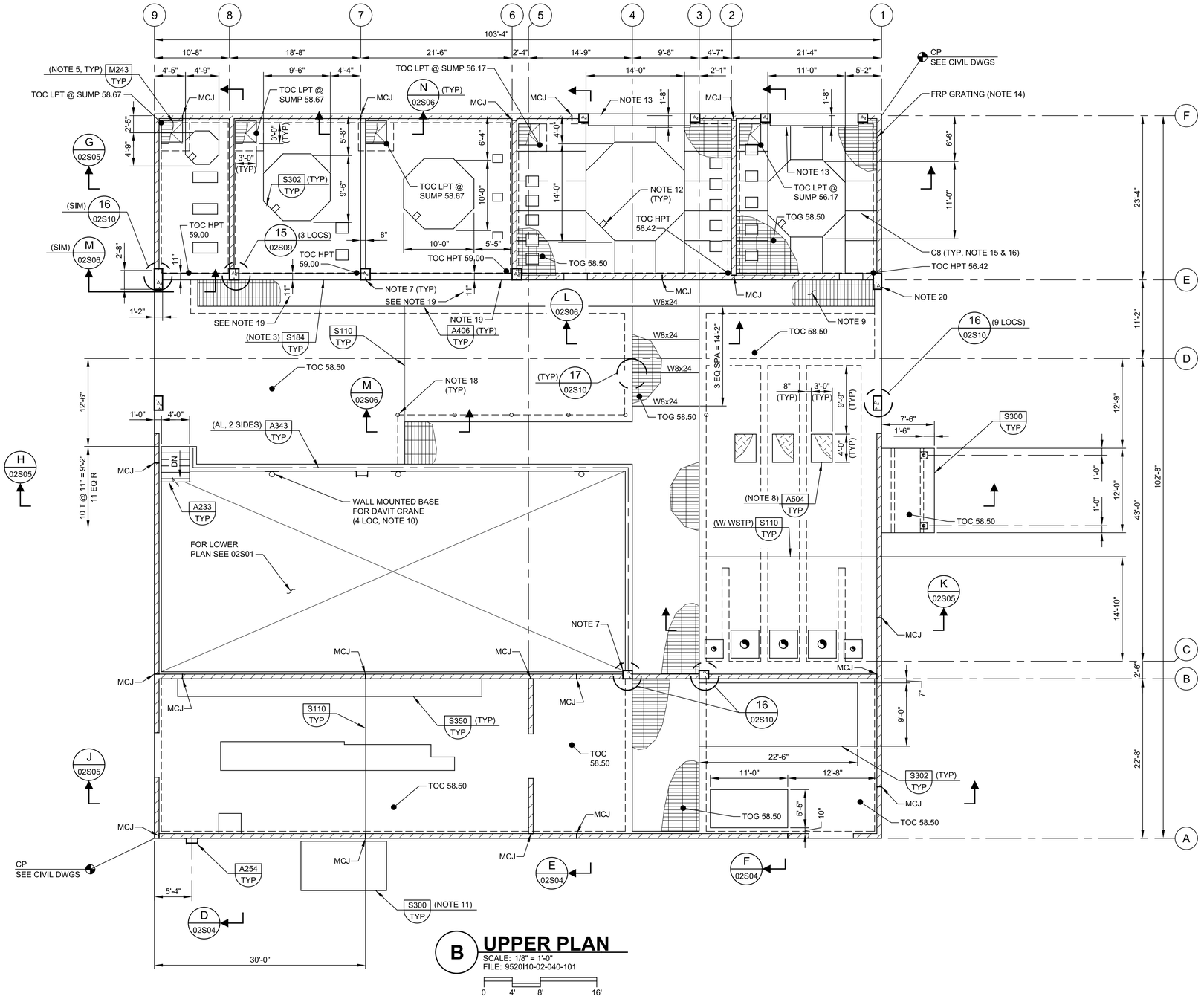
Model: Layout1
LAST SAVED BY: eparker



B UPPER PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-02-040-101

0 4' 8' 16'

GENERAL NOTES:

1. CONTRACTOR TO LOCATE ALL PENETRATIONS PRIOR TO STARTING WORK.
2. CONTRACTOR TO COORDINATE EQUIPMENT PAD SIZES WITH SUPPLIED EQUIPMENT.
3. 8" WIDE x 1'-9" HIGH CURB (UNO).
4. DESIGN LOADS:
   LIVE LOAD = 200 PSF
   HS-20 RATED AT DRIVE THROUGH (BETWEEN LINE D AND E FROM LINE 1 TO 9)
5. PROVIDE 3'-0"x3'-0"x2'-6" DEEP SUMP (5 LOCATIONS).
6. MCJ DENOTES MASONRY CONTROL JOINT PER DETAIL S430/TYP.
7. CONTINUE HORIZONTAL REINFORCEMENT THROUGH COLUMN.
8. PROVIDE OFF ROAD HEAVY DUTY FLOOR HATCH PER 08_31_14 (3 LOCATIONS).
9. PROVIDE HDG STEEL TYPE W-22-2 GRATING WITH 4" x 3/8" BEARING BARS (TYP).
10. CONTRACTOR TO PROVIDE THERN 5PT30 DAVIT CRANE OR APPROVED EQUAL. ENSURE DAVIT CRANE HAS THE REACH AND CAPACITY TO ALLOW REMOVAL OF ALL PUMPS IN THE LOWER PLAN. COORDINATE WITH MANUFACTURER TO LOCATE WALL MOUNTS.
11. CONTRACTOR TO COORDINATE LOCATION AND DIMENSIONS OF PAD WITH HVAC DRAWINGS.
12. CONTRACTOR TO COORDINATE BLOCKOUT WITH TANK DRAIN PER MECHANICAL DRAWINGS.
13. AT WEST COILING DOORS, HOLD STEM WALL DOWN AT COILING DOOR AND POUR WALL EXTENSION WITH SLAB (2 LOCATIONS).
14. PROVIDE DURADEK T-5000 2" FRP GRATING OR APPROVED EQUAL AT CONTAINMENT AREAS.
15. C8 = FRP C8x2 3/16x3/8. MEETING THE PROPERTIES OF STRONGWELL EXTREN 500 OR APPROVED EQUAL.
16. PROVIDE SUPPORTS AND ANCHORAGE AT C8 PER DETAIL 20/02S10.
17. PRE-TOPPED DOUBLE TEE WITH 4" FLANGE.
18. PROVIDE REMOVABLE 6" DIA x 3'-0" HIGH BOLLARD SPACED AT A MAXIMUM 10'-0" CENTER TO CENTER. PAINT BOLLARD SAFETY YELLOW.
19. WALL THICKNESS CHANGES TO 11" PER RFI 020
20. PAD OUT OVERHEAD DOOR JAMB BY 8 INCHES.

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UPPER PLAN

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 02S02

PROJECT NO. 9520I10 FILE NAME: 9520I1002S02.dgn

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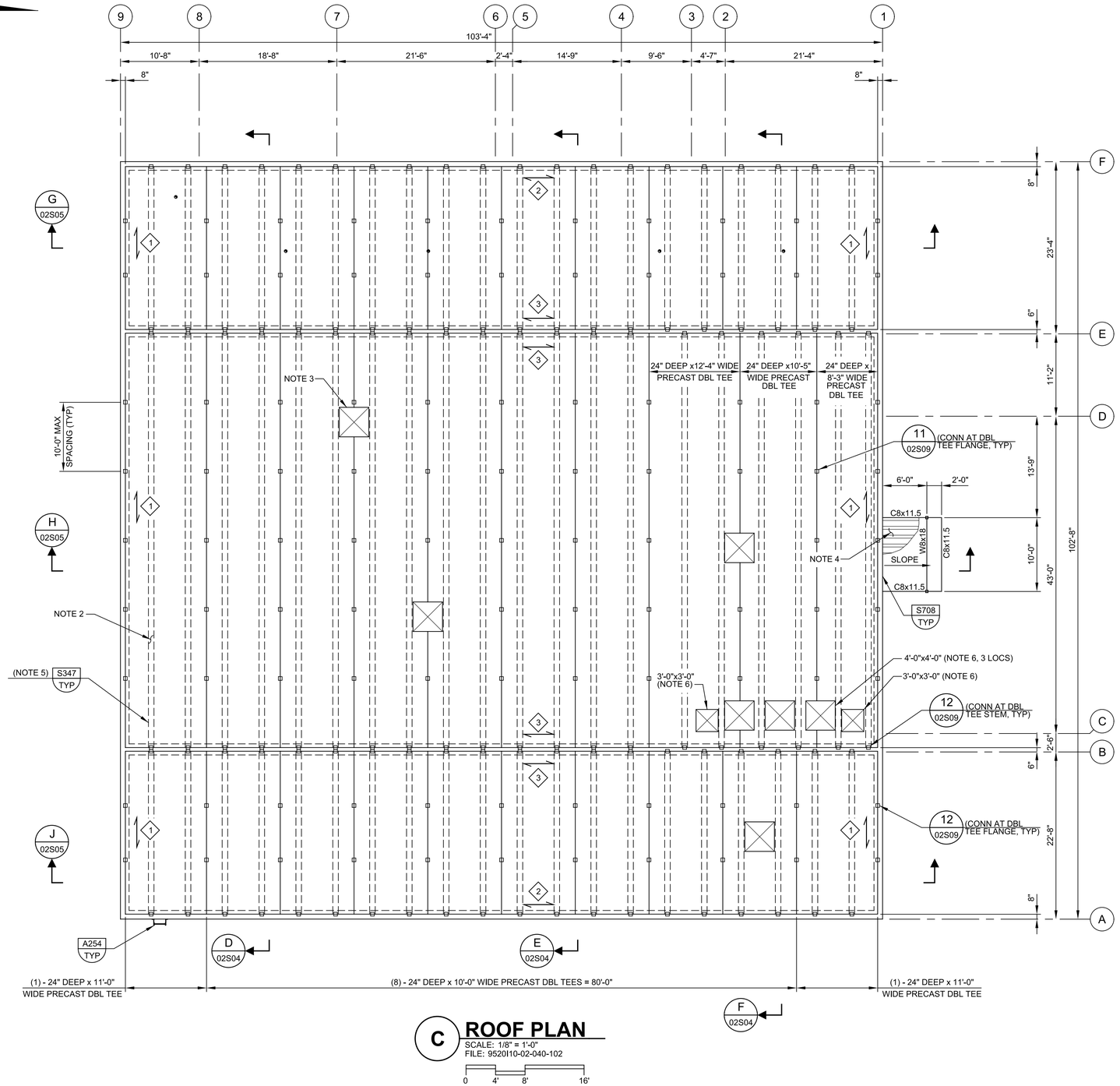


C ROOF PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-02-040-102

0 4' 8' 16'

GENERAL NOTES:

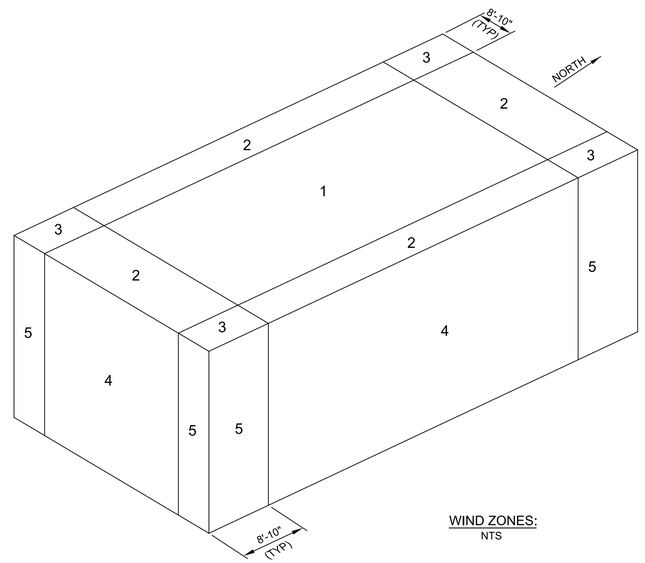
1. DESIGN LOADS:
   DEAD LOAD: 60 PSF
   COLLATERAL LOAD: 15 PSF
   LIVE LOAD: 20 PSF
   WIND LOAD: SEE WIND PRESSURE DIAGRAM
2. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION 03_41_32.
3. CONTRACTOR TO COORDINATE OPENINGS WITH MECHANICAL AND HVAC DRAWINGS.
4. 1 1/2" DEEP GALV 1.5B VULCRAFT 16 GA METAL DECK OR EQUAL. FASTEN WITH 36/5 PATTERN USING 1/2" DIA PUDDLE WELDS AND 1 1/2" SEAM WELDS @ 24" AT SIDELAP. SLOPE DECK 1 1/4"/FT AWAY FROM BUILDING.
5. PRECASTER TO COORDINATE EMBEDDED EQUIPMENT SUPPORTS WITH MECHANICAL DRAWINGS.
6. CONTRACTOR TO COORDINATE ROOF HATCH OPENING TO FACILITATE PUMP REMOVE. COORDINATE WITH MECHANICAL DRAWINGS.

WIND DIAPHRAGM SHEAR (FACTORED):

1 SHEAR FORCE = 0.65 K/FT
2 SHEAR FORCE = 0.65 K/FT
3 SHEAR FORCE = 0.33 K/FT

WIND PRESSURES PER 2017 FBC (FACTORED)

ZONE	EFFECTIVE WIND AREA (SQ FT)	UPWARD (OUTWARD) PRESSURE VALUE (PSF)	DOWNWARD (WINDWARD) PRESSURE VALUE (PSF)
1	10	-73.3	40.2
1	20	-71.8	38.8
1	50	-70.0	36.9
1	100	-68.5	35.5
2	10	-111.1	40.2
2	20	-101.1	38.8
2	50	-88.0	36.9
2	100	-78.0	35.5
3	10	-158.4	40.2
3	20	-134.2	38.8
3	50	-102.2	36.9
3	100	-78.0	35.5
4	10	-72.8	68.5
4	20	-70.5	66.3
4	50	-67.5	63.3
4	100	-63.0	58.8
4	500	-60.0	55.8
5	10	-85.6	68.5
5	20	-81.0	66.3
5	50	-75.5	63.3
5	100	-66.0	58.8
5	500	-60.0	55.8



WIND ZONES:
NTS

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ROOF PLAN

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JOB NO. 09520I.10
DRAWING NO. 02S03

Plot Date: 04-APR-2025 7:52:43 AM
User: svcPW
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ColorTable: gshade.ctb
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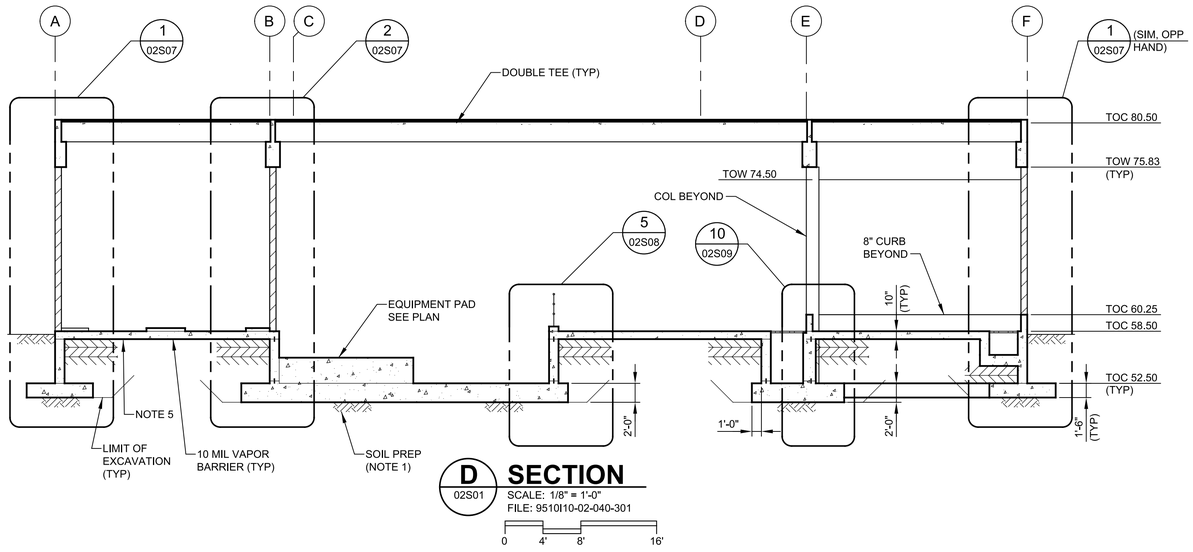
PROJECT NO. 9520I10 FILE NAME: 9520I1002S03.dgn

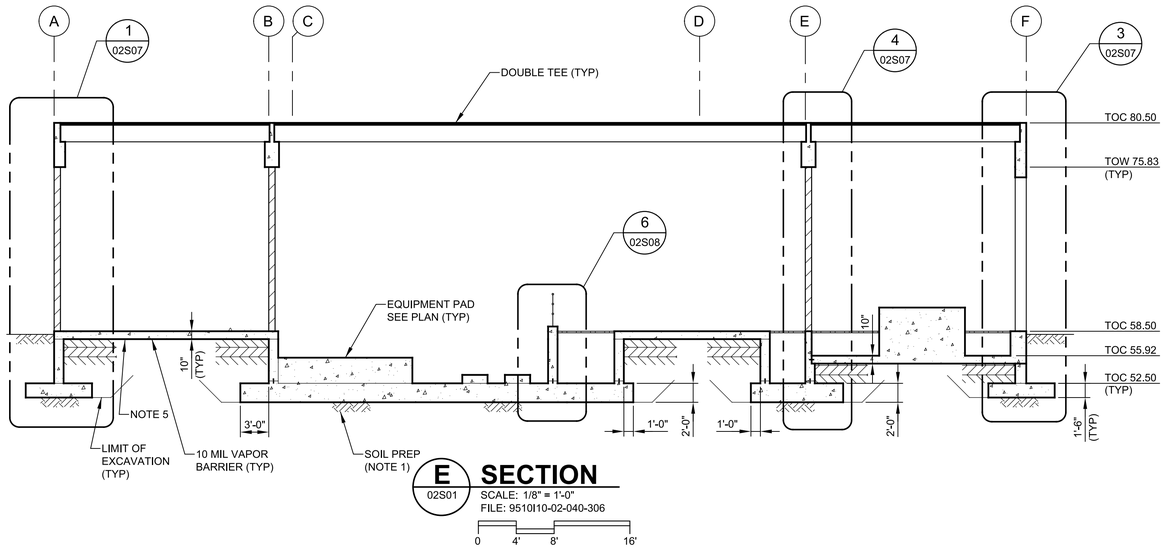


D SECTION

02S01

SCALE: 1/8" = 1'-0"
FILE: 9510I10-02-040-301

0 4' 8' 16'



E SECTION

02S01

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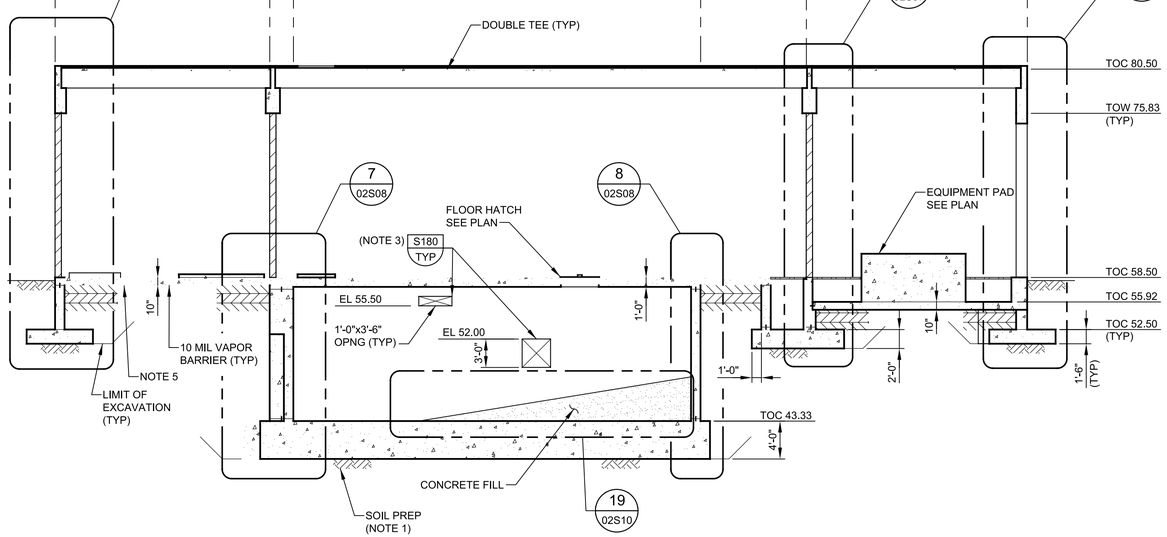

F SECTION

02S01

SCALE: 1/8" = 1'-0"
FILE: 9510I10-02-040-302

0 4' 8' 16'

GENERAL NOTES:

1. OVER EXCAVATE TO BOTTOM OF FOUNDATION AND COMPACT EXCAVATION BOTTOM TO 95% OF ASTM D1557. REFER TO GEOTECHNICAL REPORT FOR MINIMUM COMPACTION EFFORT. AVOID EXCESS VIBRATION NEAR EXISTING STRUCTURES.
2. PROVIDE CLSM PER SPECIFICATIONS WITHIN THE LIMITS OF EXCAVATION AS SHOWN ON THE SECTIONS.
3. AT OPENING PROVIDE DIAGONAL CORNER BARS.
4. COAT CONCRETE SURFACES PER SPECIFICATION 09_96_01.
5. BACKFILL AROUND CONDUITS WITH CLSM (TYP).
6. REVISED WALL THICKNESS ON THE NORTH SIDE OF THE PERMEATE TANK PER RFI 001.

RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY

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STRUCTURAL

CHEMICAL BUILDING SECTIONS I

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JOB NO. 09520I.10

DRAWING NO. 02S04

PROJECT NO. 9520I10 FILE NAME: 9520I1002S04.dgn

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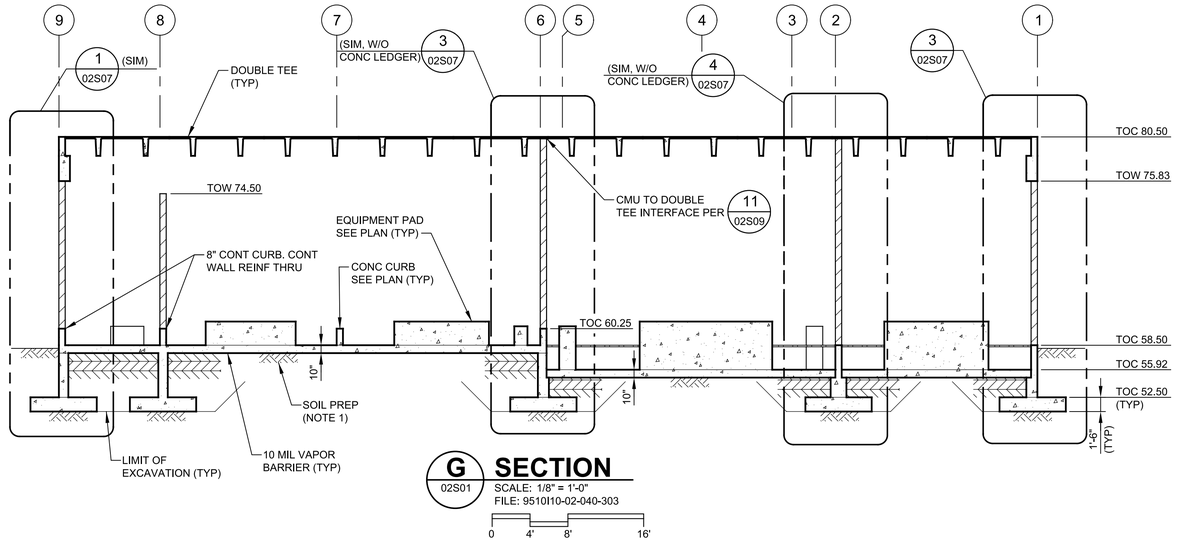

G 02S01 SECTION
SCALE: 1/8" = 1'-0"
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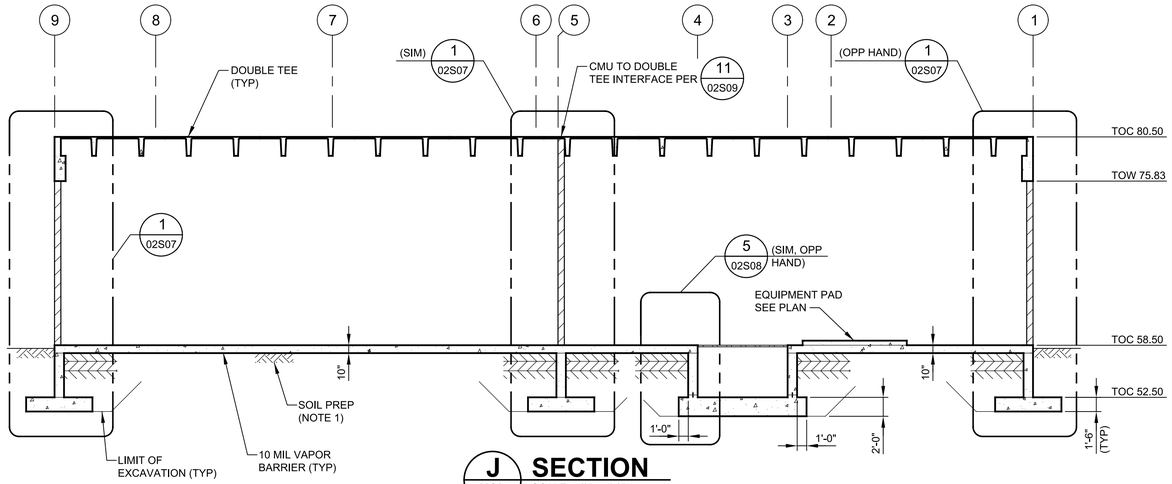

J 02S01 SECTION
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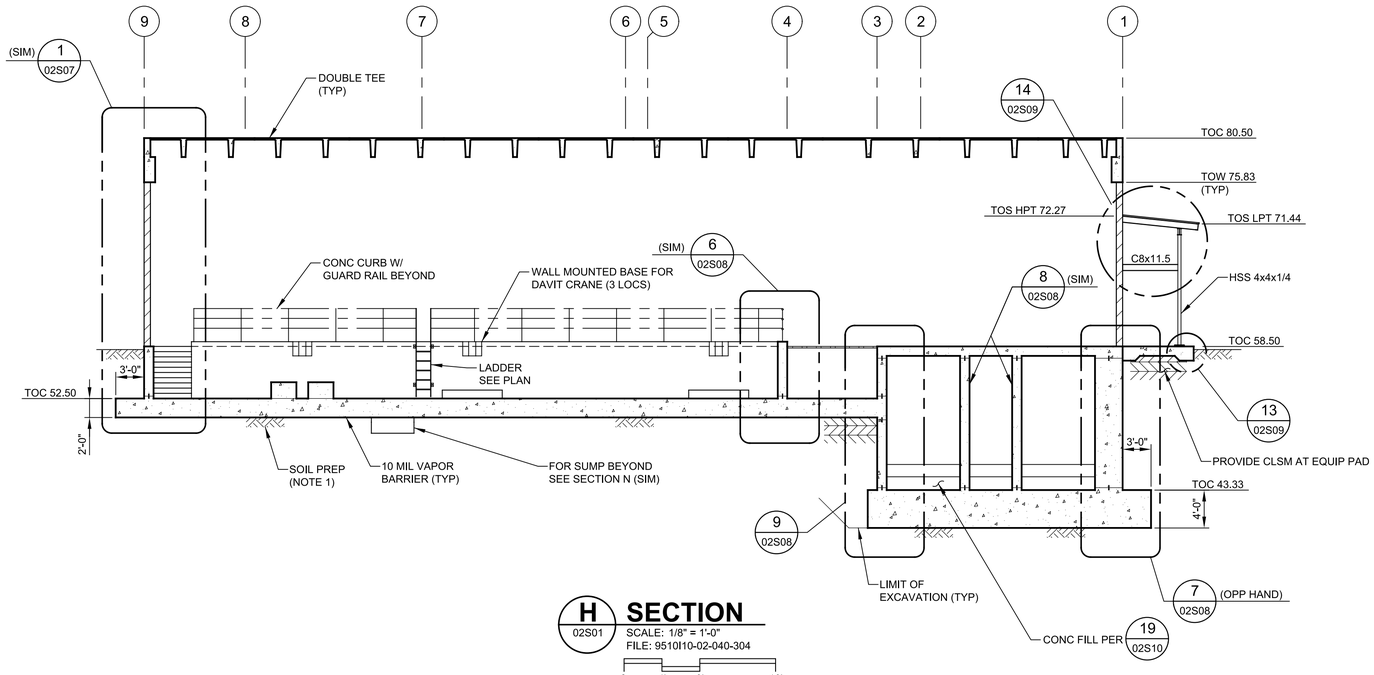

H 02S01 SECTION
SCALE: 1/8" = 1'-0"
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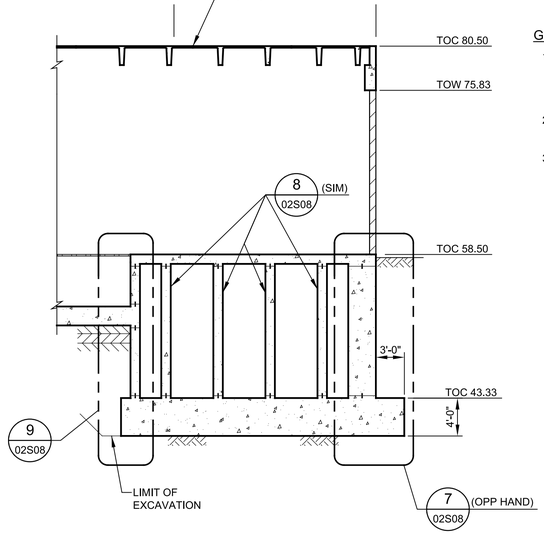

K 02S01 SECTION
SCALE: 1/8" = 1'-0"
FILE: 9510I10-02-040-307
0 4' 8' 16'

GENERAL NOTES:

1. OVER EXCAVATE TO BOTTOM OF FOUNDATION AND COMPACT EXCAVATION BOTTOM TO 95% OF ASTM D1557. REFER TO GEOTECHNICAL REPORT FOR MINIMUM COMPACTION EFFORT. AVOID EXCESS VIBRATION NEAR EXISTING STRUCTURES.
2. PROVIDE CLSM PER SPECIFICATIONS WITHIN THE LIMITS OF EXCAVATION AS SHOWN ON THE SECTIONS.
3. COAT CONCRETE SURFACES PER SPECIFICATION 09_96_01.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DRAWING NO. 02S05

PROJECT NO. 9520I10 FILE NAME: 9520I1002S05.dgn

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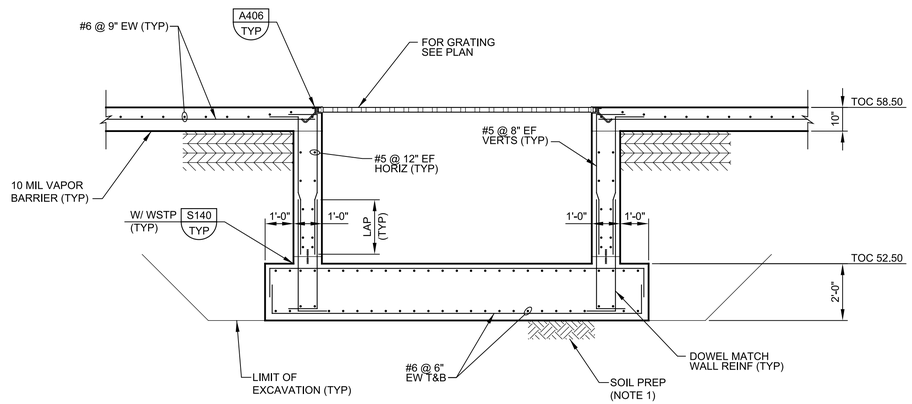
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES:

1. OVER EXCAVATE TO BOTTOM OF FOUNDATION AND COMPACT EXCAVATION BOTTOM TO 95% OF ASTM D1557. REFER TO GEOTECHNICAL REPORT FOR MINIMUM COMPACTION EFFORT. AVOID EXCESS VIBRATION NEAR EXISTING STRUCTURES.
2. PROVIDE CLSM PER SPECIFICATIONS WITHIN THE LIMITS OF EXCAVATION AS SHOWN ON THE SECTIONS.

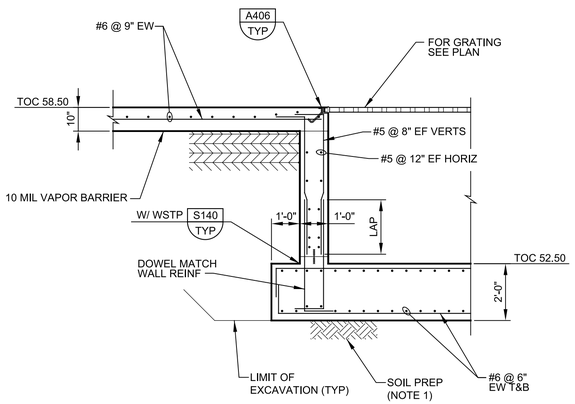


L SECTION

02S01

SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-308

0 1' 2' 3' 6'

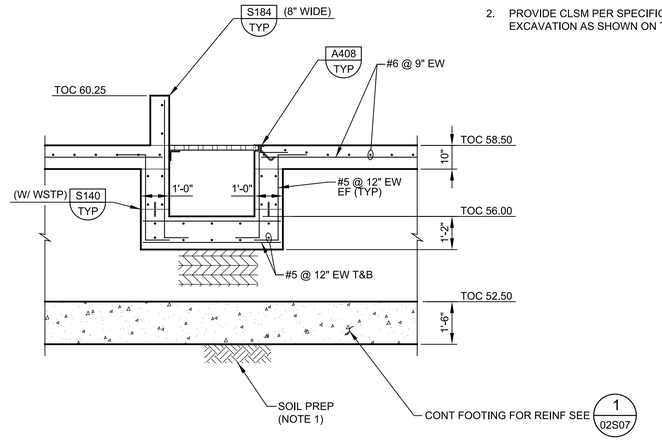


M SECTION

02S01

SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-309

0 1' 2' 3' 6'



N SECTION

02S01

SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-311

0 1' 2' 3' 6'

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED DM
DRAWN TJD
CHECKED KD
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

STRUCTURAL

CHEMICAL BUILDING SECTIONS III

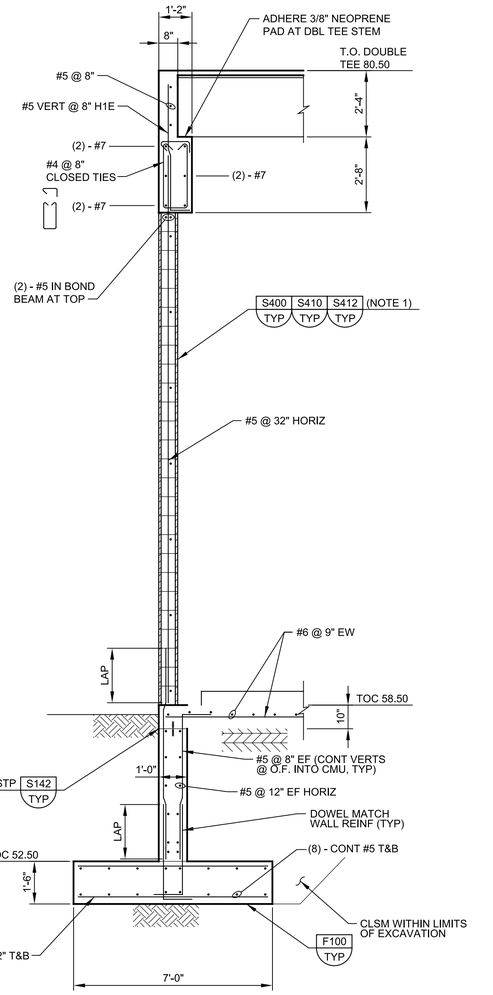
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

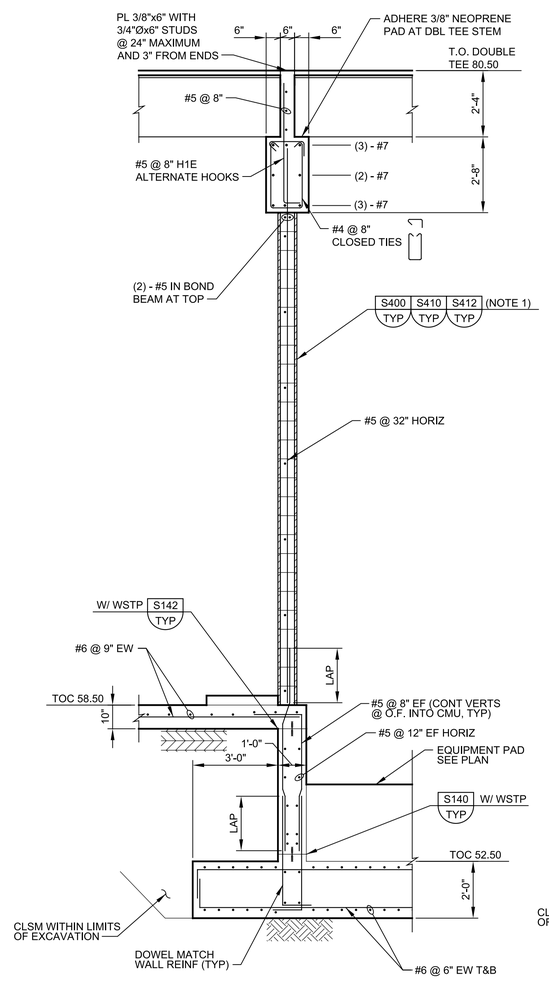
JOB NO. 09520I.10

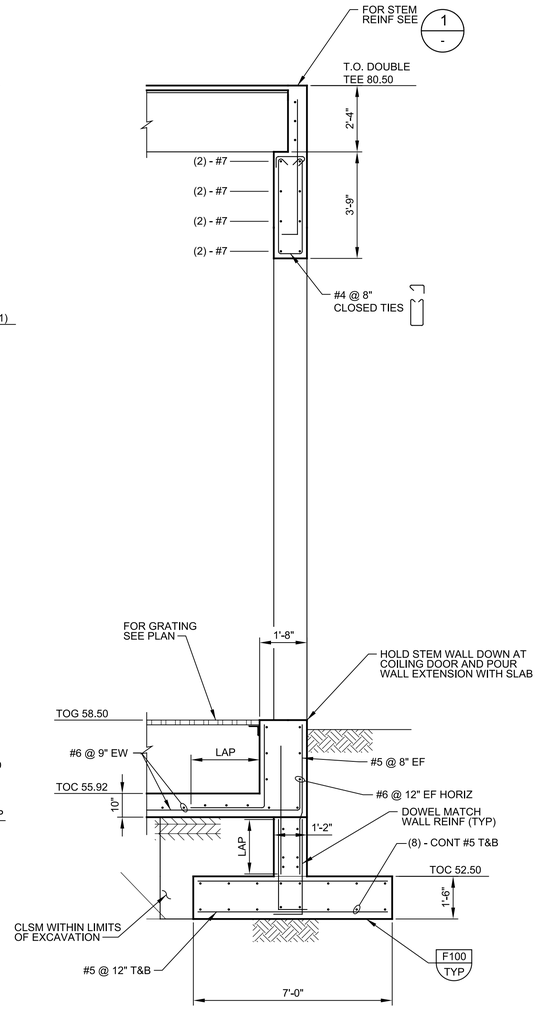
DRAWING NO. 02S06

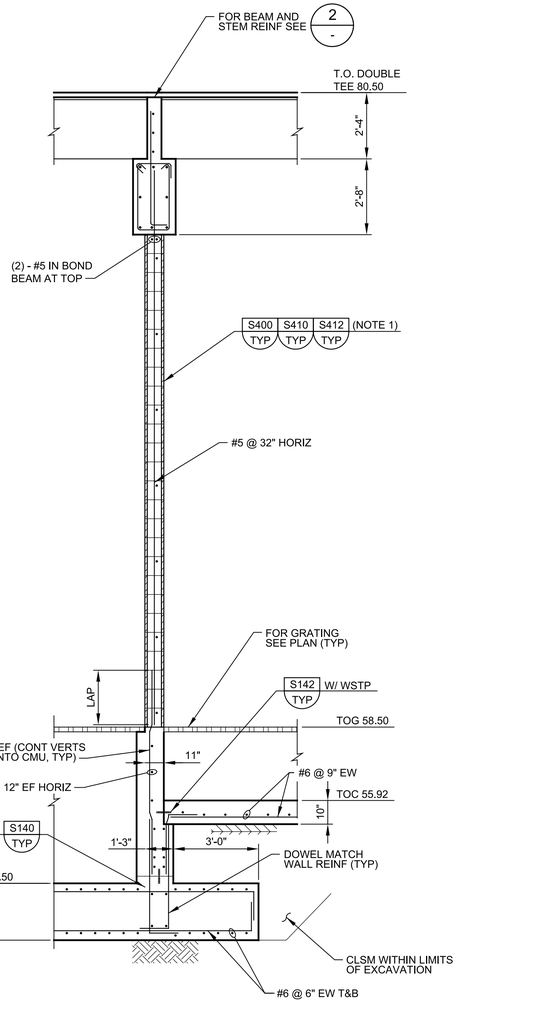
GENERAL NOTES:

1. 8" CMU WITH #5 @ 8" VERTICALS IN GROUTED CELLS. CONTINUE VERTICALS INTO TOP BEAM ONE LAP LENGTH OR HOOK.
2. DOUBLE TEE HEIGHT REVISED PER RFI 061.









1 DETAIL (02S04)
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-302

2 DETAIL (02S04)
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-301

NOTES:
1. PROVIDE 3'-9" DEEP LEDGER BEAM/HEADER AT WEST COILING DOORS. (2 LOCATIONS).

3 DETAIL (02S04)
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-302

4 DETAIL (02S04)
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-302

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
CHEMICAL BUILDING
DETAILS I

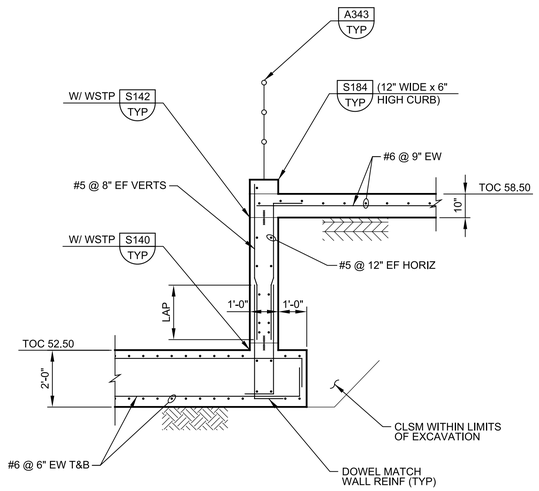
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02S07

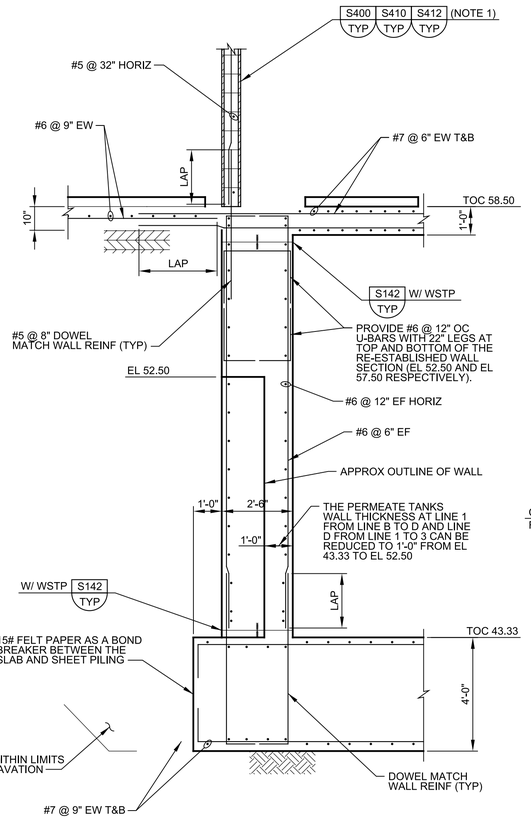
Plot Date: 04-APR-2025 7:50:46 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES:

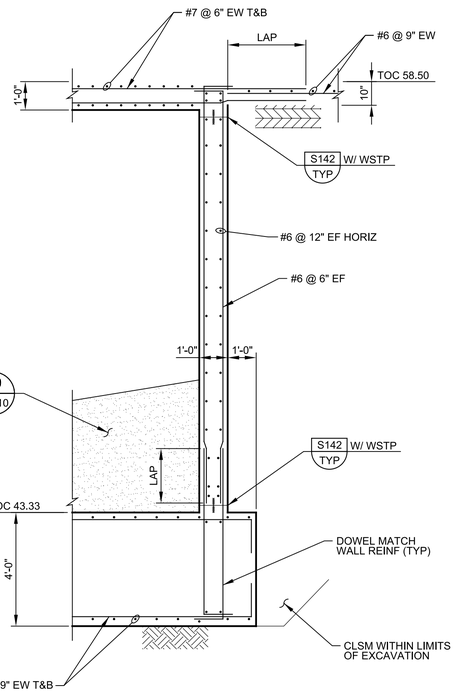
1. 8" CMU WITH #5 @ 8" VERTICALS IN GROUTED CELLS CONTINUE VERTICALS INTO TOP BEAM ONE LAP LENGTH OR HOOK.
2. DETAIL 7 REVISED PER RFI 001, SEE SHEET 02S04.



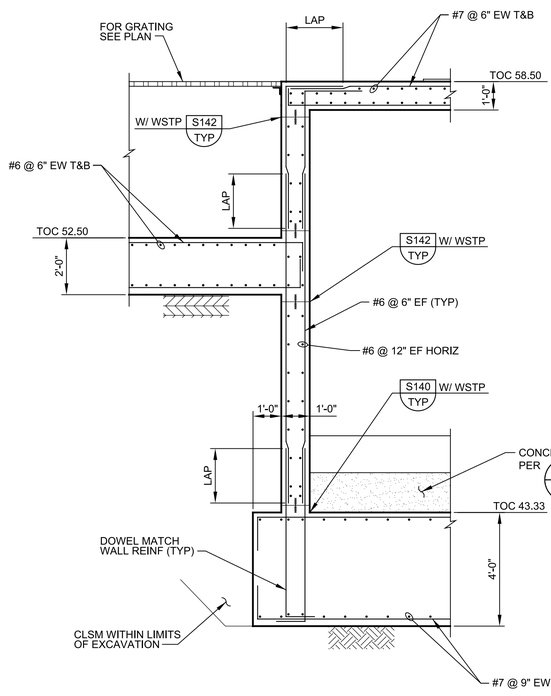
5 DETAIL
02S04 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-301
0 4' 8' 16'



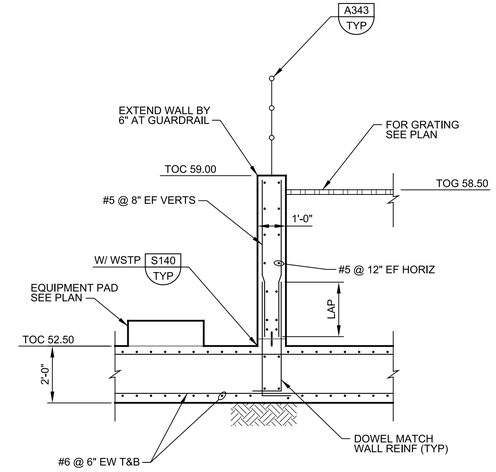
7 DETAIL
02S04 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-302
0 4' 8' 16'



8 DETAIL
02S04 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-302
0 4' 8' 16'



9 DETAIL
02S05 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-304
0 4' 8' 16'



6 DETAIL
02S04 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-306
0 4' 8' 16'

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			RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
CHEMICAL BUILDING DETAILS II

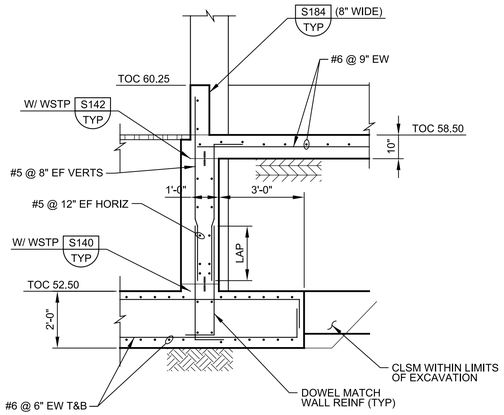
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02S08

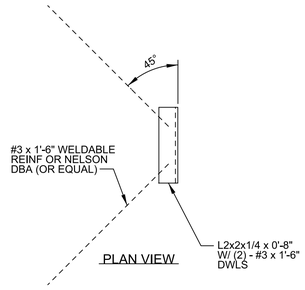
Plot Date: 04-APR-2025 7:50:40 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

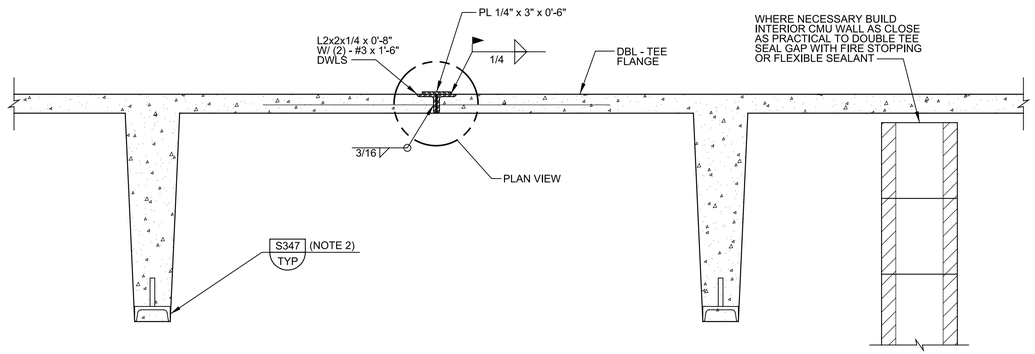
GENERAL NOTES:

1. CONNECT C8 FRAMING WITH L6x3 1/2x3/8 WITH (2) - 3/4" Ø A325 BOLTS AT ONE LEG AND 1/4" FILLET (5" MIN) AT ONE LEG.
2. PRECASTER TO COORDINATE EMBEDDED EQUIPMENT SUPPORTS WITH MECHANICAL DRAWING.

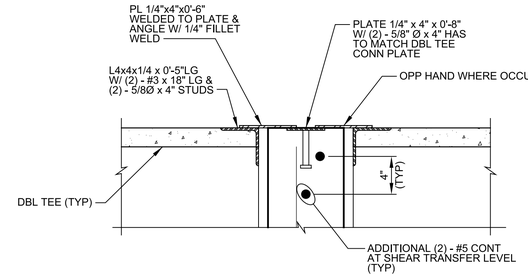


10 DETAIL
02S04
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-301
0 4' 8' 16'

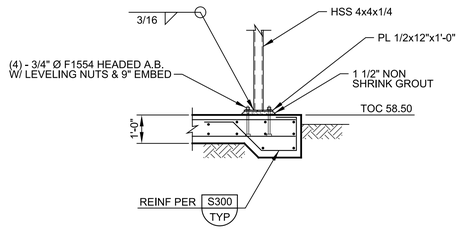




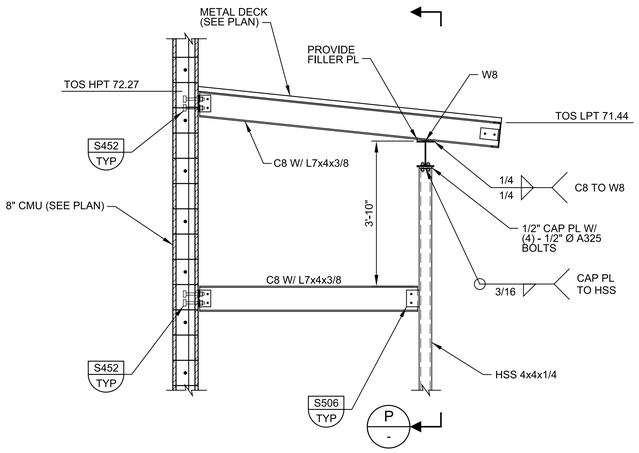
11 DETAIL
02S03
SCALE: 1 1/2" = 1'-0"
FILE: 9510I10-02-040-401
0 4" 8" 1' 2'



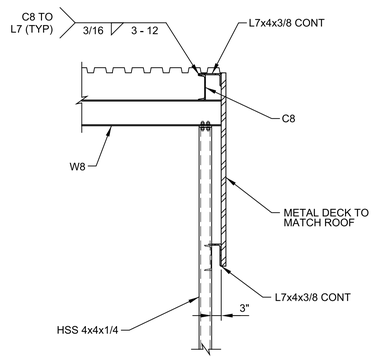
12 DETAIL
02S03
SCALE: 1 1/2" = 1'-0"
FILE: 9510I10-02-040-401
0 4" 8" 1' 2'



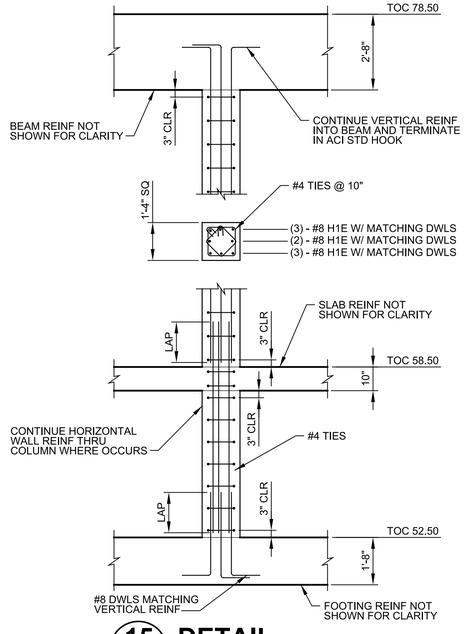
13 DETAIL
02S05
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-401
0 1' 2' 3' 6'



14 DETAIL
02S05
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-040-401
0 1' 2' 4'



P SECTION
-
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-040-401
0 1' 2' 4'



15 DETAIL
02S02
SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-401
0 1' 2' 3' 6'

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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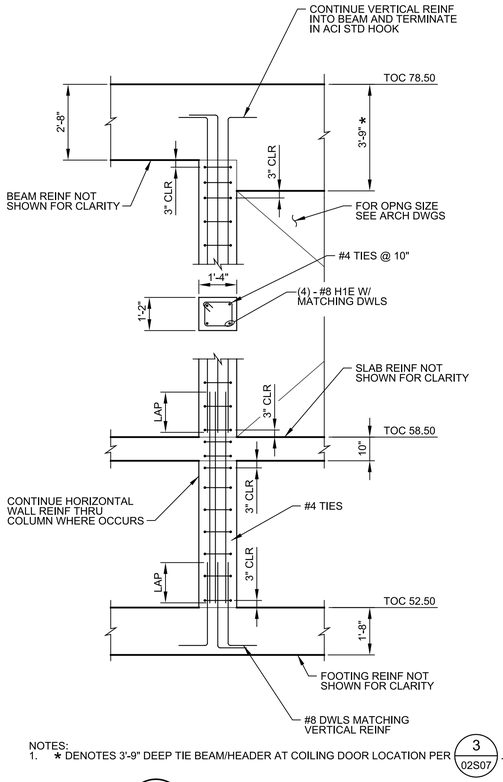
CHEMICAL BUILDING DETAILS III

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

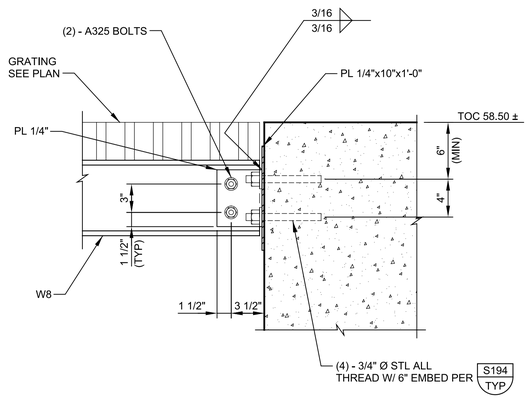
JOB NO. 09520I.10
DRAWING NO. 02S09



NOTES:
1. * DENOTES 3'-9" DEEP TIE BEAM/HEADER AT COILING DOOR LOCATION PER (3 / 02S07).

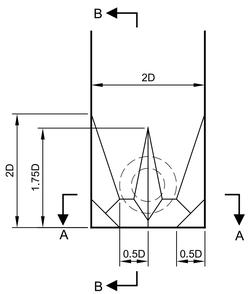
16 DETAIL
02S02 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-401

0 1' 2' 3' 6'

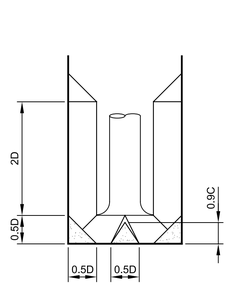


17 DETAIL
02S02 SCALE: 1 1/2" = 1'-0"
FILE: 9510I10-02-040-401

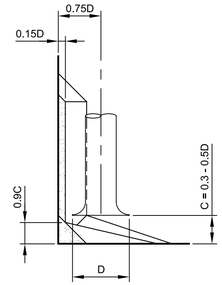
0 4" 8" 1' 2'



PLAN VIEW



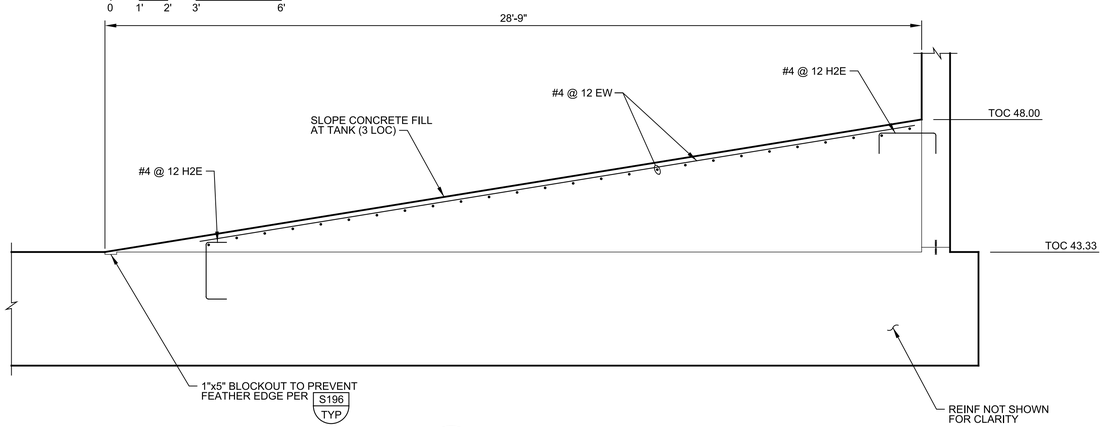
SECTION A-A



SECTION B-B

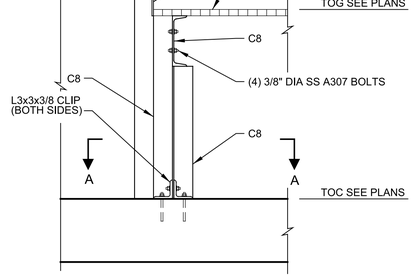
NOTES:
1. DIMENSIONS AND GEOMETRY OF PUMP INTAKES SHOWN ARE BASED ON THE BASIS OF DESIGN PUMP SUCTION INTAKE BELL DIAMETER "D". THESE DIMENSIONS MAY NEED TO BE MODIFIED BASED ON THE ACTUAL PUMP FURNISHED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE PUMP MANUFACTURER AND MODIFY THE PUMP WET WELL DIMENSIONS BASED ON THE FURNISHED SECTION INTAKE BELL DIAMETER "D". REFER TO THE MECHANICAL DRAWINGS AND SECTION 43_24_50.10 FOR ADDITIONAL REQUIREMENTS.

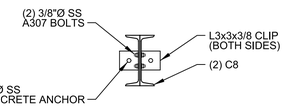
18 DETAIL
02S01 SCALE: NTS
FILE: 9510I10-02-040-401



19 DETAIL
02S04 SCALE: 3/8" = 1'-0"
FILE: 9510I10-02-040-401

0 1' 2' 3' 6'





SECTION A-A

NOTES:
1. PROVIDE SUPPORTS AT BOTH ENDS OF SUPPORT BEAM AND AT 5'-0" MAXIMUM SPACING.
2. SUBMIT SHOP DRAWING OF MODULAR FRP PLATFORM FOR REVIEW BY ENGINEER PRIOR TO FABRICATION.
3. DESIGN LIVE LOAD: 100 PSF.
4. ALL MATERIAL TO BE FIBERGLASS REINFORCED POLYMER MEETING THE PROPERTIES OF STRONGWELL EXTREN 500 OR APPROVED EQUAL (UNO).

20 DETAIL
00S01 SCALE: 1" = 1'-0"
FILE: 9510I10-02-040-401

0 1' 2'

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY
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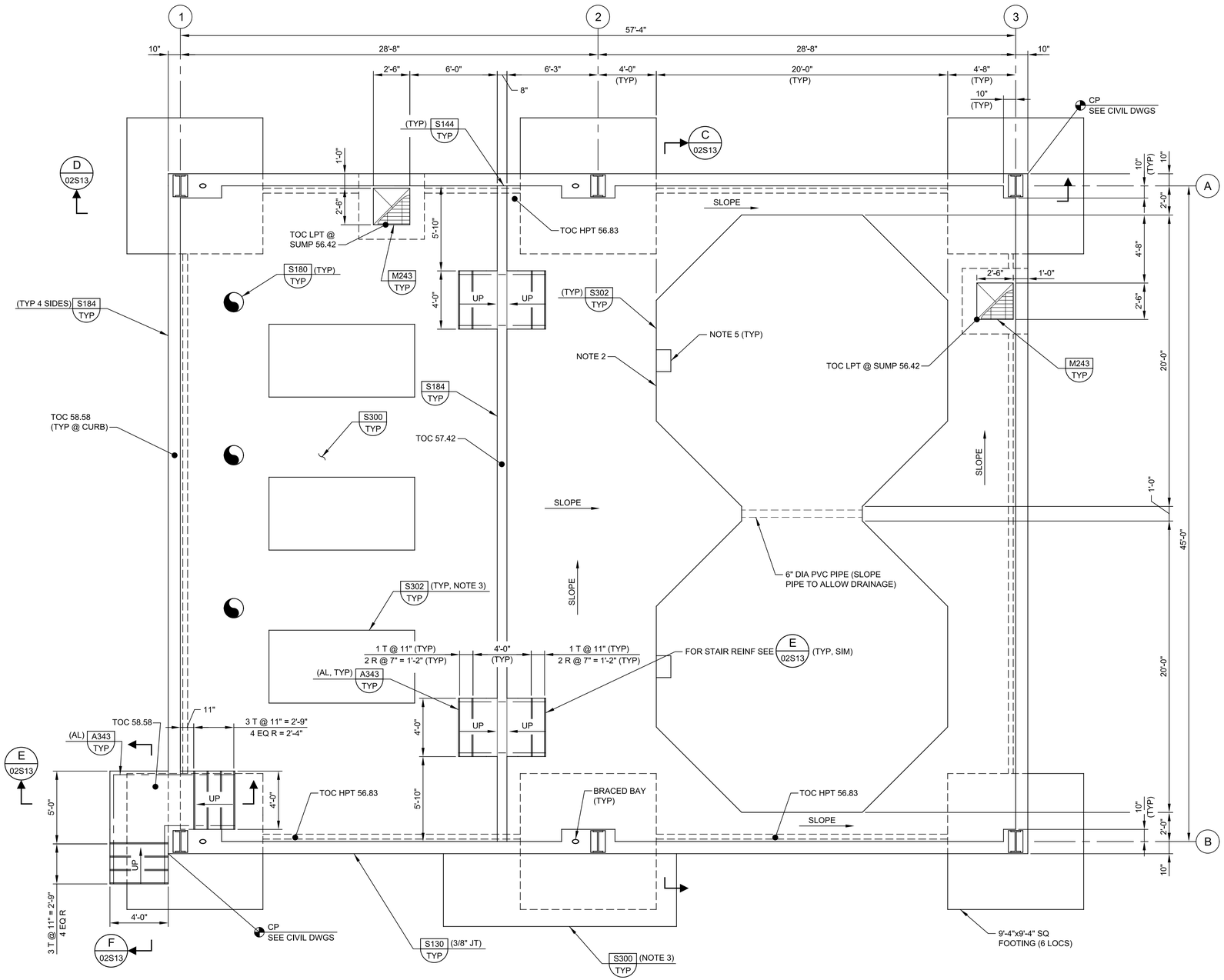
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02S10

PROJECT NO. 9520I10 FILE NAME: 9520I1002S10.dgn
Plot Date: 04-APR-2025 7:52:21 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker



A FOUNDATION PLAN

SCALE: 1/4" = 1'-0"
FILE: 9520I10-02-050-111

0 2' 4' 8'

GENERAL NOTES:

1. FLOOR LIVE LOAD = 200 PSF.
2. COAT HORIZONTAL AND VERTICAL CONCRETE SURFACES INCLUDING TANK PADS AND TOP OF CURB WITHIN CONTAINMENT AREA PER SPEC 09_96_01.
3. CONTRACTOR TO COORDINATE PAD DIMENSIONS WITH SUPPLIED EQUIPMENT.
4. CONTRACTOR TO LOCATE ALL PENETRATIONS PRIOR TO STARTING WORK.
5. CONTRACTOR TO COORDINATE BLOCK OUT WITH TANK DRAIN PER MECHANICAL DRAWINGS.
6. PROVIDE GROUT TOPPING ON SLAB AND SLOPE TO SUMP AS INDICATED ON PLAN. MINIMUM 2" GROUT TOPPING THICKNESS AT LOW POINT.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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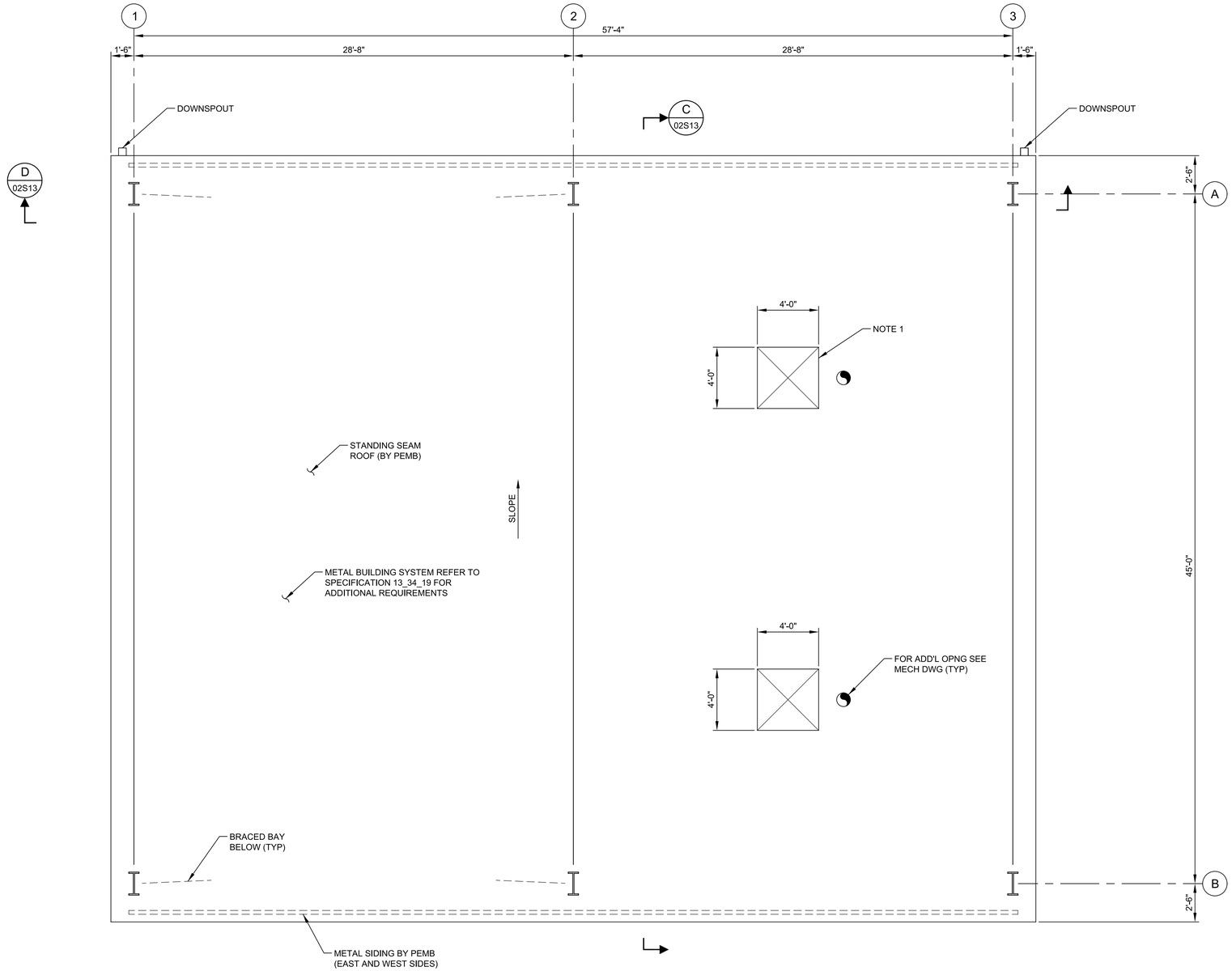
STRUCTURAL
NEUTRALIZATION TANK
FOUNDATION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 9520I.10
DRAWING NO. 02S11

Plot Date: 04-APR-2025 7:55:43 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

PROJECT NO. 9520I10 FILE NAME: 9520I1002S11.dgn



B ROOF PLAN

SCALE: 1/4" = 1'-0"
FILE: 9520I10-02-050-112

0 2' 4' 8'

GENERAL NOTES:

1. CONTRACTOR TO COORDINATE 4'-0" x 4'-0" ROOF HATCH WITH MIXER LOCATION BELOW. METAL BUILDING MANUFACTURER TO PROVIDE AUXILIARY MEMBERS IF NEEDED. (TYPICAL OF 2)

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
NEUTRALIZATION TANK
ROOF PLAN

VERIFY SCALES
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0 1"
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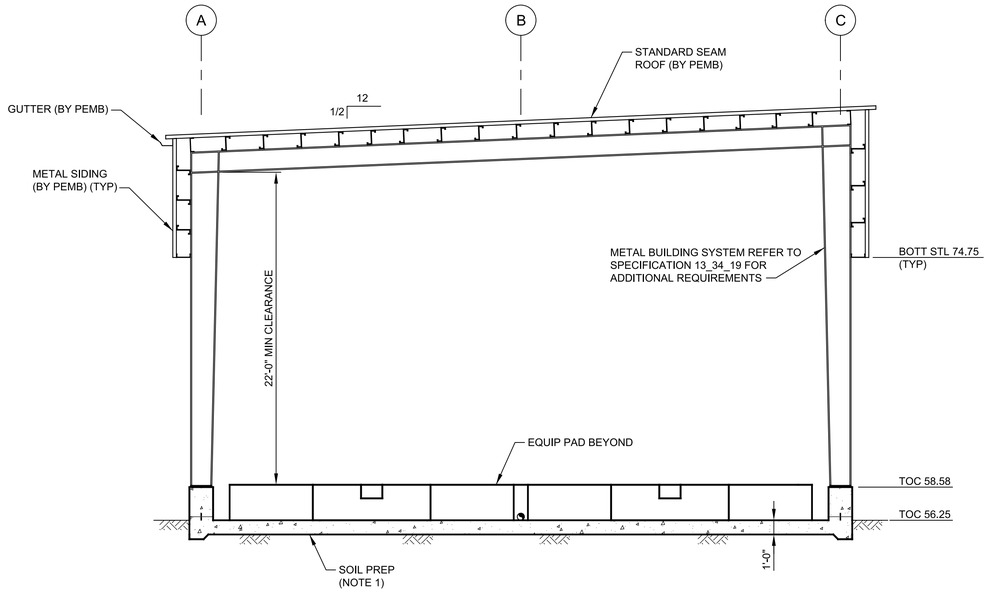
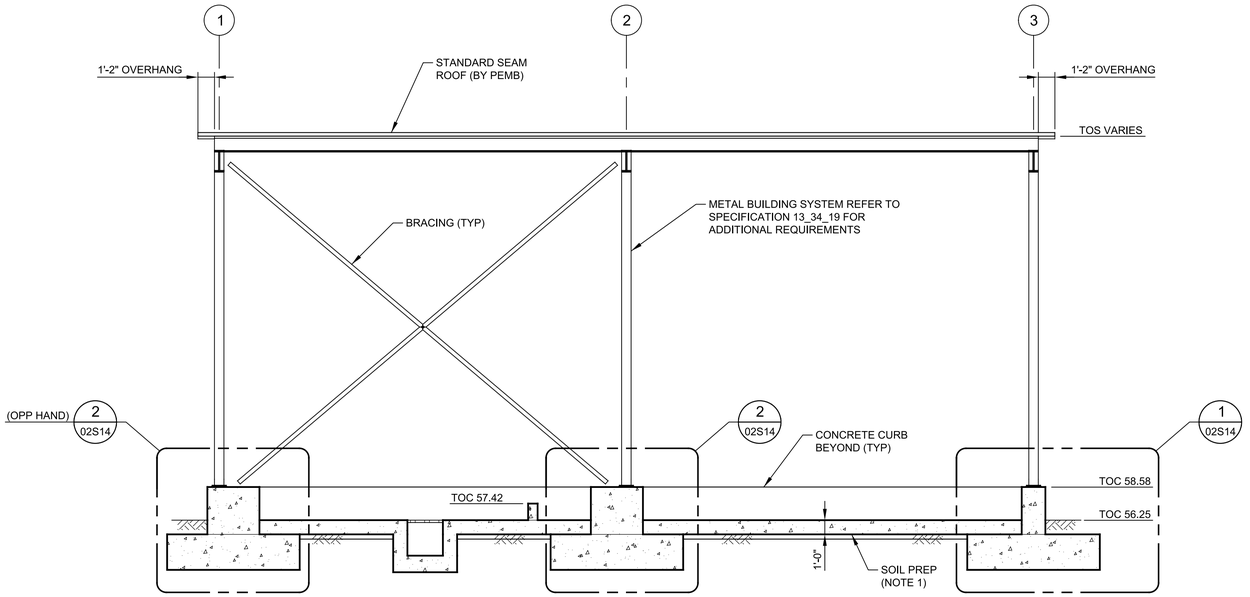
JOB NO. 09520I.10
DRAWING NO. 02S12

PROJECT NO. 9520I10 FILE NAME: 9520I1002S12.dgn

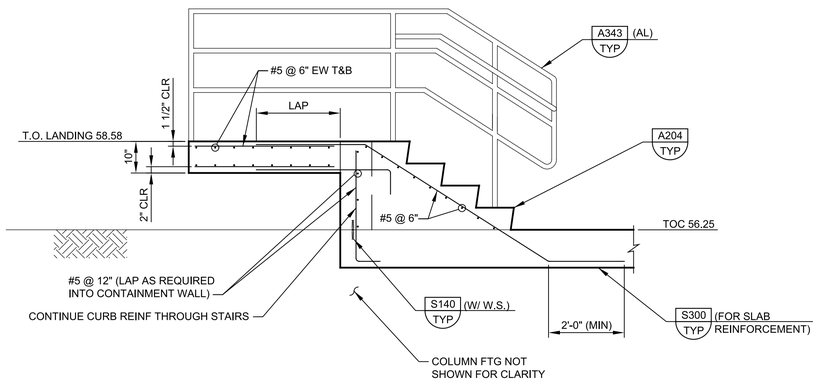
Plot Date: 04-APR-2025 7:56:31 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



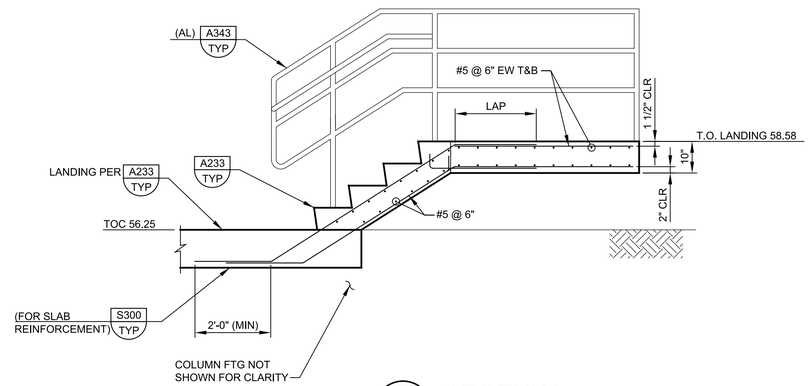
C SECTION (02S11)
SCALE: 3/16" = 1'-0"
FILE: 9510I10-02-050-311
0 2' 4' 6' 12'



D SECTION (02S11)
SCALE: 3/16" = 1'-0"
FILE: 9510I10-02-050-312
0 2' 4' 6' 12'



E SECTION (02S11)
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-050-402
0 1' 2' 4'



F SECTION (02S11)
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-050-402
0 1' 2' 4'

GENERAL NOTES:

1. OVER EXCAVATE TO BOTTOM OF FOUNDATION AND COMPACT EXCAVATION BOTTOM TO 95% OF ASTM D1557. REFER TO GEOTECHNICAL REPORT FOR MINIMUM COMPACTION EFFORT. AVOID EXCESS VIBRATION NEAR EXISTING STRUCTURES.

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JOB NO. 09520I.10
DRAWING NO. 02S13

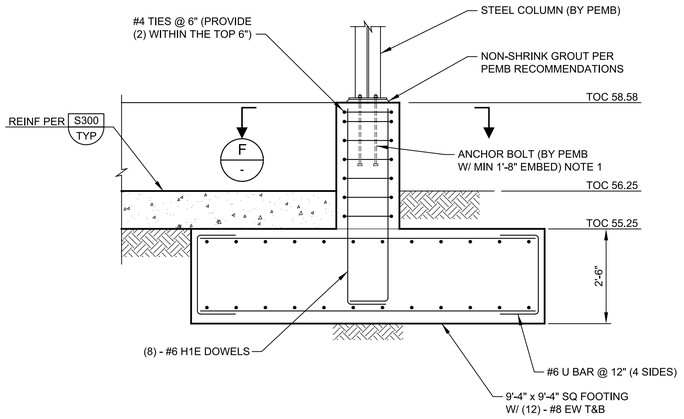
PROJECT NO. 9520I10 FILE NAME: 9520I1002S13.dgn

Plot Date: 04-APR-2025 7:55:57 AM
User: svcPW
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
PlotScale: 1:1
LAST SAVED BY: eparker

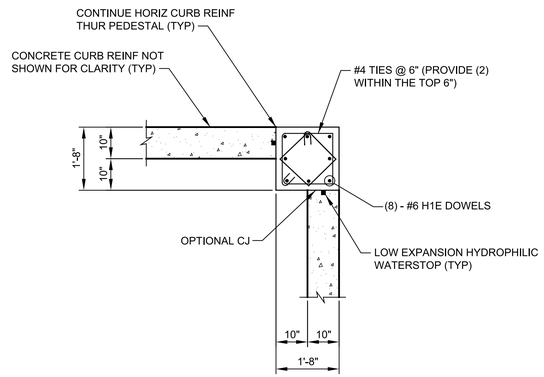
Plot Date: 04-APR-2025 7:51:38 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES:

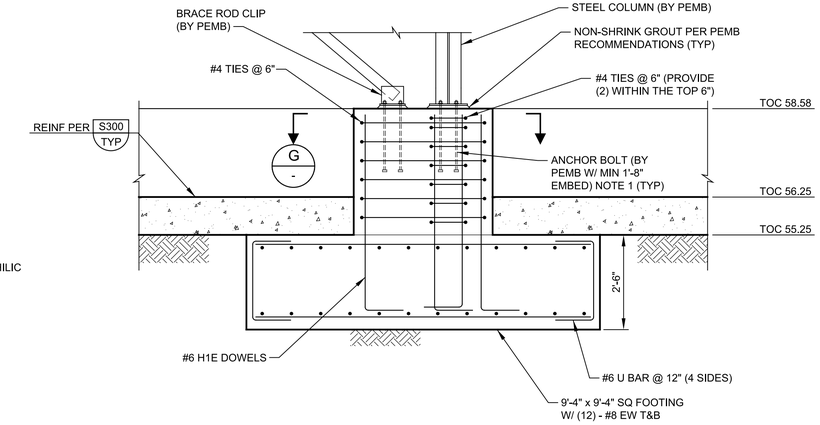
1. MINIMUM ANCHOR BOLT EDGE DISTANCE IS 6 BOLT DIAMETERS AND MINIMUM BOLT SPACING IS 3 BOLT DIAMETERS.



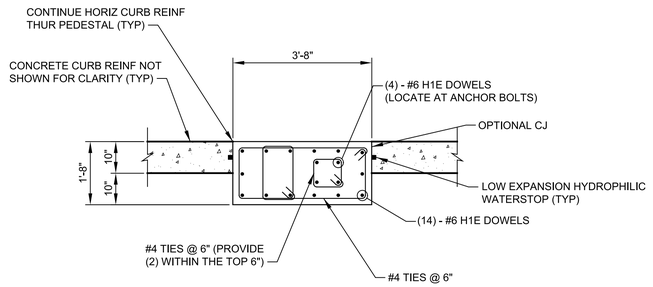
1 DETAIL
02S13
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-050-402
0 1' 2' 4'



F SECTION
-
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-050-402
0 1' 2' 4'



2 DETAIL
02S13
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-050-402
0 1' 2' 4'



G SECTION
-
SCALE: 1/2" = 1'-0"
FILE: 9510I10-02-050-402
0 1' 2' 4'

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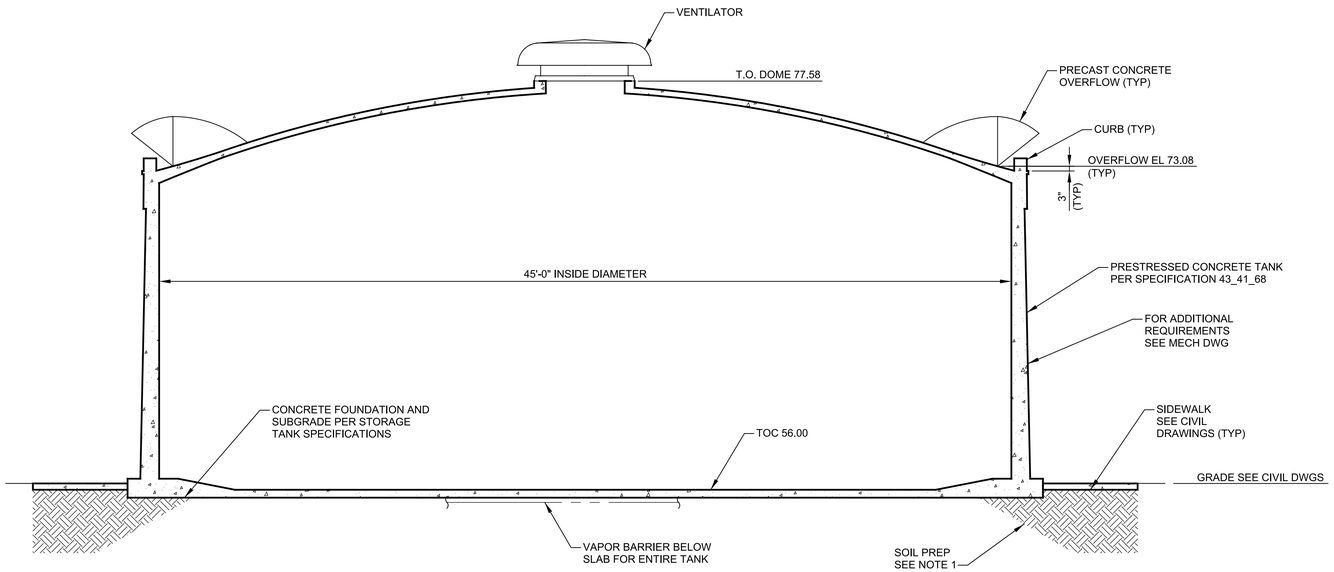
JOB NO. 09520I.10
DRAWING NO. 02S14

PROJECT NO. 9520I10 FILE NAME: 9520I1002S14.dgn

Plot Date: 04-APR-2025 7:55:46 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES:

1. OVER EXCAVATE TO BOTTOM OF FOUNDATION AND COMPACT EXCAVATION BOTTOM TO 95% OF ASTM D1557. REFER TO GEOTECHNICAL REPORT FOR MINIMUM COMPACTION EFFORT. AVOID EXCESS VIBRATION NEAR EXISTING STRUCTURES.



A SECTION

SCALE: 1/4" = 1'-0"
FILE: 9520I10-02-050-401

0 2' 4' 8'

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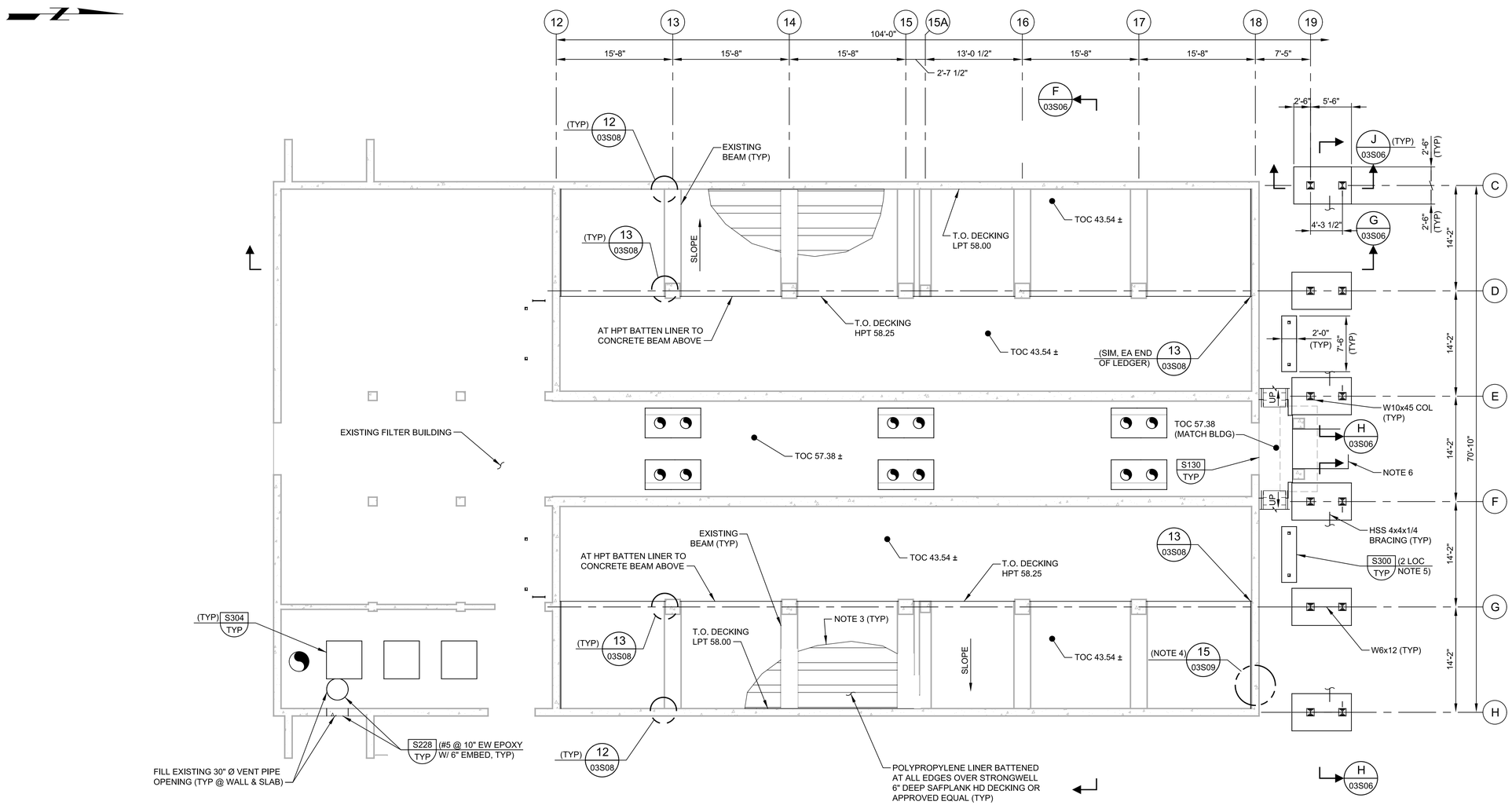
JOB NO. 09520I.10
DRAWING NO. 02S15

PROJECT NO. 9520I10 FILE NAME: 9520I1002S15.dgn



GENERAL NOTES:

1. LIVE LOAD = 20 PSF (NON-OCCUPIABLE SPACE).
2. NOT USED

   ELASTIC SECTION MODULUS = 23.8 IN^3
   MOMENT OF INERTIA = 142.8 IN^4
   YOUNGS MODULUS = $2.8x10^6$ PSI
   ANSI/NSF 61 CERTIFIED
3. PROVIDE HOLD DOWNS FOR FRP DECKING PER MANUFACTURERS RECOMMENDATIONS.
4. CONTRACTOR TO FIELD LOCATE OVERFLOW PIPING AT CLEARWELL (6 LOCS).
5. NOTCH FOOTING TO CLEAR EXISTING AND PROVIDE EXPANSION JOINT AT INTERFACE.
5. PROVIDE SIDEWALK PER TYPICAL DETAIL C120/TYP.

A PLAN AT EL 58.29

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-105

0 4' 8' 16'

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STRUCTURAL
UF FILTER BUILDING
PLAN AT EL 58.29

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JOB NO. 09520I.10
DRAWING NO. 03S01

Plot Date: 04-APR-2025 7:53:21 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
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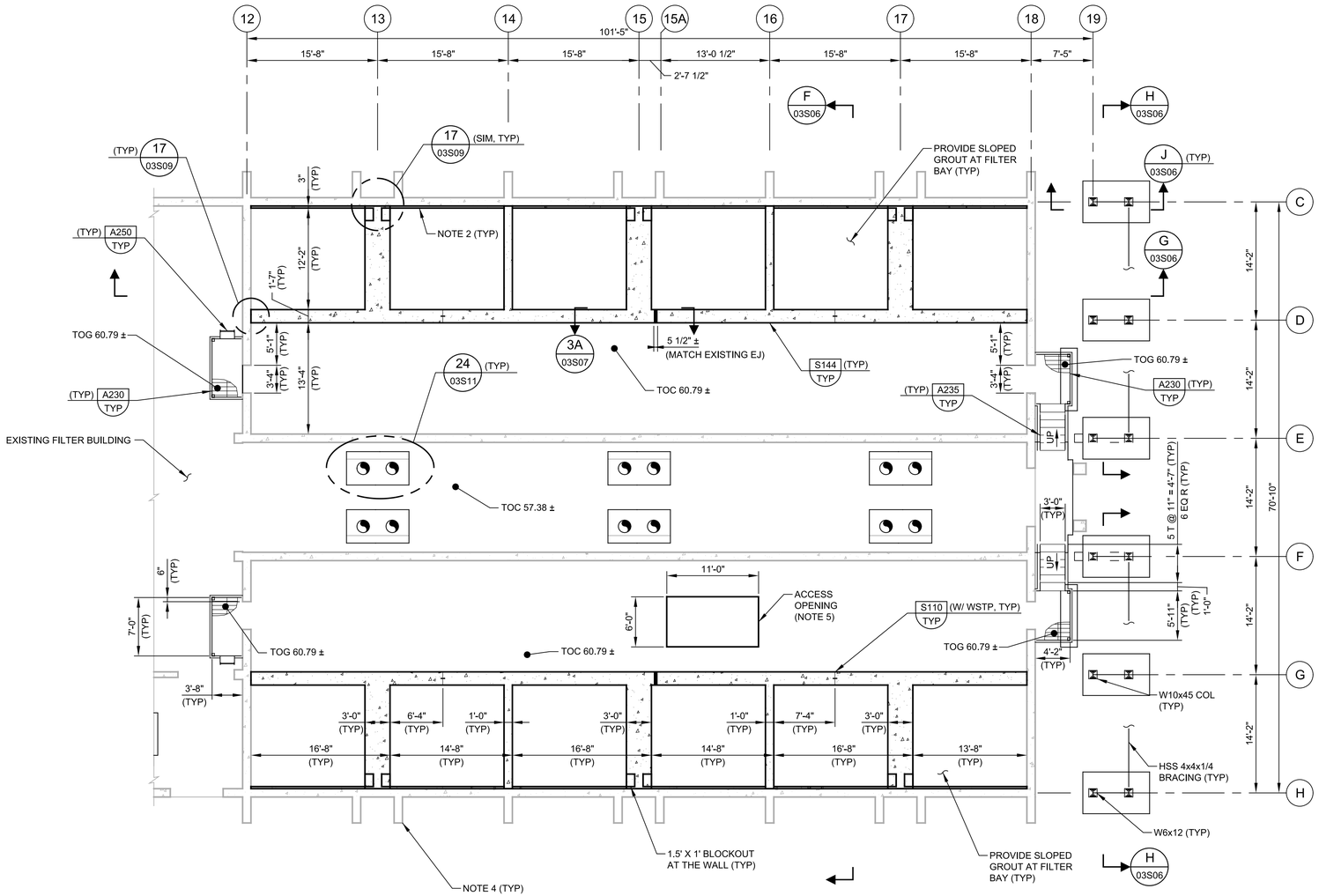
LAST SAVED BY: eparker



B PLAN AT EL 60.79

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-106

0 4' 8' 16'

GENERAL NOTES:

1. LIVE LOAD = 200 PSF.
2. 3" GROUT INFILL
3. LOCATE ALL PIPE PENETRATIONS PRIOR TO STARTING WORK.
4. PROTECT EXISTING TROUGH SUPPORTS SURING CONSTRUCTION OPERATIONS. COORDINATE TROUGH SUPPORTS WITH PIPE PENETRATIONS SHOWN ON MECH DWG. WHERE CONFLICT OCCURS NOTIFY ENGINEER AND INSTALL STEEL TROUGH SUPPORT PER DETAIL 26/03S11.
5. SAW CUT TEMPORARY CONSTRUCTION ACCESS OPENING IN ELEVATED CONCRETE SLAB AT EL 60.75 ± BETWEEN COLUMN LINE 15A/F AND 16/G. FIELD COORDINATE LOCATION TO AVOID EXISTING BEAMS AT ELEVATED SLAB. CONTRACTOR TO VERIFY OEPNING SIZE WITH REQUIRED WORK AT CLEARWELL. SEE MECHANICAL DRAWINGS. REPAIR OPENING PER DETAIL 28 ON DRAWING 03S12.

REV	DATE	BY	DESCRIPTION
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UF FILTER BUILDING
PLAN AT EL 60.79

VERIFY SCALES
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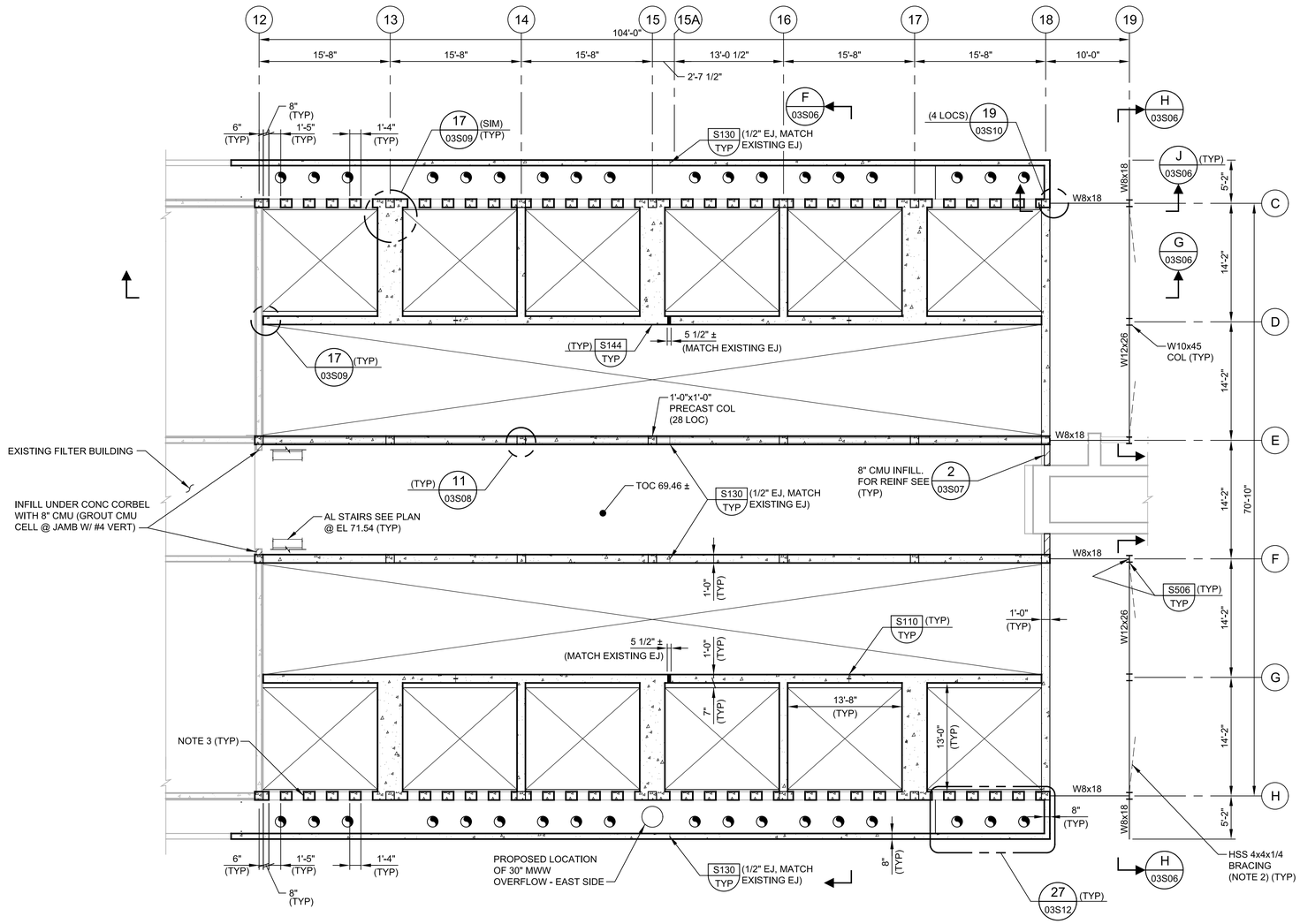
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S02

PROJECT NO. 9520I10 FILE NAME: 9520I1003S02.dgn

Plot Date: 04-APR-2025 7:54:41 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker



C PLAN AT EL 69.46

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-104

0 4' 8' 16'

GENERAL NOTES:

1. LIVE LOADS = 200 PSF.
2. DENOTES VERTICAL BRACING.
3. CONTRACTOR TO COORDINATE LOCATION OF PIERS WITH SUPPLIED ENGINEERED COVER. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION 46_73_13.

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STRUCTURAL
UF FILTER BUILDING
PLAN AT EL 69.46

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S03

PROJECT NO. 9520I10 FILE NAME: 9520I1003S03.dgn
Plot Date: 04-APR-2025 7:54:34 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
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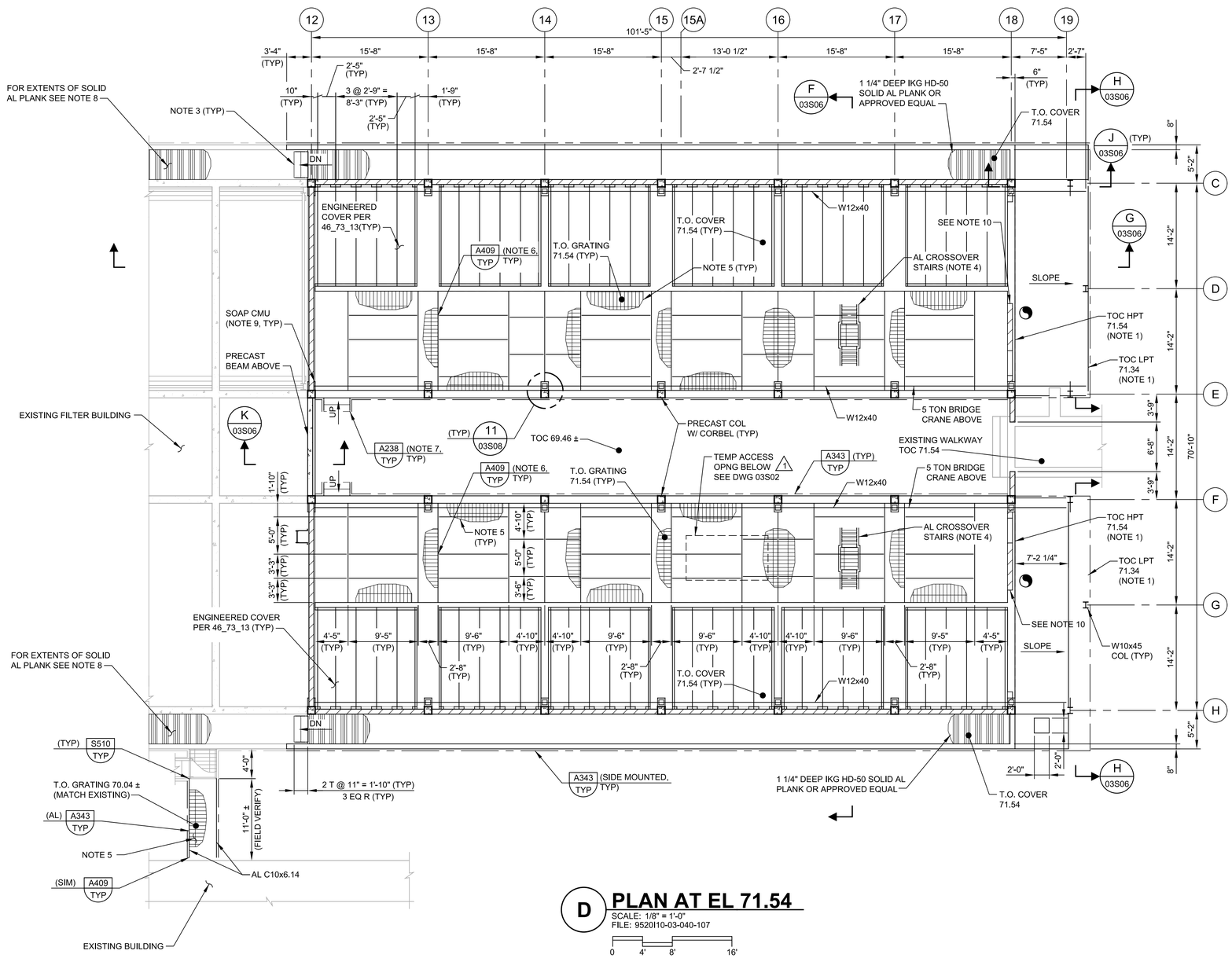
Model: Layout1
LAST SAVED BY: eparker



D PLAN AT EL 71.54

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-107

0 4' 8' 16'

GENERAL NOTES:

1. 8" DEEP REINFORCED CONCRETE W/ #5 @ 12" OVER 3" DEEP GALV VULCRAFT 3C CONFORM 16 GA METAL DECK OR EQUAL. SLOPE CONCRETE 1/4"/FT AWAY FROM BUILDING TO ALLOW POSITIVE DRAINAGE.
2. LIVE LOAD = 50 PSF.
3. PROVIDE CLOSED NONSLIP SOLID PLANK ALUMINUM STAIR TREADS. ANCHOR TREADS PER MANUFACTURER'S RECOMMENDATIONS (MINIMUM 3/8" DIAMETER CONCRETE ANCHORS).
4. PROVIDE (2) OSHA COMPLIANT ERECTASTEP PRE-ENGINEERED ALUMINUM CROSSOVER STAIRS OR APPROVED EQUAL WITH MINIMUM 2'-5" CLEARANCE FROM TOP OF GRATING. CONTRACTOR TO COORDINATE VERTICAL CLEARANCE WITH HEADER PIPE PER MECHANICAL DRAWINGS. ANCHOR STAIRS TO GRATING WITH FOUR GRATING CLIPS.
5. PROVIDE ALUMINUM TYPE W GRATING WITH 1 3/4" x 3/16" BEARING BARS. SPAN GRATING IN THE SHORT DIRECTION. CUT AND BAND GRATING AT PENETRATIONS.
6. PROVIDE ALUMINUM I10 x 10.3 BEAMS.
7. ALUMINUM STAIRS WITH W = 3'-6", 2 T @ 11" = 1'-10" AND 3 EQUAL RISERS.
8. SOLIDS ALUMINUM PLANK TO BE PROVIDED AT FILTER FEED CHANNELS FROM POST MIX BASIN A AND POST MIX BASIN B TO FILTER BAYS. ASSUME A TOTAL OF 720 LINEAR FEET OF CHANNEL TO BE COVERED.
9. SOAP MASONRY AT CORBEL AND BRIDGE CRANE SUPPORT BEAM.
10. 8" CMU INFILL WALL WITH #5@8" VERTS AND MATCHING #5 DOWELS WITH 180 DEGREE ACI HOOK ON ONE END. HORIZONTAL REINFORCEMENT SHALL BE #5@32". REFER TO S410/TYP ON DWG 00GS05 FOR ADDITIONAL INFORMATION.

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PLAN AT EL 71.54

VERIFY SCALES
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0 1"
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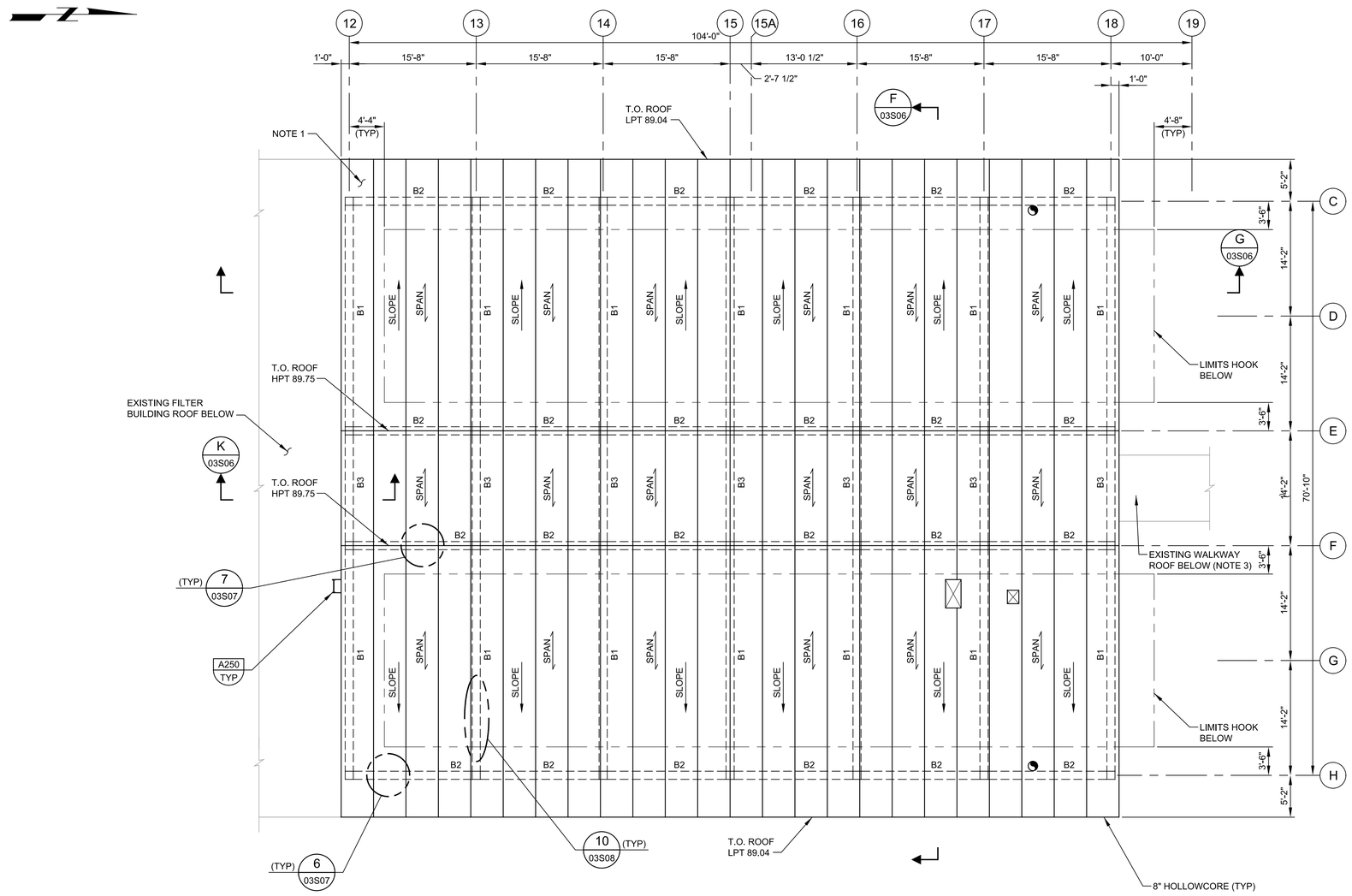
JOB NO. 09520I.10
DRAWING NO. 03S04

PROJECT NO. 9520I10 FILE NAME: 9520I1003S04.dgn

Plot Date: 04-APR-2025 7:53:41 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



E ROOF PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-103

0 4' 8' 16'

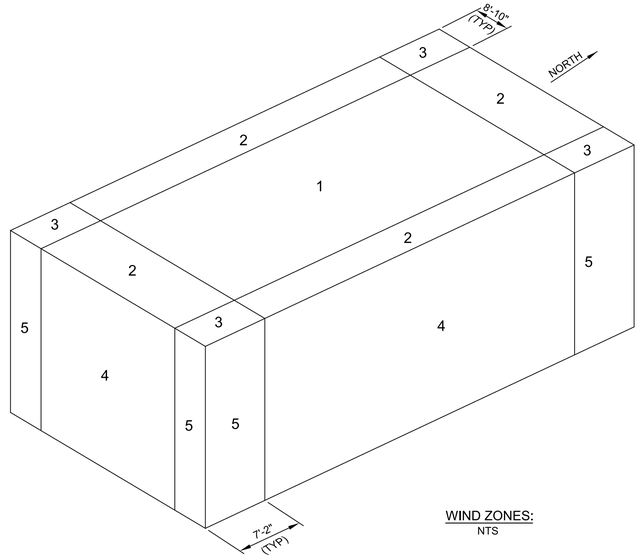
PRECAST BEAM SCHEDULE			
MARK	SIZE (INCH) W	SIZE (INCH) D	REMARKS
B1	12	16	SPAN - 28'-4" ±
B2	12	16	SPAN - 15'-8" ±
B3	12	16	SPAN - 14'-2" ±

GENERAL NOTES:

1. DESIGN LOADS:
   DEAD LOAD: 59 PSF
   COLLATERAL LOAD: 15 PSF
   LIVE LOAD: 20 PSF
   WIND LOAD: SEE WIND PRESSURE DIAGRAM
2. PRECASTER RESPONSIBLE TO DESIGN PRECAST MOMENT FRAMES AND CONNECTIONS TO RESIST LATERAL WIND LOADS, MINIMUM FACTORED DESIGN MOMENT OF 57 KIP-FT SHALL BE USED. SEE SPECIFICATION 03_41_32 FOR DESIGN INFORMATION.
3. EXTEND WALKWAY ROOF TO LINE 18. MATCH EXISTING WALKWAY ROOF. PROVIDE TRANSOM FROM TOP OF WALKWAY ROOF TO BOTTOM OF PRECAST BEAM.
4. CONTRACTOR TO COORDINATE OPENINGS WITH MECHANICAL HVAC DRAWINGS.

WIND PRESSURES PER 2017 FBC (FACTORED)

ZONE	EFFECTIVE WIND AREA (SQ FT)	UPWARD (OUTWARD) PRESSURE VALUE (PSF)	DOWNWARD (WINDWARD) PRESSURE VALUE (PSF)
1	10	-80.5	44.2
1	20	-79.0	42.6
1	50	-76.9	40.5
1	100	-75.4	39.0
2	10	-122.1	44.2
2	20	-111.2	42.6
2	50	-96.7	40.5
2	100	-85.7	39.0
3	10	-174.1	44.2
3	20	-147.5	42.6
3	50	-112.3	40.5
3	100	-85.7	39.0
4	10	-80.0	75.4
4	20	-77.5	72.9
4	50	-74.3	69.6
4	100	-69.3	64.6
4	500	-66.0	61.3
5	10	-94.1	75.4
5	20	-89.1	82.9
5	50	-82.5	69.6
5	100	-69.3	64.6
5	500	-66.0	61.3



WIND ZONES:
NTS

REV	DATE	BY	DESCRIPTION

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DATE APRIL 2025

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Manatee County FLORIDA

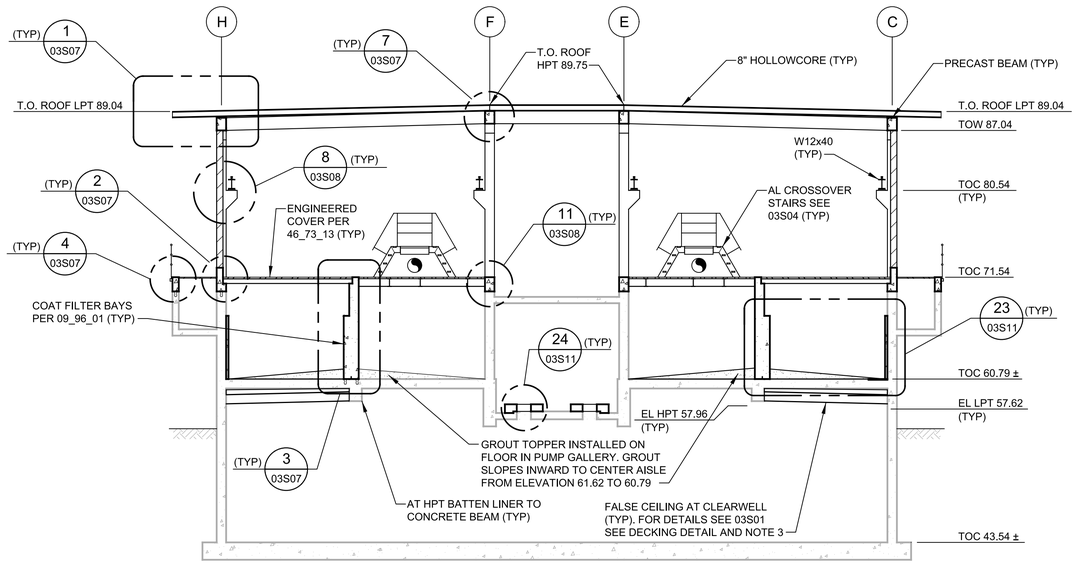
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
UF FILTER BUILDING
ROOF PLAN

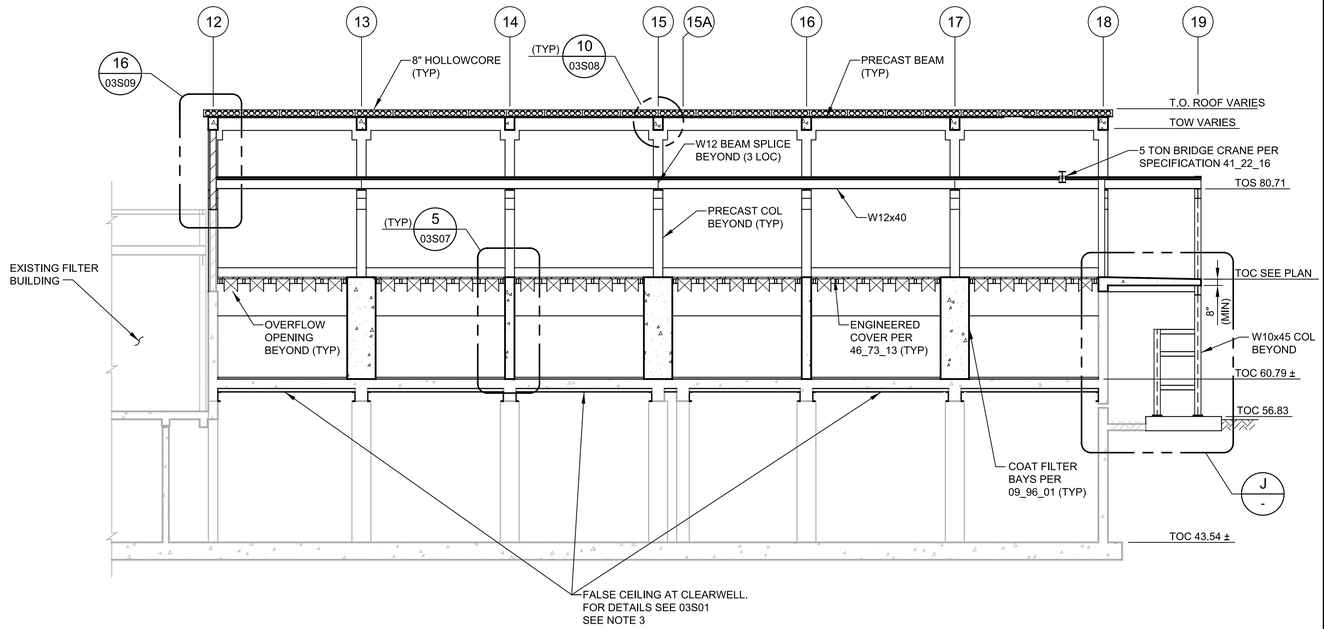
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S05

PROJECT NO. 9520I10 FILE NAME: 9520I1003S05.dgn

Plot Date: 04-APR-2025 7:53:37 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

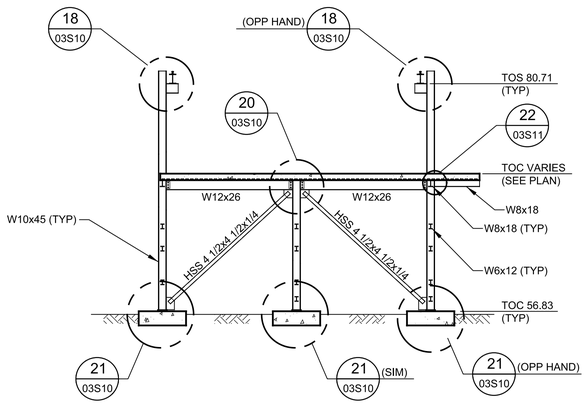




F 03S01 SECTION

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-305

0 4' 8' 16'

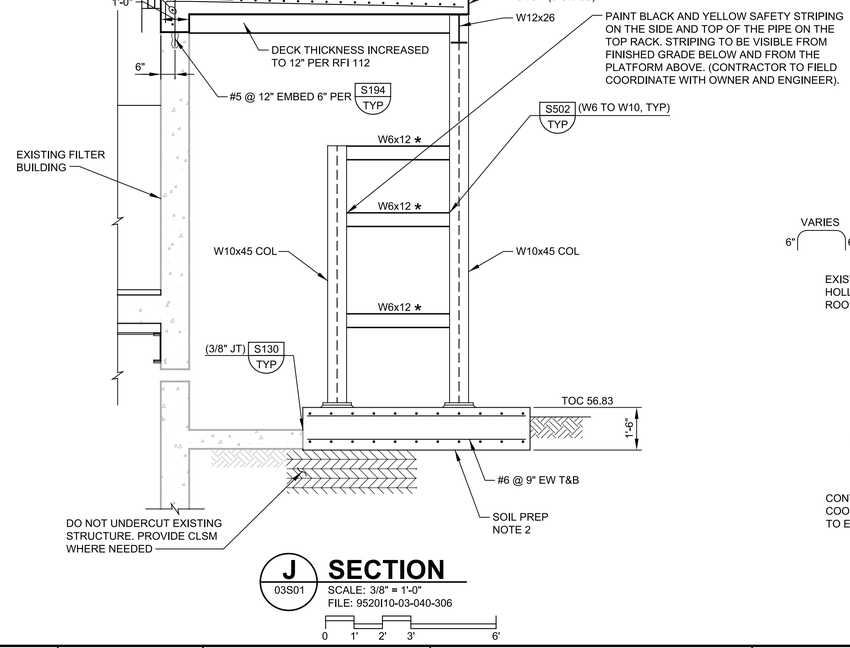


NOTES:
1. HOT DIP GALVANIZE ALL STEEL MEMBERS.

H 03S01 SECTION

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-305

0 4' 8' 16'



J 03S01 SECTION

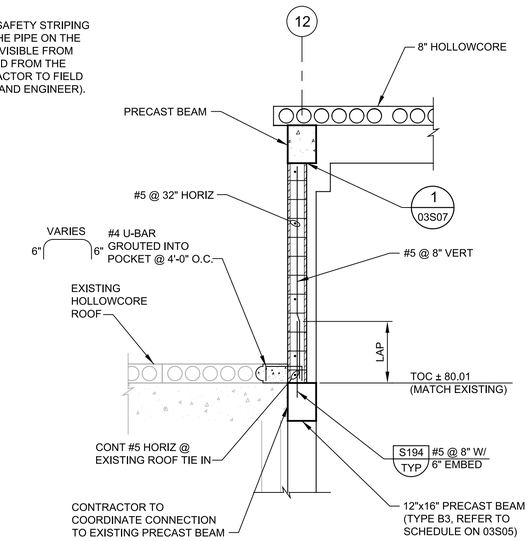
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-306

0 1' 2' 3' 6'

G 03S01 SECTION

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-040-306

0 4' 8' 16'



K 03S05 SECTION

SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-308

0 1' 2' 3' 6'

GENERAL NOTES:

1. ★ DENOTES COORDINATE PIPE SUPPORTS LENGTH AND ELEVATION WITH MECHANICAL DRAWINGS.
2. OVER EXCAVATE TO BOTTOM OF FOUNDATION AND COMPACT EXCAVATION BOTTOM TO 95% OF ASTM D1557. REFER TO GEOTECHNICAL REPORT FOR MINIMUM COMPACTION EFFORT. AVOID EXCESS VIBRATION NEAR EXISTING STRUCTURES.
3. FRP DECKING WITH LINER.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN TJD
CHECKED KD
DATE APRIL 2025

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VERIFY SCALES
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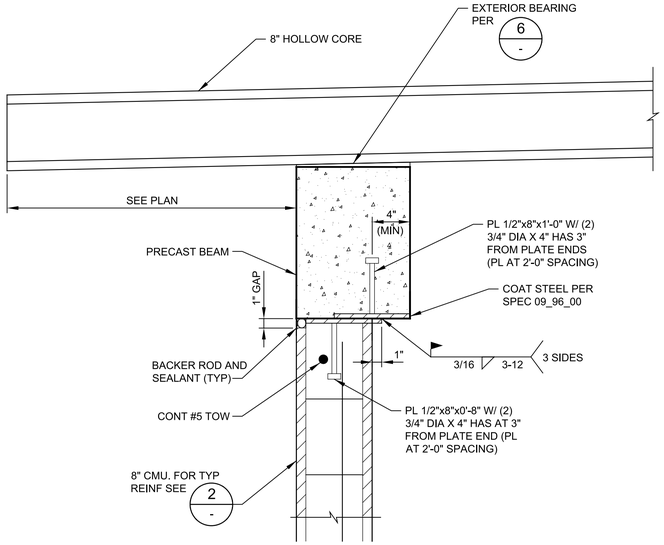
JOB NO. 09520I.10
DRAWING NO. 03S06

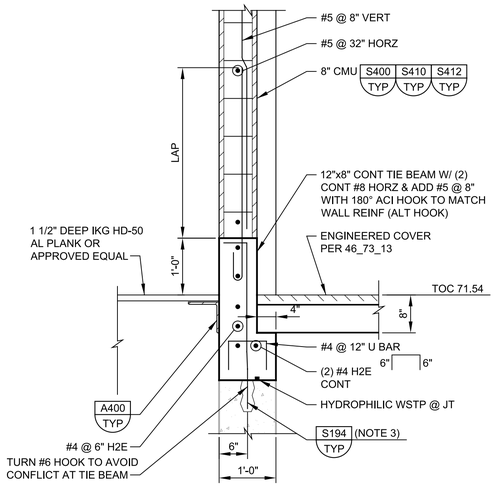
PROJECT NO. 9520I10 FILE NAME: 9520I1003S06.dgn
Plot Date: 04-APR-2025 7:54:23 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



1 DETAIL
03S06

SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-305

0 4" 8" 1' 2'

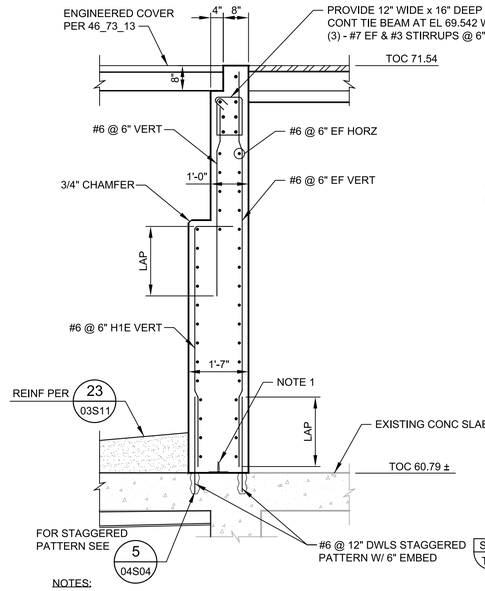


NOTES:
1. CONTRACTOR TO COORDINATE DIMENSIONS OF ENGINEERED COVER BLOCK OUT WITH MANUFACTURER'S RECOMMENDATIONS.
2. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6". ADJUST HOLES TO AVOID DAMAGING EXISTING REINFORCEMENT.
3. EPOXY (3) - #6 H1E WITH 4" MIN SPACING AND 6" EMBED AT EACH PIER.

2 DETAIL
03S06

SCALE: 3/4" = 1'-0"
FILE: 9520I10-03-040-305

0 1' 3'



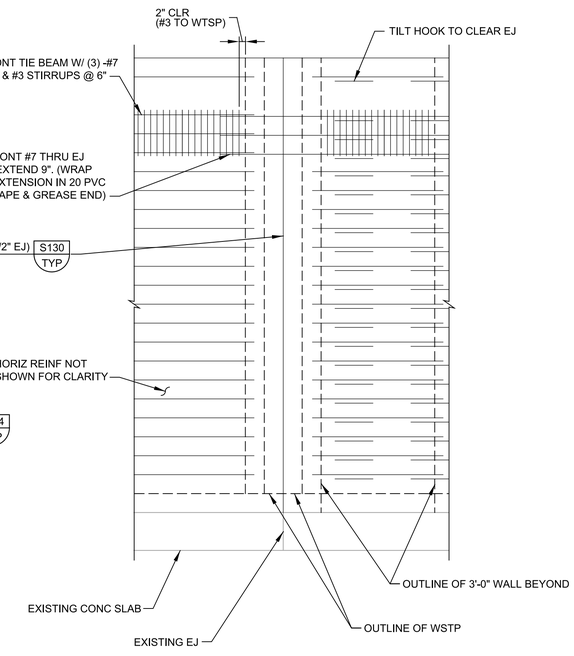
NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6". ADJUST HOLES TO AVOID DAMAGING EXISTING REINFORCEMENT.

3 DETAIL
03S06

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-040-305

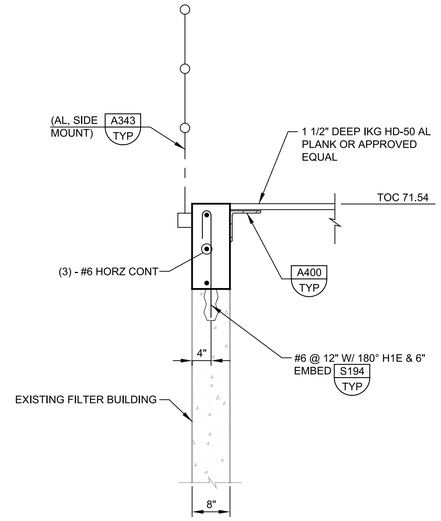
0 1' 2' 4'

GENERAL NOTES:
1. GRIND SURFACE SMOOTH AND INSTALL GREENSTREAK #609 RETROFIT WATERSTOP WITH SST ANCHORS AND SST BATTEN BARS.



3A DETAIL
03S02

SCALE: NOT TO SCALE
FILE: 9520I10-03-040-305

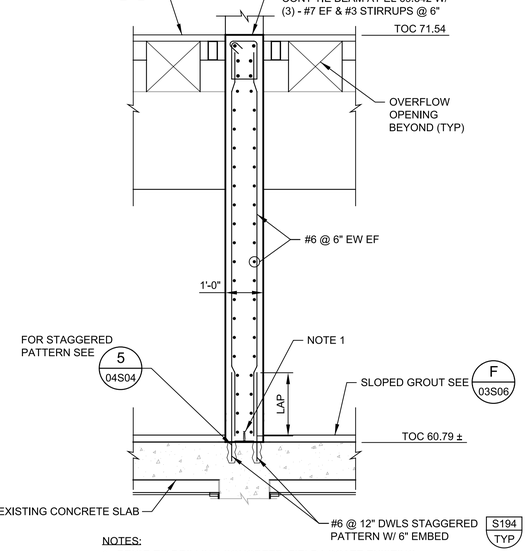


NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6". ADJUST HOLES TO AVOID DAMAGING EXISTING REINFORCEMENT.

4 DETAIL
03S06

SCALE: 3/4" = 1'-0"
FILE: 9520I10-03-040-305

0 1' 3'

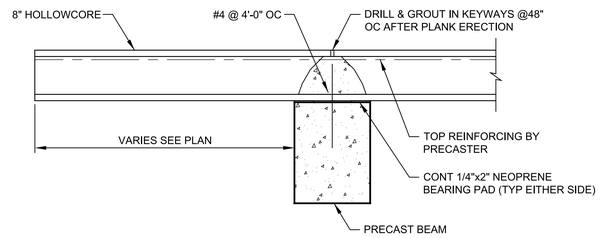


NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6". ADJUST HOLES TO AVOID DAMAGING EXISTING REINFORCEMENT.

5 DETAIL
03S06

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-040-306

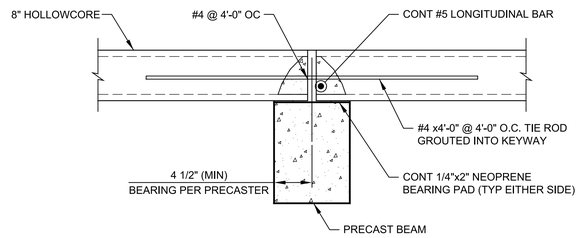
0 1' 2' 4'



6 DETAIL
03S05

SCALE: 1" = 1'-0"
FILE: 9520I10-03-040-308

0 1' 2'



7 DETAIL
03S05

SCALE: 1" = 1'-0"
FILE: 9520I10-03-040-308

0 1' 2'

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN TJD
CHECKED KD
DATE APRIL 2025

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LAKE MANATEE WTP FILTER UPGRADE
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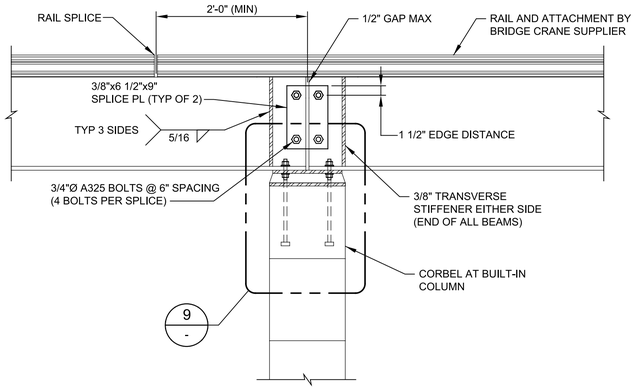
DETAILS I SHEET 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

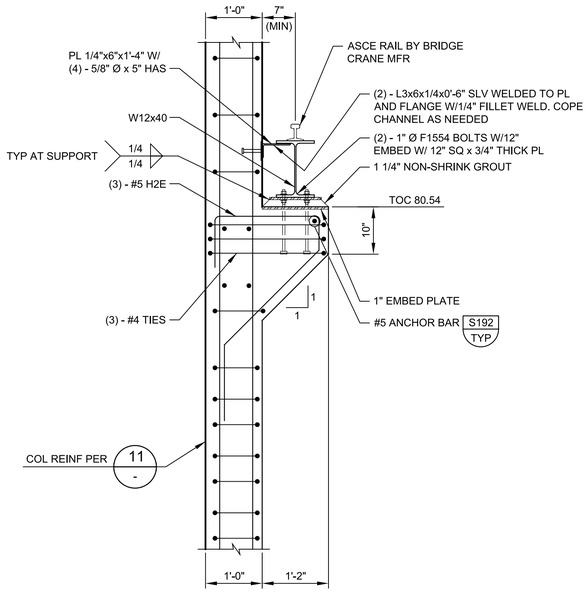
JOB NO. 09520I.10
DRAWING NO. 03S07

PROJECT NO. 9520I10 FILE NAME: 9520I1003S07.dgn

Plot Date: 04-APR-2025 7:54:46 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

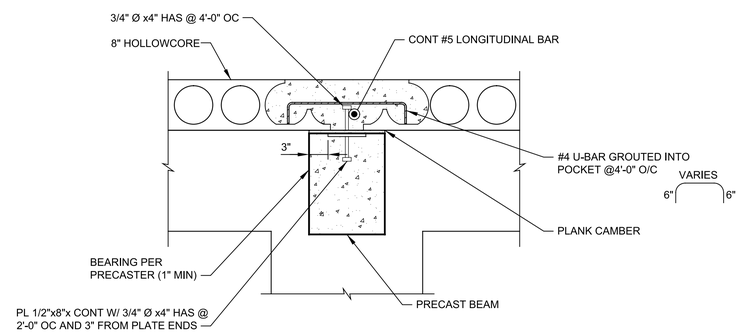


8 DETAIL
SCALE: 1" = 1'-0"
FILE: 9520I10-03-040-310

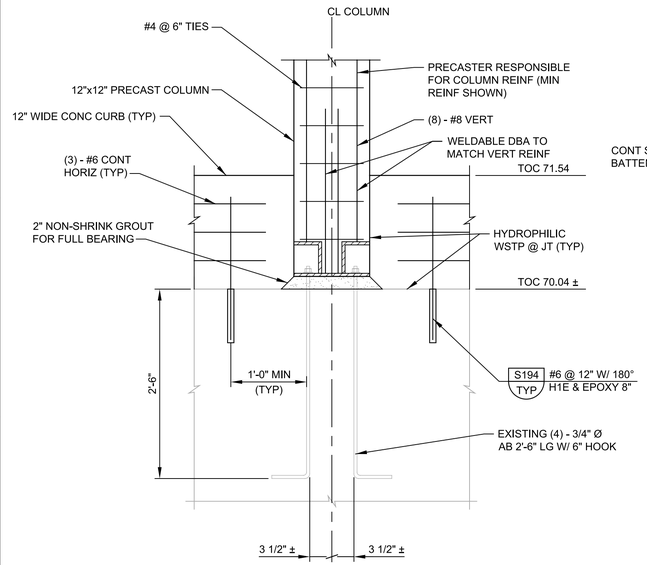


1. PROVIDE LATERAL RESTRAINT AT ENDS OF BRIDGE CRANE SUPPORT BEAM.

9 DETAIL
03S06
SCALE: 3/4" = 1'-0"
FILE: 9520I10-03-040-310

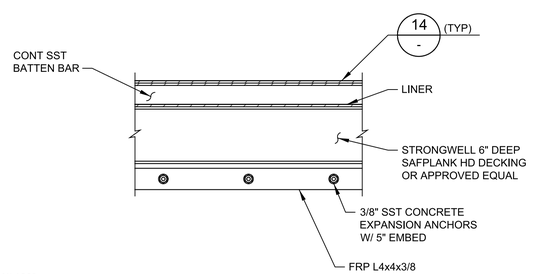


10 DETAIL
03S05
SCALE: 1" = 1'-0"
FILE: 9520I10-03-040-310

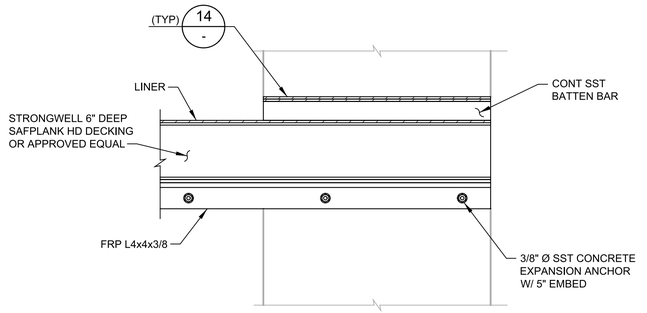


NOTES:
1. PROVIDE EMBED PLATE PER DETAIL 19/03S10 FOR COLUMNS AT LINE 18.
2. CONTRACTOR TO FIELD VERIFY ANCHOR BOLT DIMENSIONS AND LAYOUT.

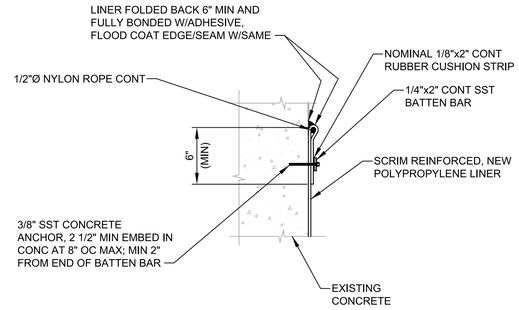
11 DETAIL
03S03
SCALE: 1" = 1'-0"
FILE: 9520I10-03-040-310



12 DETAIL
03S01
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-310



13 DETAIL
03S01
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-310



14 SECTION
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-310

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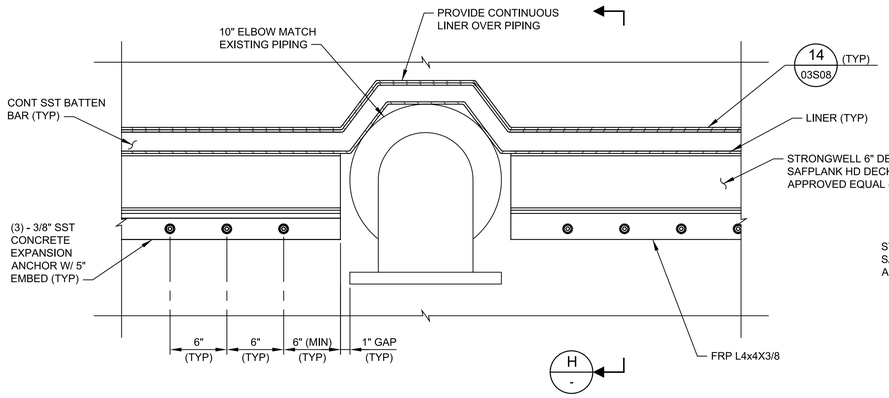
DETAILS II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S08

Plot Date: 04-APR-2025 7:55:38 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

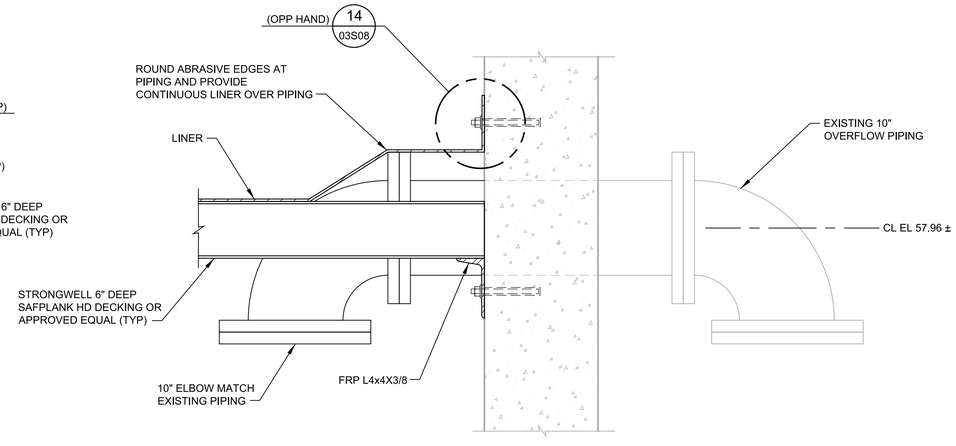
PROJECT NO. 9520I10 FILE NAME: 9520I1003S08.dgn



15 DETAIL
03S01

SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308

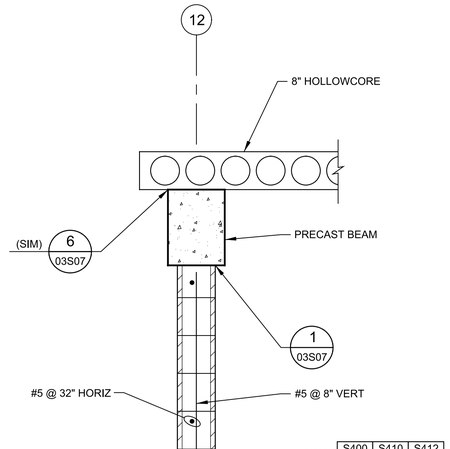
0 4" 8" 1' 2'



H SECTION
-

SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308

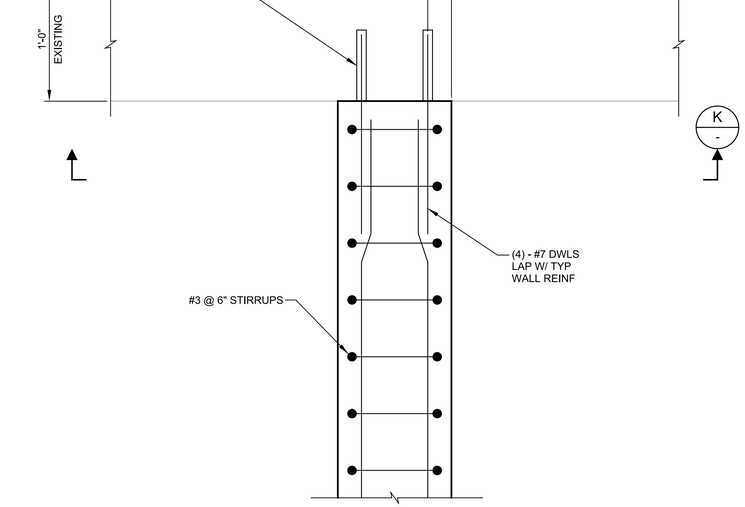
0 4" 8" 1' 2'



16 DETAIL
03S06

SCALE: 3/4" = 1'-0"
FILE: 9520I10-03-040-306

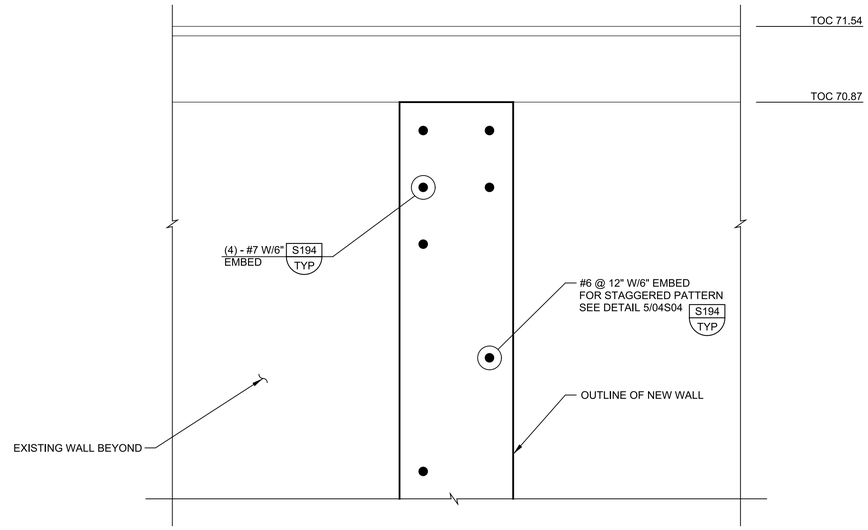
0 1' 3'



17 DETAIL
03S03

SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308

0 4" 8" 1' 2'



K SECTION
-

SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308

0 4" 8" 1' 2'

NOTES:

1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6" OF INSTALLATION LOCATION. ADJUST HOLE LOCATIONS WHILE MAINTAINING SPACING TO AVOID MAXIMUM NUMBER OF BARS.
2. * INDICATES CONTRACTOR TO COORDINATE TOP OF CONCRETE ELEVATION WITH DEPTH OF ENGINEERED COVER.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DETAILS III

VERIFY SCALES
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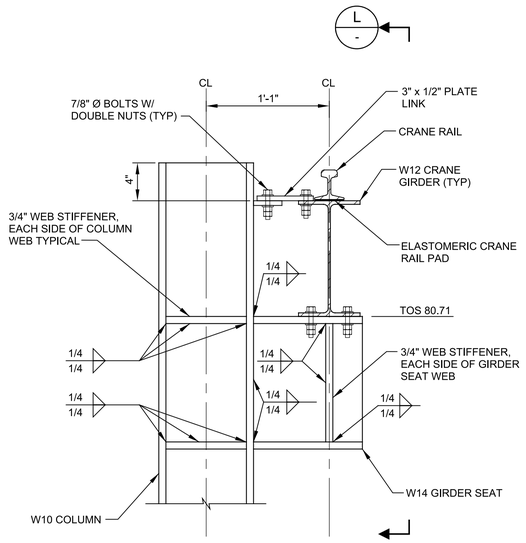
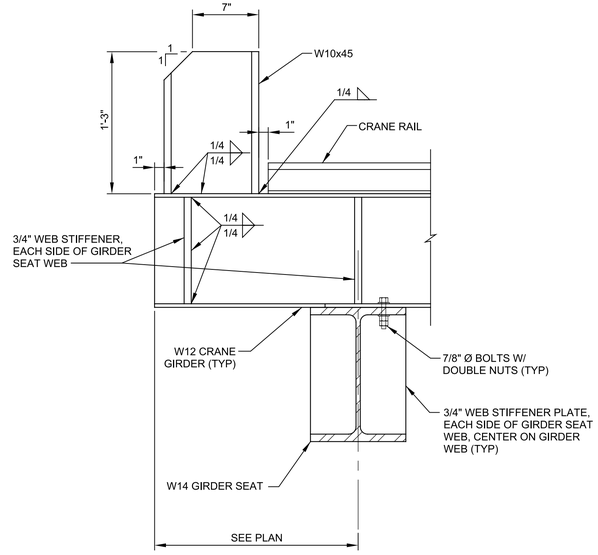
JOB NO. 09520I.10
DRAWING NO. 03S09

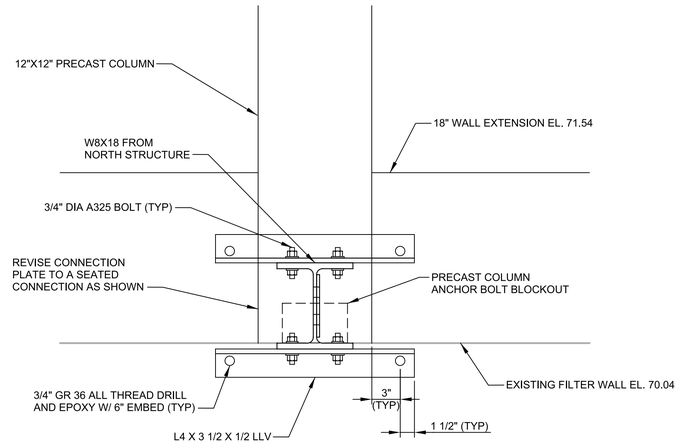
Plot Date: 04-APR-2025 7:55:25 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker
PROJECT NO. 9520I10
FILE NAME: 9520I1003S09.dgn



18 DETAIL
03S06
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308



L SECTION
-
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308



X SECTION
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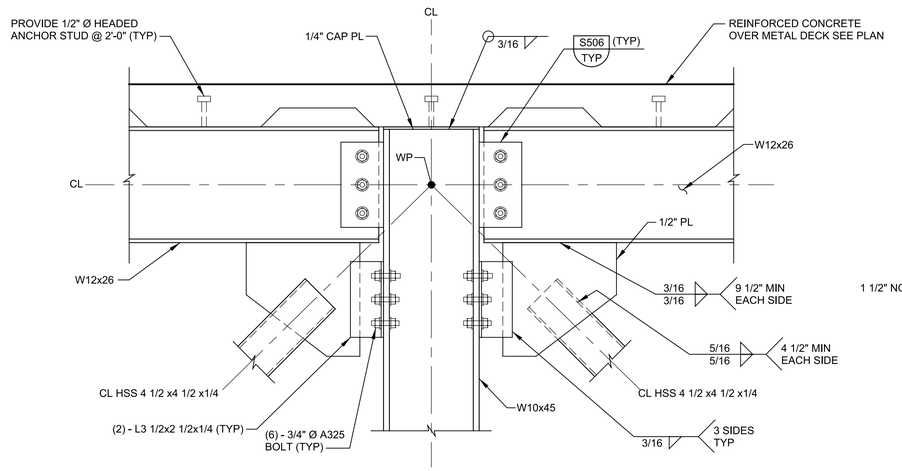
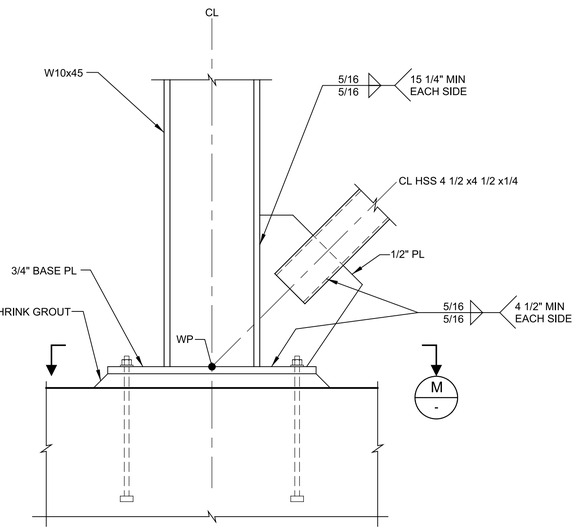
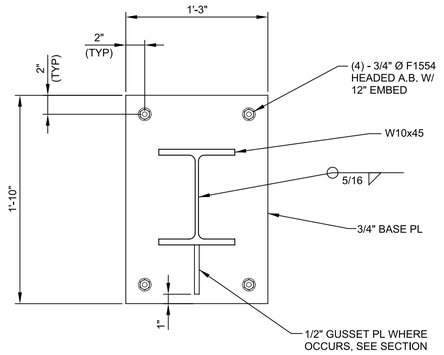
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308



20 DETAIL
03S06
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308



21 DETAIL
03S06
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308



M DETAIL
-
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-308

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN ERR
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DATE APRIL 2025

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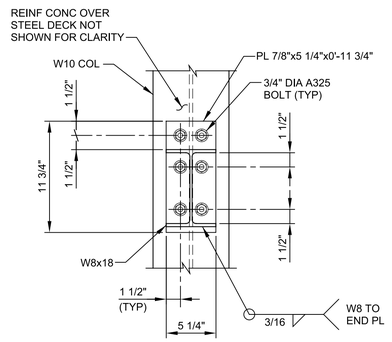
Manatee County FLORIDA

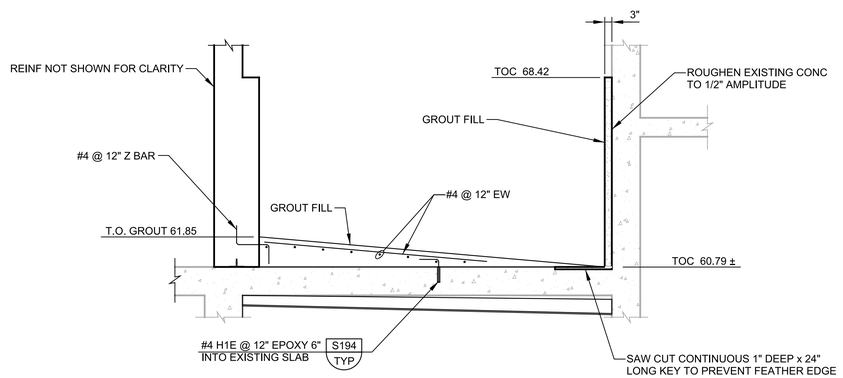
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
UF FILTER BUILDING
DETAILS IV

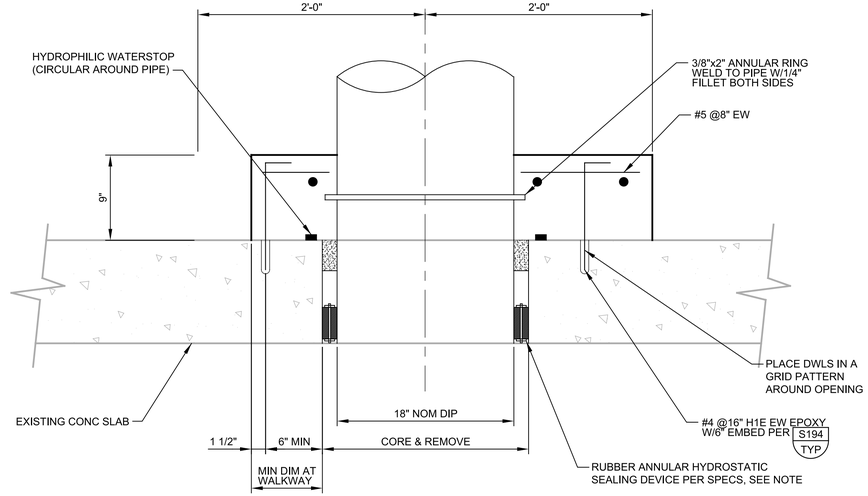
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S10

PROJECT NO. 9520I10 FILE NAME: 9520I1003S10.dgn
LAST SAVED BY: eparker Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1 User: svcPW Plot Date: 04-APR-2025 7:51:36 AM







NOTES:
1. CONTRACTOR TO VERIFY CORE DIAMETER REQUIREMENTS WITH MANUFACTURER OF RUBBER ANNULAR HYDROSTATIC SEALING DEVICE.

22 DETAIL
03S06
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-310

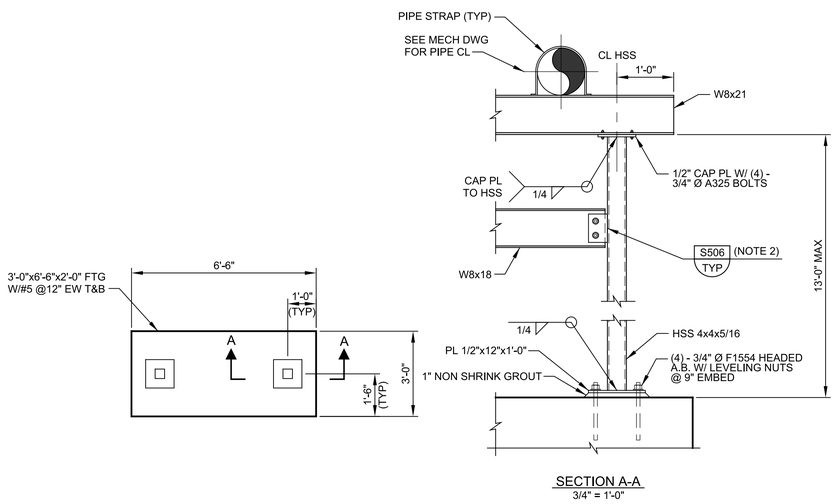
0 4" 8" 1' 2'

23 DETAIL
03S06
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-305

0 1' 2' 3' 6'

24 DETAIL
03S02
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-040-310

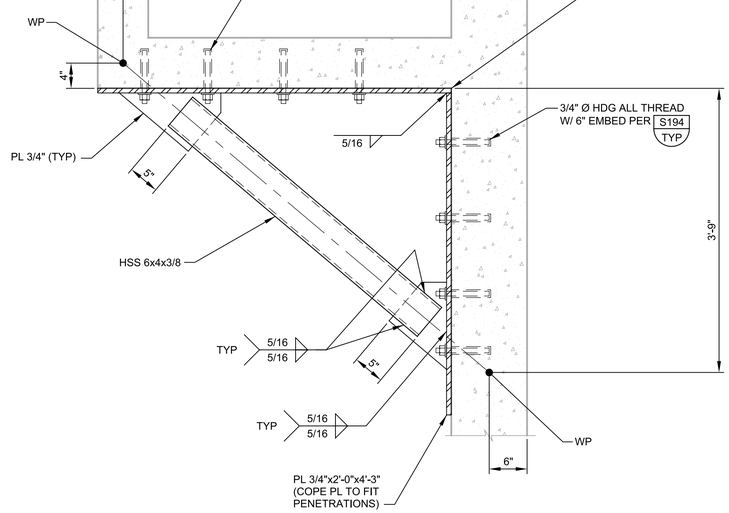
0 4" 8" 1' 2'



NOTES:
1. HOT DIP GALVANIZE SUPPORT AFTER FABRICATION.
2. COORDINATE LOCATION AND NUMBER OF INTERMEDIATE BEAMS WITH MECHANICAL DRAWINGS.

25 DETAIL
03M22
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-310

0 1' 2' 3' 6'



NOTES:
1. HOT DIP GALVANIZE AFTER FABRICATION.

26 DETAIL
03S02
SCALE: 1" = 1'-0"
FILE: 9520I10-03-040-310

0 1' 2'

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VERIFY SCALES
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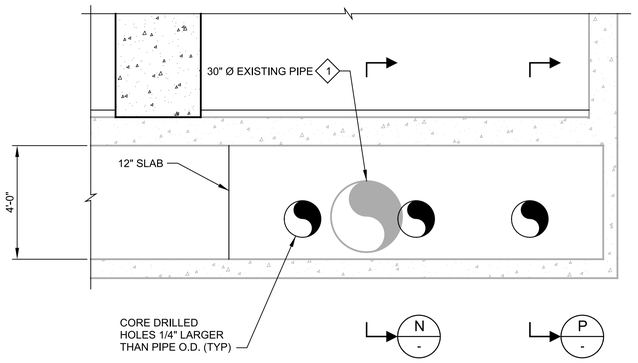
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S11

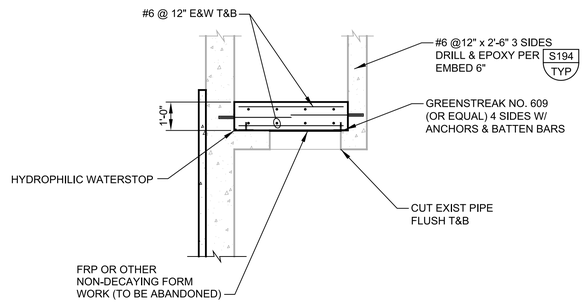
Plot Date: 04-APR-2025 7:51:43 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker
PROJECT NO. 9520I10
FILE NAME: 9520I1003S11.dgn

KEY NOTES:

1. EXISTING 30" Ø PIPE SLEEVE MAY BE PARTIALLY OR ENTIRELY REMOVED FOR EASE OF CORING.



27 DETAIL
03S03
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-310
0 1' 2' 3' 6'



N DETAIL
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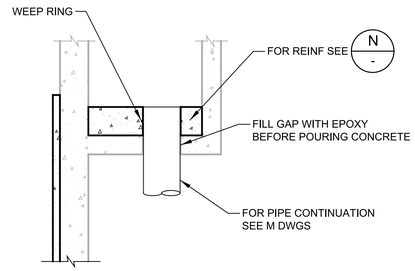
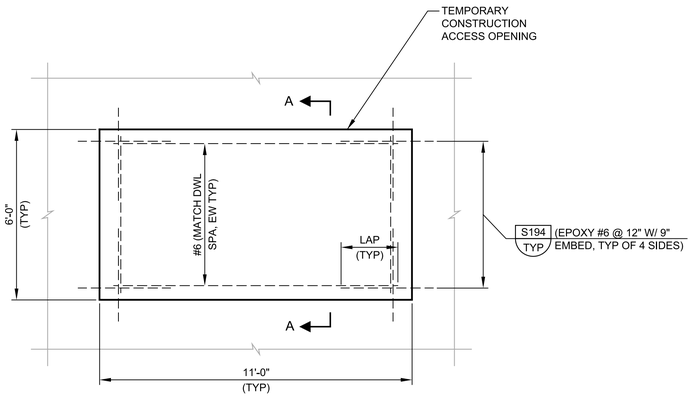
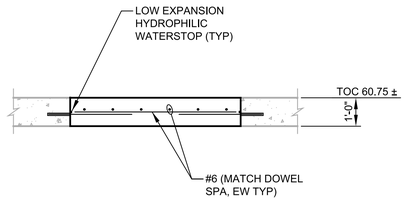
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-310
0 1' 2' 3' 6'



P DETAIL
-
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-310
0 1' 2' 3' 6'



PLAN VIEW



SECTION A-A

NOTES:
1. PROVIDE OPENING IN SLAB FOR REQUIRED WORK AT CLEARWELL. SEE MECHANICAL DRAWINGS.
2. CLEAN AND BEND EXISTING REINFORCEMENT.
3. AFTER WORK IN COMPLETE, DRILL AND EPOXY REINFORCEMENT AND PLACE CONCRETE.
4. CONTRACTOR TO VERIFY OPENING SIZE WITH REQUIRED WORK AT CLEARWELL. SEE MECHANICAL DRAWINGS.

FLOATATION CONSIDERATIONS:

1. WHEN EXISTING FILTERS ARE EMPTY STRUCTURE IS BUOYANT. CONTRACTOR WILL BE RESPONSIBLE FOR DEWATERING PERIMETER OF STRUCTURE DURING WORK.

28 DETAIL
03S02
SCALE: 3/8" = 1'-0"
FILE: 9520I10-03-040-310
0 1' 2' 3' 6'

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			RECORD DOCUMENTS

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DETAILS VI

VERIFY SCALES
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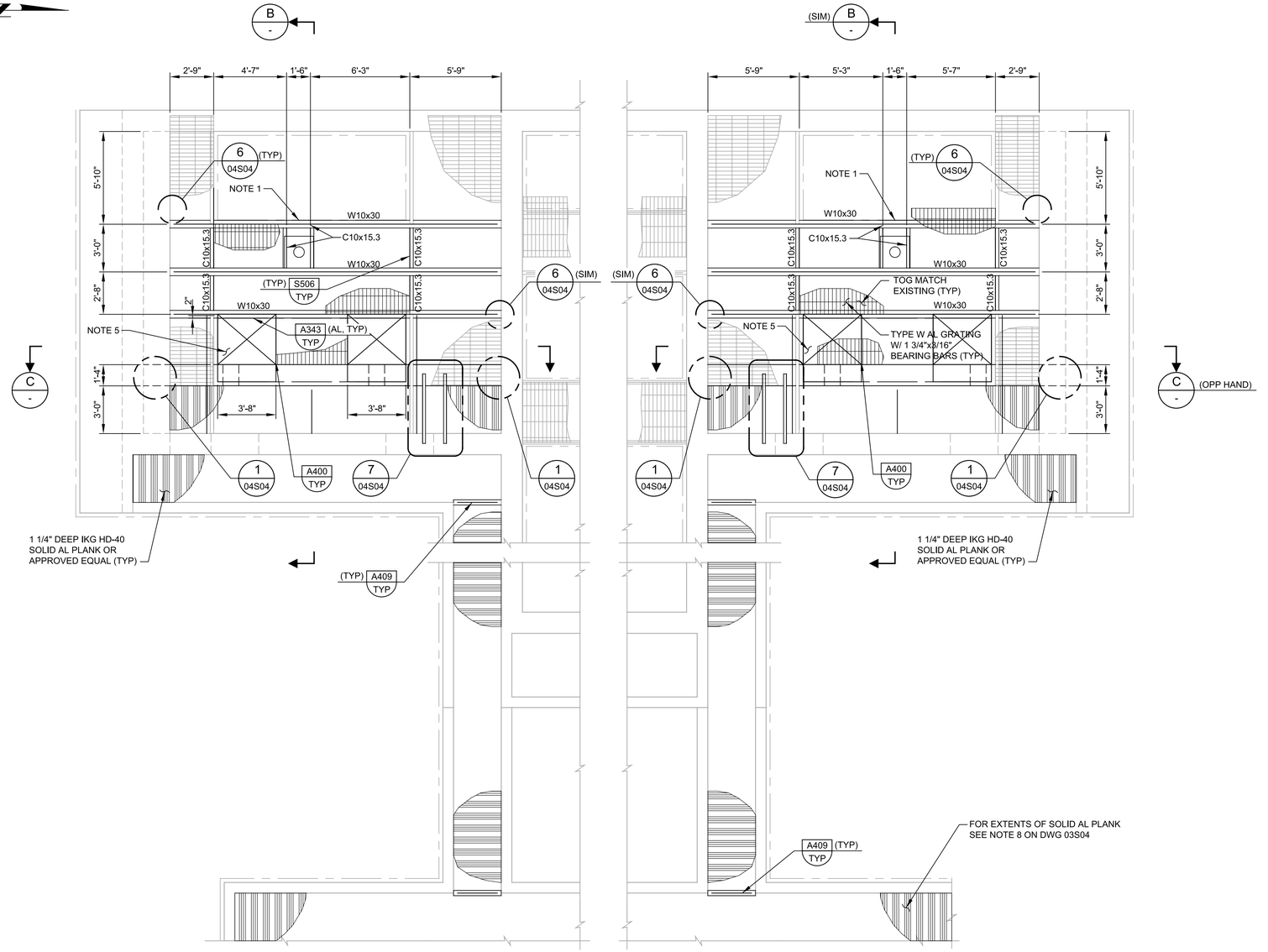
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03S12

Plot Date: 04-APR-2025 7:52:32 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker
PROJECT NO. 9520I10
FILE NAME: 9520I1003S12.dgn

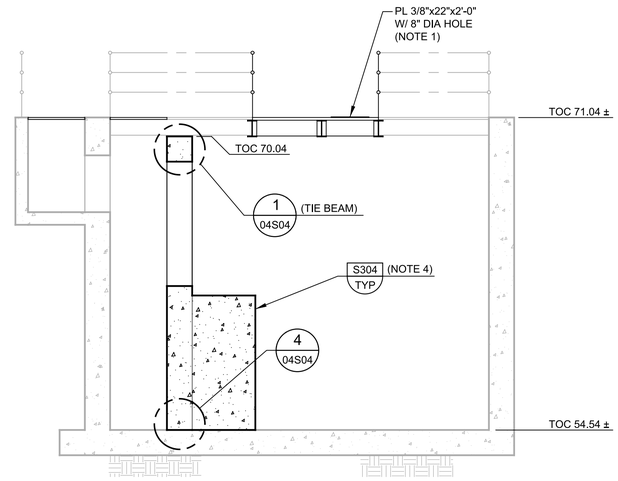
Plot Date: 04-APR-2025 7:57:09 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A TOP PLAN

SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-101

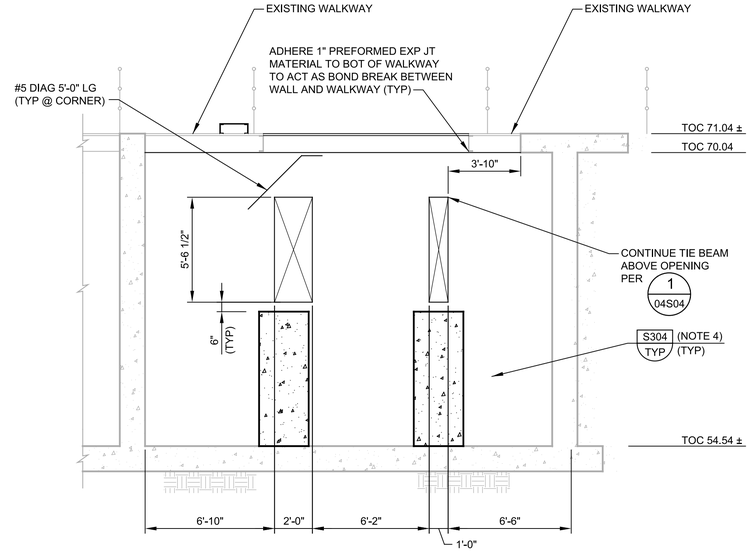
0 2' 4' 8'



B SECTION

SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-301

0 2' 4' 8'



C SECTION

SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-302

0 2' 4' 8'

GENERAL NOTES:

1. CONTRACTOR TO COORDINATE BASE PLATE WITH SUPPLIED EQUIPMENT.
2. LIVE LOAD = 100 PSF.
3. COAT STRUCTURAL STEEL PER 09_96_01.
4. CONTRACTOR TO COORDINATE EQUIPMENT PAD DIMENSIONS WITH SUPPLIED EQUIPMENT.
5. EQUIPMENT BLOCKOUT

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

STRUCTURAL

POST MIX BASIN A PLAN AND SECTIONS SHEET 1

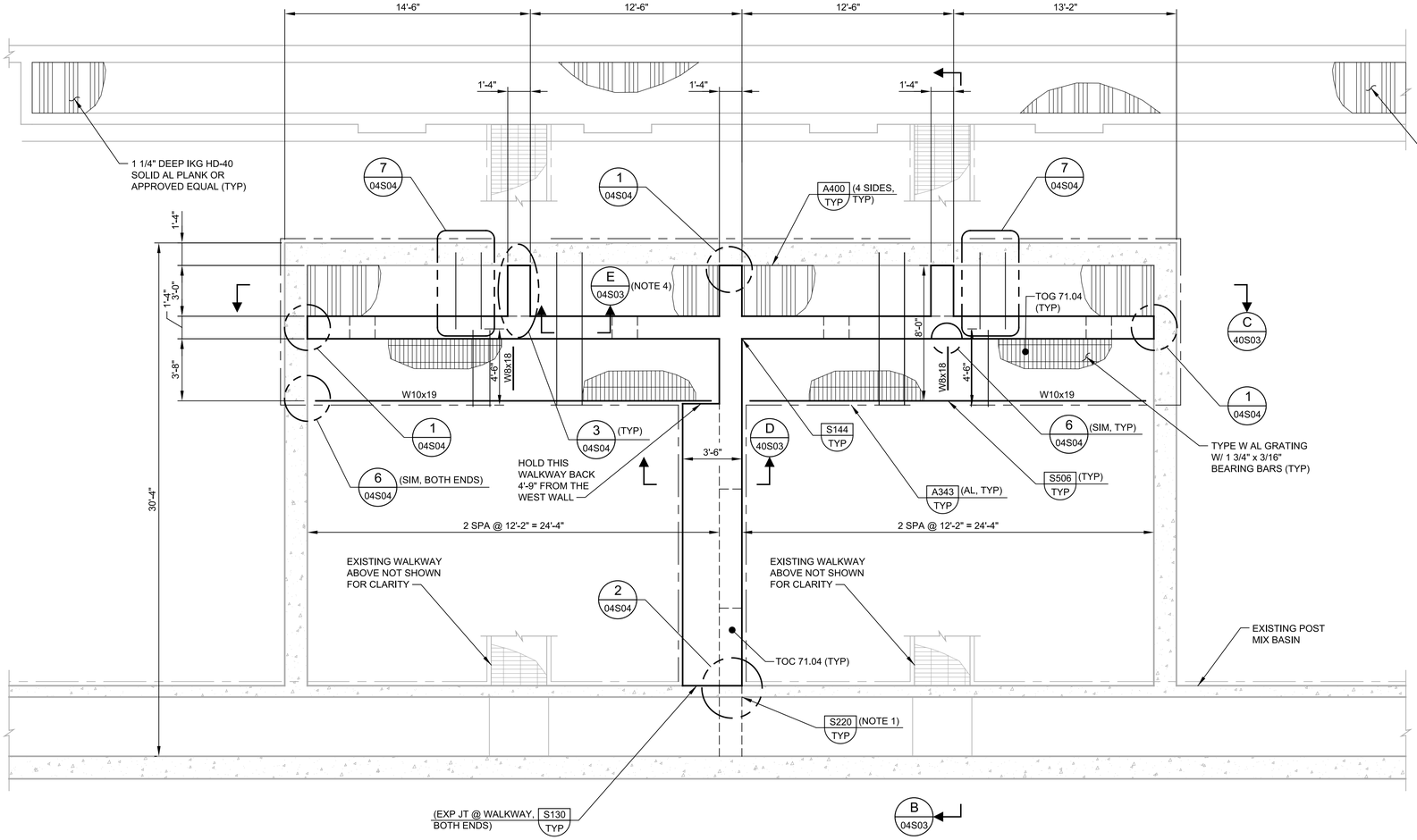
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 04S01

Plot Date: 04-APR-2025 7:50:19 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES:

1. FILL EXISTING 1'-0" x 4'-0" OPENING AT TROUGH.
2. LIVE LOAD = 100 PSF.
3. COAT STRUCTURAL STEEL PER 09_96_01.
4. STEP UP PLATFORM ON EITHER SIDE OF MAIN WALKWAY



A TOP PLAN

SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-111

0 2' 4' 8'

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

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CHECKED KD
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
POST MIX BASIN B
PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

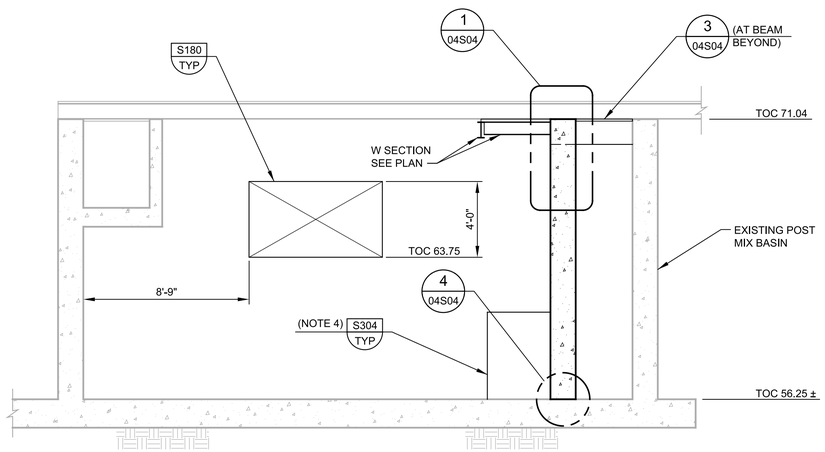
JOB NO. 09520I.10
DRAWING NO. 04S02

PROJECT NO. 9520I10 FILE NAME: 9520I1004S02.dgn

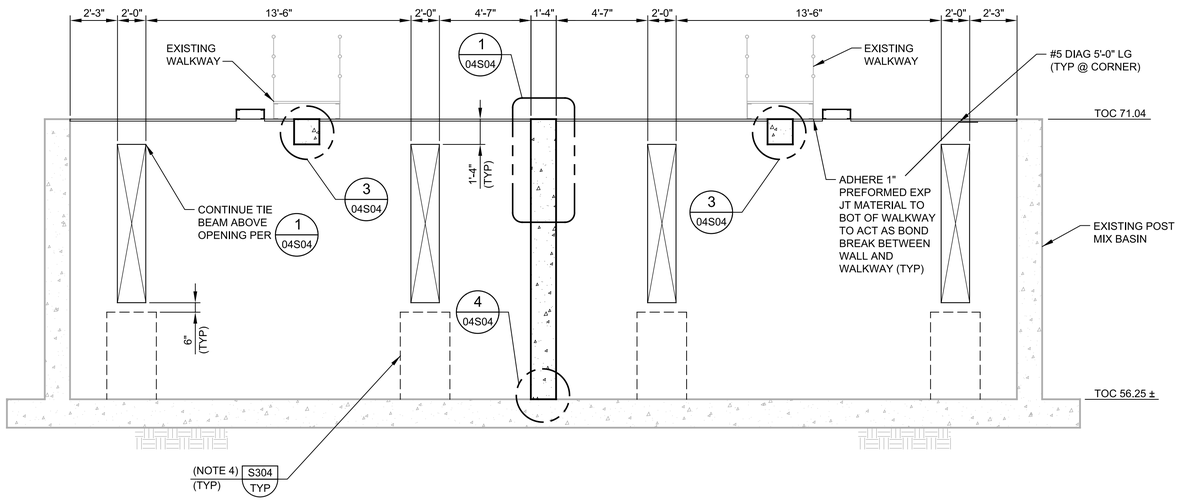
Plot Date: 04-APR-2025 7:51:24 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES:

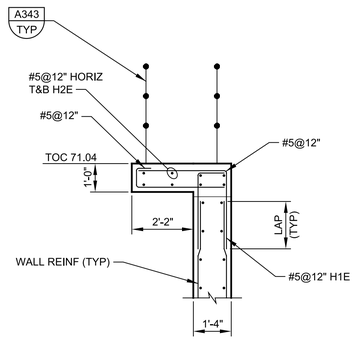
1. CONTRACTOR TO COORDINATE EQUIPMENT PAD DIMENSIONS WITH SUPPLIED EQUIPMENT.



B SECTION
04S02
SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-311
0 2' 4' 8'

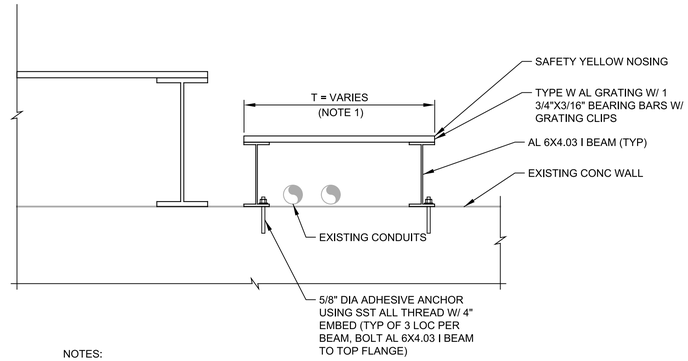


C SECTION
04S02
SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-312
0 2' 4' 8'



NOTES:
1. DISCONTINUE BARS AT SLIDE GATE. CONTRACTOR TO COORDINATE WITH MECHANICAL DRAWINGS.

D SECTION
04S02
SCALE: 3/8" = 1'-0"
FILE: 9520I10-04-050-313
0 1' 2' 3' 6'



NOTES:

1. THREAD WIDTH SHALL BE 11" MINIMUM AND 3'-0" MAXIMUM. CONTRACTOR TO FIELD COORDINATE FINAL WIDTH OF TREAD TO ALLOW EXISTING CONDUITS TO PASS UNDER THE STEP UP/PLATFORM.

E SECTION
04S02
SCALE: NOT TO SCALE
FILE: 9520I10-04-050-313

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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POST MIX BASIN B SECTIONS

VERIFY SCALES
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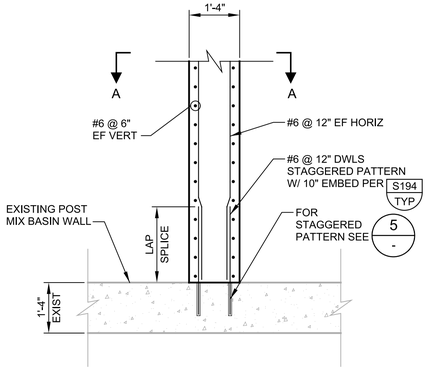
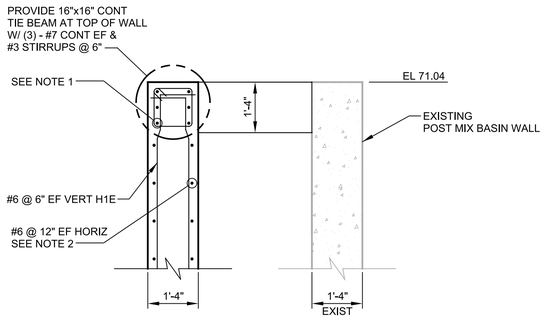
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 04S03



PLAN VIEW

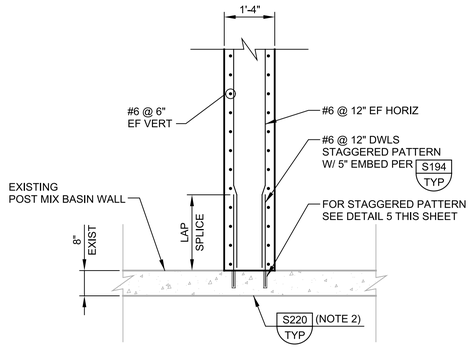
NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6" OF INSTALLATION LOCATION. ADJUST HOLE LOCATIONS WHILE MAINTAINING SPACING TO AVOID MAXIMUM NUMBER OF BARS.



SECTION A-A

NOTES:
1. AT EXISTING WALL EPOXY (4) #7 DOWELS WITH 13" EMBED AND LAP WITH CONTINUOUS HORIZONTAL REINFORCEMENT SIMILAR TO DETAIL 3 ON THIS SHEET

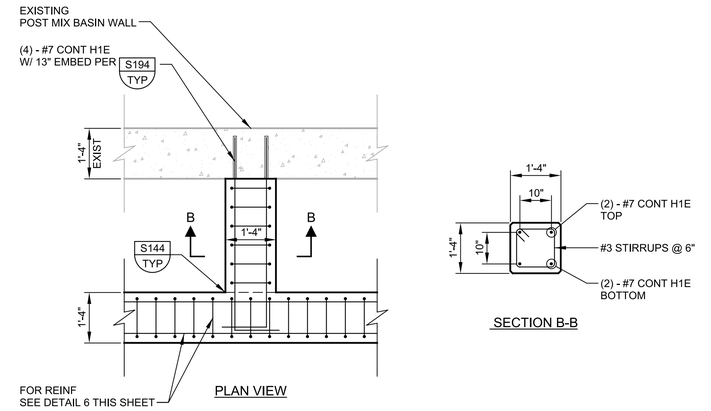
2. AT EXISTING WALL EPOXY DOWELS AND LAP WITH CONTINUOUS HORIZONTAL REINFORCEMENT SIMILAR TO DETAIL 1 ON THIS SHEET



PLAN VIEW

NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6" OF INSTALLATION LOCATION. ADJUST HOLE LOCATIONS WHILE MAINTAINING SPACING TO AVOID MAXIMUM NUMBER OF BARS.

2. FILL EXISTING 1'-0" x 4'-8" OPENING.



PLAN VIEW

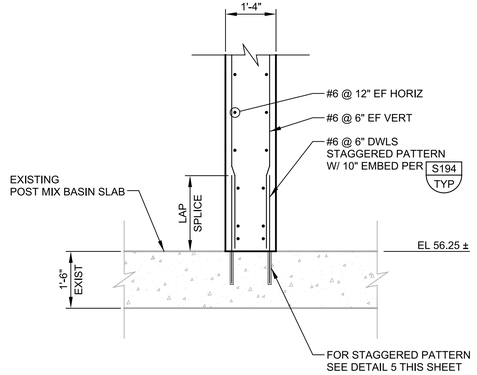
SECTION B-B

NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6" OF INSTALLATION LOCATION. ADJUST HOLE LOCATIONS WHILE MAINTAINING SPACING TO AVOID MAXIMUM NUMBER OF BARS.

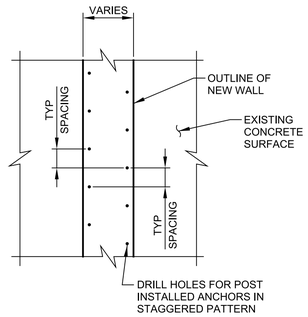
1 DETAIL
04S01 — SCALE: 1/2" = 1'-0" — FILE: 9520I10-04-050-401

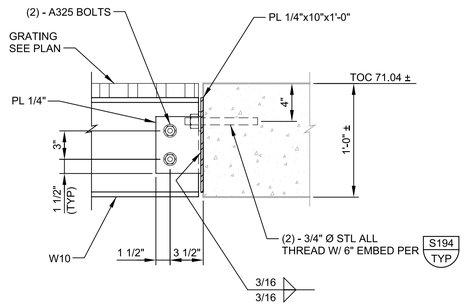
2 DETAIL
04S02 — SCALE: 1/2" = 1'-0" — FILE: 9520I10-04-050-401

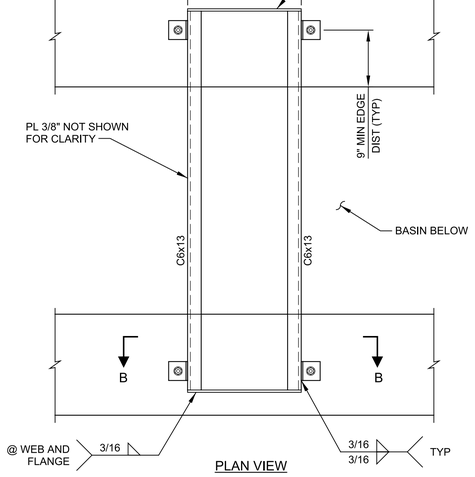
3 DETAIL
04S02 — SCALE: 1/2" = 1'-0" — FILE: 9520I10-04-050-401



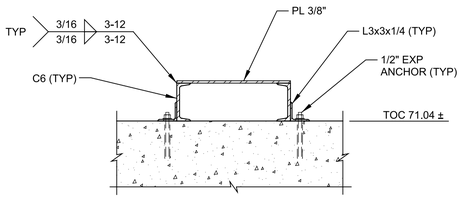
NOTES:
1. PRIOR TO DRILLING CONCRETE, FIELD LOCATE EXISTING REINFORCEMENT WITHIN 6" OF INSTALLATION LOCATION. ADJUST HOLE LOCATIONS WHILE MAINTAINING SPACING TO AVOID MAXIMUM NUMBER OF BARS.







PLAN VIEW



SECTION B-B

NOTES:
1. COORDINATE EQUIPMENT PLATFORM WITH CONTROL PANELS. FOR ADDITIONAL REQUIREMENTS SEE ELECTRICAL DRAWINGS.

2. CONTRACTOR TO VERIFY DIMENSIONS WITH SUPPLIED EQUIPMENT.

4 DETAIL
04S01 — SCALE: 1/2" = 1'-0" — FILE: 9520I10-04-050-401

5 DETAIL
- — SCALE: 1/2" = 1'-0" — FILE: 9520I10-04-050-401

6 DETAIL
04S01 — SCALE: 1 1/2" = 1'-0" — FILE: 9520I10-04-050-401

7 DETAIL
04S01 / 04S02 — SCALE: 1" = 1'-0" — FILE: 9520I10-04-050-401

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED KD
DATE APRIL 2025

** ORIGINAL SEALED BY JOEL D. SMASON 05/30/2019 FL 58434 **

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
STRUCTURAL
POST MIX BASIN A AND B DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 04S04

PROJECT NO. 9520I10 FILE NAME: 9520I1004S04.dgn

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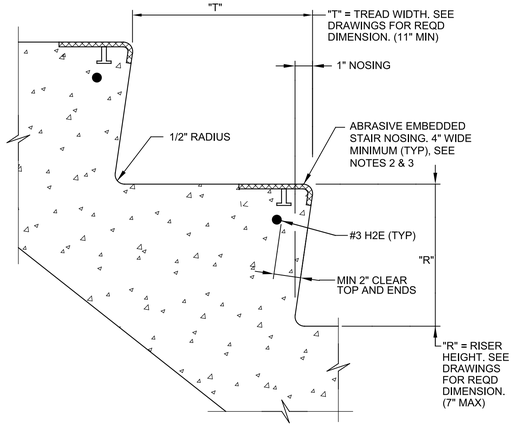
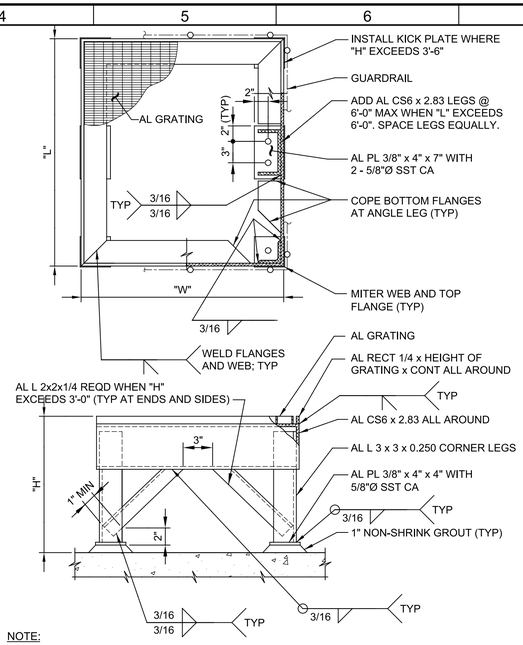


NOTES:

1. ANY FASTENERS FOR THE STAIR NOSING SHALL BE TYPE 304 OR 316 SST.
2. PROVIDE 4" BETWEEN END OF STAIR NOSING AND EDGE OF CONCRETE STEP. EMBEDDED STUD FOR STAIR NOSING SHOULD BE NO CLOSER THAN 6" FROM END OF THE STEP.
3. TOOL A GROOVE, 1/8" WIDE BY FULL WIDTH AND THICKNESS OF EMBEDDED NOSING, AT EACH END OF NOSING INCLUDING VERTICAL FACE AT RISER. FILL GROOVE WITH SYNTHETIC RUBBER SEALING COMPOUND.

A204 TYP — CONCRETE STEP

S — 08/10/11

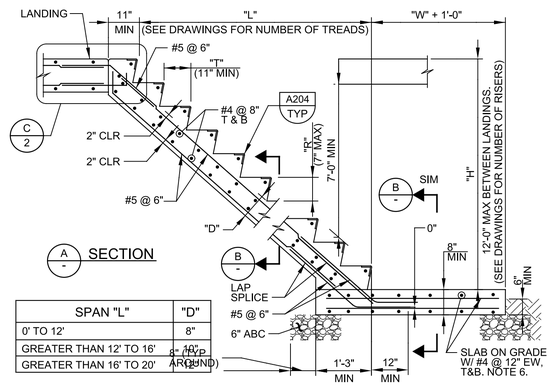


NOTE:

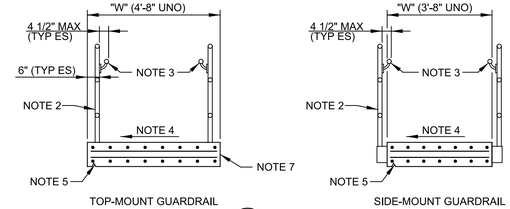
1. PLATFORM DIMENSIONS "L", "W" AND "H" ARE INDICATED ON THE DRAWINGS.

A230 TYP — ALUMINUM PLATFORM

N — 09/04/13



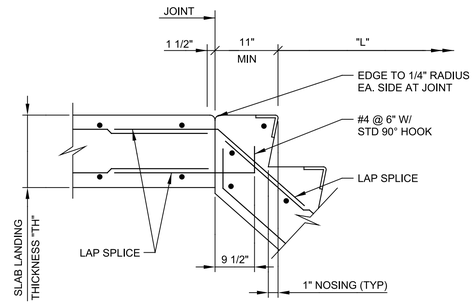
SPAN "L"	"D"
0' TO 12'	8"
GREATER THAN 12' TO 16'	10"
GREATER THAN 16' TO 20'	12"



B - SECTION

A233 TYP — CONCRETE STAIR

NS — SHEET 1 OF 2 — 07/25/16



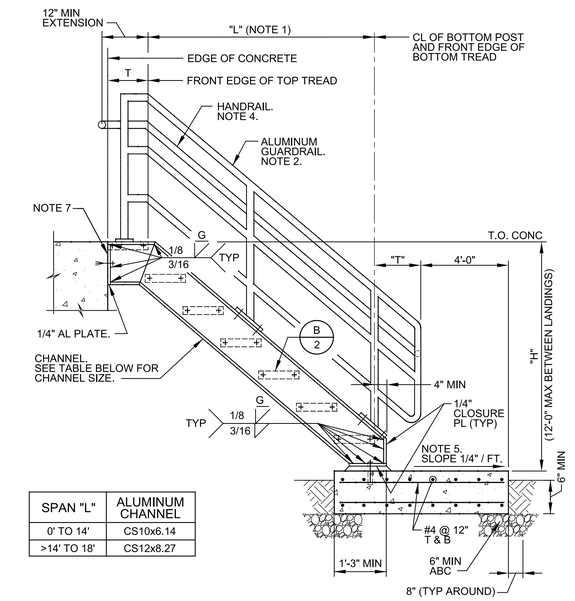
C 1 — DETAIL

NOTES:

1. SEE DRAWINGS FOR DIMENSIONS "H", "L", "R", "T", "W" AND "TH".
2. SEE DETAIL A340/TYP FOR GUARDRAIL/HANDRAIL NOTES. SEE DRAWINGS FOR GUARDRAIL/HANDRAIL TYPE AND MATERIAL.
3. PROVIDE HANDRAIL AT EACH SIDE OF STAIR.
4. AT EXTERIOR STAIRS AND BOTTOM LANDING, PROVIDE CROSS SLOPE OF 1/8" PER FOOT TO DRAIN PERPENDICULAR TO TRAFFIC AND AWAY FROM STRUCTURE.
5. AT EXTERIOR STAIR, PROVIDE DRIP GROOVE. SEE DETAIL S160/TYP-SIMILAR.
6. AT EXTERIOR STAIR, PROVIDE LANDING SLAB ON GRADE UNLESS OTHERWISE NOTED. EDGE TOP CORNERS OF SLAB TO 1/4" RADIUS.
7. WHERE STAIR IS CAST ADJACENT TO WALL, PROVIDE 1" CLEAR SEPARATION.

A233 TYP — CONCRETE STAIR

NS — SHEET 2 OF 2 — 07/25/16

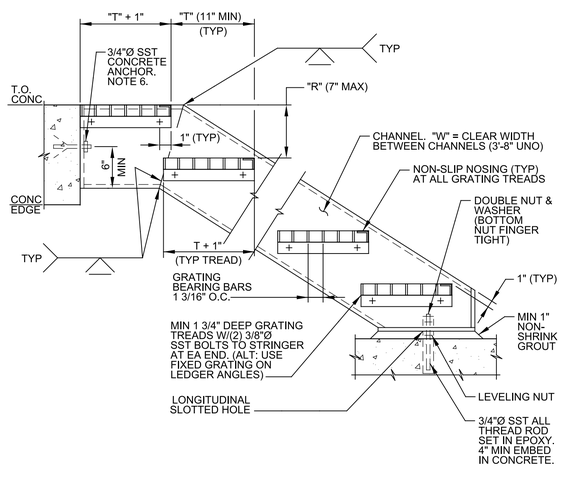


SPAN "L"	ALUMINUM CHANNEL
0' TO 14'	CS10x6.14
>14' TO 18'	CS12x8.27

A - ELEVATION - STAIRS

A235 TYP — ALUMINUM STAIR WITH FLUSH TOP TREAD AND THREE RAIL GUARDRAIL

NS — SHEET 1 OF 3 — 03/29/17



B 1 — SECTION - STAIR TREADS

A235 TYP — ALUMINUM STAIR WITH FLUSH TOP TREAD AND THREE RAIL GUARDRAIL

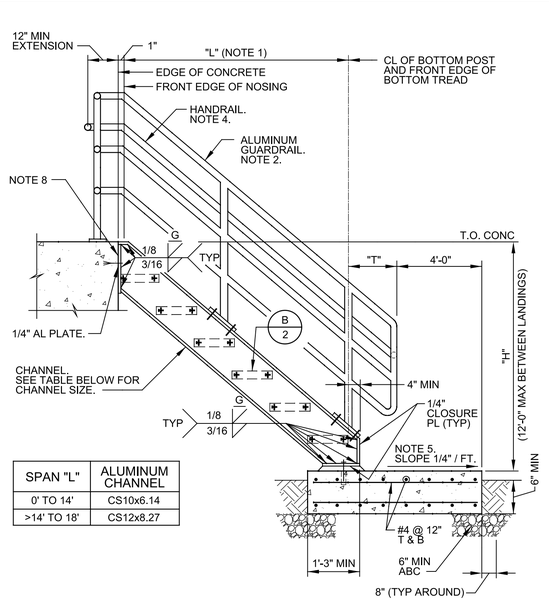
NS — SHEET 2 OF 3 — 03/29/17

NOTES:

1. SEE DRAWINGS FOR DIMENSIONS "H", "L", "R", "T" AND "W".
2. SEE DETAIL A340/TYP FOR ALUMINUM GUARDRAIL NOTES AND DETAIL A343/TYP FOR ALUMINUM GUARDRAIL DETAILS.
3. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE, AND INSTALL ISOLATION SLEEVES AND WASHERS BETWEEN DISSIMILAR METALS AS SPECIFIED.
4. PROVIDE HANDRAIL EXTENSIONS AS SHOWN AT BOTH SIDES OF STAIR, UNLESS HANDRAIL IS CONTINUOUS (AS AT SWITCHBACK STAIR).
5. AT EXTERIOR STAIRS, PROVIDE CONCRETE SLAB ON GRADE UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MINIMUM CONCRETE SLAB WIDTH = STAIR CLEAR WIDTH ("W") PLUS 2'-0" (12" EACH SIDE). EDGE TOP CORNERS OF SLAB TO 1/4" RADIUS.
6. INSTALL CONCRETE ANCHORS MIN 6" FROM BOTTOM AND 6" FROM SIDES/EDGES OF CONCRETE.
7. CONNECTION TO CONCRETE SHOWN. SEE DETAIL A241/TYP FOR CONNECTION AT METAL FRAMING.
8. FOR PROJECTS LOCATED IN CALIFORNIA, PROVIDE WARNING STRIPS FOR THE TOP AND BOTTOM TREAD ON INTERIOR STAIRS, AND FOR ALL TREADS ON EXTERIOR STAIRS. STRIPS SHALL BE OF CLEARLY CONTRASTING COLOR AT LEAST 2" WIDE. PLACE STRIP PARALLEL TO AND NOT MORE THAN 1" FROM THE NOSE OF THE STEP OR LANDING TO ALERT THE VISUALLY IMPAIRED.

A235 TYP — ALUMINUM STAIR WITH FLUSH TOP TREAD AND THREE RAIL GUARDRAIL

NS — SHEET 3 OF 3 — 03/29/17



SPAN "L"	ALUMINUM CHANNEL
0' TO 14'	CS10x6.14
>14' TO 18'	CS12x8.27

A - ELEVATION - STAIRS

A238 TYP — ALUMINUM STAIR WITH THREE RAIL GUARDRAIL

NS — SHEET 1 OF 3 — 04/03/17

RECORD DOCUMENTS

REV	DATE	BY	DESCRIPTION

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

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DETAILS
TYPICAL ARCHITECTURAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GA01

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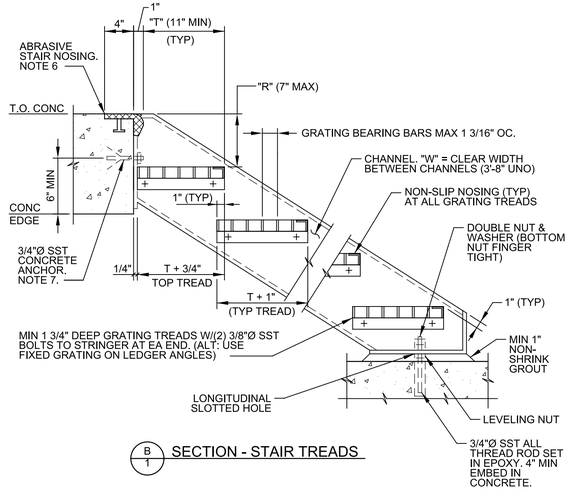


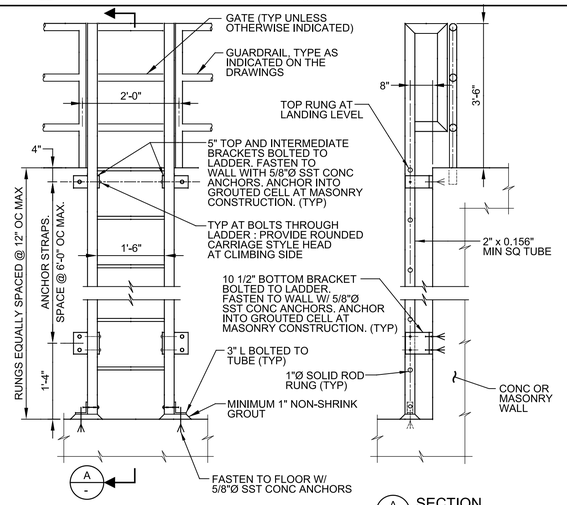
B / 1 SECTION - STAIR TREADS

NOTES:

1. SEE DRAWINGS FOR DIMENSIONS "H", "L", "R", "T" AND "W".
2. SEE DETAIL A340/TYP FOR ALUMINUM GUARDRAIL NOTES AND DETAIL A343/TYP FOR ALUMINUM GUARDRAIL DETAILS.
3. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE, AND INSTALL ISOLATION SLEEVES AND WASHERS BETWEEN DISSIMILAR METALS AS SPECIFIED.
4. PROVIDE HANDRAIL EXTENSIONS AS SHOWN AT BOTH SIDES OF STAIR, UNLESS HANDRAIL IS CONTINUOUS (AS AT SWITCHBACK STAIR).
5. AT EXTERIOR STAIRS, PROVIDE CONCRETE SLAB ON GRADE UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MINIMUM CONCRETE SLAB WIDTH = STAIR CLEAR WIDTH ("W") PLUS 2'-0" (12" EACH SIDE). EDGE TOP CORNERS OF SLAB TO 1/4" RADIUS.
6. ABRASIVE STAIR NOSING: PROVIDE 2" CLEAR BETWEEN END OF STAIR NOSING AND VERTICAL/INSIDE FACE OF STAIR STRINGER, TOOL A GROOVE, 1/8" WIDE BY FULL WIDTH AND THICKNESS OF NOSING AT EACH END OF NOSING. CONTINUE TOOLED JOINT DOWN VERTICAL FACE OF NOSING AT RISER. FILL TOOLED GROOVE WITH SYNTHETIC RUBBER SEALING COMPOUND.
7. INSTALL CONCRETE ANCHORS MINIMUM 6" FROM BOTTOM AND 6" FROM SIDES/EDGES OF CONCRETE.
8. CONNECTION TO CONCRETE SHOWN. SEE DETAIL A242/TYP FOR CONNECTION AT METAL FRAMING.

A238 TYP — ALUMINUM STAIR WITH THREE RAIL GUARDRAIL

NS — SHEET 2 OF 3 — 04/03/17



NOTES:

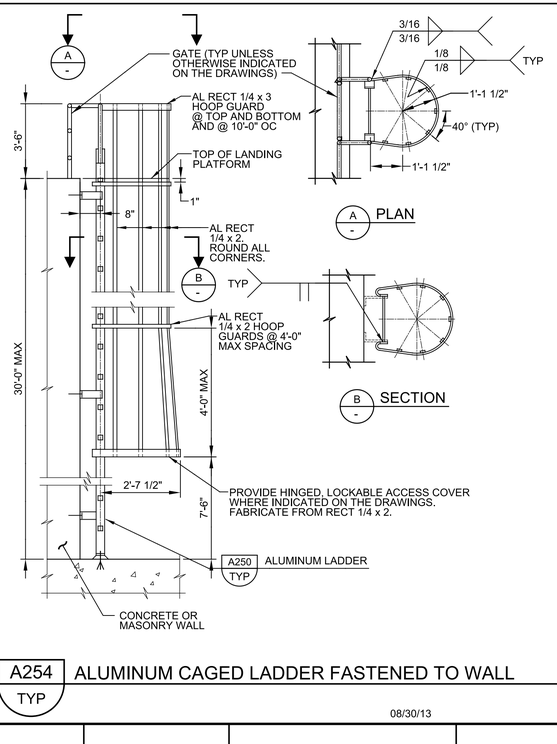
1. INSTALL FALL PREVENTION SYSTEM OR SAFETY CAGE WHERE HEIGHT OF LADDER EXCEEDS 20'-0". SEE DETAIL A255/TYP FOR SAFETY CAGE.
2. MINIMUM CLEARANCE TO ANY OBSTRUCTION ADJACENT TO LADDER: 2'-6" ON CLIMBING SIDE (2'-3" AT SMOOTH WALL). 1'-3" EACH SIDE OF CENTER LINE, ON EACH SIDE OF LADDER.
3. COAT ALL AL SURFACES IN CONTACT W/ CONC AND MAONRY, AND INSTALL ISOLATON SLEEVES AND WASHERS AT DISSIMILAR METALS, AS SPECIFIED.

A251 TYP — FRP LADDER FASTENED TO WALL

05/03/13

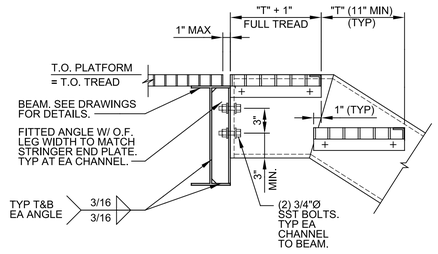
A238 TYP — ALUMINUM STAIR WITH THREE RAIL GUARDRAIL

NS — SHEET 3 OF 3 — 04/03/17

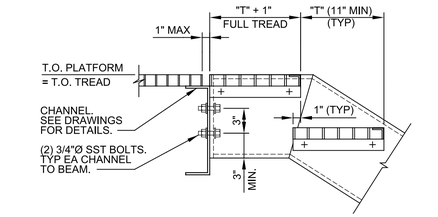


A254 TYP — ALUMINUM CAGED LADDER FASTENED TO WALL

08/30/13



A / - CONNECTION TO BEAM



B / - CONNECTION TO ALUMINUM CHANNEL

NOTES:

1. INSTALL ISOLATION SLEEVES AND DIELECTRIC BREAKS BETWEEN DISSIMILAR METALS. SEE SPECIFICATIONS.

A241 TYP — ALUMINUM STAIR WITH FLUSH TOP TREAD: TOP CONNECTION

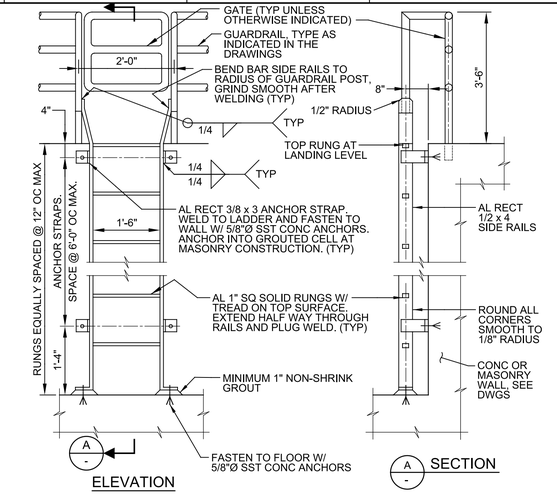
NS — 04/06/17

NOTES:

1. PROVIDE GUARDRAILS AT STAIRS AND AT OPEN SIDED WALKING SURFACES THAT ARE ELEVATED MORE THAN 30" ABOVE GRADE OR ADJACENT CONSTRUCTION.
2. WHERE EQUIPMENT IS LOCATED LESS THAN 10' FROM EDGE OF ROOF AND ELEVATED MORE THAN 30" ABOVE GRADE OR ADJACENT CONSTRUCTION, PROVIDE 42" HIGH GUARDRAIL FORMING A PROTECTIVE BARRIER. PARAPET WALL 42" OR MORE IN HEIGHT MAY BE THE GUARDRAIL AT ROOF LOCATIONS.
3. SEE DRAWINGS AND SPECIFICATIONS FOR GUARDRAIL MATERIAL TYPE(S).
4. PROVIDE HANDRAIL AT BOTH SIDES OF EVERY STAIR HAVING 2 OR MORE RISERS.
5. PROVIDE CONTINUOUS HANDRAIL GRIPPING SURFACES FOR THE FULL LENGTH OF THE STAIR.
6. PROVIDE HANDRAIL EXTENSIONS AT BOTH SIDES OF STAIRS AT TOP AND BOTTOM. HANDRAIL EXTENSION ON STAIR MOUNTED GUARDRAIL MAY BE OMITTED WHERE IT IS PERPENDICULAR TO AND IMPEDES EXIT FLOW.
7. MAKE INSIDE HANDRAIL ON SWITCHBACK STAIRS CONTINUOUS.
8. FOR WALL MOUNTED HANDRAILS, PROVIDE SINGLE RAIL WITH TOP OF RAIL AT 2'-10" HEIGHT ABOVE LANDINGS OR TREAD NOSINGS. PROVIDE MATCHING HANDRAIL ON OPPOSITE SIDE.
9. GUARDRAIL SHALL BE FIXED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
10. PLACE CENTER OF EMBEDDED POSTS 6" FROM EDGE OF CONCRETE AND 6" FROM FRONT EDGE OF CONCRETE STAIR NOSINGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
11. PLACE GUARDRAIL POSTS OPPOSITE EACH OTHER WHERE RAILINGS ARE PARALLEL.
12. FOR GUARDRAIL POSTS MOUNTED TO BEAM OR STAIR CHANNEL, PROVIDE MANUFACTURERS REINFORCED CONNECTION FROM POST TO PLATE. PLATE AND REINFORCED INSERTS SHALL BE ALUMINUM OR STAINLESS STEEL.
13. PROVIDE SLIDING JOINTS AT 24' MAX SPACING FOR EXPANSION OF RAIL AND KICKPLATE. LOCATE SLIDING JOINTS NEAR FACE OF POST. GAP AT TIME OF INSTALLATION SHALL BE BASED ON TEMPERATURE OF GUARDRAIL. PROVIDE 1/4" GAP AT 100°F AND 5/8" GAP AT 0°F. INTERPOLATE GAP FOR OTHER INSTALLATION TEMPERATURES. AT CONCRETE EXPANSION JOINTS, PROVIDE MINIMUM 1" GAP IN SLIDING JOINTS BUT NOT LESS THAN WIDTH OF CONCRETE EXPANSION JOINT. MAKE INSERT SLEEVES IN RAILS LONG ENOUGH TO ALLOW FOR THE FULL RANGE OF MOVEMENT.
14. MATERIAL FOR KICKPLATE CHANNEL SLIDING JOINT PLATES, SHALL BE OF THE SAME MATERIAL AS THE GUARDRAIL.
15. JOINTS FOR STAINLESS STEEL GUARDRAIL AND HANDRAIL SHALL BE COPED, WELDED, AND GROUND SMOOTH.
16. PROVIDE KICKPLATE AT ALL LOCATIONS EXCEPT AT SLOPING GUARDRAIL ON STAIRS AND WHERE GUARDRAIL IS MOUNTED ON A 4" MIN CURB. KICKPLATE MAY BE EXTRUDED OR BENT PLATE AND SHALL BE ATTACHED WITH SST BOLTS IN 5/16" x 3/4" SLOTTED HOLES. BOLT KICKPLATE TO POST WITH BOTTOM 1/4" CLEAR ABOVE FLOOR. FOR SIDE MOUNTED GUARDRAIL, PROVIDE STANDARD SPACER BLOCK BETWEEN POST AND KICKPLATE TO MAINTAIN 1/4" MAX CLEAR SPACING. HAND TIGHTEN AND CENTER PUNCH BOLT THREADS TO LOCK.
17. COAT SURFACES OF ALUMINUM IN CONTACT WITH CONCRETE AS SPECIFIED. PROVIDE NEOPRENE GASKET BETWEEN ALUMINUM AND STEEL.

