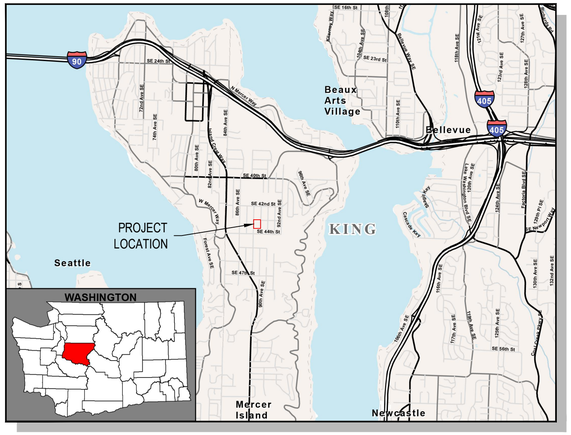
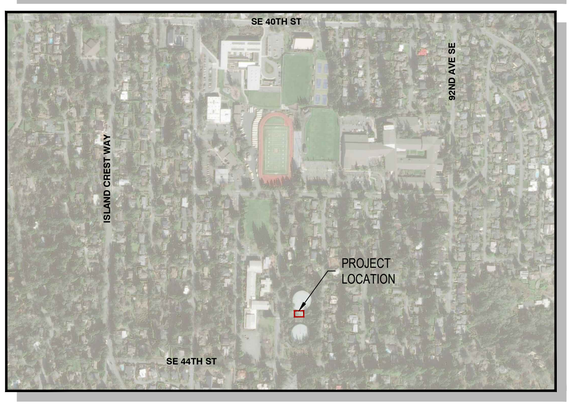
CITY OF MERCER ISLAND
BOOSTER PUMP STATION UPGRADES

PROJECT VICINITY MAP

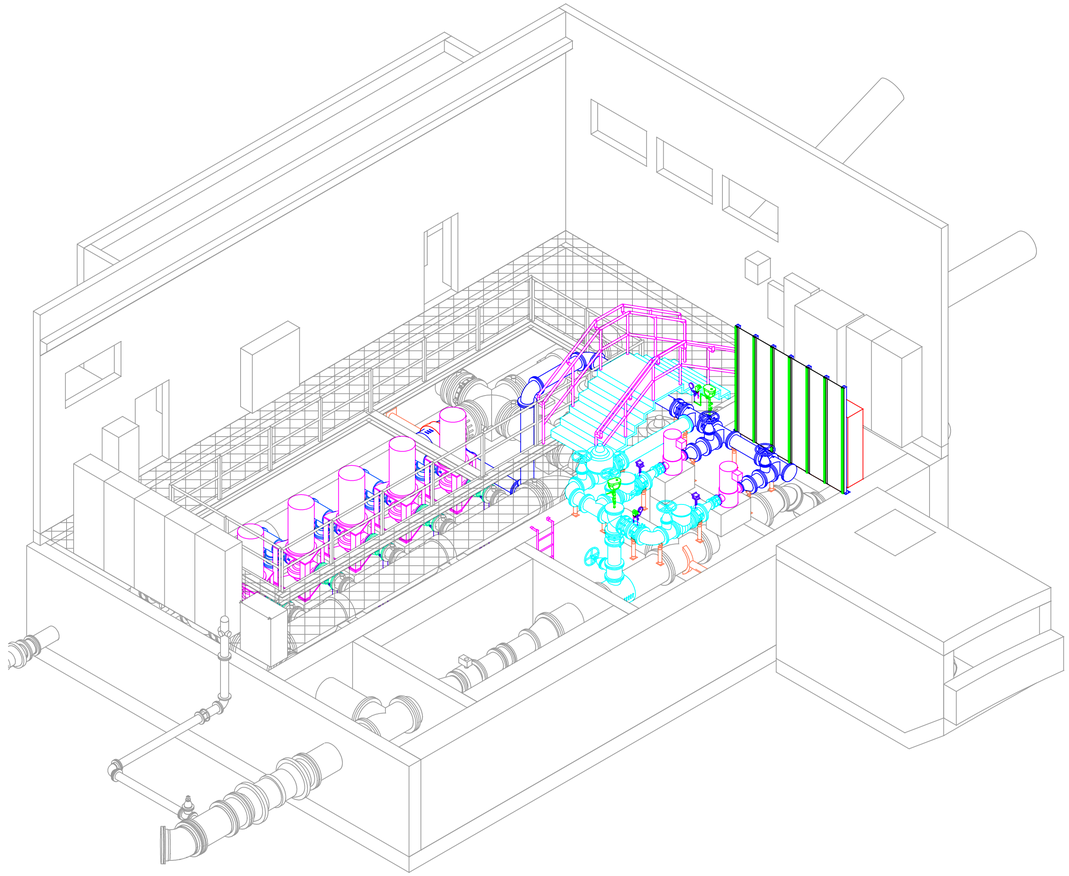


PROJECT LOCATION MAP



CALL 48 HOURS BEFORE YOU DIG
ONE CALL 811

REPORT ALL SPILLS
DEPT. OF ECOLOGY 1-800-258-5990



SHEET INDEX

SHEET NO.	DESCRIPTION	DWG NO.
01	COVER	COV
02	GENERAL INFORMATION	G01
03	EXISTING MECHANICAL AND DEMOLITION PLAN	M01
04	PROPOSED STRUCTURAL	S01
05	PROPOSED MECHANICAL PLAN	M02
06	PROPOSED MECHANICAL SECTIONS	M03
07	MECHANICAL DETAILS	M04
08	ELECTRICAL LEGEND	E01
09	ONE LINE DIAGRAM	E02
10	ELECTRICAL PLAN	E03
11	ELECTRICAL DETAILS	E04
12	CONTROL LOGIC DIAGRAM	E05

CONTACT PERSONNEL

CONTACT	AGENCY	PHONE
EDWIN HALIM, P.E. (PROJECT MANAGER)	RH2 ENGINEERING	425-951-5332
MARINE BEHR, P.E (PROJECT ENGINEER)	RH2 ENGINEERING	425-439-4008
CHRIS MARKS	CITY OF MERCER ISLAND	206-275-7822
ALLEN HUNTER	CITY OF MERCER ISLAND	206-275-7812

MARINE CHRISTINE CEHMER — STATE OF WASHINGTON — 22011224 — REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER
SIGNED: 01/23/2024

EDWIN HALIM — STATE OF WASHINGTON — 38889 — REGISTERED PROFESSIONAL ENGINEER
MECHANICAL ENGINEER
SIGNED: 01/23/2024

JON MARSHALL CONNER — STATE OF WASHINGTON — 44672 — REGISTERED PROFESSIONAL ENGINEER
STRUCTURAL ENGINEER
SIGNED: 01/23/2024

MARK W. BRAASCH — STATE OF WASHINGTON — 31635 — REGISTERED PROFESSIONAL ENGINEER
ELECTRICAL ENGINEER
SIGNED: 01/23/2024

RH2

Jan. 22, 2024
MBPS-D-COV.DWG

GENERAL NOTES

1. ALL WORKMANSHIP, CONSTRUCTION AND MATERIALS SHALL BE PERFORMED OR SUPPLIED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS, PLANS, OWNER STANDARD DETAILS, AND THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2020 EDITION, AS ISSUED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION, WHICH IS HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS.
2. A PRECONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION, AND 48 HOURS ADVANCE NOTIFICATION PRIOR TO ACTUAL START OF WORK IS REQUIRED.
3. THE EXISTING PHYSICAL FEATURES AND UTILITIES SHOWN ON THESE PLANS ARE BASED ON RECORD DRAWINGS, AND FIELD RECONNAISSANCE BY RH2 ENGINEERING.
4. THE CONTRACTOR SHALL PROTECT BUILDINGS, FENCES, APPURTENANCES, ABOVE GROUND UTILITIES, AND OTHER PROPERTY ADJACENT TO ALL CONSTRUCTION AREAS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR REPAIRING ALL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES.
5. IN ACCORDANCE WITH THE DEPARTMENT OF ECOLOGY AIR QUALITY STANDARDS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING ALL FUGITIVE DUST THAT MAY BE GENERATED BY THE CONSTRUCTION PROJECT.
6. THE CONTRACTOR SHALL CONTAIN WORK TO THE EXISTING FENCED RESERVOIR AND BOOSTER PUMP STATION SITE. CONSTRUCTION SHALL NOT IMPACT NORMAL OPERATIONS.
7. THE CONTRACTOR SHALL SECURE NECESSARY PERMITS PRIOR TO STARTING CONSTRUCTION. THE OWNER WILL OBTAIN SOME OF THE REQUIRED PERMITS. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING PERMITS.
8. ANY REVISIONS TO PLANS MUST BE MADE BY THE ENGINEER AND APPROVED BY THE OWNER PRIOR TO ANY IMPLEMENTATION IN THE FIELD.
9. A COPY OF THE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