A340 TYP — GUARDRAIL AND HANDRAIL NOTES

NS — 09/01/15

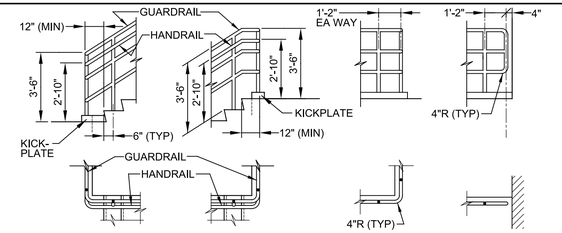


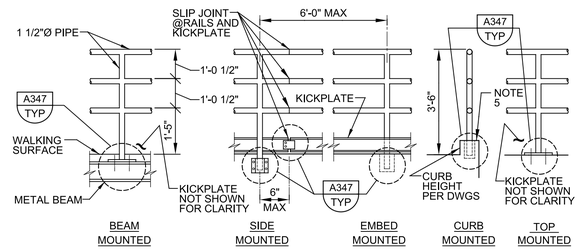
NOTES:

1. INSTALL FALL PREVENTION SYSTEM OR SAFETY CAGE WHERE HEIGHT OF LADDER EXCEEDS 20'-0". SEE DETAIL A254/TYP FOR SAFETY CAGE.
2. MINIMUM CLEARANCE TO ANY OBSTRUCTION ADJACENT TO LADDER: 2'-6" ON CLIMBING SIDE (2'-3" AT SMOOTH WALL). 1'-3" EACH SIDE OF CENTER LINE, ON EACH SIDE OF LADDER.
3. COAT ALL AL SURFACES IN CONTACT W/ CONC AND MASONRY, AND INSTALL ISOLATION SLEEVES AND WASHERS AT DISSIMILAR METALS, AS SPECIFIED.
4. WHERE GUARDRAIL IS SST, BOLT PIPE TO RAIL W/ 2 - 1/2"Ø SST BOLTS.

A250 TYP — ALUMINUM LADDER FASTENED TO WALL

S — 08/30/13





GUARDRAIL ELEVATION

A343 TYP — THREE RAIL GUARDRAIL (PRIVATE USE)

NS — SHEET 1 OF 3 — 08/24/15

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL ARCHITECTURAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GA02

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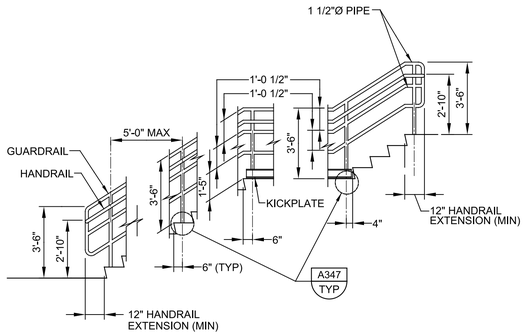


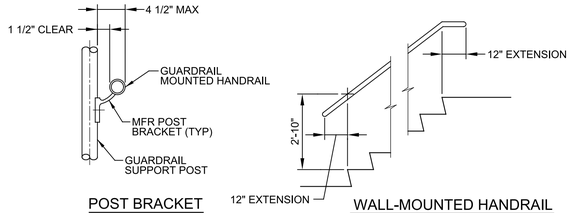
STAIR GUARDRAIL/HANDRAIL ELEVATION

NOTES:

1. THIS DETAIL IS APPLICABLE AT PRIVATE STAIRS IN F, H, AND S OCCUPANCIES WHERE OPERATOR ONLY ACCESS IS REQUIRED. DETAILS AND INSTALLATION SHALL COMPLY WITH THE BUILDING CODE.
2. SEE SPECIFICATIONS AND DETAIL A340/TYP FOR ADDITIONAL REQUIREMENTS.
3. VARIOUS POST MOUNTING DETAILS ARE ILLUSTRATED. SEE DRAWINGS AND DETAIL A347/TYP FOR SPECIFIC MOUNTING REQUIREMENTS.
4. HANDRAIL EXTENSIONS ARE REQUIRED ON BOTH SIDES OF STAIR, EXCEPT WHERE INSIDE HANDRAIL IS CONTINUOUS AT SWITCHBACK STAIR.
5. AT CURB, USE EMBEDDED OR TOP MOUNTED POST AS INDICATED ON THE DRAWINGS.

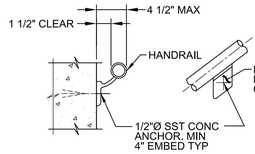
A343 TYP — THREE RAIL GUARDRAIL (PRIVATE USE)

NS SHEET 2 OF 3 08/24/15

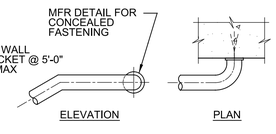


POST BRACKET

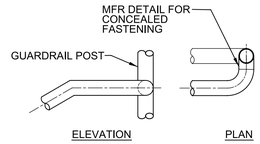
WALL-MOUNTED HANDRAIL



WALL BRACKET



TERMINATION AT WALL

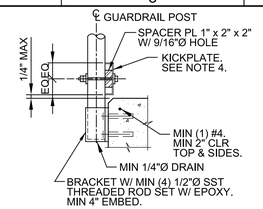


TERMINATION AT POST

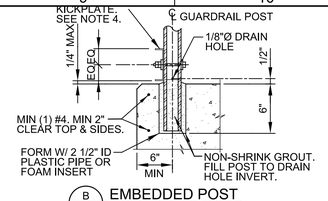
HANDRAIL DETAILS

A343 TYP — THREE RAIL GUARDRAIL (PRIVATE USE)

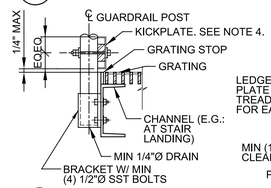
NS SHEET 3 OF 3 08/24/15



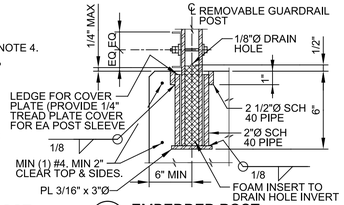
A SIDE MOUNTED POST



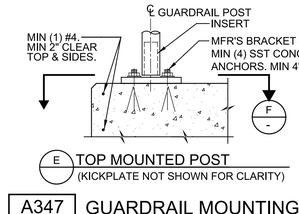
B EMBEDDED POST



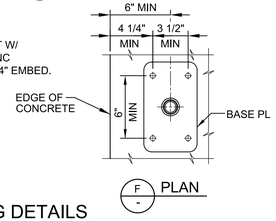
C CHANNEL MOUNTED POST



D EMBEDDED POST - REMOVABLE



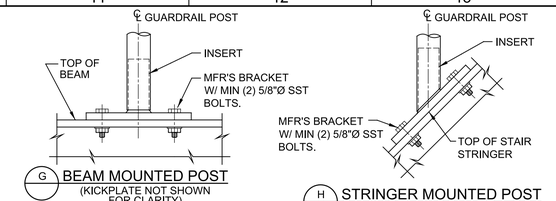
E TOP MOUNTED POST
(KICKPLATE NOT SHOWN FOR CLARITY)



F PLAN
-

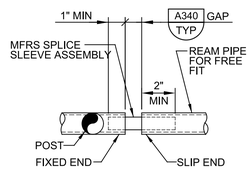
A347 TYP — GUARDRAIL MOUNTING DETAILS

NS SHEET 1 OF 2 09/01/15

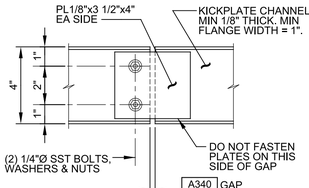


G BEAM MOUNTED POST
(KICKPLATE NOT SHOWN FOR CLARITY)

H STRINGER MOUNTED POST



J RAIL SLIP JOINT - PLAN



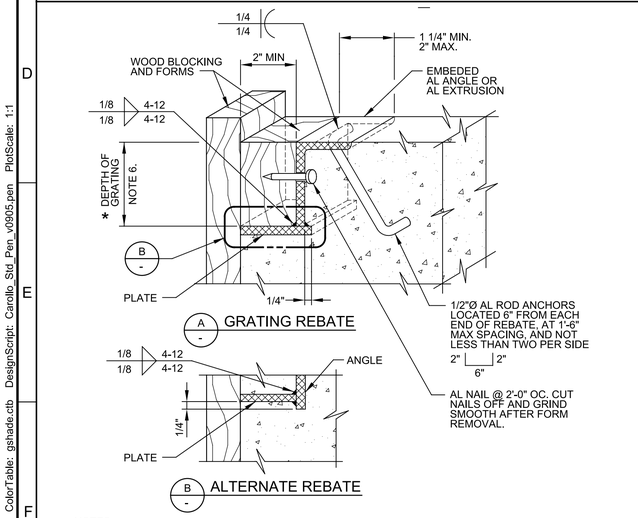
K KICKPLATE JOINT - ELEVATION

NOTES:

1. FOR ADDITIONAL REQUIREMENTS, SEE DETAIL A340/TYP.
2. SEE DRAWINGS FOR MATERIAL TYPES.
3. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS AS SPECIFIED.
4. KICKPLATE CONNECTION AT POST: MIN 3/4" HORIZONTAL SLOTTED HOLE IN CHANNEL W/ MIN 1/4"Ø BOLT. PROVIDE WASHER AND DOUBLE NUTS. INSIDE NUT FINGER-TIGHT TO PERMIT EXPANSION AND CONTRACTION.

A347 TYP — GUARDRAIL MOUNTING DETAILS

NS SHEET 2 OF 2 09/01/15



A GRATING REBATE
-

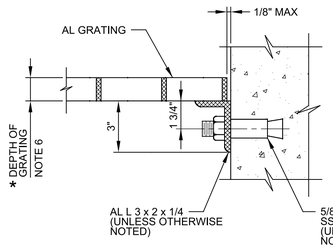
B ALTERNATE REBATE
-

NOTES:

1. SEE SPECIFICATIONS FOR ALUMINUM GRATING.
2. MAKE REBATE AND/OR SEAT CONTINUOUS AROUND OPENING.
3. EMBEDDED REBATE ANGLE AND PLATE SHALL BE 1/4" MINIMUM THICKNESS.
4. REBATE MAY BE EXTRUDED, SUBJECT TO ENGINEER'S ACCEPTANCE.
5. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE AS SPECIFIED.
6. * = DIMENSION AS REQUIRED BY GRATING MANUFACTURER. SEE SPECIFICATIONS.

A400 TYP — ALUMINUM GRATING REBATE AND SEAT

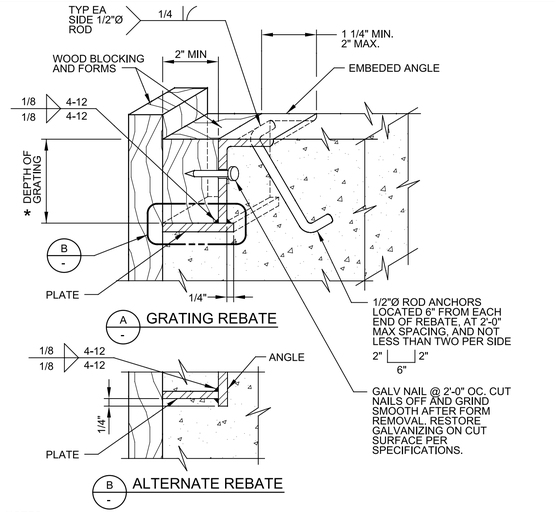
NS SHEET 1 OF 2 04/03/17



C GRATING SEAT
-

A400 TYP — ALUMINUM GRATING REBATE AND SEAT

NS SHEET 2 OF 2 04/03/17



A GRATING REBATE
-

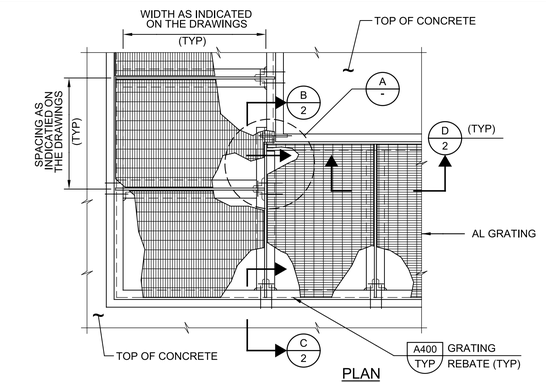
B ALTERNATE REBATE
-

NOTES:

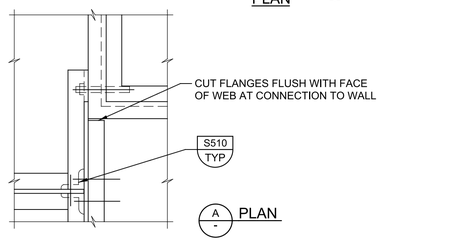
1. SEE SPECIFICATIONS FOR H-20 HEAVY DUTY HOT-DIP GALVANIZED STEEL GRATING.
2. MAKE REBATE AND/OR SEAT CONTINUOUS AROUND OPENING.
3. EMBEDDED REBATE ANGLE AND PLATE SHALL BE 1/4" MINIMUM THICKNESS.
4. HOT-DIP GALVANIZED AFTER FABRICATION.
5. * = DIMENSION AS REQUIRED BY GRATING MANUFACTURER. SEE SPECIFICATIONS.

A406 TYP — H-20 HEAVY DUTY HOT-DIP GALVANIZED STEEL GRATING REBATE

S 04/03/17



PLAN



A PLAN
-

NOTE:

1. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE AS SPECIFIED.

A409 TYP — SUPPORTS FOR ALUMINUM GRATING, LONG SPAN

N SHEET 1 OF 2 03/16/09

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY ALAN ANDERSON 05/09/2019 FL AR0014171 **

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL ARCHITECTURAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GA03

PROJECT NO.
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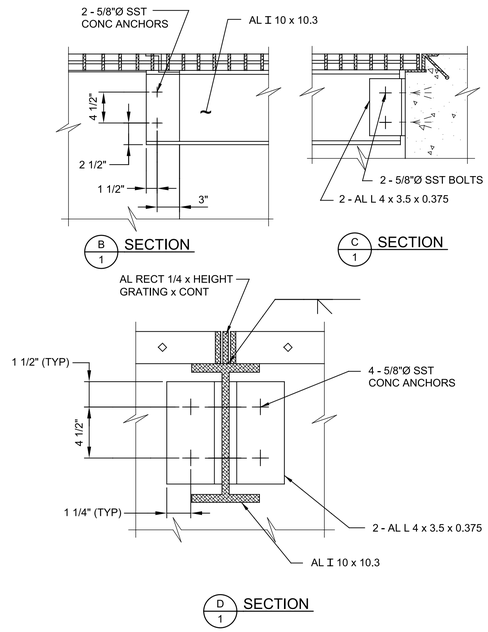
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

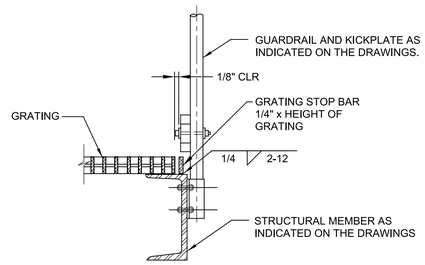


A409 TYP — SUPPORTS FOR ALUMINUM GRATING, LONG SPAN

N

SHEET 2 OF 2

03/16/09

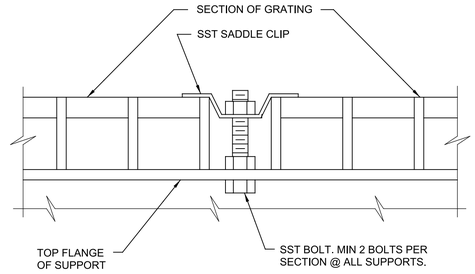


NOTES:

1. GRATING STOP SHALL BE INSTALLED ON ALL GRATING PLATFORMS AND LANDINGS SHALL BE CONTINUOUS ON ALL SIDES OF PLATFORMS NOT OTHERWISE COVERED BY A REBATE, SEAT, OR OTHER SIMILAR DETAIL. GRATING STOPS SHALL BE DISCONTINUOUS AT STAIRS BUT SHALL SERVE TO HOLD LANDING PANEL AT STAIRWAYS IN PLACE.
2. GRATING STOP SHALL BE OF THE SAME MATERIAL AS THE STRUCTURAL MEMBER.

A412 TYP — GRATING STOP

07/31/08

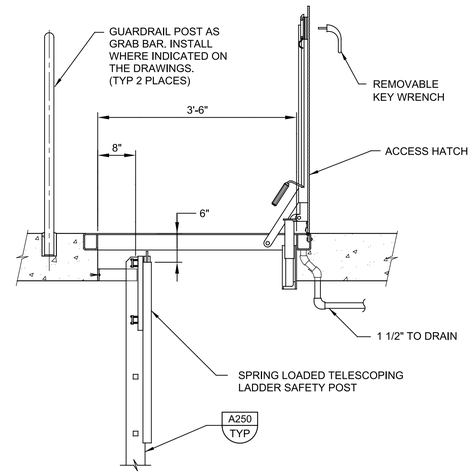


NOTES:

1. GRATING FASTENERS SHALL BE INSTALLED WHERE INDICATED ON THE DRAWINGS.
2. GRATING FASTENERS SHALL BE INSTALLED AT EACH CORNER OF EACH PANEL AND AT SPACING NOT TO EXCEED 8'-0".

A414 TYP — GRATING FASTENERS

08/01/05



A504 TYP — HATCH WITH LADDER

08/01/05

RECORD DOCUMENTS

REV	DATE	BY	DESCRIPTION

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

**
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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

DETAILS

TYPICAL ARCHITECTURAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00GA04

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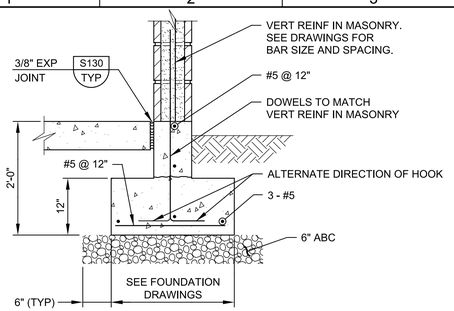
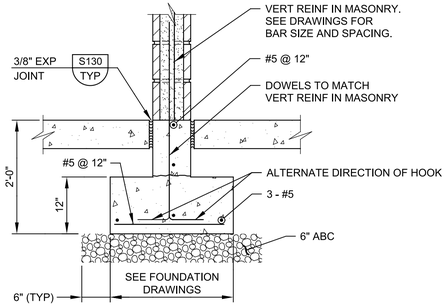


EXTERIOR FOUNDATION



INTERIOR FOUNDATION

F100 TYP — MASONRY WALL FOUNDATION

08/01/05

1. SEE DIVISION 03 SPECIFICATIONS FOR REQUIREMENTS FOR CONCRETE CONSTRUCTION.
2. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, MINIMUM REINFORCEMENT OF CONCRETE WALLS OR SLABS SHALL BE:
   10" THICK OR LESS: .....#5 @ 12" EACH WAY.
   MORE THAN 10" THICK: .....#5 @ 12" EACH WAY, EACH FACE.
3. WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAP SPLICED, OR TERMINATED IN AN ACI STANDARD 90 DEGREE HOOK. SEE DETAIL S144/TYP.
4. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, BARS SHALL BE DOWELED. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS SPLICED TO THE DOWELS.
5. SLAB, BEAM AND COLUMN REINFORCING BARS SHALL HAVE A MINIMUM EXTENSION OR ANCHORAGE INTO SUPPORTS IN ACCORDANCE WITH ACI 318 AND ACI 350.
6. STIRRUP SUPPORT BARS SHALL BE PROVIDED TO SECURE TOP BARS AGAINST DISPLACEMENT AS REQUIRED.
7. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, CONCRETE COVER OVER #11 AND SMALLER REINFORCING BARS SHALL BE AS FOLLOWS:
   A. SLABS AND JOISTS:
      FORMED CONCRETE SURFACES AND UNFORMED TOP SURFACES FOR DRY CONDITIONS
      #7 BARS AND SMALLER.....1"
      #8 BARS AND LARGER.....1 1/2"
      FORMED CONCRETE SURFACES AND UNFORMED TOP SURFACES EXPOSED TO WEATHER, IN CONTACT WITH SOIL OR FLUIDS, OR LOCATED OVER FLUIDS.....2"
   B. BEAMS AND COLUMNS:
      FORMED CONCRETE SURFACES FOR DRY CONDITIONS:
      STIRRUPS, SPIRALS, AND TIES.....1 1/2"
      PRINCIPAL REINFORCEMENT.....2"
      FORMED CONCRETE SURFACES EXPOSED TO WEATHER, IN CONTACT WITH SOIL OR FLUIDS, OR IN BEAMS LOCATED OVER FLUIDS:
      STIRRUPS AND TIES.....2"
      PRINCIPAL REINFORCEMENT.....2 1/2"
   C. WALLS:
      FORMED CONCRETE SURFACES FOR DRY CONDITIONS:
      #7 BARS AND SMALLER.....1"
      #8 BARS AND LARGER.....1 1/2"
      FORMED CONCRETE SURFACES EXPOSED TO WEATHER, OR IN CONTACT WITH SOIL OR FLUIDS.....2"

S101 TYP S — REINFORCED CONCRETE NOTES

SHEET 1 OF 3 07/08/16

   D. FOOTINGS AND SLABS ON GRADE:
      FORMED VERTICAL CONCRETE SURFACES.....2"
      AT UNFORMED CONCRETE SURFACES CAST AGAINST SOIL, ROCK, OR CONCRETE WORK MATS.....3"
      TOP SURFACE OF FOOTINGS AND SLABS.....SAME AS SLABS
8. WATERSTOPS:
   A. PROVIDE WATERSTOPS AT JOINTS IN SLABS AND WALLS OF LIQUID-CONTAINING STRUCTURES, AND PORTIONS OF STRUCTURES BELOW THE DESIGN GROUNDWATER LEVEL. MAKE WATERSTOPS CONTINUOUS THROUGH STRUCTURE, SPLICING WATERSTOPS IN SLABS WITH WATERSTOPS IN WALLS.
   B. END WATERSTOPS 3" BELOW TOP OF WALLS. WHERE TOP OF WALL IS COVERED BY A SLAB WITHOUT WATERSTOPS, CONTINUE WATERSTOP TO WALL/SLAB JOINT. WHERE TOP OF WALL IS COVERED BY A SLAB WITH WATERSTOPS, MAKE WATERSTOPS CONTINUOUS, SPLICING WATERSTOPS IN WALLS WITH WATERSTOPS IN SLAB.
9. CURE CONCRETE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. WHERE WATER CURING IS SPECIFIED, MEMBRANE CURING IS NOT ALLOWED.
   A. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. STUDY SPECIFICATION REQUIREMENTS AND FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED.
   B. KEEP WATER CURED SURFACES VISIBLY MOIST AT ALL TIMES. FLOOD TOPS OF WALLS NOT LESS THEN 3 TIMES DAILY.
10. DO NOT PLACE BACKFILL AGAINST WALLS UNTIL:
   A. WALLS HAVE BEEN CAST TO FULL HEIGHT OF STRUCTURE AND CONCRETE HAS REACHED THE MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'c).
   B. CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND CONCRETE IN THOSE ELEMENTS HAS REACHED THE MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'c).
11. LAP SPLICES:
   A. SEE TABLE 1 OF THIS DETAIL FOR LAP SPLICE LENGTHS.
   B. WHEN MULTIPLE BARS ARE SPLICED AT THE SAME SECTION, THE "CLEAR BAR SPACING" IS DEFINED AS THE MINIMUM CLEAR DISTANCE BETWEEN THE BARS OUTSIDE THE SPLICE LENGTH MINUS ONE BAR DIAMETER.
   C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, BARS AT A LAP SPLICE SHALL BE IN CONTACT WITH EACH OTHER.
   D. "TOP BARS" ARE HORIZONTAL REINFORCEMENT AT LOCATIONS WHERE MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
12. FORM EXPOSED CONCRETE CORNERS AND EDGES WITH 3/4" CHAMFER UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

S101 TYP S — REINFORCED CONCRETE NOTES

SHEET 2 OF 3 07/08/16

TABLE 1: REINFORCING BAR LAP SPLICES: f'c = 4000 PSI, Fy = 60,000 PSI

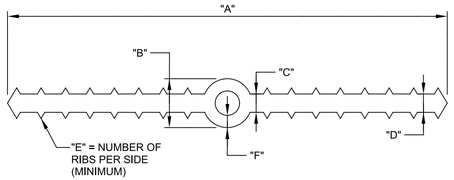
BAR SIZE	MINIMUM COVER (BAR DIA)	MINIMUM CLEAR BAR SPACING (BAR DIA)	LAP SPLICE LENGTH (INCHES)	
			TOP BARS	OTHER BARS
#4	MORE THAN 1	MORE THAN 2	32 *	25 *
	MORE THAN 2	MORE THAN 4	20	16
#5	MORE THAN 1	MORE THAN 2	40 *	31 *
	MORE THAN 2	MORE THAN 4	26	20
#6	MORE THAN 1	MORE THAN 2	48 *	37 *
	MORE THAN 2	MORE THAN 4	30	24
#7	MORE THAN 1	MORE THAN 2	70 *	54 *
	MORE THAN 2	MORE THAN 4	43	33
#8	MORE THAN 1	MORE THAN 2	81 *	62 *
	MORE THAN 2	MORE THAN 4	50	38
#9	MORE THAN 1	MORE THAN 2	90 *	70 *
	MORE THAN 2	MORE THAN 4	56	42
#10	MORE THAN 1	MORE THAN 2	104 *	81 *
	MORE THAN 2	MORE THAN 4	62	48
#11	MORE THAN 1	MORE THAN 2	114 *	88 *
	MORE THAN 2	MORE THAN 4	69	54

REINFORCING BAR LAP SPLICE TABLE NOTES:

1. TABULATED SPLICE LENGTHS ARE APPLICABLE ONLY WHEN BOTH REQUIREMENTS FOR MINIMUM COVER AND FOR MINIMUM CLEAR BAR SPACING ARE SATISFIED.
2. * = IF THE CLEAR BAR SPACING IS LESS THAN OR EQUAL TO TWO BAR DIAMETERS, OR THE COVER IS LESS THAN OR EQUAL TO ONE BAR DIAMETER, THE LAP SPLICE LENGTH SHALL BE INCREASED BY 50 PERCENT.

S101 TYP S — REINFORCED CONCRETE NOTES

SHEET 3 OF 3 07/08/16



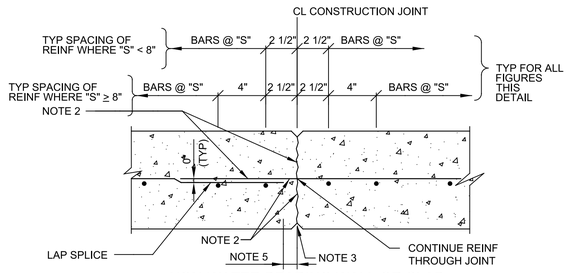
TYPE	"A"	"B"	"C"	"D"	"E"	"F"	APPLICATION
W/O CENTERBULB	6"	-	3/8"	3/8"	7	-	CONSTRUCTION AND CONTROL JOINTS
CENTERBULB	6"	7/8"	3/8"	3/8"	7	9/32"	FOR USE WITH DETAIL EM071/TYP ONLY
CENTERBULB	9"	1"	3/8"	3/8"	7	1/4"	EXPANSION JOINTS 1" AND NARROWER
CENTERBULB	9"	2"	3/8"	3/8"	7	1/4"	EXPANSION JOINTS WIDER THAN 1" AND TENSION/COMPRESSION RING BEAM AT DIGESTERS

NOTES:

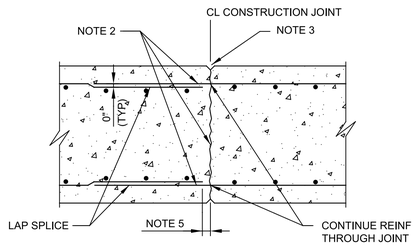
1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. DIMENSIONS ARE MINIMUM, UNLESS OTHERWISE NOTED.

S106 TYP — PVC WATERSTOP SCHEDULE

07/08/16



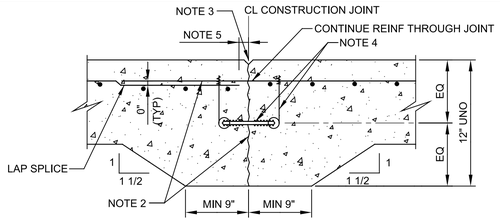
NON-WATER BEARING WALL OR SLAB
SINGLE LAYER REINFORCEMENT



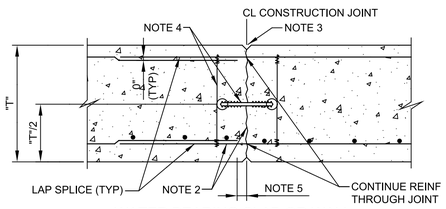
NON-WATER BEARING WALL OR SLAB
DOUBLE LAYER REINFORCEMENT

S110 TYP S — CONSTRUCTION JOINT

SHEET 1 OF 2 07/11/16



WATER BEARING SLAB LESS THAN 12" THICK



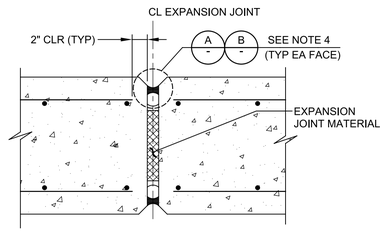
WATER BEARING SLAB OR WALL

NOTES:

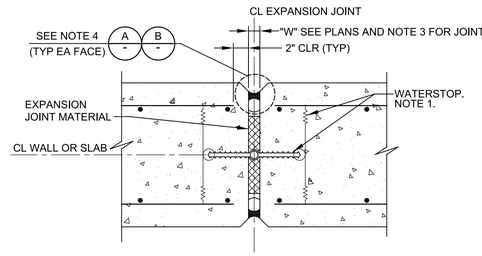
1. "S" EQUALS TYPICAL BAR SPACING INDICATED ON THE DRAWINGS. "T" EQUALS SLAB OR WALL THICKNESS.
2. WATER-BLAST EXPOSED JOINT FACE AND PROJECTING REINFORCEMENT BEFORE PLACING CONCRETE.
3. JOINT EDGES:
   A. FOR WALLS AND BOTTOM OF EXPOSED SLABS: FORM EDGES WITH 1/2" CHAMFER.
   B. FOR SLABS: EDGE TOP AND ENDS WITH 1/4" RADIUS.
4. 6" WATERSTOP CENTERED ON JOINT - SEE DETAIL S106/TYP. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE IN SECOND POUR.
5. STOP REINFORCING 2" CLEAR OF JOINT.

S110 TYP S — CONSTRUCTION JOINT

SHEET 2 OF 2 07/11/16



NON-WATER BEARING SLAB OR WALL



WATER BEARING SLAB OR WALL

S130 TYP S — EXPANSION JOINT

SHEET 1 OF 2 07/22/16

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY JOEL D. SMASON 05/30/2019 FL 58434 **

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
STRUCTURAL TYPICAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GS01

PROJECT NO. 9520I10 FILE NAME: 9520I1000GS01.dgn

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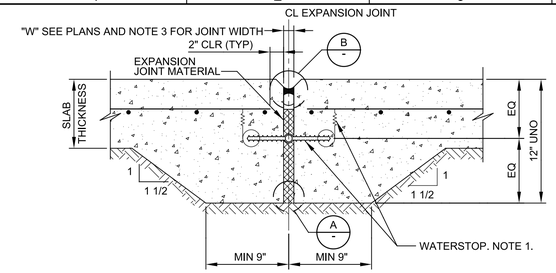
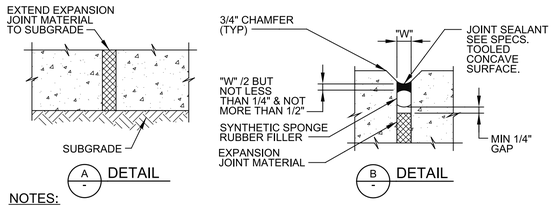


WATER BEARING SLAB LESS THAN 12" THICK



A DETAIL

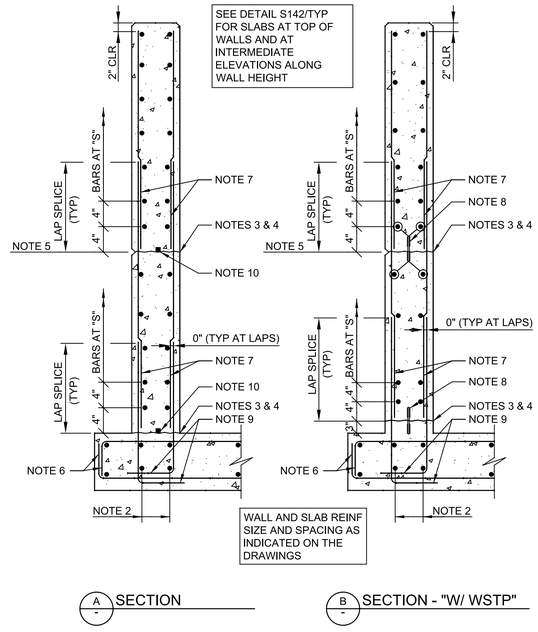
B DETAIL

NOTES:

1. 9" WATERSTOP WITH CENTER BULB CENTERED ON JOINT - SEE DETAIL S106/TYP. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE IN SECOND POUR.
2. JOINT EDGES:
   A. FOR WALLS AND BOTTOM OF EXPOSED SLABS: FORM EDGES WITH 3/4" CHAMFER.
   B. FOR SLABS: EDGE TOP AND ENDS WITH 1/4" RADIUS.
3. "W"=1" UNLESS OTHERWISE INDICATED ON PLANS. (MIN JOINT WIDTH = 3/8". MAX JOINT WIDTH = 2")
4. USE DETAIL A ONLY AT SOIL SIDE OF SLABS ON GRADE. USE DETAIL B AT ALL OTHER LOCATIONS.

S130 TYP S — EXPANSION JOINT

SHEET 2 OF 2 07/22/16



A SECTION

B SECTION - "W/ WSTP"

S140 TYP S — CONSTRUCTION JOINT - WALLS

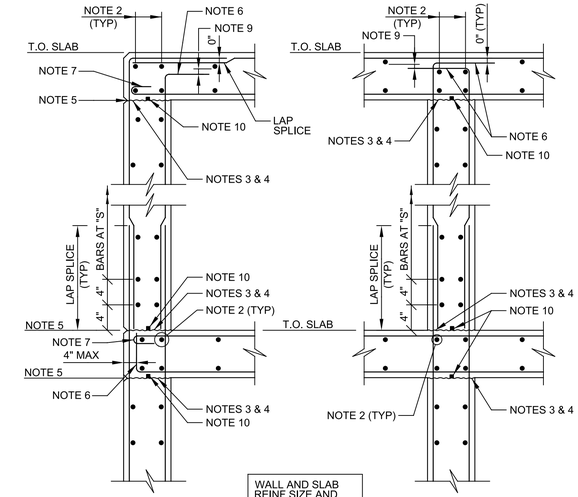
SHEET 1 OF 2 08/31/17

NOTES:

1. "S" EQUALS TYPICAL BAR SPACING INDICATED ON THE DRAWINGS.
2. PLACE AND ALIGN BARS BEFORE PLACING DOWELS. BAR SIZE TO MATCH SLAB BARS.
3. WATER-BLAST JOINT FACE AND PROJECTING REINFORCEMENT BEFORE PLACING CONCRETE.
4. PLACE CEMENT GROUT OVER JOINT FACE IMMEDIATELY BEFORE PLACING CONCRETE. (SEE SPECIFICATIONS.)
5. CONSTRUCTION JOINT WHERE INDICATE ON THE DRAWINGS. WHERE WALL SURFACE IS EXPOSED TO VIEW IN THE FINISHED WORK, PROVIDE V-GROOVE PER DETAIL S162/TYP.
6. STANDARD 90° HOOK WHERE INDICATED ON THE DRAWINGS. (ALTERNATE: PROVIDE 180° HOOK WHERE REQUIRED BY SLAB THICKNESS.)
7. DOWELS: SAME SIZE AND SPACING AS VERTICAL WALL BARS, UNLESS OTHERWISE NOTED.
8. 6" PVC WATERSTOP CENTERED VERTICALLY ON JOINT. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE.
9. STANDARD 90° HOOK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
10. WHERE DRAWINGS INDICATE "W/ STRIP WSTP" PROVIDE LOW EXPANSION HYDROPHILIC WATERSTOP AT TOP SURFACE OF JOINT AND CENTERED BETWEEN VERTICAL BARS.

S140 TYP S — CONSTRUCTION JOINT - WALLS

SHEET 2 OF 2 08/31/17



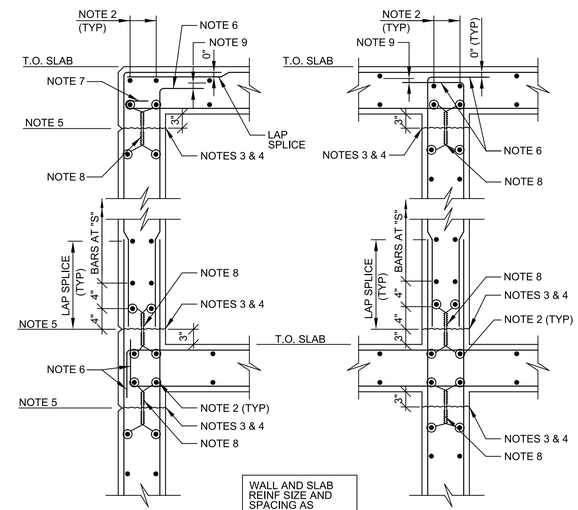
SLAB AT 1 SIDE

SLAB AT 2 SIDES

A SECTION

S142 TYP S — CONSTRUCTION JOINT - WALLS AT ELEVATED SLABS

SHEET 1 OF 3 06/01/17



SLAB AT 1 SIDE

SLAB AT 2 SIDES

B SECTION - "W/ WSTP"

S142 TYP S — CONSTRUCTION JOINT - WALLS AT ELEVATED SLABS

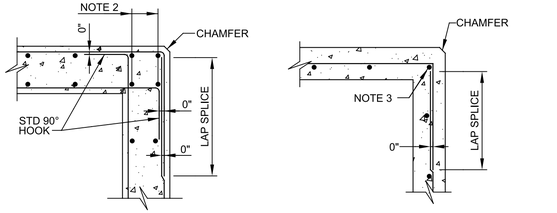
SHEET 2 OF 3 06/01/17

NOTES:

1. "S" EQUALS TYPICAL BAR SPACING INDICATED ON THE DRAWINGS.
2. AT INTERSECTION, MAKE BAR SIZE THE LARGER OF BAR SIZES IN ADJACENT SLAB OR WALL. PLACE BARS AT SAME LAYERS AS IN ADJACENT SLAB OR WALL.
3. WATER-BLAST JOINT FACE AND PROJECTING REINFORCEMENT BEFORE PLACING CONCRETE.
4. PLACE CEMENT GROUT OVER JOINT FACE IMMEDIATELY BEFORE PLACING CONCRETE. (SEE SPECIFICATIONS)
5. CONSTRUCTION JOINT WHERE INDICATED ON THE DRAWINGS. WHERE WALL SURFACE IS EXPOSED TO VIEW IN THE FINISHED WORK, PROVIDE V-GROOVE PER DETAIL S162/TYP.
6. STANDARD 90° HOOK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
7. STANDARD 180° HOOK UNLESS OTHERWISE INDICATED ON THE DRAWINGS. (ALTERNATE: 90° HOOK ROTATED OUT OF VERTICAL PLANE WHERE REQUIRED, IF APPROVED BY ENGINEER).
8. 6" PVC WATERSTOP CENTERED VERTICALLY ON JOINT. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE.
9. 1 BAR DIAMETER CLEAR.
10. WHERE DRAWINGS INDICATE "W/ STRIP WSTP" PROVIDE LOW EXPANSION HYDROPHILIC WATERSTOP AT TOP SURFACE OF JOINT AND CENTERED BETWEEN VERTICAL BARS.

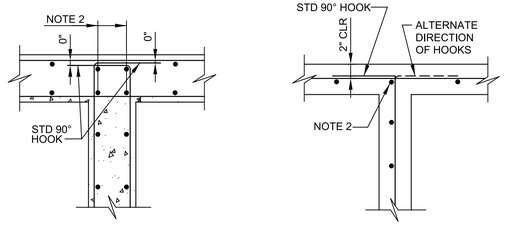
S142 TYP S — CONSTRUCTION JOINT - WALLS AT ELEVATED SLABS

SHEET 3 OF 3 06/01/17



A DETAIL - CORNER: DOUBLE MAT

B DETAIL - CORNER: SINGLE MAT



C DETAIL - INTERSECTION: DOUBLE MAT

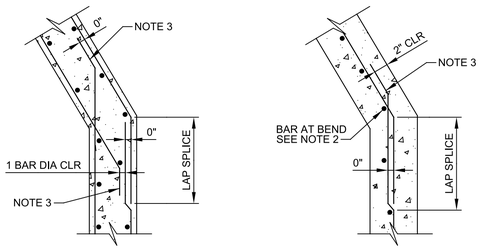
D DETAIL - INTERSECTION: SINGLE MAT

NOTES:

1. BAR SIZE, SPACING, AND ORIENTATION OF BAR LAYERS SHALL BE AS INDICATED ON THE DRAWINGS.
2. AT INTERSECTION, MAKE BAR SIZE THE LARGER OF BAR SIZES IN CONNECTING WALLS. PLACE BARS IN SAME LAYERS AS AT CONNECTING WALLS (TYP).
3. BAR TAILS: 12 BAR DIAMETERS PLUS 12".

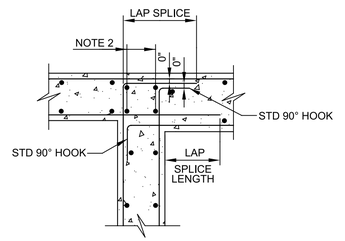
S144 TYP S — WALL REINFORCEMENT AT CORNERS & INTERSECTIONS

SHEET 1 OF 2 05/31/16



E DETAIL - INTERSECTION: DOUBLE MAT

F DETAIL - INTERSECTION: SINGLE MAT



G DETAIL - INTERSECTION: CHANGE IN WALL THICKNESS

S144 TYP S — WALL REINFORCEMENT AT CORNERS & INTERSECTIONS

SHEET 2 OF 2 05/31/16

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY JOEL D. SMASON 05/30/2019 FL 58434 **

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

DETAILS

STRUCTURAL TYPICAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GS02

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LAST SAVED BY: eparker

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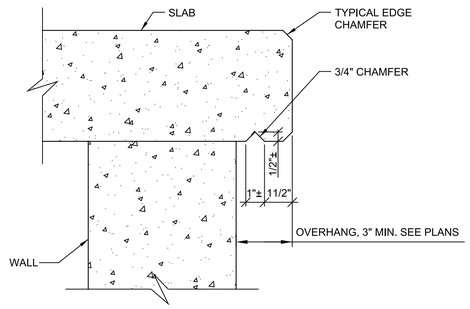
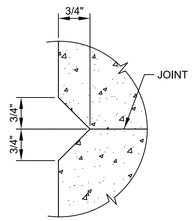


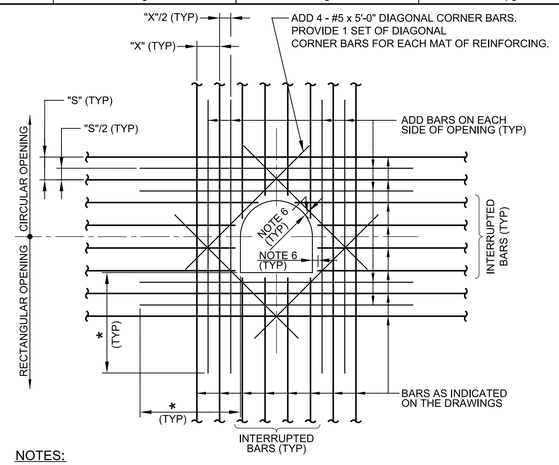
S160 TYP N — DRIP GROOVE

07/21/16



S162 TYP N — V-GROOVE JOINT

07/21/16

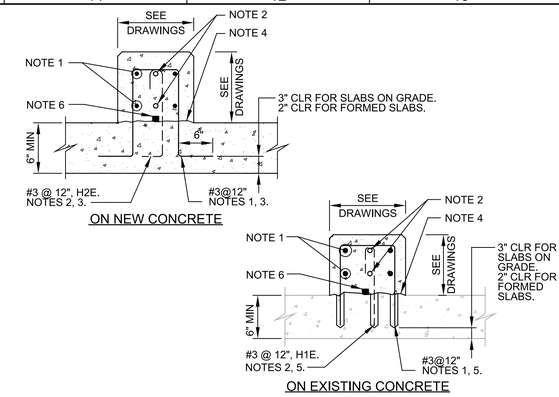


NOTES:

1. AREA OF ADD BARS AT EACH EDGE OF OPENING IN EACH DIRECTION SHALL BE EQUAL TO OR GREATER THAN 1/2 THE CROSS SECTIONAL AREA OF THE INTERRUPTED BARS.
2. PROVIDE STANDARD ACI HOOKS ON BARS IF STRAIGHT EXTENSION PAST THE OPENING, CANNOT BE ACHIEVED.
3. PLACE ADD BARS IN SAME PLANES AS INTERRUPTED REINFORCING.
4. PLACE #5 DIAGONAL BARS ON INSIDE OF INTERRUPTED REINFORCING.
5. * DIMENSION EQUALS OPENING DIMENSION MEASURED PERPENDICULAR TO ADD BARS PLUS LAP SPLICE LENGTH.
6. 2" CLEAR TO CONCRETE OPENINGS OR OUTSIDE FACE OF PIPES AND PIPE SLEEVES. DO NOT OVERCUT REINFORCMENT FOR EASIER PLACEMENT OF WEEP RINGS AND FLANGES.
7. ADD BARS ARE NOT REQUIRED AT SIDES OF OPENINGS PARALLEL TO AND WITHIN 6" OF A WALL OR BEAM.

S180 TYP S — ADDITIONAL REINFORCING AT OPENINGS IN CONCRETE SLABS OR WALLS

06/01/17

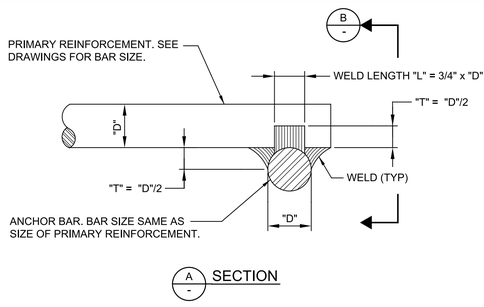


NOTES:

1. FOR CURB WIDTH > 10": HOR REINF: 1 - #4 EACH FACE FOR EACH 12" HEIGHT.
2. FOR CURB WIDTH ≤ 10". HOR REINF: 1 - #4 INSIDE 180° HOOK. ADD 1 - #4 HOR FOR EACH 12" HEIGHT.
3. HOOK PARALLEL TO CURB WHERE REQD.
4. REMOVE EXISTING COATINGS. ROUGHEN CONCRETE TO 1/4" AMPLITUDE. CLEAN AND APPLY EPOXY RESIN/PORTLAND CEMENT BONDING AGENT BEFORE PLACING CURB.
5. SET NEW REINF IN EXISTING CONCRETE USING DETAIL S194/TYP.
6. FOR CURB 10" & WIDER: WHERE DRAWINGS INDICATE "W/STRIP WSTP," PROVIDE LOW EXPANSION HYDROPHILIC WATERSTOP AT TOP SURFACE OF JOINT AND CENTERED BETWEEN VERTICAL #3'S. WRAP STRIP WATERSTOP UP VERTICAL END WHERE CURB ABUTS WALL OR COLUMN. STOP STRIP MIN 4" BELOW TOP OF CURB.

S184 TYP S — CONCRETE CURB

04/26/17

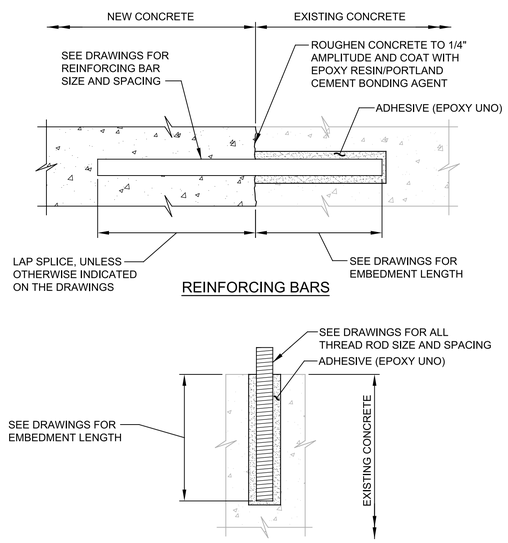


NOTES:

1. ANCHOR BAR FULL WIDTH OF PRIMARY REINFORCEMENT IN CORBEL.
2. SEE AWS D1.4 FOR WELDING PROCESS, PREHEAT REQUIREMENTS, AND OTHER DETAILS. SUBMIT WELDING PROCEDURE PER AWS.

S192 TYP — CORBEL ANCHOR BAR WELDING

08/01/05

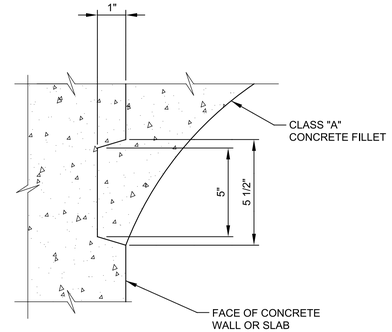


NOTE:

1. INSTALLATION OF REINFORCING BARS AND ALL THREAD RODS AS INDICATED IN THE SPECIFICATIONS.

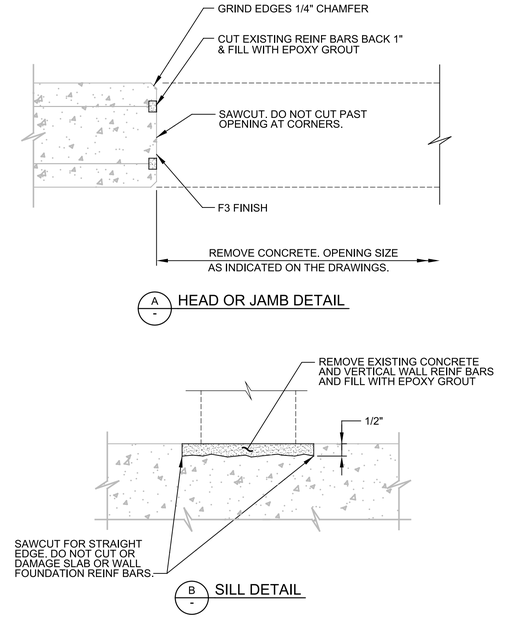
S194 TYP S — ADHESIVE BONDED REINFORCING BARS OR ALL THREAD RODS

04/18/17



S196 TYP — KEY AT CONCRETE FILLET

08/01/05



S210 TYP N — NEW OPENING THROUGH EXISTING CONCRETE

08/07/14

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
STRUCTURAL TYPICAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GS03

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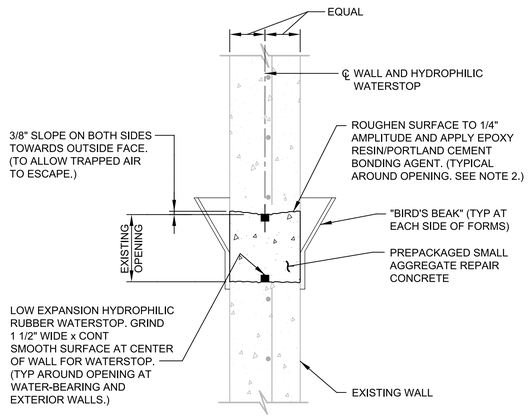
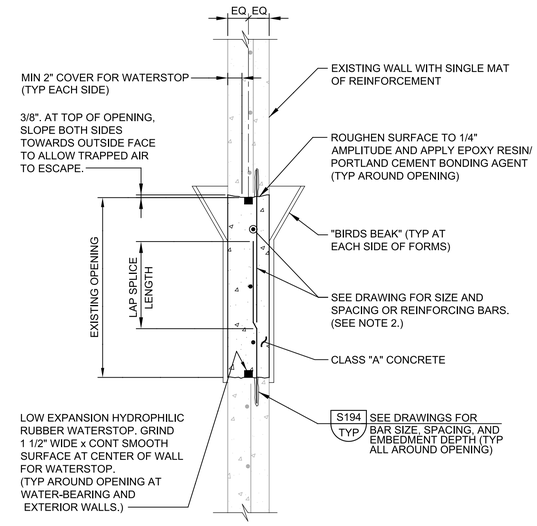


NOTES:

1. PLACE CONCRETE THROUGH "BIRD'S BEAK" ON FORM. REMOVE EXCESS CONCRETE AND FINISH TO MATCH EXISTING SURFACE.
2. REMOVE ANY LOOSE OR FRACTERED AGGREGATE OR CONCRETE ON SURFACE OF ROUGHED CONCRETE.

S220 TYP — FILL OPENING: CONCRETE WALL WITH 1 MAT REINFORCING

N 07/31/14

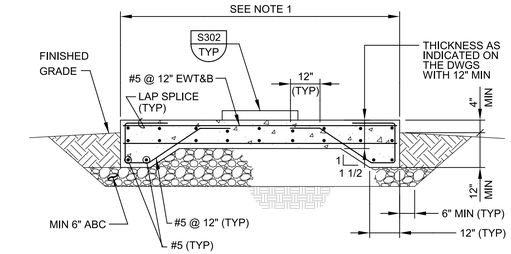


NOTES:

1. PLACE CONCRETE THROUGH "BIRD'S BEAK" ON FORM. REMOVE EXCESS CONCRETE AND FINISH TO MATCH EXISTING SURFACE.
2. FOR CIRCULAR WALL, ROLL CIRCUMFERENTIAL REINFORCING BARS AS REQUIRED TO MATCH WALL RADIUS.

S228 TYP — FILL OPENING: CONCRETE WALL WITH 1 MAT OF REINFORCING - DOWELS AND LAPS

N 08/07/14

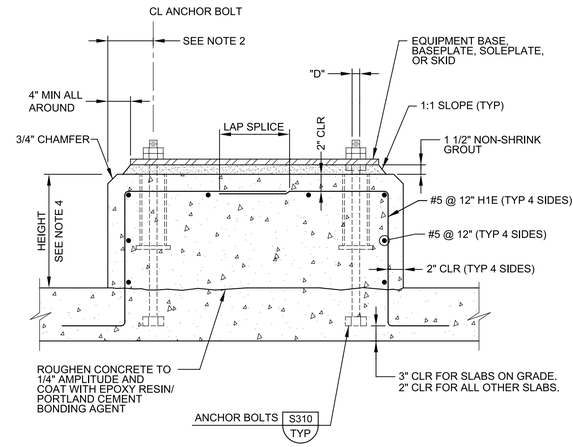


NOTE:

1. DIMENSIONS AS REQUIRED TO SUIT EQUIPMENT OR AS INDICATED ON THE DRAWINGS.

S300 TYP — EQUIPMENT SLAB

S 04/18/17

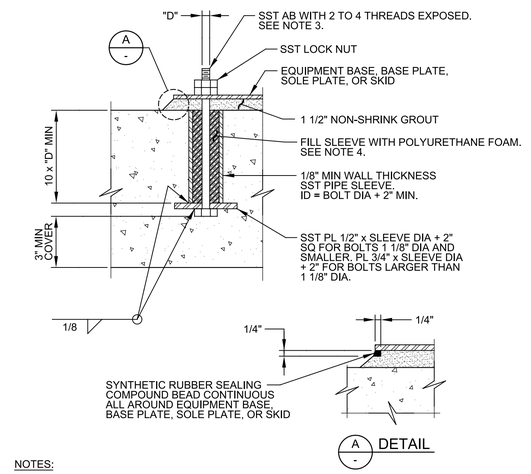


NOTES:

1. "D" = DIAMETER OF ANCHOR BOLT.
2. THE EDGE DISTANCE ON THE ANCHOR BOLTS SHALL NOT BE LESS THAN 6" OR 8 x "D".
3. PAD DIMENSIONS AND ANCHOR BOLT SIZE SHALL CONFORM TO EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. VARIES TO SUIT EQUIPMENT FURNISHED OR AS INDICATED ON THE DRAWINGS.
5. WHERE CONCRETE SLAB OR BEAM THICKNESS WILL NOT ACCOMMODATE THE ANCHOR BOLT, PROVIDE EXTRA THICKNESS FOR SLAB OR BEAM.

S302 TYP — EQUIPMENT BASE

N 02/02/2015

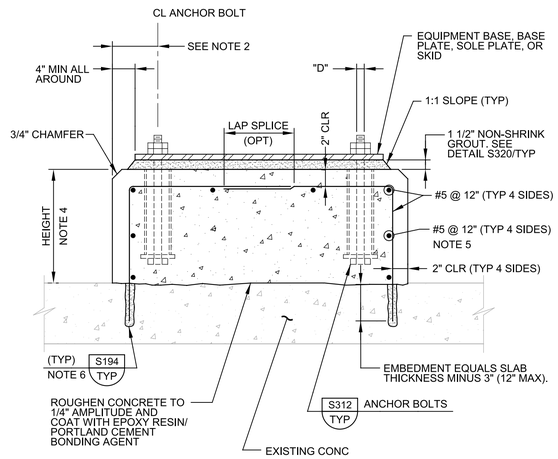


NOTES:

1. "D" = DIAMETER OF ANCHOR BOLT.
2. ANCHOR BOLT DIAMETER AS INDICATED ON THE DRAWINGS. IF NOT INDICATED ON THE DRAWINGS, THE ANCHOR BOLT SIZE SHALL BE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
3. DO NOT USE ALL THREAD RODS AS A SUBSTITUTE FOR BOLTS WITH A BOLT HEAD.
4. COMPLETELY REMOVE ANY POLYURETHANE FOAM FROM CONCRETE, EQUIPMENT BASE, BASE PLATE, SOLE PLATE, OR SKID, AND ANCHOR BOLTS ABOVE TOP OF CONCRETE.
5. DO NOT USE LEVELING NUTS TO SUPPORT AND LEVEL EQUIPMENT BASE, BASE PLATE, SOLE PLATE, OR SKID.

S312 TYP — ANCHOR BOLT - IN SLEEVE

N 05/20/15

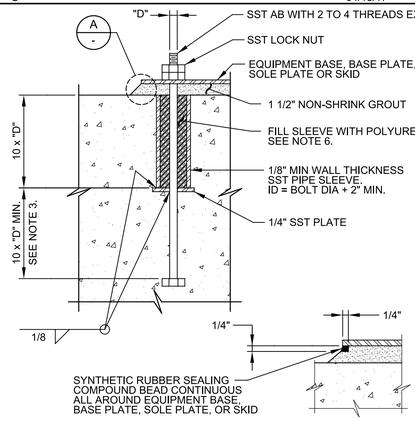


NOTES:

1. "D" = DIAMETER OF ANCHOR BOLT.
2. THE EDGE DISTANCE ON THE ANCHOR BOLTS SHALL NOT BE LESS THAN 6" OR 8 x "D".
3. PAD DIMENSIONS AND ANCHOR BOLT SIZE SHALL CONFORM TO EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. HEIGHT TO SUIT EQUIPMENT FURNISHED OR AS INDICATED ON THE DRAWINGS.
5. PROVIDE HOOPS OR CORNERS PER DETAIL S144/TYP.
6. FIELD LOCATE EXISTING REINFORCEMENT IN SLAB BEFORE DRILLING. ADJUST DOWEL LOCATIONS TO AVOID REINFORCEMENT.

S304 TYP — EQUIPMENT BASE ON EXISTING CONCRETE

N 12/29/2017

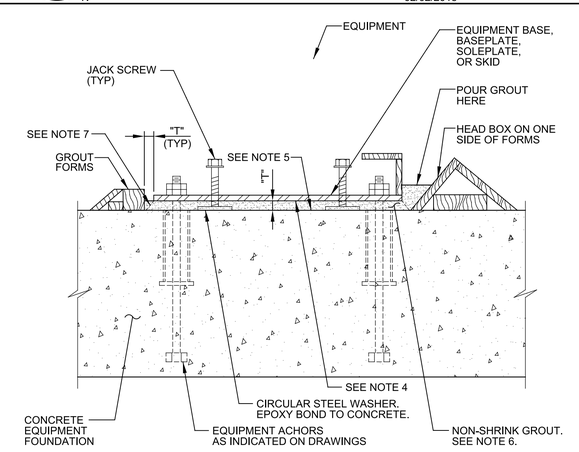


NOTES:

1. "D" = DIAMETER OF ANCHOR BOLT.
2. ANCHOR BOLT DIAMETER AS INDICATED ON THE DRAWINGS. IF NOT INDICATED ON THE DRAWINGS, THE ANCHOR BOLT SIZE SHALL BE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
3. WHERE CONCRETE SLAB OR BEAM THICKNESS WILL NOT ACCOMMODATE THE ANCHOR BOLT, PROVIDE EXTRA THICKNESS OF SLAB OR BEAM.
4. PREFABRICATED PLASTIC ANCHOR BOLT SLEEVE OPTIONAL.
5. DO NOT USE ALL THREAD RODS AS A SUBSTITUTE FOR BOLTS WITH A BOLT HEAD, SMOOTH RODS THREADED AT THE ENDS MAY BE USED IF ACCEPTABLE TO THE ENGINEER. DO NOT WELD NUTS TO THE THREADED RODS.
6. COMPLETELY REMOVE ANY POLYURETHANE FOAM FROM CONCRETE, EQUIPMENT BASE, BASE PLATE, SOLE PLATE, OR SKID, AND ANCHOR BOLTS ABOVE TOP OF CONCRETE.
7. DO NOT USE LEVELING NUTS TO SUPPORT AND LEVEL EQUIPMENT BASE, BASE PLATE, SOLE PLATE, OR SKID.

S310 TYP — ANCHOR BOLT - EMBED AND SLEEVE

N 05/20/15



NOTES:

1. "T" = EQUALS GROUT THICKNESS INDICATED ON THE DRAWING. 1" MINIMUM GROUT THICKNESS.
2. FILL ANCHOR SLEEVES WITH POLYURETHANE FOAM BEFORE GROUTING.
3. DO NOT USE LEVELING NUTS ON EQUIPMENT ANCHORS.
4. PREPARE SURFACE OF EQUIPMENT BASES, BASEPLATES, SOLEPLATES, AND SKIDS IN CONTACT WITH GROUT AS SPECIFIED IN SECTION 15050 (46_05_10).
5. PREPARE SURFACES OF CONCRETE FOUNDATION IN CONTACT WITH GROUT AS SPECIFIED IN SECTION 15050 (46_05_10).
6. PLACE NON-SHRINK GROUT AS SPECIFIED IN SECTION 15050 (46_05_10).
7. AFTER GROUT SETS, TRIM GROUT TO 45 DEGREE CHAMFER.

S320 TYP — EQUIPMENT GROUTING WITH NON-SHRINK GROUT

N 12/29/17

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

** ORIGINAL SEALED BY JOEL D. SMASON 05/30/2019 FL 58434 **

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
STRUCTURAL TYPICAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GS04

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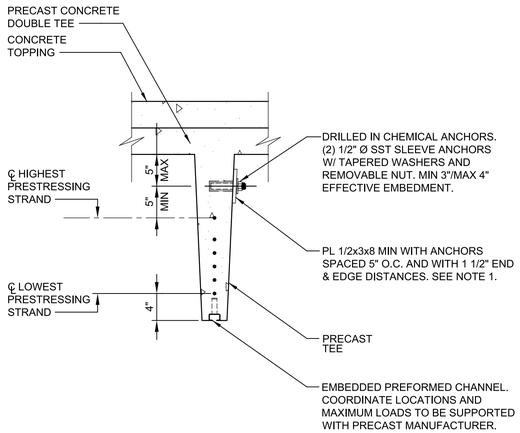
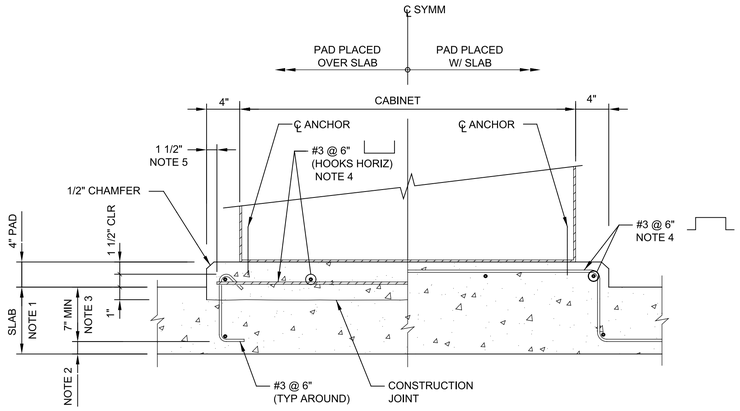


NOTES:

1. CONTRACTOR TO INDICATE TO PRECAST MANUFACTURER LOCATIONS FOR PLATES. NOTIFY ENGINEER OF LOCATIONS PRIOR TO PRECAST SUBMITTAL. ENGINEER WILL CONFIRM REQUIRED BOLT DIAMETER AND PLATE THICKNESS AT PLATE LOCATIONS.

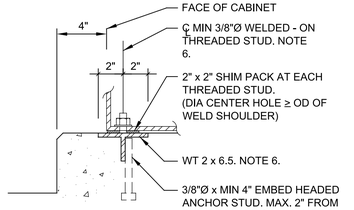
S347 TYP S — PRECAST CONCRETE TEE AT EQUIPMENT SUPPORTS

12/20/13

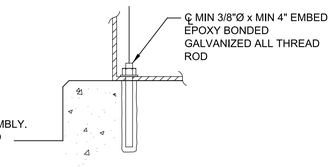


NOTES:

1. SEE STRUCTURAL DRAWINGS FOR THICKNESS OF SLAB BELOW PAD. SLAB REINFORCEMENT NOT SHOWN.
2. SEE S101/ TYP FOR MIN CONCRETE COVER REQUIREMENTS.
3. CONTACT ENGINEER FOR INSTRUCTIONS WHERE HOOK EMBEDMENT IS LESS THAN DIMENSION SHOWN.
4. FOR EQUIPMENT WITH CONDUIT WINDOWS BELOW, ADJUST BAR LOCATIONS TO FIT BETWEEN WINDOWS.
5. LOCATE VERTICAL EDGE OF PAD AND VERTICAL FACE OF #3s USING VERTICAL 2x FORM DURING SLAB PLACEMENT.
6. HOT DIP GALVANIZE WT AND HEADED ANCHOR STUD ASSEMBLY. TOUCH UP GALVANIZING AFTER FIELD WELDING THREADED STUDS.



A - CAST-IN-ANCHOR



B - POST-INSTALLED ANCHOR

S350 TYP S — ELECTRICAL EQUIPMENT HOUSEKEEPING PAD

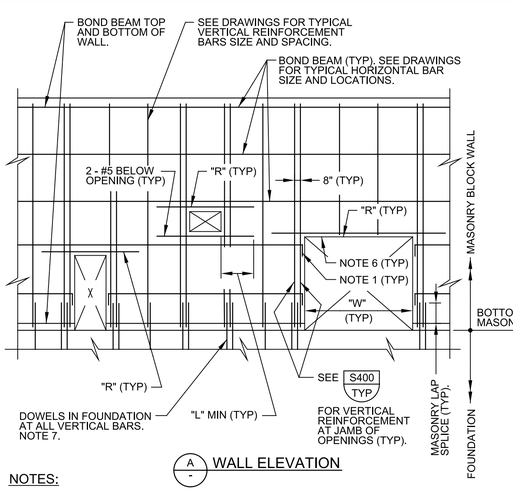
02/21/14

1. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, MINIMUM WALL REINFORCEMENT SHALL BE AS FOLLOWS:
   A. VERTICAL REINFORCEMENT:
      #5 AT 2'-8" IN GROUTED CELLS. CENTERED IN 8" WALLS. EACH FACE IN 12" WALLS.
      ADDITIONAL REINFORCEMENT (SAME SIZE AS VERTICAL WALL BARS UNO):
      VERTICAL BARS AT CORNERS AND INTERSECTIONS: SEE DETAIL S412/TYP.
      VERTICAL BARS EACH SIDE AT MASONRY CONTROL JOINTS: SEE DETAIL S430/TYP.
      VERTICAL BARS IN FIRST 2 CELLS AT EACH JAMB OF WALL OPENINGS: SEE DETAIL S412/TYP.
   B. HORIZONTAL REINFORCEMENT:
      3/16" DIA LADDER JOINT REINFORCEMENT AT 16" OC VERTICAL. SEE DETAIL S414/TYP.
      HORIZONTAL BOND BEAMS AT LOCATIONS INDICATED IN DETAIL S410/TYP AND IN WALL SECTIONS FOR EACH STRUCTURE.
      BOND BEAM REINFORCEMENT: 1 - #5 IN 8" WALLS. 2 - #5 IN 12" WALLS.
2. LAP SPLICES:
   A. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE BARS AT A LAP SPLICE SHALL BE IN CONTACT WITH EACH OTHER.
   B. BAR LAP SPLICES NOT SPECIFIED ON THE DRAWINGS OR IN THE FOLLOWING TABLE SHALL NOT BE LESS THAN 72 BAR DIAMETERS.
   C. THE MASONRY SIDE COVER OVER THE REINFORCING BARS SHALL NOT BE LESS THAN 2 INCHES FROM FACE OF MASONRY TO THE EXTERIOR FACE OF THE BAR.

REINFORCING BAR LAP SPLICES: f'm = 1500 psi, Fy = 60,000 psi				
BAR SIZE	LAP SPLICE LENGTH (INCHES)			
	8" CMU: BAR CENTERED IN WALL	8" CMU: BAR @ FACE OF WALL	12" CMU: BAR CENTERED IN WALL	12" CMU: BAR @ FACE OF WALL
#4	21"	26"	21"	26"
#5	26"	40"	26"	40"
#6	42"	54"	40"	54"
#7	58"	63"	46"	63"

S400 TYP S — MASONRY NOTES

04/10/17



A - WALL ELEVATION

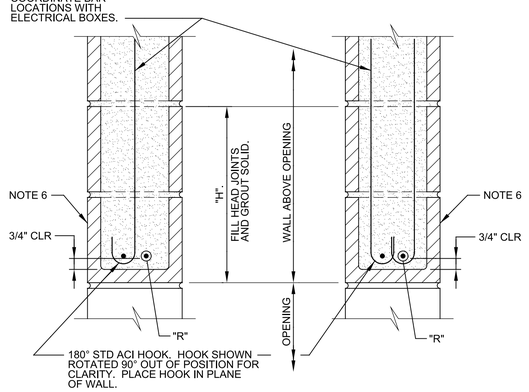
NOTES:

1. ACI STANDARD 90° HOOK ON HORIZONTAL BARS AT OPENINGS.
2. SEE DRAWINGS FOR VERTICAL AND HORIZONTAL REINFORCEMENT SIZE AND SPACING AT EACH STRUCTURE.
3. DO NOT PLACE VERTICAL CONDUITS IN CELLS WITH VERTICAL REINFORCING BARS.
4. SEE DETAIL S412/TYP FOR BOND BEAM REINFORCEMENT AT CORNERS AND INTERSECTIONS.
5. "R" BARS: EXTEND BAR TO "L" DIMENSION INDICATED ON SHEET 2. PROVIDE VERTICAL HOOK AT END IF "L" CANNOT BE ACHIEVED.
6. CHANNEL LINTEL MASONRY UNITS ACROSS OPENINGS. KNOCK-OUT BOND BEAM UNITS BEYOND OPENINGS TO "L."
7. EMBED DOWELS IN CONCRETE PER DETAIL S455/TYP.

S410 TYP S — REINFORCED MASONRY WALL

SHEET 1 OF 2 06/01/17

TYPICAL WALL REINF BARS UNLESS OTHERWISE INDICATED ON THE DRAWINGS. SEE DRAWINGS FOR BAR SIZE AND SPACING. COORDINATE BAR LOCATIONS WITH ELECTRICAL BOXES.



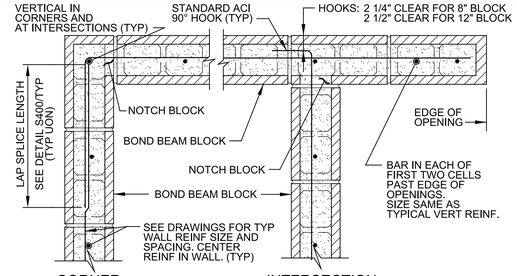
B - LINTEL AT OPENING WITH VERTICAL REINF

C - LINTEL AT OPENING WITH VERTICAL REINF EACH FACE

LINTEL REINFORCEMENT SCHEDULE			
"W"	"R"	"L"	"H"
LESS THAN 5'-0"	2 - #5	2'-6"	16"
GREATER THAN 5'-0" TO 7'-0"	2 - #6	3'-0"	32"
GREATER THAN 7'-0" TO 12'-0"	2 - #7	3'-6"	40"

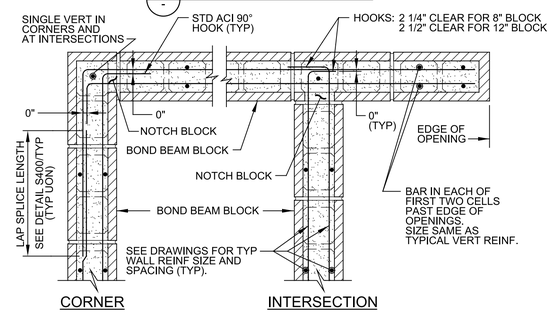
S410 TYP S — REINFORCED MASONRY WALL

SHEET 2 OF 2 06/01/17



CORNER INTERSECTION

A - SINGLE BAR BOND BEAM

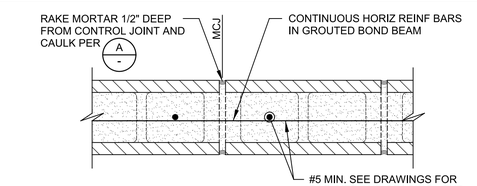


CORNER INTERSECTION

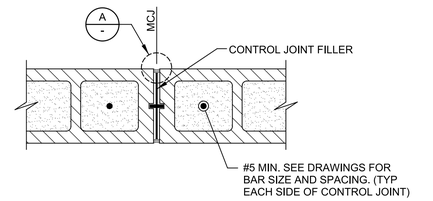
B - DOUBLE BAR BOND BEAM (12" CMU ONLY)

S412 TYP S — MASONRY BOND BEAM REINFORCING

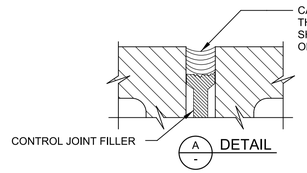
04/10/17



PLAN AT BOND BEAM WITH SINGLE WALL REINF MAT



PLAN ABOVE OR BELOW BOND BEAM WITH SINGLE WALL REINF MAT



S430 TYP S — MASONRY CONTROL JOINT

SHEET 1 OF 2 04/04/17

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

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STRUCTURAL TYPICAL DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GS05

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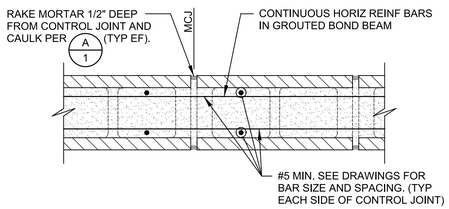
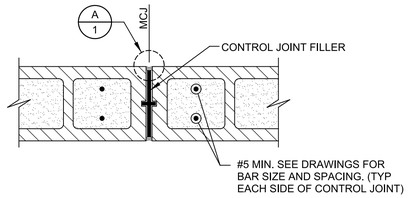
LAST SAVED BY: eparker



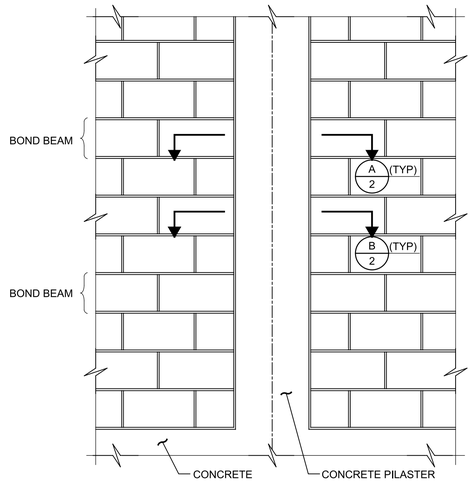
PLAN AT BOND BEAM
WITH DOUBLE WALL REINF MAT



PLAN ABOVE OR BELOW BOND BEAM
WITH DOUBLE WALL REINF MAT

S430 TYP S MASONRY CONTROL JOINT

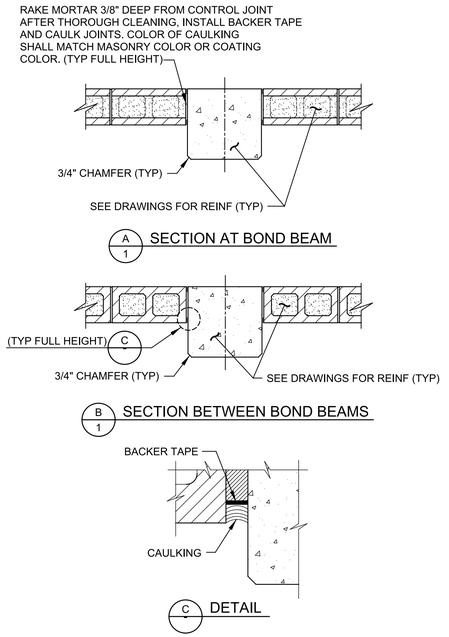
SHEET 2 OF 2 04/04/17



MASONRY WALL ELEVATION

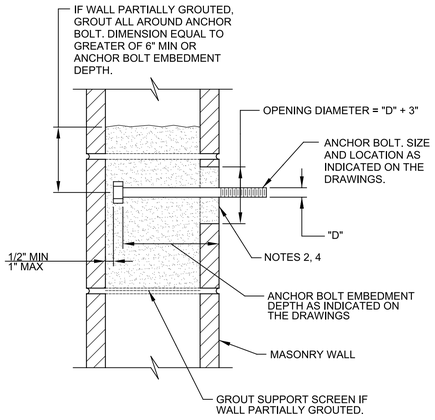
S432 TYP MASONRY CONTROL JOINT AT COVERED PILASTER

SHEET 1 OF 2 08/01/05



S432 TYP MASONRY CONTROL JOINT AT COVERED PILASTER

SHEET 2 OF 2 08/01/05

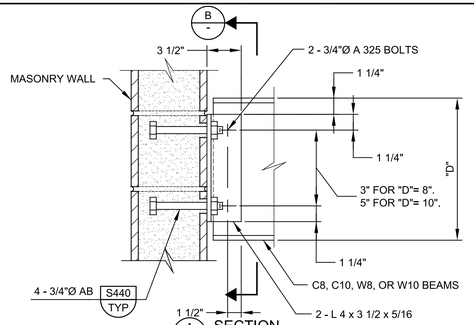


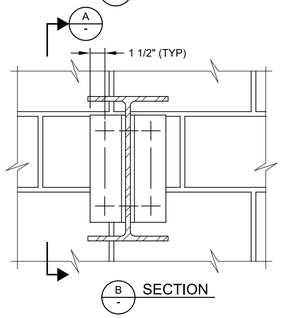
NOTES:

1. "D" = DIAMETER OF ANCHOR BOLT.
2. SET ANCHOR BOLTS WITH TEMPLATE. DO NOT EMBED ADJUSTMENT NUTS IN GROUT AT FACE OF MASONRY.
3. CUT MASONRY WEBS AS REQUIRED TO ALLOW MINIMUM 1/2" GROUT BETWEEN ANCHOR BOLT AND MASONRY SURFACE.
4. REMOVE EXCESS GROUT. LEAVE FINISHED SURFACE FLUSH WITH FACE OF WALL.

S440 TYP S ANCHOR BOLTS IN MASONRY

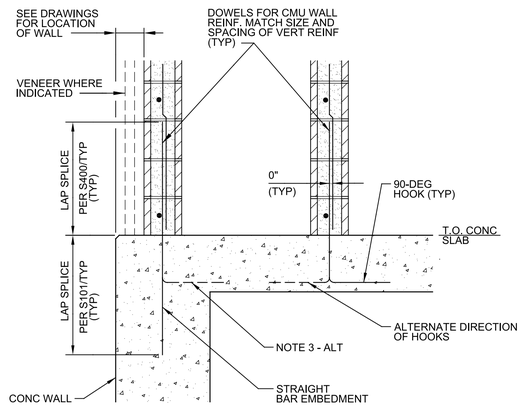
04/04/17





S452 TYP N BEAM TO MASONRY WALL CONNECTION

08/01/05

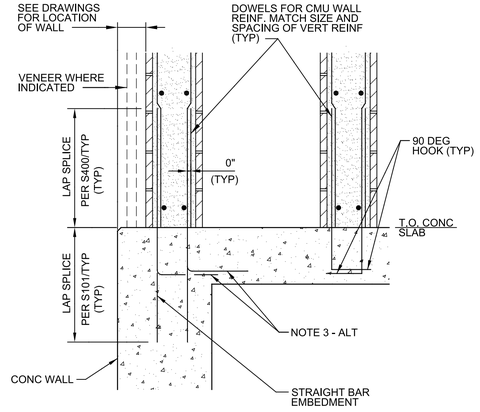


NOTES:

1. FOR CMU WALL REINFORCING SIZE AND SPACING, SEE PLANS.
2. VENEER IS NOT SHOWN FOR CLARITY.
3. WHERE STRAIGHT BAR EMBEDMENT IS NOT AVAILABLE, PROVIDE 90-DEGREE HOOKS. ROTATE HOOKS TO PROVIDE REQUIRED CONCRETE COVER.

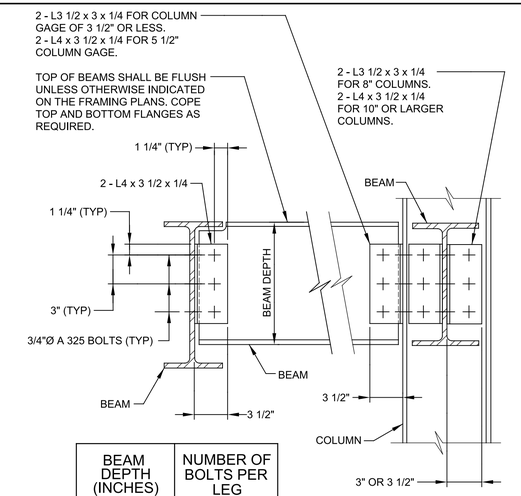
S455 TYP CMU WALL TO CONCRETE

SHEET 1 OF 2 01/09/18



S455 TYP CMU WALL TO CONCRETE

SHEET 2 OF 2 01/09/18



BEAM DEPTH (INCHES)	NUMBER OF BOLTS PER LEG
8 - 10	2
12 - 16	3
18 - 21	4
24 - 30	6

NOTE:

1. SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLAN BY ⬡.

S502 TYP STEEL DOUBLE ANGLE BOLTED CONNECTION
VERTICAL BOLT LINES

4/30/07

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED DM
DRAWN DMS
CHECKED SS
DATE APRIL 2025

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DETAILS
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VERIFY SCALES
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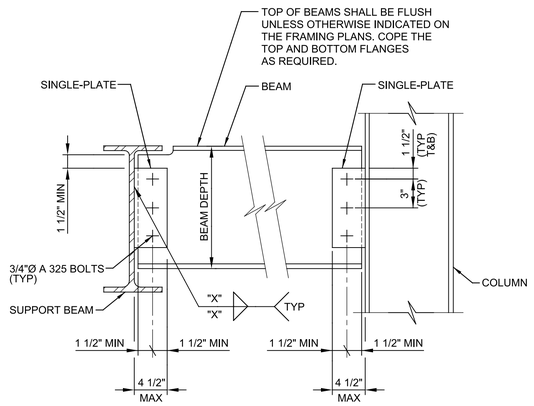
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GS06



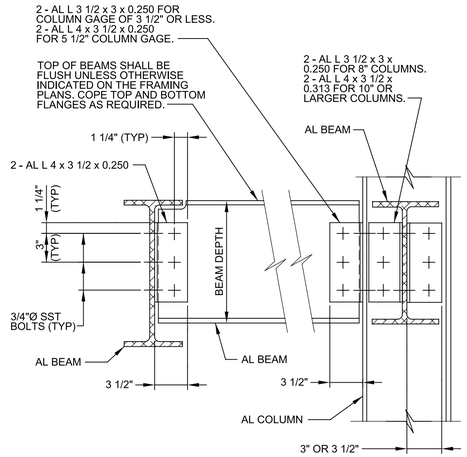
BEAM DEPTH (INCHES)	NUMBER OF BOLTS PER PLATE	PLATE THICKNESS (INCHES)	FILLET WELD SIZE "X" (INCHES)
8-10	2	1/4	3/16
12-16	3	1/4	3/16
18-21	5	3/8	5/16
24-30	7	3/8	5/16

NOTE:

1. SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLAN BY (#) WHERE NUMBER INSIDE SYMBOL = NUMBER OF BOLTS.

S506 TYP — STEEL SINGLE PLATE SHEAR CONNECTION
3/4" DIA BOLTS; ASTM A36 PLATES

N 07/31/14



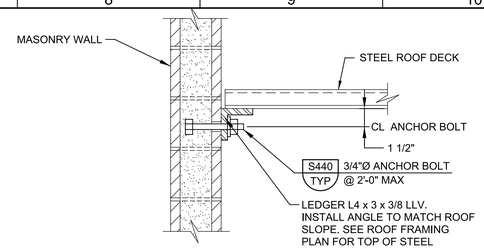
BEAM DEPTH (INCHES)	NUMBER OF BOLTS PER LEG
8 AND 10	2
12	3

NOTE:

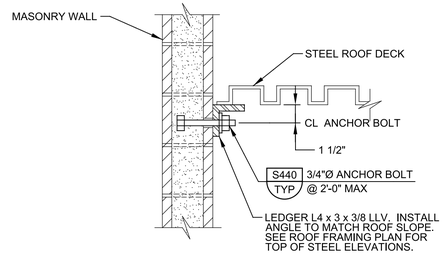
1. SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLAN BY ⬡.

S510 TYP — ALUMINUM DOUBLE ANGLE BOLTED CONNECTION
VERTICAL BOLT LINES

08/01/05



ROOF DECK RIBS PERPENDICULAR TO WALL



ROOF DECK RIBS PARALLEL TO WALL

NOTES:

1. FIRST ANCHOR BOLT AT EACH END OF SECTION OF ANGLE SHALL BE 6" OR LESS FROM END OF ANGLE.
2. ANGLE SHALL STOP AT EACH SIDE OF CONTROL AND EXPANSION JOINTS. GAP BETWEEN ENDS OF ANGLES SHALL EQUAL WIDTH OF JOINT.

S708 TYP — ROOF DECK TO WALL CONNECTION

N 08/31/09

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STRUCTURAL TYPICAL DETAILS

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JOB NO. 09520I.10
DRAWING NO. 00GS07

PROJECT NO. 9520I10 FILE NAME: 9520I1000GS07.dgn

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ColorTable: gshade.ctb
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VALVES

ONE LINE PIPE / THREE LINE PIPE

- ANGLE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- 4-WAY VALVE
- GATE VALVE
- KNIFE GATE VALVE
- GLOBE VALVE
- NEEDLE VALVE
- PINCH VALVE
- SEATING PORT
- ECCENTRIC PLUG VALVE
- CONCENTRIC PLUG VALVE
- 3-WAY VALVE
- MOTOR OPERATED VALVE
- PNEUMATIC VALVE
- SAMPLE VALVE
- SOLENOID VALVE
- DIAPHRAGM VALVE
- AIR-RELIEF / VACUUM RELIEF VALVE
- PUMP DISCHARGE
- BUTTERFLY VALVE (BURIED)
- CONE VALVE
- MUD VALVE

CHECK VALVES

ONE LINE PIPE / THREE LINE PIPE

- BACK FLOW PREVENTOR (REDUCED PRESSURE)
- BALL CHECK VALVE
- SWING CHECK VALVE
- DIAPHRAGM CHECK VALVE
- DOUBLE FLAP CHECK VALVE
- FLAPPER CHECK VALVE
- GENERAL SPRING LOADED CHECK VALVE

PRESSURE VALVES

- BACKPRESSURE REG EXTERNAL TAP VALVE
- PRESSURE REDUCING EXTERNAL PRESSURE TAP VALVE
- RELIEF VALVE (OR)
- VACUUM VALVE (OR)
- CONTROL VALVE

PIPING

ONE LINE PIPE / THREE LINE PIPE

- AIR GAP
- VENT TO ATMOSPHERE
- BLIND FLANGE
- CAPPED OR PLUGGED
- DRAIN
- FLEXIBLE CONNECTION
- QUICK DISCONNECT OR FLUSH CONNECTION
- FLUSHING CONNECTION
- DOUBLE CONTAINMENT

GATES

- FLAP
- SLIDE
- SLUICE
- STOP
- SLIDE
- SLUICE
- STOP
- WEIR

FIRE AUTHORITY NOTES:

1. EAST MANATEE FIRE DISTRICT FINAL INSPECTION REQUIRED. SCHEDULE INSPECTION 2 DAYS IN ADVANCE AT (941)-751-5611.

PUMPS

- METERING PUMP
- HOSE PUMP
- HORIZONTAL OR SPLIT-CASE CENTRIFUGAL (OR)
- VERTICAL TURBINE
- VERTICAL SUBMERSIBLE
- SUBMERSIBLE (OR)
- DIAPHRAGM
- MAGNETIC DRIVE

PUMPS CON'T

- GEAR
- PROGRESSIVE CAVITY/POSITIVE DISPLACEMENT
- AIR DRIVEN DIAPHRAGM PUMP

BLOWERS/COMPRESSORS

- CENTRIFUGAL MULTI-STAGE
- COMPRESSOR RECIPROCATING
- FAN
- ROTARY

MECHANICAL NOTES:

1. MECHANICAL NOTES APPLY TO ALL MECHANICAL DRAWINGS AND PIPING.
2. SUCTION AND DISCHARGE PIPING OF PUMPS SHALL BE INSTALLED AND SUPPORTED IN SUCH A MANNER SO THAT THEY SHALL NOT IMPART STRAIN ON PUMPS.
3. WARNING SIGNS SHALL BE PROVIDED PER BID DOCUMENTS ON FRONT AND BACK OF ALL REMOTELY CONTROLLED EQUIPMENT.
4. ALL FLEXIBLE COUPLINGS SHALL BE RESTRAINED, UNLESS NOTED OTHERWISE.
5. FOR PROCESS PIPING WHERE PIPE MATERIAL IS STAINLESS STEEL, STRAP, BRACKET, "U"-BOLT, LOCKWASHERS, AND ANCHORS FOR PIPE SUPPORT TO BE STAINLESS STEEL TYPE 316. FOR CHEMICAL PIPING, WHERE PIPE MATERIAL IS STAINLESS STEEL, SUPPORT SYSTEM TO BE FRP WITH NON-METALLIC APPURTENANCES, UNLESS OTHERWISE NOTED ON THE PROCUREMENT DOCUMENTS.
6. SCOPE OF SUPPLY PROVIDED BY THE MEMBRANE SYSTEM SUPPLIER (MSS) VERSUS A PART OF SCOPE OF SUPPLY REQUIRED BY CONTRACTOR IS DELINEATED VIA THE MSS P&IDS IN VOLUME 3, APPENDIX A AND THE MSS BILL OF MATERIALS (BOM) IN VOLUME 3, APPENDIX C. ADDITIONALLY, THE REMAINING PART OF SCOPE OF SUPPLY REQUIRED FOR THE WORK (AS DEFINED AND SPECIFIED VIA VOLUME 1, TECHNICAL SPECIFICATIONS AND VOLUME 2, PLANS), WHICH IS NOT SHOWN IN VOLUME 3 (APPENDICES A AND C) AS BEING SUPPLIED BY THE MSS, SHALL BE PROVIDED BY THE CONTRACTOR.
7. REFERENCES TO MSS PIDS IN DRAWINGS/PLANS (VOLUME 2) AND SPECIFICATIONS (VOLUME 1) SHALL IMPLY MSS PIDS THAT ARE INCLUDED IN VOLUME 3 APPENDIX A.

MISCELLANEOUS

- BASKET STRAINER
- CALIBRATION-COLUMN
- DIAPHRAGM SEAL
- ANNULAR SEAL
- SANITARY SEAL
- EDUCTOR/EJECTOR
- INLINE STATIC MIXER
- PULSATION DAMPENER
- SIGHT TUBE
- PIPE DIFFUSER (OR)
- CORP STOP ASSEMBLY
- CORIOLIS FLOW METER
- MAGNETIC FLOW METER (M OR FM)
- ROTOMETER
- VENTURI METER (OR)
- PROPELLER METER
- PRESSURE GAUGE
- MIXER
- ROTARY CHEMICAL FEEDER
- CHANNEL AIR/CHEMICAL DIFFUSER
- BLOW-OFF SILENCER
- AIR DRYER
- FLOOR DRAIN OR HUB DRAIN (OR)
- FLOOR SINK
- COALESCER
- DESSICANT DRYER
- FILTER
- FILTER SEPARATOR
- HOSE CONNECTION
- ORIFICE RESTRICTION
- REFRIGERATED DRYER
- RUPTURE DISK
- SAMPLE PORT
- STRAINER WYE TYPE
- STRAINER - MECHANICALLY CLEANED
- STRAINER WITH BLOW OFF
- VAPOR HEATER
- VAPORIZER
- PIPE MATERIAL TRANSITION
- FLOW ARROW
- ULTRASONIC FLOWMETER (CLAMP ON) OR ULTRASONIC SENSOR
- RADAR LEVEL SENSOR
- SURGE TANK
- THERMOMETER
- AIR/CHEMICAL DIFFUSER
- HOSE RACK - WALL MOUNT
- HOSE RACK - STAND

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MECHANICAL

NOTES AND SYMBOLS

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PIPE SCHEDULE

ABBREVIATION	DESCRIPTION/SERVICE	MATERIAL	THICKNESS	TESTING METHOD	TEST PRESSURE (PSI)	LINING	COATING	NOTES
AA	ANHYDROUS AMMONIA	316L SST	SCH 10S	HH	150	NONE	NONE	
AS	AIR SCOUR	316L SST	SCH 10S	AM	125	NONE	NONE	
BCB	BLEND CHAMBER BYPASS	DI	200	HH	125	CM	PEE	1
BLW	BLENDED WATER	DI	200	HH	125	CM	PEE	1
BWR	BACKWASH WATER	DI	200	HH	125	NONE	NONE	
BWS	BACKWASH SUPPLY	316L SST	SCH 10S	HH	125	NONE	NONE	
CA	CITRIC ACID	PVC	SCH 80	HH	150	NONE	NOTE 3	
CBS	CHEMICAL BUILDING TANK SUPPLY	316L SST	SCH 10S	HH	125	NONE	NONE	
CD	CHEMICAL DRAIN (ABOVE GROUND)	CPVC	SCH 80	GR	NA	NONE	NOTE 3	
CFL	CONVENTIONAL MEDIA FILTER FILTRATE	DI	200	GR	NA	CM	PEE	1
CH	CALCIUM HYDROXIDE (LIME)	CPVC	SCH 80	HH	150	NONE	NOTE 3	
CI	CORROSION INHIBITOR	CPVC	SCH 80	HH	150	NONE	NOTE 3	
CPA	COMPRESSED AIR FOR MIT, PNEUMATIC VALVES, AND MEMBRANE TRAIN EJECTORS	316L SST	SCH 10S	AM	50	NONE	NONE	
CIP	CLEAN IN PLACE	PVC	SCH 80	HH	150	NONE	NOTE 3	
CS	CAUSTIC SODA	CPVC	SCH 80	HH	150	NONE	NOTE 3	
D	DRAIN	CPVC	SCH 80	GR	NA	NONE	NOTE 3	
	DRAIN (BURIED 6" AND 16" FROM WASTE EQUALIZATION TANK TO MANHOLE AND LS)	DI	200	GR	NA	CE	NONE	
HCL	HYDROCHLORIC ACID	CPVC	SCH 80	HH	150	NONE	NOTE 3	
HW	HOT WATER	PVC	SCH 80	HH	125	NONE	NOTE 3	
F	FLOURIDE	CPVC	SCH 80	HH	150	NONE	NOTE 3	
FPW	FIRE PROTECTION WATER (BELOW GROUND)	DI	200	HH	125	CM	PEE	
	FIRE PROTECTION WATER (ABOVE GROUND)	DI	200	HH	125	CM	EPP	
IX	ION EXCHANGE - SUPPLY AND SOFTENED WATER	CPVC	SCH 80	HH	125	NONE	NOTE 3	
MFW	MEMBRANE FEED WATER	316L SST	SCH 10S	HH	125	NONE	NONE	
MFL	MEMBRANE FILTRATE (ABOVE GROUND AND IN CLEARWELL)	316L SST	SCH 10S	HH	125	NONE	NONE	1
	MEMBRANE FILTRATE (BURIED 54" TO BLEND CHAMBER)	DI	200	HH	125	CM	PEE	
	MEMBRANE FILTRATE (BURIED 14" TO PERMEATE STORAGE TANK)	PVC	SCH 80	HH	125	NONE	NONE	
MWW	MEMBRANE WASTE WASHWATER	316L SST	SCH 10S	GR	NA	NONE	NONE	
	MEMBRANE WASTE WASHWATER (BURIED)	DI	200	GR	NA	CM	PEE	
NWW	NEUTRALIZED WASTE WATER	CPVC	SCH 80	HH	125	NONE	NOTE 3	
	NEUTRALIZED WASTE WATER (BELOW GROUND TO EQ TANK)	HDPE	DR11	HH	125	NONE	NONE	
	NEUTRALIZED WASTE WATER (STAND PIPE IN WASTE EQUALIZATION TANK)	DI	200	HH	125	CE	EPP	
OF	OVERFLOW	DI	200	GR	NA	CE	NONE	
PSTV	PERMEATE STORAGE TANK VENT	DI	200	GR	NA	CM	EPP	
SBS	SODIUM BISULFITE	PVC	SCH 80	HH	150	NONE	NOTE 3	
SH	SODIUM HYPOCHLORITE	PVC	SCH 80	HH	150	NONE	NOTE 3	
UW	UTILITY WATER	PVC	SCH 80	HH	150	NONE	NOTE 3	
WM	WATER MAIN	DI	200	HH	150	CM	PEE	1
WSFM	WASTE SUMP/PUMP STATION FORCE MAIN	PVC	SCH 80	HH	150	NONE	NONE	

ABBREVIATIONS:
1. THE FOLLOWING ABBREVIATIONS USED IN THE COLUMN OF TEST METHOD REFER TO RESPECTIVE METHODS AS SPECIFIED IN SECTION 40_05_00.09
   AM AIR METHOD
   GR GRAVITY METHOD
   HH HIGH HEAD METHOD
   LH LOW HEAD METHOD
   SC SPECIAL CASE
2. ABBREVIATIONS TO DESIGNATE PIPING INCLUDE THE FOLLOWING:
   CE CERAMIC EPOXY
   CM CEMENT MORTAR
   CPVC CHLORINATED POLYVINYL CHLORIDE
   DI DUCTILE IRON
   EPP EPOXY POLYURETHANE
   HDPE HIGH-DENSITY POLYETHYLENE
   PEE POLYETHYLENE ENCASEMENT (PER SPECIFICATION 40_05_19.01)
   PVC POLYVINYL CHLORIDE
   SST STAINLESS STEEL
3. PER SPECIFICATION SECTION 09_96_01 FOR EXTERIOR, ABOVE GROUND PIPING

NOTES
1. GASKETS FOR FLANGE JOINTS SHALL MEET NSF REQUIREMENTS PER SECTION 40_05_00.01

PIPE SCHEDULE NOTES

1. THE TEST METHOD ABBREVIATIONS ARE DEFINED BELOW.
   AM = AIR METHOD
   GR = GRAVITY METHOD
   HH = HIGH HEAD METHOD
   LH = LOW HEAD METHOD
   SC = SPECIAL CASE
2. ABBREVIATIONS TO DESIGNATE PIPING INCLUDE THE FOLLOWING.
   CM = CEMENT MORTAR
   CPVC = CHLORINATED POLYVINYL CHLORIDE
   DI = DUCTILE IRON
   EPP = EPOXY POLYURETHANE
   HDPE = HIGH-DENSITY POLYETHYLENE
   PEE = POLYETHYLENE ENCASEMENT
   PVC = POLYVINYL CHLORIDE
   SST = STAINLESS STEEL
3. REFER TO SPEC SECTION 40_05_00.09 FOR TEST METHODS AND LEAKAGE ALLOWANCE.
4. TEST IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.
5. NEW CHEMICAL PIPING OUTSIDE OF CONTAINMENT AREAS SHALL BE DOUBLE CONTAINED.

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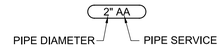
TYPICAL PIPE DESIGNATION



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PIPE AND MATERIAL SCHEDULE

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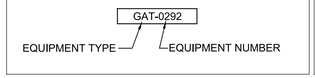
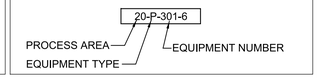
EQUIPMENT FUNCTIONAL DESCRIPTION			
ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
AC	AIR CONDITIONING PACKAGE UNIT	MCC	MOTOR CONTROL CENTER
AHU	AIR HANDLER	MDRV	MAGNETIC DRIVE
ARV	AIR RELIEF VALVE	MOV	MOTORIZED VALVE OPERATOR
ATS	AUTOMATIC TRANSFER SWITCH	MP	METERING PUMP
AV	AIR VAC	MS	MOTOR STARTER
BAT	BATTERY BANK	MSB	MAIN SWITCH BOARD
BCH	BATTERY CHARGER	MTG	METERING SECTION
BCP	BRANCH CIRCUIT PANEL	MTR	MOTOR
BFP	BACK FLOW PREVENTER	MXR	MIXER
BFV	BUTTERFLY VALVE	NSO	RELAY, NEGATIVE SEQUENCE OVERCURRENT
BKR	BREAKER (POWER)	NV	NEEDLE VALVE
BLV	BALANCING VALVE	OPS	OPERATOR
BOL	BOILER	PMP	PUMP
BPV	BACK PRESSURE VALVE	PD	PULSATION DAMPENER
BSR	BARSCREEN, RAKE	PIPE	PIPING
BV	BALL VALVE	PIV	PINCH VALVE
BLR	BLOWER	PLC	PROGRAMMABLE LOGIC CONTROLLER
CEN	CENTRIFUGE	PM	POWER MONITOR
CF	CARTRIDGE FILTER	PRD	PRESSURE REDUCING VALVE
CHL	CHLORINATOR	PRG	PRESSURE REGULATING VALVE
CHR	CHILLER	PRV	PRESSURE RELIEF VALVE/PRESSURE REDUCING VALVE
CLF	CLARIFIER	PRVB	PRESSURE RELIEF/VACUUM BREAKER
CLR	COLLECTOR, SLUDGE OR SCUM	PTEQ	PORTABLE EQUIPMENT
CLV	CLEAR WATER VENT	PTS	POTENTIAL TRANSFORMER
CMP	COMPRESSOR	PUR	PURIFIER
CND	CONDENSOR	PV	PLUG VALVE
CON	CONTROLLER, MOTOR, ELECTRONIC	PVD	RELAY, DIFFERENTIAL VOLTAGE
CP	PANEL (CONTROL, FIELD)	PVT	PROCESS VENT
CRN	CRANE	PWR	RELAY, PILOT WIRE DIFFERENTIAL
CT	CURRENT TRANSFORMER	PWS	RELAY, PILOT WIRE SENDING
CTW	COOLING TOWER	REF	REFRIGERATOR, STORAGE
CUB	CUBICLE	REG	REGULATOR
CV	CHECK VALVE	RLY	RELAY
CVY	CONVEYOR	RPD	REDUCED PRINCIPLE DEVICE
DG	DEGASSIFIER	RPR	RELAY, POWER DIFFERENTIAL
DLN	DRIVE LINE	SBD	RELAY, STATIC DIFFERENTIAL
DP	DISTRIBUTION PANEL 480V OR 240V	SBK	STANDBY POWER BREAKER
DPR	RELAY, MACHINE DIFFERENTIAL	SBR	SCRUBBER
DRY	DRYER	SCPR	SERVICE CONNECTION PRESSURE REGULATOR
EF	EXHAUST FAN	SF	SUPPLY FAN
ELV	ELEVATOR	SFR	RELAY, STATIC FREQUENCY
ENG	ENGINE	SLV	SLEEVE VALVE
EVP	EVAPORATOR	SOF	SOFTENER
EW	EYE WASH (SAFETY SHOWER)	SPR	SEPARATOR
EXR	EXCHANGER	STR	STRAINER
F	FAN	STRC	STRUCTURE
FBK	FEEDER BREAKER	SV	SOLENOID VALVE
FIX	FIXTURE, LIGHTING	SWBD	SWITCHBOARD
FLA	FLAME ARRESTOR	SWGR	SWITCHGEAR
FLR	FLARE	SWI	SWITCH
FLR	FILTER	SWP	SWEEP ARM ASSEMBLY
FLV	FLAPPER VALVE	SYN	RELAY, SYNC CHECK
FP	FEED PUMP	TBC	TURBOCHARGER
FPP	FIBER OPTIC PATCH PANEL	TBK	TIE BREAKER
FRM	FRAME	TCV	THROTTLE CONTROL VALVE
FRQ	RELAY, FREQUENCY	TNK	TANK
FRX	FIRE EXTINGUISHER	TOC	RELAY, TIME OVERCURRENT
GAT	GATE	TOU	RELAY, TIME OVER/UNDER VOLTAGE
GBK	GENERATOR BREAKER	TRP	TRAP
GBX	GEARBOX	TSV	TELESCOPING VALVE
GDR	GRINDER	TUR	TURBINE
GEN	GENERATOR	TUV	RELAY, TIME VOLTAGE
GEX	GENERATOR EXCITER	TWR	TOWER (SURGE)
GLV	GLOBE VALVE	UPS	UNINTERRUPTABLE POWER SUPPLY
GOP	GATE OPERATOR	UVS	RELAY, UNDER VOLTAGE AND PHASE SEQUENCE
GV	GATE VALVE	VB	VACUUM BREAKER (WATER)
HMI	HUMAN MACHINE INTERFACE	VBR	RELAY, VOLTAGE BALANCE
HTR	HEATER	VDC	DOUBLE CHECKVALVE (FIRE SYSTEM)
IOC	RELAY, INSTANTANEOUS OVERCURRENT	VEHL	VEHICLE
IRC	IRRIGATION CONTROLLER	VFD	VARIABLE FREQUENCY DRIVE
ITC	RELAY, INS/TIME OVERCURRENT	VKG	KNIFE GATE VALVE
LER	RELAY, LOSS OF EXCITATION	VNTV	VENT VALVE
LP	LIGHTING PANEL/LOW VOLTAGE PANEL	VRD	RELAY, RESTRAINED DIRECTIONAL OVERCURRENT
M	MECHANICAL EQUIPMENT	VTR	VENT THROUGH ROOF
MBK	MAIN BREAKER	XFMR	TRANSFORMER

TYPICAL EQUIPMENT DESIGNATION



MSS EQUIPMENT DESIGNATION



NOTES

1. THE MEMBRANE SYSTEM SUPPLIER (MSS) EQUIPMENT DESIGNATORS ARE PROCEEDED BY PLANT PROCESS AREA AND PROCESS STREAM DESIGNATIONS.
2. EQUIPMENT PROVIDED BY THE MEMBRANE SYSTEM SUPPLIER (MSS) USES ITS OWN TAGGING SYSTEM AS DESCRIBED IN THE MSS P&IDS.
3. VALVES PROVIDED BY THE CONTRACTOR THAT ARE INTEGRAL TO THE MSS SYSTEM ARE TAGGED WITH MSS DESIGNATIONS.

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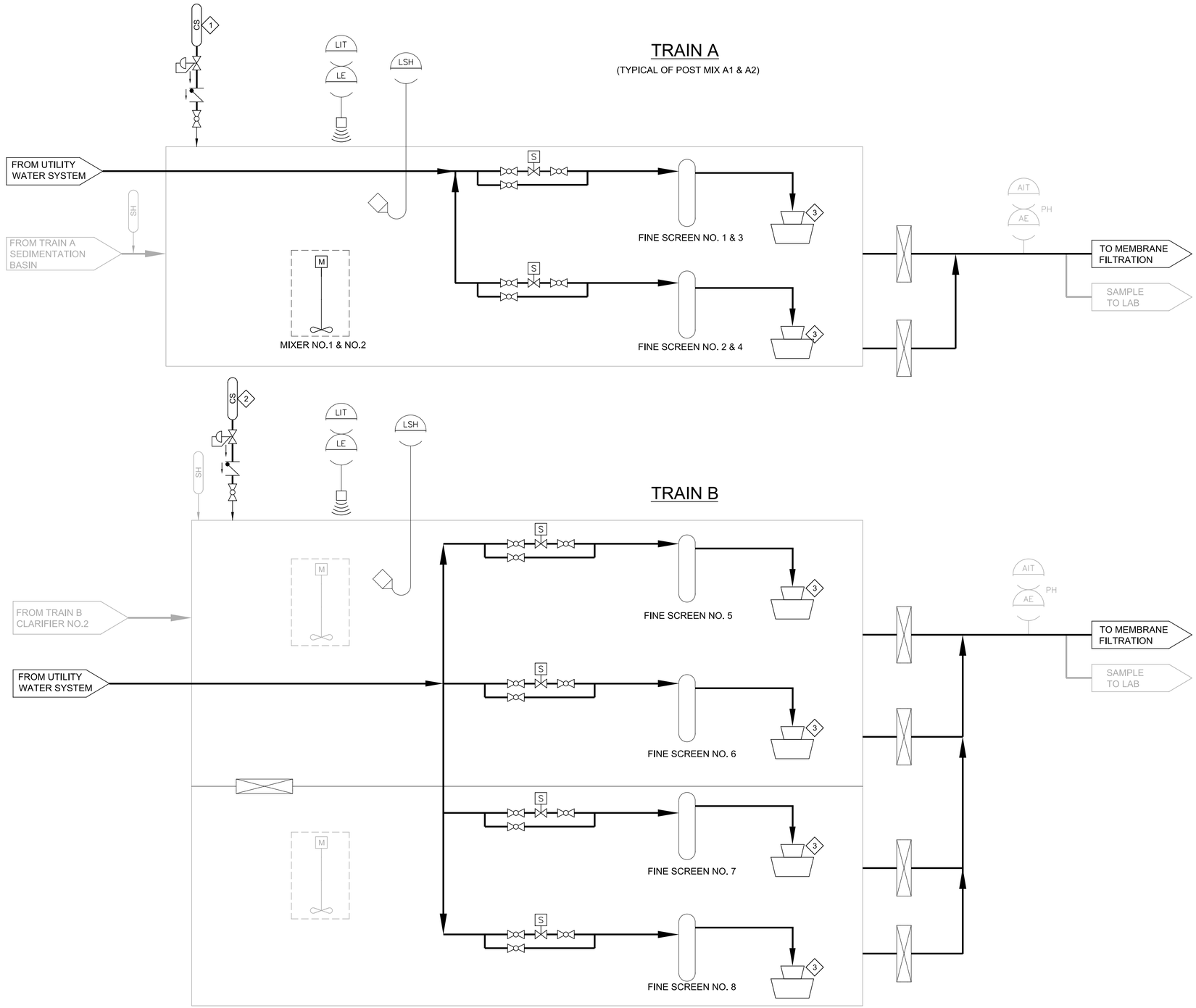

KEY NOTES = ◇#

1 EXISTING LIME ADDITION TO BE REPLACED WITH CAUSTIC SODA ADDITION IN NEW LOCATION.

2 EXISTING LIME ADDITION TO BE REPLACED WITH CAUSTIC SODA ADDITION.

3 SCREENINGS COLLECTION.

.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

MECHANICAL

PROCESS FLOW DIAGRAM POST MIX BASINS/MEMBRANE PRESCREENS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00M04

Plot Date: 04-APR-2025 9:44:22 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

PROJECT NO. 9520I10 FILE NAME: 9520I1000M04.dgn

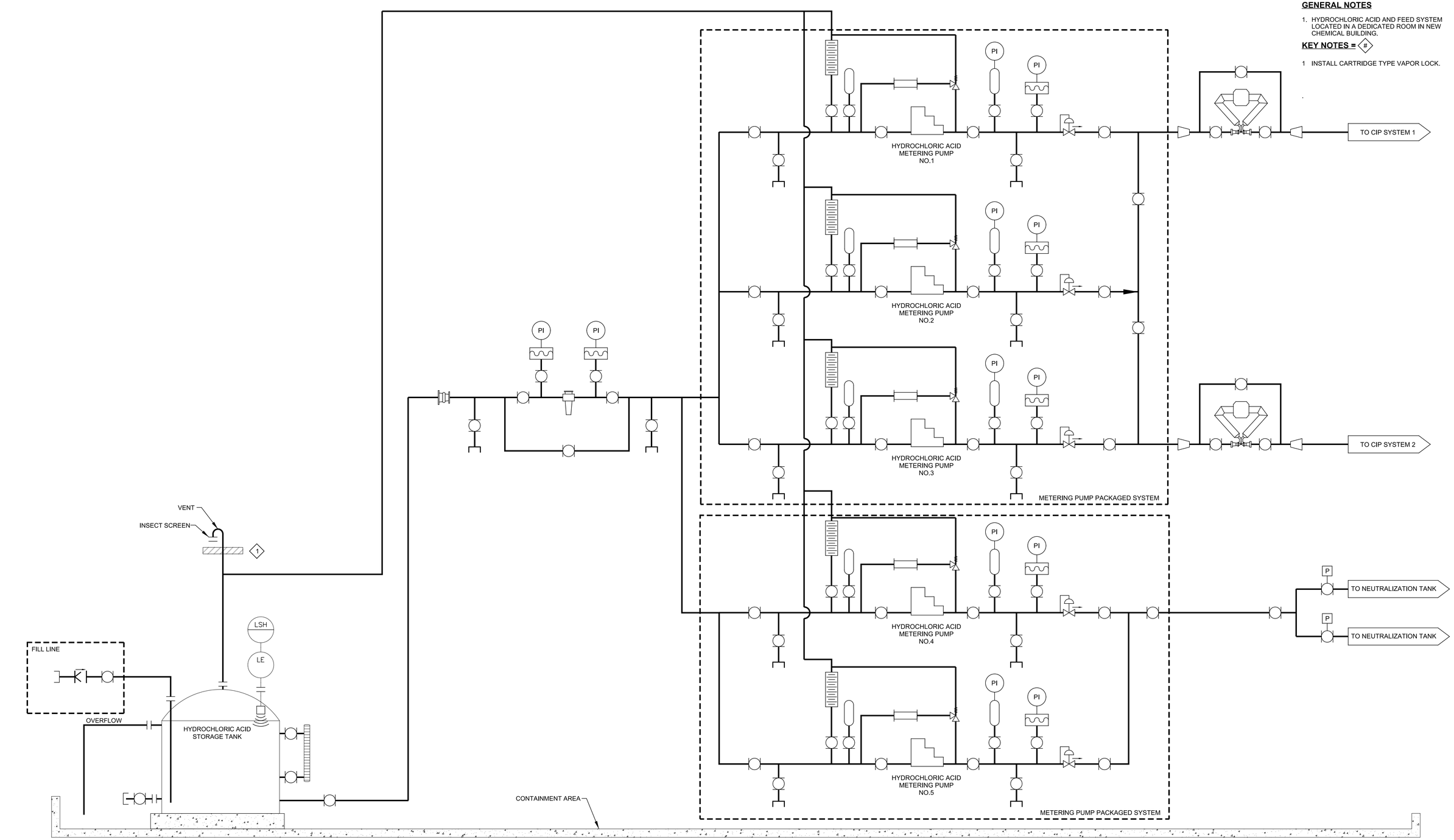
Plot Date: 04-APR-2025 9:43:36 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

1. HYDROCHLORIC ACID AND FEED SYSTEM LOCATED IN A DEDICATED ROOM IN NEW CHEMICAL BUILDING.

KEY NOTES = ◇#

1 INSTALL CARTRIDGE TYPE VAPOR LOCK.



REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DRAWN DVP
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DATE APRIL 2025

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MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

MECHANICAL

PROCESS FLOW DIAGRAM HYDROCHLORIC ACID STORAGE AND FEED

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

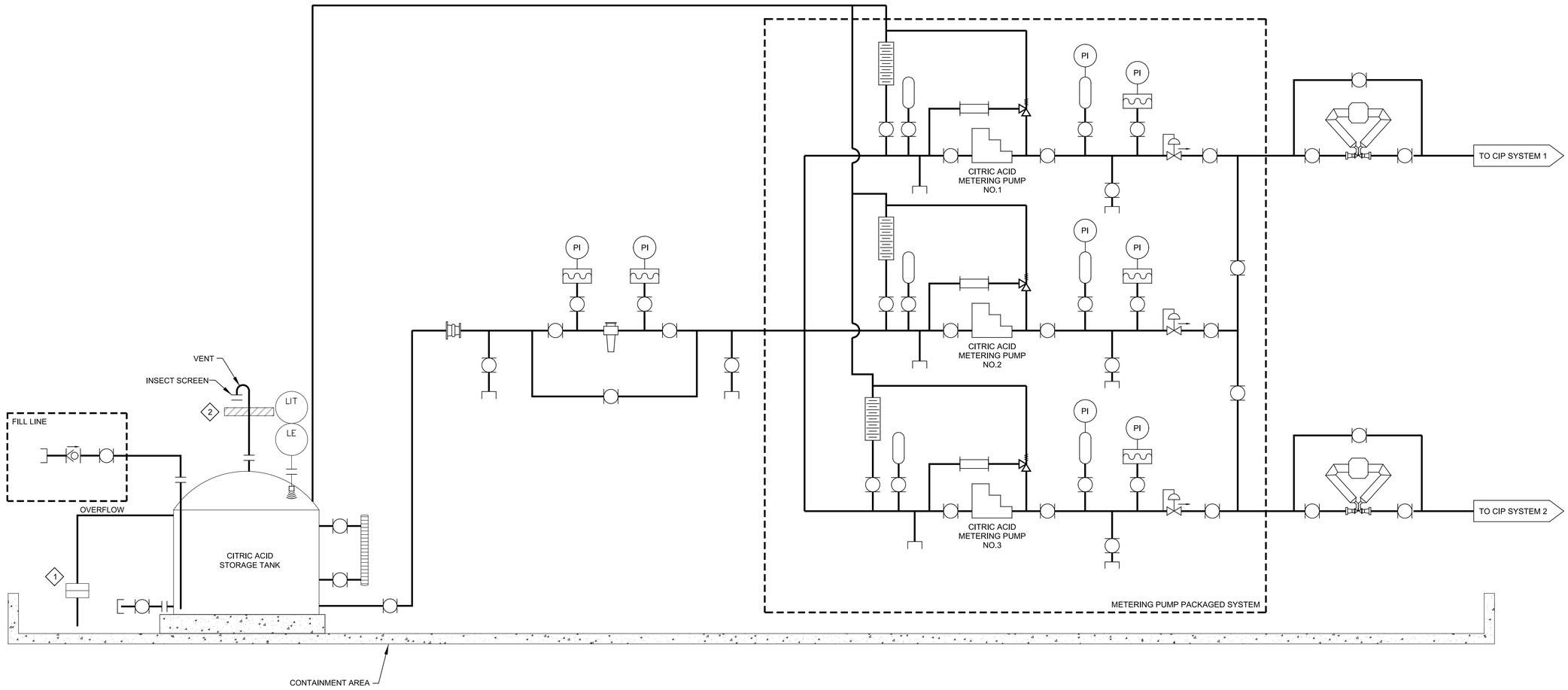
DRAWING NO. 00M05

Plot Date: 04-APR-2025 9:43:15 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

KEY NOTES = ◇#

1 FLANGES WITH CITRIC ACID RESISTANT VAPOR PAPER.

2 INSTALL CARTRIDGE TYPE VAPOR LOCK.



REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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MECHANICAL

PROCESS FLOW DIAGRAM CITRIC ACID STORAGE AND FEED

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00M06

Plot Date: 04-APR-2025 9:43:19 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

GENERAL NOTES

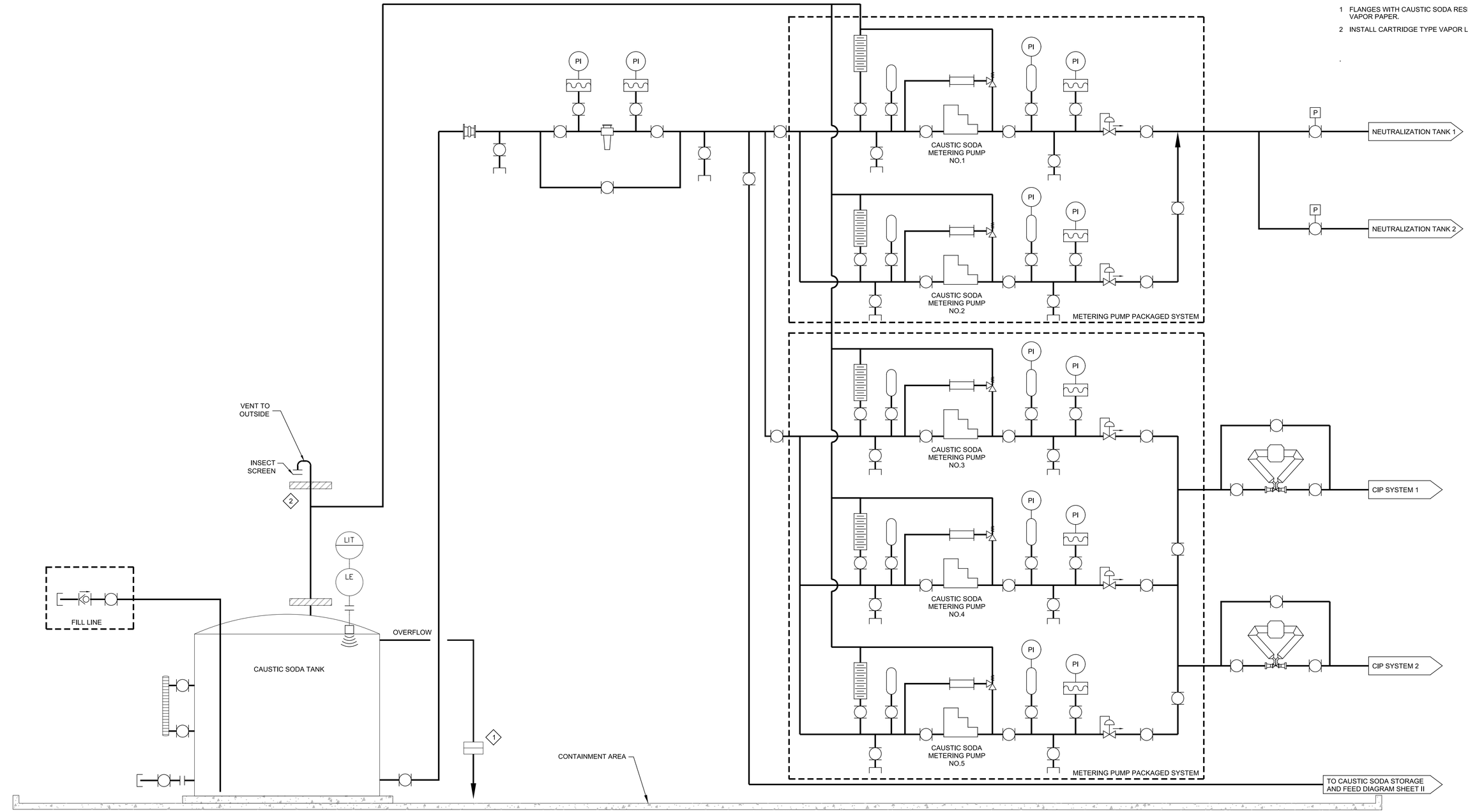
1. CAUSTIC SODA STORAGE AND FEED SYSTEM LOCATED IN A DEDICATED ROOM IN NEW CHEMICAL BUILDING.

KEY NOTES = ◇#

1 FLANGES WITH CAUSTIC SODA RESISTANT VAPOR PAPER.

2 INSTALL CARTRIDGE TYPE VAPOR LOCK.

.



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MANATEE COUNTY

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MECHANICAL

PROCESS FLOW DIAGRAM CAUSTIC SODA STORAGE AND FEED I

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00M07

PROJECT NO. 9520I10 FILE NAME: 9520I1000M07.dgn

Plot Date: 04-APR-2025 9:44:35 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
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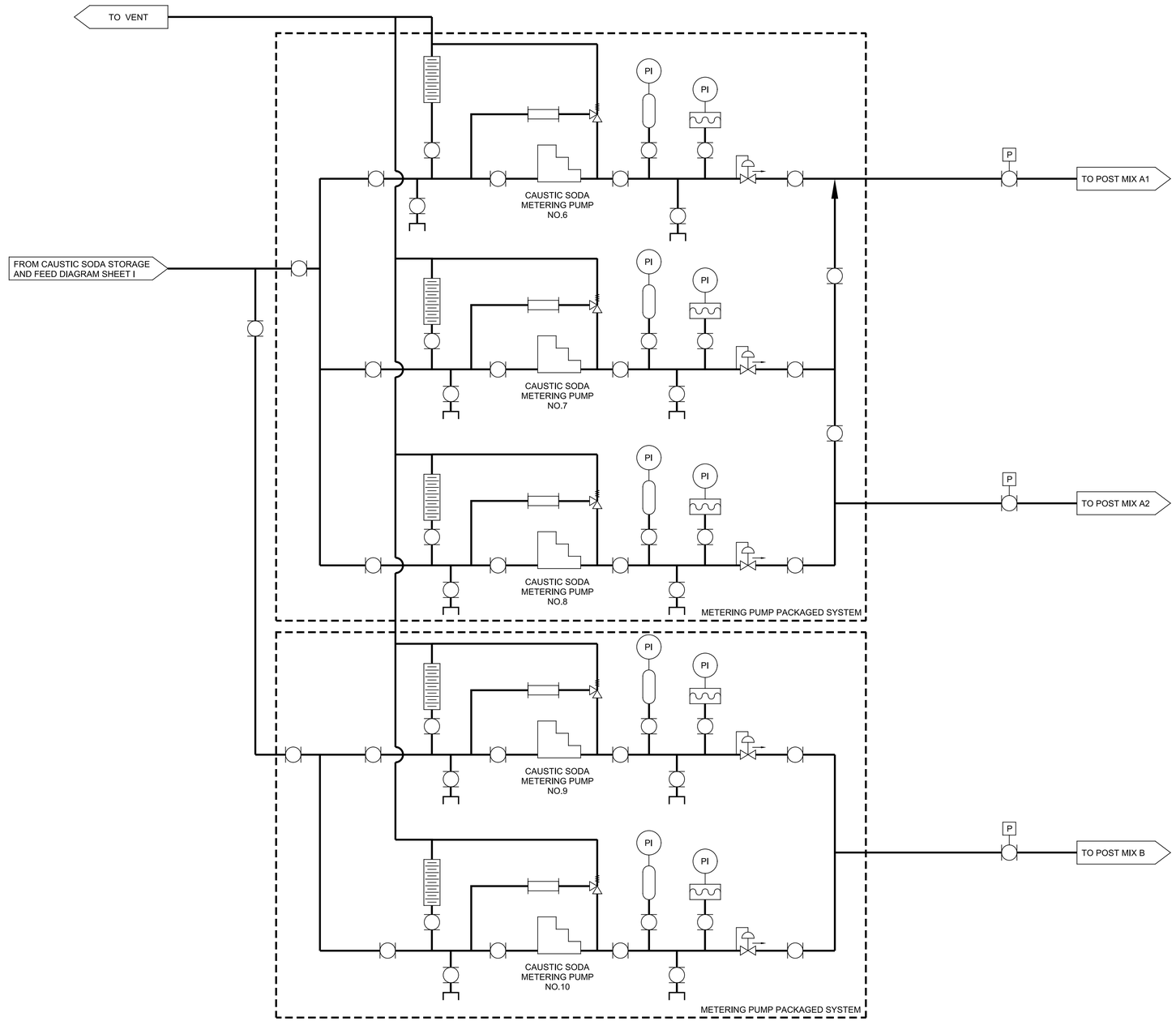
Model: Layout1
LAST SAVED BY: eparker



GENERAL NOTES

1. CAUSTIC SODA STORAGE AND FEED SYSTEM LOCATED IN A DEDICATED ROOM IN NEW CHEMICAL BUILDING.

.

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MECHANICAL

PROCESS FLOW DIAGRAM CAUSTIC SODA STORAGE AND FEED II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

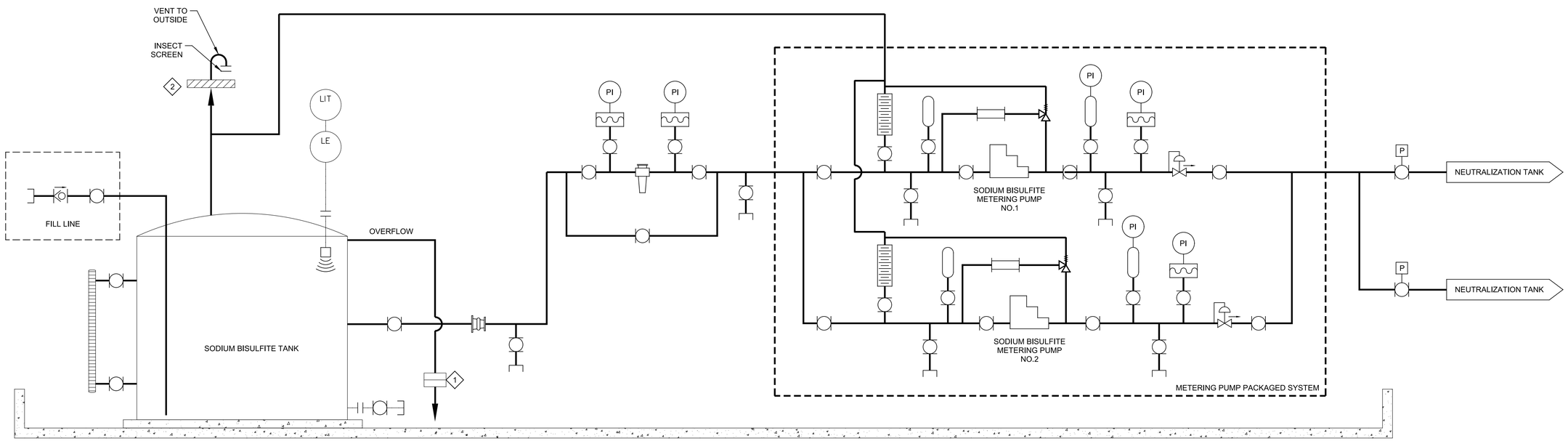
JOB NO. 09520I.10
DRAWING NO. 00M08

KEY NOTES = ◇#

1 FLANGES WITH SODIUM BISULFITE RESISTANT VAPOR PAPER.

2 INSTALL CARTRIDGE TYPE VAPOR LOCK.

.



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MECHANICAL

PROCESS FLOW DIAGRAM SODIUM BISULFITE STORAGE AND FEED

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00M09

PROJECT NO. 9520I10 FILE NAME: 9520I1000M09.dgn

Plot Date: 04-APR-2025 9:41:32 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 9:43:52 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

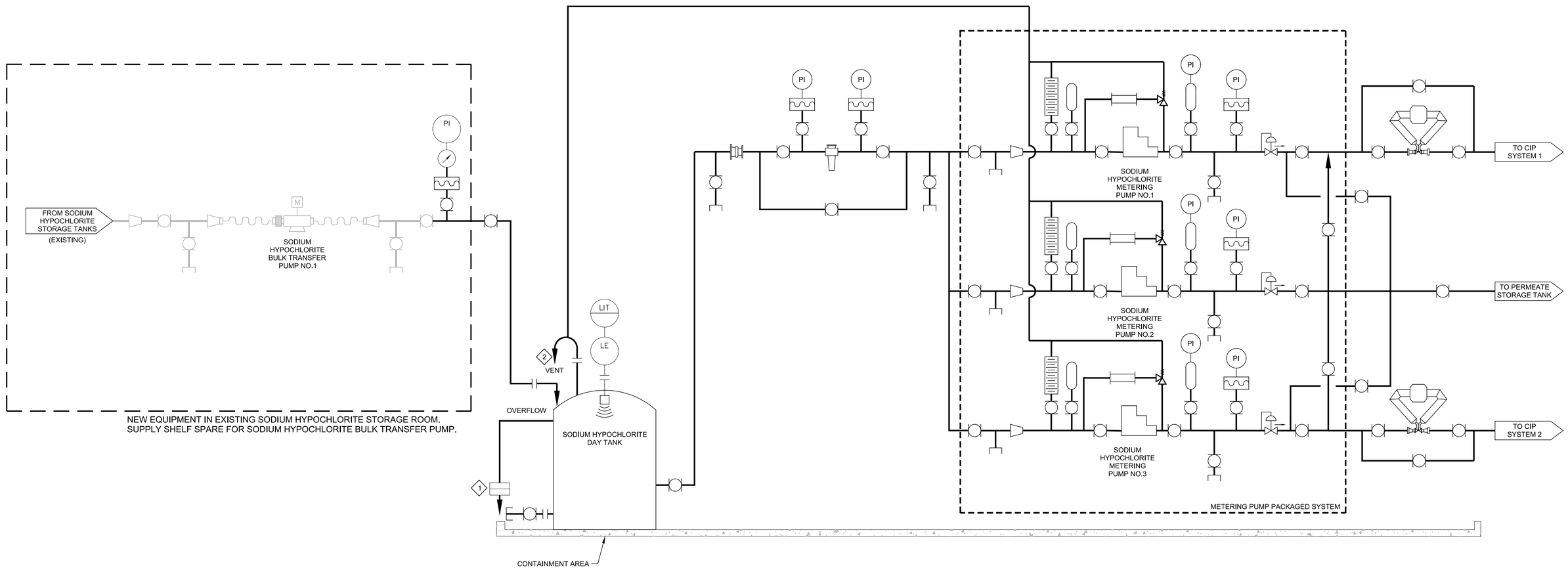
GENERAL NOTES

1. CONTRACTOR SHALL SUPPLY A SHELF-SPARE SODIUM HYPOCHLORITE BULK TRANSFER PUMP THAT MATCHES EXISTING (FINISH THOMPSON DB6V MAG DRIVE PUMP FOR SODIUM HYPOCHLORITE SERVICE, 1/2 HP, SINGLE PHASE, 1-INCH CONNECTIONS, TEFLON/VITON COMPONENTS).

KEY NOTES = ◇#

1 FLANGES WITH CHLORINE RESISTANT VAPOR PAPER.

2 INSTALL CARTRIDGE TYPE VAPOR LOCK.



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MECHANICAL

PROCESS FLOW DIAGRAM SODIUM HYPOCHLORITE STORAGE AND FEED

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00M10

Plot Date: 04-APR-2025 9:43:59 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
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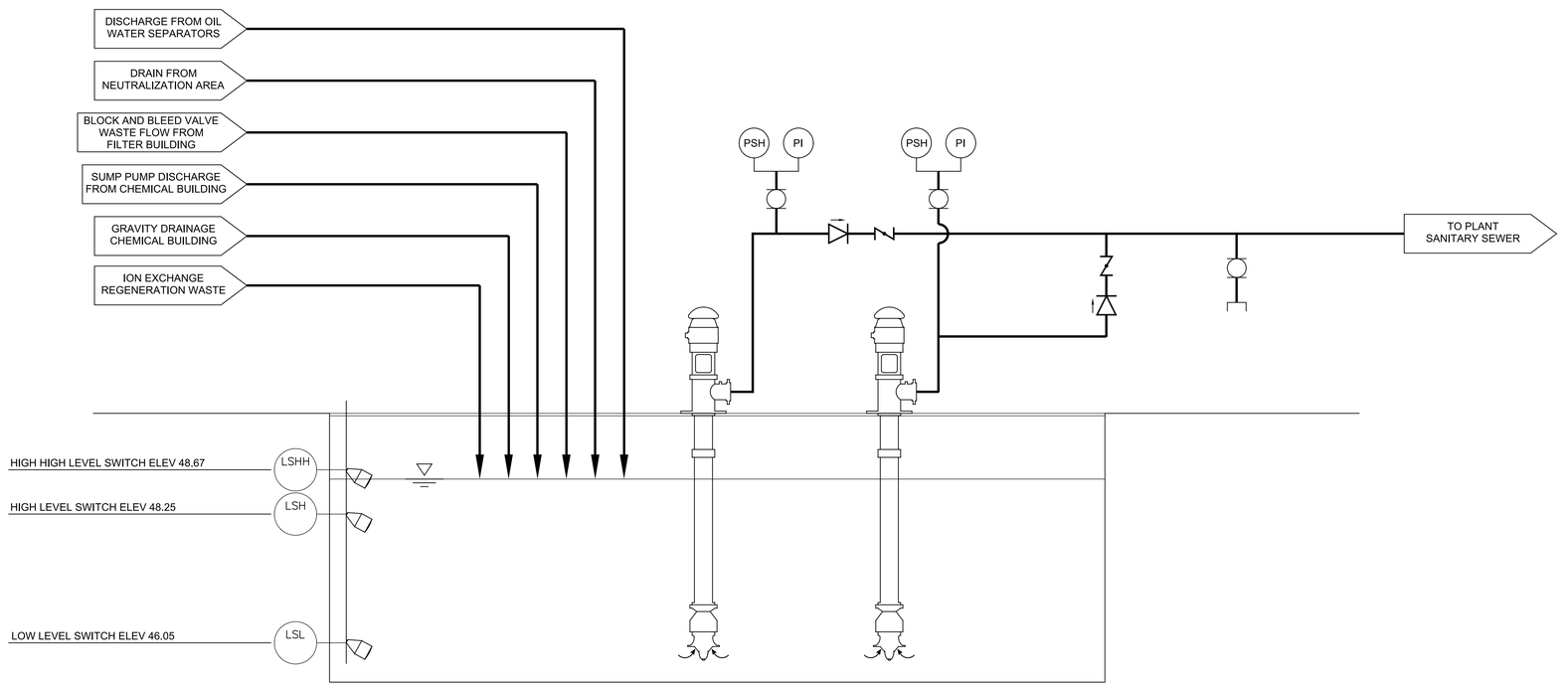
Model: Layout1
LAST SAVED BY: eparker



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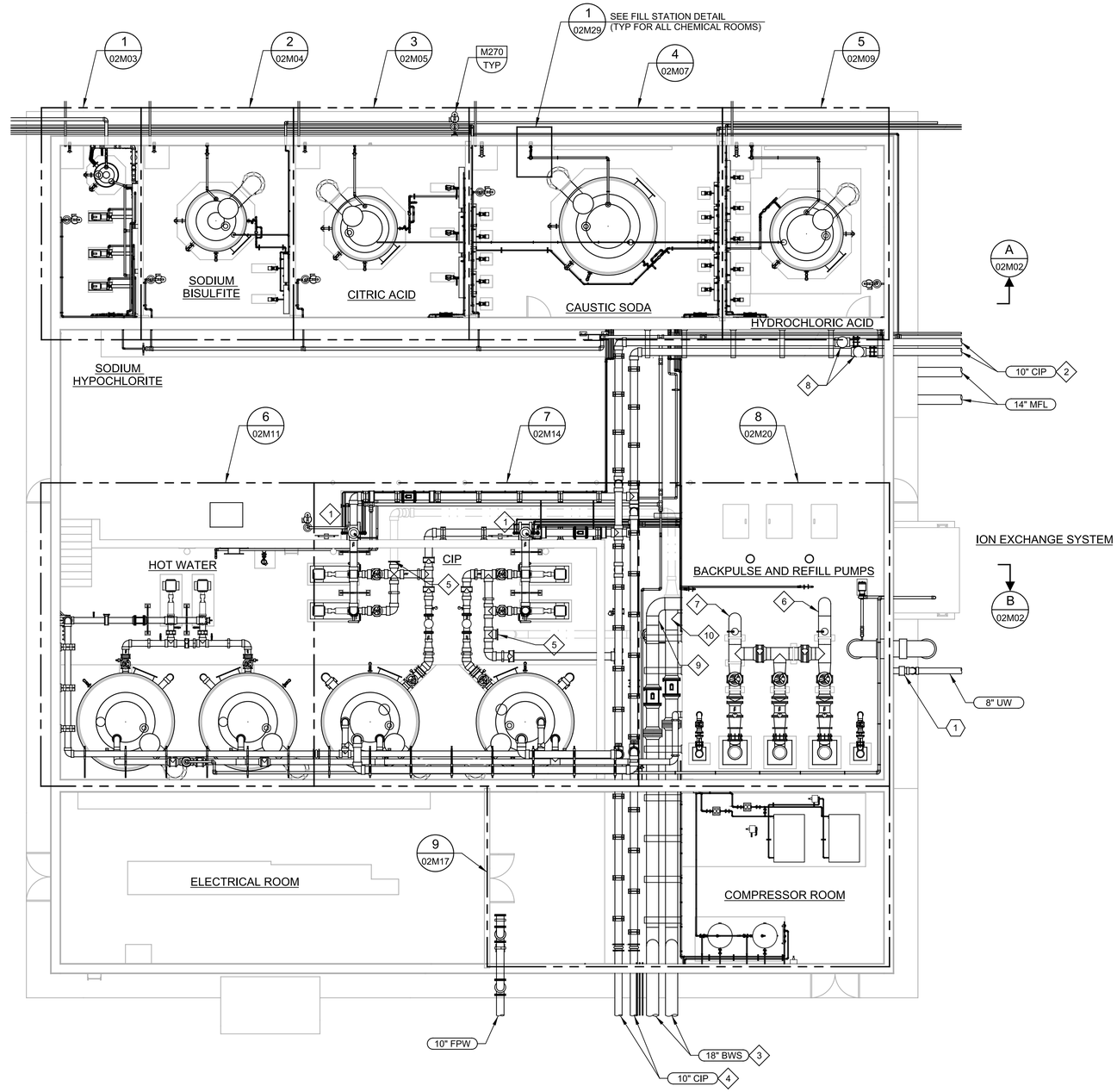
MECHANICAL

PROCESS FLOW DIAGRAM WASTE SUMP/PUMP STATION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00M11



A PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-02-050-101

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. CHEMICAL SKID PADS DIMENSIONS SHALL BE DESIGNED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

KEY NOTES = ◇#

1 CHEMICAL PIPES TO CLEAN IN PLACE INJECTION POINTS IN TRENCH.

2 TO NEUTRALIZATION TANKS.

3 ROUTE BACKWASH SUPPLY PIPING OVERHEAD TO FILTER BUILDING.

4 ROUTE CIP AND COMPRESSED AIR PIPING UNDERGROUND TO FILTER BUILDING.

5 CONNECTION TO TEMPORARY PIPING (SHOWN IN GRAYSCALE) FOR COMMISSIONING. AFTER COMMISSIONING, REMOVE TEMPORARY PIPING AND INSTALL BLIND FLANGES AT CONNECTION TEES. TEMPORARY PIPING MAY BE SCHEDULE 80 PVC OR HDPE.

6 SERVES TRAINS 1-6

7 SERVES TRAINS 7-12

8 INSTALL 10"x10"x10" TEE WITH BLIND FLANGE. CONNECTION TO TEE WILL BE REQUIRED DURING COMMISSIONING ACTIVITIES. INSTALL A RESTRAINED FLANGED ADAPTER IN 10-INCH PIPE NORTH OF THE TEE. THE RESTRAINED FLANGED ADAPTER WILL BE REPLACED WITH A BLIND FLANGE DURING COMMISSIONING.

9 INSTALL A SPOOL PIECE IN THE 18-INCH PIPE WEST OF THE TEE. THE SPOOL PIECE WILL BE RECPLACED WITH A BLIND FLANGE DURING COMMISSIONING.

10 DURING COMMISSIONING, INSTALL A SPOOL PIECE IN THE LOCATION OF THE 18"x18"x18" TEE SHOWN. THE SPOOL PIECE CAN BE REPLACED WITH THE 18"x18"x18" TEE ONCE THE GLYCERIN FLUSHING PORTION OF COMMISSIONING IS COMPLETE.

KEY TAGS = ⬡#

1 8" BUTTERFLY VALVE 20-HV-605

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CHEMICAL FEED BUILDING PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 9520I.10
DRAWING NO. 02M01

PROJECT NO.
FILE NAME: 9520I1002M01.dgn

Plot Date: 04-APR-2025 9:42:56 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 9:42:35 AM
User: svcPW
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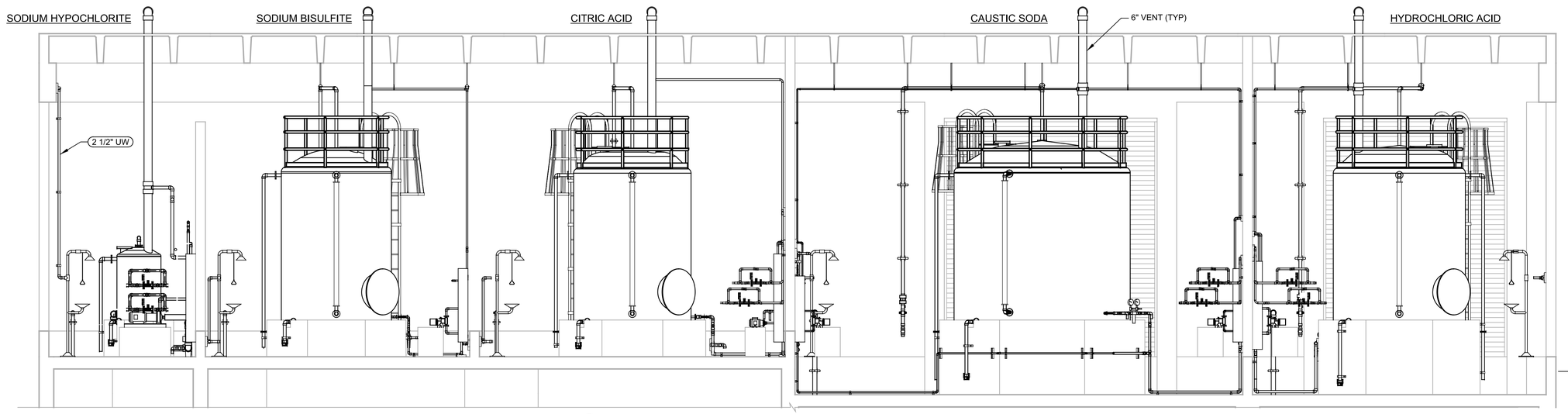
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A SECTION
02-M01
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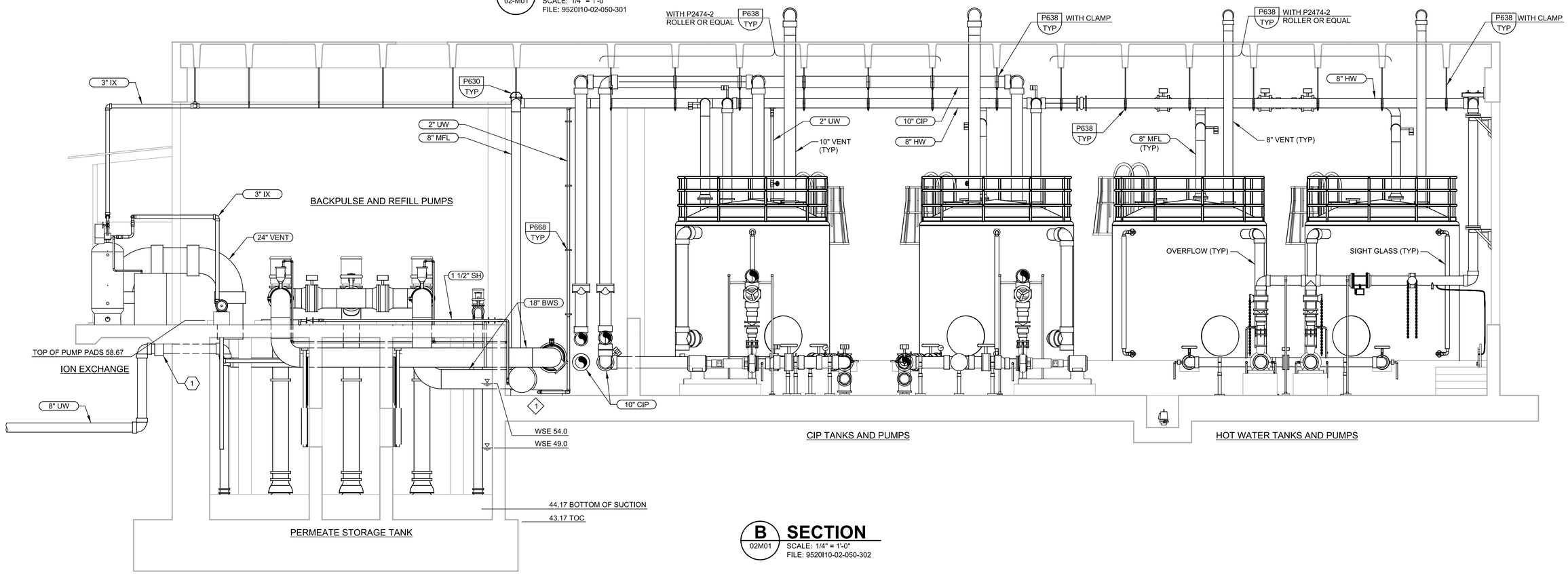
FILE: 9520I10-02-050-301



B SECTION
02M01
SCALE: 1/4" = 1'-0"
FILE: 9520I10-02-050-302

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ⟨#⟩

1 TO MEMBRANE FILTRATION BASINS

KEY TAGS = ⟨#⟩

1 8" BUTTERFLY VALVE 20-HV-605

.

REV	DATE	BY	DESCRIPTION
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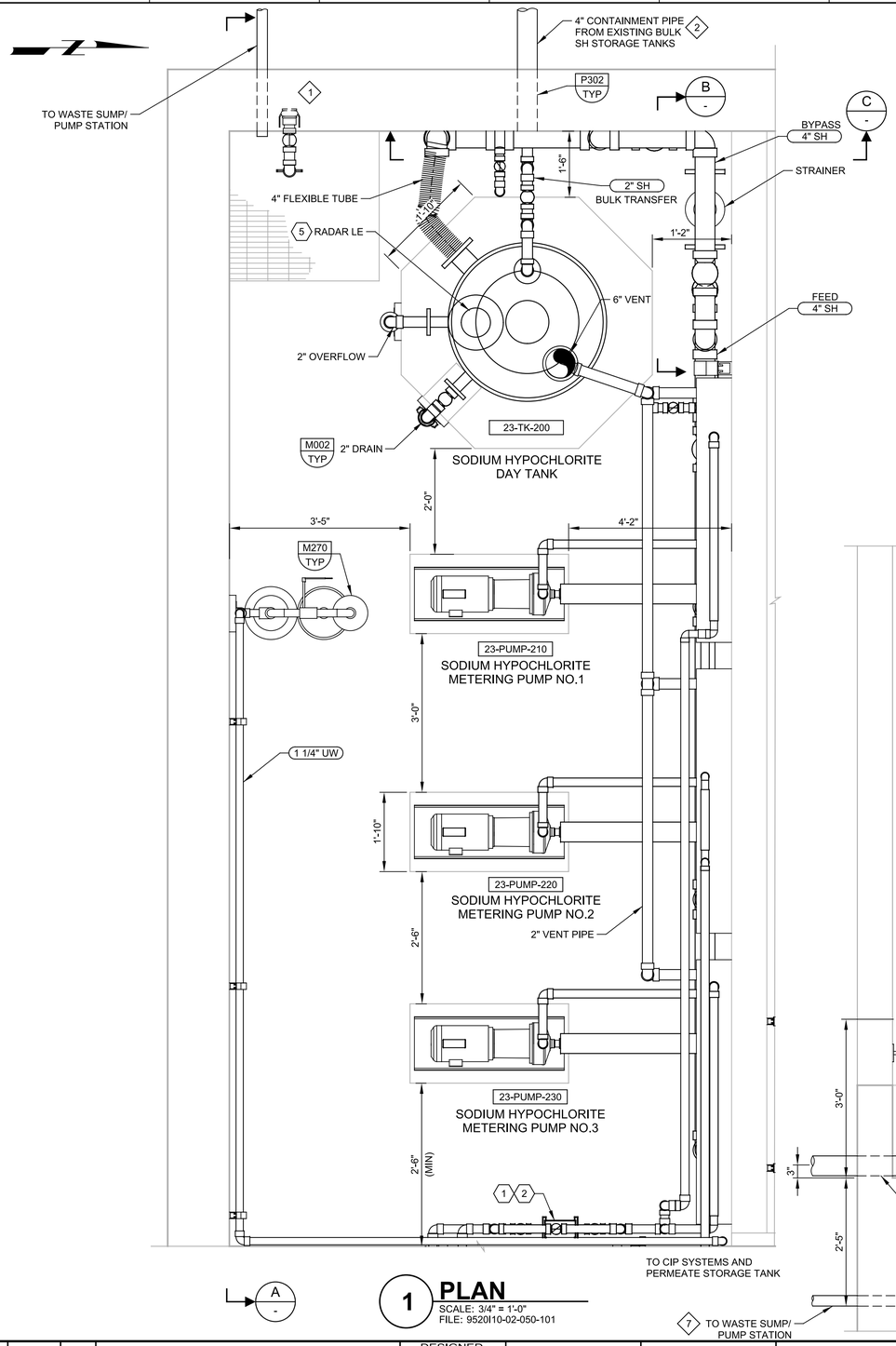
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CHEMICAL FEED BUILDING SECTIONS

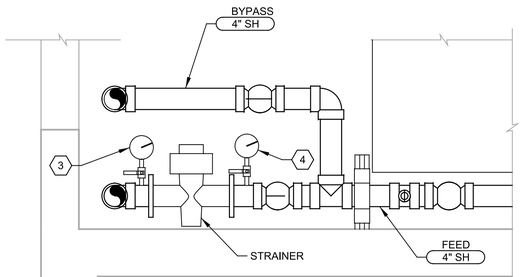
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M02

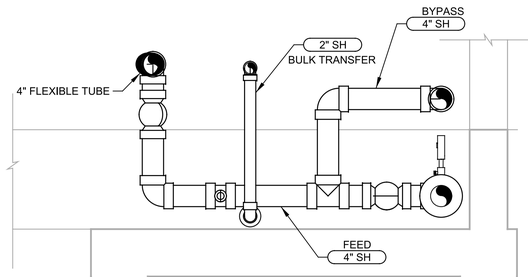
PROJECT NO.
FILE NAME: 9520I1002M02.dgn



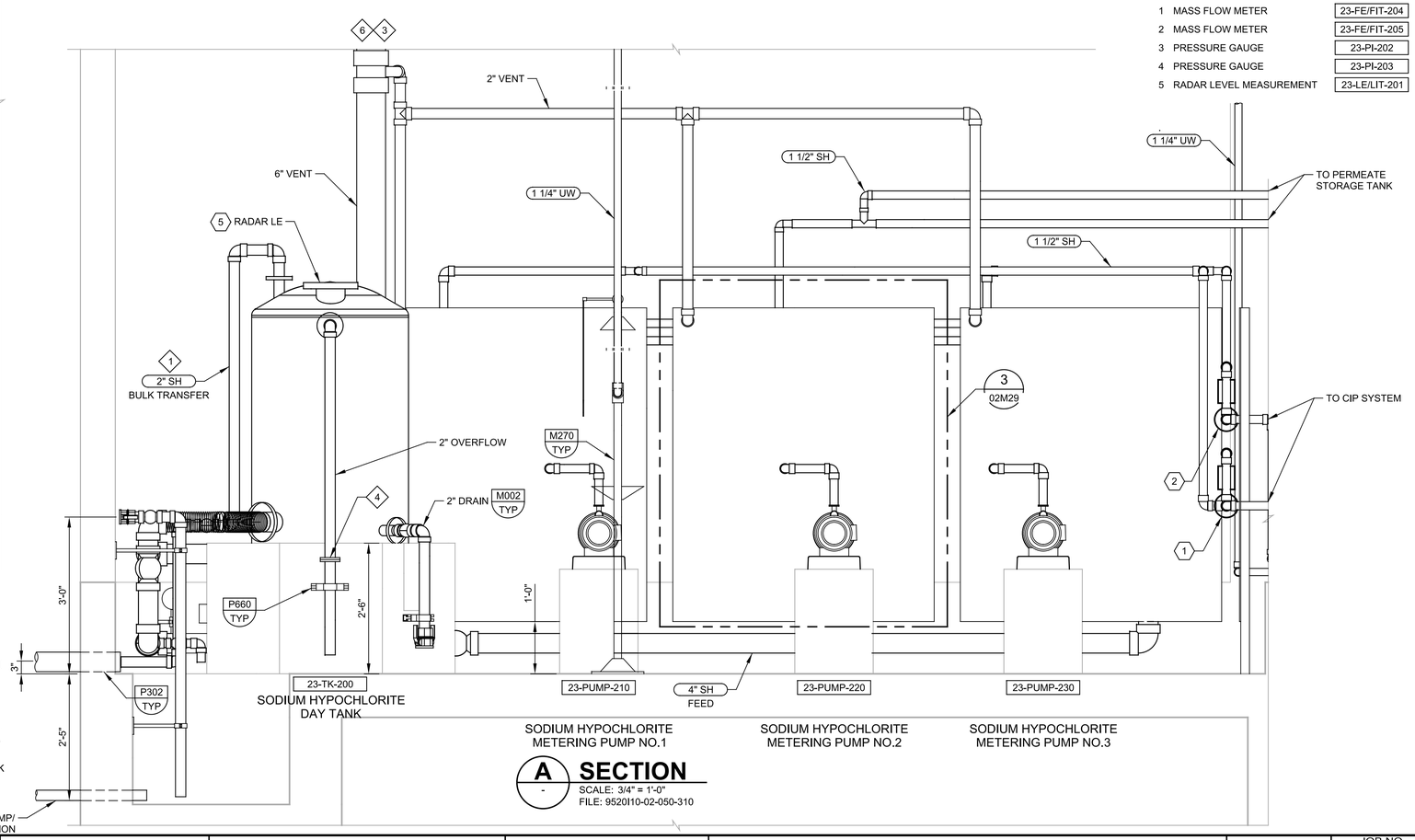
1 PLAN
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-101



B - SECTION
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-326



C - SECTION
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-327



A - SECTION
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-310

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM. DIAPHRAGM METERING PUMP DISCHARGE PANELS SHALL BE PRE-ASSEMBLED.
3. ALL BALL VALVES ON SODIUM HYPOCHLORITE SYSTEM SHALL HAVE VENTED BALLS.

KEY NOTES = ◇#

1 INSTALL QUICK DISCONNECT FOR VAC TRUCK TO REMOVE CONTAINED SPILLS FROM SUMP.

2 DOUBLE CONTAIN CHEMICAL TANK FILL PIPING. PROVIDE 1-INCH VALVED DRAIN WITH CLEAR SIGHT GLASS AT LOW POINT OF CONTAINMENT PIPING IN BUILDING.

3 VENT THROUGH ROOF TO OUTSIDE. COVER VENT PIPE ENDS WITH CHEMICALLY COMPATIBLE NO. 24 MESH SCREEN SECURED IN PLACE WITH BOLTED RETAINER RING.

4 FLANGES WITH SODIUM HYPOCHLORITE RESISTANT VAPOR PAPER.

5 INSTALL RHFS 94 or 95 FLEXIBLE CONNECTION. SOLVENT WELD TO PVC FLANGES.

6 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

7 INSTALL VALVE AND VALVE BOX ON SUMP DRAIN PIPING, AS SHOWN ON DRAWING C07.

KEY TAGS = ◇#

1	MASS FLOW METER	23-FE/FIT-204
2	MASS FLOW METER	23-FE/FIT-205
3	PRESSURE GAUGE	23-PI-202
4	PRESSURE GAUGE	23-PI-203
5	RADAR LEVEL MEASUREMENT	23-LE/LIT-201

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
SODIUM HYPOCHLORITE ROOM PLAN AND SECTION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M03

PROJECT NO.
FILE NAME: 9520I1002M03.dgn

Plot Date: 04-APR-2025 9:42:06 AM
User: svcPW
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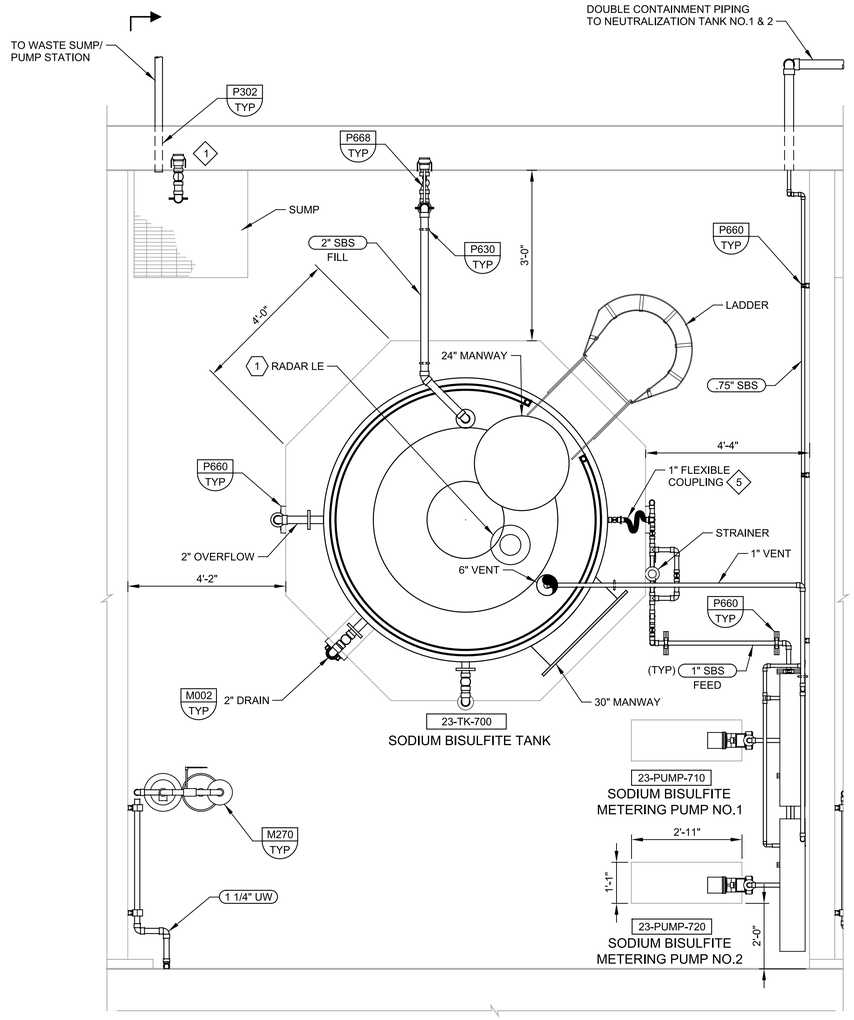
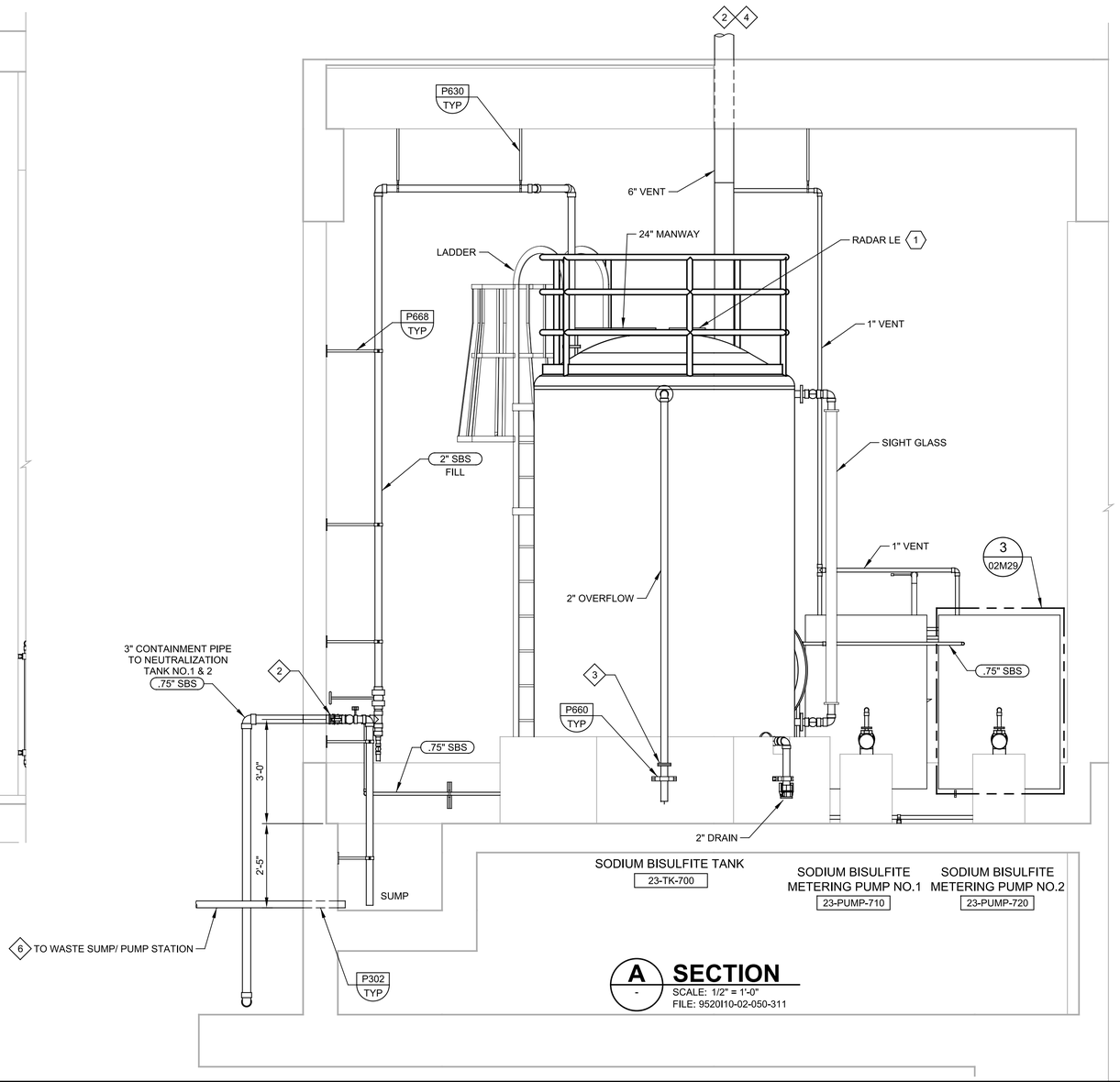


L A -

2 PLAN

SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-101



A SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-311

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM. DIAPHRAGM METERING PUMP DISCHARGE PANELS SHALL BE PRE-ASSEMBLED.

KEY NOTES = (#)

1 INSTALL QUICK DISCONNECT FOR VAC TRUCK TO REMOVE CONTAINED SPILLS FROM SUMP.

2 VENT THROUGH ROOF TO OUTSIDE. COVER VENT PIPE ENDS WITH NO. 24 MESH, 316 SST SCREEN SECURED IN PLACE WITH BOLTED RETAINER RING.

3 FLANGES WITH SODIUM BISULFITE RESISTANT VAPOR PAPER.

4 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

5 INSTALL FLEXMASTER BY SNYDER INDUSTRIES, INC. FLEXIBLE CONNECTION.

6 INSTALL VALVE AND VALVE BOX ON SUMP DRAIN PIPE, AS SHOWN IN DRAWING C07.

KEY TAGS = (#)

1 RADAR LEVEL MEASUREMENT 23-LE-701

.

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			RECORD DOCUMENTS

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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
SODIUM BISULFITE ROOM
PLAN AND SECTION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M04

PROJECT NO.
FILE NAME: 9520I1002M04.dgn

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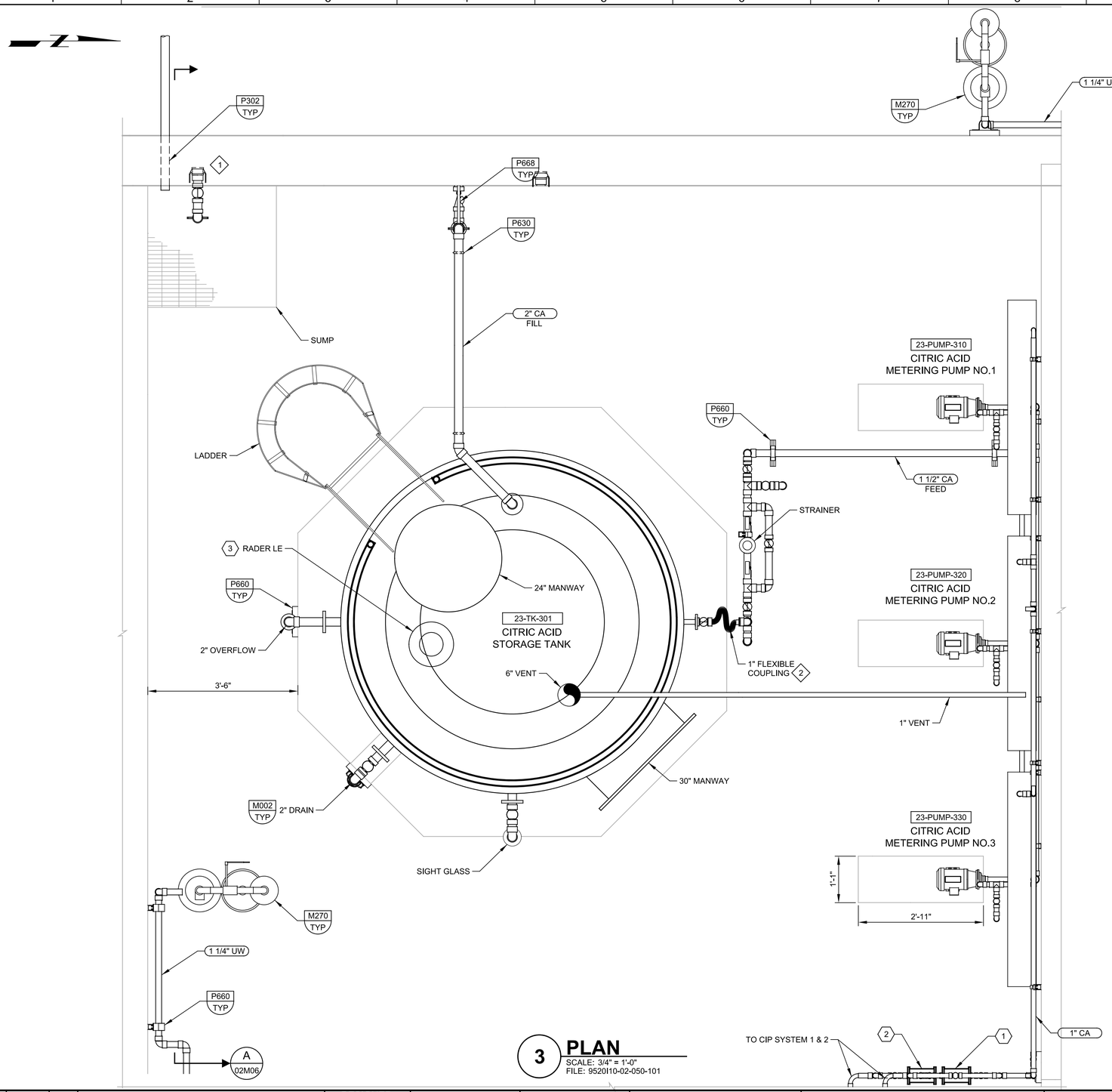

3 PLAN

SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-101

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM.

KEY NOTES = ⟨#⟩

1 INSTALL QUICK DISCONNECT FOR VAC TRUCK TO REMOVE CONTAINED SPILLS FROM SUMP.

2 INSTALL FLEXMASTER BY SNYDER INDUSTRIES, INC. FLEXIBLE CONNECTION.

KEY TAGS = ⟨#⟩

1	MASS FLOW METER	23-FE/FIT-304
2	MASS FLOW METER	23-FE/FIT-305
3	ULTRASONIC LEVEL MEASUREMENT	23-FE/FIT-301

.

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LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CITRIC ACID ROOM PLAN

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 02M05

PROJECT NO.
FILE NAME: 9520I1002M05.dgn

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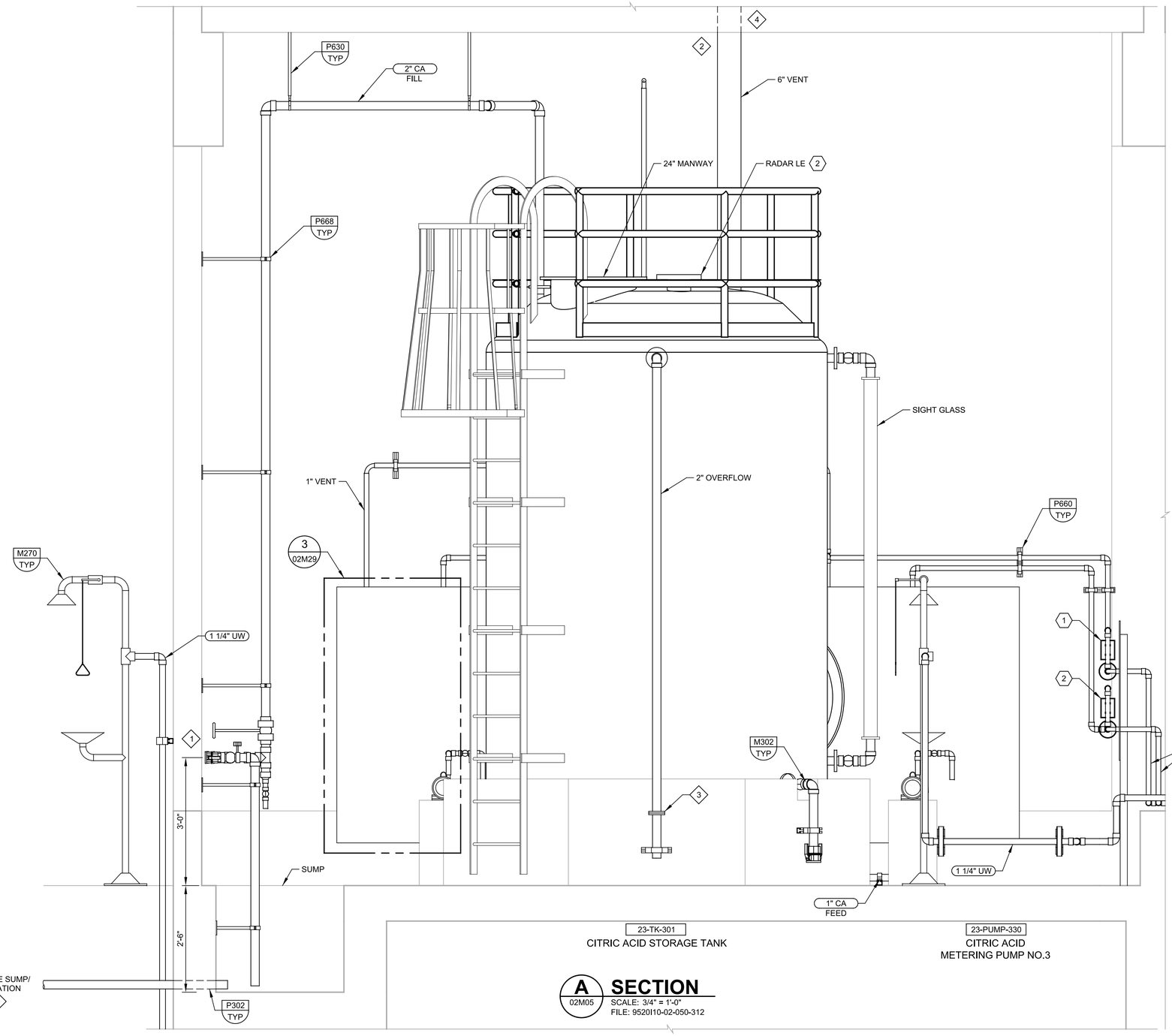

A SECTION
02M05

SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-312

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM.

KEY NOTES = ◇#

1 INSTALL QUICK DISCONNECT FOR VAC TRUCK TO REMOVE CONTAINED SPILLS FROM SUMP.

2 VENT THROUGH ROOF TO OUTSIDE. COVER VENT PIPE ENDS WITH NO. 24 MESH, 316 SST SCREEN SECURED IN PLACE WITH BOLTED RETAINER RING.

3 FLANGES WITH CITRIC ACID RESISTANT VAPOR PAPER.

4 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

5 INSTALL VALVE AND VALVE BOX ON SUMP DRAIN PIPING, AS SHOWN ON DRAWING C07.

KEY TAGS = ◇#

1	MASS FLOW METER	23-FE/FIT-305
2	RADAR LEVEL MEASUREMENT	23-LE-301

.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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JOB NO. 09520I.10
DRAWING NO. 02M06

Plot Date: 04-APR-2025 9:37:55 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
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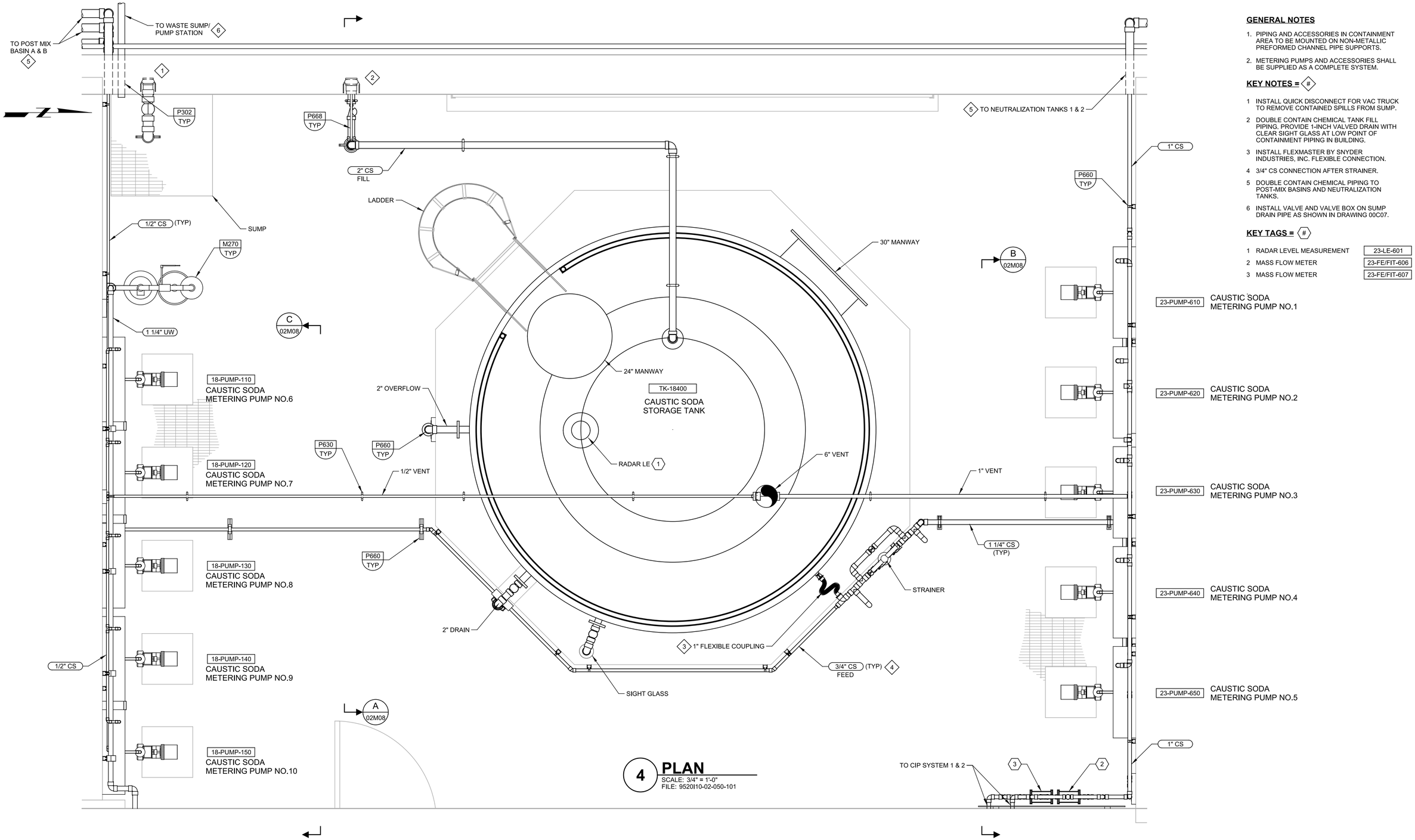

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM.

KEY NOTES = ◇#

1 INSTALL QUICK DISCONNECT FOR VAC TRUCK TO REMOVE CONTAINED SPILLS FROM SUMP.

2 DOUBLE CONTAIN CHEMICAL TANK FILL PIPING. PROVIDE 1-INCH VALVED DRAIN WITH CLEAR SIGHT GLASS AT LOW POINT OF CONTAINMENT PIPING IN BUILDING.

3 INSTALL FLEXMASTER BY SNYDER INDUSTRIES, INC. FLEXIBLE CONNECTION.

4 3/4" CS CONNECTION AFTER STRAINER.

5 DOUBLE CONTAIN CHEMICAL PIPING TO POST-MIX BASINS AND NEUTRALIZATION TANKS.

6 INSTALL VALVE AND VALVE BOX ON SUMP DRAIN PIPE AS SHOWN IN DRAWING 00C07.

KEY TAGS = ◇#

1	RADAR LEVEL MEASUREMENT	23-LE-601
2	MASS FLOW METER	23-FE/FIT-606
3	MASS FLOW METER	23-FE/FIT-607

4 PLAN

SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-101

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MANATEE COUNTY

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MECHANICAL
CAUSTIC SODA ROOM PLAN

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 02M07

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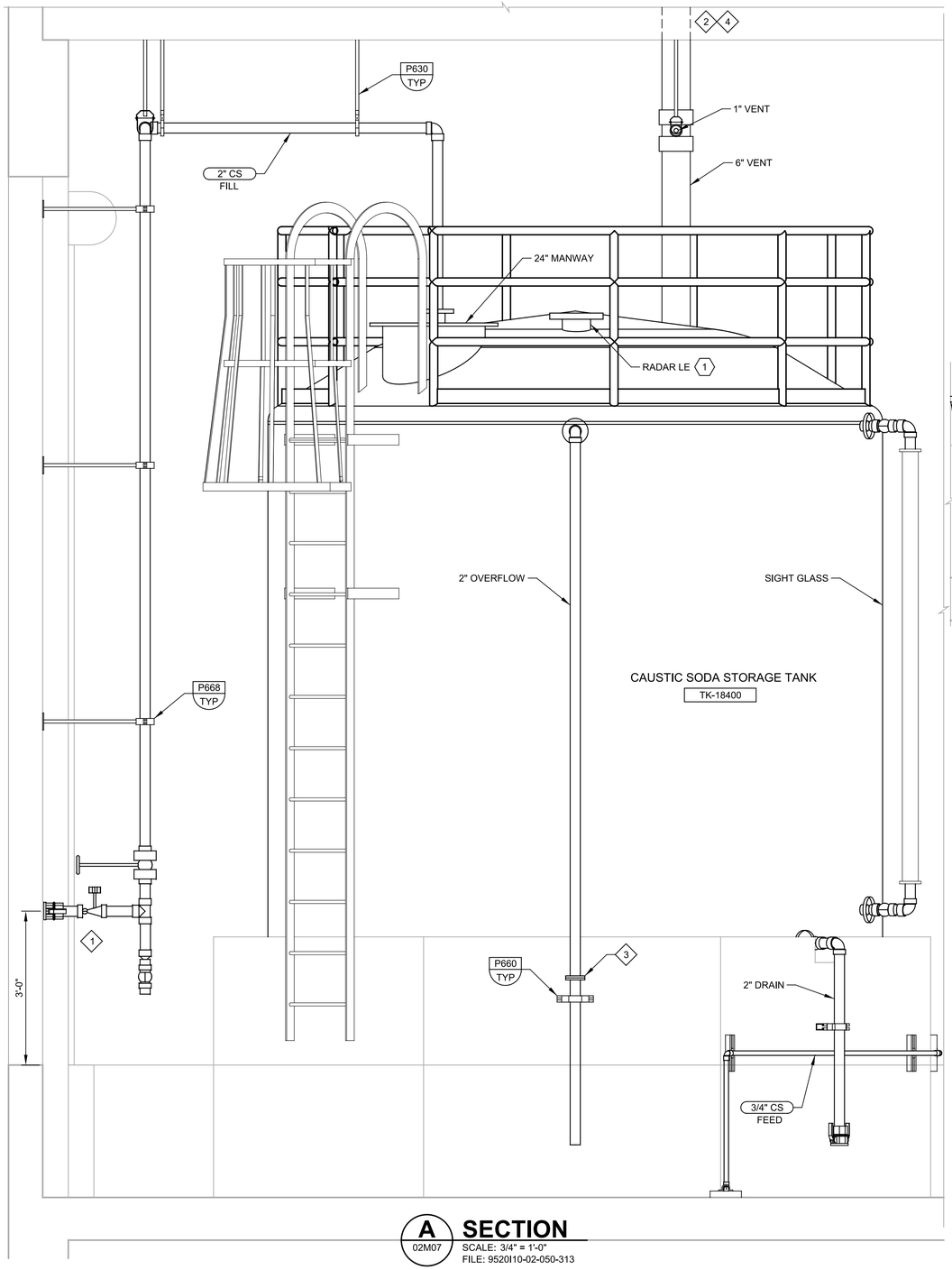
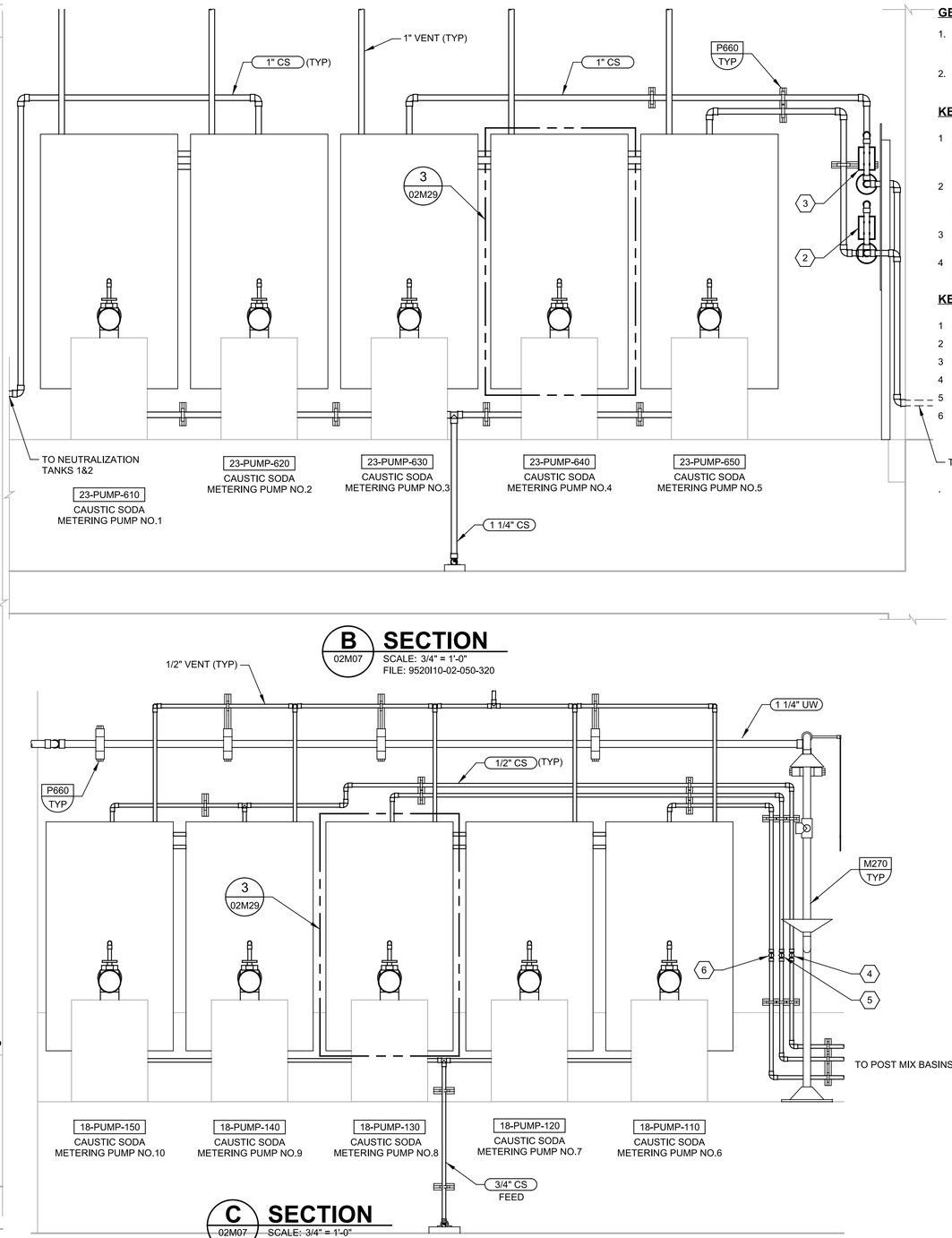


A 02M07 SECTION
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-313



B 02M07 SECTION
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-320

C 02M07 SECTION
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-319

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM.

KEY NOTES = ⟨#⟩

1 DOUBLE CONTAIN CHEMICAL TANK FILL PIPING. PROVIDE 1-INCH VALVED DRAIN WITH CLEAR SIGHT GLASS AT LOW POINT OF CONTAINMENT PIPING IN BUILDING.

2 VENT THROUGH ROOF TO OUTSIDE. COVER VENT PIPE ENDS WITH NO. 24 MESH, 316 SST SCREEN SECURED IN PLACE WITH BOLTED RETAINER RING.

3 FLANGES WITH CAUSTIC SODA RESISTANT VAPOR PAPER.

4 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS = ⟨#⟩

1	RADAR LEVEL MEASUREMENT	23-LE-601
2	MASS FLOW METER	23-FE/FIT-606
3	MASS FLOW METER	23-FE/FIT-607
4	BALL VALVE	18-PCV-103
5	BALL VALVE	18-PCV-102
6	BALL VALVE	18-PCV-101

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			RECORD DOCUMENTS

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MANATEE COUNTY
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MECHANICAL
CAUSTIC SODA ROOM SECTION

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M08

PROJECT NO.
FILE NAME: 9520I1002M08.dgn

Plot Date: 04-APR-2025 9:38:10 AM
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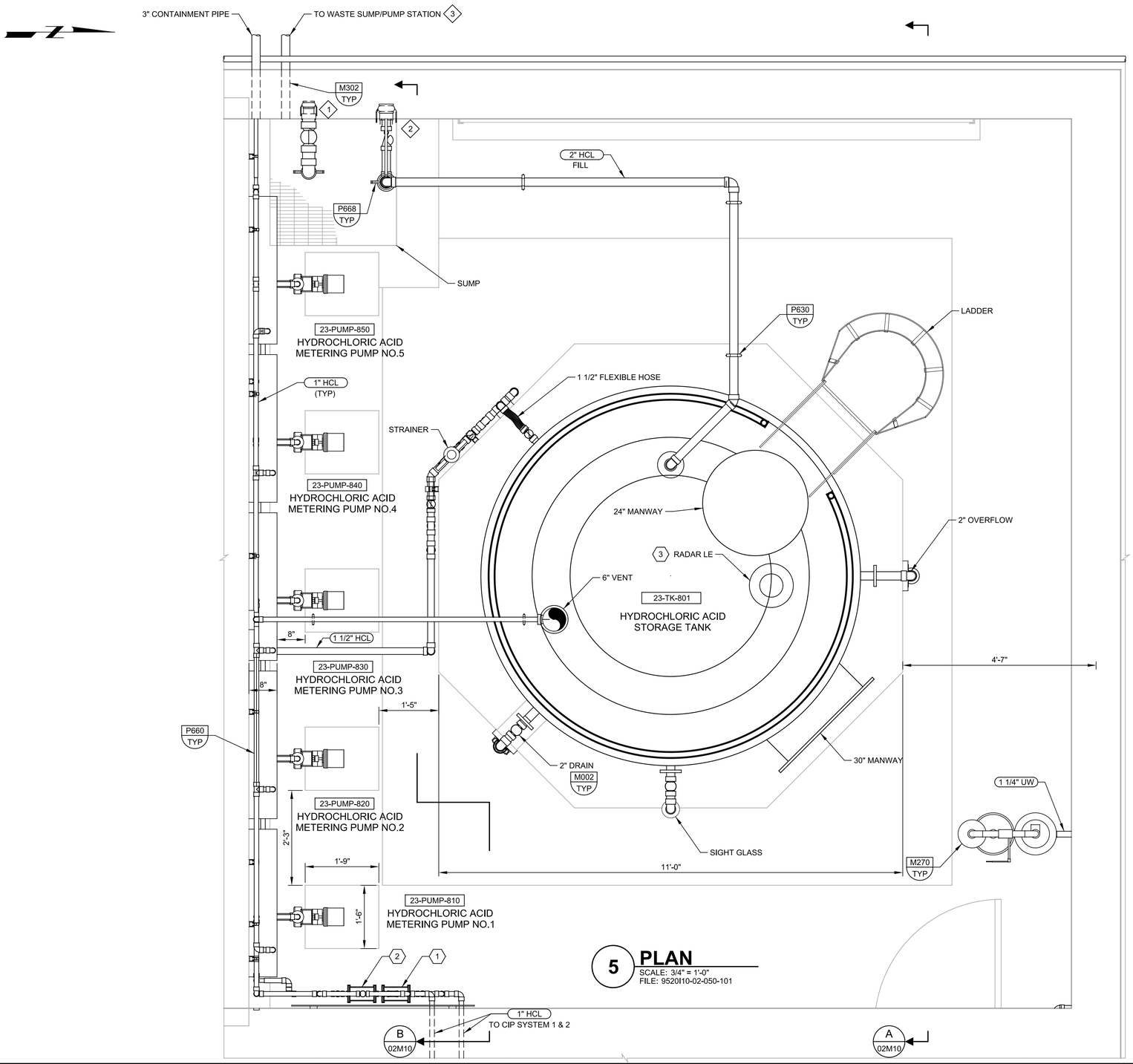

5 **PLAN**
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-101

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM.

KEY NOTES = (#)

1 INSTALL QUICK DISCONNECT FOR VAC TRUCK TO REMOVE CONTAINED SPILLS FROM SUMP.

2 DOUBLE CONTAIN CHEMICAL TANK FILL PIPING. PROVIDE 1-INCH VALVED DRAIN WITH CLEAR SIGHT GLASS AT LOW POINT OF CONTAINMENT PIPING IN BUILDING.

3 INSTALL VALVE AND VALVE BOX FOR SUMP DRAIN PIPING AS SHOWN IN DRAWING C07.

KEY TAGS = (#)

1	MASS FLOW METER	23-FE/FIT-804
2	MASS FLOW METER	23-FE/FIT-805
3	RADAR LEVEL MEASUREMENT	23-LE-801

REV	DATE	BY	DESCRIPTION
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MECHANICAL
HYDROCHLORIC ACID ROOM PLAN

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M09

Plot Date: 04-APR-2025 9:42:40 AM
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FILE NAME: 9520I1002M09.dgn

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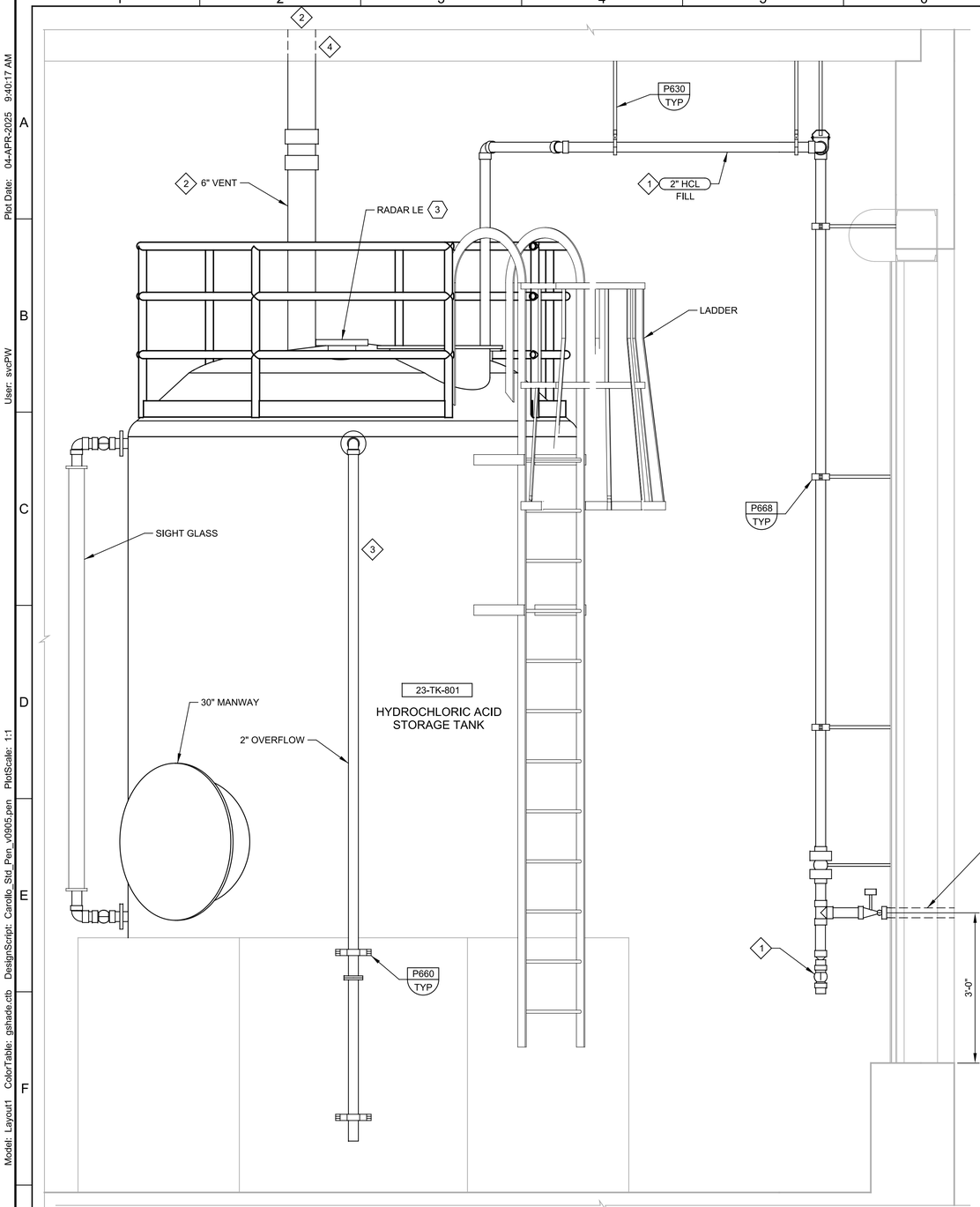
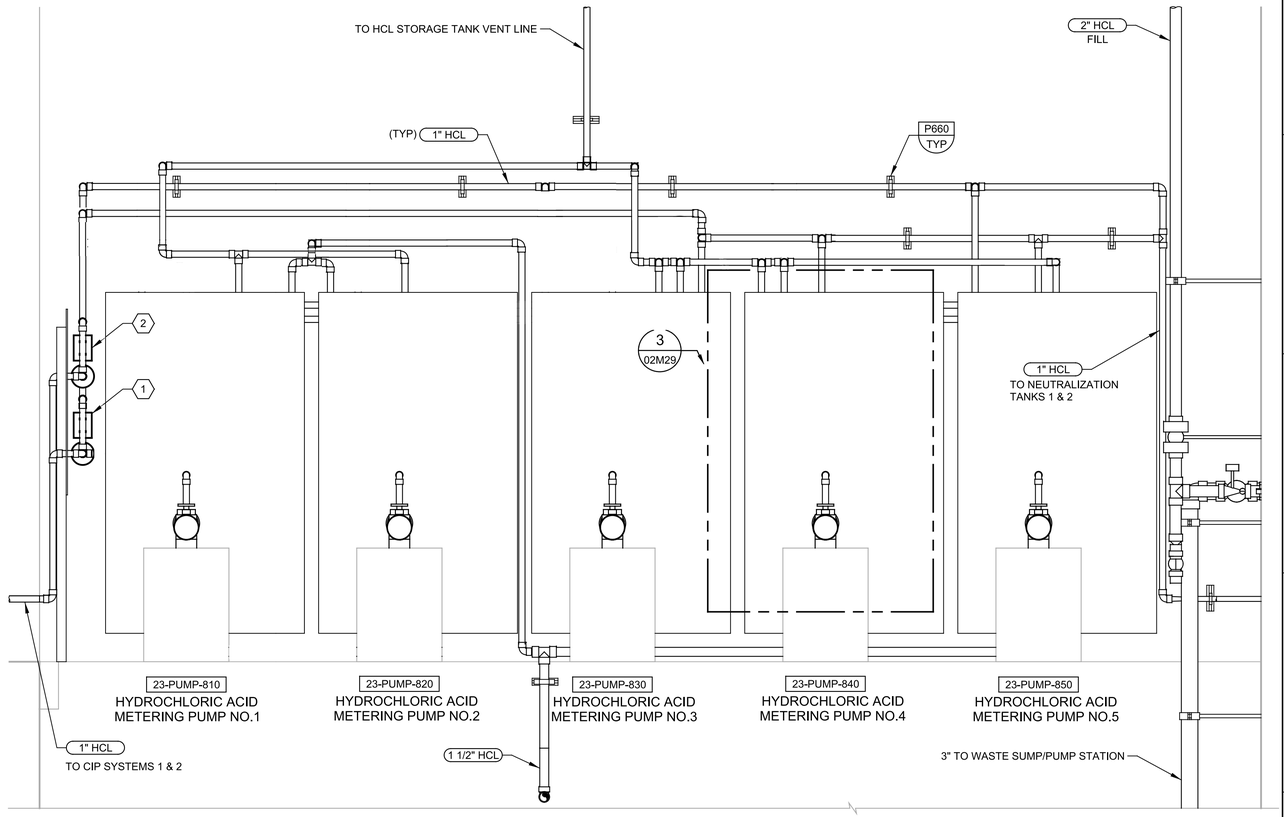


A SECTION
02M09
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-314



B SECTION
02M09
SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-321

GENERAL NOTES

1. PIPING AND ACCESSORIES IN CONTAINMENT AREA TO BE MOUNTED ON NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.
2. METERING PUMPS AND ACCESSORIES SHALL BE SUPPLIED AS A COMPLETE SYSTEM.

KEY NOTES =

1 DOUBLE CONTAIN CHEMICAL TANK FILL PIPING. PROVIDE 1-INCH VALVED DRAIN WITH CLEAR SIGHT GLASS AT LOW POINT OF CONTAINMENT PIPING IN BUILDING.

2 VENT THROUGH ROOF TO OUTSIDE. COVER VENT PIPE ENDS WITH NO. 24 MESH, 316 SST SCREEN SECURED IN PLACE WITH BOLTED RETAINER RING.

3 2 INCH OVERFLOW P-TRAP TO BE FILLED WITH GLYCERIN.

4 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS =

1	MASS FLOW METER	23-FE/FIT-804
2	MASS FLOW METER	23-FE/FIT-805
3	RADAR LEVEL MEASUREMENT	23-LE-801

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED JS
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CHECKED SS
DATE APRIL 2025

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HYDROCHLORIC ACID ROOM SECTIONS

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 02M10

PROJECT NO.
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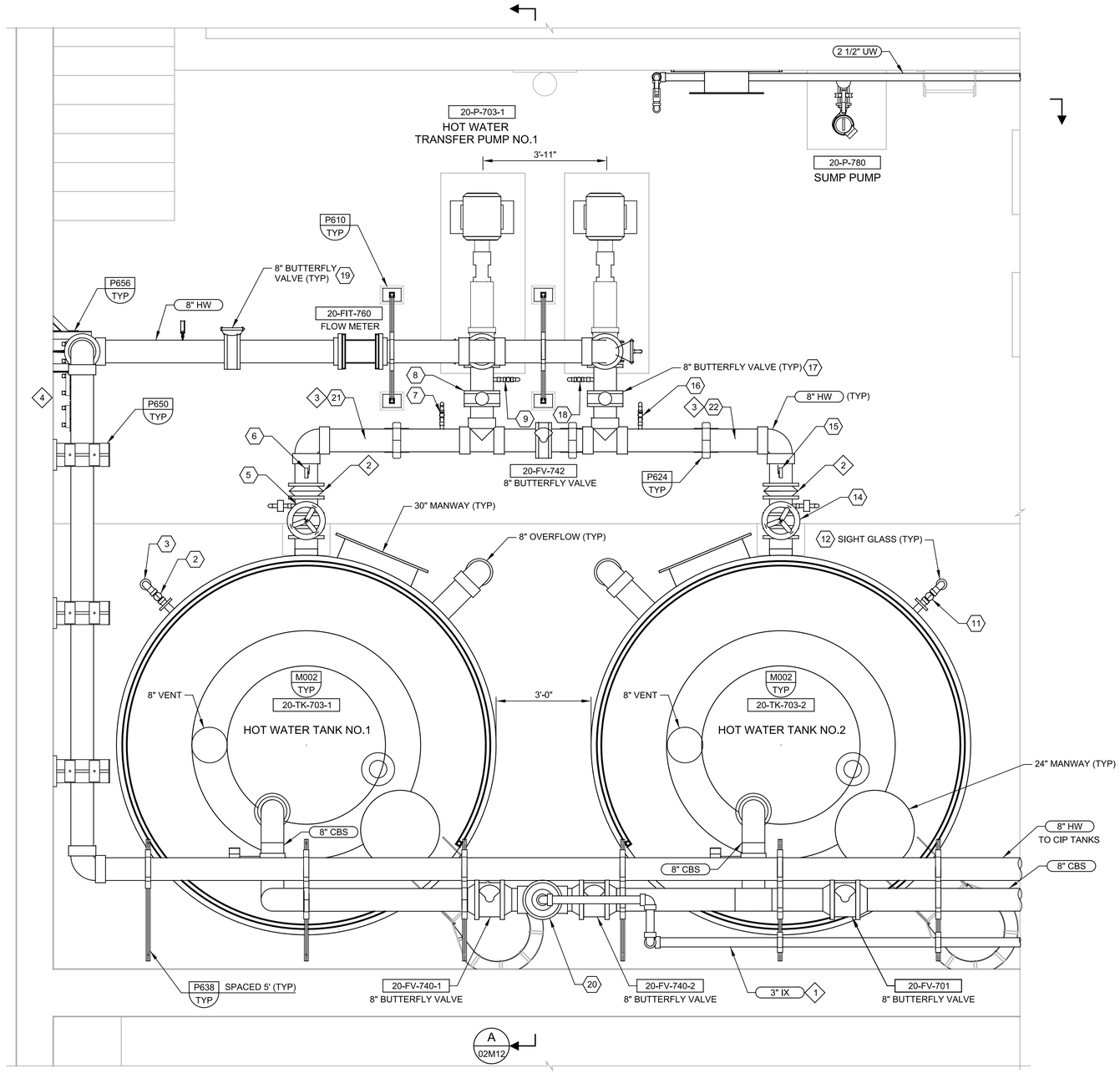

6 PLAN

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-101

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1 SOFTENED WATER SUPPLY FROM THE ION EXCHANGE SYSTEM FOR HEATED RECOVERY CLEANS WITH SODIUM HYPOCHLORITE. CONNECT TO 8" CBS PIPING (FOR FILLING HOT WATER TANKS).

2 EXPANSION JOINT AS SPECIFIED IN SECTION 40_05_06.01.

3 FLEXIBLE HOSE ROUTING TO PANELS NOT SHOWN FOR CLARITY.

4 MOUNT PANELS FOR 20-PI/PIT-703-1, 20-PI/PIT-703-2, AND 20-PI/PIT-702.

KEY TAGS = ◇#

1	LEVEL SWITCH	20-LSL-703-1
2	2" BALL VALVE	20-HV-743-1
3	SIGHT GLASS	20-FQI-703-1
4	RADAR LEVEL MEASUREMENT	20-LE-703-1
5	8" BUTTERFLY VALVE	20-HV-746-1
6	PRESSURE GAUGE	20-PI-705-1
7	1" BALL VALVE	20-HV-751-1
8	8" BUTTERFLY VALVE	20-FV-741-1
9	1" BALL VALVE	20-HV-761-1
10	LEVEL SWITCH	20-LSL-703-2
11	2" BALL VALVE	20-HV-743-2
12	SIGHT GLASS	20-FQI-703-2
13	RADAR LEVEL MEASUREMENT	20-LE-703-2
14	8" BUTTERFLY VALVE	20-HV-746-2
15	PRESSURE GAUGE	20-PI-705-2
16	1" BALL VALVE	20-HV-751-2
17	8" BUTTERFLY VALVE	20-FV-741-2
18	1" BALL VALVE	20-HV-740-2
19	8" BUTTERFLY VALVE	20-HV-764
20	8" BUTTERFLY VALVE	20-HV-740
21	PRESSURE MEASUREMENT	20-PI/PIT-703-1
22	PRESSURE MEASUREMENT	20-PI/PIT-703-2

.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
HOT WATER SYSTEM PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M11

PROJECT NO.
FILE NAME: 9520I1002M11.dgn

Plot Date: 04-APR-2025 9:38:09 AM
User: svcPW
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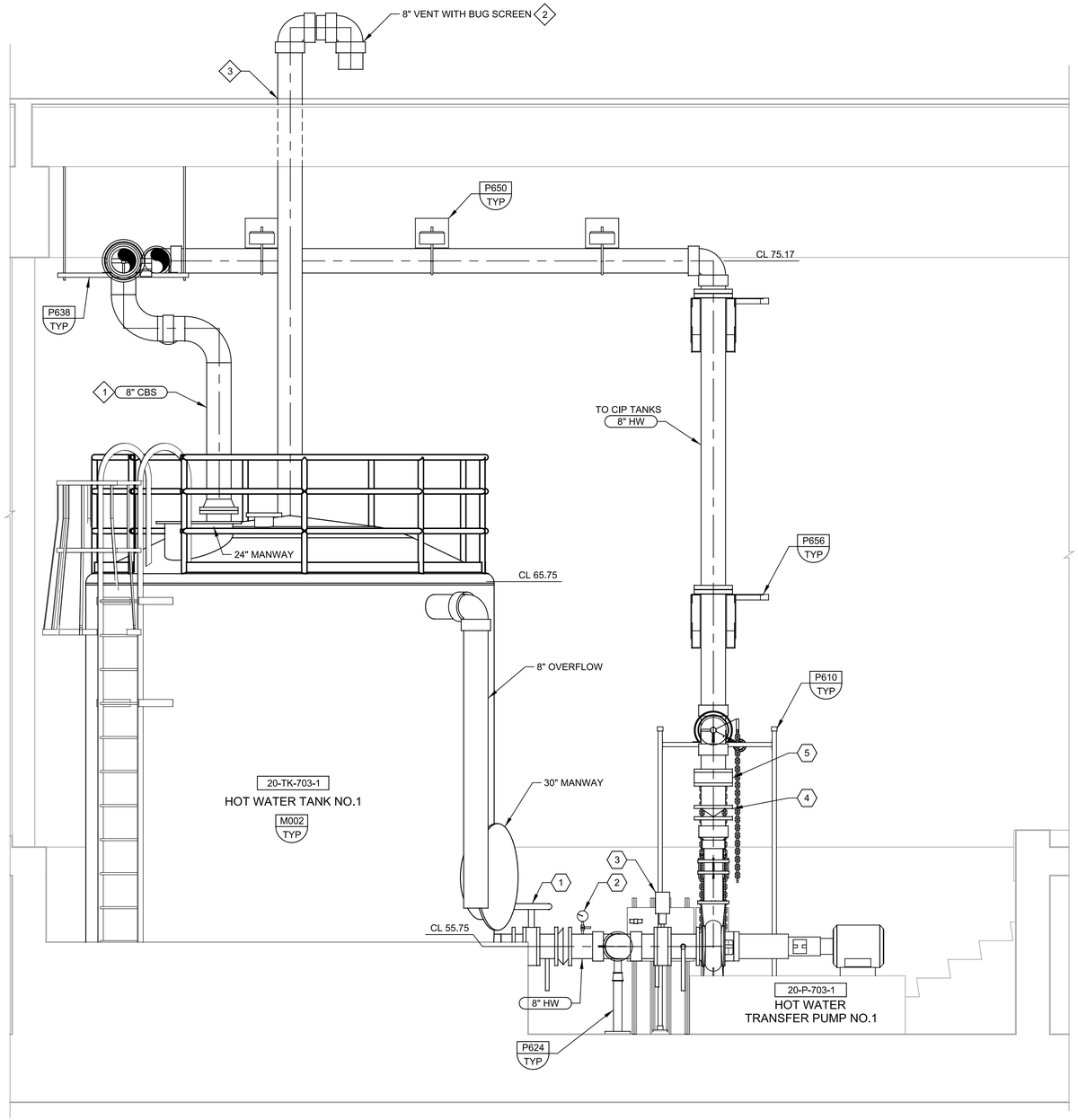
LAST SAVED BY: eparker



GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. SLOPE TANK FILL LINES TOWARD THE TANKS.