SECTION AND DETAIL REFERENCES

THE FOLLOWING CONVENTIONS HAVE BEEN USED WITHIN THESE DRAWINGS TO REFER THE READER BETWEEN THE SECTION/DETAIL AND THE PLAN FROM WHICH IT IS REFERENCED.

REFERENCE BUBBLES

PLAN REFERENCE BUBBLE - REFERS READER BACK TO THE PLAN FROM WHICH THE DETAIL OR SECTION ORIGINATED.

DETAIL/SECTION REFERENCE BUBBLE - REFERS READER TO THE DRAWING ON WHICH THE DETAIL OR SECTION IS LOCATED.

WHERE, ID = SECTION/DETAIL REFERENCE NUMBER
= DRAWING NUMBER ON WHICH DETAIL ORIGINATED OR RESIDES.

SECTION/DETAIL REFERENCE NUMBER CONVENTIONS:
SECTIONS OR ELEVATIONS SHOULD HAVE A LETTER REFERENCE NUMBER (A THROUGH ZZ).

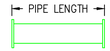
ABBREVIATIONS

CONC	CONCRETE	O.C.	ON CENTER
CL	CENTERLINE	PE	POLYETHYLENE
DIAM	DIAMETER	PROP	PROPOSED
DI	DUCTILE IRON	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	PW	PLATE WASHER
ELEV	ELEVATION	R	RIGHT
EX	EXISTING	RT	RIGHT
FRP	FIBERGLASS REINFORCED PLASTIC	SPEC	SPECIFICATIONS
HN	HEX NUT	STD	STANDARD
L	LEFT	T&B	TOP AND BOTTOM
LT	LEFT	TYP	TYPICAL
LF	LINEAR FEET	W	WATER
MIN.	MINIMUM		

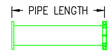
PIPE LENGTH MEASUREMENTS

PIPE LENGTHS CALLED OUT ON PLANS ARE MEASURED AS FOLLOWS:

FLANGE x FLANGE (FLxFL) PIPE MEASURED FROM FACE OF FLANGE TO FACE OF FLANGE.



FLANGE x GROOVED (FLxGR) PIPE MEASURED FROM FACE OF FLANGE TO CENTER OF FITTING.



FITTINGS ARE ASSUMED TO BE STANDARD LENGTH 125#, 250# FLANGED OR COMPACT CLASS 350 MECHANICAL JOINTS. CONTRACTOR RESPONSIBLE FOR VERIFYING LENGTHS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE INTO ACCOUNT ANY VARIATIONS IN FITTING DIMENSIONS.

RH2

EDWIN HALME — STATE OF WASHINGTON — 38889 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

MARIE CHRISTINE CELTRA DEAN — STATE OF WASHINGTON — 22011224 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND

MERCER ISLAND BOOSTER PUMP STATION UPGRADES

GENERAL INFORMATION

JOB NO.: 21-0228
CLIENT: MI
FILENAME: MBPS-D-COV.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: MCCB
REVIEWED: EH