KEY NOTES = ◇#

1 MEMBRANE FILTRATE SUPPLIED FROM THE PERMEATE STORAGE TANK REFILL PUMPS LOCATED IN THE CHEMICAL BUILDING.

2 PAINT VENT PIPING EXPOSED TO SUNLIGHT PER SPECIFICATION 09_91_00.

3 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS = ⬡#

1	8" BUTTERFLY VALVE	20-HV-746-1
2	PRESSURE GAUGE	20-PI-705-1
3	8" BUTTERFLY VALVE	20-HV-740-1
4	8" CHECK VALVE	20-CV-760-1
5	8" BUTTERFLY VALVE	20-HV-763-1

.

A SECTION

02M11

SCALE: 1/2" = 1'-0"
FILE: 9520I10-052-050-315

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED JS
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

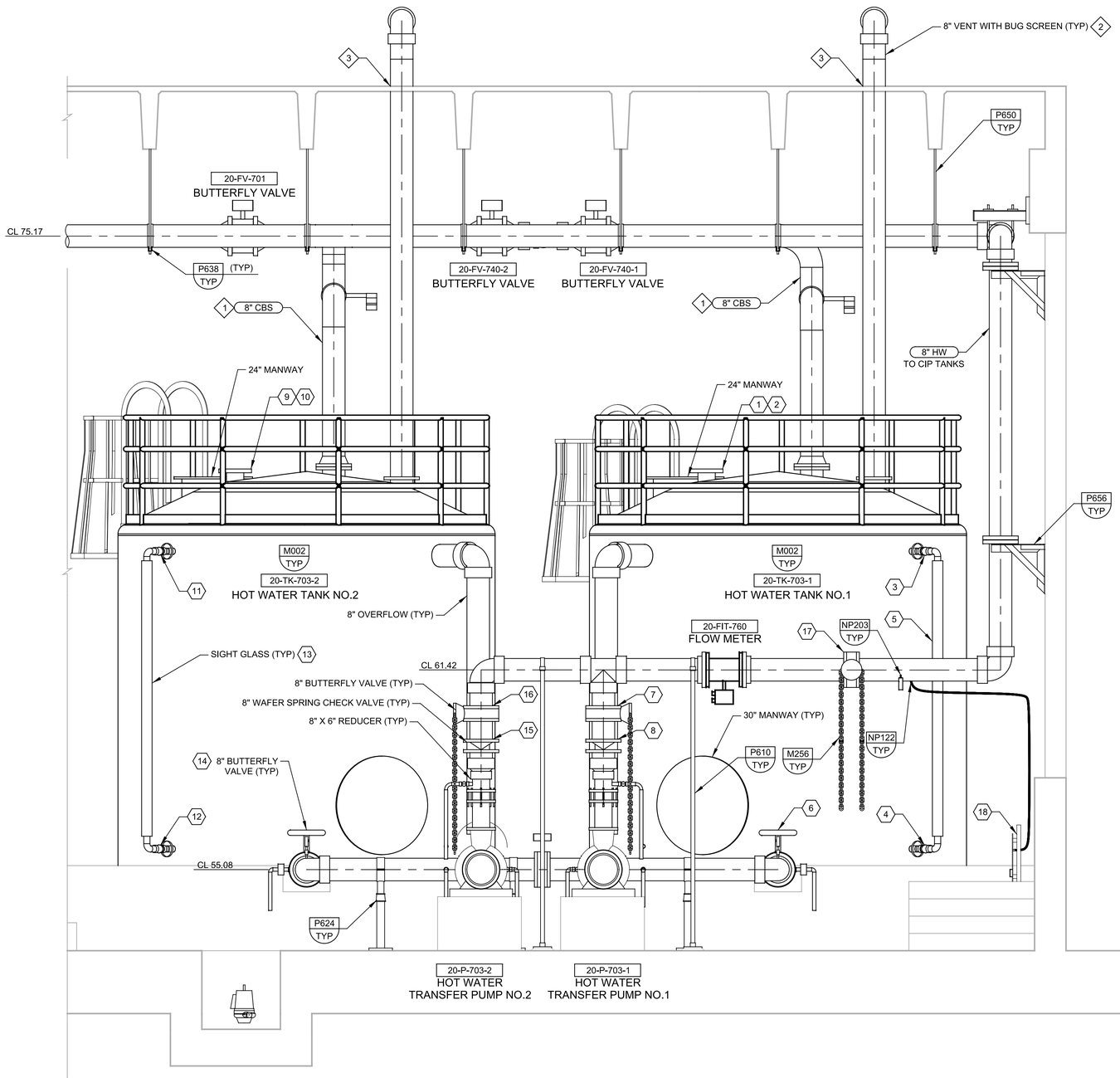
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
HOT WATER SYSTEM
SECTION I

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M12

PROJECT NO.
FILE NAME: 9520I1002M12.dgn

Plot Date: 04-APR-2025 9:42:14 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker



B SECTION
02M11

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-302

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 MEMBRANE FILTRATE SUPPLIED FROM THE PERMEATE STORAGE TANK REFILL PUMPS LOCATED IN THE CHEMICAL BUILDING.

2 PAINT VENT PIPING EXPOSED TO SUNLIGHT PER SPECIFICATION 09_91_00.

3 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS = (#)

1	LEVEL SWITCH	20-LSL-703-1
2	RADAR LEVEL MEASUREMENT	20-LE-703-1
3	2" BALL VALVE	20-HV-743-1
4	2" BALL VALVE	20-HV-744-1
5	SIGHT GLASS	20-FQI-703-1
6	8" BUTTERFLY VALVE	20-HV-746-1
7	8" CHECK VALVE	20-CV-760-1
8	8" BUTTERFLY VALVE	20-HV-763-1
9	LEVEL SWITCH	20-LSL-703-2
10	RADAR LEVEL MEASUREMENT	20-LE-703-2
11	2" BALL VALVE	20-HV-743-2
12	2" BALL VALVE	20-HV-744-2
13	SIGHT GLASS	20-FQI-703-2
14	8" BUTTERFLY VALVE	20-HV-746-2
15	8" CHECK VALVE	20-CV-760-2
16	8" BUTTERFLY VALVE	20-HV-763-2
17	8" BUTTERFLY VALVE	20-HV-764
18	PRESSURE MEASUREMENT	20-PI/PIT-702

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			RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY
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MECHANICAL
HOT WATER SYSTEM
SECTION II

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0 1"
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JOB NO. 09520I.10
DRAWING NO. 02M13

PROJECT NO.
FILE NAME: 9520I1002M13.dgn

Plot Date: 04-APR-2025 9:41:53 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 9:40:32 AM
User: svcPW
PlotScale: 1:1
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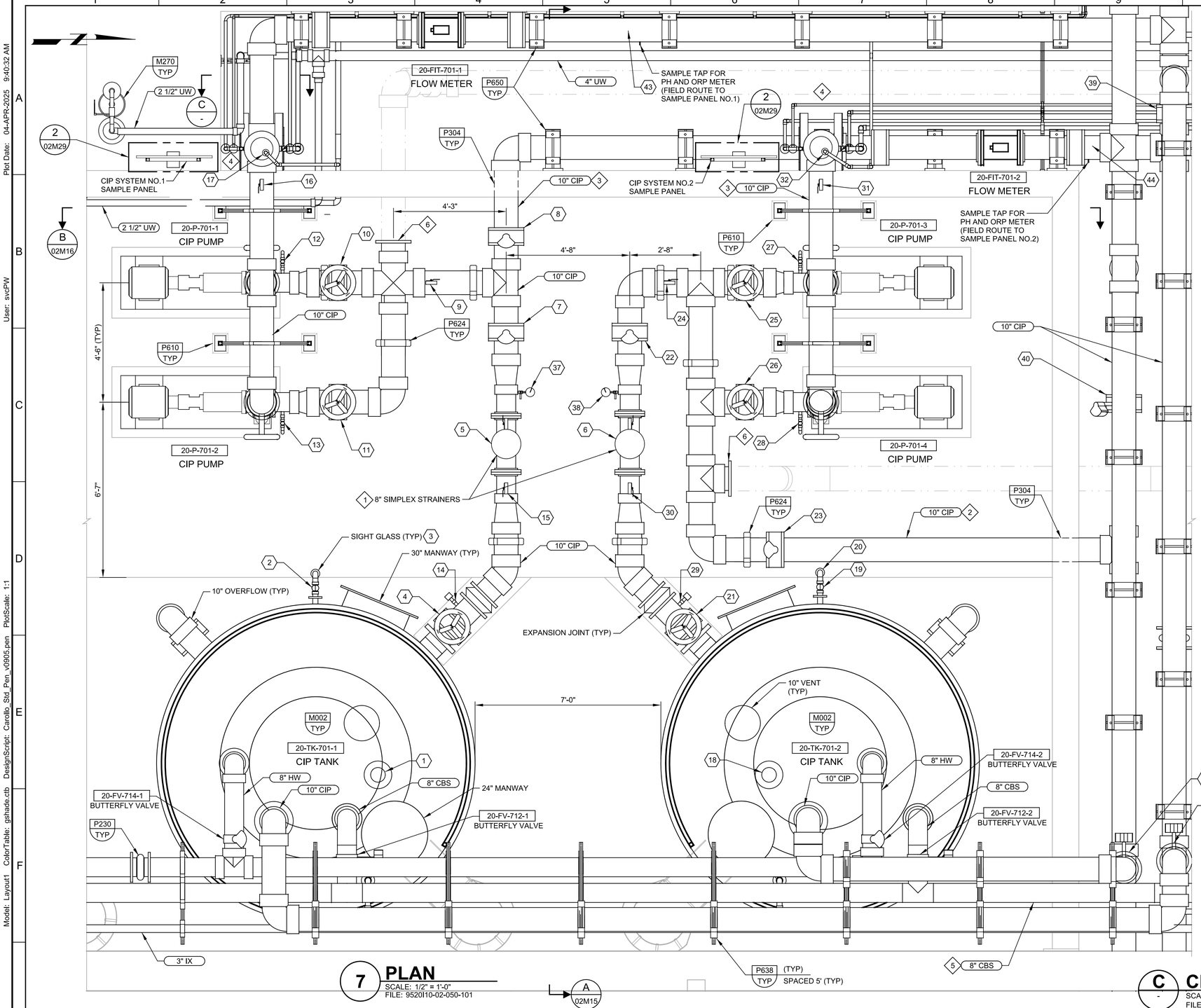
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



7 PLAN

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-101

A 02M15

C CHEMICAL INJECTION SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-324

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ⟨#⟩

1. SIMPLEX STRAINERS. INSTALL PER MANUFACTURER INSTRUCTIONS.
2. CIP RETURN PIPING FROM MEMBRANE TRAINS. SLOPE TO CIP PUMP SUCTION.
3. CIP PUMP DISCHARGE PIPING. ROUTE TO MEMBRANE TRAINS AND NEUTRALIZATION TANKS.
4. CHEMICAL CLEANING INJECTION INTO PTFE-CS AS SHOWN ON MSS PIDS. CONTRACTOR TO PROVIDE AND INSTALL CHEMICAL SAFETY CURTAIN AROUND THE CHEMICAL INJECTION PIPING. CURTAIN SHALL EXTEND FROM THE AIR RELEASE VALVE TO THE GRATED FLOOR.
5. MEMBRANE FILTRATE SUPPLIED FROM THE PERMEATE STORAGE TANK REFILL PUMPS LOCATED IN THE CHEMICAL BUILDING. PIPE SUPPLIES BOTH THE CIP TANKS AND HOT WATER TANKS.
6. TEMPORARY CONNECTION FOR COMMISSIONING.

KEY TAGS = ⟨#⟩

1	RADAR LEVEL MEASUREMENT	20-LE-701-1
2	2" BALL VALVE	20-HV-726-1
3	SIGHT GLASS	20-FQI-701-1
4	10" BUTTERFLY VALVE	20-HV-705-1
5	8" STRAINER	20-F-701-1
6	8" STRAINER	20-F-701-2
7	10" BUTTERFLY VALVE	20-FV-713-1
8	10" BUTTERFLY VALVE	20-FV-710-1
9	PRESSURE GAUGE	20-PI-703-1
10	10" BUTTERFLY VALVE	20-HV-710-1
11	10" BUTTERFLY VALVE	20-HV-710-2
12	1" BALL VALVE	20-HV-712-1
13	1" BALL VALVE	20-HV-712-2
14	1" BALL VALVE	20-HV-704-1
15	PRESSURE GAUGE	20-PI-701-1
16	PRESSURE GAUGE	20-PI-704-1
17	AIR RELEASE VALVE	20-AR-701-1
18	RADAR LEVEL MEASUREMENT	20-LE-701-2
19	2" BALL VALVE	20-HV-726-2
20	SIGHT GLASS	20-FQI-701-2
21	10" BUTTERFLY VALVE	20-HV-705-2
22	10" BUTTERFLY VALVE	20-FV-713-2
23	10" BUTTERFLY VALVE	20-FV-710-2
24	PRESSURE GAUGE	20-PI-703-2
25	10" BUTTERFLY VALVE	20-HV-710-3
26	10" BUTTERFLY VALVE	20-HV-710-4
27	1" BALL VALVE	20-HV-712-3
28	1" BALL VALVE	20-HV-712-4
29	1" BALL VALVE	20-HV-704-2
30	PRESSURE GAUGE	20-PI-701-2
31	PRESSURE GAUGE	20-PI-704-2
32	AIR RELEASE VALVE	20-AR-701-2
33	1 1/2" BALL VALVE	23-FV-101-1
34	1" BALL VALVE	23-FV-901-1
35	1" BALL VALVE	23-FV-601-1
36	1" BALL VALVE	23-FV-301-1
37	PRESSURE GAUGE	20-PI-702-1
38	PRESSURE GAUGE	20-PI-702-2
39	10" BUTTERFLY VALVE	20-FV-711-1
40	10" BUTTERFLY VALVE	20-FV-711-2
41	10" BUTTERFLY VALVE	20-FV-717-1
42	10" BUTTERFLY VALVE	20-FV-717-2
43	TEMPURATURE INDICATING TRANSMITTER	20-TIT-701-1
44	TEMPURATURE INDICATING TRANSMITTER	20-TIT-701-2
45	1 1/2" BALL VALVE	23-HV-101-1
46	1" BALL VALVE	23-HV-901-1
47	1" BALL VALVE	23-HV-601-1
48	1" BALL VALVE	23-HV-301-1
49	1 1/2" CHECK VALVE	23-CV-101-1
50	1" CHECK VALVE	23-CV-901-1
51	1" CHECK VALVE	23-CV-601-1
52	1" CHECK VALVE	23-CV-301-1
53	1 1/2" BACKPRESSURE VALVE	23-BPV-101-1
54	1" BACKPRESSURE VALVE	23-BPV-901-1
55	1" BACKPRESSURE VALVE	23-BPV-601-1
56	1" BACKPRESSURE VALVE	23-BPV-301-1

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED JS
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DATE APRIL 2025

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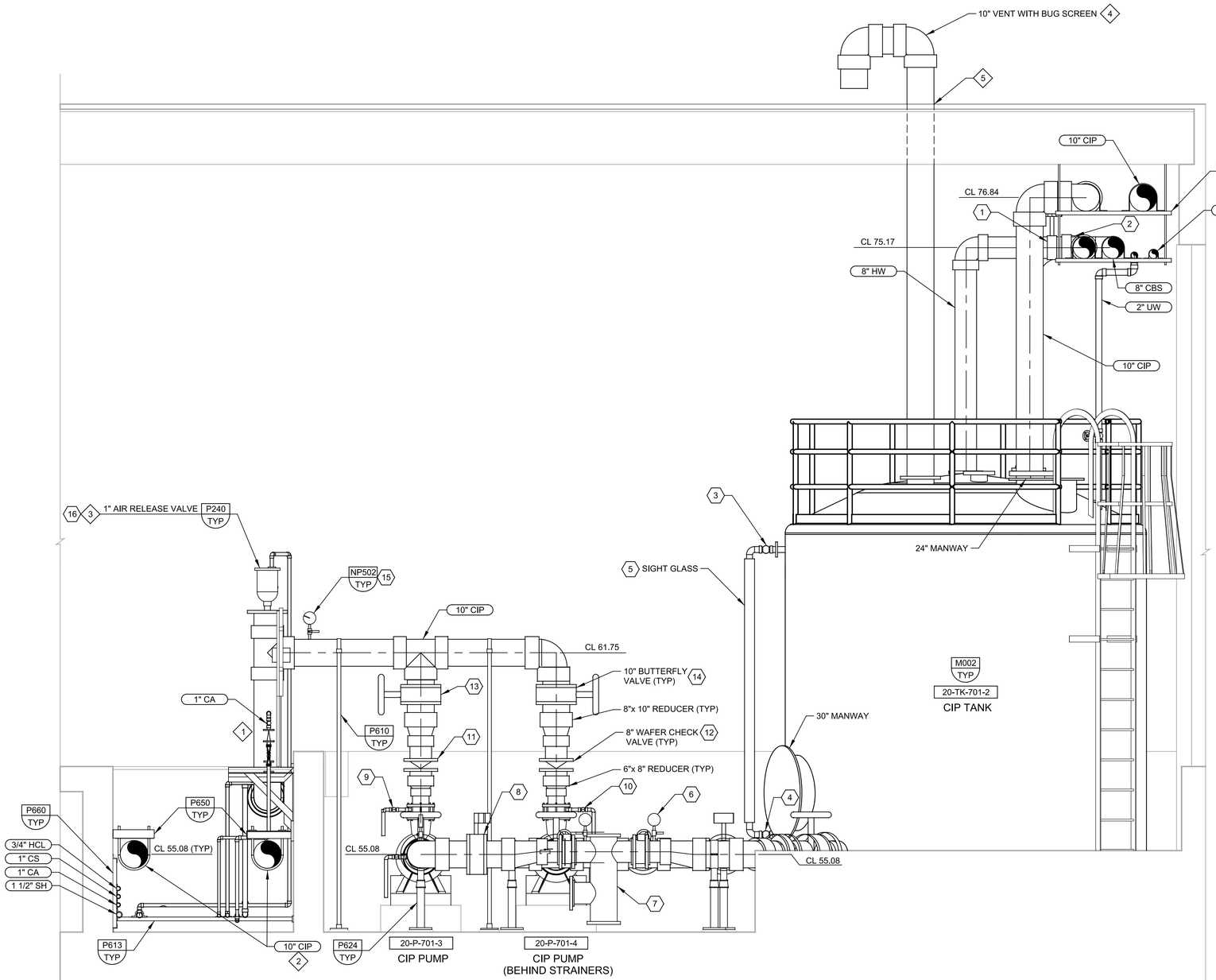
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CIP SYSTEM PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M14

PROJECT NO.
FILE NAME: 9520I1002M14.dgn



A SECTION
02M14

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-316

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. SLOPE TANK FILL LINES TOWARD THE TANKS.

KEY NOTES = ◇#

1 CHEMICAL CLEANING INJECTION INTO PTFE-CS AS SHOWN ON MSS PIDS.

2 ROUTE CIP PIPING TO MEMBRANE TANKS AND NEUTRALIZATION TANKS. INSTALL BELLOW-TYPE EXPANSION JOINTS PER SPECIFICATION 40_05_06.01.

3 ROUTE AIR RELEASE PIPING TO NEAREST SUMP IN THE CIP/HOT WATER SYSTEM AREA.

4 PAINT VENT PIPING EXPOSED TO SUNLIGHT PER SPECIFICATION 09_91_00.

5 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS = ◇#

1	8" BUTTERFLY VALVE	20-FV-714-2
2	8" BUTTERFLY VALVE	20-FV-712-2
3	2" BALL VALVE	20-HV-726-2
4	2" BALL VALVE	20-HV-725-2
5	SIGHT GLASS	20-FQI-701-2
6	PRESSURE GAUGE	20-PI-701-2
7	8" STRAINER	20-F-701-3
8	10" BUTTERFLY VALVE	20-FV-713-2
9	1" BALL VALVE	20-HV-714-3
10	1" BALL VALVE	20-HV-714-4
11	8" CHECK VALVE	20-CV-701-3
12	8" CHECK VALVE	20-CV-701-4
13	10" BUTTERFLY VALVE	20-HV-715-3
14	10" BUTTERFLY VALVE	20-HV-715-4
15	PRESSURE GAUGE	20-PI-704-2
16	AIR RELEASE VALVE	20-AR-701-2

.

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			RECORD DOCUMENTS

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CIP SYSTEM
SECTION I

VERIFY SCALES
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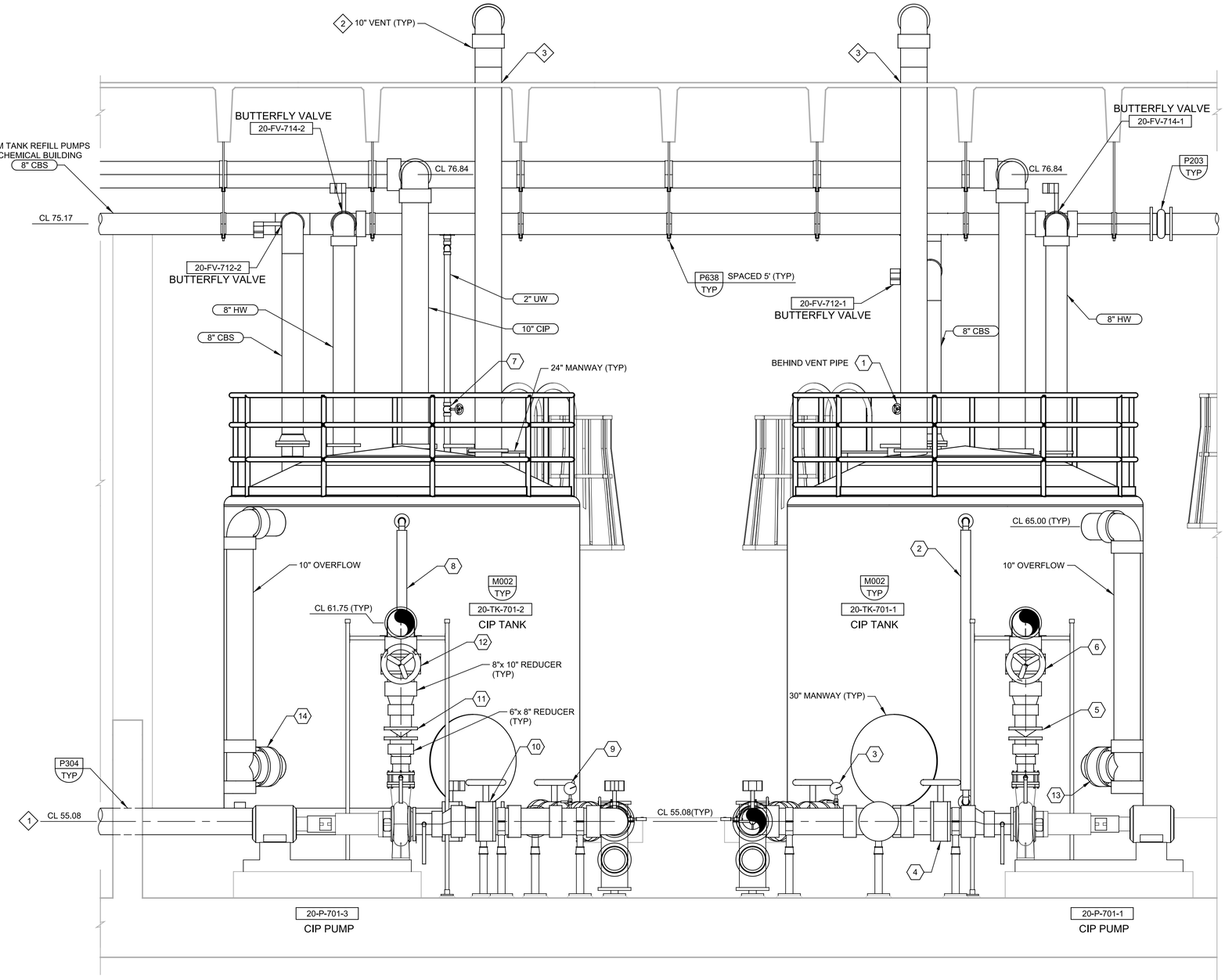
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M15

PROJECT NO.
FILE NAME: 9520I1002M15.dgn

Plot Date: 04-APR-2025 9:38:34 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



B SECTION
02M14

SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-302

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 TEE IN THE CIP RETURN PIPING TO THE CIP FEED PIPING IN THE CHEMICAL BUILDING PIPE TRENCH. ROUTE CIP PIPING TO MEMBRANE TANKS IN FILTER BUILDING. CIP FEED/RETURN PIPING SHALL HAVE MINIMUM SLOPE OF 0.28 FT PER 100 FT FROM MEMBRANE TANK CONNECTION TO THE CIP PUMP SUCTION (LOWEST POINT), ALLOWING COMPLETE DRAINAGE OF THE MEMBRANE TANK AND PIPING. INSTALL BELLOW-TYPE EXPANSION JOINTS PER SPECIFICATION 40_05_06.01.

2 PAINT VENT PIPING EXPOSED TO SUNLIGHT PER SPECIFICATION 09_91_00.

3 VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS = (#)

1	2" BALL VALVE	20-HV-701-1
2	SIGHT GLASS	20-FQI-701-1
3	PRESSURE GAUGE	20-PI-703-1
4	10" BUTTERFLY VALVE	20-HV-710-1
5	8" CHECK VALVE	20-CV-701-1
6	10" BUTTERFLY VALVE	20-HV-715-1
7	2" BALL VALVE	20-HV-701-2
8	SIGHT GLASS	20-FQI-701-2
9	PRESSURE GAUGE	20-PI-703-2
10	10" BUTTERFLY VALVE	20-HV-710-3
11	8" CHECK VALVE	20-CV-701-3
12	10" BUTTERFLY VALVE	20-HV-715-3
13	10" BUTTERFLY VALVE	20-HV-702-1
14	10" BUTTERFLY VALVE	20-HV-702-2

.

REV	DATE	BY	DESCRIPTION
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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CIP SYSTEM SECTION II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M16

PROJECT NO.
FILE NAME: 9520I1002M16.dgn

Plot Date: 04-APR-2025 9:43:00 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 30-MAY-2025 7:41:54 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
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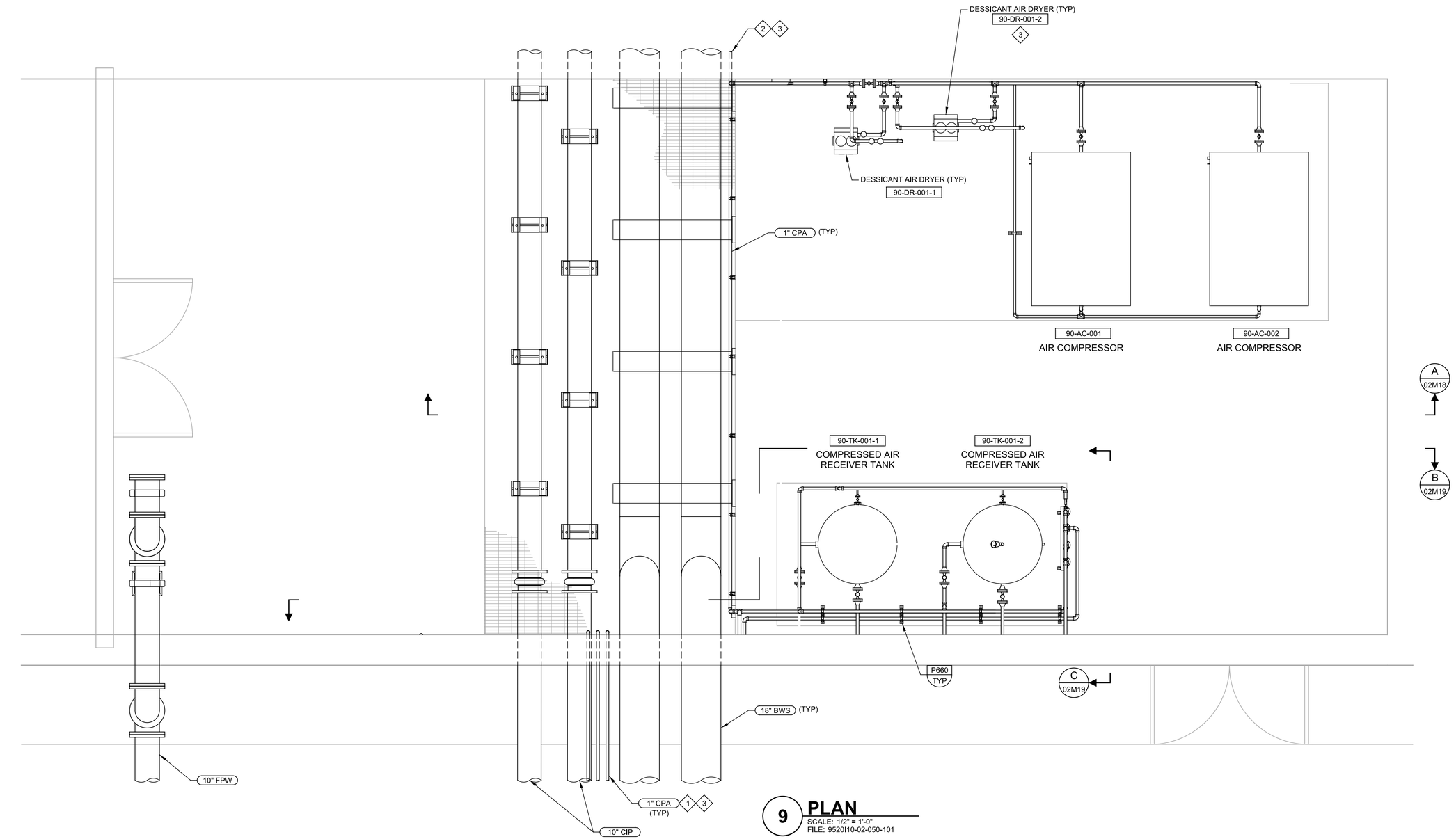
Model: Layout1
LAST SAVED BY: eparker



9 **PLAN**
SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-101

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1 COMPRESSED AIR LINES FOR INSTRUMENT AIR, EJECTORS, AND MIT AIR. COMPRESSED AIR FOR EACH OF THE SUPPLY LINES SHALL BE LOOPED.

2 COMPRESSED AIR LINE TO CHEMICAL BUILDING AND NEUTRALIZATION AREA. COMPRESSED AIR LINES TO BE LOOPED.

3 COMPRESSED AIR PIPING SHALL BE FIELD ROUTED BY THE CONTRACTOR TO ACHIEVE THE EQUIPMENT CONNECTIONS SHOWN ON DRAWINGS. COMPRESSED AIR CONVEYANCE PIPING IS NOT ENTIRELY SHOWN ON MECHANICAL DRAWINGS, BUT SHALL BE INSTALLED TO ACHIEVE CONVEYANCE BETWEEN THE COMPRESSORS AND POINTS OF USE AS SHOWN ON THE N DRAWINGS (VOLUME 2) AND ON THE MSS P&IDs (VOLUME 3, APPENDIX A). CONTRACTOR SHALL BE RESPONSIBLE FOR PIPE, SUPPORTS, AND APPURTENANCES FOR A FULLY FUNCTIONAL COMPRESSED AIR SYSTEM.

.

REV	DATE	BY	DESCRIPTION
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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
AIR COMPRESSOR SYSTEM PLAN

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M17

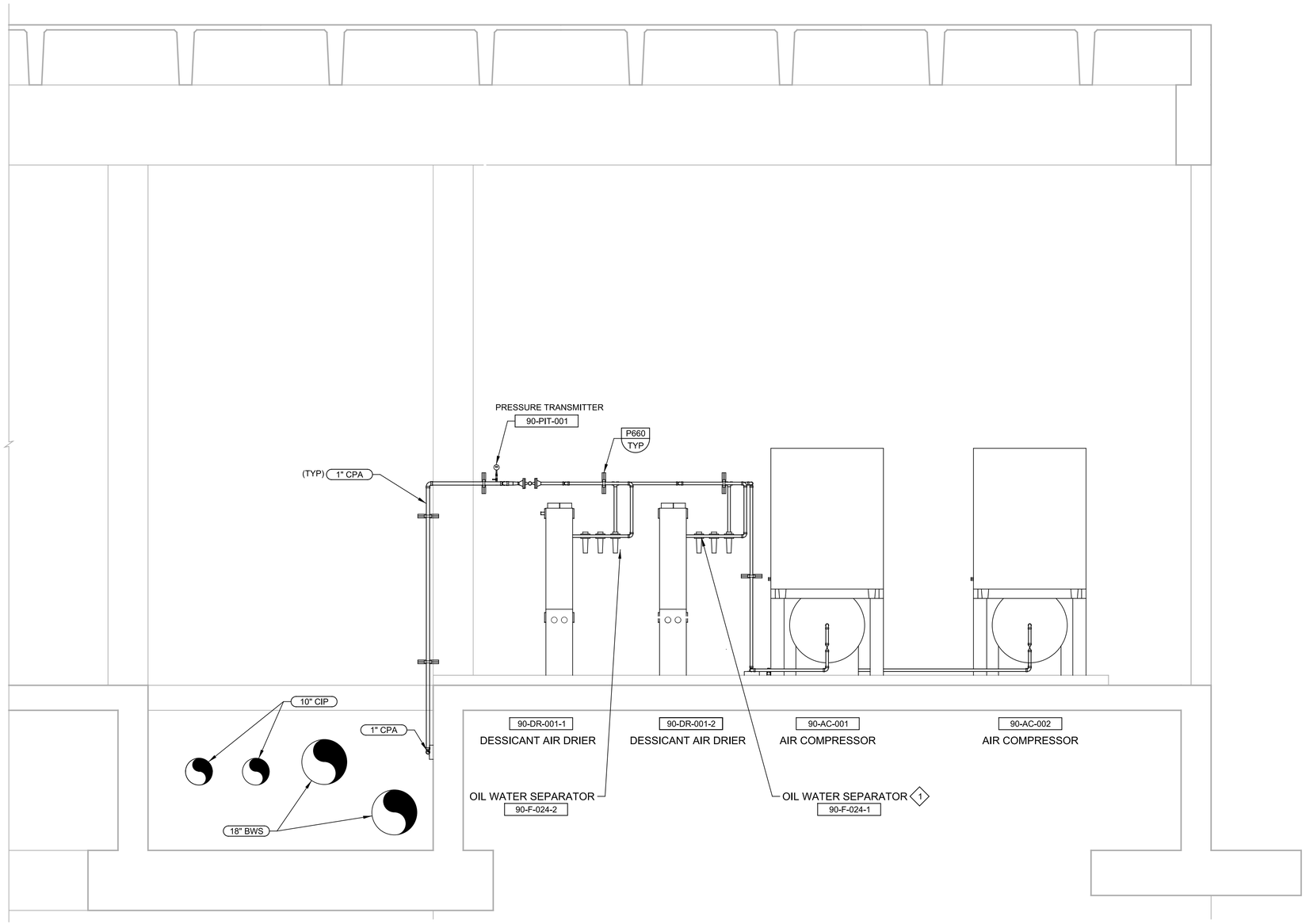
Plot Date: 30-MAY-2025 8:03:45 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES =

1 CONTRACTOR MAY ROUTE UP TO FOUR DRAINAGE CONNECTIONS DIRECTLY TO THE OIL-WATER SEPARATOR. ROUTE EFFLUENT FROM THE OIL-WATER SEPARATORS TO FLOOR DRAIN AND PROVIDE AIR GAP.



A 02M17 **SECTION**
SCALE: 1/2" = 1'-0"
FILE: 9520I10-02-050-317

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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MECHANICAL
AIR COMPRESSOR SYSTEM
SECTION I

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JOB NO. 09520I.10
DRAWING NO. 02M18

PROJECT NO.
FILE NAME: 9520I1002M18.dgn

Plot Date: 30-MAY-2025 8:09:34 AM
User: svcPW
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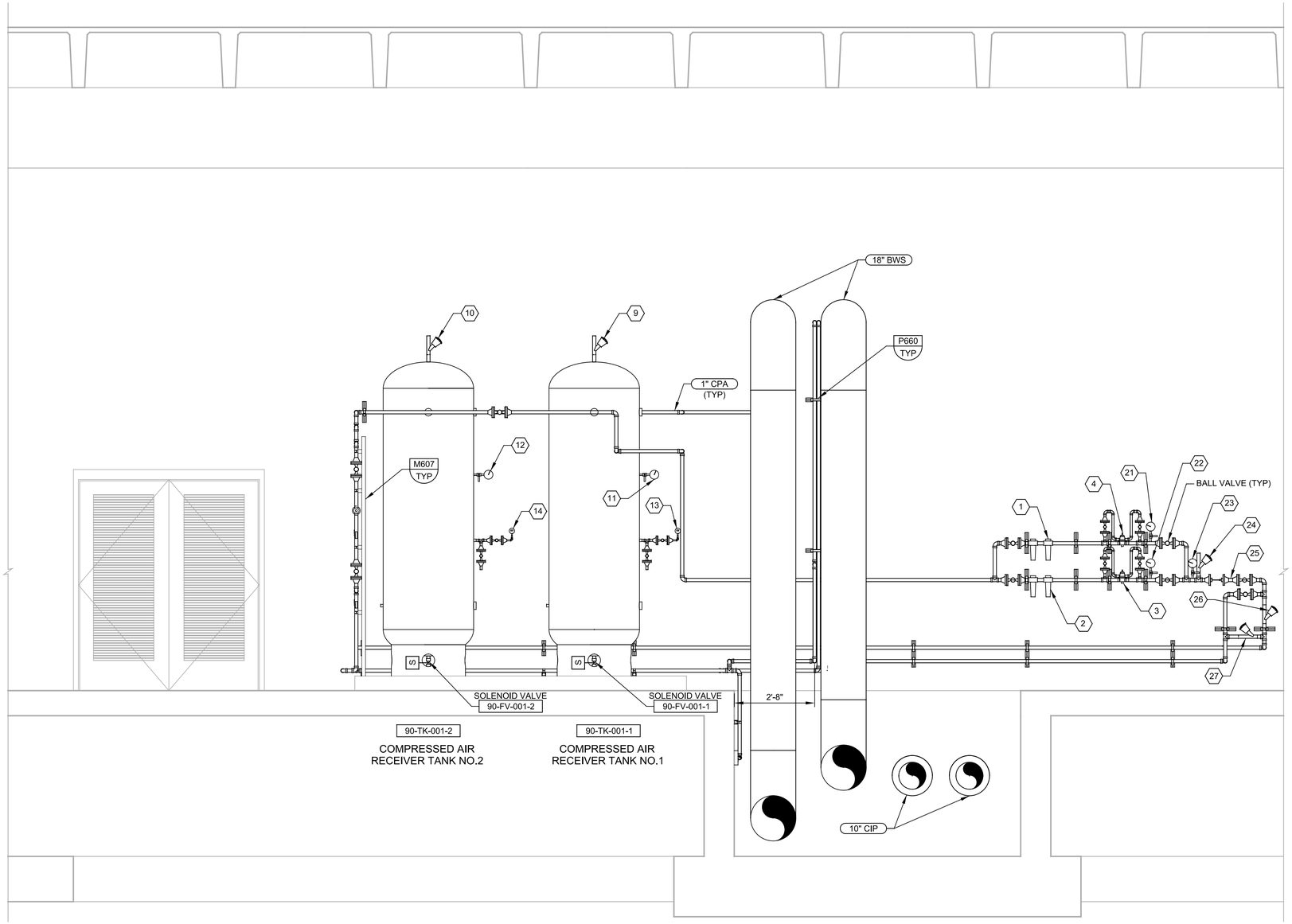
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



B SECTION
02M17
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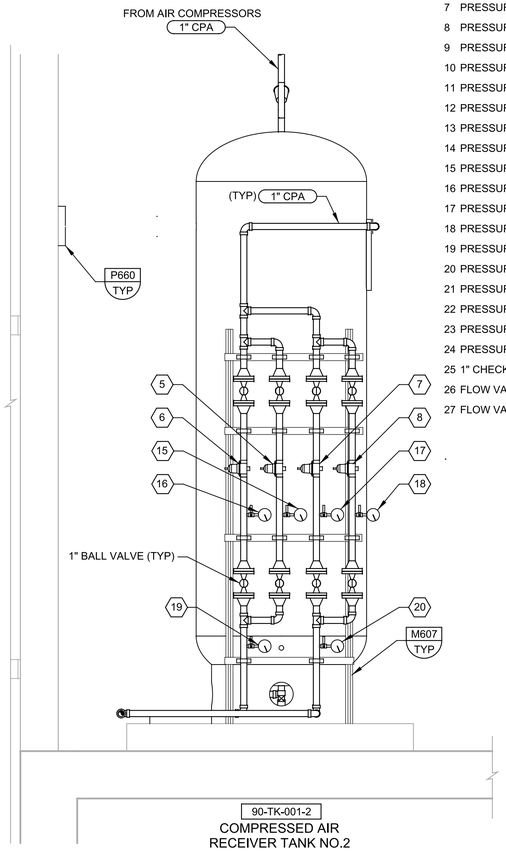
FILE: 9520I10-020-050-322



C SECTION
02M17
SCALE: 3/4" = 1'-0"
FILE: 9520I10-020-050-323

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 CONTRACTOR MAY ROUTE MULTIPLE DRAINAGE CONNECTIONS DIRECTLY TO THE OIL-WATER SEPARATORS AND/OR TO A MANIFOLD PIPE (AS SHOWN), WHICH SHALL BE POSITIONED ABOVE AND SLOPED TOWARD THE INLET TO THE OIL WATER SEPARATOR.

2 ROUTE EFFLUENT FROM THE OIL-WATER SEPARATORS TO DRAIN TO THE WASTE SUMP/LIFT STATION (TO SEWER).

KEY TAGS = (#)

1	ACTIVATED CARBON FILTER	90-F-025-1
2	ACTIVATED CARBON FILTER	90-F-025-2
3	PRESSURE REGULATING VALVE	90-PY-003-2
4	PRESSURE REGULATING VALVE	90-PY-003-1
5	PRESSURE REGULATING VALVE	90-PY-001-1
6	PRESSURE REGULATING VALVE	90-PY-001-2
7	PRESSURE REGULATING VALVE	90-PY-002-1
8	PRESSURE REGULATING VALVE	90-PY-002-2
9	PRESSURE SAFETY VALVE	90-PSV-002-1
10	PRESSURE SAFETY VALVE	90-PSV-002-2
11	PRESSURE GAUGE	90-PI-001-1
12	PRESSURE GAUGE	90-PI-001-2
13	PRESSURE TRANSMITTER	90-PIT-001-3
14	PRESSURE TRANSMITTER	90-PIT-001-4
15	PRESSURE GAUGE	90-PI-002-1
16	PRESSURE GAUGE	90-PI-002-2
17	PRESSURE GAUGE	90-PI-003-1
18	PRESSURE GAUGE	90-PI-003-2
19	PRESSURE SWITCH	90-PSL-002
20	PRESSURE SWITCH	90-PSL-003
21	PRESSURE GAUGE	90-PI-004-1
22	PRESSURE GAUGE	90-PI-004-2
23	PRESSURE SWITCH	90-PSL-004
24	PRESSURE SAFETY VALVE	90-PSV-003
25	1" CHECK VALVE	90-CV-002
26	FLOW VALVE	90-FV-014
27	FLOW VALVE	90-FV-015

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED JS
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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CA 00008571

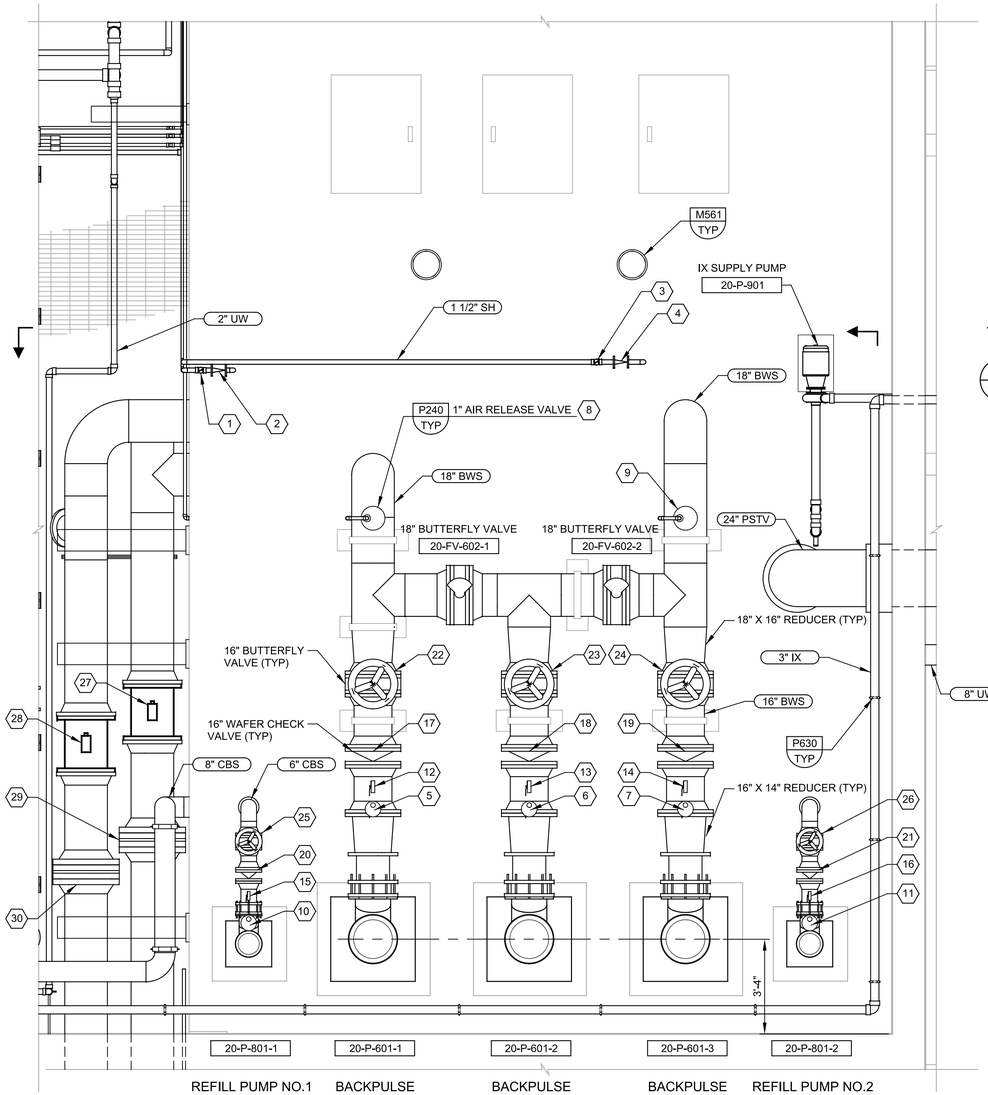
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
AIR COMPRESSOR SYSTEM
SECTION II

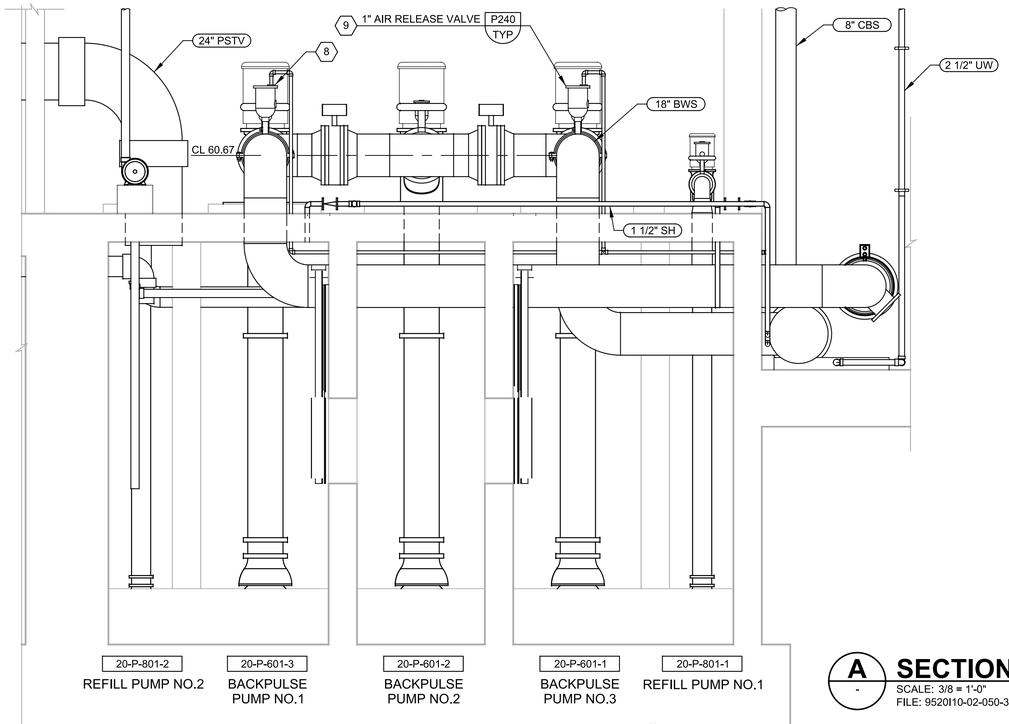
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M19

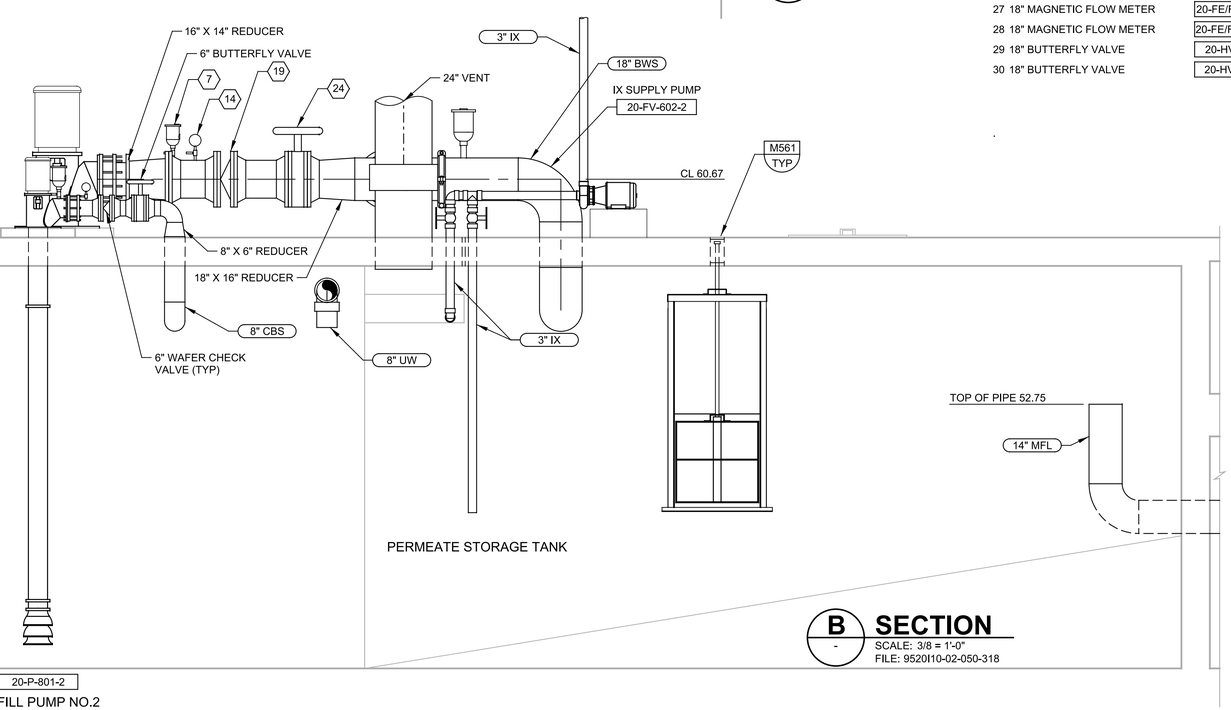
PROJECT NO.
FILE NAME: 9520I1002M19.dgn



8 PLAN
SCALE: 3/8" = 1'-0"
FILE: 9520I10-02-050-101



A - SECTION
SCALE: 3/8 = 1'-0"
FILE: 9520I10-02-050-302



B - SECTION
SCALE: 3/8 = 1'-0"
FILE: 9520I10-02-050-318

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY TAGS = (#)

1	1" BALL VALVE	23-HV-240-1
2	1" CHECK VALVE	23-CV-240-1
3	1" BALL VALVE	23-HV-240-2
4	1" CHECK VALVE	23-CV-240-2
5	AIR RELEASE VALVE	20-AR-601-1
6	AIR RELEASE VALVE	20-AR-601-2
7	AIR RELEASE VALVE	20-AR-601-3
8	AIR RELEASE VALVE	20-AR-601-4
9	AIR RELEASE VALVE	20-AR-601-5
10	AIR RELEASE VALVE	20-AR-801-1
11	AIR RELEASE VALVE	20-AR-801-2
12	PRESSURE GAUGE	20-PI-602-1
13	PRESSURE GAUGE	20-PI-602-2
14	PRESSURE GAUGE	20-PI-602-3
15	PRESSURE GAUGE	20-PI-801-1
16	PRESSURE GAUGE	20-PI-801-2
17	16" CHECK VALVE	20-CV-602-1
18	16" CHECK VALVE	20-CV-602-2
19	16" CHECK VALVE	20-CV-602-3
20	6" CHECK VALVE	20-CV-802-1
21	6" CHECK VALVE	20-CV-802-2
22	16" BUTTERFLY VALVE	20-HV-610-1
23	16" BUTTERFLY VALVE	20-HV-610-2
24	16" BUTTERFLY VALVE	20-HV-610-3
25	6" BUTTERFLY VALVE	20-HV-810-1
26	6" BUTTERFLY VALVE	20-HV-810-2
27	18" MAGNETIC FLOW METER	20-FE/FIT-601-1
28	18" MAGNETIC FLOW METER	20-FE/FIT-601-2
29	18" BUTTERFLY VALVE	20-HV-616-1
30	18" BUTTERFLY VALVE	20-HV-616-2

RECORD DOCUMENTS

REV	DATE	BY	DESCRIPTION

DESIGNED JS
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
PERMEATE STORAGE TANK PLAN AND SECTIONS

VERIFY SCALES
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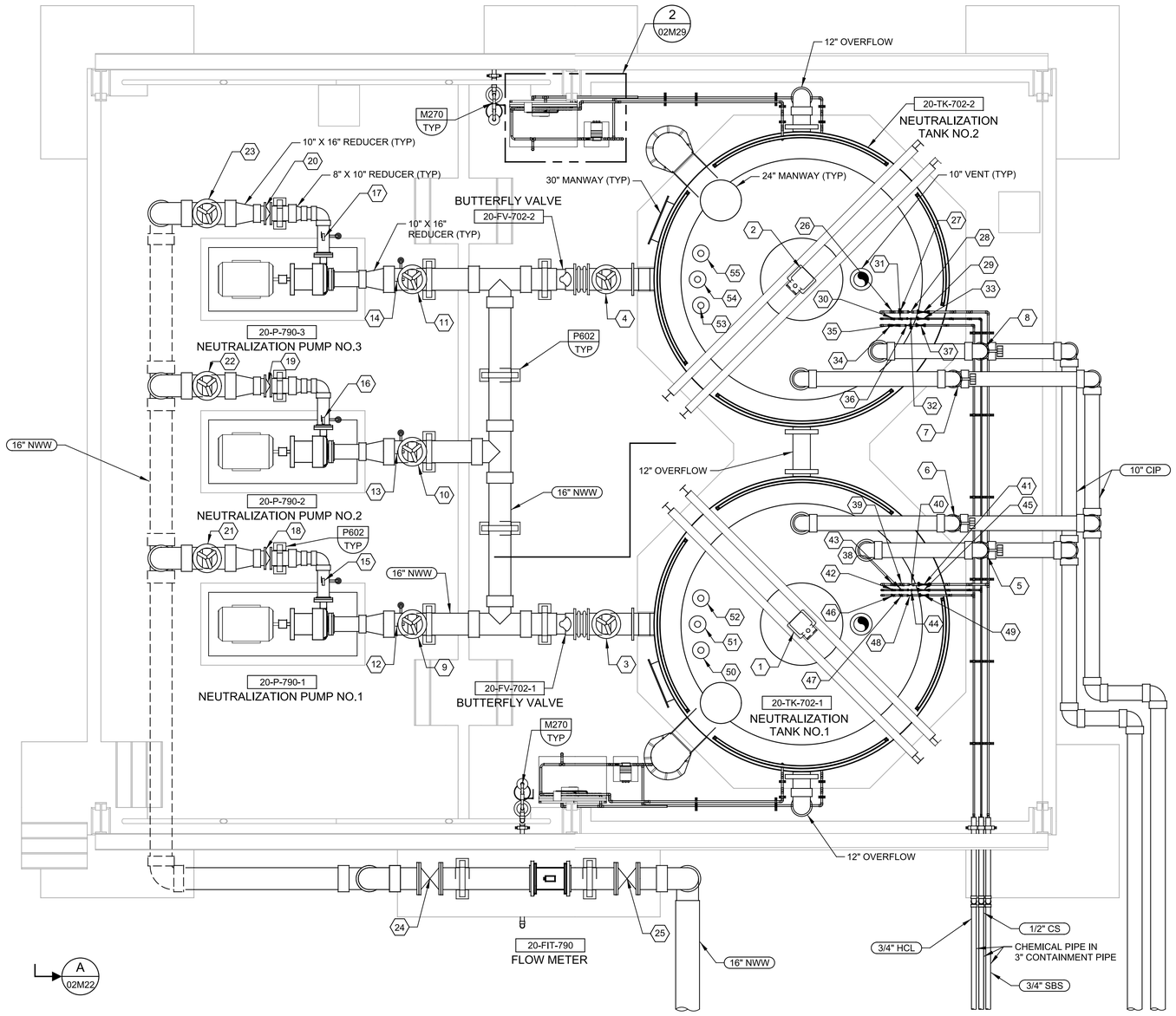
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M20

PROJECT NO. 9520I10 FILE NAME: 9520I1002M20.dgn
Plot Date: 30-MAY-2025 8:25:24 AM
User: svcPW PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 9:39:10 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A PLAN

SCALE: 1/4" = 1'-0"
FILE: 9520I10-02-050-130B

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. HEAT TRACING AND CHEMICAL PIPE INSULATION REQUIRED FOR OUTDOOR CAUSTIC SODA AND SODIUM BISULFITE PIPING IN THIS AREA, AS SPECIFIED IN SECTIONS 40_41_00 AND 40_05_06.55.

KEY TAGS = (#)

1	MIXER	20-MX-702-1
2	MIXER	20-MX-702-2
3	16" BUTTERFLY VALVE	20-HV-731-2
4	16" BUTTERFLY VALVE	20-HV-731-2
5	10" BUTTERFLY VALVE	20-FV-716-1
6	10" BUTTERFLY VALVE	20-FV-716-2
7	10" BUTTERFLY VALVE	20-FV-715-1
8	10" BUTTERFLY VALVE	20-FV-715-2
9	16" BUTTERFLY VALVE	20-HV-790-1
10	16" BUTTERFLY VALVE	20-HV-790-2
11	16" BUTTERFLY VALVE	20-HV-790-3
12	PRESSURE GAUGE	20-PI-790-1
13	PRESSURE GAUGE	20-PI-790-2
14	PRESSURE GAUGE	20-PI-790-3
15	PRESSURE GAUGE	20-PI-791-1
16	PRESSURE GAUGE	20-PI-791-2
17	PRESSURE GAUGE	20-PI-791-3
18	10" CHECK VALVE	20-CV-790-1
19	10" CHECK VALVE	20-CV-790-2
20	10" CHECK VALVE	20-CV-790-3
21	16" BUTTERFLY VALVE	20-HV-795-1
22	16" BUTTERFLY VALVE	20-HV-795-2
23	16" BUTTERFLY VALVE	20-HV-795-3
24	16" OS&Y GATE VALVE	20-HV-796
25	16" OS&Y GATE VALVE	20-HV-797
26	3/4" BALL VALVE	23-HV-701-2
27	3/4" BALL VALVE	23-FV-701-2
28	3/4" CHECK VALVE	23-CV-701-2
29	3/4" BACKPRESSURE VALVE	23-BPV-701-2
30	1/2" BALL VALVE	23-HV-801-2
31	1/2" BALL VALVE	23-FV-801-2
32	1/2" CHECK VALVE	23-CV-801-2
33	1/2" BACKPRESSURE VALVE	23-BPV-801-2
34	3/4" BALL VALVE	23-HV-610-2
35	3/4" BALL VALVE	23-FV-610-2
36	3/4" CHECK VALVE	23-CV-610-2
37	3/4" BACKPRESSURE VALVE	23-BPV-610-2
38	3/4" BALL VALVE	23-HV-701-1
39	3/4" BALL VALVE	23-FV-701-1
40	3/4" CHECK VALVE	23-CV-701-1
41	3/4" BACKPRESSURE VALVE	23-BPV-701-1
42	1/2" BALL VALVE	23-HV-801-1
43	1/2" BALL VALVE	23-FV-801-1
44	1/2" CHECK VALVE	23-CV-801-1
45	1/2" BACKPRESSURE VALVE	23-BPV-801-1
46	3/4" BALL VALVE	23-HV-610-1
47	3/4" BALL VALVE	23-FV-610-1
48	3/4" CHECK VALVE	23-CV-610-1
49	3/4" BACKPRESSURE VALVE	23-BPV-610-1
50	RADAR LEVEL MEASUREMENT	20-LE/LIT-702-1
51	LEVEL SWITCH	20-LSLL-702-3
52	LEVEL SWITCH	20-LSHH-702-5
53	RADAR LEVEL MEASUREMENT	20-LE/LIT-702-2
54	LEVEL SWITCH	20-LSLL-702-4
55	LEVEL SWITCH	20 LSHH-702-6

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DRAWN DVP
CHECKED SS
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

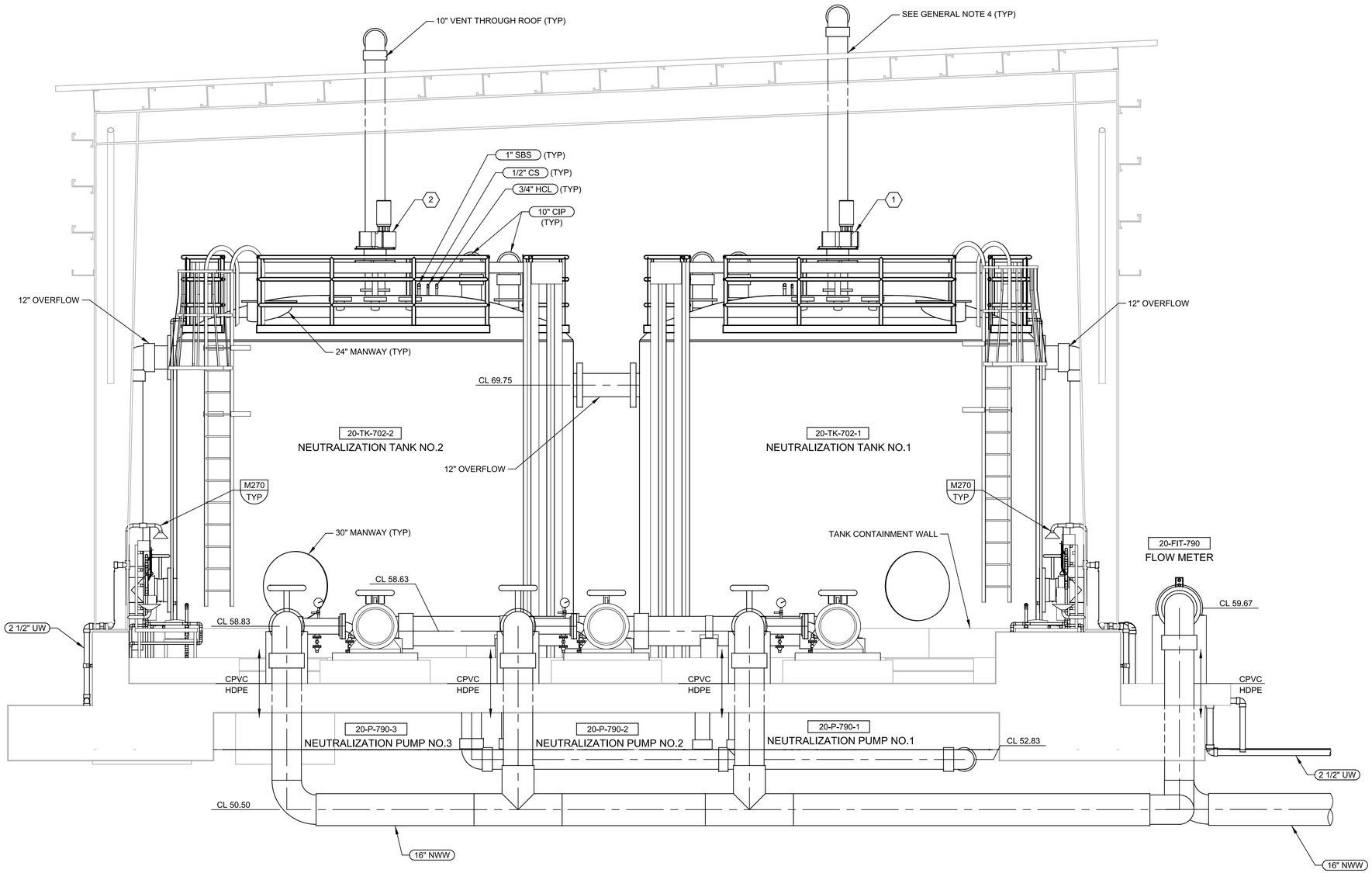
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
NEUTRALIZATION SYSTEM PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M21

PROJECT NO.
FILE NAME: 9520I1002M21.dgn

Plot Date: 04-APR-2025 9:43:57 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A SECTION
02M21
SCALE: 3/8" = 1'-0"
FILE: 9520I10-02-050-331

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. HEAT TRACING AND CHEMICAL PIPE INSULATION REQUIRED FOR OUTDOOR CAUSTIC SODA AND SODIUM BISULFITE PIPING IN THIS AREA, AS SPECIFIED IN SECTIONS 40_41_00 AND 40_05_06.55.
4. VENT ROOF PENETRATION PER ARCHITECTURAL TYPICAL DETAIL.

KEY TAGS = ⟨#⟩

1	MIXER	20-MX-702-1
2	MIXER	20-MX-702-2

.

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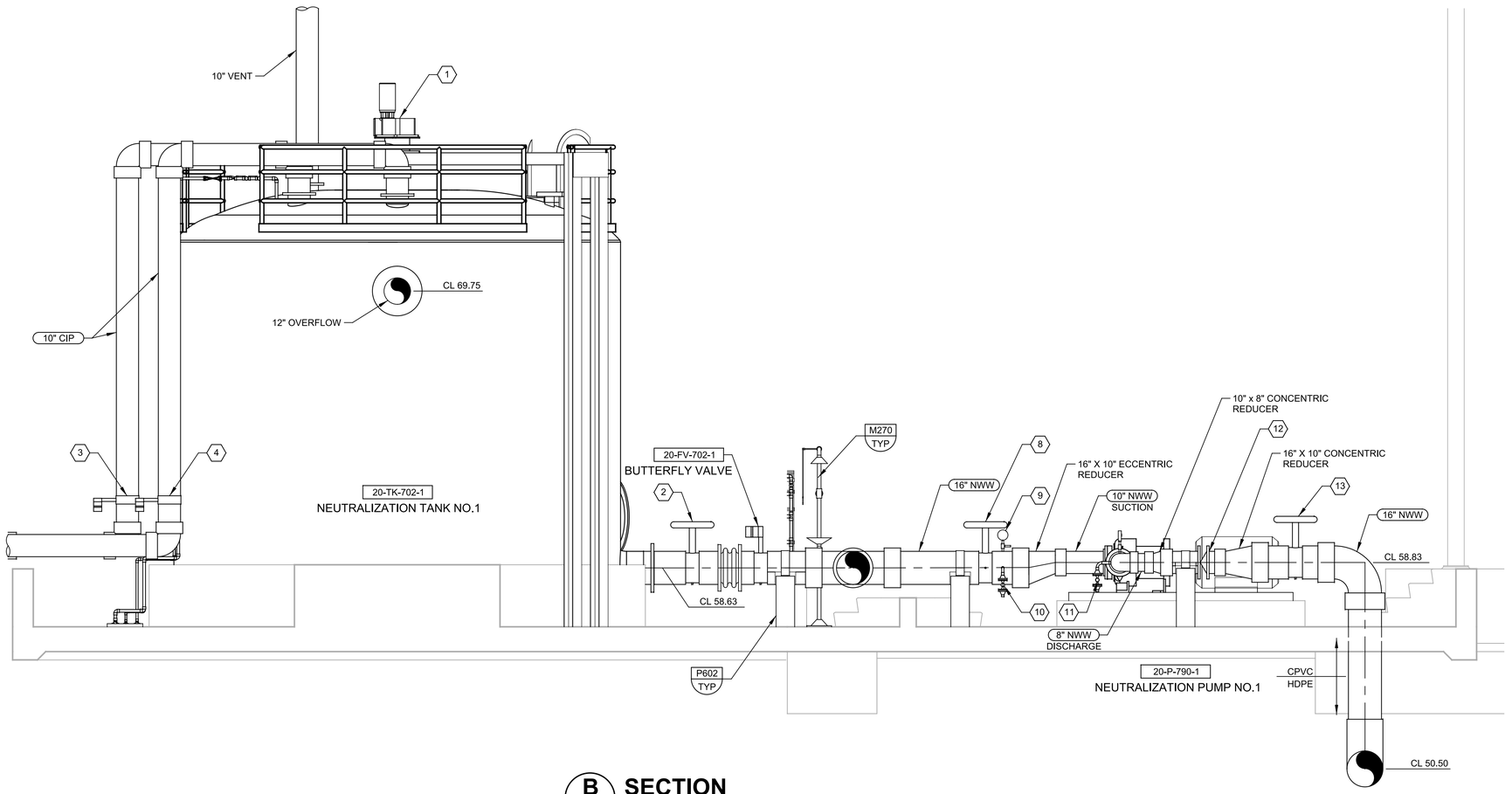
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
NEUTRALIZATION SYSTEM SECTION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M22

PROJECT NO.
FILE NAME: 9520I1002M22.dgn

Plot Date: 04-APR-2025 9:41:00 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



B 02M21 **SECTION**
SCALE: 3/8" = 1'-0"
FILE: 9520I10-02-050-330

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. HEAT TRACING AND CHEMICAL PIPE INSULATION REQUIRED FOR OUTDOOR CAUSTIC SODA AND SODIUM BISULFITE PIPING IN THIS AREA, AS SPECIFIED IN SECTIONS 40_41_00 AND 40_05_06.55.
4. EACH SAMPLE PUMP (20-P-730-1 AND -2) IN THE NEUTRALIZATION AREA SHALL BE MOUNTED TO A TABLE (SEE SAMPLE PANEL DETAIL) USING 1/8" NEOPRENE MATERIAL BETWEEN PUMP, MOTOR AND BASE PLATE AND ANCHORED WITH 0.2" DIAMETER CHEMICAL ANCHORS. THE TABLE SHALL BE CONSTRUCTED OF STAINLESS STEELWITH A ¼" STAINLESS STEEL PLATE TOP. THE TABLE TOP SHALL BE NO MORE THAN 3 FEET ABOVE THE FINISHED FLOOR.

.

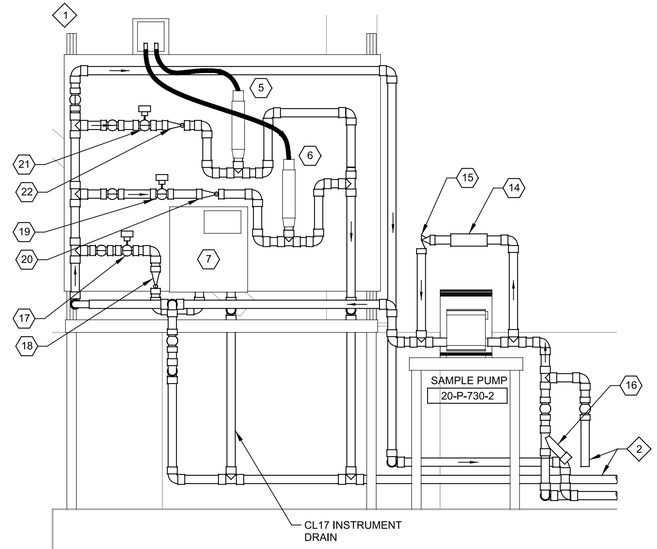
KEY NOTES = (#)

1 INSTALL SUN SHADE FOR EACH NEUTRALIZATION SAMPLE PANEL.
2 FIELD ROUTE WASTE TO DRAIN TO WASTE SUMP/LIFT STATION.

KEY TAGS = (#)

1	MIXER	20-MX-702-1
2	16" BUTTERFLY VALVE	20-HV-731-1
3	10" BUTTERFLY VALVE	20-FV-716-1
4	10" BUTTERFLY VALVE	20-FV-716-2
5	ORP ANALYZER	20-AE/AIT-704-2
6	PH ANALYZER	20-AE/AIT-703-2
7	FREE CHLORINE ANALYZER	20-AE/AIT-705-2
8	16" BUTTERFLY VALVE	20-HV-790-1
9	PRESSURE GAUGE	20-PI-790-1
10	1" BALL VALVE	20-HV-792-1
11	1" BALL VALVE	20-HV-794-1
12	10" CHECK VALVE	20-CV-790-1
13	16" BUTTERFLY VALVE	20-HV-795-1
14	SIGHT TUBE	20-FI-701-2
15	1" PRESSURE RELIEF VALVE	20-HV-734-2
16	Y-STRAINER	20-STR-702-2
17	SOLENOID VALVE	20-FV-705-2
18	CHECK VALVE	20-HVC-705-2
19	SOLENOID VALVE	20-FV-703-2
20	CHECK VALVE	20-HVC-703-2
21	SOLENOID VALVE	20-FV-704-2
22	CHECK VALVE	20-HVC-704-2

.



1 02M21 **SAMPLE PANEL DETAIL**
SCALE: NO SCALE
FILE: 9520I10-02-050-332

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
NEUTRALIZATION SYSTEM
SECTION AND DETAIL

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M23

PROJECT NO.
FILE NAME: 9520I1002M23.dgn

Plot Date: 04-APR-2025 9:39:01 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

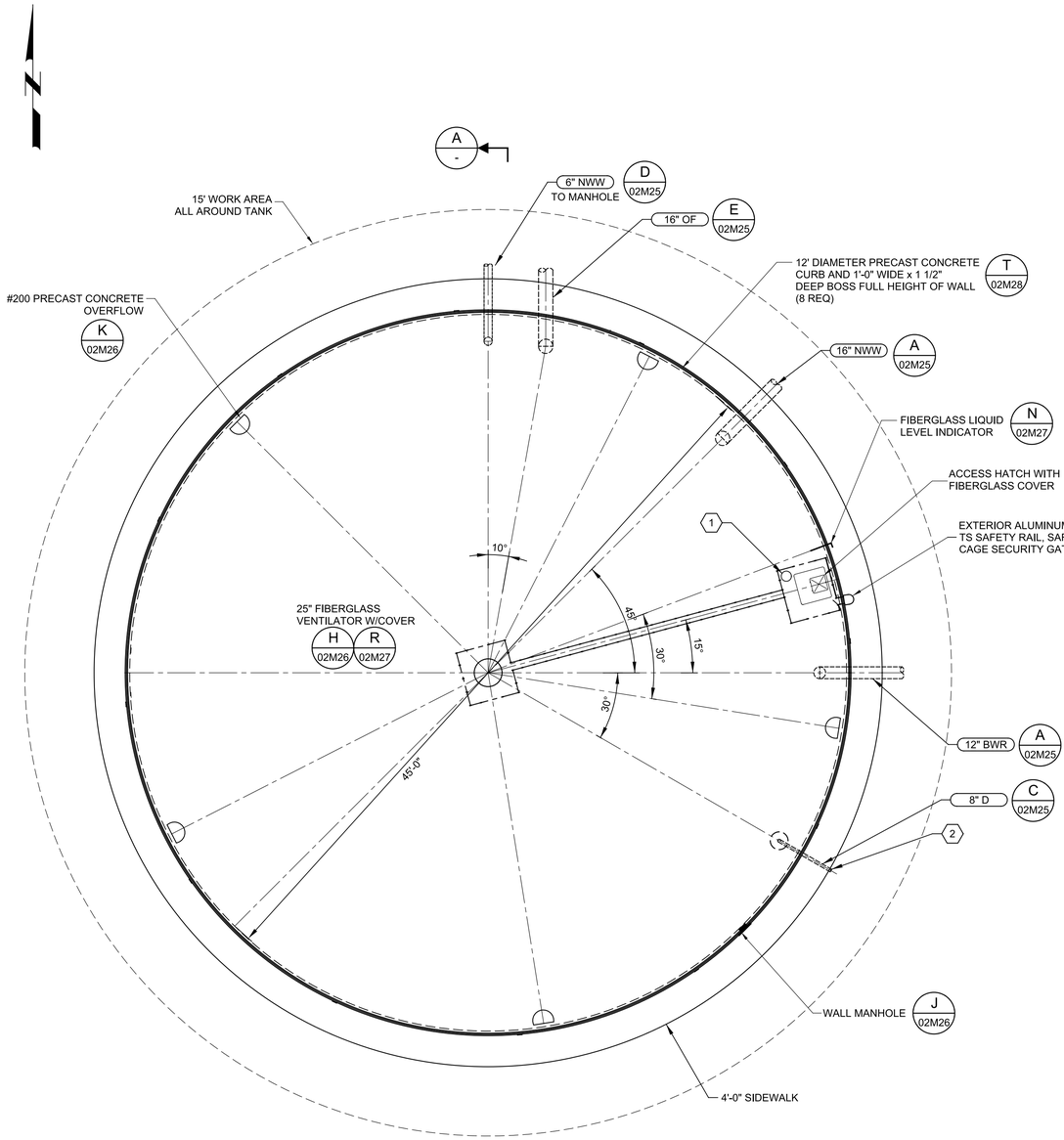
GENERAL NOTES

1. FIELD VERIFY ALL ACCESSORY AND PIPE LOCATIONS WITH ENGINEER PRIOR TO PLACMENT.
2. TANK MANUFACTURER TO DETERMINE NUMBER AND LOCATION OF OVERFLOWS

KEY TAGS = ⬡ #

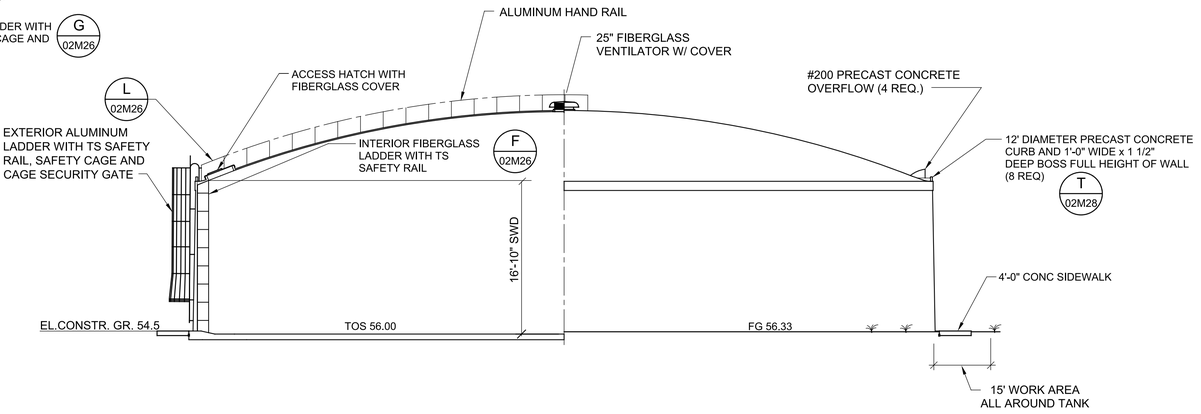
1	FLOAT LEVEL SWITCH	20-LSHH-791
2	PRESSURE TRANSDUCER	20-PE/PIT-790

.



A PLAN

SCALE: NO SCALE
FILE: 9520I10-02-050-141



A SECTION

SCALE: NO SCALE
FILE: 9520I10-02-050-141

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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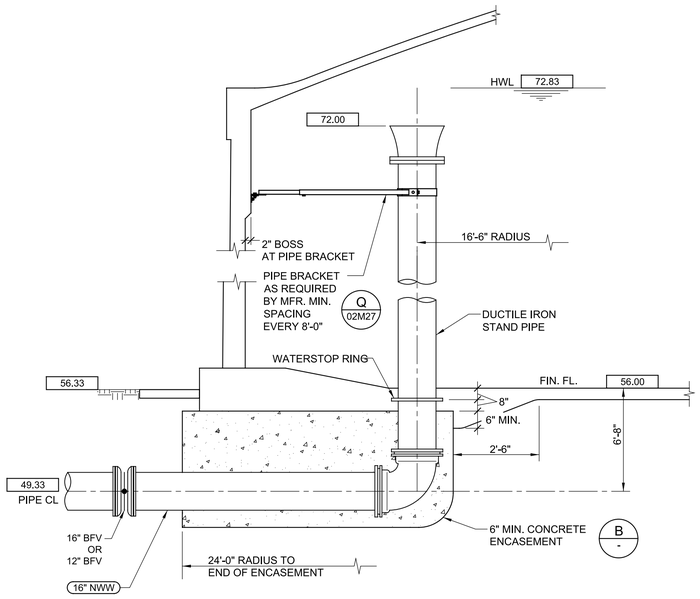
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
WASTE EQUALIZATION TANK
PLAN AND SECTION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

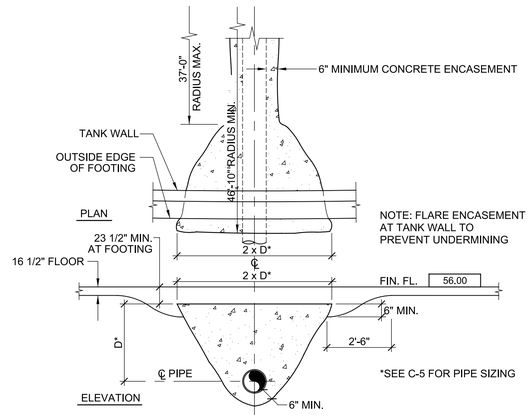
JOB NO. 09520I.10
DRAWING NO. 02M24

PROJECT NO.
FILE NAME: 9520I1002M24.dgn



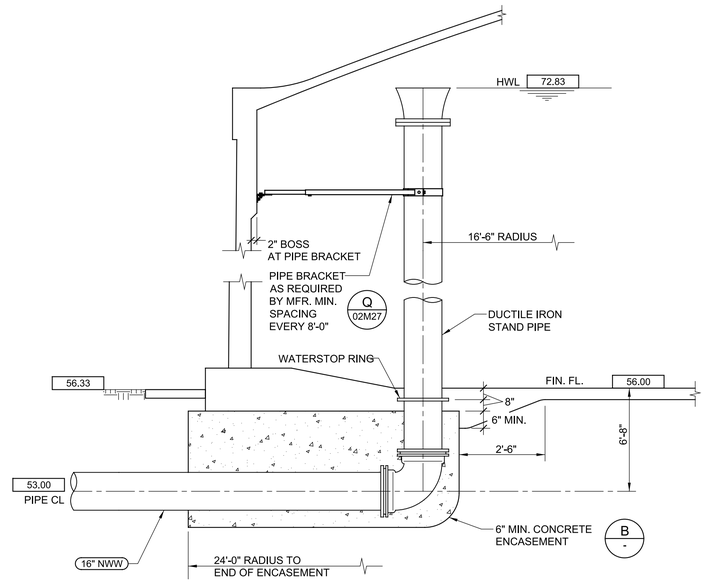
A 16" NWW AND 12" BWR

SCALE: NO SCALE
FILE: 9520I10-02-050-402



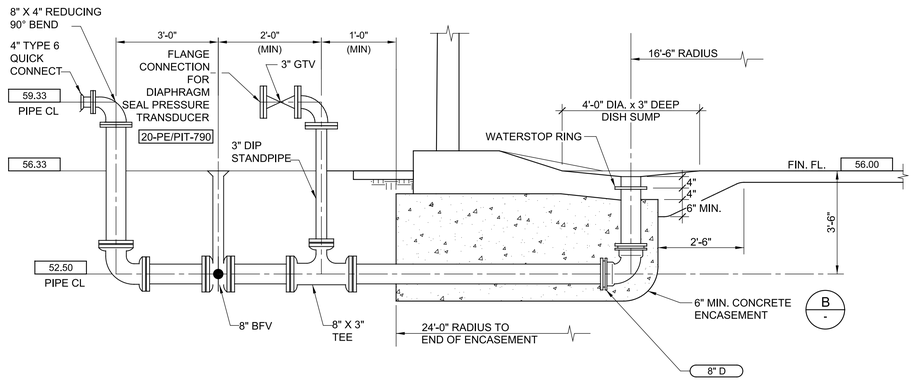
B TYPICAL ENCASEMENT AT WALL

SCALE: NO SCALE
FILE: 9520I10-02-050-402



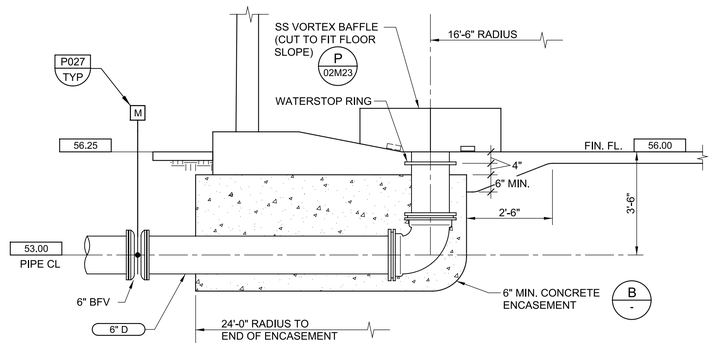
E 16" OF

SCALE: NO SCALE
FILE: 9520I10-02-050-402



C 8" PUMP OUT

SCALE: NO SCALE
FILE: 9520I10-02-050-402



D 6" DRAIN

SCALE: NO SCALE
FILE: 9520I10-02-050-402

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DRAWN DVP
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VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M25

PROJECT NO.
FILE NAME: 9520I1002M25.dgn

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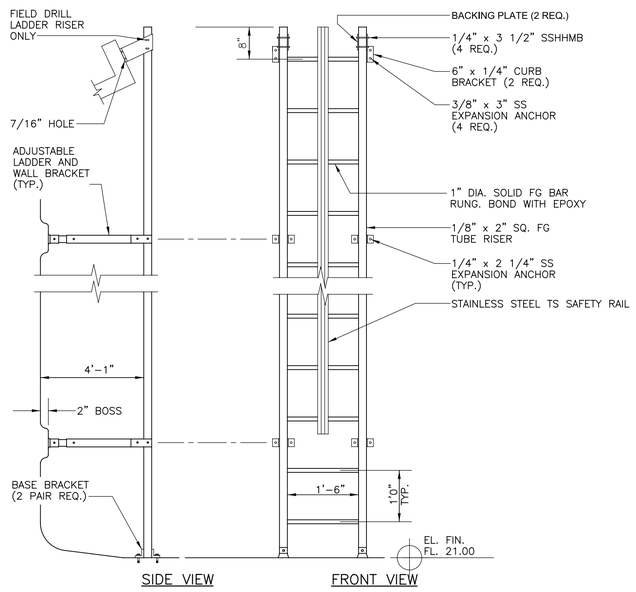
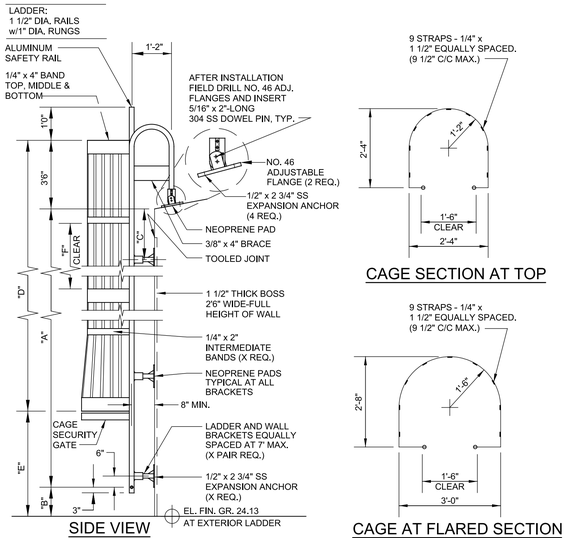
Model: Layout1
LAST SAVED BY: eparker



NOTE: 1/4" X 2" FLAT BAR FIBERGLASS CROSS-BRACE TO BE PROVIDED FOR BRACING WALL BRACKET SUPPORTS ON EVERY BRACKET.

F 02M24 INTERIOR FIBERGLASS LADDER WITH SS TS SAFEY RAIL

SCALE: NO SCALE
FILE: 9520I10-02-050-402

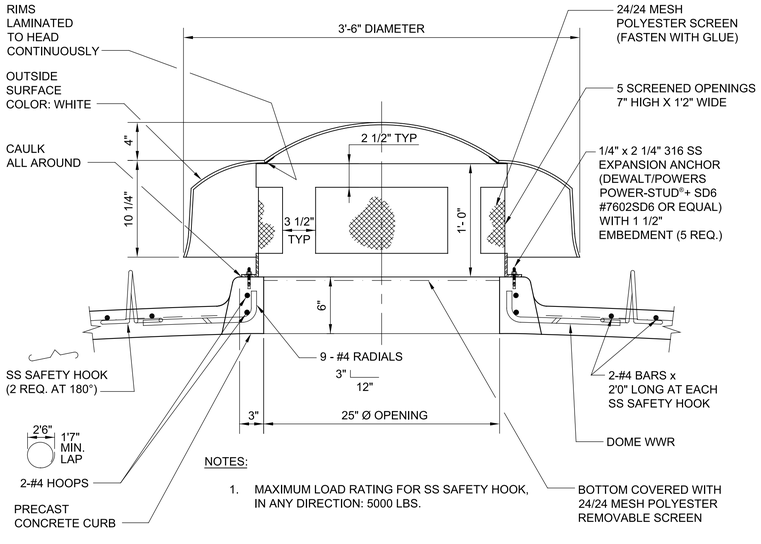


DIMENSION SCHEDULE			
A	32'-2"	D	>29'-10"
B	1'2" MAX.	E	7" MIN.,8" MAX.
C	2'-6"	F	3'-10" CLEAR MAX.

NOTES: 1. ALL TUBULAR MATERIAL TO BE NOMINAL DIAMETER SCHEDULE 40 ALUMINUM PIPE 6061-T6 OR 6063-T6
2. PLATES AND GUSSETS TO BE STRUCTURAL GRADE ALUMINUM 6061-T6.

G 02M24 EXTERIOR ALUMINUM LADDER WITH SAFETY CAGE AND CAGE SECURITY GATE

SCALE: NO SCALE
FILE: 9520I10-02-050-402



NOTES:

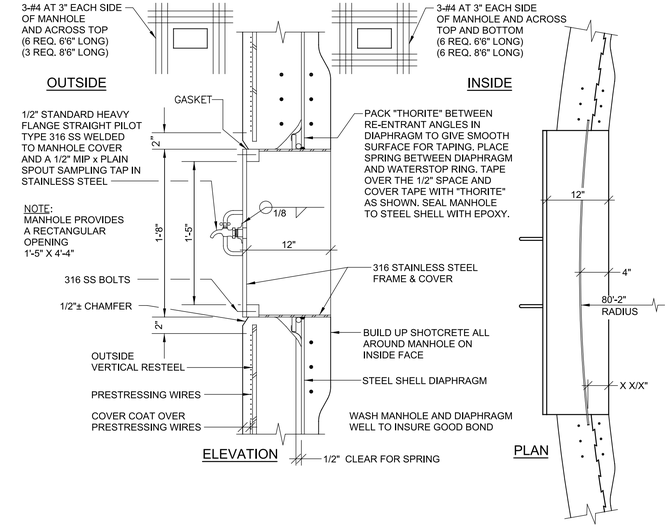
1. MAXIMUM LOAD RATING FOR SS SAFETY HOOK, IN ANY DIRECTION: 5000 LBS.

GENERAL NOTES

1. ALUMINUM DOME HANDRAIL, EXTERIOR LADDER AND LADDER SECURITY SHALL BE ANODIZED.

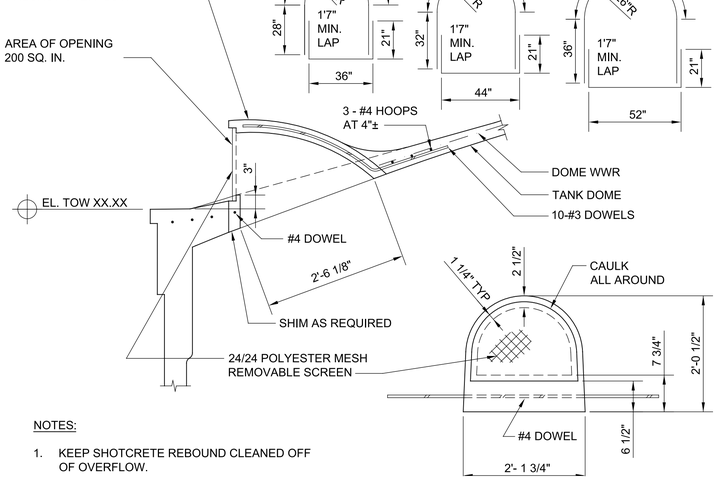
H 02M24 25" FIBERGLASS VENTILATOR

SCALE: NO SCALE
FILE: 9520I10-02-050-402



J 02M24 STAINLESS STEEL WALL MANHOLE WITH SMOOTH NOZZLE SAMPLE TAP

SCALE: NO SCALE
FILE: 9520I10-02-050-402

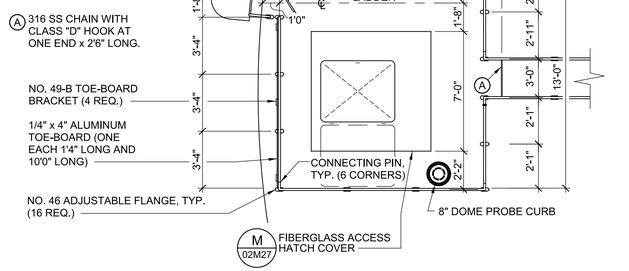


NOTES:

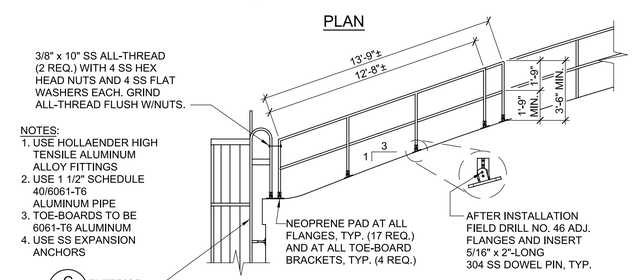
1. KEEP SHOTCRETE REBOUND CLEANED OFF OF OVERFLOW.

K 02M24 #200 PRECAST CONCRETE OVERFLOW

SCALE: NO SCALE
FILE: 9520I10-02-050-402



PLAN



NOTES:
1. USE HOLLAENDER HIGH TENSILE ALUMINUM ALLOY FITTINGS
2. USE 1 1/2" SCHEDULE 40/6061-T6 ALUMINUM PIPE
3. TOE-BOARDS TO BE 6061-T6 ALUMINUM
4. USE SS EXPANSION ANCHORS

G - EXTERIOR LADDER

ELEVATION

L 02M24 ALUMINUM HANDRAIL

SCALE: NO SCALE
FILE: 9520I10-02-050-402

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DRAWING NO. 02M26

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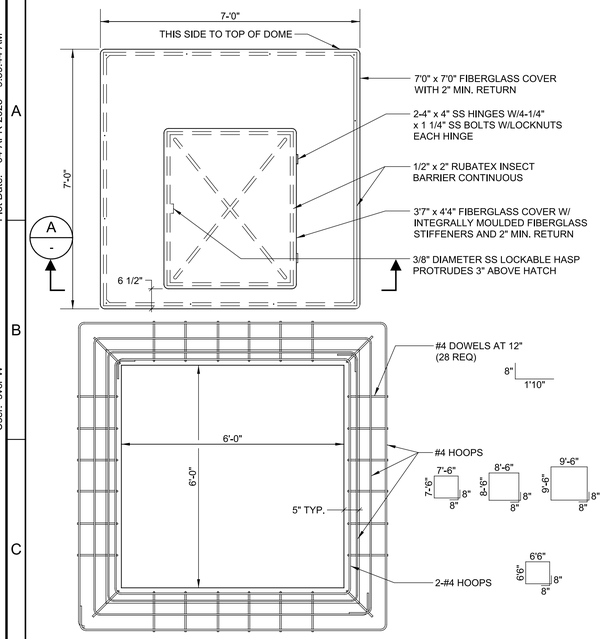
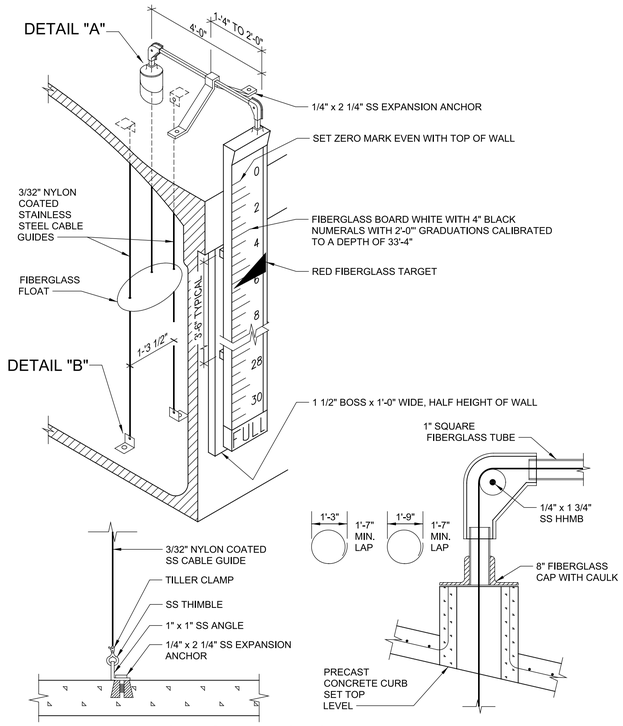
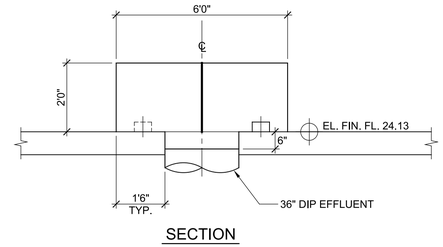
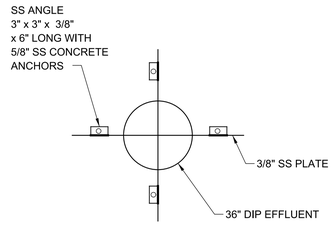






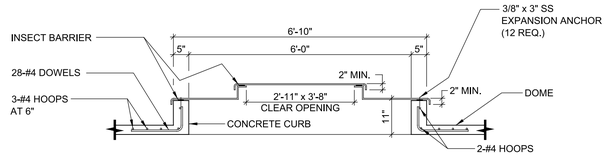
SECTION



PLAN

P - SS VORTEX BAFFLE

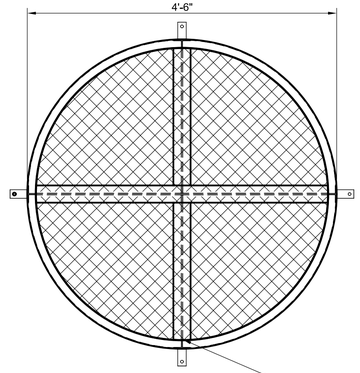
SCALE: NO SCALE
FILE: 9520I10-02-050-402



SECTION A

N - FIBERGLASS LIQUID LEVEL INDICATOR

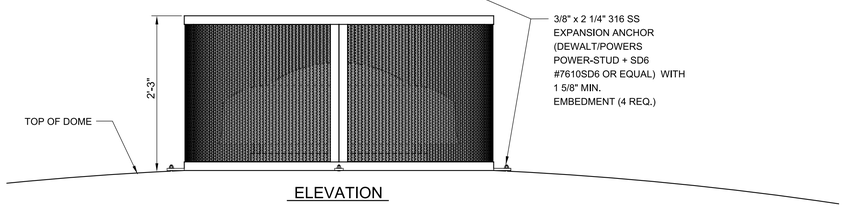
SCALE: NO SCALE
FILE: 9520I10-02-050-402



PLAN

NOTES:

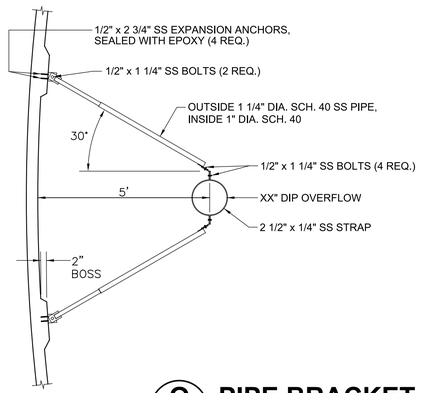
1. ALL MATERIAL TO BE T6-6061 (OR T6-6063 EQUIVALENT) ALUMINUM UNLESS OTHERWISE NOTED.
2. EXPANDED METAL MESH TOBE 1/2 #.081 STANDARD ALUMINUM.
3. ALL ALUMINUM IN DIRECT CONTACT WITH CONCRETE SHALL BE COATED WITH A MINIMUM 8.0 DRY MIL THICKNESS SERIES 46-465 H.B. TNEMECOL OR EQUAL.



ELEVATION

M 02M24 - FIBERGLASS HATCH COVER

SCALE: NO SCALE
FILE: 9520I10-02-050-402



Q 02M24 - PIPE BRACKET

SCALE: NO SCALE
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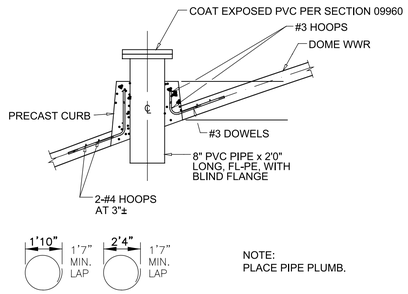

NOTE:
PLACE PIPE PLUMB.

S - 8" PVC PROBE CURB

SCALE: NO SCALE
FILE: 9520I10-02-050-402

R 02M24 - ALUMINUM SECURITY COVER FOR 25" FIBERGLASS VENTILATOR

SCALE: NO SCALE
FILE: 9520I10-02-050-402
CROM SHOP REF.: SD-1.4-FAB-ST

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JOB NO. 09520I.10
DRAWING NO. 02M27

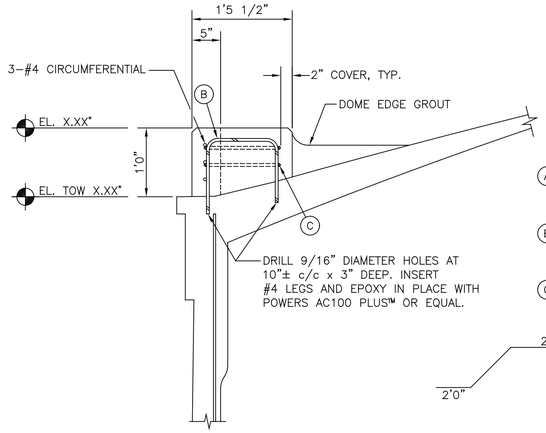
PROJECT NO.
FILE NAME: 9520I1002M27.dgn

Plot Date: 04-APR-2025 9:39:44 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

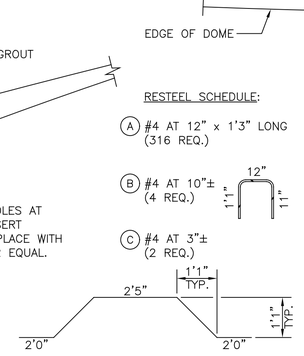
GENERAL NOTES

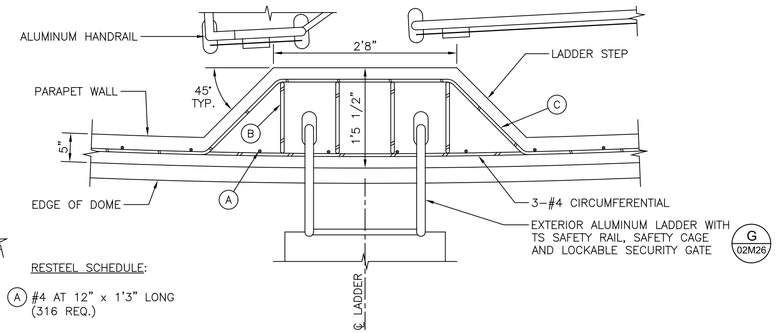
1. ITEMS MARKED WITH * TO BE DETERMINED BY TANK MANUFACTURER.

.

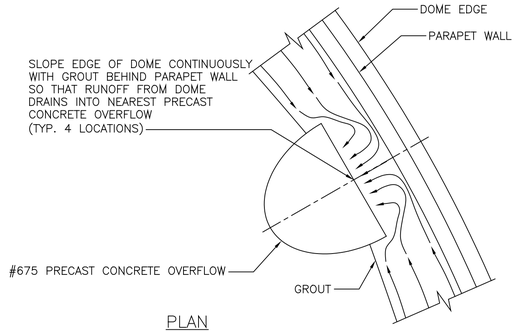


LADDER STEP ELEVATION

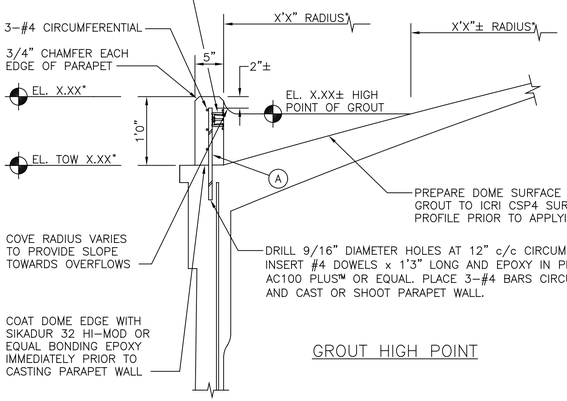




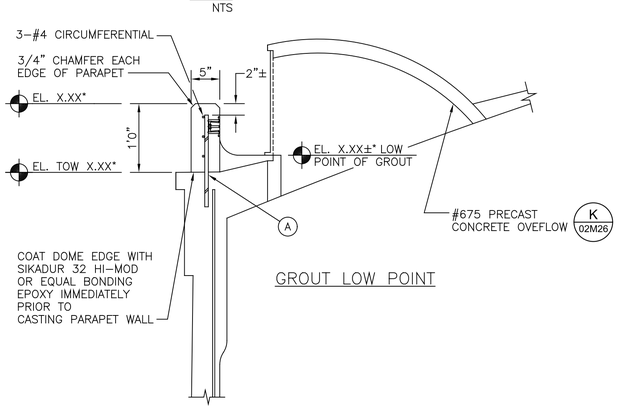
LADDER STEP PLAN



PLAN
NTS



GROUT HIGH POINT



GROUT LOW POINT

T 02M24 PARAPET WALL

SCALE: NO SCALE
FILE: 9520I10-02-050-402

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JOB NO. 09520I.10
DRAWING NO. 02M28

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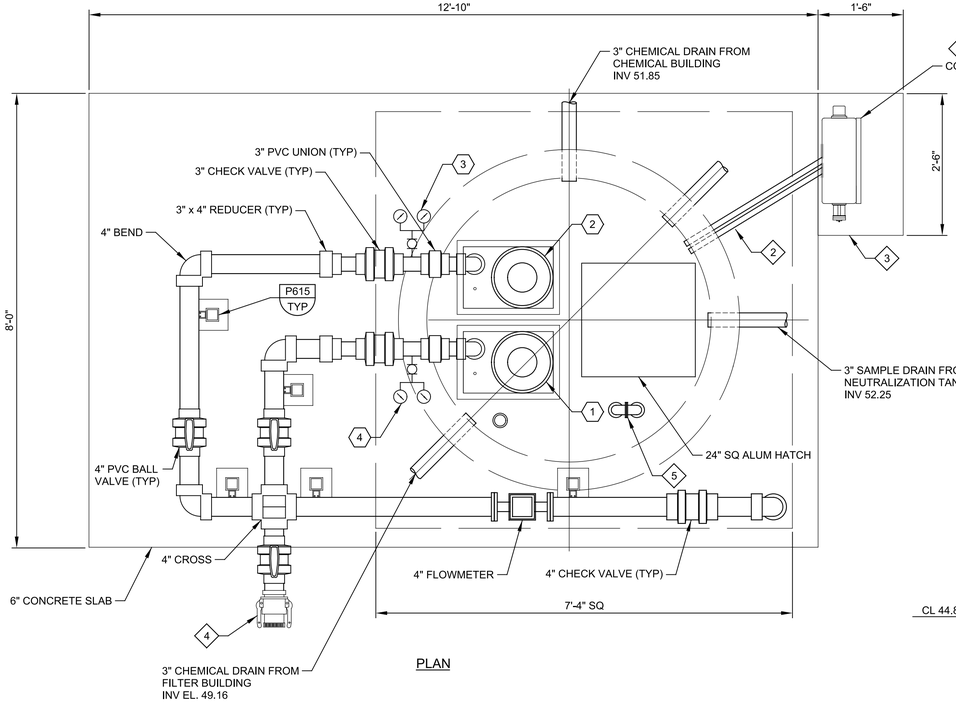

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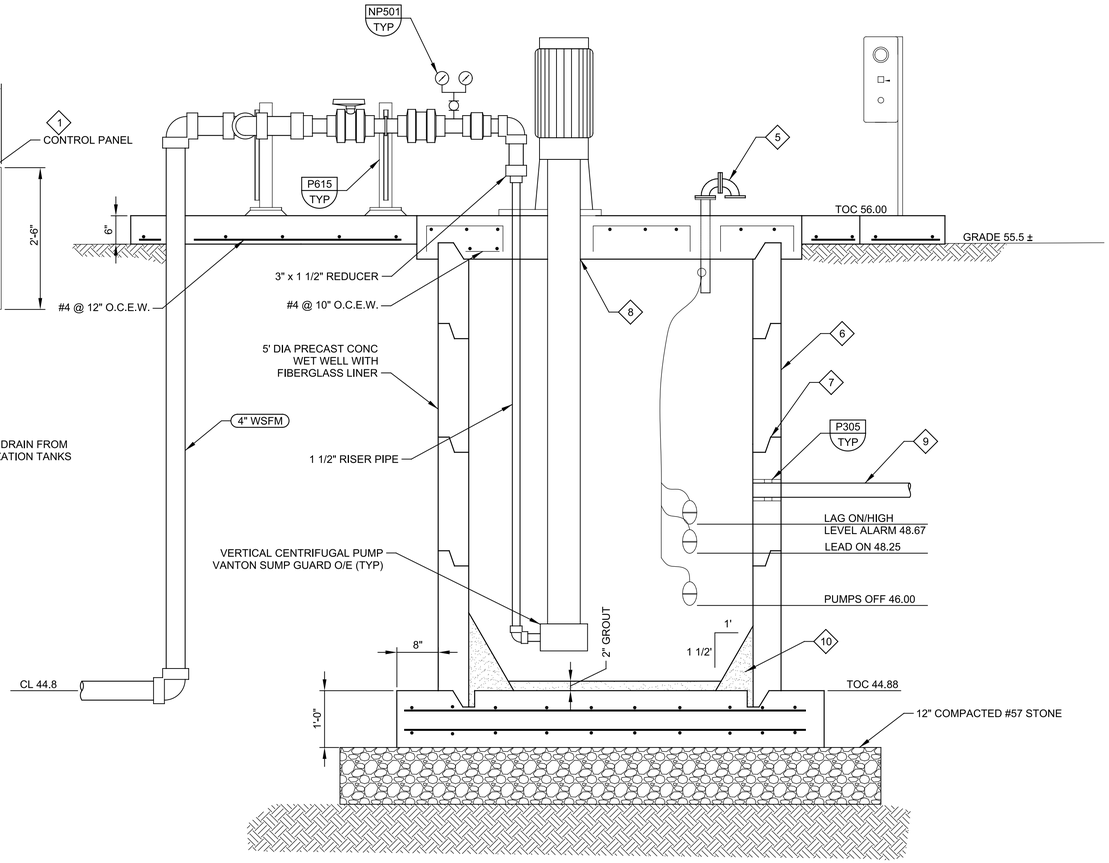

SECTION

A - WASTE PUMP STATION DETAIL

SCALE: 3/4" = 1'-0"
FILE: 9520I10-02-050-403

GENERAL NOTES

1. ALL ABOVE GROUND PIPING, FITTINGS AND VALVES SHALL BE SCH 80 PVC AND SUPPORTED W/ NON-METALLIC PREFORMED CHANNEL PIPE SUPPORTS.

KEY NOTES = (#)

1 SEE ELECTRICAL DRAWINGS FOR PANEL MOUNTING LOCATION AND DETAILS.

2 CONDUITS SHALL BE THROUGH SIDE OF STRUCTURE AND INSTALLED IN ACCORDANCE WITH ELECTRICAL DRAWINGS.

3 WET WELL ACCESS HATCH SHALL HAVE A CLEAR OPENING OF 24"X24". HATCH FRAME AND COVERS SHALL BE ¼" ALUMINUM DIAMOND PATTERN PLATE. FRAME SHALL SUPPORT STAINLESS STEEL CABLE HOLDER. HATCH SHALL BE PROVIDED WITH LIFTING HANDLE AND SAFETY LATCH TO HOLD HATCH IN OPEN POSITION, AND LOCKING HASPS. STAINLESS STEEL HARDWARE THROUGHOUT. ALL SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A SHOP COAT OF ZINC CHROMATIC PRIMER, APPROCED ALKALIS RESILIENT PAINT OR OTHER APPROVED PROTECTIVE COATING. LIVE LOAD = 300 PSF. COORDINATE HATCH LOCATION WITH EQUIPMENT FURNISHED. HATCH MANUFACTURERS PER SECTION 07_72_33.

4 PUMP-OUT CONNECTION WITH 4" MALE KAMLOCK COUPLING AND CAP.

5 4" SCH 80 PVC FLANGED VENT W/ ¼" MESH SS SCREEN BETWEEN FLANGED FITTINGS.

6 PRECAST CONCRETE (4,000 PSI, TYPE II CEMENT) MANHOLE MEETING "STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE" ASTM C-478, LATEST REVISION. SEE SECTION 09_96_01 FOR COATING REQUIREMENTS.

7 TONGUE AND GROOVE JOINT W/ O-RING GASKET PER ASTM C-443.

8 OPENING SIZE AS RECOMMENDED BY PUMP MFR FOR PUMP REMOVAL.

9 SEE PLAN VIEW FOR LOCATION AND SIZE OF DRAIN LINES TO WET WELL.

10 6" FILLET ALL AROUND. CLASS "C" CONCRETE.

KEY TAGS = (#)

1	CHEMICAL WASTE PUMP	23-LSP01
2	CHEMICAL WASTE PUMP	23-LSP02
3	PRESSURE GUAGE AND SWITCH	23-PSH/PI-LSP01
4	PRESSURE GUAGE AND SWITCH	23-PSH/PI-LSP02

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DRAWING NO. 02M29

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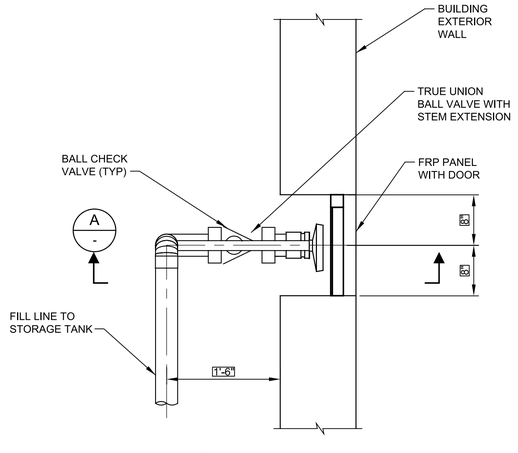
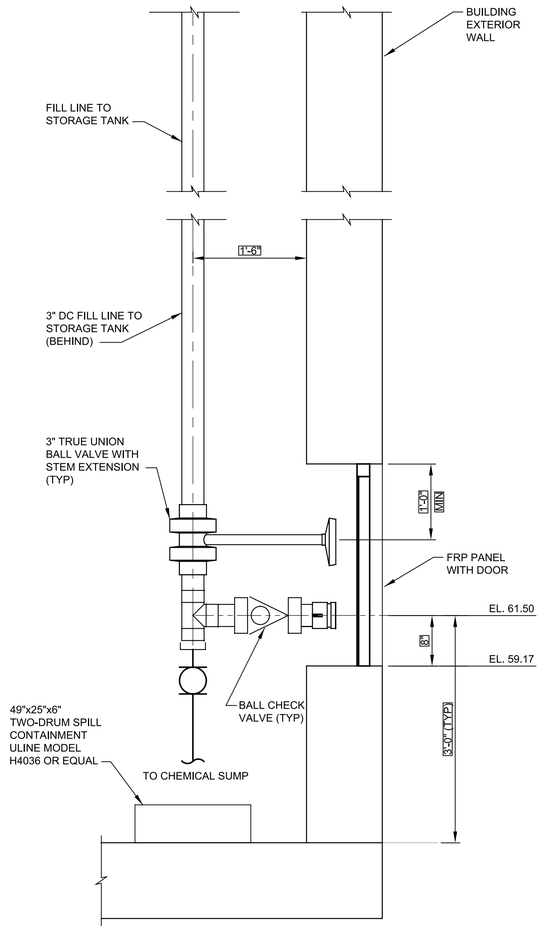
LAST SAVED BY: eparker



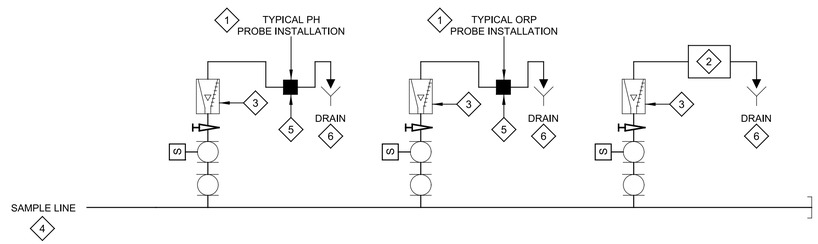
PLAN



SECTION A

1 CHEMICAL FILL STATION

1 / - SCALE: 1" = 1'-0"
FILE: 9520I10-02-050-404

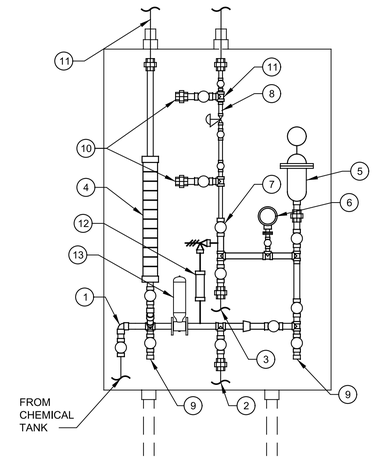


KEY NOTES:

1. PH/ORP CONTROLLER SHALL BE PANEL MOUNTED.
2. CHLORINE ANALYZER. INSTALL PER MANUFACTURER INSTRUCTIONS.
3. INSTALL ISOLATION VALVE, SOLENOID VALVE, AND NEEDLE VALVE. SUPPLY AND INSTALL ROTAMETER FOR EACH INSTRUMENT.
4. MINIMIZE SAMPLE LINE LENGTH TO KEEP SAMPLE FLOW LAG TO A MINIMUM.
5. INSTALL PROBES AND TEES IN SUCH A MANNER THAT IT WILL REMAIN SUBMERGED UNDER ALL CONDITIONS.
6. PROVIDE AIR GAPS FOR ALL DRAINS. DRAINS TO WASTE SUMP/PUMP STATION (TO SEWER).

2 CIP / NEUTRALIZATION SAMPLE PANEL PLUMBING DETAIL

02M14.02M21 SCALE: NO SCALE
FILE: 9520I10-02-050-404



1. PIPE SIZE AND TYPE AS INDICATED ON DRAWINGS
2. TO PUMP SUCTION
3. FROM PUMP DISCHARGE
4. CALIBRATION COLUMN
5. PULSATION DAMPENER
6. PRESSURE GAUGE WITH DIAPHRAGM SEAL
7. BALL VALVE (TYP)
8. BACKPRESSURE VALVE
9. DRAIN / FLUSH HOSE CONNECTION
10. PANEL CROSS CONNECTION FOR MULTIPLE PANEL APPLICATIONS. FOR EACH CHEMICAL SYSTEM, PROVIDE REQUIRED NUMBER OF PANEL CROSS CONNECTIONS AS INDICATED ON THE PFD DRAWINGS.
11. VENT CONNECTION TO TANK
12. SIGHT TUBE
13. PULSATION DAMPENER. REQUIRED FOR ALL METERING PUMPS EXCEPT CS PUMPS TO POST MIX BASINS. MAY BE MOUNTED ON OR OFF PANEL TO COMPLY WITH REQUIREMENT OF SPECIFICATION SECTION 43_33_20.01 TO BE WITHIN 20 PIPE DIAMETERS OF THE PUMP.

3 DIAPHRAGM METERING PUMP SUCTION/DISCHARGE PANEL

3 / - SCALE: NO SCALE
FILE: 9520I10-02-050-404

GENERAL NOTES:

1. ADDED ELEVATIONS FOR CHEMICAL FILL BLOCK OUTS PER RFI 030
2. ADDED ELEVATIONS FOR CENTERLINE OF FILL LINES PER RFI 071

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

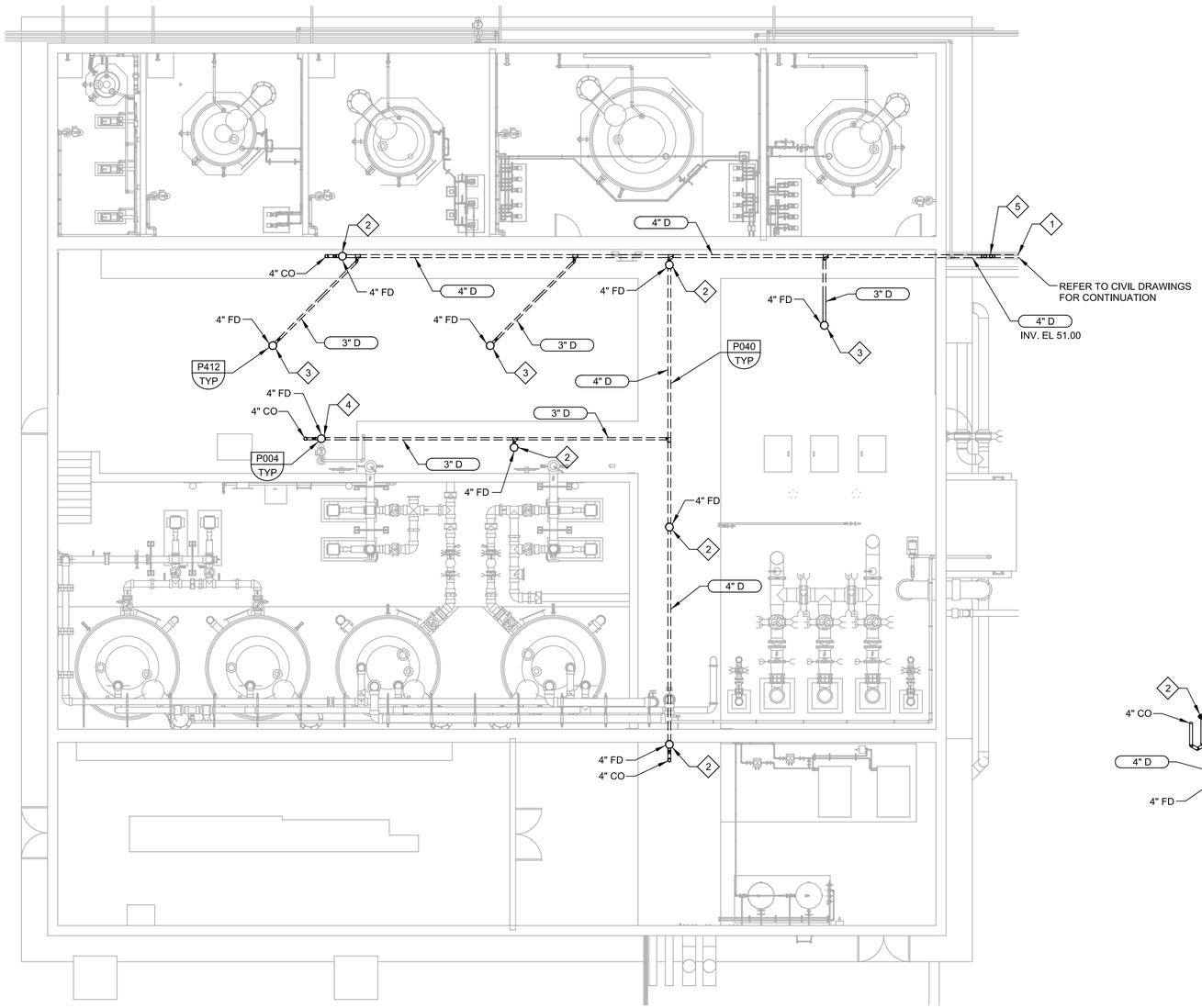
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CHEMICAL BUILDING DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

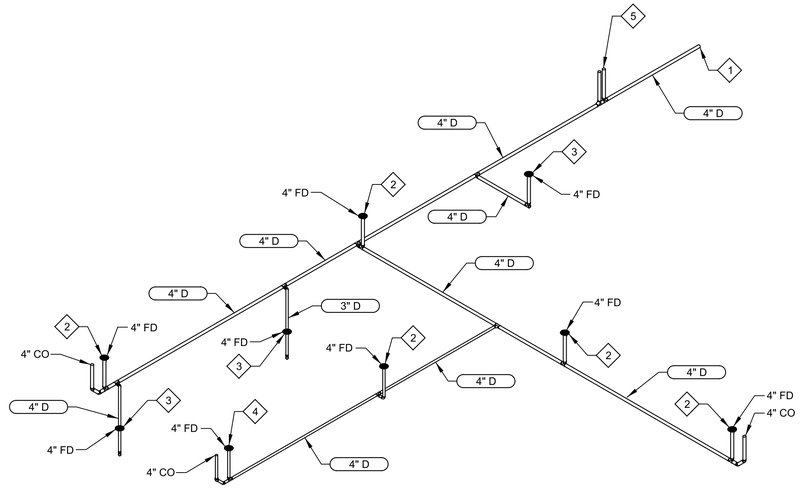
JOB NO. 09520I.10
DRAWING NO. 02M30

PROJECT NO.
FILE NAME: 9520I1002M30.dgn

Plot Date: 04-APR-2025 9:39:50 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A PLAN
SCALE: 1/8" = 1'-0"
FILE: 9520I10-02-040-101



DRAIN ISOMETRIC
SCALE: NO SCALE
FILE: 9520I1002P601

NORTH

GENERAL NOTES

1. SLOPE NEW DRAINAGE AT 1/8" PER FOOT AT A MINIMUM IN DIRECTION OF FLOW.
2. ALL PIPING BELOW BUILDING SHALL BE CONCRETE ENCASED PER DETAIL P040/TYP.
3. PIPING SHALL BE FIELD COORDINATED TO AVOID PROCESS PIPING AND OTHER TRADES AS NECESSARY.
4. COORDINATE DRAIN LINE ELEVATION WITH CIVIL YARD PIING DRAWINGS.

KEY NOTES = ◇#

1. NEW DRAIN LINE TO BE ROUTED TO WASTE SUMP/PUMP STATION.
2. FLOOR DRAIN TO BE PLACED IN BOTTOM OF TRENCH.
3. FLOOR DRAIN TO BE PLACE ON UPPER DECK OF BUILDING.
4. FLOOR DRAIN TO BE PLACED DIRECTLY BELOW SHOWER HEAD.
5. EXTERIOR YARD DOUBLE CLEANOUT.
6. ALL 3" LINES UPSIZED TO 4" PER RFI 13

.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED SAW
DRAWN BAC
CHECKED SS
DATE APRIL 2025

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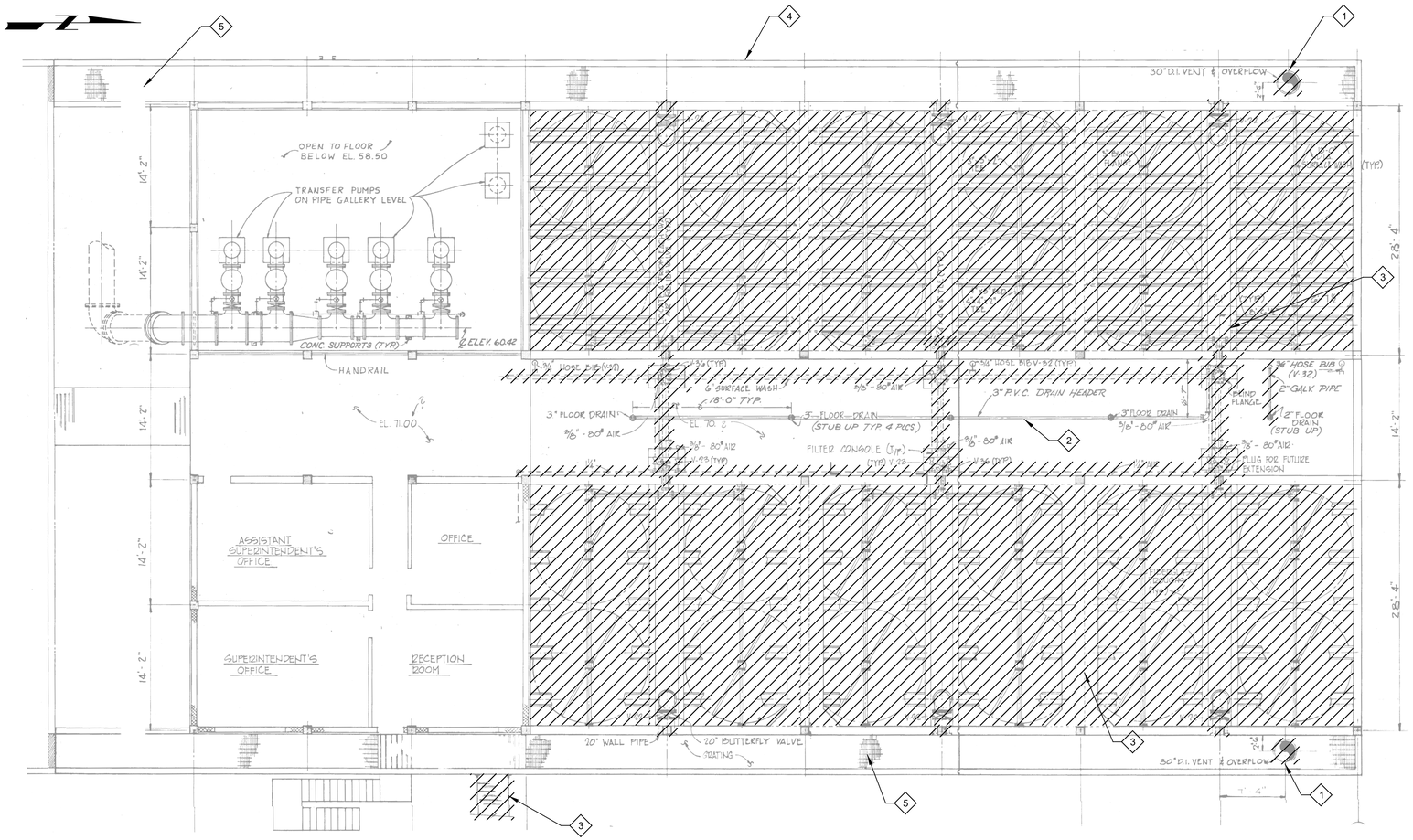
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
CHEMICAL BUILDING DRAINAGE PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02M31

PROJECT NO.
FILE NAME: 9520I1002M31.dgn



A UPPER DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-DM-901.PDF

GENERAL NOTES

1. BACKGROUND DRAWING IS FROM EXISTING RECORD DOCUMENTS: "MANATEE COUNTY WATER TREATMENT PLANT IMPROVEMENTS" (RUSSEL AND AXON, 1978).
2. DEMOLITION SHOWN ON THIS DRAWING LIMITED TO STRUCTURAL AND PROCESS MECHANICAL ITEMS. REFER TO SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD 29. TO CONVERT TO NAVD 88 ELEVATION: NGVD (29) - 0.958 FT = NAVD 88

KEY NOTES = (#)

1. REMOVE EXISTING 30" VENT/OVERFLOW. INSTALL NEW OVERFLOW PER MECHANICAL DRAWINGS.
2. EXISTING FLOOR DRAIN TO REMAIN.
3. DEMOLISH EXISTING CONCRETE WALKWAY AND CANOPY. PROVIDE NEW WALKWAY AND CANOPY PER ARCHITECTURAL AND STRUCTURAL DRAWINGS.
4. EXISTING PIPE SUPPORT SYSTEM REMAINS WITH ADDITIONAL SUPPORTS ADDED. ADDITIONAL CHEMICAL PIPES TO SERVE AS THE BLEND CHAMBER BYPASS INJECTION PIPING AND SPARES ROUTED FROM THE "A" CHEMICAL ROOM ADDED AS FOLLOWS:

   (6) 1" SCH80 PVC
   (2) 2" SCH80 PVC
5. CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING ALUMINUM GRATING ON FILTER BAYS A AND B AND REPLACE WITH SOLID PLATE AS SHOWN ON THE STRUCTURAL DRAWINGS.
6. NOT USED.
7. NOT USED.
8. DEMOLISH EXISTING ELECTRICAL/CONTROL JUNCTION BOX. REFER TO ELECTRICAL DRAWINGS
9. NOT USED.

LEGEND:

REMOVE AND/OR DEMOLISH

1 PHOTO

SCALE: NO SCALE
FILE: 9520I10-03-DM-901.JPG

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

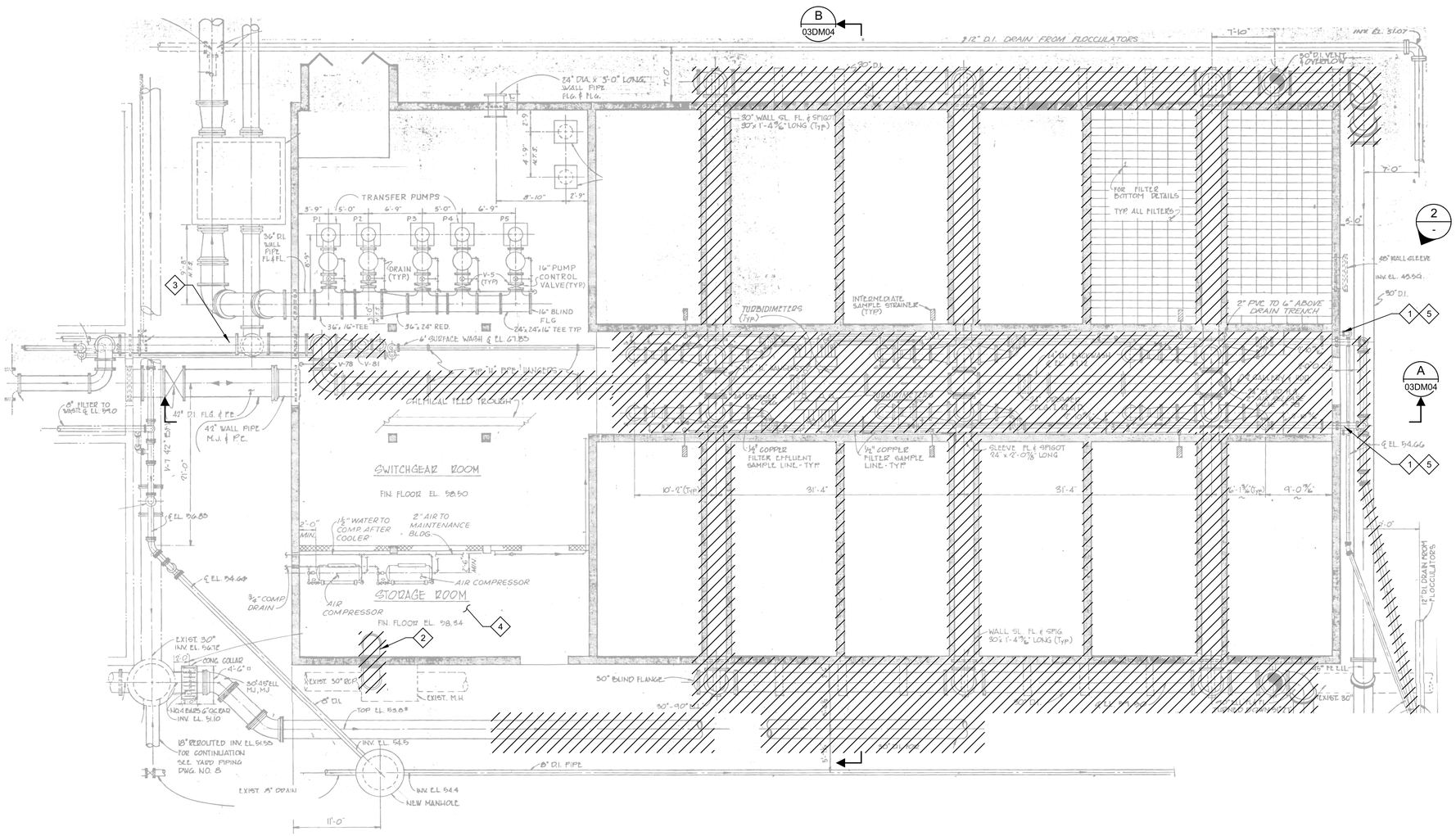
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DEMOLITION
UPPER DEMOLITION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03DM01

PROJECT NO.
FILE NAME: 9520I1003DM01.dgn

Plot Date: 04-APR-2025 10:24:24 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



B INTERMEDIATE DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-DM-902.PDF

GENERAL NOTES

1. BACKGROUND DRAWING IS FROM EXISTING RECORD DOCUMENTS: "MANATEE COUNTY WATER TREATMENT PLANT IMPROVEMENTS" (RUSSEL AND AXON, 1978).
2. DEMOLITION SHOWN ON THIS DRAWING LIMITED TO STRUCTURAL AND PROCESS MECHANICAL ITEMS. REFER TO SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD 29. TO CONVERT TO NAVD 88 ELEVATION: NGVD (29) - 0.958 FT = NAVD 88

KEY NOTES = ◇#

1. INSTALL BLIND FLANGES ON BOTH ENDS OF 8" WALL PIPE.
2. DEMOLISH EXISTING 30" DI CLEARWELL VENT.
3. INSTALL 2" AIR RELEASE VALVE ON EXISTING 30" DI ELBOW.
4. DEMOLISH EXISTING LOCKER PAD. LOCKERS WILL BE REMOVED BY OWNER.
5. ADDITIONAL AIR VENTS BLIND FLANGED OFF PER RFI 145

.

LEGEND:

REMOVE AND/OR DEMOLISH

2 PHOTO

SCALE: NO SCALE
FILE: IMG_2578.JPG

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			RECORD DOCUMENTS

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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DEMOLITION
INTERMEDIATE DEMOLITION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03DM02

PROJECT NO.
FILE NAME: 9520I1003DM02.dgn

Plot Date: 04-APR-2025 10:18:43 AM
User: svcPW
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DesignScript: Carollo_Std_Pen_v0905.pen
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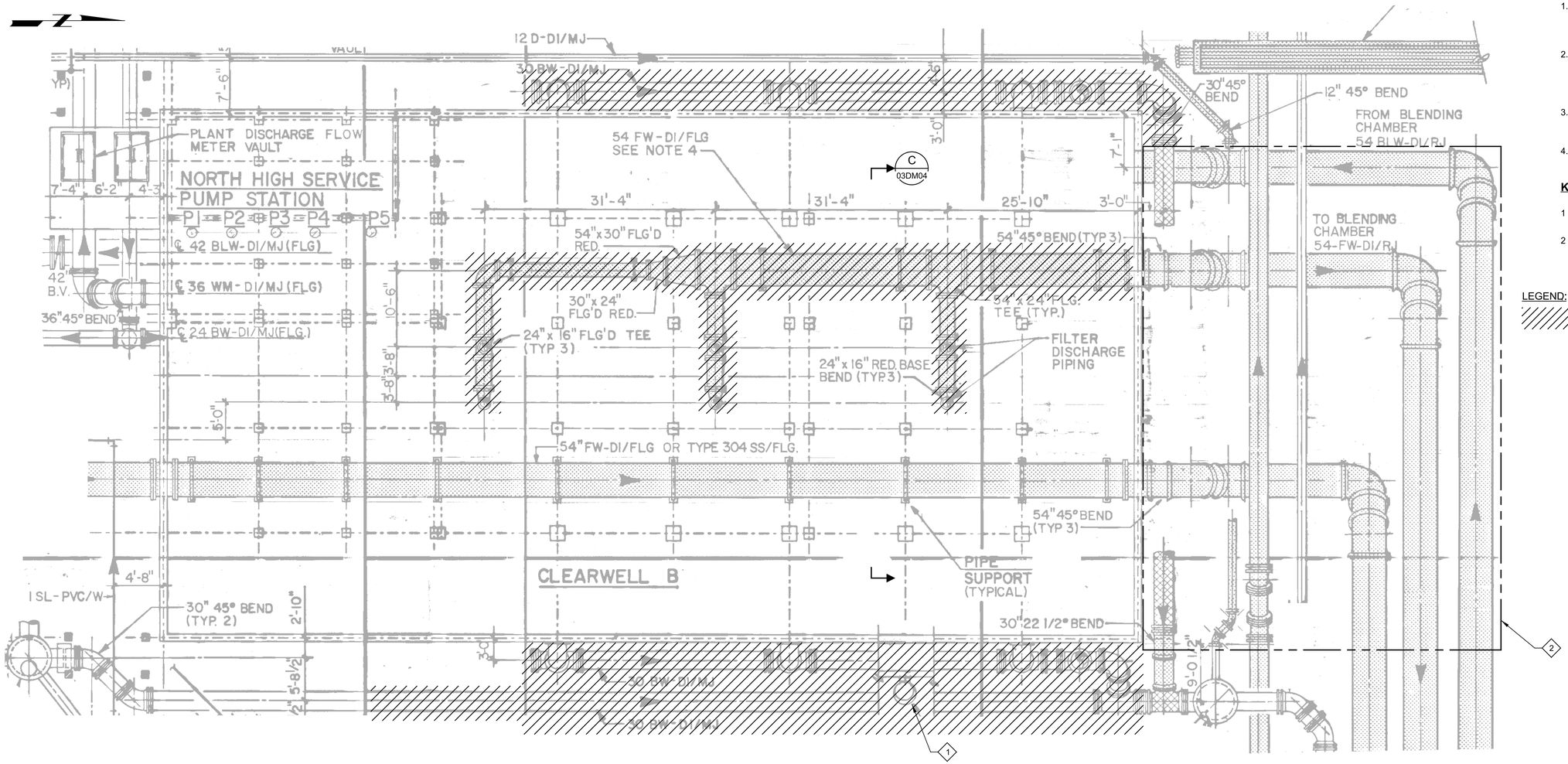
Model: Layout1
LAST SAVED BY: eparker



C LOWER DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-DM-903.PDF

GENERAL NOTES

1. BACKGROUNDS DRAWINGS ARE FROM EXISTING RECORD DOCUMENTS; "MANATEE COUNTY WATER TREATMENT FACILITIES - PART A WATER TREATMENT PLANT EXPANSION" (CDM, 1969).
2. DEMOLITION SHOWN ON THIS DRAWING LIMITED TO STRUCTURAL AND PROCESS MECHANICAL ITEMS. REFER TO SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD 29. TO CONVERT TO NAVD 88 ELEVATION: NGVD (29) - 0.958 FT = NAVD 88
4. CONTRACTOR TO PROVIDE BYPASS PUMPING DURING CONSTRUCTION TO MAINTAIN OPERATION OF FACILITIES.

KEY NOTES = ◇#

1 RELOCATE/REPLACE EXISTING ROOF ACCESS LADDER PER ARCHITECTURAL DRAWINGS.

2 SEE MECHANICAL DRAWINGS FOR DEMOLITION OF 54" DI PIPING.

LEGEND:

REMOVE AND/OR DEMOLISH

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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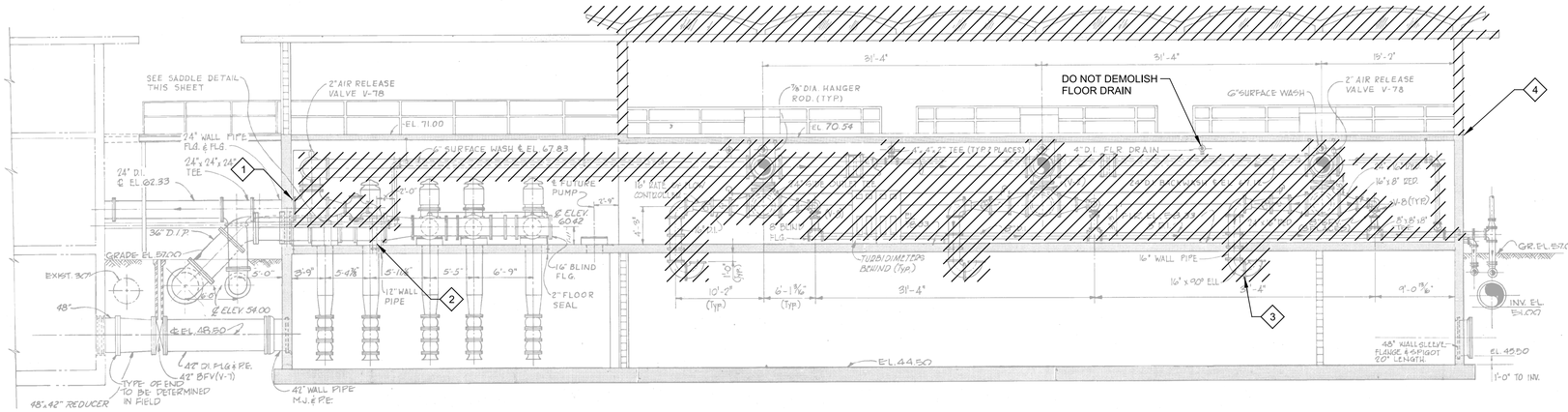
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DEMOLITION
LOWER DEMOLITION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03DM03

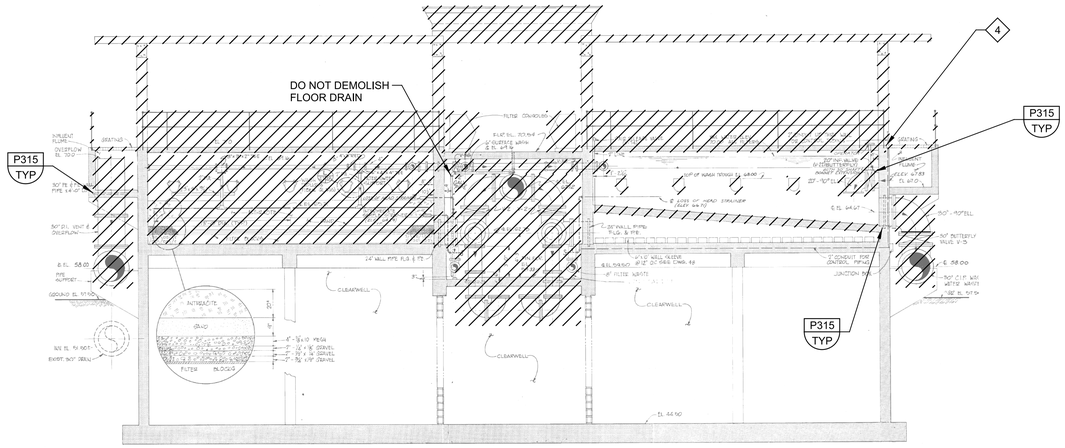
Plot Date: 04-APR-2025 10:19:08 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

PROJECT NO.
FILE NAME: 9520I1003DM03.dgn



A SECTION

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-DM-904.PDF



B SECTION

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-DM-905.PDF

C SECTION

SCALE: NTS
FILE: 9520I10-03-DM-906.PDF

GENERAL NOTES

1. BACKGROUNDS DRAWINGS ARE FROM EXISTING RECORD DOCUMENTS; "MANATEE COUNTY WATER TREATMENT PLANT IMPROVEMENTS" (RUSSEL AND AXON, 1978) AND "MANATEE COUNTY WATER TREATMENT FACILITIES - PART A WATER TREATMENT PLANT EXPANSION" (CDM, 1989).
2. DEMOLITION SHOWN ON THIS DRAWING LIMITED TO STRUCTURAL AND PROCESS MECHANICAL ITEMS. REFER TO SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD 29. TO CONVERT TO NAVD 88 ELEVATION: NGVD (29) - 0.958 FT = NAVD 88

KEY NOTES = ◇#

1 INSTALL BLIND FLANGE ON 24" WALL PIPE.
2 INSTALL BLIND FLANGE ON 12" FLOOR PIPE
3 SEE SECTION C BELOW FOR CONTINUATION OF 16" FILTERED WATER PIPING AND DEMOLITION REQUIREMENTS.
4 DO NOT DEMOLISH ANCHOR BOLTS AT PRECAST COLUMNS (TYP OF ALL).

LEGEND:

REMOVE AND/OR DEMOLISH

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DRAWN DVP
CHECKED SS
DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DEMOLITION
DEMOLITION SECTIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03DM04

PROJECT NO.
FILE NAME: 9520I1003DM04.dgn

Plot Date: 04-APR-2025 10:23:04 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 10:24:05 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

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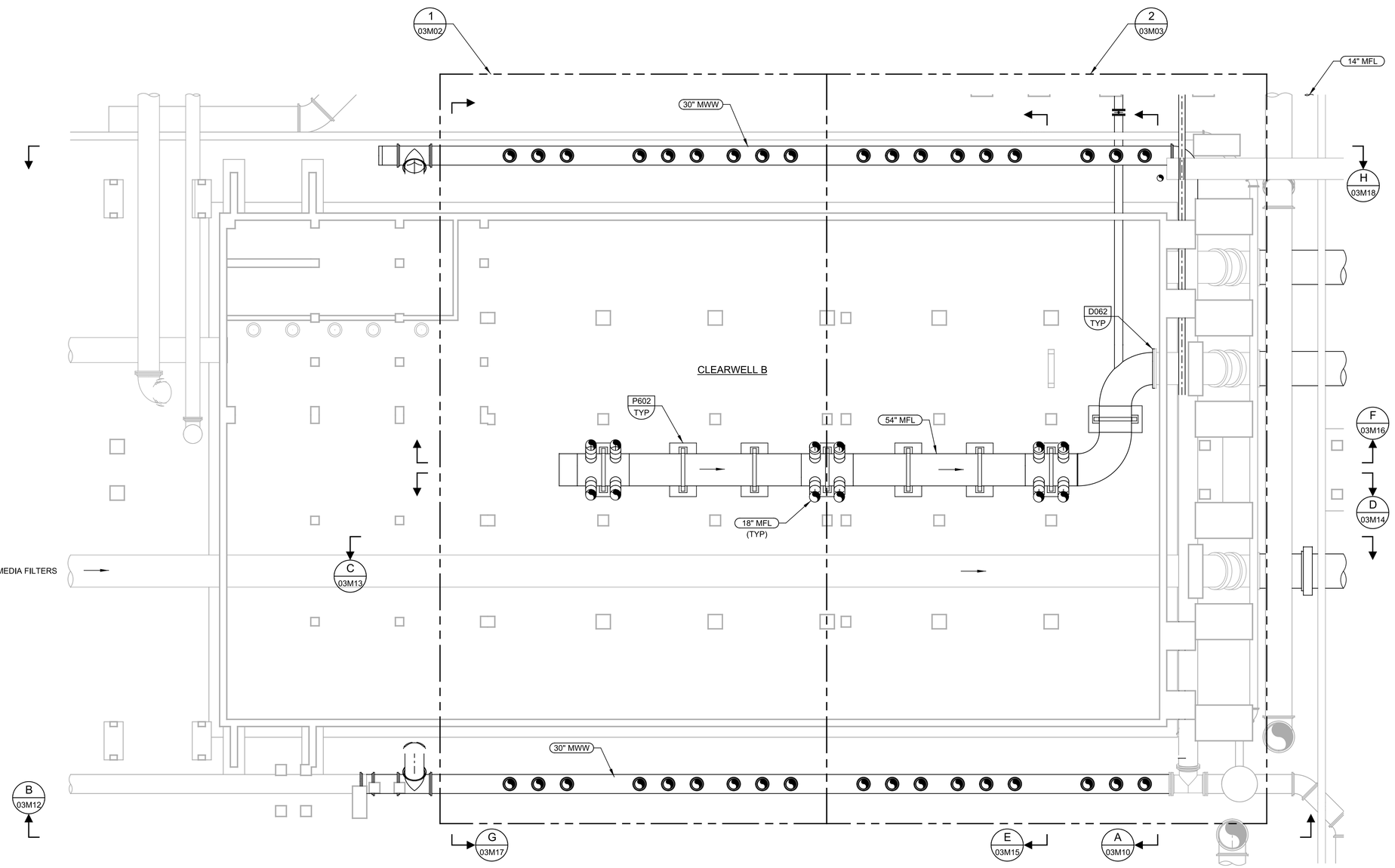

A PLAN
SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-050-102

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING LOWER LEVEL KEY PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

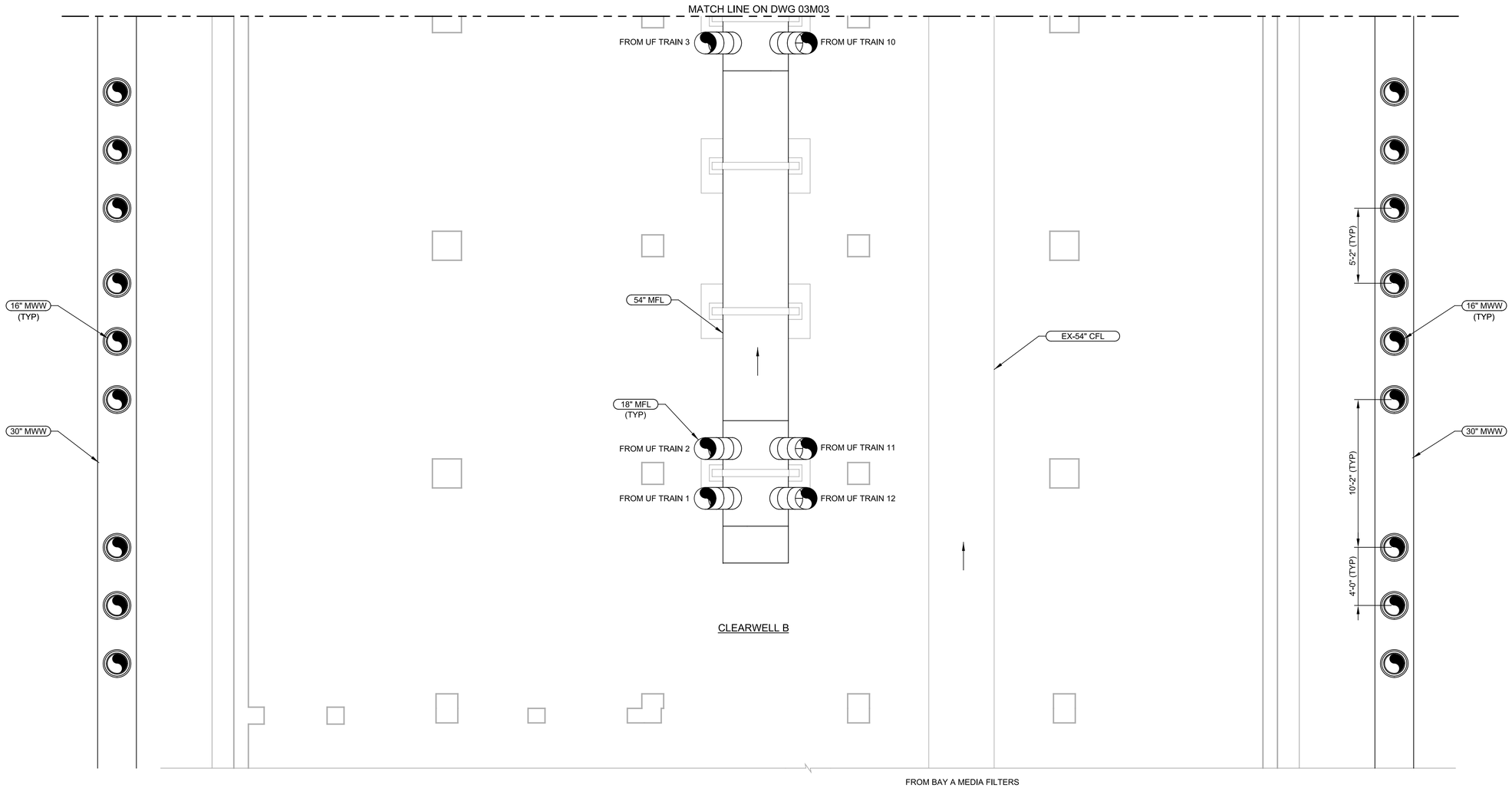
JOB NO. 09520I.10
DRAWING NO. 03M01

PROJECT NO.
FILE NAME: 9520I1003M01.dgn

Plot Date: 04-APR-2025 10:18:52 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



1 ENLARGED PLAN

03M01

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-102

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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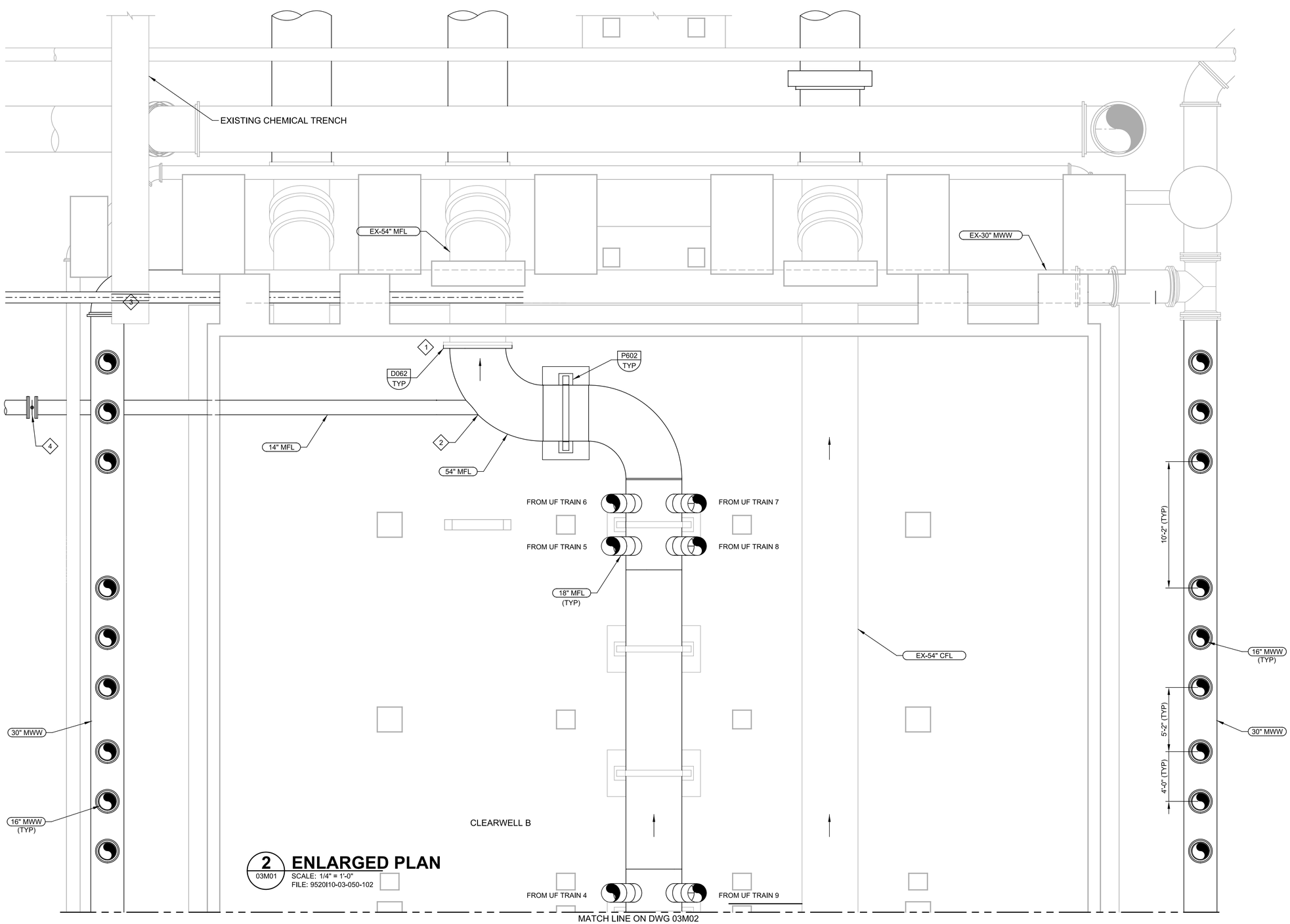
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING
LOWER LEVEL ENLARGED PLAN I

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M02

PROJECT NO.
FILE NAME: 9520I1003M02.dgn



2 ENLARGED PLAN
03M01

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-102

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

KEY NOTES = ◇#

1. CONNECT NEW 54" MFL PIPING WITH EXISTING 54" PIPE BEFORE IT EXITS BUILDING.
2. 54" DI 90 DEGREE BEND WITH 14" WELDED OUTLET.
3. MODIFY SOUTH END OF EXISTING CHEMICAL TRENCH PER 03DM01.
4. 14" GATE VALVE REPLACED WITH 14" BUTTERFLY VALVE AND VALVE BOX PER RFI 009.

.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

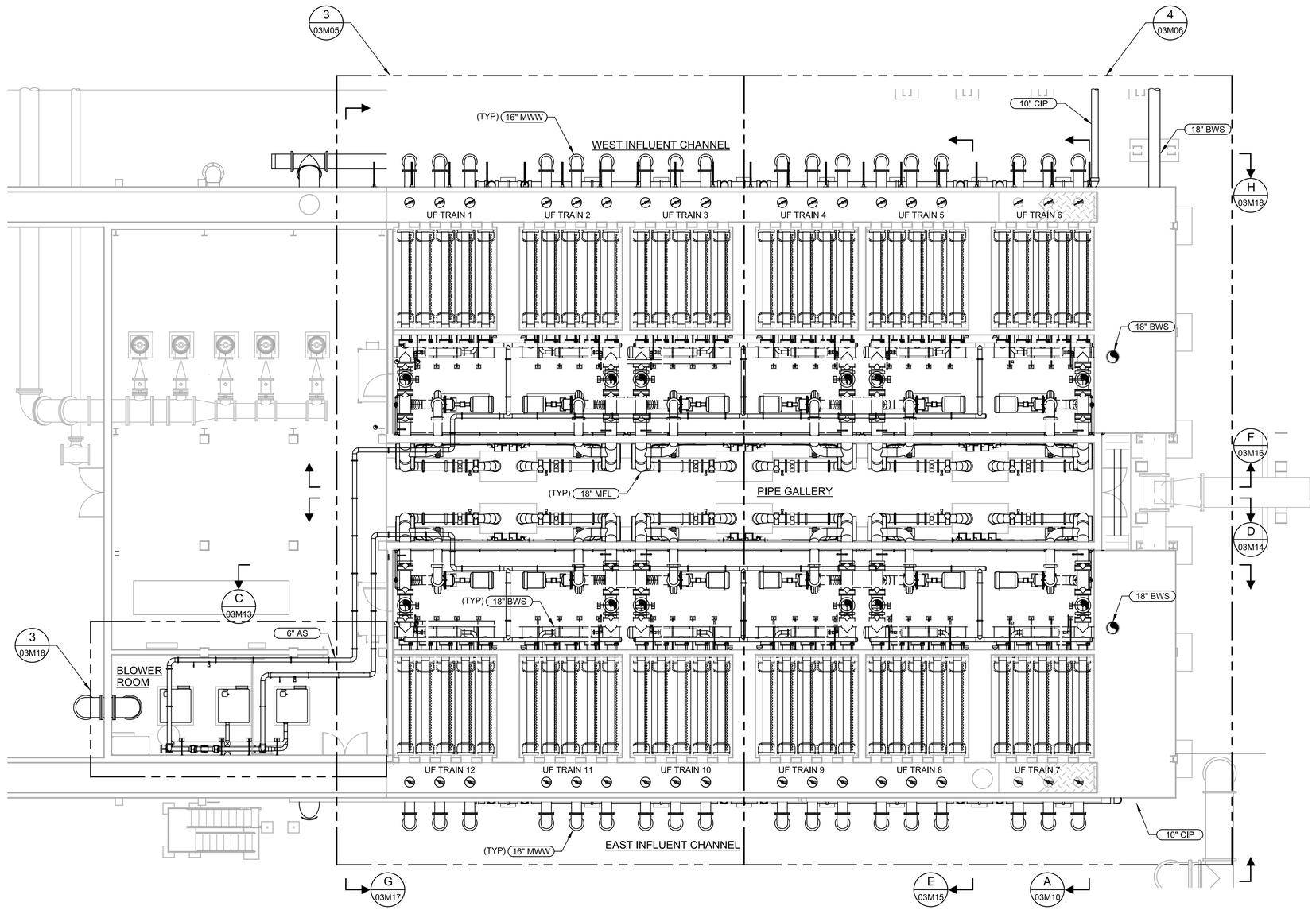
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING LOWER LEVEL ENLARGED PLAN II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M03

Plot Date: 30-MAY-2025 8:27:51 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker
PROJECT NO.
FILE NAME: 9520I1003M03.dgn

Plot Date: 04-APR-2025 10:21:32 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. COMPRESSED AIR PIPING AND LOOPS AND ASSOCIATED SUPPORTS AND APPURTENANCES, SHALL BE FIELD ROUTED BY CONTRACTOR FOR ALL PNEUMATIC VALVES, MIT AIR, AND EJECTORS IN THIS PROJECT. REFER TO NOTE ON 02M17.

.

B PLAN

SCALE: 1/8" = 1'-0"
FILE: 952010-03-050-103

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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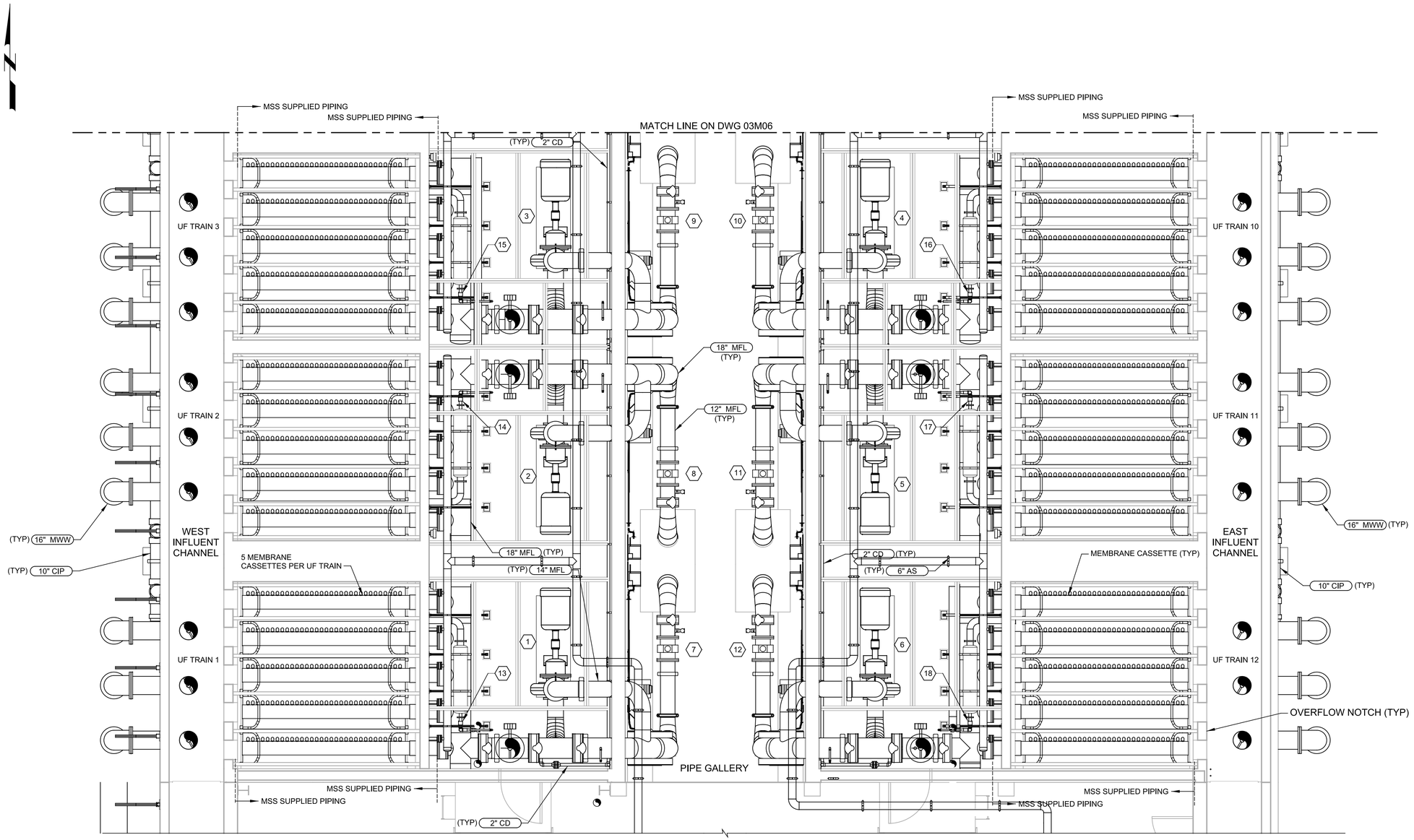
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING
INTERMEDIATE LEVEL KEY PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M04

PROJECT NO.
FILE NAME: 9520I1003M04.dgn



GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY TAGS = (#)

1	PERMEATE PUMP	20-P-301-1
2	PERMEATE PUMP	20-P-301-2
3	PERMEATE PUMP	20-P-301-3
4	PERMEATE PUMP	20-P-301-10
5	PERMEATE PUMP	20-P-301-11
6	PERMEATE PUMP	20-P-301-12
7	FLOW METER	20-FIT-301-1
8	FLOW METER	20-FIT-301-2
9	FLOW METER	20-FIT-301-3
10	FLOW METER	20-FIT-301-10
11	FLOW METER	20-FIT-301-11
12	FLOW METER	20-FIT-301-12
13	2" BUTTERFLY VALVE	20-FV-230-1
14	2" BUTTERFLY VALVE	20-FV-230-2
15	2" BUTTERFLY VALVE	20-FV-230-3
16	2" BUTTERFLY VALVE	20-FV-230-10
17	2" BUTTERFLY VALVE	20-FV-230-11
18	2" BUTTERFLY VALVE	20-FV-230-12

3 ENLARGED PLAN

03M04

SCALE: 1/4" = 1-0"
FILE: 9520I10-03-050-103

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

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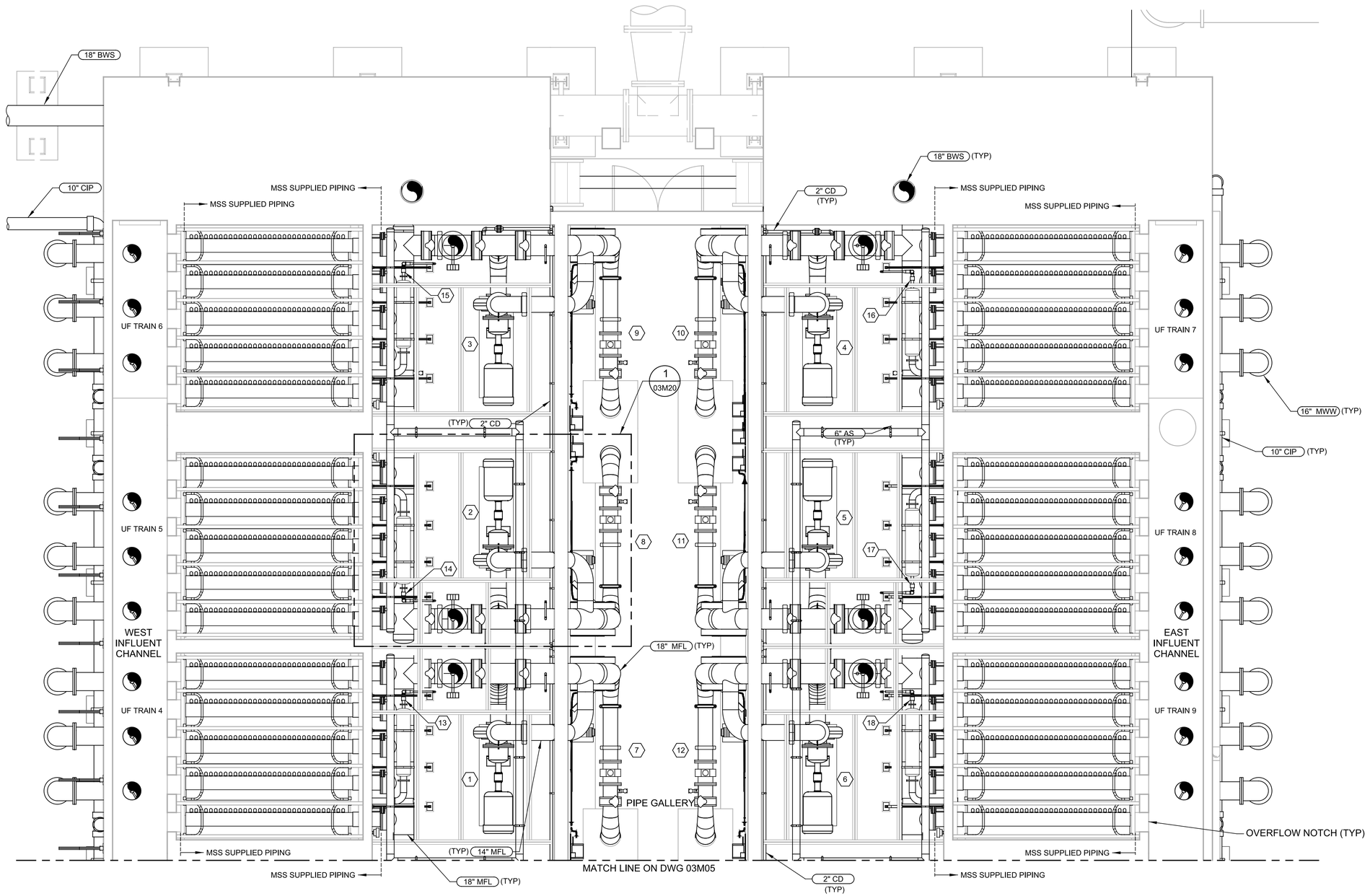
JOB NO. 09520I.10
DRAWING NO. 03M05

PROJECT NO.
FILE NAME: 9520I1003M05.dgn

Plot Date: 04-APR-2025 10:19:48 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY TAGS = (#)

1	PERMEATE PUMP	20-P-301-4
2	PERMEATE PUMP	20-P-301-5
3	PERMEATE PUMP	20-P-301-6
4	PERMEATE PUMP	20-P-301-7
5	PERMEATE PUMP	20-P-301-8
6	PERMEATE PUMP	20-P-301-9
7	FLOW METER	20-FIT-301-4
8	FLOW METER	20-FIT-301-5
9	FLOW METER	20-FIT-301-6
10	FLOW METER	20-FIT-301-7
11	FLOW METER	20-FIT-301-8
12	FLOW METER	20-FIT-301-9
13	2" BUTTERFLY VALVE	20-FV-230-4
14	2" BUTTERFLY VALVE	20-FV-230-5
15	2" BUTTERFLY VALVE	20-FV-230-6
16	2" BUTTERFLY VALVE	20-FV-230-7
17	2" BUTTERFLY VALVE	20-FV-230-8
18	2" BUTTERFLY VALVE	20-FV-230-9

.

4 ENLARGED PLAN

03M04

SCALE: 1/4" = 1-0"
FILE: 9520I10-03-050-103

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED GDM
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VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 03M06

PROJECT NO.
FILE NAME: 9520I1003M06.dgn

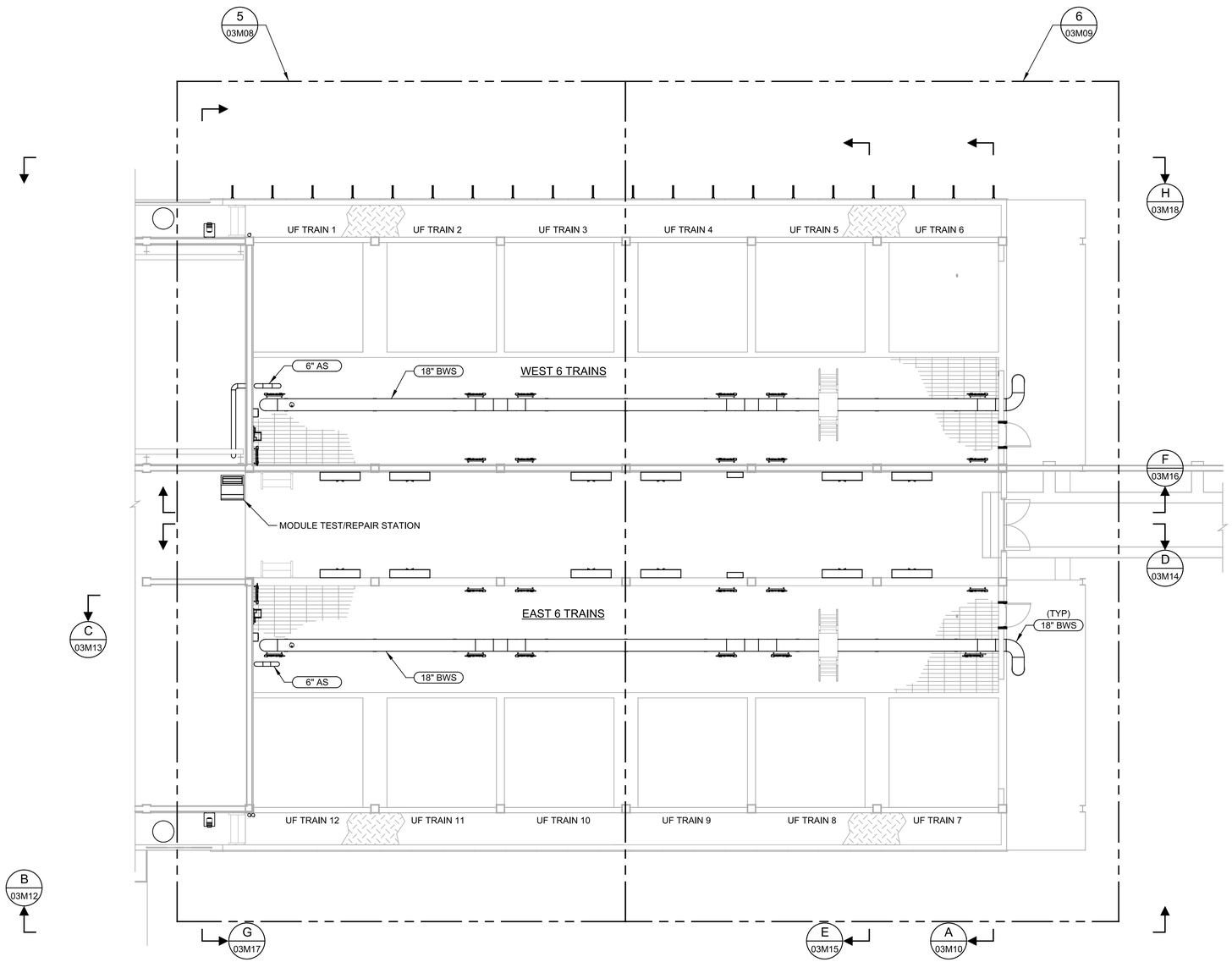
Plot Date: 04-APR-2025 10:23:00 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 10:20:50 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.
3. COMPRESSED AIR PIPING AND LOOPS AND ASSOCIATED SUPPORTS AND APPURTENANCES, SHALL BE FIELD ROUTED BY CONTRACTOR FOR ALL PNEUMATIC VALVES, MIT AIR, AND EJECTORS IN THIS PROJECT. REFER TO NOTE ON 02M17.

.



C PLAN

SCALE: 1/8" = 1'-0"
FILE: 9520I10-02-050-104

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 03M07

PROJECT NO.
FILE NAME: 9520I1003M07.dgn

Plot Date: 30-MAY-2025 8:33:56 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
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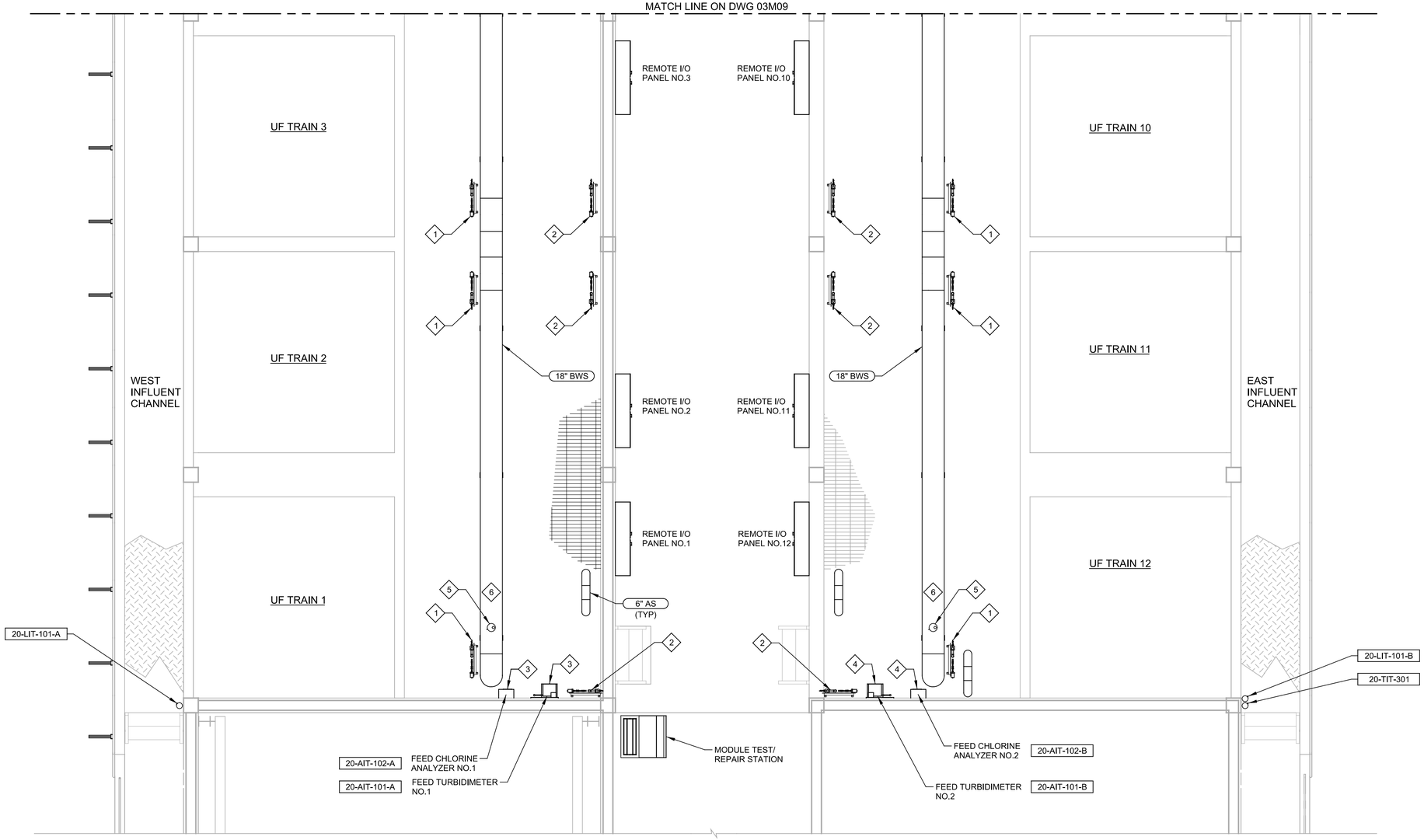
Model: Layout1
LAST SAVED BY: eparker



5 DETAIL

03M07

SCALE: 1/4" = 1'-0"
FILE: 952010-03-050-104

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1 EJECTOR/AIR SUPPLY ASSEMBLY FOR PRIMING

2 EJECTOR/AIR SUPPLY ASSEMBLY FOR PRIMING SIPHON

3 ROUTE SAMPLE LINE FROM WEST INFLUENT CHANNEL SAMPLE PUMP.

4 ROUTE SAMPLE LINE FROM EAST INFLUENT CHANNEL SAMPLE PUMP.

5 AIR RELEASE VALVES TO BE LOCATED AT THE HIGHEST POINT OF THE PIPELINE.

6 LOCATION OF TEMPORARY EJECTORS FOR COMMISSIONING TO BE LOCATED AT THE HIGHEST POINT OF THE PIPELINE.

.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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VERIFY SCALES
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0 1"
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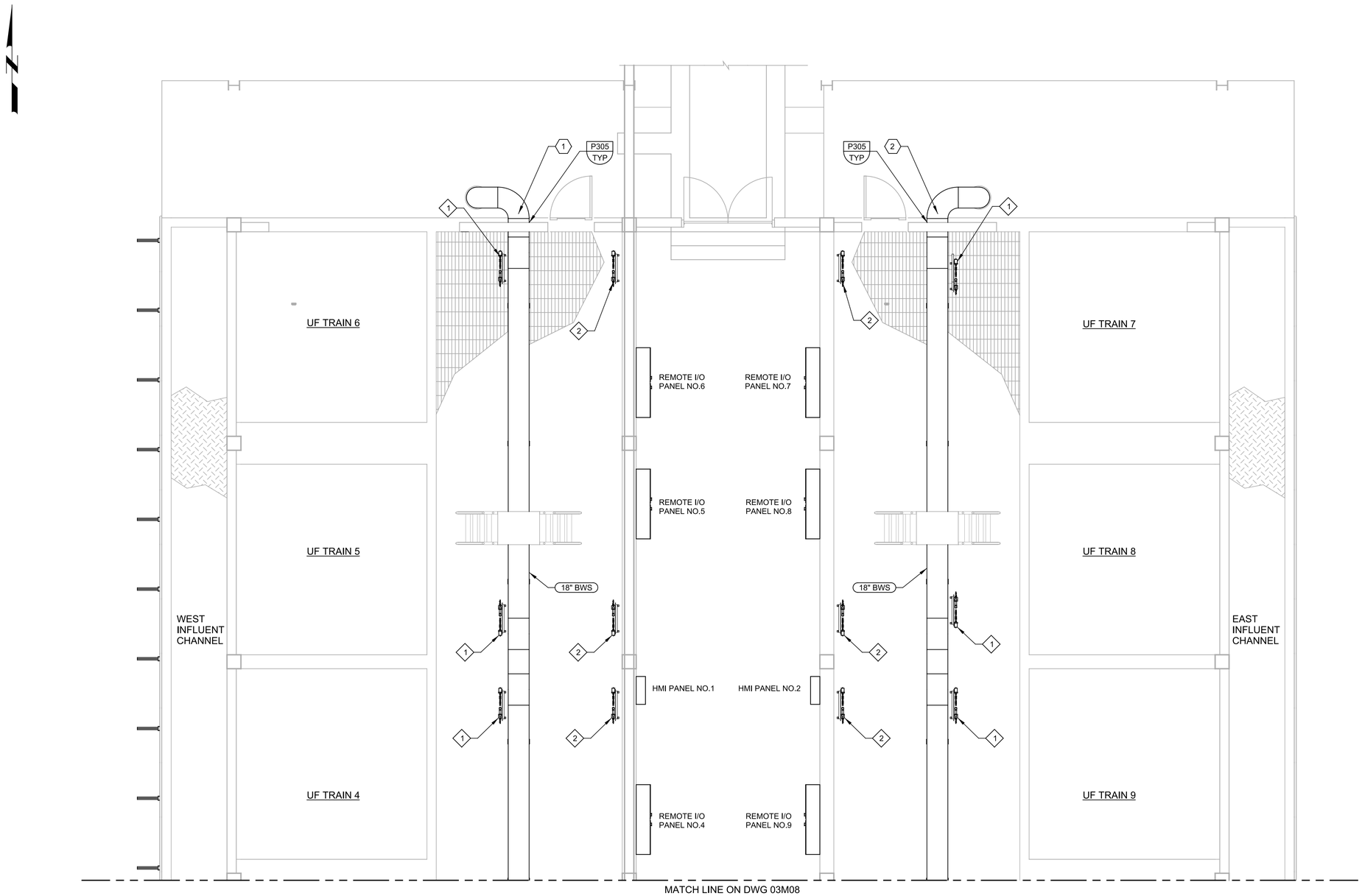
JOB NO. 09520I.10
DRAWING NO. 03M08

PROJECT NO.
FILE NAME: 9520I1003M08.dgn

Plot Date: 04-APR-2025 10:22:47 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 EJECTOR/AIR SUPPLY ASSEMBLY FOR PRIMING

2 EJECTOR/AIR SUPPLY ASSEMBLY FOR PRIMING SIPHON

KEY TAGS = (#)

1	PRESSURE SWITCH	20-PSH-601-1
2	PRESSURE SWITCH	20-PSH-601-2

6 DETAIL

03M07

SCALE: 1/4" = 1'-0"
FILE: 9520I10-02-050-104

REV	DATE	BY	DESCRIPTION
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VERIFY SCALES
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0 1"
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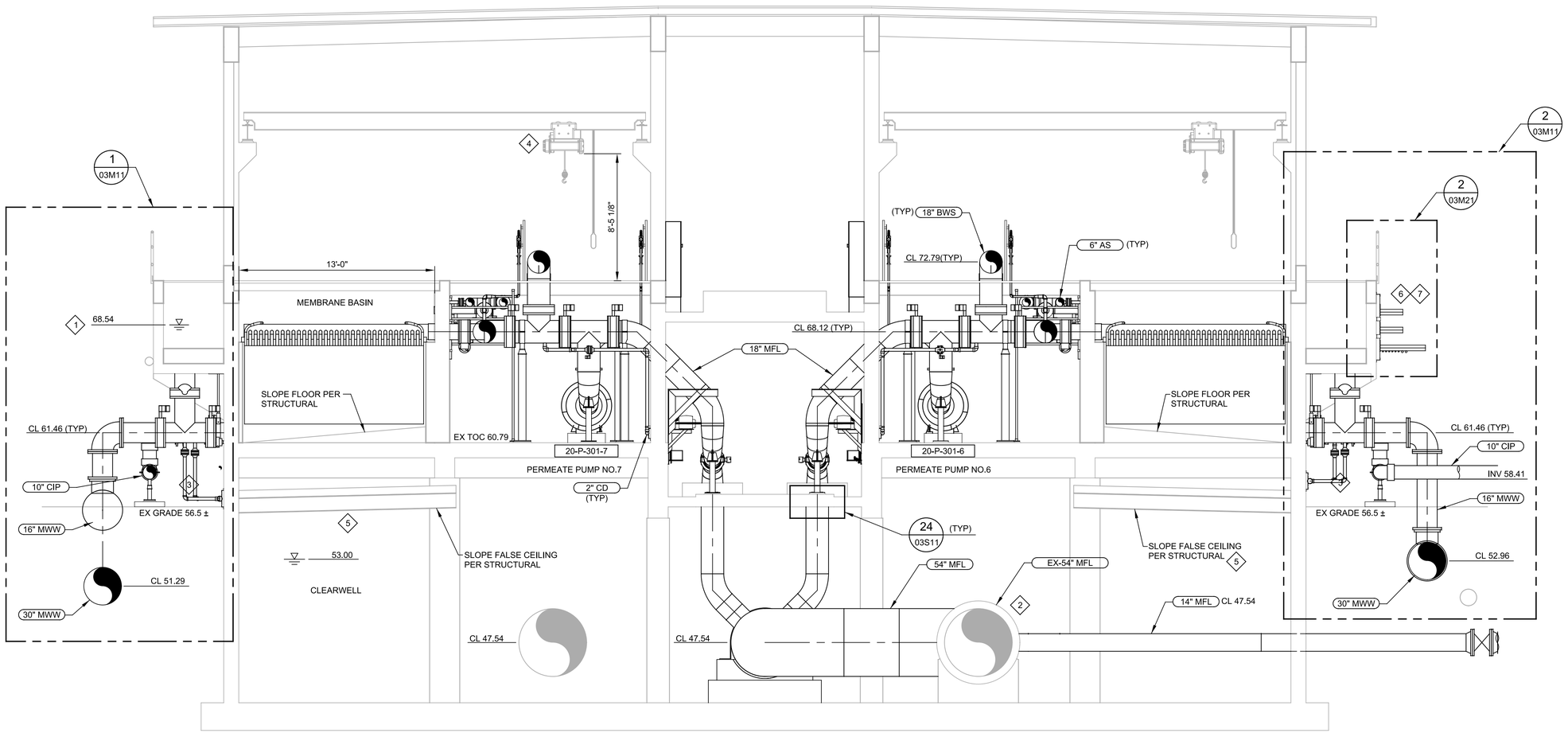
JOB NO. 09520I.10
DRAWING NO. 03M09

PROJECT NO.
FILE NAME: 9520I1003M09.dgn



A SECTION
03M01

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-302

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1. WATER LEVEL SHOWN ASSUMES 54 MGD PEAK FLOW WITH TEN TRAINS IN SERVICE. THE MEMBRANE FILTRATION SYSTEM AND ASSOCIATED PIPING MUST PROPERLY FUNCTION WITHIN THE PROVIDED HYDRAULIC PROFILE SHOWN ON DRAWING 00G08. MSS SHALL PROVIDE SYSTEM TO PROPERLY FUNCTION WITHIN THE HYDRAULIC PROFILE.
2. NEW 54-INCH PERMEATE HEADER WILL CONNECT TO EXISTING 54-INCH PIPING GOING TO THE BLEND CHAMBER. NEW CHLORINE INJECTION POINT WILL BE ADDED TO PERMEATE HEADER AFTER IT EXITS THE MEMBRANE BUILDING AND BEFORE THE BLEND CHAMBER.
3. CHEMICAL DRAINS FOR BLOCK AND BLEED ASSEMBLIES TO BE ROUTED TO WASTE SUMP/PUMP STATION.
4. 5-TON BRIDGE CRANE.
5. AIR GAP IS REQUIRED BETWEEN THE FLOOR OF THE MEMBRANE CELL AND TOP OF THE CLEARWELL. A WATER-TIGHT BARRIER WILL BE CONSTRUCTED TO SEPARATE THE MEMBRANE BASINS FROM THE CLEARWELL BELOW. BARRIER WILL SLOPE TO A LIQUID SENSOR TO DETECT LEAKS IN MEMBRANE BASIN.
6. SEE 03M21 FOR DETAIL ON CABLE TRAYS MOUNTED OUTSIDE OF WEST INFLUENT CHANNEL.
7. PROVIDE AND INSTALL NEW CABLE TRAY/RACK, SUPPORTS, AND CHEMICAL PIPES (PER MECHANICAL DRAWINGS) AND MEDIUM VOLTAGE CABLES (PER ELECTRICAL DRAWINGS). REFER TO 03M21 AND 00E32. CONTRACTOR SHALL COORDINATE CHEMICAL PIPE REMOVAL AND REPLACEMENT AND ASSOCIATED SEQUENCING WITH PLANT STAFF TO AVOID DISRUPTION OF PLANT OPERATIONS.

REV	DATE	BY	DESCRIPTION

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FILTER SECTION I

VERIFY SCALES
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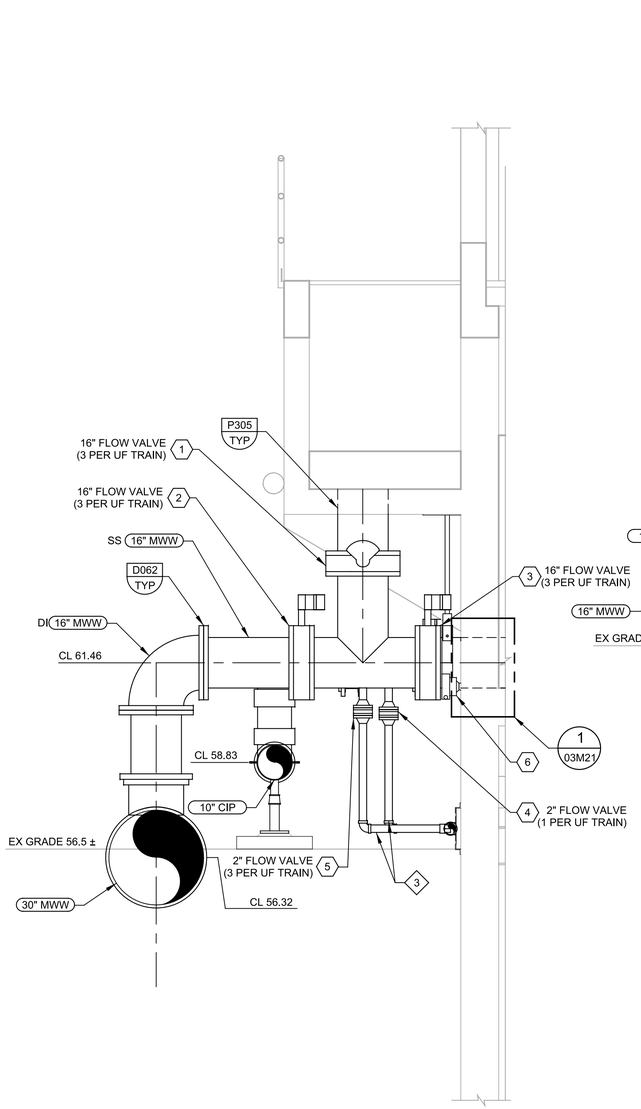
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M10

PROJECT NO.
FILE NAME: 9520I1003M10.dgn

Plot Date: 30-MAY-2025 8:37:20 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

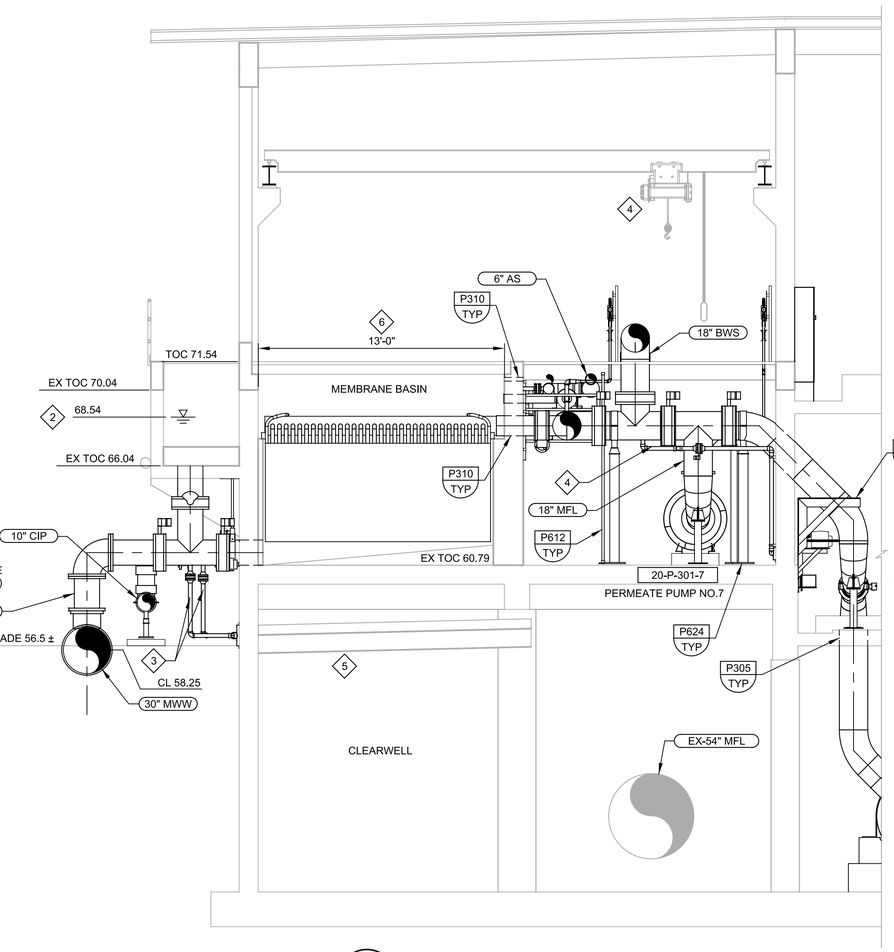
Plot Date: 04-APR-2025 10:20:37 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



1 03M10

1 EAST INFLUENT CHANNEL DETAIL

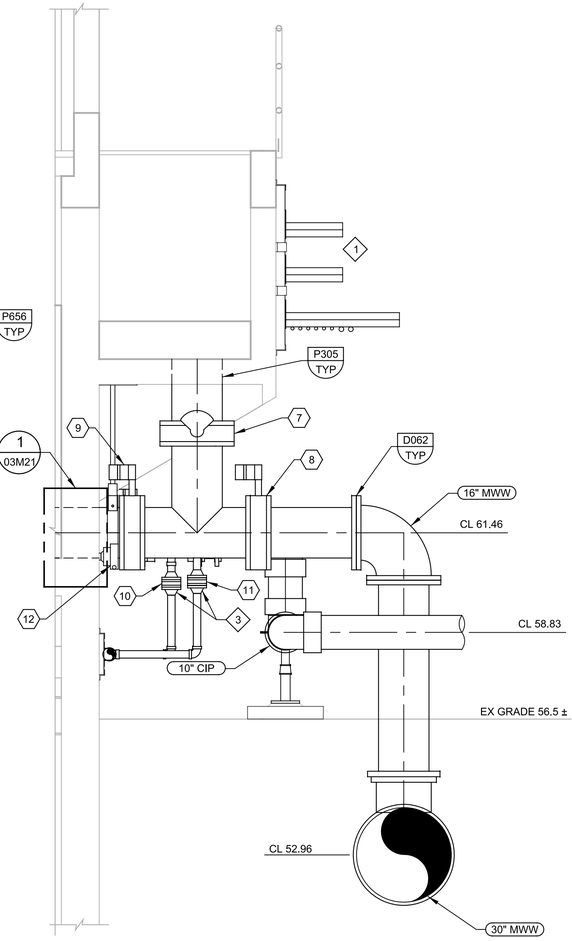
SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-302_EXT



A 03M01

A SECTION

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-302_EXT



2 03M10

2 WEST INFLUENT CHANNEL DETAIL

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-302_EXT

GENERAL NOTES

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2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ⟨#⟩

1 SEE 03M21 FOR DETAIL ON CABLE TRAYS MOUNTED OUTSIDE OF WEST INFLUENT CHANNEL.

2 WATER LEVEL SHOWN ASSUMES 54 MGD PEAK FLOW WITH TEN TRAINS IN SERVICE.

3 ACTUATED BLOCK AND BLEED VALVE ASSEMBLY. DRAINS FOR BLOCK AND BLEED ASSEMBLIES TO BE ROUTED TO WASTE SUMP/PUMP STATION.

4 5-TON BRIDGE CRANE.

5 AIR GAP IS REQUIRED BETWEEN THE FLOOR OF THE MEMBRANE CELL AND TOP OF THE CLEARWELL. A WATER-TIGHT BARRIER WILL BE CONSTRUCTED TO SEPARATE THE MEMBRANE BASINS FROM THE CLEARWELL BELOW. BARRIER WILL SLOPE TO A MOISTURE SENSOR TO DETECT LEAKS IN MEMBRANE BASIN.

6 MSS MEMBRANE MODULES. REFER TO MEMBRANE PROCUREMENT DOCUMENTS AND MSS SUBMITTALS FOR CONTRACTOR INSTALLATION RESPONSIBILITIES IN THIS AREA.

KEY TAGS = ⟨#⟩

1	16" BUTTERFLY VALVE	20-FV-110-7
2	16" BUTTERFLY VALVE	20-FV-704-7
3	16" BUTTERFLY VALVE	20-LCV-111-7
4	2" BUTTERFLY VALVE	20-FV-707-7
5	2" BUTTERFLY VALVE	20-FV-112-7
6	LEVEL TRANSMITTER	20-LIT-201-7
7	16" BUTTERFLY VALVE	20-FV-110-6
8	16" BUTTERFLY VALVE	20-FV-704-6
9	16" BUTTERFLY VALVE	20-LCV-111-6
10	2" BUTTERFLY VALVE	20-FV-707-6
11	2" BUTTERFLY VALVE	20-FV-112-6
12	LEVEL TRANSMITTER	20-LIT-201-6

REV	DATE	BY	DESCRIPTION

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VERIFY SCALES
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0 1"
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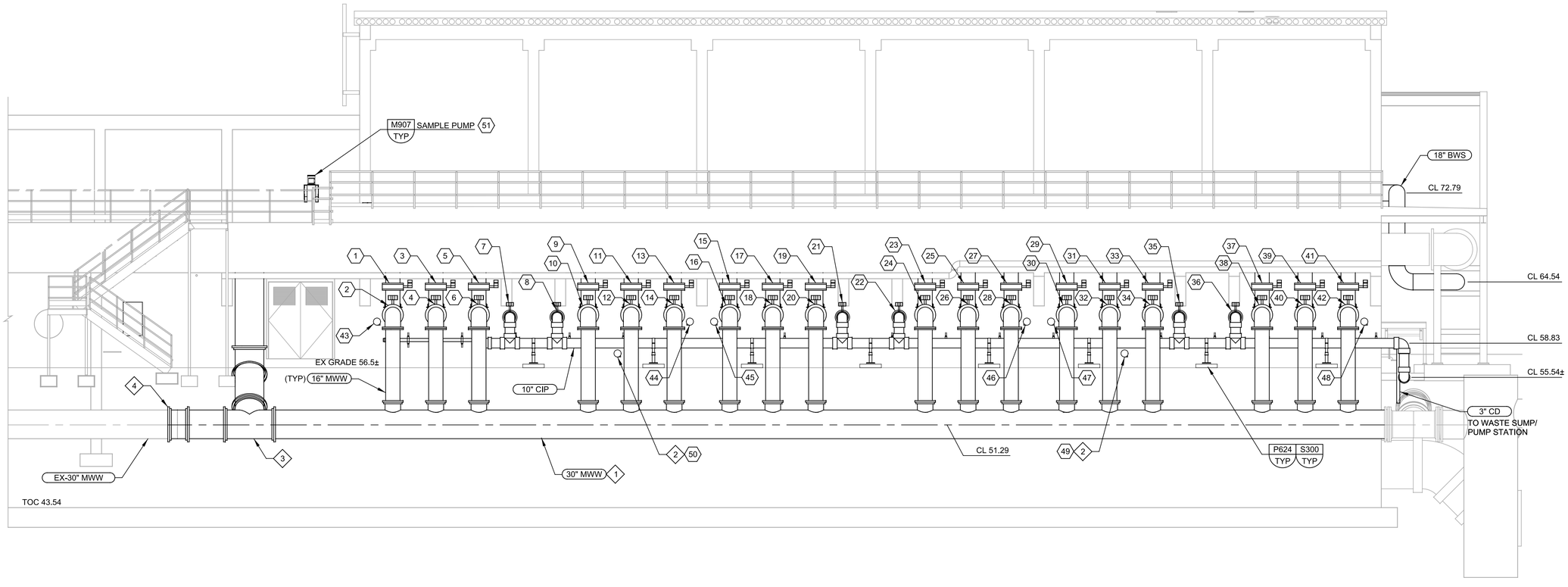
JOB NO. 09520I.10
DRAWING NO. 03M11

PROJECT NO.
FILE NAME: 9520I1003M11.dgn



B SECTION

03M01

SCALE: 3/16" = 1'-0"

FILE: 9520I10-03-050-303_EXT

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 WASTE WASHWATER TO UF BACKWASH EQUALIZATION TANK

2 LEAK DETECTION FOR FALSE CEILING IN CLEARWELL

3 30" TEE/RJ ROTATED AS REQUIRED TO ALIGN WITH 45 DEGREE BEND

4 30" SLEEVE/RJ

KEY TAGS = (#)

1	16" BUTTERFLY VALVE	20-FV-116-12
2	16" BUTTERFLY VALVE	20-FV-706-12
3	16" BUTTERFLY VALVE	20-FV-113-12
4	16" BUTTERFLY VALVE	20-FV-705-12
5	16" BUTTERFLY VALVE	20-FV-110-12
6	16" BUTTERFLY VALVE	20-FV-704-12
7	10" BUTTERFLY VALVE	20-FV-703-12
8	10" BUTTERFLY VALVE	20-FV-703-11
9	16" BUTTERFLY VALVE	20-FV-116-11
10	16" BUTTERFLY VALVE	20-FV-706-11
11	16" BUTTERFLY VALVE	20-FV-113-11
12	16" BUTTERFLY VALVE	20-FV-705-11
13	16" BUTTERFLY VALVE	20-FV-110-11
14	16" BUTTERFLY VALVE	20-FV-704-11
15	16" BUTTERFLY VALVE	20-FV-116-10
16	16" BUTTERFLY VALVE	20-FV-706-10
17	16" BUTTERFLY VALVE	20-FV-113-10
18	16" BUTTERFLY VALVE	20-FV-705-10
19	16" BUTTERFLY VALVE	20-FV-110-10
20	16" BUTTERFLY VALVE	20-FV-704-10
21	10" BUTTERFLY VALVE	20-FV-703-10
22	10" BUTTERFLY VALVE	20-FV-703-9
23	16" BUTTERFLY VALVE	20-FV-116-9
24	16" BUTTERFLY VALVE	20-FV-706-9
25	16" BUTTERFLY VALVE	20-FV-113-9
26	16" BUTTERFLY VALVE	20-FV-705-9
27	16" BUTTERFLY VALVE	20-FV-110-9
28	16" BUTTERFLY VALVE	20-FV-704-9
29	16" BUTTERFLY VALVE	20-FV-116-8
30	16" BUTTERFLY VALVE	20-FV-706-8
31	16" BUTTERFLY VALVE	20-FV-113-8
32	16" BUTTERFLY VALVE	20-FV-705-8
33	16" BUTTERFLY VALVE	20-FV-110-8
34	16" BUTTERFLY VALVE	20-FV-704-8
35	10" BUTTERFLY VALVE	20-FV-703-8
36	10" BUTTERFLY VALVE	20-FV-703-7
37	16" BUTTERFLY VALVE	20-FV-116-7
38	16" BUTTERFLY VALVE	20-FV-706-7
39	16" BUTTERFLY VALVE	20-FV-113-7
40	16" BUTTERFLY VALVE	20-FV-705-7
41	16" BUTTERFLY VALVE	20-FV-110-7
42	16" BUTTERFLY VALVE	20-FV-704-7
43	LEVEL TRANSMITTER	20-LIT-201-12
44	LEVEL TRANSMITTER	20-LIT-201-11
45	LEVEL TRANSMITTER	20-LIT-201-10
46	LEVEL TRANSMITTER	20-LIT-201-9
47	LEVEL TRANSMITTER	20-LIT-201-8
48	LEVEL TRANSMITTER	20-LIT-201-7
49	LEVEL SWITCH	20-LSH-202-3
50	LEVEL SWITCH	20-LSH-202-4
51	SAMPLE PUMP	20-P-101-8

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED GDM | DRAWN DVP | CHECKED SS | DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

MECHANICAL

UF FILTER BUILDING
FILTER SECTION III

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 03M12

PROJECT NO.