REVISIONS

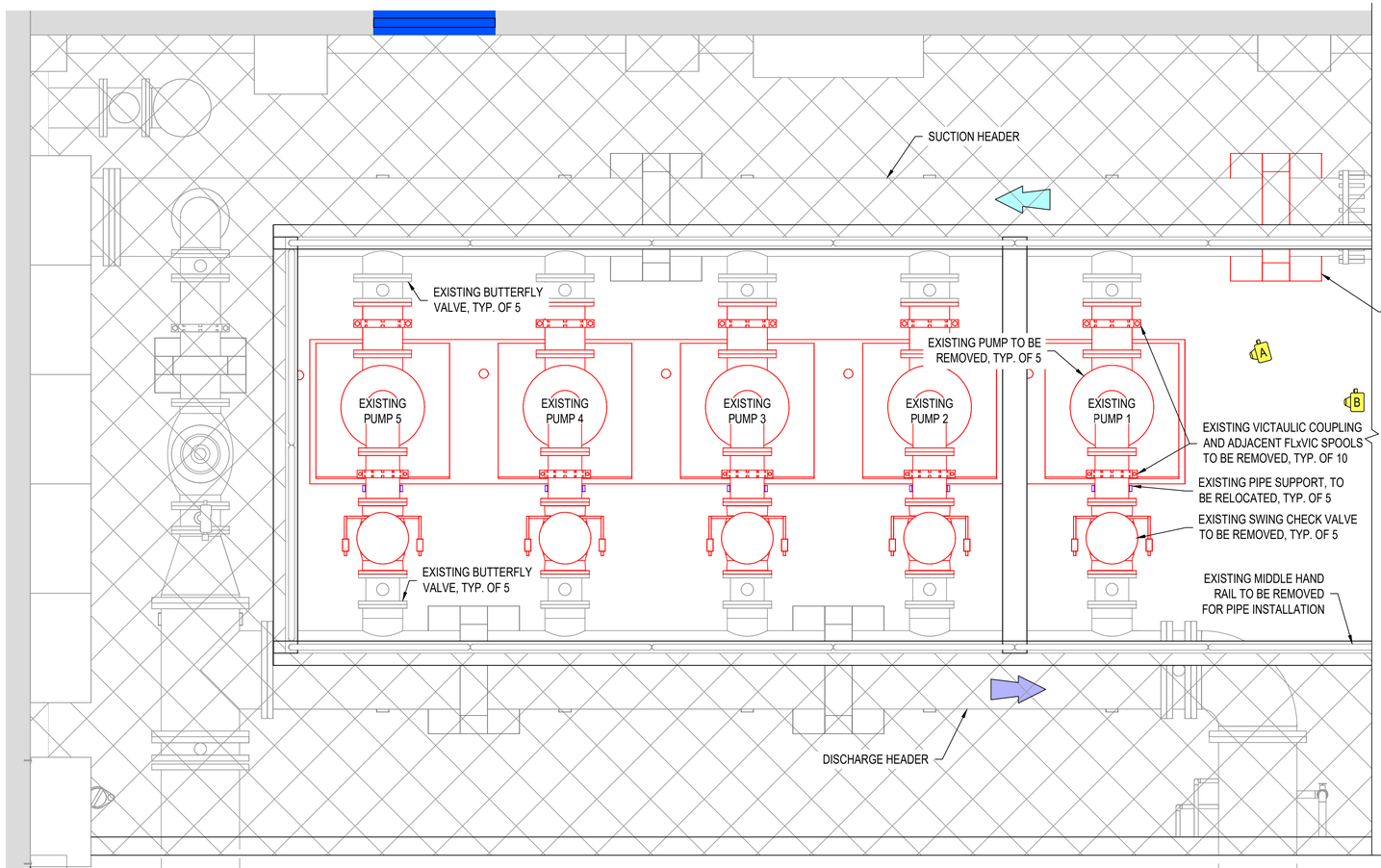
NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