FILE NAME: 9520I1003M12.dgn

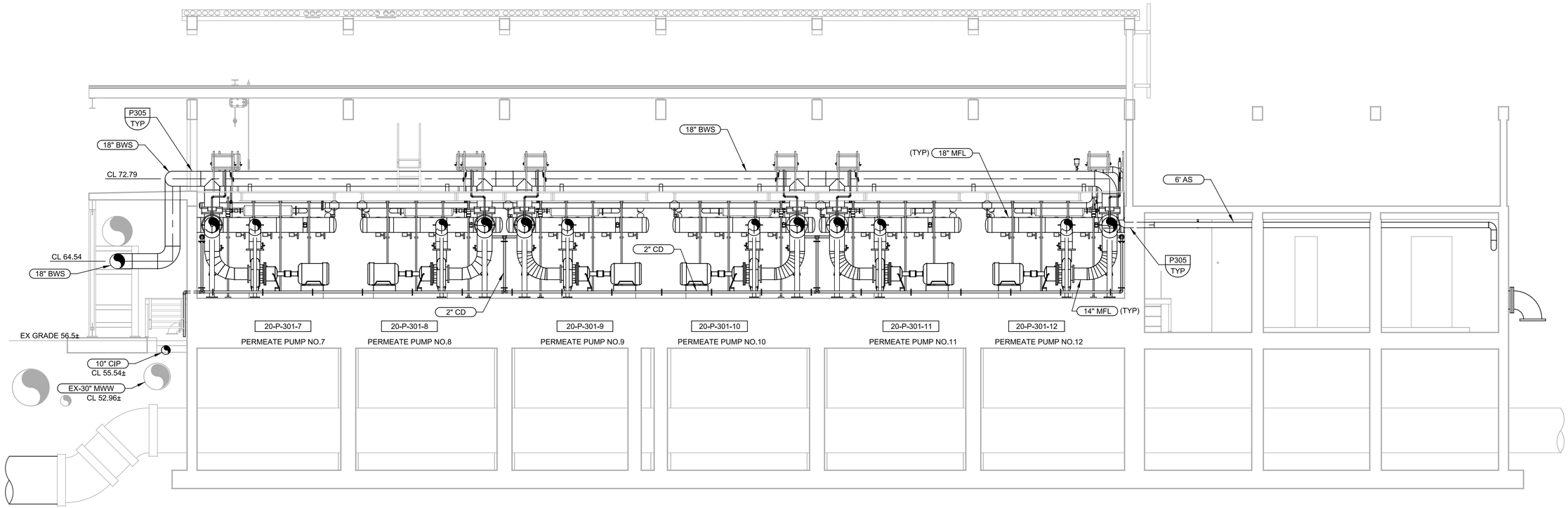
Plot Date: 04-APR-2025 10:19:00 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 10:21:11 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

.



C SECTION

03M01

SCALE: 3/16" = 1'-0"
FILE: 9520I10-03-050-304

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING
FILTER SECTION IV

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M13

PROJECT NO.
FILE NAME: 9520I1003M13.dgn

Plot Date: 04-APR-2025 10:19:27 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

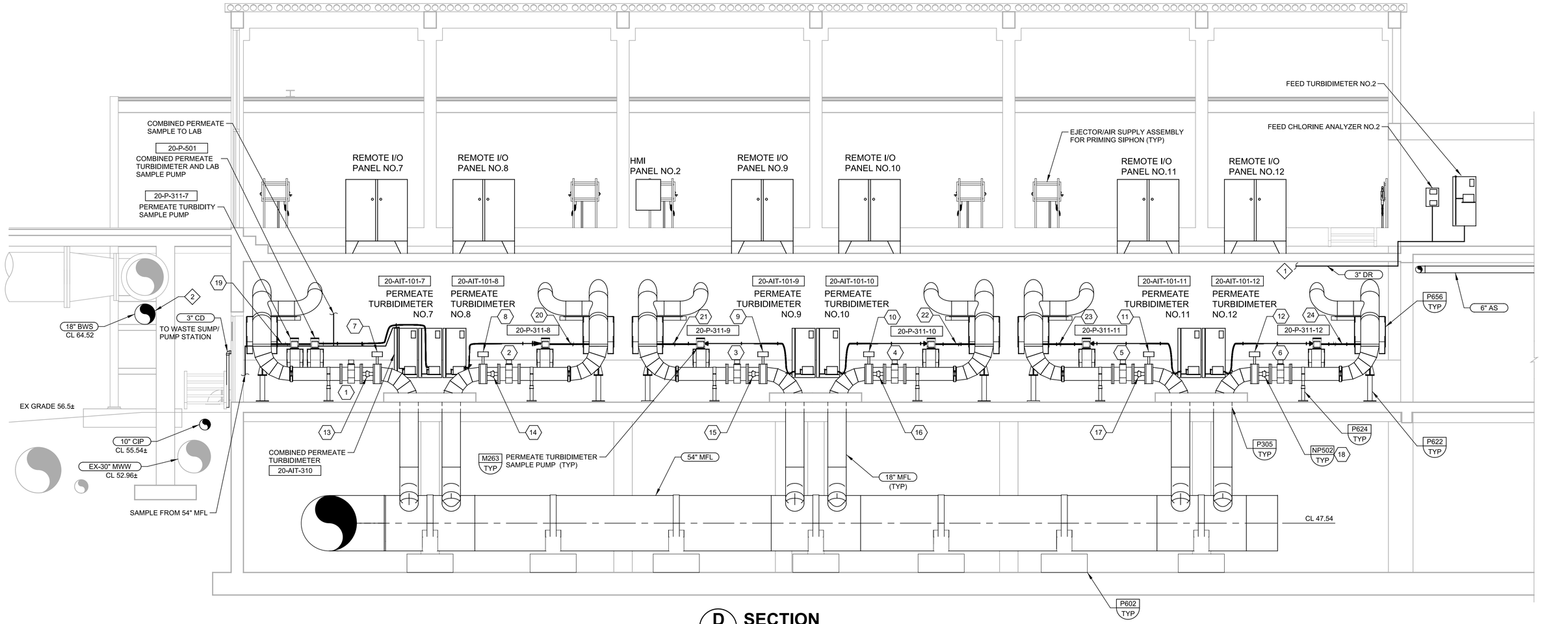
1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ⟨#⟩

1. TIE INTO EXISTING 3-INCH FLOOR DRAIN HEADER.
2. PAINT PIPE SAFETY YELLOW AT SIDEWALK CROSSING.

KEY TAGS = ⟨#⟩

1	FLOW METER	20-FIT-301-7
2	FLOW METER	20-FIT-301-8
3	FLOW METER	20-FIT-301-9
4	FLOW METER	20-FIT-301-10
5	FLOW METER	20-FIT-301-11
6	FLOW METER	20-FIT-301-12
7	12" BUTTERFLY VALVE	20-FCV-314-7
8	12" BUTTERFLY VALVE	20-FCV-314-8
9	12" BUTTERFLY VALVE	20-FCV-314-9
10	12" BUTTERFLY VALVE	20-FCV-314-10
11	12" BUTTERFLY VALVE	20-FCV-314-11
12	12" BUTTERFLY VALVE	20-FCV-314-12
13	PRESSURE TRANSMITTER	20-PIT-311-7
14	PRESSURE TRANSMITTER	20-PIT-311-8
15	PRESSURE TRANSMITTER	20-PIT-311-9
16	PRESSURE TRANSMITTER	20-PIT-311-10
17	PRESSURE TRANSMITTER	20-PIT-311-11
18	PRESSURE TRANSMITTER	20-PIT-311-12
19	1/2" BUTTERFLY VALVE	20-FV-312-7
20	1/2" BUTTERFLY VALVE	20-FV-312-8
21	1/2" BUTTERFLY VALVE	20-FV-312-9
22	1/2" BUTTERFLY VALVE	20-FV-312-10
23	1/2" BUTTERFLY VALVE	20-FV-312-11
24	1/2" BUTTERFLY VALVE	20-FV-312-12



D SECTION

03M01

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-306

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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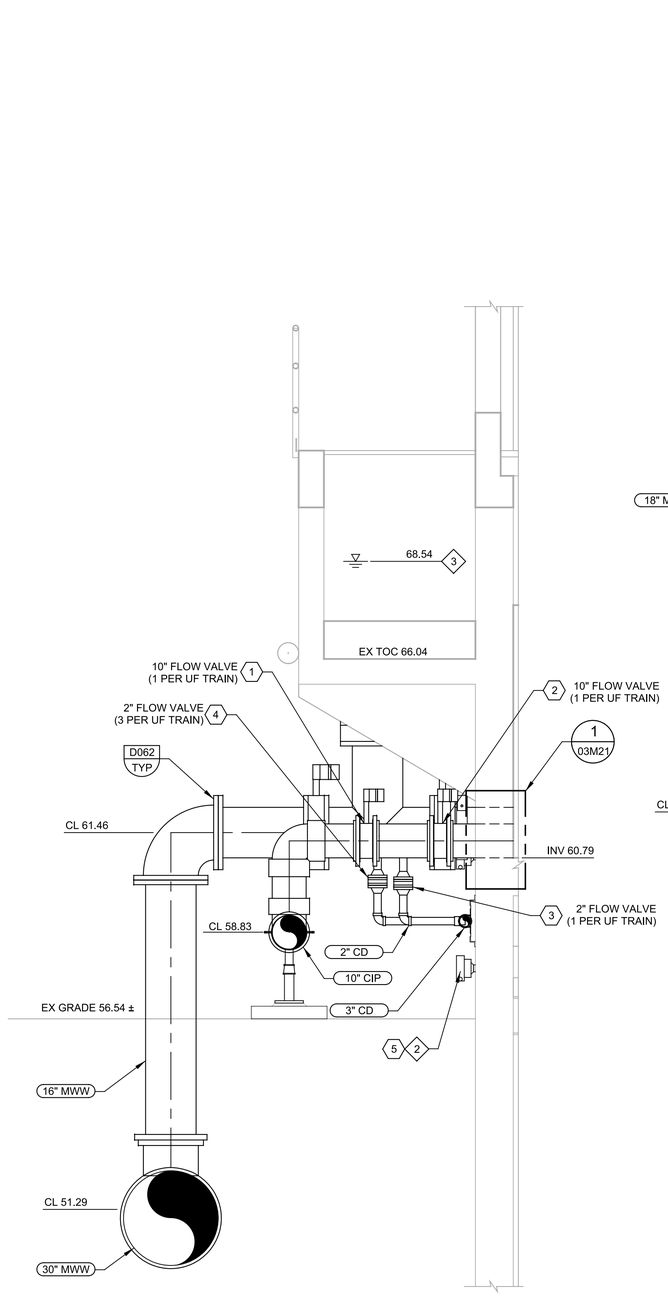
Manatee County FLORIDA

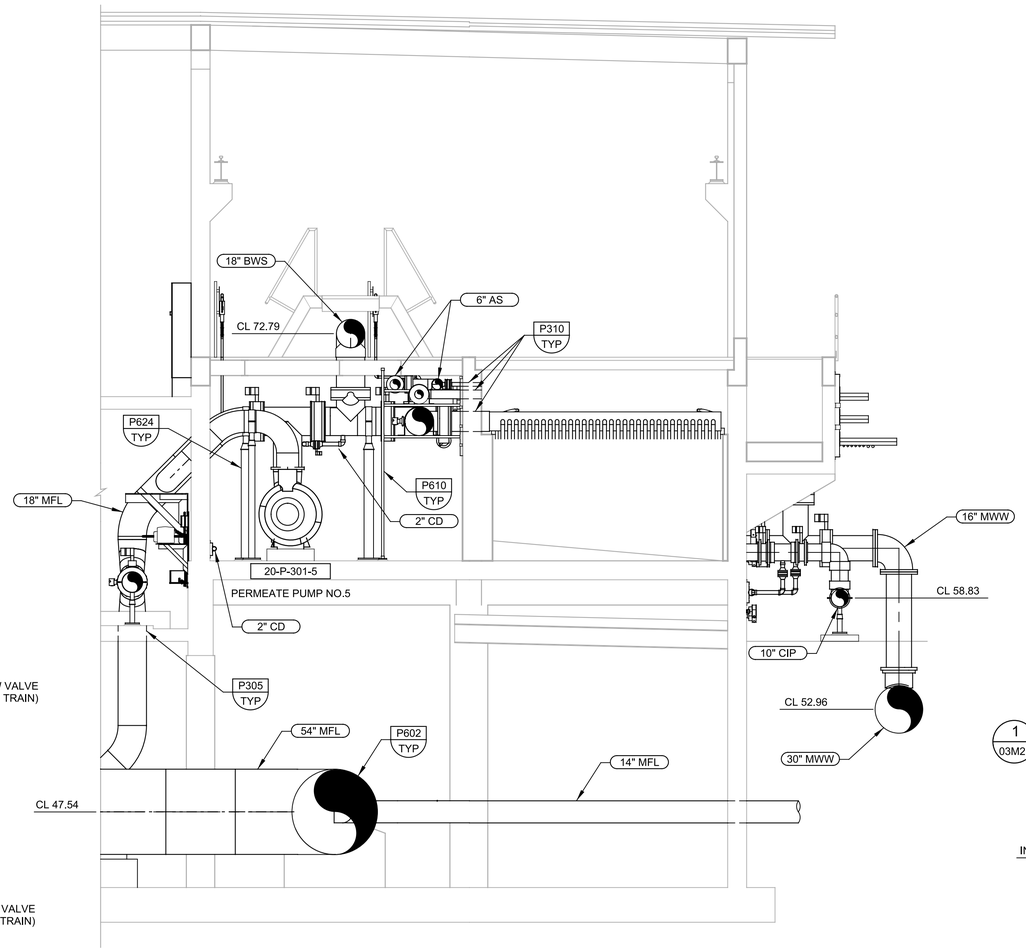
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING
FILTER SECTION V

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

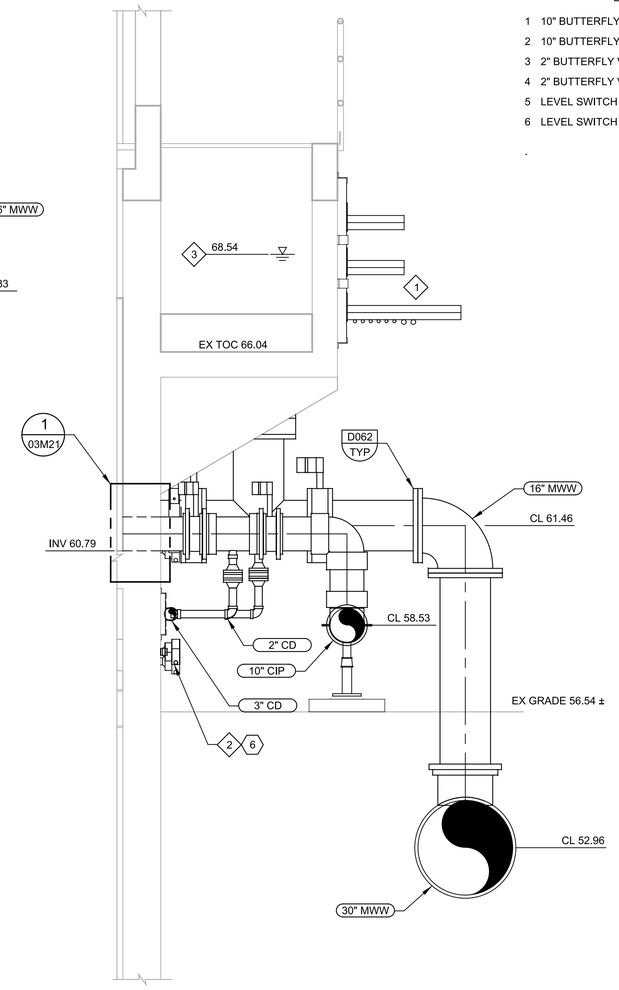
JOB NO. 09520I.10
DRAWING NO. 03M14

PROJECT NO.
FILE NAME: 9520I1003M14.dgn





E SECTION
03M01
SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-305



1 EAST INFLUENT CHANNEL DETAIL
-
SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-305

2 WEST INFLUENT CHANNEL DETAIL
-
SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-305

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 SEE 03M21 FOR DETAIL ON CABLE TRAYS MOUNTED OUTSIDE OF WEST INFLUENT CHANNEL.

2 LEAK DETECTION FOR FALSE CEILING IN CLEARWELL.

3 WATER LEVEL SHOWN ASSUMES 54 MGD PEAK FLOW WITH TEN TRAINS IN SERVICE.

KEY TAGS = (#)

1	10" BUTTERFLY VALVE	20-FV-703-8
2	10" BUTTERFLY VALVE	20-FV-702-8
3	2" BUTTERFLY VALVE	20-FV-707-8
4	2" BUTTERFLY VALVE	20-FV-112-8
5	LEVEL SWITCH	20-LSH-202-C
6	LEVEL SWITCH	20-LSH-202-A

.

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING
FILTER SECTION AND DETAILS VI

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M15

Plot Date: 30-MAY-2025 8:37:54 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

PROJECT NO.
FILE NAME: 9520I1003M15.dgn

KEY TAGS = ⟨#⟩

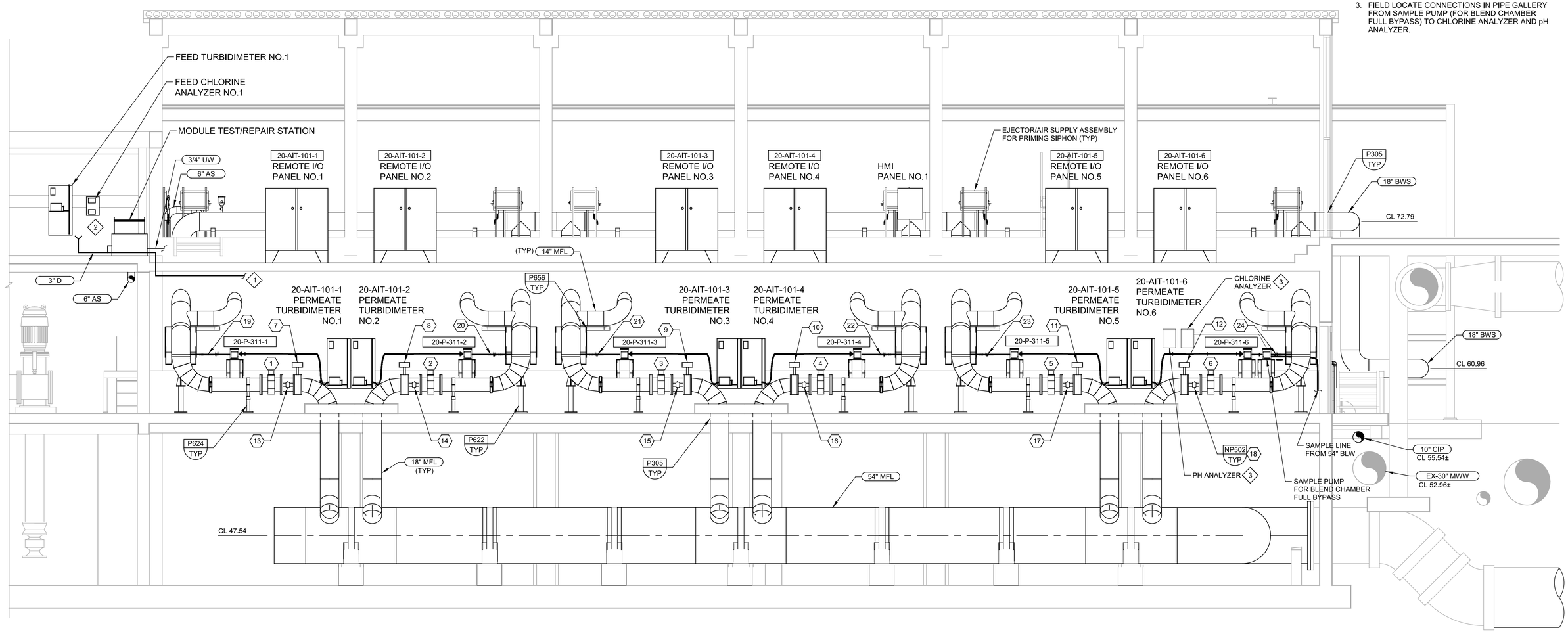
1	FLOW METER	20-FIT-301-1	13	PRESSURE TRANSMITTER	20-PIT-311-1
2	FLOW METER	20-FIT-301-2	14	PRESSURE TRANSMITTER	20-PIT-311-2
3	FLOW METER	20-FIT-301-3	15	PRESSURE TRANSMITTER	20-PIT-311-3
4	FLOW METER	20-FIT-301-4	16	PRESSURE TRANSMITTER	20-PIT-311-4
5	FLOW METER	20-FIT-301-5	17	PRESSURE TRANSMITTER	20-PIT-311-5
6	FLOW METER	20-FIT-301-6	18	PRESSURE TRANSMITTER	20-PIT-311-6
7	12" BUTTERFLY VALVE	20-FCV-314-1	19	1/2" BUTTERFLY VALVE	20-FV-312-1
8	12" BUTTERFLY VALVE	20-FCV-314-2	20	1/2" BUTTERFLY VALVE	20-FV-312-2
9	12" BUTTERFLY VALVE	20-FCV-314-3	21	1/2" BUTTERFLY VALVE	20-FV-312-3
10	12" BUTTERFLY VALVE	20-FCV-314-14	22	1/2" BUTTERFLY VALVE	20-FV-312-4
11	12" BUTTERFLY VALVE	20-FCV-314-5	23	1/2" BUTTERFLY VALVE	20-FV-312-5
12	12" BUTTERFLY VALVE	20-FCV-314-6	24	1/2" BUTTERFLY VALVE	20-FV-312-6

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ⟨#⟩

1. TIE INTO EXISTING 3-INCH FLOOR DRAIN HEADER.
2. PROVIDE COMPRESSED AIR, UTILITY WATER, AND DRAIN CONNECTIONS TO THE MEMBRANE MODULE TEST/REPAIR STATION. FIELD ROUTE COMPRESSED AIR PIPING AND PROVIDE PRESSURE REDUCING VALVE AS NEEDED TO SUPPLY MANUFACTURER REQUIRED AIR PRESSURE. TIE INTO EXISTING HOSE BIB ADJACENT TO THE MODULE TEST/REPAIR STATION FOR UTILITY WATER SUPPLY.
3. FIELD LOCATE CONNECTIONS IN PIPE GALLERY FROM SAMPLE PUMP (FOR BLEND CHAMBER FULL BYPASS) TO CHLORINE ANALYZER AND pH ANALYZER.



F SECTION

03M01

SCALE: 1/4" = 1'-0"
FILE: 952010-02-050-301

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING
FILTER SECTION VII

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M16

Plot Date: 04-APR-2025 10:21:57 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker
PROJECT NO.
FILE NAME: 9520I1003M16.dgn

Plot Date: 30-MAY-2025 8:40:15 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

GENERAL NOTES

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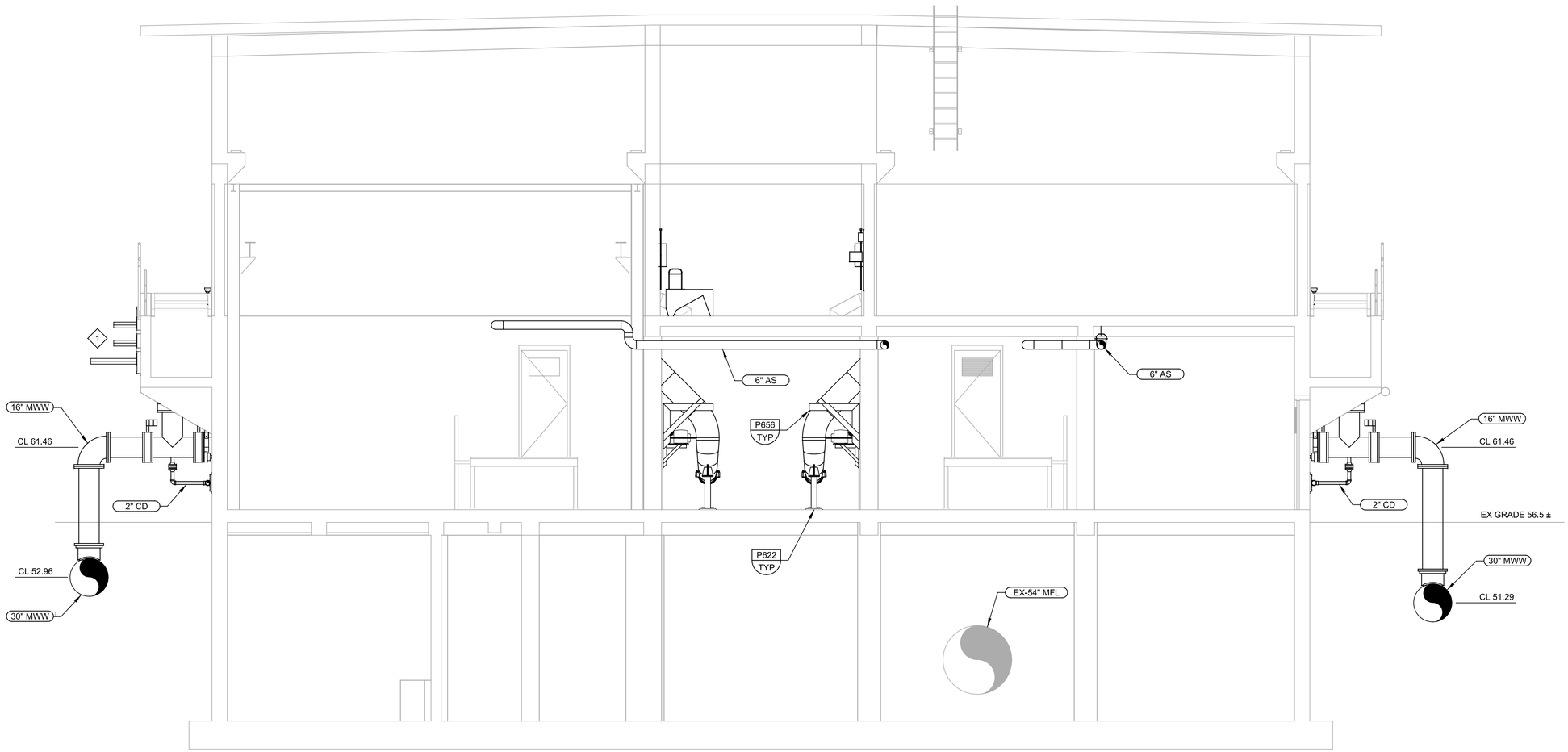
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1 SEE 03M21 FOR DETAIL ON CABLE TRAYS MOUNTED OUTSIDE OF WEST INFLUENT CHANNEL.

.



G SECTION

03M01

SCALE: 1/4" = 1'-0"
FILE: 952010-03-050-310

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
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DATE APRIL 2025

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MANATEE COUNTY
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UF FILTER BUILDING
FILTER SECTION VIII

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M17

PROJECT NO.
FILE NAME: 9520I1003M17.dgn

KEY TAGS = (#)

1	16" BUTTERFLY VALVE	20-FV-116-6	
2	16" BUTTERFLY VALVE	20-FV-706-6	
3	16" BUTTERFLY VALVE	20-FV-113-6	
4	16" BUTTERFLY VALVE	20-FV-705-6	
5	16" BUTTERFLY VALVE	20-FV-110-6	
6	16" BUTTERFLY VALVE	20-FV-704-6	
7	10" BUTTERFLY VALVE	20-FV-703-6	
8	10" BUTTERFLY VALVE	20-FV-703-5	
9	16" BUTTERFLY VALVE	20-FV-116-5	
10	16" BUTTERFLY VALVE	20-FV-706-5	
11	16" BUTTERFLY VALVE	20-FV-113-5	
12	16" BUTTERFLY VALVE	20-FV-705-5	
13	16" BUTTERFLY VALVE	20-FV-110-5	
14	16" BUTTERFLY VALVE	20-FV-704-5	
15	16" BUTTERFLY VALVE	20-FV-116-4	
16	16" BUTTERFLY VALVE	20-FV-706-4	
17	16" BUTTERFLY VALVE	20-FV-113-4	
18	16" BUTTERFLY VALVE	20-FV-705-4	
19	16" BUTTERFLY VALVE	20-FV-110-4	
20	16" BUTTERFLY VALVE	20-FV-704-4	
21	10" BUTTERFLY VALVE	20-FV-703-4	
22	10" BUTTERFLY VALVE	20-FV-703-3	
23	16" BUTTERFLY VALVE	20-FV-116-3	
24	16" BUTTERFLY VALVE	20-FV-706-3	
25	16" BUTTERFLY VALVE	20-FV-113-3	
26	16" BUTTERFLY VALVE	20-FV-705-3	
27	16" BUTTERFLY VALVE	20-FV-110-3	
28	16" BUTTERFLY VALVE	20-FV-704-3	
29	16" BUTTERFLY VALVE	20-FV-116-2	
30	16" BUTTERFLY VALVE	20-FV-706-2	
31	16" BUTTERFLY VALVE	20-FV-113-2	
32	16" BUTTERFLY VALVE	20-FV-705-2	
33	16" BUTTERFLY VALVE	20-FV-110-2	
34	16" BUTTERFLY VALVE	20-FV-704-2	
35	10" BUTTERFLY VALVE	20-FV-703-2	
36	10" BUTTERFLY VALVE	20-FV-703-1	
37	16" BUTTERFLY VALVE	20-FV-116-1	
38	16" BUTTERFLY VALVE	20-FV-706-1	
39	16" BUTTERFLY VALVE	20-FV-113-1	
40	16" BUTTERFLY VALVE	20-FV-705-1	
41	16" BUTTERFLY VALVE	20-FV-110-1	
42	16" BUTTERFLY VALVE	20-FV-704-1	
43	LEVEL TRANSMITTER	20-LIT-201-1	
44	LEVEL TRANSMITTER	20-LIT-201-2	
45	LEVEL TRANSMITTER	20-LIT-201-3	
46	LEVEL TRANSMITTER	20-LIT-201-4	
47	LEVEL TRANSMITTER	20-LIT-201-5	
48	LEVEL TRANSMITTER	20-LIT-201-6	
49	LEVEL SWITCH	20-LSH-202-1	
50	LEVEL SWITCH	20-LSH-202-2	
51	SAMPLE PUMP	20-P-101-8	

GENERAL NOTES

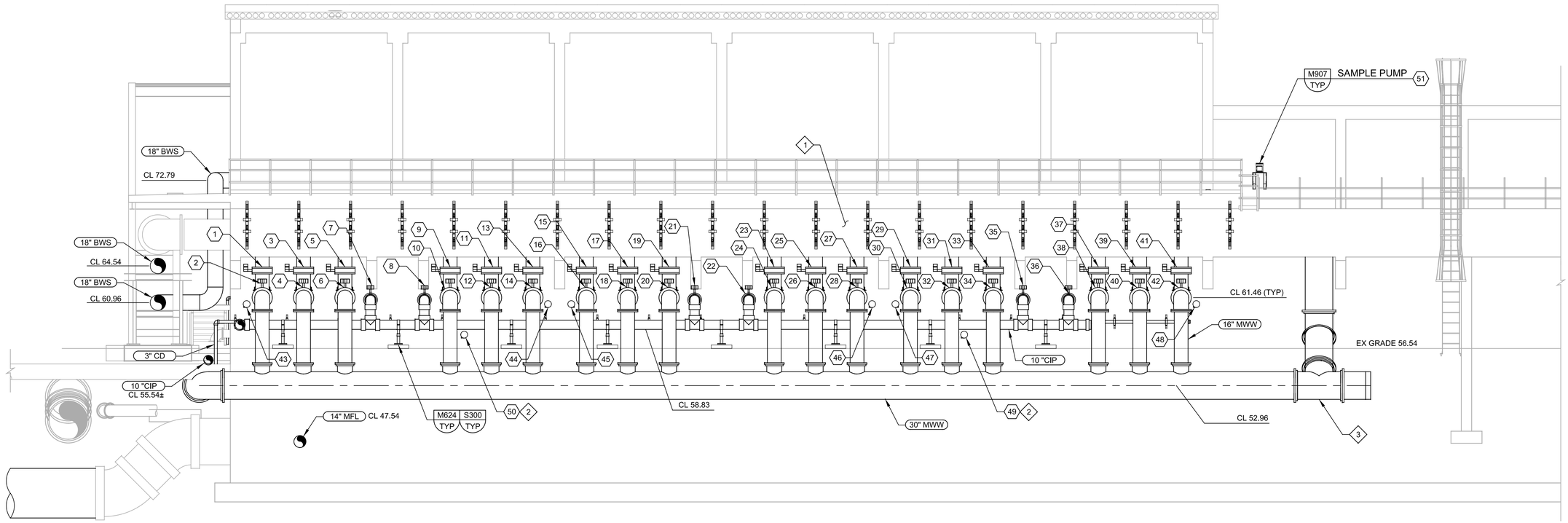
1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = (#)

1 SEE 03M21 FOR DETAIL ON CABLE TRAYS MOUNTED OUTSIDE OF WEST INFLUENT CHANNEL.

2 LEAK DETECTION FOR FALSE CEILING IN CLEARWELL.

3 30" TEE W/ PLUG/RJ ROTATED TO ALIGN WITH 45 DEGREE BEND.



H SECTION
03M01

SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-312

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
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MANATEE COUNTY
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FILTER SECTION IX

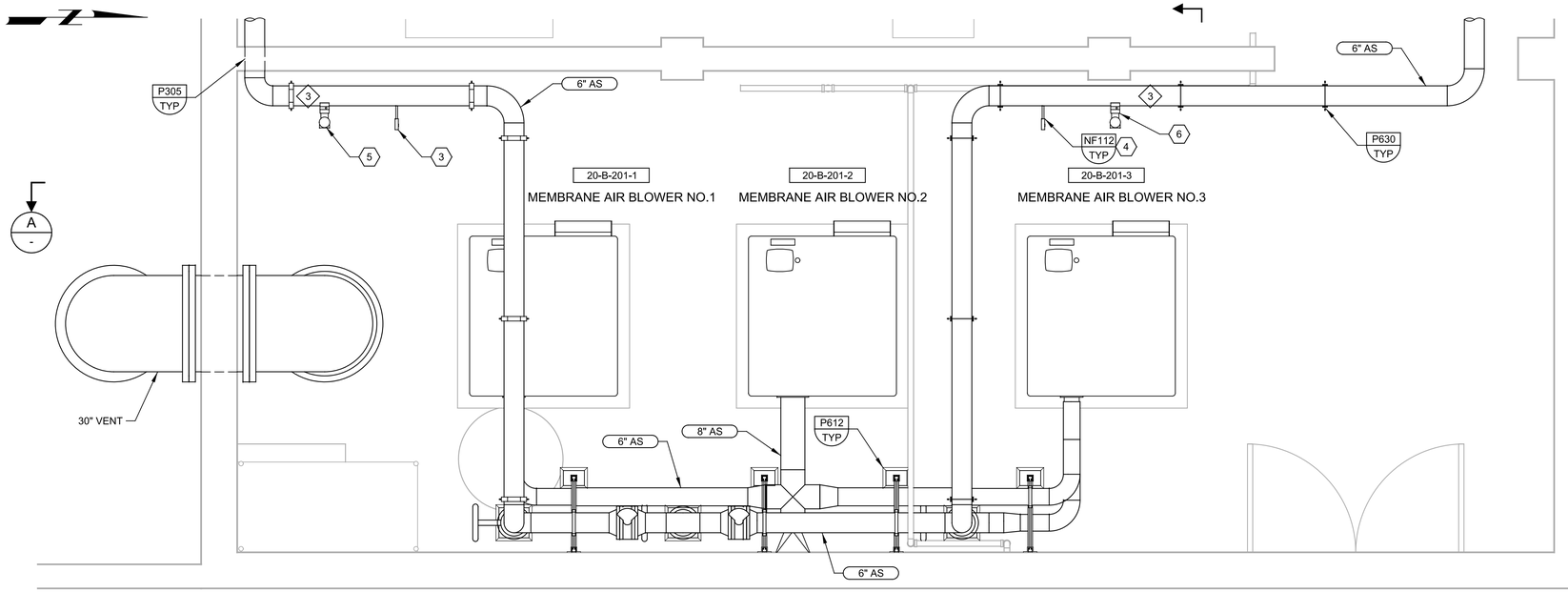
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M18

PROJECT NO.
FILE NAME: 9520I1003M18.dgn

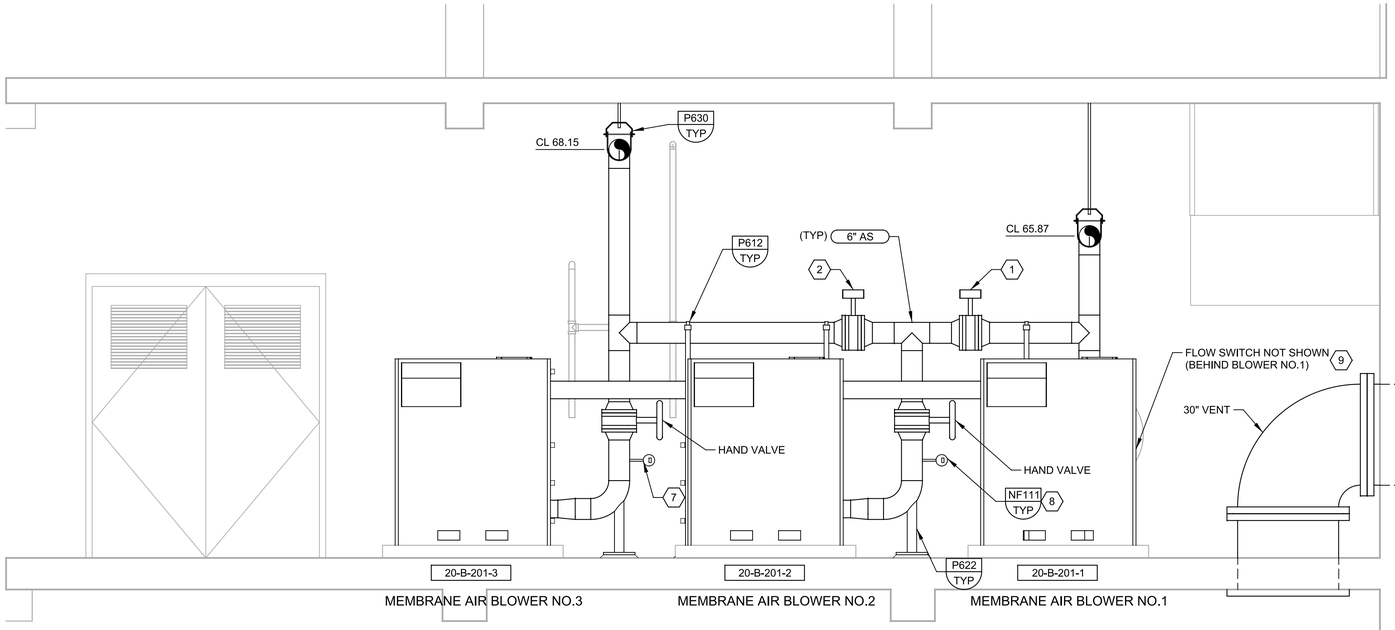
Plot Date: 04-APR-2025 10:23:36 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 10:20:12 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



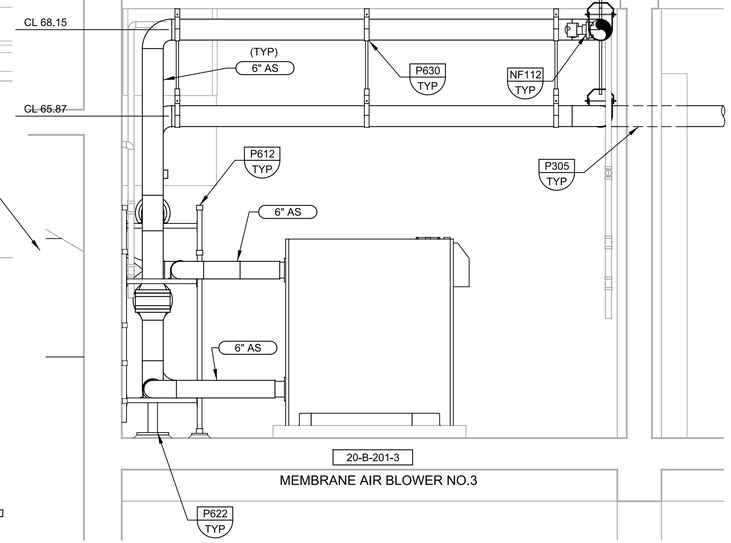
A BLOWER ROOM PLAN

SCALE: 3/4" = 1'-0"
FILE: 9520I10-03-050-105



A BLOWER ROOM SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-309



B BLOWER ROOM SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-307

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1 AIR LOUVER AND ACCOUSTICAL INTAKE (FROM MSS)
2 PROVIDE 24/24 REMOVABLE MESH SCREEN
3 FIELD ROUTE ½" CONDENSATE DRAIN LINE WITH PNEUMATIC VALVE TO NEAREST FLOOR DRAIN

KEY TAGS = ⬡#

1	6" BUTTERFLY VALVE	20-FV-201-1
2	6" BUTTERFLY VALVE	20-FV-201-2
3	THERMAL MASS FLOWMETER	20-FIT-201-1
4	THERMAL MASS FLOWMETER	20-FIT-201-2
5	PRESSURE TRANSMITTER	20-PIT-201-1
6	PRESSURE TRANSMITTER	20-PIT-201-2
7	FLOW SWITCH	20-FSL-201-1
8	FLOW SWITCH	20-FSL-201-2
9	FLOW SWITCH	20-FSL-201-3

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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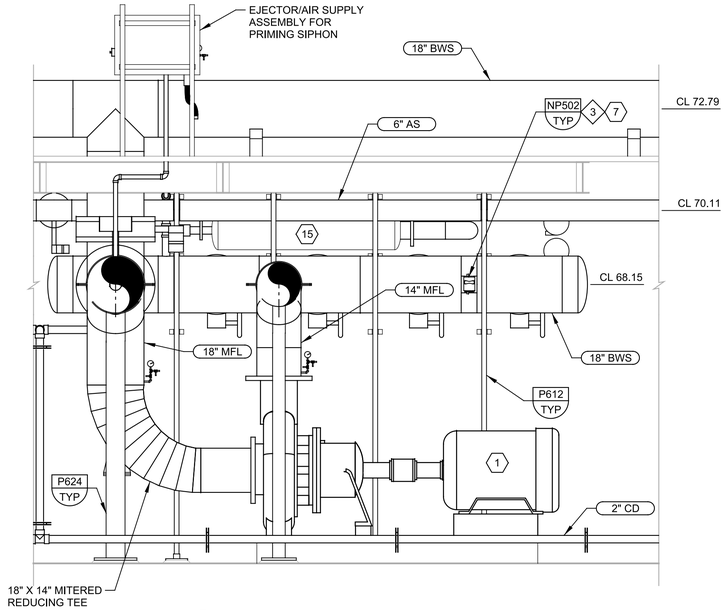
CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
BLOWER ROOM
PLAN AND SECTIONS

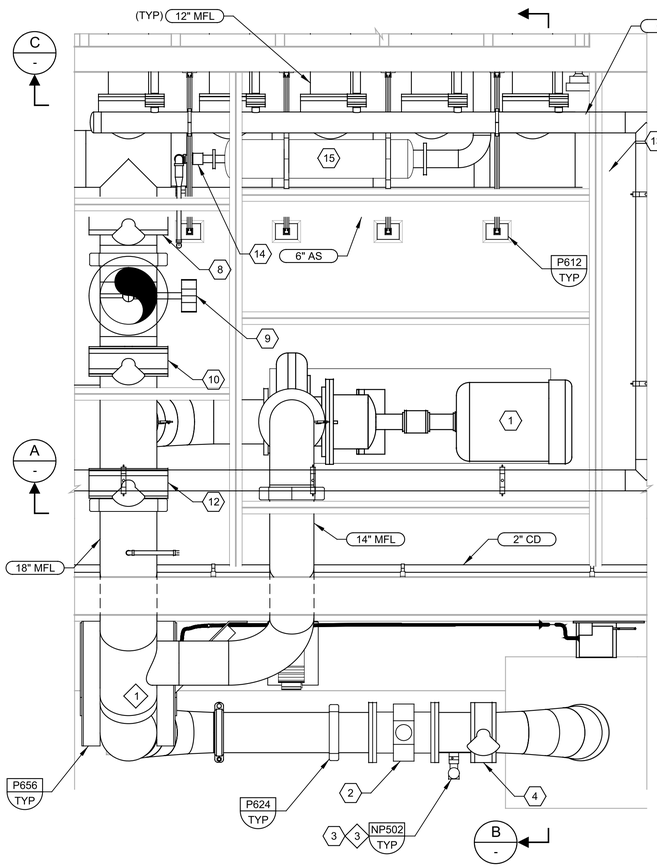
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 03M19



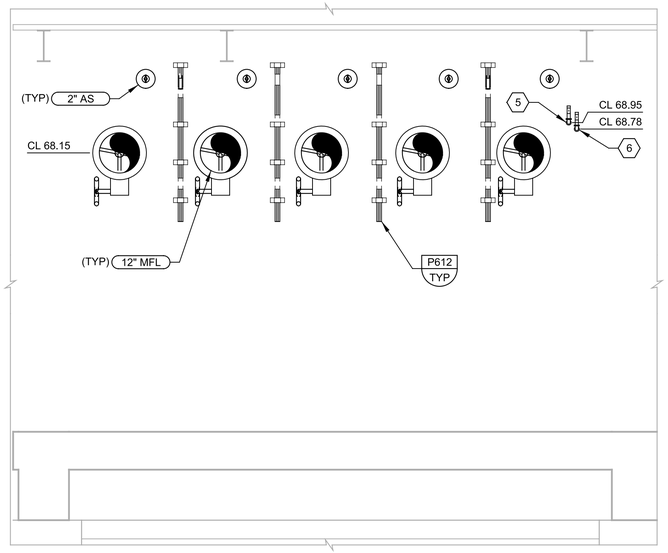
A PERMEATE PUMP SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-304



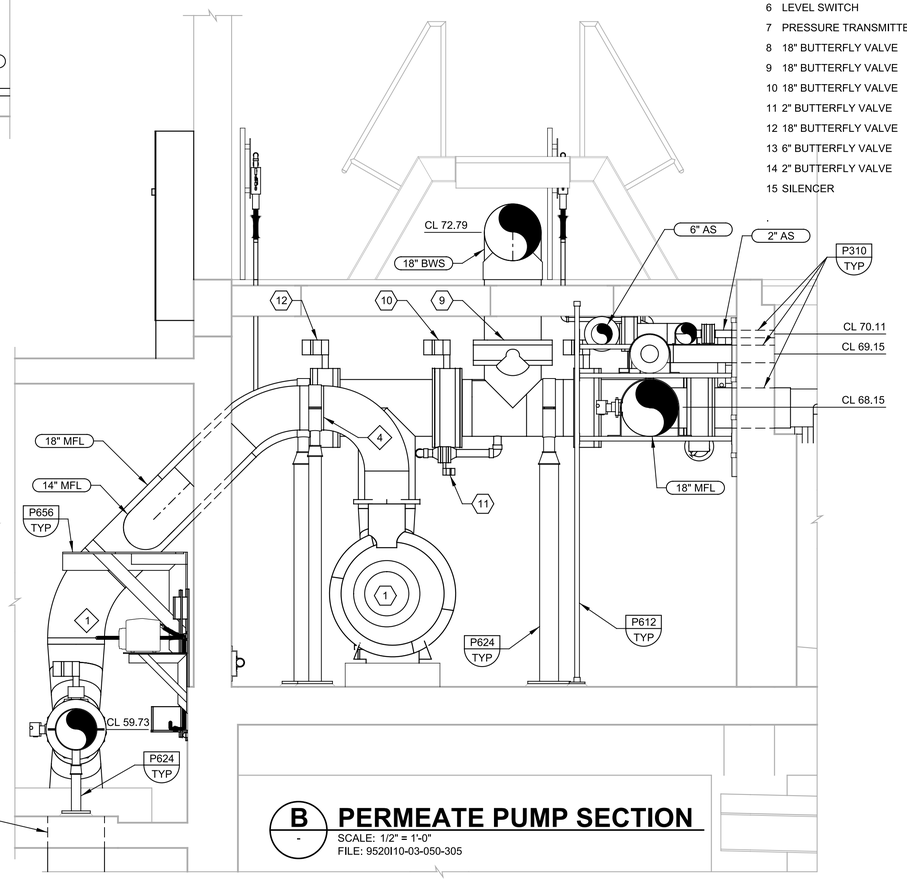
1 PERMEATE PUMP DETAIL

03M06
SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-103



C PERMEATE PUMP SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-311



B PERMEATE PUMP SECTION

SCALE: 1/2" = 1'-0"
FILE: 9520I10-03-050-305

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THIS SHEET SHOWS EQUIPMENT PROVIDED BY THE MSS THAT ARE INTEGRAL TO THE MEMBRANE SYSTEM. REFER TO MSS PID SHEETS FOR ADDITIONAL INFORMATION AND SCOPE DELINEATION.

KEY NOTES = ◇#

1 TURBIDITY SAMPLE POINT TO BE LOCATED ON SIDE OF PIPE.

2 EJECTOR LOCATED ON THE TOP OF THE PIPE AT THE HIGHEST POINT OF THE PIPING.

3 MOUNT PIT IN SIDE OF PIPE.

4 VICTAULIC COUPLING. FUTURE MEMBRANE REPLACEMENT ACTIVITIES MAY REQUIRE REMOVAL OF PIPE SECTION FROM PUMP DISCHARGE TO VICTAULIC COUPLING, ALLOWING INSTALLATION OF TEMPORARY PIPING FROM PERMEATE PUMP DISCHARGE TO MEMBRANE TANK FOR COMMISSIONING.

KEY TAGS = ◇#

1	PERMEATE PUMP	20-P-301-5
2	FLOW METER	20-FIT-301-5
3	PRESSURE TRANSMITTER	20-PIT-311-5
4	12" BUTTERFLY VALVE	20-FCV-314-5
5	LEVEL SWITCH	20-LSH-203-5
6	LEVEL SWITCH	20-LSH-204-5
7	PRESSURE TRANSMITTER	20-PIT-301-5
8	18" BUTTERFLY VALVE	20-FV-301-5
9	18" BUTTERFLY VALVE	20-FV-620-5
10	18" BUTTERFLY VALVE	20-FV-302-5
11	2" BUTTERFLY VALVE	20-FV-303-5
12	18" BUTTERFLY VALVE	20-FV-311-5
13	6" BUTTERFLY VALVE	20-FV-210-5
14	2" BUTTERFLY VALVE	20-FV-230-5
15	SILENCER	20-SL-201-5

RECORD DOCUMENTS

REV	DATE	BY	DESCRIPTION

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
PERMEATE PUMP PLAN AND SECTIONS

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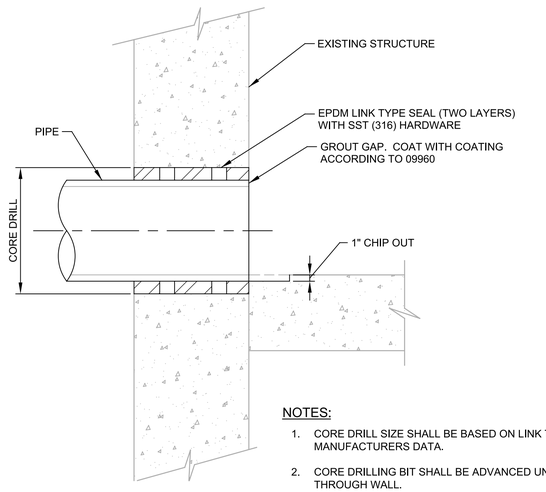
JOB NO. 09520I.10
DRAWING NO. 03M20

PROJECT NO.
FILE NAME: 9520I1003M20.dgn

Plot Date: 30-MAY-2025 10:41:27 AM
User: svcPW
Model: Layout1
ColorTable: gshade.ctb
DesignScript: Carollo_Std_Pen_v0905.pen
PlotScale: 1:1
LAST SAVED BY: eparker

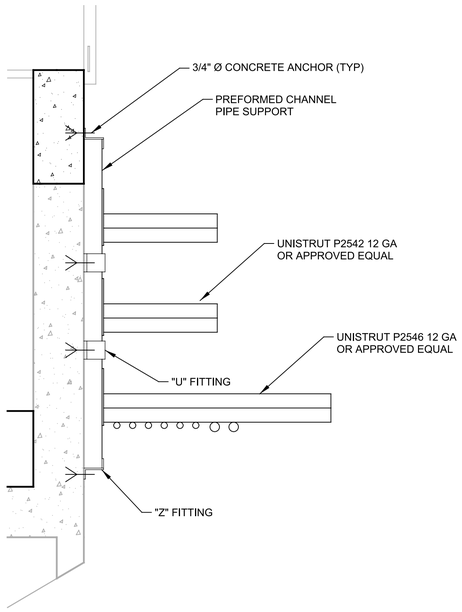


NOTES:

1. CORE DRILL SIZE SHALL BE BASED ON LINK TYPE SEAL MANUFACTURERS DATA.
2. CORE DRILLING BIT SHALL BE ADVANCED UNTIL IT BREAKS THROUGH WALL.
3. CHIPPED OUT AREA SURFACES SHALL BE SMOOTHED SUFFICIENTLY TO BE COATED.

1 MEMBRANE FEED/ DRAIN AND CIP PIPE PENETRATION DETAIL

SCALE: 1" = 1'-0"
FILE: 9520I10-03-050-401

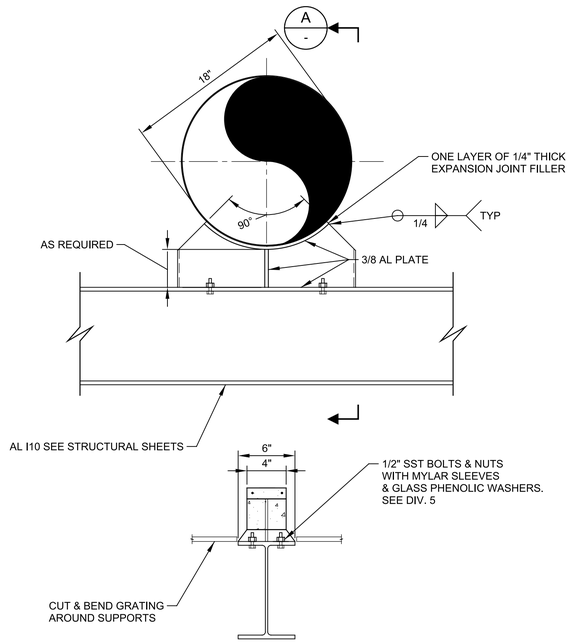


NOTES:

1. SPACE PREFORMED CHANNEL PIPE SUPPORTS AT MAXIMUM 5'-0" Ø.
2. MATERIALS SHALL BE HOT-DIP GALVANIZED STEEL.

2 CABLE TRAY DETAIL

03M10
SCALE: 1" = 1'-0"
FILE: 9520I10-03-050-302



3 PIPE SUPPORT DETAIL

-
SCALE: 1 1/2" = 1'-0"
FILE: 9520I10-03-050-401

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
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DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
UF FILTER BUILDING DETAILS

VERIFY SCALES
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0 1"
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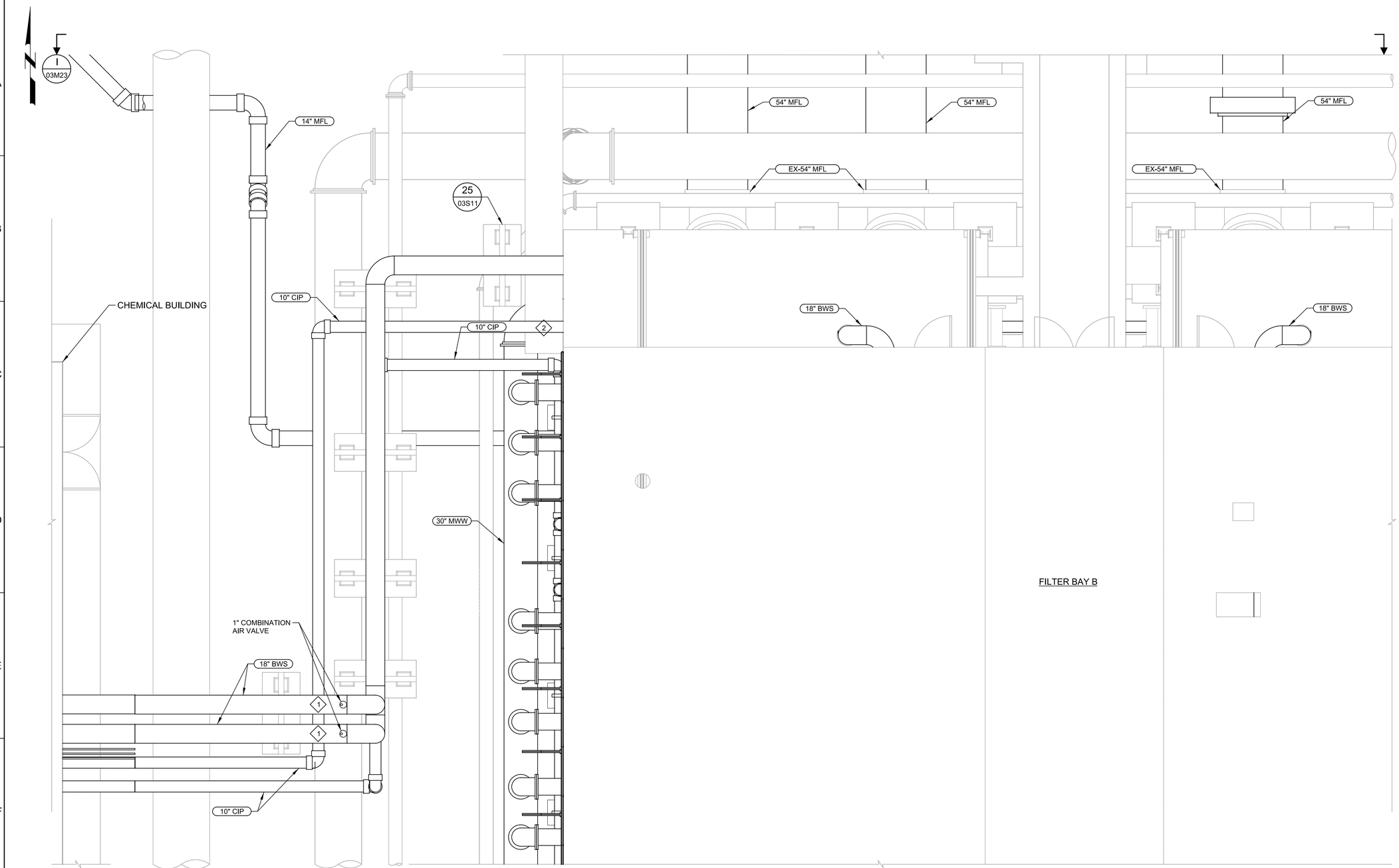
JOB NO. 09520I.10
DRAWING NO. 03M21

PROJECT NO.
FILE NAME: 9520I1003M21.dgn

Plot Date: 04-APR-2025 10:24:23 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: eparker



GENERAL NOTES

1. CIP PIPING FROM THE FILTER BUILDING SHALL BE SLOPED FROM THE MEMBRANE BASIN TO THE CIP PUMP TO ALLOW COMPLETE DRAINAGE OF THE PIPE.

KEY NOTES = ◇#

1. LOCATION OF TEMPORARY EJECTORS FOR COMMISSIONING.
2. MODIFY SOUTH END OF EXISTING CHEMICAL TRENCH PER 03DM01.

.

D PLAN
SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-101

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
BETWEEN BUILDINGS PLAN

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 03M22

PROJECT NO.
FILE NAME: 9520I1003M22.dgn

Plot Date: 04-APR-2025 10:19:53 AM
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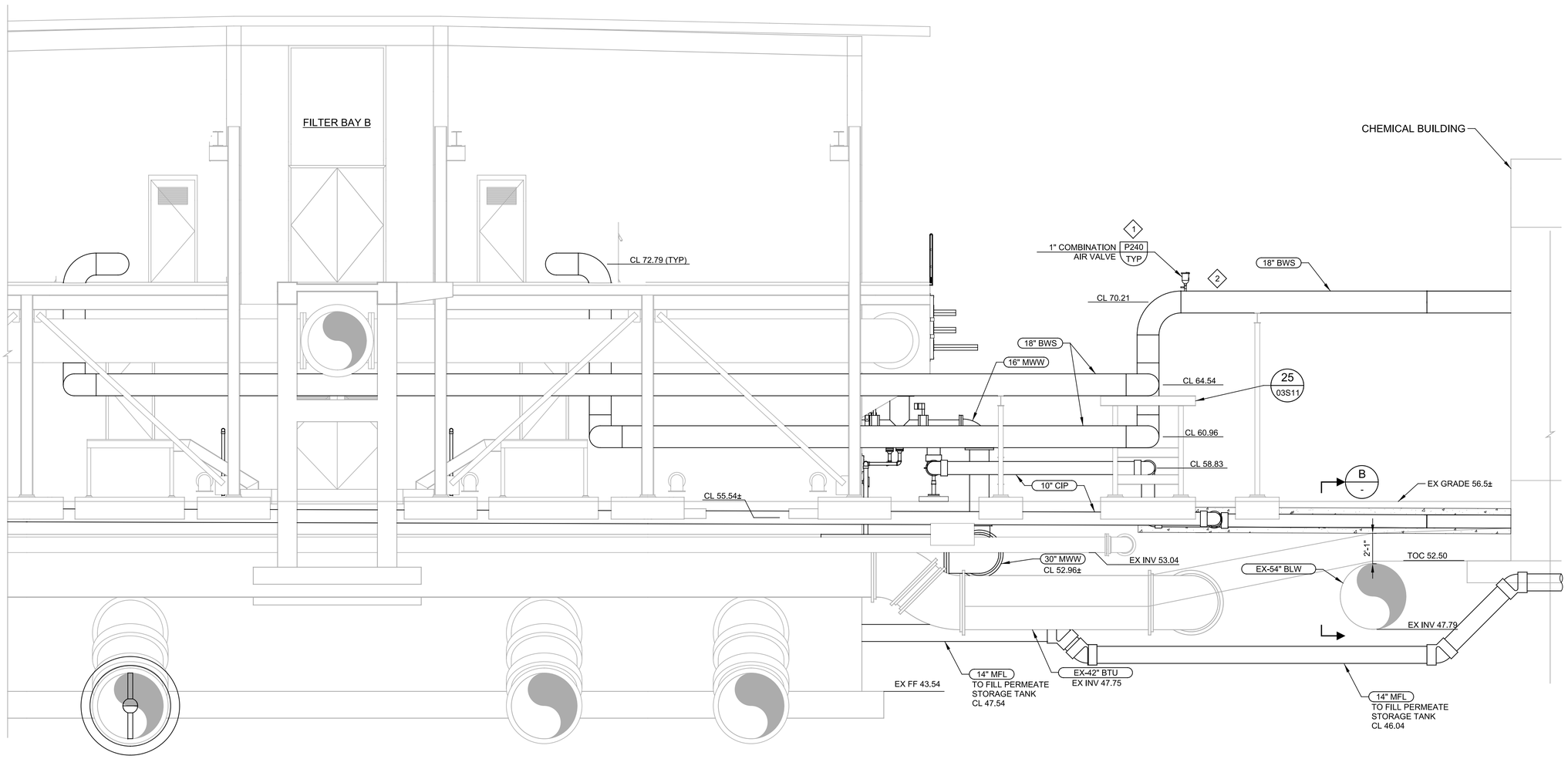
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

Plot Date: 04-APR-2025 10:23:29 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



A - **SECTION**
SCALE: 1/4" = 1'-0"
FILE: 9520I10-03-050-308

GENERAL NOTES

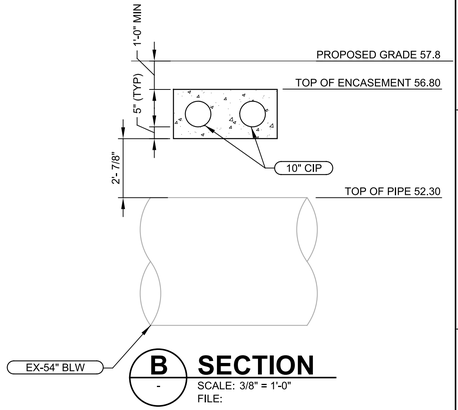
1. CIP PIPING FROM THE FILTER BUILDING SHALL BE SLOPED FROM THE MEMBRANE BASIN TO THE CIP PUMP TO ALLOW COMPLETE DRAINAGE OF THE PIPE.

KEY NOTES = ◇#

1 1" COMBINATION AIR VALVE TO BE INSTALLED ON EACH BWS PIPE.

2 LOCATION OF TEMPORARY EJECTORS FOR COMMISSIONING.

.



B - **SECTION**
SCALE: 3/8" = 1'-0"
FILE:

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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BETWEEN BUILDINGS SECTION

VERIFY SCALES
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0 1"
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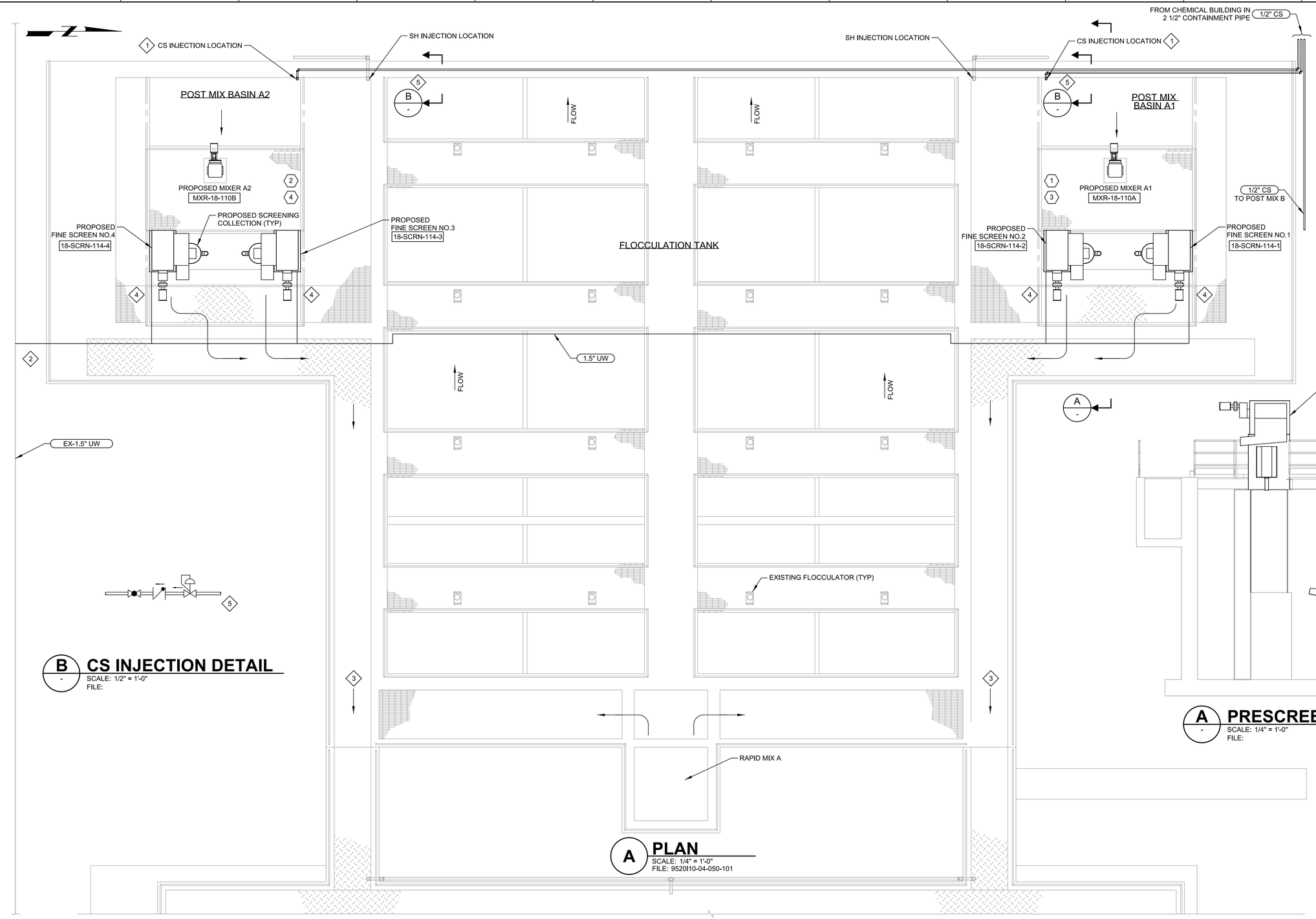
JOB NO. 09520I.10
DRAWING NO. 03M23

PROJECT NO.
FILE NAME: 9520I1003M23.dgn

Plot Date: 04-APR-2025 10:21:06 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



B CS INJECTION DETAIL
SCALE: 1/2" = 1'-0"
FILE:

A PRESCREEN SECTION
SCALE: 1/4" = 1'-0"
FILE:

A PLAN
SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-101

KEY NOTES = ◇#

1 EXISTING CH ADDITION TO BE REPLACED WITH CS ADDITION AND RELOCATED AS SHOWN. HEAT TRACING AND PIPE INSULATION TO BE PROVIDED ON NEW CS PIPING PER SECTIONS 40_41_00 AND 40_05_06.55

2 TIE INTO EXISTING 1 1/2 INCH UTILITY WATER LINE.

3 PH MONITORING LOCATIONS (EXISTING).

4 CONNECT UTILITY WATER FOR SCREEN WASH WATER AS SHOWN ON SHEET 00N03.

5 END CONTAINMENT PIPING AT EDGE OF BASIN.

KEY TAGS = ◇#

1	ULTRASONIC LEVEL	18-LE/LIT-111-A
2	ULTRASONIC LEVEL	18-LE/LIT-111-B
3	LEVEL FLOAT SWITCH	18-LSHH-112-A
4	LEVEL FLOAT SWITCH	18-LSHH-112-B

LEGEND:

SOLID PLATE

GRATING

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

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DATE APRIL 2025

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MANATEE COUNTY
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MECHANICAL
POST MIX BASIN A
PLAN AND SECTION

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 04M01

PROJECT NO.
FILE NAME: 9520I1004M01.dgn

Plot Date: 04-APR-2025 10:20:49 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker

KEY NOTES = ◇#

1 EXISTING CH ADDITION TO BE REPLACED WITH CS ADDITION AND RELOCATED AS SHOWN. HEAT TRACING AND PIPE INSULATION TO BE PROVIDED ON NEW CS PIPING PER SECTIONS 40_41_00 AND 40_05_06.55.

2 PH MONITORING LOCATION (EXISTING).

3 TIE INTO EXISTING 2-INCH UTILITY WATER LINE.

4 CONNECT UTILITY WATER FOR SCREEN WASH WATER AS SHOWN ON SHEET 00N04.

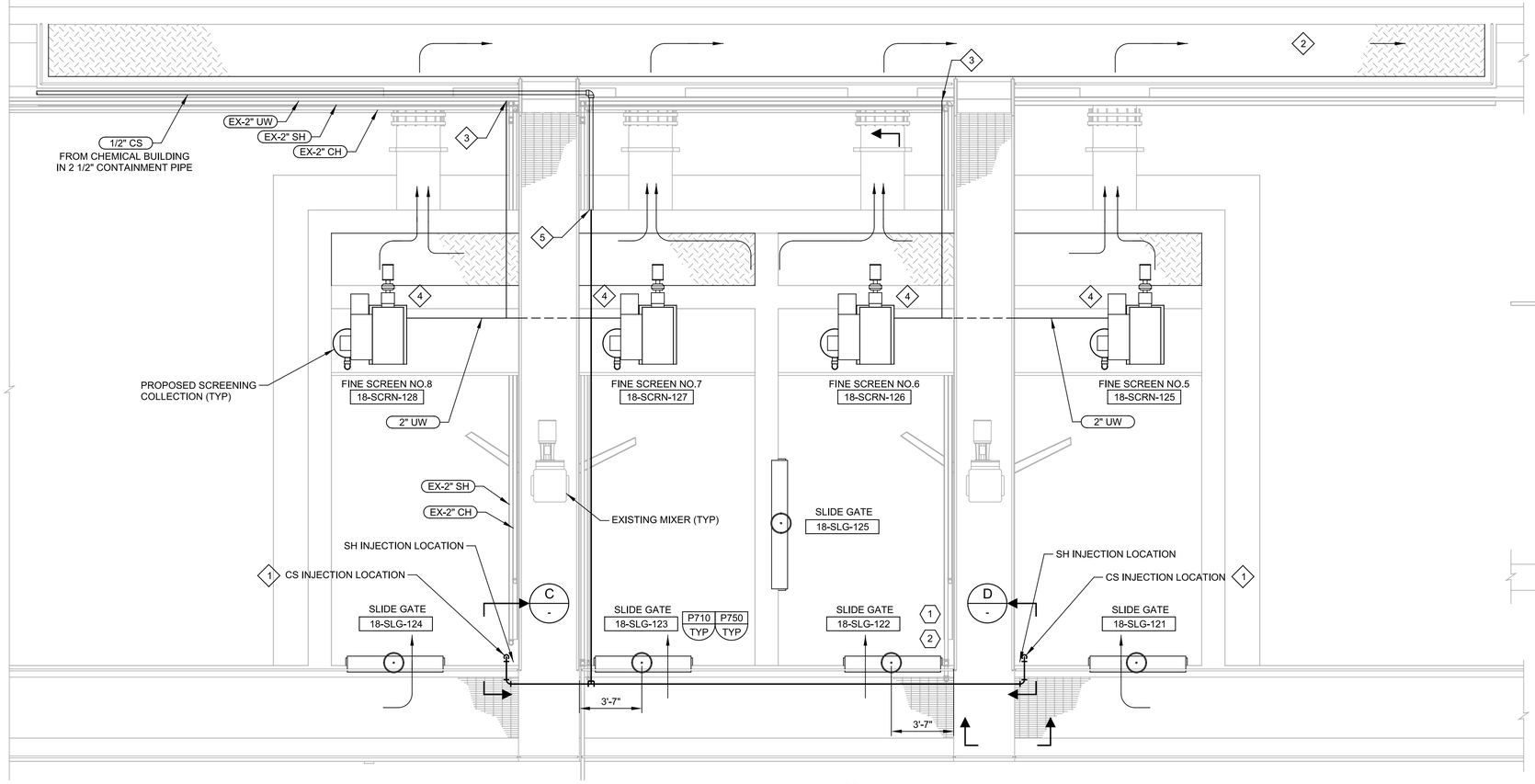
5 END CONTAINMENT PIPING AT EDGE OF BASIN.

KEY TAGS = ⬡#

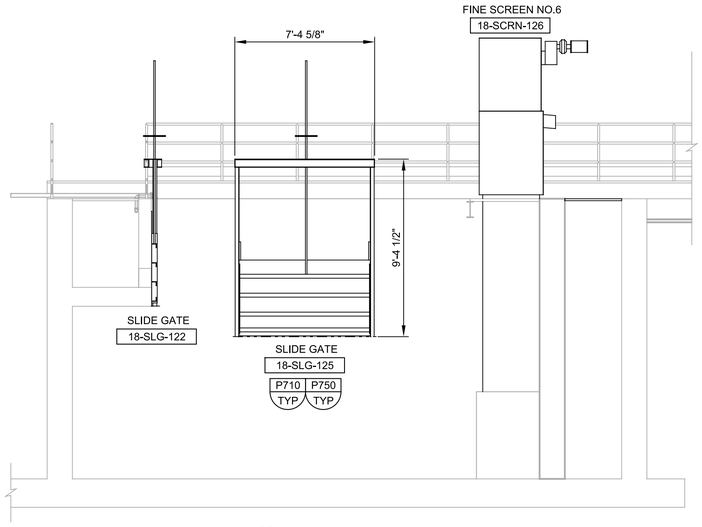
1	ULTRASONIC LEVEL	18-LE/LIT-121-A
2	LEVEL FLOAT SWITCH	18-LE/LIT-122-A

.

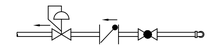
POST MIX BASIN B



B PLAN
SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-102



1 SECTION
SCALE: 1/4" = 1'-0"
FILE: 9520I10-04-050-302



C CS INJECTION DETAIL
SCALE: 1/2" = 1'-0"
FILE:

D CS INJECTION DETAIL
SCALE: 1/2" = 1'-0"
FILE:

LEGEND:

SOLID PLATE

GRATING

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

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POST MIX BASIN B
PLAN AND SECTION

VERIFY SCALES
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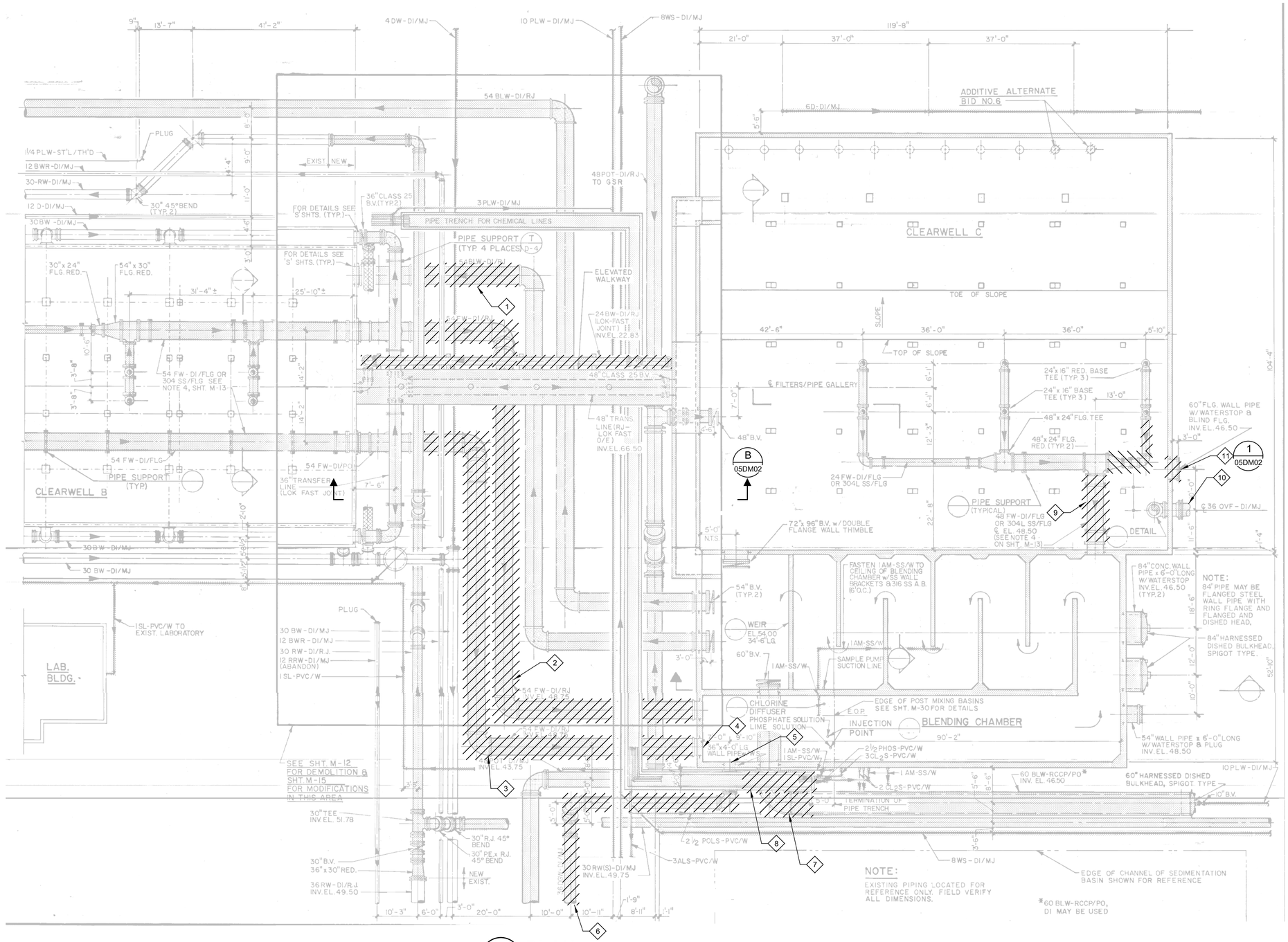
JOB NO. 09520I.10
DRAWING NO. 04M02



A PLAN

SCALE: NO SCALE
FILE: 9520I10-05-DM-901.TIF

GENERAL NOTES

1. BACKGROUNDS DRAWINGS ARE FROM EXISTING RECORD DOCUMENTS: "MANATEE COUNTY WATER TREATMENT FACILITIES - PART A WATER TREATMENT PLANT EXPANSION" (CDM, 1989).
2. DEMOLITION SHOWN ON THIS DRAWING LIMITED TO STRUCTURAL AND PROCESS MECHANICAL ITEMS. REFER TO SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD 29. TO CONVERT TO NAVD 88 ELEVATION: NGVD (29) - 0.958 FT = NAVD 88

KEY NOTES = ◇#

1 DEMOLISH APPROXIMATELY 30 LF OF EXISTING 54" DI PIPE AND FITTINGS.

2 DEMOLISH APPROXIMATELY 140 LF OF EXISTING 54" DI PIPE AND FITTINGS.

3 DEMOLISH APPROXIMATELY 140 LF OF EXISTING 54" DI PIPE AND FITTINGS.

4 INSTALL 54" PLUG/RJ.

5 INSTALL 30" PLUG/RJ.

6 DEMOLISH APPROXIMATELY 44 LF OF EXISTING 36" DI PIPE AND FITTINGS. PROVIDE 36" CAP/RJ.

7 REMOVE EXISTING 60" DI PIPE AND FITTINGS AS REQUIRED.

8 REMOVE AND REPLACE EXISTING CHEMICAL PIPING TRENCH AND COVER AS REQUIRED.

9 REMOVE EXISTING 48" AND 16" DI PIPE/FLG, FITTINGS AND PIPE SUPPORTS.

10 CUT EXISTING 36" OVF PIPE APPROXIMATELY 3 FT FROM STRUCTURE AND INSTALL 36" CAP/RJ.

11 REMOVE 60 INCH PIPE. SAWCUT TEMPORARY CONSTRUCTION ACCESS OPENING (6'-6"W x 6'-0"H). REPAIR OPENING PER PROVIDED DETAIL AND INSTALL 48" PIPE.

LEGEND:

REMOVE AND/OR DEMOLISH

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DEMOLITION
BLEND CHAMBER DEMOLITION PLAN

VERIFY SCALES
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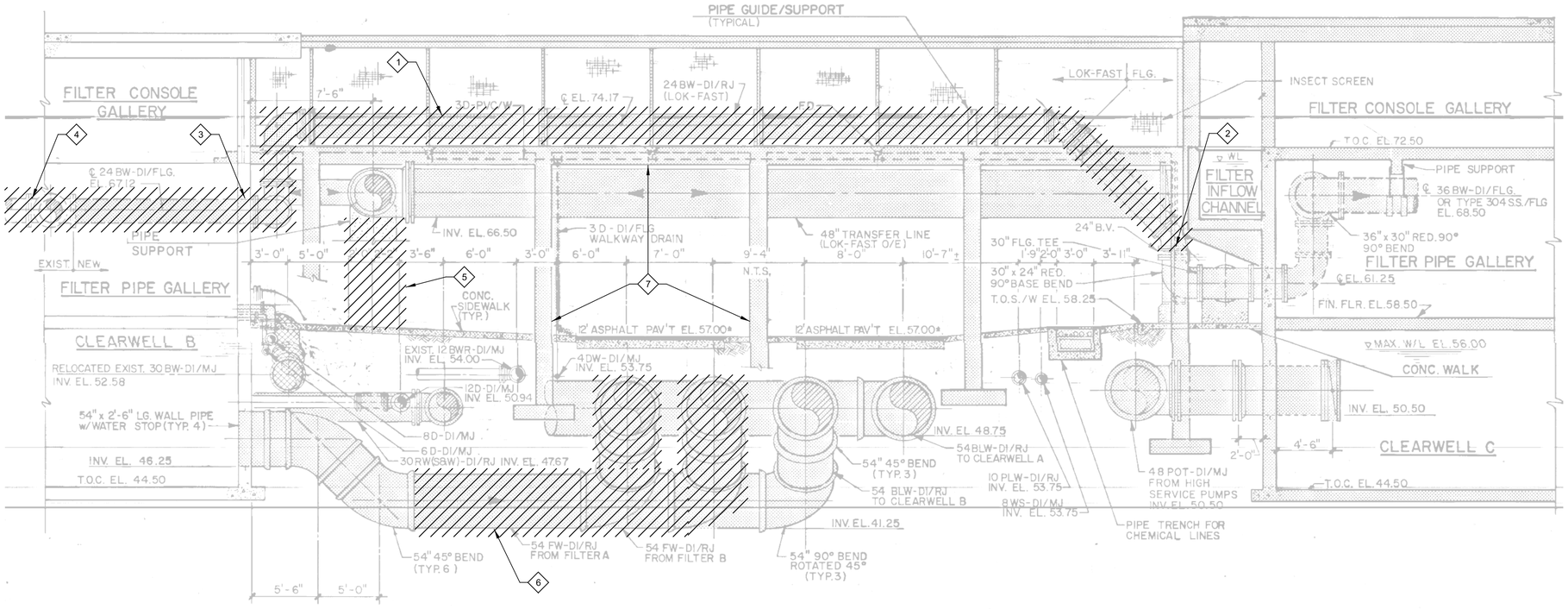
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 05DM01

PROJECT NO.
FILE NAME: 9520I1005DM01.dgn

Plot Date: 04-APR-2025 10:23:07 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: eparker



B SECTION
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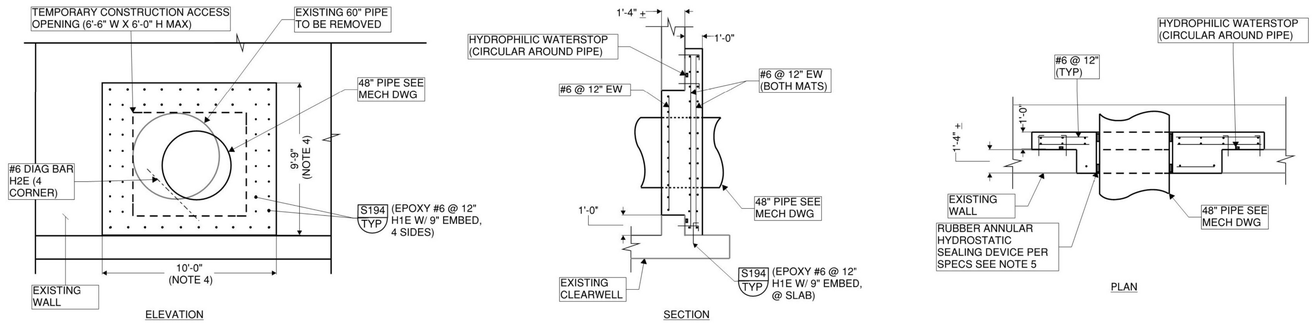

NOTES:

1. PROVIDE OPENING IN WALL FOR REQUIRED WORK AT CLEARWELL, SEE MECHANICAL DRAWINGS.
2. CLEAN AND BEND EXISTING REINFORCEMENT.
3. AFTER WORK IS COMPLETE, DRILL AND EPOXY REINFORCEMENT AND PLACE CONCRETE.
4. CONTRACTOR TO VERIFY OPENING SIZE WITH REQUIRED WORK AT CLEARWELL, SEE MECHANICAL DRAWINGS.
5. CONTRACTOR TO VERIFY CORE DIAMETER REQUIREMENTS WITH MANUFACTURER OF RUBBER ANNULAR HYDROSTATIC SEALING DEVICE

FLOATATION CONSIDERATIONS:

WHEN EXISTING FILTERS ARE EMPTY STRUCTURE IS BOUYANT. CONTRACTOR WILL BE RESPONSIBLE FOR DEWATERING PERIMETER OF STRUCTURE DURING WORK.

1 DETAIL
05DM01
SCALE: NO SCALE
FILE: 9520I10-05-DM-401.JPG

GENERAL NOTES

1. BACKGROUNDS DRAWINGS ARE FROM EXISTING RECORD DOCUMENTS: "MANATEE COUNTY WATER TREATMENT FACILITIES - PART A WATER TREATMENT PLANT EXPANSION" (CDM, 1989).
2. DEMOLITION SHOWN ON THIS DRAWING LIMITED TO STRUCTURAL AND PROCESS MECHANICAL ITEMS. REFER TO SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD 29. TO CONVERT TO NAVD 88 ELEVATION: NGVD (29) - 0.958 FT = NAVD 88

KEY NOTES = ◇#

1 DEMOLISH APPROXIMATLY 80 LF OF EXISTING 24" DI PIPE AND FITTINGS.

2 INSTALL 24" BLIND FLANGE.

3 DEMOLISH EXISTING 24" DI PIPIING. CUT PIPE AT WALL AND INSTALL 24" BLIND FLANGE ON WALL PIPE.

4 SEE DEMOLITION DRAWINGS FOR EXISTING FILTERS.

5 DEMOLISH EXISTING CONCRETE PIPE SUPPORTS INCLUDING BASES AND REPLACE PER MECHANICAL DRAWINGS.

6 DEMOLISH EXISTING 54" DI PIPE AND FITTINGS.

7 PROVIDE TEMPORARY SHORING AND BRACING FOR WALKWAY WHERE REQUIRED FOR DEMOLITION/REMOVAL OF EXISTING PIPING AND INSTALLATION OF NEW PIPING PER SECTION 31_50_00. SUBMIT SIGNED AND SEALED TEMPORARY SHORING AND BRACING PLANS BY AN ENGINEER LICENSED IN THE STATE OF FLORIDA.

LEGEND:

REMOVE AND/OR DEMOLISH

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DEMOLITION
BLEND CHAMBER DEMOLITION SECTION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 05DM02

PROJECT NO.
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Model: Layout1
LAST SAVED BY: eparker

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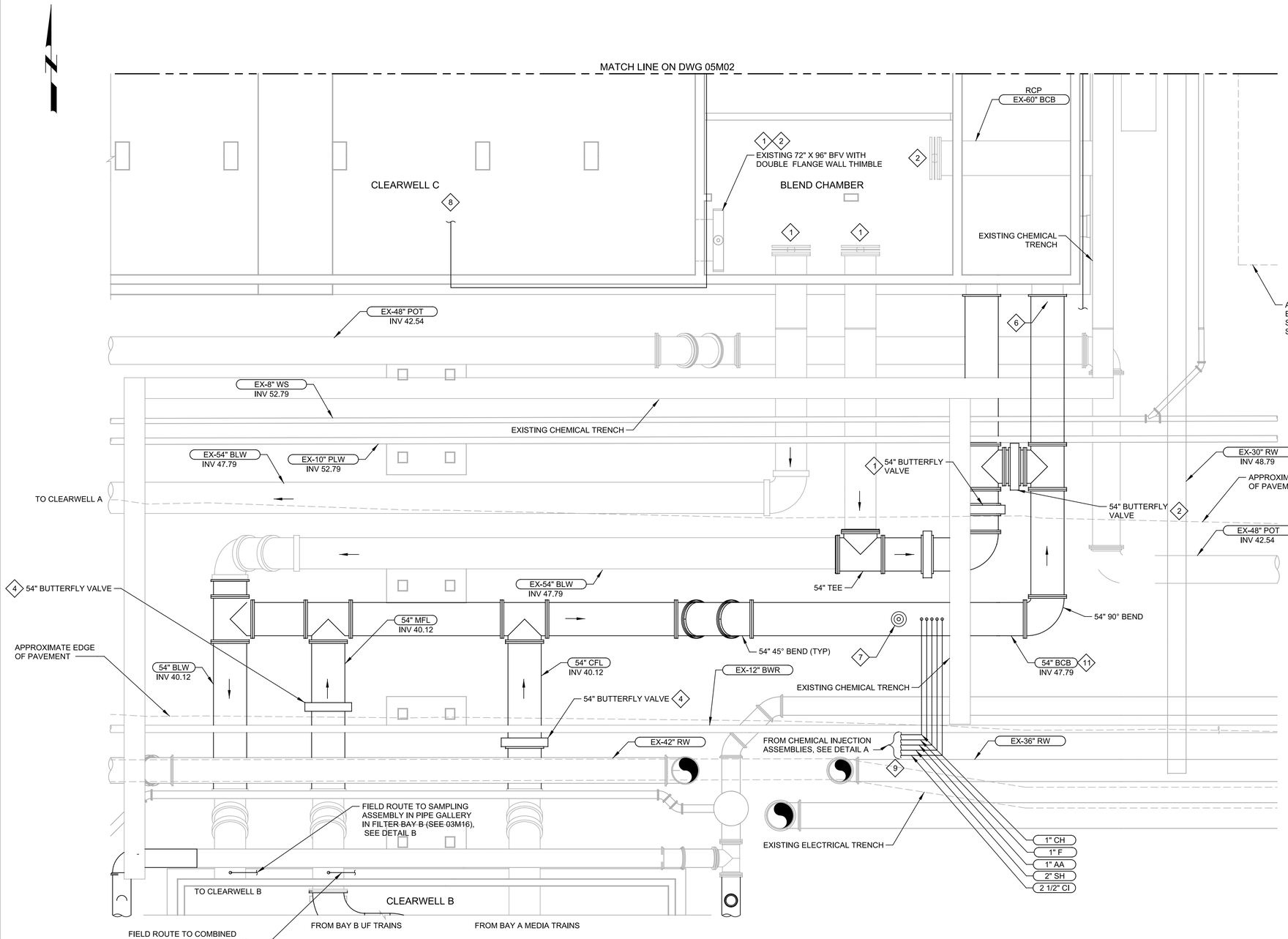


A PLAN
SCALE: 1/8" = 1'-0"
FILE: 9520I10-03-050-106

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. DIMENSIONS AT ALL EXISTING STRUCTURES ARE APPROXIMATE. CONTRACTOR TO VERIFY IN FIELD.
3. EXISTING BURIED 54" AND 60" PIPING IS AMERICAN CAST IRON PIPE COMPANY DI PIPE AND FITTINGS W/ LOK-RING ENDS AND JOINTS.
4. SEE NOTE ON WTP BIOLOGICAL TREATMENT UNIT (BTU) ON 00G03.

KEY NOTES = ◇#

1 VALVE OPEN DURING NORMAL OPERATION.

2 VALVE OPEN DURING PARTIAL BYPASS OF BLEND CHAMBER.

3 VALVE OPEN DURING FULL BYPASS OF BLEND CHAMBER.

4 VALVE PROVIDED SO EXISTING 54" PIPING FROM FILTER BAY A CAN BE ISOLATED AND/OR REMOVED IN THE FUTURE.

5 NEW CHEMICAL INJECTION POINTS TO BE ADDED TO PARTIAL AND FULL BYPASS LINES.

6 54" PLUG/RJ.

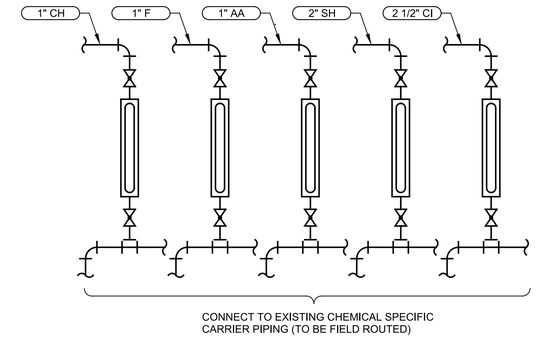
7 AIR RELEASE VALVE ASSEMBLY PER MANATEE COUNTY DETAIL UW-10. REPLACE COMPOUND AIR RELEASE VALVE WITH 1" BRONZE SHUT-OFF BALL VALVE

8 TEE IN TO EXISTING CHLORINE AND PH ANALYZERS SAMPLE LINE.

9 CHEMICAL INJECTION PIPES TO BE FIELD ROUTED FROM NEAREST EXISTING CHEMICAL CARRIER PIPES.

10 LOCATE SAMPLE PUMP (FOR BLEND CHAMBER FULL BYPASS) AND CHLORINE ANALYZER AND pH ANALYZER IN PIPE GALLERY IN FILTER BAY B (SEE 03M16).

11 PIPE LOCATION CAN BE FIELD ADJUSTED AS DETERMINED BY THE CONTRACTOR AND ENGINEER. PROVIDE TEMPORARY SHORING AND BRACING FOR EXISTING WALKWAY SUPPORTS.



A CHEMICAL INJECTION ASSEMBLIES
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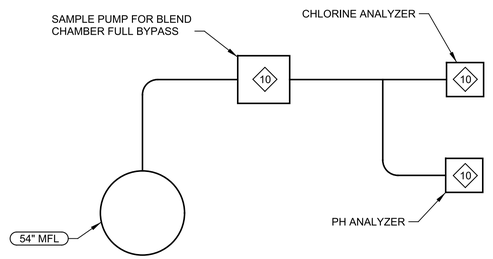
FILE: -



B SAMPLE ASSEMBLY
SCALE: NO SCALE
FILE: -

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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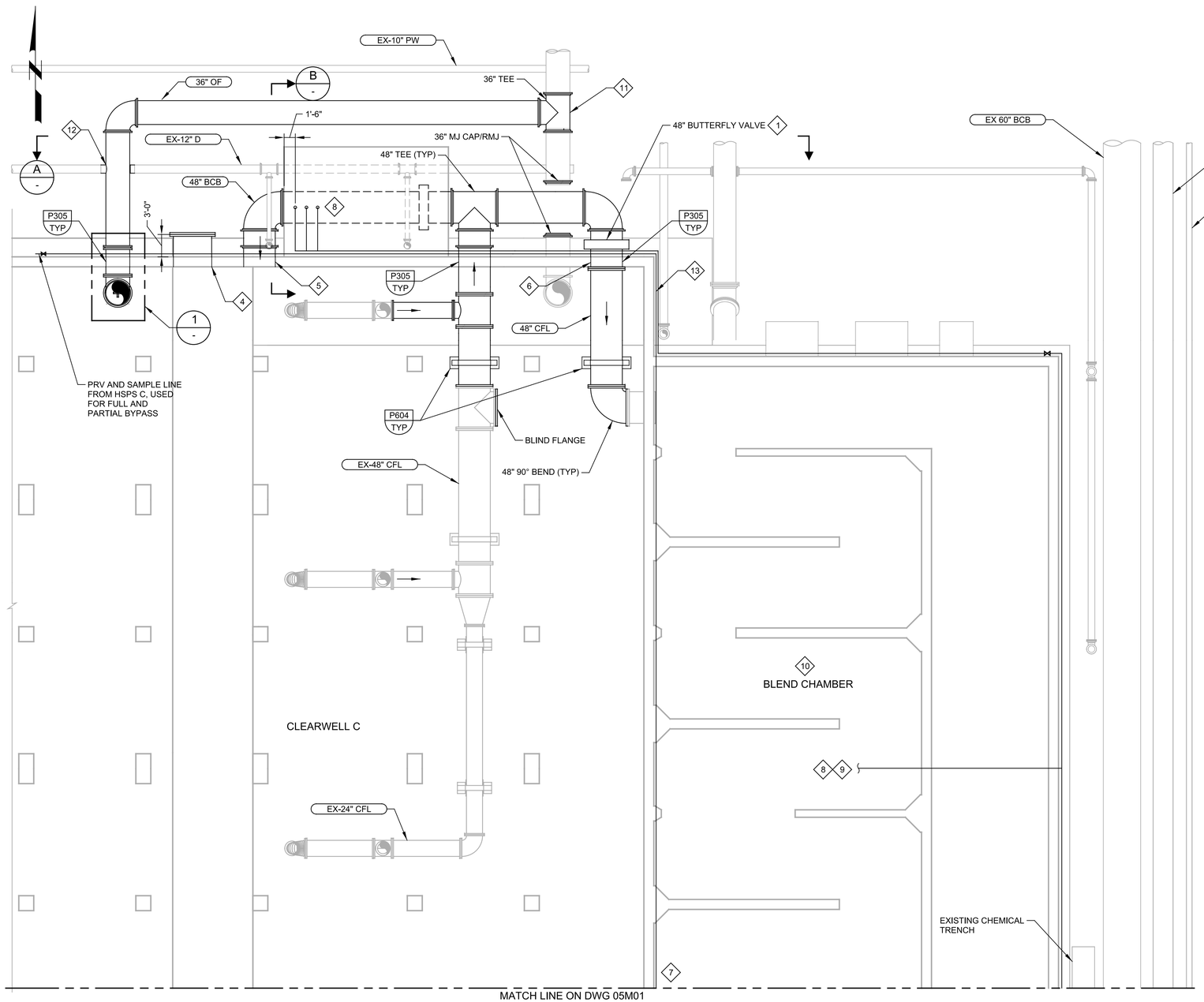
Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
BLEND CHAMBER
PLAN I

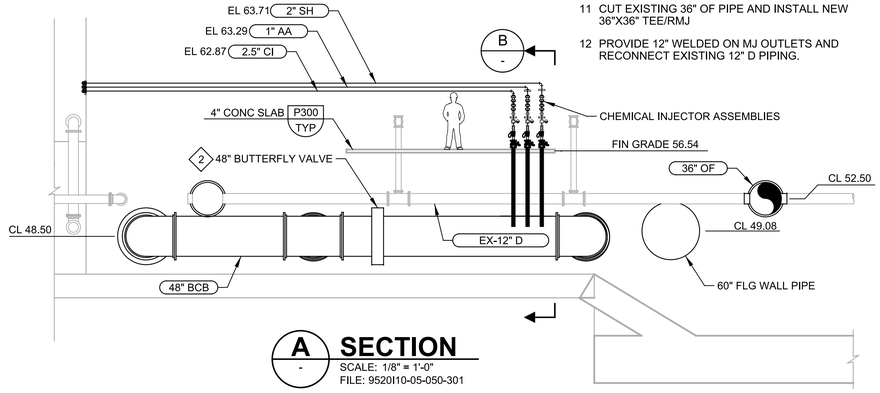
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 05M01

PROJECT NO.
FILE NAME: 9520I1005M01.dgn



A PLAN
SCALE: 1/8" = 1'-0"
FILE: 9520I10-05-050-101



A SECTION
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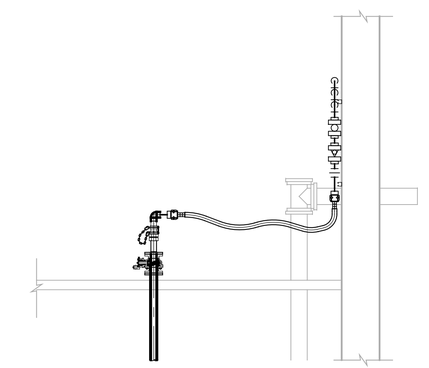
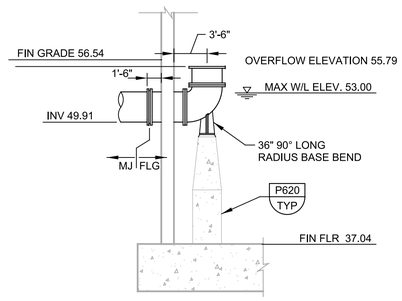
FILE: 9520I10-05-050-301



B SECTION
SCALE: 3/8" = 1'-0"
FILE: 9520I10-05-050-303



1 CLEARWELL OVERFLOW DETAIL
SCALE: 1/8" = 1'-0"
FILE: 9520I10-05-050-302

GENERAL NOTES

1. REFER TO MECHANICAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. DIMENSIONS AT ALL EXISTING STRUCTURES ARE APPROXIMATE. CONTRACTOR TO VERIFY IN FIELD.
3. RESTRAIN ALL BURIED PIPING JOINTS FOR DI PIPING AND VALVES.

KEY NOTES =

1. VALVE OPEN DURING NORMAL OPERATION.
2. VALVE OPEN DURING FULL AND PARTIAL BYPASS OF BLEND CHAMBER.
3. NEW CHEMICAL INJECTION POINTS TO BE ADDED TO BYPASS LINE.
4. 60" FLG X PE WALL PIPE WITH BLIND FLANGE
5. 48" MJ X PE WALL THIMBLE
6. 48" MJ X FLG WALL PIPE
7. FIELD ROUTE TO EXISTING CHLORINE ANALYZER AND EXISTING PH ANALYZER IN FILTER C PIPE GALLERY.
8. CHEMCIAL INJECTION PIPES TO BE FIELD ROUTED FROM NEAREST EXISTING CHEMICAL CARRIER PIPES WITH CHEMICAL INJECTION ASSEMBLIES AS SHOWN ON 05M01, DETAIL A.
9. SECONDARY AMMONIA INJECTION POINT TO BE USED IN THE FUTURE IF/AS NEEDED.
10. CHLORINE SAMPLE PUMP CONNECTION TO BE USED IN THE FUTURE IF/AS NEEDED.
11. CUT EXISTING 36" OF PIPE AND INSTALL NEW 36"X36" TEE/RMJ
12. PROVIDE 12" WELDED ON MJ OUTLETS AND RECONNECT EXISTING 12" D PIPING.

REV	DATE	BY	DESCRIPTION

RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
MECHANICAL
BLEND CHAMBER
PLAN II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 05M02

PROJECT NO.
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LAST SAVED BY: eparker

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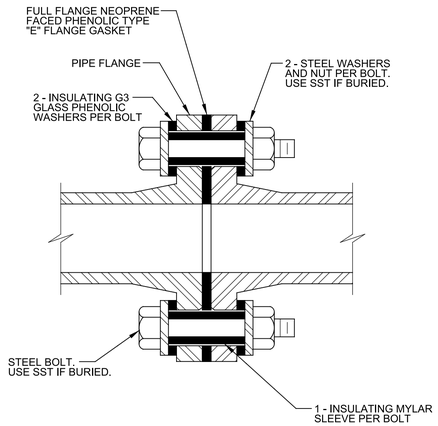
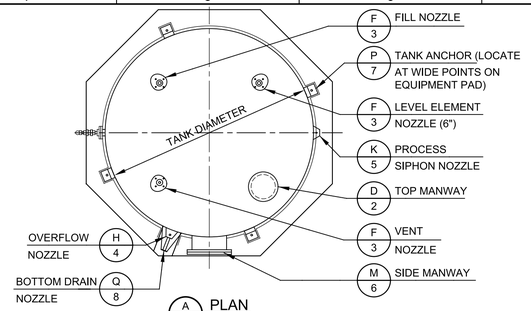


NOTE:

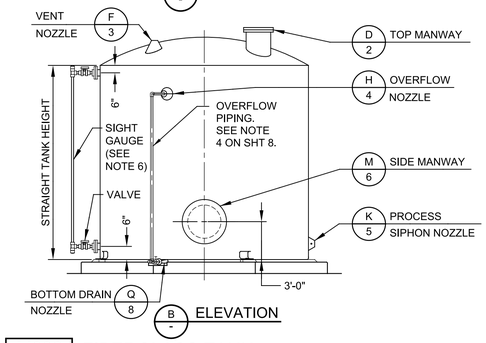
1. IF FLANGE IS TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE WRAP SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS.

D062 TYP — PIPE FLANGE INSULATION

N — 10/19/15



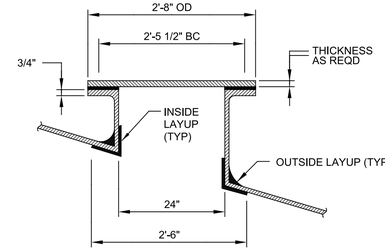
A - PLAN



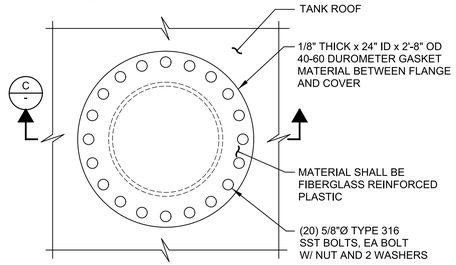
B - ELEVATION

M002 TYP — FIBERGLASS TANK

R — SHEET 1 OF 8 — 03/08/18



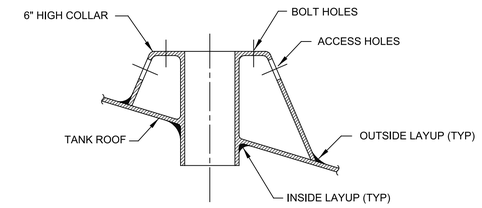
C - SECTION - 24" TOP MANWAY



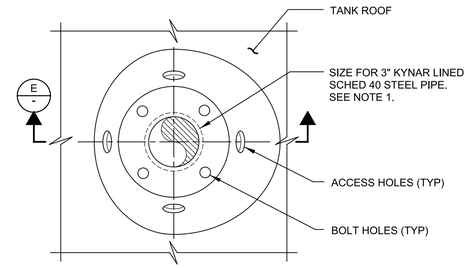
D - PLAN - 24" TOP MANWAY

M002 TYP — FIBERGLASS TANK

SHEET 2 OF 8 — 08/11/15



E - SECTION - NOZZLE



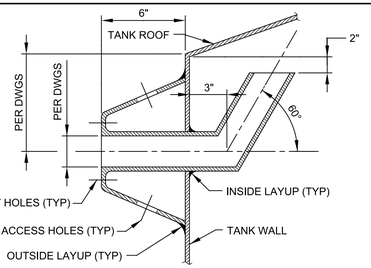
F - PLAN - NOZZLE

NOTE:

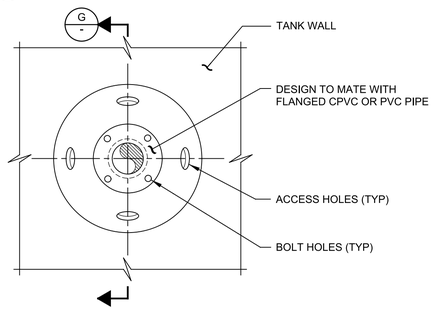
1. USE SAME DETAIL FOR VENT NOZZLE, EXCEPT PROVIDE FLANGED PIPE. SIZE ACCORDING TO MECHANICAL DRAWINGS.

M002 TYP — FIBERGLASS TANK

SHEET 3 OF 8 — 08/11/15



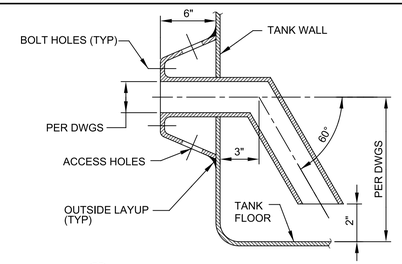
G - SECTION - OVERFLOW NOZZLE



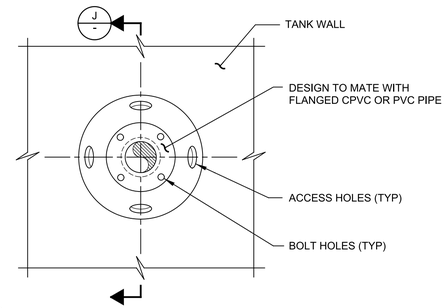
H 1 - ELEVATION - OVERFLOW NOZZLE

M002 TYP — FIBERGLASS TANK

SHEET 4 OF 8 — 08/11/15



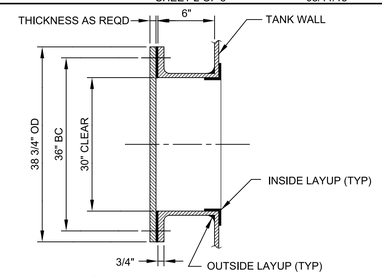
J - SECTION - PROCESS SIPHON NOZZLE



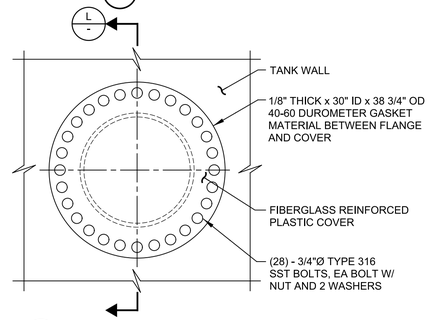
K 1 - ELEVATION - PROCESS SIPHON NOZZLE

M002 TYP — FIBERGLASS TANK

SHEET 5 OF 8 — 08/11/15



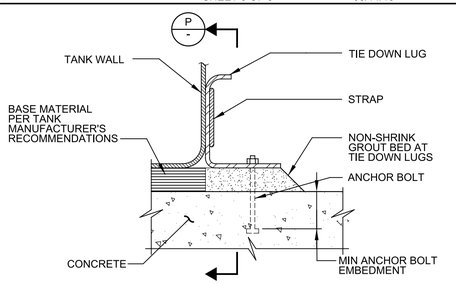
L - SECTION - 30" SIDE MANWAY



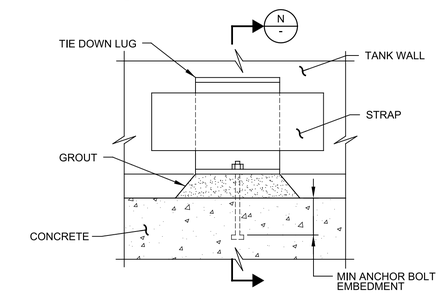
M 1 - ELEVATION - 30" SIDE MANWAY

M002 TYP — FIBERGLASS TANK

SHEET 6 OF 8 — 08/11/15



N - SECTION - TANK ANCHOR



P 1 - ELEVATION - TANK ANCHOR

M002 TYP — FIBERGLASS TANK

SHEET 7 OF 8 — 08/11/15

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL MECHANICAL DETAILS I

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GM01

PROJECT NO.
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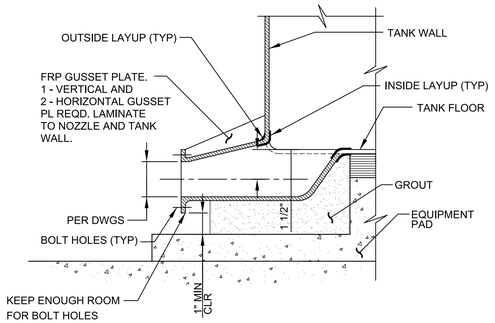


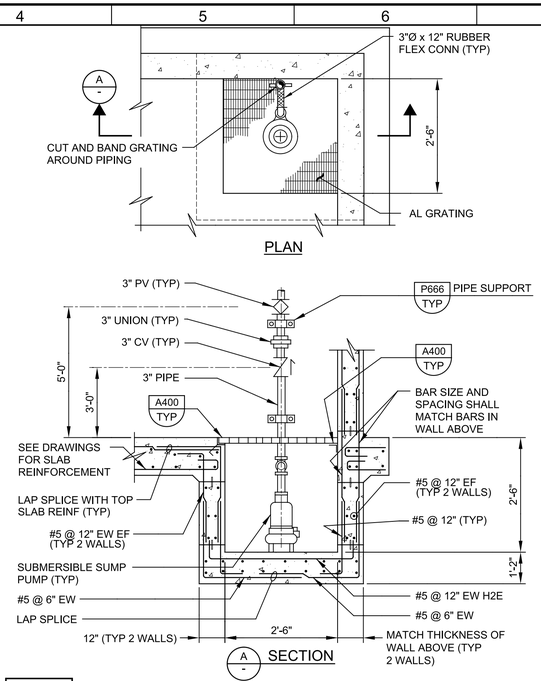
Q / 1 SECTION - BOTTOM DRAIN NOZZLE

NOTES:

1. LOCATION OF ALL NOZZLES, MANWAYS, AND OTHER APPURTENANCES ARE AS INDICATED ON THE DRAWINGS.
2. SET TANKS OVER MIN 2" THICK FULL GROUT BED, FIBER BOARD, OR OTHER MATERIAL IF REQD BY TANK MANUFACTURER.
3. PLACE TANKS ON CONCRETE PADS AS INDICATED ON THE DRAWINGS.
4. EXTENT OF TANK MANUFACTURER'S CONTRACT IS TO NOZZLE FLANGES. PIPING SHOWN IS TO DEPICT PIPING ARRANGEMENTS FOR OVERFLOW AND DRAIN.
5. ALL CHEMICAL TANKS SHALL BE VENTED THROUGH ROOF TO ATMOSPHERE.
6. SIGHT GLASS: SEE SPECIFICATIONS FOR SIGHT GLASS TYPE.

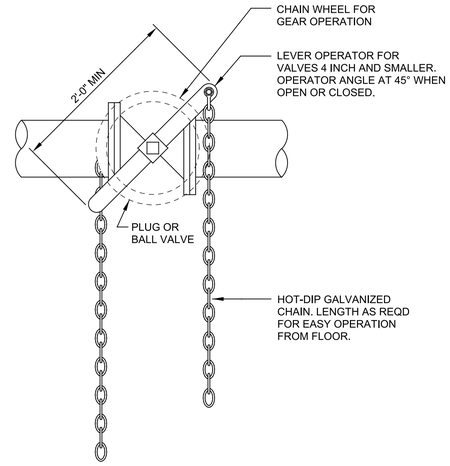
M002 TYP — FIBERGLASS TANK

R — SHEET 8 OF 8 — 03/08/18



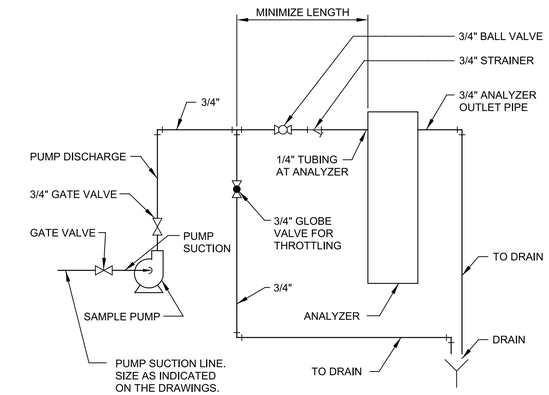
M243 TYP — SUBMERSIBLE SUMP PUMP

07/01/13



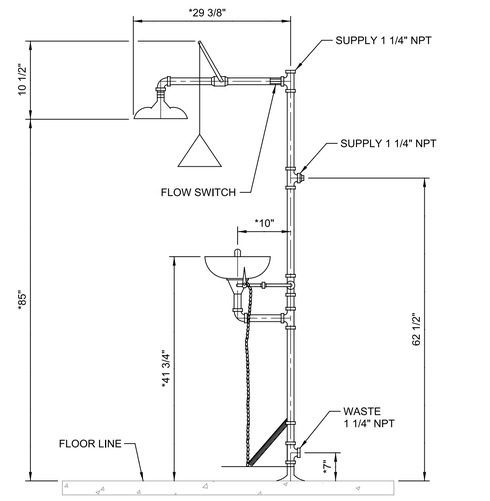
M256 TYP — CHAIN OPERATOR

S — 08/01/05



M263 TYP — SAMPLE PUMP TO ANALYZER PIPING

08/01/05



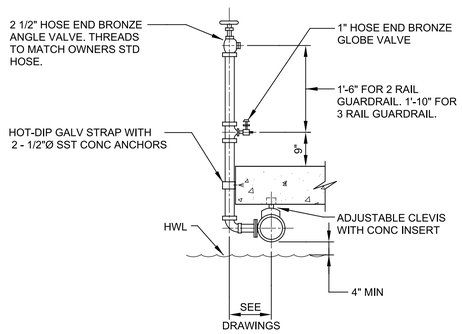
NOTE:

1. EMERGENCY SHOWER AND EYEWASH SHALL BE BRADLEY S19-300B WITH 120VAC FLOW SWITCH, ALARM LIGHT AND BUZZER, ANTI-SCALD VALVE, AND FREEZE PROTECTION VALVE.
   OR
   HAWS 8317 CTFP WITH 9001 120VAC FLOW SWITCH, ALARM LIGHT AND BUZZER, SCALD PROTECTION BLEED VALVE, AND FREEZE PROTECTION BLEED VALVE

* THESE DIMENSIONS MAY VARY PLUS OR MINUS 1/2"

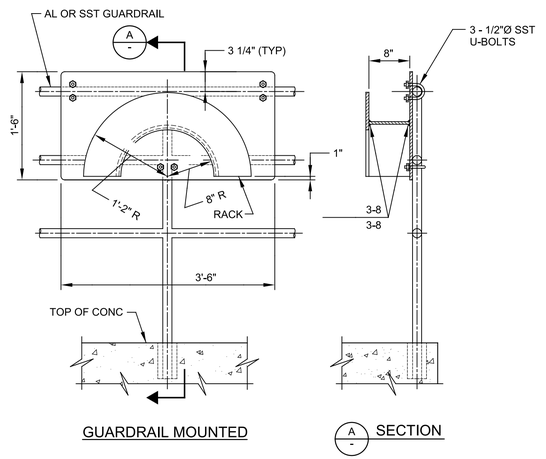
M270 TYP — EMERGENCY SHOWER/EYEWASH

07/13/17



M272 TYP — 1" AND 2 1/2" HOSE VALVE

N — 08/01/05

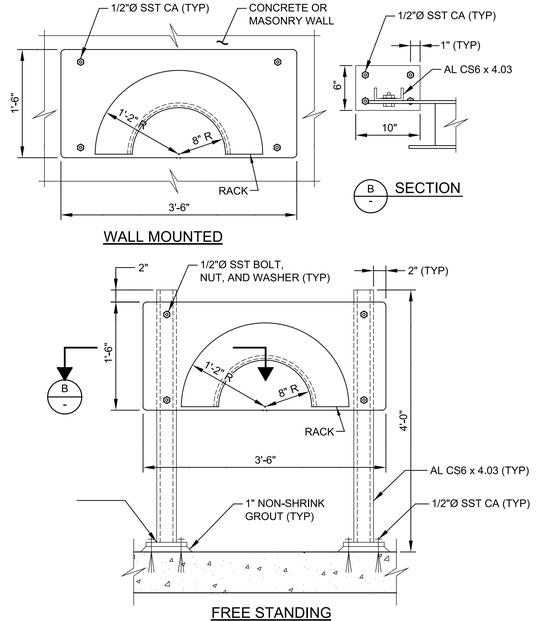


NOTES:

1. HOSE RACK SHALL BE FABRICATED FROM 3/16" ALUMINUM PLATE. ROUND ALL EDGES SMOOTH.
2. HOSE RACKS INSTALLED IN YARD LOCATIONS SHALL BE FREESTANDING. EMBED IN A 4'-6" LONG x 2'-0" WIDE x 8" DEEP CONCRETE PAD WITH #5@12" EW CENTERED.
3. WALL MOUNTED HOSE RACKS ON MASONRY WALL SHALL BE FASTEN TO GROUTED CELLS.

M280 TYP — HOSE RACK

S — SHEET 1 OF 2 — 09/30/07



M280 TYP — HOSE RACK

S — SHEET 2 OF 2 — 09/30/07

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL MECHANICAL DETAILS II

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00GM02

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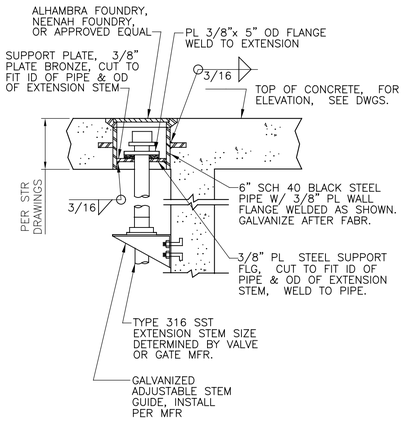
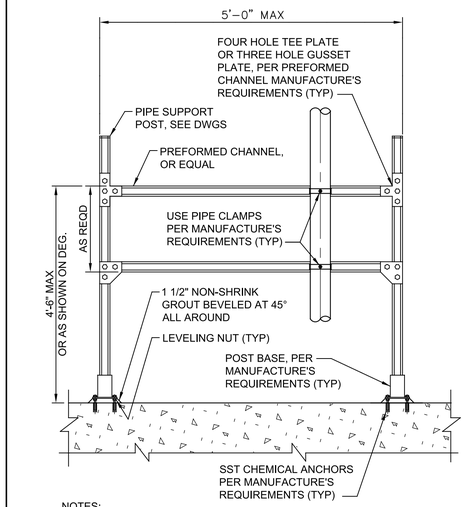


M561 TYP J — FLOOR BOX OPERATOR

02/06/18

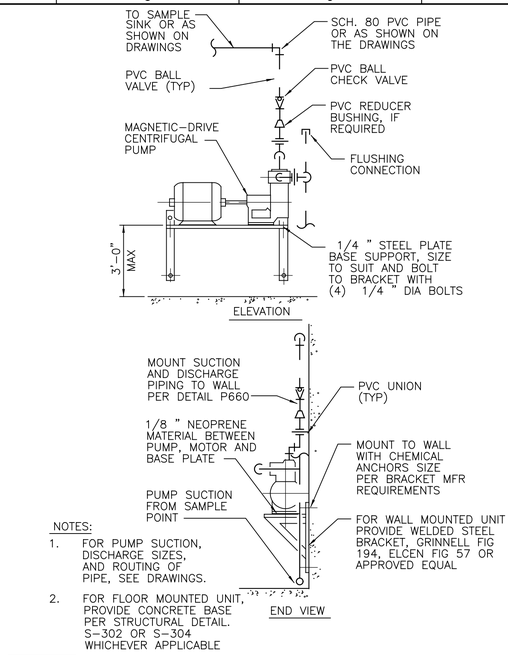


NOTES:

1. FOR PIPING INSTALLED HORIZONTALLY, ADD ADDITIONAL VERTICAL PREFORMED CHANNEL SUPPORT CENTERED BETWEEN HORIZONTAL SUPPORTS.
2. FOR FLUSHING SEAL WATER, CHEMICAL PIPING AND LOCATIONS WHERE SMALL DIAMETER PIPING (4" MAX) IS REQUIRED.

M607 TYP — FRP FREE STANDING PIPE SUPPORT

04/15/02

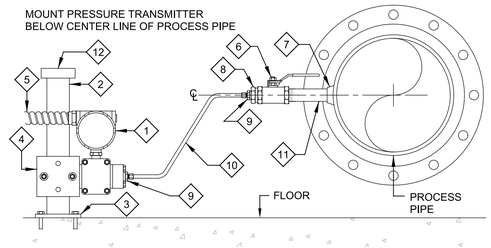


NOTES:

1. FOR PUMP SUCTION, DISCHARGE SIZES, AND ROUTING OF PIPE, SEE DRAWINGS.
2. FOR FLOOR MOUNTED UNIT, PROVIDE CONCRETE BASE PER STRUCTURAL DETAIL. S-302 OR S-304 WHICHEVER APPLICABLE

M907 TYP — SAMPLE PUMP

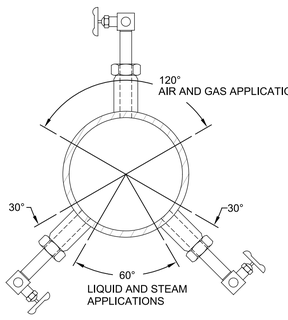
11/05/97



NOTES:

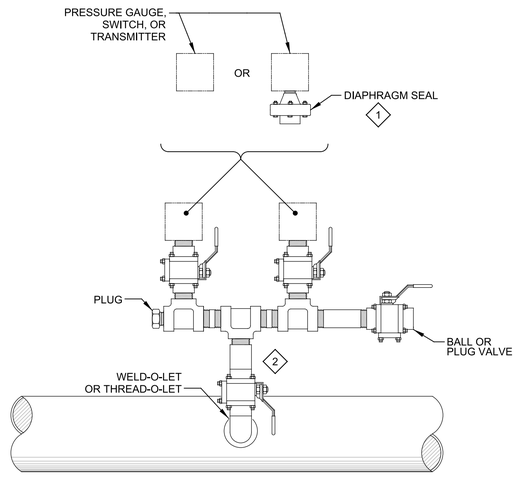
1. PRESSURE TRANSMITTER AS PER SPECIFICATIONS
2. 2" Ø GALVANIZED STEEL PIPE
3. 1/4" GALVANIZED STEEL FLOOR MOUNTING PLATE. WELD TO PIPE. w/ANCHOR BOLTS
4. BRACKET FOR 2" PIPE MOUNTING
5. FLEXIBLE CONDUIT
6. 1" S.S. UNI-BODY BALL VALVE
7. 1" S.S. WELDOLET
8. 1" TO 1/2" S.S. REDUCER
9. 1/2" MALE CONNECTOR FOR 1/4" S.S. TUBING
10. 1/4" S.S. TUBING
11. 1" S.S. PIPE NIPPLE
12. 2" Ø GALVANIZED STEEL PIPE CAP

NP122 TYP S — PRESSURE TRANSMITTER MOUNTING DETAIL



INSTALLATION OF PROBE OR TAP LOCATION DEPENDING ON STATE OF MEASURED MEDIUM

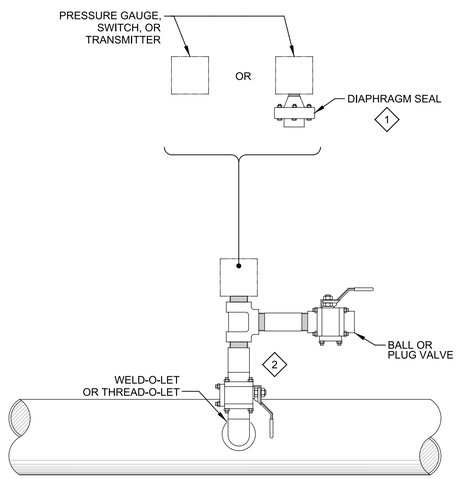
NP203 TYP S — PRESSURE OR FLOW INSTRUMENT INSTALLATION



NOTES:

1. USE THE INSTRUMENT DATA SHEETS IN DIVISION 17 OR DIVISIONS 40 SPECS TO IDENTIFY INDIVIDUAL REQUIREMENTS FOR DIAPHRAGM SEALS.
2. ALL VALVE AND PIPE MATERIAL SHALL BE COMPATIBLE WITH PROCESS FLUID.

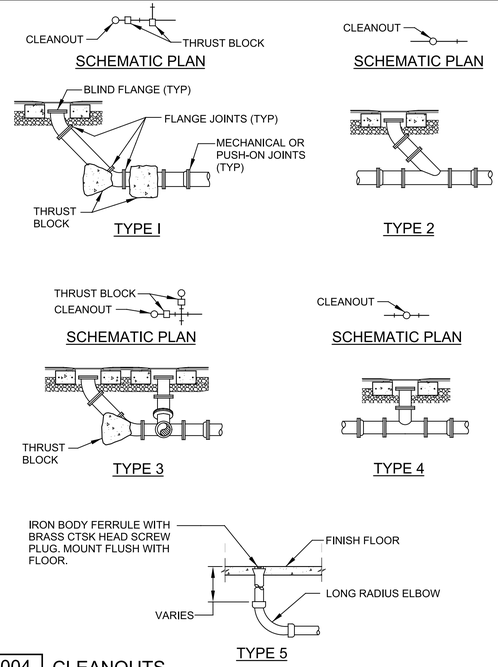
NP501 TYP S — MULTIPLE PRESSURE INSTRUMENTS MOUNTING DETAIL



NOTES:

1. USE THE INSTRUMENT DATA SHEETS IN DIVISION 17 OR DIVISIONS 40 SPECS TO IDENTIFY INDIVIDUAL REQUIREMENTS FOR DIAPHRAGM SEALS.
2. ALL VALVE AND PIPE MATERIAL SHALL BE COMPATIBLE WITH PROCESS FLUID.

NP502 TYP S — PRESSURE INSTRUMENT MOUNTING DETAIL



P004 TYP S — CLEANOUTS

SHEET 1 OF 2 — 07/31/08

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

DESIGNED GDM
DRAWN DVP
CHECKED SS
DATE APRIL 2025

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
DETAILS
TYPICAL MECHANICAL DETAILS III

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GM03

PROJECT NO.
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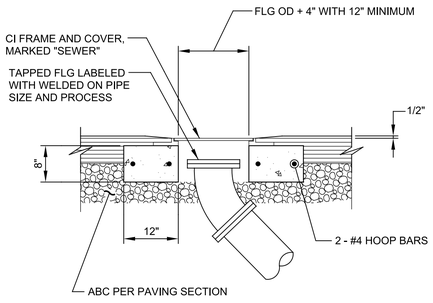


TERMINATION IN PAVEMENT
ALL TYPES FOR 4"Ø TO 12"Ø

S:

LL THRUST BLOCKS SHALL BE PLACED PER P102 TYP.

ONCRETE RING SHALL BE PLACED AFTER PAVEMENT PLACEMENT.

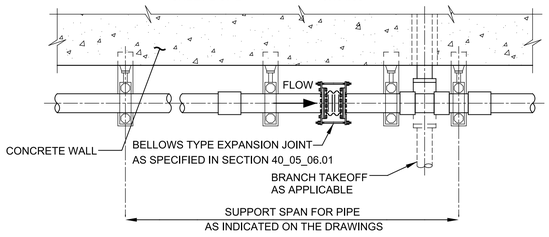
LL FLANGES CAST IN CONCRETE SHALL BE TAPPED TO ALLOW THE INSTALLATION OF BLIND LANGES WITH BOLTS.

LEANOUT PIPE SHALL BE SAME SIZE AS LINE PIPE.

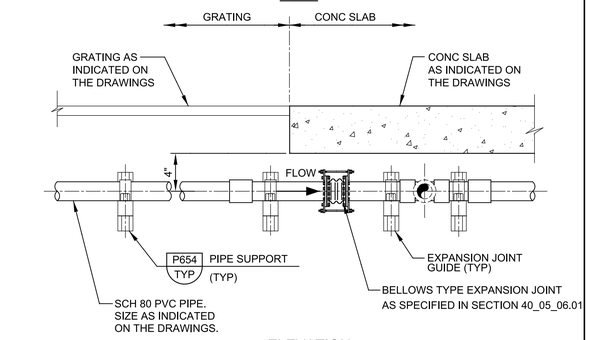
OR CLEANOUTS IN YARD AREA, PLACE 12" SQUARE BY 4" THICK CONCRETE PAD.

4 CLEANOUTS

S SHEET 2 OF 2 07/31/08



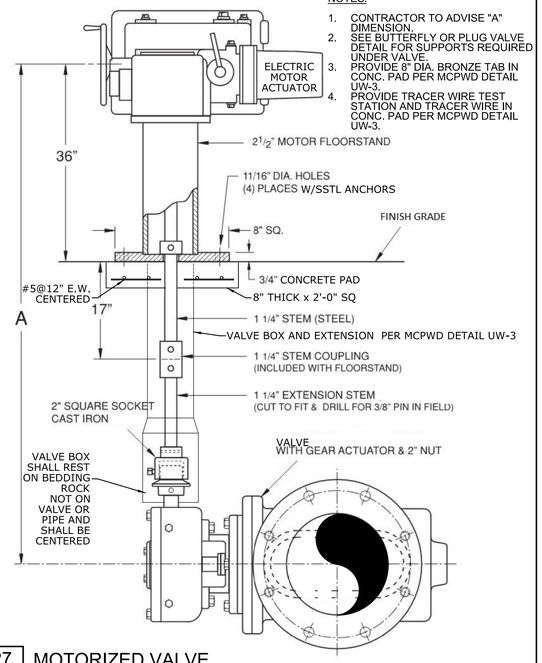
PLAN



ELEVATION

P230 TYP PVC EXPANSION JOINT FOR CIP AND HOT WATER SYSTEMS

01/30/18

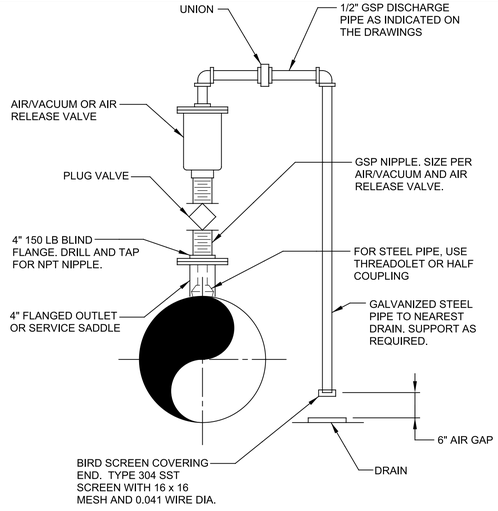


NOTES:

1. CONTRACTOR TO ADVISE "A" DIMENSION.
2. SEE BUTTERFLY OR PLUG VALVE DETAIL FOR SUPPORTS REQUIRED UNDER VALVE.
3. PROVIDE 8" DIA. BRONZE TAB IN CONC. PAD PER MCPWD DETAIL UW-3.
4. PROVIDE TRACER WIRE TEST STATION AND TRACER WIRE IN CONC. PAD PER MCPWD DETAIL UW-3.

P027 TYP MOTORIZED VALVE

J 08/2018

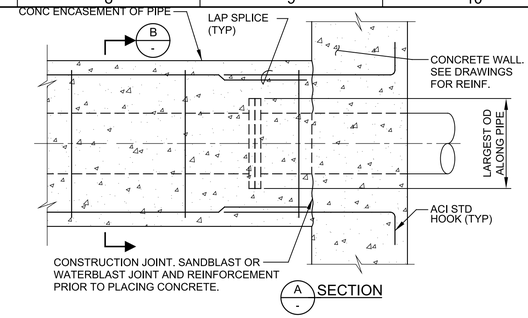


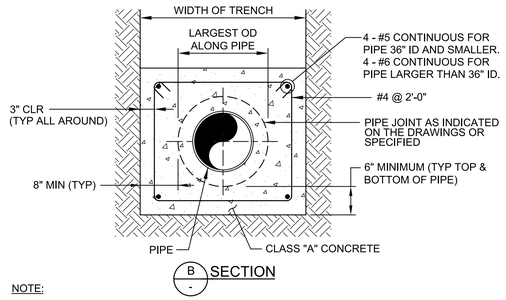
NOTES:

1. VALVE SIZE SHALL BE AS INDICATED ON THE DRAWINGS.
2. SERVICE TAP AND PLUG VALVE SHALL MATCH VALVE INLET SIZE.

P240 TYP AIR VACUUM AND AIR RELEASE FOR 3" AND SMALLER VALVE ASSEMBLY

03/01/10



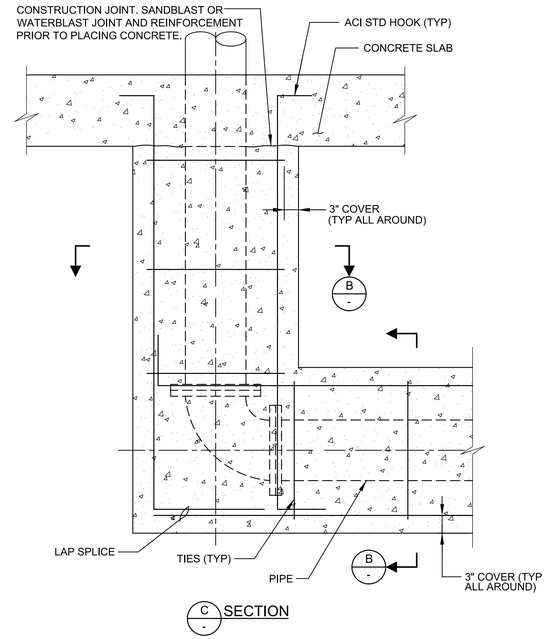


NOTE:

1. TYPE OF PIPE AND TYPE OF PIPE JOINT OR COUPLER AS INDICATED ON THE DRAWINGS.

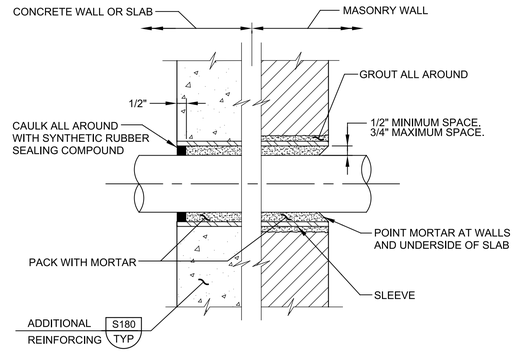
P040 TYP CONCRETE ENCASEMENT OF PIPE

NS SHEET 1 OF 2 03/24/15



P040 TYP CONCRETE ENCASEMENT OF PIPE

NS SHEET 2 OF 2 03/24/15

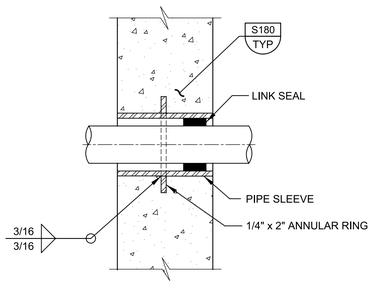


NOTES:

1. 6"Ø DIAMETER SLEEVES AND SMALLER SHALL BE SCHEDULE 40 STEEL PIPE OR SCHEDULE 80 PVC PIPE.
2. SLEEVES LARGER THAN 6"Ø SHALL BE 1/4" THICK STEEL PIPE.
3. STEEL SLEEVE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
4. SLEEVES FOR ELECTRICAL CONDUIT SHALL BE SCHEDULE 80 PVC.

P302 TYP NS SLEEVE INSTALLATION THROUGH DRY WALLS AND FLOOR SLABS

08/01/05



NOTES:

1. 6"Ø SLEEVES AND SMALLER SHALL BE SCH 40 STEEL PIPE.
2. SLEEVES LARGER THAN 6"Ø SHALL BE 1/4" THICK STEEL PIPE.
3. IN WALLS THICKER THAN 12", LINK SEAL SHALL BE INSTALLED AT BOTH ENDS OF WALL SLEEVE. SLEEVE DIAMETER SHALL BE PER LINK SEAL MANUFACTURER'S RECOMMENDATION.
4. SLEEVE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

P304 TYP NS SLEEVE INSTALLATION THROUGH WALLS AND FLOOR SLABS

08/01/05

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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CHECKED SS
DATE APRIL 2025

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DETAILS
TYPICAL MECHANICAL DETAILS IV

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00GM04

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LAST SAVED BY: eparker

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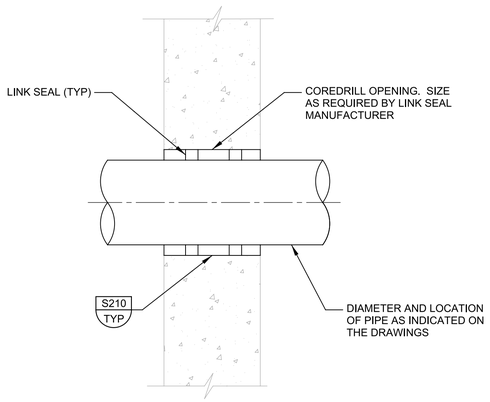
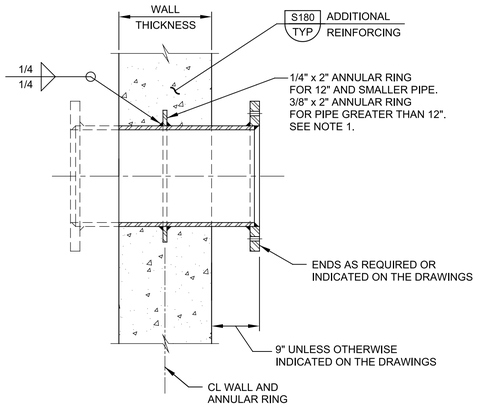


NOTES:

1. USE TWO LINK SEALS FOR WALLS WITH A THICKNESS GREATER THANK 12 INCHES.

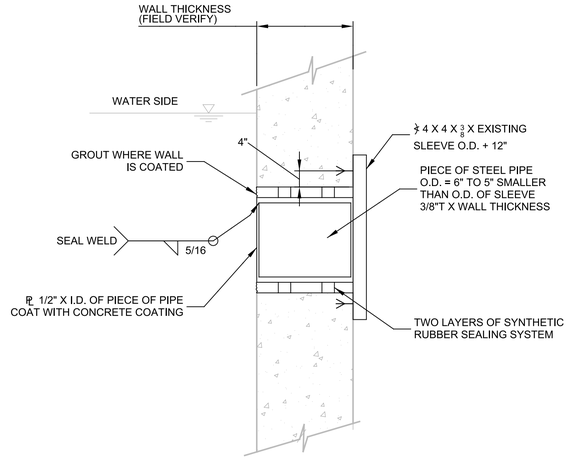
P305 TYP (J) — COREDRILL PIPE PENETRATION THROUGH EXISTING WALL — 02/18



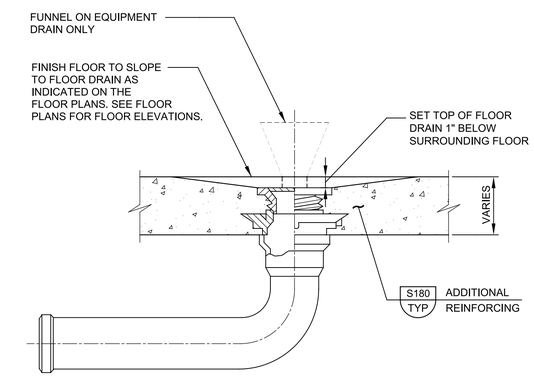
NOTE:

1. INSTALL ANNULAR RING ON PIPE SO THAT IT IS LOCATED AT CENTER OF WALL AND IN PLANE PARALLEL TO FACE OF WALL.

P310 TYP (N) — WALL THIMBLE FOR STEEL PIPE — 01/30/2015



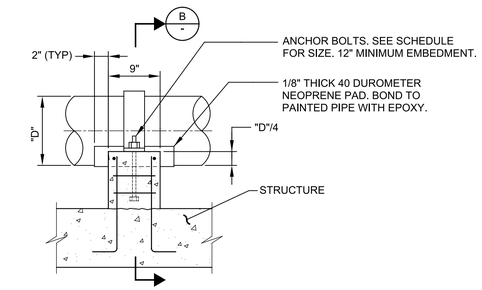
P315 TYP (J) — xxx THROUGH EXISTING WALL — 03/18



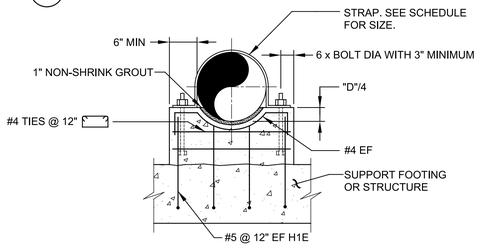
NOTE:

1. PROVIDE 12" RADIUS SLOPE TO EQUIPMENT DRAINS WHERE FLOOR DOES NOT SLOPE TO DRAIN.

P412 TYP (S) — FLOOR DRAIN OR EQUIPMENT DRAIN WITHOUT TRAP — 08/01/05

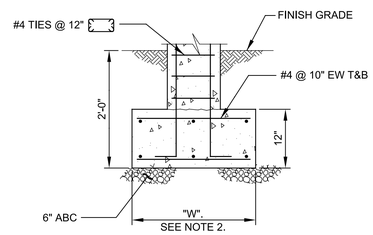


A - SECTION-SUPPORT AT STRUCTURE



B - SECTION

P602 TYP (N) — CONCRETE PIPE SUPPORT — SHEET 1 OF 2 — 07/19/16



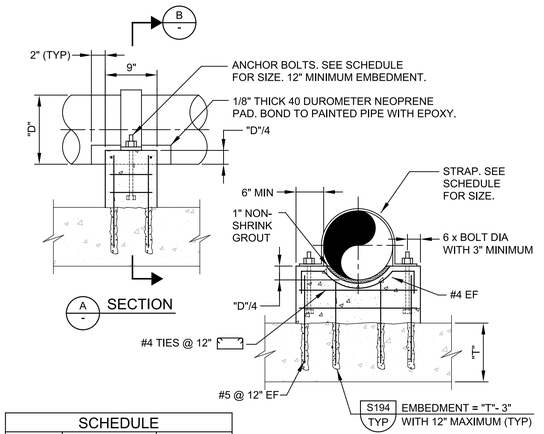
C - SECTION-ISOLATED SUPPORT WITH FOOTING

SCHEDULE		
PIPE SIZE	STRAP SIZE	ANCHOR BOLT DIA
8" - 12"	FB 1/4" x 4"	1/2"
14" - 24"	FB 5/16" x 4"	5/8"
26" - 36"	FB 3/8" x 4"	3/4"

NOTES:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, MATERIAL FOR ANCHOR BOLTS AND STRAP SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, THE MATERIAL FOR ANCHOR BOLTS AND STRAP SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
2. THE WIDTH OF THE FOOTING "W" = 2'-6". THE LENGTH OF THE FOOTING = "D" + 2'-0".

P602 TYP (N) — CONCRETE PIPE SUPPORT — SHEET 2 OF 2 — 11/30/08



A - SECTION

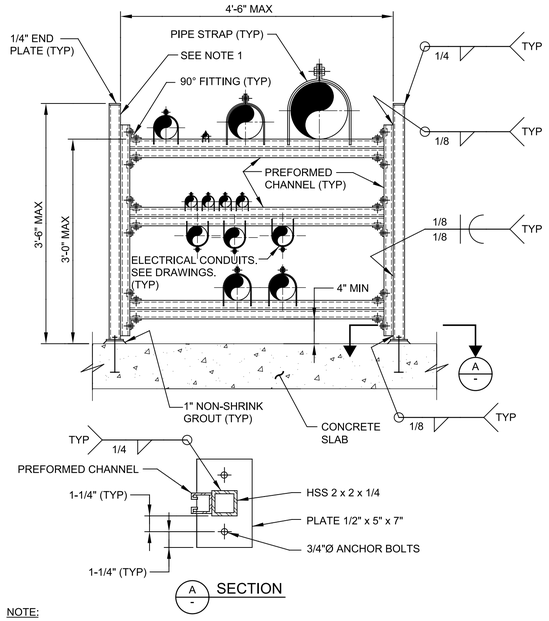
B - SECTION

SCHEDULE		
PIPE SIZE	STRAP SIZE	ANCHOR BOLT DIA
8" - 12"	FB 1/4" x 4"	1/2"
14" - 24"	FB 5/16" x 4"	5/8"
26" - 36"	FB 3/8" x 4"	3/4"

NOTES:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, MATERIAL FOR ANCHOR BOLTS AND STRAP SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, THE MATERIAL FOR ANCHOR BOLTS AND STRAP SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
2. MIN "T" = 12".

P604 TYP (N) — CONCRETE PIPE SUPPORT AT EXISTING STRUCTURE — 07/31/08



A - SECTION

NOTE:

1. HOT-DIP GALVANIZE SUPPORT COLUMN ASSEMBLIES AFTER FABRICATION.

P610 TYP (N) — CANTILEVER PIPE AND CONDUIT SUPPORT RACK — 06/25/13

REV	DATE	BY	DESCRIPTION
			RECORD DOCUMENTS

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DATE APRIL 2025

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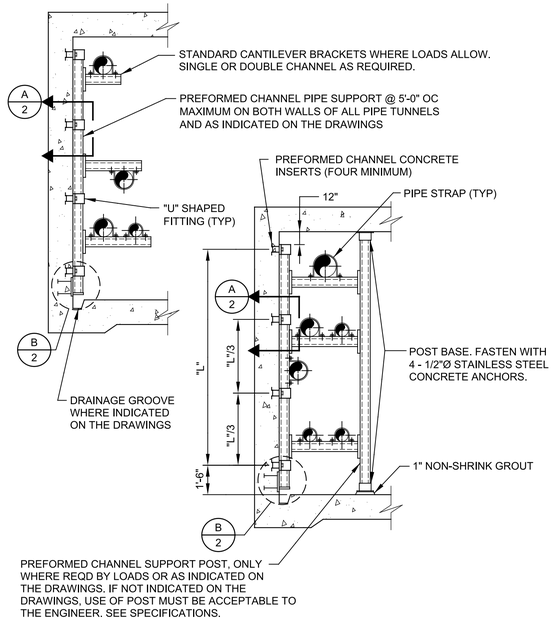
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

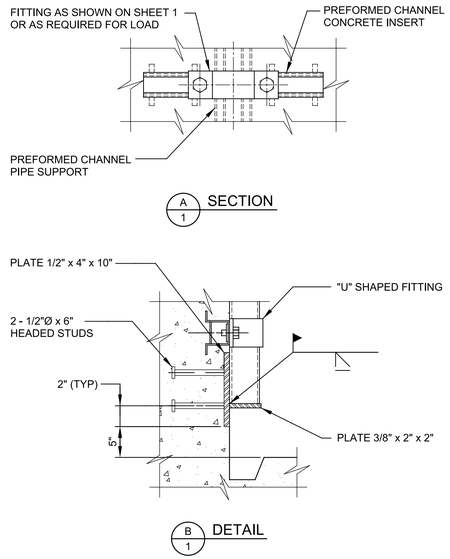
JOB NO. 09520I.10
DRAWING NO. 00GM05

PROJECT NO.
FILE NAME: 9520I1000GM05.dgn



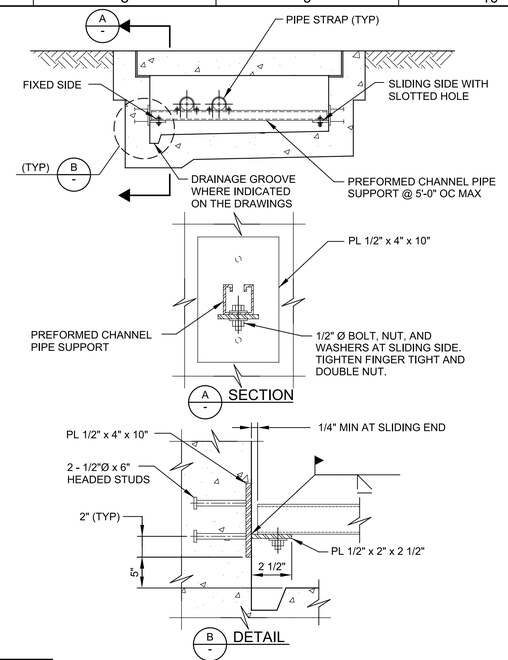
P612 TYP N — WALL MOUNTED PREFORMED CHANNEL PIPE SUPPORT RACK

SHEET 1 OF 2 09/18/13



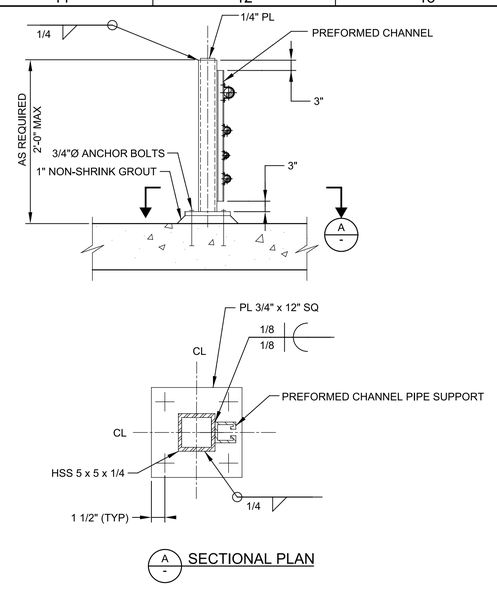
P612 TYP N — WALL MOUNTED PREFORMED CHANNEL PIPE SUPPORT RACK

SHEET 2 OF 2 09/18/13



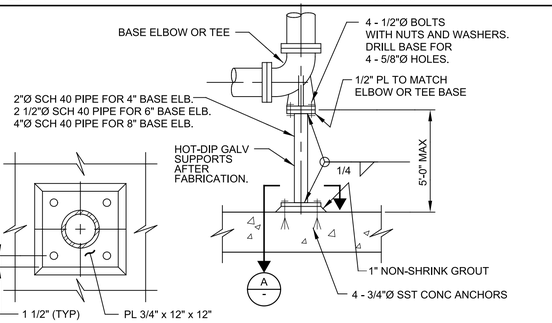
P613 TYP — PREFORMED CHANNEL PIPE SUPPORT IN PIPE OR CONDUIT TRENCH

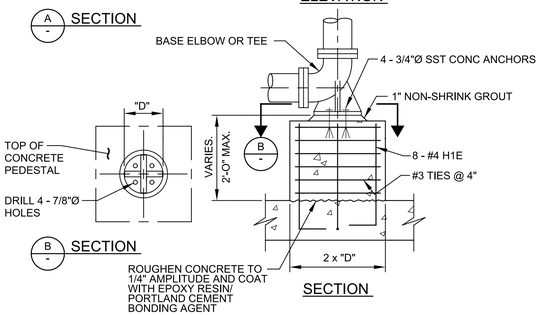
08/01/05



P615 TYP N — PIPE SUPPORT POST WITH PREFORMED CHANNEL

08/22/08

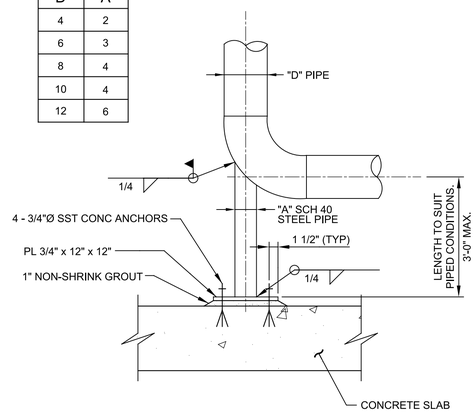




P620 TYP NS — ELBOW OR TEE PIPE SUPPORT

03/06/13

PIPE SIZE	
"D"	"A"
4	2
6	3
8	4
10	4
12	6



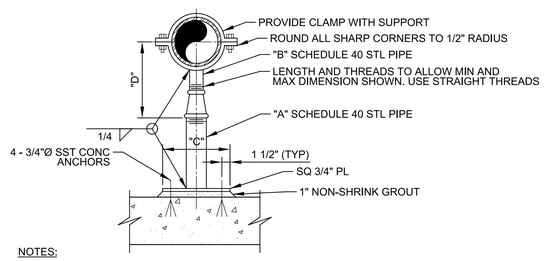
NOTE:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL FOR SUPPORT SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, ALL MATERIAL FOR SUPPORT SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON DRAWINGS. HOT-DIP GALVANIZE AFTER FABRICATION.

P622 TYP N — PIPE SUPPORT FOR STEEL PIPE

08/13/13

ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE (INCHES)					
SIZE OF SUPPORTED PIPE **	PIPE SIZE "A"	PIPE SIZE "B"	"C"	"D" MINIMUM	"D" MAXIMUM
2 1/2 *	2 1/2	1 1/2	12	8	13
3	2 1/2	1 1/2	12	8 1/2	13 1/2
3 1/2	2 1/2	1 1/2	12	8 1/2	13 1/2
4	3	2 1/2	12	9 1/2	14
6	3	2 1/2	12	10 1/2	15 1/2
8	3	2 1/2	12	11 1/2	16 1/2
10	3	2 1/2	12	13 1/2	18 1/2
12	3	2 1/2	12	15	19 1/2
14	4	3	12	16 1/2	20 1/2
16	4	3	12	17 1/2	22 1/2
18	6	3 1/2	14	19 1/2	24
20	6	3 1/2	14	21	25 1/2
24	6	4	14	23 1/2	28 1/2
30	6	4	14	27	31 1/2
32	6	4	14	28 1/2	32 1/2
36	6	4	14	30 1/2	34 1/2

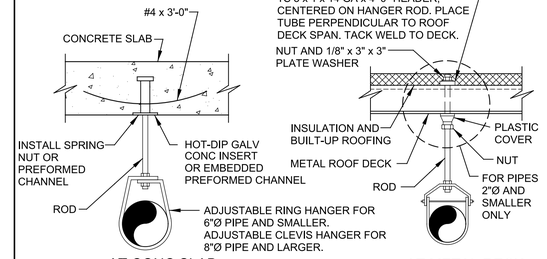


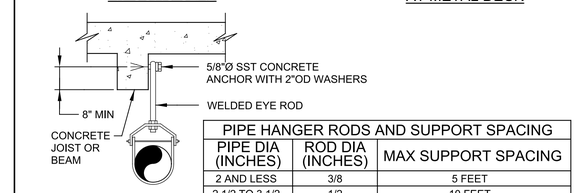
NOTES:

1. HOT-DIP GALVANIZED SUPPORT AFTER FABRICATION.
2. * = USE 2 1/2" SUPPORTS FOR PIPES LESS THEN 2 1/2"Ø.
3. ** = NOMINAL PIPE SIZE.

P624 TYP NS — ADJUSTABLE PIPE SUPPORT

09/04/13





PIPE HANGER RODS AND SUPPORT SPACING		
PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX SUPPORT SPACING
2 AND LESS	3/8	5 FEET
2 1/2 TO 3 1/2	1/2	10 FEET
4 TO 5	5/8	10 FEET
6	3/4	10 FEET
8	7/8	10 FEET
10	7/8	10 FEET
12	7/8	10 FEET

NOTES:

1. ISOLATE ALL COPPER PIPE FROM SUPPORT WITH PVC TAPE.
2. ALL MATERIALS SHALL BE HOT-DIP GALVANIZED.
3. PROVIDE ADDITIONAL HANGER AT EACH SIDE OF ALL VALVES 4 INCHES AND LARGER.

P630 TYP R — PIPE HANGER

04/25/18

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			RECORD DOCUMENTS

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DATE APRIL 2025

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0 1"
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JOB NO. 09520I.10
DRAWING NO. 00GM06

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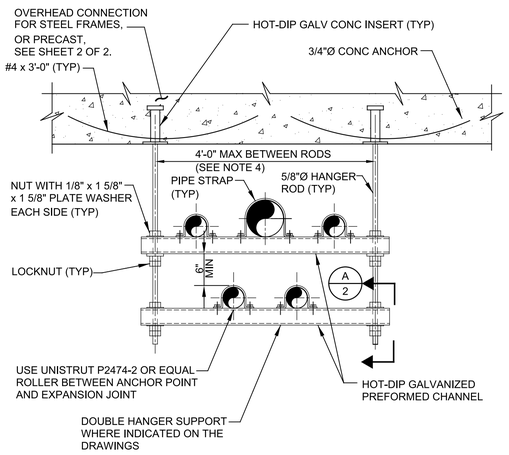
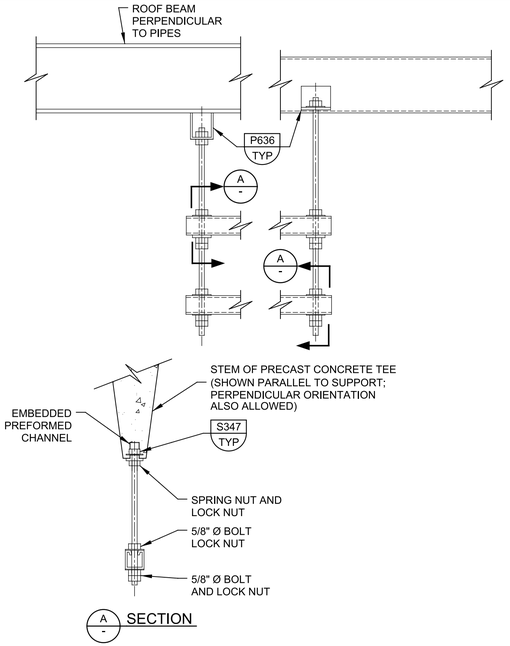


NOTES:

1. HANGER SPACING SHALL BE BASED ON MAXIMUM SPAN ALLOWABLE FOR ANY INDIVIDUAL PIPE OR AS INDICATED ON THE DRAWING, WHICHEVER IS LESS.
2. ALL-THREAD ROD SHALL BE USED ONLY FOR DOUBLE SUPPORTS.
3. ALL MATERIALS SHALL BE HOT-DIP GALVANIZED.
4. 5'-0" SPACING ALLOWED BETWEEN PARALLEL DOUBLE TEE STEMS.

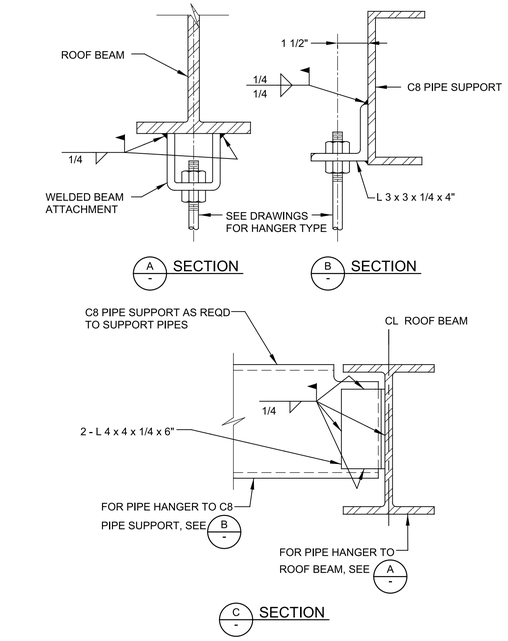
P638 TYP R — DOUBLE ROD PIPE HANGER

SHEET 1 OF 2 — 03/06/18



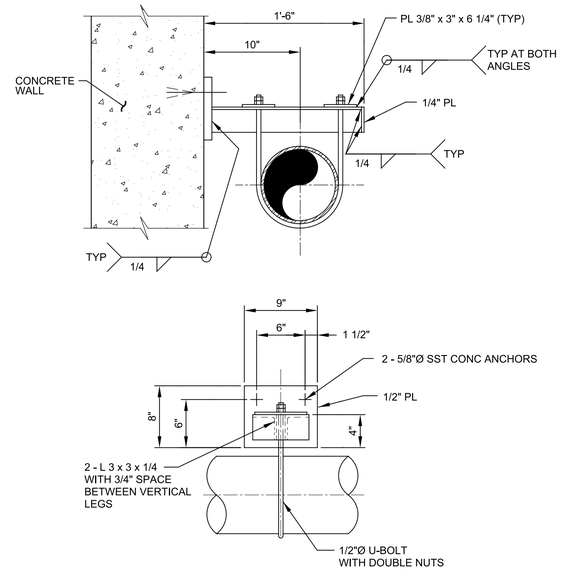
P638 TYP R — DOUBLE ROD PIPE HANGER

SHEET 2 OF 2 — 03/06/18



P636 TYP — PIPE HANGER SUPPORT

08/01/05

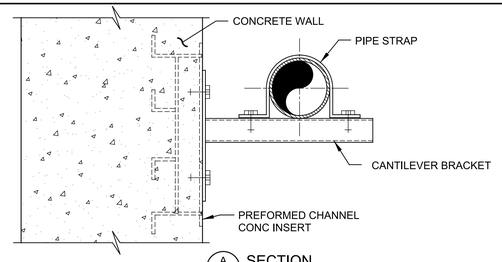


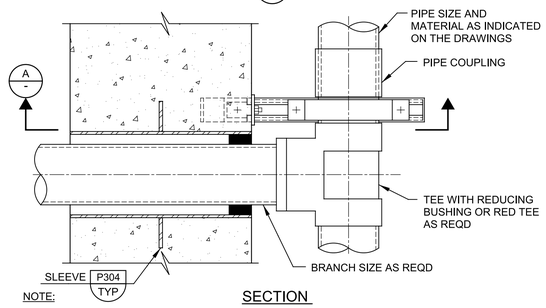
NOTE:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL FOR SUPPORT SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, ALL MATERIAL FOR SUPPORT SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON DRAWINGS. HOT-DIP GALVANIZE AFTER FABRICATION.

P650 TYP N — PIPE SUPPORT - WALL BRACKET ABOVE PIPE

04/22/13



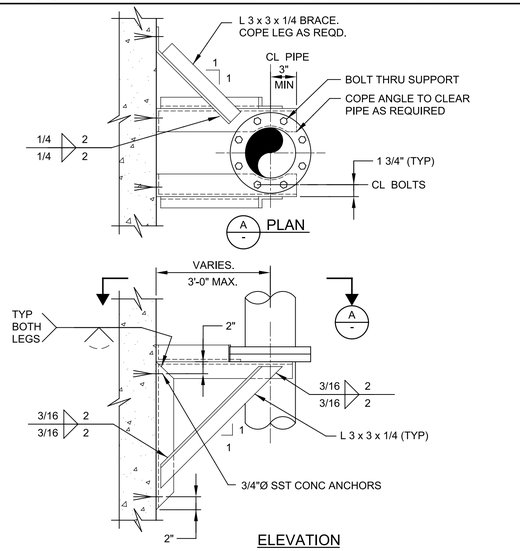


NOTE:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, THE MATERIALS SHALL BE STEEL, HOT-DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

P654 TYP N — PIPE SUPPORT ANCHOR FOR ONE PIPE AT WALL PENETRATION

09/16/13

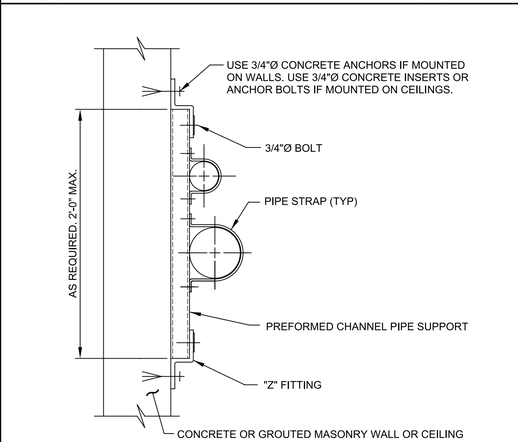


NOTE:

1. HOT-DIP GALVANIZE SUPPORT AFTER FABRICATION.

P656 TYP N — VERTICAL PIPE SUPPORT - WALL BRACKET INSIDE

07/31/08

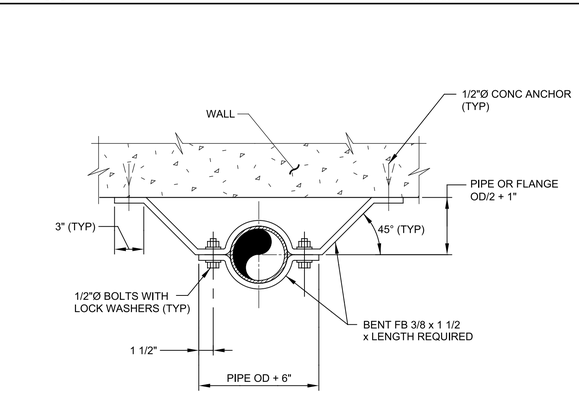


NOTES:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, THE MATERIALS SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS. HOT-DIP GALVANIZE AFTER FABRICATION.
2. SPACE PREFORMED CHANNEL PIPE SUPPORTS AT MAXIMUM 5'-0" O.C.

P660 TYP N — FLUSH MOUNT PIPE SUPPORT

09/06/13



NOTE:

1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, ALL MATERIAL SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

P666 TYP N — VERTICAL PIPE SWAY BRACE

07/31/08

RECORD DOCUMENTS

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DETAILS

TYPICAL MECHANICAL DETAILS VII

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0 1"
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JOB NO. 09520I.10

DRAWING NO. 00GM07

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LAST SAVED BY: eparker

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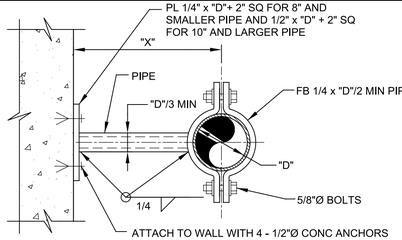
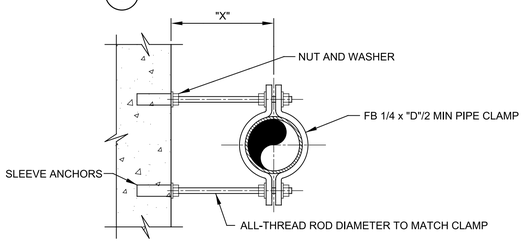


A - PLAN - FOR "X" GREATER THAN 12"

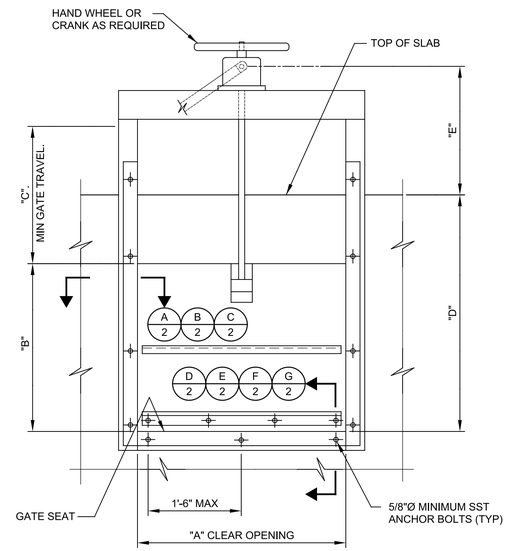


B - PLAN - FOR "X" LESS THAN 12"

NOTE:

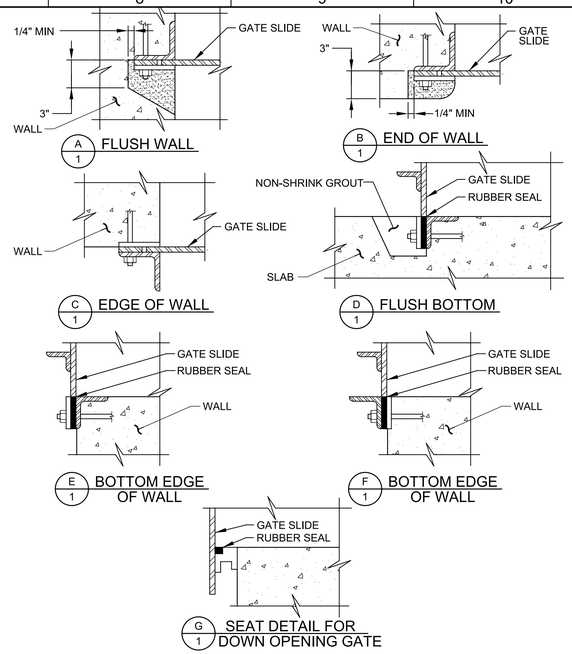
1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, ALL MATERIAL SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

P668 TYP S VERTICAL PIPE SWAY BRACE — 07/31/08

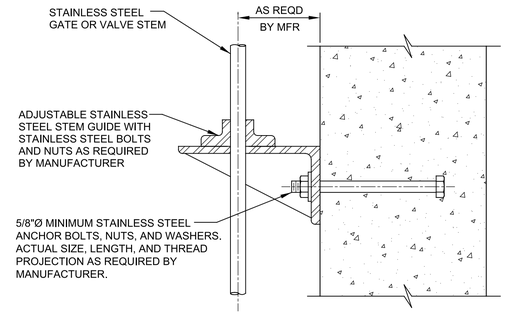


ELEVATION

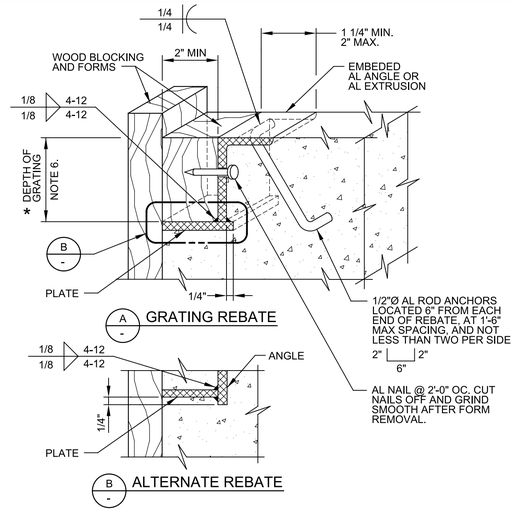
P710 TYP N SST LOW-HEAD FABRICATED SLIDE GATE — SHEET 1 OF 2 — 08/01/05



P710 TYP N SST- LOW-HEAD FABRICATED SLIDE GATE — SHEET 2 OF 2 — 08/01/05



P750 TYP STEM GUIDE — 08/01/05



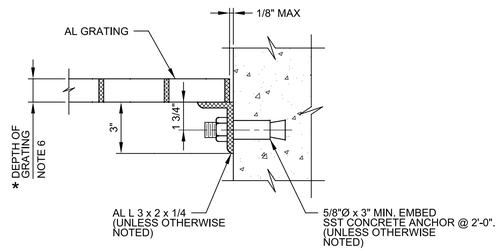
A - GRATING REBATE

B - ALTERNATE REBATE

NOTES:

1. SEE SPECIFICATIONS FOR ALUMINUM GRATING.
2. MAKE REBATE AND/OR SEAT CONTINUOUS AROUND OPENING.
3. EMBEDDED REBATE ANGLE AND PLATE SHALL BE 1/4" MINIMUM THICKNESS.
4. REBATE MAY BE EXTRUDED, SUBJECT TO ENGINEER'S ACCEPTANCE.
5. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE AS SPECIFIED.
6. * = DIMENSION AS REQUIRED BY GRATING MANUFACTURER. SEE SPECIFICATIONS.

A400 TYP NS ALUMINUM GRATING REBATE AND SEAT — SHEET 1 OF 2 — 04/03/17



C - GRATING SEAT

A400 TYP NS ALUMINUM GRATING REBATE AND SEAT — SHEET 2 OF 2 — 04/03/17

REV	DATE	BY	DESCRIPTION
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JOB NO. 09520I.10
DRAWING NO. 00GM08

PROJECT NO. 9520I10 FILE NAME: 9520I1000GM08.dgn

LEGENDS, GENERAL NOTES AND ABBREVIATIONS

ABBREVIATIONS

AC	AIR CONDITIONING
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
BFF	BELOW FINISHED FLOOR
BHP	BRAKE HORSE POWER
BOT	BOTTOM
CC	COOLING COIL
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	CEILING
CO	CLEANOUT
CT	COOLING TOWER
CU	CONDENSING UNIT
CW	COLD WATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
DCC	DIRECT DIGITAL CONTROL
DG	DOOR GRILLE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DP	DEW POINT
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECC	ENERGY CONTROL CENTER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
ET	EXPANSION TANK
EL	ELEVATION
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
FDPR	FIRE DAMPER
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FL	FLOOR
FPI	FINS PER INCH
FPF	FINS PER FOOT
FPM	FEET PER MINUTE
G	GUARD
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HUMIDITY
HB	HOSE BIBB
HC	HEATING COIL
HE	HEAT EXCHANGER
HP	HORSE POWER
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MC	MECHANICAL CONTRACTOR
MD	MOTORIZED DAMPER
MAX	MAXIMUM
MIN	MINIMUM
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
OA	OUTSIDE AIR
OS&Y	OUTSIDE SCREW & YOKE
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PRESS	PRESSURE
RA	RETURN AIR
RD	ROOF DRAIN
RL	RAIN LEADER
RTU	ROOF TOP UNIT
S	SANITARY
SDPR	SMOKE DAMPER
SA	SUPPLY AIR
SP	STATIC PRESSURE
TCC	TEMPERATURE CONTROL CONTRACTOR
T	TEMPERATURE
TYP	TYPICAL
UC	UNDERCUT
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UV	UNIT VENTILATOR
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
VTR	VENT THRU ROOF
W	WASTE
WB	WET BULB
WCO	WALL CLEANOUT

DUCTWORK

- UP / DN — SUPPLY DUCT (UP & DOWN)
- UP / DN — EXHAUST DUCT (UP & DOWN)
- UP / DN — RETURN AIR DUCT (UP & DOWN)
- CEILING DIFFUSERS
- SIDE WALL REGISTER OR GRILLE
- RETURN OR EXHAUST CEILING GRILLE
- EXHAUST OR RETURN WALL MTD GRILLE
- 10x8 — NEW DUCT – WIDTH X DEPTH
- (SINGLE LINE)
- EXISTING DUCT TO REMAIN
- (SINGLE LINE)
- EXISTING DUCT TO BE REMOVED
- (SINGLE LINE)
- FLEXIBLE DUCTWORK (INSULATED)
- (SINGLE LINE)
- SPIN–IN FITTING
- (SINGLE LINE)
- DUCT SIZE TRANSITION (CONCENTRIC)
- (SINGLE LINE)
- DUCT SIZE TRANSITION (ECCENTRIC)
- (SINGLE LINE)
- DUCT TRANSITION (RECTANGULAR TO ROUND)
- (SINGLE LINE)
- ACOUSTICALLY LINED DUCT
- INCLINED RISE, IN DIRECTION OF AIR FLOW
- INCLINED DROP, IN DIRECTION OF AIR FLOW
- FLEXIBLE CONNECTION
- LOUVER
- MANUAL VOLUME DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- FIRE / SMOKE DAMPER
- SMOKE DETECTOR
- DUCT HEATER
- VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
- VANED ELBOW (SHORT RADIUS)
- STANDARD RADIUS ELBOW
- VANE TURN ELBOW & AIR SPLIT TYPE DUCT TAKE–OFF

DUCTWORK

- THERMOSTAT / TEMPERATURE SENSOR
- HUMIDISTAT / HUMIDITY SENSOR
- UNDERCUT (1" U.O.N.)
- DOOR GRILLE (18"X12" U.O.N.)
- A / 100 / 6"ø — AIR DEVICE TYPE, AIR FLOW CFM, NECK SIZE
- 4–WAY AIR FLOW
- 3–WAY AIR FLOW
- 2–WAY AIR FLOW
- 1–WAY AIR FLOW

DRAWING SYMBOLS

- 2 / FP5 — DETAIL NUMBER / DRAWING NUMBER WHERE DRAWN
- A / FP5 — SECTION LETTER / DRAWING NUMBER WHERE DRAWN
- P.O.C — POINT OF INTERFACE BETWEEN NEW & EXISTING P.O.C.
- P.O.D — POINT OF DEMOLITION P.O.D.
- POINT OF INTERFACE BETWEEN CONTRACTORS

NOTE:

THESE ARE STANDARD SYMBOLS AND MAY NOT ALL APPEAR ON THE PROJECT DRAWINGS; HOWEVER WHEREVER THE SYMBOL APPEARS ON THE PROJECT DRAWINGS, THE ITEM SHALL BE PROVIDED AND INSTALLED.

PIPING

- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- CD — CONDENSATE LINE
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- RHG — REFRIGERANT HOT GAS
- HWS — HOT WATER SUPPLY
- HWR — HOT WATER RETURN
- DOMESTIC WATER
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- BALL VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE
- 2–WAY CONTROL VALVE
- 3–WAY MODULATING CONTROL VALVE
- SAFETY OR PRESSURE RELIEF VALVE
- MANUAL AIR VENT
- BUTTERFLY VALVE
- HOSE BIBB
- ANGLE GLOBE VALVE
- MOTOR OPERATED GATE VALVE
- MOTOR OPERATED GLOBE VALVE
- TEST PLUG (PRESSURE / TEMPERATURE)
- OUTSIDE SCREW & YOKE (O S & Y)
- DIRECTION OF FLOW
- ANCHOR
- REDUCER OR INCREASER
- ECCENTRIC REDUCER
- TOP CONNECTION, 45 OR 90 DEG.
- BOTTOM CONNECTION, 45 OR 90 DEG.
- SIDE CONNECTION
- CAPPED OUTLET
- RISE OR DROP IN PIPE
- UNION
- STRAINER
- THERMOMETER
- PRESSURE GAGE
- WATER FLOW MEASURING DEVICE
- EXISTING PIPE TO BE REMOVED

GENERAL NOTES

1. HVAC WORK CONSISTS OF PROVIDING AND INSTALLING VENTILATION , DEHUMIDIFICATION, AND PROCESS AIR CONDITIONING SYSTEMS FOR A COMPLETE OPERATING SYSTEM AND AS INDICATED ON THE DRAWINGS. ALL WORK SHALL COMPLY WITH APPLICABLE CODES IN SPECIFICATIONS. IT IS THE INTENTION OF THE CONTRACT DRAWINGS AND SPECIFICATIONS TO CALL FOR COMPLETE, FINISHED WORK, TESTED, AND READY FOR OPERATION.
2. TEST AND BALANCE SHALL BE PROVIDED BY A COMPANY SPECIALIZING IN THE TESTING AND BALANCING OF HVAC SYSTEMS AS SUBCONTRACTOR TO THE HVAC CONTRACTOR, GENERAL CONTRACTOR, OR OWNER. THE TEST AND BALANCE CONTRACTOR SHALL BE A MEMBER OF EITHER AABC OR NEBB.
3. DUCT DIMENSIONS SHOWN ON THE DRAWINGS ARE CLEAR INSIDE AIR PASSAGE DIMENSIONS.
4. PROVIDE SPIN–IN FITTINGS AT ALL FLEXIBLE DUCT RUNOUTS TO DIFFUSERS WITH AIR EXTRACTOR AND DAMPER ON AIR CONDTIONIUNG SYSTEMS.
5. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 6'–0"ON AIR CONDTIONING SYSTEMS.
6. DEHUMIDIFICATION AND CHEMICAL VENTILATION DUCTWORK AND EQUIPMENT SHALL BE OF CORROSION RESISTANT CONSTRUCTION.
7. ALL PIPING SUBJECT TO THERMAL EXPANSION AND/OR CONTRACTION THAT PENETRATES A SMOKE, FIRE, OR FIRE/SMOKE WALL, PARTITION, OR FLOOR SLAB SHALL BE SUITABLY SLEEVED AND FIRE SAFED.
8. PROVIDE IDENTIFICATION OF THE LOCATION OF ALL FIRE AND BALANCING DAMPERS. IDENTIFICATION TAGS SHALL BE AFFIXED TO THE WALLS OR CEILINGS AND SHALL BE VISIBLE FROM THE OCCUPIED SPACE.
9. ALL PIPING SHALL BE SUPPORTED WITH COMMERCIAL MANUFACTURED CLAMPS. PROVIDE ISOLATION SLEEVES TO PREVENT CONTACT OF DISSIMILAR METALS.
10. INSTALL ALL EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS.
11. CONTRACTOR TO PROVIDE ALL SUPPLEMENTARY STEEL REQUIRED TO SUSPEND MECHANICAL EQUIPMENT AND MATERIALS.
12. PENETRATIONS THROUGH FIRE RATED ASSEMBLIES, PENETRATIONS FOR PIPES, CONDUITS, OR OTHER PURPOSES THROUGH ASSEMBLIES (FLOORS, ROOF, WALLS, PARTITIONS, ETC.) WITH A REQUIRED FIRE RESISTANCE RATING FIRE STOP MATERIAL. FIRE STOP SEALANTS SHALL BE UL LISTED. APPLY FIRE STOP AS RECOMMENDED BY THE MANUFACTURER AND IN ACCORDANCE WITH ITS LISTING TO MEET OR EXCEED THE FIRE RATING OF THE ASSEMBLY IN WHICH IT IS INSTALLED.
13. ALL INSULATION SHALL BE FIRE RATED IN ACCORDANCE WITH ASHRAE 90A 50/25 SMOKE DEVELOPMENT AND FLAME SPREAD REQUIREMENTS. INSULATION "R" VALUES SHALL COMPLY WITH THE FLORIDA ENERGY CODE. MINIMUM R VALUE R6.0.
14. MOUNT ALL SPACE THERMOSTATS/ HUMDISTATS AND/OR SENSORS 4 FEET ABOVE THE FLOOR, UNLESS OTHERWISE NOTED.
15. INSTALL DUCT MOUNTED SMOKE DETECTORS (FURNISHED BY EC) IN RETURN AIR DUCTWORK CONNECTED TO EACH A/C UNIT OF 2000 CFM AND OVER. WIRE DUCT MOUNTED SMOKE DETECTORS SUCH THAT ACTIVATION WILL DE–ENERGIZE AIR HANDLING UNIT FAN. LOCATE DUCT MOUNTED SMOKE DETECTORS THE REQUIRED DISTANCE DOWNSTREAM FROM BENDS OR INLETS AS RECOMMENDED BY THE MANUFACTURER.
16. AIR HANDLING UNITS SHALL BE SHUT DOWN BY THE FIRE ALARM SYSTEM. WIRE THROUGH FIRE ALARM RELAY CONTACT (PROVIDED BY THE FIRE ALARM CONTRACTOR) TO SHUT DOWN AIR HANDLING UNITS UPON FIRE ALARM ACTIVATION. COORDINATE WITH FIRE ALARM CONTRACTOR ACCORDINGLY. WHEN AIR HANDLING UNITS SHUT DOWN FOR FIRE ALARM OR MAINTENANCE, INTERLOCKED EXHAUST FANS SHALL ALSO SHUT DOWN.
17. SEE ARCHITECTURAL REFLECTED CEILING PLAN, AND PROCESS PLANS FOR EXACT LOCATION OF ALL AIR DEVICES LOCATED IN THE CEILING.
18. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT.
19. UNLESS OTHERWISE NOTED, INSTALL ALL DUCTWORK AS HIGH AS POSSIBLE, TIGHT TO THE BOTTOM OF THE STRUCTURE. COORDINATE ELEVATION AND LOCATION WITH RAIN LEADERS, WATER PIPING, PLUMBING VENTS, AND MAJOR ELECTRICAL CONDUITS OR CABLE TRAY.
20. PROVIDE MOTORIZED DAMPERS IN ALL OUTSIDE AIR DUCTS.
21. PROVIDE DRAIN P–TRAPS IN THE CONDENSATE LINES AT ALL AIR HANDLING UNITS.
22. ROUTE FULL SIZE (MIN. 1") COPPER DRAIN PIPE FROM EACH AHU DRAIN PAN TO RESPECTIVE FLOOR DRAIN. INSULATE WITH 3/4" ARMSTRONG "ARMAFLEX" INSULATION.
23. THE WORK INDICATED ON THESE DRAWINGS IS GENERALLY DIAGRAMMATIC AND IS INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF DUCTWORK AND EQUIPMENT, ETC.
24. ALL WORK IS TO BE FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF THREE (3) YEARS FROM DATE OF FINAL ACCEPTANCE. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
25. UPON COMPLETION OF THE WORK UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE ALL TOOLS, APPLIANCES, SURPLUS MATERIALS, AND SCRAP. ALL IDENTIFIED EXISTING EQUIPMENT TO BE REMOVED SHALL BE TURNED OVER TO THE OWNER.
26. WHEN CONFLICTS OCCUR IN SPECIFICATIONS OR IN THE DRAWINGS, OR BETWEEN EITHER, THE ITEMS OF GREATER QUANTITY OR HIGHER COST SHALL BE PROVIDED.
27. THE CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES IN ORDER TO AVOID CONFLICTS.
28. ALL DUCTWORK INSTALLED ON THIS PROJECT SHALL BE OF SHEET METAL CONSTRUCTION. DUCTWORK SHALL BE FABRICATED AND CONSTRUCTED IN ACCORDANCE WITH SMACNA REQUIREMENTS.PROVIDE BALANCING DAMPER IN EACH BRANCH CONNECTION.
29. ALL ROOF ATTACHED EQUIPMENT AND APPURTENANCES INCLUDED IN THE SCOPE OF THIS PROJECT ARE REQUIRED TO BE SECURED TO THE UNDERLYING BUILDING STRUCTURE. THE FASTENING SYSTEMS SHALL BE DESIGNED TO WITHSTAND A 140 MPH WIND LOAD.
30. CONTRACTOR SHALL PROVIDE TO LOCAL AHJ OR PERMITTING AGENCY A COPY OF ALL MAJOR EQUIPMENT CUTS SHEETS AT TIME OF APPLICATION.
31. ALL MECHANICAL WORK SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FLORIDA MECHANICAL CODE, ENERGY CODE REQUIREMENTS LOCALLY LATEST ADOPTED EDITION.
32. ALL EXTERIOR OPENINGS SHALL BE RODENT PROOFED.
33. NO ENERGY CODE FORMS ARE BEING SUBMITTED FOR THE THE FACILITY SINCE ALL BUILDINGS ARE PROCESS UTILITY RELATED AND EQUIPMENT IS SELECTED AND USED FOR WATER TREATMENT.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED JC
DRAWN JC, DC, AZ
CHECKED JC
DATE APRIL 2025

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MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

HVAC

HVAC CHEMICAL FEED ROOF PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02H02

FAN SCHEDULE

FAN

TAG NO.	TYPE	EQUIPMENT LOCATION	AREA SERVED	FAN TYPE & ARRANGEMENT	FAN DATA					ELECTRICAL DATA				ACCESS DOOR	BELT DRIVE	BELT GUARD	BIRD SCREEN	ROUND INLET, AND OUTLET	DISCHARGE SHUTTERS	DRAIN	GRAVITY BDD	WEATHER HOOD	SCROLL FRP, WHEEL SS	INTEGRAL LOUVER	ROOF CURB	ROOF PROTECTION SYSTEM	DIRECT DRIVE	MTD DISC SW, NEMA 4X	VAR. SPEED MOTOR	VIBRATION ISOLATION	SUPPORT FRAME	WEATHER COVER	WEIGHT	MANUFACTURER	MODEL NO.	REMARKS
					CFM	E.S.P. (IN W.G.)	RPM	B.H.P.	CLASS	H.P.	VOLTS	PHASE	HERTZ																							
F-1,2	CENTRIFUGAL	FILTER	FILTER EXHAUST	UPBLAST , CENTRIF	1115	.5	986	.27	1	3/4	480	3	60	X	---	---	---	X	---	X	---	X	X	---	X	---	X	X	X	X	X	---	251	GREENHECK	15BCSWFRP41V75	1,2,3
FCS-1	CENTRIFUGAL	ROOF	CAUSTIC SODA	UPBLAST, CENTRIF	5360	.7	2042	3.18	II	7.5	480	3	60	X	---	---	---	---	---	X	---	X	X	---	X	---	X	X	X	X	X	---	350	GREENHECK	18BCSWFRP4II75	1,2,3
FHC-1	CENTRIFUGAL	ROOF	HYDROCHLORIC	UPBLAST, CENTRIF	3520	.7	2421	2.1	II	5	480	3	60	X	---	---	---	---	---	X	---	X	X	---	X	---	X	X	X	X	X	---	295	GREENHECK	15BCSWFRP4II50	1,2,3
FWR-1,2,3	PROPELLOR	ROOF	WATER ROOM	HOODED PROP	11700	.5	639	2.34	---	3.0	480	3	60	---	X	X	X	---	---	---	X	X	---	---	X	---	---	X	---	---	X	---	X	---	792	GREENHECK	RBE-2H42-30	1,4
FWR-4	PROPELLOR	ROOF	COMPRESSOR ROOM	HOODED PROP	8450	.5	763	1.79	---	2.0	480	3	60	---	X	X	X	---	---	---	X	X	---	---	X	---	---	X	---	---	X	---	X	---	792	GREENHECK	RBE-2H42-30	1,4
FB-1	PROPELLOR	WALL	BLOWER ROOM	WALL PROP	8000	.72	902	2.05	---	3	480	3	60	---	X	X	X	---	---	---	X	---	---	X	---	---	---	---	---	---	---	X	---	381	GREENHECK	SBE3H3630	1,5

NOTES:
1. x INDICATES APPLICABLE ACCESSORIES PROVIDED BY UNIT MANUFACTURER. ALL HOODED PROPELLOR AND UPBLAST FANS SHALL BE VFD DRIVEN AND ADJUSTABLE TO 25% SPEED.
2. NEMA 4X MOTORS , INLET COLLAR FLANGED , UNPUNCHED OUTLET FLANGE FOR OUTLET STACK
3. COATED GELCOAT, DRIVE FRAME, DOUBLE EPOXY GRAY.- VERIFY COLOR WITH ARCHITECT.
4. COATED GRAVITY DAMPER , ROOF CURB, NEMA 4X DISCONNECT , FAN AND ATTACHEMENTS: HI-PRO POLYESTER, STEEL PROP. COATED RAL7023, UNIT SHALL HAVE BEARINGS WITH GREASE FITTINGS. EXTENDED LUBE LINES. VERIFY COLOR WITH ARCHITECT.
5. COATED 44.25X44.25 ESD635X LOUVER, COATED 38X38 DAMPER , NO FIRE DAMPER, OSHA SCREEN, 1S SET SPARE BELTS, THERMOSTAT CONTROLLED 2 SPEED FAN. UNIT ELECTTRICALLY TIED TO INTAKE LOUVER AND THERMOSTAT
6. FAN FWR-1 RUNS CONTINOUS TO EXHAUST SODIUM HYPOCHLORATE, SODIUM BISULFATE, AND CITIRC ACID AREAS.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

SRE

TAG NO.	PATTERN	NECK SIZE	MODULE SIZE	FRAME STYLE	MATERIAL	FINISH	CFM RANGE	ACCESSORIES	MANUFACTURER	MODEL NO.	REMARKS
S-1	PERF	14"ø	24X24	SURF	ALUM	WHITE	320-750	OBD	METALAIRE	7500-1-AF	1,2,3
S-2	DBLDFL	16X8	18X10	SURF	ALUM	WHITE	153-610	OBD	METALAIRE	V4004-1	1,2,3
S-3	DBLDFL	18X8	20X10	SURF	ALUM	WHITE	170-800	OBD	METALAIRE	V4004-1	1,2,3
S-4	DBLDFL	30X6	32X8	SURF	ALUM	WHITE	213-1100	OBD	METALAIRE	V4004-1	1,2,3
S-5	DBLDFL	30X8	32X10	SURF	ALUM	WHITE	295-1475	OBD	METALAIRE	V4004-1	1,2,3

NOTES:
1. COORDINATE FRAME STYLES WITH CEILING TYPE, REFER TO ARCHITECTURAL CEILING PLANS FOR FINAL. COLOR SELECTION BY ARCHITECT.
2. COAT ALL FILTER BUILDING GRILLES WITH CORROSION RESISTANT PAINT.
3. OPPOSED BLADE DAMPER.

LOUVER SCHEDULE

LS

TAG NO.	LOCATION	MAX CFM	S.P.	INTAKE RELIEF EXHAUST	OPENING		NO. OF PANELS	MANUFACTURER	MODEL NO.	REMARKS
					WIDTH IN.	HEIGHT IN.				
L-1	CAUSTIC	5360	.09	INTAKE	49	40	1	GREENHECK	EVH-501D	1-4
L-2	HYDROCHLORIC	3540	.09	INTAKE	40	34	1	GREENHECK	EVH-501D	1-4
L-3,4	COMPRESSOR	4225	.07	INTAKE	48	48	1	GREENHECK	EVH-501D	1-4
L-5-7	WATER ROOM	8775	.07	INTAKE	84	42	1	GREENHECK	EVH-501D	1-4
L-8	SODIUM HYPOCH	4820	.1	INTAKE	42	42	1	GREENHECK	EVH-501D	1-4
L-9	SODIUM BISULFITE	1945	.1	INTAKE	33	25	1	GREENHECK	EVH-501D	1-4
L-10	CITRIC ACID	2010	.09	INTAKE	38	23	1	GREENHECK	EVH-501D	1-4
L-11	BLOWER ROOM	8000	.07	INTAKE	56	58	1	GREENHECK	EVH-501D	1-4

NOTES:
1. HI-PRO POLYESTER FINISH, INSECT SCREEN, FRAME FOR CONCRETE BUILDING. COORDINATE FRAME FOR THE BUILDING WALL WITH MANUFACTURER'S DETAILS AND ARCHITECT.
2. COLOR AS SELECTED BY ARCHITECT. FLA PRODUCT APPROVAL # FL19277.1, MIAMI-DADE NOA NUMBER 15-0415.05
3. INTERLOCK 120VAC NEMA 4X DAMPERS WITH INTERLOCKED FAN.
4. REFER TO THE SEQUENCE OF OPERATION, THE FAN HAS A CONTROL PANEL, 120 VAC CONTROL, VFD AND THERMOSTAT PACKAGE.
5. SEE EXHAUST FAN B-1 FOR AN ADDITIONAL LOUVER FOR THE BLOWER COOLANT FAN OUTLET.

SPLIT SYSTEM A/C SCHEDULE

CONDENSING UNIT	---	CU-1,2
CAPACITY	TONS	7.5
NO. OF COMPRESSORS	---	1
COMPRESSOR RLA/LRA	AMPS	12.2/100
NO. OF CONDENSER FANS	---	2
CONDENSER FAN MOTOR	HP	X
ELECTRICAL	V/PH/HZ	480/3/60
MCA/MOCP	AMPS	17/25
E.E.R.	---	11.2
WEIGHT	LBS.	391
MANUFACTURER	---	CARRIER
MODEL NO.	---	38AUZ008
AIR HANDLING UNIT	---	AHU-1,2
COOLING CAPACITY	MBH	91.8
SENSIBLE CAPACITY	MBH	69.9
SUPPLY AIR	CFM	3000
OUTSIDE AIR	CFM	X
ENTERING AIR (DB/WB)	°F/°F	76.1/64.1
LEAVING AIR (DB/WB)	°F/°F	54.5/53.8
FAN MOTOR	HP	2.4 BHP
STATIC PRESS. (EXTERNAL/TOTAL)	---	.7
ELECTRICAL	V/PH/HZ	480/3/60
MCA/MOCP	AMPS	18.3/20
ELECTRIC HEAT	KW	9.2
FILTER TYPE	---	2" TA MERV 8
WEIGHT	LBS.	404
MANUFACTURER	---	CARRIER
MODEL NO.	---	40RUA008

NOTES:
1. ALL ELECTRIC HEAT IS APPLIED HEAT FOR VOLTAGE OF SYSTEM ON SCHEDULE. ALL REFRIGERATION CIRCUITS ARE TO BE CHECKED BY MFR-R410A
2. VERTICAL CONFIG. AHU WITH FLOOR STAND, ⅝ "L, 1 ⅜"S, ¾"CD -AHU-1,2
3. AIR HANDLER WITH ELECTRIC HEAT, CONTRACTOR, PROGRAMMABLE TEMPERATURE MASTER THERMOSTAT, REFRIGERANT VALVES, FILTER DRIER, LINE SETS, CONCRETE PAD, SMOKE DETECTOR BY EC, RELAY PROVIDED BY MC., VIBRATION ISOLATION ON CONDENSING UNIT, BY MANUFACTURER, DISCONNECT BY EC. MOTORIZED DAMPER ON OA. PIPE & UNIT SUPPORTS FOR UNIT BY M.C., DRAIN PAN UNDER UNIT BY M.C., CONDENSATE CUT OFF SWITCH BY MC. DRAIN PAN AND FLOAT SWITCH
4. PROVIDE TIME DELAY IN RESTART OF SYSTEM ON POWER OUTAGES OF MIN. 5 MINUTES.
5. PROVIDE PIPE SUPPORTS AND CONDESATE DRY WELL.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED JC
DRAWN JC, DC, AZ
CHECKED JC
DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
HVAC
HVAC SCHEDULES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00H02

PACKAGED ROOFTOP DEHUMIDIFICATION UNIT SCHEDULE (ELECTRIC)

DH

TAG NO.	AREA SERVED	NOMINAL TONS	UNIT DATA			REFRIGERANT TYPE	UNIT DATA									REMOTE CONDENSER		COMPRESSOR			HEATING DATA				FILTER DATA		ELECTRICAL DATA			MANUFACTURER	MODEL NO.	WEIGHT	REMARKS
			CFM	EXT. S.P. IN. WG.	HP			#/ HR	DB °F	% RH	REHEAT MBH	SENSIBLE MBH				AMBIENT TEMP °F		QTY.	RLA	LRA	MBH OUTPUT	KW	AMPS		TYPE	EFF %	VOLTS	PHASE	HERTZ				
DHF-1	FILTER BLDG	20.8	9000	1.0	7.5	R407C	---	93.3	75	55	152.2	137.1	---	---	---	100	---	2	17.2	125	136.5	40	50.21	---	4"	8	480	3	60	DCA	DCA9000T	2900	1-7
DHF-2	FILTER BLDG	20.8	9000	1.0	7.5	R407C	---	93.3	75	55	152.2	137.1	---	---	---	100	---	2	17.2	125	136.5	40	50.21	---	4"	8	480	3	60	DCA	DCA9000T	2900	1-7

NOTES:
1. UNIT SIZED WITH LNL-S02-A016-10 SINGLE REMOTE CONDNESER DUAL CIRCUIT, 480V 3 PH, 60 HZ, 15.0 AMPS MCA AND MOCP, AT 95°F CONDENSING TEMP. DUAL CIRCUIT ¾"L , 1 ⅛" S ON COIL, 1 ⅝"INLET, AND 1 ⅝" OUTLET ON CONDENSER, 1" CD, CONDNESER WT. 755 # , REQUIRES ROOF CURB BY MC. FILTER CONCRETE BUILDING LOAD IS 180 LB/HR PERMATION, INFILTRATION, EVAPORATION, AND OUTSIDE AIR CONDITIOINING.
2. UNIT REQUIRES 3 DISCONNECT SWITCHES) RTU, DUCT HEATER,CONDENSER FOR EACH UNIT, MFR SUPPLIES MPCH -3000, REMOTE PANEL, OA DAMPER, INTAKE, HOOD WITH SCREEN, UNIT BASE, MC SUPPLIES ROOF CURB, FRAMES AND RACKS FOR 4" DISPOSABLE FILTERS, TWO SETS OF 4" HIGH EFFICIENCY FILTERS. UNIT SET AT 1115 CFM OUTSIDE AIR. UNIT ACCESS LEFT HAND.
3. UNIT SUPPLIED WITH EDHS9000SLIP IN ELECTRIC DUCT HEATER, 480 VOLT , 3 PH, 60 HZ, 62.7 MCA, 75.3 MOCP, 41X28 DUCT DIMENSIONS
4. ROOFTOP UNIT SHALL HAVE 46.2 MCA, 60 MOCP, UNIT TO HAVE HT-W-5 WALL MOUNT HUMIDITY TRANSMITTER, MPCT3100 MICRO-PROCESSOR TEMPERATURE CONTROLLER WITH 1097 SENSOR, TS WALL CASE , AND MB200 MICROPROCESSOR INTERFACE BOX, 24 VDC CONTROL.
5. COLOR OF UNIT SHALL BE AS SELECTED BY PROJECT MANAGER AND ARCHITECT.
6. THREE YEAR WARRANTY ON CONTROLS, THREE YEAR WARRANTY ON PARTS, FIVE YEAR WARRANTY ON EAVPORATOR AND REHEAT COILS
7. UNIT CONFIGURED OA INTAKE ON ROOF WITH UNIT, BOTTOM SUPPLY AND BOTTOM RETURN , DUCT HEATER IN DUCTWORK IN SPACE.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

SRE

TAG NO.	PATTERN	NECK SIZE	MODULE SIZE	FRAME STYLE	MATERIAL	FINISH	CFM RANGE	ACCESSORIES	MANUFACTURER	MODEL NO.	REMARKS
S-1	PERF	14"ø	24X24	SURF	ALUM	WHITE	320-750	OBD	METALIARE	7500-1-AF	1,2,3
S-2	DBLDFL	16X8	18X10	SURF	ALUM	WHITE	153-610	OBD	METALAIRE	V4004-1	1,2,3
S-3	DBLDFL	18X8	20X10	SURF	ALUM	WHITE	170-800	OBD	METALAIRE	V4004-1	1,2,3
S-4	DBLDFL	30X6	32X8	SURF	ALUM	WHITE	213-1100	OBD	METALAIRE	V4004-1	1,2,3
S-5	DBLDFL	30X8	32X10	SURF	ALUM	WHITE	295-1475	OBD	METALAIRE	V4004-1	1,2,3
S-6	DBLDFL	28X12	30X14	SURF	ALUM	WHITE	500-1400	OBD	METALAIRE	V4004-1	1,2,3
S-7	DBLDFL	48X16	50X18	SURF	ALUM	WHITE	1200-3400	OBD	METALAIRE	V4004-1	1,2,3

NOTES:
1. COORDINATE FRAME STYLES WITH CEILING TYPE, REFER TO ARCHITECTURAL CEILING PLANS FOR FINAL. COLOR SELECTION BY ARCHITECT.
2. COAT ALL FILTER BUILDING GRILLES WITH CORROSION RESISTANT PAINT.
3. OPPOSED BLADE DAMPER.

ELECTRIC UNIT HEATER SCHEDULE

EUH

Tag No.	Equipment Location	Heating Data						Fan Description								Electrical Data			Manufacturer	Heater Model no.	Enclosure Model no.	(X indicates Accessories) Vibration isolation	Baked enamel finish	Return Air Thermostat	Wall hangar	Wall thermostat	Summer fan switch	chemical resist.	Tamper-proof allen-head machine screws	Weight
		KW Setting	KW Range	# of Stages	E.A.T. °F	L.A.T. °F	Fuel Type	CFM	E.S.P. in. wg.	Fan Type	Fan Size	Drive Type	RPM	H.P.	Speeds	Volts	Phase	Hertz													
EHHC-1,2	WALL	25	25	1	36	68	ELECT	2330	---	PROP	---	DIRECT	1725	1/2	---	480	3	60	CHROMOLOX	CXHA2543320020EP	---	X	X	X	X	X	X	X	216
EHCS-1,2	WALL	20	20	1	36	79	ELECT	1400	---	PROP	---	DIRECT	1725	1/4	---	480	3	60	CHROMOLOX	CXHA2043320020EP	---	X	X	X	X	X	X	X	171
EHWR-1-4	WALL	15	15	1	36	67	ELECT	1450	---	PROP	---	DIRECT	1725	1/4	---	480	3	60	CHROMOLOX	CXHA1543300020EP	---	X	X	X	X	X	X	X	160
EHB-1	WALL	15	15	1	36	67	ELECT	1450	---	PROP	---	DIRECT	1725	1/4	---	480	3	60	CHROMOLOX	CXHA1543300020EP	---	X	X	X	X	X	X	X	160
ESB-1,2	STRUCT&WALL	20	20	1	36	79	ELECT	1400	---	PROP	---	DIRECT	1725	1/4	---	480	3	60	CHROMOLOX	CXHA2043300020EP	---	X	X	X	X	X	X	X	171
ESH-1,2	WALL	30	30	1	36	75	ELECT	2330	---	PROP	---	DIRECT	1725	1/2	---	480	3	60	CHROMOLOX	CXHA3043300020EP	---	X	X	X	X	X	X	X	216
ECA-1,2	STRUCT&WALL	15	15	1	36	67	ELECT	1450	---	PROP	---	DIRECT	1725	1/4	---	480	3	60	CHROMOLOX	CXHA3543300020EP	---	X	X	X	X	X	X	X	171

NOTES:
1. UNIT ACCESSORIES TO INCLUDE WALL MOUNTED THERMOSTAT AS SHOWN ON DRAWINGS. UNITS SCHEDULED ARE FOR CHEMICAL AND WATER TREATMENT AREAS WHERE CHEMICALS PRESENT.
2. DISCHARGE GRILLE TO BE INSTALLED IN AN ASYMETRICAL AIR PATTERN.
3. MFR. SUPPLIED TRANSFORMER, DISCONNECT, REMOTE THERMOSTAT, AND SUMMER FAN SWITCH, WITH UNIT MOUNTED, VIBRATION ISOLATED BRACKET FOR SUSPENSION OFF OF WALL STRUCTURE. UNIT SB-1 HUNG OFF OF ROOF STRUCTURE, 120 VAC CONTROLS.
4. EH HC-1,2 MCA 31.1 AMPS., CS-1,2 24.8 AMPS, WR-1-4 18.7 AMPS , B-1 18.7 AMPS, SB-1,2 24.8 AMPS, SH-1,2 37.1 AMPS, CA-1,2 18.7 AMPS .

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HVAC SCHEDULES

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JOB NO. 09520I.10
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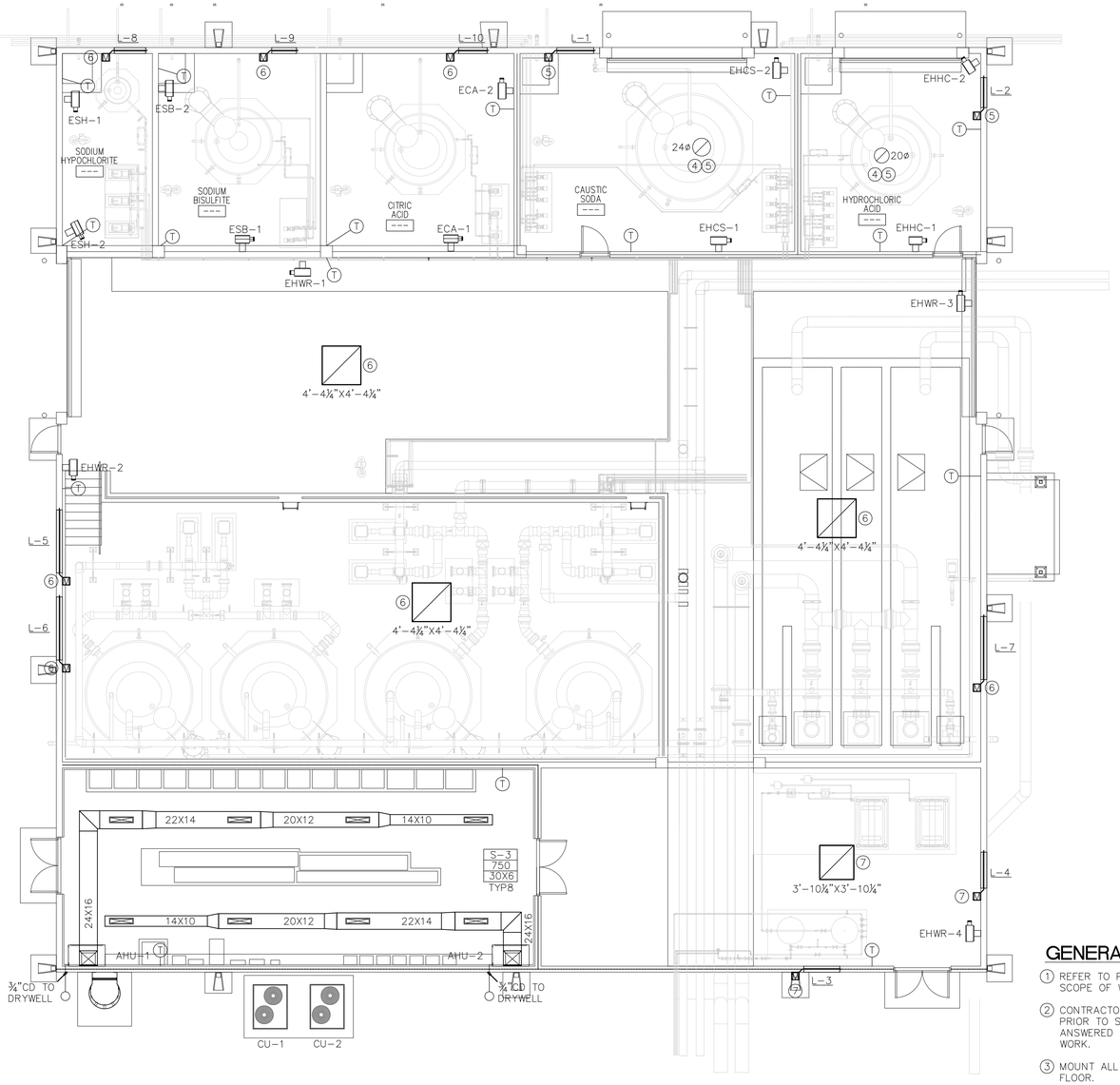

1 / 02H01 **HVAC CHEMICAL FEED BUILDING PLAN**

1/8"=1'-0"

GENERAL NOTES:

1. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL SCOPE OF WORK.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. ANY QUESTIONS SHALL BE ANSWERED BY THE PROJECT MANAGER PRIOR TO START WORK.
3. MOUNT ALL UNIT HEATERS BOTTOM AT 14 FEET ABOVE THE FLOOR.
4. STUB EXHAUST DUCT 12" BELOW ROOF.
5. INTERLOCK FANS (1 TO 1) WITH RESPECTIVE MOTORIZED DAMPERS IN SPACE.
6. INTERLOCK FANS (3) WITH RESPECTIVE MOTORIZED DAMPERS IN SODIUM HYPROCHLORATE, SODIUM BISULFATE, CITRIC ACID, AND WATER ROOM (5 DAMPERS)
7. INTERLOCK FAN (1) WITH REPSPECTIVE MOTORIZED DAMPERS (2) IN COMPRESSOR ROOM

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HVAC CHEMICAL FEED BUILDING PLAN

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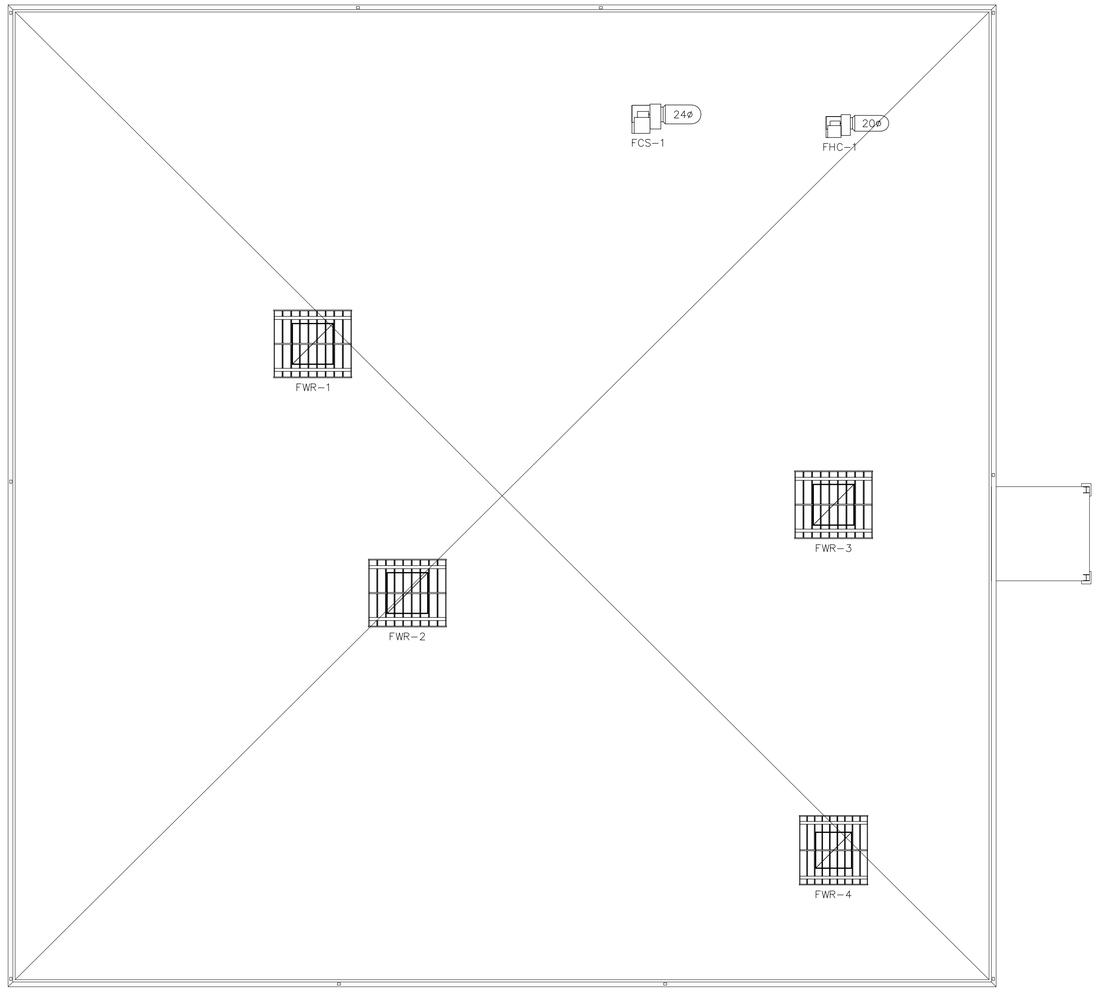

1 / 02H02 HVAC CHEMICAL FEED ROOF PLAN

1/8"=1'-0"

GENERAL NOTES:

1. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL SCOPE OF WORK.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. ANY QUESTIONS SHALL BE ANSWERED BY THE PROJECT MANAGER PRIOR TO START WORK.

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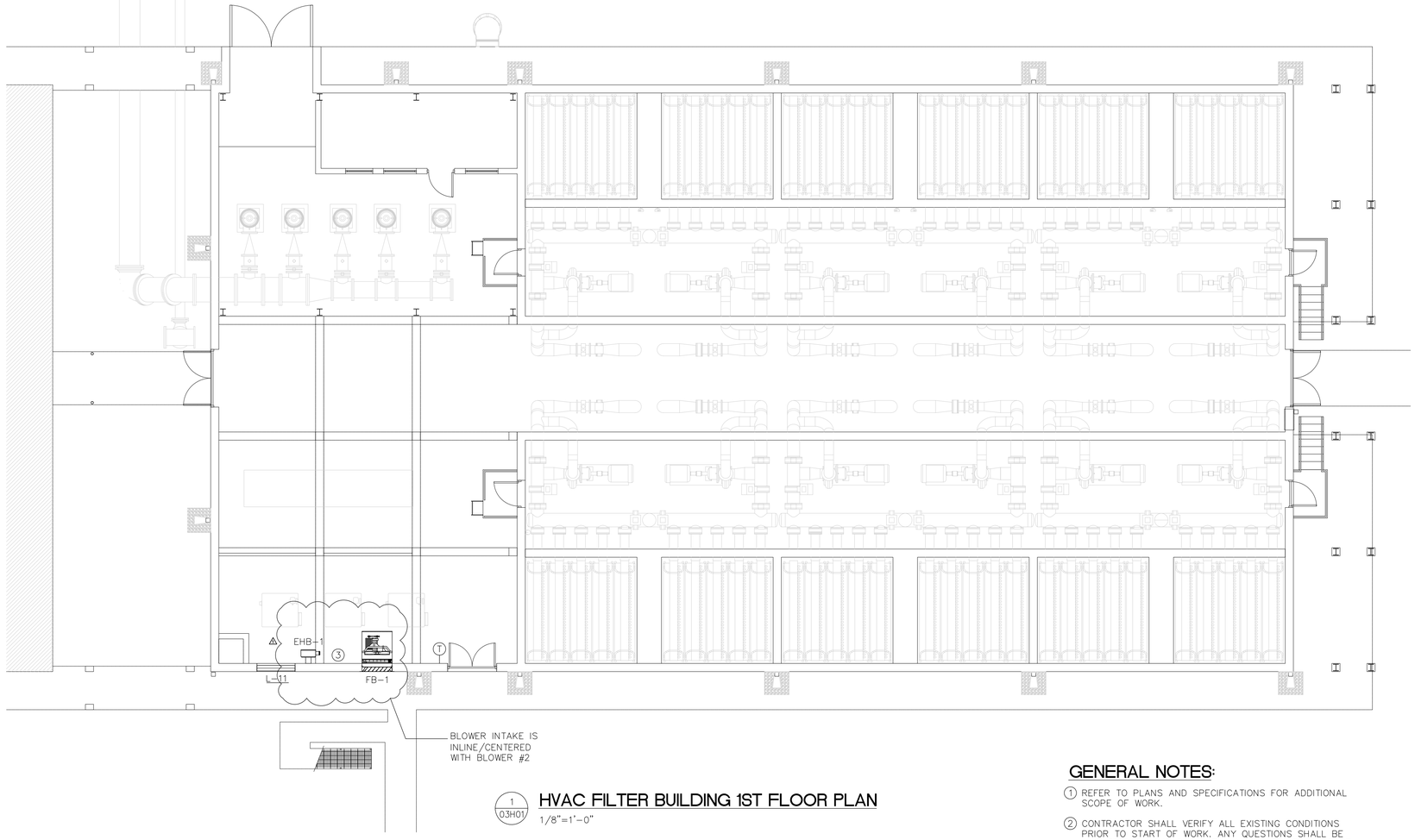

1 / 03H01 HVAC FILTER BUILDING 1ST FLOOR PLAN

1/8"=1'-0"

GENERAL NOTES:

1. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL SCOPE OF WORK.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. ANY QUESTIONS SHALL BE ANSWERED BY THE PROJECT MANAGER PRIOR TO START WORK.
3. MOUNT UNIT HEATER BOTTOM AT 6'-8" ABOVE THE FLOOR.

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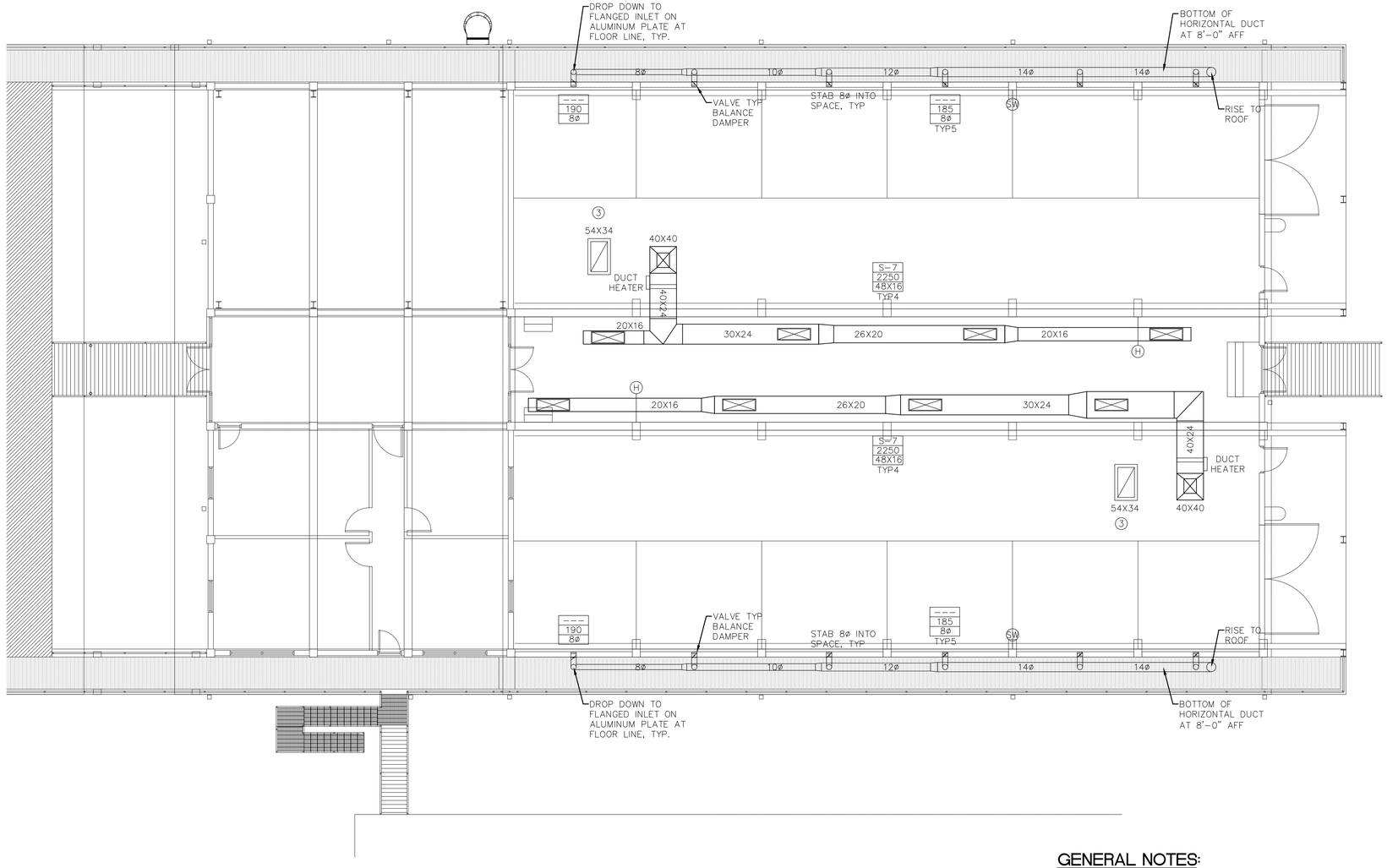

1 / 03H02 HVAC FILTER BUILDING 2ND FLOOR PLAN

1/8"=1'-0"

GENERAL NOTES:

1. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL SCOPE OF WORK.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. ANY QUESTIONS SHALL BE ANSWERED BY THE PROJECT MANAGER PRIOR TO START WORK.
3. STUB 54X34 DUCT 12" BELOW CEILING

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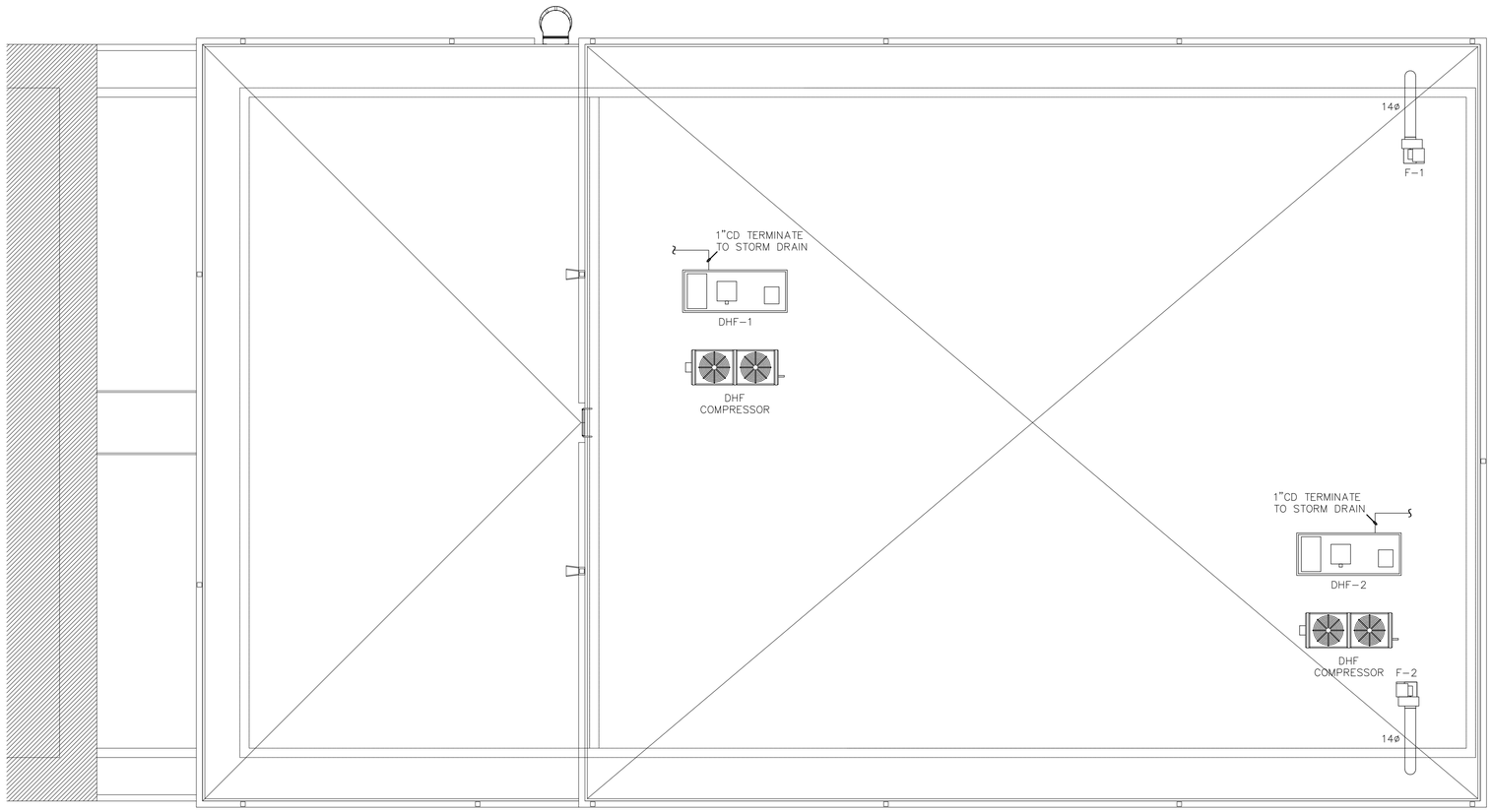

1 / 03H03 HVAC FILTER BUILDING ROOF PLAN

1/8"=1'-0"

GENERAL NOTES:

1. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL SCOPE OF WORK.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. ANY QUESTIONS SHALL BE ANSWERED BY THE PROJECT MANAGER PRIOR TO START WORK.

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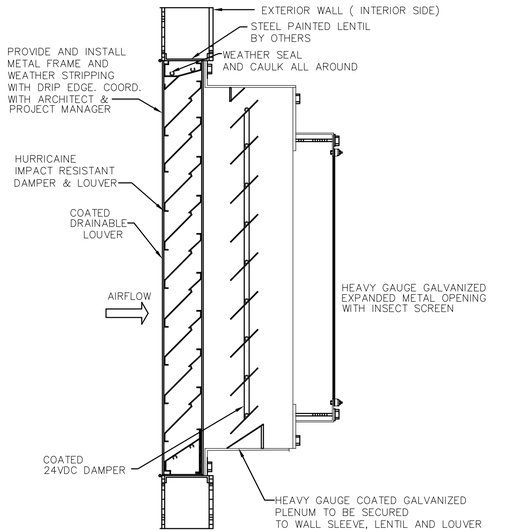
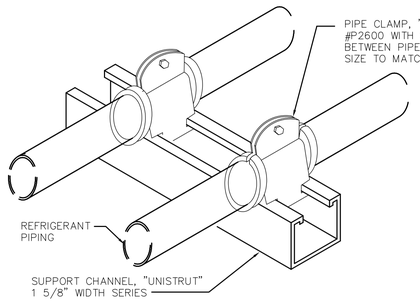


COORDINATE ELEVATION IN WALL WITH ARCHITECT& PROJECT MANAGER

1 00GH01 **WALL LOUVER INSTALLATION DETAIL**

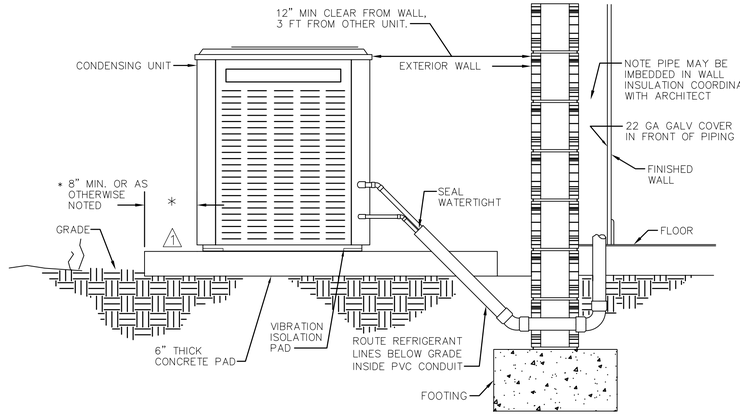
NOT TO SCALE



1. ALL REFRIGERANT PIPING SHALL BE HARD COPPER, TYPE "L" WITH LONG RADIUS ELBOWS.
2. TRAPS SHALL BE SINGLE PIECE, WROUGHT COPPER.
3. INSULATE SUCTION LINE WITH 5/8" ARMAFLEX INSULATION FULL LENGTH. DO NOT SPLIT DURING INSULATION BUTT JOINTS WITH ARMAFLEX SEALANT, AND APPLY ARMAFLEX PRESERVATIVE ON ALL INSULATION ABOVE THE ROOF LINE. WHERE REFRIGERANT OR CONDENSATE PIPING RUNS THROUGH RETURN AIR PLENUMS, INSULATION SHALL BE FIRE-RATED ARMAFLEX "AP" 25/50.
4. ROUTING OF ALL REFRIGERANT PIPING SHALL BE PLUMB AND SHALL RUN TRUE WITH THE BUILDING LINES. HORIZONTAL RUNS OF SUCTION LINES OVER 25' SHALL BE PITCHED "ONE-HALF" BUBBLE TOWARD THE COMPRESSOR, FOR OIL RETURN.
5. SUPPORT OF ALL PIPING AT COMPRESSORS, CONDENSERS, AND AIR HANDLING UNITS SHALL BE AS SHOWN ABOVE. SUPPORT OF PIPING IN BETWEEN THE UNITS SHALL BE WITH STRAP MATERIAL, USING ARMAFLEX INSULATION AS SADDLES. NO METAL-TO-METAL CONTACT.
6. BRAZE REFRIGERANT PIPING WITH FLOW OF DRY NITROGEN DURING BRAZING.
7. SOLDER SHALL BE 15% SILVER "SIL-FOS" OR EQUAL.
8. CHANGE FILTER-DRIER CORES AFTER 30 DAYS OF OPERATION.

6 00GH01 **REFRIGERANT DETAIL**

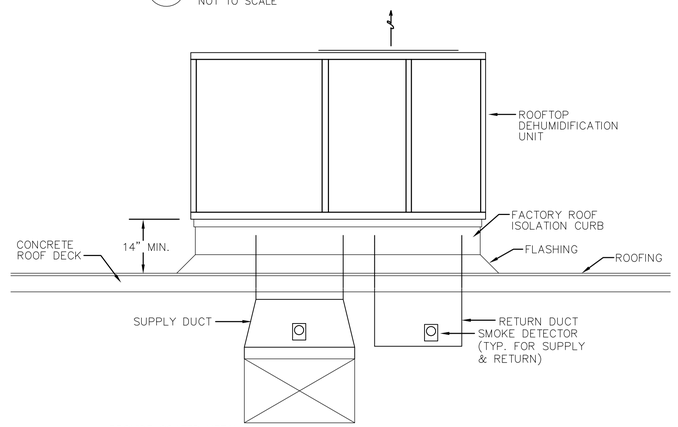
NOT TO SCALE



BOLT UNITS DOWN WITH ¼" SS. BOLTS AND MFR ISOLATION AT EACH CORNER, TAPCON WITH #12 SCREWS INTO CONCRETE MIN 1", RUN 18 GA STRAP OVER UNIT, TAPCON INTO CONCRETE SAME. COORDINATE WITH ARCH. & STRUCTURAL PLANS.

2 00GH01 **CONDENSING UNIT DETAIL**

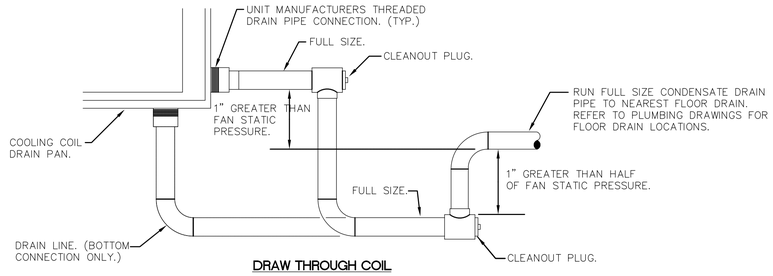
NOT TO SCALE



PROVIDE COATED METAL COLOR AS SELECTED BY PROJECT MANAGER, & ARCHITECT.

4 00GH01 **ROOFTOP DEHUMIDIFACTION UNIT DETAIL**

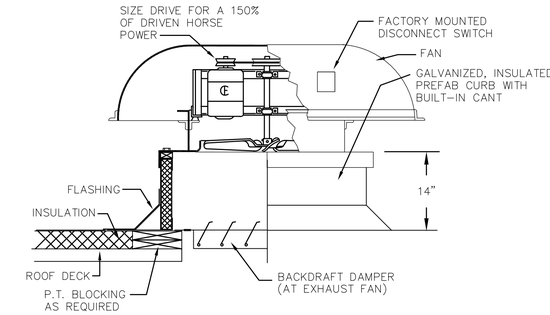
NOT TO SCALE



DRAW THROUGH COIL

7 00GH01 **CONDENSATE DRAIN PIPING DETAIL**

NOT TO SCALE

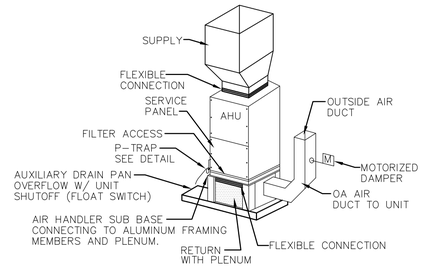


NOTES:

1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 1/4" CADMIUM PLATED LAG BOLTS NOT OVER 12" ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
3. SIZE OF DUCT THROUGH ROOF SHALL NOT BE LARGER THAN CURB SUPPLIED WITH ROOF VENTILATOR.
4. RUN ELECTRIC LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

3 00GH01 **ROOF MOUNTED FAN DETAIL**

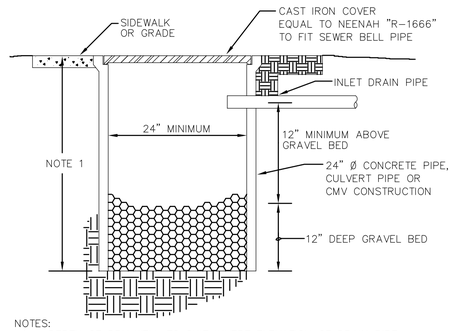
NOT TO SCALE



CONTRACTOR SHALL INSTALL EQUIPMENT WITH ADEQUATE SPACE FOR SERVICE AND INSPECTION PER MANUFACTURER RECOMMENDATIONS.

5 00GH01 **AIR HANDLING UNIT DETAIL**

NOT TO SCALE



NOTES:

1. DEPTH OF DRY WELL TO SUIT INVERT ELEVATION OF DRAIN PIPE.
2. PROVIDE FOOTERS AS REQUIRED TO PREVENT DRY WELL FROM SINKING.

8 00GH01 **DRYWELL DIAGRAM**

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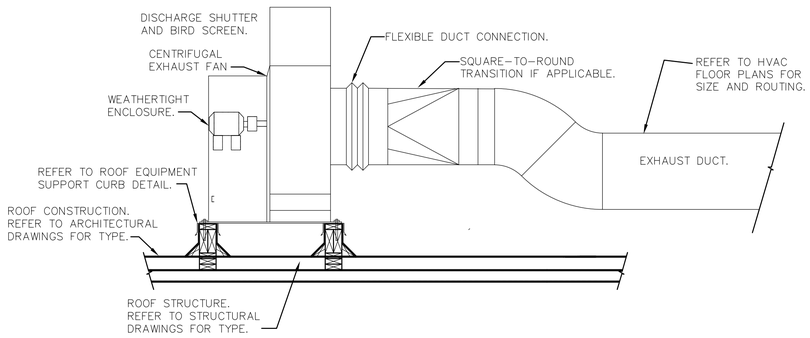
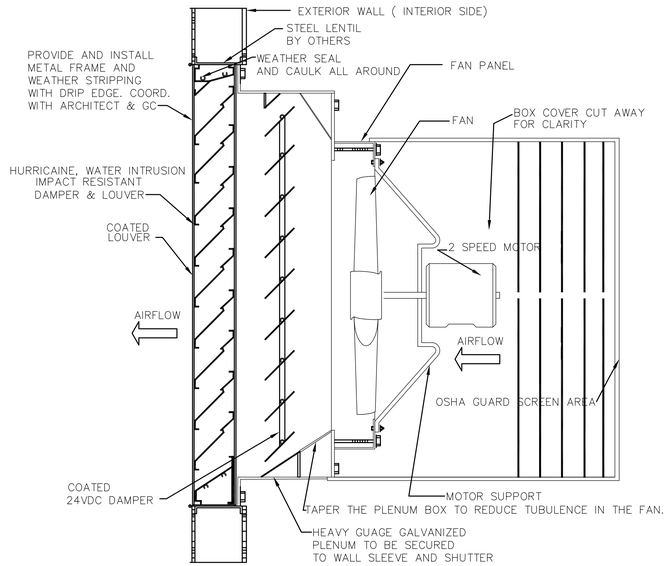


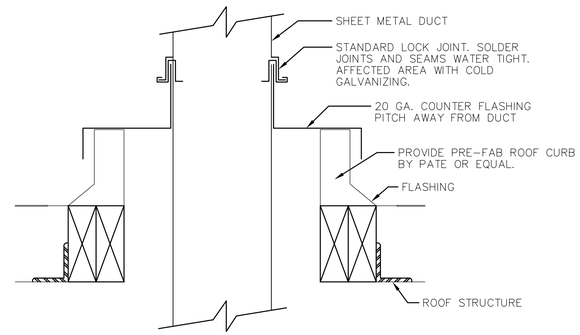
1 00GH02 **FILTER BUILDING CENTRIFUGAL EXHAUST FAN INSTALLATION DETAIL**

NOT TO SCALE



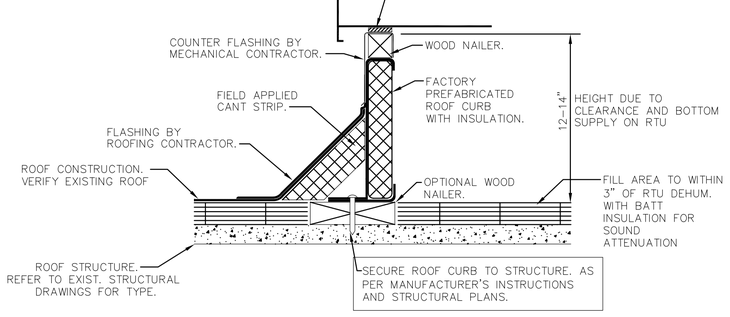
2 00GH02 **WALL EXHAUST FAN INSTALLATION DETAIL**

NOT TO SCALE



3 00GH02 **DUCT PENETRATION THROUGH ROOF**

NOT TO SCALE

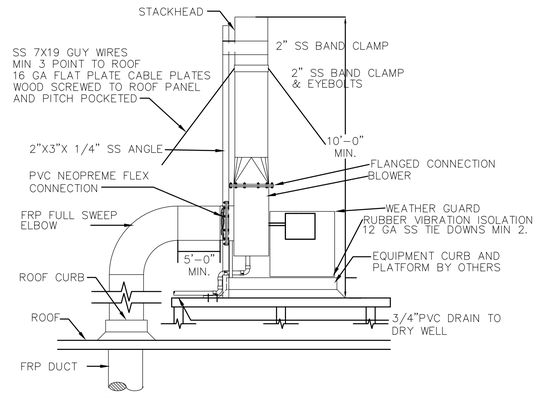


NOTES:

1. ROOF CURBS SHALL BE PROVIDED WITH PROPERLY DESIGNED FABRICATED LEVELING DEVICES SO EQUIPMENT IS LEVEL AND THE ROOF CURB IS INSTALLED TO MATCH THE ROOF SLOPE.
2. PROVIDE PERIMETER ANGLE SUPPORT AT ALL SIDES BETWEEN STRUCTURAL STEEL. SIZE OF ANGLE BASED ON LOAD OF EQUIPMENT. MINIMUM SIZE SHALL BE 3" X 3" X 1/4".
3. ROOF CURBS SHALL NOT BE SUPPORTED FROM THE ROOF INSULATION.
4. COORDINATE LOCATION OF ROOF CURB AND ROOF OPENING WITH STRUCTURE.
5. ROOFING INSULATION SHALL BE CONTINUOUS UNDER THE ROOFTOP EQUIPMENT.
6. A ROOFING MANUFACTURER'S CERTIFIED REPRESENTATIVE SHALL WARRANTY ALL MODIFICATIONS .

4 00GH02 **ROOF EQUIPMENT SUPPORT CURB DETAIL**

NOT TO SCALE



NOTE:
PAINT ALL EXTERIOR FRP DUCT COLOR SELECTED BY ARCHITECT.
PROVIDE AND INSTALL PLATFORM IN ACCORDANCE WITH FMC AND FBC.

5 00GH02 **CAUSTIC AND HYDROCHLORIC ROOF EXHAUST DETAIL**

NOT TO SCALE

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED JC
DRAWN JC, DC, AZ
CHECKED JC
DATE APRIL 2025

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HVAC

HVAC DETAILS

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JOB NO. 09520I.10

DRAWING NO. 00GH02

ELECTRICAL PLAN/LAYOUT

SYMBOL	DESCRIPTION
TTC	TELEPHONE TERMINAL CABINET
TJB , (J) TJB	TERMINAL JUNCTION BOX
	ELECTRICAL EQUIPMENT
(X)	CEILING MOUNTED DOWNLIGHT LUMINAIRE – SEE SCHEDULE FOR TYPE
(X)	FLOURESCENT LUMINAIRE, SURFACE OR LAY IN TYPE SEE SCHEDULE FOR TYPE
(X)	LUMINAIRE AND POLE – SEE SCHEDULE FOR TYPE
(X)	WALL MOUNTED LUMINAIRE – SEE SCHEDULE FOR TYPE
(X)	FLOOD LIGHTS – AIM IN THE DIRECTION SHOWN SEE SCHEDULE FOR TYPE
X	EXIT LIGHTS – SOLID SECTION IS DIRECTION OF FACE SEE SCHEDULE FOR TYPE
X	EMERGENCY LIGHT WITH BATTERY PACK SEE SCHEDULE FOR TYPE
	LIGHTING FIXTURE POWER AND SWITCHING LEGEND
(X) Y Z (TYP)	X=FIXTURE TYPE Y=PANEL–CIRCUIT BRKR Z=SWITCH IF NO Z INDICATED, CONNECT DIRECTLY TO CIRCUIT BREAKER.
[B2]	CONDUIT/CONDUCTOR – REFER TO CIRCUIT SCHEDULE
LPA–2	HOME RUN – PANEL AND CIRCUIT NUMBER SHOWN
	EXPOSED CONDUIT AND CONDUCTORS*
	UNDERGROUND CONDUIT AND CONDUCTORS* NOTE: * ALL UNMARKED CONDUIT RUNS CONSIST OF 2#12, 1#12G IN 3/4"C.
YCX	YARD CONDUIT. REFER TO YARD CONDUIT SCHEDULE
	DIRECT BURIED CONDUIT
	CONDUIT, STUBBED AND CAPPED AS SHOWN
G	GROUND WIRE, 4/O UNLESS OTHERWISE NOTED
	6 FOOT GROUND WIRE PIGTAIL, 4/O UNLESS OTHERWISE NOTED
	GROUND ROD – 5/8" x 20' COPPER CLAD UNLESS OTHERWISE NOTED
	GROUND TEST WELL, SEE DETAIL
S	WALL SWITCH: 2- DOUBLE POLE, 3- THREE WAY, 4- FOUR WAY, P- PILOT LIGHT, K- KEY OPERATED, D- DIMMER, WP-WEATHERPROOF CRE-CORROSION RESISTANT
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED OTHERWISE WP-WEATHERPROOF C- CLOCK HANGER TL- TWIST LOCK CRE-CORROSION RESISTANT GFI-GROUND FAULT INTERRUPTER
	CONVENIENCE RECEPTACLE – 20A QUADROPLEX UNLESS SPECIFIED OTHERWISE
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED OTHERWISE. LOCATED ABOVE COUNTER TOP GFI-GROUND FAULT INTERRUPTER
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
30	RECEPTACLE, SPECIAL PURPOSE – AMPERAGE AS INDICATED. WP-WEATHERPROOF C- CLOCK HANGER TL- TWIST LOCK CRE-CORROSION RESISTANT GFI-GROUND FAULT INTERRUPTER
	TELEPHONE/DATA RECEPTACLE (OUTLET BOX, 18" AFF) W – WALL MOUNTED, 54" AFF
	TELEPHONE/DATA RECEPTACLE MOUNTED FLUSH IN FLOOR
J	JUNCTION BOX NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X SS
F	FIRE ALARM PULL STATION
F	FIRE ALARM HORN/STROBE LIGHT
F	FIRE ALARM STROBE LIGHT
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL

SYMBOL	DESCRIPTION
	FIRE ALARM SMOKE DETECTOR EC– MOUNTED TO EXPOSED CEILING H– HARSH ENVIROMENT RATED
	FIRE ALARM HEAT DETECTOR EC– MOUNTED TO EXPOSED CEILING
D	DUCT SMOKE DETECTOR
RTU	REMOTE TEST UNIT
CR	SECURITY CARD READER
	CAMERA FIXED TYPE UNLESS OTHERWISE NOTED (PTZ = PAN–TILT–ZOOM TYPE)

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
A	AMMETER, AMPERE
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	AMMETER SWITCH, AMPERE SENSOR
ASU	AIR SUPPLY UNIT
ATS	AUTOMATIC TRANSFER SWITCH
BC	BYPASS CONTACTOR
BRKR	BREAKER
C	CONDUIT, CONTACTOR
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CMS	COMBINATION MOTOR STARTER
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRE	CORROSION RESISTANT
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIV	DIVISION
DP	DISTRIBUTION PANEL (480V)
EF	EXHAUST FAN
EG	ELECTRICAL GROUND
ETM	ELAPSED TIME METER
EXST	EXISTING
FDR	FEEDER
F, FU	FUSE
FI	FLOW INDICATOR
FLR	FLOOR
FLUOR	FLUORESCENT
FM	FLOW METER
FO	FIBER OPTIC
FS	FLOAT SWITCH, FLOW SWITCH
FT	FLOW TRANSMITTER
FUT	FUTURE
FVNR	FULL VOLTAGE NON–REVERSING STARTER
G	GREEN, GROUND
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND/OFF/AUTO
HOR	HAND/OFF/REMOTE
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATING & AIR CONDITIONING
IC	INTERRUPTING CAPACITY
I & C	INSTRUMENTATION AND CONTROL
IMH	INSTRUMENTATION MANHOLE
INST	INSTANTANEOUS
IP	INSTRUMENT PANEL (PANELBOARD)
J, J–BOX	JUNCTION BOX
K	KEY INTERLOCK
KK	KIRK KEY INTERLOCK
LA	LIGHTNING ARRESTER
LC	LIGHTING CONTACTOR
LP	LIGHTING PANEL (PANELBOARD)
LR	LOCAL/REMOTE, LATCHING RELAY
LS	LIMIT SWITCH
LT FLEX	LIQUID TIGHT FLEX CONDUIT
LTG	LIGHTING
M	MAGNETIC CONTACTOR COIL OR MOTOR
MA	MILLIAMPS

ABBREVIATIONS	DESCRIPTION
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MERC	MERCURY VAPOR
MH	MOTOR HEATER, MANHOLE
MLO	MAIN LUGS ONLY
MPZ	MINI POWER ZONE
MPR	MOTOR PROTECTION RELAY
MS	MOTOR STARTER
MSC	MANUFACTURER SUPPLIED CABLE
MT	MOUNT
MTD	MOTOR TEMPERATURE DETECTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEMA	NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
NO	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE
OL	OVERLOAD RELAY
OLM	OPTICAL LINK MODULE
P	POLE
PB	PULL BOX
PC	PHOTOCELL
PH	PHASE
PM	PHASE MONITOR,POWER METER
PNL	PANEL
PP	POWER PANEL (480VAC)
PR	PAIR
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
RCPT	RECEPTACLE
RMS	ROOT MEAN SQUARE
RS	RIGID STEEL CONDUIT
RGS	RIGID GALVANIZED STEEL CONDUIT
RTU	REMOTE TELEMETRY UNIT
SC	SURGE CAPACITOR
SF	SUPPLY FAN
SH	SPACE HEATER
S/N	SOLID NEUTRAL
SPD	SPEED
SSRVS	SOLID STATE REDUCED VOLTAGE STARTER
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T	THERMOSTAT
TB	TERMINAL BOARD
TDR	TIME DELAY RELAY
TJB	TERMINAL JUNCTION BOX
TS	THERMAL SWITCH
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
UVR	UNDER VOLTAGE RELAY
V	VOLTMETER, VOLT
VFD	VARIABLE FREQUENCY DRIVE
VS	VOLTMETER SWITCH
W	WATT
WHD	WATTHOUR DEMAND METER
WP	WEATHERPROOF
XFMR	TRANSFORMER

ONE LINE DIAGRAMS, RISER DIAGRAMS AND SCHEMATICS

SYMBOL	DESCRIPTION
5	MOTOR, SQUIRREL CAGE INDUCTION UNLESS OTHERWISE NOTED – HORSEPOWER INDICATED
	OVERLOAD RELAY HEATER
1	MAGNETIC STARTER WITH NEMA SIZE INDICATED
M	MOTOR CIRCUIT PROTECTOR, MAGNETIC, 3 POLE UNLESS INDICATED OTHERWISE.
400	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
400 225	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
100	SWITCH – CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
400 600	DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
400 600	DRAWOUT CIRCUIT BREAKER, MEDIUM VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
600 400	DRAWOUT FUSED SWITCH, LOW OR MEDIUM VOLTAGE 600= FRAME RATING, 400=FUSE RATING
(3)	CURRENT TRANSFORMER, NUMBER OF WINDINGS INDICATED
480–120 /208V 3ø 15 KVA, K–4 RATED	TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE
	LIGHTNING ARRESTER
	CAPACITOR OR SURGE CAPACITOR
M	UTILITY METER
G	GENERATOR
X 0–600V	METER SCALE RANGE SHOWN IF REQUIRED A - AMPS PM - PHASE MONITOR V - VOLTS P - POWER METER
	FUSE
TVSS OR SPD	TRANSIENT VOLTAGE SURGE SUPPRESSION (OR) SURGE PROTECTION DEVICE
	GROUND
CPT 120V	CONTROL TRANSFORMER
GFR	GROUND FAULT RELAY WITH C.T.
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	REMOTE DEVICE
A	INDICATING LIGHT – LETTER INDICATES COLOR A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE
A	PUSH TO TEST AND CONNECT INDICATING LIGHT SCHEMATIC DIAGRAMS ONLY A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE
PHASE SHIFT XFMR VFD-XXXX	18–PULSE VFD
VFD-XXXX	6–PULSE VFD

SYMBOL	DESCRIPTION
S M	MANUAL MOTOR STARTER SWITCH, NEMA 4X UNLESS OTHERWISE NOTED. NUMBER OF POLES AS REQUIRED
PB 4X	PUSH–BUTTON STATION, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X 316 STAINLESS STEEL ENCLOSURE. SEE CONTROL DIAGRAMS FOR TYPE PUSH BUTTON REQUIRED
30 4X	NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL
F 40/60 4X	FUSED DISCONNECT SWITCH, SIZE INDICATED (60 = SWITCH RATING: 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL
LC 30 4X	LIGHTING CONTACTOR, CURRENT RATING INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM FOR NUMBER OF POLES. 4X = NEMA 4X 316 STAINLESS STEEL
2 4X	MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE, UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL
2 4X	COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED). MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL SCHEMATIC DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL
	ELECTRIC RESISTANCE HEATER
ETM	ELAPSED TIME METER
CRX	CONTACT – NORMALLY OPEN WITH COIL INDICATED
CRX	CONTACT – NORMALLY CLOSED WITH COIL INDICATED
CRX	CONTROL RELAY, X=SEQUENTIAL NUMBER
LRX (L)	LATCHING RELAY, X=SEQUENTIAL NUMBER L - LATCH, U - UNLATCH
TDX NOTC	TIME DELAY RELAY, X=SEQUENTIAL NUMBER NOTC=NORMALLY OPEN TIMED CLOSED NOTO=NORMALLY OPEN TIMED OPEN AFTER CLOSE NCTO=NORMALLY CLOSED TIMED OPEN NCTC=NORMALLY CLOSED TIMED CLOSED AFTER OPEN
	TEMPERATURE
	OPENS ON RISING TEMPERATURE, CLOSES ON FALLING TEMPERATURE
	CLOSES ON RISING TEMPERATURE, OPENS ON FALLING TEMPERATURE
H O A XOO OOX	SELECTOR SWITCH: MAINTAINED CONTACT WITH CONTACT POSITION INDICATED, CHART IDENTIFIES OPERATION

	POSITION		
CKT.	HAND	OFF	AUTO
1	X	O	O
2	O	O	X

X - CLOSED CONTACT
O - OPEN CONTACT

GENERAL

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED, FURNISHED AND INSTALLED UNDER OTHER SECTIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS SECTION.
1"C,2#12,1#12G 1"C,1–25/C TYPE 1	INDICATES RACEWAY AND CIRCUIT CONDUCTORS. FIRST NUMBER IS RACEWAY SIZE. THE FOLLOWING NUMBERS ARE THE CONDUCTOR QUANTITIES, SIZES, AND TYPES.
	DEMOLITION TO BE REMOVED OR DELETED
	LINE WEIGHT NEW EXISTING

NOTE:
THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE UTILIZED ON PROJECT.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
ELECTRICAL LEGEND AND SYMBOLS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00E01

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg

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GENERAL NOTES AND SPECIFICATIONS:

1. THE SCOPE OF WORK IS DESCRIBED IN SPECIFICATION SECTION 26_05_02 AND AS SHOWN ON DRAWINGS.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA 70), ELECTRICAL SAFETY IN THE WORKPLACE (NFPA 70E), ELECTRICAL LOCAL COUNTY, CITY CODES, AND 2017 FLORIDA BUILDING CODE WITH AMENDMENTS.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS AND TO INCLUDE ALL FEES AS PART OF HIS BID IF NOT OTHERWISE NOTED.
5. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE ENGINEER AND OWNER. ELECTRICAL INSTALLATION SHALL ALSO COMPLY WITH NFPA 79 WHERE APPLICABLE.
6. ALL EQUIPMENT AND MATERIAL SHALL BE NEW AND U.L. LISTED WHERE APPLICABLE.
7. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS INSTALLED OR MODIFIED UNDER THIS PROJECT AND REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER.
8. ALL CONDUCTORS SHALL BE COPPER. NO ALUMINUM ALLOWED UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
9. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL ELECTRICAL & CONTROL EQUIPMENT AND MATERIAL.
10. ALL CONTROL PANELS SHALL BE CONSTRUCTED BY A UL 508A APPROVED PANEL VENDOR AND SHALL BEAR A UL 508A LABEL ON THE PANEL.
11. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. THESE ARE TO BE COORDINATED WITH THE OTHER TRADES SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATIONS.
12. ALL LOCATIONS OF EQUIPMENT, PANELS ETC. ARE SHOWN FOR ILLUSTRATION PURPOSES. CONTRACTOR SHALL VERIFY AND COORDINATE EXACT LOCATION AND SIZE WITH ALL SUBCONTRACTORS AND EQUIPMENT SUPPLIERS PRIOR TO ANY INSTALLATION AND THEN INSTALL AS SUCH WITH CORRESPONDING CONDUIT STUB-UPS.
13. SEE OTHER DISCIPLINE DRAWINGS FOR COORDINATION OF ALL DRAWINGS. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION AND MOVEMENT OF CONDUITS OR OTHER ELECTRICAL EQUIPMENT SHALL BE ACCOMPLISHED WITHOUT ANY ADDITIONAL COST FOR THE OWNER.
14. LOCATIONS OF MANHOLES, HANDHOLES AND PULL BOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH EXISTING AND NEW PIPING OR CONDUIT AND ADJUST ACCORDINGLY.
15. NOT ALL CONDUITS SHOWN ON RISER AND ONE-LINE DIAGRAMS ARE SHOWN ON BUILDING LAYOUTS. CONTRACTOR SHALL SUPPLY ALL CONDUITS AND CABLES AS SHOWN ON RISER AND ONE-LINE DIAGRAMS.
16. ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, LIGHTING POLES, CONTROLLERS AND SERVICE POINTS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES.
17. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
18. INSTRUMENTATION IS LOW VOLTAGE SIGNALS SUCH AS 4-20MA, TELEPHONE COMMUNICATION, FIRE ALARM COMMUNICATION. POWER CONDUIT SHALL ONLY CROSS INSTRUMENTATION CONDUIT PERPENDICULARLY AT RIGHT ANGLES WITH 6" SEPARATION.
19. CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
20. MINIMUM DISTANCE ALLOWED BETWEEN POWER CONDUITS AND INSTRUMENTATION CONDUITS SHALL BE AS LISTED BELOW. OTHERWISE FURNISH AND INSTALL PVC COATED RIGID METAL CONDUITS FOR INSTRUMENTATION CONDUITS WITHOUT ADDITIONAL COST TO THE OWNER.

VOLTAGE	DISTANCE
4160V TO INST. CONDUIT	3 FT
480V TO INST. CONDUIT	2 FT
120V TO INST. CONDUIT	1 FT

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING INSTALLATION FOR ALL VENDOR PROVIDED EQUIPMENT (PACKAGE SYSTEMS) AND OWNER PRE-PURCHASED PACKAGE SYSTEMS. IF THE SHOP DRAWINGS DIFFER FROM THE DESIGNED FACILITIES, THE CONTRACTOR SHALL REDESIGN THE FACILITIES AND SUBMIT THE REVISED DESIGN FOR THE ENGINEER'S APPROVAL ALONG WITH THE SHOP DRAWINGS. THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR THE REDESIGN NOR FOR ANY ADDITIONAL CONDUITS AND WIRING. DURING SUBMITTAL THE CONTRACTOR SHALL VERIFY ALL SUPPLIED BREAKER SIZES AND ADJUST WIRING FOR ALL PACKAGED SYSTEMS SUCH AS HVAC, EXHAUST FANS, MIXERS, CHEMICAL PUMPS ETC. AND MODIFY ALL BREAKERS IN MCC'S AND PANELBOARDS ACCORDINGLY WITHOUT ANY ADDITIONAL COST TO THE OWNER.
22. ALL EXCAVATIONS FOR CONDUITS, HANDHOLES, MANHOLES AND PULLBOXES NEAR EXISTING PIPING, CONDUIT AND EQUIPMENT SHALL BE HAND EXCAVATED AND COORDINATED WITH THE OWNER.
23. MINIMUM DEPTH FROM TOP OF DUCTBANKS OR CONDUITS TO FINISHED GRADE SHALL BE 24" UNLESS OTHERWISE NOTED.
24. COLORED WARNING TAPE 6" WIDE SHALL BE INSTALLED 8" BELOW FINISHED GRADE DIRECTLY ABOVE ALL UNDERGROUND YARD CONDUITS ACCORDING TO THE FOLLOWING SCHEDULE:
    POWER: RED
    ALL OTHER CONDUITS: GREEN
25. CONTRACTOR SHALL RESTORE SIDEWALKS, ROADWAYS, SOD AND SPRINKLER SYSTEM PIPING TO MATCH EXISTING, AFTER THE COMPLETION OF THE CONDUIT AND PULLBOX INSTALLATION.
26. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC, ARTICLE 250. THE GROUNDING SYSTEM TEST SHALL NOT EXCEED A 48 HOUR SPAN DRY RESISTANCE OF 10 OHMS. ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST. GROUNDING AND BONDING CONNECTIONS SHALL NOT BE PAINTED. ALL GROUNDING CONNECTIONS SHALL BE EXOTHERMIC UNLESS SPECIFICALLY INDICATED OTHERWISE.
27. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, POWER AND CONTROL, AS SHOWN ON PLANS.
28. ALL ENCLOSURES, TJB, WIREWAY, PULL BOXES (EXCEPT IN-GROUND PULL BOXES AND MANHOLES) ETC. SHALL CONTAIN A GROUNDING BUS. CONNECT ALL RACEWAY BONDS TO THIS BUS VIA GROUNDING BUSHING AND EXTEND BONDING JUMPER FROM THIS BUS TO THE ENCLOSURE.
29. PRIMARY BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG BARE TINNED COPPER WIRE INSTALLED IN THE FOUNDATION AND AROUND THE BUILDING PERIMETER TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR ETC. SHALL HAVE A MINIMUM #4 STRANDED BARE TINNED COPPER CONDUCTOR BONDED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS OR FINISHED GRADE SHALL HAVE A 72" CONDUCTOR PIGTAIL AT EACH LOCATION FOR CONNECTION TO EQUIPMENT.
30. GROUND SURROUNDING YARD FENCE AND ALL YARD LIGHTING FIXTURES WITH MINIMUM #4 STRANDED COPPER CONDUCTORS BELOW GRADE TO SITE GROUNDING GRID PER NFPA 54/70.
31. ALL CONCRETE ENCASED DUCTBANKS SHALL CARRY A MINIMUM #4/0 AWG BARE COPPER GROUND WIRE, OVER THE ENTIRE LENGTH, WHICH SHALL BE CONNECTED TO THE SITE GROUNDING GRID AND GROUND RODS LOCATED IN CONNECTING MANHOLES, HANDHOLES OR PULL BOXES.
32. CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE WALLS, FLOORS, MANHOLES, HANDHOLES AND PULL BOXES FOR CONDUIT PENETRATIONS. SEAL PENETRATIONS WITH NON-SHRINK GROUT OR APPROPRIATE FIRE RATED DEVICES WHERE APPLICABLE.
33. ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE INSTALLED WITH U.L. APPROVED DEVICES TO MAINTAIN THE FIRE RATING OF THE WALL OR FLOOR PENETRATED.
34. PROVIDE CONDUIT DUCT SEAL AT ALL CONDUIT ENDS.
35. ALL SPARE CONDUITS SHALL BE SEALED WITH A CAP AT BOTH ENDS AND A PULL STRING INSTALLED WITH IDENTIFICATION ON BOTH ENDS.
36. ALL RECEPTACLES SHALL BE INSTALLED 18" AFF UNLESS OTHERWISE NOTED. LIGHT SWITCHES SHALL BE MOUNTED 48" AFF UNLESS OTHERWISE NOTED.
37. ALL RECEPTACLES WITHIN 6' OF A SINK SHALL BE GFI.
38. FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT AND SHALL BE BETWEEN 18" AND 3' IN LENGTH.
39. TYPEWRITTEN PANEL SCHEDULES SHALL BE INSTALLED IN EACH PANELBOARD, AND TYPEWRITTEN TERMINAL BLOCK SCHEDULES IN EACH CONTROL CABINET.
40. ALL SPD'S SHALL BE INTEGRAL TO THE NEW EQUIPMENT SHOWN AND SUPPLIED AS ONE UNIT AND ONE U.L. ENTITY.
41. ALL MATERIAL IN DESIGNATED CORROSIVE AREAS SHALL BE NEMA 4X STAINLESS STEEL OR NON-METALLIC.
42. ALL OUTDOOR LIGHTING FIXTURES SHALL BE OF COPPER FREE CONSTRUCTION.
43. ALL REFERENCES TO SS OR STAINLESS STEEL SHALL BE 316 STAINLESS STEEL.
44. CONTRACTOR SHALL BALANCE PANELBOARD LOADS, IF POSSIBLE, AT THE END OF THE PROJECT.
45. ALL YARD CONDUITS SHALL BE CONCRETE ENCASED DUCTBANK AS PER DETAILS. FURNISH AND INSTALL ELECTRIC DETECTABLE WARNING TAPE 12" ABOVE DUCTBANK AS PER SPECIFICATION 26_05_33.
46. ALL CONDUIT CONNECTIONS TO NEMA 4X PANELS/ENCLOSURES SHALL USE MYERS HUBS (OR EQUAL) TO MAINTAIN 4X RATING.
47. PROVIDE ARMORED CABLE FOR ALL VFD'S FROM VFD TO MOTOR PER SPECIFICATION 26_05_05. INSTALL ARMORED CABLE PER MANUFACTURER'S INSTRUCTIONS AND SPECIFICATION 26_05_05.
48. CONTRACTOR SHALL PROVIDE FOR A SATISFACTORY NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) INSPECTION FOR ALTERATIONS TO CONTROL PANELS, ELECTRICAL EQUIPMENT, OR ASSEMBLIES TO MAINTAIN THE ORIGINAL UL RATING.
49. PROVIDE AS-BUILT DRAWINGS AND MANUALS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
50. CONDUCTORS SHALL BE STRANDED COPPER, NO ALUMINUM ALLOWED UNLESS SPECIFICALLY INDICATED ON DRAWINGS. .
51. ALL VERTICAL CONDUIT PENETRATIONS FROM CONCRETE SLAB SHALL HAVE A MAINTENANCE PAD TO PREVENT CORROSION.
52. PROVIDE ARC FLASH LABELS ON SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS, VARIABLE FREQUENCY DRIVES, INDUSTRIAL CONTROL PANELS, ETC. IN ACCORDANCE WITH NEC ARTICLE 110.16 AND SPECIFICATION 26_05_70.
53. MOTOR SPACE HEATER CIRCUIT SHALL BE INTERRUPTED WHEN THE DISCONNECT SWITCH IS OPENED FOR MOTORS WHICH HAVE MOTOR SPACE HEATER. DISCONNECT SHALL HAVE AUXILIARY CONTACT AS DESCRIBES IN SPECIFICATION 26_05_04.
54. REFER TO DRAWINGS 00ED01 THRU 00ED07 FOR ELECTRICAL INSTALLATION DETAILS AND USE THEM AS APPLICABLE, INDICATED OR NOT ON DRAWINGS. IF ELECTRICAL SUPPORT NEEDS CONCRETE SLAB FOR MOUNTING, PROVIDE AND INSTALL NEW CONCRETE SLAB WITH REBAR AS REQUIRED.
55. ⚠1 ALL ELECTRICAL EQUIPMENT AND MATERIAL FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF THREE YEARS FROM THE DATE OF ACCEPTANCE, EXCEPT IF A LONGER PERIOD IS REQUIRED BY SPECIFICATIONS. THE FULL COST OF MAINTENANCE, LABOR AND MATERIALS REQUIRED TO CORRECT ANY DEFECT DURING THIS THREE-YEAR PERIOD SHALL BE INCLUDED IN THE BID.

NOTE:

THE EXISTING ELECTRICAL INFORMATION IS OBTAINED FROM "RECORD DRAWINGS" AND OTHER "AS-BUILT DRAWINGS". CONTRACTOR SHALL VERIFY THE INFORMATION PROVIDED IN THESE DRAWINGS AND ADJUST ACCORDINGLY. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE SUBMITTING HIS BID.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
ELECTRICAL GENERAL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00E02

KEYED NOTES:

1. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING MEDIUM VOLTAGE (MV) FEEDER WIRES BETWEEN MAIN SWITCHGEAR (SWGR-1) AND XFMR#3 AS WELL AS XFMR#4. ONLY ONE SET OF FEEDER WIRES TO EITHER XFMR#3 OR XFMR#4 CAN BE REMOVED AT ONE TIME. REFER TO SPECIFICATION 26 05 02 FOR CONSTRUCTION CONSTRAINS AND CONSTRUCTION SEQUENCE REQUIREMENTS.
2. CONTRACTOR SHALL DISCONNECT EXISTING FEEDER WIRES FOR GROUND STORAGE TANK PUMP STATION AT EXISTING MAIN SWITCHGEAR (SWGR-1) AND PULL WIRES BACK TO THE EXISTING JUNCTION BOX LOCATED ON THE ROOF OF THE CONTROL ROOM (FILTER BUILDING "A"). PROTECT EXISTING WIRES DURING CONSTRUCTION FROM SUNLIGHT AND RODENTS. PROVIDE TEMPORARY POWER CONNECTION TO THE EXISTING SWITCHGEAR AT GROUND STORAGE PUMP STATION - ELECTRICAL ROOM. REFER TO SPECIFICATION 26 05 02 FOR TEMPORARY POWER REQUIREMENTS AND PROVIDE ACCORDINGLY.
3. EXISTING JUNCTION BOXES WITH CONCRETE SUPPORT LOCATED NEAR NORTHWEST CORNER OF EXISTING FILTER BUILDING "B" (TO BE RENAMED TO UF FILTER BUILDING) SHALL BE REMOVED. SEE DRAWING 00E30 FOR ADDITIONAL INFORMATION.
4. EXISTING MEDIUM VOLTAGE FEEDER CONDUITS LOCATED ON THE ROOF OF EXISTING FILTER BUILDING "B" (TO BE RENAMED TO UF FILTER BUILDING) SHALL BE REMOVED DURING THE ROOF MODIFICATION OF THAT BUILDING.
5. CONTRACTOR SHALL PERFORM INSULATION RESISTANCE TESTING ON EXISTING MEDIUM VOLTAGE CABLES BETWEEN MAIN SWITCHGEAR-1 AND EXISTING GROUND STORAGE PUMP STATION AS DESCRIBES IN SPECIFICATION 26 05 02 AND 26 08 00.

FPL PRIMARY FEED

EXISTING 4160V, 3-PHASE, 4W, WYE GND POWER SUPPLY BY FP&L

EXISTING FPL VAULT
FPL FAULT CURRENT: 14,623A @4160V

CT'S

3 SETS [4"C, 3#500KCM (5KV), 1#4/0 G]

LOCATION: EXISTING ELECTRICAL/GENERATOR BUILDING ELECTRICAL ROOM

EXISTING EMERGENCY STANDBY GENERATORS

G1 G2 G3

EXISTING GENERATOR PARALLELING SWITCHGEAR

MAIN SWITCHGEAR-1 (SWGR-1)

GE SWITCHGEAR, POWER VAC CIRCUIT BREAKER
SER. NO. 0342A3372-001-08 DATE: 4/91
MAX. RATED VOLTAGE: 4.76 KV, RATED AMP: 1200A
RATED SHORT CIRCUIT AMPS: 29 KA, RATED VOLTAGE RANGE FACTOR: 1.24A
VACUUM INTERRUPTER TYPE: 52B1
TYPE: VB1 4.16-250-2

WATT TRANSMITTER W/4-20 MA TRANSMITTER

VOLTAGE TRANSMITTER W/4-20 MA TRANSMITTER

M1 1200A,3P — CALCULATED FAULT CURRENT: 18,465A @4160V

GT1 1200A,3P

M2 1200A,3P — CALCULATED FAULT CURRENT: 18,464A @4160V

GT2 1200A,3P

1200A, 4160VAC, 3PH (BUS HV-1) — RIGHT SIDE

LEFT SIDE — 1200A, 4160VAC, 3PH (BUS HV-2)

EXISTNIG GE MV STARTERS

EXISTNIG GE MV STARTERS

F7 400A,3P | F1 400A,3P | F2 500A,3P | F3 400A,3P | F4 500A,3P | F5 400A,3P | F6 400A,3P | F8

EXISTING 300A GND BUS

SPACE

EXISTING UNIT SUBSTATION NO.1 (MCC-1 & MCC-3)

EXISTING UNIT SUBSTATION NO.2 (MCC-2 & MCC-4)

EXISTING UNIT SUBSTATION NO.5 AND NO.6 (RAW WATER PUMP STATION NO.1 AND NO.2)

EXISTING J-BOX ON WALKWAY

600 — NO.1 HIGH SERVICE PUMP

250 — NO.1 BACKWASH/ TRANSFER PUMP

250 — NO.3 BACKWASH/ TRANSFER PUMP

600 — NO.2 HIGH SERVICE PUMP

250 — NO.2 BACKWASH/ TRANSFER PUMP

RTD'S

EXISTING JUNCTION BOX AT NORTHWEST CORNER OF FILTER BUILDING "B"/UF BUILDING TO BE REMOVED

EXPANSION COUPLINGS ON ROOF OF FILTER BUILDING "B"/UF BLDG (TO REMAIN) TYPICAL

EXISTING JUNCTION BOX LOCATED ON THE ROOF OF THE CONTROL ROOM (FILTER BUILDING "A")

4"C, 3#500KCM (5KV), 1#1/0G

CALCULATED FAULT CURRENT: 16,509A @4160V

TRANSFORMER NO.3 4.16KV - 480/277V 1500/2000KVA 3Ø,4W+N/G

250A

LOCATION: TRANSFORMER VAULT NEXT TO FILTER BLDG "A"

PUMP DISTRIBUTION SWGR BKR XFMR-A-MAIN REFER TO SHEET 00E09 & 00E11

CALCULATED FAULT CURRENT: 16,504A @4160V

TRANSFORMER NO.4 4.16KV - 480/277V 1500/2000KVA 3Ø,4W+N/G

250A

LOCATION: TRANSFORMER VAULT NEXT TO FILTER BLDG "A"

PUMP DISTRIBUTION SWGR BKR XFMR-B-MAIN REFER TO SHEET 00E09 & 00E11

GROUND STORAGE TANK PUMP STATION

HS PUMP SWGR

M1 M2

CALCULATED FAULT CURRENT: 11,336A @4160V

LOCATION: GROUND STORAGE TANK PUMP STATION - ELECTRICAL ROOM

CALCULATED FAULT CURRENT: 16,509A @4160V

UNIT SUBSTATION NO.7 (USS-7) TRANSFORMER NO.7 4.16KV - 480/277V 2000KVA 3Ø,3W+N/G

1600AF 1600AT — FAULT CURRENT: 37,969 A

1600A SPARE BREAKER

CALCULATED FAULT CURRENT: 16,510A @4160V

UNIT SUBSTATION NO.8 (USS-8) TRANSFORMER NO.8 4.16KV - 480/277V 2000KVA 3Ø,3W+N/G

1600AF 1200AT — FAULT CURRENT: 37,943 A

1600A SPARE BREAKER

EXISTING SWGR BIOLOGICAL ROUGHING FILTER SYSTEM

1600AF 1000AT

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
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THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
SWGR-1 - DEMOLITION ONE LINE DIAGRAM

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 00E03

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E03.dwg

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EXISTING LOAD AT SWGR-1 (4160V)

LOAD	RUNNING LOAD (A)
EXISTING LOADS	456.6 A
LOADS FROM MCC-9 & MCC-10	188.1 A
TOTALS AMPS	644.7 A
25% OF LARGEST LOAD (NEC 430.24)	20.8 A
TOTAL AMPS WITH 25% OF LARGEST MOTOR:	665.8 A
TOTAL KVA AT 4160V, 3Ø:	4789.3 KVA

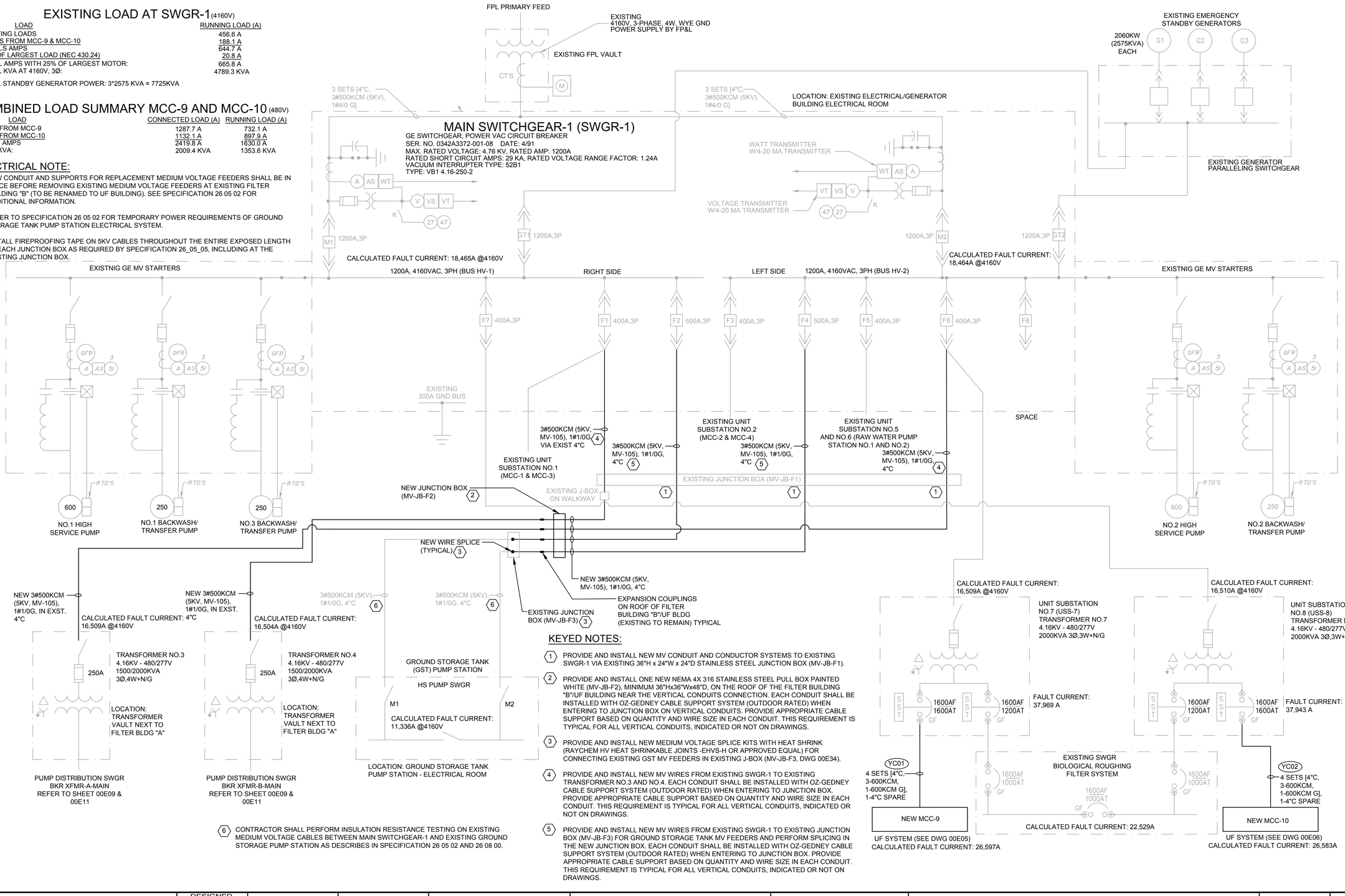
TOTAL STANDBY GENERATOR POWER: 3*2575 KVA = 7725KVA

COMBINED LOAD SUMMARY MCC-9 AND MCC-10 (480V)

LOAD	CONNECTED LOAD (A)	RUNNING LOAD (A)
LOADS FROM MCC-9	1287.7 A	732.1 A
LOADS FROM MCC-10	1132.1 A	897.9 A
TOTALS AMPS	2419.8 A	1630.0 A
TOTAL KVA:	2009.4 KVA	1353.6 KVA

ELECTRICAL NOTE:

1. NEW CONDUIT AND SUPPORTS FOR REPLACEMENT MEDIUM VOLTAGE FEEDERS SHALL BE IN PLACE BEFORE REMOVING EXISTING MEDIUM VOLTAGE FEEDERS AT EXISTING FILTER BUILDING "B" (TO BE RENAMED TO UF BUILDING). SEE SPECIFICATION 26 05 02 FOR ADDITIONAL INFORMATION.
2. REFER TO SPECIFICATION 26 05 02 FOR TEMPORARY POWER REQUIREMENTS OF GROUND STORAGE TANK PUMP STATION ELECTRICAL SYSTEM.
3. INSTALL FIREPROOFING TAPE ON 5KV CABLES THROUGHOUT THE ENTIRE EXPOSED LENGTH AT EACH JUNCTION BOX AS REQUIRED BY SPECIFICATION 26_05_05, INCLUDING AT THE EXISTING JUNCTION BOX.



KEYED NOTES:

1. PROVIDE AND INSTALL NEW MV CONDUIT AND CONDUCTOR SYSTEMS TO EXISTING SWGR-1 VIA EXISTING 36"H x 24"W x 24"D STAINLESS STEEL JUNCTION BOX (MV-JB-F1).
2. PROVIDE AND INSTALL ONE NEW NEMA 4X 316 STAINLESS STEEL PULL BOX PAINTED WHITE (MV-JB-F2), MINIMUM 36"Hx36"Wx48"D, ON THE ROOF OF THE FILTER BUILDING "B"/UF BUILDING NEAR THE VERTICAL CONDUITS CONNECTION. EACH CONDUIT SHALL BE INSTALLED WITH OZ-GEDNEY CABLE SUPPORT SYSTEM (OUTDOOR RATED) WHEN ENTERING TO JUNCTION BOX ON VERTICAL CONDUITS. PROVIDE APPROPRIATE CABLE SUPPORT BASED ON QUANTITY AND WIRE SIZE IN EACH CONDUIT. THIS REQUIREMENT IS TYPICAL FOR ALL VERTICAL CONDUITS, INDICATED OR NOT ON DRAWINGS.
3. PROVIDE AND INSTALL NEW MEDIUM VOLTAGE SPLICE KITS WITH HEAT SHRINK (RAYCHEM HV HEAT SHRINKABLE JOINTS -EHVS-H OR APPROVED EQUAL) FOR CONNECTING EXISTING GST MV FEEDERS IN EXISTING J-BOX (MV-JB-F3, DWG 00E34).
4. PROVIDE AND INSTALL NEW MV WIRES FROM EXISTING SWGR-1 TO EXISTING TRANSFORMER NO.3 AND NO.4. EACH CONDUIT SHALL BE INSTALLED WITH OZ-GEDNEY CABLE SUPPORT SYSTEM (OUTDOOR RATED) WHEN ENTERING TO JUNCTION BOX. PROVIDE APPROPRIATE CABLE SUPPORT BASED ON QUANTITY AND WIRE SIZE IN EACH CONDUIT. THIS REQUIREMENT IS TYPICAL FOR ALL VERTICAL CONDUITS, INDICATED OR NOT ON DRAWINGS.
5. PROVIDE AND INSTALL NEW MV WIRES FROM EXISTING SWGR-1 TO EXISTING JUNCTION BOX (MV-JB-F3) FOR GROUND STORAGE TANK MV FEEDERS AND PERFORM SPLICING IN THE NEW JUNCTION BOX. EACH CONDUIT SHALL BE INSTALLED WITH OZ-GEDNEY CABLE SUPPORT SYSTEM (OUTDOOR RATED) WHEN ENTERING TO JUNCTION BOX. PROVIDE APPROPRIATE CABLE SUPPORT BASED ON QUANTITY AND WIRE SIZE IN EACH CONDUIT. THIS REQUIREMENT IS TYPICAL FOR ALL VERTICAL CONDUITS, INDICATED OR NOT ON DRAWINGS.
6. CONTRACTOR SHALL PERFORM INSULATION RESISTANCE TESTING ON EXISTING MEDIUM VOLTAGE CABLES BETWEEN MAIN SWITCHGEAR-1 AND EXISTING GROUND STORAGE PUMP STATION AS DESCRIBES IN SPECIFICATION 26 05 02 AND 26 08 00.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
SWGR-1 MODIFIED ONE LINE DIAGRAM

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 00E04

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PLOT SCALE:1:1
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FROM EXISTING UNIT SUBSTATION (XFMR-7)
REFER TO SHEET 00E04

4 SETS [4"C, 3-600KCM, 1-600KCM G], 1-4"C SPARE (YC01)

MAXIMUM DIMENSIONS: 185"L x 20"D x 94.5"H
ACCESSIBILITY: FRONT ONLY
INTELLIGENT/SMART MCC: YES, ETHERNET TCP/IP
MAIN BREAKER: YES
LOCATION: CHEMICAL BLDG - ELECTRICAL ROOM

NEW MOTOR CONTROL CENTER MCC-9

1600AT / 1600AF LSIG — MAIN-9 (KK) — TO TIE BREAKER (MCC-9)

1600A, 480VAC, 3PH, 3W, 65K AIC COMPLETE RATED WITH GROUND BUS

CALCULATED FAULT CURRENT: 26,597A

1600:5 — POWER MONITOR

CONTINUED TO MCC-9 BELOW

SPD

100A	90A	90A	90A	90A	90A	90A	60A	60A	70A MCP	200A	200A	40A	40A	175A	30A	30A	30A	250AT / 250AF	30A	30A
	1½"C, 3#3, 1#8G	1½"C, 3#3, 1#8G	1½"C, 3#3, 1#8G	1½"C, 3#3, 1#8G	1½"C, 3#3, 1#8G	1½"C, 3#3, 1#8G	1"C, 3#6, 1#10G	1"C, 3#6, 1#10G	1"C, 3#8, 6#14, 1#8G (YC05)	2"C, 3#3/0, 1#6G	2"C, 3#3/0, 1#6G	1"C, 3#8, 1#10G	1"C, 3#8, 1#10G	2"C, 3#2/0, 1#6G	3/4"C, 3#10, 1#10G	3/4"C, 3#10, 1#10G	3/4"C, 3#10, 1#10G	2½"C, 3#250KCM, 1#4G FROM MCC-10	1"C, 3#10, 1#10G	1"C, 3#10, 1#10G
	20-VFD -301-1	20-VFD -301-3	20-VFD -301-5	20-VFD -301-7	20-VFD -301-9	20-VFD -301-11	20-VFD -201-1	20-VFD -201-3		20-VFD -601-1	20-VFD -601-3	20-VFD -701-1	20-VFD -701-2	HOT WATER TANK HEATER CP NO.1 20-JS-703-X-1				MTS-9 400A, 35K AIC		
	2"C, 3#6, 3#12G VFD CABLE, 6#14, 1#14G (YC45)	2"C, 3#6, 3#12G VFD CABLE, 6#14, 1#14G (YC47)	2"C, 3#6, 3#12G VFD CABLE, 6#14, 1#14G (YC49)	2"C, 3#6, 3#12G VFD CABLE, 6#14, 1#14G (YC51)	2"C, 3#6, 3#12G VFD CABLE, 6#14, 1#14G (YC53)	2"C, 3#6, 3#12G VFD CABLE, 6#14, 1#14G (YC55)	1½"C, 3#8, 3#12G ARMORED CABLE (YC69)	1½"C, 3#8, 3#12G ARMORED CABLE (YC72)		3"C, 3#2/0, 3#10G ARMORED CABLE	3"C, 3#2/0, 3#10G ARMORED CABLE	1½"C, 3#8, 3#12G ARMORED CABLE	1½"C, 3#8, 3#12G ARMORED CABLE	1"C, 3#6, 1#10G	1"C, 3#6, 1#10G	1"C, 3#6, 1#10G	3x[Y1]			2½"C, 3#250KCM, 1#4G		
	60A 4XSS	60A 4XSS	60A 4XSS	60A 4XSS	60A 4XSS	60A 4XSS	30A 4XSS	30A 4XSS	60A 4XSS	200A 4XSS	200A 4XSS	30A 4XSS	30A 4XSS		30A 4XSS	30A 4XSS	30A 4XSS		F 30 4X SS 35K AIC (2)	F 30 4X SS 35K AIC (2)
	SAME AS INCOMING (TYPICAL)														STARTER SUPPLIED WITH HEATER UNIT 15KW ECA-1	STARTER SUPPLIED WITH HEATER UNIT 15KW EHWR-1	STARTER SUPPLIED WITH HEATER UNIT 15KW EHWR-3			3/4"C, 4#14, 1#14G
	(3) 40	(3) 40	(3) 40	(3) 40	(3) 40	(3) 40	(3) 20	(3) 20	(3) 25	(3) 100	(3) 100	(3) 20	(3) 20	(3) 36 KW	3/4"C 4#14, 1#14G (T)	3/4"C 4#14, 1#14G (T)	3/4"C 4#14, 1#14G (T)	SPD	STARTER SUPPLIED WITH CU 14.1KVA CU-1	STARTER SUPPLIED WITH AHU 15.2KVA AHU-1
	PERMEATE PUMP NO.1 20-P-301-1	PERMEATE PUMP NO.3 20-P-301-3	PERMEATE PUMP NO.5 20-P-301-5	PERMEATE PUMP NO.7 20-P-301-7	PERMEATE PUMP NO.9 20-P-301-9	PERMEATE PUMP NO.11 20-P-301-11	MEMBRANE AIR BLOWER NO.1 20-B-201-1	MEMBRANE AIR BLOWER NO.3 20-B-201-3	NEUTRALIZATION TRANSFER PUMP NO.1 20-P-790-1	BACKPULSE PUMP NO.1 20-P-601-1	BACKPULSE PUMP NO.3 20-P-601-3	CIP PUMP NO.1 20-P-701-1	CIP PUMP NO.2 20-P-701-2	HEATER NO.1 HOT WATER TANK NO.1 20-H-703-A-1	HEATER NO.2 HOT WATER TANK NO.1 20-H-703-B-1	HEATER NO.3 HOT WATER TANK NO.1 20-H-703-C-1		POWER PANEL PP-9	3/4"C, 6#14, 1#14G (T)	

CONTINUED TO MCC-9 ABOVE

NEW MOTOR CONTROL CENTER MCC-9

1600A, 480VAC, 3PH, 3W, 65K AIC COMPLETE RATED WITH GROUND BUS

CALCULATED FAULT CURRENT: 26,597A

TO MAIN-9 — (KK) TIE — TO MAIN-10

CONTINUED TO MCC-10 (SEE DRAWING E05)

1600AT / 1600AF LSIG

30A MCP	40A	35A	40A	35A	40A	15A MCP	30A MCP	15A MCP	15A MCP	70A	100A
1	1	1	1	1	1	1	1	1	1		
3/4"C, 3#10, 1#10G	3/4"C, 3#8, 1#10G	3/4"C, 3#8, 1#10G	3/4"C, 3#8, 1#10G	3/4"C, 3#8, 1#10G	1"C, 3#8, 1#10G	SPARE STARTER	3/4"C, 3#10, 1#10G	3/4"C, 3#12, 1#12G	3/4"C, 3#12, 1#12G (YC03)	SPARE	SPARE
30A 4XSS	60A 4XSS	60A 4XSS	60A 4XSS	60A 4XSS	CONTROL PANEL 90-CP-001-1		30A 4XSS	30A 4XSS	30A 4XSS (1) (TYPICAL)		
10	STARTER SUPPLIED WITH HEATER UNIT 25KW EHHC-1	STARTER SUPPLIED WITH HEATER UNIT 20KW EHCS-1	STARTER SUPPLIED WITH HEATER UNIT 30KW ESH-1	STARTER SUPPLIED WITH HEATER UNIT 20KW ESB-1	3/4"C, 3#12, 1#12G	3/4"C, 3#12, 1#12G	10	5	2	2-2"C, WITH PULL STRING	2-1"C, 2-2"C, WITH PULL STRING
HOT WATER TRANSFER PUMP NO.1 20-P-703-1	3/4"C 4#14, 1#14G (T)	3/4"C 4#14, 1#14G (T)	3/4"C 4#14, 1#14G (T)	3/4"C 4#14, 1#14G (T)	10	10	TANK REFILL PUMP NO.1 20-P-801-1	IX SUPPLY PUMP 20-P-901	NEUTRALIZATION TANK NO.1 MIXER 20-MX-702-1	STUB-UP IN MCC-10	EMH-5
					AIR COMPRESSOR NO.1A 90-AC-001-1	AIR COMPRESSOR NO.1B 90-AC-001-2					

MCC-9 ONE LINE DIAGRAM (1)

NOT TO SCALE

LOAD SUMMARY MCC-9 (480V)

LOAD	CONNECTED LOAD (A)	RUNNING LOAD (A)
PERMEATE PUMP NO.1 20-P-301-1	52.0 A	44.2 A
PERMEATE PUMP NO.3 20-P-301-3	52.0 A	44.2 A
PERMEATE PUMP NO.5 20-P-301-5	52.0 A	44.2 A
PERMEATE PUMP NO.7 20-P-301-7	52.0 A	44.2 A
PERMEATE PUMP NO.9 20-P-301-9	52.0 A	44.2 A
PERMEATE PUMP NO.11 20-P-301-11	52.0 A	0.0 A
MEMBRANE AIR BLOWER NO.1 20-B-201-1	27.0 A	0.0 A
MEMBRANE AIR BLOWER NO.3 20-B-201-3	27.0 A	0.0 A
NEUTRALIZATION TRANSFER PUMP NO.1 20-P-790-1	34.0 A	28.9 A
BACKPULSE PUMP NO.1 20-P-601-1	124.0 A	105.4 A
BACKPULSE PUMP NO.3 20-P-601-3	124.0 A	0.0 A
CIP PUMP NO.3 20-P-701-1	27.0 A	0.0 A
CIP PUMP NO.3 20-P-701-2	27.0 A	0.0 A
HOT WATER TANK HEATER CP NO.1 20-JS-703-X-1	130.1 A	130.1 A
EHHC-1	37.1 A	37.1 A
EHCS-1	24.8 A	24.8 A
ESH-1	37.1 A	37.1 A
ESB-1	24.8 A	24.8 A
ECA-1	18.7 A	18.7 A
EHWR-1	18.7 A	18.7 A
EHWR-3	18.7 A	18.7 A
PANEL PP-9	173.4 A	0.0 A
CU-1	17.0 A	17.0 A
AHU-1	18.3 A	18.3 A
HOT WATER TRANSFER PUMP NO.1 20-P-703-1	14.0 A	0.0 A
AIR COMPRESSOR 90-CP-001-1	28.0 A	14.0 A
TANK REFILL PUMP NO.1 20-P-801-1	14.0 A	7.0 A
IX SUPPY PUMP 20-P-901	7.6 A	7.6 A
NEUT. TANK NO.1 MIXER 20-MX-702-1	3.4 A	2.9 A
TOTALS	1287.7 A	732.1 A
KVA:	1069.3 KVA	607.9 KVA

KEYED NOTES:

(1) DISCONNECT FOR ALL PUMPS AND MOTORS SHALL HAVE AUXILIARY CONTACT TO DISCONNECT THE MOTOR SPACE HEATER CIRCUIT AS PER SPECIFICATION 26 05 04.

(2) COORDINATE WITH HVAC SUPPLIER FOR AHU AND CU FUSE SIZE REQUIREMENTS IN THE FUSED DISCONNECT SWITCH AND PROVIDE ACCORDINGLY.

(3) VFD ARMOR CABLE SHALL BE CONTINUOUS ALUMINUM SHEATH THAT MEETS THE GROUNDING REQUIREMENTS OF NEC 250.122.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
MCC-9 ONE LINE DIAGRAM

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 00E05

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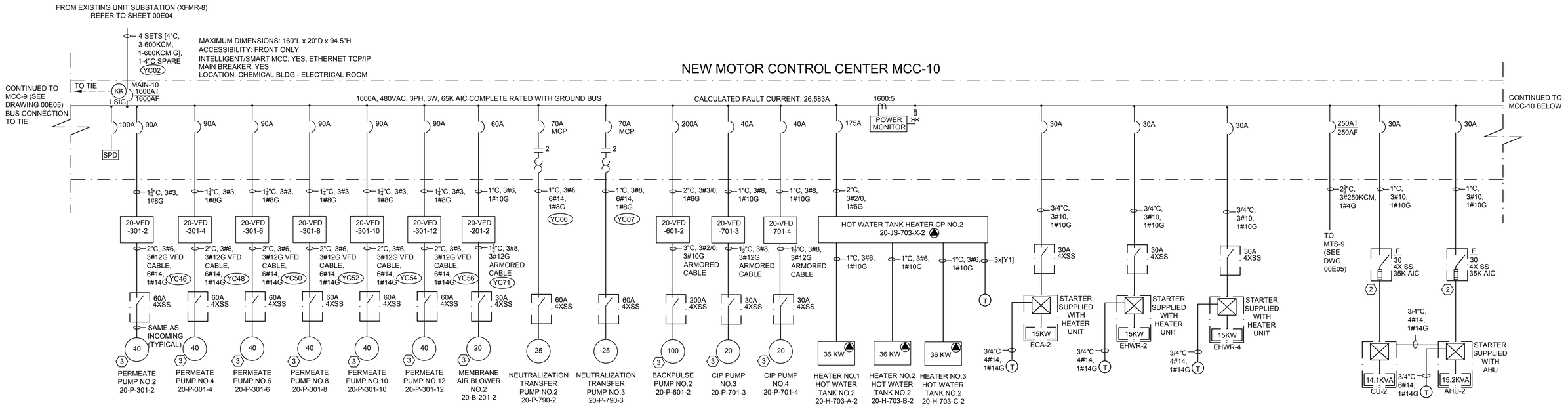

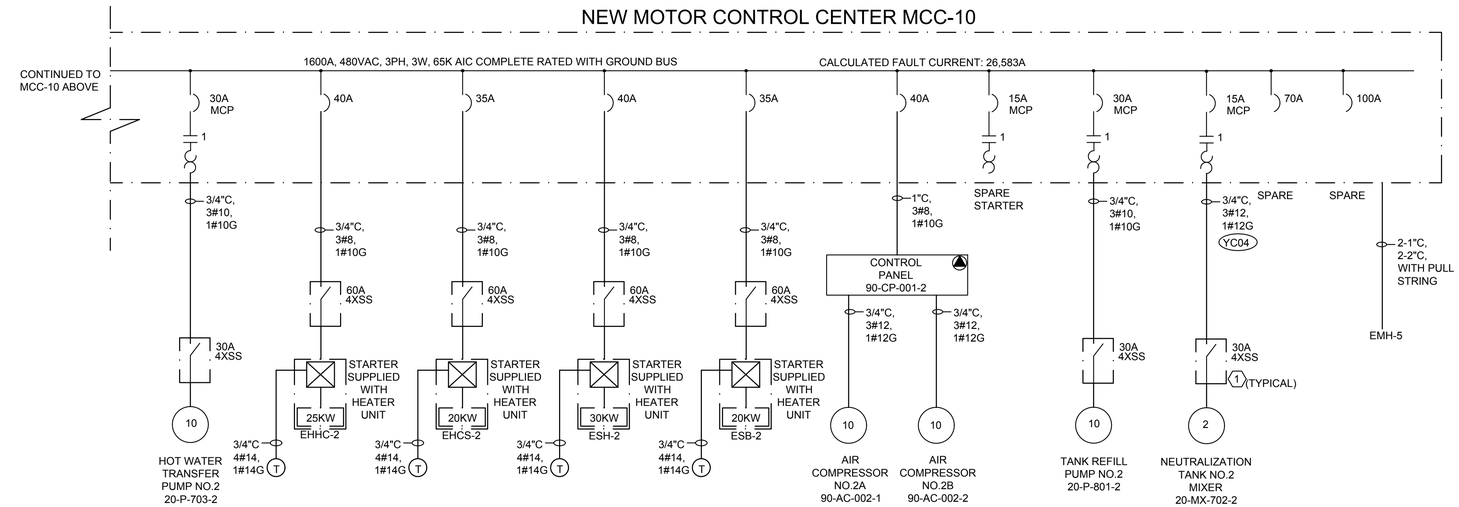

MCC-10 ONE LINE DIAGRAM (1)

NOT TO SCALE

LOAD SUMMARY MCC-10 (480V)

LOAD	CONNECTED LOAD (A)	RUNNING LOAD (A)
PERMEATE PUMP NO.2 20-P-301-2	52.0 A	44.2 A
PERMEATE PUMP NO.4 20-P-301-4	52.0 A	44.2 A
PERMEATE PUMP NO.6 20-P-301-6	52.0 A	44.2 A
PERMEATE PUMP NO.8 20-P-301-8	52.0 A	44.2 A
PERMEATE PUMP NO.10 20-P-301-10	52.0 A	44.2 A
PERMEATE PUMP NO.12 20-P-301-12	52.0 A	0.0 A
MEMBRANE AIR BLOWER NO.2 20-B-201-2	27.0 A	0.0 A
NEUTRALIZATION TRANSFER PUMP NO.2 20-P-790-2	34.0 A	28.9 A
NEUTRALIZATION TRANSFER PUMP NO.3 20-P-790-3	34.0 A	0.0 A
BACKPULSE PUMP NO.2 20-P-601-2	124.0 A	105.4 A
CIP PUMP NO.3 20-P-701-3	27.0 A	0.0 A
CIP PUMP NO.4 20-P-701-4	27.0 A	0.0 A
HOT WATER TANK HEATER CP NO.2 20-JS-703-X-2	130.1 A	130.1 A
ECA-2	18.7 A	18.7 A
EHWR-2	18.7 A	18.7 A
EHWR-4	18.7 A	18.7 A
PANEL PP-9	173.4 A	173.4 A
CU-2	17.0 A	17.0 A
AHU-2	18.3 A	18.3 A
HOT WATER TRANSFER PUMP NO.2 20-P-703-2	14.0 A	0.0 A
AIR COMPRESSOR 90-CP-002-1	28.0 A	14.0 A
TANK REFILL PUMP NO.2 20-P-801-2	14.0 A	7.0 A
NEUT. TANK NO.2 MIXER 20-MX-702-2	3.4 A	2.9 A
ESH-2	37.1 A	37.1 A
ESB-2	24.8 A	24.8 A
EHCS-2	24.8 A	24.8 A
EHHC-2	37.1 A	37.1 A
TOTALS	1132.1 A	897.9 A
KVA:	940.1 KVA	745.6 KVA

KEYED NOTES:

1. DISCONNECT FOR ALL PUMPS AND MOTORS SHALL HAVE AUXILIARY CONTACT TO DISCONNECT THE MOTOR SPACE HEATER CIRCUIT AS PER SPECIFICATION 26 05 04.
2. COORDINATE WITH HVAC SUPPLIER FOR AHU AND CU FUSE SIZE REQUIREMENTS IN THE FUSED DISCONNECT SWITCH AND PROVIDE ACCORDINGLY.
3. VFD ARMOR CABLE SHALL BE CONTINUOUS ALUMINUM SHEATH THAT MEETS THE GROUNDING REQUIREMENTS OF NEC 250.122.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
MCC-10 ONE LINE DIAGRAM

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00E06

POWER METER	EHHC-1	NEUTRALIZATION TANK NO.1 MIXER 20-MX-702-1	PERMEATE PUMP NO.5 20-P-301-5	SPARE 70A BKR	EHWR-3	MTS-9	TIE BKR	TIE SECTION
SPACE								
SPD	BACKPULSE PUMP NO.1 20-P-601-1	SPACE	PERMEATE PUMP NO.7 20-P-301-7	CONTROL PANEL 90-CP-001-1	HOT WATER TRANSFER PUMP NO.1 20-P-703-1	ESH-1	TIE SECTION	
MAIN BKR		EHCS-1	PERMEATE PUMP NO.9 20-P-301-9	MEMBRANE AIR BLOWER NO.1 20-B-201-1	IX SUPPLY PUMP 20-P-901	ESB-1		
	BACKPULSE PUMP NO.1 20-P-601-1	SPARE 100A BKR	PERMEATE PUMP NO.11 20-P-301-11	MEMBRANE AIR BLOWER NO.3 20-B-201-3	SPARE STARTER SIZE 1	EHWR-1		
	HOT WATER TANK HEATER CP NO.1 20-JS-703-X-1	PERMEATE PUMP NO.1 20-P-301-1	AHU-1	CIP PUMP NO.1 20-P-701-1	NEUTRALIZATION TRANSFER PUMP NO.1 20-P-790-1	ECA-1		
		PERMEATE PUMP NO.3 20-P-301-3	CU-1	CIP PUMP NO.2 20-P-701-2	TANK REFILL PUMP NO.1 20-P-801-1	SPACE		
	SPACE	SPACE						

NOTE:
CONTRACTOR SHALL COORDINATE WITH APPROVED MCC SHOP DRAWINGS FOR ACTUAL ELEVATION AND ADJUST CONDUIT CONNECTION ACCORDINGLY.

PROPOSED MCC-9 ELEVATION

NOT TO SCALE

NEUTRALIZATION TANK NO.2 MIXER 20-MX-702-2	SPACE	PERMEATE PUMP NO.6 20-P-301-6	SPARE 70A BKR	NEUTRALIZATION TRANSFER PUMP NO.3 20-P-790-3	EHHC-2	POWER METER
SPACE	NEUTRALIZATION TRANSFER PUMP NO.2 20-P-790-2	PERMEATE PUMP NO.8 20-P-301-8	MTS-9	SPACE	EHWR-2	SPACE
BACKPULSE PUMP NO.2 20-P-601-2	HOT WATER TRANSFER PUMP NO.2 20-P-703-2	PERMEATE PUMP NO.10 20-P-301-10	MEMBRANE AIR BLOWER NO.2 20-B-201-2	TANK REFILL PUMP NO.2 20-P-801-2	SPACE	SPD
SPACE	SPARE 100A BKR	PERMEATE PUMP NO.12 20-P-301-12	CONTROL PANEL 90-CP-002-1	SPACE	EHCS-2	MAIN BKR
SPARE STARTER SIZE 1	PERMEATE PUMP NO.2 20-P-301-2	AHU-2	CIP PUMP NO.3 20-P-701-3	ESB-2	ECA-2	
HOT WATER TANK HEATER CP NO.2 20-JS-703-X-2	PERMEATE PUMP NO.4 20-P-301-4	CU-2	CIP PUMP NO.4 20-P-701-4	ESH-2	EHWR-4	
	SPACE				SPACE	

NOTE:
CONTRACTOR SHALL COORDINATE WITH APPROVED MCC SHOP DRAWINGS FOR ACTUAL ELEVATION AND ADJUST CONDUIT CONNECTION ACCORDINGLY.

PROPOSED MCC-10 ELEVATION

NOT TO SCALE

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			RECORD DRAWING

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DRAWN TW
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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
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MCC-9 AND MCC-10 ELEVATION

VERIFY SCALES
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DRAWING NO. 00E07

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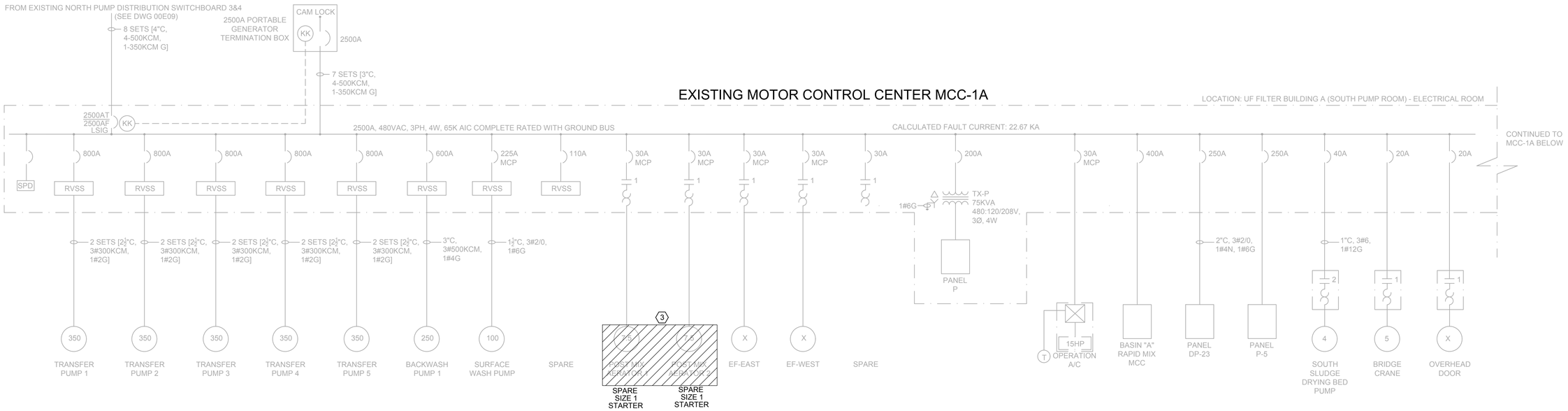

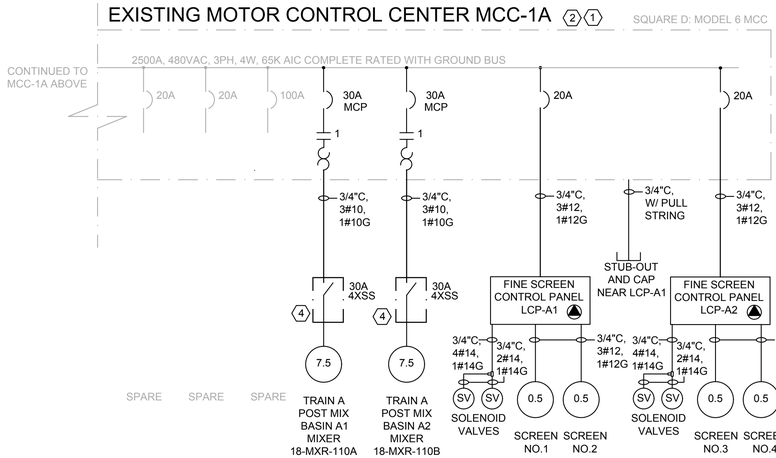

LOAD SUMMARY MCC-1A (480V)

LOAD	CONNECTED LOAD (A)	RUNNING LOAD (A)
TRANSFER PUMP NO.1	414.0 A	315.9 A
TRANSFER PUMP NO.2	414.0 A	315.9 A
TRANSFER PUMP NO.3	414.0 A	315.9 A
TRANSFER PUMP NO.4	414.0 A	315.9 A
TRANSFER PUMP NO.5*	414.0 A	0.0 A
BACKWASH PUMP NO.1**	302.0 A	0.0 A
SURFACE WASH PUMP	124.0 A	0.0 A
EF-EAST	7.6 A	7.6 A
EF-WEST	7.6 A	7.6 A
TRANSFORMER TX-P	90.0 A	45.0 A
OPERATIONS A/C	21.0 A	17.9 A
BASIN "A" RAPID MIX MCC	135.0 A	108.0 A
PANEL DP-23	120.0 A	100.0 A
PANEL P-5	100.0 A	60.0 A
SOUTH SLUDGE DRYING BED PUMP	7.6 A	6.5 A
BRIDGE CRANE	7.6 A	6.5 A
OVERHEAD DOOR	7.6 A	6.5 A
TRAIN A POST MIX BASIN A1 MIXER	11.0 A	9.4 A
TRAIN A POST MIX BASIN A2 MIXER	11.0 A	9.4 A
TRAIN A FINE SCREEN C.P. LCP-A1	2.1 A	1.8 A
TRAIN A FINE SCREEN C.P. LCP-A2	2.1 A	1.8 A
TOTALS	3026.2 A	1651.6 A
KVA:	2515.9 KVA	1373.1 KVA

* = STANDBY LOAD
** = NOT OPERABLE UNDER NORMAL OPERATIONS

SECTION 2 TO BE MODIFIED
2 1

MCC-1A PHOTO

NOT TO SCALE

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL NEW BREAKER AND STARTER BUCKETS AS SHOWN. PROVIDE ALL LABOR AND MATERIALS, INCLUDING MOUNTING HARDWARE, TO INSTALL NEW MCC BUCKETS IN SECTION 2 OF MCC-1A. NEW MCC BUCKETS SHALL BE THE SAME MODEL OF THE EXISTING MCC. MAKE ALL NECESSARY TERMINATIONS, MODIFICATIONS, ETC. FOR A COMPLETE AND WORKING SYSTEM IN PLACE. MODIFICATIONS SHALL MAINTAIN UL LISTING. PROVIDE AND INSTALL NEW PHENOLIC LABELS AS REQUIRED BY SPECIFICATIONS.
2. ALL NEW CIRCUIT BREAKERS BEING INSTALLED IN EXISTING GEAR SHALL MATCH AIC RATING OF EXISTING MOTOR CONTROL CENTERS.
3. EXISTING POST MIX AERATOR 1 AND 2 ASSOCIATED WITH POST MIX BASIN B SHALL BE DISCONNECTED AT MCC-1A. DISCONNECT WIRES AT BOTH ENDS AND LABEL AS "SPARE WIRES TO POST MIX B MIXERS". PROVIDE AND INSTALL NEW PHENOLIC LABELS ON MCC BUCKETS AS REQUIRED BY SPECIFICATIONS.
4. DISCONNECT FOR MIXER MOTOR SHALL HAVE AUXILIARY CONTACT TO DISCONNECT THE MOTOR SPACE HEATER CIRCUIT AS PER SPECIFICATION 26 05 04.

MCC-1A ONE LINE DIAGRAM

NOT TO SCALE

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

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DRAWN TW
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DATE APRIL 2025

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Manatee County FLORIDA

MANATEE COUNTY
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MCC-1A ONE LINE DIAGRAM

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 00E08

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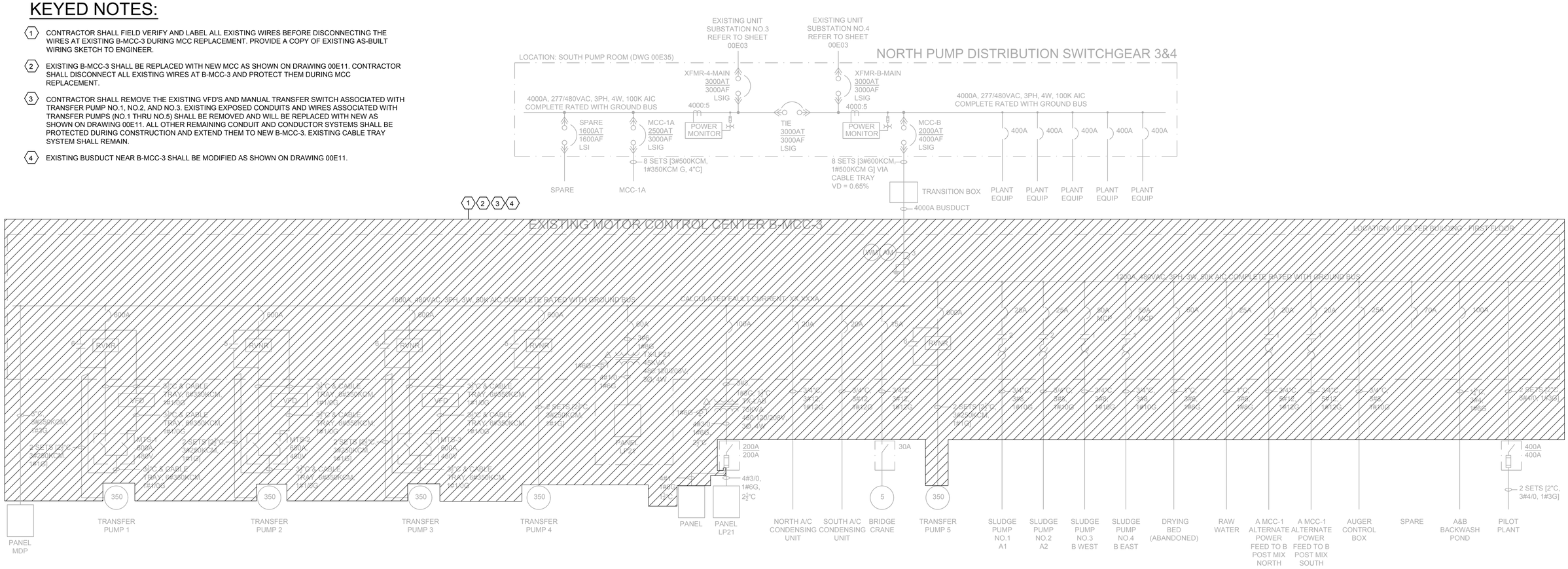
KEYED NOTES:

1. CONTRACTOR SHALL FIELD VERIFY AND LABEL ALL EXISTING WIRES BEFORE DISCONNECTING THE WIRES AT EXISTING B-MCC-3 DURING MCC REPLACEMENT. PROVIDE A COPY OF EXISTING AS-BUILT WIRING SKETCH TO ENGINEER.
2. EXISTING B-MCC-3 SHALL BE REPLACED WITH NEW MCC AS SHOWN ON DRAWING 00E11. CONTRACTOR SHALL DISCONNECT ALL EXISTING WIRES AT B-MCC-3 AND PROTECT THEM DURING MCC REPLACEMENT.
3. CONTRACTOR SHALL REMOVE THE EXISTING VFD'S AND MANUAL TRANSFER SWITCH ASSOCIATED WITH TRANSFER PUMP NO.1, NO.2, AND NO.3. EXISTING EXPOSED CONDUITS AND WIRES ASSOCIATED WITH TRANSFER PUMPS (NO.1 THRU NO.5) SHALL BE REMOVED AND WILL BE REPLACED WITH NEW AS SHOWN ON DRAWING 00E11. ALL OTHER REMAINING CONDUIT AND CONDUCTOR SYSTEMS SHALL BE PROTECTED DURING CONSTRUCTION AND EXTEND THEM TO NEW B-MCC-3. EXISTING CABLE TRAY SYSTEM SHALL REMAIN.
4. EXISTING BUSDUCT NEAR B-MCC-3 SHALL BE MODIFIED AS SHOWN ON DRAWING 00E11.



B-MCC-3 ONE LINE DIAGRAM

NOT TO SCALE

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
B-MCC-3 DEMOLITION ONE LINE DIAGRAM

VERIFY SCALES
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0 1"
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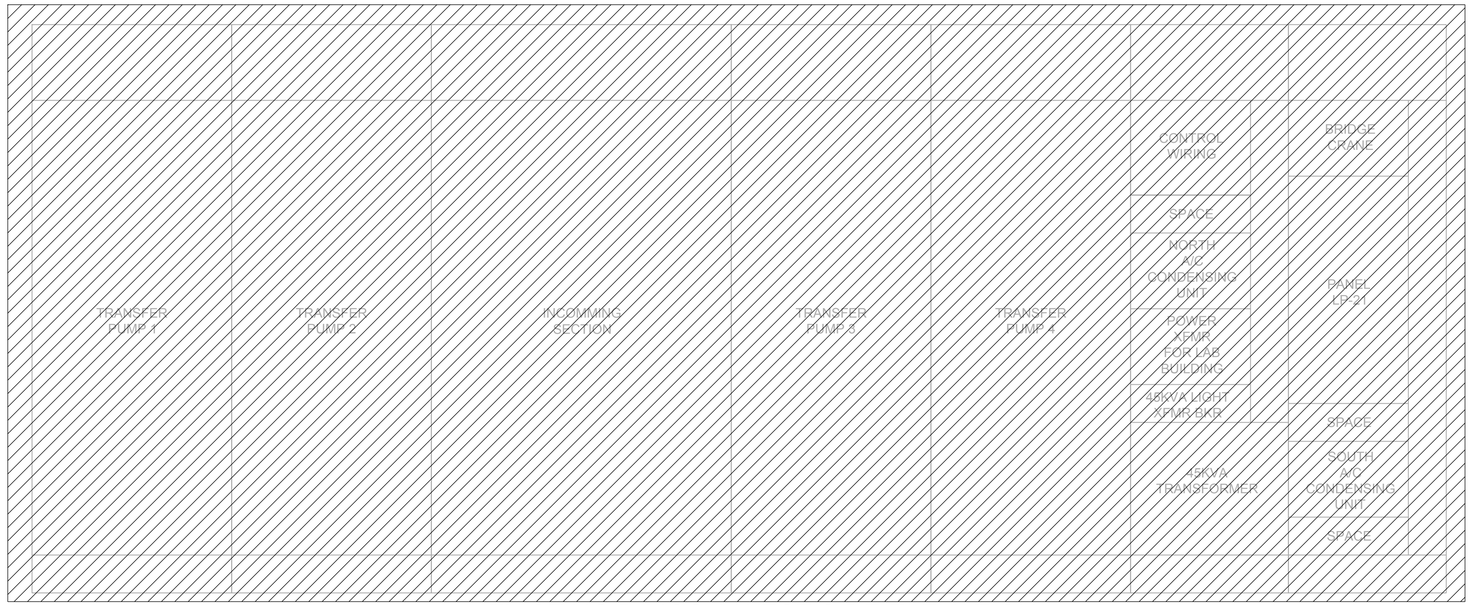

1 EXISTING B-MCC-3 WEST SIDE ELEVATION

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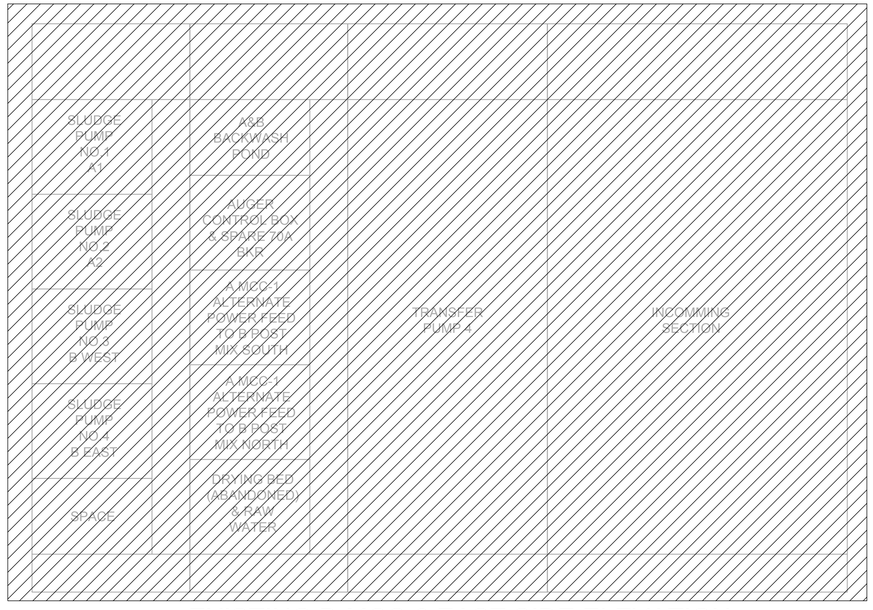

1 EXISTING B-MCC-3 EAST SIDE ELEVATION

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KEYED NOTES:

1. EXISTING ELEVATION DIAGRAMS ARE OBTAINED FROM AS BUILT AND FIELD IDENTIFICATION AND CONTRACTOR SHALL FIELD VERIFY THE ACCURACY OF THE EXISTING MCC BUCKETS AND EQUIPMENT LOCATION AND ADJUST AS NEEDED. CONTRACTOR SHALL FIELD VERIFY AND LABEL ALL EXISTING WIRES BEFORE DISCONNECTING THE WIRES AT EXISTING B-MCC-3 DURING MCC REPLACEMENT. PROVIDE A COPY OF EXISTING AS-BUILT WIRING SKETCH TO ENGINEER.

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EXISTING B-MCC-3 ELEVATION

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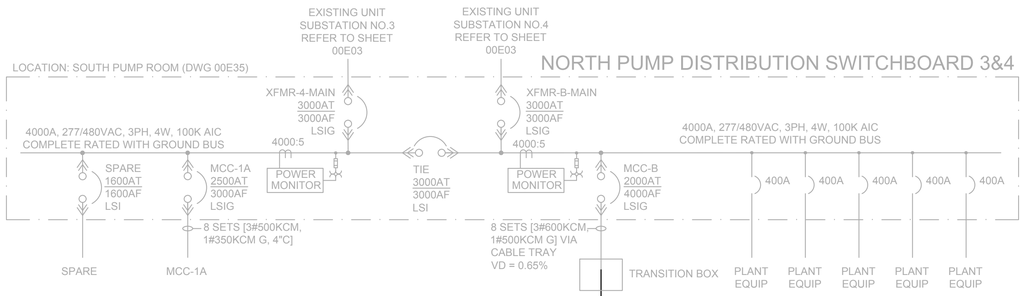
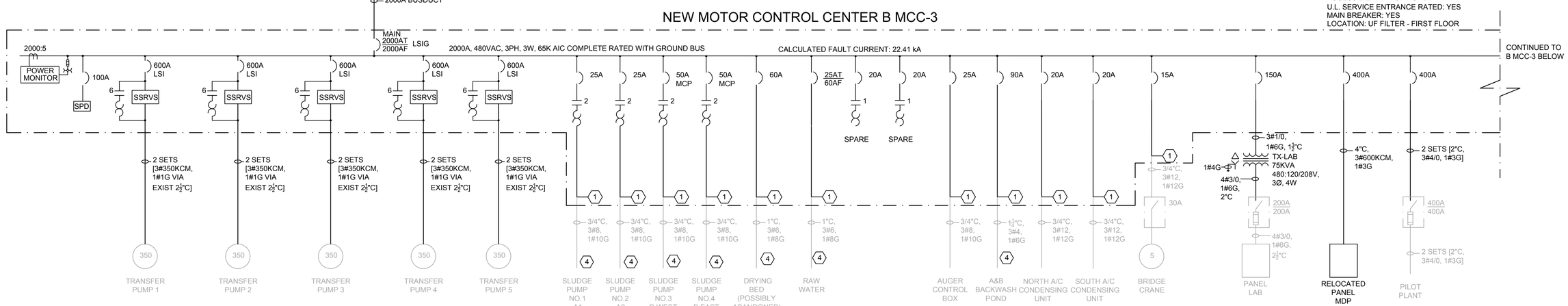


LOAD SUMMARY B MCC-3 (480V)

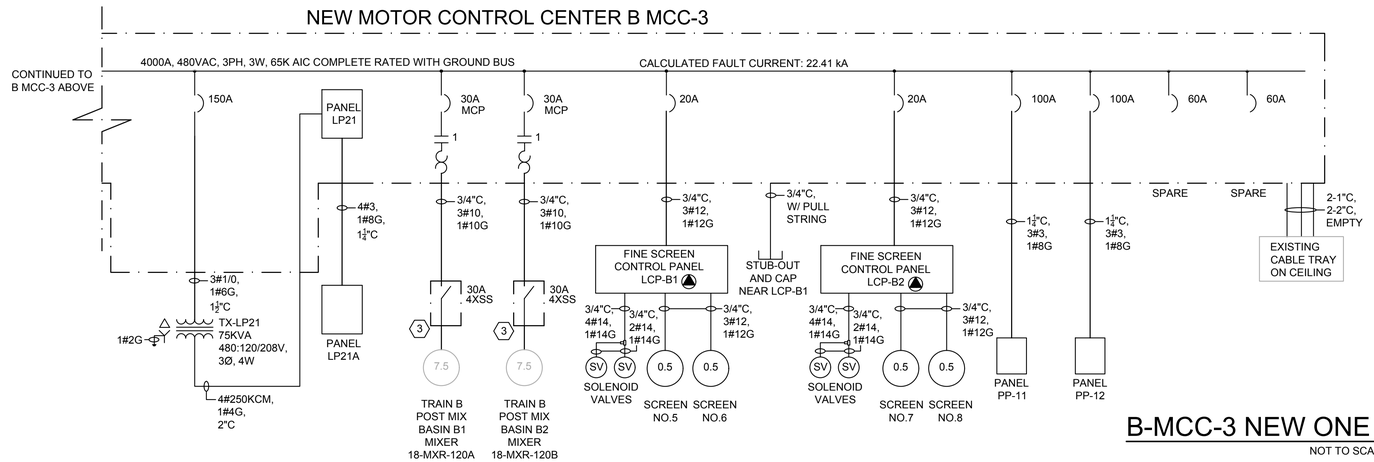
LOAD	CONNECTED LOAD (A)	RUNNING LOAD (A)
EXISTING LOAD	1483.4 A	961.6 A
PANEL MDP	273.1 A	255.6 A
FINE SCREEN CONTROL PANEL LCP-B	4.4 A	4.4 A
TRAIN B POST MIX BASIN B1 MIXER 18-MXR-120A	11.0 A	11.0 A
TRAIN B POST MIX BASIN B2 MIXER 18-MXR-120B	11.0 A	11.0 A
PANEL PP-11	18.9 A	18.9 A
PANEL PP-12	16.8 A	16.8 A
TX-LP21	90.0 A	64.3 A
TOTALS	1908.6 A	1343.6 A
KVA:	1,584.9 KVA	1,115.7 KVA

NEW MOTOR CONTROL CENTER B MCC-3

MAXIMUM DIMENSIONS: 160"L x 20"D x 94.5"H
ACCESSIBILITY: FRONT ONLY
U.L. SERVICE ENTRANCE RATED: YES
MAIN BREAKER: YES
LOCATION: UF FILTER - FIRST FLOOR



NEW MOTOR CONTROL CENTER B MCC-3



KEYED NOTES:

1. THE CONTRACTOR SHALL INTERCEPT EXISTING CONDUCTOR AND CONDUIT SYSTEMS AND EXTEND TO NEW MCC ACCORDINGLY.
2. THE CONTRACTOR SHALL MODIFY THE EXISTING TRANSITION BOX AND PROVIDE NEW TRANSITION SECTION AND EXTEND TO NEW MCC.
3. DISCONNECT FOR MIXER MOTOR SHALL HAVE AUXILIARY CONTACT TO DISCONNECT THE MOTOR SPACE HEATER CIRCUIT AS PER SPECIFICATION 26 05 04.
4. CONTRACTOR SHALL PERFORM INSULATION RESISTANCE TESTING ON EXISTING 600V WIRES FOR EXISTING SLUDGE PUMPS (NO.1 THRU NO.4), DRYING BED, RAW WATER, AND A&B BACKWASH POND AFTER DE-ENERGIZING OF THE EXISTING B MCC-3. SEE SPECIFICATION 26 08 00 FOR TESTING REQUIREMENTS.

B-MCC-3 NEW ONE LINE DIAGRAM

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B-MCC-3 NEW ONE LINE DIAGRAM

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MAIN BKR	POWER METER SPD SLUDGE PUMP NO.1 A1 SLUDGE PUMP NO.2 A2 TRAIN B POST MIX BASIN B1 MIXER 18-MXR-120A TRAIN B POST MIX BASIN B2 MIXER 18-MXR-120B		TRANSFER PUMP 1		TRANSFER PUMP 2		TRANSFER PUMP 3	PANEL LP21 SPACE	TRANSITION SECTION

PROPOSED B-MCC-3 WEST SIDE ELEVATION

NOT TO SCALE

NOTE:
CONTRACTOR SHALL COORDINATE WITH APPROVED MCC SHOP DRAWINGS FOR ACTUAL B-MCC-3 ELEVATION AND ADJUST CONDUIT CONNECTION ACCORDINGLY. THE EXISTING B-MCC-3 LOCATION HAS LIMITED SPACE FOR REPLACEMENT MCC AND IT IS CONTRACTOR'S RESPONSIBILITY TO PROVIDE NEW MCC THAT DOES NOT EXCEED THE MAXIMUM ALLOWED DIMENSIONS.

TRANSITION SECTION	SPACE LCP-B1 TX-LP21 BKR PANEL PP11 PANEL PP12	SLUDGE PUMP NO.3 B WEST SLUDGE PUMP NO.4 B EAST SPARE SIZE 1 STARTER SPARE SIZE 1 STARTER TX-LAB BKR	PANEL MDP LCP-B2 SPARE 60A BKR DRYING BED (ABANDONED) RAW WATER A&B BACKWASH POND	PILOT PLANT BRIDGE CRANE NORTH A/C CONDENSING UNIT SOUTH A/C CONDENSING UNIT AUGER CONTROL BOX	SPARE 60A BKR SPARE 60A BKR SPACE SPACE		TRANSFER PUMP 4		TRANSFER PUMP 5

PROPOSED B-MCC-3 EAST SIDE ELEVATION

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B-MCC-3 NEW ELEVATION

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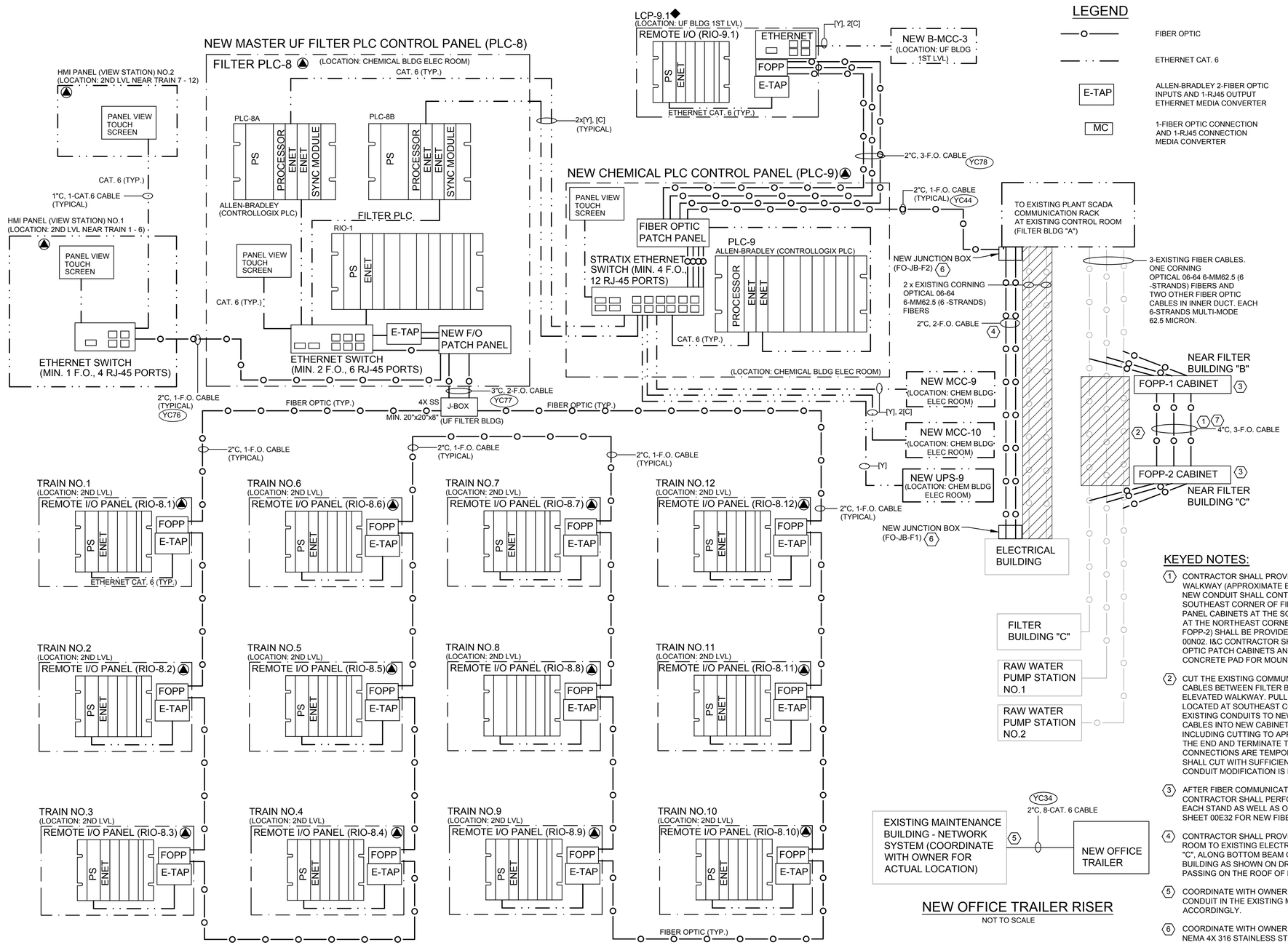

COMMUNICATION BLOCK DIAGRAM RISER

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NEW OFFICE TRAILER RISER

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LEGEND

- FIBER OPTIC
- ETHERNET CAT. 6
- E-TAP — ALLEN-BRADLEY 2-FIBER OPTIC INPUTS AND 1-RJ45 OUTPUT ETHERNET MEDIA CONVERTER
- MC — 1-FIBER OPTIC CONNECTION AND 1-RJ45 CONNECTION MEDIA CONVERTER

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL 4" ALUMINUM CONDUIT AT THE BOTTOM BEAM OF ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') BETWEEN FILTER BUILDING "B" AND FILTER BUILDING "C". NEW CONDUIT SHALL CONTINUE TO THE NORTHEAST CORNER OF FILTER BUILDING "B" AND THE SOUTHEAST CORNER OF FILTER BUILDING "C". CONTRACTOR SHALL INSTALL NEW FIBER OPTIC PATCH PANEL CABINETS AT THE SOUTHEAST CORNER OF FILTER BUILDING "C" BENEATH THE OVERHUNG AND AT THE NORTHEAST CORNER OF FILTER BUILDING "B". NEW FIBER OPTIC PATCH CABINETS (FOPP-1 AND FOPP-2) SHALL BE PROVIDED BY THE INSTRUMENTATION (I&C) CONTRACTOR AS SHOWN ON DRAWING 00N02. I&C CONTRACTOR SHALL ALSO PROVIDE NEW FIBER OPTIC CABLES BETWEEN TWO NEW FIBER OPTIC PATCH CABINETS AND TERMINATE THEM AT EACH END. PROVIDE AND INSTALL SUPPORT AND CONCRETE PAD FOR MOUNTING OF NEW FIBER OPTIC PATCH PANEL CABINET.
2. CUT THE EXISTING COMMUNICATION CONDUIT, INCLUDING INTERIOR INNERDUCT AND FIBER OPTIC CABLES BETWEEN FILTER BUILDING "B" AND BUILDING "C" APPROXIMATELY NEAR THE MID-POINT AT ELEVATED WALKWAY. PULL EXISTING INNERDUCT AND FIBER OPTIC CABLES BACK TO CONDUIT FITTING LOCATED AT SOUTHEAST CORNER OF BUILDING "C" AND NORTHEAST CORNER OF BUILDING "B". EXTEND EXISTING CONDUITS TO NEW FIBER OPTIC PATCH PANEL CABINET AND PULL EXISTING FIBER OPTIC CABLES INTO NEW CABINETS. I&C CONTRACTOR SHALL MODIFY THE EXISTING FIBER OPTIC CABLES, INCLUDING CUTTING TO APPROPRIATE LENGTH, INSTALLING FIBER OPTIC CONNECTORS (ST-TYPE) AT THE END AND TERMINATE THEM AT EACH FIBER OPTIC PATCH PANEL CABINET. FIBER PATCH PANEL CONNECTIONS ARE TEMPORARY ONLY TO MINIMIZE THE COMMUNICATION SYSTEM DOWNTIME AND SHALL CUT WITH SUFFICIENT LENGTH OF FIBER TO PERFORM FUSION SPLICING AFTER EXISTING FIBER CONDUIT MODIFICATION IS DONE AND FIBER COMMUNICATION IS UP AND RUNNING.
3. AFTER FIBER COMMUNICATION IS UP AND RUNNING FOR RAW WATER PUMP STATIONS, I&C CONTRACTOR SHALL PERFORM FUSION METHOD SPLICING AND PROVIDE WEATHERPROOF SLEEVE ON EACH STAND AS WELL AS ONE SLEEVE COVING OVERALL STANDS OF EACH FIBER CABLE. REFER TO SHEET 00E32 FOR NEW FIBER OPTIC CABLE ROUTING AND SPLICE INFORMATION.
4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIBER OPTIC CONDUIT FROM EXISTING CONTROL ROOM TO EXISTING ELECTRICAL BUILDING ALONG THE EXISTING WALL OF FILTER BUILDINGS "A", "B" & "C", ALONG BOTTOM BEAM OF ELEVATED WALKWAY AND ALONG THE EXISTING WALL OF ELECTRICAL BUILDING AS SHOWN ON DRAWING 00N02 BEFORE REMOVING THE EXISTING FIBER OPTIC CABLES PASSING ON THE ROOF OF FILTER BUILDING "B".
5. COORDINATE WITH OWNER AND FIELD VERIFY THE ACTUAL LOCATION TO STUB-UP COMMUNICATION CONDUIT IN THE EXISTING MAINTENANCE BUILDING FROM NEW OFFICE TRAILER AND INSTALL ACCORDINGLY.
6. COORDINATE WITH OWNER AND FIELD VERFIY THE EXACT LOCATION AND PROVIDE AND INSTALL NEW NEMA 4X 316 STAINLESS STEEL PULL BOX PAINTED WHITE, MINIMUM 24"Hx24"Wx18"D.
7. EXISTING FIBER OPTIC CONDUIT RELOCATION BETWEEN FILTER BUILDING "B" AND "C" FOR RAW WATER PUMP STATIONS IS ANTICIPATED TO BE PERFORMED IN THE ON-GOING SCADA IMPROVEMENT PROJECT. IF SCADA IMPROVEMENT PROJECT HAS NOT ALREADY RELOCATED THE EXISTING FIBER OPTIC CONDUIT, CONTRACTOR SHALL PERFORM ACCORDING TO THE ABOVE KEYED NOTES. THE CONTRACTOR SHALL INCLUDE THIS WORK AS PART OF HIS/HER BID PRICE IN THIS PROJECT AS DESCRIBES IN ONE OF THE BID ITEMS IN THE FRONT END DOCUMENT.

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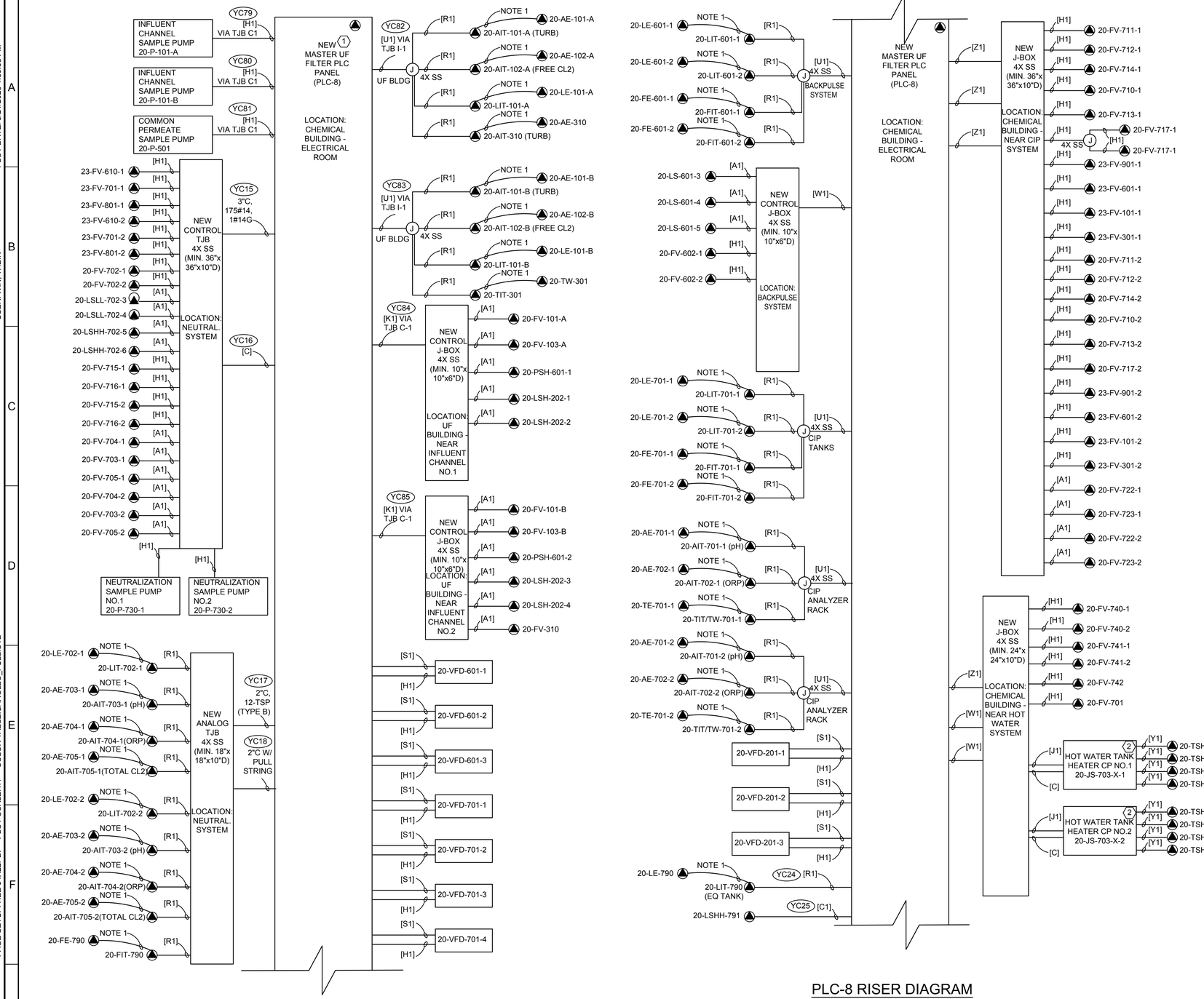

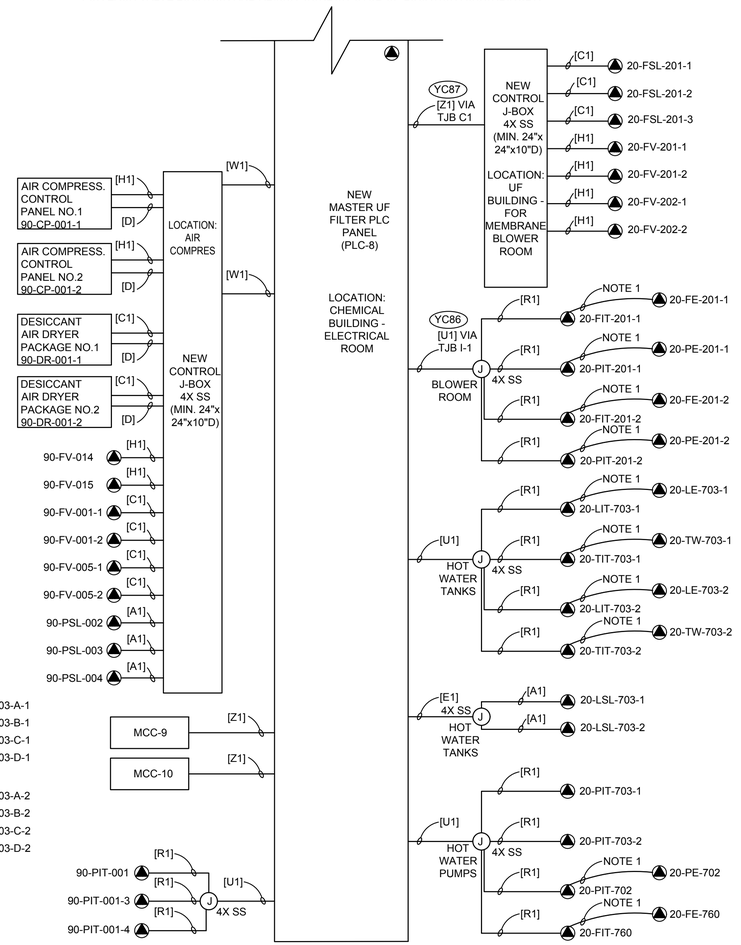

NOTES:

1. CABLE FURNISHED BY EQUIPMENT SUPPLIER. PROVIDE AND INSTALL 3/4"C. VERIFY CONDUIT SIZE AND QUANTITY WITH EQUIPMENT SUPPLIER.
2. NOT ALL CONDUITS AND CABLES SHOWN. SEE OTHER PLAN DRAWINGS FOR ADDITIONAL CONDUITS AND CABLES.
3. CONTRACTOR IS ALLOWED TO COMBINE CONTROL AND INSTRUMENTATION WIRE AS LONG AS WORK IS ACCOMPLISHED IN ACCORDANCE WITH THE NEC.
4. ALL SMALL JUNCTION BOX SHOWN ON RISER DIAGRAM THAT DO NOT HAVE DIMENSIONS SHALL BE SIZED ACCORDING TO QUANTITY OF CONDUITS AND CONDUIT ENTRY/EXIT CONFIGURATION AS REQUIRED BY NEC. MINIMUM DIMENSION FOR SMALL JUNCTION BOX SHALL BE 6"Wx6"Hx4"D AND UPSIZE AS NEEDED. CONTRACTOR SHALL FIELD LOCATE SOME JUNCTION BOX NEAR THE INSTRUMENTS AND TO AVOID CONFLICTS WITH OTHER TRADES
5. YELLOW WIRES SHALL BE USED FOR UNGROUNDED CONTROL CIRCUITS TO THE CONTROL PANEL THAT WILL REMAIN ENERGIZED WHEN THE MAIN DISCONNECT/ BREAKER AT CONTROL PANEL IS IN OFF POSITION.
6. TERMINATE SPARE CONDUCTORS ON TERMINALS AND MARK ACCORDINGLY.
7. SOME VALVE LOCATION MAY CHANGE DURING CONSTRUCTION, COORDINATE WITH MECHANICAL CONTRACTOR FOR EACH VALVE LOCATION AND ADJUST CONDUIT STUB-UP LOCATION ACCORDINGLY.

KEYED NOTES:

1. CONTRACTOR SHALL REVIEW MSS SHOP DRAWINGS FOR PLC-8 CONTROL PANEL AND ASSOCIATED RIO-PANELS AND ADJUST CONDUIT/WIRES ACCORDINGLY.
2. CONTRACTOR SHALL COORDINATE WITH HOT WATER TANK HEATER SUPPLIER AND SHOP DRAWINGS FOR WIRE TYPE REQUIREMENTS AND PROVIDE/INSTALL ACCORDINGLY.

PLC-8 RISER DIAGRAM

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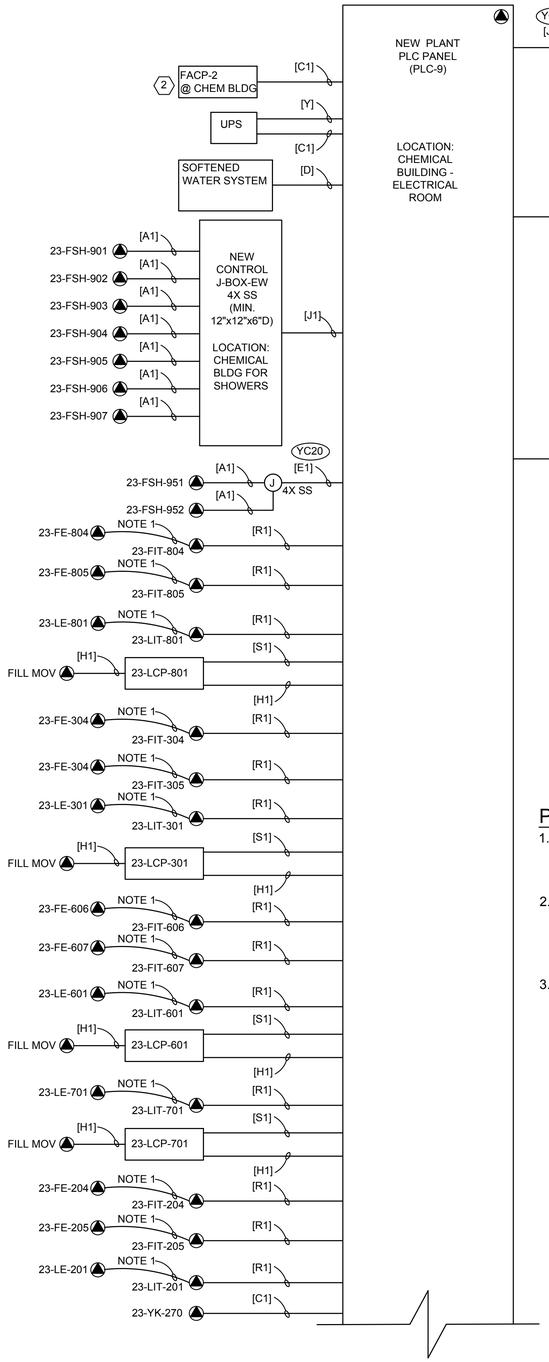


PH ANALYZER ADDITION SCOPE CHANGE RFQ:

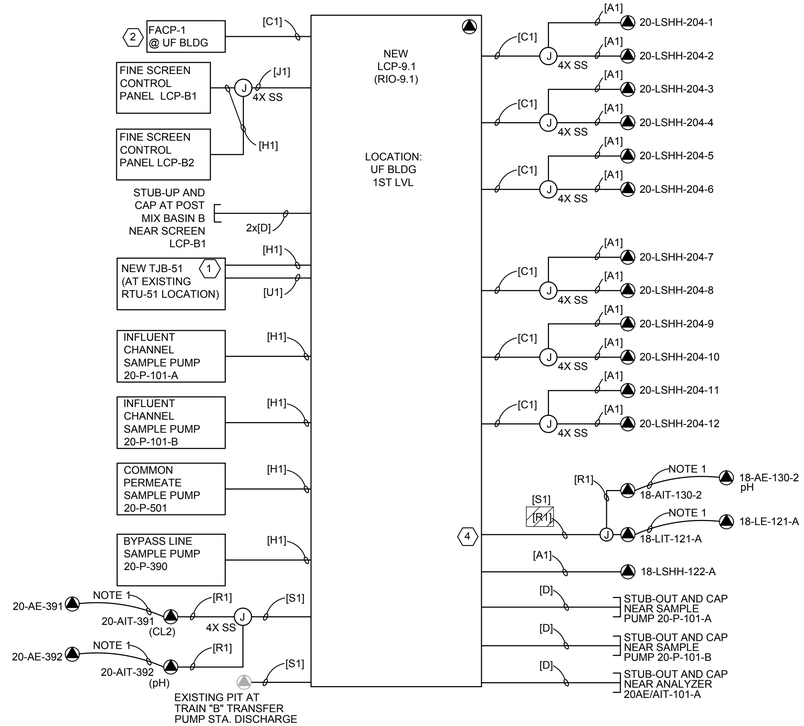
1. FIELD IDENTIFY SPARE WIRES IN YC23 (ORIGINAL BID) AND EXTEND 6#14 WIRES TO NEW WASTE EQ SAMPLE PUMP STARTER AND INSTALL NEW 3/4" CONDUIT FROM EXISTING JUNCTION BOX.
2. REPLACE EXISTING 1-TSP WIRE FOR YC24 (ORIGINAL BID, SHOWN ON DRAWING 00E14) WITH 2-TSP WIRES IN THE EXISTING CONDUIT. PROVIDE AND INSTALL $\frac{3}{4}$"C CONDUIT WITH 1-TSP WIRE FROM PLC-8 PANEL TO PLC-9 PANEL FOR PROPOSED PH ANALYZER (20-AIT-797).
3. PROVIDE AND INSTALL NEW COMBINATION STARTER (NEMA RATED) FOR WASTE EQ SAMPLE PUMP IN NEMA 4X SS ENCLOSURE. STARTER SHALL HAVE HOA SELECTOR SWITCH, RUNNING LED INDICATION LIGHT, FAULT LED INDICATION LIGHT, OVERLOAD RESET PUSH BUTTON, AND SIGNALS/CONTROL AS SHOWN DRAWING 00N16.

PLC-9 RISER DIAGRAM

NOT TO SCALE

NOTES:

1. CABLE FURNISHED BY EQUIPMENT SUPPLIER. PROVIDE AND INSTALL 3/4"C. VERIFY CONDUIT SIZE AND QUANTITY WITH EQUIPMENT SUPPLIER.
2. NOT ALL CONDUITS AND CABLES SHOWN. SEE OTHER PLAN DRAWINGS FOR ADDITIONAL CONDUITS AND CABLES.
3. CONTRACTOR IS ALLOWED TO COMBINE CONTROL AND INSTRUMENTATION WIRE AS LONG AS WORK IS ACCOMPLISHED IN ACCORDANCE WITH THE NEC.
4. ALL SMALL JUNCTION BOX SHOWN ON RISER DIAGRAM THAT DO NOT HAVE DIMENSIONS SHALL BE SIZED ACCORDING TO QUANTITY OF CONDUITS AND CONDUIT ENTRY/EXIT CONFIGURATION AS REQUIRED BY NEC. MINIMUM DIMENSION FOR SMALL JUNCTION BOX SHALL BE 6"Wx6"Hx4"D AND UPSIZE AS NEEDED. CONTRACTOR SHALL FIELD LOCATE SOME JUNCTION BOX NEAR THE INSTRUMENTS AND TO AVOID CONFLICTS WITH OTHER TRADES
5. YELLOW WIRES SHALL BE USED FOR UNGROUNDED CONTROL CIRCUITS TO THE CONTROL PANEL THAT WILL REMAIN ENERGIZED WHEN THE MAIN DISCONNECT/ BREAKER AT CONTROL PANEL IS IN OFF POSITION.
6. TERMINATE SPARE CONDUCTORS ON TERMINALS AND MARK ACCORDINGLY.
7. SOME VALVE LOCATION MAY CHANGE DURING CONSTRUCTION, COORDINATE WITH MECHANICAL CONTRACTOR FOR EACH VALVE LOCATION AND ADJUST CONDUIT STUB-UP LOCATION ACCORDINGLY.



LCP-9.1 (RIO-9.1) RISER DIAGRAM

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KEYED NOTES:

1. THE CONTRACTOR SHALL REMOVE THE EXISTING RTU-51 AND PROVIDE AND INSTALL A NEW 12"X12"X8" STAINLESS STEEL 316 TERMINAL JUNCTION BOX, TJB-51 AND EXTEND CONDUITS/WIRES TO THE NEW LCP-9.1. PROVIDE AND INSTALL NEW 316 STAINLESS STEEL SUPPORTS WITH HARDWARE FOR MOUNTING OF JBOX-51. FIELD VERIFY EXISTING SIGNALS TO BE EXTENDED TO LCP-9.1.
2. REFER TO FIRE ALARM DRAWINGS FOR CONDUITS/WIRES REQUIREMENTS FOR FIRE ALARM AND PROVIDE ACCORDINGLY.
3. REPLACE EXISTING 1-TSP WIRE TO 18-LIT-121-A WITH 2-TSP WIRES IN THE EXISTING CONDUIT. PROVIDE AND INSTALL 6"x6"x6" NEMA 4X 316 S.S. JUNCTION BOX TO INTERCEPT THE CONDUIT TO CONNECT NEW 18-AIT-130-2.
4. COORDINATE WITH INSTRUMENTATION CONTRACTOR FOR I/O POINTS AND ACTUAL TERMINALS TO CONNECT NEW SIGNALS AT ASSOCIATED PLC/RIO PANELS FOR PH ANALYZER AND NEW PNEUMATIC VALVE.

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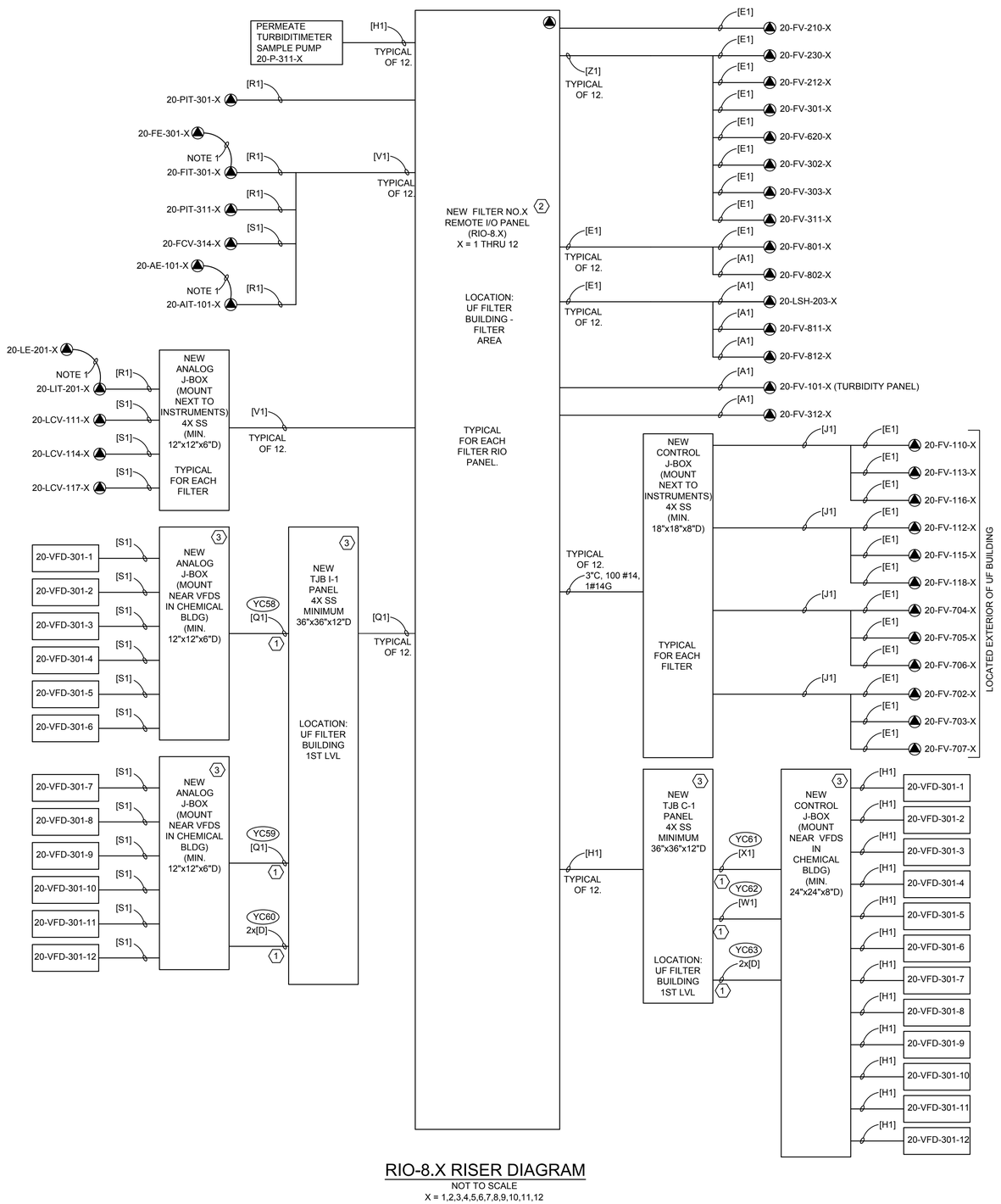
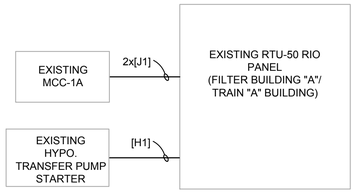


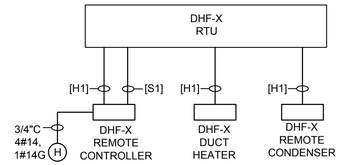
RIO-8.X RISER DIAGRAM

NOT TO SCALE
X = 1,2,3,4,5,6,7,8,9,10,11,12



EXISTING RTU-50 RISER DIAGRAM

NOT TO SCALE



NOTE: COORDINATE WITH APPROVED HVAC SHOP DRAWINGS FOR EACH DHF UNIT WIRING DIAGRAM AND ADJUST CONDUIT/WIRES ACCORDINGLY.

DHF-X RISER DIAGRAM

NOT TO SCALE
X = 1,2

NOTES:

1. CABLE FURNISHED BY EQUIPMENT SUPPLIER. PROVIDE AND INSTALL 3/4"C. VERIFY CONDUIT SIZE AND QUANTITY WITH EQUIPMENT SUPPLIER.
2. NOT ALL CONDUITS AND CABLES SHOWN. SEE OTHER PLAN DRAWINGS FOR ADDITIONAL CONDUITS AND CABLES.
3. CONTRACTOR IS ALLOWED TO COMBINE CONTROL AND INSTRUMENTATION WIRE AS LONG AS WORK IS ACCOMPLISHED IN ACCORDANCE WITH THE NEC.
4. ALL SMALL JUNCTION BOX SHOWN ON RISER DIAGRAM THAT DO NOT HAVE DIMENSIONS SHALL BE SIZED ACCORDING TO QUANTITY OF CONDUITS AND CONDUIT ENTRY/EXIT CONFIGURATION AS REQUIRED BY NEC. MINIMUM DIMENSION FOR SMALL JUNCTION BOX SHALL BE 6"Wx6"Hx4"D AND UPSIZE AS NEEDED. CONTRACTOR SHALL FIELD LOCATE SOME JUNCTION BOX NEAR THE INSTRUMENTS AND TO AVOID CONFLICTS WITH OTHER TRADES.
5. YELLOW WIRES SHALL BE USED FOR UNGROUNDED CONTROL CIRCUITS TO THE CONTROL PANEL THAT WILL REMAIN ENERGIZED WHEN THE MAIN DISCONNECT/ BREAKER AT CONTROL PANEL IS IN OFF POSITION.
6. CONTRACTOR SHALL PROVIDE NEMA 4X STAINLESS STEEL WIREWAY BELOW PANELS OR JUNCTION BOXES IF QUANTITY OF CONDUITS ENTERING THE PANEL OR JUNCTION BOX IS MORE THAN THE AVAILABLE SPACE OF THE PANEL OR JUNCTION BOX.
7. TERMINATE SPARE CONDUCTORS ON TERMINALS AND MARK ACCORDINGLY.
8. SOME VALVE LOCATION MAY CHANGE DURING CONSTRUCTION, COORDINATE WITH MECHANICAL CONTRACTOR FOR EACH VALVE LOCATION AND ADJUST CONDUIT STUB-UP LOCATION ACCORDINGLY.

KEYED NOTES:

1. NEW JUNCTION BOXES FOR CONDUITS TRANSITION INTO THE UF BUILDING - FORMER VFD ROOM ARE NOT SHOWN ON RISER DIAGRAM. CONTRACTOR SHALL PROVIDE AND INSTALL JUNCTION BOXES AS PER ELECTRICAL PLAN BOTH INTERIOR AND EXTERIOR OF THE FORMER VFD ROOM.
2. CONTRACTOR SHALL REVIEW MSS SHOP DRAWINGS FOR PLC-8 CONTROL PANEL AND ASSOCIATED RIO-PANELS AND ADJUST CONDUIT/WIRES ACCORDINGLY.
3. NEW ANALOG AND CONTROL JUNCTION BOXES ASSOCIATED WITH THE VFD UNITS AND TJB I-1, TJB C-1 ARE COMMON FOR RIO-8.1 THRU RIO-8-12 PANELS. ALL OTHER J-BOXES, CONDUITS/WIRES, ETC. ARE TYPICAL FOR EACH RIO-8.X PANEL (X = 1 THRU 12).

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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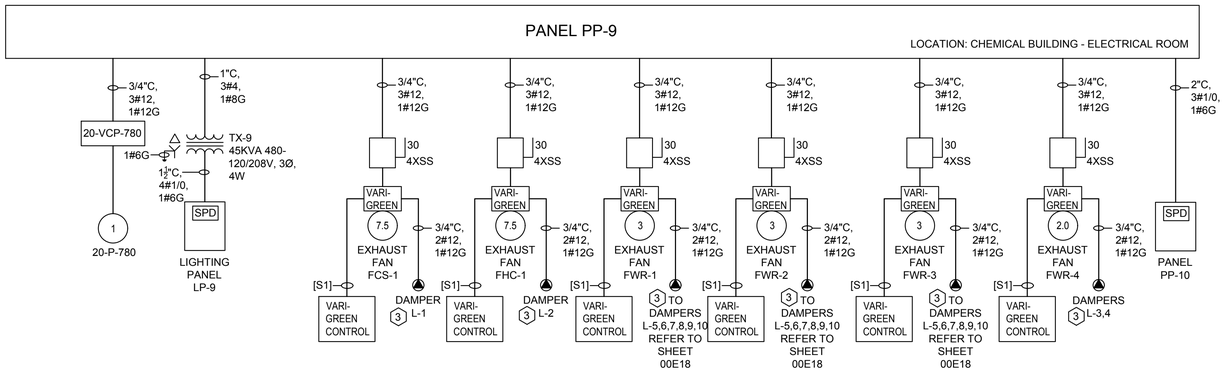
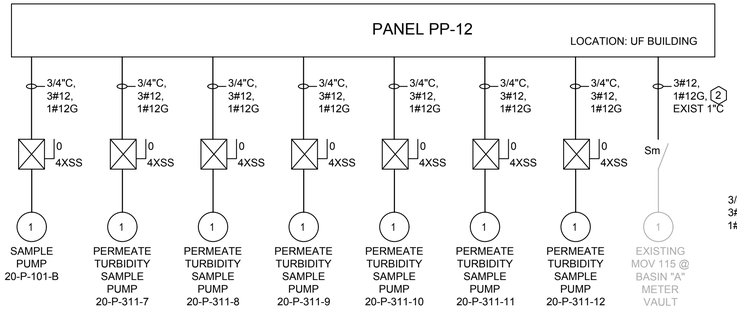


PP-9 RISER DIAGRAM

NOT TO SCALE



PP-12 RISER DIAGRAM

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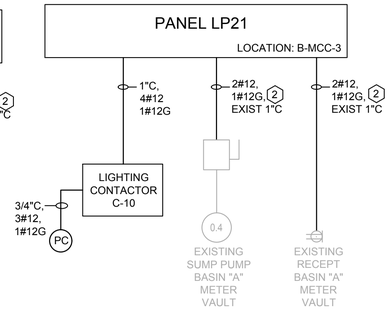

PARTIAL PANEL LP-21 RISER DIAGRAM

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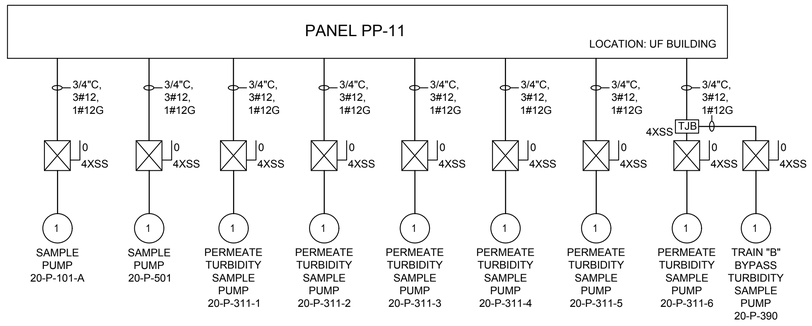

PP-11 RISER DIAGRAM

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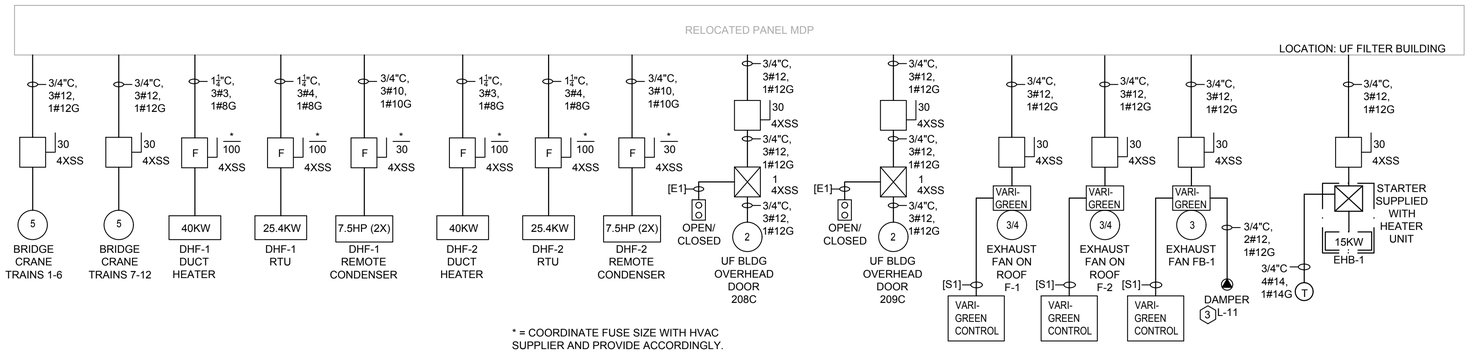
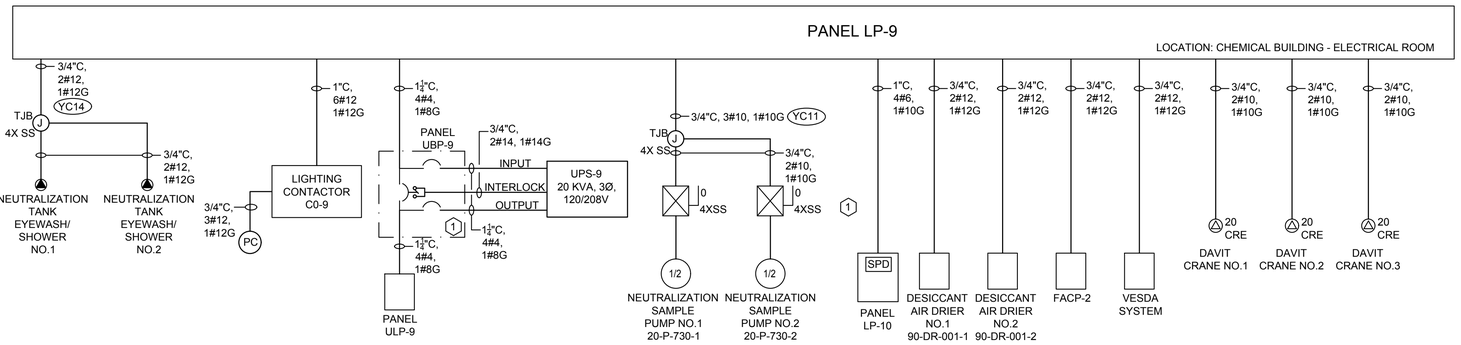


* = COORDINATE FUSE SIZE WITH HVAC SUPPLIER AND PROVIDE ACCORDINGLY.

PANEL MDP RISER DIAGRAM

NOT TO SCALE



LP-9 RISER DIAGRAM

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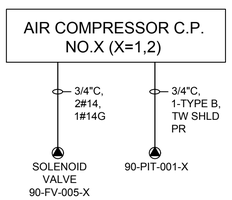
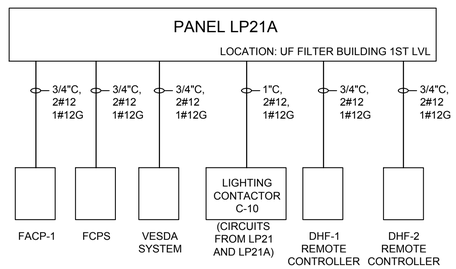


AIR COMPRESS. CP-X RISER

NOT TO SCALE
X=1,2



PARTIAL PANEL LP21A RISER DIAGRAM

NOT TO SCALE

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL 20KVA, 3-PHASE UPS AND BYPASS PANEL AS PER SPECIFICATION 26_05_04.
2. CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT SYSTEM AND EXTEND TO NEW PANEL.
3. CONTRACTOR SHALL COORDINATE WITH HVAC PLANS FOR INTERLOCKS BETWEEN FANS AND DAMPERS.

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DRAWING NO. 00E17

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PANEL PP-10

LOCATION: CHEMICAL BUILDING

HYDRO- CHLORIC ACID METERING CP NO.1 — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (2) HYDRO-CHLORIC ACID METERING PUMP NO.1 23-PUMP-810
- 3/4"C, 3#12, 1#12G → (2) HYDRO-CHLORIC ACID METERING PUMP NO.2 23-PUMP-820
- 3/4"C, 3#12, 1#12G → (2) HYDRO-CHLORIC ACID METERING PUMP NO.3 23-PUMP-830

HYDRO- CHLORIC ACID METERING CP NO.2 — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (2) HYDRO-CHLORIC ACID METERING PUMP NO.4 23-PUMP-840
- 3/4"C, 3#12, 1#12G → (2) HYDRO-CHLORIC ACID METERING PUMP NO.5 23-PUMP-850

CITRIC ACID METERING CP — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (2) CITRIC ACID METERING PUMP NO.1 23-PUMP-310
- 3/4"C, 3#12, 1#12G → (2) CITRIC ACID METERING PUMP NO.2 23-PUMP-320
- 3/4"C, 3#12, 1#12G → (2) CITRIC ACID METERING PUMP NO.3 23-PUMP-330

CAUSTIC SODA METERING CP NEUTRALIZATION — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (1) CAUSTIC SODA METERING PUMP NO.1 23-PUMP-610
- 3/4"C, 3#12, 1#12G → (1) CAUSTIC SODA METERING PUMP NO.2 23-PUMP-620

CAUSTIC SODA METERING CP CIP — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (3/4) CAUSTIC SODA METERING PUMP NO.3 23-PUMP-630
- 3/4"C, 3#12, 1#12G → (3/4) CAUSTIC SODA METERING PUMP NO.4 23-PUMP-640
- 3/4"C, 3#12, 1#12G → (3/4) CAUSTIC SODA METERING PUMP NO.5 23-PUMP-650

SODIUM BISULFITE METERING CP — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (1.5) SODIUM BISULFITE METERING PUMP NO.1 23-PUMP-710
- 3/4"C, 3#12, 1#12G → (1.5) SODIUM BISULFITE METERING PUMP NO.2 23-PUMP-720

SODIUM HYPO-CHLORITE METERING CP — 3/4"C, 3#8, 1#8G
- 3/4"C, 3#12, 1#12G → (7.5) SODIUM HYPO-CHLORITE METERING PUMP NO.1 23-PUMP-210
- 3/4"C, 3#12, 1#12G → (7.5) SODIUM HYPO-CHLORITE METERING PUMP NO.2 23-PUMP-220
- 3/4"C, 3#12, 1#12G → (7.5) SODIUM HYPO-CHLORITE METERING PUMP NO.3 23-PUMP-230

CAUSTIC SODA METERING CP POST MIX A — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (1/2) CAUSTIC SODA METERING PUMP NO.6 18-PUMP-110
- 3/4"C, 3#12, 1#12G → (1/2) CAUSTIC SODA METERING PUMP NO.7 18-PUMP-120
- 3/4"C, 3#12, 1#12G → (1/2) CAUSTIC SODA METERING PUMP NO.8 18-PUMP-130

CAUSTIC SODA METERING CP POST MIX B — 3/4"C, 3#12, 1#12G
- 3/4"C, 3#12, 1#12G → (1/2) CAUSTIC SODA METERING PUMP NO.9 18-PUMP-140
- 3/4"C, 3#12, 1#12G → (1/2) CAUSTIC SODA METERING PUMP NO.10 18-PUMP-150

PACKAGED SUMP PUMP LOCAL CONTROL PANEL — 1"C, 3#10, 1#10G (YC75)
- 1"C, 3#12, 8#14, 1#12G → (5) PUMP NO.1
- 1"C, 3#12, 8#14, 1#12G → (5) PUMP NO.2
- 1"C, 10#14, 1#14G → FLOATS

3/4"C, 3#12, 1#12G → 30 4XSS → 3/4"C, 3#12, 1#12G → 1 4XSS → [E1] OPEN/CLOSED → 3/4"C, 3#12, 1#12G → (2) CHEMICAL BLDG OVERHEAD DOOR 101B

3/4"C, 3#12, 1#12G → 30 4XSS → 3/4"C, 3#12, 1#12G → 1 4XSS → [E1] OPEN/CLOSED → 3/4"C, 3#12, 1#12G → (2) CHEMICAL BLDG OVERHEAD DOOR 101C

PP-10 RISER DIAGRAM
(1)
NOT TO SCALE

PANEL LP-10

LOCATION: CHEMICAL BUILDING

- 3/4"C, 2#12, 1#12G → 18-PCV-101
- 3/4"C, 2#12, 1#12G → 18-PCV-102
- 3/4"C, 2#12, 1#12G → 18-PCV-103
- 3/4"C, 2#12, 1#12G → 18-PCV-104
- 3/4"C, 2#10, 1#10G → CAUSTIC HEAT TRACE PANEL; 3/4"C, MSC → CAUSTIC PIPING
- 3/4"C, 2#10, 1#10G → SODIUM BISULFITE HEAT TRACE PANEL; 3/4"C, MSC → SODIUM BISULFITE PIPING
- 3/4"C, 2#12, 1#12G → TJB (J) 4X SS
  - → CIP SYSTEM EYEWASH/ SHOWER
  - → SODIUM HYPOCHLORITE EYEWASH/ SHOWER
  - → SODIUM BISULFITE EYEWASH/ SHOWER
  - → CITRIC ACID EYEWASH/ SHOWER
  - → CAUSTIC SODA (NAOH) EYEWASH/ SHOWER
  - → HYDOCHLORIC ACID EYEWASH/ SHOWER
  - → CHEMICAL FILL STATION EYEWASH/ SHOWER
  - → 3/4"C, 2#12, 1#12G

TO FWR-1 VARI-GREEN, REFER TO 00E17 / TO FWR-2 VARI-GREEN, REFER TO 00E17 / TO FWR-3 VARI-GREEN, REFER TO 00E17

3/4"C, 2#12, 1#12G → J-BOX (1)
- → DAMPER L-5
- → DAMPER L-6
- → DAMPER L-7
- → DAMPER L-8
- → DAMPER L-9
- → DAMPER L-10

LP-10 RISER DIAGRAM
NOT TO SCALE

KEYED NOTES:

(1) CONTRACTOR SHALL COORDINATE WITH HVAC PLANS FOR INTERLOCKS BETWEEN FANS AND DAMPERS.

EXISTING PANEL DP

LOCATION: EXTERIOR OF MAINTENANCE WAREHOUSE

1"C, 6#10, 1#10G → LIGHTING CONTACTOR C-11
- 3/4"C, 3#12, 1#12G → PC
- 1"C, 4#10, 1#10G (YC88) → EXISTING LIGHT POLE

PARTIAL PANEL DP RISER DIAGRAM
NOT TO SCALE

WASTE EQ SAMPLE PUMP (20-P-796) (1/2) → 3/4"C, 3#12, 1#12G → 20-LIT 797 → 3/4"C, 2#12, 1#12G → 4X SS

EXISTING PANEL LP2

LOCATION: INSIDE THE MAINTENANCE BUILDING

3/4"C, 3#12, 1#12G → Sm 4X SS (YC31) → 1 → 20-FV-798

3/4"C WITH PULL STRING (YC32) → 20-LIT-790

EXISTING P2 PANEL (480V, 3Ø) 20A, 3P — SEE 00E34 FOR LOCATION (NEAR DP PANEL)

Sm 4X SS → (480V RATED) → 3/4"C, 3#12, 1#12G

PARTIAL PANEL LP2 RISER DIAGRAM
NOT TO SCALE

UPS PANEL ULP-9

LOCATION: CHEMICAL BUILDING - ELECTRICAL ROOM

- 3/4"C, 2#12, 1#12G → MASTER FILTER PLC-8 PANEL
- 3/4"C, 2#12, 1#12G → PLANT PLC-9 PANEL
- 3/4"C, 2#12, 1#12G → 20-LIT-601-1
- 3/4"C, 2#12, 1#12G → 20-LIT-601-2
- 3/4"C, 2#12, 1#12G → 20-FIT-601-1
- 3/4"C, 2#12, 1#12G → 20-FIT-601-2
- 3/4"C, 2#12, 1#12G → 20-LIT-702-1
- 3/4"C, 2#12, 1#12G (YC26) → TJB (J) 4X SS → 3/4"C, 2#12, 1#12G (TYP.) → 20-LIT-702-2
- 3/4"C, 2#12, 1#12G → 20-FIT-790
- 3/4"C, 2#12, 1#12G (YC27) → TJB (J) 4X SS → 20-AIT-703-1, 20-AIT-704-1, 20-AIT-705-1
- 3/4"C, 2#12, 1#12G (YC28) → TJB (J) 4X SS → 20-AIT-703-2, 20-AIT-704-2, 20-AIT-705-2
- 3/4"C, 2#12, 1#12G (YC29) → TJB (J) 4X SS → 20-LIT-701-1
- 3/4"C, 2#12, 1#12G → 20-LIT-701-2
- 3/4"C, 2#12, 1#12G → 20-FIT-701-1
- 3/4"C, 2#12, 1#12G → 20-FIT-701-2
- 3/4"C, 2#12, 1#12G → 20-AIT-701-1
- 3/4"C, 2#12, 1#12G → 20-AIT-701-2
- 3/4"C, 2#12, 1#12G → 20-AIT-702-1
- 3/4"C, 2#12, 1#12G → 20-AIT-702-2
- 3/4"C, 2#12, 1#12G → 20-LIT-703-1
- 3/4"C, 2#12, 1#12G → 20-LIT-703-2
- 3/4"C, 2#12, 1#12G → 20-FIT-760
- 3/4"C, 2#12, 1#12G → 23-LIT-801
- 3/4"C, 2#12, 1#12G → 23-LCP-801
- 3/4"C, 2#12, 1#12G → 23-LIT-301
- 3/4"C, 2#12, 1#12G → 23-LCP-301
- 3/4"C, 2#12, 1#12G → 23-LIT-601
- 3/4"C, 2#12, 1#12G → 23-LCP-601
- 3/4"C, 2#12, 1#12G → 23-LCP-701
- 3/4"C, 2#12, 1#12G → 23-LIT-701
- 3/4"C, 2#12, 1#12G → 23-LIT-201
- 1½"C, 4#4, 1#8G (YC40) → PANEL ULP-9A
- 1½"C, 4#4, 1#8G (YC41) → PANEL ULP-10A
- 3/4"C, 2#12, 1#12G (YC35) → 4X SS TJB (J) → 3/4"C, 2#12, 1#12G (TYP.)
  - → 18-LIT-111A
  - → 18-LIT-111B

UPS PANEL ULP-9 RISER DIAGRAM
NOT TO SCALE

UPS PANEL ULP-9A

LOCATION: UF BUILDING

- 3/4"C, 2#12, 1#12G → RIO-8.1 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.2 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.3 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.4 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.5 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.6 PANEL
- 3/4"C, 2#12, 1#12G → HMI PANEL NO.1
- 3/4"C, 2#12, 1#12G → 20-AIT-101-A
- 3/4"C, 2#12, 1#12G → TJB (J) 4X SS → 3/4"C, 2#12, 1#12G → 20-AIT-102-A
- 3/4"C, 2#12, 1#12G → 20-LIT-101-A
- 3/4"C, 2#12, 1#12G → 20-FIT-301-1
- 3/4"C, 2#12, 1#12G → 20-FIT-301-2
- 3/4"C, 2#12, 1#12G → 20-FIT-301-3
- 3/4"C, 2#12, 1#12G → 20-FIT-301-4
- 3/4"C, 2#12, 1#12G → 20-FIT-301-5
- 3/4"C, 2#12, 1#12G → 20-FIT-301-6
- 3/4"C, 2#12, 1#12G → 20-AIT-101-1
- 3/4"C, 2#12, 1#12G → 20-AIT-101-2
- 3/4"C, 2#12, 1#12G → 20-AIT-101-3
- 3/4"C, 2#12, 1#12G → 20-AIT-101-4
- 3/4"C, 2#12, 1#12G → 20-AIT-101-5
- 3/4"C, 2#12, 1#12G → 20-AIT-101-6
- 3/4"C, 2#12, 1#12G → 4X SS TJB (J) → 3/4"C, 2#12, 1#12G (TYP.)
  - → 20-AIT-391
  - → 20-AIT-392
- 3/4"C, 2#12, 1#12G → 20-FIT-201-1
- 3/4"C, 2#12, 1#12G → RIO-9.1 PANEL
- 3/4"C, 2#12, 1#12G → 20-LIT-201-1
- 3/4"C, 2#12, 1#12G → 20-LIT-201-2
- 3/4"C, 2#12, 1#12G → 20-LIT-201-3
- 3/4"C, 2#12, 1#12G → 20-LIT-201-4
- 3/4"C, 2#12, 1#12G → 20-LIT-201-5
- 3/4"C, 2#12, 1#12G → 20-LIT-201-6

UPS PANEL ULP-9A RISER DIAGRAM
NOT TO SCALE

UPS PANEL ULP-10A

LOCATION: UF BUILDING

- 3/4"C, 2#12, 1#12G → RIO-8.7 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.8 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.9 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.10 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.11 PANEL
- 3/4"C, 2#12, 1#12G → RIO-8.12 PANEL
- 3/4"C, 2#12, 1#12G → HMI PANEL NO.2
- 3/4"C, 2#12, 1#12G → 20-AIT-101-B
- 3/4"C, 2#12, 1#12G → TJB (J) 4X SS → 3/4"C, 2#12, 1#12G → 20-AIT-102-B
- 3/4"C, 2#12, 1#12G → 20-LIT-101-B
- 3/4"C, 2#12, 1#12G → 20-TIT-301
- 3/4"C, 2#12, 1#12G → 20-FIT-301-7
- 3/4"C, 2#12, 1#12G → 20-FIT-301-8
- 3/4"C, 2#12, 1#12G → 20-FIT-301-9
- 3/4"C, 2#12, 1#12G → 20-FIT-301-10
- 3/4"C, 2#12, 1#12G → 20-FIT-301-11
- 3/4"C, 2#12, 1#12G → 20-FIT-301-12
- 3/4"C, 2#12, 1#12G → 20-AIT-310
- 3/4"C, 2#12, 1#12G → 20-AIT-101-7
- 3/4"C, 2#12, 1#12G → 20-AIT-101-8
- 3/4"C, 2#12, 1#12G → 20-AIT-101-9
- 3/4"C, 2#12, 1#12G → 20-AIT-101-10
- 3/4"C, 2#12, 1#12G → 20-AIT-101-11
- 3/4"C, 2#12, 1#12G → 20-AIT-101-12
- 3/4"C, 2#12, 1#12G → 20-FIT-201-2
- 3/4"C, 2#12, 1#12G → 20-LIT-201-7
- 3/4"C, 2#12, 1#12G → 20-LIT-201-8
- 3/4"C, 2#12, 1#12G → 20-LIT-201-9
- 3/4"C, 2#12, 1#12G → 20-LIT-201-10
- 3/4"C, 2#12, 1#12G → 20-LIT-201-11
- 3/4"C, 2#12, 1#12G → 20-LIT-201-12
- 3/4"C, 2#12, 1#12G → 4X SS TJB (J) 3 → 0
  - → 18-LIT-121-A
  - → 18-AIT-130-2

UPS PANEL ULP-10A RISER DIAGRAM
NOT TO SCALE

EXISTING MAINTENANCE PANEL

LOCATION: EXTERIOR OF MAINTENANCE BUILDING

1½"C, 4#3, 1#8G (YC33) → 18KAIC BREAKER → 100A 4XSS (2) → 1½"C, 4#3, 1#8G → TEMP OFFICE TRAILER

PARTIAL MAINTENANCE PANEL RISER DIAGRAM
NOT TO SCALE

KEYED NOTES:

(1) CONTRACTOR SHALL COORDINATE WITH METERING PUMP SYSTEM SUPPLIER FOR ACTUAL MOTOR HORSEPOWER DURING SHOP DRAWINGS SUBMITTAL PHASE AND ADJUST ACCORDINGLY.

(2) PROVIDE AND INSTALL BREAKER STYLE DISCONNECT. COORDINATE WITH TRAILER SUPPLIER FOR BREAKER SIZE AND PROVIDE ACCORDINGLY.

(3) PROVIDE AND INSTALL NEW TJB AND INTERCEPT EXISTING 18-LIT-121-A CIRCUIT TO POWER 18-AIT-130-2 AT POST MIX BASIN B.

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY

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ELECTRICAL

RISER DIAGRAMS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00E18

PLOT DATE: 3/21/2025 4:57:13 PM
USER: WIN. THEIN
COLOR TABLE:CAROLLO_FULL.CTB
PLOT SCALE:1:1
PAGE SETUP: HEE 34X22PDF
LAST SAVED BY: twin

NEW PANELBOARD SCHEDULE "PP-9"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			SPACE	3	90	1 2	20	3	SPACE			
			SPACE			3 4			SPACE			
			SPACE			5 6			SPACE			
			SPACE	3	20	7 8	20	3	SPACE			
			SPACE			9 10			SPACE			
			SPACE			11 12			SPACE			
			SPACE	3	20	13 14	20	3	FWR-1	4.8		
			SPACE			15 16					4.8	
			SPACE			17 18						4.8
40.6			TX-9	3	20	19 20	20	3	FWR-3	4.8		
	37.9					21 22					4.8	
		38.9				23 24						4.8
			SPARE	3	20	25 26	20	3	FWR-4	4.8		
			SPARE			27 28					4.8	
			SPARE			29 30						4.8
			SPARE	3	20	31 32	20	3	SUMP PUMP 20-VCP-780			
11.0			SPARE			33 34						
	11.0		SPARE			35 36						
		11.0	FCS-1	3	150	37 38	30	3	SPARE			
11.0						39 40			SPARE			
	11.0					41 42			SPARE			
		11.0	FHC-1	3	150	43 44		3	SPARE			
4.8						45 46			SPARE			
	4.8					47 48			SPARE			
		4.8	FWR-2	3	150	49 50		3	SURGE			
						51 52						
						53 54						
			MAIN	3	150	55 56		3				
						57 58						
						59 60						
88.7			PP-10			61 62						
	88.7					63 64						
		88.7				65 66						

TOTAL AMPS: BUS A 170.5 BUS B 167.8 BUS C 168.8 CONNECTED Kva 141.6 RUNNING Kva____

RATED VOLTAGE: ☐ 120/208 ■ 480 3 PHASE, 3 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ☐100 ☐ 225 ■ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ☐ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: CHEMICAL BLDG ELEC RM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X SS	
☐ MAIN LUGS ONLY	MAIN 250 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ____35,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "PP-10"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
6.3			HYDRO- CHLORIC METERING CP NO.1	3	20	1 2	50	3	SODIUM HYPO-CHLORITE METERING CP	33.0		
	6.3					3 4					33.0	
		6.3				5 6						33.0
4.2			HYDRO- CHLORIC METERING CP NO.2	3	20	7 8	20	3	CAUSTIC SODA METERING CP CIP	6.3		
	4.2					9 10					6.3	
		4.2				11 12						6.3
6.3			CITRIC ACID METERING CP	3	20	13 14	20	3	CAUSTIC SODA METERING CP NEUT.	4.2		
	6.3					15 16					4.2	
		6.3				17 18						4.2
4.2			SODIUM BISULFITE METERING CP	3	20	19 20	20	3	CAUSTIC SODA METERING CP POST MIX A	1.1		
	4.2					21 22					1.1	
		4.2				23 24						1.1
15.2			PACKAGED PUMP STATION	3	30	25 26	20	3	CAUSTIC SODA METERING CP POST MIX B	1.1		
	15.2					27 28					1.1	
		15.2				29 30						1.1
3.4			OVERHEAD DOOR 101B	3	20	31 32	20	3	SPD			
	3.4					33 34						
		3.4				35 36						
3.4			OVERHEAD DOOR 101C	3	20	37 38	30	3	SPARE			
	3.4					39 40						
		3.4				41 42						

TOTAL AMPS: BUS A 88.7 BUS B 88.7 BUS C 88.7 CONNECTED Kva 73.7 RUNNING Kva 73.7

RATED VOLTAGE: ☐ 120/208 ■ 480 3 PHASE, 3 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■150 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ☐ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: CHEMICAL BLDG
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS	
☐ MAIN LUGS ONLY	MAIN 150 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ____35,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "PP-11"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			SPD	3	20	1 2	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-1	2.1		
						3 4					2.1	
						5 6						2.1
				3	20	7 8	20	3	SPARE			
						9 10						
						11 12						
2.1			PERMEATE TURB. SAMPLE PM 20-P-311-2	3	20	13 14	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-3	2.1		
	2.1					15 16					2.1	
		2.1				17 18						2.1
2.1			PERMEATE TURB.SAMPLE PM 20-P-311-1-A	3	20	19 20	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-4	2.1		
	2.1					21 22					2.1	
		2.1				23 24						2.1
				3	20	25 26	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-5	2.1		
						27 28					2.1	
						29 30						2.1
			SPARE	3	20	31 32	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-6	2.1		
						33 34					2.1	
						35 36						2.1
			SPARE	3	20	37 38	30	3	SPARE			
						39 40						
						41 42						

TOTAL AMPS: BUS A 14.7 BUS B 14.7 BUS C 14.7 CONNECTED Kva 15.7 RUNNING Kva 12.2

RATED VOLTAGE: ☐ 120/208 ■ 480 3 PHASE, 3 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ☐ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: UF BUILDING - FILTER AREA
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS	
☐ MAIN LUGS ONLY	MAIN 100 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ____18,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

* BYPASS SAMPLE PUMP 20-P-390 WILL ONLY OPERATE CONTINUOUSLY WHEN UF TRAINS ARE OFF-LINE.

NEW PANELBOARD SCHEDULE "PP-12"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			SPD	3	20	1 2	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-7	2.1		
						3 4					2.1	
						5 6						2.1
				3	20	7 8	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-8	2.1		
						9 10					2.1	
						11 12						2.1
2.1			PERMEATE TURB. SAMPLE PM 20-P-311-12	3	20	13 14	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-9	2.1		
	2.1					15 16					2.1	
		2.1				17 18						2.1
			SPARE	3	20	19 20	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-10	2.1		
						21 22					2.1	
						23 24						2.1
			SPARE	3	20	25 26	20	3	PERMEATE TURB. SAMPLE PM 20-P-311-11	2.1		
						27 28					2.1	
						29 30						2.1
			SPARE	3	30	31 32	20	3	SAMPLE PUMP 20-P-101-B	2.1		
						33 34					2.1	
						35 36						2.1
			SPARE	3	20	37 38	30	3	SPD			
						39 40						
						41 42						

TOTAL AMPS: BUS A 14.7 BUS B 14.7 BUS C 14.7 CONNECTED Kva 14.0 RUNNING Kva 12.2

RATED VOLTAGE: ☐ 120/208 ■ 480 3 PHASE, 3 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ☐ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: UF BUILDING - FILTER AREA
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS	
☐ MAIN LUGS ONLY	MAIN 100 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ____18,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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SCHEDULES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00E19

NEW PANELBOARD SCHEDULE "LP-9"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
6.3			ELECTRICAL ROOM LIGHTS	1	20	1 – 2	20	1	ELECTRICAL ROOM RECEPT.	6.0		
	4.2		CAUSTIC SODA ROOM LIGHTS	1	20	3 – 4	20	1	EAST CHEMICAL ROOM RECEPT.		9.0	
		6.2	CHEMICAL BLDG EXTERIOR LIGHTS	1	20	5 – 6	20	1	EXTERIOR RECEPT.			10.5
0.5			LIGHTING CONTACTOR C09	1	20	7 – 8	20	1	DESICCANT AIR DRIER NO.1	6.0		
	0.8		HEAT TRACE CITRIC ACID	1	20	9 – 10	20	1	DESICCANT AIR DRIER NO.2		6.0	
		5.1	HEAT TRACE SODIUM BISULFITE	1	20	11 – 12	20	1	COMPRESSOR ROOM RECEPT.			6.0
4.0			COMPRESSOR ROOM LIGHTS	1	20	13 – 14	20	1	WEST CHEMICAL ROOM RECEPT.	10.5		
	4.2		HYDROCHLORIC ACID ROOM LIGHTS	1	20	15 – 16	20	1	FACP-2		5.0	
		12.2	CHEMICAL ROOM LIGHTS	1	20	17 – 18	20	1	VESDA			2.0
8.1			CHEMICAL ROOM LIGHTS	1	20	19 – 20	20	1	NEUTRALIZATION SAMPLE PUMP NO.1&2	3.7		
	5.2		CHEMICAL ROOM LIGHTS	1	20	21 – 22	20	1	NEUTRALIZATION TANK RECEPT.		7.5	
			SPARE	2	20	23 – 24	20	1	NEUTRALIZATION TANK EYEWASH NO.1&2 & TANK LIGHTS			3.4
						25 – 26	20	1	20-AIT -391 & 392			
				2	20	27 – 28	20	1	SITE LIGHT POLES		3.0	
						29 – 30	20	1	RECEPTACLE ON SITE LIGHT POLES			4.5
20.5			PANEL ULP-9 VIA UPS	3	70	31 – 32	20	1	SPACE			
	17.2					33 – 34	20	1	SPACE			
		11.7				35 – 36	20	1	SPACE			
			SPD	3	60	37 – 38	30	3	DAVIT CRANE NO.1	16.0		
						39 – 40			DAVIT CRANE NO.2		16.0	
						41 – 42			DAVIT CRANE NO.3			16.0

TOTAL AMPS: BUS A 81.6 BUS B 78.1 BUS C 77.6 CONNECTED Kva 28.5

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ☐100 ■ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: CHEMICAL BLDG ELEC RM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X ☐ _____	
☐ MAIN LUGS ONLY	MAIN 150 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ___10,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "LP-10"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			SPARE	1	20	1 – 2	20	1	SPARE			
			SPARE	1	20	3 – 4	20	1	SPARE			
5.1			HEAT TRACE NEUTRALIZATION TANK	1	20	5 – 6	20	1	SPARE			
			SPARE	1	20	7 – 8	20	1	SPARE			
			SPARE	1	20	9 – 10	20	1	SPARE			
			SPARE	1	20	11 – 12	20	1	SPARE			
			EYE WASH	1	20	13 – 14	20	1	SPARE			
			SPARE	1	20	15 – 16	20	1	SPARE			
		0.6	DAMPERS L-5,6,7,8,9,10	1	20	17 – 18	20	1	SPARE			
			RECEPT	1	20	19 – 20	20	1	SPARE			
			SPARE	1	20	21 – 22	20	1	SPARE			
			SPARE	2	30	23 – 24	20	1	SPARE			
			SPARE			25 – 26	20	1	SPARE			
			SPARE	2	30	27 – 28	20	1	SPARE			
			SPARE			29 – 30	20	1	SPARE			
			SPARE	1	20	31 – 32	20	1	SPARE			
			SPARE	1	20	33 – 34	20	1	SPARE			
			SPARE	1	20	35 – 36	20	1	SPACE			
			SPD	1	20	37 – 38	30	3				
				1	20	39 – 40						
				1	20	41 – 42						

TOTAL AMPS: BUS A ## BUS B ## BUS C ## CONNECTED Kva 7.2

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: CHEMICAL BLDG
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4XSS ☐ _____	
☐ MAIN LUGS ONLY	MAIN 60 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ___10,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "LP-21"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			SPARE	1	20	1 – 2	20	1	GALLERY CENTER RECEPT	9.0		
	1.5		1ST LVL EXTERIOR LIGHTING	1	20	3 – 4	20	1	RECEPT IN SWITCHGEAR AREA		12.0	
		0.5	LIGHTING CONTACTOR C10	1	20	5 – 6	20	1	GALLERY EAST RECEPT			4.5
			SPARE	1	20	7 – 8	20	1	TEMP FEED TO PILOT PLANT	5.0		
	10.4		B-MCC-3 & PIPE GALLERY CENTER LGTS	1	20	9 – 10	20	1	GALLERY WEST RECEPT		4.5	
		2.4	BLOWER RM LIGHTS	1	20	11 – 12	20	1	OFFICE RECEPT			10.5
9.6			OFFICE A/C	3	45	13 – 14	20	1	OFFICE RECEPT	12.0		
	9.6					15 – 16	20	1	NORTH EXTERIOR RECEPT		1.5	
		9.6				17 – 18	100	3	PANEL LP21A			42.5
12.0			PIPE GALLERY WEST/EAST LGTS	1	25	19 – 20				47.0		
	13.1		TRANSFER PUMP LIGHTS	1	30	21 – 22					50.5	
		9.8	BASIN "A" METER VAULT SUMP PUMP	1	30	23 – 24	20	1	SUMP PUMP SLUDGE PITS 1 & 2			3.0
1.5			BASIN "A" METER VAULT RECEPT	1	20	25 – 26	20	1	SPARE			
	9.4		OFFICE LIGHTS	1	20	27 – 28	20	1	PIPE GALLERY EXH FAN		6.9	
		10.7	OFFICE LIGHTS	1	20	29 – 30	20	1	SUMP PUMP "A" RAW WATER PIT			9.5
9.4			PUMP RM EXHAUST FAN	1	20	31 – 32	20	1	SPARE			
	9.4		SECOND FLOOR HALLWAY EXHAUST FAN	1	20	33 – 34	20	1	SUMP PUMP		9.5	
			SPARE	1	20	35 – 36	20	1	SPARE			
10.0			PANEL L-22 IN WOODSHOP	3	80	37 – 38	30	3	SPD			
	10.0					39 – 40						
		10.0				41 – 42						

TOTAL AMPS: BUS A 115.5 BUS B 148.3 BUS C 113.0 CONNECTED Kva 53.4

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ☐100 ■ 250 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: WITHIN B-MCC-3
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X ☐ _____	
☐ MAIN LUGS ONLY	MAIN 250 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 22,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "LP-21A"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			SPARE	1	20	1 – 2	20	1	SPARE			
			SPARE	2	20	3 – 4	20	2	SOUTH AIR HANDLER		9.6	
			SPARE			5 – 6						9.6
			SPARE	1	20	7 – 8	20	1	HEAT TRACE POST MIX	6.3		
			SPARE	2	20	9 – 10	20	1	HEAT TRACE POST MIX		7.8	
						11 – 12	20	1	SAMPLE PUMP NORTHWEST CORNER			9.8
8.9			TRAIN 1-12 2ND LVL LIGHTING	1	20	13 – 14	20	1	TRAIN 1-6 2ND LVL RECEPTACLES	7.5		
	8.9		TRAIN 1-12 2ND LVL LIGHTING	1	20	15 – 16	20	1	TRAIN 7-12 2ND LVL RECEPTACLES		7.5	
		2.4	2ND LVL HALLWAY LIGHTING	1	20	17 – 18	20	1	2ND LVL HALLWAY RECEPTACLES			6.0
9.6			2ND LVL EXTERIOR LIGHTING	1	20	19 – 20	20	1	ROOF RECEPTACLES	9.0		
①	5.0		FACP-1	1	20	21 – 22	20	1	SPARE			
①		5.0	FCPS NO.1	1	20	23 – 24	20	1	SPARE			
① 2.0			VESDA	1	20	25 – 26	20	1	OFFICE OUTLETS			
			OFFICE OUTLETS	1	20	27 – 28	20	1	WORK STATION #1			
			OFFICE OUTLETS	1	20	29 – 30	20	1	SPARE			
			OFFICE OUTLETS	1	20	31 – 32	20	1	SPARE			
			SPARE	1	20	33 – 34	20	1	SPARE			
			SPARE	1	20	35 – 36	20	1	SPARE			
			SPARE	1	20	37 – 38	30	3	SPD			
			SPARE	1	20	39 – 40						
			SPARE	1	20	41 – 42						
			SPD									

TOTAL AMPS: BUS A 37.0 BUS B 31 BUS C 32.8 CONNECTED Kva 18.2

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: UF BUILDING - NEAR B MCC-3
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS ☐ _____	
☐ MAIN LUGS ONLY	MAIN 100 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ___10,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

KEYED NOTES:

① 1ST LVL EXTERIOR LIGHTING

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
SCHEDULES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00E20

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E05.dwg
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COLOR TABLE:CAROLLO_FULL.CTB
PLOT SCALE:1:1
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NEW PANELBOARD SCHEDULE "ULP-9"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
5.0			MASTER FILTER PLC-8 PANEL	1	20	1 – 2	20	1	23-LIT-801	0.1		
	5.0		MASTER FILTER PLC-9 PANEL	1	20	3 – 4	20	1	23-LCP- 801		0.5	
		0.1	20-LIT-601-1	1	20	5 – 6	20	1	23-LIT-301			0.1
0.1			20-LIT-601-2	1	20	7 – 8	20	1	23-LCP- 301	0.5		
			SPARE	1	20	9 – 10	20	1	23-LIT-601		0.1	
			SPARE	1	20	11 – 12	20	1	23-LCP- 601			0.5
0.1			20-LIT- 702-1	1	20	13 – 14	20	1	23-LIT-701	0.1		
	0.1		20-LIT- 702-2	1	20	15 – 16	20	1	23-LCP- 701		0.5	
			SPARE	1	20	17 – 18	20	1	23-LIT-201			0.1
			SPARE	1	20	19 – 20	20	1	SAMPLE PUMP OUTLET	2.0		
			SPARE	1	20	21 – 22	20	1	SAMPLE PUMP OUTLET		2.0	
			SPARE	1	20	23 – 24	20	1	20-AIT-703-2, 20-AIT-704-2, 20-AIT-705-2			0.3
			SPARE	1	20	25 – 26	20	1	SPARE			
			SPARE	1	20	27 – 28	20	1	SPARE			
			SPARE	1	20	29 – 30	20	1	SPARE			
			SPARE	1	20	31 – 32	30	3	PANEL ULP-10A	6.0		
			SPARE	1	20	33 – 34					5.1	
		0.2	18-LIT-111A AND 18-LIT-111B	1	20	35 – 36						5.0
7.9			PANEL ULP-9A	3	30	37 – 38	30	3	SPARE			
	5.0					39 – 40						
		5.0				41 – 42						
			SPD	1	20	43 – 44	30	3	SPD			
			SPD	1	20	45 – 46			SPD			
			SPD	1	20	47 – 48			SPD			
			SPD	3	30	49 – 50	30	3	SPD			
			SPD			51 – 52			SPD			
			SPD			53 – 54			SPD			

TOTAL AMPS: BUS A 21.8 BUS B 18.3 BUS C 11.3 CONNECTED Kva 6.2

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: CHEMICAL BLDG ELEC RM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X ☐ _____	
☐ MAIN LUGS ONLY	MAIN 70 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ___10,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "ULP-10A"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
2.0			RIO-8.7 PANEL	1	20	1 – 2	20	1	SPARE			
	2.0		RIO-8.8 PANEL	1	20	3 – 4	20	1	SPARE			
		2.0	RIO-8.9 PANEL	1	20	5 – 6	20	1	SPARE			
2.0			RIO-8.10 PANEL	1	20	7 – 8	20	1	SPARE			
	2.0		RIO-8.11 PANEL	1	20	9 – 10	20	1	SPARE			
		2.0	RIO-8.12 PANEL	1	20	11 – 12	20	1	SPARE			
1.0			HMI PANEL NO.2	1	20	13 – 14	20	1	SPARE			
	0.2		20-AIT-101-B & 20-AIT-102-B	1	20	15 – 16	20	1	SPARE			
			SPARE	1	20	17 – 18	20	1	SPARE			
0.1			20-LIT-101-B	1	20	19 – 20	20	1	SPARE			
			SPARE	1	20	21 – 22	20	1	SPARE			
			SPARE	1	20	23 – 24	20	1	SPARE			
			SPARE	1	20	25 – 26	20	1	SPARE			
			SPARE	1	20	27 – 28	20	1	SPARE			
			SPARE	1	20	29 – 30	20	1	SPARE			
			SPARE	1	20	31 – 32	20	1	SPARE			
			SPARE	1	20	33 – 34	20	1	SPARE			
			SPARE	1	20	35 – 36	20	1	SPARE			
			SPARE	1	20	37 – 38	30	3	SPARE			
			SPARE	1	20	39 – 40						
			SPARE	1	20	41 – 42						
			SPD	1	20	43 – 44	20	1	SPD			
				1	20	45 – 46	20	1				
				1	20	47 – 48	20	1				
				1	20	49 – 50	20	1				
				1	20	51 – 52	20	1				
				1	20	53 – 54	20	1				

TOTAL AMPS: BUS A 5.1 BUS B 4.2 BUS C 4.0 CONNECTED Kva 1.6

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: UF BUILDING B - FILTER AREA
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS ☐ _____	
☐ MAIN LUGS ONLY	MAIN 30 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ___10,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

NEW PANELBOARD SCHEDULE "ULP-9A"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
2.0			RIO-8.1 PANEL	1	20	1 – 2	20	1	OPS TV	0.1		
	2.0		RIO-8.2 PANEL	1	20	3 – 4	20	1	SPARE			
		2.0	RIO-8.3 PANEL	1	20	5 – 6	20	1				
2.0			RIO-8.4 PANEL	1	20	7 – 8	20	1				
	2.0		RIO-8.5 PANEL	1	20	9 – 10	20	1				
		2.0	RIO-8.6 PANEL	1	20	11 – 12	20	1				
1.0			HMI PANEL NO.1	1	20	13 – 14	20	1				
	0.2		20-AIT-101-A & 20-AIT-102-A	1	20	15 – 16	20	1				
			SPARE	1	20	17 – 18	20	1				
			SPARE	1	20	19 – 20	20	1				
			SPARE	1	20	21 – 22	20	1				
			SPARE	1	20	23 – 24	20	1				
			SPARE	1	20	25 – 26	20	1	RIO-9.1	2.0		
			SPARE	1	20	27 – 28	20	1	SPARE			
			SPARE	1	20	29 – 30	20	1	SPARE			
			SPARE	1	20	31 – 32	20	1	SPARE			
			SPARE	1	20	33 – 34	20	1	SPARE			
			SPARE	1	20	35 – 36	20	1	SPARE			
				1	20	37 – 38	30	3	SPARE			
				1	20	39 – 40						
				1	20	41 – 42						
			SPD	1	20	43 – 44	20	1	SPD			
				1	20	45 – 46	20	1				
				1	20	47 – 48	20	1				
				1	20	49 – 50	30	3				
				1	20	51 – 52						
				1	20	53 – 54						
				1	20	43 – 44	20	1				
				1	20	45 – 46	20	1				
				1	20	47 – 48	20	1				
				1	20	49 – 50	20	1				
				1	20	51 – 52	20	1				
				1	20	53 – 54	20	1				

TOTAL AMPS: BUS A 5.1 BUS B 4.2 BUS C 4.0 CONNECTED Kva 1.6

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ■100 ☐ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ■ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: UF BUILDING B - FILTER AREA
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	■ SPD	ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS ☐ _____	
☐ MAIN LUGS ONLY	MAIN 30 AMPS ■ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ___10,000 AMPS SYMMETRICAL.			
APPROVED MF'RS. SEE SPECIFICATION.	COPPER BUSSES		

EXISTING PANELBOARD SCHEDULE "LP2"

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			DRILL PRESS	1	20	1 – 2	20	1	EAST OFFICE LGTS & RESTROOM			
			WATERHEATER ELECTRONIC SHOP	2	30	3 – 4	20	1	SPARE			
						5 – 6	20	1	ICE MACHINE			
			220V RECEPT	2	30	7 – 8	20	1	ELEC SHOP RECEPT			
						9 – 10	20	2	WATER HEATER			
			SPARE	1	20	11 – 12						
			WELDING ROOM LIGHTS	1	20	13 – 14	20	1	SPARE			
			WELDING SHOP RECEPT	1	20	15 – 16	50	2	220V RECEPT WELDER			
			SPACE			17 – 18						
			N.W. CORNER ELECTRONIC SHOP	1	20	19 – 20	20	1	OUTSIDE LIGHTS			
			LATHE	3	30	21 – 22	20	1	LIGHTING			
						23 – 24	20	2	RECEPT RADIAL SAW			
						25 – 26						
			OUTSIDE LIGHTS	1	20	27 – 28	20	1	RECEPT ELECTRONIC BENCH			
			SPACE			29 – 30	45	2	RANGE			
			EXIT LIGHTS	1	20	31 – 32						
			LIGHTS S.W. CORNER	1	20	33 – 34	20	2	20-FV-798	2.2		
			SPACE			35 – 36					2.2	
			RECEPT IN WELD SHOP	1	20	37 – 38	20	1	SPARE			
			SPARE	1	20	39 – 40	20	1	RECEPT IN INST AREA			
			SPACE			41 – 42	20	1	SPARE			

TOTAL AMPS: BUS A 65.0 BUS B 41.7 BUS C 53.7 CONNECTED Kva 23.4

RATED VOLTAGE: ■ 120/208 ☐ 277/480 3 PHASE, 3 WIRE	BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42		
RATED AMPS: ☐100 ■ 225 ☐ 400 ☐ _____	CABINET: ■ SURFACE ☐ FLUSH		
NEUTRAL BUS ☐ 100% ☐ 150% ☐ 200%	■ GROUND BUS	■ HINGED DOOR	■ KEYED DOOR LATCH	LOCATION: INSIDE MAINTENANCE BUILDING
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	☐ SPD	ENCLOSURE TYPE ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X SS	
■ MAIN LUGS ONLY	MAIN ___ AMPS ☐ BREAKER	☐ _____ TO BE GFI BREAKERS	
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL.			
EXISTING MANUFACTURER: SQUARE D HCP I-LINE	COPPER BUSSES		

PROVIDE AND INSTALL NEW BREAKERS. MATCH AIC RATING AND STYLE WITH EXISTING.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 9520I.10
DRAWING NO. 00E21

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E05.dwg

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PLOT SCALE:1:1
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EXISTING PANELBOARD SCHEDULE "MAINTENANCE PANEL"

BUS AMPS A	B	C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	B	C
			SPARE	3	100	1 – 2	50	3	MILLING MACHINE			
						3 – 4						
						5 – 6						
			WATER TOWER	3	100	7 – 8	100	3	TEMP OFFICE TRAILER	45.0		
						9 – 10					45.0	
						11 – 12						45.0
			BUILDING	3	100	13 – 14	200	3	BUILDING			
						15 – 16						
						17 – 18						
			SPACE			19 – 20			SPACE			
			SPACE			21 – 22			SPACE			
			SPACE			23 – 24			SPACE			
			SPACE			25 – 26			SPACE			
			SPACE			27 – 28			SPACE			
			SPACE			29 – 30			SPACE			
			SPACE			31 – 32			SPACE			
			SPACE			33 – 34			SPACE			
			SPACE			35 – 36			SPACE			
			SPACE			37 – 38			SPACE			
			SPACE			39 – 40			SPACE			
			SPACE			41 – 42			SPACE			

TOTAL AMPS: BUS A 80.0 BUS B 80.0 BUS C 80.0 CONNECTED Kva 28.8

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 3 WIRE | BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42

RATED AMPS: ☐100 ☐ 225 ■ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH

NEUTRAL BUS ■ 100% ☐ 150% ☐ 200% | ■ GROUND BUS | ■ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: EXTERIOR MAINTENANCE BLDG

■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ☐ SPD | ENCLOSURE TYPE ☐ NEMA 1 ■ NEMA 3R ☐ NEMA 4X SS

☐ MAIN LUGS ONLY | MAIN 100 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS

PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL.