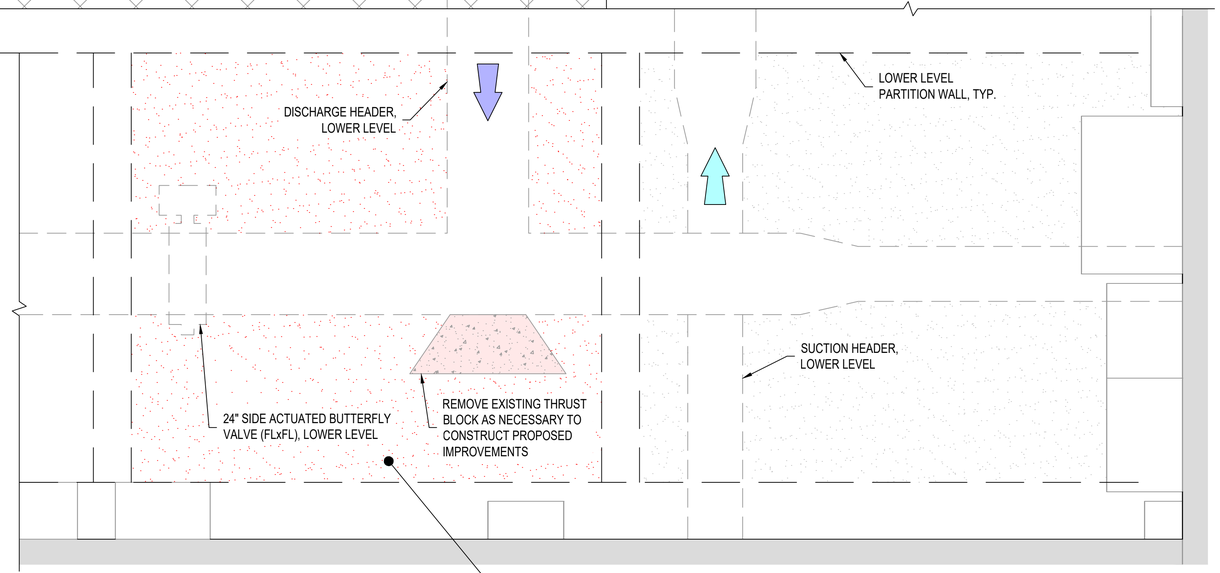
DWG NO.: G01
SHEET NO.: 02
12



A EXISTING PUMP DEMOLITION

NOTE: THE EXISTING PUMPS CONTAIN MERCURY SEALS.
- CONSULT THE PUMP MANUAL FOR REMOVAL INSTRUCTIONS BEFORE REMOVING THE PUMPS.
- USE A BARRIER, SUCH AS AN IMPERMEABLE TARP, TO PROTECT THE PUMP CAN IN CASE OF A SPILL.
- PROVIDE A MERCURY SPILL CLEANUP KIT ON SITE AND TRAIN STAFF ON ITS USE.
- DISPOSE OF MERCURY AND MERCURY-CONTAINING EQUIPMENT ACCORDING TO FEDERAL, STATE, AND LOCAL REGULATIONS.

B EXISTING PUMP GALLERY



EXISTING MECHANICAL AND DEMOLITION PLAN

½" = 1'–0"

NOTES:
1. REFER TO SPECIFICATIONS FOR CONSTRUCTION MILESTONE AND PHASING REQUIREMENTS.
2. PRIOR TO ORDERING SPOOLS CONFIRM:
   A. THE LOCATION OF THE EXISTING BUTTERFLY VALVE IN THE LOWER LEVEL PARTITION AREA.
   B. THE DISTANCE BETWEEN THE EXISTING BUTTERFLY VALVES ADJACENT TO THE SUCTION AND DISCHARGE HEADER FOR PUMPS 1-5.

   COORDINATE WITH THE OWNER IF MEASURED DISTANCES RESULTS IN A DISCREPANCY FROM THE PLANS.