EXISTING MANUFACTURER: SQUARE D I-LINE | COPPER BUSSES

PROVIDE AND INSTALL NEW BREAKERS. MATCH AIC RATING AND STYLE WITH EXISTING.

EXISTING PANELBOARD SCHEDULE "DP"

BUS AMPS A	B	C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	B	C
			PANEL LP1	2	100	1 – 2	100	2	SPARE			
						3 – 4						
			PANEL LP2	2	100	5 – 6	100	2	SPARE			
						7 – 8						
			PANEL LP3	2	225	9 – 10	225	2	PANEL LP-4			
						11 – 12						
			SPACE			13 – 14	20	1	LIGHTING CONTACTOR C-11	0.5		
			SPACE			15 – 16	20	1	ROADWAY LIGHTING		1.5	
			SPACE			17 – 18	20	1	ROADWAY LIGHTING			1.5
			SPACE			19 – 20	20	1	ROADWAY LIGHTING	1.5		
			SPACE			21 – 22			SPACE			
			SPACE			23 – 24			SPACE			
			SPACE			25 – 26			SPACE			
			SPACE			27 – 28			SPACE			
			SPACE			29 – 30			SPACE			
			SPACE			31 – 32			SPACE			
			SPACE			33 – 34			SPACE			
			SPACE			35 – 36			SPACE			
			SPACE			37 – 38			SPACE			
			SPACE			39 – 40			SPACE			
			SPACE			41 – 42			SPACE			

NOTE: EXISTING LOAD MEASURED AT DP PANEL IS LESS THAN 150A.

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE | BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 42

RATED AMPS: ☐100 ☐ 225 ■ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH

NEUTRAL BUS ■ 100% ☐ 150% ☐ 200% | ■ GROUND BUS | ■ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: EXTERIOR MAINTENANCE WAREHOUSE

■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ☐ SPD | ENCLOSURE TYPE ☐ NEMA 1 ■ NEMA 3R ☐ NEMA 4X SS

☐ MAIN LUGS ONLY | MAIN 400 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS

PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 18,000 AMPS SYMMETRICAL.

EXISTING MANUFACTURER: SQUARE D I-LINE | COPPER BUSSES

PROVIDE AND INSTALL NEW BREAKERS. MATCH AIC RATING AND STYLE WITH EXISTING.

RELOCATED PANELBOARD SCHEDULE "MDP"

BUS AMPS A	B	C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	B	C
			SPACE			1 – 2	20	3	EXHAUST FAN FB-1	4.8		
			SPARE	3	60	3 – 4					4.8	
						5 – 6						4.8
			SPARE	3	80	7 – 8	100	3	DHF-1 DUCT HEATER	62.8		
						9 – 10					62.8	
						11 – 12						62.8
			SPARE	3	60	13 – 14	80	3	DHF-1 RTU	50.5		
						15 – 16					50.5	
						17 – 18						50.5
			SPARE	3	20	19 – 20	30	3	DHF-1 REMOTE CONDENSER	15.0		
						21 – 22					15.0	
						23 – 24						15.0
1.6			EXHAUST FAN F-1 ON ROOF	3	20	25 – 26	100	3	DHF-2 DUCT HEATER	62.8		
	1.6					27 – 28					62.8	
		1.6				29 – 30						62.8
1.6			EXHAUST FAN F-2 ON ROOF	3	20	31 – 32	80	3	DHF-2 RTU	50.5		
	1.6					33 – 34					50.5	
		1.6				35 – 36						50.5
18.7			EHB-1 HEATER UNIT	3	30	37 – 38	30	3	DHF-2 REMOTE CONDENSER	15.0		
	18.7					39 – 40					15.0	
		18.7				41 – 42						15.0
			SPD	3	30	43 – 44	20	3	BRIDGE CRANE TRAINS 1-6	14.0		
						45 – 46					14.0	
						47 – 48						14.0
			SPARE	3	30	49 – 50	20	3	BRIDGE CRANE TRAINS 7-12	14.0		
						51 – 52					14.0	
						53 – 54						14.0
			MAIN BREAKER	3	400	55 – 56	20	3	OVERHEAD DOOR 208C	3.4		
						57 – 58					3.4	
						59 – 60						3.4
						61 – 62	20	3	OVERHEAD DOOR 209C	3.4		
						63 – 64					3.4	
						65 – 66						3.4

TOTAL AMPS: BUS A 273.1 BUS B 273.1 BUS C 273.1 CONNECTED Kva 226.8 RUNNING Kva 212.3

RATED VOLTAGE: ☐ 120/208 ■ 480 3 PHASE, 3 WIRE | BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ■ 66

RATED AMPS: ☐100 ☐ 225 ■ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH

NEUTRAL BUS ☐ 100% ☐ 150% ☐ 200% | ■ GROUND BUS | ■ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: UF BUILDING - FILTER AREA

■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ■ SPD | ENCLOSURE TYPE ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X SS

☐ MAIN LUGS ONLY | MAIN 400 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS

PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 65,000 AMPS SYMMETRICAL.

EXISTING MANUFACTURER: SQUARE D HCP I-LINE | COPPER BUSSES

PROVIDE AND INSTALL NEW BREAKERS. MATCH AIC RATING AND STYLE WITH EXISTING.

MANHOLE/PULLBOX SCHEDULE

TAG NO.	DESCRIPTION	INTERNAL DIMENSIONS W x L x H	REMARKS	DETAIL
EMH–1	POWER	48" x 48" x 48"	PROVIDE TRAFFIC RATED COVER	17
EMH–2	POWER	48" x 48" x 48"	PROVIDE TRAFFIC RATED COVER	17
SMH–3	NOT USED	–	–	–
SMH–4	SIGNAL	36" x 36" x 36"	PROVIDE TRAFFIC RATED COVER	17
EMH–5	POWER	48" x 48" x 48"	PROVIDE TRAFFIC RATED COVER	17
EMH–6	POWER	48" x 48" x 48"	PROVIDE TRAFFIC RATED COVER	17
SMH–7	SIGNAL	36" x 36" x 36"	PROVIDE TRAFFIC RATED COVER	17
EPB–8	POWER/CONTROL	17" x 30" x 18"	PROVIDE TRAFFIC RATED COVER	25
SPB–9	SIGNAL	17" x 30" x 18"	PROVIDE TRAFFIC RATED COVER	25
EPB–10	POWER/CONTROL	17" x 30" x 18"	PROVIDE TRAFFIC RATED COVER	25
SPB–11	SIGNAL	17" x 30" x 18"	PROVIDE TRAFFIC RATED COVER	25

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
SCHEDULES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 9520I.10
DRAWING NO. 00E22

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E05.dwg

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YARD CONDUIT SCHEDULE

NO.	FROM	TO	REMARKS
YC01	EXISTING USS-7 SPARE BREAKER	NEW MCC-9 (CHEMICAL BLDG - ELEC. RM)	POWER, SEE DWG 00E04
YC02	EXISTING USS-8 SPARE BREAKER	NEW MCC-10 (CHEMICAL BLDG - ELEC. RM)	POWER, SEE DWG 00E04
YC03	NEW MCC-9 (CHEMICAL BLDG - ELEC. RM)	NEUTRALIZATION TANK NO.1 MIXER	POWER, SEE DWG 00E05
YC04	NEW MCC-10 (CHEMICAL BLDG - ELEC. RM)	NEUTRALIZATION TANK NO.2 MIXER	POWER, SEE DWG 00E06
YC05	NEW MCC-9 (CHEMICAL BLDG - ELEC. RM)	NEUTRALIZATION TRANSFER PUMP NO.1	POWER, SEE DWG 00E05
YC06	NEW MCC-10 (CHEMICAL BLDG - ELEC. RM)	NEUTRALIZATION TRANSFER PUMP NO.2	POWER, SEE DWG 00E06
YC07	NEW MCC-10 (CHEMICAL BLDG - ELEC. RM)	NEUTRALIZATION TRANSFER PUMP NO.3	POWER, SEE DWG 00E06
YC08	NEW MCC-10 (CHEMICAL BLDG - ELEC. RM)	NEW EMH-6 MANHOLE VIA EMH-2	1-2"C, 1-1"C W/ PULL STRING
YC09	NOT USED.		
YC10	NOT USED.		
YC11	NEW PP-9 PANEL (CHEMICAL BLDG - ELEC. RM)	NEUTRALIZATION SAMPLE PUMPS	POWER, SEE DWG 00E17
YC12	NEW LP-9 PANEL (CHEMICAL BLDG - ELEC. RM)	LIGHTING AT NEUTRALIZATION STRUCTURE	POWER, SEE DWG 02E16
YC13	NEW LP-9 PANEL (CHEMICAL BLDG - ELEC. RM)	RECEPTACLES AT NEUTRALIZATION STRUCTURE	POWER, SEE DWG 02E16
YC14	NEW LP-9 PANEL (CHEMICAL BLDG - ELEC. RM)	EYEWASH AND SHOWERS AT NEUTRALIZATION	POWER, SEE DWG 00E17
YC15	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	CONTROL TJB AT NEUTRALIZATION STRUCTURE	CONTROL, SEE DWG 00E14
YC16	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	CONTROL TJB AT NEUTRALIZATION STRUCTURE	SPARE, SEE DWG 00E14
YC17	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	SIGNAL TJB AT NEUTRALIZATION STRUCTURE	SIGNAL, SEE DWG 00E14
YC18	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	SIGNAL TJB AT NEUTRALIZATION STRUCTURE	SIGNAL, SPARE W/ PULL STRING
YC19	NOT USED.		
YC20	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	EYEWASH AND SHOWERS AT NEUTRALIZATION	CONTROL, SEE DWG 00E15
YC21	NEW LP-9 PANEL (CHEMICAL BLDG - ELEC. RM)	SITE LIGHT POLES	POWER, SEE DWG 00E32
YC22	NEW LP-9 PANEL (CHEMICAL BLDG - ELEC. RM)	RECEPTACLE ON SITE LIGHT POLES	POWER, SEE DWG 00E32
YC23	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	20-FV-798 & 20-LSHH-799 @ EQ TANK	CONTROL, SEE DWG 00E15
YC24	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	20-LIT/LE-790 @ EQ TANK	SIGNAL, SEE DWG 00E14
YC25	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	20-LSHH-791 @ EQ TANK	CONTROL, SEE DWG 00E14
YC26	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	20-LIT-702-1 & 20-LIT-702-2 AT NEUTRA.	POWER, SEE DWG 00E18
YC27	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	20-FIT-790 AT NEUTRALIZATION STRUCTURE	POWER, SEE DWG 00E18
YC28	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	20-AIT-703-1, 20-704-1, ETC. AT NEUTRA.	POWER, SEE DWG 00E18
YC29	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	20-AIT-703-2, 20-704-2, ETC. AT NEUTRA.	POWER, SEE DWG 00E18
YC30	NEW EMH-6 MANHOLE	STUB-UP AND CAP SE CORNER (NEUT. PAD)	2-2"C W/ PULL STRING
YC31	EXISTING PANEL LP2 (MAINTENANCE BUILDING)	MOTORIZED VALVE (20-FV-798) @ EQ TANK	POWER, SEE DWG 00E18
YC32	EXISTING PANEL LP2 (MAINTENANCE BUILDING)	20-LIT/LE-790 @ EQ TANK	SPARE, SEE DWG 00E18
YC33	EXISTING MAINTENANCE PANEL (MAINT BLDG)	NEW OFFICE TRAILER NEAR MAINTENANCE BLDG	POWER, SEE DWG 00E18
YC34	EXISTING MAINTENANCE BLDG - NETWORK SWITCH	NEW OFFICE TRAILER NEAR MAINTENANCE BLDG	FIBER OPTIC, SEE DWG 00E13
YC35	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	LIT'S AT POST MIX BASIN A	POWER, SEE DWG 00E18
YC36	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	LIT'S AT POST MIX BASIN A	SIGNAL, SEE DWG 00E15
YC37	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	FINE SCREEN LCP'S AT POST MIX BASIN A	CONTROL, SEE DWG 00E15
YC38	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	FINE SCREEN LCP-A1 AT POST MIX BASIN A	SPARE, SEE DWG 00E15
YC39	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	LSHH'S AT POST MIX BASIN A	CONTROL, SEE DWG 00E15
YC40	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	NEW ULP-9A PANEL (UF BLDG)	POWER, SEE DWG 00E18
YC41	NEW ULP-9 PANEL(CHEMICAL BLDG - ELEC. RM)	NEW ULP-10A PANEL (UF BLDG)	POWER, SEE DWG 00E18
YC42	NOT USED.		
YC43	FIRE ALARM PANEL FACP-1 (UF BLDG)	FIRE ALARM PANEL FACP-2 (CHEMICAL BLDG)	FIBER OPTIC, SEE DWG 00F03
YC44	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	EXISTING PLANT SCADA RACK, CONTROL ROOM	FIBER OPTIC, SEE DWG 00E13
YC45	20-VFD-301-1 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-1 (UF BLDG)	POWER, SEE DWG 00E05
YC46	20-VFD-301-2 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-2 (UF BLDG)	POWER, SEE DWG 00E06
YC47	20-VFD-301-3 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-3 (UF BLDG)	POWER, SEE DWG 00E05
YC48	20-VFD-301-4 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-4 (UF BLDG)	POWER, SEE DWG 00E06
YC49	20-VFD-301-5 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-5 (UF BLDG)	POWER, SEE DWG 00E05
YC50	20-VFD-301-6 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-6 (UF BLDG)	POWER, SEE DWG 00E06
YC51	20-VFD-301-7 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-7 (UF BLDG)	POWER, SEE DWG 00E05
YC52	20-VFD-301-8 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-8 (UF BLDG)	POWER, SEE DWG 00E06
YC53	20-VFD-301-9 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-9 (UF BLDG)	POWER, SEE DWG 00E05
YC54	20-VFD-301-10 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-10 (UF BLDG)	POWER, SEE DWG 00E06
YC55	20-VFD-301-11 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-11 (UF BLDG)	POWER, SEE DWG 00E05
YC56	20-VFD-301-12 (CHEMICAL BLDG - ELEC. RM)	PERMEATE PUMP 20-P-301-12 (UF BLDG)	POWER, SEE DWG 00E06
YC57	STUB-UP (CHEMICAL BLDG - ELEC. RM CORNER)	NEW J-BOX ON WEST WALL OF UF BLDG	2-2"C SPARE W/ PULL STRING
YC58	TJB I-1 @ (UF BLDG)	PERMEATE VFD 1-6 ANALOG JBOX (CHEM)	SIGNAL, SEE DWG 00E16

YARD CONDUIT SCHEDULE

NO.	FROM	TO	REMARKS
YC59	TJB I-1 @ (UF BLDG)	PERMEATE VFD 7-12 ANALOG JBOX (CHEM)	SIGNAL, SEE DWG 00E16
YC60	TJB I-1 @ (UF BLDG)	PERMEATE VFD 7-12 ANALOG JBOX (CHEM)	2-1"C SPARE W/ PULL STRING
YC61	TJB C-1 @ (UF BLDG)	PERMEATE VFD 1-12 DISCRETE JBOX (CHEM)	CONTROL, SEE DWG 00E16
YC62	TJB C-1 @ (UF BLDG)	PERMEATE VFD 1-12 DISCRETE JBOX (CHEM)	CONTROL, SEE DWG 00E16
YC63	TJB C-1 @ (UF BLDG)	PERMEATE VFD 1-12 DISCRETE JBOX (CHEM)	2-1"C SPARE W/ PULL STRING
YC64	NOT USED.		
YC65	NOT USED.		
YC66	NOT USED.		
YC67	NOT USED.		
YC68	NOT USED.		
YC69	20-VFD-201-1 (CHEMICAL BLDG - ELEC. RM)	MEMBRANE BLOWER 20-B-201-1 (UF BLDG)	POWER, SEE DWG 00E05
YC70	20-VFD-201-1 (CHEMICAL BLDG - ELEC. RM)	MEMBRANE BLOWER 20-B-201-1 (UF BLDG)	CONTROL, SEE DWG 00E25
YC71	20-VFD-201-2 (CHEMICAL BLDG - ELEC. RM)	MEMBRANE BLOWER 20-B-201-2 (UF BLDG)	POWER, SEE DWG 00E06
YC72	20-VFD-201-3 (CHEMICAL BLDG - ELEC. RM)	MEMBRANE BLOWER 20-B-201-3 (UF BLDG)	POWER, SEE DWG 00E05
YC73	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	PACKAGED PUMP STATION CP 23-LSCP-1	CONTROL, SEE DWG 00E15
YC74	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	PACKAGED PUMP STATION CP 23-LSCP-1	SPARE, SEE DWG 00E15
YC75	NEW PP-10 PANEL(CHEMICAL BLDG - ELEC. RM)	PACKAGED PUMP STATION CP 23-LSCP-1	POWER, SEE DWG 00E18
YC76	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	HMI PANEL (VIEW STATION) NO.1 (UF BLDG)	FIBER OPTIC, SEE DWG 00E13
YC77	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	TRAIN NO.1 AND NO.12 RIOs (UF BLDG)	FIBER OPTIC, SEE DWG 00E13
YC78	NEW PLC-9 PANEL(CHEMICAL BLDG - ELEC. RM)	REMOTE I/O LCP-9.1 (UF BLDG)	FIBER OPTIC, SEE DWG 00E13
YC79	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	SAMPLE PUMP 20-P-101-A (UF BLDG)	CONTROL, SEE DWG 00E14
YC80	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	SAMPLE PUMP 20-P-101-B (UF BLDG)	CONTROL, SEE DWG 00E14
YC81	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	COMMON PERMEATE 20-P-501 (UF BLDG)	CONTROL, SEE DWG 00E14
YC82	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	20-AIT-101-A, 20-AIT-102-A, & ETC. (UF)	SIGNAL, SEE DWG 00E14
YC83	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	20-AIT-101-B, 20-AIT-102-B, & ETC. (UF)	SIGNAL, SEE DWG 00E14
YC84	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	CONTROL J-BOX INFLUENT CHANNEL-1 (UF)	CONTROL, SEE DWG 00E14
YC85	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	CONTROL J-BOX INFLUENT CHANNEL-2 (UF)	CONTROL, SEE DWG 00E14
YC86	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	20-FIT-201-1, 20-PIT-201-1, & ETC. (UF)	SIGNAL, SEE DWG 00E14
YC87	NEW PLC-8 PANEL(CHEMICAL BLDG - ELEC. RM)	CONTROL J-BOX MEMBRANE BLOWERS (UF)	CONTROL, SEE DWG 00E14
YC88	EXISTING PANEL DP (MAINTENANCE WAREHOUSE)	EXISTING ROADWAY LIGHTING	POWER, SEE DWG 00E18
YC89	NEW EMH-6 MANHOLE	NEW EPB-10 PULL BOX (VIA EPB-8)	2-1"C SPARE W/ PULL STRING
YC90	NEW SMH-7 MANHOLE	NEW SPB-11 PULL BOX (VIA SPB-9)	2-1"C SPARE W/ PULL STRING
YC91	20-FV-798 @ EQ TANK	20-LSHH-799 @ EXISTING LIFT STATION	CONTROL, SEE DWG 00E15
YC92	NOT USED.		

NOTE: SOME SPARE CONDUITS ARE NOT SHOWN ON RISER AND ONE LINE DIAGRAMS BUT CONTRACTOR SHALL PROVIDE SPARE CONDUITS AS PER REMARKS COLUMN.

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LUMINAIRE SCHEDULE (SEE NOTE 1, 2, AND 3 BELOW)

TYPE	VOLTS	DESCRIPTION	MANUFACTURER	CATALOG NO	LAMPS	MOUNTING	REMARKS
1	120	WRAPAROUND LED LIGHT	METALUX	4WSNLED-LD4-64HL-F-UNV-L835-CD-1	73 WATTS 6,000 LUMENS	PENDANT/ STEM	MOUNT 12' AFF.
2	120	VAPORTITE LED LIGHT	METALUX	4VT2-LD4-8-DR-UNV-L835-CD1-WL-SSL	81.1 WATTS 8,000 LUMENS	SURFACE/ WALL MOUNT	SUITABLE FOR DAMP LOCATION. MOUNT 12' AFF.
3	120	VAPORTITE LED LIGHT	METALUX	4VT2-LD4-4-DR-UNV-L835-CD1-WL-SSL	38 WATTS 4,000 LUMENS	PENDANT/ STEM	SUITABLE FOR DAMP LOCATION. MOUNT 12' AFF.
4	120	HIGH BAY LED LIGHT	EATON	FHL-11L-50-UNV	118 WATTS 10,900 LUMENS	PENDANT/ STEM	SUITABLE FOR DAMP LOCATION. MOUNT 17' AFF.
5	120	EMERGENCY LIGHT	ISOLITE	HZN-12-L7W-SD	24 WATTS MR-16	SURFACE/ WALL MOUNT	SUITABLE FOR DAMP LOCATION. MOUNT 8.5' AFF.
6	120	LED EXIT LIGHT	SURE LITES	UX7-SD	3.4 WATTS	SURFACE/ WALL MOUNT	SUITABLE FOR DAMP LOCATION. MOUNT 8.5' AFF OR ABOVE DOOR..
7	120	EXTERIOR WALL MOUNTED LED LIGHT	MCGRAW-EDISON	GWC-AF-01-LED-E1-T4FT-BZ	59 WATTS 6,395 LUMENS	SURFACE/ WALL MOUNT	SUITABLE FOR WET LOCATION. MOUNT 15' AFF.
8	120	EXTERIOR DOOR WALL MOUNTED LED LIGHT	LUMARK	XTOR2B	18 WATTS 1,633 LUMENS	SURFACE/ WALL MOUNT	SUITABLE FOR WET LOCATION. MOUNT 8.5' AFF.
9	120	VAPORTITE LED LIGHT	METALUX	4VT2-LD4-4-DR-UNV-L835-CD1-WL-SSL	38 WATTS 4,000 LUMENS	SURFACE/ CEILING MOUNT	SUITABLE FOR DAMP LOCATION. MOUNT 10' AFF.
10	120	WALL MOUNTED LED LIGHT	LUMARK	WPLLED-125-GL-UNV-7040-BZ	122 WATTS 10,264 LUMENS	SURFACE/ WALL MOUNT	SUITABLE FOR WET LOCATION. MOUNT 20' AFF.
11	120	WALL MOUNTED LED LIGHT	LUMARK	LDWP-GL-6B-ED-7040-BK	46 WATTS 5,883 LUMENS	SURFACE/ WALL MOUNT	SUITABLE FOR WET LOCATION. MOUNT 8.5' AFF.
12	120	D-SERIES, SIZE 1, TYPE 3 MEDIUM LED POLE LIGHT	LITHONIA LIGHTING	DSX1 LED-60C-700-40K-T3M-120-RPA-DS-PIRH	131 WATTS	POLE	LIGHT POLE WITH 25' AFG. SEE LIGHT POLE DETAIL.
13	120	VAPORTITE LED LIGHT	METALUX	4VT2-LD4-4-DR-UNV-L835-CD1-WL-SSL	38 WATTS 4,000 LUMENS	SURFACE/ WALL MOUNT	SUITABLE FOR DAMP LOCATION. MOUNT 12' AFF.
14	120	LED 2X4 RECESSED	FAIL-SAFE	SGI-G-4-LD4-2-STD-35-CA125-FA-ALXPCPH-UNV-EDD-1-WL	74 WATTS 6,310 LUMENS	RECESSED/ GRID CEILING	SUITABLE FOR DAMP LOCATION. MOUNT 10' AFF.
15	120	HIGH BAY LED LIGHT WITH REMOTE CONTROL	METALUX	SSLED-LD5-9-W-UNV-L835-CD-1-BLK-SVPD3; ISHH-01	64 WATTS 9,000 LUMENS	PENDANT/ STEM	MOUNT 15' AFF.
16	120	EXTERIOR WALL MOUNTED LED LIGHT	MCGRAW-EDISON	GWC-AF-01-LED-E1-T4FT-BZ	59 WATTS 6,395 LUMENS	SURFACE/ WALL MOUNT	MOUNT 10' AFF.
17	120	CANOPY LED LIGHT	LUMARK	CLCSLED-86-SM-UNV-10KV	92 WATTS 11,494 LUMENS	SURFACE/ CEILING MOUNT	MOUNT 10' AFF.
18	120	HIGH BAY LED LIGHT WITH REMOTE CONTROL	METALUX	SSLED-LD5-12-W-UNV-L835-CD-1-BLK-SVPD3; ISHH-01	85 WATTS 12,000 LUMENS	PENDANT/ STEM	MOUNT 22' AFF.

LUMINAIRE SCHEDULE NOTES:
1. PROVIDE ONE SPARE LIGHT FIXTURE FOR EACH TYPE INSTALLED.
2. IF CONTRACTOR DESIRES TO SUBSTITUTE AN EQUAL LIGHT FIXTURE, CONTRACTOR SHALL PROVIDE A PHOTOMETRIC CALCULATION PLAN AND COMPARISON BETWEEN THE PROPOSED PHOTOMETRIC PLAN AND SUBSTITUTED PLAN. CONTRACTOR SHALL SUBMIT A GUARANTEE LETTER STATING THE SUBSTITUTE LIGHT WILL PERFORM AS THE DESIGNED LIGHT FIXTURES.
3. SEE REMARKS COLUMN FOR MOUNTING HEIGHT AND OTHER REQUIREMENTS. MOUNTING HEIGHT SHALL BE USED AS A GUIDANCE AND ADJUST AS NEEDED TO AVOID CONFLICTS WITH OTHER CONDITIONS.

CIRCUIT SCHEDULE
CONTROL, INSTRUMENTATION

CKT I.D.	CONDUIT AND CONDUCTOR SIZE
[A1]	[3/4"C, 2#14, 1#14G]
[B1]	[3/4"C, 3#14, 1#14G]
[C1]	[3/4"C, 4#14, 1#14G]
[D1]	[3/4"C, 5#14, 1#14G]
[E1]	[3/4"C, 6#14, 1#14G]
[F1]	[3/4"C, 7#14, 1#14G]
[G1]	[1"C, 9#14, 1#14G]
[H1]	[1"C, 11#14, 1#14G]
[J1]	[1"C, 20#14, 1#14G]
[K1]	[1 1/4"C, 30#14, 1#14G]
[L1]	[1 1/4 "C, 12/C TYPE 1]
[M1]	[1 1/2 "C, 19/C TYPE 1]
[N1]	[2"C, 25/C TYPE 1]
[P1]	[2"C, 37/C TYPE 1]
[Q1]	[3"C, 15-TYPE B, TW SHLD PR]
[R1]	[3/4 "C, 1-TYPE B, TW SHLD PR]
[S1]	[3/4 "C, 2-TYPE B, TW SHLD PR]
[T1]	[1"C, 3- TYPE B TW SHLD PR]
[U1]	[1 1/2 "C, 4-TYPE B, TW SHLD PR]
[V1]	[2"C, 8-TYPE B, TW SHLD PR]
[W1]	[1 1/2"C, 40#14, 1#14G]
[X1]	[1 1/2 "C, 5-TYPE B]
[Y1]	[1"C, 1 RTD CABLE]
[Z1]	[2 1/2"C, 100#14, 1#14]

TW SHLD PR - TWISTED SHEILDED PAIR
JX - TYPE J THERMOCOUPLE, CONFIRM WITH THERMOCOUPLE SUPPLIER
RTD - CONFIRM WITH RTD SENSOR SUPPLIER, BELDEN OR EQUAL

CIRCUIT SCHEDULE
1PH, 2W

CKT I.D.	CONDUIT AND CONDUCTOR SIZE	CKT AMPS
[A2]	[3/4 "C, 2#14, 1#14G]	15
[B2]	[3/4 "C, 2#12, 1#12G]	20
[C2]	[3/4 "C, 2#10, 1#10G]	30
[D2]	[3/4 "C, 2#8, 1#10G]	40
[E2]	[3/4 "C, 2#6, 1#10G]	50
[F2]	[1"C, 2#4, 1#10G]	60
[G2]	[1"C, 2#4, 1#8G]	70
[H2]	[1 1/4 "C, 2#3, 1#8G]	80
[J2]	[1 1/4 "C, 2#2, 1#8G]	90
[K2]	[1 1/4 "C, 2#1, 1#8G]	100
[L2]	[1 1/2 "C, 2#1/0, 1#6G]	150
[M2]	[1 1/2 "C, 2#2/0, 1#6G]	175
[N2]	[2"C, 2#3/0, 1#6G]	200
[P2]	[2"C, 2#4/0, 1#4G]	225
[Q2]	[2 1/2 "C, 2-250KCMIL, 1#4G]	250
[R2]	[2 1/2 "C, 2-350KCMIL, 1#4G]	300
[S2]		
[T2]		
[U2]		
[V2]		
[W2]		
[X2]		
[Y2]		
[Z2]		

CIRCUIT SCHEDULE
3PH, 4W

CKT I.D.	CONDUIT AND CONDUCTOR SIZE	CKT AMPS
[A4]	[3/4 "C, 4#12, 1#12G]	20
[B4]	[3/4 "C, 4#10, 1#10G]	30
[C4]	[1"C, 4#8, 1#10G]	40
[D4]	[1"C, 4#6, 1#10G]	50
[E4]	[1 1/4 "C, 4#4, 1#10G]	60
[F4]	[1 1/2 "C, 4#4, 1#8G]	70
[G4]	[1 1/2 "C, 4#3, 1#8G]	80
[H4]	[1 1/2"C, 4#2, 1#8G]	90
[J4]	[1 1/2"C, 4#2, 1#8G]	100
[K4]	[2"C, 3#1/0, 1#3/0 N, 1#6G]	150
[L4]	[2"C, 4#2/0, 1#6G]	175
[M4]	[2 1/2 "C, 4#3/0, 1#6G]	200
[N4]	[2 1/2 "C, 4#4/0, 1#4G]	225
[P4]	[3"C, 3-250KCMIL, 1#500KCMIL N, 1#4G]	250
[Q4]	[3 1/2"C, 4-350KCMIL, 1#3G]	300
[R4]	2 EA.[2 1/2 "C, 4#3/0, 1#3G]	400
[S4]	2 EA.[3"C, 4-250KCMIL, 1#2G]	500
[T4]	2 EA.[3 1/2"C, 4-350KCMIL, 1#1G]	600
[U4]	2 EA.[4"C, 4-500KCMIL, 1#1/0 G]	700
[V4]	3 EA.[3 1/2"C, 4-350KCMIL, 1#1/0 G]	800
[W4]	3 EA.[4"C, 4-500KCMIL, 1#2/0 G]	1000
[X4]	4 EA.[3 1/2"C, 4-350KCMIL, 1#3/0 G]	1200
[Y4]	5 EA.[4"C, 4-500KCMIL, 1#4/0 G]	1600
[Z4]	6 EA.[4"C, 4-500KCMIL, 1-250KCMIL G]	2000

CIRCUIT SCHEDULE
3PH, 3W OR 1PH, 3W

CKT I.D.	CONDUIT AND CONDUCTOR SIZE	CKT AMPS
[A3]	[3/4 "C, 3#12, 1#12G]	20
[B3]	[3/4 "C, 3#10, 1#10G]	30
[C3]	[1"C, 3#8, 1#8G]	40
[D3]	[1"C, 3#6, 1#6G]	50
[E3]	[1 1/4 "C, 3#4, 1#4G]	60
[F3]	[1 1/4 "C, 3#4, 1#4G]	70
[G3]	[1 1/4 "C, 3#3, 1#3G]	80
[H3]	[1 1/2 "C, 3#2, 1#2G]	90
[J3]	[1 1/2 "C, 3#2, 1#2G]	100
[K3]	[1 1/2 "C, 3# 1/0, 1#1/0 G]	150
[L3]	[2"C, 3#2/0, 1#1/0 G]	175
[M3]	[2"C, 3#3/0, 1#1/0 G]	200
[N3]	[2 1/2 "C, 3#4/0, 1#1/0 G]	225
[P3]	[2 1/2 "C, 3-250KCMIL, 1#1/0 G]	250
[Q3]	[3"C, 3-350KCMIL, 1#2/0 G]	300
[R3]	2 EA.[2 "C, 3-3/0, 1#3G]	400
[S3]	2 EA.[2 1/2 "C, 3-250KCMIL, 1#2G]	500
[T3]	2 EA.[3"C, 3-350KCMIL, 1#1G]	600
[U3]	2 EA.[3 1/2"C, 3-500KCMIL, 1#1/0G]	700
[V3]	3 EA.[3"C, 3-350KCMIL, 1#1/0G]	800
[W3]	3 EA.[3 1/2"C, 3-500KCMIL,1#250KCMILG]	1000
[X3]	4 EA.[3"C, 3-350KCMIL, 1#3/0G]	1200
[Y3]	5 EA.[3 1/2"C, 3-500KCMIL, 1#4/0G]	1600
[Z3]	6 EA.[3 1/2"C,3-500KCMIL,1-250KCMILG]	2000

[A] [1"C, I&C SUPPLIED CABLE, 1#14G]
[B] [2"C, 1#14G, FOR FIBER OPTIC CABLE] COORDINATE MINIMUM BENDING RADIUS WITH MANUFACTURER. FIBER OPTIC CABLE FURNISHED BY I&C CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR AND TESTED BY I&C CONTRACTOR.
[Y] [1"C, CAT 6 CABLE]
[C] [2"C W/ PULL STRING]
[D] [1"C W/ PULL STRING]
[E] [1"C, 1#14G, FOR FIBER OPTIC CABLE] COORDINATE MINIMUM BENDING RADIUS WITH MANUFACTURER. FIBER OPTIC CABLE FURNISHED BY I&C CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR AND TESTED BY I&C CONTRACTOR.
[F] [3/4"C, MSC], MSC = MANUFACTURER SUPPLIED CABLE
[G] [1"C, MSC], MSC = MANUFACTURER SUPPLIED CABLE

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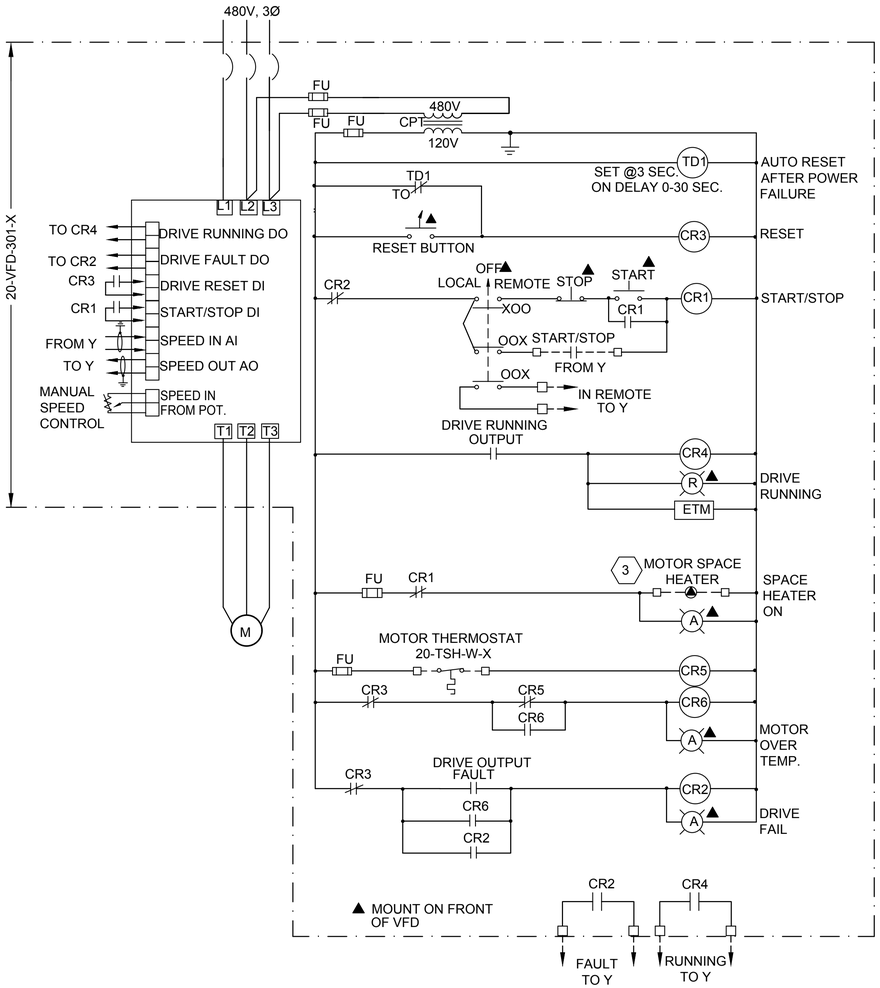


PERMEATE PUMP NO.X 20-P-301-X CONTROL SCHEMATIC

NOT TO SCALE
X = 1 THRU 12
Y = RIO-8.X
W = 301

REFER TO APPROVED SHOP DRAWINGS FOR ACTUAL WIRING DIAGRAM.

MEMBRANE AIR BLOWER NO.X 20-B-201-X CONTROL SCHEMATIC

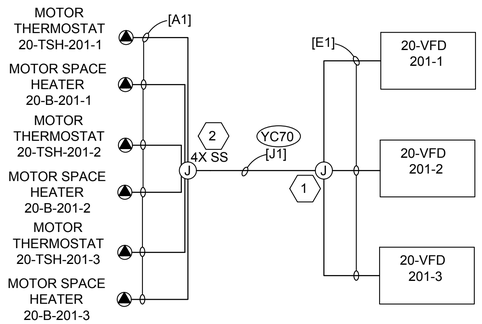
NOT TO SCALE
X = 1, 2, 3
Y = PLC-8
W = 201

PERMEATE PUMP NO.X RISER

NOT TO SCALE
X = 1 THRU 12

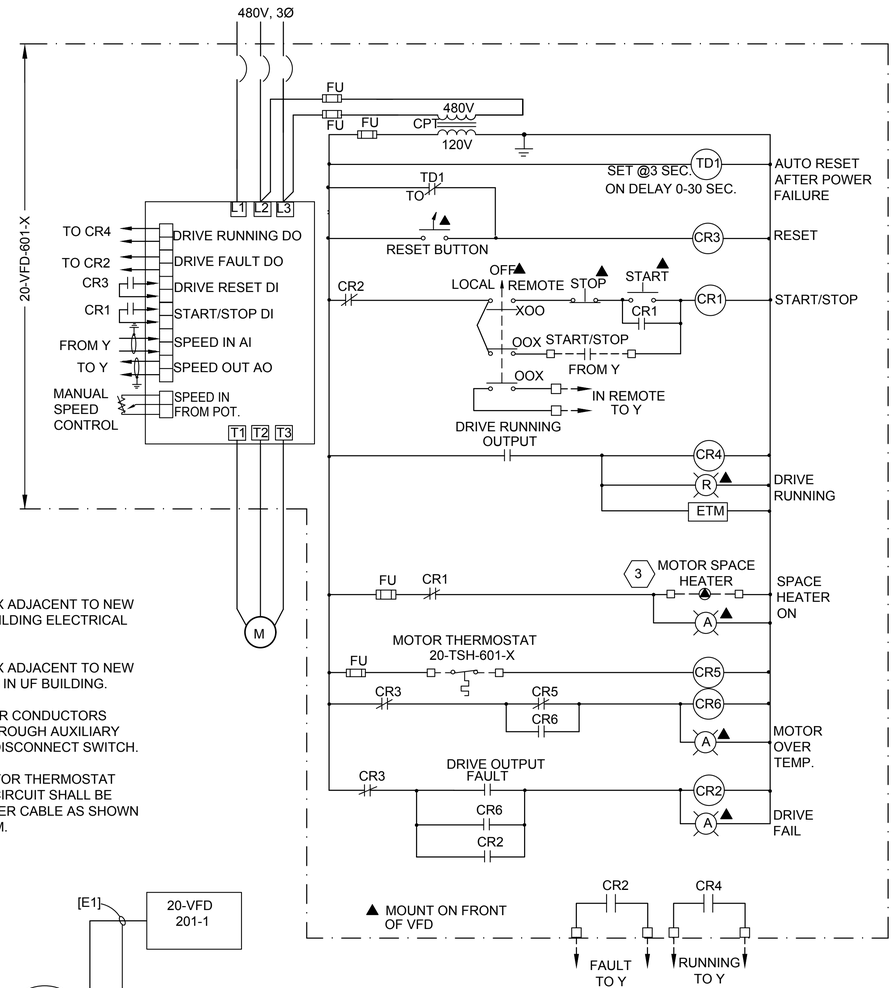
KEYED NOTE

1. MOUNT JUNCTION BOX ADJACENT TO NEW VFDs IN CHEMICAL BUILDING ELECTRICAL ROOM.
2. MOUNT JUNCTION BOX ADJACENT TO NEW MEMBRANE BLOWERS IN UF BUILDING.
3. MOTOR SPACE HEATER CONDUCTORS SHALL BE ROUTED THROUGH AUXILIARY CONTACT ON LOCAL DISCONNECT SWITCH.
4. PERMEATE PUMP MOTOR THERMOSTAT AND SPACE HEATER CIRCUIT SHALL BE INSTALLED WITH POWER CABLE AS SHOWN ON ONE LINE DIAGRAM.



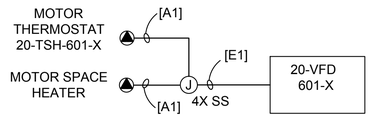
MEMBRANE AIR BLOWER NO.X RISER

NOT TO SCALE
X = 1,2,3



BACKPULSE PUMP NO.X 20-P-601-X CONTROL SCHEMATIC

NOT TO SCALE
X = 1, 2, 3
Y = PLC-8



BACKPULSE PUMP NO.X RISER

NOT TO SCALE
X = 1, 2, 3

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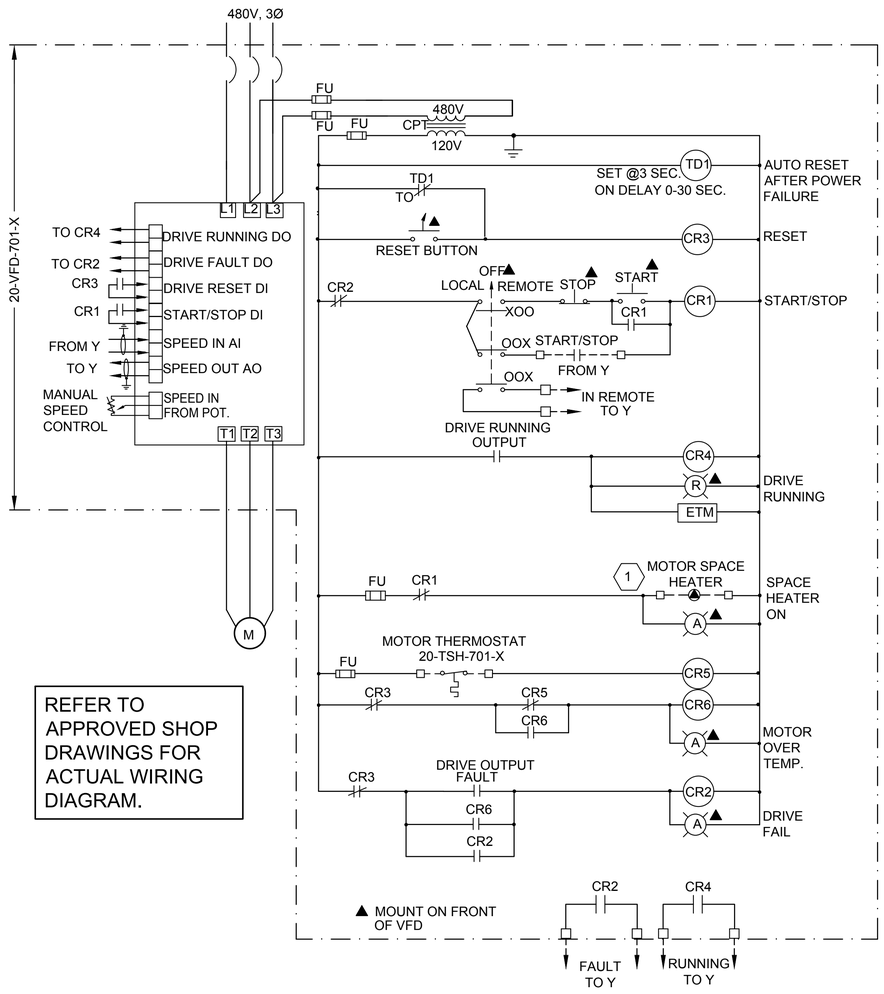
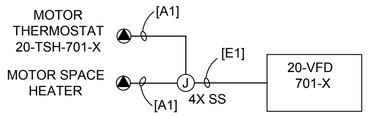


CIP PUMP NO.X 20-P-701-X CONTROL SCHEMATIC

NOT TO SCALE
X = 1, 2, 3, 4
Y = PLC-8

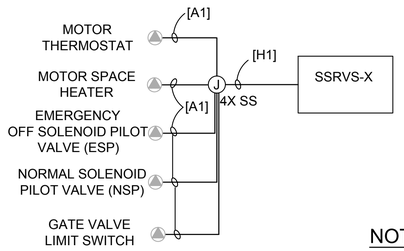


CIP PUMP NO.X RISER

NOT TO SCALE
X = 1, 2, 3, 4

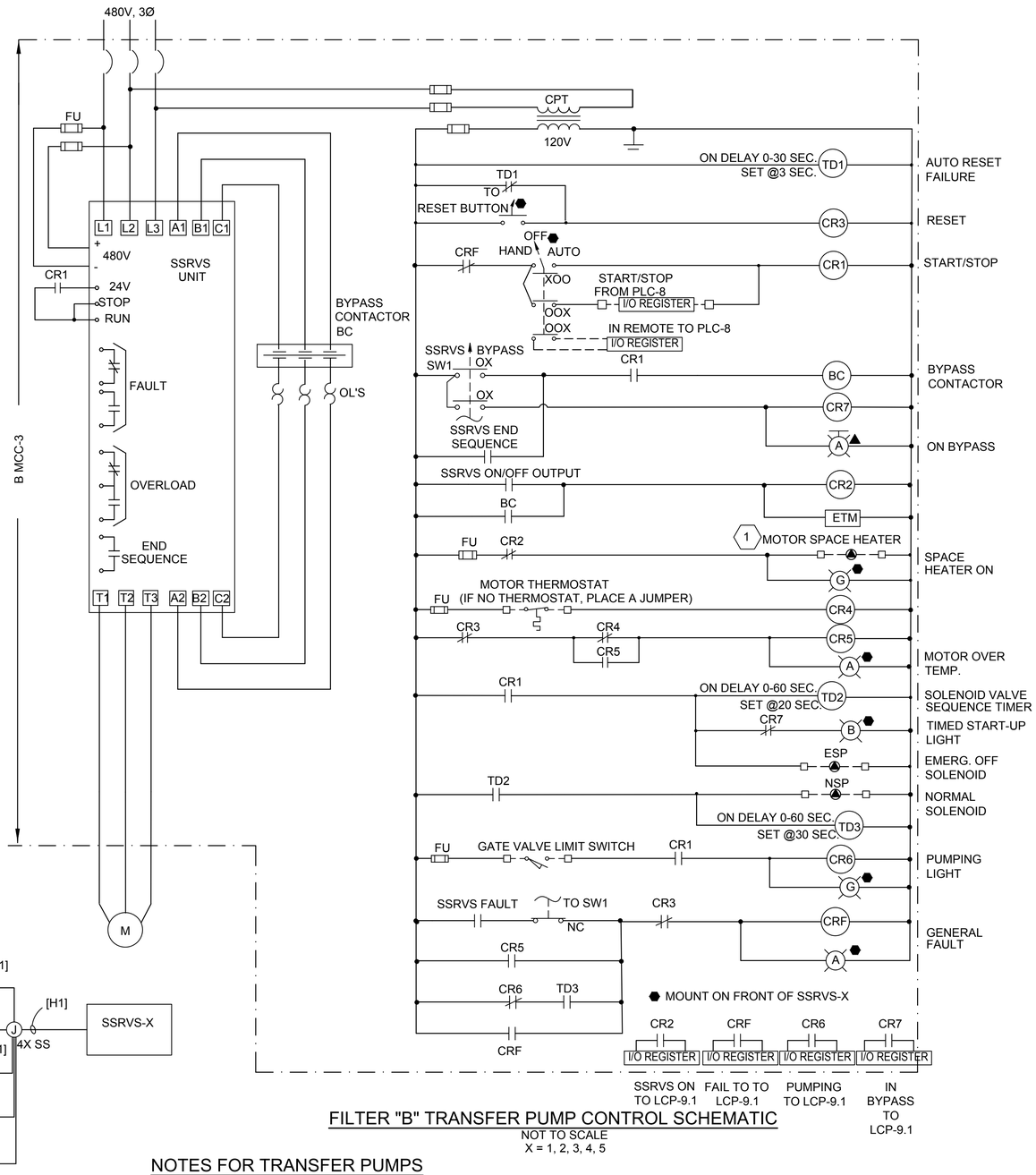
KEYED NOTE

1. MOTOR SPACE HEATER CONDUCTORS SHALL BE ROUTED THROUGH AUXILIARY CONTACT ON LOCAL DISCONNECT SWITCH.



FILTER "B" TRANSFER PUMP NO.X RISER

NOT TO SCALE
X = 1, 2, 3, 4, 5



FILTER "B" TRANSFER PUMP CONTROL SCHEMATIC

NOT TO SCALE
X = 1, 2, 3, 4, 5

NOTES FOR TRANSFER PUMPS

1. CONTRACTOR SHALL FIELD VERIFY THE EXISTING GATE VALVE CONTROL WIRING BEFORE DEMOLITION OF THE GATE VALVE CONTROL BOX/PANEL AND ADJUST NEW STARTER (SSRVS) WIRING TO INCLUDE THE EXISTING VALVE CONTROL FUNCTION.
2. FIELD ADJUST SSRVS RAMP TIME TO COORDINATE WITH THE EXISTING GATE VALVE OPENING TIME.

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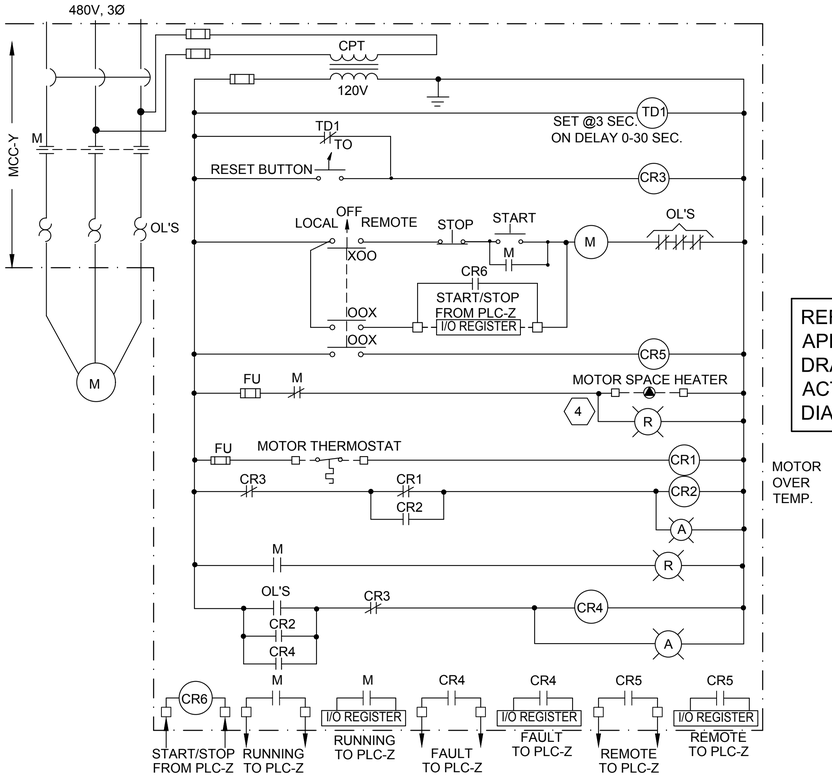
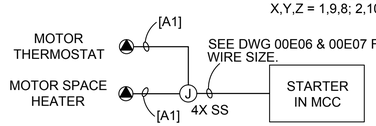


MOTOR OVER TEMP.

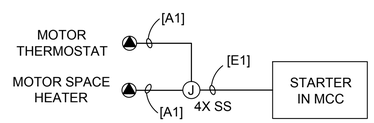
NEUTRALIZATION TRANSFER PUMP NO.X 20-P-790-X STARTER CONTROL SCHEMATIC

NOT TO SCALE
X,Y,Z = 1,9,8; 2,10,8; 3,10,8



NEUTRALIZATION TRANSFER PUMP NO.X RISER

NOT TO SCALE
X = 1, 2, 3



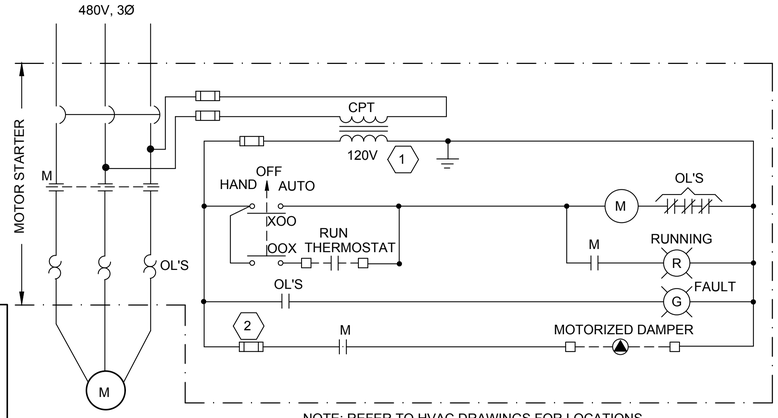
POST MIX BASIN MIXER NO.X RISER

NOT TO SCALE
X = A1, A2

REFER TO APPROVED SHOP DRAWINGS FOR ACTUAL WIRING DIAGRAM.

KEYED NOTE

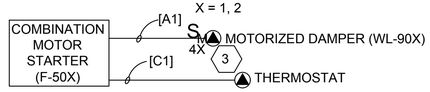
1. COORDINATE WITH FAN SUPPLIER FOR SIZING OF CONTROL TRANSFORMER TO INCLUDE CONTROL AND MOTORIZED DAMPER LOADS PLUS ADDITIONAL 50 PERCENT SPARE CAPACITY AND PROVIDE ACCORDINGLY.
2. COORDINATE WITH FAN SUPPLIER FOR FUSE SIZE REQUIREMENTS FOR EACH MOTORIZED DAMPER AND PROVIDE ACCORDINGLY.
3. CONTRACTOR SHALL PROVIDE MOTOR RATED SWITCH (NEMA 4X RATED) NEAR EACH MOTORIZED DAMPER FOR MAINTENANCE PURPOSE. EACH SWITCH SHALL BE CLEARLY LABELED WITH ON AND OFF POSITION.
4. MOTOR SPACE HEATER CONDUCTORS SHALL BE ROUTED THROUGH AUXILIARY CONTACT ON LOCAL DISCONNECT SWITCH.



NOTE: REFER TO HVAC DRAWINGS FOR LOCATIONS.

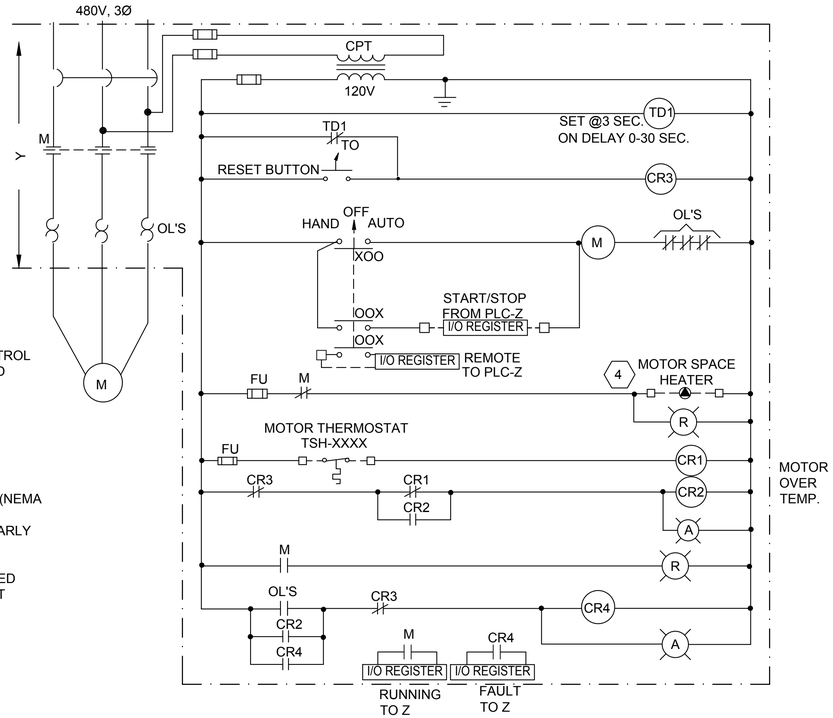
EXHAUST FAN F-50X SCHEMATIC

NOT TO SCALE
X = 1, 2



EXHAUST FAN F-50X CONTROL RISER

NOT TO SCALE
X = 1, 2



MOTOR OVER TEMP.

POST MIX BASIN MIXER NO.X CONTROL SCHEMATIC

NOT TO SCALE
X,Y,Z = A1,MCC-1A,PLC-8; A2,MCC-1A,PLC-8;
B1,B-MCC-3,LCP-9.1; B2,B-MCC-3,LCP-9.1

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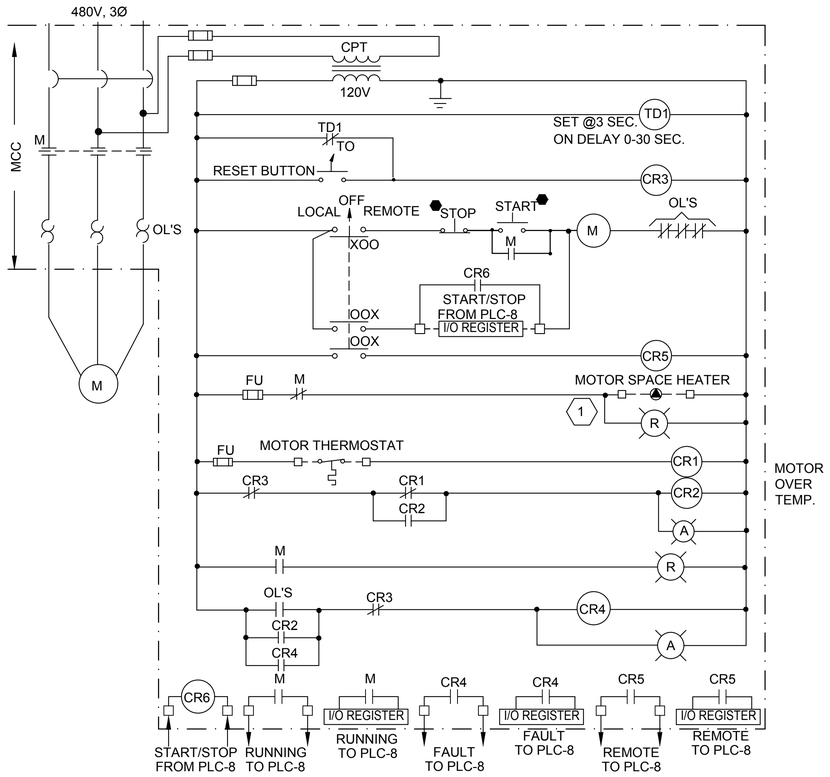
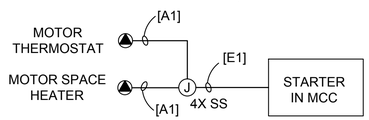


REFILL PUMP NO.X 20-P-801-X SSRVS CONTROL SCHEMATIC

NOT TO SCALE
X = 1, 2



REFILL PUMP NO.X RISER

NOT TO SCALE
X = 1, 2

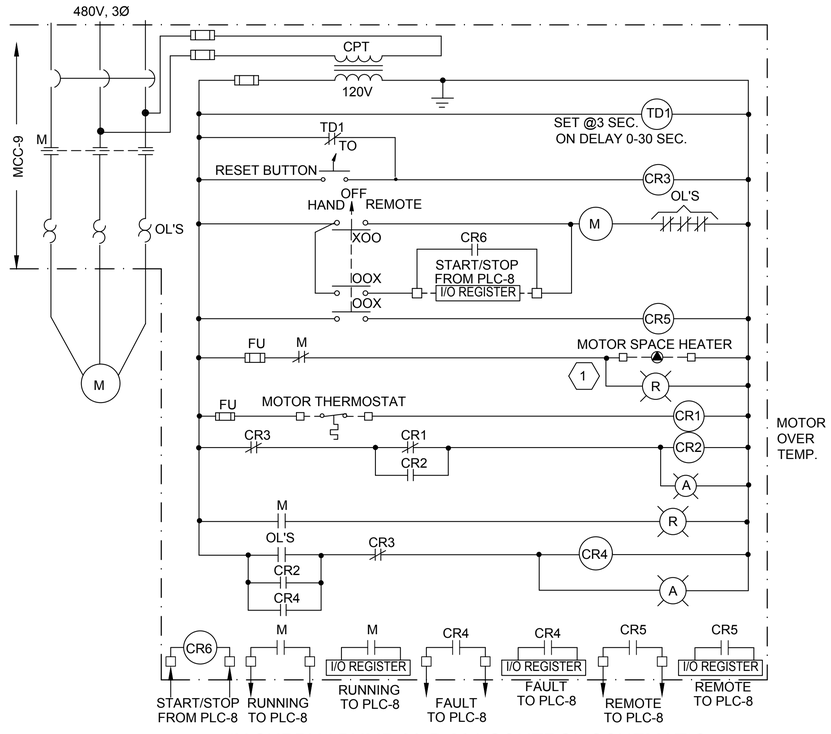
IX SUPPLY PUMP 20-P-901 RISER

NOT TO SCALE

REFER TO APPROVED SHOP DRAWINGS FOR ACTUAL WIRING DIAGRAM.

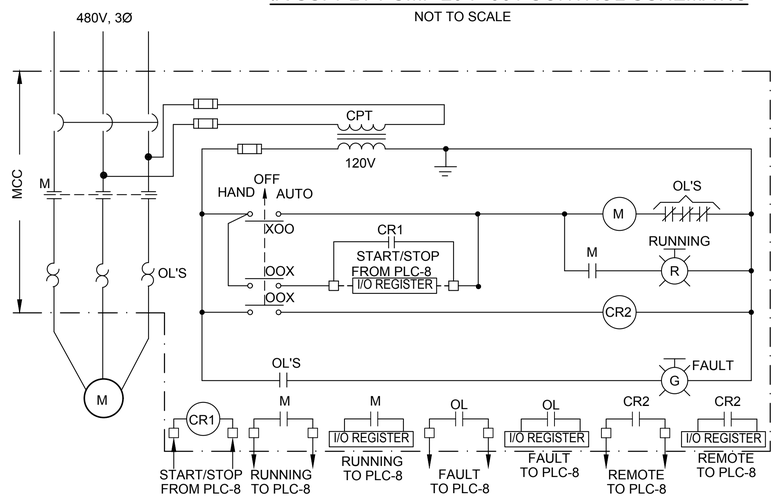
KEYED NOTE

1. MOTOR SPACE HEATER CONDUCTORS SHALL BE ROUTED THROUGH AUXILIARY CONTACT ON LOCAL DISCONNECT SWITCH.



IX SUPPLY PUMP 20-P-901 CONTROL SCHEMATIC

NOT TO SCALE



NEUTRALIZATION MIXER 20-MX-702-X SCHEMATIC

NOT TO SCALE
X,Y = 1,9; 2,10

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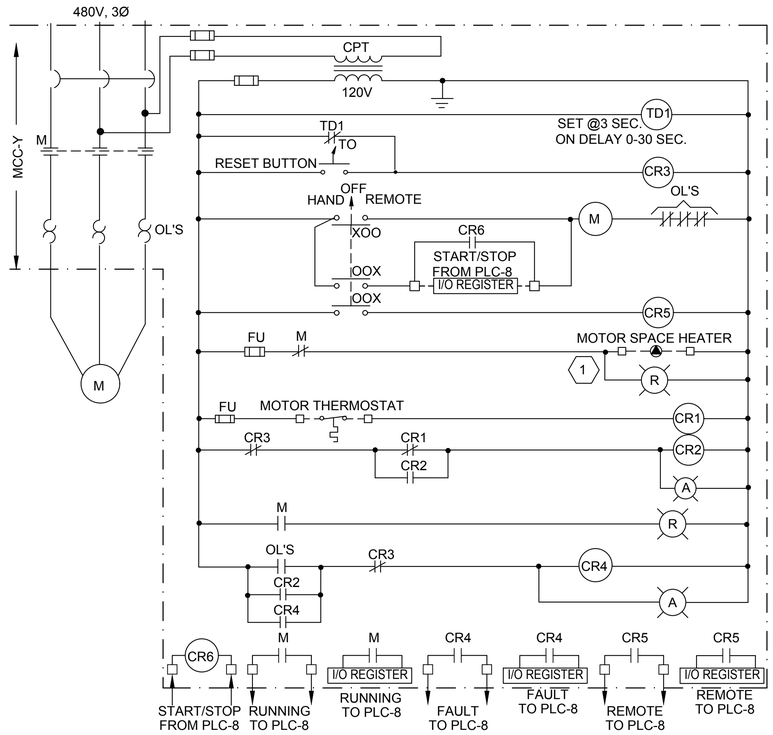
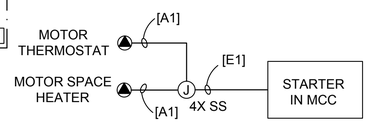


HOT WATER TRANSFER PUMP NO.X 20-P-703-X CONTROL SCHEMATIC

NOT TO SCALE
X,Y = 1, 9; 2,10



HOT WATER TRANSFER PUMP NO.X 20-P-703-X RISER

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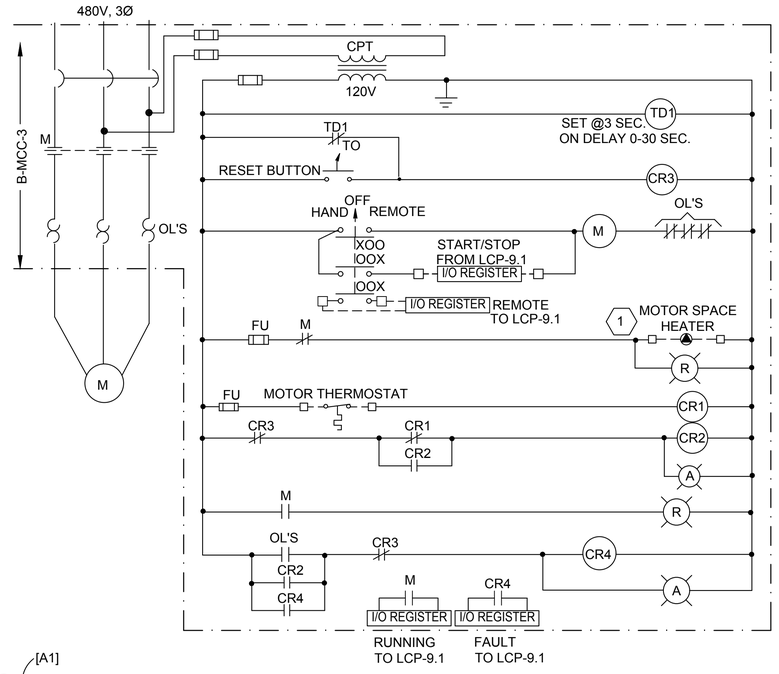
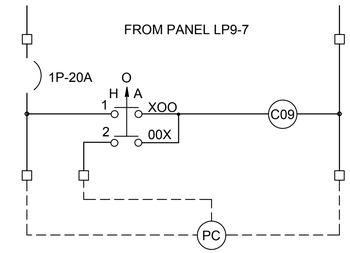
X = 1, 2

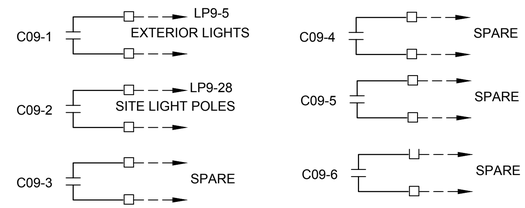


SLUDGE PUMP NO.X / SPARE STARTER CONTROL SCHEMATIC

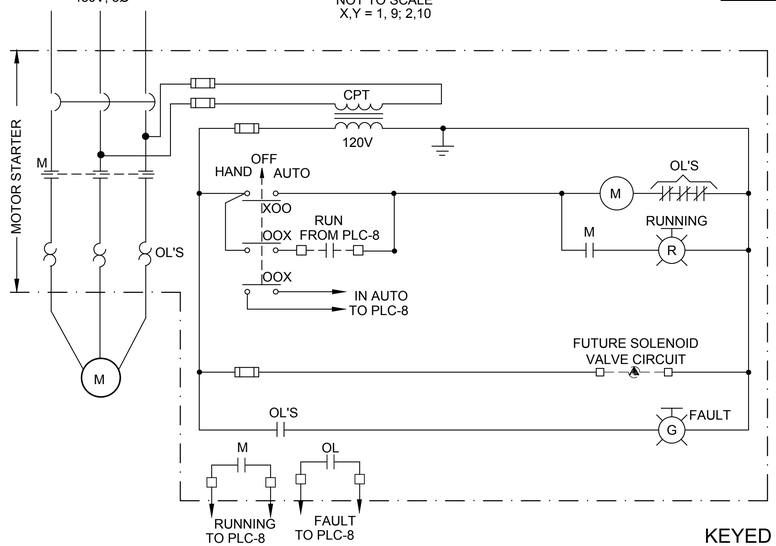
NOT TO SCALE
X = 1, 2, 3, 4



CONTRACTOR SHALL PROVIDE AND INSTALL ELECTRICALLY HELD LIGHTING CONTACTOR, 120V, 1P COIL, 30A 208V RATED CONTACTS IN NEMA 1 ENCLOSURE. MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.



LIGHTING CONTROL C-9 SCHEMATIC
NOT TO SCALE



TYPICAL SAMPLE PUMP SCHEMATIC

NOT TO SCALE

REFER TO APPROVED SHOP DRAWINGS FOR ACTUAL WIRING DIAGRAM.

KEYED NOTE

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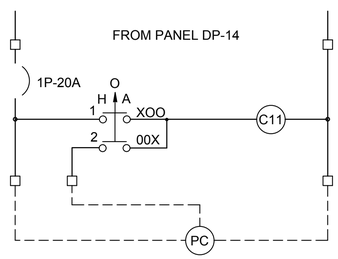
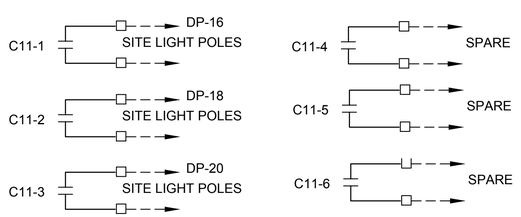
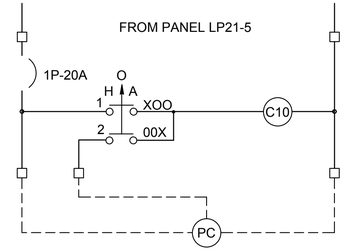


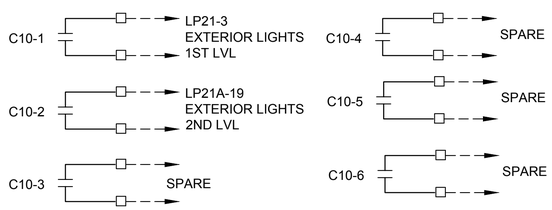
CONTRACTOR SHALL PROVIDE AND INSTALL ELECTRICALLY HELD LIGHTING CONTACTOR, 120V, 1P COIL, 30A 208V RATED CONTACTS IN NEMA 4X 316 SS ENCLOSURE. MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.



LIGHTING CONTROL C-11 SCHEMATIC
NOT TO SCALE



CONTRACTOR SHALL PROVIDE AND INSTALL ELECTRICALLY HELD LIGHTING CONTACTOR, 120V, 1P COIL, 30A 208V RATED CONTACTS IN NEMA 4X FRP ENCLOSURE. MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.



LIGHTING CONTROL C-10 SCHEMATIC
NOT TO SCALE

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JOB NO. 9052OI.10
DRAWING NO. 00E29

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PLOT SCALE:1:1
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KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL 4" ALUMINUM CONDUIT AT THE BOTTOM BEAM OF ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') BETWEEN FILTER BUILDING "B" AND FILTER BUILDING "C". NEW CONDUIT SHALL CONTINUE TO THE NORTHEAST CORNER OF FILTER BUILDING "B" AND THE SOUTHEAST CORNER OF FILTER BUILDING "C". CONTRACTOR SHALL INSTALL NEW FIBER OPTIC PATCH PANEL CABINETS AT THE SOUTHEAST CORNER OF FILTER BUILDING "C" BENEATH THE OVERHUNG AND AT THE NORTHEAST CORNER OF FILTER BUILDING "B". REFER TO SHEET 00E32 FOR NEW FIBER OPTIC PATCH PANEL LOCATIONS. NEW FIBER OPTIC PATCH CABINETS (FOPP-1 AND FOPP-2) SHALL BE PROVIDED BY THE INSTRUMENTATION (I&C) CONTRACTOR AS SHOWN ON DRAWING 00N02. I&C CONTRACTOR SHALL ALSO PROVIDE NEW FIBER OPTIC CABLES BETWEEN TWO NEW FIBER OPTIC PATCH CABINETS AND TERMINATE THEM AT EACH END. PROVIDE AND INSTALL SUPPORT AND CONCRETE PAD FOR MOUNTING OF NEW FIBER OPTIC PATCH PANEL CABINET.

2. CUT THE EXISTING COMMUNICATION CONDUIT, INCLUDING INNERDUCT AND FIBER OPTIC CABLES BETWEEN FILTER BUILDING "B" AND BUILDING "C" NEAR THE MID-POINT OF THE ELEVATED WALKWAY. PULL EXISTING INNERDUCT AND FIBER OPTIC CABLES BACK TO THE CONDUIT FITTING LOCATED AT THE SOUTHEAST CORNER OF BUILDING "C" AND NORTHEAST CORNER OF BUILDING "B". EXTEND EXISTING CONDUITS TO NEW FIBER OPTIC PATCH PANEL CABINETS AND PULL EXISTING FIBER OPTIC CABLES INTO NEW CABINETS. I&C CONTRACTOR SHALL MODIFY THE EXISTING FIBER OPTIC CABLES, INCLUDING CUTTING TO APPROPRIATE LENGTH, INSTALLING FIBER OPTIC CONNECTORS (ST-TYPE) AT THE END AND TERMINATING THEM AT EACH FIBER OPTIC PATCH PANEL CABINET. FIBER PATCH PANEL CONNECTIONS ARE TEMPORARY ONLY TO MINIMIZE THE COMMUNICATION SYSTEM DOWNTIME AND SHALL CUT FIBERS WITH SUFFICIENT LENGTH TO PERFORM FUSION SPLICING AFTER EXISTING FIBER CONDUIT MODIFICATION IS DONE AND FIBER COMMUNICATION IS UP AND RUNNING.

3. AFTER FIBER COMMUNICATION IS UP AND RUNNING FOR RAW WATER PUMP STATIONS, CONTRACTOR SHALL PERFORM FUSION METHOD SPLICING AND PROVIDE WEATHERPROOF SLEEVE ON EACH STRAND AS WELL AS ONE SLEEVE COVERING OVERALL STRANDS OF EACH FIBER CABLE. REFER TO SHEET 00E32 FOR NEW FIBER OPTIC CABLE ROUTING AND SPLICE INFORMATION.

4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIBER OPTIC CONDUIT FROM EXISTING CONTROL ROOM TO EXISTING ELECTRICAL BUILDING ALONG THE EXISTING NORTH AND EAST WALLS OF FILTER BUILDING "A" AND FILTER BUILDING "B" AS SHOWN ON DRAWING 00E32 BEFORE REMOVING THE EXISTING FIBER OPTIC CABLES BETWEEN ELECTRICAL BUILDING AND CONTROL ROOM. REMOVE EXISTING CONDUIT/CABLE AS SHOWN, EXTEND AND CAP THE EXISTING UNDERGROUND CONDUIT ON THE NORTH WEST CORNER OF BUILDING "B". ABANDON AND CAP EXISTING CONDUIT ON ROOF OF BUILDING "A".

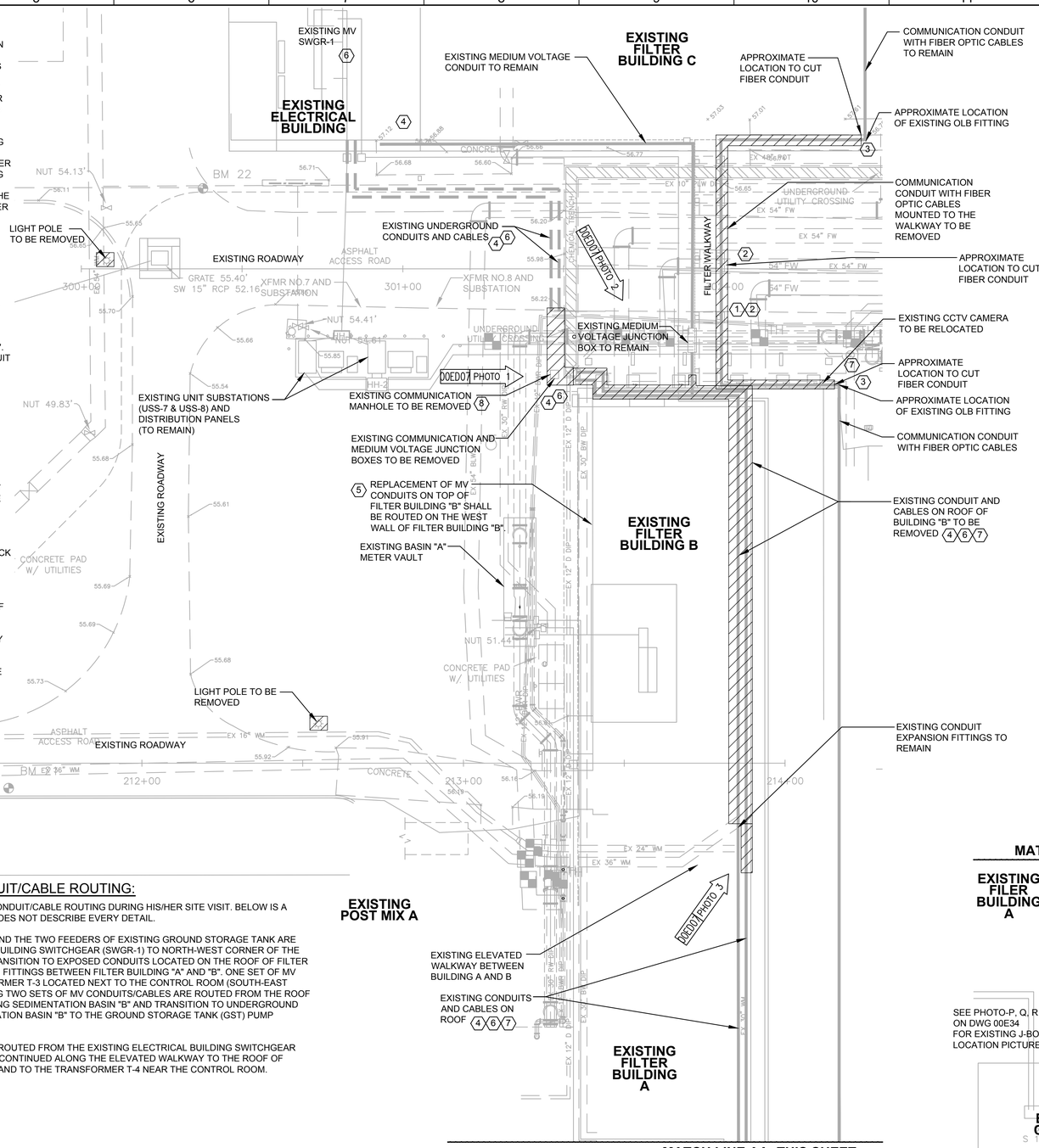
5. CONTRACTOR SHALL PROVIDE AND INSTALL NEW EXPOSED CONDUITS WITH RACK SUPPORTS ALONG THE WEST WALL OF FILTER BUILDING "B". SEE STRUCTURAL DRAWINGS FOR WALL MOUNTED RACK DETAILS. SEE DRAWING 00E32 FOR PROPOSED CONDUIT ROUTING, VERTICAL CONDUIT TRANSITION TO ROOF, NEW JUNCTION BOX LOCATION. COORDINATE WITH STRUCTURAL ENGINEER AND FIELD VERIFY ACTUAL LOCATION TO TRANSITION TO VERTICAL CONDUITS AND INSTALL ACCORDINGLY.

6. CONTRACTOR SHALL DISCONNECT THE EXISTING MEDIUM VOLTAGE (MV) CABLES AT SWGR-1 IN ELECTRICAL BUILDING FOR THE EXISTING TRANSFORMER NO.3, TRANSFORMER NO.4 AND FOR GROUND STORAGE TANK PUMP STATION. REMOVE THE EXISTING MV CABLES FOR TRANSFORMERS NO.3 AND NO.4 BACK TO TRANSFORMERS. PULL BACK THE EXISTING MV CABLES FOR THE GROUND STORAGE TANK PUMP STATION TO THE EXISTING JUNCTION BOX LOCATED ON THE ROOF OF THE CONTROL ROOM (FILTER BUILDING "A") AND REMOVE CABLES. THE EXISTING MV CABLES BETWEEN JUNCTION BOX ON TOP OF FILTER BUILDING "A" AND GROUND STORAGE TANK PUMP STATION SHALL REMAIN. LEAVE A MINIMUM OF 3 FEET OF CABLE SLACK AT JUNCTION BOX FOR THE GROUND STORAGE CABLES THAT ARE TO REMAIN FOR FUTURE SPLICING. REMOVE ALL MV CABLES CAREFULLY SO THAT EXISTING CONDUIT SYSTEM ON ROOF OF FILTER BUILDING "A" CAN BE REUSED. REMOVE ALL CONDUITS, INCLUDING ALL SUPPORTS AND JUNCTION BOXES, MOUNTED TO ROOF AND SIDES OF BUILDING "B" UP TO THE EXPANSION COUPLING LOCATION. EXISTING MV CABLES TO TRANSFORMER NO.4 SHALL NOT BE DISCONNECTED/REMOVED UNTIL THE NEW MV CABLES AND CONDUITS FOR TRANSFORMER NO.3 ARE INSTALLED, TESTED AND OPERATIONAL. EITHER TRANSFORMER NO.3 OR NO.4 MUST BE OPERATIONAL AT ALL TIMES TO PROVIDE POWER TO THE EXISTING MAIN-TIE-MAIN SWITCHGEAR NEXT TO THE TRANSFORMER VAULT. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN TEMPORARY GENERATORS AND CABLES TO MAINTAIN THE OPERATION OF EXISTING GROUND STORAGE PUMP STATION AT ALL TIMES DURING CONSTRUCTION. REFER TO SHEETS 00E03 AND 00ED07 FOR DETAILS.

7. CONTRACTOR SHALL DISCONNECT AND RELOCATE THE EXISTING CCTV CAMERA TO THE NEW LOCATION AS SHOWN ON SHEET 00E32. PULLBACK AND PROTECT THE EXISTING CCTV CAMERA POWER AND COMMUNICATION CABLES TO THE EXISTING JUNCTION BOX LOCATED ON FILTER BUILDING "A" AND REMOVE THE EXISTING PVC CONDUIT AND CONDUIT SUPPORTS BETWEEN JUNCTION BOX AND CAMERA. REINSTALL CMERA AFTER NEW ROOF IS IN PLACE AND EXTEND CONDUIT/WIRE AS NEEDED.

8. CONTRACTOR SHALL PERFORM FIELD INVESTIGATIONS TO IDENTIFY THE SOURCE, ROUTING AND DEVICE/INSTRUEMNT TERMINATION POINT OF ALL EXISTING CONTROL AND SIGNAL CABLES WITHIN THE COMMUNICATION MANHOLE. THE EXISTING CONDUITS/WIRES ARE BELIEVED TO BE CONNECTING FROM THE EXISTING MCC-B TO RTU PANEL AT ELECTRICAL BUILDING. REMOVE ALL UNUSED AND/OR ABANDONED CABLES BETWEEN THE SOURCE AND DEVICE/INSTRUMENT. IF ANY CABLES ARE IN ACTIVE USE, PROVIDE A SUMMARY REPORT TO OWNER. TEMPORARY REROUTE ACTIVE SINGALS TO EXISTING RTU-50 PANEL IN FILTER "B" PIPE GALLERY. REMOVE MANHOLE AND ASSOCIATED CONDUITS.

9. EXISTING FIBER OPTIC CONDUIT RELOCATION BETWEEN FILTER BUILDING "B" AND "C" FOR RAW WATER PUMP STATIONS IS ANTICIPATED TO BE PERFORMED IN THE ON-GOING SCADA IMPROVEMENT PROJECT. IF SCADA IMPROVEMENT PROJECT HAS NOT ALREADY RELOCATED THE EXISTING FIBER OPTIC CONDUIT, CONTRACTOR SHALL PERFORM ACCORDING TO THE ABOVE KEYED NOTES.



DESCRIPTION OF EXISTING MV CONDUIT/CABLE ROUTING:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING MV CONDUIT/CABLE ROUTING DURING HIS/HER SITE VISIT. BELOW IS A BRIEF DESCRIPTION OF THE EXISTING ROUTING THAT DOES NOT DESCRIBE EVERY DETAIL.

EXISTING MV CABLE/CONDUITS OF TRANSFORMER T-3 AND THE TWO FEEDERS OF EXISTING GROUND STORAGE TANK ARE ROUTED UNDERGROUND FROM EXISTING ELECTRICAL BUILDING SWITCHGEAR (SWGR-1) TO NORTH-WEST CORNER OF THE EXISTING FILTER BUILDING "B". THE CONDUITS THEN TRANSITION TO EXPOSED CONDUITS LOCATED ON THE ROOF OF FILTER BUILDING "A" AND FILTER BUILDING "B" WITH EXPANSION FITTINGS BETWEEN FILTER BUILDING "A" AND "B". ONE SET OF MV CABLE/CONDUIT IS ROUTED TO THE EXISTING TRANSFORMER T-3 LOCATED NEXT TO THE CONTROL ROOM (SOUTH-EAST CORNER OF FILTER BUILDING "A") WHILE THE REMAINING TWO SETS OF MV CONDUITS/CABLES ARE ROUTED FROM THE ROOF OF FILTER BUILDING "A" TO THE SOUTH WALL OF EXISTING SEDIMENTATION BASIN "B" AND TRANSITION TO UNDERGROUND CONDUITS AT THE SOUTH-EAST CORNER OF SEDIMENTATION BASIN "B" TO THE GROUND STORAGE TANK (GST) PUMP STATION.

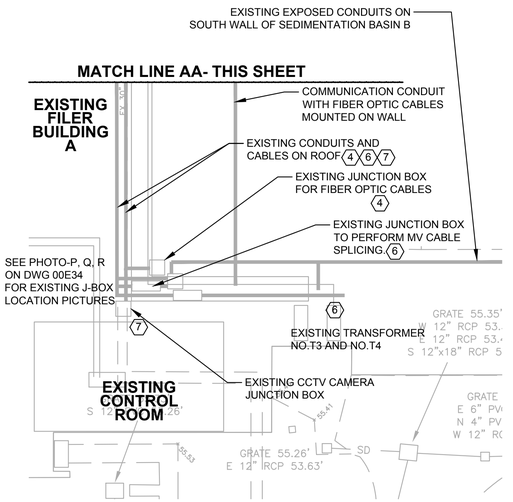
EXISTING MV CABLE/CONDUIT OF TRANSFORMER T-4 IS ROUTED FROM THE EXISTING ELECTRICAL BUILDING SWITCHGEAR (SWGR-1) TO SOUTH WALL OF FILTER BUILDING "C" AND CONTINUED ALONG THE ELEVATED WALKWAY TO THE ROOF OF FILTER BUILDING "B" AND THEN TO FILTER BUILDING "A" AND TO THE TRANSFORMER T-4 NEAR THE CONTROL ROOM.

DEMOLITION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH ALL OTHER DISCIPLINES FOR DEMOLITION/CONVERSION OF EXISTING FILTER BUILDING "B" TO RENOVATED UF FILTER BUILDING. REFER TO OTHER DISCIPLINES DEMOLITION DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS AND PERFORM ACCORDINGLY. REMOVE WIRES ASSOCIATED WITH ABANDONED OR DECOMMISSIONED EQUIPMENT, INSTRUMENTS, PANELS, ETC. BACK TO SOURCE. REMOVE ALL EXPOSED CONDUITS ASSOCIATED WITH ABANDONED OR DECOMMISSIONED EQUIPMENT, INSTRUMENTS, PANELS, ETC. CUT UNDERGROUND CONDUITS FLUSH WITH FLOOR OR WALL AND CAP.

2. REFER TO SPECIFICATION 26 05 02 FOR CONSTRUCTION CONSTRAINTS AND SUGGESTED CONSTRUCTION SEQUENCE AND PERFORM DEMOLITION WORK ACCORDINGLY.

3. CONTRACTOR SHALL USE SPECIFICATION 26 05 02 AS A GUIDELINE AND PROVIDE A DETAILED PROPOSED SEQUENCE OF CONSTRUCTION DURING SUBMITTAL PHASE AND GET APPROVAL FROM ENGINEER/OWNER. ELECTRICAL CONSTRUCTION SEQUENCE SHALL BE IN-LINE OR FOLLOW THE PROCESS CONSTRUCTION SEQUENCE, WHERE APPLICABLE. PROPOSED SEQUENCE OF CONSTRUCTIONS SHALL ALSO INCLUDE DURATION OF EACH SHUTDOWN, TEMPORARY EQUIPMENT LOCATIONS, AND DURATION OF EACH PHASE, IF ANY.



ELECTRICAL SITE PLAN -ENLARGED DEMOLITION PLAN 1

SCALE: 1" = 20'-0"

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DRAWING NO. 00E30

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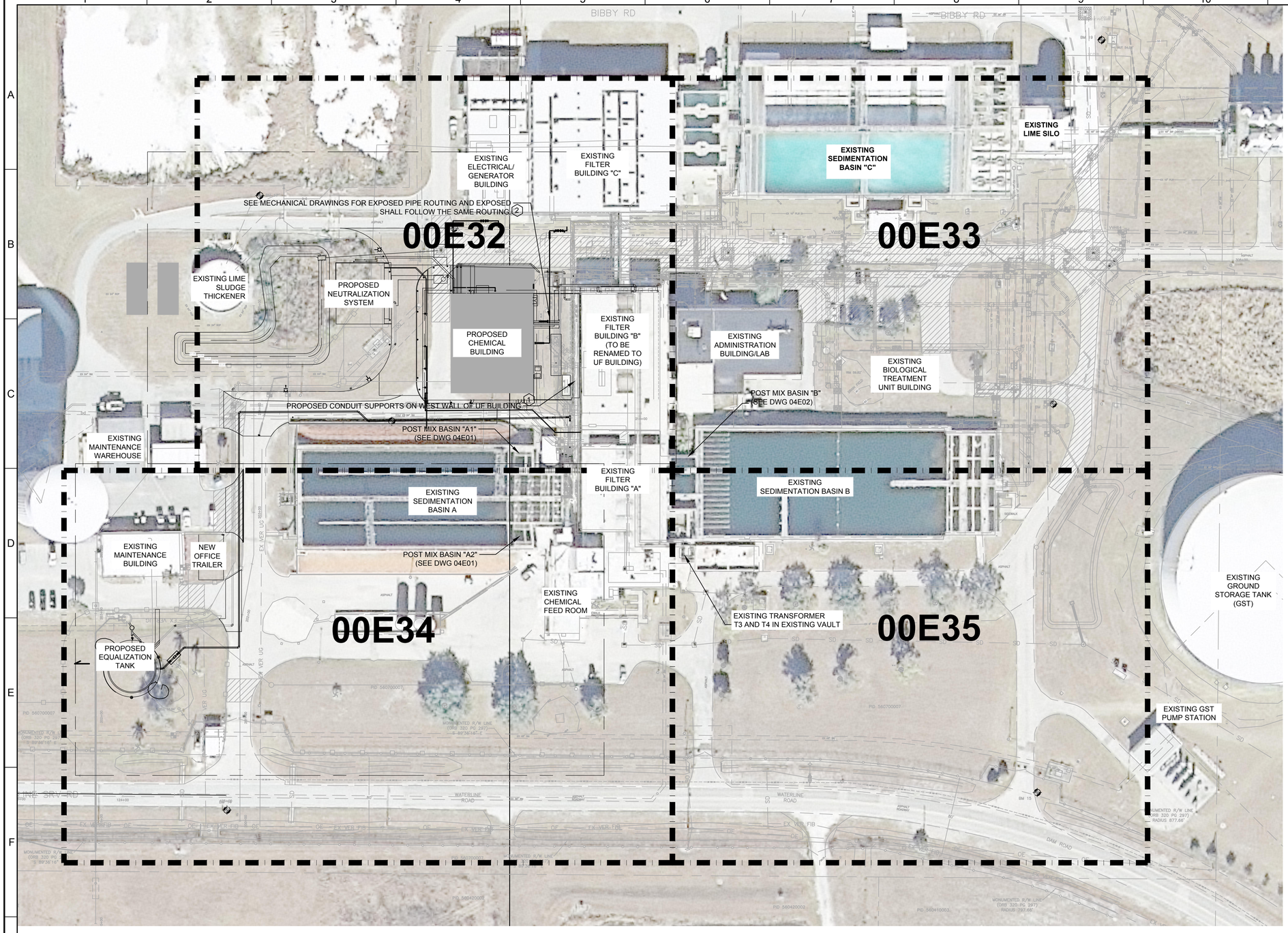
PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg



ELECTRICAL SITE PLAN - KEY PLAN

SCALE: 1" = 50'-0"

0 25' 50' 100'

SCALE: 1" = 50'-0"

ELECTRICAL NOTES:

1. YARD CONDUIT ROUTINGS AND EQUIPMENT LOCATIONS ARE FOR ILLUSTRATION PURPOSES ONLY. CONTRACTOR SHALL VERIFY AND COORDINATE WITH OTHER DISCIPLINES TO AVOID CONFLICTS AND ADJUST ACCORDINGLY. CONCRETE DUCTBANK CROSSING ABOVE THE PIPING SHALL AVOID CROSSING AT THE JOINTS, VALVES, ETC.
2. CONTRACTOR SHALL HAND DIG THE GROUND FOR INSTALLATION OF CONDUITS AND MANHOLES INSIDE THE PLANT, UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL KEEP THE SEPARATION BETWEEN POWER AND INSTRUMENTATION YARD CONDUITS AS PER DRAWING 00E02 NOTE 20 FOR ALL YARD CONDUIT DUCTBANKS.
4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW LIGHTNING PROTECTION SYSTEM FOR ALL NEW CHEMICAL BUILDING, MODIFIED UF BUILDING (BUILDING B), AND NEUTRALIZATION PUMP STATION STRUCTURE, NEW EQ TANK, NEW OFFICE TRAILER, NEW LIGHT POLES, ETC. AS PER SPECIFICATION 26 41 00.
5. CONTRACTOR SHALL RESTORE SIDEWALK, WALKWAY, ETC. AFTER THE COMPLETION OF THE PROJECT.
6. CONTRACTOR SHALL COORDINATE UNDERGROUND CONDUIT ROUTING AT THE PROPOSED CHEMICAL BUILDING WITH UNDERGROUND WETWELL AND PIPE TRENCH LOCATION. NO UNDERGROUND CONDUIT SHALL BE ROUTED THRU OR BELOW THE WETWELL. UNDERGROUND CONDUIT CROSSING EACH PIPE TRENCH SHALL BE 12" BELOW BOTTOM OF PIPE TRENCH IF CANNOT AVOID ROUTING AROUND THE PIPE TRENCH. ALL COST ASSOCIATED WITH HAND DIGGING AND INSTALLATION OF UNDERGROUND CONDUITS BELOW PIPE TRENCH SHALL BE INCLUDED IN THE BID PRICE.

KEYED NOTES:

1. REFER TO DRAWINGS 03M08 AND 03M09 FOR EXPOSED CONDUIT SUPPORT LOCATION AND SPACING ON THE WEST WALL OF THE FILTER BUILDING "B"/UF BUILDING. CONTRACTOR SHALL PROVIDE AND INSTALL 316 STAINLESS STEEL CONDUIT CLAMPS AND INSTALL EXPOSED CONDUITS ON THE TOP TWO LAYERS OF THE CONDUIT SUPPORT DETAIL SHOWN ON DETAIL NO.2 DRAWING 03M21.
2. REFER TO DRAWINGS 03M22 AND 03M23 FOR OVERHEAD PIPING SUPPORT AND ROUTING FROM CHEMICAL BUILDING TO THE NORTH WALL OF FILTER BUILDING "B"/UF BUILDING. CONTRACTOR SHALL FOLLOW PIPING ROUTING AND PIPING SUPPORT ELEVATION FOR EXPOSED CONDUITS ROUTING FROM CHEMICAL BUILDING TO NORTH SIDE OF FILTER BUILDING "B"/UF BUILDING. COORDINATE WITH STRUCTURAL CONTRACTOR TO PROVIDE SUPPORT TO MOUNT EXPOSED CONDUITS ALONG THE PIPE SUPPORT AND SUPPORT EXPOSED CONDUITS AS REQUIRED BY NEC. SEE DETAIL P610 ON DRAWING 00GM05 FOR TYPICAL PIPE AND CONDUIT SUPPORT RACK.

SUMMARY SCOPE OF MV AND FIBER REPLACEMENT DUE TO RAISING ROOF AT FILTER BUILDING "B":

1. DUE TO RAISING ROOF ELEVATION OF UF BUILDING (EXCLUDING OFFICE AREAS AND TRANSFER PUMP AREA), THE EXISTING MV CONDUITS/CABLES, EXISTING FIBER OPTIC CONDUITS/CABLES, AND ONE CCTV CONDUIT/CABLE WILL NEED TO BE RELOCATED AS SHOWN ON OTHER ELECTRICAL DRAWINGS. THE FOLLOWING IS A BRIEF DESCRIPTION OF THE MAJOR ITEMS THAT NEED TO BE RELOCATED/MODIFIED. THESE DESCRIPTIONS ARE ONLY INTENDED TO ASSIST CONTRACTOR IN UNDERSTANDING THE SCOPE OF WORK. REFER TO OTHER ELECTRICAL DRAWINGS FOR DETAIL REQUIREMENTS.
2. MV CONDUITS/CABLES FOR EXISTING TRANSFORMER T3 AND T4 SHALL BE REPLACED.
3. MV CONDUITS/CABLE FOR EXISTING GROUND STORAGE TANK PUMP STATION SHALL BE REPLACED BETWEEN EXISTING ELECTRICAL BUILDING TO THE EXISTING JUNCTION BOX ON THE ROOF AT THE SOUTH-WEST CORNER OF FILTER BUILDING "A". THE NEW MV CABLES SHALL BE SPLICED IN THIS EXISTING JUNCTION BOX TO THE EXISTING MV CABLES THAT ARE TO REMAIN BETWEEN THIS JUNCTION BOX AND GROUND STORAGE TANK PUMP STATION.
4. EXISTING CCTV CONDUIT/CABLE ON ROOF SHALL BE TEMPORARILY REMOVED AND RE-INSTALL AFTER NEW ROOF IS INSTALLED. NEW CONDUIT WILL BE INSTALLED ON NEW ROOF OF UF BUILDING.
5. EXISTING FIBER OPTIC CABLES AND CONDUITS LOCATED ON THE ROOF OF FILTER BUILDING "A" AND "B" SHALL BE REPLACED.

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ELECTRICAL SITE PLAN - KEY PLAN

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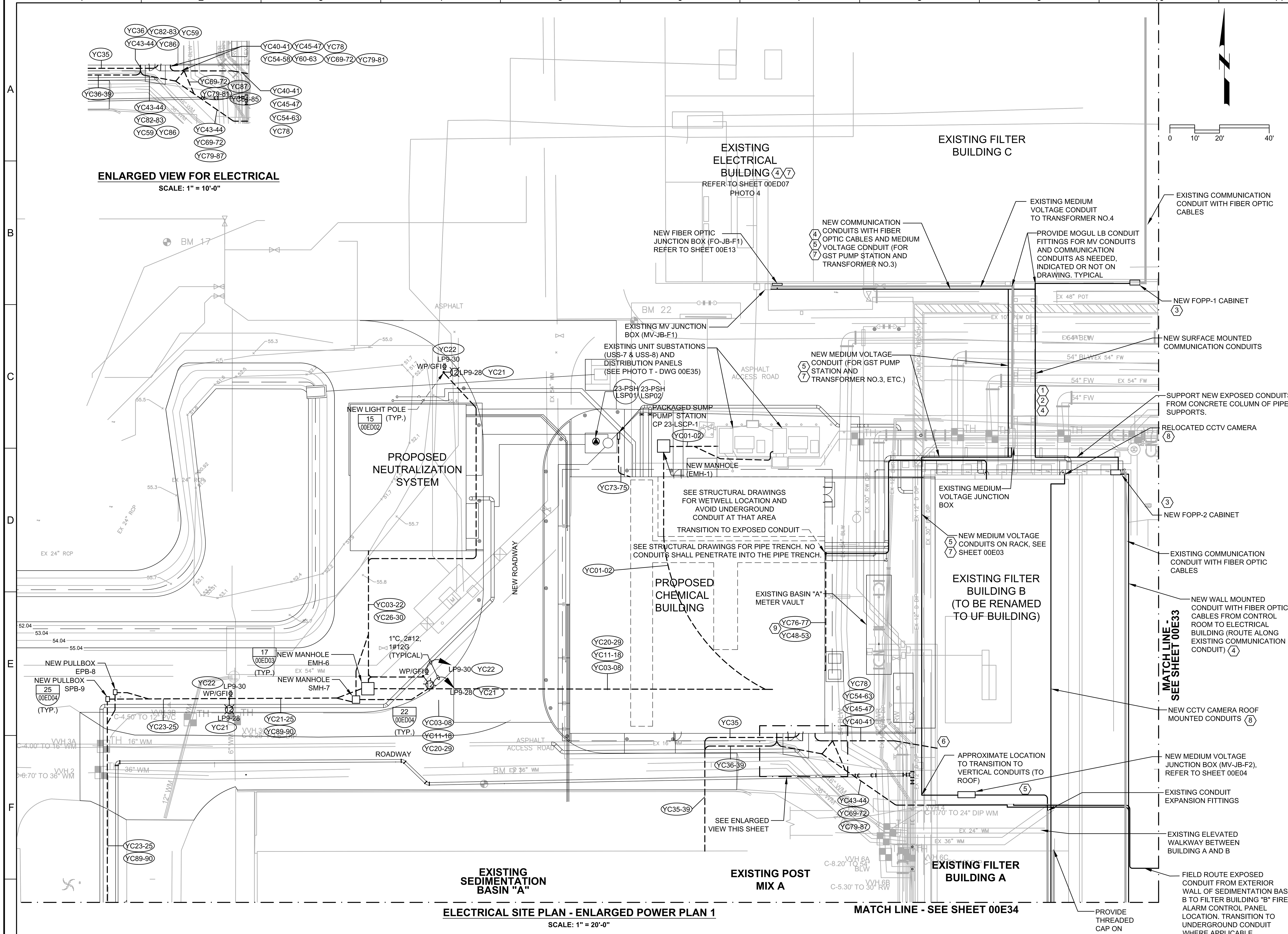

ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 1
SCALE: 1" = 20'-0"

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL 4" ALUMINUM CONDUIT AT THE BOTTOM BEAM OF ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') BETWEEN FILTER BUILDING "B" AND FILTER BUILDING "C". NEW CONDUIT SHALL CONTINUE TO THE NORTHEAST CORNER OF FILTER BUILDING "B" AND THE SOUTHEAST CORNER OF FILTER BUILDING "C". CONTRACTOR SHALL INSTALL NEW FIBER OPTIC PATCH PANEL CABINETS AT THE SOUTHEAST CORNER OF FILTER BUILDING "C" BENEATH THE OVERHUNG AND AT THE NORTHEAST CORNER OF FILTER BUILDING "B". NEW FIBER OPTIC PATCH CABINETS (FOPP-1 AND FOPP-2) SHALL BE PROVIDED BY THE INSTRUMENTATION (I&C) CONTRACTOR AS SHOWN ON DRAWING 00N02. I&C CONTRACTOR SHALL ALSO PROVIDE NEW FIBER OPTIC CABLES BETWEEN TWO NEW FIBER OPTIC PATCH CABINETS AND TERMINATE THEM AT EACH END. PROVIDE AND INSTALL SUPPORT AND CONCRETE PAD FOR MOUNTING OF NEW FIBER OPTIC PATCH PANEL CABINET.

2. CUT THE EXISTING COMMUNICATION CONDUIT, INCLUDING INNERDUCT AND FIBER OPTIC CABLES BETWEEN FILTER BUILDING "B" AND BUILDING "C" NEAR THE MID-POINT OF ELEVATED WALKWAY. PULL EXISTING INNERDUCT AND FIBER OPTIC CABLES BACK TO CONDUIT FITTINGS LOCATED AT SOUTHEAST CORNER OF BUILDING "C" AND NORTHEAST CORNER OF BUILDING "B". EXTEND EXISTING CONDUITS TO NEW FIBER OPTIC PATCH PANEL CABINETS AND PULL EXISTING FIBER OPTIC CABLES INTO NEW CABINETS. I&C CONTRACTOR SHALL MODIFY THE EXISTING FIBER OPTIC CABLES, INCLUDING CUTTING TO APPROPRIATE LENGTH, INSTALLING FIBER OPTIC CONNECTORS (ST-TYPE) AT THE END AND TERMINATING THEM AT EACH FIBER OPTIC PATCH PANEL CABINET. FIBER PATCH PANEL CONNECTIONS ARE TEMPORARY ONLY TO MINIMIZE THE COMMUNICATION SYSTEM DOWNTIME AND SHALL CUT FIBERS WITH SUFFICIENT LENGTH TO PERFORM FUSION SPLICING AFTER EXISTING FIBER CONDUIT MODIFICATION IS DONE AND FIBER COMMUNICATION IS UP AND RUNNING.

3. AFTER FIBER COMMUNICATION IS OPERATIONAL FOR RAW WATER PUMP STATIONS, CONTRACTOR SHALL PERFORM FUSION METHOD SPLICING AND PROVIDE WEATHERPROOF SLEEVE ON EACH STRAND AS WELL AS ONE SLEEVE COVERING OVERALL STRANDS OF EACH FIBER CABLE. REMOVE UNUSED FIBER OPTIC PATCH PANELS INSIDE THE CABINET.

4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIBER OPTIC CONDUIT FROM EXISTING CONTROL ROOM TO EXISTING ELECTRICAL BUILDING ALONG THE EXISTING WALL OF FILTER BUILDINGS "A", "B", AND "C", ALONG BOTTOM BEAM OF ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') AND ALONG THE EXISTING WALL OF ELECTRICAL BUILDING AS SHOWN ON DRAWING 00N02. BEFORE REMOVING THE EXISTING FIBER OPTIC CABLES ON THE ROOF OF FILTER BUILDING "B". EXISTING FIBER OPTIC CONDUIT RELOCATION IS ANTICIPATED TO BE PERFORMED IN THE ON-GOING SCADA IMPROVEMENT PROJECT. IF SCADA IMPROVEMENT PROJECT IS NOT ALREADY RELOCATED THE EXISTING FIBER OPTIC CONDUIT, CONTRACTOR SHALL PERFORM ACCORDING TO THE ABOVE KEYED NOTES.

5. CONTRACTOR SHALL PROVIDE AND INSTALL NEW EXPOSED MV CONDUITS BETWEEN MAIN ELECTRICAL ROOM AND EXISTING EXPANSION FITTINGS ON THE ROOF OF BUILDING "B" APPROXIMATELY ABOVE THE SOUTH OFFICE ROOM. PROVIDE AND INSTALL NEW EXPOSED CONDUITS ON ROOF WITH NEW CONDUIT SUPPORTS. CONDUIT SUPPORTS SHALL MATCH EXISTING. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR NEW ROOF MEMBRANE INSTALLATION AND ADJUST CONDUIT AND CONDUIT SUPPORTS ACCORDINGLY. PROVIDE AND INSTALL NEW EXPOSED CONDUITS WITH RACK SUPPORTS ALONG THE WEST WALL OF FILTER BUILDING "B". REFER TO DRAWINGS 03M08 AND 03M09 FOR WALL MOUNTED RACK DETAILS, FIELD DETERMINE ACTUAL TRANSITION TO VERTICAL CONDUITS AND INSTALL ACCORDINGLY. PROVIDE AND INSTALL CONDUITS ALONG THE NORTH SIDE OF BUILDING "B" WITH TEMPORARY SUPPORT MOUNTED NEAR THE EXISTING PIPE SUPPORTS. WHEN NEW PIPE SUPPORTS ARE INSTALLED, CONTRACTOR SHALL TRANSITION CONDUIT MOUNTING HARDWARE AND SUPPORTS TO THE NEW PIPE SUPPORTS SO THAT THE EXISTING PIPE SUPPORTS CAN BE DEMOLISHED. REFER TO STRUCTURAL DRAWINGS FOR EXISTING PIPE SUPPORTS TO BE DEMOLISHED AND FOR NEW PIPE SUPPORTS INSTALLATION. PROVIDE AND INSTALL CONDUITS ALONG BOTTOM BEAM OF ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') AND ALONG THE EXISTING WALL OF ELECTRICAL BUILDING AND BUILDING "C" AS SHOWN ON DRAWINGS 00E04. PROVIDE AND INSTALL STAINLESS STEEL JUNCTION BOXES AND/OR MOGUL LB CONDULETS AS NECESSARY. INSTALL LONG RADIUS 90 BEND WHERE MOGUL LB OR JUNCTION BOX IS NOT PRESENT.

6. CONTRACTOR SHALL RELOCATE THE EXISTING INSTRUMENTS, CONDUITS AND CONDUCTORS/CABLES AS NECESSARY TO PROVIDE SPACE FOR CONDUIT ENTRIES. EXTEND CONDUITS AND CONDUCTORS/CABLES ACCORDINGLY. FURNISH AND INSTALL NEW JUNCTION BOXES FOR NEW CONDUITS ENTERING THE BUILDING AS SHOWN ON DRAWING 03E06.

7. WHEN NEW MV CONDUITS AND JUNCTION BOXES ARE INSTALLED BETWEEN ELECTRICAL ROOM AND BUILDING "B" EXPANSION CONDUIT FITTINGS, FURNISH AND INSTALL NEW MV CABLES FOR TRANSFORMERS NO.3 AND NO.4 BETWEEN SWGR-1 AND TRANSFORMERS AND NEW MV CABLES FOR GROUND STORAGE TANK PUMP STATION BETWEEN SWGR-1 AND THE EXISTING JUNCTION BOX LOCATED ON THE ROOF OF THE CONTROL ROOM (FILTER BUILDING "A"). TERMINATE NEW MV CABLES IN EXISTING SWGR-1, TRANSFORMERS AND JUNCTION BOX ACCORDINGLY. REFER TO DRAWING 00E04.

8. WHEN NEW ROOF OF FILTER BUILDING "B" IS COMPLETE, REINSTALL EXISTING CCTV CAMERA AND PROVIDE NEW RIGID ALUMINUM CONDUIT WITH CONDUIT SUPPORTS AND EXPANSION FITTINGS BETWEEN CCTV JUNCTION BOX LOCATED ON ROOF OF BUILDING "A" AND RELOCATED CCTV CAMERA. REINSTALL THE EXISTING CCTV CAMERA POWER AND COMMUNICATION CABLES TO THE RELOCATED CAMERA VIA NEW CONDUIT. COORDINATE EXACT LOCATION FOR MOUNTING OF RELOCATED CAMERA WITH OWNER AND EXTEND CABLES ACCORDINGLY. CONDUIT SUPPORTS SHALL MATCH EXISTING.

9. YC76-77 AND YC48-53 SHALL BE UNDERGROUND DUCTBANK FROM CHEMICAL BUILDING - ELECTRICAL ROOM TO STUB-UP LOCATION NEAR CHEMICAL PIPE SUPPORT (NEAR EXTERIOR WALL OF AIR COMPRESSOR ROOM) AND TRANSITION TO EXPOSED CONDUITS ALONG THE PIPING SUPPORT. COORDINATE WITH STRUCTURAL DRAWINGS FOR PIPE SUPPORT LOCATION AND ELEVATION AND FOLLOW CONDUITS ALONG PIPE ROUTING. SUPPORT CONDUITS AS PER NEC REQUIREMENTS. FOR BIDDING PURPOSE, CONTRACTOR SHALL INCLUDE ONE 24"x24"x10"D STAINLESS STEEL JUNCTION BOX FOR WIRING PULLING POINT AND SHALL BE FIELD LOCATE ACTUAL LOCATION TO BE INSTALLED.

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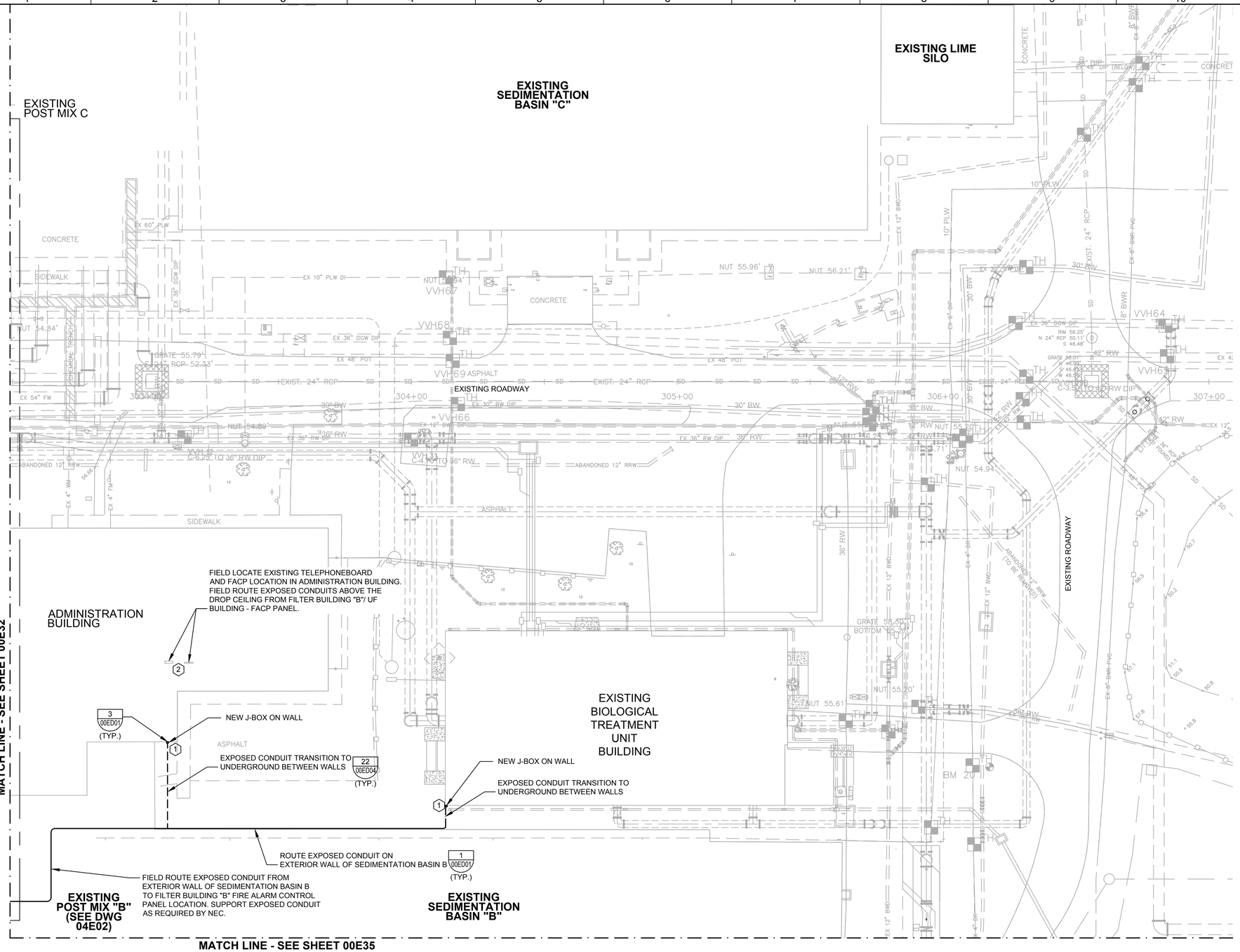

KEYED NOTES:

1. COORDINATE WITH FIRE ALARM CONTRACTOR FOR FIRE ALARM CONDUIT ROUTING BETWEEN UF BUILDING TO ADMINISTRATION BUILDING AND UF BUILDING TO BIOLOGICAL TREATMENT UNIT BUILDING. FIELD ROUTE CONDUITS TO AVOID CONFLICTS WITH EXISTING CONDITIONS. PROVIDE AND INSTALL NEW NEMA 4X 316 STAINLESS STEEL JUNCTION BOXES AT EXISTING ADMINISTRATION BUILDING EXTERIOR WALL AND BIOLOGICAL TREATMENT UNIT BUILDING EXTERIOR WALL. FIELD DETERMINE EXACT LOCATION FOR MOUNTING OF NEW JUNCTION BOXES. NEW JUNCTION BOX SHALL BE MINIMUM 8"x8"x6" AND UPSIZE AS NEEDED BASED ON THE ACTUAL CONDUIT ENTRY AND EXIT POSITION (STRAIGHT OR ANGLE PULL).
2. EXISTING FIRE ALARM SYSTEM OF ADMINISTRATION BUILDING AND TELEPHONEBOARD ARE LOCATED IN THE ELECTRICAL/TELEPHONE NEAR THE SOUTH ENTRANCE DOOR OF THAT BUILDING. LOCATION SHOWN ARE APPROXIMATE ONLY AND FIELD DETERMINE ACTUAL LOCATION AND FIELD ROUTE EXPOSED CONDUITS.

ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 2

SCALE: 1" = 20'-0"

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ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 2

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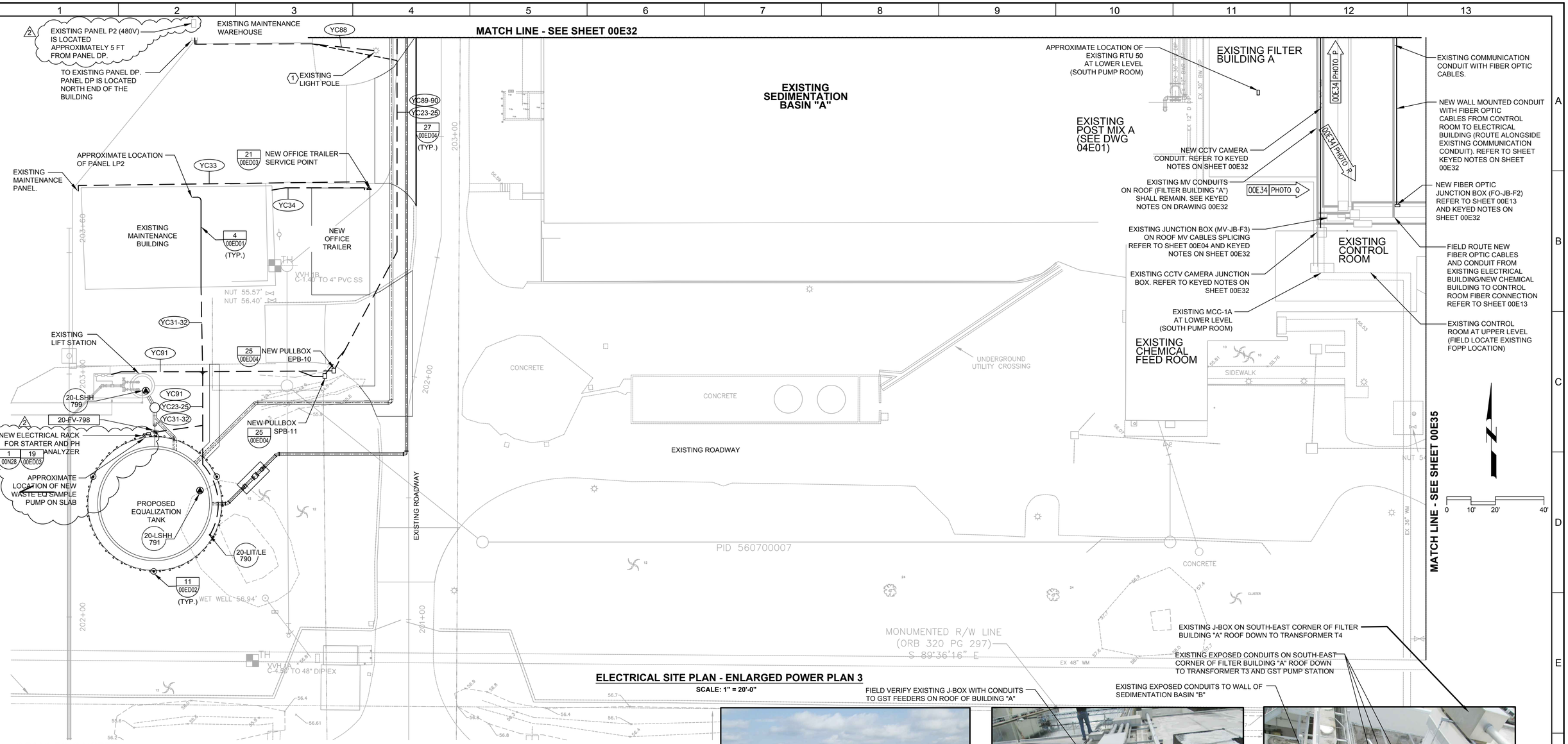

ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 3

SCALE: 1" = 20'-0"

GROUNDING NOTES

1. CONTRACTOR SHALL INSTALL GROUNDING CONDUCTOR WITH A MINIMUM OF THREE GROUND RODS FROM THE GROUNDING GRID TO ALL DISCONNECTS, ETC. FOR A COMPLETE GROUNDING SYSTEM.
2. CONTRACTOR SHALL BOND REBAR IN FOUNDATION TO GROUND GRID USING EXOTHERMIC CONNECTIONS, EXCEPT FOR EQ TANK FOUNDATION. DO NOT BOND EQ TANK FOUNDATION WITH GROUND GRID. (1)
3. PRIMARY STRUCTURE OR BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG BARE COPPER WIRE INSTALLED IN THE FOUNDATION AND AROUND THE STRUCTURE OR BUILDING PERIMETER, MINIMUM 30" BELOW FINISHED GRADE TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR, ETC. SHALL HAVE A MINIMUM #4 STRANDED BARE COPPER CONDUCTOR BONED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS OR FINISHED GRADE SHALL HAVE A 72" CONDUCTOR PIGTAIL AT EACH LOCATION FOR CONNECTION TO EQUIPMENT.
4. CONTRACTOR SHALL PROVIDE LIGHTNING PROTECTION SYSTEM AS PER SPECIFICATION 26_41_00 WITH A MINIMUM OF THREE DOWN CONDUCTORS AND TIE TO THE GROUNDING SYSTEM.
5. GROUNDING WIRE/CONDUCTOR RING SHALL BE CONNECT TO THE DUCTBANK GROUNDING WIRE/CONDUCTOR.

KEYED NOTES:

(1) PRIOR TO ANY TYPE OF DEMOLITION, CONTRACTOR SHALL PROVIDE AND INSTALL NEW LIGHTING CONTACTOR, PHOTOCELL, CONDUITS AND CONDUCTORS TO REPOWER EXISTING LIGHTING FROM EXISTING PANEL DP. LIGHTING CONTACTOR AND PHOTOCELL SHALL BE WALL MOUNTED ON EXISTING MAINTENANCE WAREHOUSE WITH STAINLESS STEEL CHANNEL AND HARDWARE. COORDINATE EXACT LOCATION WITH OWNER. LIGHTING SHALL REMAIN IN OPERATION AT ALL TIMES.

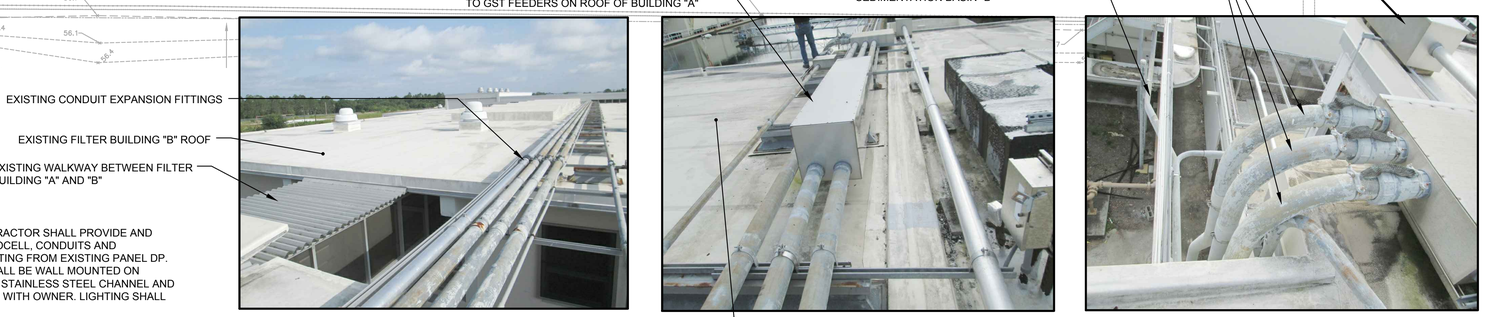

PHOTO P: EXISTING FILTER BUILDING B ROOF
NOT TO SCALE

PHOTO Q: EXISTING FILTER BUILDING A ROOF
NOT TO SCALE

PHOTO R: EXISTING FILTER BUILDING A ROOF TRANSITION TO TRANSFORMERS AND SEDIMENTATION BASIN B
NOT TO SCALE

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MATCH LINE - SEE SHEET 00E33

MATCH LINE - SEE SHEET 00E34

EXISTING POST MIX "B" (SEE DWG 04E02)

EXISTING SEDIMENTATION BASIN "B"

EXISTING TRANSFORMER T-3 REFER TO SHEET 00E04 AND KEYED NOTES ON SHEET 00E32

EXISTING TRANSFORMER T-4 REFER TO SHEET 00E04 AND KEYED NOTES ON SHEET 00E32

EXISTING MV CONDUITS/ CABLES TO GST PUMP STATION TO REMAIN

EXISTING XFMR 3&4 VAULT

EXISTING SOUTH PUMP ROOM

EXISTING NORTH PUMP DISTRIBUTION SWITCHGEAR 3 & 4

EXISTING ROADWAY

STRUCTURE

SIDEWALK

ASPHALT

12" BWD

VVH57

VVH58

NUT 55.54'

NUT 53.89'

NUT 55.13'

EX 8" BWR PVC

SOLAR PANELS

PID 560700007

CONCRETE

EX 48" WM

SECURITY FENCE

WATERLINE ROAD

ASPHALT ROADWAY

80'

BM 15

MONUMENTED R/ (ORB 320 PG RADIUS 877.

PROVIDE TEMPORARY GENERATOR POWER FOR GST PUMP STATION MV SWITCHGEAR DURING MV CONDUIT RELOCATION. SEE SPECIFICATION 26 05 02 FOR ADDITIONAL REQUIREMENTS.

EXISTING GST PUMP STATION/ REMOTE HIGH SERVICE PUMP BUILDING

0 10' 20' 40'

CONDUIT STUB-OUT LOCATION FROM EXISTING DISTRIBUTION PANELS AT USS-7 AND USS-8

PHOTO 7: EXISTING USS-7 AND USS-8
NOT TO SCALE

ELECTRICAL SITE PLAN - ENLARGED POWER PLAN 4
SCALE: 1" = 20'-0"

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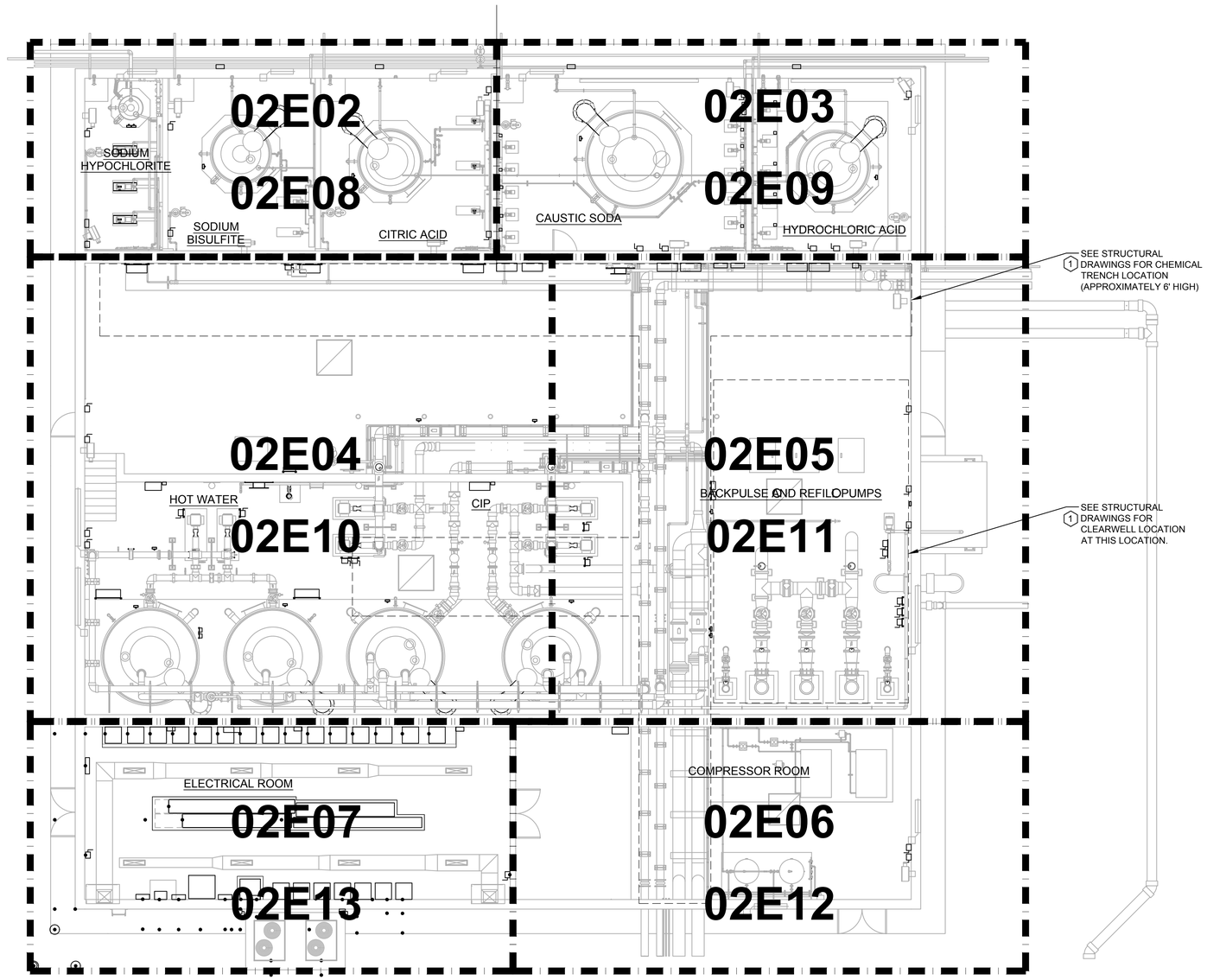

1 SEE STRUCTURAL DRAWINGS FOR CHEMICAL TRENCH LOCATION (APPROXIMATELY 6' HIGH)

1 SEE STRUCTURAL DRAWINGS FOR CLEARWELL LOCATION AT THIS LOCATION.

CHEMICAL BUILDING - KEY PLAN
SCALE: 1/8" = 1'-0"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

LIGHTING AND RECEPTACLE NOTES (SHEET 02E02 THRU 02E13)

1. COMBINING OF NEUTRAL CONDUCTORS FOR LIGHTING AND RECEPTACLE CIRCUITS SHALL NOT BE ALLOWED. ALL CONDUCTORS LEAVING A CIRCUIT BREAKER IN A PANELBOARD SHALL CARRY A SEPARATE NEUTRAL CONDUCTOR IDENTICAL IN SIZE.
2. ALL CONDUITS OUTSIDE THE BUILDING SHALL BE RECESSED, UNLESS OTHERWISE NOTED.
3. BEFORE INSTALLATION, COORDINATE LOCATION OF FIXTURES WITH ALL DISCIPLINES TO AVOID CONFLICTS AND MOVE FIXTURES IF NECESSARY AFTER APPROVAL FROM ENGINEER.
4. CONDUIT/CABLES NOT SHOWN ON FACILITY PLAN FOR CLARITY. PROVIDE COMPLETE WORKING LIGHTING, RECEPTACLE, ETC. SYSTEM. PROVIDE MINIMUM 3/4"C, 2#12, 1#12G.
5. FOR LOCATIONS OF AHU'S AND CU'S, SEE HVAC DRAWINGS AND ADJUST CONDUIT ROUTING ACCORDINGLY.

ELECTRICAL NOTE:

1. CHEMICAL STORAGE AREAS (SODIUM HYPCHLORITE, SODIUM BISULFITE, CITRIC ACID, CAUSTIC SODA, HYDROCHLORIC ACID AREA) SHALL BE DESIGNATED AS CORROSIVE AREAS, WHETHER INDICATED OR NOT ON OTHER DRAWINGS. IN CORROSIVE AREAS, CONTRACTOR SHALL USE FRP UNISTRUCT WITH 316 STAINLESS STEEL HARDWARE FOR MOUNTING.
2. CONDUIT ROUTING AT CHEMICAL BUILDING IS NOT SHOWN FOR CLARITY. CONTRACTOR SHALL FIELD ROUTE EXPOSED AND UNDERGROUND CONDUITS TO AVOID CONFLICTS WITH EQUIPMENT, PIPING, TRENCH, WETWELL, ETC. AND ADJUST ACCORDINGLY.

KEYED NOTES:

1 CONTRACTOR SHALL COORDINATE UNDERGROUND CONDUIT ROUTING AT THE PROPOSED CHEMICAL BUILDING WITH UNDERGROUND WETWELL AND PIPE TRENCH LOCATION. NO UNDERGROUND CONDUIT SHALL BE ROUTED THRU OR BELOW THE WETWELL. UNDERGROUND CONDUIT CROSSING EACH PIPE TRENCH SHALL BE 12" BELOW BOTTOM OF PIPE TRENCH IF CANNOT AVOID ROUTING AROUND THE PIPE TRENCH. ALL COST ASSOCIATED WITH HAND DIGGING AND INSTALLATION OF UNDERGROUND CONDUITS BELOW PIPE TRENCH SHALL BE INCLUDED IN THE BID PRICE.

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CHEMICAL BUILDING - KEY PLAN

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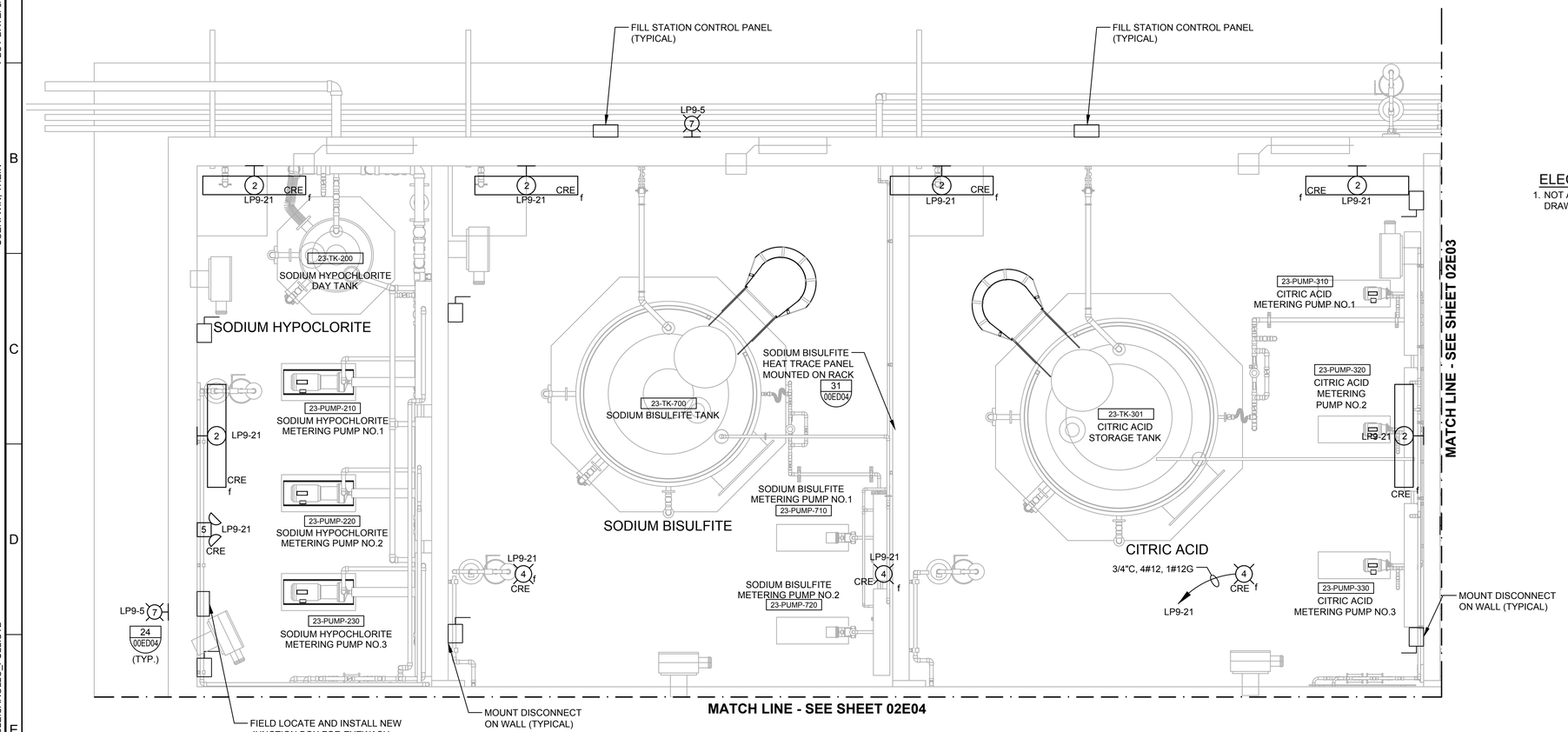

CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 1

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

0 2' 4' 6'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

REV	DATE	BY	DESCRIPTION

RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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carollo
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PHONE (941) 371-9832 FAX (941) 371-9873
CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02E02

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg

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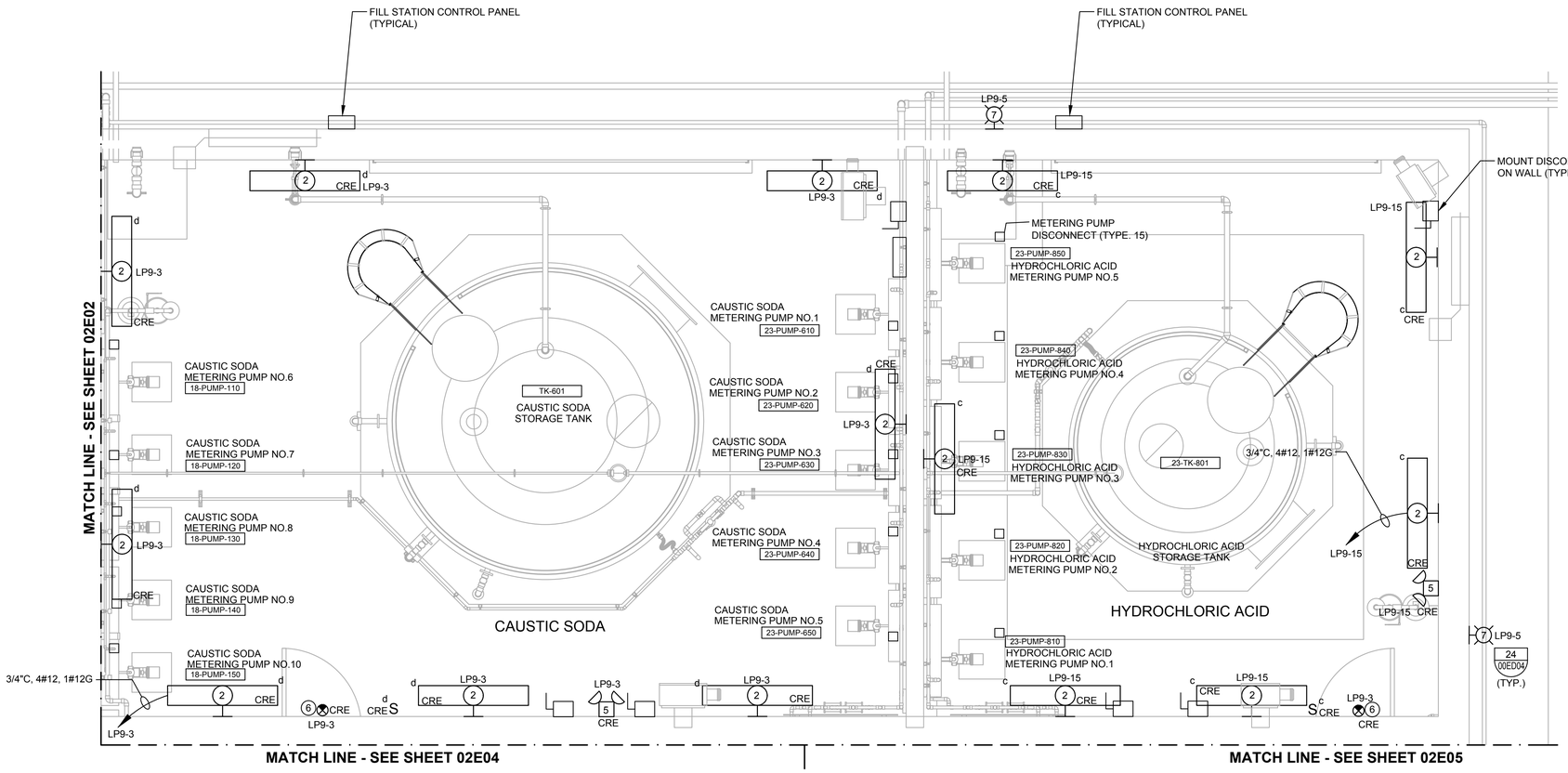

SCALE: 3/8" = 1'-0"

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 2

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

RECORD DRAWING

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 2

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 02E03

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg

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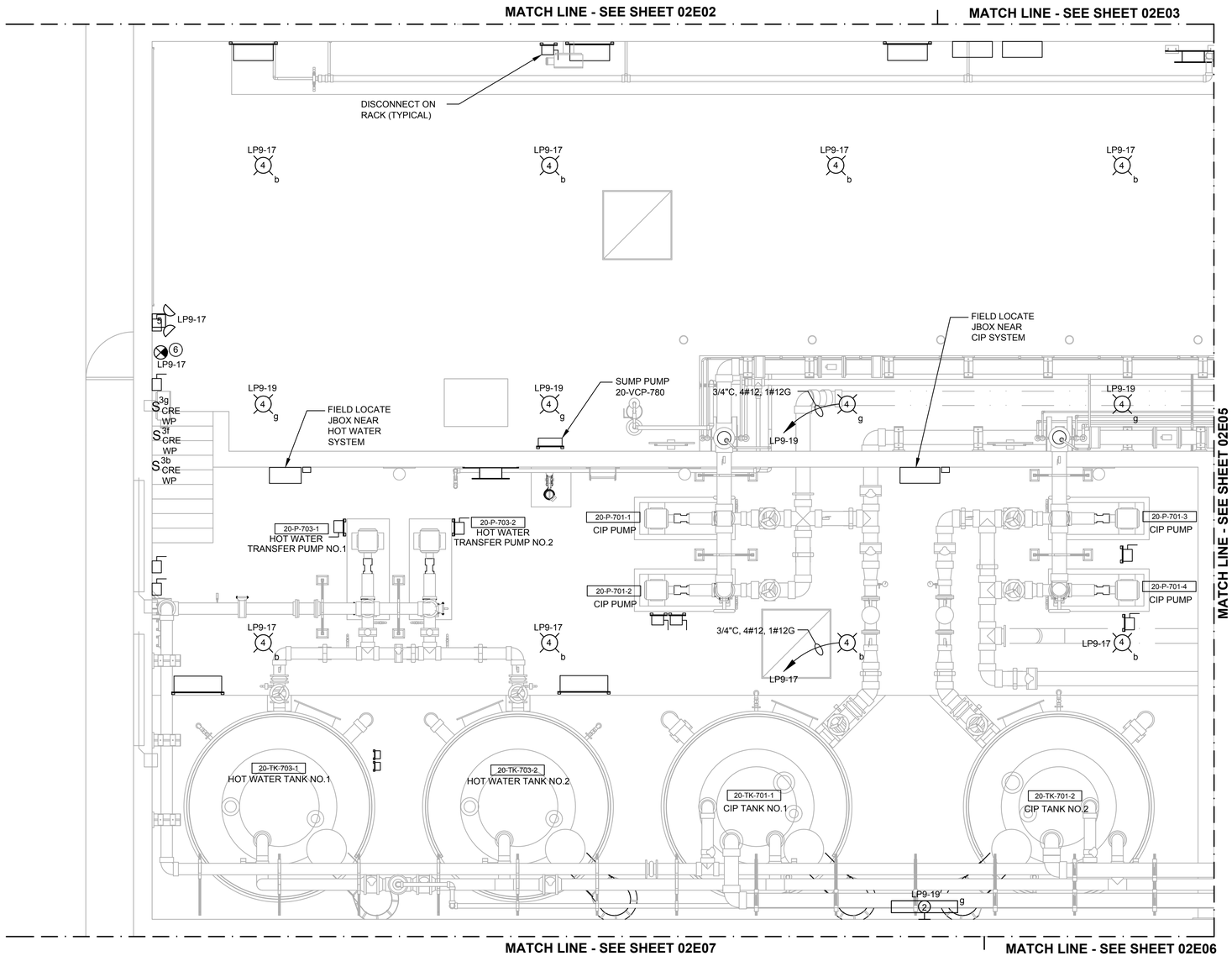

0 2' 4' 8'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 3

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

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 3

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 02E04

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg

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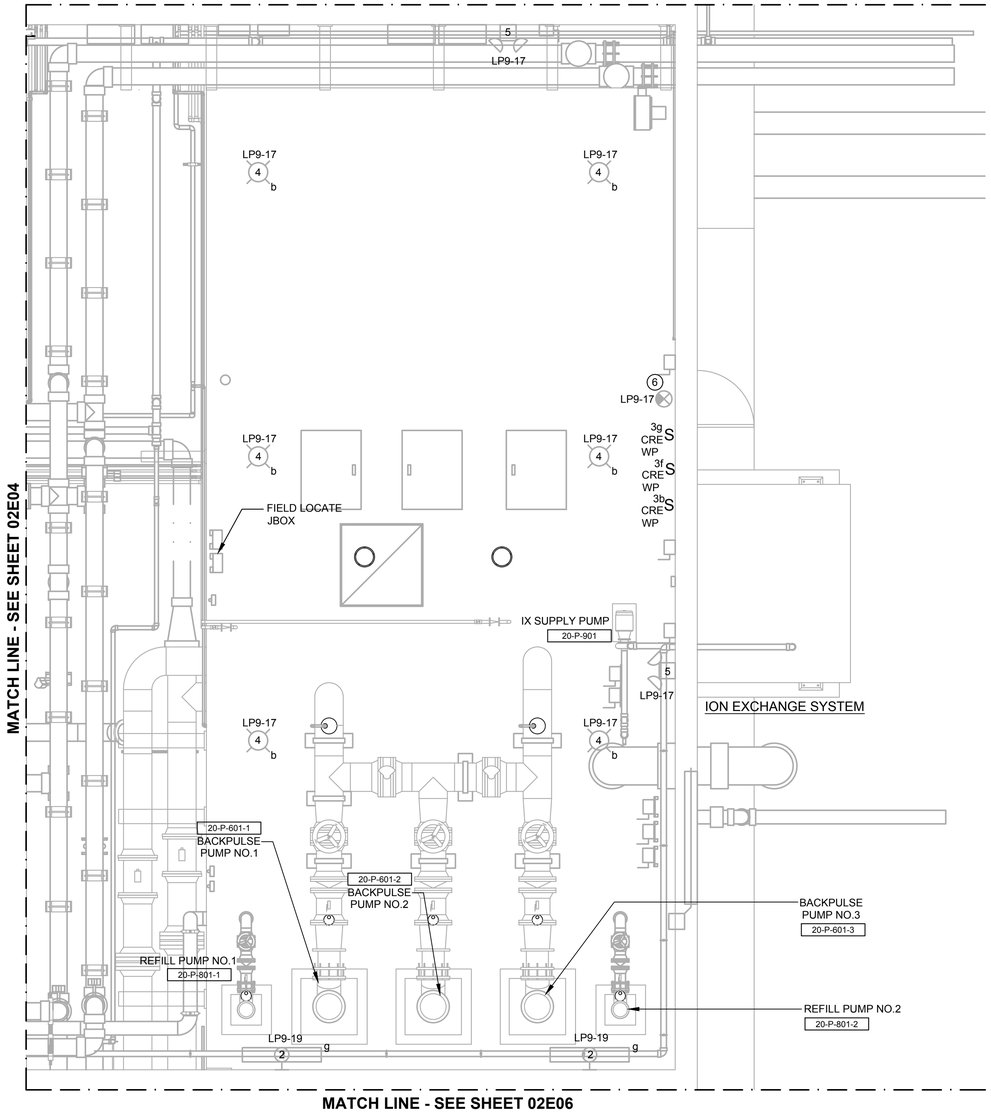

0 2' 4' 8'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 4

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

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MANATEE COUNTY
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CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 4

VERIFY SCALES
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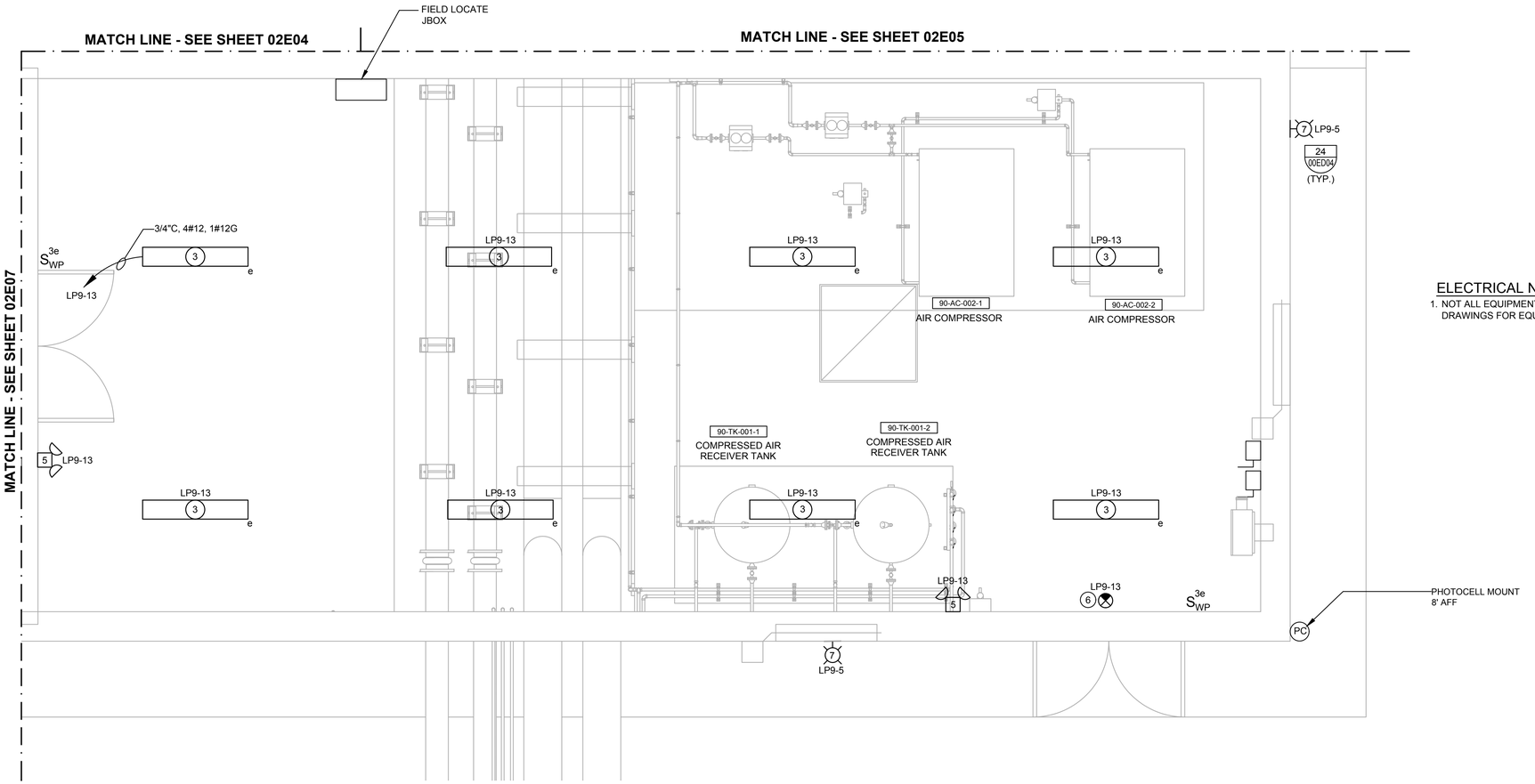
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02E05

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg



0 2' 4' 6'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 5

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

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			RECORD DRAWING

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LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED LIGHTING PLAN 5

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02E06

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg

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PLOT SCALE:1:1
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FIELD LOCATE AND INSTALL NEW ANALOG JUNCTION BOX FOR PERMEATE VFD'S.

FIELD LOCATE AND INSTALL NEW CONTROL JUNCTION BOX FOR PERMEATE VFD'S.

FIELD LOCATE AND INSTALL NEW ANALOG JUNCTION BOX FOR PERMEATE VFD'S.

FIELD LOCATE AND INSTALL NEW JUNCTION BOX FOR BLOWER VFD'S.

MATCH LINE - SEE SHEET 02E04

20-VFD -301-1 | 20-VFD -301-2 | 20-VFD -301-3 | 20-VFD -301-4 | 20-VFD -301-5 | 20-VFD -301-6 | 20-VFD -301-7 | 20-VFD -301-8 | 20-VFD -301-9 | 20-VFD -301-10 | 20-VFD -301-11 | 20-VFD -301-12 | 20-VFD -601-1 | 20-VFD -601-2 | 20-VFD -601-3

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

LP9-5 (7) 24 00ED04 (TYP.)

5 LP9-1 FACP-2

LP9-1 (14)a | S 3a

MCC-9 | PLC-9 PANEL | MCC-10 | PLC-8 PANEL

EQUIPMENT HOUSE KEEPING PAD (TYPICAL) 28 00ED04

LP9-1 (6)

ELECTRICAL ROOM

3/4"C, 4#12, 1#12G → LP9-1

AHU-1 DISC.

LP9-1 5

MATCH LINE - SEE SHEET 02E06

AHU-1 | PP-9 | MTS-9 | LP-9 | UPS-9 | ULP-9 | TX-9 | C09 | 20-VFD -201-1 | 20-VFD -201-2 | 20-VFD -201-3 | 20-VFD -701-1 | 20-VFD -701-2 | 20-VFD -701-3 | 20-VFD -701-4 | AHU-2 | AHU-2 DISC.

43 00ED06 DISCONNECT ON WALL (TYPICAL)

(7) → LP9-5 VIA C09

3/4"C, 3#12, 1#12G

CU-1 | CU-2

CHEMICAL BUILDING - ELECTRICAL ROOM LIGHTING PLAN

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

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Manatee County FLORIDA

MANATEE COUNTY
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CHEMICAL BUILDING - ELECTRICAL ROOM LIGHTING PLAN

VERIFY SCALES
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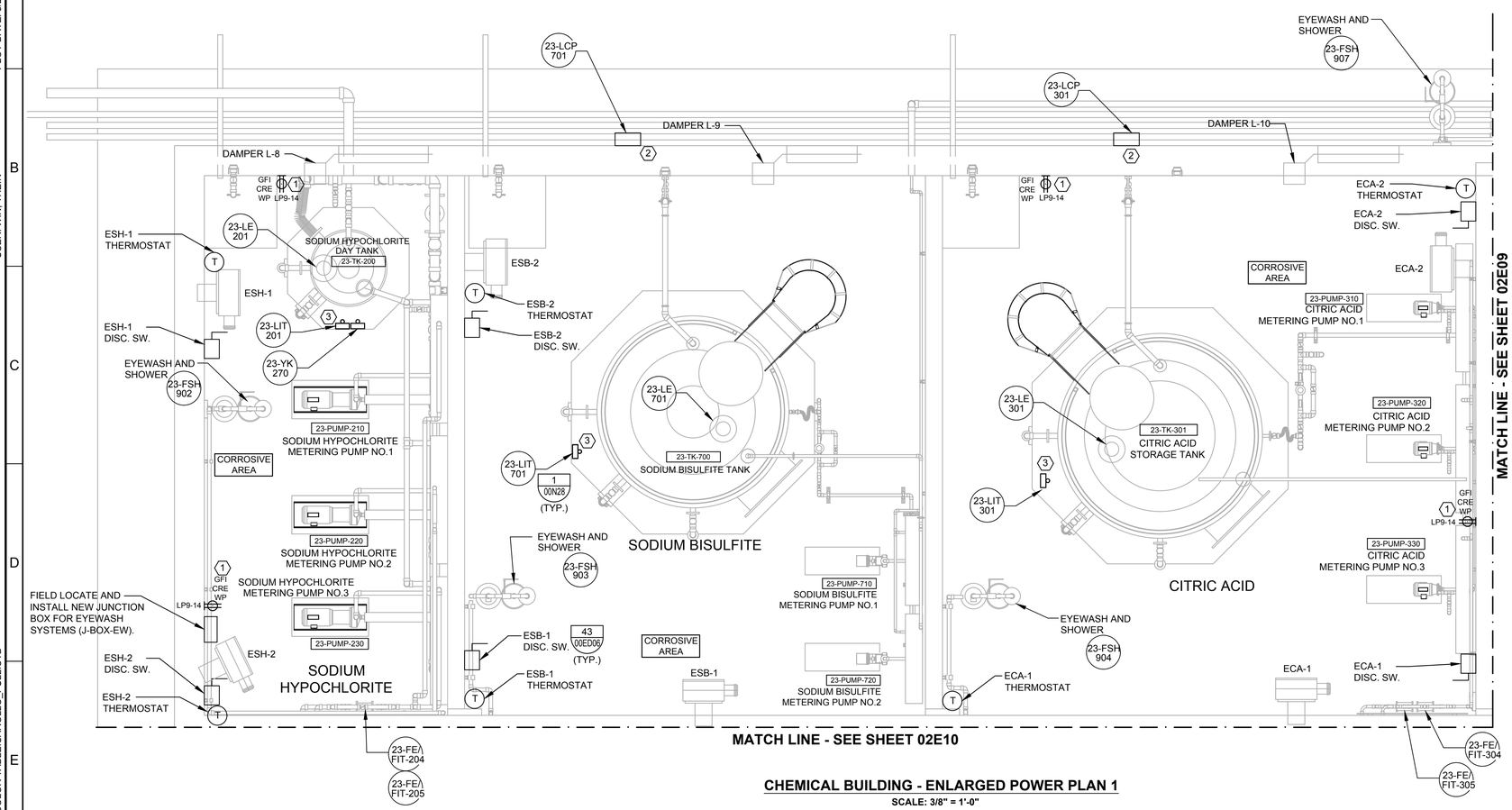
JOB NO. 09520I.10
DRAWING NO. 02E07

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg



CHEMICAL BUILDING - ENLARGED POWER PLAN 1

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

0 2' 4' 6'

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

NOTES:

1. UNDERGROUND CONDUITS PENETRATING CONTAINMENT AREA SHALL NOT HAVE COUPLINGS LOWER THAN THE HEIGHT OF CONTAINMENT CURB OR 18" ABOVE FINISHED FLOOR, WHICHEVER IS HIGHER. ALL UNDERGROUND CONDUIT PENETRATIONS SHALL HAVE 4" GROUTING AROUND CONDUIT UNLESS CONDUIT IS PENETRATING AT THE EQUIPMENT PAD OR STORAGE TANK PAD.

KEYED NOTES:

(1) CONTRACTOR SHALL PROVIDE AND INSTALL FRP CHANNEL UNISTRUT AND MOUNT RECEPTACLE 18" ABOVE CONTAINMENT CURB, IF WALL IS NOT APPLICABLE TO MOUNT AT THAT LOCATION.

(2) COORDINATE WITH MECHANICAL CONTRACTOR FOR THE ACTUAL FILL LINE CONNECTION LOCATION AND ADJUST FILL PANEL LOCATION ACCORDINGLY.

(3) CONTRACTOR SHALL PROVIDE AND INSTALL FRP UNISTRUT FOR VERTICAL CONDUIT FROM LEVEL TRANSMITTER (LIT) TO LEVEL SENSOR (LE) ON TOP OF EACH TANK AND SUPPORT AS REQUIRED BY NEC.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED POWER PLAN 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02E08

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg

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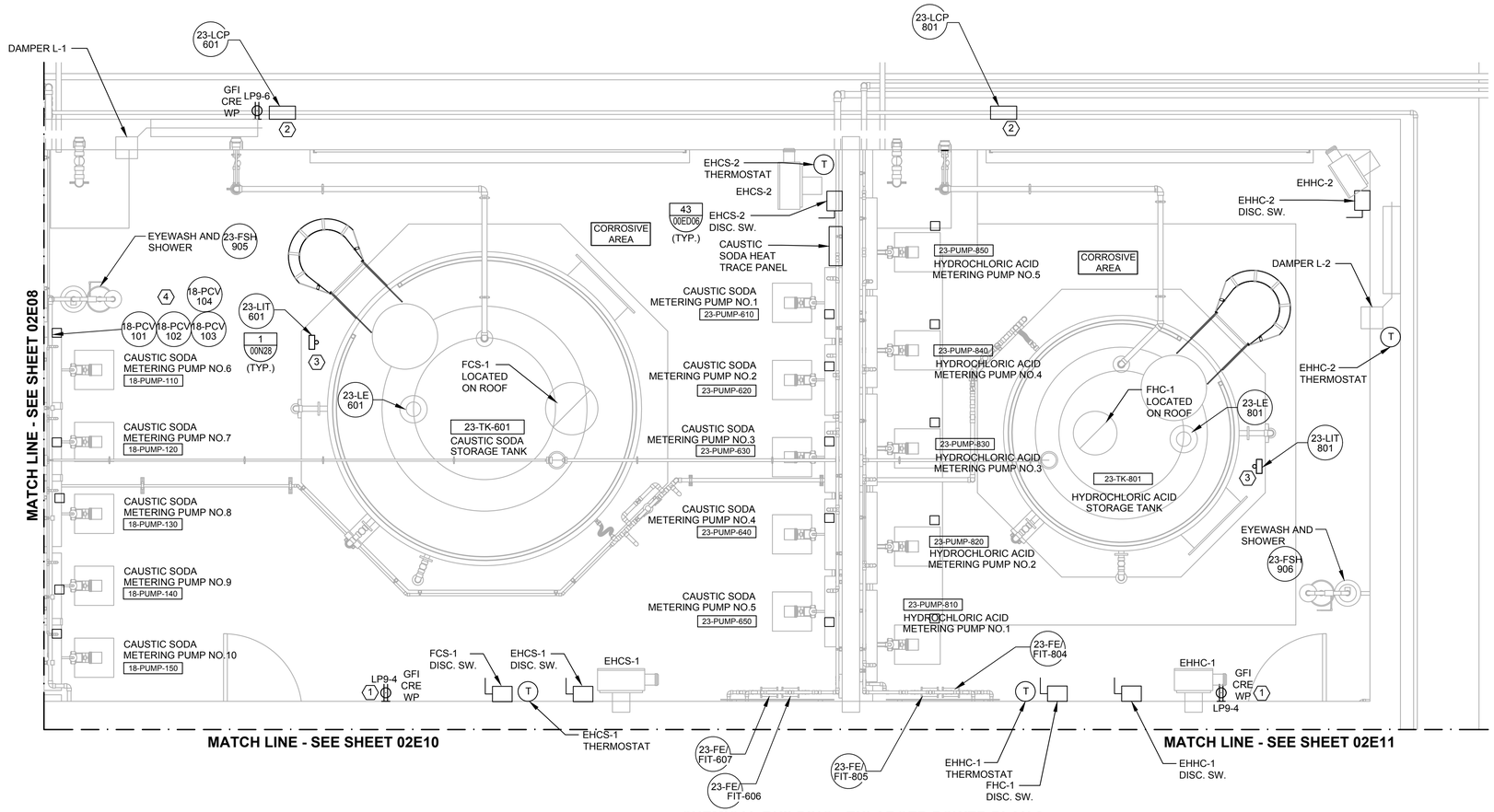

CHEMICAL BUILDING - ENLARGED POWER PLAN 2

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

0 2' 4' 6'

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

NOTES:

1. UNDERGROUND CONDUITS PENETRATING CONTAINMENT AREA SHALL NOT HAVE COUPLINGS LOWER THAN THE HEIGHT OF CONTAINMENT CURB OR 18" ABOVE FINISHED FLOOR, WHICHEVER IS HIGHER. ALL UNDERGROUND CONDUIT PENETRATIONS SHALL HAVE 4" GROUTING AROUND CONDUIT UNLESS CONDUIT IS PENETRATING AT THE EQUIPMENT PAD OR STORAGE TANK PAD.

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL FRP CHANNEL UNISTRUT AND MOUNT RECEPTACLE 18" ABOVE CONTAINMENT CURB, IF WALL IS NOT APPLICABLE TO MOUNT AT THAT LOCATION.
2. COORDINATE WITH MECHANICAL CONTRACTOR FOR THE ACTUAL FILL LINE CONNECTION LOCATION AND ADJUST FILL PANEL LOCATION ACCORDINGLY.
3. CONTRACTOR SHALL PROVIDE AND INSTALL FRP UNISTRUT FOR VERTICAL CONDUIT FROM LEVEL TRANSMITTER (LIT) TO LEVEL SENSOR (LE) ON TOP OF EACH TANK AND SUPPORT AS REQUIRED BY NEC.
4. FIELD ROUTE CONDUIT/WIRES FROM NEW PNEUMATIC VALVE (18-PCV-104) TO THE PLC PANEL AS SHOWN ON RISER DIAGRAM.

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			RECORD DRAWING

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DRAWN TW
CHECKED PFH
DATE APRIL 2025

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED POWER PLAN 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02E09

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg

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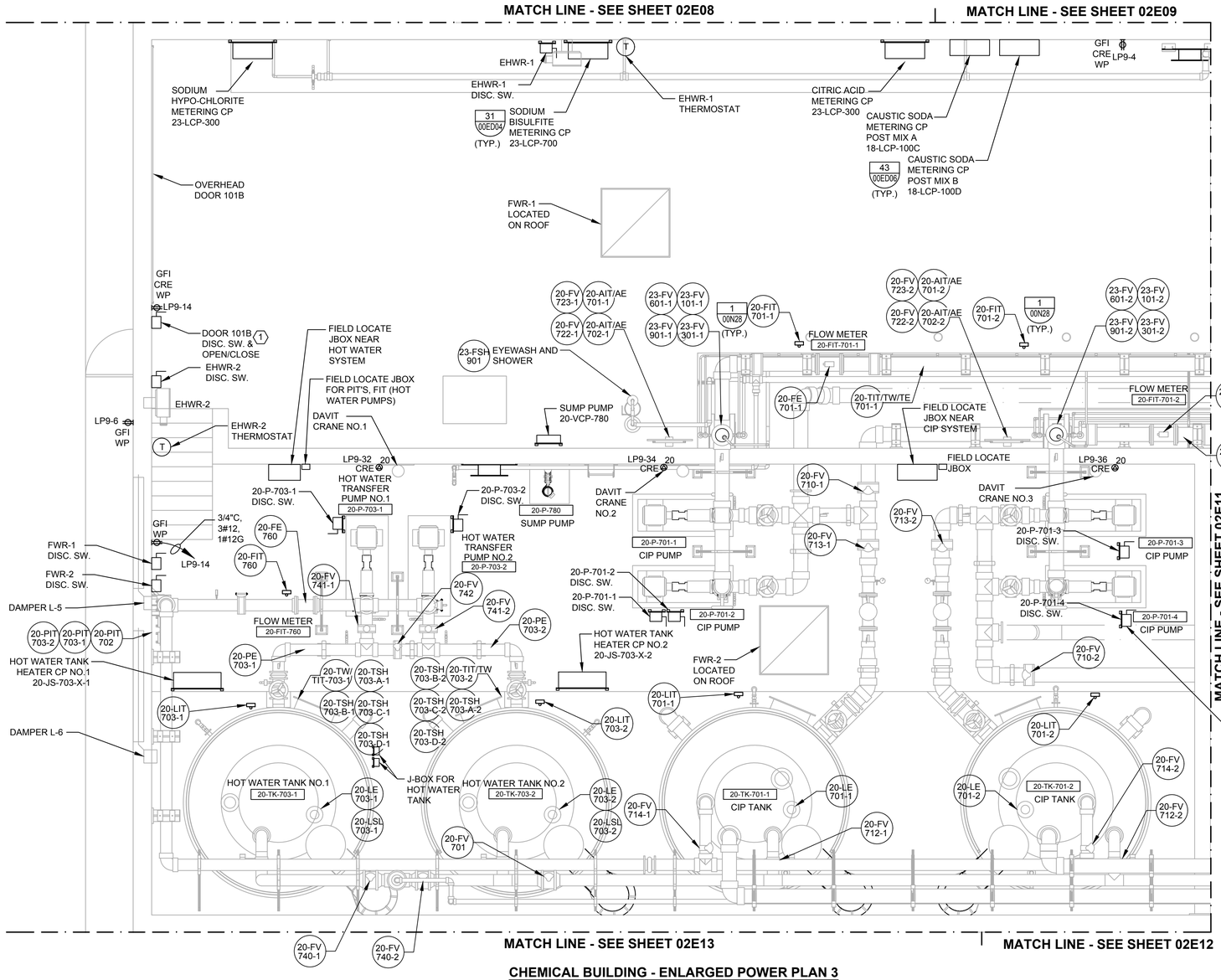

MATCH LINE - SEE SHEET 02E13
MATCH LINE - SEE SHEET 02E12

CHEMICAL BUILDING - ENLARGED POWER PLAN 3

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

0 2' 4' 8'

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

KEYED NOTES:

1. CONTRACTOR SHALL MOUNT DISCONNECT 17FT AFF AND OPEN/CLOSE STATION AT 48FT AFF.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
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CHEMICAL BUILDING - ENLARGED POWER PLAN 3

VERIFY SCALES
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0 1"
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JOB NO. 09520I.10
DRAWING NO. 02E10

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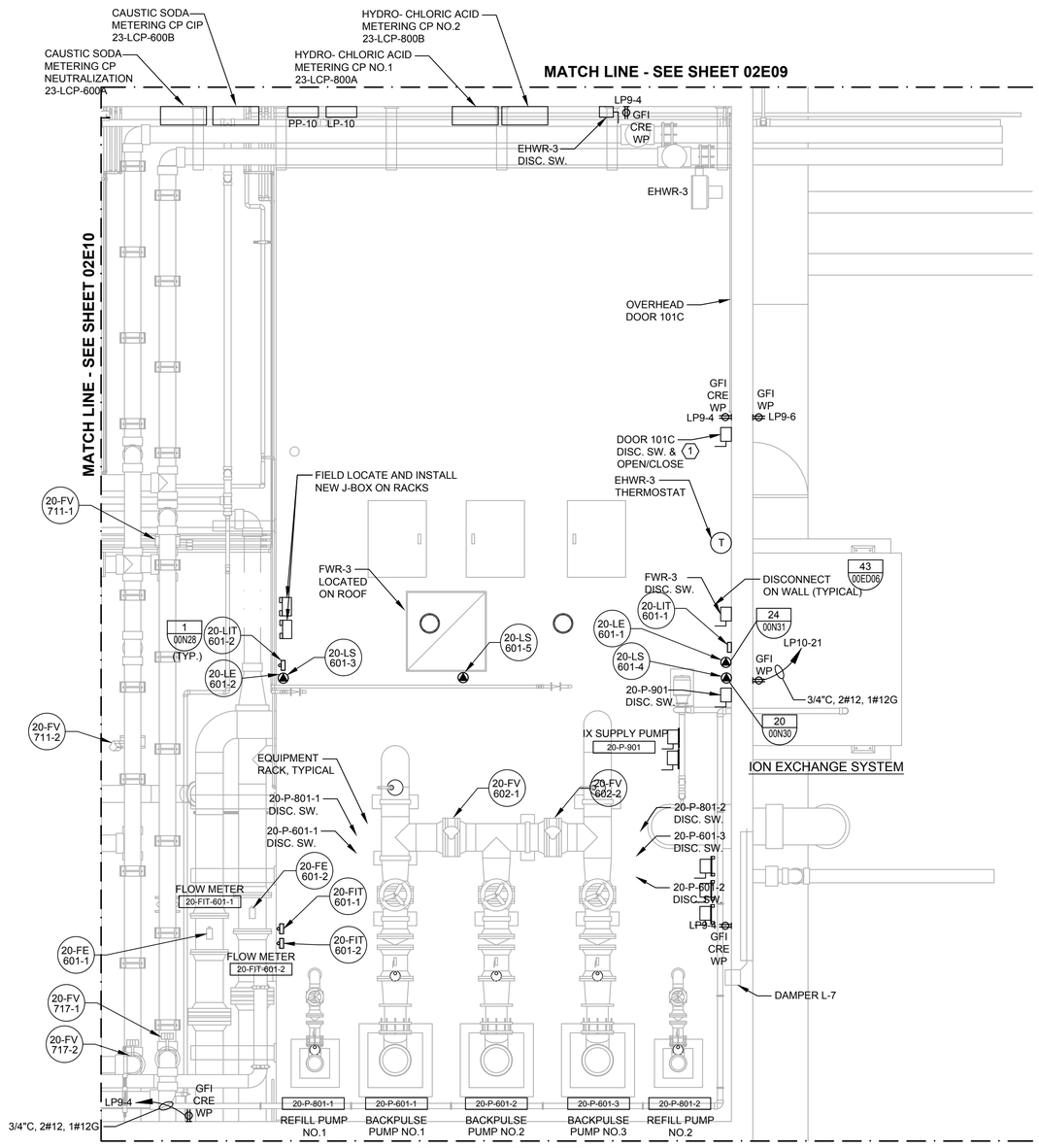

CHEMICAL BUILDING - ENLARGED POWER PLAN 4

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

0 2' 4' 8'

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

KEYED NOTES:

1. CONTRACTOR SHALL MOUNT DISCONNECT 17FT AFF AND OPEN/CLOSE STATION AT 48FT AFF.

PLOT DATE: 3/21/2025 4:59:56 PM
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COLOR TABLE:CAROLLO_FULL.CTB
PLOT SCALE:1:1
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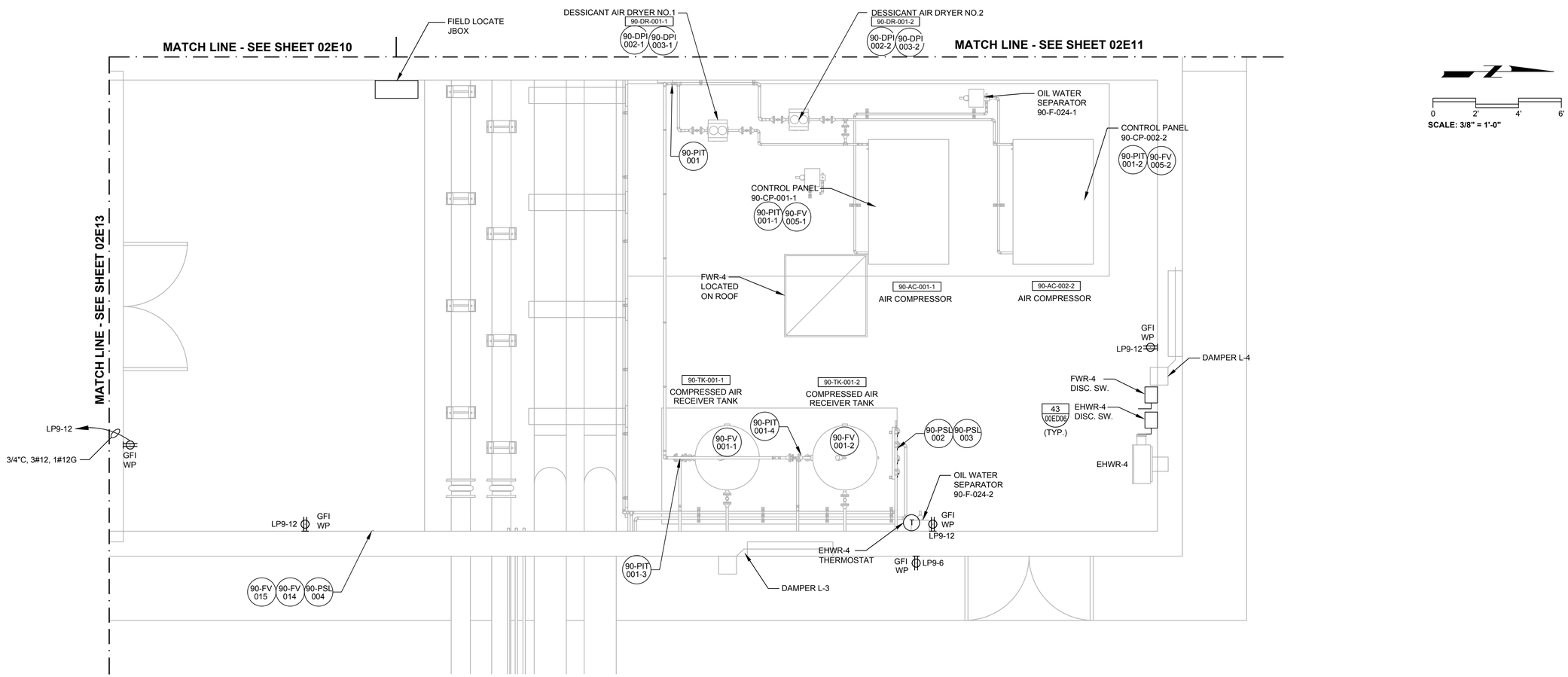
MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED POWER PLAN 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 02E11

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg



CHEMICAL BUILDING - ENLARGED POWER PLAN 5

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

PLOT DATE: 3/21/2025 5:00:01 PM
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COLOR TABLE:CAROLLO_FULL.CTB
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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ENLARGED POWER PLAN 5

VERIFY SCALES
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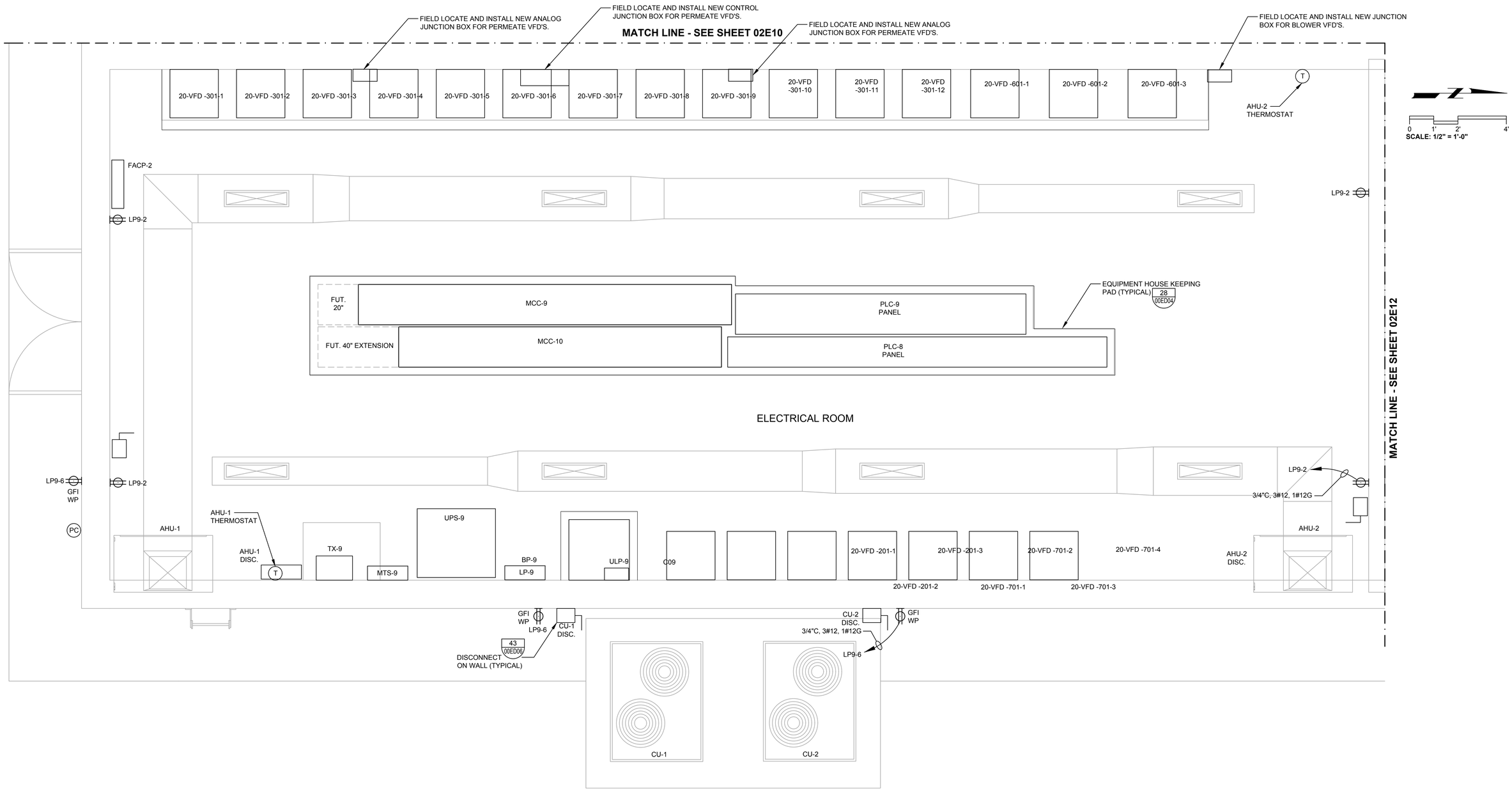
PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg



CHEMICAL BUILDING - ELECTRICAL ROOM POWER PLAN

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

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
CHEMICAL BUILDING - ELECTRICAL ROOM POWER PLAN

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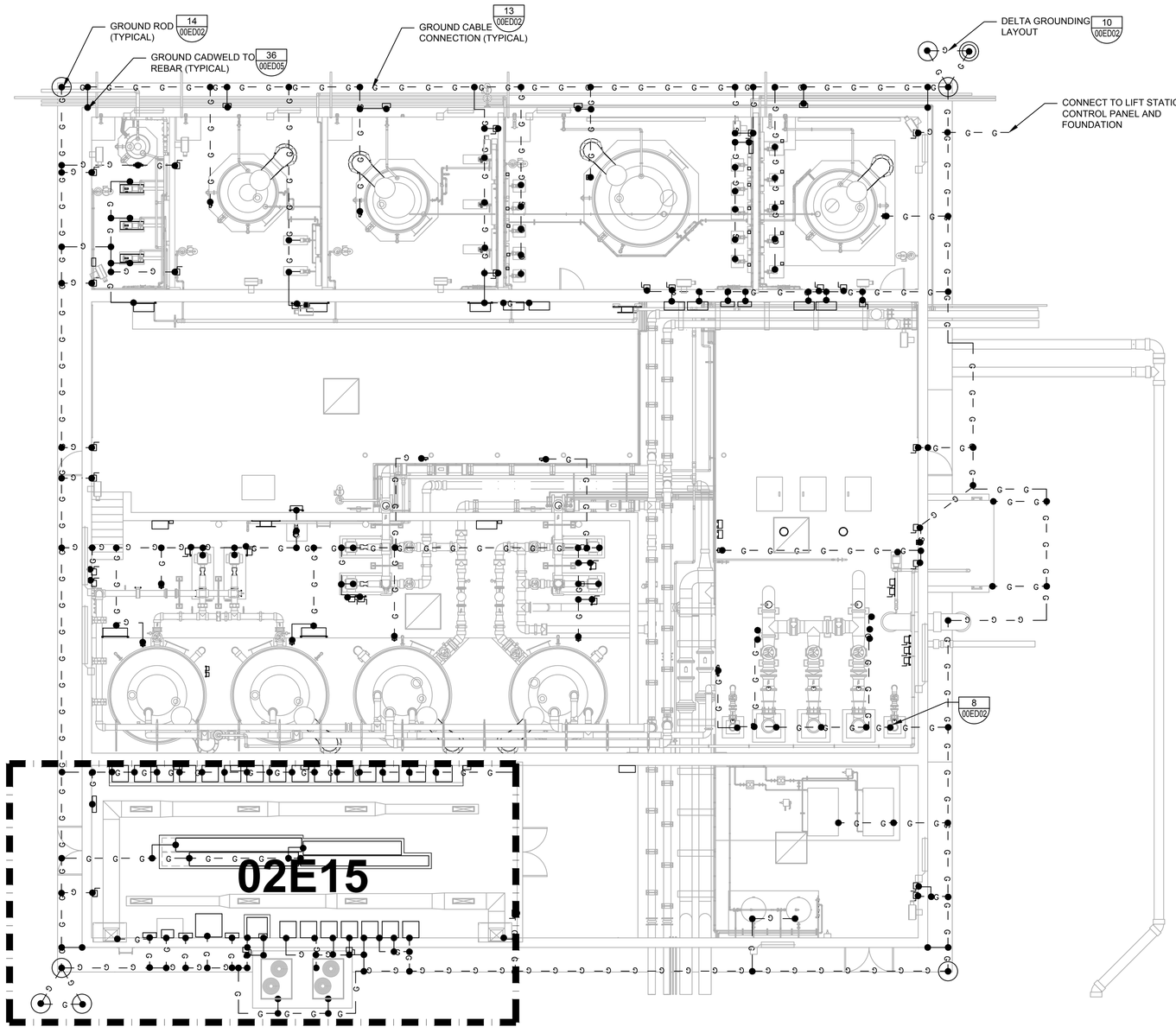
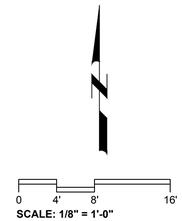


CHEMICAL BUILDING - GROUNDING PLAN
SCALE: 1/8" = 1'-0"



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

GROUNDING NOTES (SHEET 02E14 THRU 02E15)

1. CONTRACTOR SHALL INSTALL GROUNDING CONDUCTOR FROM THE GROUNDING GRID TO ALL PANELS, PUMPS, LIGHT POLES, DISCONNECTS, MCC'S, ETC. FOR A COMPLETE GROUNDING SYSTEM.
2. CONTRACTOR SHALL BOND REBAR IN FOUNDATION TO GROUND GRID USING EXOTHERMIC CONNECTIONS.
3. PRIMARY STRUCTURE OR BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG BARE COPPER WIRE INSTALLED IN THE FOUNDATION AND AROUND THE STRUCTURE OR BUILDING PERIMETER, MINIMUM 30" BELOW FINISHED GRADE TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR, ETC. SHALL HAVE A MINIMUM #4 STRANDED BARE COPPER CONDUCTOR BONED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS OR FINISHED GRADE SHALL HAVE A 72" CONDUCTOR PIGTAIL AT EACH LOCATION FOR CONNECTION TO EQUIPMENT.
4. CONTRACTOR SHALL PROVIDE LIGHTNING PROTECTION SYSTEM AS PER SPECIFICATION 26_41_00 AND TIE TO THE GROUNDING SYSTEM.
5. GROUNDING WIRE/CONDUCTOR RING SHALL BE CONNECT TO THE DUCTBANK GROUNDING WIRE/CONDUCTOR.

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CHEMICAL BUILDING - GROUNDING PLAN

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JOB NO. 09520I.10
DRAWING NO. 02E14

SEE DRAWING 02E14 FOR CONTINUATION

20-VFD -301-1
20-VFD -301-2
20-VFD -301-3
20-VFD -301-4
20-VFD -301-5
20-VFD -301-6
20-VFD -301-7
20-VFD -301-8
20-VFD -301-9
20-VFD -301-10
20-VFD -301-11
20-VFD -301-12
20-VFD -601-1
20-VFD -601-2
20-VFD -601-3

FACP-2

PROVIDE AND INSTALL GROUNDING INSERT FOR FUTURE USE 12 00ED02

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

MCC-9
FUT. 20"
FUT. 40" EXTENSION
MCC-10
PLC-9 PANEL
PLC-8 PANEL

ELECTRICAL ROOM

AHU-1 DISC.
AHU-1
PP-9
MTS-9
LP-9
UPS-9
ULP-9
TX-9
C09
20-VFD -201-1
20-VFD -201-2
20-VFD -201-3
20-VFD -701-1
20-VFD -701-2
20-VFD -701-3
20-VFD -701-4
AHU-2 DISC.
AHU-2
CU-1 DISC.
CU-2 DISC.
CU-1
CU-2

GROUND CADWELD TO REBAR (TYPICAL) 36 00ED05

DELTA GROUNDING LAYOUT 10 00ED02

GROUND CABLE CONNECTION (TYPICAL) 13 00ED02

SEE DRAWING 02E14 FOR CONTINUATION

CHEMICAL BUILDING - ELECTRICAL ROOM GROUNDING PLAN

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

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CHEMICAL BUILDING - ELECTRICAL ROOM GROUNDING PLAN

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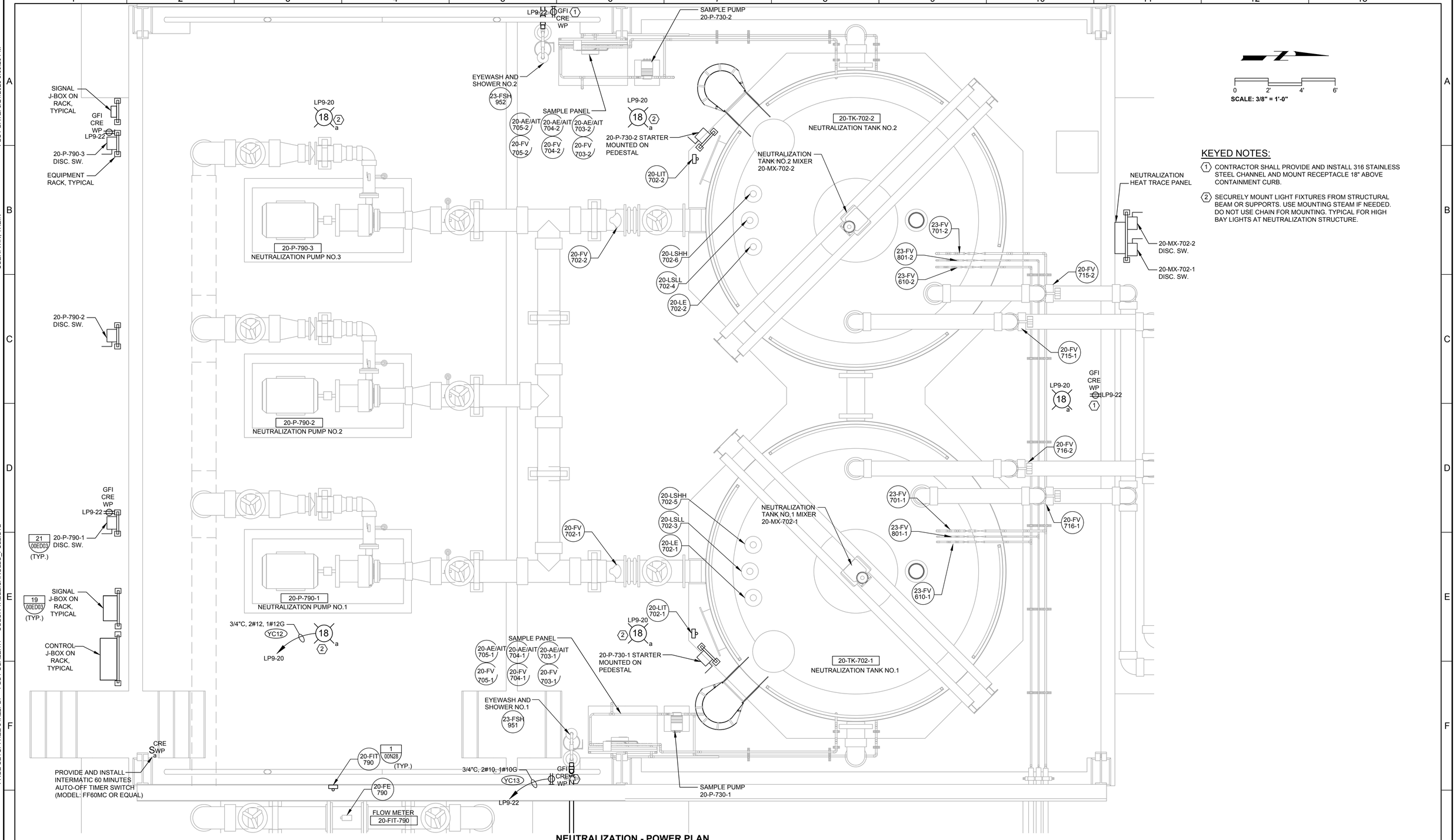
PROJECT NO. 9520I.10 FILE NAME: 9520I10_E06.dwg



KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL 316 STAINLESS STEEL CHANNEL AND MOUNT RECEPTACLE 18" ABOVE CONTAINMENT CURB.
2. SECURELY MOUNT LIGHT FIXTURES FROM STRUCTURAL BEAM OR SUPPORTS. USE MOUNTING STEAM IF NEEDED. DO NOT USE CHAIN FOR MOUNTING. TYPICAL FOR HIGH BAY LIGHTS AT NEUTRALIZATION STRUCTURE.

NEUTRALIZATION - POWER PLAN

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

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NEUTRALIZATION - POWER PLAN

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JOB NO. 09520I.10

DRAWING NO. 02E16

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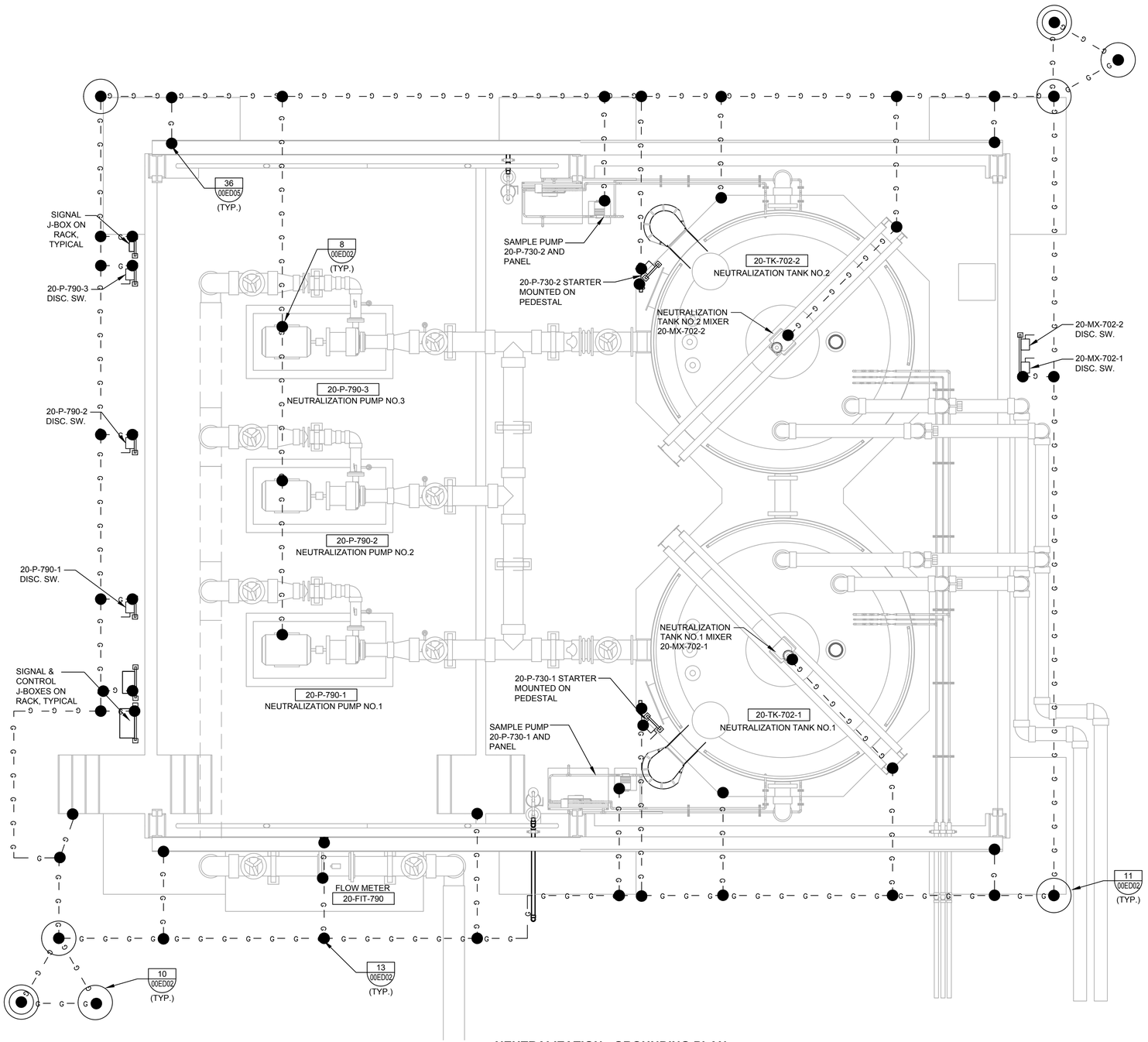

NEUTRALIZATION - GROUNDING PLAN
SCALE: 1/4" = 1'-0"

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

GROUNDING NOTES

1. CONTRACTOR SHALL INSTALL GROUNDING CONDUCTOR FROM THE GROUNDING GRID TO ALL PANELS, PUMPS, LIGHT POLES, DISCONNECTS, MCC'S, ETC. FOR A COMPLETE GROUNDING SYSTEM.
2. CONTRACTOR SHALL BOND REBAR IN FOUNDATION TO GROUND GRID USING EXOTHERMIC CONNECTIONS.
3. PRIMARY STRUCTURE OR BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG BARE COPPER WIRE INSTALLED IN THE FOUNDATION AND AROUND THE STRUCTURE OR BUILDING PERIMETER, MINIMUM 30" BELOW FINISHED GRADE TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR, ETC. SHALL HAVE A MINIMUM #4 STRANDED BARE COPPER CONDUCTOR BONED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS OR FINISHED GRADE SHALL HAVE A 72" CONDUCTOR PIGTAIL AT EACH LOCATION FOR CONNECTION TO EQUIPMENT.
4. CONTRACTOR SHALL PROVIDE LIGHTNING PROTECTION SYSTEM AS PER SPECIFICATION 26_41_00 AND TIE TO THE GROUNDING SYSTEM.
5. GROUNDING WIRE/CONDUCTOR RING SHALL BE CONNECT TO THE DUCTBANK GROUNDING WIRE/CONDUCTOR.

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NEUTRALIZATION - GROUNDING PLAN

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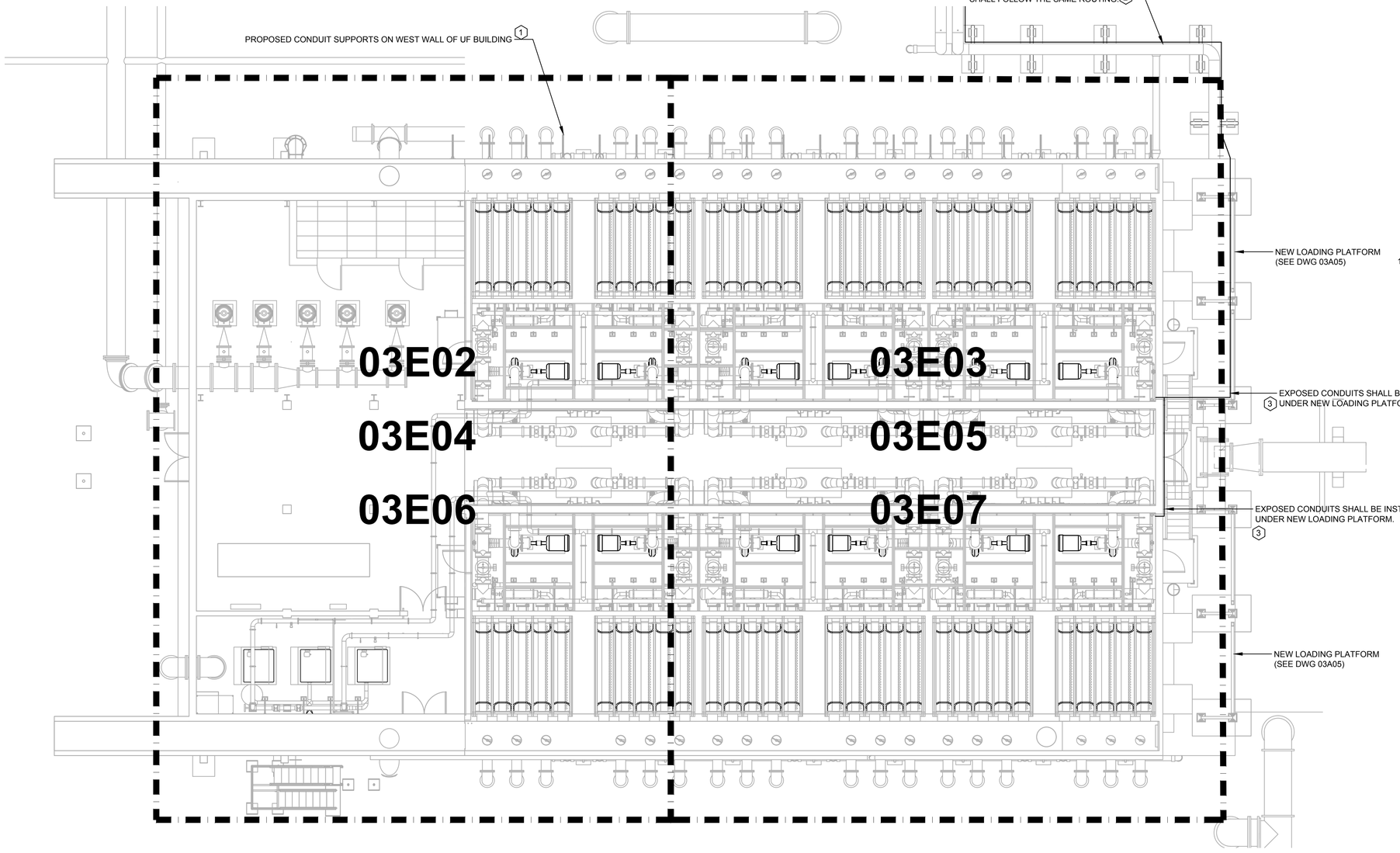

0 4' 8' 16'

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

UF FILTER BUILDING - FIRST LEVEL KEY PLAN

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

ELECTRICAL NOTE:

1. CONDUIT ROUTING AT UP BUILDING IS NOT SHOWN FOR CLARITY. CONTRACTOR SHALL FIELD ROUTE EXPOSED CONDUITS TO AVOID CONFLICTS WITH EQUIPMENT, PIPING, TRENCH, FILTER TANK, ETC. AND ADJUST ACCORDINGLY.

KEYED NOTES:

1. REFER TO DRAWINGS 03M08 AND 03M09 FOR EXPOSED CONDUIT SUPPORT LOCATION AND SPACING ON THE WEST WALL OF THE FILTER BUILDING "B"/UF BUILDING. CONTRACTOR SHALL PROVIDE AND INSTALL 316 STAINLESS STEEL CONDUIT CLAMPS AND INSTALL EXPOSED CONDUITS ON THE TOP TWO LAYERS OF THE CONDUIT SUPPORT DETAIL SHOWN ON DETAIL NO.2 DRAWING 03M21.

2. REFER TO DRAWINGS 03M22 AND 03M23 FOR OVERHEAD PIPING SUPPORT AND ROUTING FROM CHEMICAL BUILDING TO THE NORTH WALL OF FILTER BUILDING "B"/UF BUILDING. CONTRACTOR SHALL FOLLOW PIPING ROUTING AND PIPING SUPPORT ELEVATION FOR EXPOSED CONDUITS ROUTING FROM CHEMICAL BUILDING TO NORTH SIDE OF FILTER BUILDING "B"/UF BUILDING. COORDINATE WITH STRUCTURAL CONTRACTOR TO PROVIDE SUPPORT TO MOUNT EXPOSED CONDUITS ALONG THE PIPE SUPPORT AND SUPPORT EXPOSED CONDUITS AS REQUIRED BY NEC. SEE DETAIL P610 ON DRAWING 00GM05 FOR TYPICAL PIPE AND CONDUIT SUPPORT RACK.

3. CONTRACTOR SHALL FIELD ROUTE EXPOSED CONDUITS FROM CHEMICAL BUILDING TO NORTH SIDE OF UF BUILDING AND FOLLOW PIPE SUPPORT AS MUCH AS POSSIBLE. SUPPORT EXPOSED CONDUITS AS PER NEC. FIELD LOCATE AND ADJUST THE ACTUAL LOCATION TO ENTER THE UF FILTER BUILDING. PROVIDE AND INSTALL NEW 316 SS JUNCTION BOXES AND/OR OLB CONDUIT FITTINGS AS NEEDED.

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UF FILTER BUILDING - FIRST LEVEL KEY PLAN

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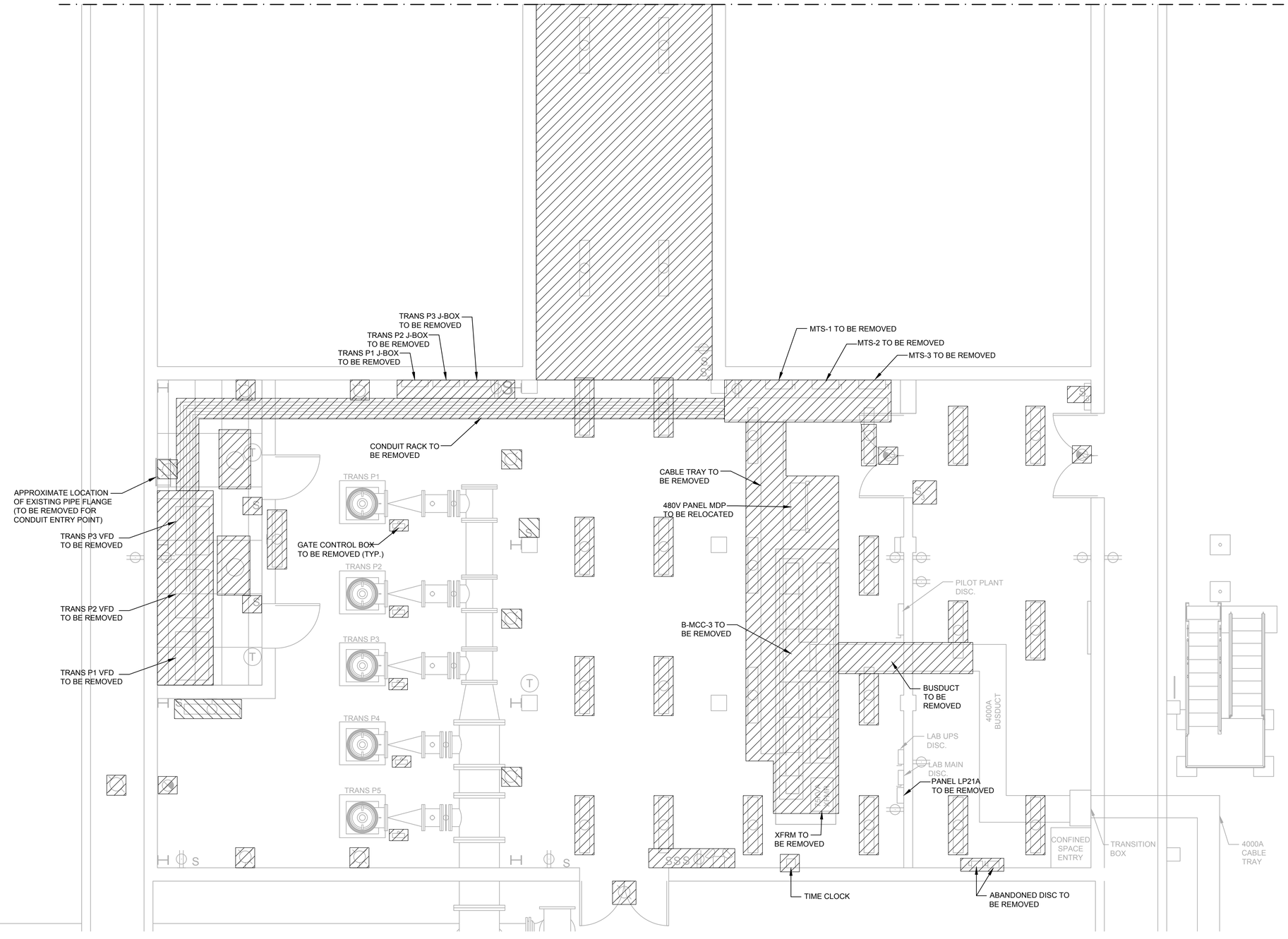
DRAWING NO. 03E01

MATCH LINE - SEE SHEET 03E03



0 2' 4' 8'

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

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTING AND RECEPTACLE INCLUDING CONDUITS, SWITCHES, HANGERS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL NOTES AND DETAILS REGARDING DEMOLITION. COORDINATE WITH OTHER DISCIPLINES FOR PHASING. PROVIDE TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION OF EXISTING SYSTEMS DURING CONSTRUCTION.
3. PRIOR TO ANY TYPE OF DEMOLITION, THE CONTRACTOR SHALL PERFORM FIELD INVESTIGATIONS TO IDENTIFY THE COMPLETE ROUTING FOR ALL OF THE EXISTING CONDUIT AND CONDUCTOR SYSTEM ENTERING EXISTING B-MCC-3. PROVIDE RED-LINED ASBUILTS TO OWNER AND ENGINEER CONTAINING THE RESULTS OF THE FIELD INVESTIGATIONS FOR REVIEW. WHEN COMPLETE, THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING B-MCC-3, CABLE TRAY AND BUSDUCT SECTIONS AS SHOWN. CONTRACTOR SHALL ALSO DISCONNECT AND REMOVED ALL OTHER CONDUITS AND CONDUCTORS THAT ARE ABANDONED AND/OR ARE SHOWN TO BE DEMOLISHED UNDER THIS CONTRACT. ALL ACTIVE CONDUITS AND CONDUCTORS THAT ARE TO REMAIN, SHALL REMAIN IN OPERATION AND BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION AT ALL TIMES DURING CONSTRUCTION.
4. CONTRACTOR SHALL SAWCUT AND REMOVE THE EXISTING B-MCC-3 CONCRETE MAINTENANCE PAD FLUSH WITH FINISH GRADE. PROTECT THE EXISTING CONDUITS STUB UPS AND REPAIR FLOOR ACCORDINGLY.
5. CONTRACTOR SHALL DISCONNECT AND RELOCATE THE EXISTING 480V PANEL MDP AND ALL ACTIVE CONDUIT AND CONDUCTOR SYSTEMS TO THE NEW LOCATION AS SHOWN ON DRAWINGS. CONTRACTOR SHALL DISCONNECT AND REMOVED ALL OTHER CONDUITS AND CONDUCTORS THAT ARE ABANDONED AND/OR ARE SHOWN TO BE DEMOLISHED UNDER THIS CONTRACT. ALL ACTIVE CONDUITS AND CONDUCTORS THAT ARE TO REMAIN, SHALL REMAIN IN OPERATION AND BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION AT ALL TIMES DURING CONSTRUCTION.
6. CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING PANEL LP21A AND EXTEND ALL ACTIVE CONDUIT AND CONDUCTOR SYSTEMS TO THE NEW PANEL LP21A LOCATION AS SHOWN ON DRAWINGS. CONTRACTOR SHALL DISCONNECT AND REMOVED ALL OTHER CONDUITS AND CONDUCTORS THAT ARE ABANDONED AND/OR ARE SHOWN TO BE DEMOLISHED UNDER THIS CONTRACT. ALL ACTIVE CONDUITS AND CONDUCTORS THAT ARE TO REMAIN, SHALL REMAIN IN OPERATION AND BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION AT ALL TIMES DURING CONSTRUCTION.
7. CONTRACTOR SHALL FIELD VERIFY THE CONTROL WIRING OF THE EXISTING GATE VALVE CONTROL BOX/PANEL NEAR EACH TRANSFER PUMP AND ADJUST THE WIRING OF NEW TRANSFER PUMP STARTERS (SSRVS IN REPLACEMENT MCC-B) TO INCLUDE ALL EXISTING FUNCTIONS FROM GATE VALVE CONTROL PANEL. DEMOLISH EXISTING GATE VALVE CONTROL PANEL AND FURNISH/INSTALL NEW CONDUITS/WIRES AS SHOWN ON DRAWINGS TO REPLACEMENT MCC-B.

UF FILTER BUILDING - FIRST LEVEL ENLARGED DEMOLITION PLAN 1

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

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UF FILTER BUILDING - FIRST LEVEL ENLARGED DEMOLITION PLAN 1

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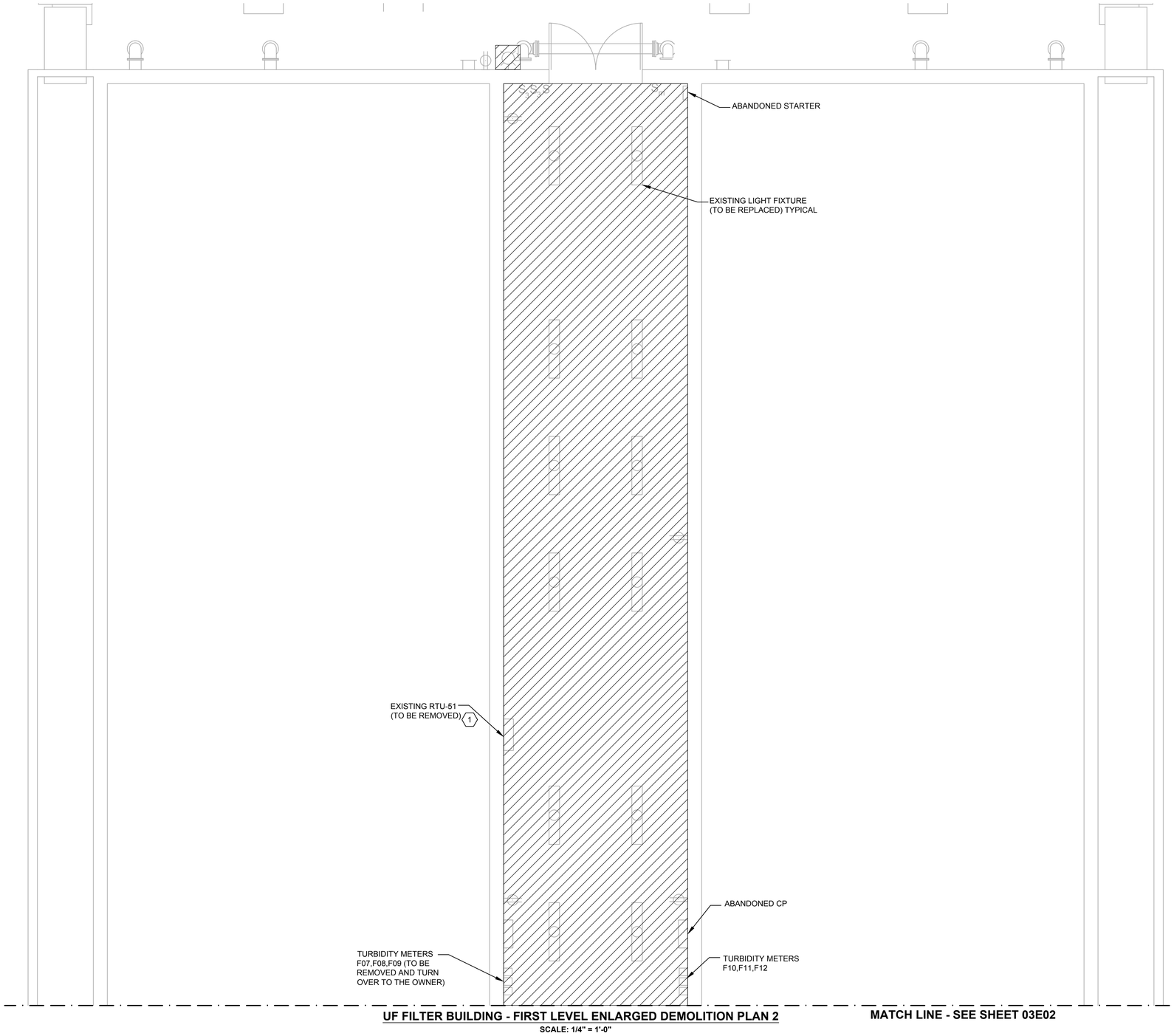

UF FILTER BUILDING - FIRST LEVEL ENLARGED DEMOLITION PLAN 2

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

MATCH LINE - SEE SHEET 03E02

0 2' 4' 8'

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

NOTES:

1. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTING AND RECEPTACLE INCLUDING CONDUITS, SWITCHES, HANGERS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
2. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING TURBIDITY METERS INCLUDING CONDUITS, HANGERS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
3. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL NOTES AND DETAILS REGARDING DEMOLITION. COORDINATE WITH OTHER DISCIPLINES FOR PHASING. PROVIDE TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION OF EXISTING SYSTEMS DURING CONSTRUCTION.

KEYED NOTES:

(1) THE CONTRACTOR SHALL COORDINATE WITH I&C CONTRACTOR FOR DETERMINING EXISTING SIGNALS TO REMAIN AT EXISTING RTU-51 PANEL AFTER FILTER BUILDING "B" IS RE-PURPOSED TO UF FILTER BUILDING. THE CONTRACTOR SHALL REMOVE THE EXISTING RTU-51 AND PROVIDE AND INSTALL A NEW 12"X12"X8" STAINLESS STEEL 316 TERMINAL JUNCTION BOX, TJB-51 AND EXTEND CONDUITS/WIRES TO THE NEW LCP-9.1. PROVIDE AND INSTALL NEW 316 STAINLESS STEEL SUPPORTS WITH HARDWARE FOR MOUNTING OF TJB-51. FIELD VERIFY EXISTING SIGNALS TO BE EXTENDED TO LCP-9.1 AND CONNECT ACCORDINGLY. FOR BIDDING PURPOSE, ASSUME 5 DISCRETE SIGNALS AND 4 ANALOG SIGNALS ARE TO BE EXTENDED TO LCP-9.1 AS SHOWN ON RISER DIAGRAM 00E15.

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SARASOTA, FLORIDA 34232
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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
UF FILTER BUILDING - FIRST LEVEL ENLARGED DEMOLITION PLAN 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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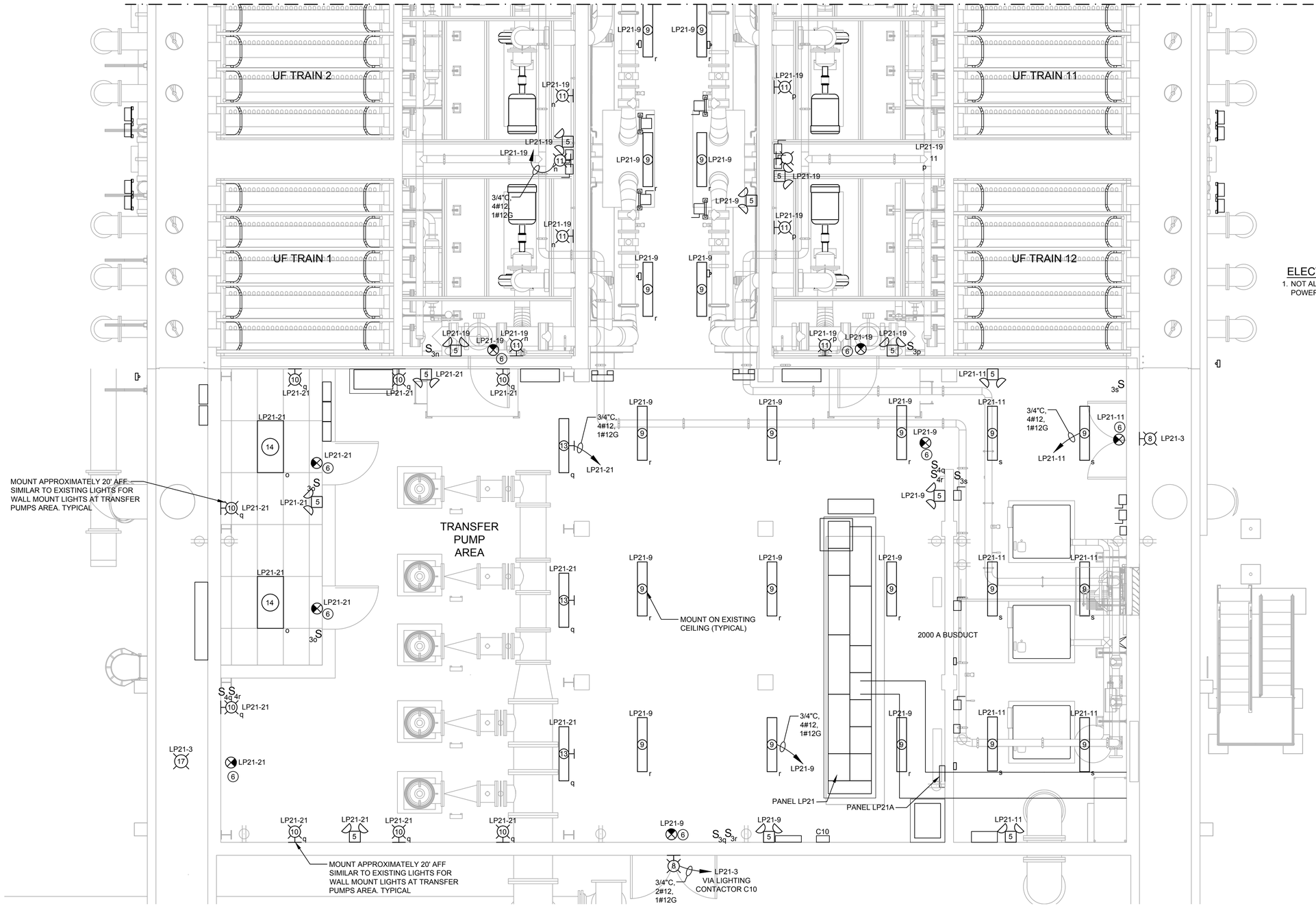
JOB NO. 09520I.10
DRAWING NO. 03E03



0 2' 4' 8'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

UF FILTER BUILDING - FIRST LEVEL ENLARGED LIGHTING PLAN 1

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

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

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DRAWN TW
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THEIN WIN, P.E.
No. 65722

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JOB NO. 09520I.10
DRAWING NO. 03E04

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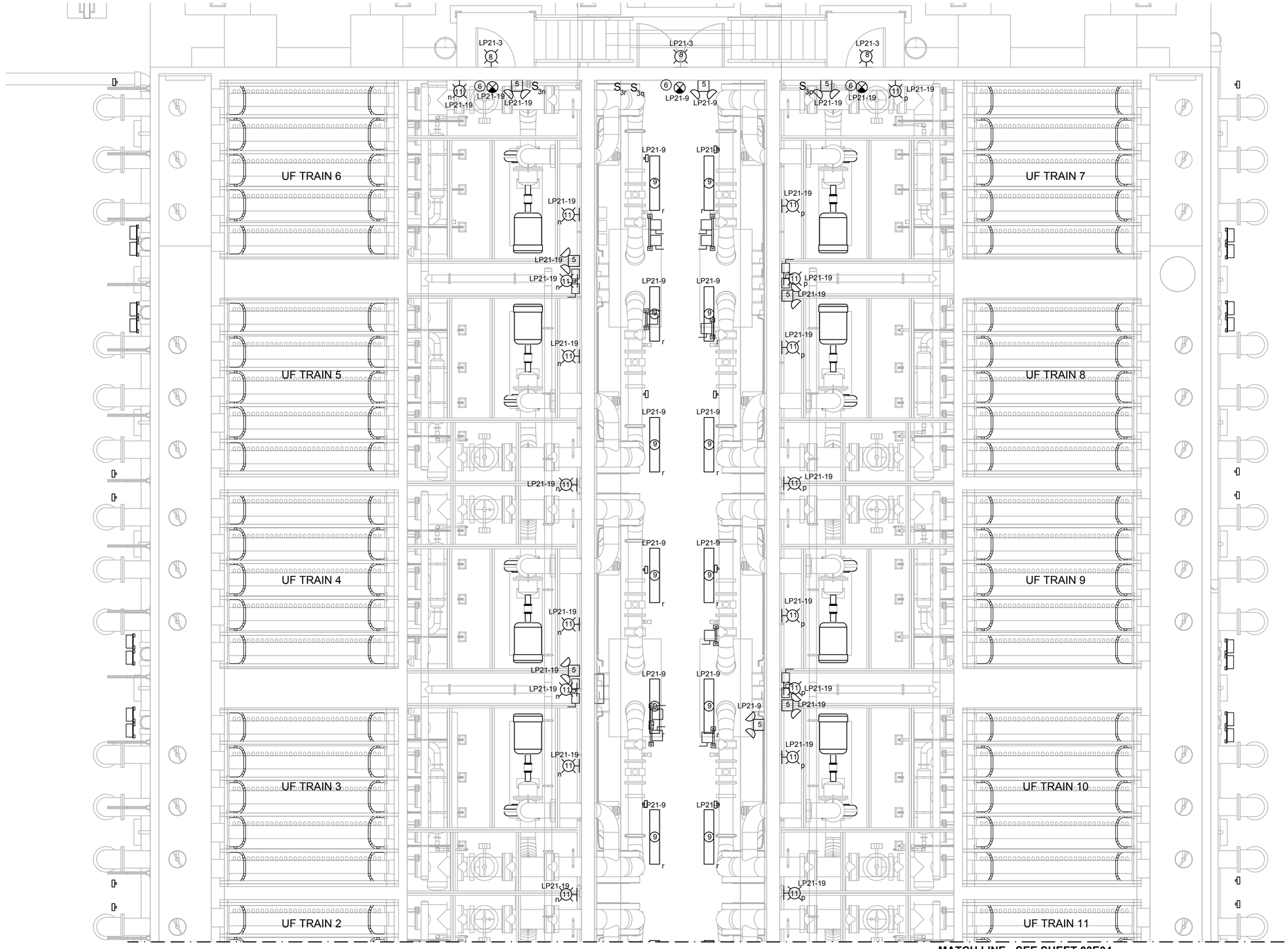

0 2' 4' 8'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

UF FILTER BUILDING - FIRST LEVEL ENLARGED LIGHTING PLAN 2

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

MATCH LINE - SEE SHEET 03E04

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ELECTRICAL
UF FILTER BUILDING - FIRST LEVEL ENLARGED LIGHTING PLAN 2

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JOB NO. 09520I.10
DRAWING NO. 03E05

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg

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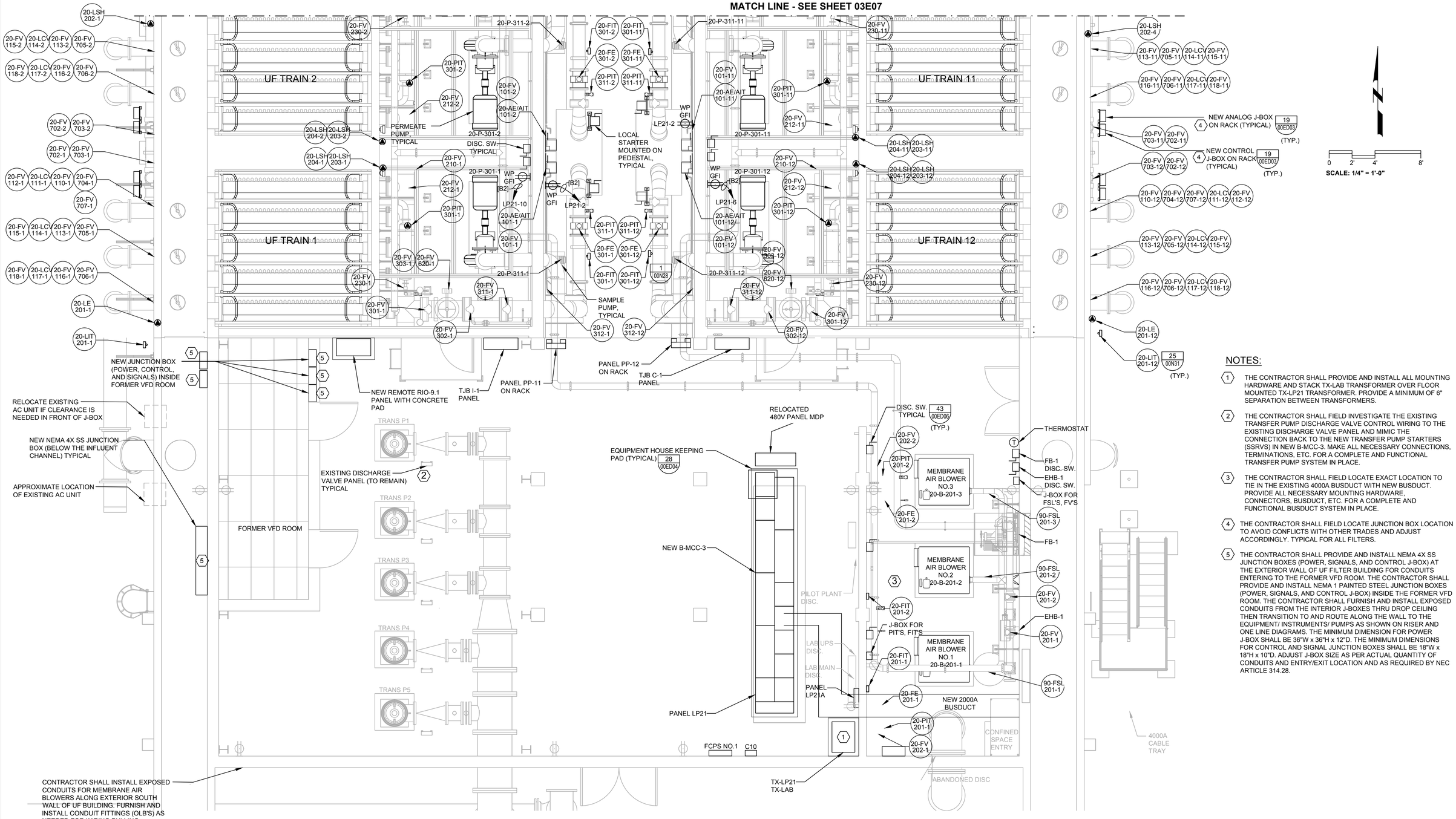

UF FILTER BUILDING - FIRST LEVEL ENLARGED POWER PLAN 1

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

NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MOUNTING HARDWARE AND STACK TX-LAB TRANSFORMER OVER FLOOR MOUNTED TX-LP21 TRANSFORMER. PROVIDE A MINIMUM OF 6" SEPARATION BETWEEN TRANSFORMERS.
2. THE CONTRACTOR SHALL FIELD INVESTIGATE THE EXISTING TRANSFER PUMP DISCHARGE VALVE CONTROL WIRING TO THE EXISTING DISCHARGE VALVE PANEL AND MIMIC THE CONNECTION BACK TO THE NEW TRANSFER PUMP STARTERS (SSRVS) IN NEW B-MCC-3. MAKE ALL NECESSARY CONNECTIONS, TERMINATIONS, ETC. FOR A COMPLETE AND FUNCTIONAL TRANSFER PUMP SYSTEM IN PLACE.
3. THE CONTRACTOR SHALL FIELD LOCATE EXACT LOCATION TO TIE IN THE EXISTING 4000A BUSDUCT WITH NEW BUSDUCT. PROVIDE ALL NECESSARY MOUNTING HARDWARE, CONNECTORS, BUSDUCT, ETC. FOR A COMPLETE AND FUNCTIONAL BUSDUCT SYSTEM IN PLACE.
4. THE CONTRACTOR SHALL FIELD LOCATE JUNCTION BOX LOCATION TO AVOID CONFLICTS WITH OTHER TRADES AND ADJUST ACCORDINGLY. TYPICAL FOR ALL FILTERS.
5. THE CONTRACTOR SHALL PROVIDE AND INSTALL NEMA 4X SS JUNCTION BOXES (POWER, SIGNALS, AND CONTROL J-BOX) AT THE EXTERIOR WALL OF UF FILTER BUILDING FOR CONDUITS ENTERING TO THE FORMER VFD ROOM. THE CONTRACTOR SHALL PROVIDE AND INSTALL NEMA 1 PAINTED STEEL JUNCTION BOXES (POWER, SIGNALS, AND CONTROL J-BOX) INSIDE THE FORMER VFD ROOM. THE CONTRACTOR SHALL FURNISH AND INSTALL EXPOSED CONDUITS FROM THE INTERIOR J-BOXES THRU DROP CEILING THEN TRANSITION TO AND ROUTE ALONG THE WALL TO THE EQUIPMENT/ INSTRUMENTS/ PUMPS AS SHOWN ON RISER AND ONE LINE DIAGRAMS. THE MINIMUM DIMENSION FOR POWER J-BOX SHALL BE 36"W x 36"H x 12"D. THE MINIMUM DIMENSIONS FOR CONTROL AND SIGNAL JUNCTION BOXES SHALL BE 18"W x 18"H x 10"D. ADJUST J-BOX SIZE AS PER ACTUAL QUANTITY OF CONDUITS AND ENTRY/EXIT LOCATION AND AS REQUIRED BY NEC ARTICLE 314.28.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
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UF FILTER BUILDING - FIRST LEVEL ENLARGED POWER PLAN 1

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JOB NO. 09520I.10
DRAWING NO. 03E06

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg

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UF TRAIN 6
UF TRAIN 5
UF TRAIN 4
UF TRAIN 3
UF TRAIN 2
UF TRAIN 7
UF TRAIN 8
UF TRAIN 9
UF TRAIN 10
UF TRAIN 11

SAMPLE PUMP, TYPICAL
BYPASS SAMPLE PUMP AND ANALYZERS
PERMEATE PUMP, TYPICAL
DISC. SW-TYPICAL
NEW JBOX-51
LOCAL STARTER MOUNTED ON PEDESTAL, TYPICAL
31 00ED04 (TYP.)
1 00N28 (TYP.)
25 00N31 (TYP.)
NEW ANALOG J-BOX ON RACK (TYPICAL) 1 19 00ED03
NEW CONTROL J-BOX ON RACK (TYPICAL) 1 19 00ED03

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

NOTES:

1. THE CONTRACTOR SHALL FIELD LOCATE JUNCTION BOX LOCATION TO AVOID CONFLICTS WITH OTHER TRADES AND ADJUST ACCORDINGLY. TYPICAL FOR ALL FILTERS.

MATCH LINE - SEE SHEET 03E06

UF FILTER BUILDING - FIRST LEVEL ENLARGED POWER PLAN 2
SCALE: 1/4" = 1'-0"

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JOB NO. 09520I.10
DRAWING NO. 03E07

PLOT DATE: 3/21/2025 5:01:09 PM
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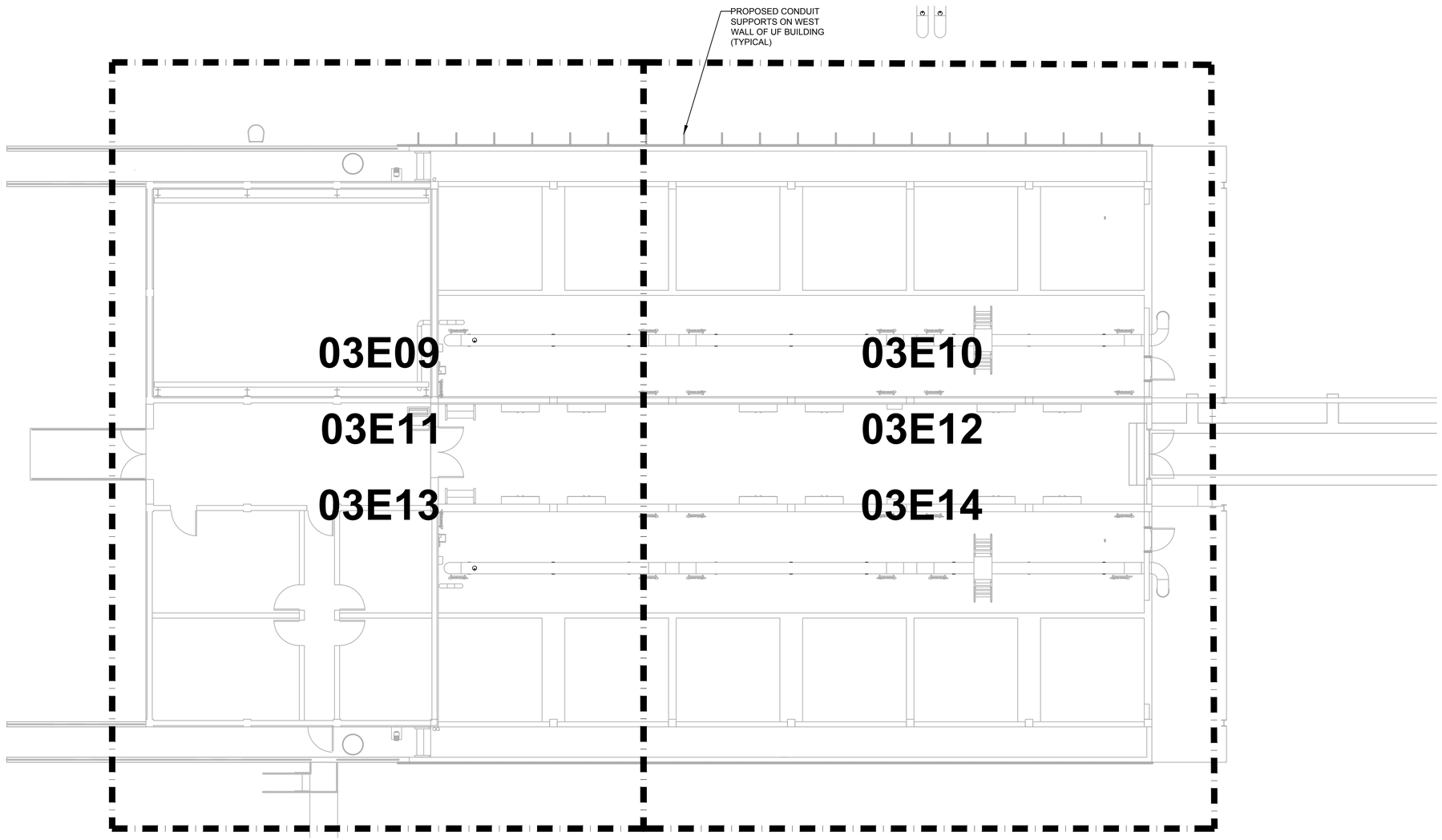

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

UF FILTER BUILDING - SECOND LEVEL KEY PLAN
SCALE: 1/8" = 1'-0"

REV	DATE	BY	DESCRIPTION

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LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
UF FILTER BUILDING - SECOND LEVEL KEY PLAN

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JOB NO. 09520I.10
DRAWING NO. 03E08

PLOT DATE: 3/21/2025 5:01:13 PM
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PLOT SCALE:1:1
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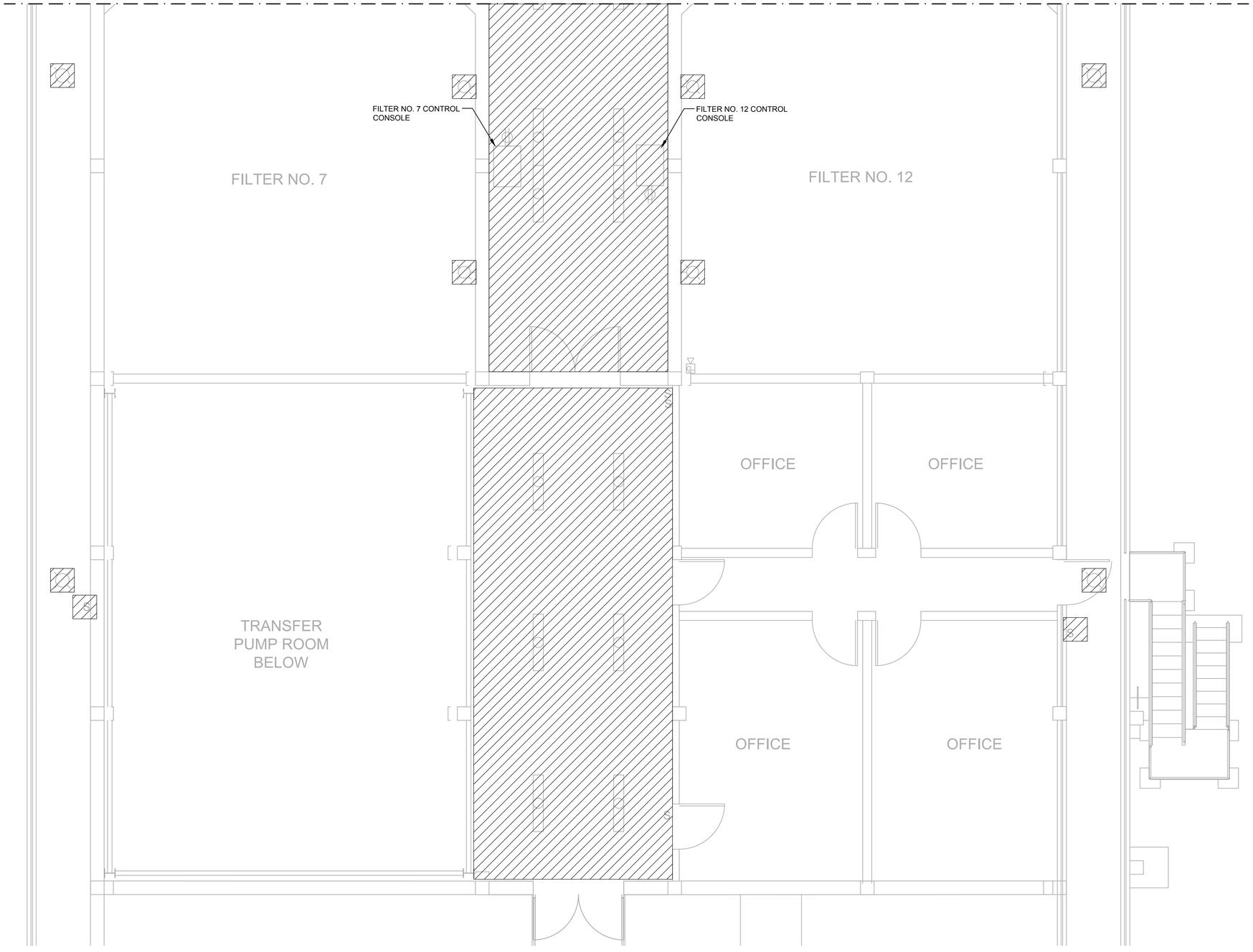
MATCH LINE - SEE SHEET 03E10



0 2' 4' 8'

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

NOTES:

1. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTING AND RECEPTACLE INCLUDING CONDUITS, SWITCHES, HANGERS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
2. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING FILTER CONTROL CONSOL INCLUDING CONDUITS, SUPPORTS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
3. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL NOTES AND DETAILS REGARDING DEMOLITION. COORDINATE WITH OTHER DISCIPLINES FOR PHASING. PROVIDE TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION OF EXISTING SYSTEMS DURING CONSTRUCTION. PROVIDE TEMPORARY LIGHTING AS NEEDED.

UF FILTER BUILDING - SECOND LEVEL ENLARGED DEMOLITION PLAN 1

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

REV	DATE	BY	DESCRIPTION
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ELECTRICAL

UF FILTER BUILDING - SECOND LEVEL ENLARGED DEMOLITION PLAN 1

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0 1"
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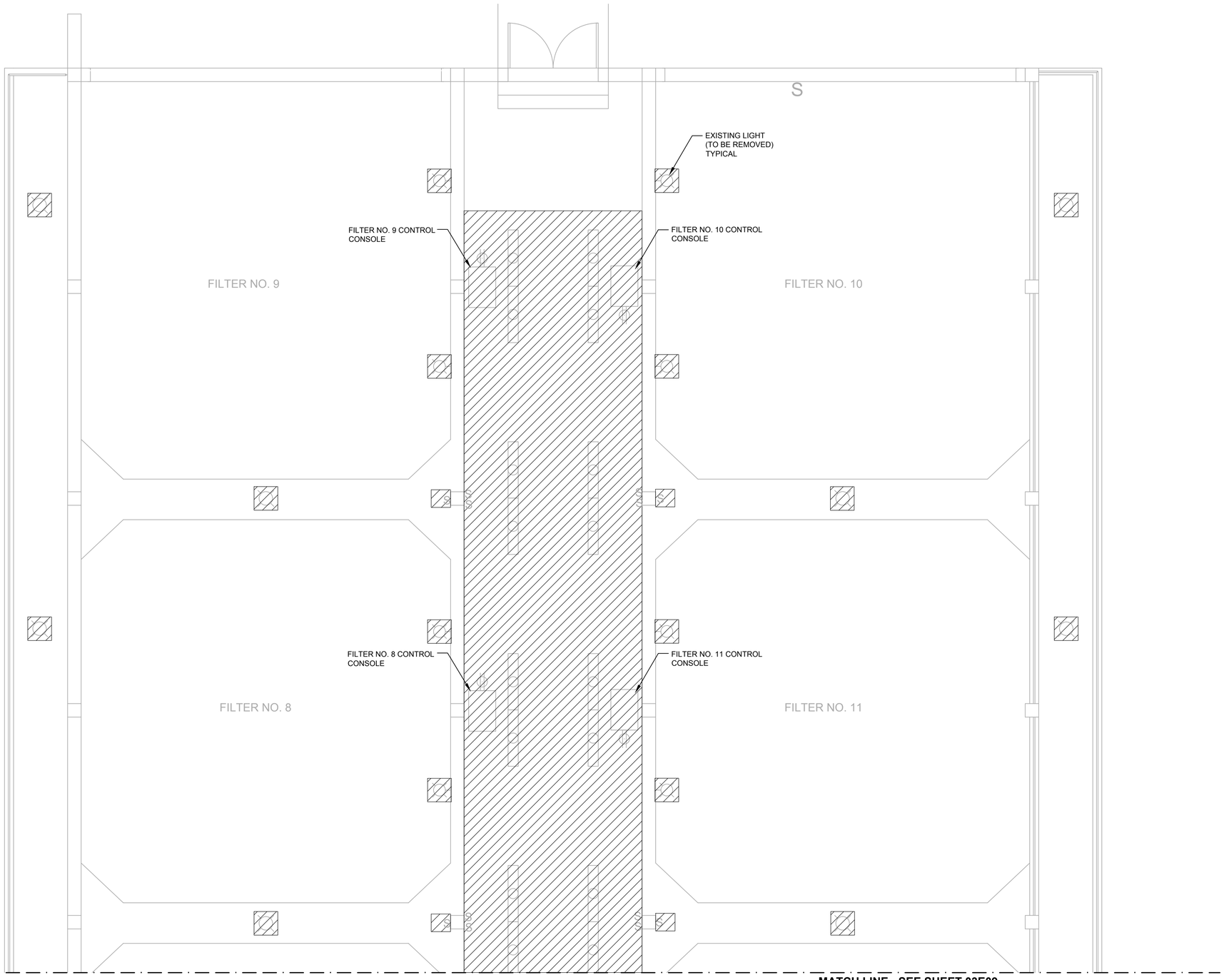
JOB NO. 09520I.10

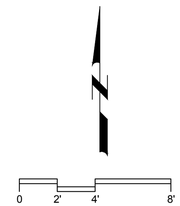
DRAWING NO. 03E09

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg



UF FILTER BUILDING - SECOND LEVEL ENLARGED DEMOLITION PLAN 2
SCALE: 1/4" = 1'-0"

MATCH LINE - SEE SHEET 03E09



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

NOTES:

1. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTING AND RECEPTACLE INCLUDING CONDUITS, SWITCHES, HANGERS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
2. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING FILTER CONTROL CONSOL INCLUDING CONDUITS, SUPPORTS, CONDUCTORS AND JUNCTION BOXES COMPLETELY BACK TO THE SOURCE.
3. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL NOTES AND DETAILS REGARDING DEMOLITION. COORDINATE WITH OTHER DISCIPLINES FOR PHASING. PROVIDE TEMPORARY POWER AND WIRING TO MAINTAIN OPERATION OF EXISTING SYSTEMS DURING CONSTRUCTION. PROVIDE TEMPORARY LIGHTING AS NEEDED.

REV	DATE	BY	DESCRIPTION
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JOB NO. 09520I.10
DRAWING NO. 03E10

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg

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MATCH LINE - SEE SHEET 03E12

UF TRAIN 2

UF TRAIN 1

UF TRAIN 11

UF TRAIN 12

TRANSFER PUMP ROOM BELOW

OFFICE

OFFICE

OFFICE

OFFICE

PROPOSED CONDUIT SUPPORTS ON WEST WALL OF UF BUILDING (TYPICAL)

LP21A-15 15 j

LP21A-13 15 m

LP21A-19 16

LP21A-19 17

LP21A-17 9 h

LP21A-17 9 k

LP21A-17 5

LP21A-17 6

3/4"C, 4#12, 1#12G LP21A-15

3/4"C, 4#12, 1#12G LP21A-13

EXTEND EXISTING LIGHTING CIRCUIT AT HALLWAY.

[B2] LP21A-19 VIA LIGHTING CONTACTOR C10

0 2' 4' 8'

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

ELECTRICAL NOTE:

1. NOT ALL EQUIPMENT ARE CALL-OUTS ON LIGHTING PLAN FOR CLARITY. REFER TO POWER PLAN DRAWINGS FOR EQUIPMENT CALL-OUT.

UF FILTER BUILDING - SECOND LEVEL ENLARGED LIGHTING PLAN 1

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

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ELECTRICAL

UF FILTER BUILDING - SECOND LEVEL ENLARGED LIGHTING PLAN 1

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JOB NO. 09520I.10

DRAWING NO. 03E11

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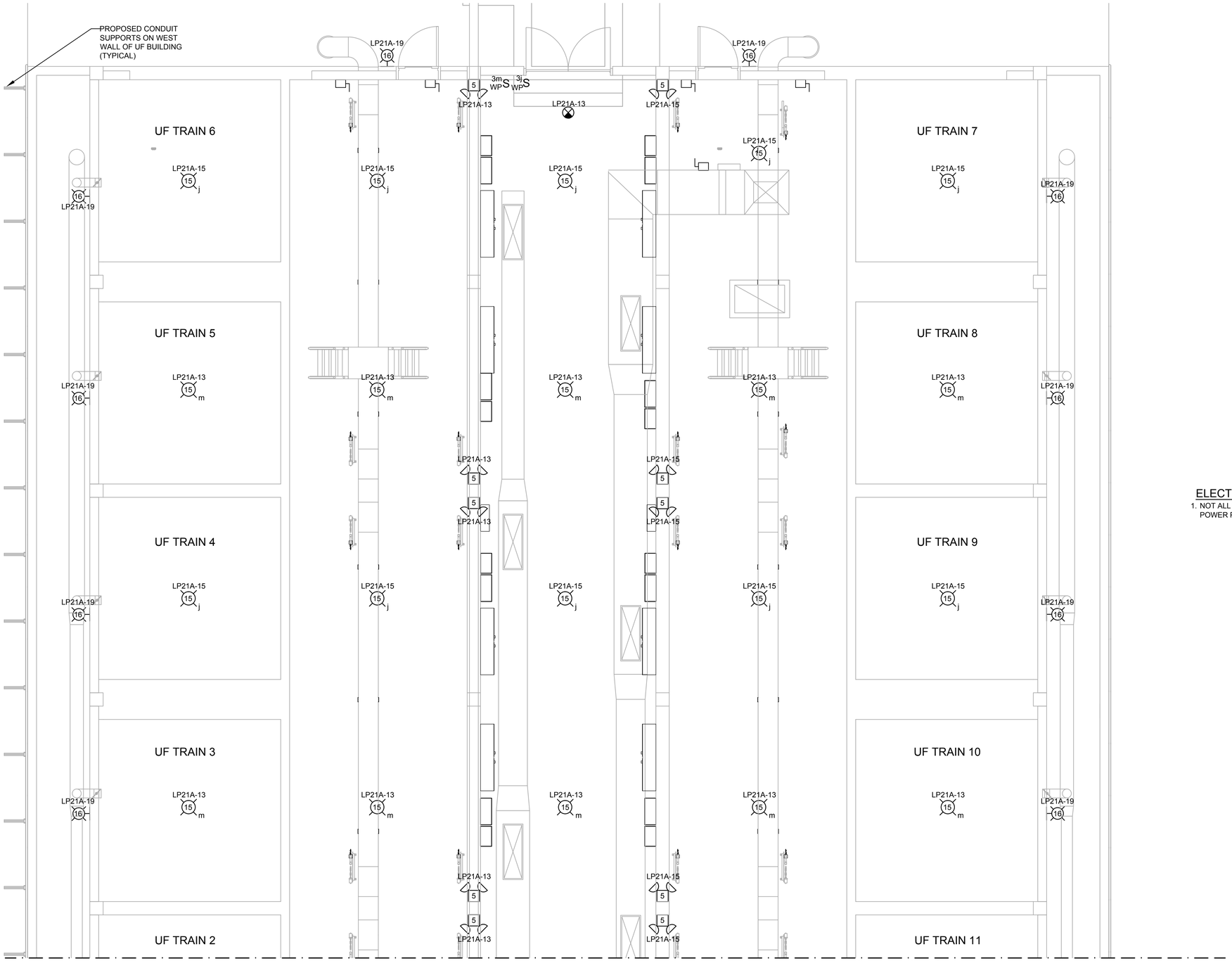

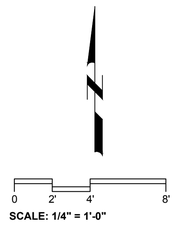

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UF FILTER BUILDING - SECOND LEVEL ENLARGED LIGHTING PLAN 2

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

MATCH LINE - SEE SHEET 03E11

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JOB NO. 09520I.10
DRAWING NO. 03E12

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg

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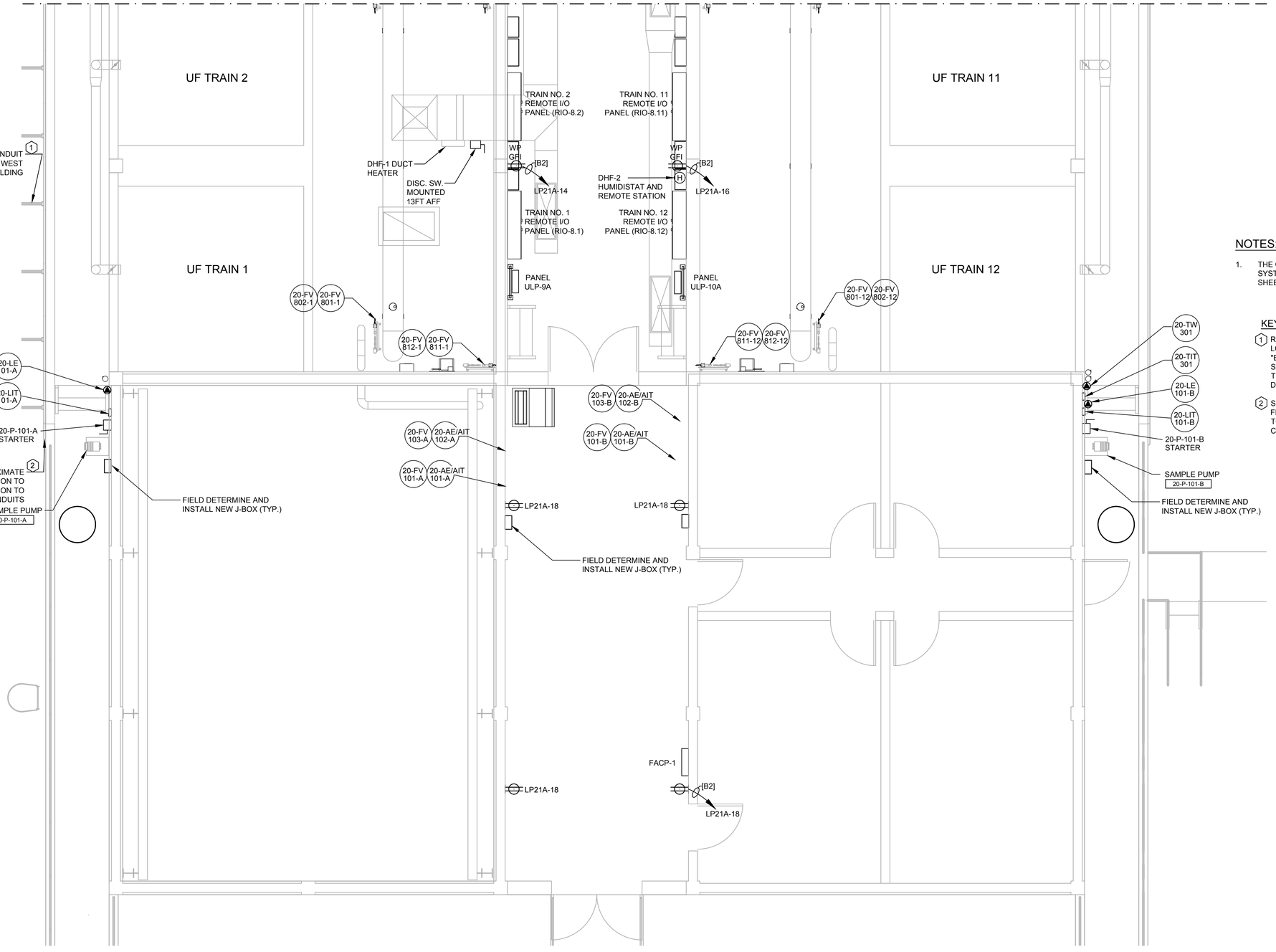

NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY 120VAC CONDUIT AND CONDUCTOR SYSTEMS TO POWER THE FOUR TEMPORARY EJECTORS DURING CONSTRUCTION, REFER TO SHEET 03M08.

KEYED NOTES:

(1) REFER TO DRAWINGS 03M08 AND 03M09 FOR EXPOSED CONDUIT SUPPORT LOCATION AND SPACING ON THE WEST WALL OF THE FILTER BUILDING "B"/UF BUILDING. CONTRACTOR SHALL PROVIDE AND INSTALL 316 STAINLESS STEEL CONDUIT CLAMPS AND INSTALL EXPOSED CONDUITS ON THE TOP TWO LAYERS OF THE CONDUIT SUPPORT DETAIL SHOWN ON DETAIL NO.2 DRAWING 03M21.

(2) SEE DRAWING 00E32 FOR SUGGESTED EXPOSED CONDUIT ROUTING ON UF FILTER BUILDING WEST WALL AND APPROXIMATE LOCATION TO TRANSITION TO THE ROOF. CONTRACTOR SHALL FIELD ADJUST ROUTING TO AVOID CONFLICTS WITH OTHER TRADES AND INSTALL ACCORDINGLY.

UF FILTER BUILDING - SECOND LEVEL ENLARGED POWER PLAN 1

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

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

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CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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(561) 451-9165
(561) 451-4886 FAX
LICENSE NO: EB 0006877

carollo
301 NORTH CATTLEMEN ROAD, SUITE 302
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PHONE (941) 371-9832 FAX (941) 371-9873
CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
ELECTRICAL
UF FILTER BUILDING - SECOND LEVEL ENLARGED POWER PLAN 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO. 09520I.10
DRAWING NO. 03E13

PROJECT NO. 9520I.10
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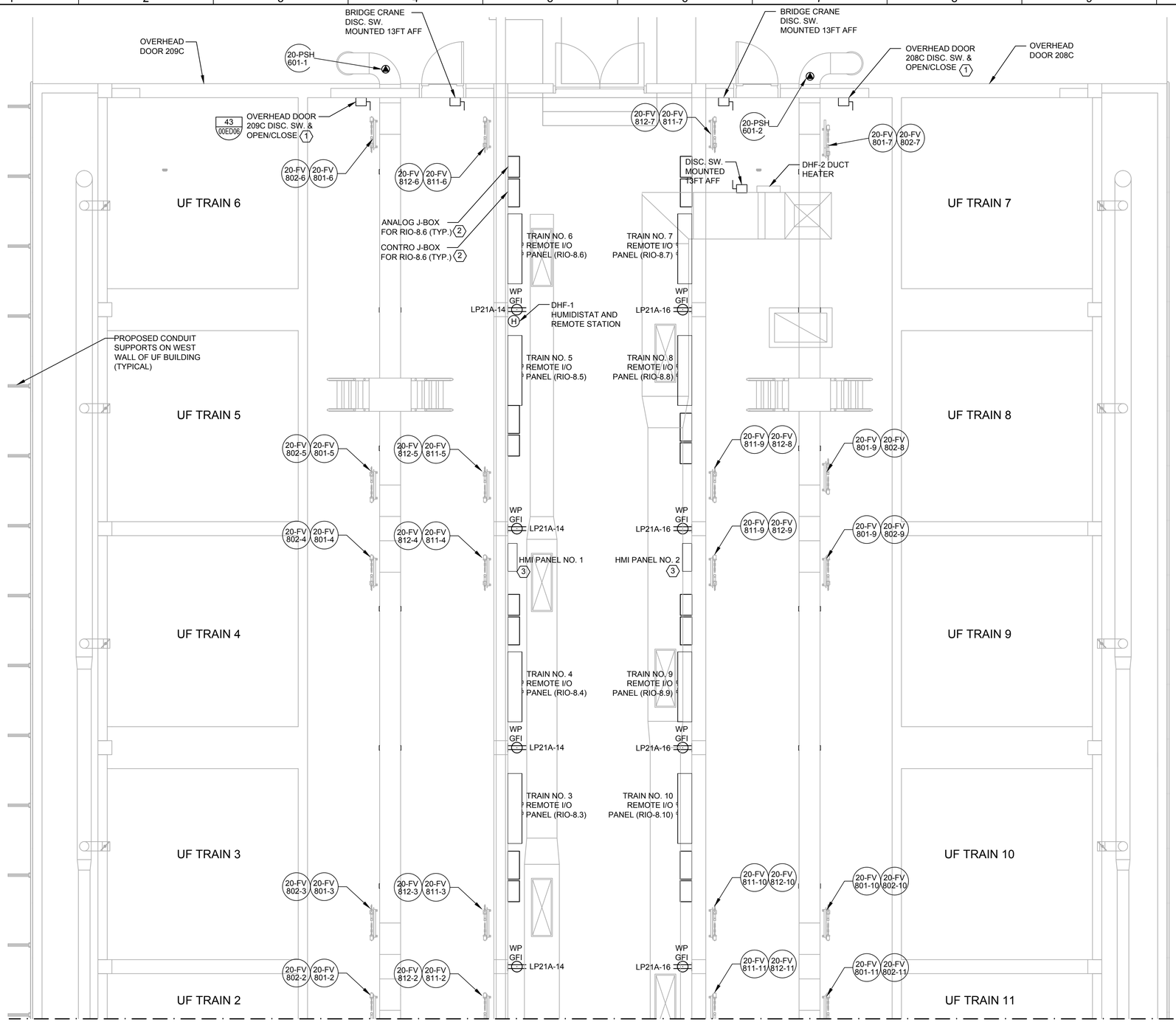

UF FILTER BUILDING - SECOND LEVEL ENLARGED POWER PLAN 2

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

MATCH LINE - SEE SHEET 03E13

0 2' 4' 8'

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

NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY 120VAC CONDUIT AND CONDUCTOR SYSTEMS (3/4"C, 2#12, 1#12G) TO POWER THE FOUR TEMPORARY EJECTORS DURING CONSTRUCTION, REFER TO SHEET 03M08 FOR TEMPORARY EJECTOR LOCATION.

KEYED NOTES:

1. CONTRACTOR SHALL MOUNT DISCONNECT 13FT AFF AND OPEN/CLOSE STATION AT 48FT AFF.
2. FIELD ADJUST MOUNTING OF ANALOG AND CONTROL J-BOX NEAR EACH RIO PANEL AND MOUNT THEM APPROXIMATELY 18" AFF USING 316 STAINLESS STEEL UNISTRUT FLOOR MOUNTING RACK. TYPICAL FOR ALL JUNCTION BOXES.
3. CONTRACTOR SHALL COORDINATE WITH APPROVED SHOP DRAWING OF HMI PANEL FOR ACTUAL DIMENSION AND WEIGHT AND PROVIDE APPROPRIATE MOUNTING SUPPORT USING 316 STAINLESS STEEL CHANNEL/PIPE AND HARDWARE. CENTER OF HMI PANEL SHALL BE APPROXIMATELY AT 5-6" AFF.

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

ELECTRICAL

UF FILTER BUILDING - SECOND LEVEL ENLARGED POWER PLAN 2

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JOB NO. 09520I.10

DRAWING NO. 03E14

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg

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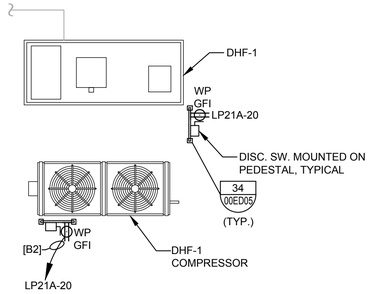
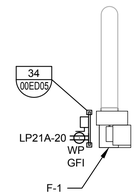
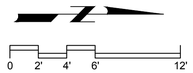
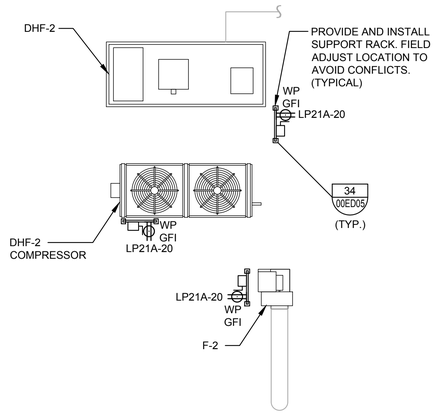






SCALE: 3/16" = 1'-0"



UF FILTER BUILDING - ROOF LEVEL

SCALE: 3/16" = 1'-0"

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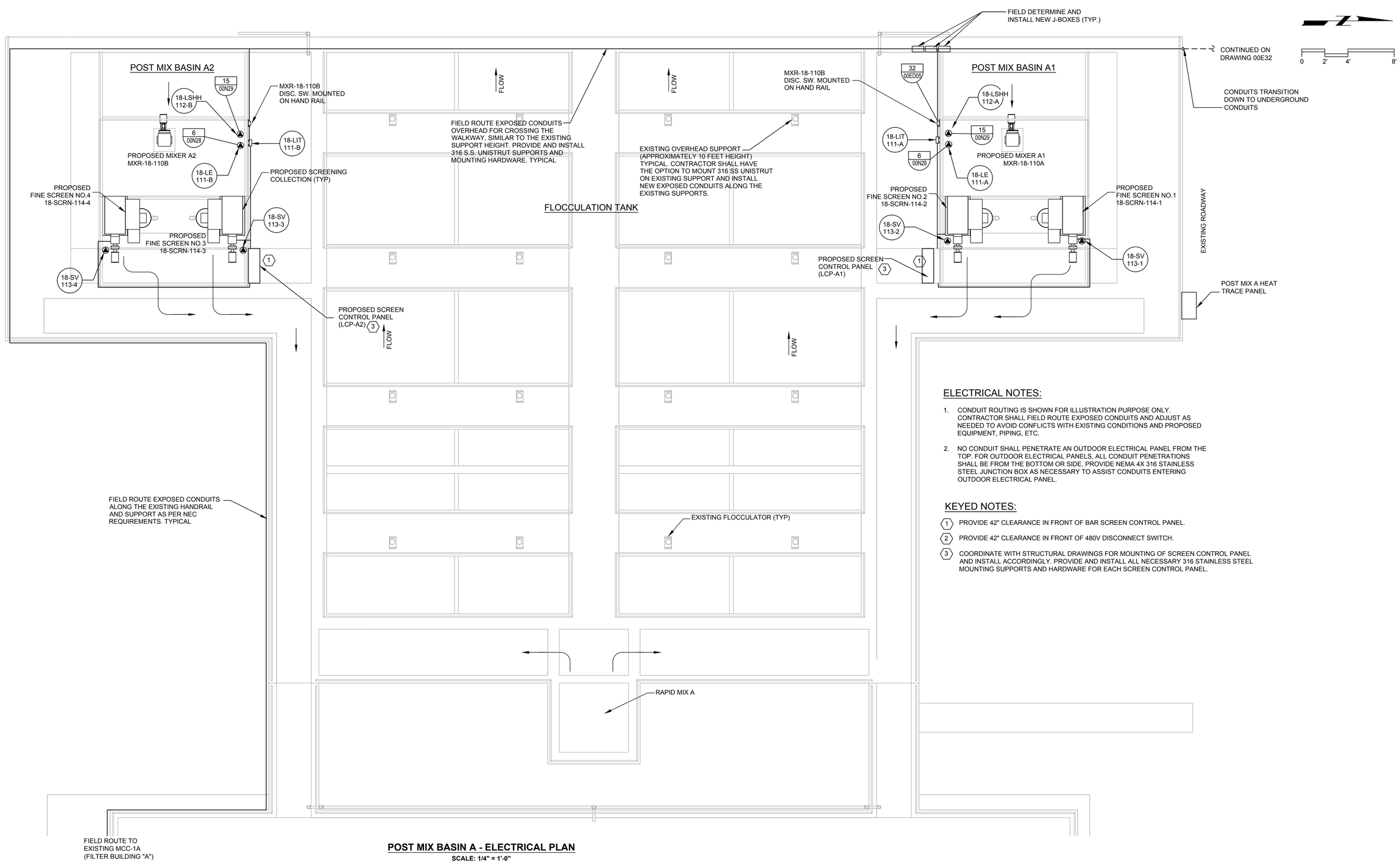

ELECTRICAL NOTES:

1. CONDUIT ROUTING IS SHOWN FOR ILLUSTRATION PURPOSE ONLY. CONTRACTOR SHALL FIELD ROUTE EXPOSED CONDUITS AND ADJUST AS NEEDED TO AVOID CONFLICTS WITH EXISTING CONDITIONS AND PROPOSED EQUIPMENT, PIPING, ETC.
2. NO CONDUIT SHALL PENETRATE AN OUTDOOR ELECTRICAL PANEL FROM THE TOP. FOR OUTDOOR ELECTRICAL PANELS, ALL CONDUIT PENETRATIONS SHALL BE FROM THE BOTTOM OR SIDE. PROVIDE NEMA 4X 316 STAINLESS STEEL JUNCTION BOX AS NECESSARY TO ASSIST CONDUITS ENTERING OUTDOOR ELECTRICAL PANEL.

KEYED NOTES:

1. PROVIDE 42" CLEARANCE IN FRONT OF BAR SCREEN CONTROL PANEL.
2. PROVIDE 42" CLEARANCE IN FRONT OF 480V DISCONNECT SWITCH.
3. COORDINATE WITH STRUCTURAL DRAWINGS FOR MOUNTING OF SCREEN CONTROL PANEL AND INSTALL ACCORDINGLY. PROVIDE AND INSTALL ALL NECESSARY 316 STAINLESS STEEL MOUNTING SUPPORTS AND HARDWARE FOR EACH SCREEN CONTROL PANEL.

POST MIX BASIN A - ELECTRICAL PLAN

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

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POST MIX BASIN A - ELECTRICAL PLAN

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DRAWING NO. 04E01

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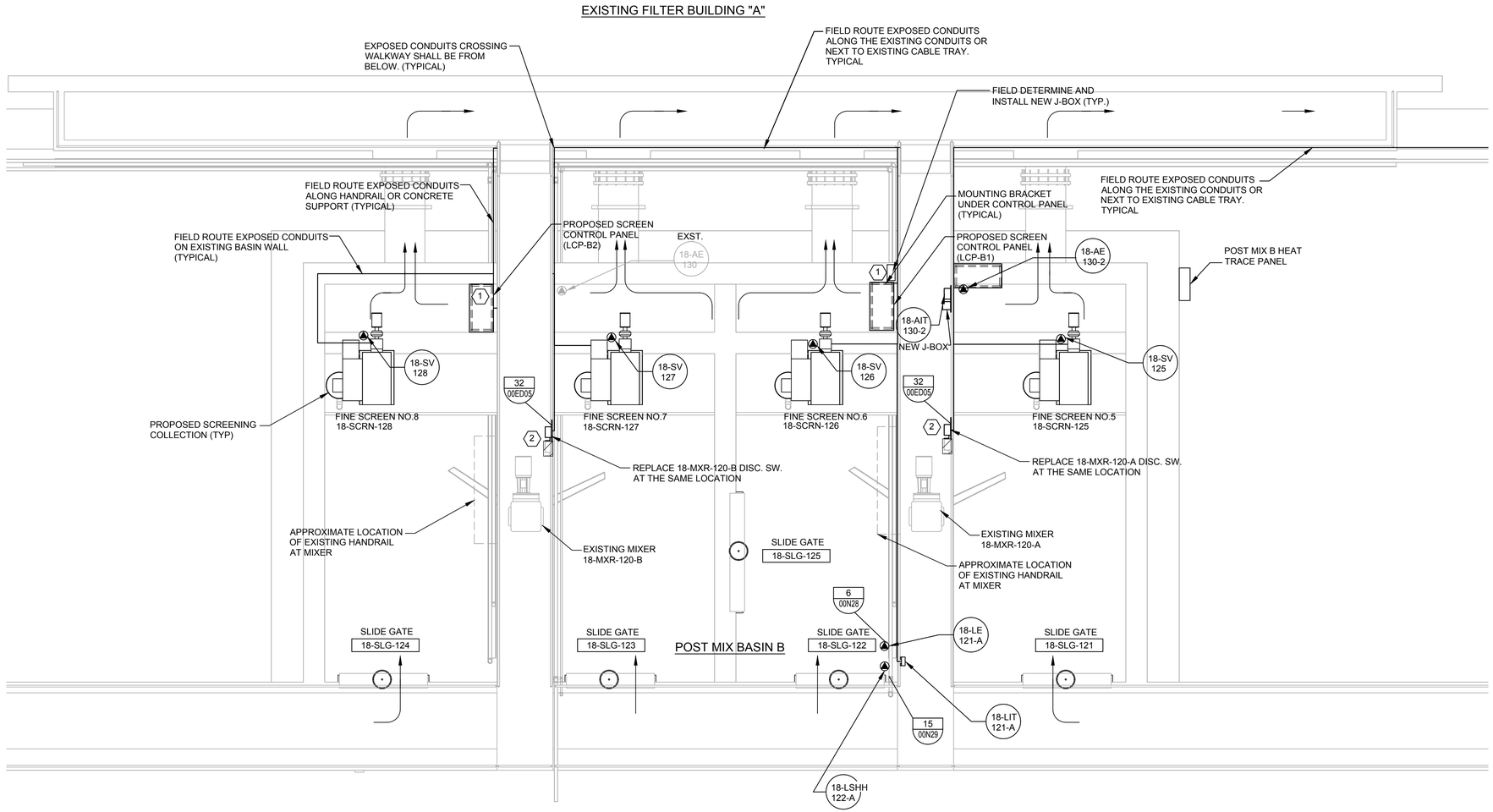
PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg



ELECTRICAL NOTES:

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2. NO CONDUIT SHALL PENETRATE AN OUTDOOR ELECTRICAL PANEL FROM THE TOP. FOR OUTDOOR ELECTRICAL PANELS, ALL CONDUIT PENETRATIONS SHALL BE FROM THE BOTTOM OR SIDE. PROVIDE NEMA 4X 316 STAINLESS STEEL JUNCTION BOX AS NECESSARY TO ASSIST CONDUITS ENTERING OUTDOOR ELECTRICAL PANEL.

KEYED NOTES:

1. MOUNT EACH FINE SCREEN CONTROL PANEL ON THE EXISTING CONCRETE WALL OF POST MIX BASIN B USING HORIZONTAL 316 STAINLESS STEEL MOUNTING BRACKET SUPPORT. PROVIDE ADDITIONAL ANGLE SUPPORT BRACKET TO HORIZONTAL MOUNTING BRACKET AS NEEDED. CUT AND MODIFY EXISTING HANDRAIL LOCATED DIRECTLY IN FRONT OF EACH FINE SCREEN CONTROL PANEL TO HAVE CLEARANCE IN FRONT. PROVIDE MINIMUM OF 42" CLEARANCE IN FRONT OF EACH BAR SCREEN CONTROL PANEL. REFER TO STRUCTURAL DRAWINGS FOR MOUNTING OF SCREEN CONTROL PANEL AND INSTALL ACCORDINGLY. PROVIDE AND INSTALL ALL NECESSARY 316 STAINLESS STEEL MOUNTING SUPPORTS AND HARDWARE FOR EACH SCREEN CONTROL PANEL.
2. REMOVE EXISTING DISCONNECT AND REPLACE WITH NEW DISCONNECT AS SHOWN. INSTALL START/STOP HANDSWITCH NEXT TO THE DISCONNECT. PROVIDE 42" CLEARANCE IN FRONT OF 480V DISCONNECT SWITCH SIMILAR TO THE EXISTING CONDITION.

POST MIX BASIN B - ELECTRICAL PLAN

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

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
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POST MIX BASIN B - ELECTRICAL PLAN

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DRAWING NO. 04E02

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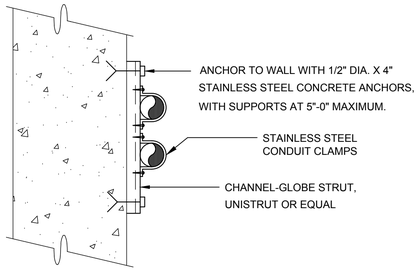
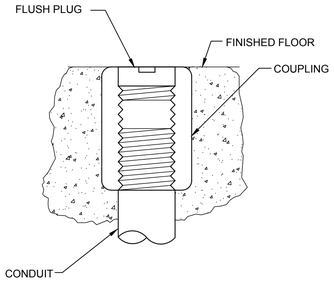
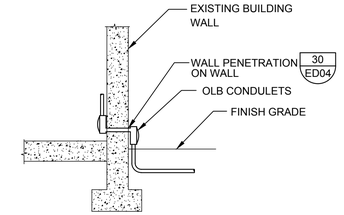
PROJECT NO. 9520I.10 FILE NAME: 9520I10_E01.dwg



1 TYP **WALL CONDUIT SUPPORT**
NOT TO SCALE



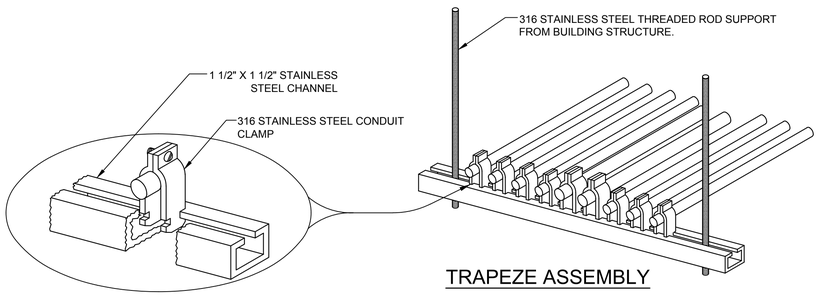
2 TYP **CONDUIT FLOOR STUB-UP**
NOT TO SCALE



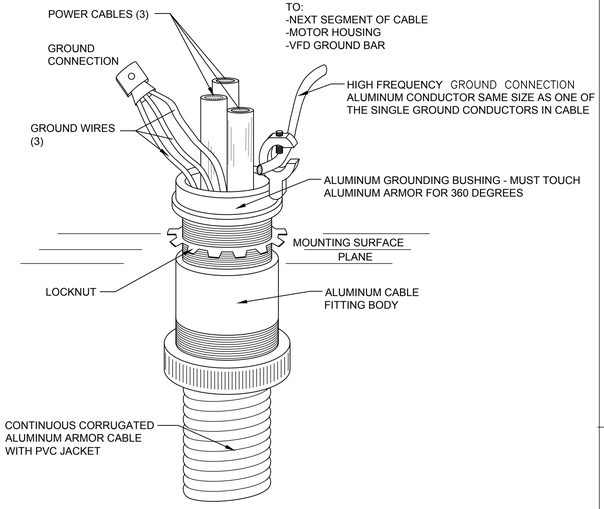
3 TYP **CONDUIT ENTRANCE**
NOT TO SCALE

NOTES:

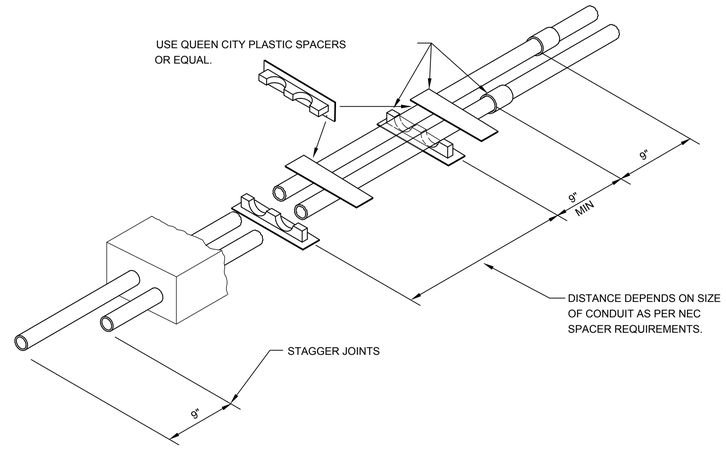
1. THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING
2. CHANNEL AND ALL SUPPORT DEVICES TO BE 316 STAINLESS STEEL.
3. CHANNELS TO BE SPACED 5' MAXIMUM.



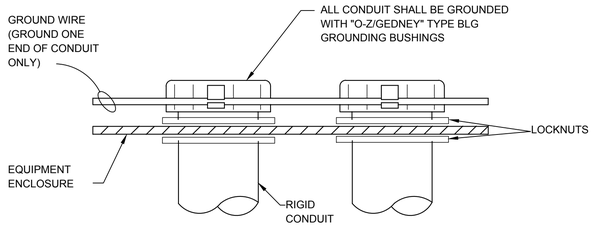
4 TYP **CONDUIT PIPE STRAP MOUNTING DETAILS**



5 TYP **ARMORED CABLE TERMINATION DETAIL**
NOT TO SCALE



6 TYP **HORIZONTAL STAGGERING OF SPACERS AND JOINTS**
NOT TO SCALE



7 TYP **CONDUIT GROUNDING**
NOT TO SCALE

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MANATEE COUNTY
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ELECTRICAL
ELECTRICAL DETAILS - SHEET 1

VERIFY SCALES
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JOB NO. 09520I.10
DRAWING NO. 00ED01

PROJECT NO. 9520I.10 FILE NAME: 9520I10_E05.dwg

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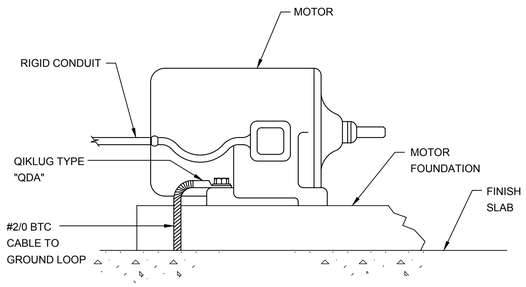
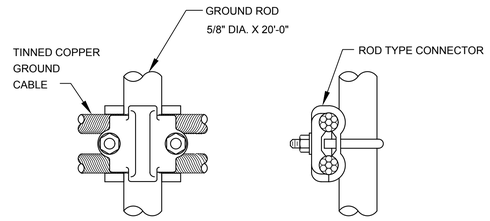
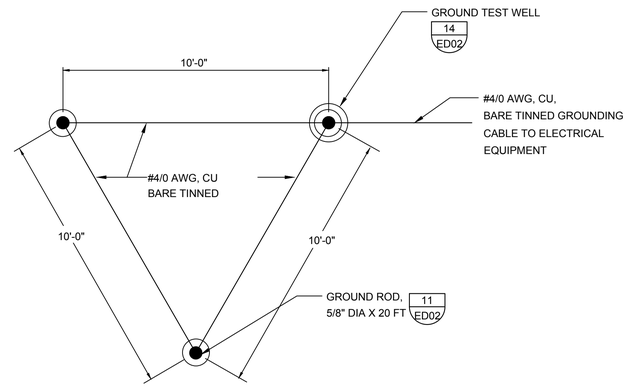


NOTE:
THIS GROUND IS IN ADDITION TO THE GROUND FROM THE MAIN ELECTRICAL SERVICE.

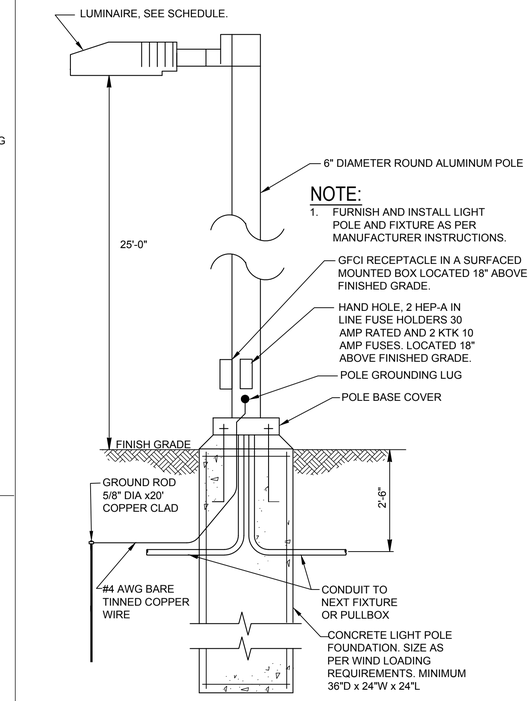
8 TYP **EQUIPMENT GROUNDING DETAIL**
NOT TO SCALE (TYPICAL)



9 TYP **CABLE TO ROD CONNECTION**
NOT TO SCALE



10 TYP **GROUNDING DELTA LAYOUT**
NOT TO SCALE

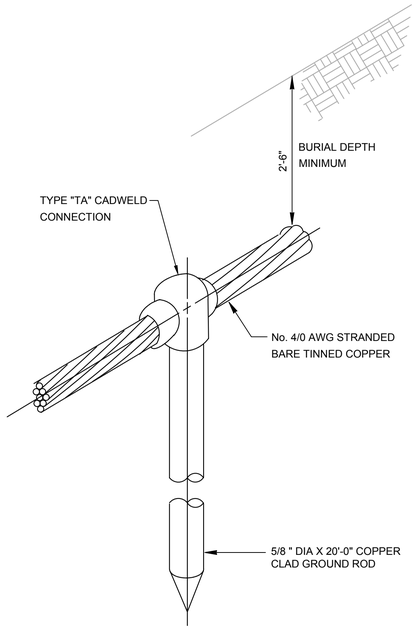


NOTE:
1. FURNISH AND INSTALL LIGHT POLE AND FIXTURE AS PER MANUFACTURER INSTRUCTIONS.

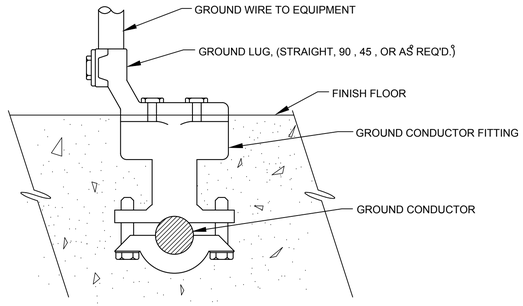
15 TYP **ROADWAY LIGHT POLE DETAIL**
NOT TO SCALE

WINDLOADING NOTE:

1. ALL POLE INSTALLATIONS MUST MEET FLORIDA BUILDING CODE WIND LOADING REQUIREMENT WITH APPROPRIATE WIND GUST FACTOR FOR THE LOCATION OF INSTALLATION. THE CONTRACTOR SHALL INCLUDE WITH THE SHOP DRAWING SUBMITTAL, A POLE WIND LOADING CALCULATION SIGNED & SEALED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF FLORIDA SHOWING THAT THE PROPOSED POLE AND INSTALLATIONS WILL MEET THE GIVEN WIND LOADING REQUIREMENT.

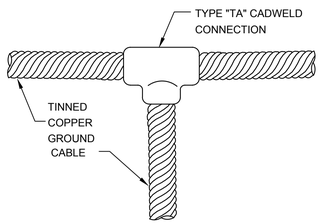


11 TYP **GROUND ROD DETAIL**
NOT TO SCALE

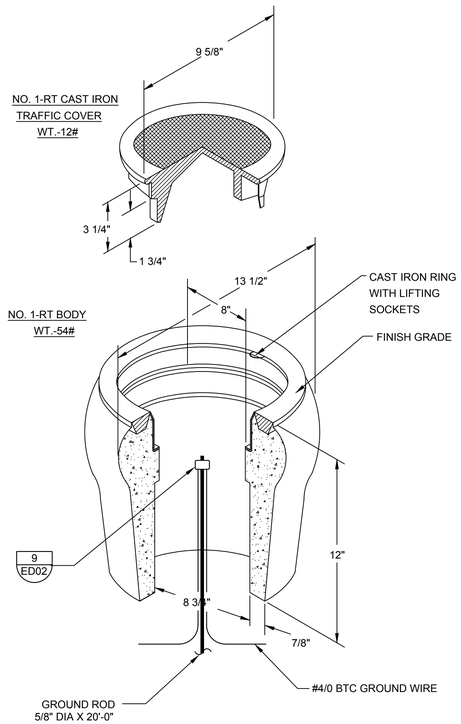


NOTE: BOLTS SHALL BE INSERTED IN BOLT HOLES BEFORE CONNECTOR IS EMBEDDED.

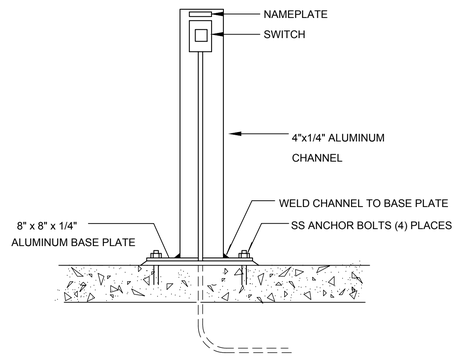
12 TYP **GROUNDING INSERT**
NOT TO SCALE



13 TYP **GROUND CABLE CONNECTION**
NOT TO SCALE



14 TYP **GROUND TEST WELL DETAIL**
NOT TO SCALE



16 TYP **SWITCH PEDESTAL**
NOT TO SCALE

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MANATEE COUNTY
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ELECTRICAL DETAILS - SHEET 2

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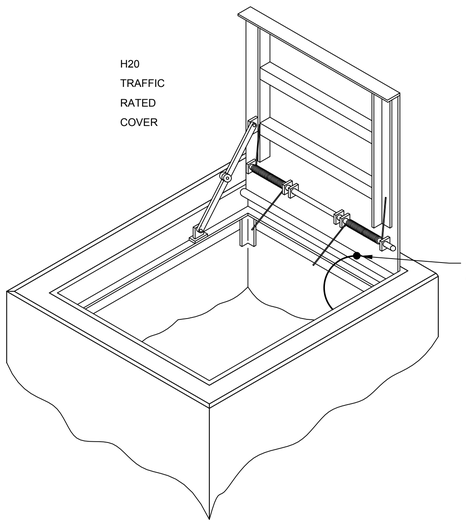
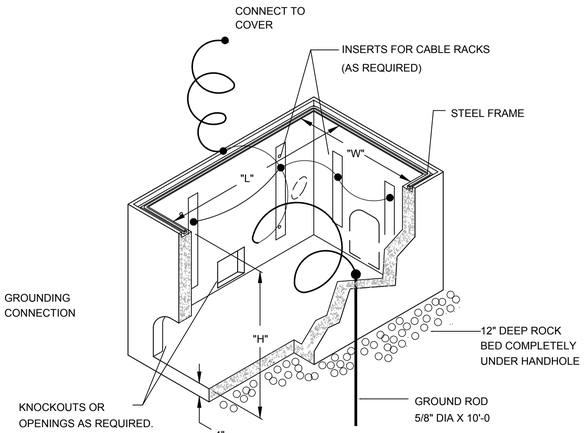


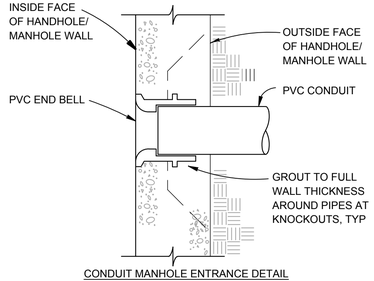
TRAFFIC RATED COVER WITH RECESSED PAD LOCK

NOTE: COVER AND STEEL FRAME SHALL BE GROUNDED. MANHOLE INTERNAL DIMENSIONS - SEE MANHOLE SCHEDULE.

17 TYP **ELECTRICAL MANHOLE DETAIL**
NOT TO SCALE



MANHOLE DETAIL



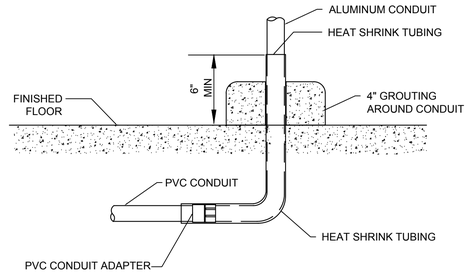
CONDUIT MANHOLE ENTRANCE DETAIL

NOTES FOR ALL MANHOLES:

1. CONTRACTOR SHALL PROVIDE REQUIRED END BELL LOCATIONS TO MANHOLE MANUFACTURER BEFORE MANUFACTURING.
2. ALL MANHOLES SHALL BE H-20 TRAFFIC RATED.
3. THE HEIGHT OF CONDUIT ENTRANCES SHALL BE COORDINATED BY THE CONTRACTOR TO ACCOMMODATE OTHER UTILITIES IN THE AREA. SEE CIVIL ENGINEERING AND ELECTRICAL SITE PLANS FOR ELEVATIONS REQUIREMENTS.
4. CONTRACTOR SHALL COORDINATE CONDUIT ENTRY REQUIREMENTS WITH SITE PLAN, PRIOR TO ORDERING MANHOLES.
5. ALL COVERS SHALL BE RECESSED PADLOCK LOCKABLE. FOR MANHOLE INTERNAL DIMENSIONS LARGER THAN 48", PROVIDE TWO COVERS IN LIEU OF ONE LARGE COVER WITH DOOR SUPPORTS AND SPRINGS SIMILAR TO SINGLE COVER SHOWN IN DETAIL.
6. CONTRACTOR SHALL COORDINATE WITH MANHOLE SUPPLIER IF LARGER OPENING FOR CONDUIT ENTRY IS NEEDED BASED ON THE NUMBER OF CONDUITS ENTERING AT EACH SIDE AND REINFORCE OPENING AS REQUIRED.

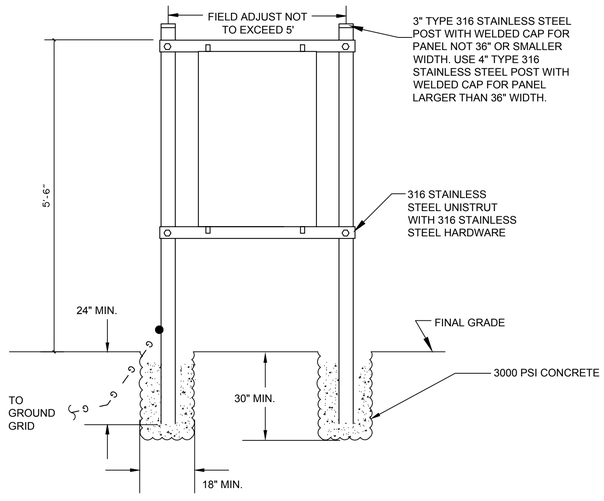
MANHOLE NOTES:

1. CABLE RACK, JOSLYN J-5126 OR EQUAL
   CABLE HOOKS, JOSLYN J-5131A OR EQUAL
   CABLE RACK INSULATORS, JOSLYN J-5120
2. PULLING-IN-IRONS INSTALL OPPOSITE CONDUIT ENTRANCE.
   POSITION BELOW LEVEL OF CONDUIT ENTRANCE.
   HUBBART & CO. CATALOG 9119 OR EQUAL.
3. TERMINATE ALL DUCTS IN MANHOLE WITH END BELLS.
4. MANHOLE COVERS SHALL BE MARKED "ELECTRICAL HV", "ELECTRICAL LV" OR "INSTRUMENTATION" BY THE MANUFACTURER, WITH RAISED LETTERS.
   THE CONTRACTOR SHALL STAMP IN THE MANHOLE COVERS THE IDENTIFICATION NUMBER OF THE MANHOLE, LETTERS AND NUMBERS SHALL BE 2" HIGH.
   AS AN ALTERNATE THE CONTRACTOR MAY INSTALL SST NAMEPLATES ATTACHED WITH FOUR SST BOLTS TO THE MANHOLE.
   COVERS INDICATING THE MANHOLE NUMBER.
   LETTERS AND NUMBERS TO BE RAISED AND 2" HIGH.
   SUBMIT ONE SAMPLE NAMEPLATE FOR ENGINEER'S APPROVAL PRIOR TO INSTALLATION.
5. GROUND ROD, 5/8"X10'-0, COPPER CLAD.
6. BOUND DUCT BANK GROUNDS AND ALL METALLIC PARTS TO GROUNDING SYSTEM.
7. U.S.F. FABRICATION, INC. HEAVY DUTY, H-20 LOADING, SINGLE DOOR WITH RECESSED STAPLE FOR PADLOCK AND SPRING LOADED HINGE.



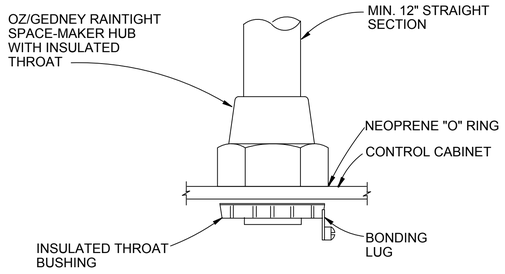
18 TYP **CONDUIT FLOOR ENTRANCE GROUT DETAIL**
NOT TO SCALE

NOTE:
1. HEAT SHRINK TUBING SHALL COVER UNDERGROUND CONDUIT ADAPTER



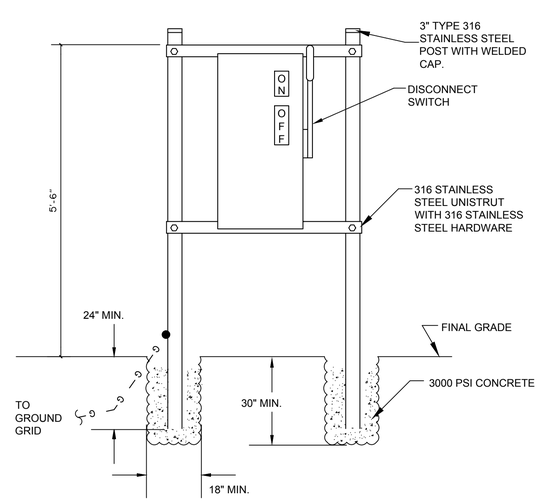
19 TYP **TYPICAL EQUIPMENT RACK ON GRADE**
NOT TO SCALE

NOTE:
1. ADJUST THE NUMBER OF SUPPORT POST TO ACCOMMODATE EQUIPMENT TO BE INSTALLED



TYPICAL FOR ALL CONDUIT ENTRANCES INTO NEMA 3R, NEMA 4, OR NEMA 4X ENCLOSURES.

20 TYP **CONDUIT HUB**
NOT TO SCALE



21 TYP **DISCONNECT SWITCH PEDESTAL ON GRADE**
NOT TO SCALE

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ELECTRICAL DETAILS - SHEET 3

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0 1"
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DRAWING NO. 00ED03

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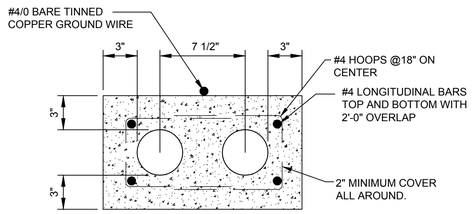
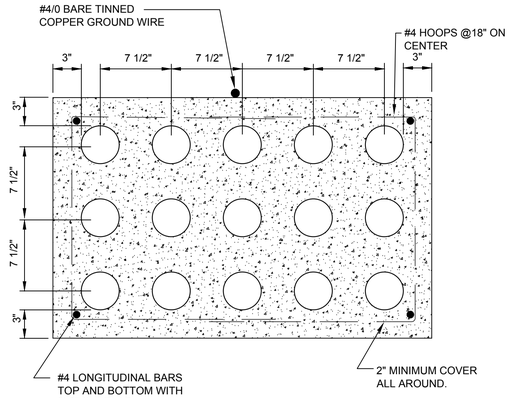


22 TYP

2-WAY DUCTBANK

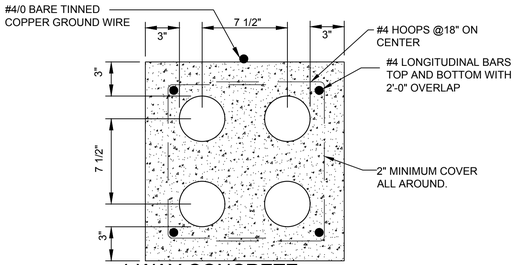
NOT TO SCALE



23 TYP

15-WAY DUCTBANK

NOT TO SCALE



26 TYP

4-WAY CONCRETE ENCASED DUCTBANK

NOT TO SCALE

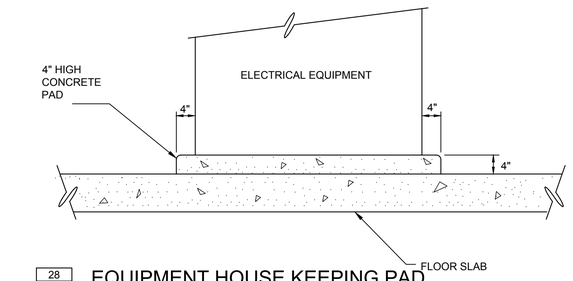
27 TYP

10-WAY CONCRETE ENCASED DUCTBANK

NOT TO SCALE

DUCTBANK NOTES:

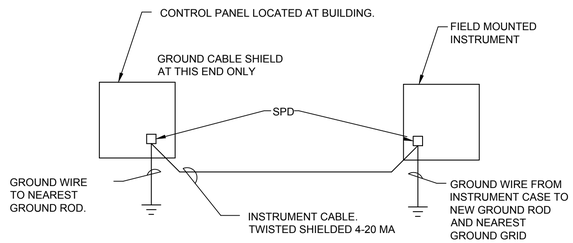
1. FOR CONCRETE ENCASED DUCTBANK WITH DIFFERENT QUANTITY THAN SHOWN, HORIZONTAL STAGGER THE ARRANGEMENT USING DETAIL NO.6 (00ED-01).
2. KEEP MINIMUM DISTANCE SEPARATION ALLOWED BETWEEN POWER CONDUITS AND INSTRUMENTATION CONDUIT AS PER NOTE NO.20 ON DRAWING 00E-02.



28 TYP

EQUIPMENT HOUSE KEEPING PAD

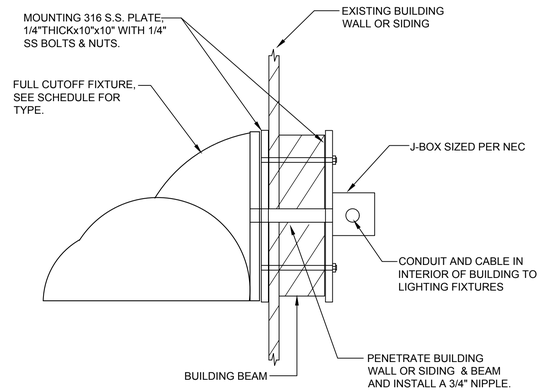
NOT TO SCALE



29 TYP

INSTRUMENTATION GROUNDING & SURGE PROTECTION

NOTE: SEE SPEC. SECTIONS

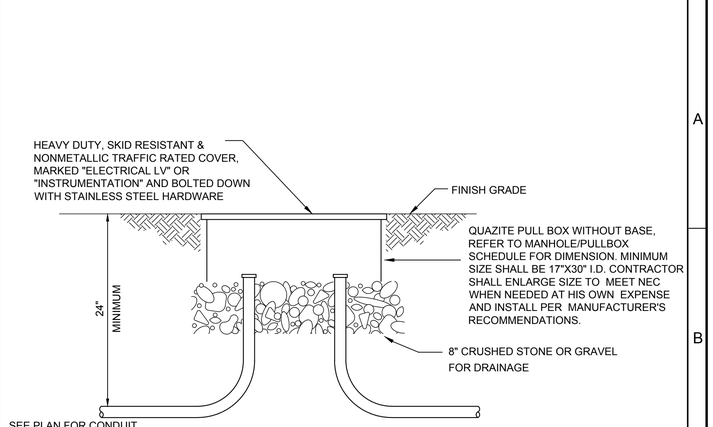


NOTE: CONTRACTOR SHALL PROVIDE AND INSTALL MOUNTING PLATE AND SEAL BETWEEN MOUNTING PLATE AND MOUNTING SURFACE TO INSURE A DRY J-BOX. CONTRACTOR SHALL MOUNT LIGHTING FIXTURE AT MOUNTING HEIGHT PER SCHEDULE.

24 TYP

WALL MOUNTED LIGHTING FIXTURE MOUNTING DETAIL

NOT TO SCALE (TYPICAL)



NOTE: PULL BOX SHALL COMPLY WITH NEC ARTICLE 314.30

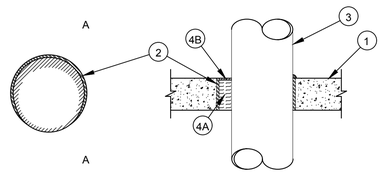
25 TYP

PULL BOX DETAIL

NOT TO SCALE

System No. C-AJ-1226

F RATING = 3-HR.
T RATING = 0-HR.
L Rating At Ambient - Less than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. Floor or Wall Assembly: Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in.
2. Metallic Sleeve: (Optional) Nom 32 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces.
3. Through-Penetrant One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe or conduit and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. Pipe may be installed with continuous point contact. Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe Nom 30 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit Nom 6 in. diam (or smaller) steel conduit. f
   F. Conduit Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT).
4. Firestop System The firestop system shall consist of the following:
   A. Packing Material Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* -- Sealant Min 1/4 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. At the point or continuous contact locations between pipe and concrete, a min 1/4 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC
FS-One Sealant *Bearing the UL Classification Marking

HILTI FIRESTOP SYSTEMS

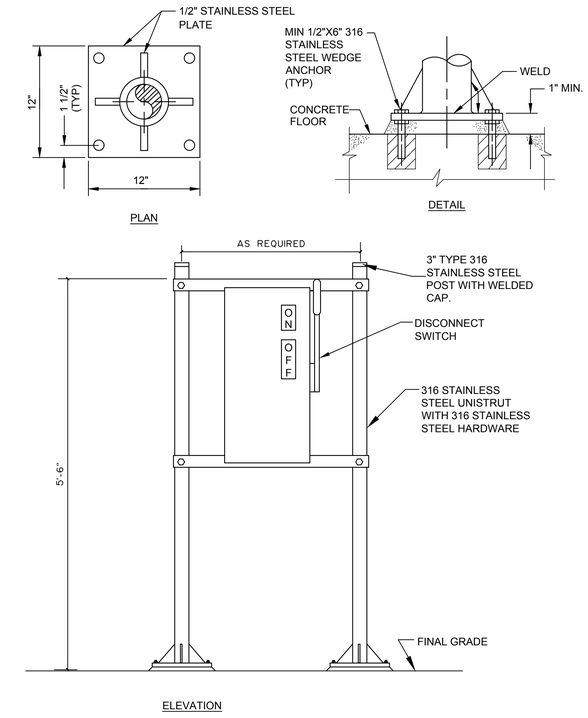
Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 09, 2003

CLASSIFIED UL

30 TYP

CONDUIT PENETRATION AT WALL OR SLAB

NOT TO SCALE



31 TYP

DISCONNECT/PANEL PEDESTAL ON SLAB

NOT TO SCALE

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DRAWING NO. 00ED04

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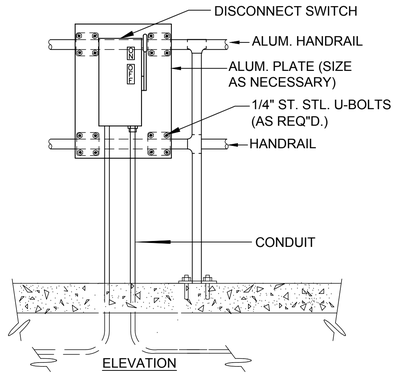
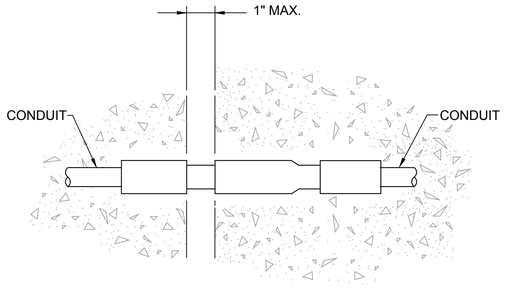
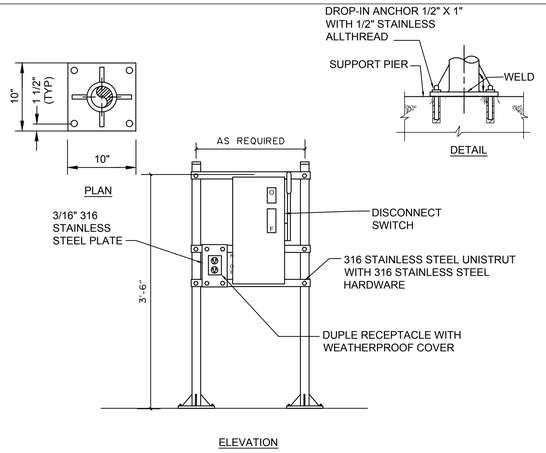


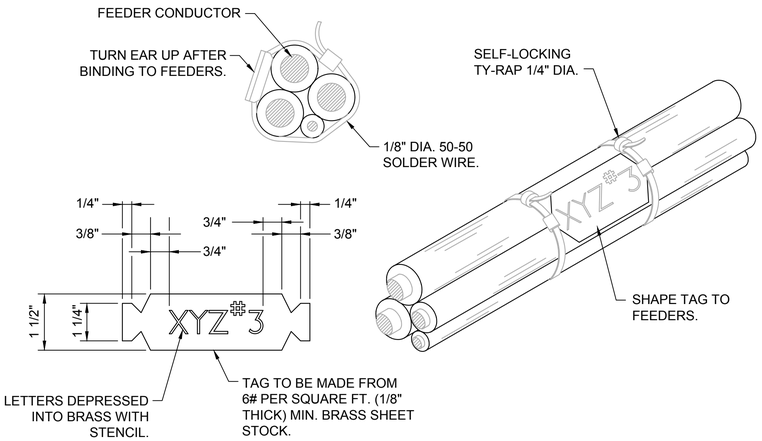
32 VAR. **DISCONNECT SWITCH MOUNTED ON HANDRAIL**
NOT TO SCALE



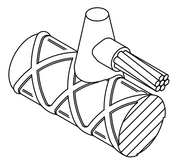
33 VAR. **EXPANSION COUPLING**
NOT TO SCALE



34 VAR. **DISCONNECT PEDESTAL ON ROOF**
NOT TO SCALE

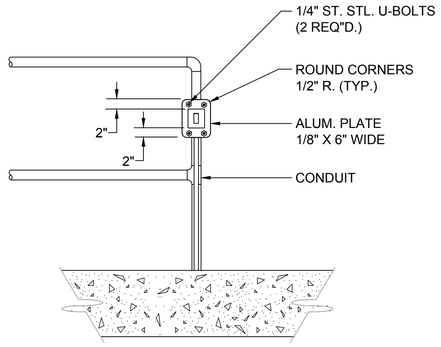


35 VAR. **FEEDER CABLE TAG DETAIL**
NOT TO SCALE

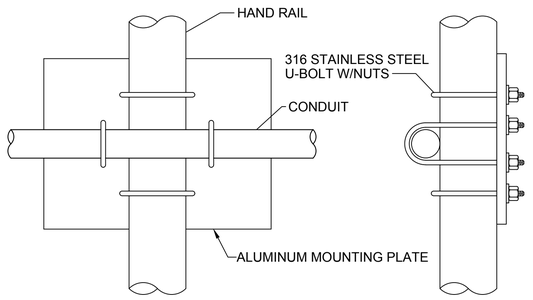


HORIZONTAL COPPER CONDUCTOR TAP TO HORIZONTAL REINFORCING BAR (REBAR). MAXIMUM CONDUCTOR SIZE IS 4/0 AWG. REBAR CHARACTERISTICS AND LOCATION OF WELD MUST BE CONSIDERED WHEN SELECTING CONNECTIONS TO REBAR. WHEN POSSIBLE, CONNECTIONS SHOULD BE MADE CLOSE TO THE END OF THE REBAR.

36 VAR. **GROUND CABLE CADWELDED TO REBAR**
NOT TO SCALE

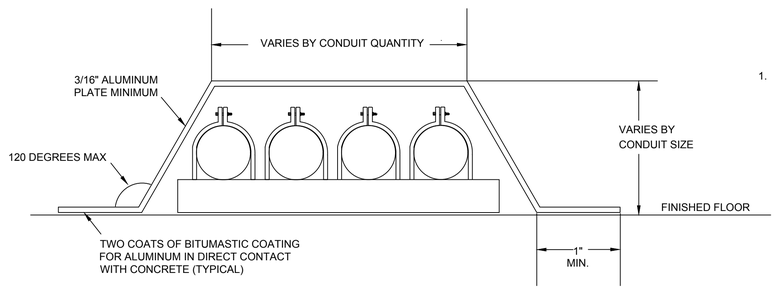


37 VAR. **SWITCH OR OUTLET MOUNTED ON HANDRAIL**
NOT TO SCALE



38 VAR. **CONDUIT MOUNTED TO HANDRAIL DETAIL**
NOT TO SCALE

39 VAR. **TERMINAL JUNCTION BOX (TJB) DETAIL**
NOT TO SCALE



40 VAR. **TYPICAL ALUMINUM RAMP FOR EXPOSED CONDUITS**
NOT TO SCALE

ALUMINUM RAMP NOTES

1. CONTRACTOR SHALL CUSTOM FABRICATE ALUMINUM RAMP AND ADJUST THE LENGTH AND HEIGHT OF THE ALUMINUM RAMP BASED ON THE QUANTITY OF CONDUITS, SPACING, ROUTING, SPACE FOR FUTURE CONDUITS, ETC. AND PROVIDE/INSTALL ACCORDINGLY. USE 316 STAINLESS STEEL HARDWARE FOR MOUNTING OF ALUMINUM RAMP. AFFIX NON-SLIP TAPE ON TOP OF RAMP. AFFIX YELLOW AND BLACK STRIP REFLECTIVE TAPES ON SIDES.

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			RECORD DRAWING

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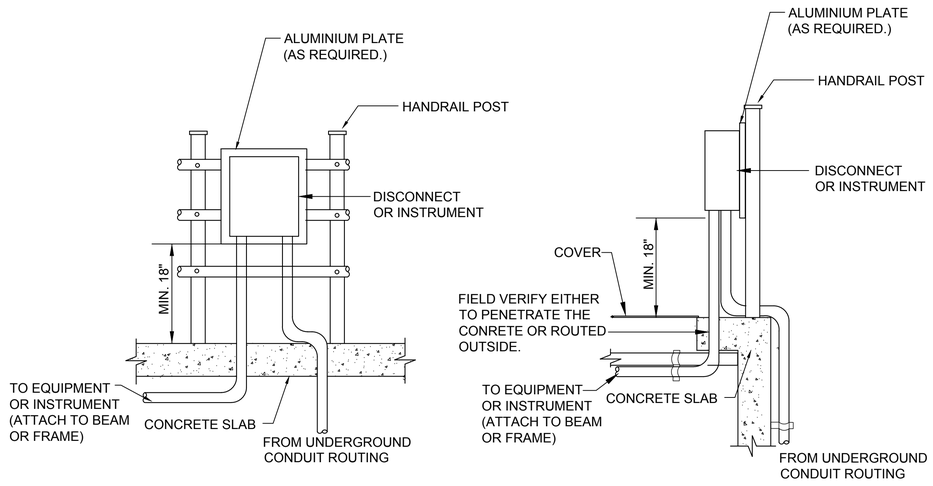
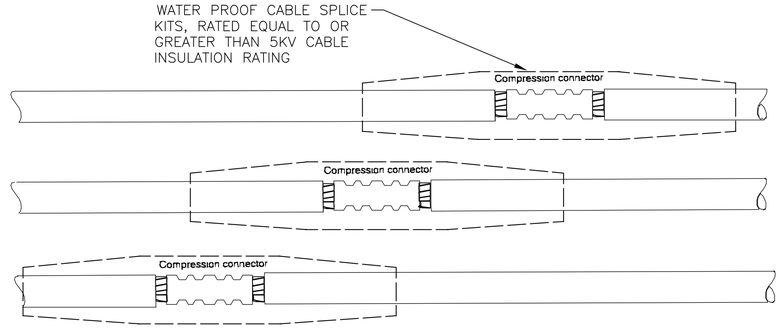
DRAWING NO. 00ED05



41 VAR — DISCONNECT OR PANEL HANDRAIL MOUNTING DETAIL

SCALE: NONE



STRAIGHT SPLICING

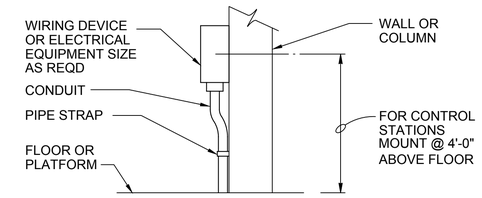
ALL MV CABLE SPLICING SHALL BE PERFORMED BY CERTIFIED PERSONNEL WHO HAVE DEMONSTRATED MINIMUM 5 YEARS EXPERIENCE IN MV CABLE SPLICING.

CONTRACTOR SHALL PERFORM MEGGERING TEST ON MV CABLE BEFORE AND AFTER SPLICING AND SUBMIT BOTH READINGS IN WRITING FOR REVIEW.

APPROVED SPLICE KITS BY RAYCHEM OR APPROVED EQUAL SPLICE KITS SHALL BE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS.

42 VAR. — CABLE SPLICING DETAIL

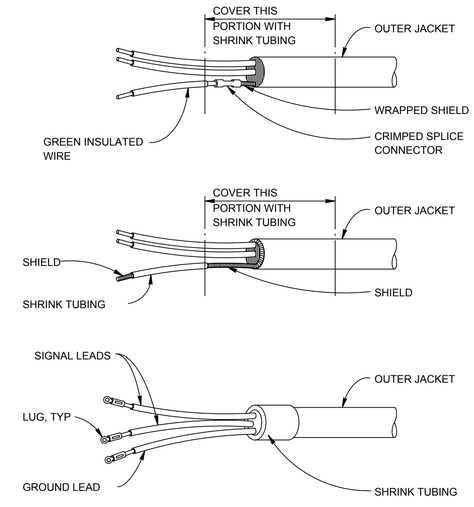
NOT TO SCALE



NOTE:
ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

43 TYP — WALL OR COLUMN MOUNTED DEVICE

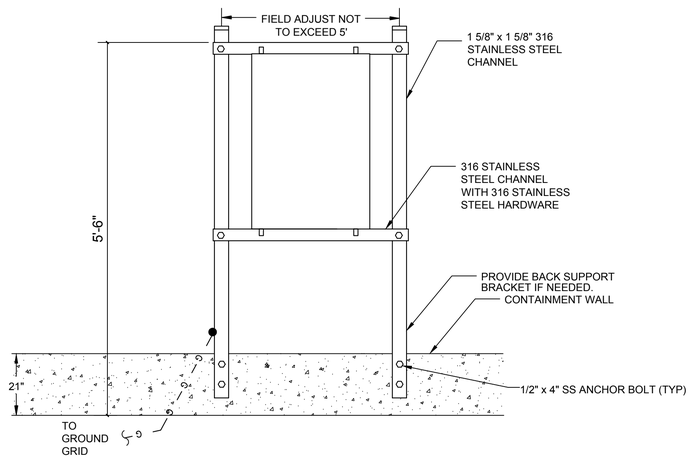
NOT TO SCALE



NOTE:
SHIELD GROUNDED
AT TERMINATION.

44 TYP — TERMINATION OF SHIELDED CONTROL CABLE

NOT TO SCALE



45 TYP — TYPICAL EQUIPMENT RACK ON CONTAINMENT WALL

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NOTE:
1. ADJUST THE NUMBER OF SUPPORT POST TO ACCOMMODATE EQUIPMENT TO BE INSTALLED

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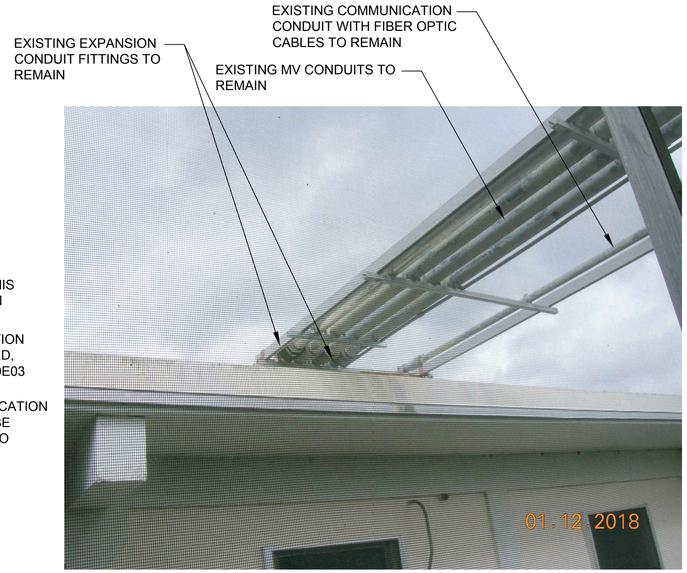
PHOTO 1
SCALE: NONE

PHOTO 2
SCALE: NONE



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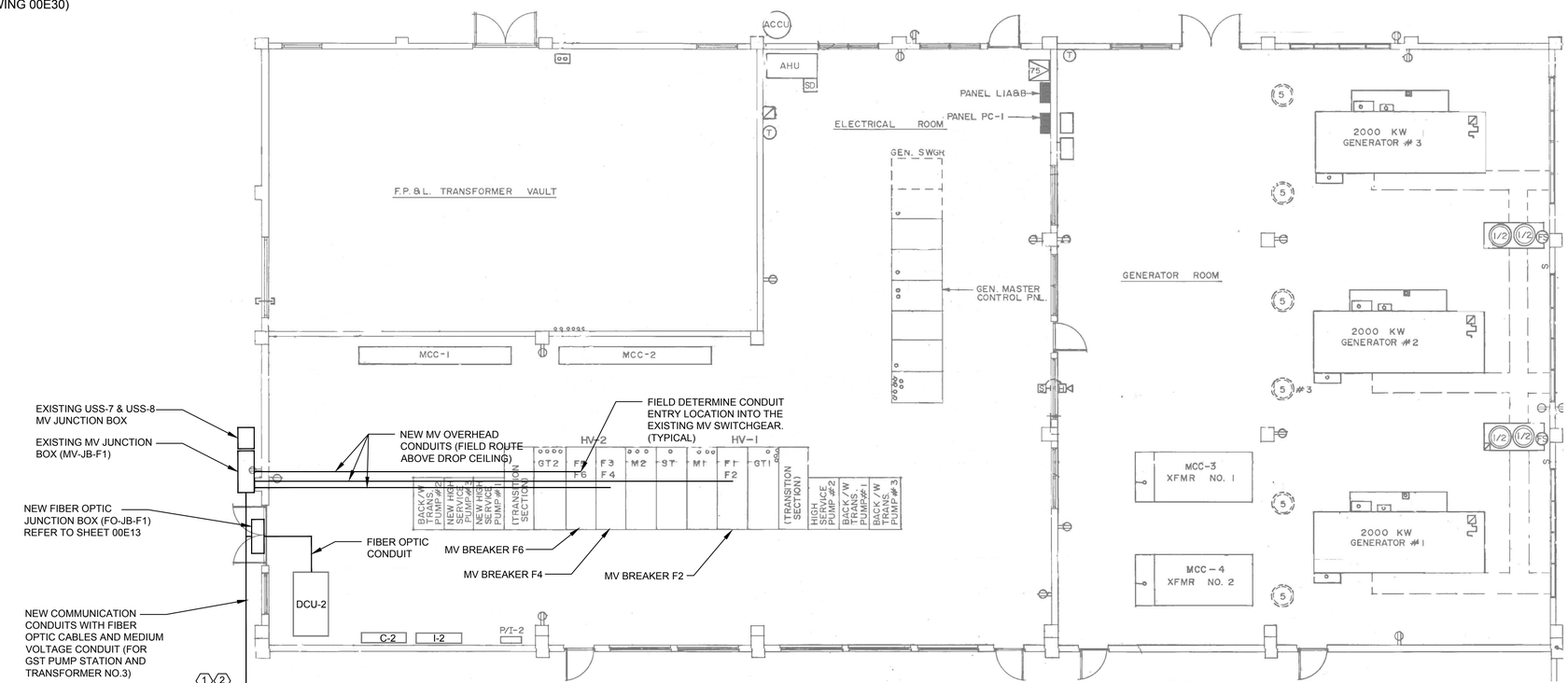

PHOTO 4 (MAIN ELECTRICAL ROOM)
SCALE: NONE

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL NEW EXPOSED MV CONDUITS BETWEEN MAIN ELECTRICAL ROOM AND EXISTING EXPANSION FITTINGS ON THE ROOF OF BUILDING "B" APPROXIMATELY ABOVE THE SOUTH OFFICE ROOM. PROVIDE AND INSTALL NEW EXPOSED CONDUITS ON ROOF WITH NEW CONDUIT SUPPORTS. CONDUIT SUPPORTS SHALL MATCH EXISTING. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR NEW ROOF MEMBRANE INSTALLATION AND ADJUST CONDUIT AND CONDUIT SUPPORTS ACCORDINGLY. PROVIDE AND INSTALL NEW EXPOSED CONDUITS WITH RACK SUPPORTS ALONG THE WEST WALL OF FILTER BUILDING "B". REFER TO DRAWINGS 03M08 AND 03M09 FOR WALL MOUNTED RACK DETAILS, FIELD DETERMINE ACTUAL TRANSITION TO VERTICAL CONDUITS AND INSTALL ACCORDINGLY. PROVIDE AND INSTALL CONDUITS ALONG THE NORTH SIDE OF BUILDING "B" WITH TEMPORARY SUPPORT MOUNTED NEAR THE EXISTING PIPE SUPPORTS. WHEN NEW PIPE SUPPORTS ARE INSTALLED, CONTRACTOR SHALL TRANSITION CONDUIT MOUNTING HARDWARE AND SUPPORTS TO THE NEW PIPE SUPPORTS SO THAT THE EXISTING PIPE SUPPORTS CAN BE DEMOLISHED. REFER TO STRUCTURAL DRAWINGS FOR EXISTING PIPE SUPPORTS TO BE DEMOLISHED AND FOR NEW PIPE SUPPORTS INSTALLATION. PROVIDE AND INSTALL CONDUITS ALONG BOTTOM BEAM OF ELEVATED WALKWAY (APPROXIMATE ELEVATION OF 15') AND ALONG THE EXISTING WALL OF ELECTRICAL BUILDING AND BUILDING "C" AS SHOWN ON DRAWINGS 00E04. PROVIDE AND INSTALL STAINLESS STEEL JUNCTION BOXES AND/OR MOGUL LB CONDULETS AS NECESSARY. INSTALL LONG RADIUS 90 BEND WHERE MOGUL LB OR JUNCTION BOX IS NOT PRESENT.
2. REFER TO DRAWING 00E32 FOR SUGGESTED MV CONDUITS ROUTING. THIS MV CONDUIT ROUTING REQUIRES CONTRACTOR TO FIELD DETERMINE AND FIELD ROUTE TO AVOID CONFLICTS WITH EXISTING CONDITIONS AND OTHER PIPING. IT IS CONTRACTOR'S RESPONSIBILITY TO INCLUDE ALL NECESSARY LABOR, MATERIALS, SUPPORTS, ETC. TO COMPLETE THIS INSTALLATION. CONTRACTOR SHALL SUBMIT A SKETCH ROUTING TO ENGINEER FOR APPROVAL.

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FIRE ALARM BILL OF MATERIALS

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
FCPS	NOTIFIER FCPS DISTRIBUTED POWER MODULE, CLASS A NOTIFICATION CICUITS, 8.0 AMPS OUTOUT POWER, WITH BUILT IN SYNCHRONIZATION FOR NOTIFICATION APPLIANCES (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
VESDA	VESDA BY XTRALIS, ASPIRATING SMOKE DETECTION (ASD) SYSTEM, DESIGN TO PROTECT INDUSTRIAL APPLICATIONS AND HARSH ENVIRONMENT OF UP TO 4 INLET PIPES, TOTAL PIPE LENGTH UP TO 1181 FEET. (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
F XX / YY	WALL MOUNTED HORN/STROBE WITH SELECTABLE CANDELA. XX = CANDELA RATING YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
F XX / YY	WALL MOUNTED STROBE WITH SELECTABLE CANDELA. XX = CANDELA RATING YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
WP F XX / YY	WEATHERPROOF WALL MOUNTED HORN/STROBE WITH SELECTABLE CANDELA. XX = CANDELA RATING YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
WP F XX / YY	SPECTRALERT MODEL S1224MCK WEATHERPROOF WALL MOUNTED STROBE WITH SELECTABLE CANDELA. XX = CANDELA RATING YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
F WP / YY	WEATHERPROOF DIE CAST METAL PULL STATION. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
YY	ANALOG ADDRESSABLE PHOTOELECTRIC TYPE SMOKE DETECTOR WITH) ISOLATOR DETECTOR BASE. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
MX YY A	ADDRESSABLE MONITOR MODULE. A = CLASS A YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
RM YY	ADDRESSABLE CONTROL/RELAY MODULE. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
YY D / RTS YY	ADDRESSABLE DUCT DETECTOR HOUSING WITH RELAY MODULE, PHOTOELECTRIC SMOKE DETECTOR AND REMOTE TEST STATION. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
BD YY R/T / RTS YY ; BD YY REF	SINGLE-ENDED, REFLECTED-TYPE ADDRESSABLE BEAM SMOKE DETECTOR WITH REMOTE TEST STATION. R/T = RECEIVER/TRANSMITTER REF = REFLECTOR YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
I YY	LINE ISOLATOR MODULE, CLASS A. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
SPD YY	DITEK SURGE SUPPRESSOR, LOW VOLTAGE LINE PROTECTION 4 WIRE MODEL-120V. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)
F YY	ADDRESSABLE PULL STATION. YY = SEQUENTIAL SYSTEM NUMBER (SEE SPECIFICATION 28 31 01 FOR APPROVED MANUFACTURER AND MODEL)

FIRE ALARM SEQUENCE OF OPERATION

	GENERAL ALARM	TROUBLE OPEN CIRCUIT	ANNUNCIATE @FACP	SUPERVISORY ALARM	AHU/FAN SHUTDOWN
MANUAL PULL STATION	●	●	●		
SMOKE DETECTOR	●	●	●		●
HEAT DETECTOR	●	●	●		●
DUCT SMOKE DETECTOR		●	●	●	●
BEAM SMOKE DETECTOR	●	●	●		●
AC POWER LOSS		●	●		
LOW BATTERY		●	●		
CIRCUIT/CABLE GROUND		●	●		
MISSING DETECTOR		●	●		
AUDIBLE NOTIFICATION APPLIANCES	●	●	●		
VISUAL NOTIFICATION APPLIANCES	●	●	●		

LEGEND

SYMBOL	DESCRIPTION
	FIRE ALARM SMOKE DETECTOR
	FIRE ALARM HEAT DETECTOR
FACP	FIRE ALARM CONTROL PANEL
FCPS	FIRE ALARM DISTRIBUTED POWER SUPPLY PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
NAC	FIRE ALARM NOTIFICATION PANEL
BD X	BEAM DETECTOR, R/T=TRANSMITTER/RECEIVER, REF=REFLECTOR
D	DUCT SMOKE DETECTOR
RTS	REMOTE TEST STATION
F	FIRE ALARM PULL STATION
F	FIRE ALARM HORN/STROBE LIGHT
F	FIRE ALARM STROBE LIGHT
SPD	120V SURGE SUPPRESSOR
SS	24V SURGE SUPPRESSOR
I	LINE ISOLATOR MODULE
EOLR	END OF LINE RESISTOR
RM	RELAY MODULE
MX	MONITOR MODULE
TS	TAMPER SWITCH
FS	FLOW SWITCH
	EXPOSED CONDUIT AND CONDUCTORS
YCX	YARD CONDUIT. REFER TO YARD CONDUIT SCHEDULE

NOTES:

1. FIRE ALARM SHALL BE ADDRESSABLE.
2. ALL N.A.C. DEVICES SHALL TEMPORAL PER NFPA 72 & NFPA 101 AND SHALL BE SYNCHRONIZED @1 HZ PER ADA AND NFPA 72. AUDIBLE SIGNAL SHALL BE A MINIMUM OF 15dB ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS (WHICHEVER IS GREATER) MEASURED AT 5 FEET ABOVE FINISHED FLOOR IN THE OCCUPIED AREA.
3. ALL SYSTEM DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH U.L., FLORIDA BUILDING CODE, NFPA CODES, NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL COUNTY CODES WITH RESPECT TO FIRE ALARM SYSTEMS.
4. THE FIRE ALARM CONTRACTOR SHALL COMPLETELY INSTALL AND TEST THE COMPLETE FIRE ALARM SYSTEM PRIOR TO CONTACTING THE FIRE MARSHAL'S OFFICE FOR THE FINAL INSPECTION/CERIFICATION PER NFPA 72, SECTION 1-6-1. BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION, THE FIRE ALARM CONTRACTOR SHALL FURNISH A WRITTEN STATEMENT TO THE EFFECT THAT THE SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND TESTED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND REQUIREMENTS OF NFPA 72. THE FIRE ALARM CONTRACTOR MUST SUPPLY SUFFICIENT MANPOWER TO CONDUCT THE TEST.
5. CONTRACTOR SHALL INSTALL ALL CONDUIT IN OFFICE SPACES AND FINISHED AREAS CONCEALED IN WALLS AND CEILING SPACES. CONDUIT IN PROCESS AREAS, STORAGE AREAS, WAREHOUSES, UNFINISHED ELECTRICAL ROOMS AND UNFINISHED SPACES SHALL BE PERMITTED TO BE INSTALLED AS A SURFACE MOUNT SYSTEM
6. ALL SIGNAL LINE CIRCUITS (SLC) SHALL BE CLASS A.
7. ALL NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL BE CLASS A.
8. PROVIDE CLASS A WIRING: ALL STYLES OF CLASS A CIRCUITS USING PHYSICAL CONDUCTORS SHALL BE INSTALLED SUCH THAT THE OUTGOING AND RETURN CONDUCTORS, EXITING AND RETURNING TO THE CONTROL UNIT, RESPECTIVELY, ARE ROUTED SEPARATELY. THE OUTGOING AND RETURN CIRCUIT CONDUCTORS SHALL NOT BE RUN IN THE SAME CABLE ASSEMBLY, ENCLOSURE, OR RACEWAY.

   EXCEPTION:
   1. FOR A DISTANCE NOT TO EXCEED 10 FT. WHERE THE OUTGOING AND RETURN CONDUCTORS ENTER OR EXIT THE INITIATING DEVICE, NOTIFICATION APPLIANCE, OR CONTROL UNIT ENCLOSURES.
   2. SINGLE CONDUIT/ RACEWAY DROPS TO INDIVIDUAL DEVICES OR APPLIANCES.
9. ALL WIRING IS POWER LIMITED PER SPECIFICATION SECTION 28 31 01.
10. INSTALLATION SHALL COMPLY WITH THE 2017 FLORIDA BUILDING CODE (6TH EDITION) WITH AMENDMENT, LOCAL AHJ CODES, NFPA 72 (ALL APPLICABLE CHAPTERS), NFPA 101 (ALL APPLICABLE CHAPTERS) AND NFPA-70 (NEC, ALL APPLICABLE SECTIONS)
11. CONDUIT SHALL BE 3/4" MINIMUM RACEWAY SIZED FOR MAXIMUM OF 40% WIRE FILL AS PER SPECIFICATION 28 31 01. PROCESS AREA CONDUIT SHALL BE 1" MINIMUM RIGID RACEWAY SIZED FOR MAXIMUM OF 40% WIRE FILL
12. SYSTEM SHALL BE GROUNDED PER MANUFACTURERS SPECIFICATIONS, SPECIFICATION 28 31 01 AND THE NEC ARTICLE 250.
13. SYSTEM COMPONENTS SHALL BE UL LISTED, COMPATIBLE AND SUITABLE FOR FIRE SERVICE USE.
14. FIRE ALARM SYSTEM CONTROL PANEL SHALL BE MOUNTED @ 60" A.F.F.
15. CONTRACTOR SHALL INCLUDE CERTIFICATION AND MONITORING CONTRACT OF 3 YEAR FOR PROPOSED FIRE ALARM SYSTEM. THE FIRE ALARM SYSTEM TESTING, MAINTENANCE AND MONITORING SHALL BE UL CERTIFIED.
16. THE MAXIMUM NUMBER OF ADDRESSABLE DEVICES FOR EACH SLC CHANNEL IS 318.
17. THE BLOWER/ELECTRICAL BUILDING IS NOT SPRINKLED. THE FILTER LOWER LEVEL (PIPE GALLERY LEVEL) IS SPRINKLED.
18. ALL HVAC & FAN COIL UNITS GREATER THAN 2,000CFM AND SUPPLY & RETURN GREATER THAN 15,000CFM HAVE BEEN PROTECTED.
19. ALL DUCT SMOKE DETECTOR SHALL BE COMPATIBLE WITH THE PROPOSED FIRE ALARM SYSTEM AND INSTALLED BY THE HVAC/MECHANICAL CONTRACTOR.
20. ALL FIRE/SMOKE PARTITION PENETRATION(S) SHALL BE SEALED, WITH U.L. LISTED APPROVED FIRESTOP SYSTEMS TO MATCH FIRE RATING OF PENETRATED STRUCTURE(S).
21. TAMPER RESISTRANT SCREWS SHALL BE USED TO PREVENT ACCESS TO JUNCTION BOXES AND DEVICE COVERS INSTALLED OUTSIDE OF BUILINGS.
22. THE SYSTEM IS IN EXCESS OF $5,000 AND THEREFORE SHOP DRAWINGS MUST BE SIGNED AND SEALED BY A LICENSED FLORIDA PROFESSIONAL ENGINEER.
23. TWO PHONE LINES SHALL BE INSTALLED TO FIRE ALARM CONTROL PANEL. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ONE DEDICATED PHONE LINE AND ONE SHARE PHONE LINE AS REQUIREMENTS AND PROVIDE ACCORDINGLY. WITH LOCAL FIRE MARSHAL APPROVAL, ONE SHARE LINE CAN BE REPLACED WITH ONE WIRELESS LINE BUT ALL COST ASSOCIATED WITH THE PHONE LINE SERVICE, INCLUDING WIRELESS, SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE. IF WIRELESS SERVICE PROVIDED, CONTRACTOR SHALL PROVIDE THREE YEARS PRE-PAID SERVICE FOR WIRELESS SERVICE AND THE COST SHALL BE INCLUDED IN THE BID PRICE.
24. CONTRACTOR SHALL INCLUDE THREE YEARS PRE-PAID CENTRAL MONITORING SERVICE CONTRACT AS PART OF BID PRICE FOR NEW FIRE ALARM SYSTEM SUPPLIED AND EXISTING FIRE ALARM SYSTEM THAT WILL BE CONNECTED TO THIS NEW SYSTEM.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
FIRE ALARM
FIRE ALARM LEGENDS AND GENERAL NOTES

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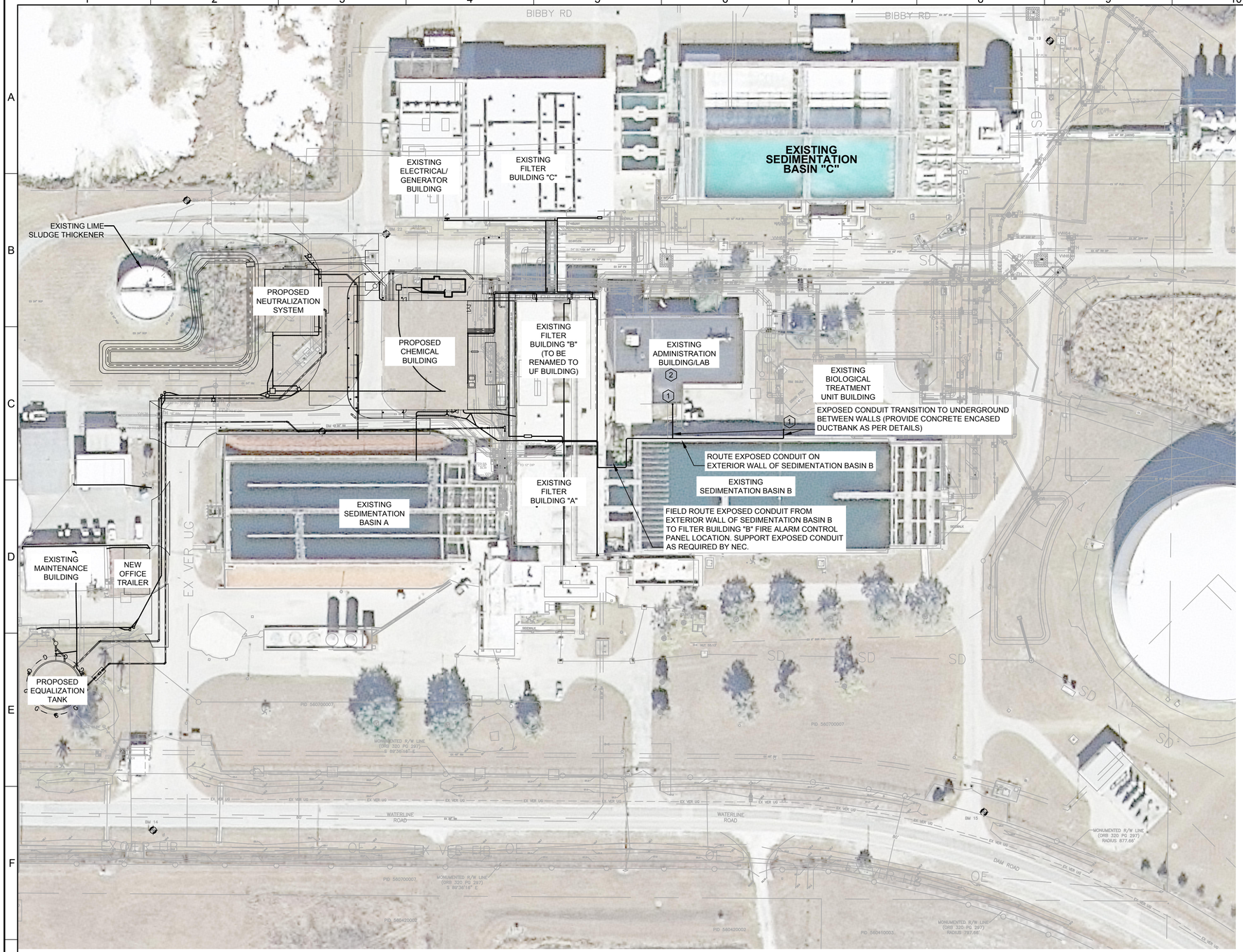

0 25' 50' 100'

SCALE: 1" = 50'-0"

KEYED NOTES:

1. COORDINATE WITH ELECTRICAL CONTRACTOR FOR FIRE ALARM CONDUIT ROUTING BETWEEN UF BUILDING TO ADMINISTRATION BUILDING AND UF BUILDING TO BIOLOGICAL TREATMENT UNIT BUILDING. FIELD ROUTE CONDUITS TO AVOID CONFLICTS WITH EXISTING CONDITIONS. PROVIDE AND INSTALL NEW NEMA 4X 316 STAINLESS STEEL JUNCTION BOXES AT EXISTING ADMINISTRATION BUILDING EXTERIOR WALL AND BIOLOGICAL TREATMENT UNIT BUILDING EXTERIOR WALL. FIELD DETERMINE EXACT LOCATION FOR MOUNTING OF NEW JUNCTION BOXES. NEW JUNCTION BOX SHALL BE MINIMUM 8"x8"x6" AND UPSIZE AS NEEDED BASED ON THE ACTUAL CONDUIT ENTRY AND EXIT POSITION (STRAIGHT OR ANGLE PULL).
2. EXISTING FIRE ALARM SYSTEM OF ADMINISTRATION BUILDING AND TELEPHONEBOARD ARE LOCATED IN THE ELECTRICAL/TELEPHONE NEAR THE SOUTH ENTRANCE DOOR OF THAT BUILDING. SEE DRAWING E33 FOR APPROXIMATE LOCATION OF EXISTING FIRE ALARM PANEL AND TELEPHONEBOARD.

FIRE ALARM SITE PLAN

SCALE: 1" = 50'-0"

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FIRE ALARM

FIRE ALARM SITE PLAN

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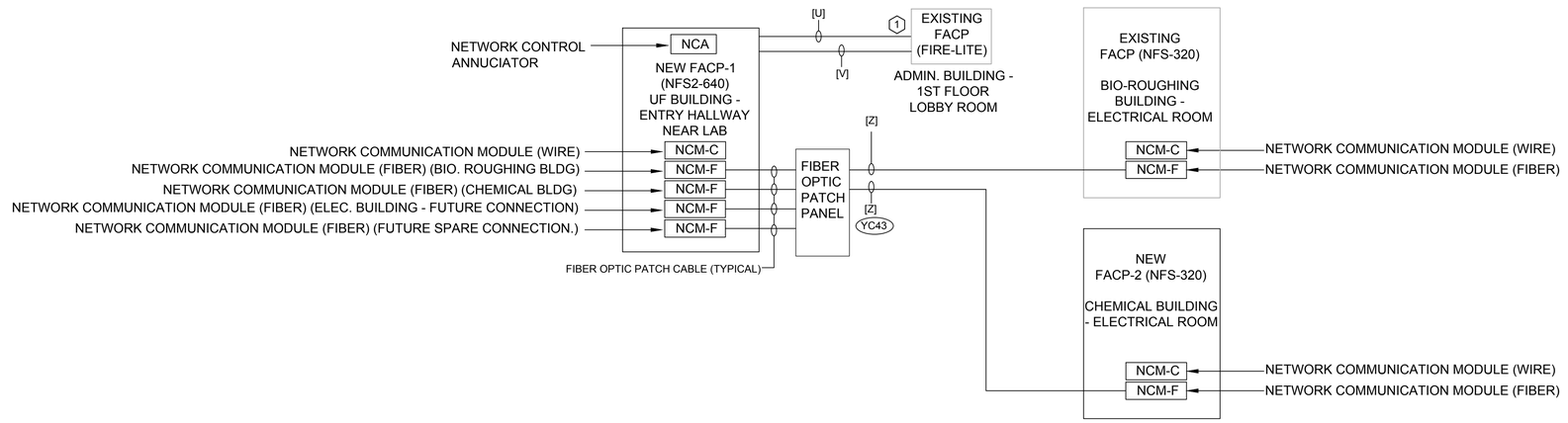


FIRE ALARM COMMUNICATION RISER

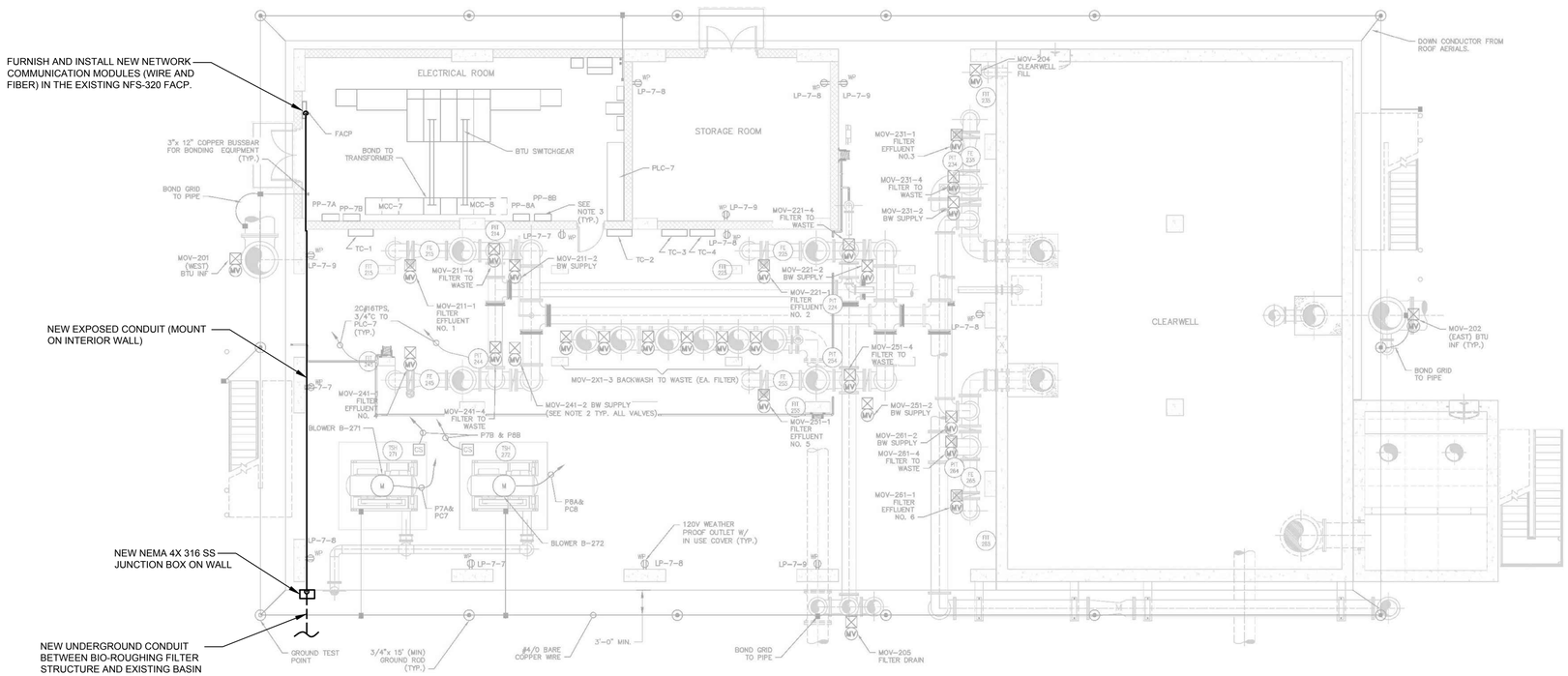
NOT TO SCALE

CIRCUIT SCHEDULE

[B2] = [3/4"C, 2#12, 1#12G]
[U] = [3/4"C, 2/C#16 TWISTED UNSHIELDED FPL CABLE FOR SLC AND 2#12 THWN FOR AUXILIARY POWER]
[V] = [3/4"C, 2-#12 THWN FOR NAC INDICATING DEVICES]
[W] = [1"C, 2/C#18 TWISTED SHIELDED VNTC CABLE FOR SLC AND 2#12 THWN FOR AUXILIARY POWER]
[X] = [1#10 COPPER GROUND WIRE TO GROUND GRID]
[Z] = [2"C FOR FIBER OPTIC CABLE] COORDINATE MINIMUM BENDING RADIUS WITH MANUFACTURER. PROVIDE AND INSTALL FIBER OPTIC CABLE AND MATCH THE FIBER OPTIC CABLE TYPE FURNISHED BY INSTRUMENTATION AND CONTROL (I&C) CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE LENGTHS.

KEYED NOTES:

1 EXISTING FIRE ALARM SYSTEM OF ADMINISTRATION BUILDING IS FIRE LITE. CONTRACTOR SHALL FIELD VERIFY THE EXACT MODEL AND FIELD DETERMINE TO CONNECT EXISTING FIRE LITE SYSTEM WITH NEW FACP-1 (HONEYWELL - NOTIFIER SYSTEM). CONTRACTOR SHALL PROVIDE AND INSTALL NEW MONITORING MODULES, RELAYS MODULES, ETC. IN A NEW FIRE ALARM TERMINAL CABINET AND MOUNT NEXT TO EXISTING FIRE ALARM PANEL AT ADMINISTRATION BUILDING. IT IS CONTRACTOR'S RESPONSIBILITY TO RESEARCH EXISTING FIRE LITE SYSTEM AND FURNISH AND INSTALL ALL NECESSARY INTERFACE MODULES, WIRING, CONNECTIONS, TERMINATION, ETC. SO THAT THE FIRE SIGNALS FROM ADMINISTRATION BUILDING WILL BE ABLE INTERFACE WITH NEW FIRE PANEL AT UF BUILDING.



BUILDING ELECTRICAL PLAN (EL. 73.83)

EXISTING BIO-ROUGHING FILTER BUILDING

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
FIRE ALARM
FIRE ALARM RISER DIAGRAMS - SHEET 1

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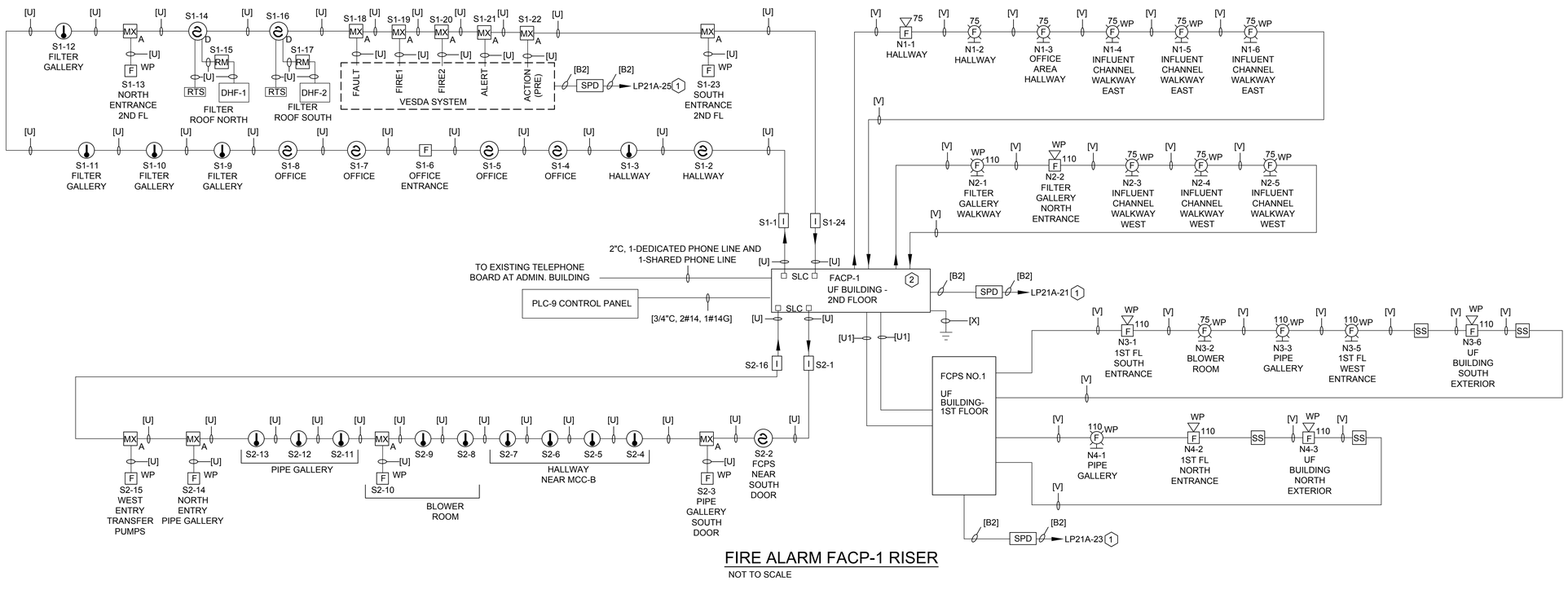
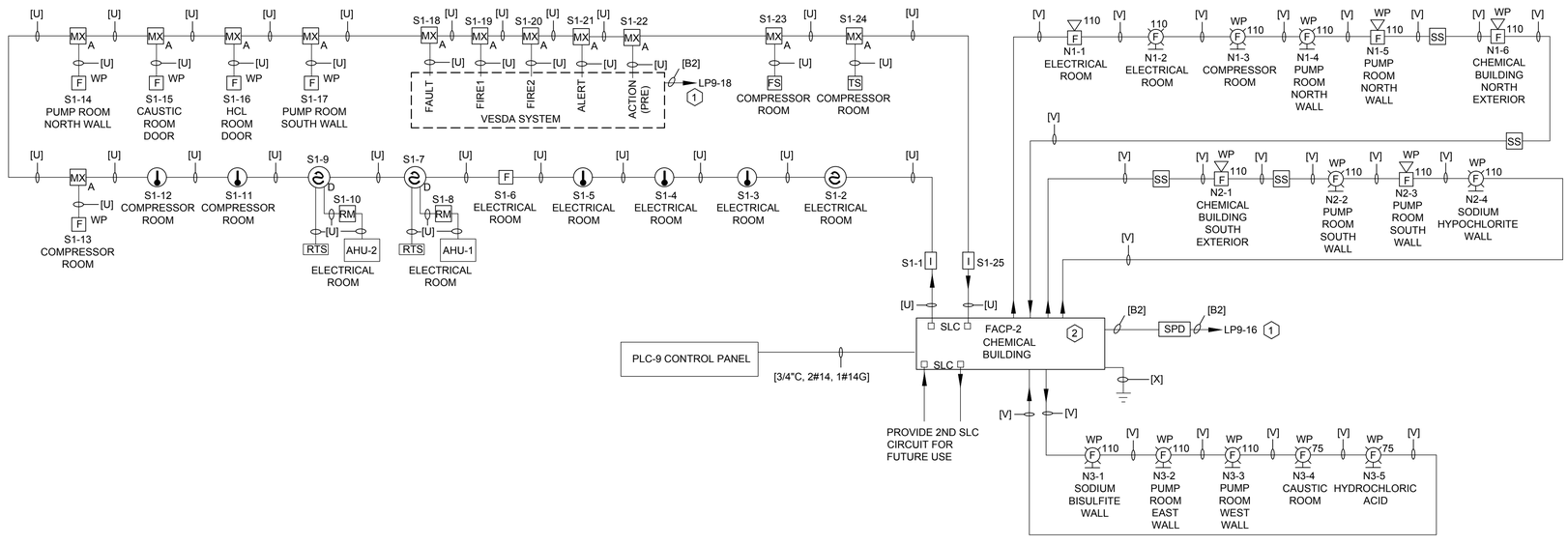


FIRE ALARM FACP-1 RISER

NOT TO SCALE



FIRE ALARM FACP-2 SYSTEM RISER

NOT TO SCALE

KEYED NOTES:

1. BREAKER SHALL BE LOCKED CLOSED AND LABELED PER CODE.
2. PROVIDE AND INSTALL JUNCTION BOXES AS REQUIRED FOR WIRING TO AND FROM FACP TO CONSOLIDATE CONDUITS.

CIRCUIT SCHEDULE

[B2] = [3/4"C, 2#12, 1#12G]
[U] = [3/4"C, 2/C#16 TWISTED UNSHIELDED FPL CABLE FOR SLC AND 2#12 THWN FOR AUXILIARY POWER]
[V] = [3/4"C, 2-#12 THWN FOR NAC INDICATING DEVICES]
[W] = [1"C, 2/C#18 TWISTED SHIELDED VNTC CABLE FOR SLC AND 2#12 THWN FOR AUXILIARY POWER]
[X] = [1#10 COPPER GROUND WIRE TO GROUND GRID]
[Z] = [2"C FOR FIBER OPTIC CABLE] COORDINATE MINIMUM BENDING RADIUS WITH MANUFACTURER. PROVIDE AND INSTALL FIBER OPTIC CABLE AND MATCH THE FIBER OPTIC CABLE TYPE FURNISHED BY INSTRUMENTATION AND CONTROL (I&C) CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE LENGTHS.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
FIRE ALARM
FIRE ALARM RISER DIAGRAMS - SHEET 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 9520I.10
DRAWING NO. 00F04

FACP-1 Load Calculations (NFS2-640) AT UF FILER BUILDING

CIRCUITS	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)	Non-Alarm Current (AMPS)		Qty.		Total Non-Alarm Current (AMPS)
	FACP NFS-640	0.250000	X	1	=	0.2500	0.250000	X	1	=	0.2500	0.250000	X	1	=	0.2500
	LCD DISPLAY	0.094000	X	1	=	0.0940	0.094000	X	1	=	0.0940	0.040000	X	1	=	0.0400
	UDACT	0.040000	X	1	=	0.0400	0.100000	X	1	=	0.1000	0.040000	X	1	=	0.0400
	NAC	0.400000	X	1	=	0.4000	0.400000	X	1	=	0.4000	0.400000	X	1	=	0.4000
	NCM-W, NCM-F	0.110000	X	1	=	0.1100	0.110000	X	1	=	0.1100	0.001300	X	1	=	0.0013
	BATTERY CHARGER POWER SUPPLY	0.000000	X	1	=	0.0000	0.000000	X	1	=	0.0000	0.001300	X	1	=	0.0013
S1, S2	ADDRESSABLE SMOKE DETECTOR	0.000360	X	6	=	0.0022	0.006500	X	6	=	0.0390	0.000360	X	6	=	0.0022
S1, S2	ADDRESSABLE PULL STATION	0.000375	X	7	=	0.0026	0.000375	X	7	=	0.0026	0.000375	X	7	=	0.0026
S1, S2	ADDRESSABLE HEAT DETECTOR	0.000300	X	14	=	0.0042	0.006500	X	14	=	0.0910	0.000300	X	14	=	0.0042
S1, S2	LINE ISOLATOR MODULES	0.000450	X	4	=	0.0018	0.005000	X	4	=	0.0200	0.000450	X	4	=	0.0018
S1, S2	ADDRESSABLE DUCT SMOKE DETECTOR	0.000300	X	2	=	0.0006	0.002100	X	2	=	0.0042	0.000300	X	2	=	0.0006
S1, S2	ADDRESSABLE FMM-1 MONITOR MODULE	0.000375	X	11	=	0.0041	0.000375	X	11	=	0.0041	0.000375	X	11	=	0.0041
S1, S2	ADDRESSABLE FRM-1 RELAY MODULE	0.000230	X	2	=	0.0005	0.006500	X	2	=	0.0130	0.000230	X	2	=	0.0005
N1, N2	HORN STROBE 75 CANDELA-1 HZ ADA	0.000000	X	1	=	0.000	0.160000	X	1	=	0.160	0.000000	X	1	=	0.000
N1, N2	HORN STROBE 110 CANDELA-1 HZ ADA	0.000000	X	1	=	0.000	0.202000	X	1	=	0.202	0.000000	X	1	=	0.000
N1, N2	STROBE 75 CANDELA	0.000000	X	8	=	0.000	0.153000	X	8	=	1.224	0.000000	X	8	=	0.000
N1, N2	STROBE 110 CANDELA	0.000000	X	0	=	0.000	0.195000	X	0	=	0.000	0.000000	X	0	=	0.000
		Total System Standby Current (AMPS)				0.9100	Total System Alarm Current (AMPS)				2.7140	Total System Non-Alarm Current (AMPS)				0.7486

MAXIMUM SYSTEM CURRENT = 6.0 AMPS

NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N1	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	1	=	0.000	0.160000	X	1	=	0.160
N1	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.202000	X	0	=	0.000
N1	STROBE 75 CANDELA	0.000	X	5	=	0.000	0.153000	X	5	=	0.765
		Total System Standby Current (AMPS)				0.000	Total System Alarm Current (AMPS)				0.925

MAXIMUM ALARM CURRENT PER CIRCUIT = 3.0 A

NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N2	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	3	=	0.000	0.160000	X	3	=	0.480
N2	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	1	=	0.000	0.202000	X	1	=	0.202
N2	STROBE 110 CANDELA	0.000	X	1	=	0.000	0.195000	X	1	=	0.195
		Total System Standby Current				0.000	Total System Alarm Current				0.877

MAXIMUM ALARM CURRENT PER CIRCUIT = 3.0 A

FCPS 24S8 NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N3	STROBE 75 CANDELA	0.000	X	1	=	0.000	0.153000	X	1	=	0.153
N3	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.160000	X	0	=	0.000
N3	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	2	=	0.000	0.202000	X	2	=	0.404
N3	STROBE 110 CANDELA	0.000	X	2	=	0.000	0.195000	X	2	=	0.390
		Total System Standby Current				0.000	Total System Alarm Current				0.947

MAXIMUM ALARM CURRENT PER CIRCUIT = 3.0 A

FCPS 24S8 NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N4	STROBE 75 CANDELA	0.000	X	0	=	0.000	0.153000	X	0	=	0.000
N4	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.160000	X	0	=	0.000
N4	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	2	=	0.000	0.202000	X	2	=	0.404
N4	STROBE 110 CANDELA	0.000	X	1	=	0.000	0.195000	X	1	=	0.195
		Total System Standby Current				0.000	Total System Alarm Current				0.599

MAXIMUM ALARM CURRENT PER CIRCUIT = 3.0 A

FACP-1 Load Calculations

SLC CIRCUIT	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
S1	ADDRESSABLE SMOKE DETECTOR	0.000360	X	5	=	0.0018	0.006500	X	5	=	0.0325
S1	ADDRESSABLE PULL STATION	0.000375	X	2	=	0.0008	0.000375	X	2	=	0.0008
S1	ADDRESSABLE HEAT DETECTOR	0.000300	X	5	=	0.0015	0.006500	X	5	=	0.0325
S1	LINE ISOLATOR MODULES	0.000450	X	2		0.0008	0.005000	X	2		0.0010
S1	ADDRESSABLE DUCT SMOKE DETECTOR	0.000300	X	2	=	0.0006	0.002100	X	2	=	0.0042
S1	ADDRESSABLE FMM-1 MONITOR MODULE	0.000375	X	7	=	0.0026	0.000375	X	7	=	0.0026
S1	ADDRESSABLE FRM-1 RELAY MODULE	0.000230	X	2	=	0.0005	0.006500	X	2	=	0.0130
		SLC #1 Branch A Standby Current (AMPS)				0.0085	SLC #1 Branch A Alarm Current (AMPS)				0.0866

MAXIMUM CURRENT ALL BRANCH SLC #1 CIRCUITS SHALL NOT EXCEED 1.0 A

FCPS 24S8 NO. 1 Power Module Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)	Non-Alarm Current (AMPS)		Qty.		Total Non-Alarm Current (AMPS)
	FCPS-24S8	0.065000	X	1	=	0.065	0.145000	X	1	=	0.145	0.065000	X	1	=	0.065
N3,N4	STROBE 75 CANDELA	0.000000	X	1	=	0.000	0.153000	X	1	=	0.153	0.000000	X	1	=	0.000
N3,N4	HORN STROBE 75 CANDELA-1 HZ ADA	0.000000	X	0	=	0.000	0.160000	X	0	=	0.000	0.000000	X	0	=	0.000
N3,N4	HORN STROBE 110 CANDELA-1 HZ ADA	0.000000	X	4	=	0.000	0.202000	X	4	=	0.808	0.000000	X	4	=	0.000
N3,N4	STROBE 110 CANDELA	0.000000	X	3	=	0.000	0.195000	X	3	=	0.585	0.000000	X	3	=	0.000
		Total System Standby Current (AMPS)				0.065	Total System Alarm Current (AMPS)				1.691	Total System Non-Alarm Current (AMPS)				0.065

MAXIMUM NAC LOAD= 8.0A

FACP-1 Load Calculations

SLC CIRCUIT	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
S2	ADDRESSABLE SMOKE DETECTOR	0.000360	X	1	=	0.0004	0.006500	X	1	=	0.0065
S2	ADDRESSABLE PULL STATION	0.000375	X	4	=	0.0015	0.000375	X	4	=	0.0015
S2	ADDRESSABLE HEAT DETECTOR	0.000300	X	9	=	0.0027	0.006500	X	9	=	0.0585
S2	LINE ISOLATOR MODULES	0.000450	X	2		0.0008	0.005000	X	2		0.0010
S2	ADDRESSABLE DUCT SMOKE DETECTOR	0.000300	X	0	=	0.0000	0.002100	X	0	=	0.0000
S2	ADDRESSABLE FMM-1 MONITOR MODULE	0.000375	X	4	=	0.0015	0.000375	X	4	=	0.0015
S2	ADDRESSABLE FRM-1 RELAY MODULE	0.000230	X	0	=	0.0000	0.006500	X	0	=	0.0000
		SLC #1 Branch A Standby Current (AMPS)				0.0069	SLC #1 Branch A Alarm Current (AMPS)				0.0690

MAXIMUM CURRENT ALL BRANCH SLC #1 CIRCUITS SHALL NOT EXCEED 1.0 A

NAC CIRCUIT VOLTAGE DROP CALCULATIONS

NAC CIRCUIT	TOTAL CIRCUIT CURRENT (A)	WIRE AWG	OHMS/ FOOT	NOMINAL VOLTAGE (V)	MAXIMUM VOLTAGE DROP (V)	VOLTS AT EOL	MAX CIRCUIT LENGTH (FT)
N1	0.9250	12/STRANDED	0.0041	24	0.95	23.05	250
N2	0.8770	12/STRANDED	0.0041	24	0.90	23.10	250
N3	0.9470	12/STRANDED	0.0041	24	0.97	23.03	250
N4	0.5990	12/STRANDED	0.0041	24	0.61	23.39	250

System Sensor SpectrAlert Signal Appliances and UL nameplate listed for 17.0-33.0V DC operation

SLC CIRCUIT VOLTAGE DROP CALCULATIONS

SLC CIRCUIT	TOTAL SLC#1&2 BRANCH CURRENT (A)	WIRE AWG	OHMS/ FOOT	NOMINAL VOLTAGE (V)	MAXIMUM VOLTAGE DROP (V)	VOLTS AT EOL	CIRCUIT LENGTH (FT)	MFG MAX CIRCUIT LENGTH (FT)
S1	0.0866	16/SOLID	0.0102	30	0.57	29.43	650	
S2	0.0690	16/SOLID	0.0102	30	0.49	29.51	700	
LOOP:	0.0866	16/SOLID	0.0102	30	0.57	29.43	650	6,200

FCPS 24S8 NO. 1 Panel Battery Calculations

Required Operating Time of Secondary Power Source From NFPA 72 1-5.2.5:

Standby: 24 Hours Alarm: 5 Minutes x 1/60 = 0.0833 Hours

Required Standby Time (HOURS)		Total System Standby Current (AMPS)		Required Standby Capacity (AMP-HOURS)		Required Alarm Time (HOURS)		Total System Alarm Current (AMPS)		Required Alarm Capacity (AMP-HOURS)	
24	X	0.065	=	1.56	AH	0.0833	X	1.691	=	0.14	AH

Required Standby Capacity (AMP-HOURS)		Required Alarm Capacity (AMP-HOURS)		Required Ampere Hour Battery		Derating Factor @1.35		Minimum AMP-HOUR Battery Required	
1.56	AH +	0.14	AH =	1.70	AH X	1.35	=	2.296	A/H

Standby Batteries Provided 8 AMP/HOUR

FACP-1 Battery Calculations

Required Operating Time of Secondary Power Source From NFPA 72 1-5.2.5:

Standby: 24 Hours Alarm: 5 Minutes x 1/60 0.0833 Hours

Required Standby Time (HOURS)		Total System Standby Current (AMPS)		Required Standby Capacity (AMP-HOURS)		Required Alarm Time (HOURS)		Total System Alarm Current (AMPS)		Required Alarm Capacity (AMP-HOURS)	
24	X	0.9100	=	21.84	AH	0.0833	X	2.7140	=	0.23	AH

Required Standby Capacity (AMP-HOURS)		Required Alarm Capacity (AMP-HOURS)		Required Ampere Hour Battery		Derating Factor @1.35		Minimum AMP-HOUR Battery Required	
21.84	AH +	0.23	AH =	22.07	AH X	1.35	=	29.7883	A/H

Standby Batteries Provided 36 AMP/HOUR

NOTE: THE LOAD CALCULATIONS ARE FOR THE LISTED FIRE ALARM SYSTEM ONLY. CONTRACTOR SHALL REVISE THE ACTUAL LOAD CALCULATION BASED ON THE ACTUAL FIRE ALARM SYSTEM SUPPLIED.

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FIRE ALARM
FIRE ALARM FACP-1 CALCULATIONS

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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 00F05

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FACP-2 Load Calculations (NFS-320) AT CHEMICAL BUILDING

CIRCUITS	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)	Non-Alarm Current (AMPS)		Qty.		Total Non-Alarm Current (AMPS)
	NFS-320 FACP	0.250000	X	1	=	0.2500	0.250000	X	1	=	0.2500	0.250000	X	1	=	0.2500
	LCD DISPLAY	0.094000	X	1	=	0.0940	0.094000	X	1	=	0.0940	0.040000	X	1	=	0.0400
	UDACT	0.040000	X	1	=	0.0400	0.100000	X	1	=	0.1000	0.040000	X	1	=	0.0400
	BATTERY CHARGER POWER SUPPLY	0.000000	X	1	=	0.0000	0.000000	X	1	=	0.0000	0.001300	X	1	=	0.0013
	NAC	0.400000	X	1	=	0.4000	0.400000	X	1	=	0.4000	0.400000	X	1	=	0.4000
	NCM-W,NCM-F	0.110000	X	1	=	0.1100	0.110000	X	1	=	0.1100	0.110000	X	1	=	0.1100
S1	ADDRESSABLE SMOKE DETECTOR	0.000360	X	1	=	0.0004	0.006500	X	1	=	0.0065	0.000360	X	1	=	0.0004
S1	ADDRESSABLE PULL STATION	0.000375	X	2	=	0.0008	0.000375	X	2	=	0.0008	0.000375	X	2	=	0.0008
S1	ADDRESSABLE HEAT DETECTOR	0.000300	X	5	=	0.0015	0.006500	X	5	=	0.0325	0.000300	X	5	=	0.0015
S1	LINE ISOLATOR MODULES	0.000450	X	2	=	0.0009	0.005000	X	2	=	0.0100	0.000450	X	2	=	0.0009
S1	ADDRESSABLE DUCT SMOKE DETECTOR	0.000300	X	2	=	0.0006	0.002100	X	2	=	0.0042	0.000300	X	2	=	0.0006
S1	ADDRESSABLE FMM-1 MONITOR MODULE	0.000375	X	12	=	0.0045	0.000375	X	12	=	0.0045	0.000375	X	12	=	0.0045
S1	ADDRESSABLE FRM-1 RELAY MODULE	0.000230	X	2	=	0.0005	0.006500	X	2	=	0.0130	0.000230	X	2	=	0.0005
N1,N2,N3	STROBE 75 CANDELA	0.000000	X	2	=	0.000	0.153000	X	2	=	0.306	0.000000	X	2	=	0.000
N1,N2,N3	HORN STROBE 75 CANDELA-1 HZ ADA	0.000000	X	0	=	0.000	0.160000	X	0	=	0.000	0.000000	X	0	=	0.000
N1,N2,N3	HORN STROBE 110 CANDELA-1 HZ ADA	0.000000	X	5	=	0.000	0.202000	X	5	=	1.010	0.000000	X	5	=	0.000
N1,N2,N3	STROBE 110 CANDELA	0.000000	X	8	=	0.000	0.195000	X	8	=	1.560	0.000000	X	8	=	0.000
		Total System Standby Current (AMPS)				0.9031	Total System Alarm Current (AMPS)				3.9015	Total System Non-Alarm Current (AMPS)				0.8504
		MAXIMUM SYSTEM CURRENT = 6.0 AMPS														

NFS-320 Load Calculations

SLC CIRCUIT	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
S1	ADDRESSABLE SMOKE DETECTOR	0.000360	X	1	=	0.0004	0.006500	X	1	=	0.0065
S1	ADDRESSABLE PULL STATION	0.000375	X	2	=	0.0008	0.000375	X	2	=	0.0008
S1	ADDRESSABLE HEAT DETECTOR	0.000300	X	5	=	0.0015	0.006500	X	5	=	0.0325
S1	LINE ISOLATOR MODULES	0.000450	X	2		0.0008	0.005000	X	2		0.0010
S1	ADDRESSABLE DUCT SMOKE DETECTOR	0.000300	X	2	=	0.0006	0.002100	X	2	=	0.0042
S1	ADDRESSABLE FMM-1 MONITOR MODULE	0.000375	X	12	=	0.0045	0.000375	X	12	=	0.0045
S1	ADDRESSABLE FRM-1 RELAY MODULE	0.000230	X	2	=	0.0005	0.006500	X	2	=	0.0130
		SLC #1 Branch A Standby Current (AMPS)				0.0090	SLC #1 Branch A Alarm Current (AMPS)				0.0625
		MAXIMUM CURRENT ALL BRANCH SLC #1 CIRCUITS SHALL NOT EXCEED 1.0 A									

NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N1	STROBE 75 CANDELA	0.000	X	0	=	0.000	0.153000	X	0	=	0.000
N1	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.160000	X	0	=	0.000
N1	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	3	=	0.000	0.202000	X	3	=	0.606
N1	STROBE 110 CANDELA	0.000	X	3	=	0.000	0.195000	X	3	=	0.585
		Total System Standby Current (AMPS)				0.000	Total System Alarm Current (AMPS)				1.191
		MAXIMUM ALARM CURRENT PER CIRCUIT = 1.5 A									

NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N2	STROBE 75 CANDELA	0.000	X	0	=	0.000	0.153000	X	0	=	0.000
N2	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.160000	X	0	=	0.000
N2	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	2	=	0.000	0.202000	X	2	=	0.404
N2	STROBE 110 CANDELA	0.000	X	2	=	0.000	0.195000	X	2	=	0.390
		Total System Standby Current (AMPS)				0.000	Total System Alarm Current (AMPS)				0.794
		MAXIMUM ALARM CURRENT PER CIRCUIT = 1.5 A									

NAC Load Calculations

CIRCUIT #	Description	Standby Current per Unit (AMPS)		Qty.		Total Standby Current per Unit (AMPS)	Alarm Current per Unit (AMPS)		Qty.		Total Alarm Current per Unit (AMPS)
N3	STROBE 75 CANDELA	0.000	X	2	=	0.000	0.153000	X	2	=	0.306
N3	HORN STROBE 75 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.160000	X	0	=	0.000
N3	HORN STROBE 110 CANDELA-1 HZ ADA	0.000	X	0	=	0.000	0.202000	X	0	=	0.000
N3	STROBE 110 CANDELA	0.000	X	3	=	0.000	0.195000	X	3	=	0.585
		Total System Standby Current				0.000	Total System Alarm Current				0.891
		MAXIMUM ALARM CURRENT PER CIRCUIT = 1.5 A									

NOTE: THE LOAD CALCULATIONS ARE FOR THE LISTED FIRE ALARM SYSTEM ONLY. CONTRACTOR SHALL REVISE THE ACTUAL LOAD CALCULATION BASED ON THE ACTUAL FIRE ALARM SYSTEM SUPPLIED.

NFS-320 Battery Calculations

Required Operating Time of Secondary Power Source From NFPA 72 1-5.2.5:

Standby: 24 Hours Alarm: 5 Minutes x 1/60 0.0833 Hours

Required Standby Time (HOURS)		Total System Standby Current (AMPS)		Required Standby Capacity (AMP-HOURS)	Required Alarm Time (HOURS)		Total System Alarm Current (AMPS)		Required Alarm Capacity (AMP-HOURS)
24	X	0.9031	=	21.67 AH	0.0833	X	3.9015	=	0.33 AH

Required Standby Capacity (AMP-HOURS)		Required Alarm Capacity (AMP-HOURS)		Required Ampere Hour Battery		Derating Factor @1.35		Minimum AMP-HOUR Battery Required
21.67	AH +	0.33 AH	=	22.00	AH X	1.35	=	29.6984 A/H

Standby Batteries Provided 36 AMP/HOUR

NAC CIRCUIT VOLTAGE DROP CALCULATIONS

NAC CIRCUIT	TOTAL CIRCUIT CURRENT (A)	WIRE AWG	OHMS/ FOOT	NOMINAL VOLTAGE (V)	MAXIMUM VOLTAGE DROP (V)	VOLTS AT EOL	MAX CIRCUIT LENGTH (FT)
N1	1.1910	12/STRANDED	0.0041	24	0.73	23.27	150
N2	0.7940	12/STRANDED	0.0041	24	0.65	23.35	200
N3	0.8910	12/STRANDED	0.0041	24	0.80	23.20	220

System Sensor SpectrAlert Signal Appliances and UL nameplate listed for 17.0-33.0V DC operation

SLC CIRCUIT VOLTAGE DROP CALCULATIONS

SLC CIRCUIT	TOTAL SLC4 BRANCH CURRENT (A)	WIRE AWG	OHMS/ FOOT	NOMINAL VOLTAGE (V)	MAXIMUM VOLTAGE DROP (V)	VOLTS AT EOL	CIRCUIT LENGTH (FT)	MFG MAX CIRCUIT LENGTH (FT)
S1	0.0625	16/SOLID	0.0102	30	0.38	29.62	600	
LOOP:	0.0625	16/SOLID	0.0102	30	0.3822	29.62	600	6,200

Intelligent Plug-In Smoke and Heat Detector and UL nameplate listed for 15.0-32.0V DC operation

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FIRE ALARM
FIRE ALARM FACP-2 CALCULATIONS

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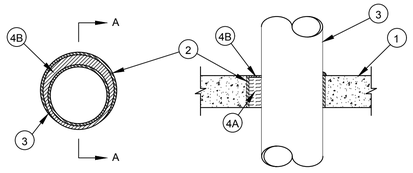
1 TYP System No. C-AJ-1226

F RATING = 3-HR.
T RATING = 0-HR.
L Rating At Ambient - Less than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. Floor or Wall Assembly: Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in.

2. Metallic Sleeve: (Optional) Nom 32 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

3. Through-Penetrant One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe or conduit and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. Pipe may be installed with continuous point contact. Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe Nom 30 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit Nom 6 in. diam (or smaller) steel conduit. f
   F. Conduit Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT).
4. Firestop System The firestop system shall consist of the following:
   A. Packing Material Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* -- Sealant Min 1/4 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. At the point or continuous contact locations between pipe and concrete, a min 1/4 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall.

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   FS-One Sealant *Bearing the UL Classification Marking

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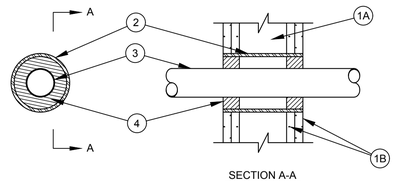
2 TYP System No. W-L-2075

F Ratings - 1 & 2 Hr (See Item 4)
T Ratings - 0 and 2 Hr (see Item 4)
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. Floor or Wall Assembly: The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs: Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.

   B. Gypsum Board*: Nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 4 in.

2. Metallic Sleeve (Optional): Nom 4 in. diam (or smaller) Schedule 40 (or thinner) steel pipe cast into wall assembly with joint compound and installed flush with wall surfaces.

3. Electrical Nonmetallic Tubing+: Nom 2 in. diam (or smaller) corrugated wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC). Tubing to be rigidly supported on both sides of wall assembly. A nom annular space of 3/4 in. is required within the firestop system. (FKHU) category in the Electrical Construction Materials Directory for See Electrical Nonmetallic Tubing names of manufacturers.

4. Fill, Void or Cavity Material*: Sealant: Installed symmetrically on both sides of the wall. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. Fill material applied within the annulus, flush with each end of the steel sleeve at the thickness shown in the table below:

F Rating Hr	T Rating Hr	Fill Mtl Depth In.
1	0	5/8
2	2	1-1/4

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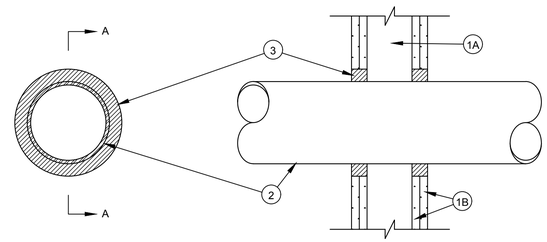
FS-One Sealant
+Bearing the UL Listing Mark
*Bearing the UL Classification Marking

HILTI FIRESTOP SYSTEMS Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 09, 2003 CLASSIFIED UL

3 TYP System No. W-L-1054

F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. Wall Assembly: The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs: Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.

   B. Gypsum Board*: 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. The F Rating of the firestop system is equal to the fire rating of the wall assembly.

2. Through-Penetrants: One metallic pipe, conduit or tubing to be installed either concentrically or concentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe -- Nom 30 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe -- Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit -- Nom 4 in diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. Copper Tubing -- Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe -- Nom 6 in. diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material*: Sealant: Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.

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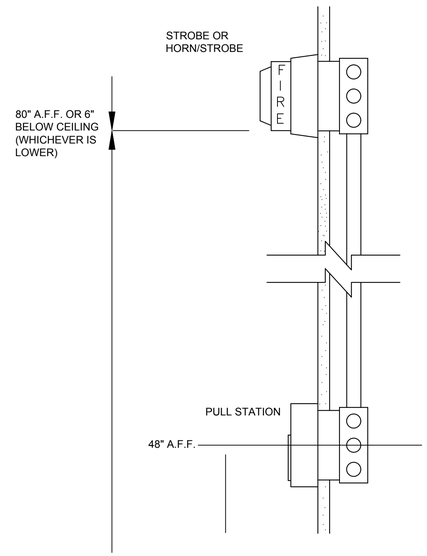

4 TYP ADA HEIGHT REQUIREMENTS
NOT TO SCALE

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
FIRE ALARM
FIRE ALARM INSTALLATION DETAILS

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DRAWING NO. 00F07

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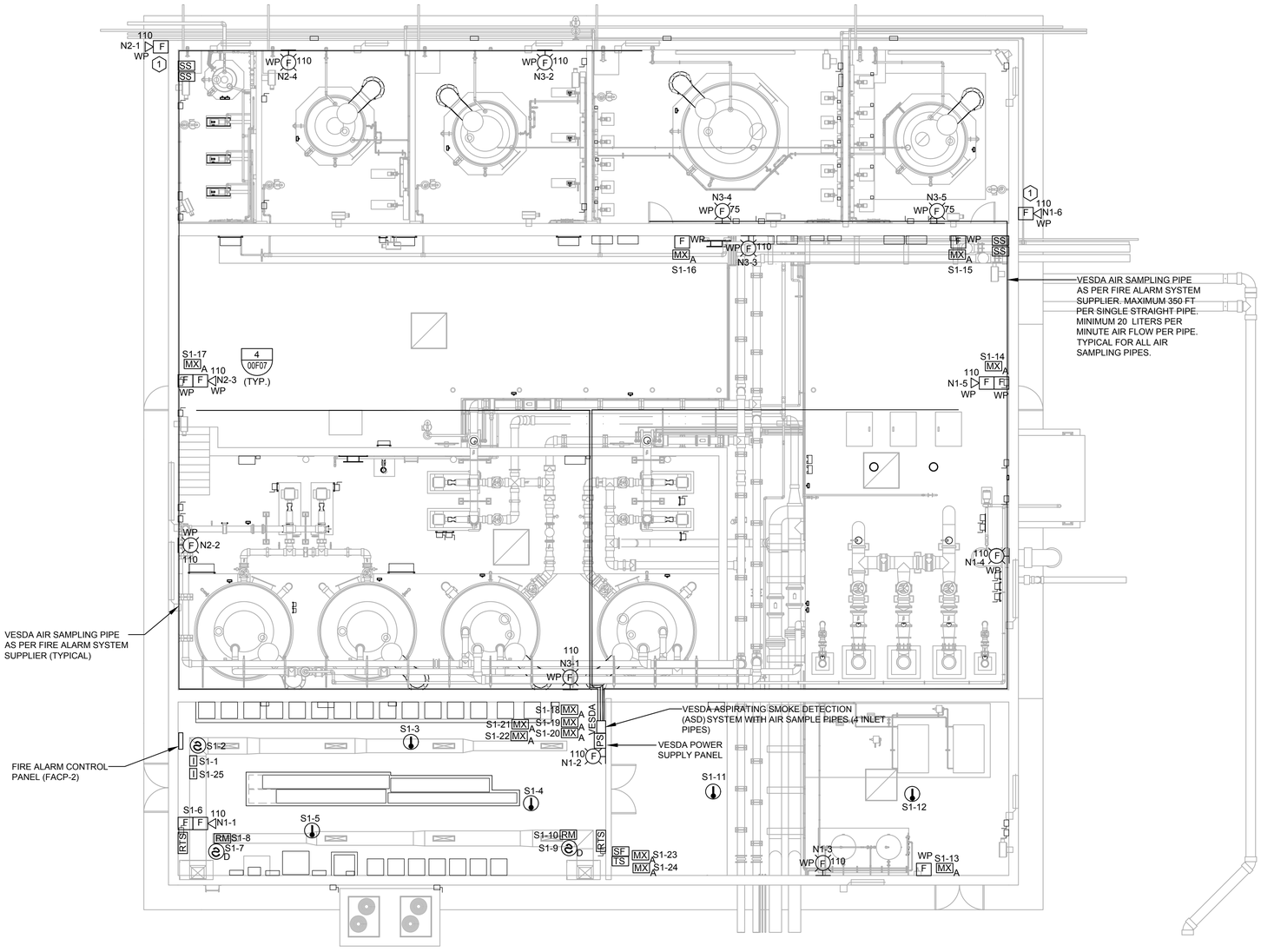

CHEMICAL BUILDING - FIRE ALARM PLAN (2)
SCALE: 1/8" = 1'-0"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

KEYED NOTES:

(1) EXTERIOR FIRE ALARM NOTIFICATION DEVICES SHALL BE MOUNTED AT A HIGHER ELEVATION SO THAT THE DEVICES ARE VISIBLE FROM THE NEARBY ROAD. FIRE ALARM CONTRACTOR SHALL COORDINATE WITH LOCAL FIRE MARSHAL FOR LOCATION AND MOUNTING HEIGHT OF EXTERIOR FIRE ALARM NOTIFICATION DEVICES AND INSTALL ACCORDINGLY.

(2) FIRE ALARM CONTRACTOR SHALL COORDINATE SITE VISIT/MEETING WITH LOCAL FIRE MARSHAL FOR A PRELIMINARY INSPECTION ONCE THE NEW CHEMICAL BUILDING WALLS ARE UP, AND BEFORE ANY FIRE EQUIPMENT/STROBES ARE INSTALLED. CONTRACTOR SHALL WALK THE BUILDING WITH APPROXIMATE LOCATION OF EACH FIRE ALARM DEVICE TO BE INSTALLED ON EACH WALL AND RELOCATE IF DIRECTED BY THE FIRE MARSHAL WITHOUT ADDITIONAL COST TO THE OWNER.

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
FIRE ALARM
CHEMICAL BUILDING - FIRE ALARM PLAN

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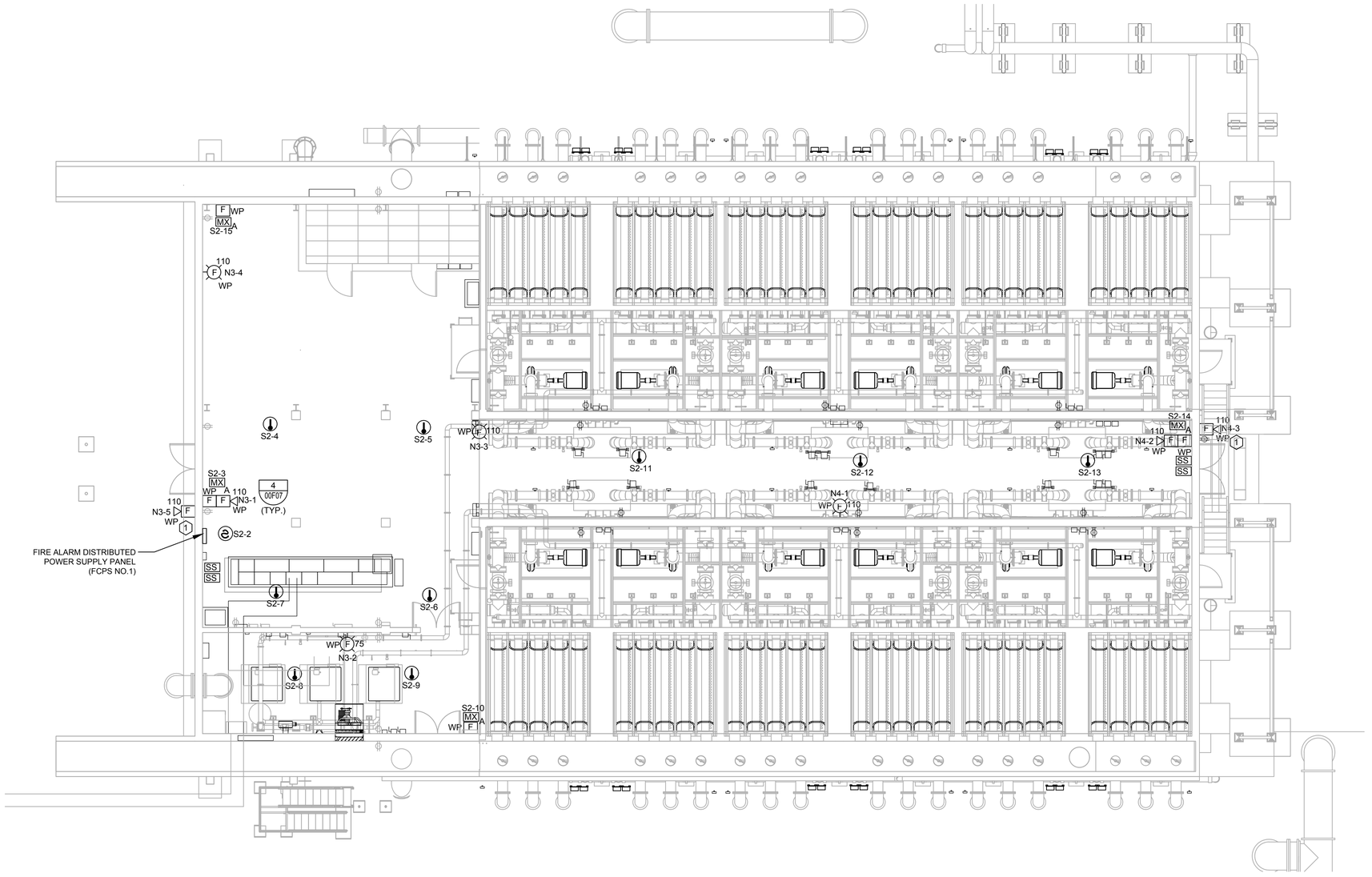

UF FILTER BUILDING - FIRST LEVEL FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

KEYED NOTES:
1. EXTERIOR FIRE ALARM NOTIFICATION DEVICES SHALL BE MOUNTED AT A HIGHER ELEVATION SO THAT THE DEVICES ARE VISIBLE FROM THE NEARBY ROAD. FIRE ALARM CONTRACTOR SHALL COORDINATE WITH LOCAL FIRE MARSHAL FOR LOCATION AND MOUNTING HEIGHT OF EXTERIOR FIRE ALARM NOTIFICATION DEVICES AND INSTALL ACCORDINGLY.

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FIRE ALARM
UF FILTER BUILDING - FIRST LEVEL FIRE ALARM PLAN

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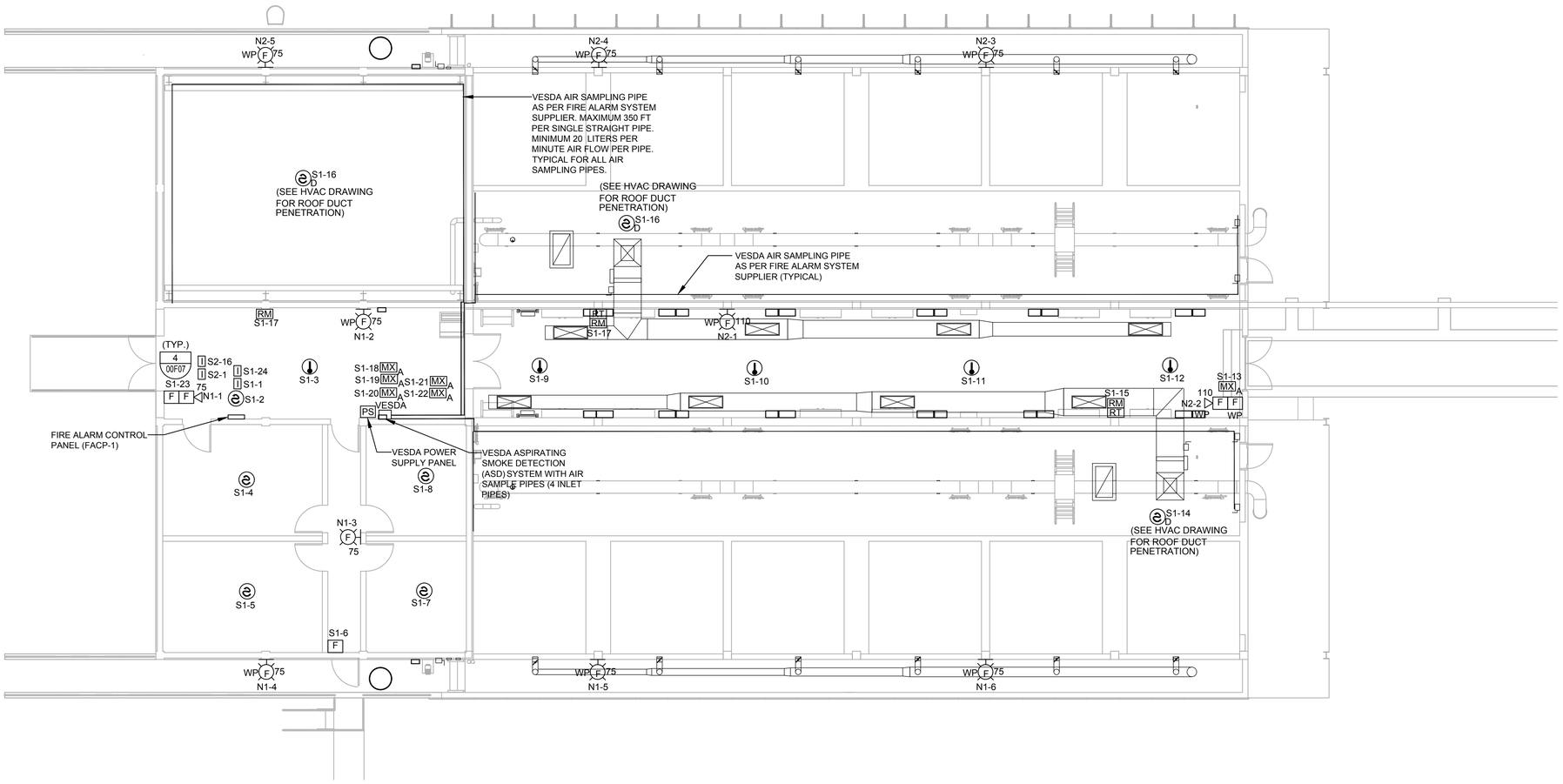

0 4' 8' 16'

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

UF FILTER BUILDING - SECOND LEVEL FIRE ALARM PLAN

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

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FIRE ALARM
UF FILTER BUILDING - SECOND LEVEL FIRE ALARM PLAN

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DRAWING NO. 03F02

IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTER		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM	USER'S CHOICE	USER'S CHOICE
B	BURNER, COMBUSTION		USER'S CHOICE		
C	CONDUCTIVITY			CONTROL	(CLOSED)
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGE		GLASS, VIEWING DEVICE		
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE INTERMEDIATE
N	USER'S CHOICE	(NORMALLY)	USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		(OPEN)
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL	UNCLASSIFIED	
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED		UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

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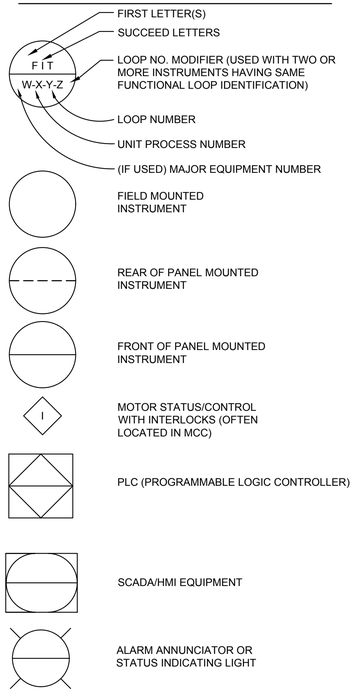

NOTES:

1. COMPONENTS AND PANELS SHOWN WITH A DIAMOND (◆) ARE TO BE PROVIDED UNDER SECTION "INSTRUMENTATION & CONTROL"/DIVISION 40 SPECIFICATIONS.
2. COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (**) ARE TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).
3. COMPONENTS AND PANELS SHOWN WITH A DOUBLE PLUS SIGNS (++) ARE TO BE PROVIDED BY PART OF A PACKAGED OR MECHANICAL SYSTEM.
4. COMPONENTS AND PANELS SHOWN WITH A TRIANGLE (▲) ARE EXISTING. COMPONENTS AND PANELS WHICH HAS NO SYMBOL ATTACHED TO IT ARE ALSO EXISTING.
5. COMPONENTS AND PANELS SHOWN WITH A HEXAGON (⬢) ARE EXISTING TO BE MODIFIED AND/OR RELOCATED BY CONTRACTOR.
6. ALL CONTROL PANEL SHALL BE BUILT BY U.L. APPROVED SHOP AND SHALL HAVE A U.L. LABEL ON PANEL.
7. ALL CONTROL PANELS SHALL BE FURNISHED AND INSTALLED WITH A 1P-15A CIRCUIT BREAKER (MINIMUM), UNLESS OTHERWISE NOTED.
8. SUNSHIELD SHALL BE PROVIDED FOR ALL OUTDOOR INSTRUMENTS. SEE DETAIL FOR SUNSHIELD REQUIREMENTS.
9. SCOPE OF SUPPLY PROVIDED BY THE MEMBRANE SYSTEM SUPPLIER (MSS) VERSUS A PART OF SCOPE OF SUPPLY REQUIRED BY CONTRACTOR IS DELINEATED VIA THE MSS P&IDS IN VOLUME 3. APPENDIX A AND THE MSS BILL OF MATERIALS (BOM) IN VOLUME 3, APPENDIX C. ADDITIONALLY, THE REMAINING PART OF SCOPE REQUIRED FOR THE WORK (AS DEFINED AND SPECIFIED VIA VOLUME 1, TECHNICAL SPECIFICATIONS AND VOLUME 2, PLANS), WHICH IS NOT SHOWN IN VOLUME 3 (APPENDICES A AND C) AS BEING SUPPLIED BY THE MSS, SHALL BE PROVIDED BY THE CONTRACTOR.
10. REFERENCES TO MSS P&IDS IN DRAWINGS/PLANS (VOLUME 2) AND SPECIFICATIONS (VOLUME 1) SHALL IMPLY MSS P&IDS THAT ARE INCLUDED IN VOLUME 3 APPENDIX A.

INSTRUMENT LINE SYMBOLS

- PRIMARY PROCESS FLOW
- FUTURE PRIMARY PROCESS FLOW
- SECONDARY PROCESS FLOW, CONNECTION TO PROCESS FLOW, MECHANICAL LINK OR INSTRUMENT SUPPLY
- ELECTRICAL SIGNAL (DISCRETE)
- ELECTRICAL SIGNAL (ANALOG) (A)
- PNEUMATIC SIGNAL
- FIBER OPTIC
- PROCESS OR SIGNAL CONTINUED SOMEWHERE ELSE (X=1,2,3,...) (X)
- ETHERNET

INSTRUMENT ABBREVIATION

ACC	ACCELATOR
BFP	BELT FILTER PRESS
CL2	CHLORINE
CLW	CLEARWELL
COM	COMMON
COND	CONDUCTIVITY
CP	CONTROL PANEL
DI, AI	DISCRETE INPUT, ANALOG INPUT
DO, AO	DISCRETE OUTPUT, ANALOG OUTPUT
D.O.	DISSOLVED OXYGEN
DR	DISTANCE RELAY
EFFL	EFFLUENT
EP	ELECTRICAL PANEL
ES	EMERGENCY STOP
ETM	ELAPSED TIME METER
FD	CHEMICAL FEEDER
FIL	FILTER
GEN	GENERATOR
HLO	HIGH-LOW-OFF
HLOR	HIGH-LOW-OFF-REMOTE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HOTC	HAND-OFF-TIMER-COMPUTER
H/L	HIGH/LOW
HSP	HIGH SERVICE PUMP
INFL	INFLUENT
JP	JOCKEY PUMP
LOS	LOCK-OUT-STOP
LPU	LINE PROTECTION UNIT
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
ME	MISCELLANEOUS EQUIPMENT
M.G.	MILLION GALLON
MOD.	MODULATING VALVE
MOV	MOTOR OPERATED VALVE
OCA	OPEN-CLOSE-AUTO
OC, O/C	OPEN-CLOSE
OO	ON-OFF
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN-STOP-CLOSE
OSCR	OPEN-STOP-CLOSE-REMOTE
PCV	PNEUMATIC CONTROL VALVE
PH	HYDROGEN ION CONCENTRATION
PRES	PRESSURE
RES	RESTORE
RF	RF (ADMITTANCE) LEVEL MONITOR
RIP, RIO	REMOTE I/O PANEL
R/L	REMOTE/LOCAL
RSP	REMOTE SETPOINT
SA	SURGE ARRESTER
SEC	SECONDARY
SL	SLAKER
SF	SONIC FLOWMETER
SP	SETPOINT
SS	START/STOP
ST	STEP
STOR	STORAGE
SUS	SUSPENDED SOLIDS
SSRVS	SOLID STATE REDUCED VOLTAGE STARTER
TD	THERMAL DISPERSION
TP	TRANSFER PUMP
TURB	TURBIDITY
VFD	VARIABLE FREQUENCY DRIVE

MISCELLANEOUS

- AIR FILTER

INSTRUMENTATION LEGEND

PUMPS & COMPRESSORS

- CENTRIFUGAL PUMP
- ROTARY BLOWER
- COMPRESSOR
- EJECTOR
- METERING PUMP (DIAPHRAGM PUMP)
- CHEMICAL FEED PUMP (MAGNETIC DRIVE)
- PROGRESSING CAVITY PUMP
- PERISTALTIC OR HOSE PUMP

VALVES & GATES

- BUTTERFLY
- GATE
- SWING CHECK
- BALL
- GLOBE
- DIAPHRAGM
- PLUG
- 3-WAY GLOBE
- CULVERT GATE
- PRESSURE SUSTAINING VALVE
- AIR RELEASE VALVE

PRESSURE ELEMENT

- PI / PIT — PRESSURE GAUGE, OR PRESSURE TRANSMITTER WITH DIAPHRAGM SEAL (IF SHOWN)

ACTUATOR OR OPERATORS

- SV — SOLENOID VALVE
- M — MOTOR
- H — HYDRAULIC
- P — PNEUMATIC

PRIMARY ELEMENTS

- WEIR
- INSERTION TYPE MAG FLOWMETER
- ORIFICE PLATE
- VENTURI
- PROPELLER METER
- ROTAMETER
- ELECTROMAGNETIC FLOWMETER (M)
- THERMAL FLOWMETER
- MASS FLOW METER (LIQUID OR GAS)
- LEVEL (FLOAT)
- LEVEL (ULTRASONIC OR RADAR, SEE SPECIFICATION)
- BLANKET LEVEL DETECTOR (B)
- ULTRASONIC FLOWMETER (CLAMP-ON)
- RF ADMITTANCE
- ROTAMETER
- DENSITY METER (X: N = NUCLEAR, O = OPTICAL, U = ULTRASONIC) (X)
- PITOT-STATIC
- VORTEX METER
- SUSPENDED SOLIDS

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MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
INSTRUMENTATION
INSTRUMENTATION LEGEND AND SYMBOLS

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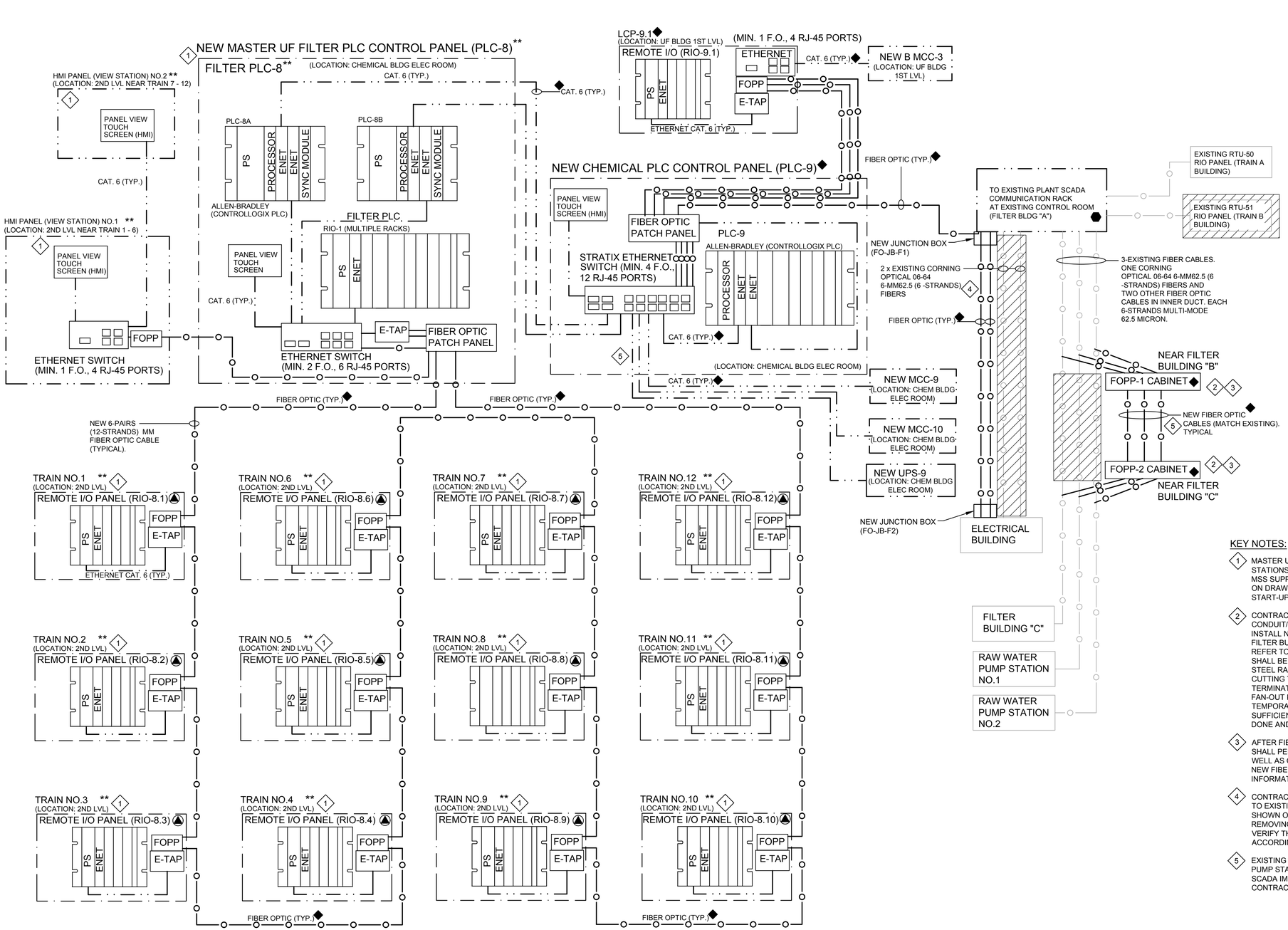

LEGEND

- FIBER OPTIC
- ETHERNET CAT. 6
- E-TAP — ALLEN-BRADLEY 2-FIBER OPTIC INPUTS AND 1-RJ45 OUTPUT ETHERNET MEDIA CONVERTER

KEY NOTES:

1. MASTER UF FILTER CONTROL PANEL (PLC-8), FILTER RIO PANELS (RIO-8.1 THRU 8.12), PANEL VIEW STATIONS ARE TO BE FURNISHED BY MEMBRANE SYSTEM SUPPLIER (MSS). CONTRACTOR SHALL INSTALL MSS SUPPLIED PANELS, INSTRUMENTS, ETC. AS DESCRIBES IN SPECIFICATION 40_90_00 AND AS SHOWN ON DRAWINGS. CONTRACTOR SHALL ALSO PERFORM LOOP CHECK, TESTING, TROUBLESHOOTING AND START-UP AS PER SPECIFICATION 40_90_00 FOR ALL MSS SUPPLIED INSTRUMENTS AND PANELS.
2. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR COMMUNICATION CONDUIT/CABLE MODIFICATION BETWEEN FILTER BUILDING "B" AND FILTER BUILDING "C". FURNISH AND INSTALL NEW FIBER OPTIC CABLES WITH NEW PATCH PANEL CABINETS AT THE SOUTHEAST CORNER OF FILTER BUILDING "C" BENEATH THE OVERHUNG AND AT THE NORTHEAST CORNER OF FILTER BUILDING "B". REFER TO DRAWING 00E32 FOR SITE PLAN VIEW. NEW FIBER OPTIC PATCH CABINETS (FOPP-1 AND FOPP-2) SHALL BE MINIMUM 36"W x 48"H x 12"D WITH 36 FIBER PAIR CONNECTIONS AND NEMA 4X 316 STAINLESS STEEL RATED ENCLOSURE. CONTRACTOR SHALL MODIFY THE EXISTING FIBER OPTIC CABLES, INCLUDING CUTTING TO APPROPRIATE LENGTH, INSTALLING FIBER OPTIC CONNECTORS (ST-TYPE) AT THE END AND TERMINATE THEM AT EACH FIBER OPTIC PATCH PANEL CABINET. PROVIDE AND INSTALL FIBER OPTIC FAN-OUT KITS AS NEEDED FOR LOOSE TUBE FIBERS. FIBER PATCH PANEL CONNECTIONS ARE TEMPORARY ONLY TO MINIMIZE THE COMMUNICATION SYSTEM DOWNTIME AND SHALL CUT FIBERS WITH SUFFICIENT LENGTH TO PERFORM FUSION SPLICING AFTER EXISTING FIBER CONDUIT MODIFICATION IS DONE AND FIBER COMMUNICATION IS UP AND RUNNING.
3. AFTER FIBER COMMUNICATION IS UP AND RUNNING FOR RAW WATER PUMP STATIONS, CONTRACTOR SHALL PERFORM FUSION METHOD SPLICING AND PROVIDE WEATHERPROOF SLEEVE ON EACH STAND AS WELL AS ONE SLEEVE COVING OVERALL STANDS OF EACH FIBER CABLE. REFER TO SHEET 00E32 FOR NEW FIBER OPTIC CABLE ROUTING AND SPLICE INFORMATION. FIELD VERIFY FIBER OPTIC CABLE INFORMATION AND NUMBER OF STANDS AND MATCH EXISTING.
4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIBER OPTIC CABLES FROM EXISTING CONTROL ROOM TO EXISTING ELECTRICAL BUILDING ALONG THE EXISTING WALL OF FILTER BUILDING "A", "B" AND "C" AS SHOWN ON DRAWING 00E32. FIBER SHALL BE TERMINATED, TESTED AND IN OPERATION BEFORE REMOVING THE EXISTING FIBER OPTIC CABLES ON THE ROOF OF FILTER BUILDINGS "A" AND "B". FIELD VERIFY THE EXISTING FIBER OPTIC CONNECTION POINTS AND TERMINATE NEW FIBER OPTIC CABLES ACCORDINGLY.
5. EXISTING FIBER OPTIC CONDUIT RELOCATION BETWEEN FILTER BUILDING "B" AND "C" FOR RAW WATER PUMP STATIONS IS ANTICIPATED TO BE PERFORMED IN THE ON-GOING SCADA IMPROVEMENT PROJECT. IF SCADA IMPROVEMENT PROJECT HAS NOT ALREADY RELOCATED THE EXISTING FIBER OPTIC CONDUIT, CONTRACTOR SHALL PERFORM ACCORDING TO THE ABOVE KEYED NOTES.

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COMMUNICATION BLOCK DIAGRAM

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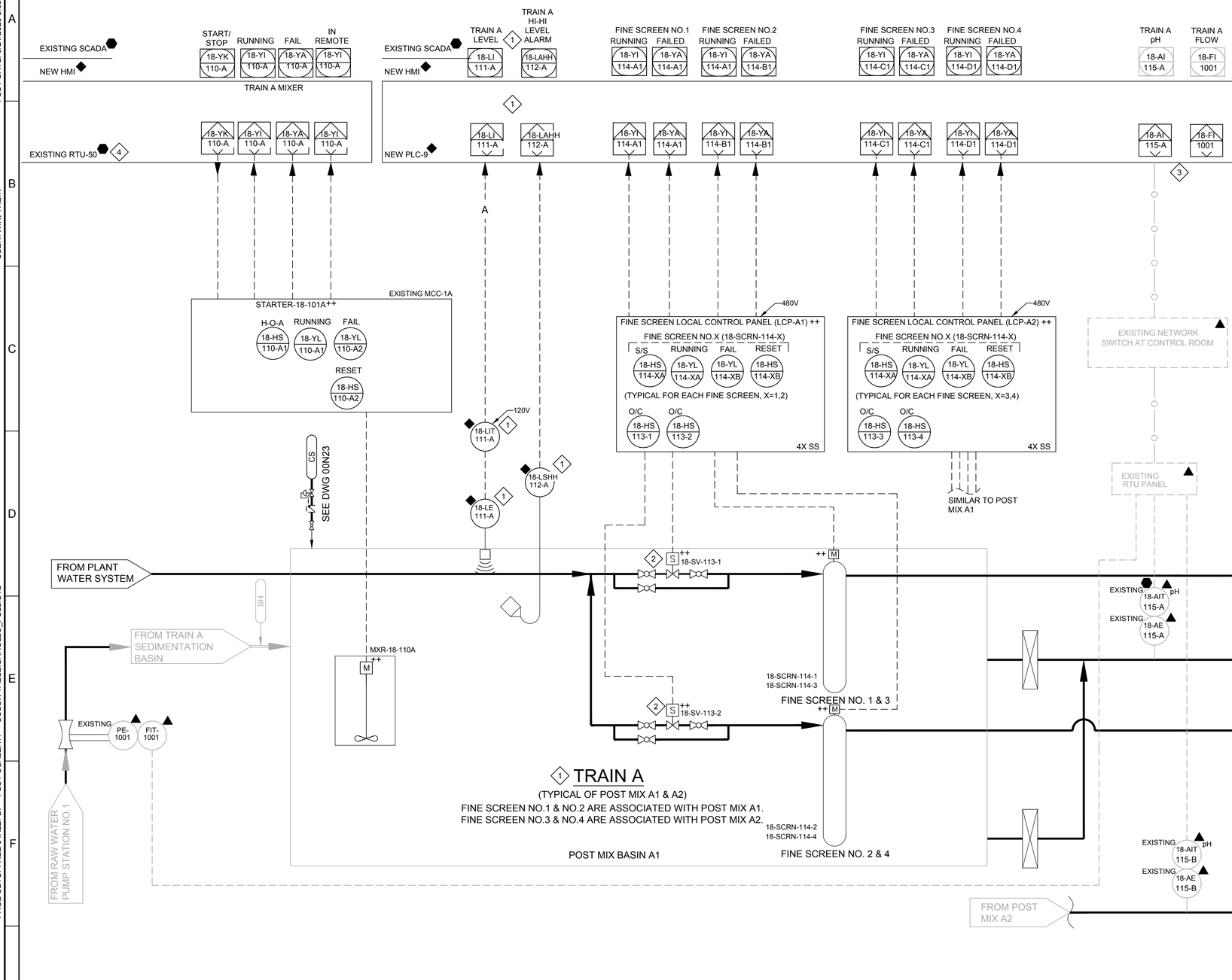

KEY NOTES:

1. THIS P&ID DRAWING ONLY SHOWS TRAIN A POST MIX BASIN A1. POST MIX BASIN A2 IS SIMILAR TO A1. REFER TO EQUIPMENT TAG TABLE FOR EQUIPMENT TAG TO BE ASSIGNED TO POST MIX BASIN A2.
2. SOLENOID VALVES CONTROL AND POWER FOR SOLENOID SHALL BE FROM THE ASSOCIATED FINE SCREEN LOCAL CONTROL PANEL.
3. NEW PLC-9 SHALL COMMUNICATE WITH EXISTING RTU/PLC SYSTEM LOCATED ON THE SAME NETWORK TO TRANSFER THE EXISTING PH AND FLOW SIGNALS.
4. ADD I/O MODULES IN EXISTING RTU 50 LOCATED IN FILTER BUILDING A, AS NEEDED. NEW I/O MODULES SHALL MATCH EXISTING.

EQUIPMENT TAG TABLE (1)

TAG NUMBER	STARTER	LE/ LIT	LSHH	SOLENOID VALVES	FINE SCREENS
POST MIX BASIN A1	110-A	111-A	112-A	113-1 113-2	114-1 114-2
POST MIX BASIN A2	110-B	111-B	112-B	113-3 113-4	114-3 114-4

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P&ID - SHEET 1
TRAIN A POST MIX BASINS/MEMBRANE PRESCREENS

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EXISTING SCADA
NEW HMI

FACP-1 FIRE ALARM ACTIVE 23-YA FACP1

START/STOP 18-YK 120X | RUNNING 18-QI 120X | FAIL 18-QA 120X | IN REMOTE 18-QI 120XA

TRAIN B LEVEL 18-LI 121-A | TRAIN B HI-HI LEVEL ALARM 18-LAHH 122-A

FINE SCREEN NO.5 RUNNING 18-QI 125 | FAILED 18-QA 125
FINE SCREEN NO.6 RUNNING 18-QI 126 | FAILED 18-QA 126
FINE SCREEN NO.7 RUNNING 18-QI 127 | FAILED 18-QA 127
FINE SCREEN NO.8 RUNNING 18-QI 128 | FAILED 18-QA 128

TRAIN B pH 18-AI 130 | TRAIN B FLOW 18-FI 1002 | TRAIN B pH NO.2 18-AI 130-2

BYPASS SAMPLE PUMP START/STOP 20-HK 390 | IN AUTO 20-QI 390A | RUNNING 20-QI 390B | FAILED 20-QA 390 | BYPASS LINE CHLORINE RESIDUAL 20-AI 391 | BYPASS LINE pH 20-AI 392

NEW LCP-9.1 (RIO-9.1)
LOCATION: UF FILTER BUILDING (FORMER FILTER BUILDING B)

SEE TABLE BELOW FOR ADDITIONAL SIGNALS TO BE CONNECTED TO RIO-9.1

ADDITIONAL I/O POINTS TO BE CONNECTED TO RIO-9.1

DESCRIPTION OR TAG	I/O TYPE AND QUANTITY
20-LSHH-204-X (X=1 THRU 12)	12 x DI
INFLUENT SAMPLE PUMP 20-P-101-A	3 x DI + 1 xDO
INFLUENT SAMPLE PUMP 20-P-101-B	3 x DI + 1 xDO
COMMON PERM. SAMPLE PUMP 20-P-501	3 x DI + 1 xDO
EXISTING TRAIN "B" XFER PUMP PIT	1 x AI
SIGNALS TO BE RELOCATED FROM RTU-51	5 x DI
SIGNALS TO BE RELOCATED FROM RTU-51	4 x AI

FIRE ALARM CONTROL PANEL FACP-1
LOCATION: UF FILTER BUILDING

ETHERNET

NEW B-MCC-3
STARTER-120X (X=A,B) ++
H-O-A 18-YK 120-A | RUNNING 18-QIL 120-A | FAIL 18-QAL 120-A | RESET 18-YK 120-A

FINE SCREEN LOCAL CONTROL PANEL (LCP-B1) ++ 480V
FINE SCREEN NO.X
H-O-A 18-YK 12XA | RUNNING 18-YL 12XA | FAIL 18-YL 12XB | RESET 18-YK 12XB
(TYPICAL FOR EACH FINE SCREEN, X=5,6)
O/C 18-HS 125 | O/C 18-HS 126
4X SS

FINE SCREEN LOCAL CONTROL PANEL (LCP-B2) ++ 480V
FINE SCREEN NO.X
H-O-A 18-YK 12XA | RUNNING 18-YL 12XA | FAIL 18-YL 12XB | RESET 18-YK 12XB
(TYPICAL FOR EACH FINE SCREEN, X=7,8)
O/C 18-HS 127 | O/C 18-HS 128
4X SS

EXISTING NETWORK SWITCH AT CONTROL ROOM

EXISTING RTU PANEL

BYPASS LINE SAMPLE PUMP 20-P-390
LOCATION: BYPASS LINE (SEE DRAWING 05M01)

20-AIT 391 120V (CL2) | 20-AIT 392 120V (pH)
20-AE 391 | 20-AE 392

FROM RAW WATER PUMP STATION NO.2

CS | HS | SEE DWG 00N23

18-LIT 121-A 120V | 18-LSHH 122-A | 18-LE 121-A

EXISTING PE-1002 | FIT-1002

FROM TRAIN B CLARIFIER NO.2

FROM PLANT WATER SYSTEM

TRAIN B

1 S ++ 18-SV-125
1 S ++ 18-SV-126
1 S ++ 18-SV-127
1 S ++ 18-SV-128

M ++ 18-MXR-120A
M ++ 18-MXR-120B

18-SCRN-125 FINE SCREEN NO. 5
18-SCRN-126 FINE SCREEN NO. 6
18-SCRN-127 FINE SCREEN NO. 7
18-SCRN-128 FINE SCREEN NO. 8

EXISTING AIT 130 pH
EXISTING AE 130

18-AIT 130-2 120V pH
18-AE 130-2

TO MEMBRANE FILTRATION
SEE DWG 00N05 & 00N06

SAMPLE TO LAB

KEY NOTES:

1. SOLENOID VALVES CONTROL AND POWER FOR SOLENOID SHALL BE FROM THE FINE SCREEN LOCAL CONTROL PANEL.
2. NEW PLC-9 SHALL COMMUNICATE WITH EXISTING RTU/PLC SYSTEM LOCATED ON THE SAME NETWORK TO TRANSFER THE EXISTING PH AND FLOW SIGNALS.
3. SEE DRAWING 05M01 FOR BYPASS LINE SAMPLE PUMP CONNECTION AND INSTRUMENTS CONNECTION. PROVIDE AND AND INSTALL NEW ANALYZERS ON SAMPLE PANEL AND PIPE STAND SUPPORT AS NEEDED.

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P&ID - SHEET 2
TRAIN B POST MIX BASINS/MEMBRANE PRESCREENS

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LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

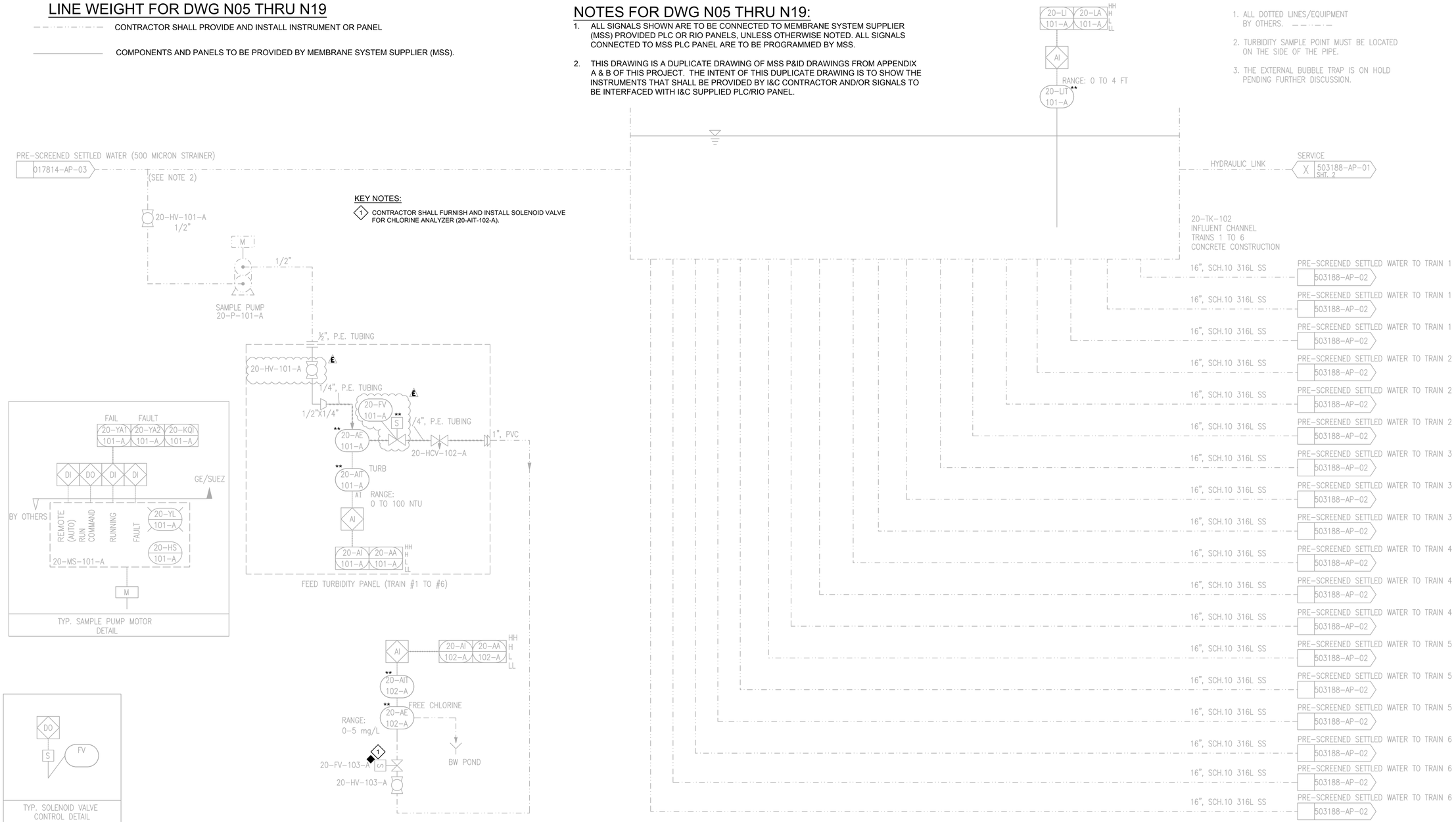
COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

1. ALL SIGNALS SHOWN ARE TO BE CONNECTED TO MEMBRANE SYSTEM SUPPLIER (MSS) PROVIDED PLC OR RIO PANELS, UNLESS OTHERWISE NOTED. ALL SIGNALS CONNECTED TO MSS PLC PANEL ARE TO BE PROGRAMMED BY MSS.
2. THIS DRAWING IS A DUPLICATE DRAWING OF MSS P&ID DRAWINGS FROM APPENDIX A & B OF THIS PROJECT. THE INTENT OF THIS DUPLICATE DRAWING IS TO SHOW THE INSTRUMENTS THAT SHALL BE PROVIDED BY I&C CONTRACTOR AND/OR SIGNALS TO BE INTERFACED WITH I&C SUPPLIED PLC/RIO PANEL.

NOTE:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS.
2. TURBIDITY SAMPLE POINT MUST BE LOCATED ON THE SIDE OF THE PIPE.
3. THE EXTERNAL BUBBLE TRAP IS ON HOLD PENDING FURTHER DISCUSSION.



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E	REVISED AS NOTED		GSH	JS	JS	10SEP18
D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

TOLERANCES UNLESS NOTED: DECIMALS .X .XX .XXX; ANGLES; FRAC

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P&ID, INFLUENT CHANNEL

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REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 1 OF 2

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INSTRUMENTATION

P&ID - SHEET 3
INFLUENT CHANNEL NO.1

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LINE WEIGHT FOR DWG N05 THRU N19

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COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

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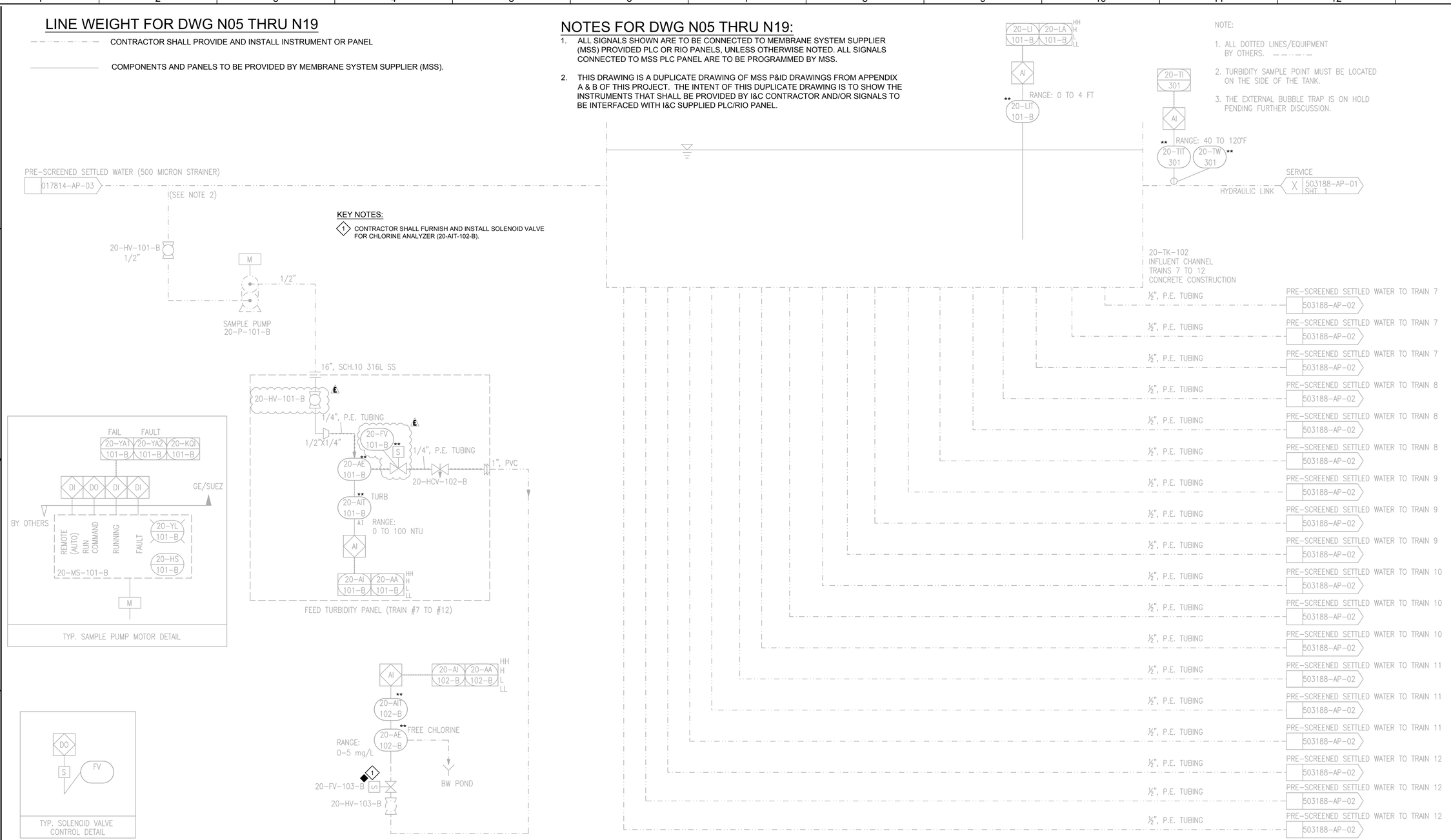
NOTE:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS. – – – –
2. TURBIDITY SAMPLE POINT MUST BE LOCATED ON THE SIDE OF THE TANK.
3. THE EXTERNAL BUBBLE TRAP IS ON HOLD PENDING FURTHER DISCUSSION.

KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL SOLENOID VALVE FOR CHLORINE ANALYZER (20-AIT-102-B).



REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
E	REVISED AS NOTED		GSH	JS	JS	10SEP18
D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

TOLERANCES UNLESS NOTED
DECIMALS .X .XX .XXX
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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, INFLUENT CHANNEL

DRAWING NUMBER: 503188-AP-01 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 2 OF 2

FILE LOCATION:

LAST SAVED: Tuesday, March 20, 2018 6:00:58 PM

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

P&ID - SHEET 4
INFLUENT CHANNEL NO.2

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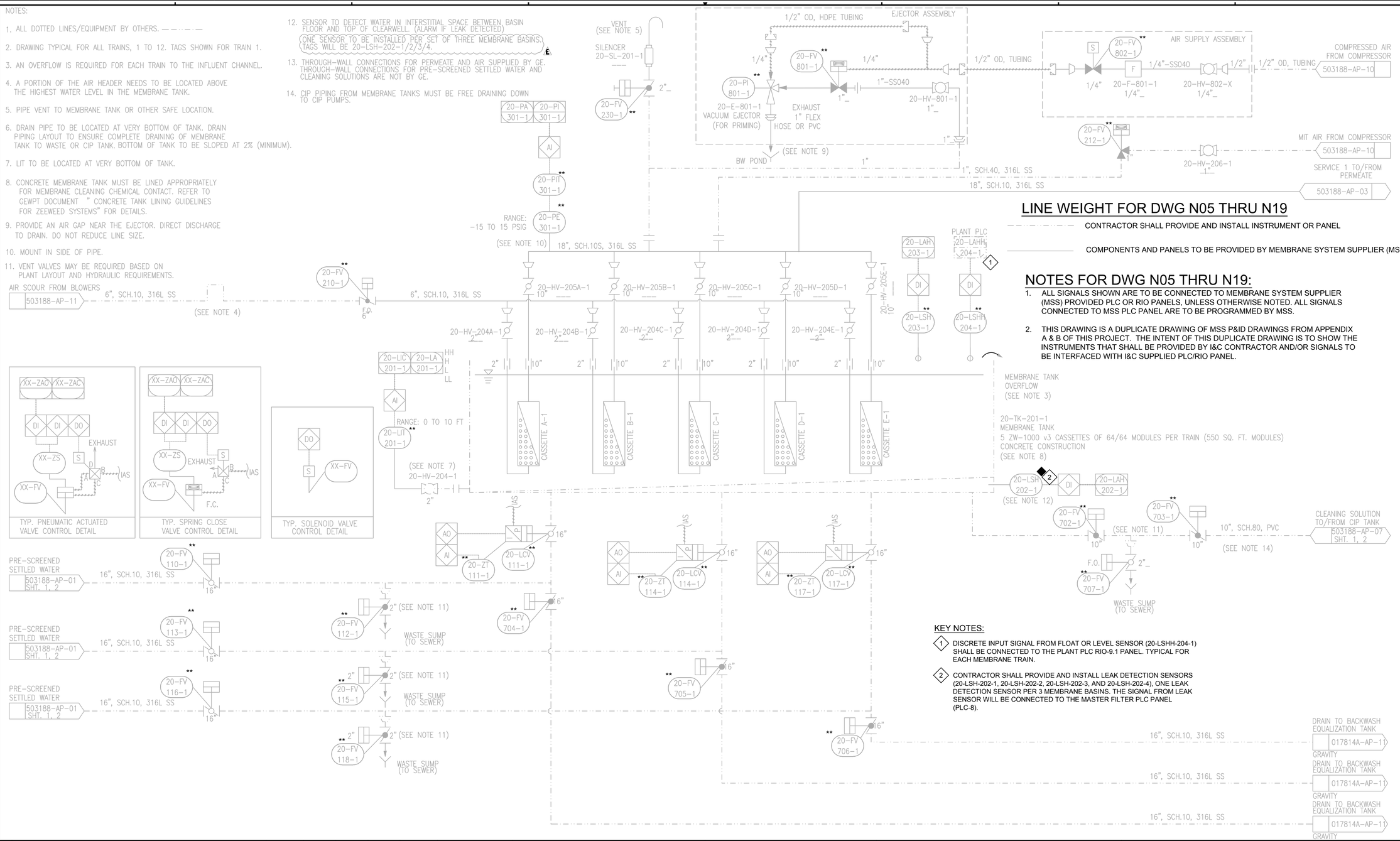
JOB NO. 09520I.10

DRAWING NO. 00N06

NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS. — — — —
2. DRAWING TYPICAL FOR ALL TRAINS, 1 TO 12. TAGS SHOWN FOR TRAIN 1.
3. AN OVERFLOW IS REQUIRED FOR EACH TRAIN TO THE INFLUENT CHANNEL.
4. A PORTION OF THE AIR HEADER NEEDS TO BE LOCATED ABOVE THE HIGHEST WATER LEVEL IN THE MEMBRANE TANK.
5. PIPE VENT TO MEMBRANE TANK OR OTHER SAFE LOCATION.
6. DRAIN PIPE TO BE LOCATED AT VERY BOTTOM OF TANK. DRAIN PIPING LAYOUT TO ENSURE COMPLETE DRAINING OF MEMBRANE TANK TO WASTE OR CIP TANK. BOTTOM OF TANK TO BE SLOPED AT 2% (MINIMUM).
7. LIT TO BE LOCATED AT VERY BOTTOM OF TANK.
8. CONCRETE MEMBRANE TANK MUST BE LINED APPROPRIATELY FOR MEMBRANE CLEANING CHEMICAL CONTACT. REFER TO GEWPT DOCUMENT " CONCRETE TANK LINING GUIDELINES FOR ZEEWEED SYSTEMS" FOR DETAILS.
9. PROVIDE AN AIR GAP NEAR THE EJECTOR. DIRECT DISCHARGE TO DRAIN. DO NOT REDUCE LINE SIZE.
10. MOUNT IN SIDE OF PIPE.
11. VENT VALVES MAY BE REQUIRED BASED ON PLANT LAYOUT AND HYDRAULIC REQUIREMENTS.
12. SENSOR TO DETECT WATER IN INTERSTITIAL SPACE BETWEEN BASIN FLOOR AND TOP OF CLEARWELL. (ALARM IF LEAK DETECTED) ONE SENSOR TO BE INSTALLED PER SET OF THREE MEMBRANE BASINS. TAGS WILL BE 20-LSH-202-1/2/3/4.
13. THROUGH-WALL CONNECTIONS FOR PERMEATE AND AIR SUPPLIED BY GE. THROUGH-WALL CONNECTIONS FOR PRE-SCREENED SETTLED WATER AND CLEANING SOLUTIONS ARE NOT BY GE.
14. CIP PIPING FROM MEMBRANE TANKS MUST BE FREE DRAINING DOWN TO CIP PUMPS.



LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

1. ALL SIGNALS SHOWN ARE TO BE CONNECTED TO MEMBRANE SYSTEM SUPPLIER (MSS) PROVIDED PLC OR RIO PANELS, UNLESS OTHERWISE NOTED. ALL SIGNALS CONNECTED TO MSS PLC PANEL ARE TO BE PROGRAMMED BY MSS.
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KEY NOTES:

1. DISCRETE INPUT SIGNAL FROM FLOAT OR LEVEL SENSOR (20-LSHH-204-1) SHALL BE CONNECTED TO THE PLANT PLC RIO-9.1 PANEL. TYPICAL FOR EACH MEMBRANE TRAIN.
2. CONTRACTOR SHALL PROVIDE AND INSTALL LEAK DETECTION SENSORS (20-LSH-202-1, 20-LSH-202-2, 20-LSH-202-3, AND 20-LSH-202-4), ONE LEAK DETECTION SENSOR PER 3 MEMBRANE BASINS. THE SIGNAL FROM LEAK SENSOR WILL BE CONNECTED TO THE MASTER FILTER PLC PANEL (PLC-8).

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
E	REVISED AS NOTED		GSH	JS	JS	10SEP18
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C	REVISED PER CLIENT COMMENTS		SR		JS	23AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

TOLERANCES UNLESS NOTED
DECIMALS .X .XX .XXX
ANGLES
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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, MEMBRANES & ASSOC. EQUIP.

DRAWING NUMBER: 503188-AP-02 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 1 OF 1

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
INSTRUMENTATION
P&ID - SHEET 5
MEMBRANES & ASSOCIATED EQUIPMENT

VERIFY SCALES
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DRAWING NO. 00N07

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PLOT SCALE:1:1
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LAST SAVED BY: twin

LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

1. ALL SIGNALS SHOWN ARE TO BE CONNECTED TO MEMBRANE SYSTEM SUPPLIER (MSS) PROVIDED PLC OR RIO PANELS, UNLESS OTHERWISE NOTED. ALL SIGNALS CONNECTED TO MSS PLC PANEL ARE TO BE PROGRAMMED BY MSS.
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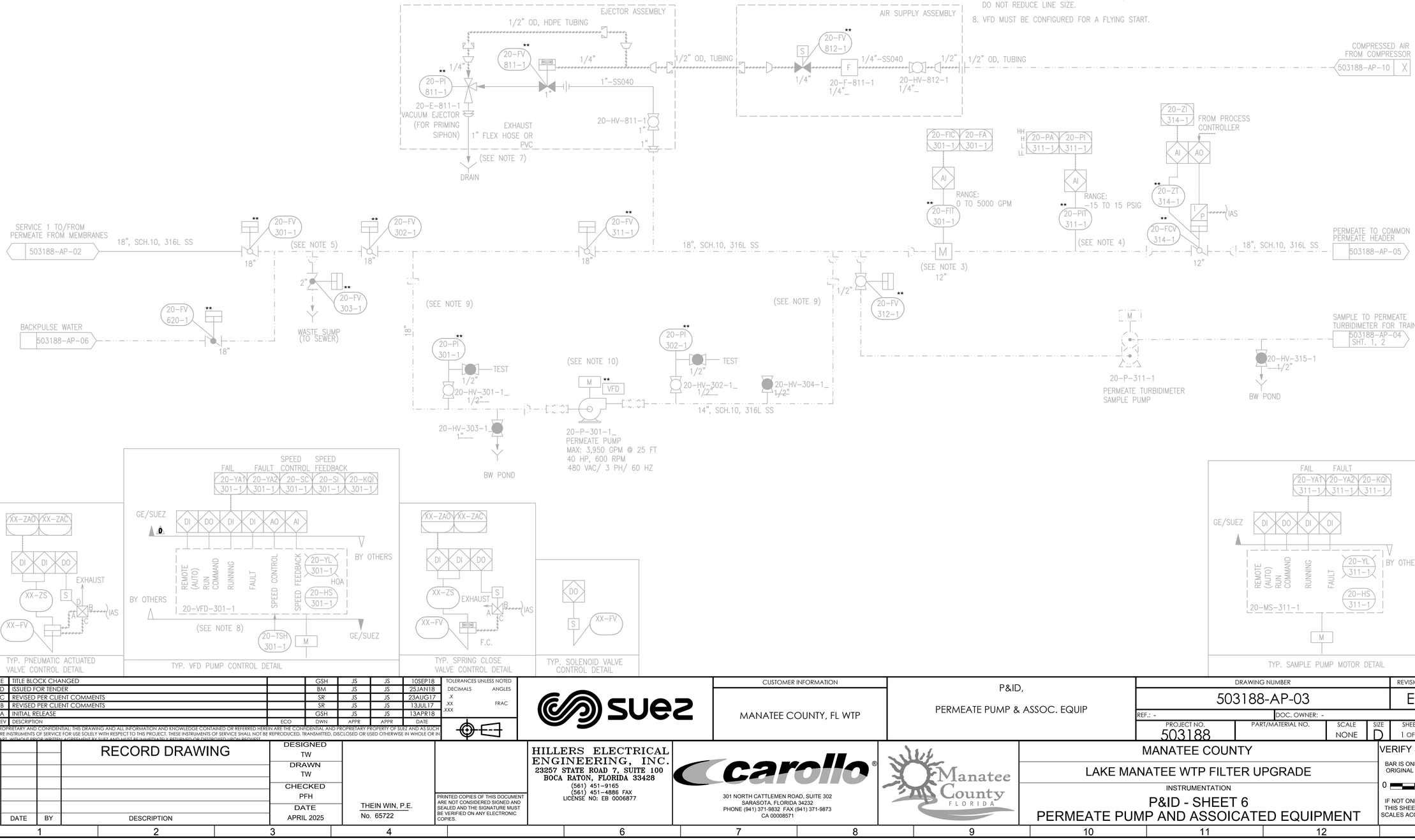
NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS
2. DRAWING TYPICAL FOR ALL TRAINS, 1 TO 12. TAGS SHOWN FOR TRAIN 1.
3. MAGMETER TO BE POSITIONED TO ENSURE MAGMETER REMAINS FLOODED AT ALL TIMES.
4. TURBIDITY SAMPLE POINT AND PIT MOUNTING MUST BE LOCATED ON THE SIDE OF THE PIPE.
5. VENT VALVES MAY BE REQUIRED BASED ON PLANT LAYOUT AND HYDRAULIC REQUIREMENTS.
6. EJECTOR MUST BE LOCATED ON THE TOP OF THE PIPE AT THE HIGHEST POINT OF THE PIPING.
7. PROVIDE AN AIR GAP NEAR THE EJECTOR, DIRECT DISCHARGE TO DRAIN. DO NOT REDUCE LINE SIZE.
8. VFD MUST BE CONFIGURED FOR A FLYING START.
9. VICTAULIC COUPLING IS TO BE SUITABLE FOR VACUUM.
10. MOTOR TO INCLUDE A SPACE HEATER.



REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
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D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

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ANGLES
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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, PERMEATE PUMP & ASSOC. EQUIP

DRAWING NUMBER: 503188-AP-03 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 1 OF 1

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			RECORD DRAWING

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DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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INSTRUMENTATION
P&ID - SHEET 6
PERMEATE PUMP AND ASSOICATED EQUIPMENT

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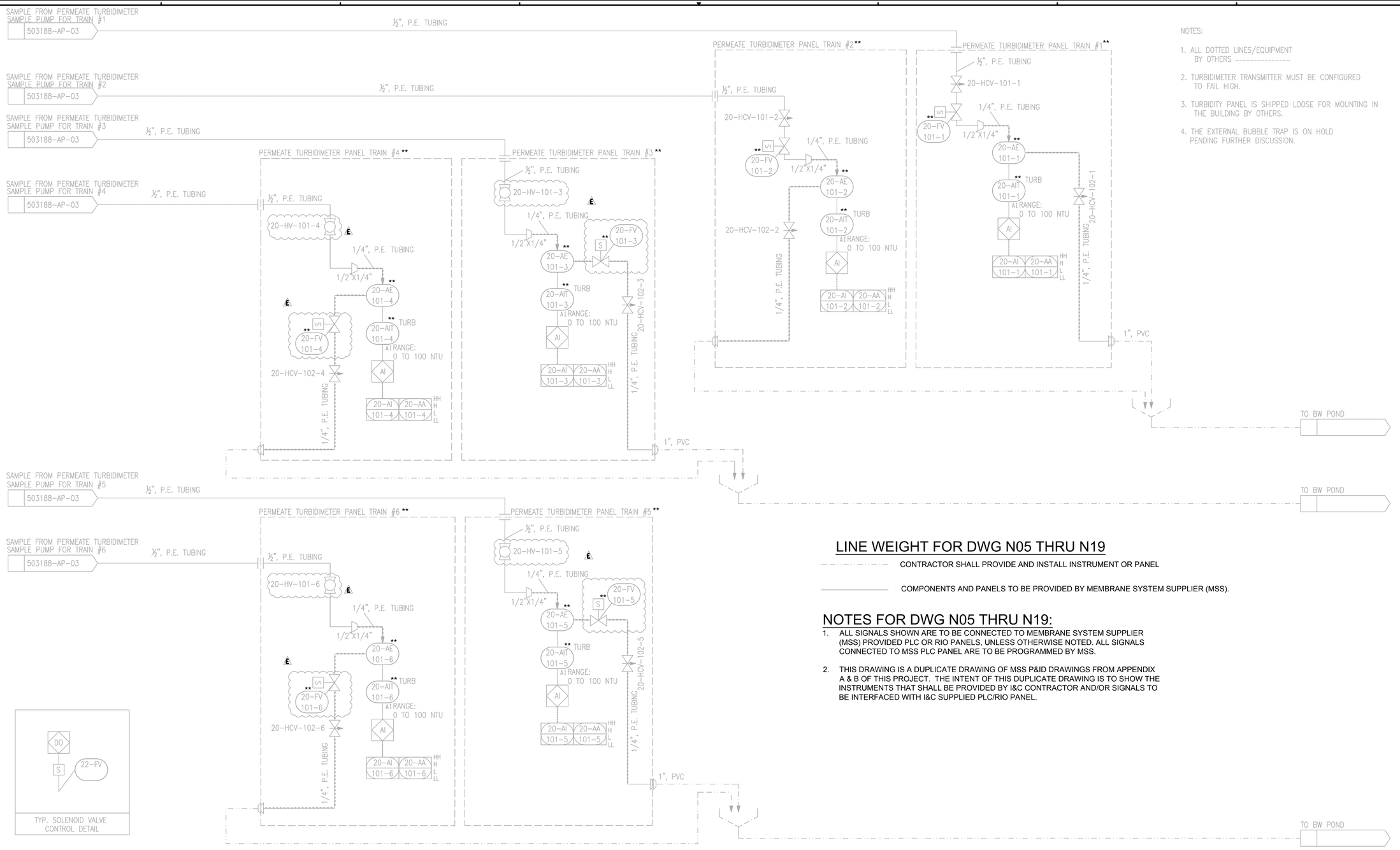
DRAWING NO. 00N08



NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS ----------
2. TURBIDIMETER TRANSMITTER MUST BE CONFIGURED TO FAIL HIGH.
3. TURBIDITY PANEL IS SHIPPED LOOSE FOR MOUNTING IN THE BUILDING BY OTHERS.
4. THE EXTERNAL BUBBLE TRAP IS ON HOLD PENDING FURTHER DISCUSSION.

LINE WEIGHT FOR DWG N05 THRU N19

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COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, PERMEATE TURBIDIMETERS

DRAWING NUMBER: 503188-AP-04 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 1 OF 2

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REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

P&ID - SHEET 7
PERMEATE TURBIDIMETERS - SHEET 1

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DRAWING NO. 00N09

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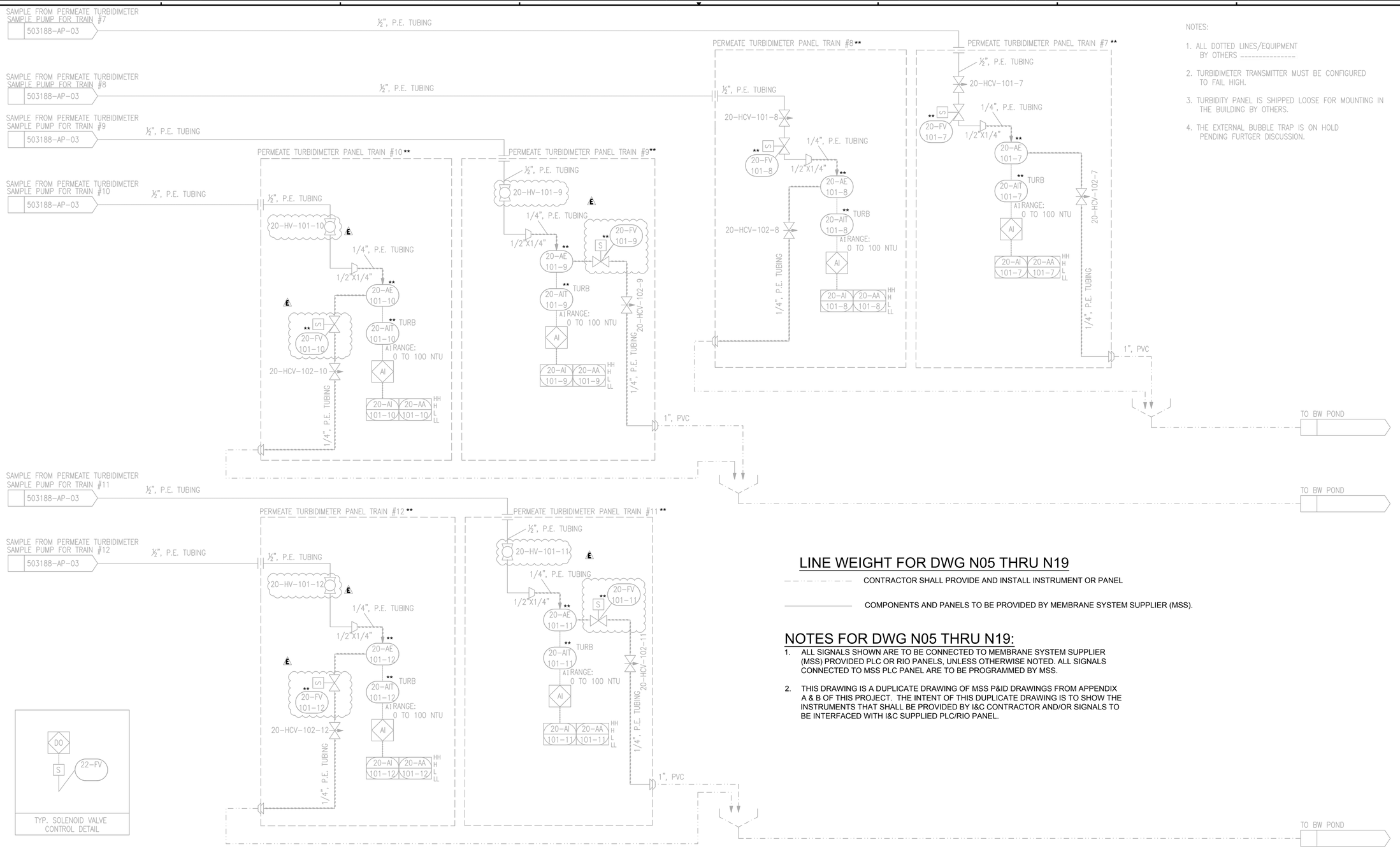

NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS ----------
2. TURBIDIMETER TRANSMITTER MUST BE CONFIGURED TO FAIL HIGH.
3. TURBIDITY PANEL IS SHIPPED LOOSE FOR MOUNTING IN THE BUILDING BY OTHERS.
4. THE EXTERNAL BUBBLE TRAP IS ON HOLD PENDING FURTGER DISCUSSION.

LINE WEIGHT FOR DWG N05 THRU N19

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REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
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TOLERANCES UNLESS NOTED
DECIMALS .X .XX .XXX
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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, PERMEATE TURBIDIMETERS

DRAWING NUMBER: 503188-AP-04 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.	PART/MATERIAL NO.	SCALE	SIZE	SHEET
503188		NONE	D	2 OF 2

EE DOCA#2001

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			RECORD DRAWING

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MANATEE COUNTY
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INSTRUMENTATION
P&ID - SHEET 8
PERMEATE TURBIDIMETERS - SHEET 2

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JOB NO. 09520I.10
DRAWING NO. 00N10

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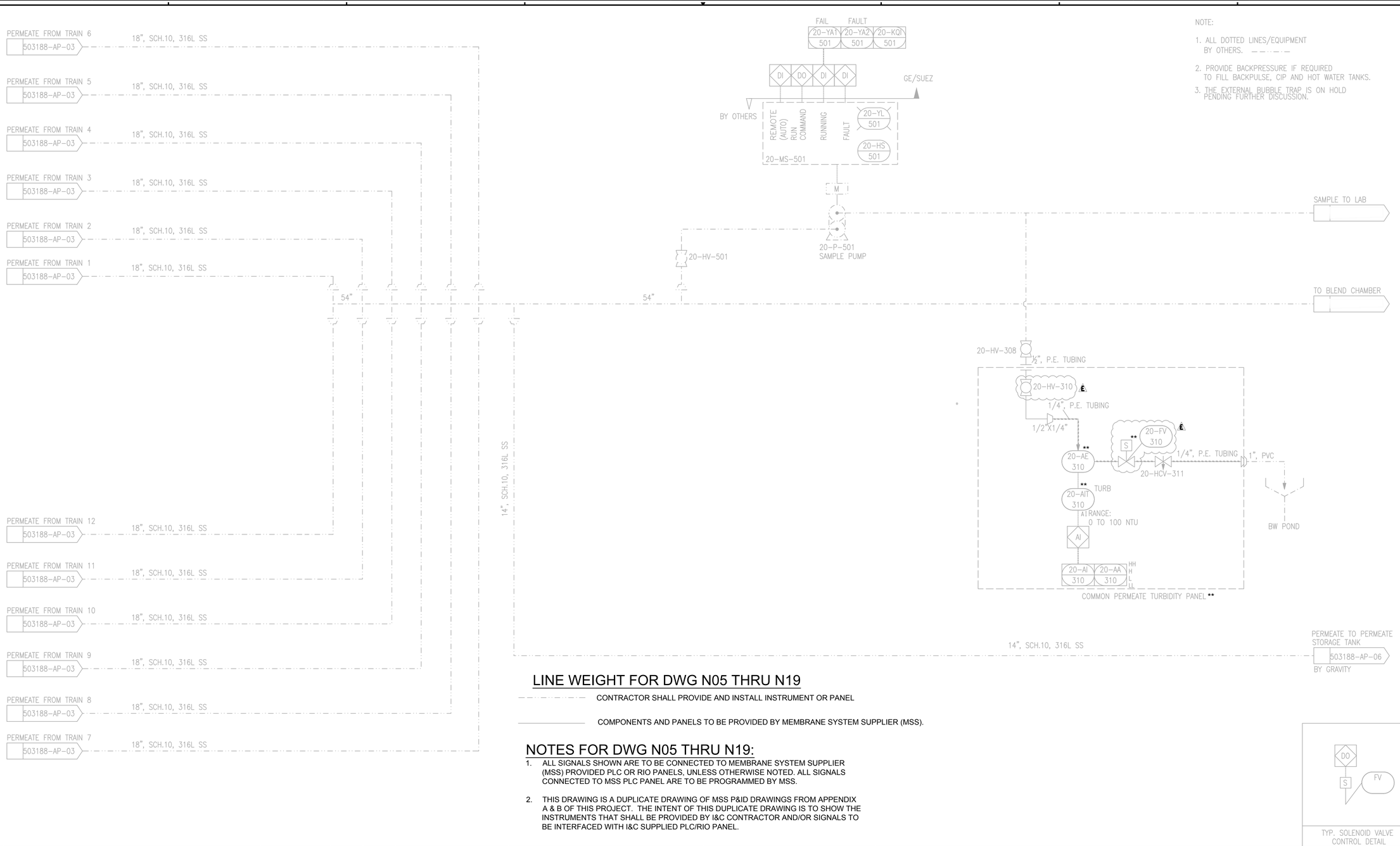
LAST SAVED BY: twin

PROJECT NO. 9520I.10 FILE NAME: 9520I10_00-N01.dwg



NOTE:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS. — · — · —
2. PROVIDE BACKPRESSURE IF REQUIRED TO FILL BACKPULSE, CIP AND HOT WATER TANKS.
3. THE EXTERNAL BUBBLE TRAP IS ON HOLD PENDING FURTHER DISCUSSION.

LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

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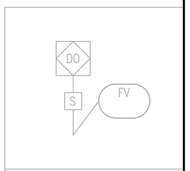

TYP. SOLENOID VALVE CONTROL DETAIL

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
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D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
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SUEZ

CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, COMMON PERMEATE HEADER

DRAWING NUMBER: 503188-AP-05
REVISION: E
REF.: -
DOC. OWNER: -
PROJECT NO.: 503188
PART/MATERIAL NO.:
SCALE: NONE
SIZE: D
SHEET: 1 OF 1
LOCATION:

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
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THEIN WIN, P.E.
No. 65722

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carollo
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SARASOTA, FLORIDA 34232
PHONE (941) 371-9832 FAX (941) 371-9873
CA 00008571

Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
INSTRUMENTATION
P&ID - SHEET 9
COMMON PERMEATE HEADER

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10
DRAWING NO. 00N11

PLOT DATE: 3/21/2025 5:03:29 PM
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PLOT SCALE:1:1
PAGE SETUP: HEE 34X22PDF
LAST SAVED BY: twin

PROJECT NO. 9520I.10 FILE NAME: 9520I10_00-N01.dwg

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USER: WIN. THEIN
COLOR TABLE:CAROLLO_FULL.CTB
PLOT SCALE:1:1
PAGE SETUP: HEE 34X22PDF
LAST SAVED BY: twin

POTABLE WATER FROM PLANT SERVICE WATER SOURCE

8", SCH.80 PVC

20-HV-605 8"

SODIUM HYPOCHLORITE FOR BIOGROWTH PREVENTION TO COMPARTMENT #1 — 1", SCH.80, PVC — 23-HV-240-1 1" — 23-CV-240-1 1"

SODIUM HYPOCHLORITE FOR BIOGROWTH PREVENTION TO COMPARTMENT #2 — 1", SCH.80, PVC — 23-HV-240-2 1" — 23-CV-240-2 1"

SODIUM HYPOCHLORITE FOR BIOGROWTH PREVENTION TO COMPARTMENT #3 — 1", SCH.80, PVC — 23-HV-240-3 1" — 23-CV-240-3 1"

VENT

20-LI 601-2 / 20-LA 601-2 (HH, H, L, LL)

AI — RANGE: 20-LIT 601-2 — 20-LE 601-2

20-LI 601-1 / 20-LA 601-1 (HH, H, L, LL)

AI — RANGE: 20-LIT 601-1 — 20-LE 601-1 (SEE NOTE 1)

20-LA 601-3 L — DI — 20-LS 601-3

20-LA 601-5 L — DI — 20-LS 601-5

DI — 20-LA 601-4 L — 20-LS 601-4

20-HV-602 14" (SEE NOTE 2)

GATE SUPPLIED (BY OTHERS)

GATE SUPPLIED (BY OTHERS)

20-HV-603 14" (SEE NOTE 2)

PERMEATE FROM COMMON PERMEATE HEADER 503188-AP-05 14" (BY OTHERS)

3"

20-P-601-1 — M — VFD — 14"

20-P-801-1 — M — VFD — 14"

20-P-601-2 — M — VFD — 14"

20-P-601-3 — M

20-P-801-2

20-TK-601
PERMEATE STORAGE TANK
CONCRETE CONSTRUCTION
VOLUME: 30,000 USG

BACKPULSE PUMPS
5072 GPM @ 47 FT TDH
100 HP, 1200 RPM
480 VAC/3 PH/60 Hz
(SEE NOTE 8)

TANK REFILL PUMPS FOR CIP/HOT WATER TANKS
800 GPM @ 29 FT TDH
10 HP, XXX RPM
480 VAC/3 PH/60 Hz

20-AR-601-1 — 20-PI 602-1 — TEST — 20-HV-601-1 — 20-CV-602-1 16" — 20-HV-610-1 18"

20-AR-601-2 — 20-PI 602-2 — TEST — 20-HV-601-2 — 20-HV-608-2 — 20-CV-602-2 16" — 20-HV-610-2 18"

20-AR-601-3 — 20-PI 602-3 — TEST — 20-HV-601-3 — 20-HV-608-3 — 20-CV-602-3 16" — 20-HV-610-3 18"

20-AR-601-4 — 20-HV-601-4 — (SEE NOTE 7)

20-FIC 601-1 / 20-FA 601-1 (HH, H, L, LL) — AI — 20-FIT 601-1 — RANGE: 0 TO 6500 GPM — 20-FE 601-1 — M — (SEE NOTE 5)

SET POINT=10 PSIG INCREASING — 20-PAH 601-1 — DI — 20-PSH 601-1 (SEE NOTE 6)

20-HV-616-1 18" — 20-HV-617-1 — BW POND

18" — 20-FV 601-1

20-AR-601-5 — 20-HV-601-5 (SEE NOTE 7)

20-FIC 601-2 / 20-FA 601-2 (HH, H, L, LL) — AI — 20-FIT 601-2 — RANGE: 0 TO 6500 GPM — 20-FE 601-2 — M — (SEE NOTE 5)

SET POINT=10 PSIG INCREASING — 20-PAH 601-2 — DI — 20-PSH 601-2 (SEE NOTE 6)

20-HV-616-2 18" — 20-HV-617-2 — BW POND

18" — 20-FV 602-2

(SEE NOTE 3) — 20-PI 801-1 — TEST — 20-AR-801-1 — 20-HV-808-1 — 20-HV-801-1

20-CV-802-1 8" — 20-HV-810-1 8"

20-AR-801-2 — 20-PI 602-5 — TEST — 20-HV-801-2 — 20-HV-808-2

20-CV-802-2 8" — 20-HV-810-2 8"

316L SS — 20-HV-617-3 — BW POND

TO TEMPORARY EJECTOR 503188-AP-06 SHT 2

TO TEMPORARY EJECTOR 503188-AP-06 SHT 2

BACKPULSE WATER TO MEMBRANE TRAIN #1 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #2 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #3 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #4 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #5 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #6 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #7 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #8 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #9 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #10 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #11 — 503188-AP-03

BACKPULSE WATER TO MEMBRANE TRAIN #12 — 503188-AP-03

TO TEMPORARY EJECTOR 503188-AP-06 SHT 2

TO TEMPORARY EJECTOR 503188-AP-06 SHT 2

TO CIP TANK #1 — 503188-AP-07 SHT 1

TO CIP TANK #2 — 503188-AP-07 SHT 2

20-FV 701 — 8" — TO HEATED WASH WATER SYSTEM 503188-AP-12

TO IX SYSTEM

20-HV-XXX-X 3" — 20-PI 901 — TEST — 20-HV-XXX-X — 20-HV-XXX-X — BW POND

20-P-901 IX SUPPLY PUMP 35 GPM @ XX FT XX HP, XXX RPM 480 VAC/3PH/60Hz

20-PI 902 — TEST — 20-HV-XXX-X — BW POND

20-CV-902 — 20-HV-910

NOTES:

1. PUMPS SHUT OFF DUE TO LOW TANK LEVEL.
2. NORMALLY OPEN.
3. PUMPS IN CAN-STRAINER ON SUCTION SIDE OF EACH PUMP.
4. ALL DOTTED LINES/EQUIPMENT BY OTHERS.
5. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING INSTALLATION REQUIREMENTS, INCLUDING NUMBER OF STRAIGHT PIPE RUNS. PIPING DOWNSTREAM OF MAGMETER TO BE ROUTED UPWARDS TO ENSURE MAGMETER REMAINS FLOODED AT ALL TIMES.
6. TO BE LOCATED AS CLOSE TO MEMBRANES AS POSSIBLE. SETPOINT TO BE MODIFIED AS REQUIRED TO ALLOW FOR ANY ELEVATION DIFFERENCES.
7. TEMPORARY CONNECTION FOR COMMISSIONING.
8. MOTOR TO INCLUDE A SPACE HEATER.

NOTES FOR DWG N05 THRU N19:

1. ALL SIGNALS SHOWN ARE TO BE CONNECTED TO MEMBRANE SYSTEM SUPPLIER (MSS) PROVIDED PLC OR RIO PANELS, UNLESS OTHERWISE NOTED. ALL SIGNALS CONNECTED TO MSS PLC PANEL ARE TO BE PROGRAMMED BY MSS.
2. THIS DRAWING IS A DUPLICATE DRAWING OF MSS P&ID DRAWINGS FROM APPENDIX A & B OF THIS PROJECT. THE INTENT OF THIS DUPLICATE DRAWING IS TO SHOW THE INSTRUMENTS THAT SHALL BE PROVIDED BY I&C CONTRACTOR AND/OR SIGNALS TO BE INTERFACED WITH I&C SUPPLIED PLC/RIO PANEL.

KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW INSTRUMENTS AS SHOWN.

SPEED FAIL 20-YAT 601-X — SPEED FAULT 20-YA2 601-X — SPEED CONTROL 20-SC 601-X — SPEED FEEDBACK 20-SI 601-X — 20-KQI 601-X

GE/SUEZ: DI DO DI DI AO AI — BY OTHERS: REMOTE (AUTO) COMMAND, RUN, RUNNING, FAULT, SPEED CONTROL, SPEED FEEDBACK — 20-YL 601-X — 20-HS 601-X HOA — 20-VFD-601-X — 20-TSH 601-X — M — GE/SUEZ

TYP. VFD PUMP CONTROL DETAIL

XX-ZAO XX-ZAC — DI DI DO — EXHAUST — HOA XX-ZS — S D A B C — IAS — XX-FV

TYP. PNEUMATIC ACTUATED VALVE CONTROL DETAIL

FAIL 20-YAT 901 — FAULT 20-YA2 901 — 20-KQI 901 — DI DO DI DI — GE/SUEZ — BY OTHERS: REMOTE (AUTO) COMMAND, RUN, RUNNING, FAULT — 20-YL 901 — 20-HS 901 — 20-MS-901 — M

TYP. NON-VFD PUMP MOTOR DETAIL

LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
E	REVISED AS NOTED		GSH	JS	JS	10SEP18
D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

TOLERANCES UNLESS NOTED: DECIMALS .X .XX .XXX; ANGLES; FRAC

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SUEZ

CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, UNDERGROUND STORAGE TANK, BACKPULSE PUMPS & ASSOC. EQUIP

DRAWING NUMBER: 503188-AP-06 — REVISION: E

REF.: - — DOC. OWNER: -

PROJECT NO. 503188 — PART/MATERIAL NO. — SCALE NONE — SIZE D — SHEET 1 OF 2

RELOCATION:

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW — DRAWN TW — CHECKED PFH — DATE APRIL 2025

THEIN WIN, P.E. No. 65722

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

P&ID - SHEET 10
BACKPULSE PUMPS AND ASSOCIATED EQUIPMENT

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00N12

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COLOR TABLE:CAROLLO_FULL.CTB
PAGE SETUP: HEE 34X22PDF PLOT SCALE:1:1
LAST SAVED BY: twin

LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

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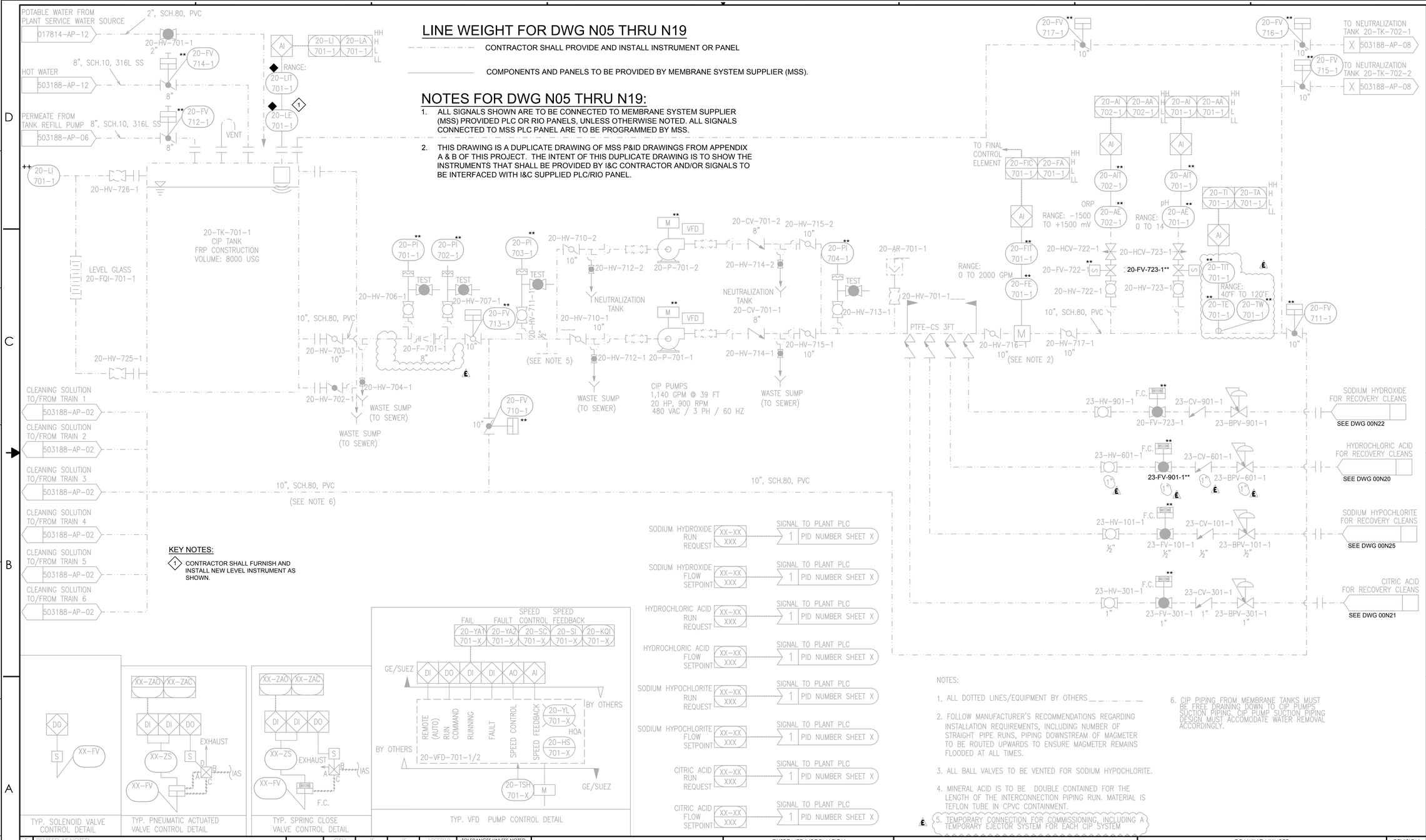

KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW LEVEL INSTRUMENT AS SHOWN.

TYP. SOLENOID VALVE CONTROL DETAIL

TYP. PNEUMATIC ACTUATED VALVE CONTROL DETAIL

TYP. SPRING CLOSE VALVE CONTROL DETAIL

TYP. VFD PUMP CONTROL DETAIL

SODIUM HYDROXIDE RUN REQUEST	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
SODIUM HYDROXIDE FLOW SETPOINT	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
HYDROCHLORIC ACID RUN REQUEST	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
HYDROCHLORIC ACID FLOW SETPOINT	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
SODIUM HYPOCHLORITE RUN REQUEST	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
SODIUM HYPOCHLORITE FLOW SETPOINT	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
CITRIC ACID RUN REQUEST	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X
CITRIC ACID FLOW SETPOINT	XX-XX XXX	SIGNAL TO PLANT PLC 1 PID NUMBER SHEET X

NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS
2. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING INSTALLATION REQUIREMENTS, INCLUDING NUMBER OF STRAIGHT PIPE RUNS, PIPING DOWNSTREAM OF MAGMETER TO BE ROUTED UPWARDS TO ENSURE MAGMETER REMAINS FLOODED AT ALL TIMES.
3. ALL BALL VALVES TO BE VENTED FOR SODIUM HYPOCHLORITE.
4. MINERAL ACID IS TO BE DOUBLE CONTAINED FOR THE LENGTH OF THE INTERCONNECTION PIPING RUN. MATERIAL IS TEFLON TUBE IN CPVC CONTAINMENT.
5. TEMPORARY CONNECTION FOR COMMISSIONING, INCLUDING A TEMPORARY EJECTOR SYSTEM FOR EACH CIP SYSTEM
6. CIP PIPING FROM MEMBRANE TANKS MUST BE FREE DRAINING DOWN TO CIP PUMPS SUCTION PIPING. CIP PUMP SUCTION PIPING DESIGN MUST ACCOMODATE WATER REMOVAL ACCORDINGLY.

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
E	REVISED AS NOTED		GSH	JS	JS	10SEP18
D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
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TOLERANCES UNLESS NOTED
DECIMALS .X .XX .XXX
ANGLES
FRAC

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SUEZ

CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, CIP SYSTEM 1

DRAWING NUMBER: 503188-AP-07 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO. 503188 | PART/MATERIAL NO. | SCALE NONE | SIZE D | SHEET 1 OF 2

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

P&ID - SHEET 11
CIP SYSTEM 1

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00N13

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LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

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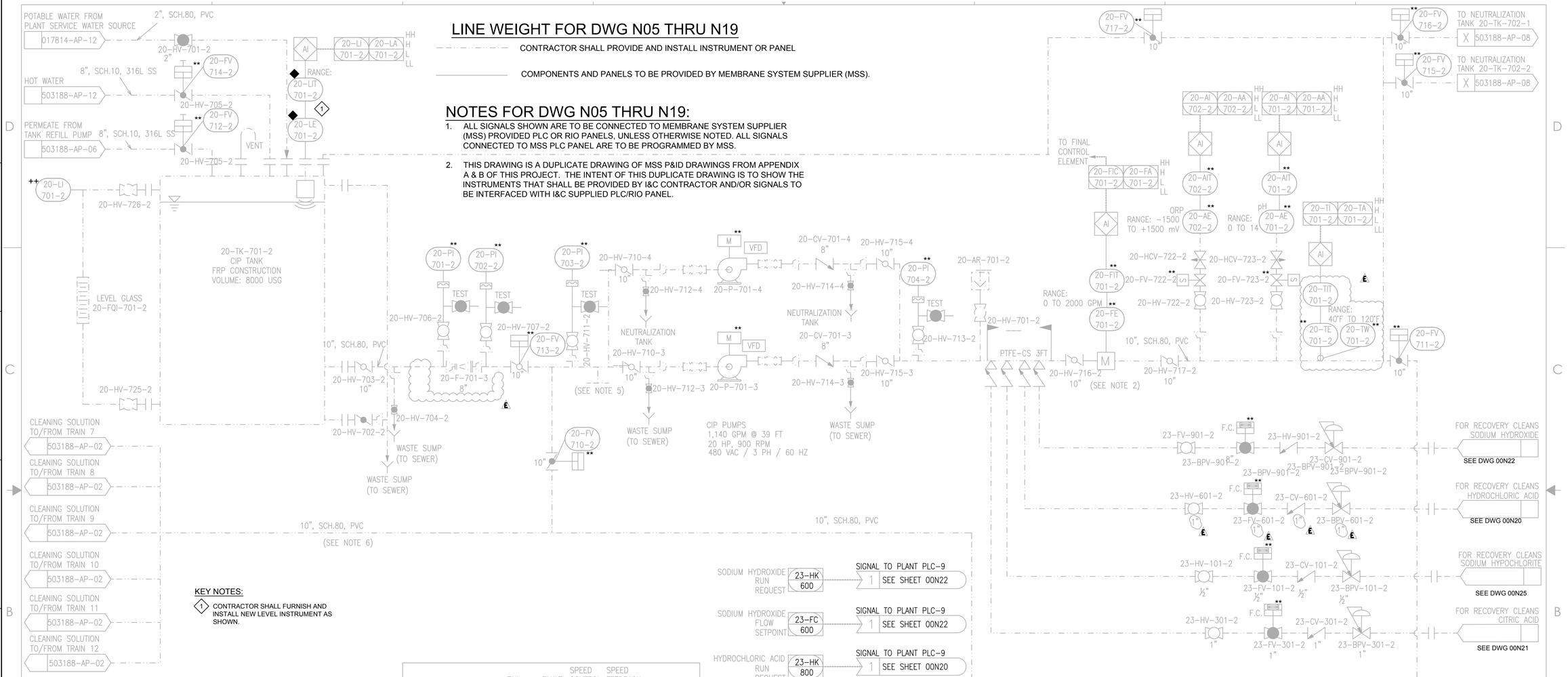
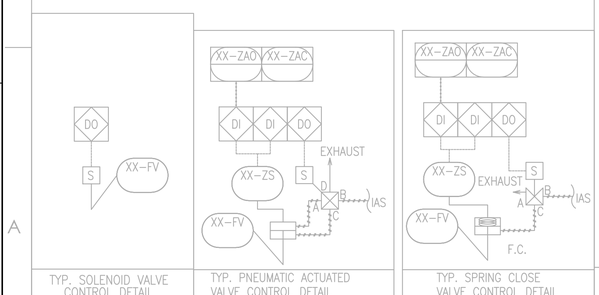


KEY NOTES:

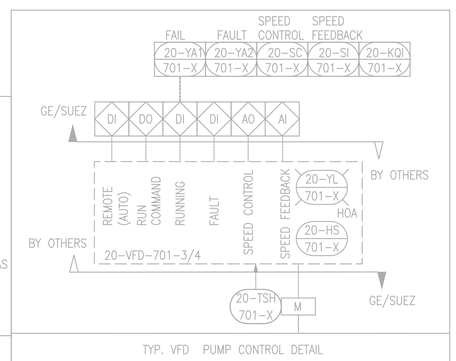
1. CONTRACTOR SHALL FURNISH AND INSTALL NEW LEVEL INSTRUMENT AS SHOWN.



TYP. SOLENOID VALVE CONTROL DETAIL

TYP. PNEUMATIC ACTUATED VALVE CONTROL DETAIL

TYP. SPRING CLOSE VALVE CONTROL DETAIL



TYP. VFD PUMP CONTROL DETAIL

SODIUM HYDROXIDE RUN REQUEST	23-HK 600	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N22
SODIUM HYDROXIDE FLOW SETPOINT	23-FC 600	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N22
HYDROCHLORIC ACID RUN REQUEST	23-HK 800	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N20
HYDROCHLORIC ACID FLOW SETPOINT	23-FC 800	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N20
SODIUM HYPOCHLORITE RUN REQUEST	23-HK 200	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N25
SODIUM HYPOCHLORITE FLOW SETPOINT	23-FC 200	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N25
CITRIC ACID RUN REQUEST	23-HK 300	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N21
CITRIC ACID FLOW SETPOINT	23-FC 300	1	SIGNAL TO PLANT PLC-9 SEE SHEET 00N21

NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS
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TOLERANCES UNLESS NOTED
DECIMALS .X .XX .XXX
ANGLES FRAC

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SUEZ

CUSTOMER INFORMATION

MANATEE COUNTY, FL WTP

P&ID,

CIP SYSTEM 2

DRAWING NUMBER	REVISION
503188-AP-07	E

REF.: -

DOC. OWNER: -

PROJECT NO.	PART/MATERIAL NO.	SCALE	SIZE	SHEET
503188		NONE	D	2 OF 2

LET LOCATION:

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

DESIGNED TW
DRAWN TW
CHECKED PFH
DATE APRIL 2025

THEIN WIN, P.E.
No. 65722

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

P&ID - SHEET 12
CIP SYSTEM 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 09520I.10

DRAWING NO. 00N14

PLOT DATE: 3/21/2025 5:03:44 PM
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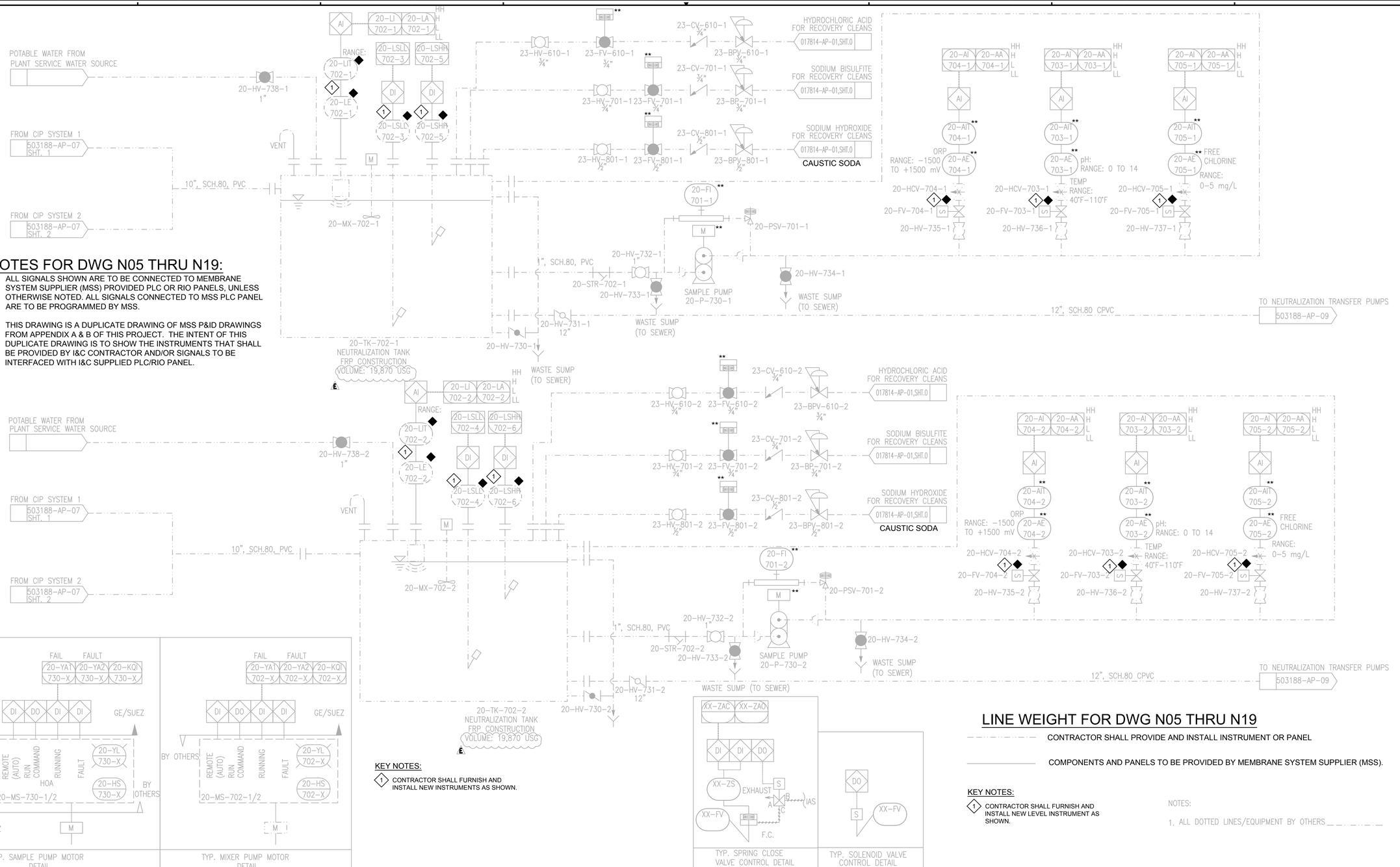
PAGE SETUP: HEE 34X22PDF PLOT SCALE:1:1 COLOR TABLE:CAROLLO_FULL.CTB
LAST SAVED BY: twin



NOTES FOR DWG N05 THRU N19:

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KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW INSTRUMENTS AS SHOWN.

LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW LEVEL INSTRUMENT AS SHOWN.

NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
E	REVISED AS NOTED		GSH	JS	JS	10SEP18
D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

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DECIMALS .X .XX .XXX
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CUSTOMER INFORMATION
MANATEE COUNTY, FL WTP

P&ID,
NEUTRALIZATION TANKS

DRAWING NUMBER: 503188-AP-08
REVISION: E
REF.: -
DOC. OWNER: -
PROJECT NO.: 503188
PART/MATERIAL NO.:
SCALE: NONE
SIZE: D
SHEET: 1 OF 1
SEE LOCATION:

REV	DATE	BY	DESCRIPTION
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No. 65722

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LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

1. ALL SIGNALS SHOWN ARE TO BE CONNECTED TO MEMBRANE SYSTEM SUPPLIER (MSS) PROVIDED PLC OR RIO PANELS, UNLESS OTHERWISE NOTED. ALL SIGNALS CONNECTED TO MSS PLC PANEL ARE TO BE PROGRAMMED BY MSS.
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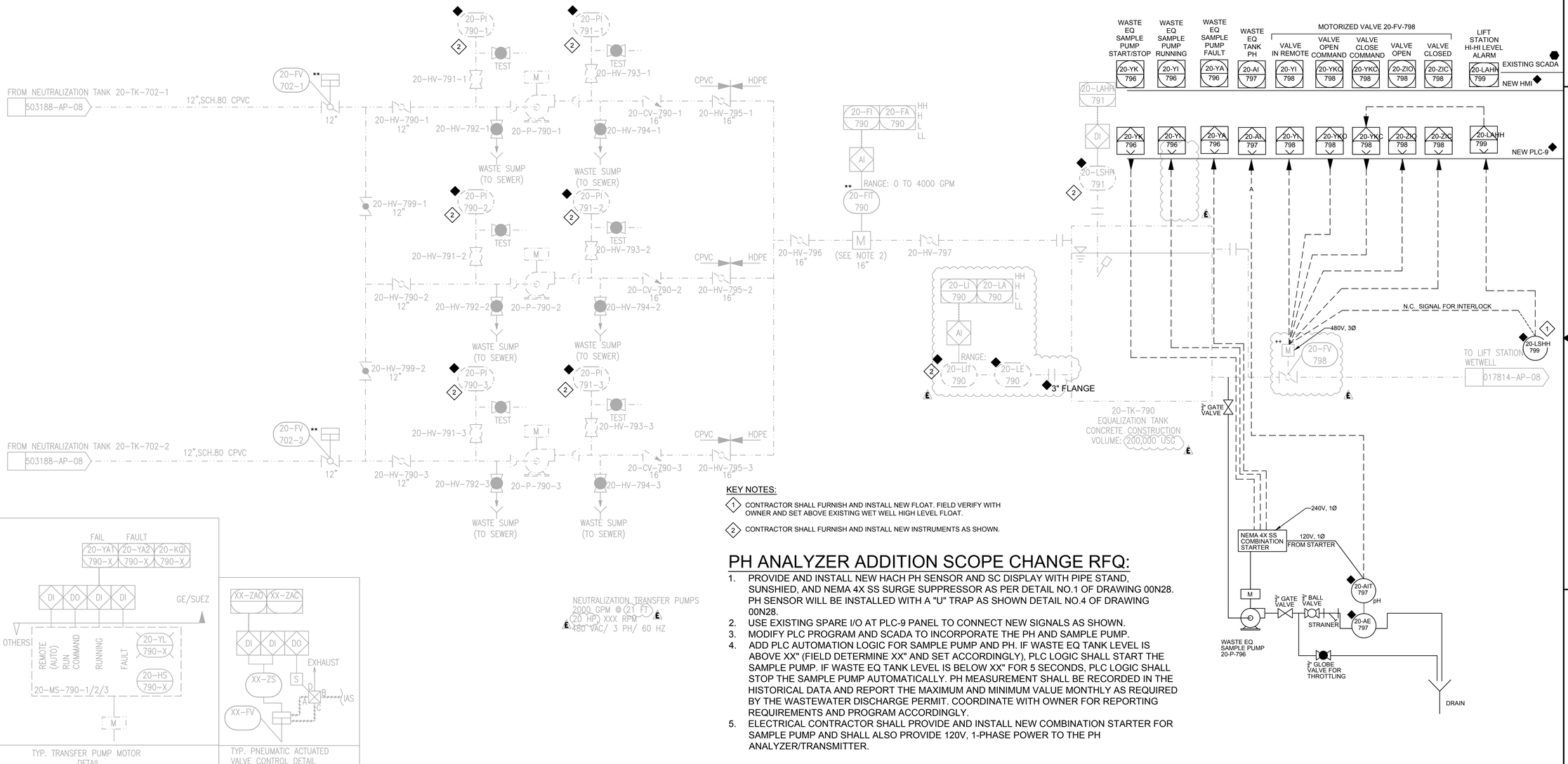
NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS
2. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING INSTALLATION REQUIREMENTS, INCLUDING NUMBER OF STRAIGHT PIPE RUNS, PIPING DOWNSTREAM OF MAGMETER TO BE ROUTED UPWARDS TO ENSURE MAGMETER REMAINS FLOODED AT ALL TIMES.



KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW FLOAT. FIELD VERIFY WITH OWNER AND SET ABOVE EXISTING WET WELL HIGH LEVEL FLOAT.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW INSTRUMENTS AS SHOWN.

PH ANALYZER ADDITION SCOPE CHANGE RFQ:

1. PROVIDE AND INSTALL NEW HACH PH SENSOR AND SC DISPLAY WITH PIPE STAND, SUNSHIED, AND NEMA 4X SS SURGE SUPPRESSOR AS PER DETAIL NO.1 OF DRAWING 00N28. PH SENSOR WILL BE INSTALLED WITH A "U" TRAP AS SHOWN DETAIL NO.4 OF DRAWING 00N28.
2. USE EXISTING SPARE I/O AT PLC-9 PANEL TO CONNECT NEW SIGNALS AS SHOWN.
3. MODIFY PLC PROGRAM AND SCADA TO INCORPORATE THE PH AND SAMPLE PUMP.
4. ADD PLC AUTOMATION LOGIC FOR SAMPLE PUMP AND PH. IF WASTE EQ TANK LEVEL IS ABOVE XX" (FIELD DETERMINE XX" AND SET ACCORDINGLY), PLC LOGIC SHALL START THE SAMPLE PUMP. IF WASTE EQ TANK LEVEL IS BELOW XX" FOR 5 SECONDS, PLC LOGIC SHALL STOP THE SAMPLE PUMP AUTOMATICALLY. PH MEASUREMENT SHALL BE RECORDED IN THE HISTORICAL DATA AND REPORT THE MAXIMUM AND MINIMUM VALUE MONTHLY AS REQUIRED BY THE WASTEWATER DISCHARGE PERMIT. COORDINATE WITH OWNER FOR REPORTING REQUIREMENTS AND PROGRAM ACCORDINGLY.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL NEW COMBINATION STARTER FOR SAMPLE PUMP AND SHALL ALSO PROVIDE 120V, 1-PHASE POWER TO THE PH ANALYZER/TRANSMITTER.

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
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P&ID, NEUTRALIZATION TRANSFER

DRAWING NUMBER: 503188-AP-09 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO. 503188 | PART/MATERIAL NO. | SCALE NONE | SIZE D | SHEET 1 OF 1

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DRAWING NO. 00N16

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LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

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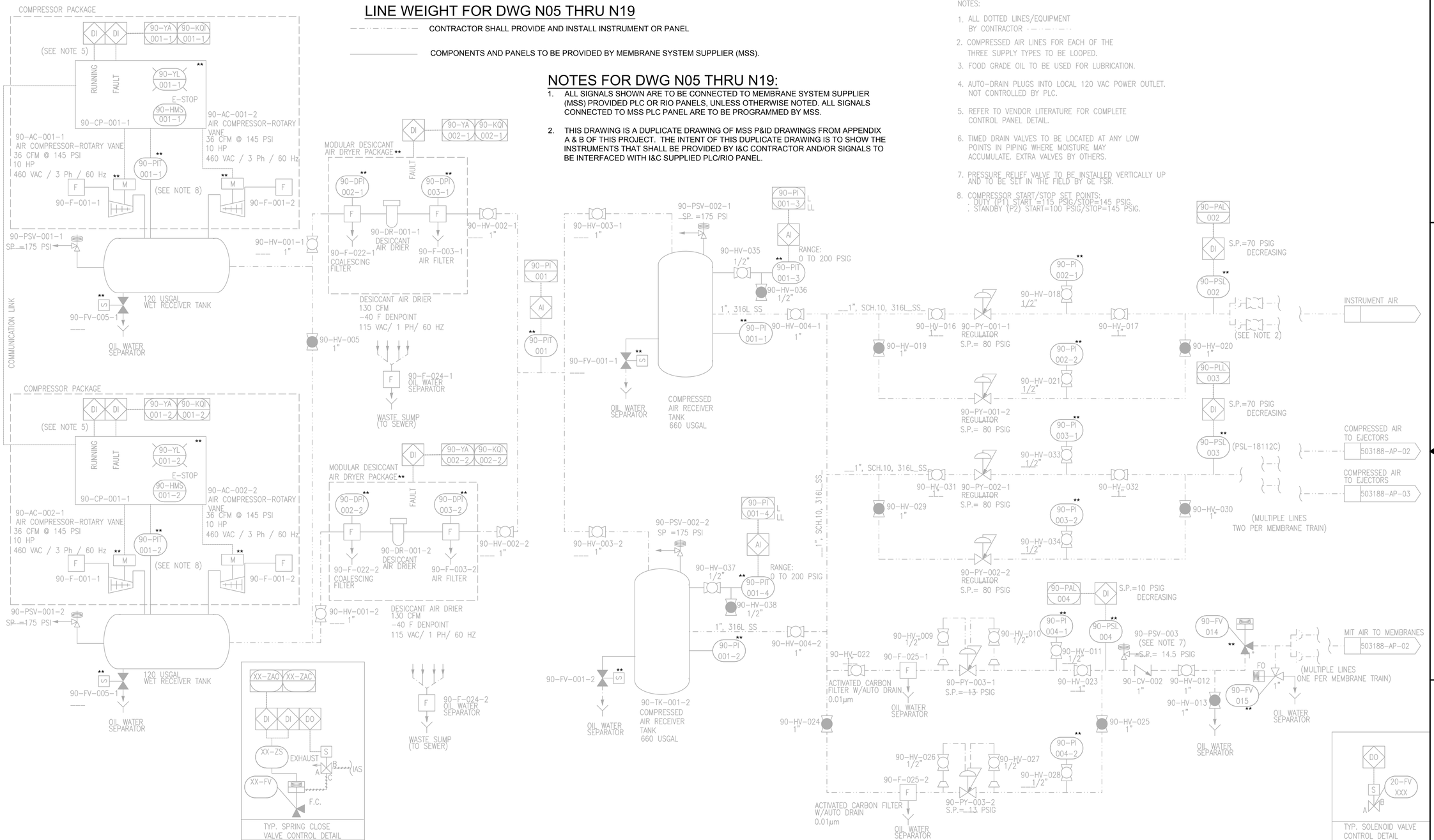
NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY CONTRACTOR
2. COMPRESSED AIR LINES FOR EACH OF THE THREE SUPPLY TYPES TO BE LOOPED.
3. FOOD GRADE OIL TO BE USED FOR LUBRICATION.
4. AUTO-DRAIN PLUGS INTO LOCAL 120 VAC POWER OUTLET. NOT CONTROLLED BY PLC.
5. REFER TO VENDOR LITERATURE FOR COMPLETE CONTROL PANEL DETAIL.
6. TIMED DRAIN VALVES TO BE LOCATED AT ANY LOW POINTS IN PIPING WHERE MOISTURE MAY ACCUMULATE. EXTRA VALVES BY OTHERS.
7. PRESSURE RELIEF VALVE TO BE INSTALLED VERTICALLY UP AND TO BE SET IN THE FIELD BY GE FSR.
8. COMPRESSOR START/STOP SET POINTS:
   . DUTY (P1) START =115 PSIG/STOP=145 PSIG.
   . STANDBY (P2) START=100 PSIG/STOP=145 PSIG.



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D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	23AUG17
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DECIMALS ANGLES
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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, AIR SYS. FOR PDT EQUIP & VALVES

DRAWING NUMBER: 503188-AP-10 | REVISION: E

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PROJECT NO.	PART/MATERIAL NO.	SCALE	SIZE	SHEET
503188		NONE	D	1 OF 1

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Manatee County FLORIDA

MANATEE COUNTY
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INSTRUMENTATION
P&ID - SHEET 15
AIR SYSTEM FOR PDT EQUIPMENT AND VALVES

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JOB NO. 09520I.10
DRAWING NO. 00N17

EDUCATION

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LINE WEIGHT FOR DWG N05 THRU N19

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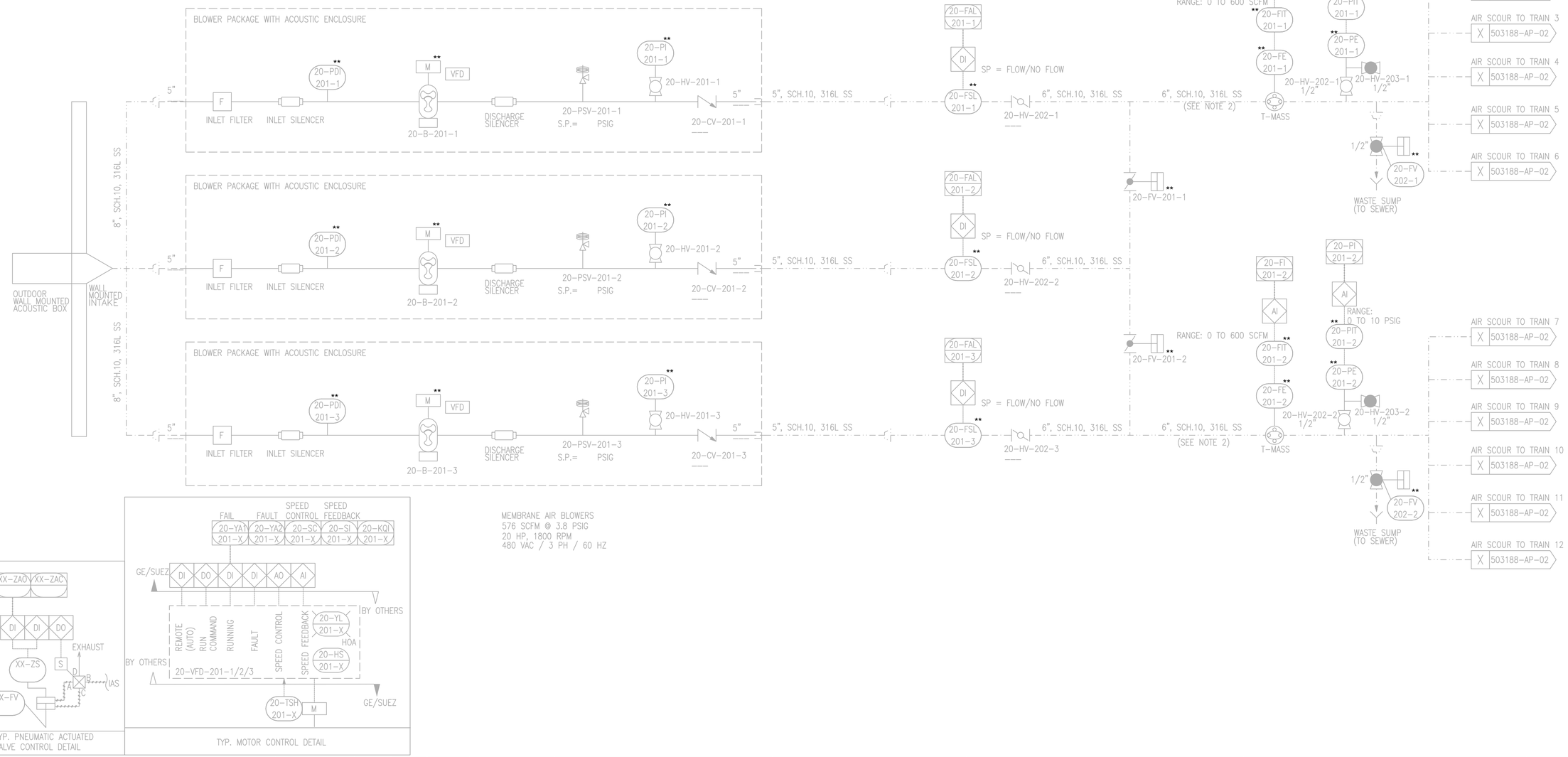
NOTES:
1. ALL DOTTED LINES/EQUIPMENT BY OTHERS.
2. PERSONAL PROTECTION (THERMAL) SHOULD BE INSTALLED ON BLOWER DISCHARGE PIPING BELOW HEIGHT STIPULATED BY LOCAL SAFETY CODE INSIDE BLOWER ROOM IF REQUIRED. (SUPPLIED & INSTALLED BY OTHERS)



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DECIMALS .X .XX .XXX
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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, P.D. BLOWERS & ASSOC. EQUIP.

DRAWING NUMBER: 503188-AP-11 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 1 OF 1

LEVEL OF EDUCATION:

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P&ID - SHEET 16
P.D. BLOWERS AND ASSOCIATED EQUIPMENT

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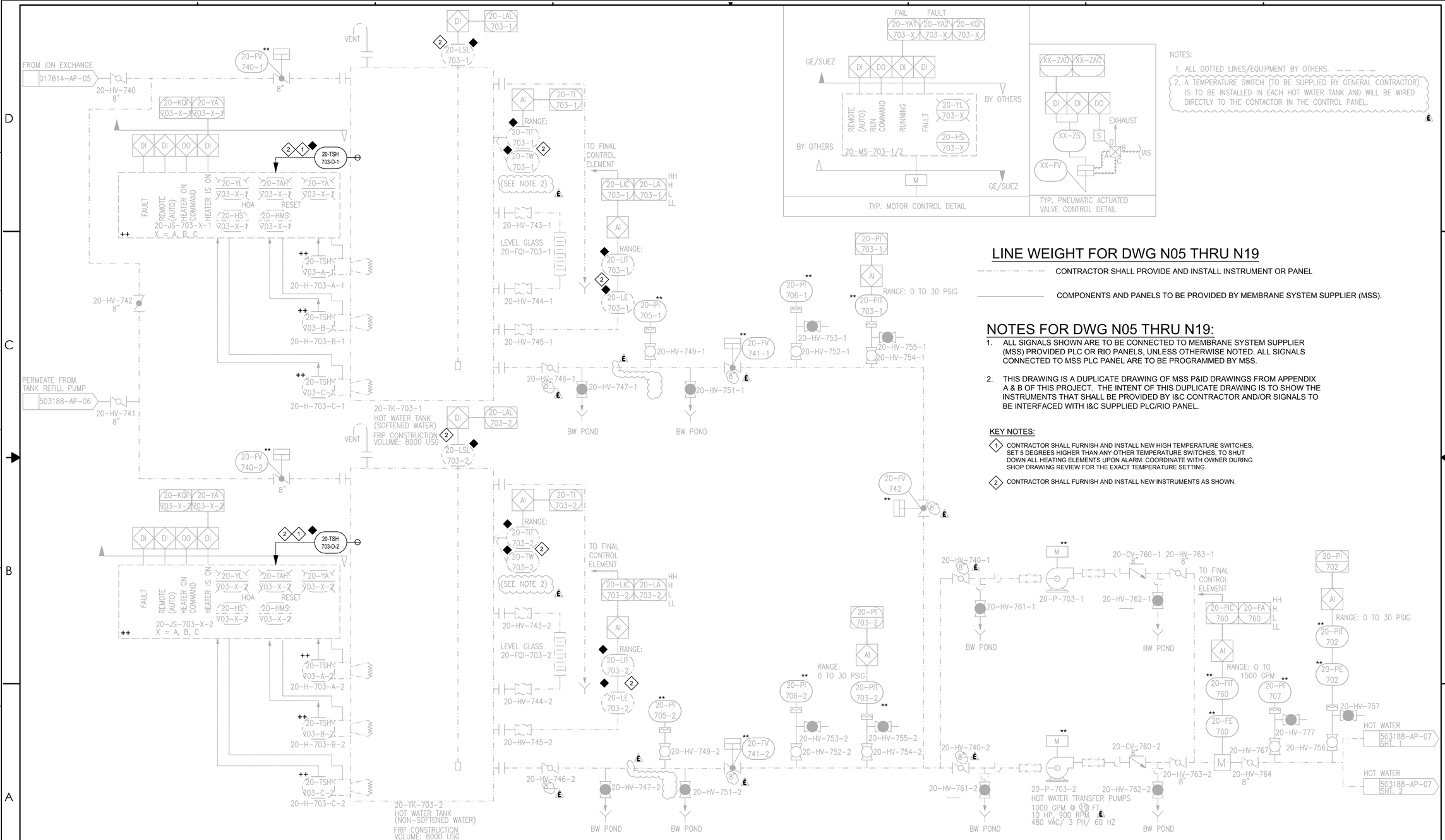

NOTES:

1. ALL DOTTED LINES/EQUIPMENT BY OTHERS.
2. A TEMPERATURE SWITCH (TO BE SUPPLIED BY GENERAL CONTRACTOR) IS TO BE INSTALLED IN EACH HOT WATER TANK AND WILL BE WIRED DIRECTLY TO THE CONTACTOR IN THE CONTROL PANEL.

LINE WEIGHT FOR DWG N05 THRU N19

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR DWG N05 THRU N19:

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KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW HIGH TEMPERATURE SWITCHES, SET 5 DEGREES HIGHER THAN ANY OTHER TEMPERATURE SWITCHES, TO SHUT DOWN ALL HEATING ELEMENTS UPON ALARM. COORDINATE WITH OWNER DURING SHOP DRAWING REVIEW FOR THE EXACT TEMPERATURE SETTING.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW INSTRUMENTS AS SHOWN.

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CUSTOMER INFORMATION: MANATEE COUNTY, FL WTP

P&ID, HEATED WASH WATER SYSTEM

DRAWING NUMBER: 503188-AP-12 | REVISION: E

REF.: - | DOC. OWNER: -

PROJECT NO.: 503188 | PART/MATERIAL NO.: | SCALE: NONE | SIZE: D | SHEET: 1 OF 1

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INSTRUMENTATION

P&ID - SHEET 17
HEATED WASH WATER SYSTEM

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PROJECT NO. 9520I.10 FILE NAME: 9520I10_00-N01.dwg

EXISTING SCADA

NEW HMI

NEW PLC-9

HYDROCHLORIC ACID TANK LEVEL 23-LI 801

AUTO/MANUAL 23-YK 8X0B

START/STOP 23-YK 8X0A | RUNNING 23-YI 8X0 | FAIL 23-YA 8X0 | IN REMOTE 23-YI 8X0A | SPEED COMMAND 23-SC 8X0 | SPEED INDICATION 23-SI 8X0

HYDROCHLORIC ACID FLOW TO CIP SYSTEM 2 23-FI 805

HYDROCHLORIC ACID FLOW TO CIP SYSTEM 1 23-FI 804

HYDROCHLORIC ACID RUN REQUEST FROM PLC-8 23-KH 800

HYDROCHLORIC ACID FLOW SETPOINT FROM PLC-8 23-FC 800

HYDROCHLORIC ACID METERING PUMP NO.X (X=1, 2,3 FROM 23-LCP-800A AND X=4,5 FROM 23-LCP-800B)

23-LI 801 — SIGNALS FROM 23-LCP-800B IS SIMILAR TO SIGNALS FROM 23-LCP-800A PANEL FOR EACH PUMP

23-YK 8X0 | 23-YI 8X0 | 23-YA 8X0 | 23-YI 8X0A | 23-SC 8X0 | 23-SI 8X0

GENERAL NOTES:

1. HYDROCHLORIC ACID AND FEED SYSTEM LOCATED IN A DEDICATED ROOM IN NEW CHEMICAL BUILDING.

HYDROCHLORIC ACID METERING PUMP CONTROL PANEL NO.1 (23-LCP-800A) ++

L-O-R 23-HK 8X0 | SPEED CONTROL 23-SC 8X0 | SPEED 23-SI 8X0 | FAIL 23-QAL 8X0

STOP 23-HK 8X0A | START 23-HK 8X0B | RESET 23-HK 8X0C | RUNNING 23-QIL 8X0

X=1,2,3

480V, 3Ø (TYPICAL)

HYDROCHLORIC ACID METERING PUMP CONTROL PANEL NO.2 (23-LCP-800B) ++

L-O-R 23-HK 8X0 | SPEED 23-SC 8X0 | SPEED 23-SI 8X0 | FAIL 23-QAL 8X0

STOP 23-HK 8X0A | START 23-HK 8X0B | RESET 23-HK 8X0C | RUNNING 23-QIL 8X0

X=4,5

FROM METERING PUMPS NO.1, NO.2, AND NO.3

FROM METERING PUMPS NO.4 AND NO.5

VENT

INSECT SCREEN

HYDROCHLORIC ACID FILL PANEL (23-LCP-801) — 120V

23-LI 801 | 23-LAH 801 | 23-HK 801

23-LIT 801 — 120V

23-LE 801

FILL VALVE MOV

OVERFLOW

HYDROCHLORIC ACID STORAGE TANK (23-TK-801)

CONTAINMENT AREA

23-PI 802

23-PI 803

METERING PUMP PACKAGED SYSTEM ++

HYDROCHLORIC ACID METERING PUMP NO.1 (23-PUMP-810)

23-PI 811 | 23-PI 812

HYDROCHLORIC ACID METERING PUMP NO.2 (23-PUMP-820)

23-PI 821 | 23-PI 822

HYDROCHLORIC ACID METERING PUMP NO.3 (23-PUMP-830)

23-PI 831 | 23-PI 832

23-FIT 804 | 23-FE 804

23-FIT 805 | 23-FE 805

TO CIP SYSTEM 1 — SEE DWG 00N13

TO CIP SYSTEM 2 — SEE DWG 00N14

METERING PUMP PACKAGED SYSTEM ++

HYDROCHLORIC ACID METERING PUMP NO.4 (23-PUMP-840)

23-PI 841 | 23-PI 842

HYDROCHLORIC ACID METERING PUMP NO.5 (23-PUMP-850)

23-PI 851 | 23-PI 852

TO NEUTRALIZATION TANK #1 — SEE DWG 00N15

TO NEUTRALIZATION TANK #2 — SEE DWG 00N15

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MANATEE COUNTY

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INSTRUMENTATION

P&ID - SHEET 18
HYDROCHLORIC ACID STORAGE AND FEED

VERIFY SCALES
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EXISTING SCADA
NEW HMI
NEW PLC-9

CITRIC ACID TANK LEVEL 23-LI 301
CITRIC ACID RUN REQUEST FROM PLC-8 23-KH 300
CITRIC ACID FLOW SETPOINT FROM PLC-8 23-FC 300

CITRIC ACID METERING PUMP NO.1
AUTO/MANUAL 23-YK 310B
START/STOP 23-YK 310A
RUNNING 23-YI 310
FAIL 23-YA 310
IN AUTO 23-YI 310A
SPEED COMMAND 23-SC 310A
SPEED INDICATION 23-SI 310A

CITRIC ACID METERING PUMP NO.2
AUTO/MANUAL 23-YK 320B
START/STOP 23-YK 320A
RUNNING 23-YI 320
FAIL 23-YA 320
IN AUTO 23-YI 320A
SPEED COMMAND 23-SC 320A
SPEED INDICATION 23-SI 320A

CITRIC ACID METERING PUMP NO.3
AUTO/MANUAL 23-YK 330B
START/STOP 23-YK 330A
RUNNING 23-YI 330
FAIL 23-YA 330
IN AUTO 23-YI 330A
SPEED COMMAND 23-SC 330A
SPEED INDICATION 23-SI 330A

CITRIC ACID FLOW TO CIP SYSTEM 1 23-FI 304
CITRIC ACID FLOW TO CIP SYSTEM 2 23-FI 305

CITRIC ACID METERING PUMP CONTROL PANEL (23-LCP-300) ++
480V, 3Ø
L-O-R 23-YK 310 / 320 / 330
SPEED CONTROL 23-SC 310 / 320 / 330
SPEED 23-SI 310 / 320 / 330
FAIL 23-QAL 310 / 320 / 330
STOP 23-YK 310A / 320A / 330A
START 23-YK 310B / 320B / 330B
RESET 23-YK 310C / 320C / 330C
RUNNING 23-QIL 310 / 320 / 330

23-FIT 304

23-PI 311 ++
23-PI 312 ++
23-FE 304
M
CITRIC ACID METERING PUMP NO.1 (23-PUMP-310) ++
TO CIP SYSTEM 1
SEE DWG 00N13

23-PI 302
23-PI 303
23-PI 321 ++
23-PI 322 ++
CITRIC ACID METERING PUMP NO.2 (23-PUMP-320) ++

23-PI 331 ++
23-PI 332 ++
CITRIC ACID METERING PUMP NO.3 (23-PUMP-330) ++
23-FE 305
23-FIT 305
TO CIP SYSTEM 2
SEE DWG 00N14

METERING PUMP ++ PACKAGED SYSTEM

CITRIC ACID FILL PANEL (23-LCP-301)
120V
23-LI 301
23-LAHH 301
23-HS 301
VENT
INSECT SCREEN
23-LIT 301
23-LE 301
FILL VALVE MOV
OVERFLOW
CITRIC ACID (CA) STORAGE TANK (23-TK-301)
CONTAINMENT AREA

REV	DATE	BY	DESCRIPTION

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P&ID - SHEET 19
CITRIC ACID STORAGE AND FEED

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JOB NO. 09520I.10
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EXISTING SCADA
NEW HMI
NEW PLC-9

CITRIC ACID TANK LEVEL 23-LI 19301

HYDROCHLORIC ACID METERING PUMP NO.X (X=1, 2 FROM 23-LCP-600A)
HYDROCHLORIC ACID METERING PUMP NO.X (X=3, 4, 5 FROM 23-LCP-600B)
AUTO/MANUAL 23-YK 6X0B
START/STOP 23-YK 6X0A
RUNNING 23-YI 6X0
FAIL 23-YA 6X0
IN REMOTE 23-YI 6X0A
SPEED COMMAND 23-SC 6X0
SPEED INDICATION 23-SI 6X0

CAUSTIC SODA FLOW TO CIP SYSTEM 2 23-FI 607
CAUSTIC SODA FLOW TO CIP SYSTEM 1 23-FI 606
CAUSTIC SODA RUN REQUEST FROM PLC-8 23-KH 600
CAUSTIC SODA FLOW SETPOINT FROM PLC-8 23-FC 600

CAUSTIC SODA METERING PUMP ++ CONTROL PANEL NO.1 (23-LCP-600A)
CAUSTIC SODA METERING PUMP ++ CONTROL PANEL NO.2 (23-LCP-600B)
L-O-R 23-YK 6X0
SPEED CONTROL 23-SC 6X0
SPEED 23-SI 6X0
FAIL 23-QAL 6X0
STOP 23-YK 6X0A
START 23-YK 6X0B
RESET 23-YK 6X0C
RUNNING 23-QIL 6X0
X = 1,2
X = 3,4,5
480V, 3Ø

FROM METERING PUMP NO.1 AND NO.2
FROM METERING PUMP NO.3, NO.4 AND NO.5

CAUSTIC SODA METERING PUMP NO.1 (23-PUMP-610)
CAUSTIC SODA METERING PUMP NO.2 (23-PUMP-620)
CAUSTIC SODA METERING PUMP NO.3 (23-PUMP-630)
CAUSTIC SODA METERING PUMP NO.4 (23-PUMP-640)
CAUSTIC SODA METERING PUMP NO.5 (23-PUMP-650)
23-PI 611, 612, 621, 622, 631, 632, 641, 642, 651, 652
METERING PUMP ++ PACKAGED SYSTEM

23-PI 602, 603

VENT TO OUTSIDE
INSECT SCREEN
CAUSTIC SODA FILL PANEL (23-LCP-601)
23-LI 601, 23-LAHH 601, 23-HS 601
120V
23-LIT 601
23-LE 601
FILL LINE
FILL VALVE MOV
OVERFLOW
CAUSTIC SODA TANK (23-TK-601)
CONTAINMENT AREA

23-FIT 606
23-FIT 607
23-FE 606
23-FE 607

NEUTRALIZATION TANK 1
SEE DWG 00N15
NEUTRALIZATION TANK 2
SEE DWG 00N15
CIP SYSTEM 1
SEE DWG 00N13
CIP SYSTEM 2
SEE DWG 00N14
SEE DWG 00N23
POST MIX BASINS METERING PUMPS 1

KEY NOTES:
1. TO FIVE NEW CHEMICAL METERING PUMPS FOR POST MIX BASIN PH ADJUSTMENT (NOT SHOWN).

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P&ID - SHEET 20
CAUSTIC SODA STORAGE AND FEED SHEET 1

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EXISTING SCADA ◆
NEW HMI ◆
NEW PLC-9 ◆

AUTO/MANUAL 18-YK 1X0B
START/STOP 18-YK 1X0A | RUNNING 18-YI 1X0 | FAIL 18-YA 1X0 | IN REMOTE 18-YI 1X0A | SPEED COMMAND 18-SC 1X0 | SPEED INDICATION 18-SI 1X0

HYDROCHLORIC ACID METERING PUMP NO.X (X=1, 2, 3 FROM 18-LCP-100C)
HYDROCHLORIC ACID METERING PUMP NO.X (X=4, 5 FROM 18-LCP-100D)

CAUSTIC SODA METERING PUMP ++ CONTROL PANEL NO.3 (18-LCP-100C)
CAUSTIC SODA METERING PUMP ++ CONTROL PANEL NO.4 (18-LCP-100D)
L-O-R 18-YK 1X0 | SPEED CONTROL 18-SC 1X0 | SPEED 18-SI 1X0 | FAIL 18-QAL 1X0
STOP 18-YK 1X0A | START 18-YK 1X0B | RESET 18-YK 1X0C | RUNNING 18-QIL 1X0
X = 1,2,3
X = 4,5
480V, 3Ø
FROM METERING PUMP NO.6, NO.7, AND NO.8
FROM METERING PUMP NO.9 AND NO.10

18-PCV-101 (TYPICAL FOR 18-PCV-102 THRU 18-PCV-104)
VALVE IN REMOTE 18-YI 101 | VALVE OPEN COMMAND 18-YKO 101 | VALVE CLOSE COMMAND 18-YKC 101 | VALVE OPEN 18-ZIO 101 | VALVE CLOSED 18-ZIC 101

TO VENT
FROM CAUSTIC SODA TANK
SEE DWG 00N03

CAUSTIC SODA++ METERING PUMP NO.6 (18-PUMP-110)
CAUSTIC SODA++ METERING PUMP NO.7 (18-PUMP-120)
CAUSTIC SODA++ METERING PUMP NO.8 (18-PUMP-130)
CAUSTIC SODA++ METERING PUMP NO.9 (18-PUMP-140)
CAUSTIC SODA++ METERING PUMP NO.10 (18-PUMP-150)
METERING PUMP ++ PACKAGED SYSTEM

18-PI 111 ++ | 18-PI 112 ++
18-PI 121 ++ | 18-PI 122 ++
18-PI 131 ++ | 18-PI 132 ++
18-PI 141 ++ | 18-PI 142 ++
18-PI 151 ++ | 18-PI 152 ++

18-HS 101A LOR | 18-HS 101B O/C | 18-ZIO 101 P 120V | 18-ZIC 101 | 18-PCV-101 ++
TO POST MIX A1
SEE DWG 00N03

SEE SIGNALS FOR 18-PCV-101 (TYPICAL)
18-HS 102A LOR | 18-HS 102B O/C | 18-ZIO 102 P 120V | 18-ZIC 102 | 18-PCV-102 ++
TO POST MIX A2
SEE DWG 00N03

SEE SIGNALS FOR 18-PCV-101 (TYPICAL)
18-HS 103A LOR | 18-HS 103B O/C | 18-ZIO 103 P 120V | 18-ZIC 103 | 18-PCV-103 ++
TO POST MIX B 1ST SIDE
SEE DWG 00N04

SEE SIGNALS FOR 18-PCV-101 (TYPICAL)
18-HS 104A LOR | 18-HS 104B O/C | 18-ZIO 104 P 120V | 18-ZIC 104 | 18-PCV-104 ++
TO POST MIX B 2ND SIDE
SEE DWG 00N04

CONTRACTOR SHALL USE THE STANDBY PUMP TO POST MIX B (SECOND LINE)

CAUSTIC SODA DOSING IMPROVEMENTS SCOPE:

1. ADJUST THE CAUSTIC PUMP INJECTION LOGIC TO HAVE FLOW PACE AND ASSOCIATED PH TRIM FUNCTION. COORDINATE WITH OWNER FOR THE EXISTING FLOWMETER SIGNAL (SCADA TAG) FOR INFLOW TO THE POST MIX BASIN B. IF THE FLOWMETER IS THE COMBINED FLOW TO THE POST MIX B, USE HALF OF THAT FLOW VALUE TO FLOW PACE EACH SIDE OF THE POST MIX B CAUSTIC SODA DOSING.
2. PROVIDE TRIM FUNCTION ENABLE/DISABLE BUTTON ON THE SCADA SCREENS.
3. FIELD IDENTIFY SPARE I/O POINT TO CONNECT NEW PH ANALYZER AND NEW PNEUMATIC VALVE (18-PCV-104) AT ASSOCIATED PLC/RIO PANEL SHOWN ON INSTRUMENTATION DRAWINGS.

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P&ID - SHEET 21
CAUSTIC SODA STORAGE AND FEED SHEET 2

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EXISTING SCADA

NEW HMI

NEW PLC-9

SODIUM BISULFITE TANK LEVEL 23-LI 701

AUTO/MANUAL 23-YK 710B

START/STOP 23-YK 710A | RUNNING 23-YI 710 | FAIL 23-YA 710 | IN AUTO 23-YI 710A | SPEED COMMAND 23-SC 710 | SPEED INDICATION 23-SI 710

AUTO/MANUAL 23-YK 720B

START/STOP 23-YK 720A | RUNNING 23-YI 720 | FAIL 23-YA 720 | IN AUTO 23-YI 720A | SPEED COMMAND 23-SC 720 | SPEED INDICATION 23-SI 720

SODIUM BISULFITE METERING PUMP NO.1

23-YK 710 | 23-YI 710 | 23-YA 710 | 23-YI 710A | 23-SC 710 | 23-SI 710

SODIUM BISULFITE METERING PUMP NO.2

23-YK 720 | 23-YI 720 | 23-YA 720 | 23-YI 720A | 23-SC 720 | 23-SI 720

SODIUM BISULFITE METERING PUMP ++ CONTROL PANEL (23-LCP-700)

L-O-R 23-YK 710 | SPEED CONTROL 23-SC 710 | SPEED 23-SI 710 | FAIL 23-QAL 710

STOP 23-YK 710A | START 23-YK 710B | RESET 23-YK 710C | RUNNING 23-QIL 710

L-O-R 23-YK 720 | SPEED CONTROL 23-SC 720 | SPEED 23-SI 720 | FAIL 23-QAL 720

STOP 23-YK 720A | START 23-YK 720B | RESET 23-YK 720C | RUNNING 23-QIL 720

480V, 3Ø

VENT TO OUTSIDE

INSECT SCREEN

SODIUM BISULFITE FILL PANEL (23-LCP-701) 120V

23-LI 701 | 23-LAH 701 | 23-YK 701

23-LIT 701 120V

23-LE 701

23-PI 702

23-PI 703

23-PI 711 ++

23-PI 712 ++

M

FILL LINE

FILL VALVE MOV

OVERFLOW

SODIUM BISULFITE TANK (23-TK-700)

SODIUM BISULFITE TRANSFER PUMP NO.1 (23-PUMP-710) ++

SODIUM BISULFITE TRANSFER PUMP NO.2 (23-PUMP-720) ++

23-PI 721 ++

23-PI 722 ++

METERING PUMP PACKAGED SYSTEM ++

CONTAINMENT AREA

NEUTRALIZATION TANK #1
SEE DWG 00N15

NEUTRALIZATION TANK #2
SEE DWG 00N15

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INSTRUMENTATION

P&ID - SHEET 22
SODIUM BISULFITE STORAGE AND FEED

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EXISTING SCADA
NEW HMI
NEW PLC-9
EXISTING FILTER-A RTU-50 RIO PANEL

EXISTING SODIUM HYPO. BULK TANK NO.1 LEVEL 23-LI 281A
EXISTING SODIUM HYPO. BULK TANK NO.2 LEVEL 23-LI 281B

SODIUM HYPO. TANK LEVEL 23-LI 201
MANUAL OVERRIDE "ON" 23-YK 270A
SODIUM HYPO. RUN REQUEST FROM PLC-8 23-KH 200
SODIUM HYPO. FLOW SETPOINT FROM PLC-8 23-FC 200
SODIUM HYPOCHLORITE METERING PUMP NO.1
AUTO/MANUAL 23-YK 210B
START/STOP 23-YK 210A
RUNNING 23-YI 210
FAIL 23-YA 210
IN AUTO 23-YI 210A
SPEED COMMAND 23-SC 210
SPEED INDICATION 23-SI 210
SODIUM HYPOCHLORITE METERING PUMP NO.2
AUTO/MANUAL 23-YK 220B
START/STOP 23-YK 220A
RUNNING 23-YI 220
FAIL 23-YA 220
IN AUTO 23-YI 220A
SPEED COMMAND 23-SC 220
SPEED INDICATION 23-SI 220
SODIUM HYPOCHLORITE METERING PUMP NO.3
AUTO/MANUAL 23-YK 230B
START/STOP 23-YK 230A
RUNNING 23-YI 230
FAIL 23-YA 230
IN AUTO 23-YI 230A
SPEED COMMAND 23-SC 230
SPEED INDICATION 23-SI 230
SODIUM HYPO. FLOW TO CIP SYSTEM 1 23-FI 204
SODIUM HYPO. FLOW TO CIP SYSTEM 2 23-FI 205

AUTO/MANUAL 23-YK 270B
START/STOP 23-YK 270A
RUNNING 23-YI 270
FAIL 23-YA 270
IN AUTO 23-YI 270A

EXISTING SIGNALS
23-STARTER-270
H-O-A 23-YK 270
RUNNING 23-YIL 270
FAIL 23-YAL 270
RESET 23-YK 270A
480V, 3Ø

SODIUM HYPOCHLORITE METERING PUMP ++ CONTROL PANEL (23-LCP-200)
L-O-R 23-YK 210
SPEED CONTROL 23-SC 210
SPEED 23-SI 210
FAIL 23-QAL 210
STOP 23-YK 210A
START 23-YK 210B
RESET 23-YK 210C
RUNNING 23-QIL 210
L-O-R 23-YK 220
SPEED CONTROL 23-SC 220
SPEED 23-SI 220
FAIL 23-QAL 220
STOP 23-YK 220A
START 23-YK 220B
RESET 23-YK 220C
RUNNING 23-QIL 220
L-O-R 23-YK 230
SPEED CONTROL 23-SC 230
SPEED 23-SI 230
FAIL 23-QAL 230
STOP 23-YK 230A
START 23-YK 230B
RESET 23-YK 230C
RUNNING 23-QIL 230
480V, 3Ø

EXISTING SODIUM HYPOCHLORITE STORAGE TANKS LEVEL PANEL
23-LIT 281A
23-LIT 281A
FROM SODIUM HYPOCHLORITE STORAGE TANKS (EXISTING)
23-PI 282
SODIUM HYPOCHLORITE BULK TRANSFER PUMP NO.1 (23-PMP-250)

EXISTING SODIUM HYPOCHLORITE STORAGE ROOM.
SUPPLY SHELF SPARE FOR SODIUM HYPOCHLORITE BULK TRANSFER PUMP.

23-PI 202
23-PI 203
120V
23-LIT 201
23-YK 270 ON (2)
23-LE 201
VENT
OVERFLOW
SODIUM HYPOCHLORITE DAY TANK (23-TK-200)
CONTAINMENT AREA

SODIUM++ HYPOCHLORITE TRANSFER PUMP NO.1 (23-PUMP-210)
SODIUM++ HYPOCHLORITE TRANSFER PUMP NO.2 (23-PUMP-220)
SODIUM ++ HYPOCHLORITE TRANSFER PUMP NO.3 (23-PUMP-230)
23-PI 211 ++
23-PI 212 ++
23-PI 221 ++
23-PI 222 ++
23-PI 231 ++
23-PI 232 ++
METERING PUMP PACKAGED SYSTEM ++

23-FIT 204
23-FE 204
23-FIT 205
23-FE 205
TO CIP SYSTEM NO.1 SEE DWG 00N13
TO PERMEATE STORAGE TANK SEE DWG 00N12
TO CIP SYSTEM NO. 2 SEE DWG 00N14

KEY NOTES:

1. FIELD VERIFY THE EXISTING LEVEL SIGNALS FOR SODIUM HYPOCHLORITE TANK AND ADJUST THE TAG NAME ACCORDINGLY. CREATE A PLC LOGIC FOR LOW-LOW ALARM WITH ADJUSTABLE SETPOINT. IF LOW-LOW ALARM IS ACTIVE FOR 5 SECONDS (ADJUSTABLE), PLC LOGIC SHALL STOP THE SODIUM HYPOCHLORITE BULK TRANSFER PUMP NO.1.
2. CONTRACTOR SHALL PROVIDE A NEMA 4X FRP ENCLOSURE PUSH BUTTON "ON" SWITCH. PROVIDE LABEL ON ENCLOSURE STATING "OVERRIDE ONLY OPERATIONAL IN AUTO SELECTION AT STARTER".

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P&ID - SHEET 23
SODIUM HYPOCHLORITE STORAGE AND FEED

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EXISTING SCADA

NEW HMI

NEW PLC-9

WETWELL LEVEL HIGH ALARM 20-LAH 780

RUNNING 20-YI 780

FAIL 20-YA 780

WASTE SUMP WETWELL LEVEL HIGH-HIGH ALARM 23-LAH LS01C

WASTE PACKAGED SUMP PUMP 1

RUNNING 23-YI LSP1A

FAIL 23-YA LSP1B

HIGH DISCHARGE PRESSURE 23-YA LSP1C

WASTE PACKAGED SUMP PUMP 2

RUNNING 23-YI LSP2

FAIL 23-YA LSP2

HIGH DISCHARGE PRESSURE 23-YA LSP1C

WASTE SUMP PUMP STATION FLOW 23-FI LS01C

USE SPARE AI POINT FOR NEW FLOWMETER SIGNAL

480V, 3Ø

CHEMICAL BUILDING PACKAGED SUMP PUMP CONTROL PANEL (20-VCP-780) (BY SPECIFICATION 43 25 00.10) ++

PUMP RUNNING 20-YIL 780

PUMP FAIL 20-YAL 780

480V, 3Ø

CHEMICAL BUILDING WASTE PACKAGED SUMP PUMP CONTROL PANEL (23-LSCP-1) (BY SPECIFICATION 33 32 18) ++

PUMP 1 RUNNING 23-YIL LSP1A

PUMP 1 FAIL 23-YAL LSP1B

PUMP 1 HIGH DISCHARGE PRESSURE 23-YAL LSP1C

PUMP 2 RUNNING 23-YIL LSP2A

PUMP 2 FAIL 23-YAL LSP2B

PUMP 2 HIGH DISCHARGE PRESSURE 23-YAL LSP2C

KEYED NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW INSERTION TYPE MAGNETIC FLOWMETER AS PER BELOW SPECIFICATION. FLOW SENSOR CABLE BETWEEN THE INSERTION METER AND FLOW TRANSMITTER SHALL BE PROVIDED BY THE FLOWMETER SUPPLIER.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW NEMA 4X SS ENCLOSURE WITH SURGE SUPPRESSOR, PIPE STAND AND SUNSHIELD FOR FIELD FLOWMETER TRANSMITTER LOCATION.

DISCHARGE FROM OIL WATER SEPARATORS

DRAIN FROM NEUTRALIZATION AREA

BLOCK AND BLEED VALVE WASTE FLOW FROM FILTER BUILDING

GRAVITY DRAINAGE CHEMICAL BUILDING

ION EXCHANGE REGENERATION WASTE

++ 20-LS3 HI ELEV. X.X

++ 20-LS2 LEAD ELEV. X.X

++ 20-LS1 OFF ELEV. X.X

SUMP PUMP 20-P-780

CONFIRM FLOAT ELEVATIONS WITH MECHANICAL DRAWINGS.

23-LS3 HI-HI ELEV. 48.67

23-LS2 LEAD ELEV. 48.25

23-LS1 OFF ELEV. 46.05

CONFIRM FLOAT ELEVATIONS WITH MECHANICAL DRAWINGS.

23-PSH LSP01 PSH

23-PI LSP01 PI

23-PSH LSP02 PSH

23-PI LSP02 PI

USE SPARE BREAKER IN 23-LSCP-1 (BREAKER NO.4) TO POWER THE FLOWMETER

120V

1 2

FE/FIT LS03

0-250 GPM 4" DIAMETER

TO PLANT SANITARY SEWER

++ TS LSP01 ++ MS LSP01 SV

++ TS LSP01 ++ MS LSP01 SV

MAGNETIC FLOWMETER SPECIFICATION:

1. Flow Element
   a. Type:
      1) Pulsed DC electromagnetic induction type and shall provide a signal which is linear to the liquid flow rate.
   b. Functional/Performance:
      1) Accuracy _ Plus or minus 1 percent of rate (including converter/ transmitter).
      2) Temperature rating _ Suitable for process liquid temperature up to 70 degrees C and an ambient of 70 degrees C.
      3) RFI protection _ Provide RFI protection.
      4) Pressure rating _ 240 PSI if 150 lb flanges are used, 700 PSI if 300 lb flanges are used.
      5) Additional _ Meter shall be capable of running empty indefinitely without damage to any component.
   c. Physical:
      1) Metering Tube: Stainless steel unless otherwise indicated.
      2) Flanges: ANSI 150-lb, carbon steel unless otherwise indicated. Provide 316 stainless steel on all sludge applications. Flangeless wafer type may be used if compatible with adjacent piping.
      3) Liner _ PTFE.
      4) Electrodes _ 316 stainless steel, bullet nosed or elliptical self cleaning type unless otherwise noted.
      5) Housing - IP67 (NEMA 4X) designed for accidental submergence in 30-ft of water for 24 hours. Where hazardous areas are indicated on the contract drawings, the equipment shall be rated for that area.
      6) Painting _ All external surfaces shall be painted with a chemical and corrosion resistant epoxy finish.
   d. Accessories/Options Required:
      1) Factory calibration _ All meters shall be factory calibrated. A copy of the report shall be in the O&M manual.
      2) Grounding _ Meter shall be grounded per the manufacturers recommendation. Provide ground ring, ground wires, gaskets, etc, as required or as otherwise noted. All materials shall be suitable for liquid being measured.
   e. Installation:
      1) Require five pipe diameters upstream of the device and zero diameters downstream of the device.
   f. Manufacturers:
      1) Rosemount Magmeter 8750W with integral display.
2. Integral Flow Converter/Transmitter
   a. Functional/Performance:
      1) Power requirements _ 120V AC plus or minus 10 percent.
      2) Accuracy _ As defined for flow element.
      3) Temperature _ minus 25 degrees C to plus 60 degrees C
      4) Local display indicator and remote Isolated 4_20 mA output into 0 to 750 ohms and HART protocol.
      5) Housing - NEMA 4X.

REV	DATE	BY	DESCRIPTION
			RECORD DRAWING

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INSTRUMENTATION

CHEMICAL BUILDING PACKAGED SUMP PUMP STATIONS

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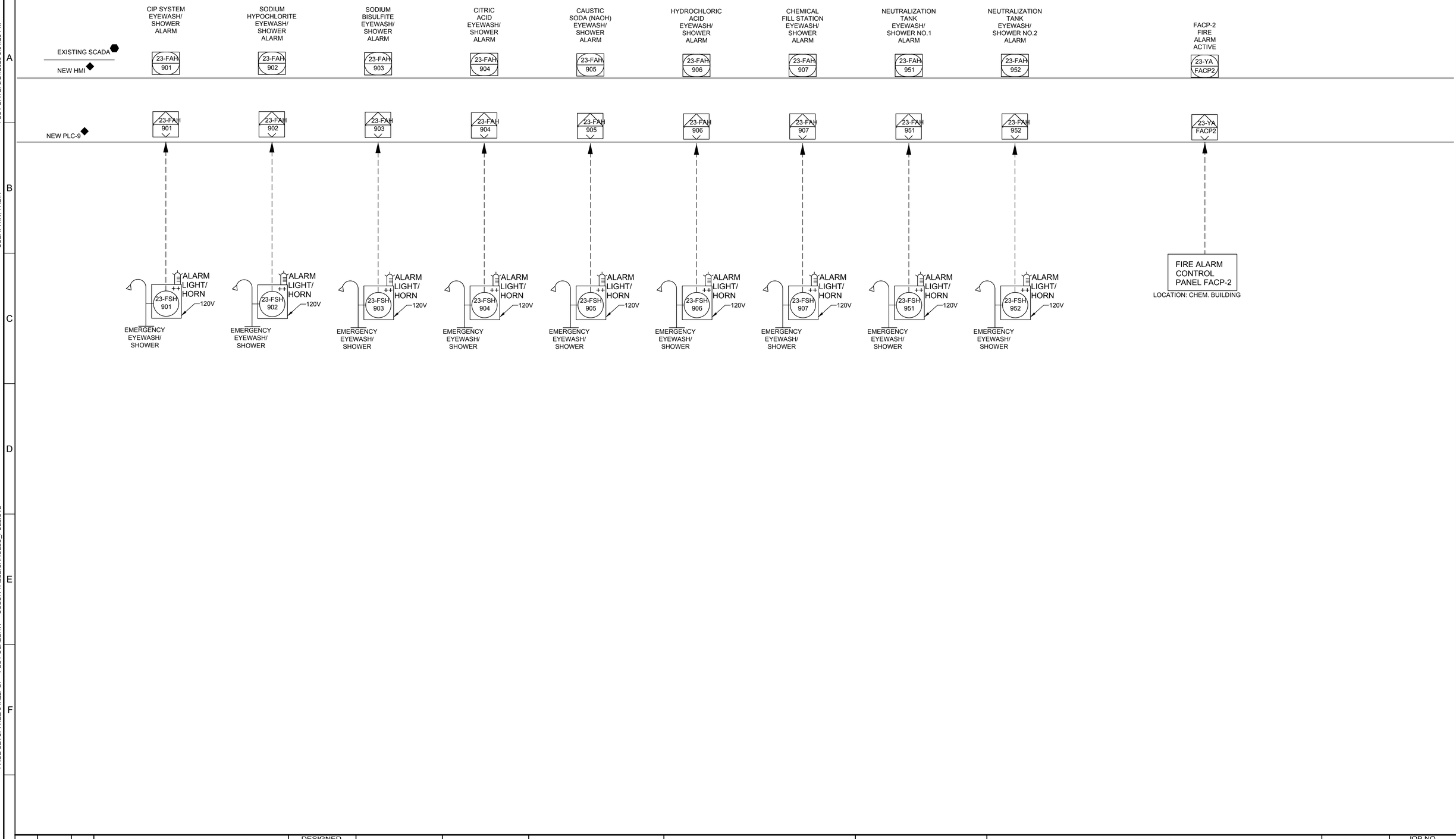
DRAWING NO. 00N26



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P&ID - EYEWASH AND MISCELLANEOUS

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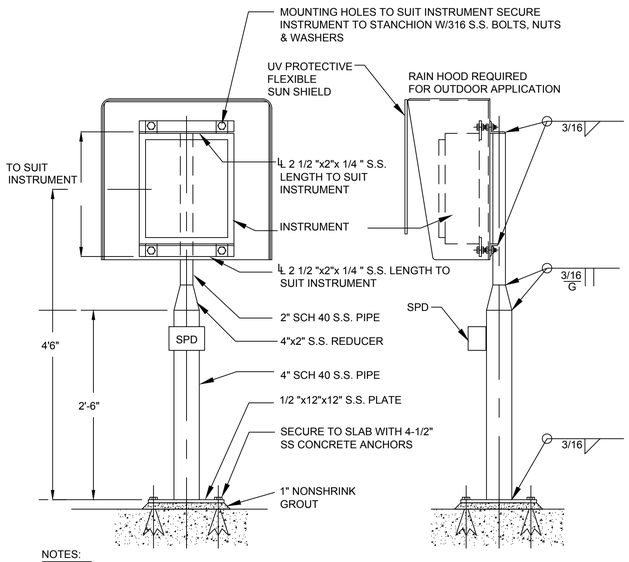
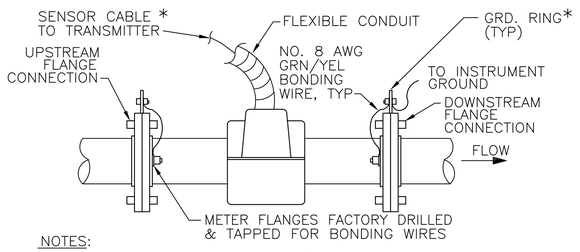


NOTES:
1. ROUND OFF ALL EXPOSED EDGES AND CORNERS. ALL S.S. SHALL BE 316 STAINLESS STEEL.
2. SEE SPECIFICATIONS FOR SPD INFORMATION

1 TYP STANCHION SUPPORT FOR CASE MOUNTED INSTRUMENTS

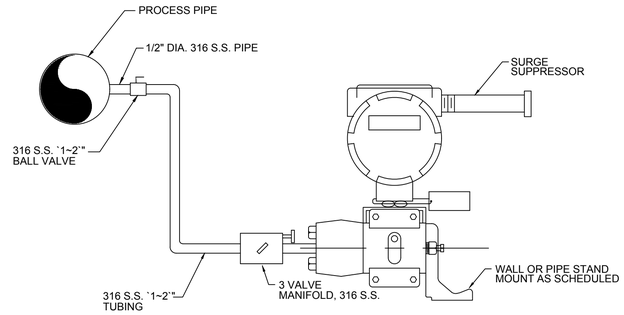
NOT TO SCALE



NOTES:
1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. IF PIPE IS NON-CONDUCTIVE BOND MAGMETER TO ONE OF THE FOLLOWING ACCEPTABLE GROUNDS:
   A) METALLIC WATER PIPE IF BURIED PORTION IS MORE THAN 10'.
   B) STRUCTURAL STEEL.

2 TYP MAGNETIC FLOWMETER INSTALLATION DETAIL

NOT TO SCALE



3 TYP TYPICAL PRESSURE TRANSMITTER DETAIL

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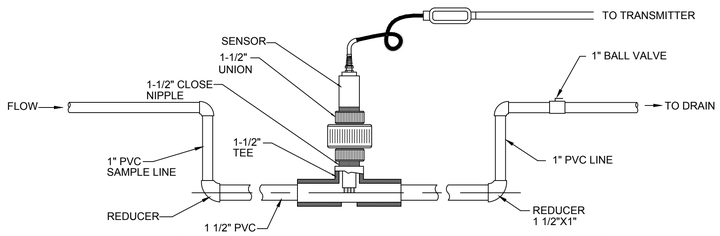
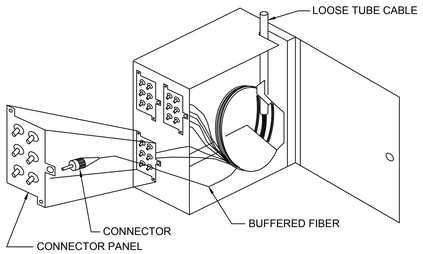


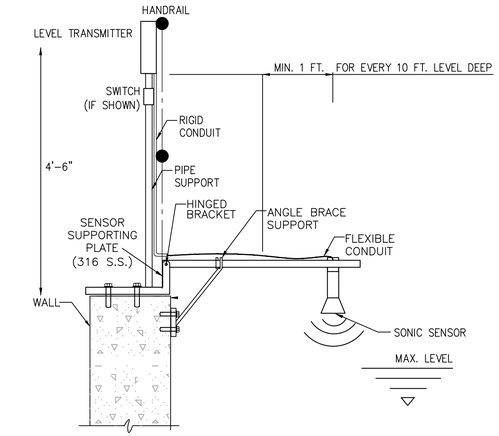
4 TYP TYPICAL pH/TEMPERATURE/ORP SENSOR INSTALLATION DETAIL

NOT TO SCALE



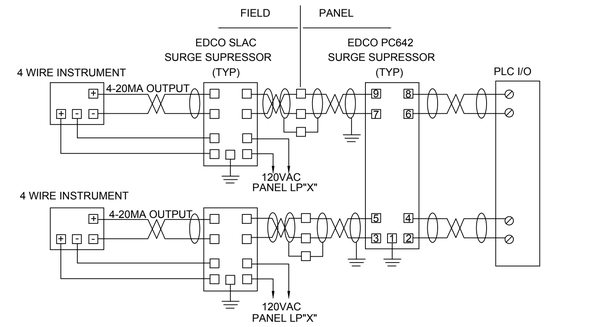
5 TYP FIBER OPTIC PATCH PANEL DETAILS

NOT TO SCALE



6 TYP SONIC LEVEL TRANSMITTER AT WALKWAY INSTALLATION DETAIL

NOT TO SCALE



7 TYP TYPICAL 4 WIRE INSTRUMENT ISOLATOR

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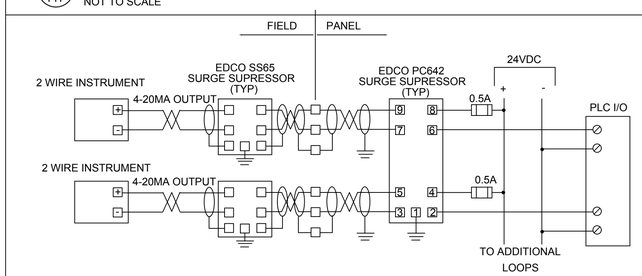

8 TYP TYPICAL 2 WIRE INSTRUMENT ISOLATOR

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DRAWING NO. 00N28

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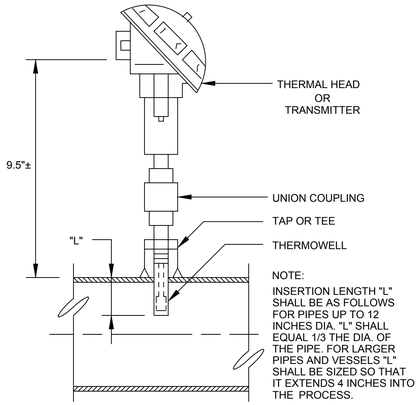

9 TYP **TYPICAL TEMPERATURE SENSOR DETAIL**
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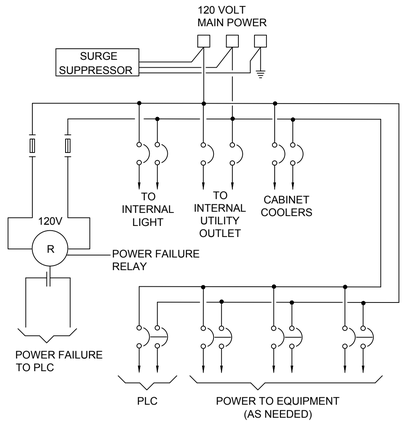

10 TYP **PLC ENCLOSURE POWER DISTRIBUTION**
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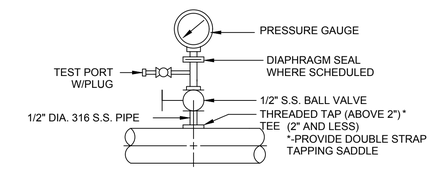

11 TYP **PRESSURE GAUGE, INSTRUMENT OR SWITCH**
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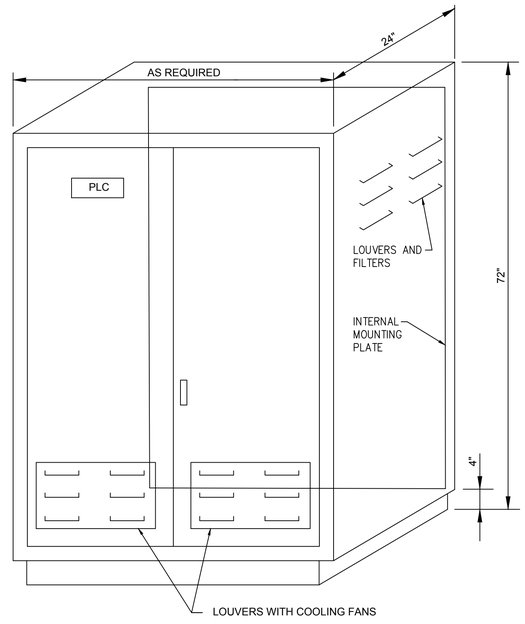

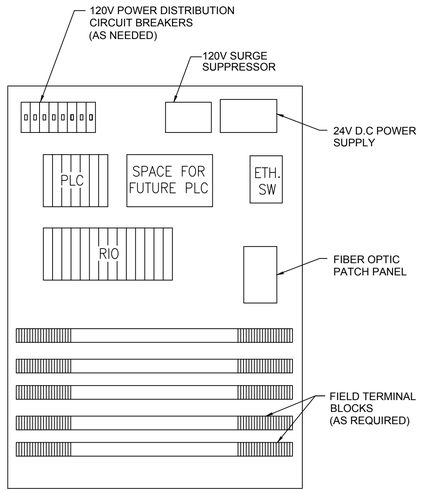

12 TYP **TYPICAL PLC PANEL DETAILS**
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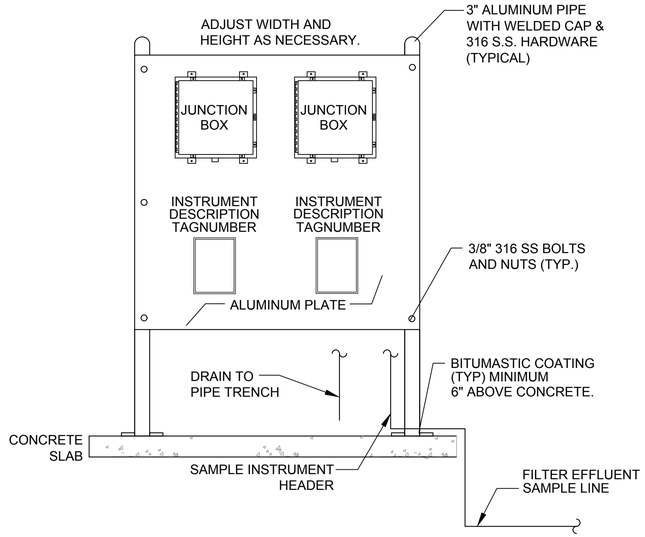
NOTE: NOT ALL COMPONENTS ARE SHOWN. SEE SPECIFICATION AND OTHER DRAWINGS AND PROVIDE ALL NECESSARY COMPONENTS.



13 TYP **TYPICAL FIELD ANALYZER PANEL DETAIL**
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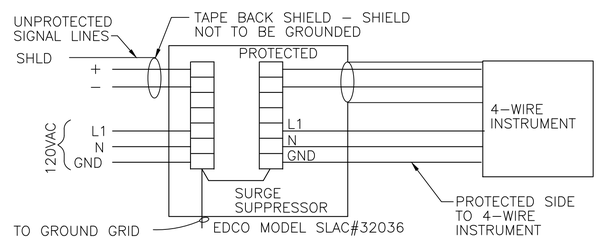
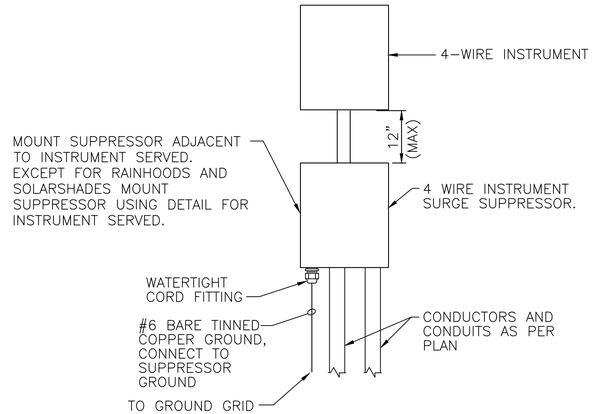


WIRING DIAGRAM



14 TYP **TYPICAL SURGE SUPPRESSOR INSTALLATION 4-WIRE INSTRUMENT**
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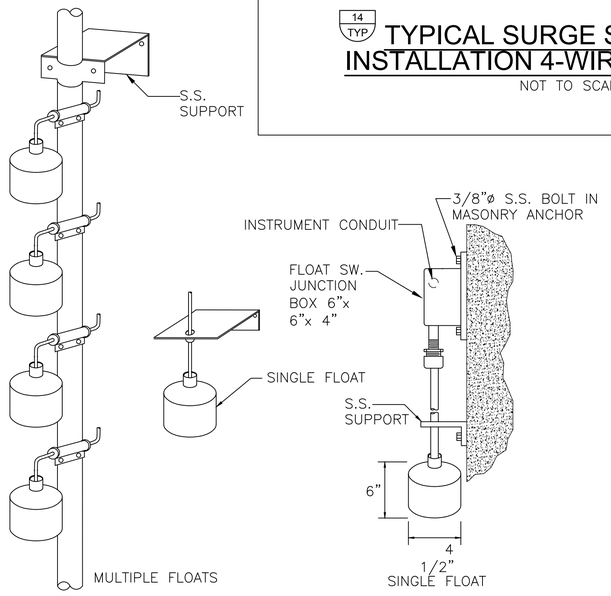

15 TYP **LEVEL FLOAT SWITCH DETAIL**
NOT TO SCALE

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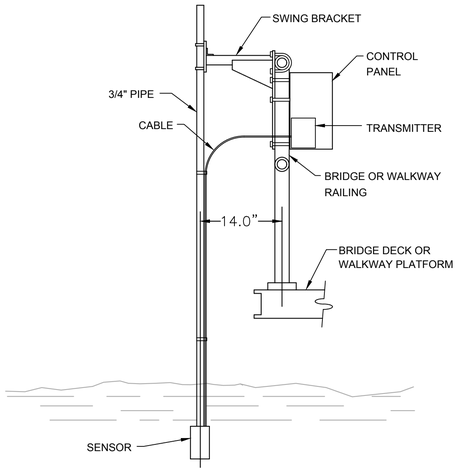
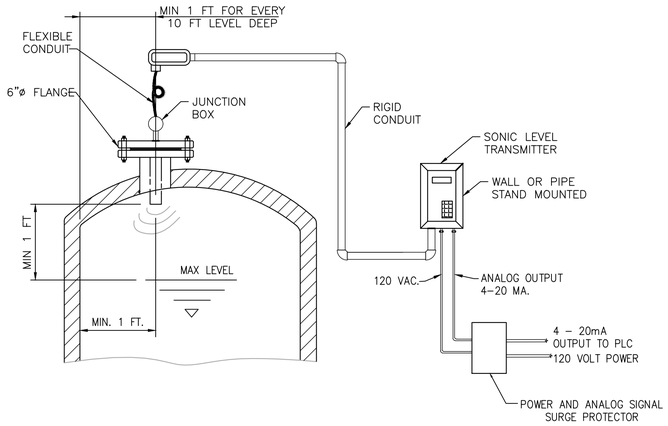


16 TYP

TYPICAL SENSOR MOUNTING DETAIL INTO THE WATER

NOT TO SCALE

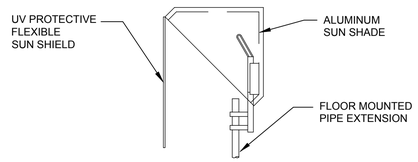


19 TYP

TANK SONIC LEVEL TRANSMITTER

NOT TO SCALE

NOTE: USE THIS DETAIL FOR NON–CONTACT RADAR LEVEL SENSOR INSTALLATION.

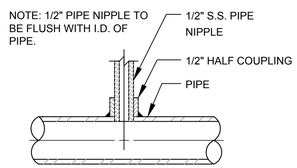


17 TYP

FIELD INSTRUMENT SUNSHIELD

NOT TO SCALE

NOTE:
SUN SHIELD MUST BE FURNISHED AND INSTALLED TO ALL THE FIELD INSTRUMENT MOUNTED OUTDOOR SEE SCHEDULE. ADAPT SUNSHIELD FOR WALL OR PIPE RACK MOUNTING.



18 TYP

TYPICAL PRESSURE TAP DETAIL

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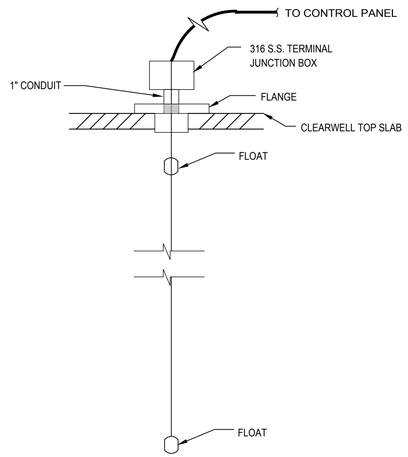

20 TYP

FLOATS INSTALLATION DETAIL

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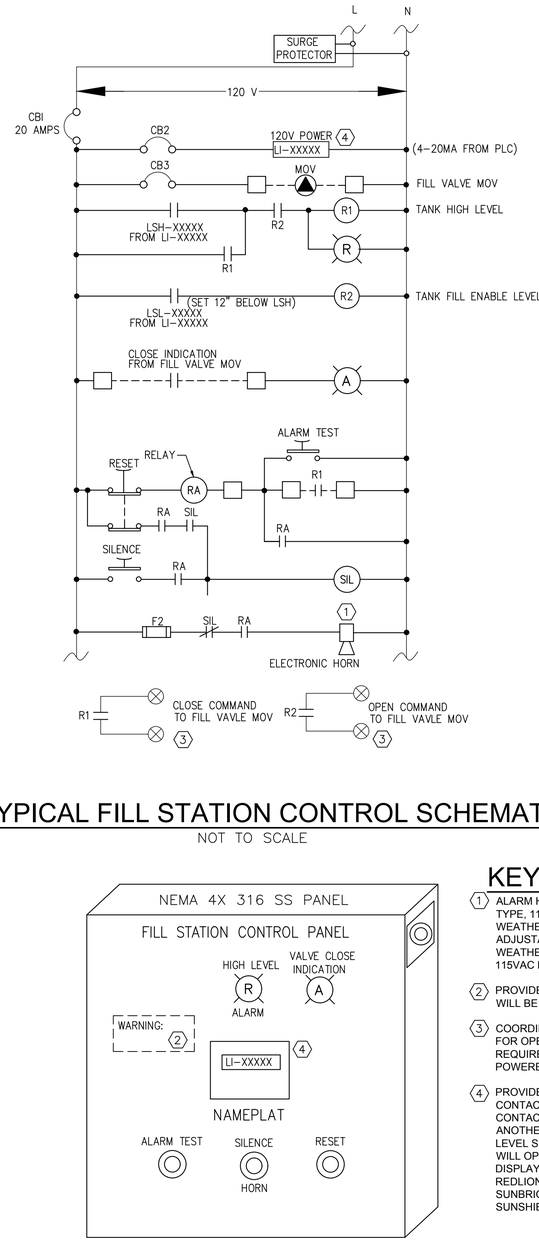

TYPICAL FILL STATION CONTROL SCHEMATIC

NOT TO SCALE

KEYED NOTES

1. ALARM HORNS SHALL BE GENERAL PURPOSE TYPE, 115VAC POWER SUPPLY, SUITABLE FOR WEATHERPROOF SERVICE, VOLUME SHALL BE ADJUSTABLE. ALARM LIGHTS SHALL BE WEATHERPROOF, ROTATING RED BEACON LIGHT, 115VAC POWER SUPPLY.
2. PROVIDE WARNING LABEL STATING "FILL LINE WILL BE CLOSED BY HIGH LEVEL ALARM".
3. COORDINATE WITH FILL VALVE MOV SUPPLIER FOR OPEN AND CLOSE COMMAND SIGNAL REQUIREMENTS (DRY CONTACT OR 120V POWERED CIRCUIT) AND PROVIDE ACCORDINGLY.
4. PROVIDE DIGITAL DISPLAY WITH 2 ALARM CONTACTS (FIELD ADJUSTABLE), ONE ALARM CONTACT IS FOR HIGH LEVEL SETPOINT AND ANOTHER IS FOR LOW LEVEL SETPOINT. HIGH LEVEL SHALL CLOSE THE VALVE AND LOW LEVEL WILL OPEN/ENABLE THE FILL VALVE. DIGITAL DISPLAY SHALL BE PRECISION DIGITAL OR REDLION OR APPROVED EQUAL. PROVIDE SUNBRIGHT DISPLAY MODEL. PROVIDE SUNSHIELD AROUND THE DISPLAY.

21 TYP

TYPICAL FILL STATION CONTROL PANEL

NOT TO SCALE

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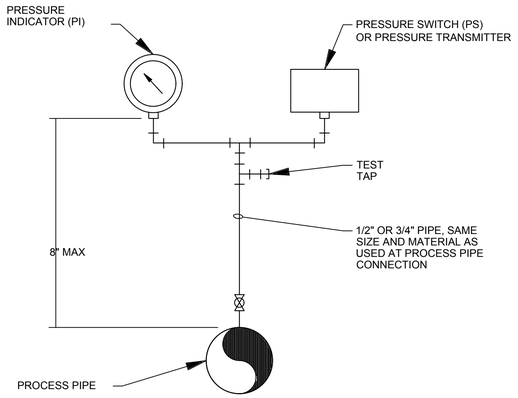


DIRECT MOUNTING

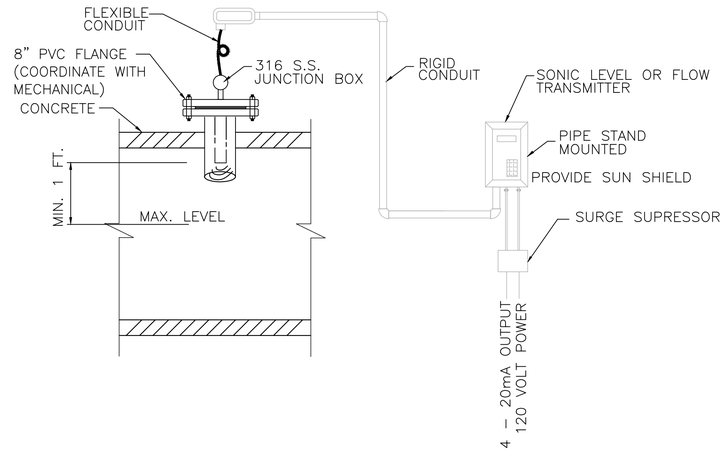
NOTES:

1. INDICATOR AND SWITCH INSTALLATION SHOWN. FOR SINGLE INSTRUMENT INSTALLATIONS, MOUNT DEVICE DIRECTLY ABOVE TEST TAP.
2. THIS IS A SCHEMATIC DETAIL ONLY AND PROVIDE SUPPORT AS NEEDED.

22 TYP

PRESSURE SWITCH AND GAUGE SCHEMATIC

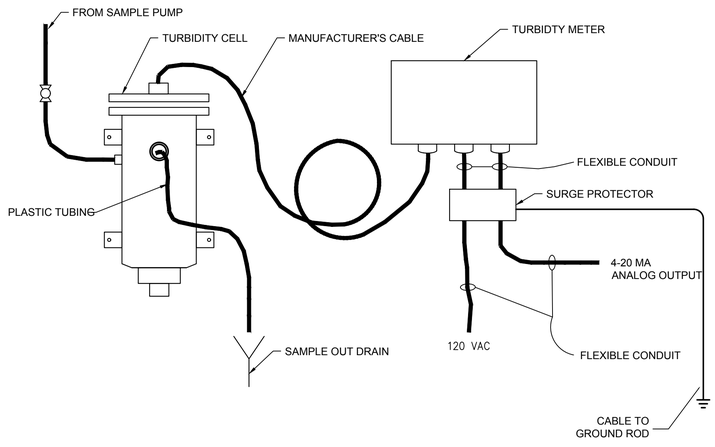
NOT TO SCALE



24 TYP

ULTRASONIC LEVEL TRANSMITTER INSTALLATION DETAIL

NOT TO SCALE



23 TYP

TYPICAL TURBIDITY METER INSTALLATION

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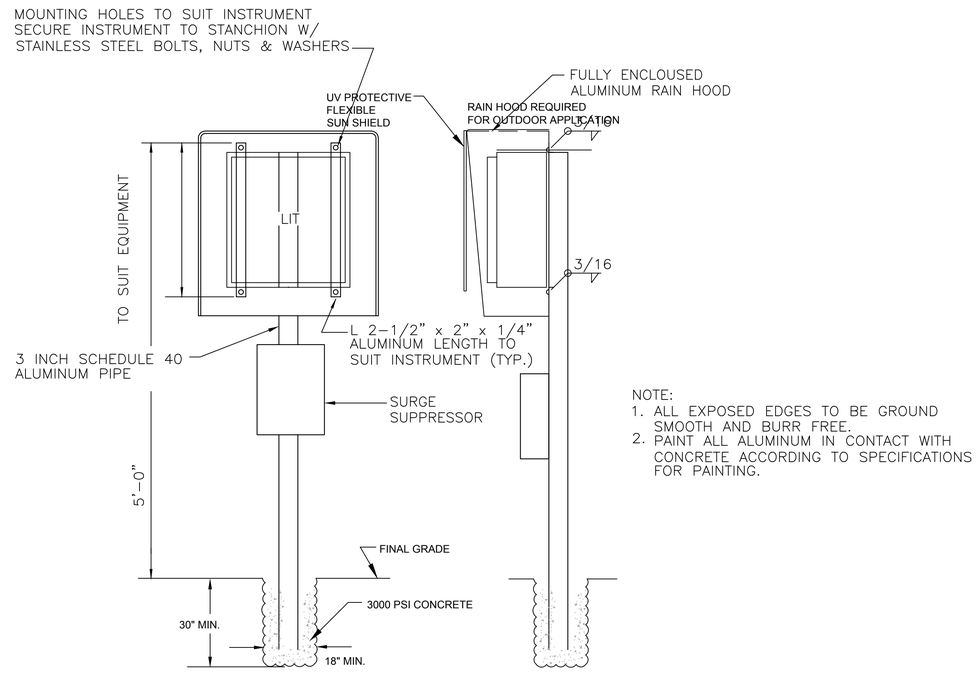

NOTE:
1. ALL EXPOSED EDGES TO BE GROUND SMOOTH AND BURR FREE.
2. PAINT ALL ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.

25 TYP

TRANSMITTER STAND IN EARTH INSTALLATION DETAIL

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CA 00008571

Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

INSTRUMENTATION DETAILS - SHEET 4

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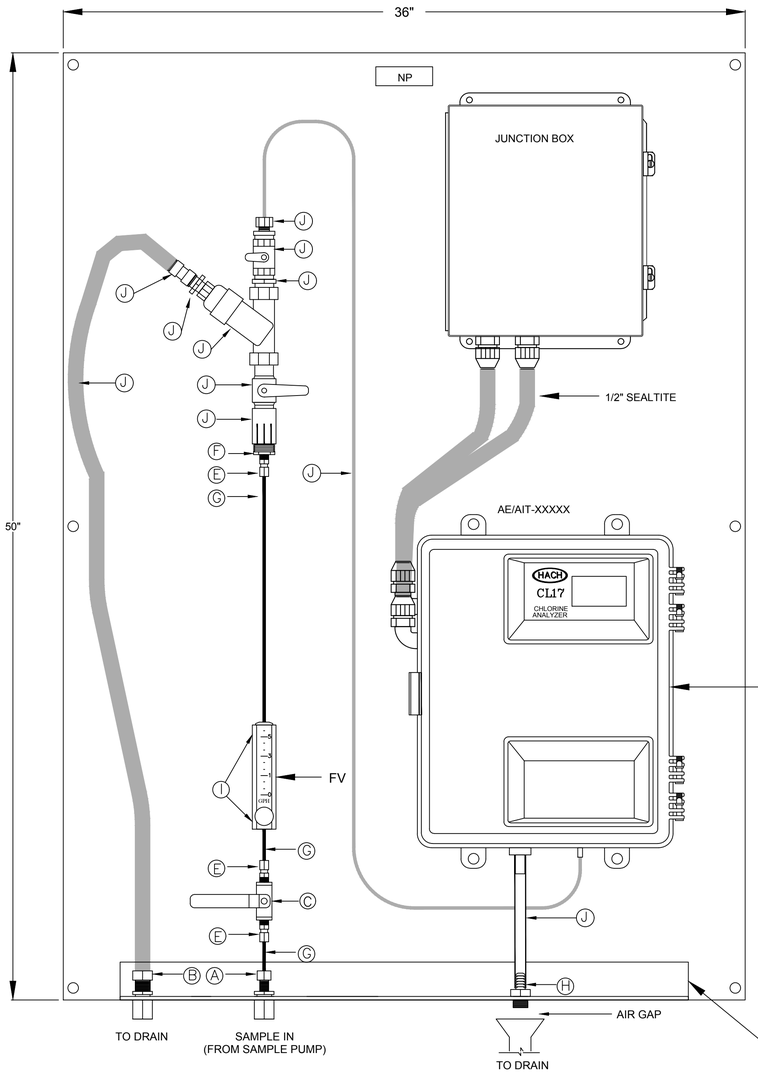
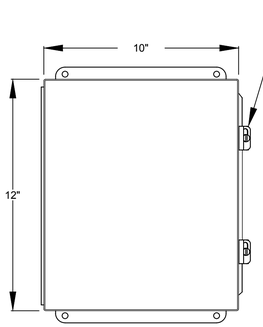
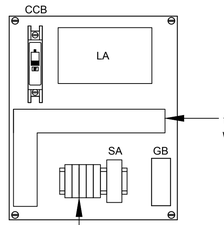


FIELD PANEL LAYOUT

NOTE!
1. ALL PIPING EXTERIOR TO FIELD PANEL BY MECHANICAL CONTRACTOR



FRONT VIEW



SUBPANEL LAYOUT

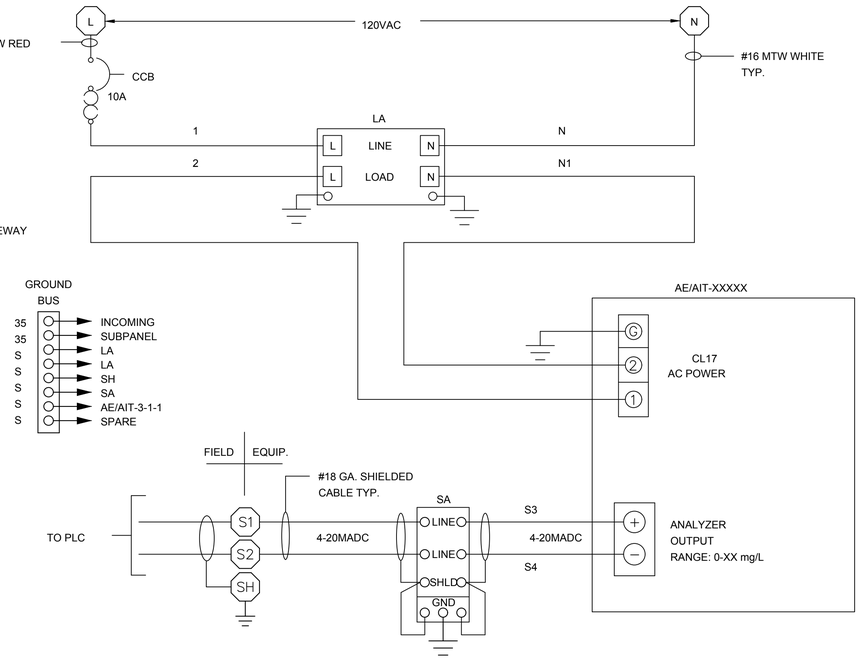
NOTE.
PANEL SHALL BE BUILT TO U.L. 508A SPECIFICATIONS AND SHALL BEAR THE U.L. 508A LABEL.

NAMEPLATE SCHEDULE

NP	1 X 3	CHLORINE RESIDUAL FIELD PANEL

NOTE:

1. ALL CONTROL WIRING WITHIN CONTROL CABINET TO BE #16 MTW CU. UNLESS OTHERWISE NOTED
2. ⬡ DESIGNATES TERMINALS FOR CUSTOMER CONNECTION
3. WIRE ENDS WITHIN CABINET TO BE IDENTIFIED WITH HEAT SHRINK WIRE MARKERS.
4. ALL WIRES EXTERNAL TO CONTROL CABINET TO BE TERMINATED TO A TERMINAL
5. TIGHTEN CONTROL TERMINALS TO 20 LB/IN.
6. INSTALL FILTER SUPPLIER FURNISHED INSTRUMENT. PROVIDE AND INSTALL ALL OTHER NECESSARY VALVES, PIPING, ETC. FOR A COMPLETE AND WORKING SYSTEM IN PLACE.



ITEM	QTY	DESCRIPTION
	LOT	1/2" SEALTITE
	2	1/2" SEALTITE ST FITTINGS
	2	1/2" SEALTITE 90 FITTINGS
A	1	PARKER 4-4-GH2BZB BRASS 1/4" FPT X 1/4" TUBE BULKHEAD CONNECTOR
B	1	PARKER 8-8-GH2BZB BRASS 1/2" FPT X 1/2" TUBE BULKHEAD CONNECTOR
C	1	JAMESBURY 1/4"-451T 1/4" BRASS BALL VALVE BALL VALVE
D	4	1/2" I.D. CLEAR PLASTIC HOSE
E	3	PARKER 4-4-FBZB BRASS 1/4" MNPT X 1/4" TUBE MALE CONNECTOR
F	1	1/2" MNPT X 1/4" FNPT BRASS REDUCING BUSHING
G	LOT	1/4" SCH. K COPPER PIPE
H	1	PARKER 8-8-B2HFB 1/2" BARB X 1/2" BRASS MNPT CONNECTOR
I	2	PARKER 4-4 CBZB 1/4" FEMALE 90 X 1/4" TUBE BRASS CONNECTOR
J	LOT	INCLUDED WITH HACH SAMPLE CONDITIONING KIT
FV	1	WALLACE & TIERNAN 22A076SSXX2 VAREAMETER FLOWMWTER W/ 316 S.S. PROCESS CONNECTIONS AND 0-5.77 GPH ADJUSTABLE FLOW RATE.
	3	PANDUIT CB35 COPPER LUGS
GB	1	GLASTIC 2165-1B INSULATOR
	2	SQD CLASS 9080 MHA10 END CLAMPS
	1	SQD CLASS 9080 GP6B END BARRIER
TERMINALS	5	SQD CLASS 9080 GA6 FLAT SCREW TERMINALS
CCB	1	SQD QOU110 1P 10A CIRCUIT BREAKER
SA	1	EDCO DRS-036 SIGNAL SURGE ARRESTER
LA	1	EDCO HSP-121 LINE SURGE ARRESTER
AE/AIT-XXXXX	1	INSTRUMENT. A) RANGE: COORDINATE WITH OWNER.
MOUNTING PLATE	1	50"H X 36"W X 1/2" FRP MOUNTING PLATE
JUNCTION BOX	1	ELECTROMATE E-121006CHNFSS6 NEMA 4X 316 S.S. JUNCTION BOX W/ FOLL: A) SIZE: 12"H X 10"W X 6"D B) SUBPANEL: E-12P10 STEEL SUBPANEL

REMOTE BILL OF MATERIAL

CHLORINE RESIDUAL ANALYZER PANEL AND INSTALLATION DETAIL

26 TYP

NOT TO SCALE

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Manatee County FLORIDA

MANATEE COUNTY
LAKE MANATEE WTP FILTER UPGRADE
INSTRUMENTATION
INSTRUMENTATION DETAILS - SHEET 5

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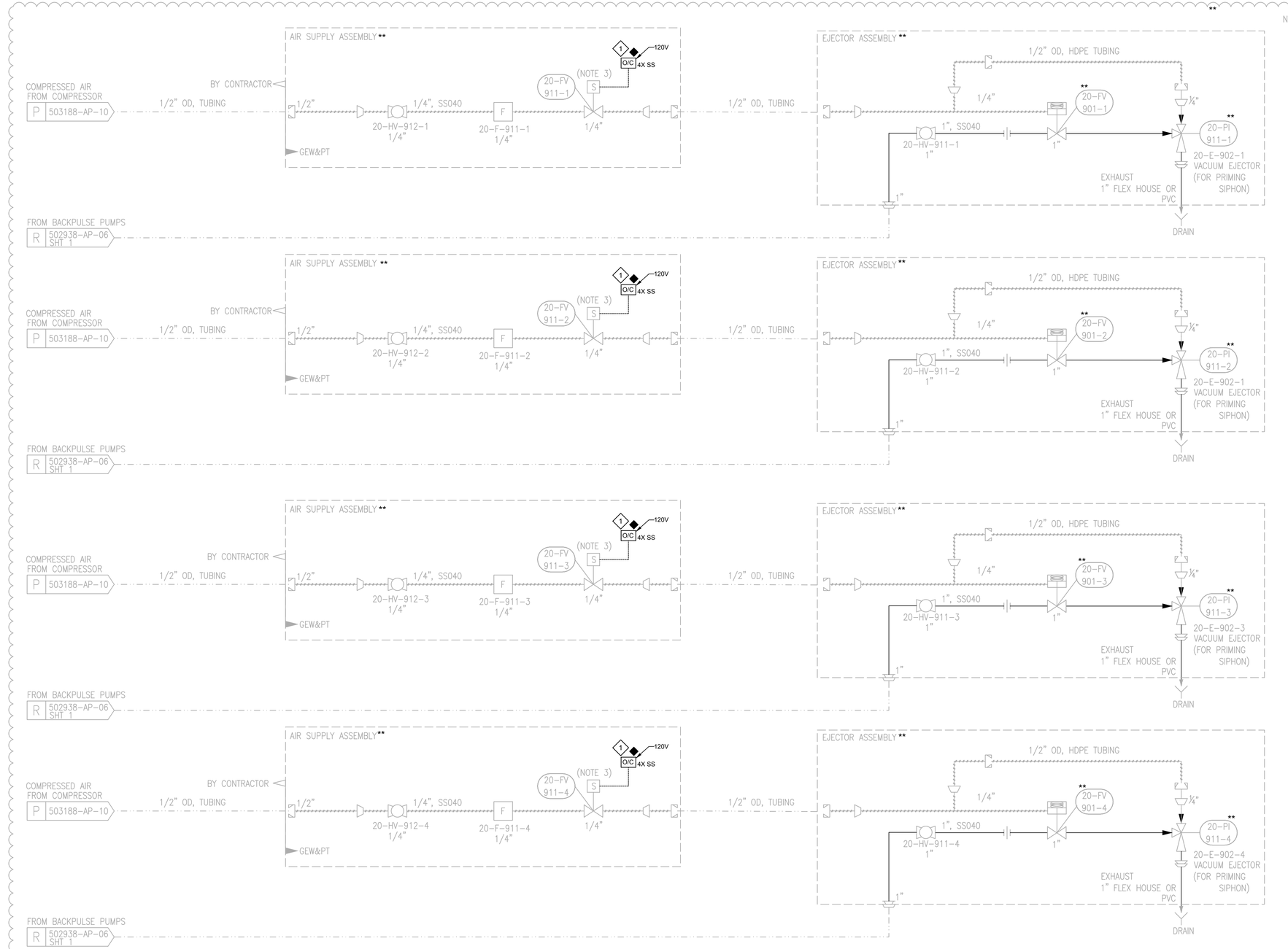

**

NOTES:

1. EJECTOR MUST BE LOCATED ON THE TOP OF THE PIPE AT THE HIGHEST POINT OF THE PIPING.
2. PROVIDE AN AIR GAP NEAR THE EJECTOR, DIRECT DISCHARGE TO DRAIN DO NOT REDUCE LINS SIZE
3. SOLENOID NOT CONTROLLED BY PLC–MANUAL OPERATIONAL BY LOCAL SWITCH.
4. CONTRACTOR TO SUPPLY AND INSTALL 4 MOMENTARY CONTACT SWITCHES, ONE PER EJECTOR ASSEMBLY.

△E

KEY NOTES:

1 PROVIDE AND INSTALL NEMA 4X 316 STAINLESS STEEL ENCLOSURE WITH OPEN/CLOSE (O/C) SELECTOR SWITCH FOR EACH SOLENOID VALVE.

LINE WEIGHT FOR THIS DRAWING:

CONTRACTOR SHALL PROVIDE AND INSTALL INSTRUMENT OR PANEL

COMPONENTS AND PANELS TO BE PROVIDED BY MEMBRANE SYSTEM SUPPLIER (MSS).

NOTES FOR THIS DRAWING:

1. ALL SIGNALS SHOWN ARE TO BE CONNECTED TO MEMBRANE SYSTEM SUPPLIER (MSS) PROVIDED PLC OR RIO PANELS, UNLESS OTHERWISE NOTED. ALL SIGNALS CONNECTED TO MSS PLC PANEL ARE TO BE PROGRAMMED BY MSS.
2. THIS DRAWING IS A DUPLICATE DRAWING OF MSS P&ID DRAWINGS FROM APPENDIX A & B OF THIS PROJECT. THE INTENT OF THIS DUPLICATE DRAWING IS TO SHOW THE INSTRUMENTS THAT SHALL BE PROVIDED BY I&C CONTRACTOR AND/OR SIGNALS TO BE INTERFACED WITH I&C SUPPLIED PLC/RIO PANEL.

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
E	REVISED AS NOTED		GSH	JS	JS	10SEP18
D	ISSUED FOR TENDER		BM	JS	JS	25JAN18
C	REVISED PER CLIENT COMMENTS		SR	JS	JS	29AUG17
B	REVISED PER CLIENT COMMENTS		SR	JS	JS	13JUL17
A	INITIAL RELEASE		GSH	JS	JS	13APR18

TOLERANCES UNLESS NOTED
DECIMALS ANGLES
.X
.XX FRAC
.XXX

PROPRIETARY AND CONFIDENTIAL: THIS DRAWING AND ALL INFORMATION AND KNOWLEDGE CONTAINED OR REFERRED HEREIN ARE THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF SUEZ AND AS SUCH ARE INSTRUMENTS OF SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT. THESE INSTRUMENTS OF SERVICE SHALL NOT BE REPRODUCED, TRANSMITTED, DISCLOSED OR USED OTHERWISE IN WHOLE OR IN PART, WITHOUT PRIOR WRITTEN CONSENT OF SUEZ AND MUST BE IMMEDIATELY RETURNED OR DESTROYED UPON REQUEST.

suez

CUSTOMER INFORMATION

MANATEE COUNTY, FL WTP

P&ID,

AIR SUPPLY & EJECTOR ASSEMBLY

DRAWING NUMBER: 503188-AP-06

REVISION: E

REF.: -

DOC. OWNER: -

PROJECT NO.: 503188

PART/MATERIAL NO.:

SCALE: NONE

SIZE: D

SHEET: 2 OF 2

LOCATION:

RECORD DRAWING

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Manatee County FLORIDA

MANATEE COUNTY

LAKE MANATEE WTP FILTER UPGRADE

INSTRUMENTATION

AIR SUPPLY AND EJECTOR ASSEMBLY (TEMPORARY SYSTEM FOR STARTUP)

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PROJECT NO. 9520I.10 FILE NAME: 9520I10_00-N01.dwg

Item No.	Title	Complete?	Date Received	Format
1	Daily Water production data for LMWTP (2016-2025):			
	Flow Data (mgd) •Raw Water to each Basin •BTU Flow (and flow path) •Finished Water production •Backwash return flows (and flow path) •Sludge flow and sludge decant return flow (and flow path)			
2	Daily Water Quality from Jan 2016 - To Date (10 years)			
	Raw Water Quality •Turbidity •pH •Temprature (C) •TOC (mg/L) •Alkalinity (mg/L as $CaCO_3$) •Mg and Ca (mg/L as CaCO3)			composites composites
	Daily Pretreatment Water Quality (influent and effluent) •Turbidity •pH •Temprature (C) •TOC (mg/L) •Alkalinity (mg/L as $CaCO_3$) •Mg and Ca (mg/L as CaCO3)			composites composites
	Daily Conventional Filter Effluent Water Quality for A and C •Turbidity •pH •TSS (mg/L)			
3	Daily Process Operational Data			
	•Chemical feed rates for app pretreatment chemicals in all Basins (PAC, alum, lime, polumer, hypo, caustic) - presented in mg/l doses) •Hypo Dose for Blend Chamber (mg/L) •Ammonia Dose for Blend Chamber •Chemical feed rates for app pretreatment chemicals in all Basins (PAC, alum, lime, polumer, hypo, caustic) - presented in mg/l doses) •Conventional Media Filter Information •Media information (sand and anthracite cutsheets, if available) •Average run times (hours) •Backwash duration (minutes) •Backwash flow (gpm) •Filter headloss just after a backwash and just before a backwash (inches)			
4	Most up to date: 20 Year Water Supply Alternative Evaluation Note: Carollo currently has a copy of the July 2025 Draft			
5	Record drawings for Train A and Train B (from the '90s) and the BTU project			
6	Design drawings, specifications and design criteria for the new sludge dewatering system currently under construction	Yes.	11/20/2025	pdf
7	Record drawings for Train C			
8	WTP Safety Report			
9	Pump specifications for the Lift Station			
10	Daily data for the Lift Station (past 5 years)			
	•Flow (gpm) Pressure (psi)			
11	Pump specifications for the Lift Station			
12	Train A & B Raw Water Quality: Bromide (mg/L), daily or based on most frequent County sampling. If no, historical data, 2-3 representative samples for the surface water.			

Manatee County
Lake Manatee WTP Basin A Inspection

SUMMARY REPORT

DRAFT | March 2021

Manatee County
Lake Manatee WTP Basin A Inspection

SUMMARY REPORT

DRAFT | March 2021

This document is released for the purpose of information exchange review and planning only under the authority of Francisco J. Pieretti, March 2021, Florida PE License No. 51475.

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Section 1 - Introduction 1

Section 2 - Structural Condition 1

Section 3 - Repair Recommendations 2

Section 4 - Engineer Opinion of Probable Cost 3

Section 5 - Conclusion 4

Appendices

Appendix A Condition Photos

Appendix B Aerial

Tables

Table 1 Cost Estimate 4

Section 1

INTRODUCTION

Manatee County (County) owns and operates the Lake Manatee Dam and the Lake Manatee Water Treatment Plant (LMWTP), a facility with two surface-water treatment trains, permitted for 54 million gallons per day (MGD). LMWTP's surface-water treatment system draws and treats raw water from Lake Manatee, a water body that was created by an earthen dam constructed on the Manatee River. LMWTP also has a groundwater treatment train permitted for 30 MGD that receives groundwater from a wellfield located east of LMWTP.

The County retained Carollo Engineers (Carollo) to inspect and evaluate the structural integrity of the first treatment train, Basin A. The County discovered leaks and other signs of damage over the years. Carollo's scope of services includes documenting the condition, estimating the remaining useful life and repair recommendations. This evaluation does not include any assessment of the mechanical equipment inside Basin A, as the County already has a Capital Improvements Plan (CIP) project (PW01600) planned to start in FY2022 to replace the existing sludge collection mechanisms.

Based on a review of the construction document records provided to Carollo, the existing Basin A construction dates to February of 1965 with modifications that occurred in the year 1987. Carollo is not aware of any other modification or maintenance projects up to the date of this report.

On February 9, 2021, Carollo inspected Basin A to determine the condition and expected useful life of the structure. This report summarizes the findings of the inspection.

Section 2

STRUCTURAL CONDITION

The existing train consists of 16'-6" tall and 16" thick, reinforced concrete walls. The perimeter wall is supported on a 14'-0" wide x 16" deep concrete foundation and extends 16" beyond the exterior face of the wall. The interior slab foundation varies in thickness from 8" to 16". A sump pit is present along the West side of the tank wall. The top of walls consists of an elevated cantilevered 12" thick concrete slab which is shared as a walkway and/or track supports for the traveling bridge. . The existing drawings show ½" expansions joints through the floor slab and appear to divide the floor slab into 6 areas along the East-West direction and at 20'-4" on center along the North-South direction.

The walls, and floor of the basin were observed to be generally in good condition. Appendix A includes photographs of each condition issue. Appendix B includes an aerial indicating the location of each photograph.

After the inspection of Basin A the following conditions were noted:

- **Condition A and H:** In the South-West corner of Basin A and near the main divider wall, there are several cracks in the concrete walkway that run diagonally across the width of the walkway.
- **Condition B:** Localized spalling of concrete overlay material (wearing surface) and crack formations were observed at the south section of the basin, along the divider curb at locations matching with the N-S expansion joints on the slab. It appears that the spalling of concrete and the formation of cracks were caused due to restrained thermal movements at these locations, since there were not expansion joints observed across the curbs at the locations of the N-S expansion joint.
- **Condition C:** At the North-East corner of the train, there is a crack formation at the corner of the baffle wall.
- **Condition D:** Damage of expansion joints surrounding concrete. This condition typically occurred at all vertical expansion joint wall locations.
- **Condition E and J:** All expansion joints appear to be damaged and deteriorated.
- **Condition F:** All interior wall surfaces appear to have coating decay.
- **Condition G:** Slab appears to have a spalled concrete surface area of 7 ft x 7 ft approximately where the depth of spall appears to be about 1" .Carollo was unable to fully observe the extent of the damage due to rainwater ponding and mud covering the floor slab area.
- **Condition I:** At the perimeter of the North wall, there is a crack formation on the outside face of the wall.
- **Condition K:** At the junction of Filter A and B, a crack is actively leaking through the expansion joint. Carollo was unable to determine the origin of the leak while the channel was in service.
- **Condition L:** Expansion joint material deterioration over the entire floor slab.

Section 3

REPAIR RECOMMENDATIONS

Since the tank walls, columns, and floor slabs appear to be in relatively good condition, there are no major structural concerns except for the leakage at the junction of Filter A and B. To extend the life of the basin, Carollo recommends the following repairs:

In general, the structural repairs will consist of:

1. **Concrete cracks (Conditions A, C, H, I):** Repair cracked concrete with an epoxy injection to prevent it from deteriorating further. Clean the area in the vicinity of the cracks that will be injected with epoxy, so they are free from dirt and any other loose matter. Leave the area in a generally clean condition after the epoxy injection is complete. Refer to Appendix B for condition locations.

2. **Damaged concrete cover (Condition D):** Remove loose material and high-pressure water wash down the entire damaged surface area. Saw cut and remove to ½" thickness minimum, and repair damaged concrete with concrete repair mortar. At the time of application of concrete repair material, substrate shall be saturated to a surface dry condition.
3. **Expansion joints (Conditions E, J, and L):** Provide high-pressure water wash down of walls and slabs around expansion joints, and clean existing concrete surfaces to bare concrete. Remove and replace the sealant, backer rod, and existing expansion joint material in its entirety. Where necessary repair damaged concrete by bonding mortar with an epoxy bonding agent. As per the installation of new expansion joint material in the slab running underneath the divider curbs **(Condition B)**, see next sub-section.
4. **Spalling of overlay concrete (Condition B) and Installation of expansion joints across divider curbs:** Saw cut and remove sections of concrete curb. The cut sections of concrete along the curb will be 4-inch long each centered at each location of the expansion joints in the slab to allow for the removal of existing expansion joint material and installation of new expansion joint material in the slab [see **Condition L** depicting concrete curb straddling over the expansion joints in the slab].
    a. After installation activities of new expansion joints in the slab get completed, new ½" expansion joints across the curbs, along with new formed concrete on both sides of the expansion joint to fill the 4" gap of removed concrete will be installed. The new concrete will be cast against existing concrete surface in saturated surface dry conditions. Additionally, saw cut and remove spalled concrete area to a minimum depth of ½", epoxy inject existing cracks with grout as required, and fill damaged perimeter are of the curb with structural repair mortar to be cast and bonded to the existing surface in saturated surface dry conditions with an epoxy bonding agent.
    b. Refer to Appendix B for locations of the curb.
5. **Damaged Concrete surface (Condition G):** Removed loose material of spalled concrete. After removal of spalled area which appears to be 1" in depth, saw cut, chip and remove to ½" thickness minimum, within the perimeter, rectangular in shape, of the damaged area. Prepare new surface to surface-dry-condition and fill with concrete repair mortar.
6. **Coating decay (Condition F):** Provide high-pressure water wash down of walls and clean existing concrete surfaces to bare concrete. Remove existing coating, repair any cracks as necessary and install new coating as directed by the manufacturer. Carollo will consult with a coating consultant to determine the appropriate coating, and will provide additional information in the final version of this TM.

Section 4

ENGINEER OPINION OF PROBABLE COST

Table 1 presents the cost estimate to make the recommended modifications and repairs to keep the basin in operation. The costs in Table 1 are current for 2020 and would have to be adjusted to the years of actual construction.

Table 1 Cost Estimate

Description		Total
Concrete Repair		$5,000
Mortar Repair		$25,350
Coating		$1,032,500
Epoxy Injection		$6,500
Expansion Joint Repair		$376,860
Mortar Resurfacing		$50,000
TOTAL DIRECT COST		**$1,496,210**
Contingency	30%	$448,863
Subtotal		**$1,945,073**
General Contractor Overhead, Profit & Risk	15%	$291,761
Subtotal		**$2,236,834**
Sales Tax	7%	$78,289
Subtotal		**$2,315,123**
TOTAL ESTIMATED CONSTRUCTION COST		**$2,315,123**
Engineering, Legal & Admin Fees	10%	$231,512
TOTAL ESTIMATED PROJECT COST		**$2,546,635**

Notes:

(1) The cost estimate herein is based on our perception of current conditions at the project location. This reflects our professional opinion of accurate costs at the time and is subject to change as the project design matures. Carollo Engineers, Inc. have no control over variances in the cost of labor, materials, and equipment; nor services provided by others, contractor's means and methods of executing work or of determining prices, or bidding strategies. Carollo Engineers, Inc. cannot and does not warrant or guarantee that proposals, bids or actual construction costs will not vary from the costs presented as shown.

Section 5

CONCLUSION

Based upon the observations made during the inspection, Carollo estimates the remaining useful life of the train to be 10 years. Basin A appears to be in good condition where the County can continue its use as long as maintenance and the recommended repairs are performed to keep the structural integrity and water-tightness of the basin.

Appendix A

CONDITION PHOTOS

Table 2

CONDITIONS	OBSERVATION
A	Cracks on walkway slab.
B	Spalling of overlay concrete (wearing surface) at curbs.
C	Formation of diagonal crack on baffle walls.
D	Damage of expansion joints surrounding concrete.
E	Wall expansion joint material deterioration.
F	Coating decay at walls.
G	Slab appears to show concrete degradation over South-West of south train.
H	Cracks on walkway slab.
I	Crack formation on the outside face of perimeter wall.
J	Expansion joint material deterioration.
K	Leak through expansion joint.
L	Slab expansion joint material deterioration.

Condition A – Location: cracks on walkway slab.

Condition B – Location: spalling of mortar (wearing surface) at curbs.

Condition C – Location: formation of diagonal cracks on baffle walls.

Condition D – Location: damage of expansion joints surrounding concrete.

Condition E – Location: wall expansion joint material deterioration.

Condition F – Location: coating decay at walls.

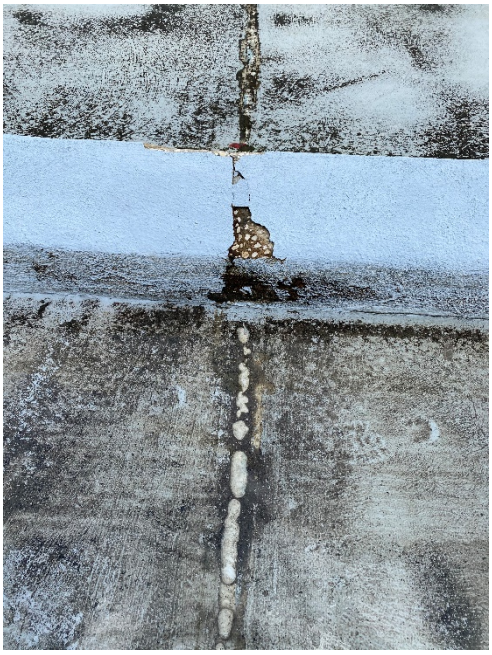
Condition G – Location: slab appears to show concrete degradation over South-West corner of South Train.

Condition H – Location: cracks on walkway slab.

Condition I – Location: crack formation on the outside face of perimeter wall.

Condition J – Location: expansion joint material deterioration.

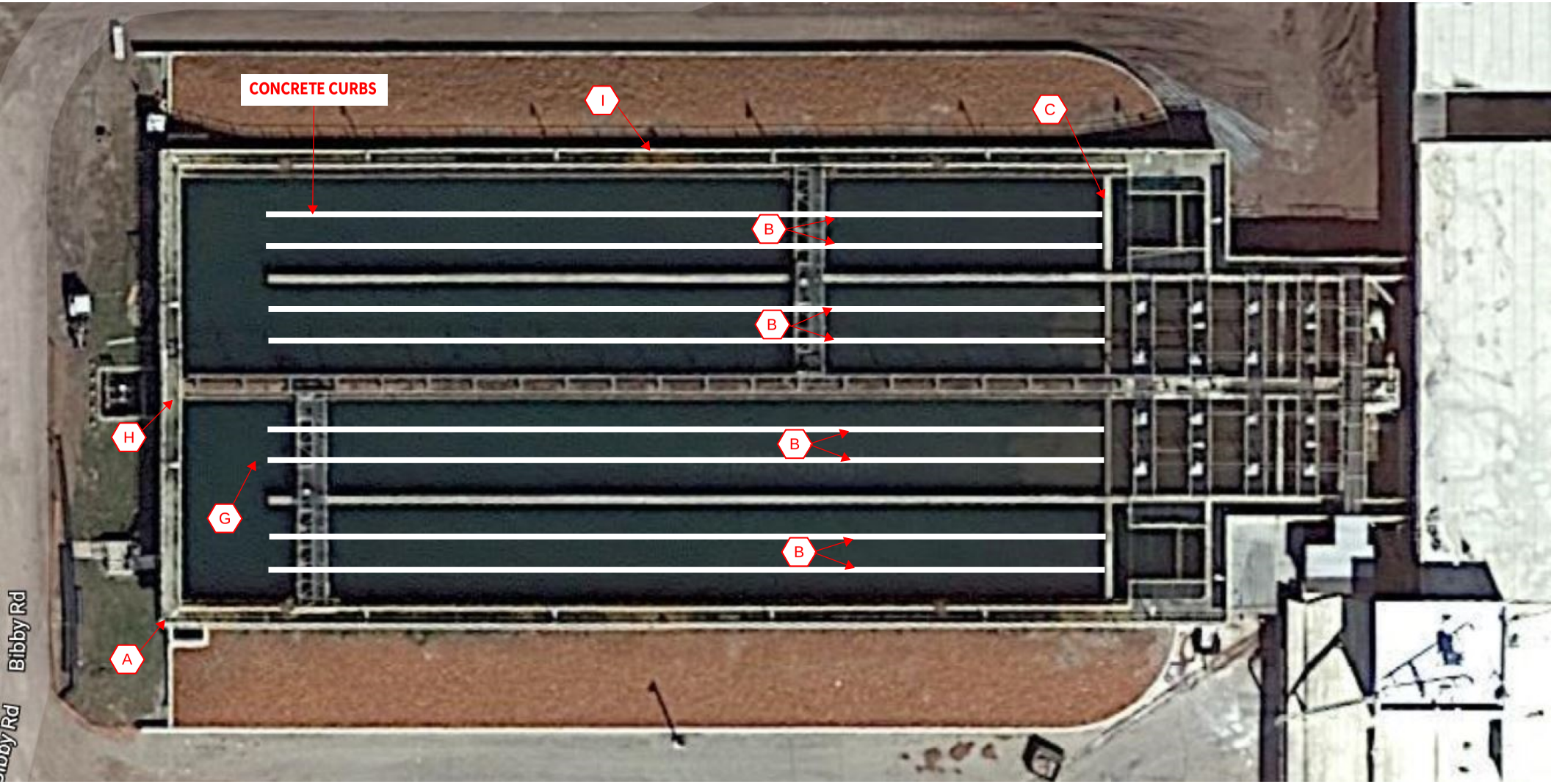
Condition K – Location: leak through expansion joint.



Condition L – Location: slab expansion joint material deterioration.

Appendix B

AERIAL


CONCRETE CURBS
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Bibby Rd

Manatee County

Lake Manatee WTP Facility Plan

Project Kickoff Meeting

Location: Lake Manatee WTP

November 19, 2025

carollo

Introductions and Project Team

—

Lines of Communication

Organization	Name
Manatee County	**Paul Haas – Project Manager***
	Patrick Shea
	Jim Renneberg
	Chris Collins
	Brent Laudicina
	Melissa Dickey
	Robert Hartnett
	Kathryn Quilty
	Mitchell Kersting
	Jason Aronin
	Olga Wolanin
Carollo	**Jen Nyfennegger - Project Manager***
	Kyle Ward - Assistant PM*
	AC Romero - Project Engineer*
	Sandeep Sethi – Technical Advisor
	Laura Baumberger

*** Include on all email communications.**

to be included in all email communications as well.

Meeting Agenda

1. Introductions & Project Team
2. Project Goals and Objectives
3. Scope of Services and Deliverables
4. Initial Data Request
5. Staff Survey
6. Schedule
7. Next Steps and Action Items

02

Project Goals and Objectives

Project Goal

Develop a Comprehensive Facility Plan for Lake Manatee WTP

- Prioritize capital improvements directed at increasing treatment capacity.
- Enhance the reliability of existing treatment and operations.
- Establish a strategic repair and replacement (R&R) Program.

Project Objectives

1. Review flow and process data to assess potential impacts on current capacity and planned expansion.
2. Review projected population growth, level of service requirements, and timing for facility expansion.
3. Recommend process and non-process improvements for the existing facility and new Treatment Train D, with planning-level cost estimates.
4. Develop CIP sheets for recommended improvements to the existing facility and update the project sheet for Treatment Train D.

Project Objectives

5. Evaluate feasibility of phasing the expansion based on capacity needs and budget.
6. Recommend near-term improvements to boost operational flexibility and reliable treatment capacity of all process areas, particularly those with existing hydraulic limitations.
7. Develop the LMWTP Facility Plan Report.

03

Scope of Services and Deliverables

Scope of Services

Task 1: Project Management, Meetings, and Communication

- Administration of work assignment and communication
- Kickoff meeting
- Two (2) project progress meetings
- Five (5) workshops
- Meeting deliverables include agenda, presentation, and minutes
- Monthly progress reports

Task 2: Quality Management

- QA/QC of data, workshop materials and reports

Color Key
- Deliverables
- Site Visit
- Workshop/ Meeting

Scope of Services

Task 3: Data Collection and Review

- Data request list
- Summary of water quality regulations and compliance challenges
- Review of initial treatment technologies (further develop in Task 6) to meet regulations
- Compile, review, and summarize Staff Survey
- Workshop No. 1: Regulatory Review and Staff Survey Results

Task 4: Planning Framework

- Establish recent demand projections, LOS standard, resulting required facility capacity, and peaking factors
- Workshop No. 2: Planning Framework

Color Key
- Deliverables
- Site Visit
- Workshop/ Meeting

Scope of Services

Task 5: Existing LMWTP Evaluation

- Hydraulic assessment; includes site visit
- CFD hydraulic assessment
- Process assessment
- Facilities evaluation and condition assessment; includes site visits
- Projected capacity needs
- R&R and CIP project identification
- Cost estimates and schedule
- Workshop No. 3: Existing Facility Evaluation

Color Key
- Deliverables
- Site Visit
- Workshop/ Meeting

Scope of Services

Task 6: Evaluation of Proposed Treatment Train D

- Treatment alternatives analysis and selection
- Cost Estimate and construction schedule
- Implementation plan and constructability
- Workshop No. 4: Treatment Train D Evaluation

Color Key
- Deliverables
- Site Visit
- Workshop/ Meeting

Scope of Services

Task 7: Evaluation of New/expanding Lift Station Evaluation

- Process assessment for expansion or additional lift station
- Project pump capacity and forcemain size/route
- Workshop 5: Lift Station Evaluation

Task 8: CIP Recommendations and Prioritization

Task 9: LMWTP Facility Plan Report

- Draft and Final LMWTP Facility Plan (electronic pdf)
- Draft Report Review Meeting

Color Key
- Deliverables
- Site Visit
- Workshop/ Meeting

04

Initial Data Request

Initial Data Request List

Item No.	Title	Complete?	Format
1	Daily Water production data for LMWTP (2016-2025):		
	Flow Data (mgd) • Raw Water to each Basin • BTU Flow (and flow path) • Finished Water production • Backwash return flows (and flow path) • Sludge flow and sludge decant return flow (and flow path)		
2	Daily Water Quality from Jan 2016 - To Date (10 years)		
	Raw Water Quality • Turbidity • pH • Temperature (C) • TOC (mg/L) • Mg and Ca (mg/L as $CaCO_3$) • Alkalinity (mg/L as $CaCO_3$)		

County will not be able to provide this

Initial Data Request List

Item No.	Title	Complete?	Format
2	Daily Pretreatment Water Quality (influent and effluent) • Turbidity • pH • Temperature (C) • TOC (mg/L) • Mg and Ca (mg/L as $CaCO_3$) • Alkalinity (mg/L as $CaCO_3$)		
3	Daily Process Operational Data		
	• Chemical feed rates for all pretreatment chemicals in all Basins (PAC, alum, lime, polymer, hypo, caustic) – presented in mg/L doses • Hypo Dose for Blend Chamber (mg/L) • Ammonia Dose for Blend Chamber		

Only composites are pulled for these parameters.

Initial Data Request List

Item No.	Title	Complete?	Format
4	Most up to date: 20 Year Water Supply Alternative Evaluation. Note: Carollo currently has a copy of the July 2025 Draft		
5	Record Drawings for Trains A and B (dated in the ‘90s), BTU		
6	Design drawings, specifications and design criteria for the new sludge dewatering system currently under construction		

7. Record drawings for Train C
8. Bromite data for ozone if not County to test samples

05

Staff Survey

Staff Survey

Goal: Gather, compile, and review County staff input via a survey to capture concerns and preferences related to LMWTP deficiencies and improvement needs.

- Present results in a Workshop No. 1 for County review; and
  - Agree on which findings influence the Facility Plan.
- Use agreed survey results to:
  - Compare with assessments from Tasks 5 and 6.
  - Identify R&R and CIP projects
  - Develop cost estimates and construction schedules

Staff Survey Format

Online Surveys

Email Links: Send a survey link via email

Survey Platforms: Microsoft Forms, Google Forms, SurveyMonkey, etc.

Paper Surveys

Printed Questionnaires: Distribute during meetings, events, or in physical locations.

A hybrid format between an emailed survey and a printable survey to distribute.

Other

Anonymous or not?

Anonymous but ask what department/part of facility they work.

Staff Survey Timing

- Carollo to Prepare Final Version of Survey by **November 26**
- County Responses due by **December 12**
- Review Responses in Workshop No. 1 on **Jan 12 - 16**

Staff Survey Questionnaires

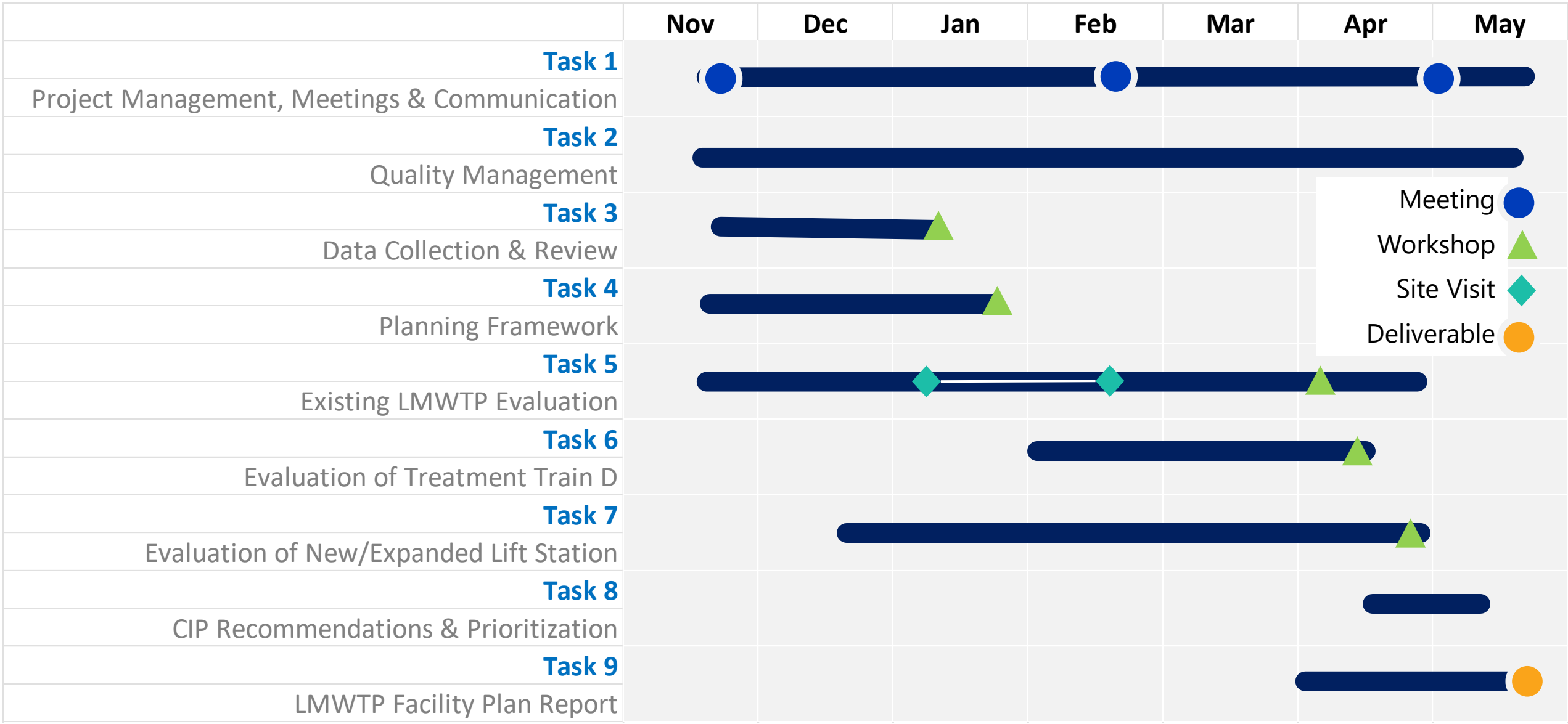
Six Sections:

1. General Perception and Awareness
2. Operations and Process Improvements
3. Maintenance and Facility Support
4. Safety and Employee Experience
5. Innovation and Future-Readiness
6. Final Thoughts

06

Schedule

Schedule


Nov
Dec
Jan
Feb
Mar
Apr
May
Task 1
Project Management, Meetings & Communication
Task 2
Quality Management
Task 3
Data Collection & Review
Task 4
Planning Framework
Task 5
Existing LMWTP Evaluation
Task 6
Evaluation of Treatment Train D
Task 7
Evaluation of New/Expanded Lift Station
Task 8
CIP Recommendations & Prioritization
Task 9
LMWTP Facility Plan Report
Meeting
Workshop
Site Visit
Deliverable

Scheduling Meetings & Workshops

Meetings: Duration 2 hrs

Meeting No. 1: Alternatives and Selection for Treatment Train D; **Feb 23 – Feb 27, 2026**

Meeting No. 2: Draft LMWTP Facility Plan Report Review Meeting; **May 11 – May 15, 2026**

Workshops: Duration 2 hrs; and 4 hrs for Wkshp No. 3 & 4

Workshop No. 1: Regulatory Review and Staff Survey Results; **Jan 12 – Jan 16, 2026**

Workshop No. 2: Planning Framework; **Jan 26 – Jan 30, 2026**

Workshop No. 3: Existing Facility Evaluation; **April 13 – April 17, 2026**

Workshop No. 4: Treatment Train D Evaluation; **April 20 – April 24, 2026**

Workshop No. 5: Lift Station Evaluation; **April 27 – May 1, 2026**

07

Next Steps and Action Items

MEETING AGENDA

MANATEE COUNTY

Lake Manatee WTP Facility Plan

Meeting Date: 2/3/2026
Location: Lake Manatee WTP, Maintenance Building Break Room
Subject: Workshop No. 2: Planning Framework **Carollo Project No.:** 204711

1. Workshop Goals

- Select max day and max month peaking factors
- Determine basis for 2045 finished water demand projection and resulting facility capacity requirement
- Decide on redundancy and reliability needs

2. Historical Demand Overview

- Historical data indicate that actual withdrawal amounts are approaching permitted allocations, in particular for surface water.
- Finished water demand shows season variability with increasing annual average.
- Peaking factors have remained generally stable over time.
- The County's peaking factors are slightly higher when Sarasota County demand is excluded from the dataset (meaning the County's retail peaking factors are higher than the peaking factors of the wholesale amount provided to Sarasota County).
- Since 2016, system demand has shown a steady upward trend, while peaking factors have remained within existing design expectations.
    - County agreed on the following peaking factors
        - Max Month = 1.2
        - Max Day = 1.3
- Reviewed existing WTP treatment capacities including:
    - Max day surface water and groundwater finished water treatment capacities
    - Average day surface water and groundwater finished water treatment capacities with max day PF 1.3
    - Raw water withdrawal requirements needed to fully utilize treatment capacity

3. Water Demand Projections: Determine 2045 finished water capacity design basis

- Multiple finished water demand projection methodologies were reviewed to evaluate potential 2045 design capacity needs:
    a) Apply County LOS to latest SWFWMD population projections
    b) Apply actual per capita to SWFWMD population projections
    c) Project historical finished water demand (trendline)
    d) Project demands based on updated populations using County development-based approach – underway

        - Check with Tom Cady to see if there are any updates to County's development based approach
- The County's LOS as defined in the Comprehensive (Comp) Plan (Objective 9.5.1) was discussed as a key driver for capacity planning.
    - Carollo recommended to simplify Comp Plan language to:
        - State LOS on a combined demand basis only (remove breakdown for residential; business, industrial, and institutional users; and miscellaneous and unaccounted uses).
        - Remove plant-specific capacity requirement.
    - County coordination is required to confirm Comp Plan amendment requirements and timing. Carollo will send proposed updates to the County.
- Finished water demand projections developed using SWFWMD data were compared against projections based on historical demand trends, including scenarios excluding Sarasota County.
- AAD and MMD projections were comparted to illustrate the range of potential future demands.
    - 15-year trend projection aligns best with 100 gpcd
- Under current LOS requirements, the analysis indicates that additional finished water treatment capacity would be required prior to 2045.
- A 100 gpcd LOS is considered more realistic and reflective of historical usage, while still providing some conservatism for planning purposes.
- Recommendations for 2045 finished water design capacity were discussed based on the comparative evaluation of projection methods.
    - Revise LOS to 100 gpcd and apply most conservative population estimate for 2045 finished demand.

4. Redundancy and Reliability Criteria

- Potential modifications to existing facilities and operational approaches were discussed to improve overall system reliability and redundancy.
- The County expressed a preference for N+1 redundancy for critical treatment processes to ensure continued operation during outages, maintenance, or equipment failure.
    - N+1 for equipment
    - N+1 for basins is not the industry standard and may result in too high of construction costs for Basin D with the allocated budget the County has. The discussion established the County's preferred approach through operational flexibility via treatment train interconnections and rehabilitation of the existing trains for reliable capacity. The end result is N+1 for the treatment trains, not just integral to Basin D.
    - Phasing discussion was had regarding the treatment plant improvements:
        - Basin A to remain and be rehabilitated.
        - Basin B to be divided into two treatment trains
        - Timing of rehab and retrofit of A and B will be analyzed by Carollo. Timing will be weighed against Basin D phasing and capacity to be accounted for based on revised LOS and water use permit updates.

        - Basin D will have a minimum, the same capacity as A. Consider phases to Basin D trains.
    - Plate Settlers and Actiflo will be considered as process expansion alternatives for A and B.
    - An interconnection of the new blend chamber with the existing blend chamber will be accounted for.
    - Consideration for an interconnection of the pretreatment effluent, so pretreated water can feed either the UF or Basin D filters. This will depend on pretreatment effluent water quality and chosen treatment process alternative.
    - County would like to keep nanofiltration on the table for evaluation.
        - Raw groundwater feed capacity is currently limited hydraulically, however County recently granted funding for a parallel pipe which will resolve this issue.
    - Design of SCADA and plant controls shall retain manual overrides and backup for all processes.
- Electrical Feed
    - FPL Service
        - County has a long term contract with FPL to manage and maintain the standby power for the plant.
        - There is a project for additional standby power that was approximately 1.5 times the existing standby power supply capacity. The generator capacity was determined assuming the Basin D capacity would be 60mgd, so the standby power supply capacity should not need to be revised.
        - No discussions with FPL regarding a separate power feed for Basin D has occurred.
-

5. Project Schedule

- Progress Meeting No. 1: March 2, 2026
- Workshop No. 3: Existing Facility Evaluation: TBD. Expected 1st week of April.

6. Next Steps and Action Items

- See Table 7.1 for Action Items and Table 7.2 for Decision Log on the following page.

Table 7.1: Action Items

ITEM NO.	ACTION ITEM	RESPONSIBLE ENTITY	RESPONSIBLE INDIVIDUAL	ITEM DATE	STATUS	RESOLUTION DATE	ISSUES/COMMENTS
1	SEND BRENT L. THE STRUCTURAL INSPECTION OF BASIN A	CAROLLO	KYLE WARD	11/19/25	IN PROGRESS		Confirm if Brent received.
2	SCHEDULE WORKSHOP & MEETING DATES	COUNTY	PAUL HAAS	11/19/25	IN PROGRESS		WRKSHPS 1 & 2 as well as Progress Meeting 1 have been scheduled, all other dates still pending
3	SEND BRENT L. STEADY STATE ANALYSIS (STEADY-STATE RESULTS OF HYDRAULICS)	CAROLLO	SANDEEP SETHI	11/19/25	COMPLETED	12/2/2025	Sent via email
4	COUNTY TO CHECK IF BROMIDE IS MEASURED IN RAW SURFACE WATER; IF NOT, COUNTY TO MEASURE SAMPLES	COUNTY	KATE QUILTY	11/19/25	COMPLETED	01/30/2026	Bromide (mg/L), daily or based on most frequent sampling. If no historical data, 2-3 representative samples for the surface water.
5	SEND BRENT THE DATA REQUEST LOG	CAROLLO	KYLE WARD	11/19/25	COMPLETED	11/26/25	Sent Via email with KO Meeting Minutes
6	SEND BRENT A LIST OF CHEMICALS TO TEST	CAROLLO	KYLE WARD	1/26/26	IN PROGRESS		
7	COUNTY TO SEND A RUNNING LIST OF R&R AND CIP PROJECTS	COUNTY	MELISSA DICKEY	1/26/26	COMPLETED	2/13/26	
8	COUNTY TO PROVIDE HAAs AND SURFACE WATER SAMPLING RESULTS PREVIOUSLY COMPLETED	COUNTY	KATE QUILTY	1/26/26	COMPLETED	01/30/2026	Data received via email along with bromate bromide sample data.
9	CAROLLO TO SEND A DRAFT TO COUNTY (PATRICK SHEA, JIM RENNEBERG, AND CHRIS COLLINS) THE PROPOSED REVISIONS FOR POLICY 9.5.1.2 FOR A LOS OF 100 gpcd	CAROLLO	LAURA BAUMBERGER	2/3/26	COMPLETED	02/11/2026	County to confirm the process for amending LOS in the comprehensive plan.

Table 7.2: Decision Log

ITEM NO.	CATEGORY	DESCRIPTION OF DECISION	DECISION DATE	DECISION BY	FORUM
1	TASK 6 - EVALUATION OF PROPOSED TREATMENT OF TRAIN D	TRAIN D WILL ONLY BE EVALUATED FOR SURFACE WATER TREATMENT	11/19/25	COUNTY	KO MEETING
2	POC FOR DATA REQUEST	BRENT LAUDICINA; cc PAUL HAAS	11/19/25	BRENT L.	KO MEETING
3	STAFF SURVEY FORMAT	ONLINE AND PRINTABLE PDF TO BE DISTRIBUTED	11/19/25	COUNTY STAFF	KO MEETING
4	COUNTY IS NOT SET ON A SINGLE TECHNOLOGY	COUNTY PREFERS A FLIEXIBLE DESIGN APPROACH (DCP-STYLE); DESIGN-BUILD TEAMS WILL BE INVITED TO PROPOSE SOLUTIONS	1/26/26	COUNTY STAFF	WORKSHOP NO. 1
5	TRAIN D CAPACITY	SURFACE WATER AND GROUNDWATER TREATMENT IS NOT RECOMMENDED	1/26/26	COUNTY STAFF & CAROLLO	WORKSHOP NO. 1
6	TRAIN D TREATMENT TECHNOLOGY	NO ION EXCHANGE (SIX) TECHNOLOGY	1/26/26	COUNTY STAFF	WORKSHOP NO. 1
7	COUNTY AGREED ON THE FOLLOWING PEAKING FACTORS (PF):	MAX MONTH PF = 1.2 AND MAX DAY PF =1.3	2/3/26	COUNTY	WORKSHOP NO. 2
8	COUNTY AGREED ON THE FOLLOWING LOS:	100 gpcd AND APPLY MOST CONSERVATIVE POPULATION ESTIMATE FOR 2045	2/3/26	COUNTY	WORKSHOP NO. 2
9	Basin A Consideration	BASIN A TO REMAIN AND BE REHABILITATED. PHASING TO BE ANALYZED TO DETERMINE BEST TIMING AND MINIMAL RELIANCE ON A DURING INTERIM PHASES.	2/3/26	COUNTY	WORKSHOP NO. 2
10	Existing Pretreatment Considerations	BIFURCATING BASIN B INTO 2 TRAINS WITH SETTLIGN PLATES OR ACTIFLO. CONSIDER PRETREATMENT OF A WITH SETTLING PLATES OR ACTIFLO.	2/3/26	COUNTY	WORKSHOP NO. 2
11	Basin D Approach	CAPACITY TBD FROM WATER USE PERMIT MEETING ON 2/13/26. PHASING OF 2 OR MORE TRAINS IN BASIN D TO BE CONSIDERED.	2/3/26	COUNTY	WORKSHOP NO. 2
12	BASIN C ALTERNATIVE	CONSIDER NANOFILTRATION AS TREATMENT ALTERNATIVE	2/3/26	COUNTY	WORKSHOP NO. 2
13	BLEND CHAMBER	NEW BLEND CHAMBER WITH INTERCONNECTION TO EXISTING PLANT AS WELL AS BYPASS PIPING FOR BOTH BLEND CHAMBERS.	2/3/26	COUNTY	WORKSHOP NO. 2