RH2

EDWIN HALME — STATE OF WASHINGTON — 38889 — REGISTERED PROFESSIONAL ENGINEER
SIGNED: 01/23/2024

MARIE CHRISTINE CELTRA DEAN — STATE OF WASHINGTON — 22011224 — REGISTERED PROFESSIONAL ENGINEER
SIGNED: 01/23/2024

CITY OF MERCER ISLAND
BOOSTER PUMP STATION UPGRADES

EXISTING MECHANICAL AND DEMOLITION PLAN

CITY OF MERCER ISLAND PUBLIC WORKS

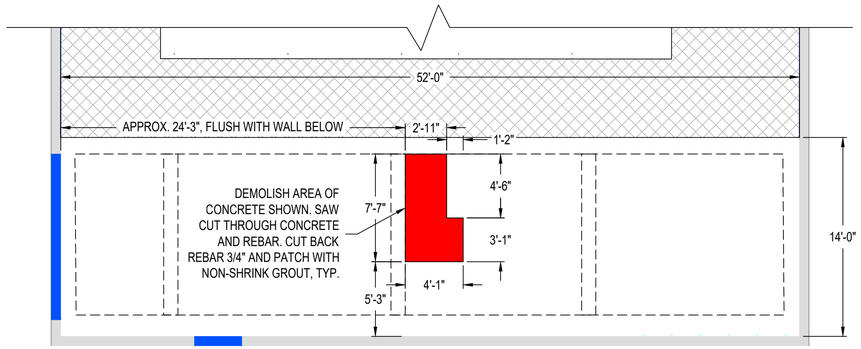
JOB NO.: 21-0228
CLIENT: MH
FILENAME: MBPS-D-MEC01.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 23, 2024
ENGINEER: MC/CB
REVIEWED: EH

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

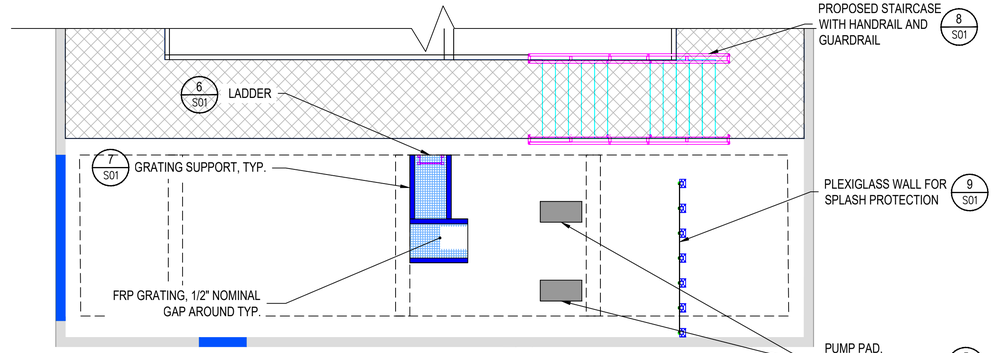
DWG NO.: M01
SHEET NO.: 03
12



EXISTING SLAB DEMOLITION PLAN

3/16" = 1'-0"

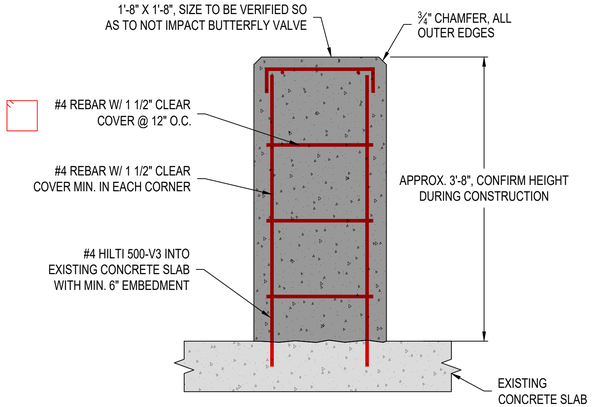
1 S01



PROPOSED SLAB PLAN

3/16" = 1'-0"

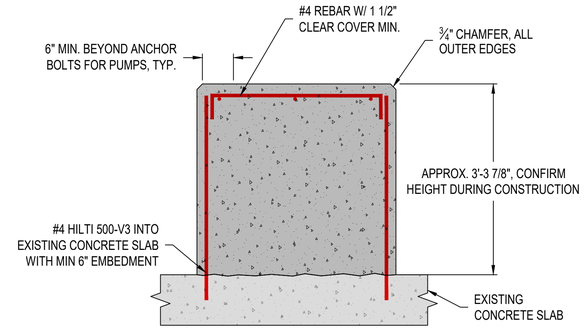
2 S01



DISCHARGE TAPPING TEE CONCRETE PAD

NOT TO SCALE

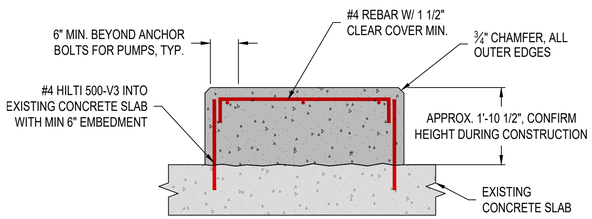
3 S01



PUMPS 1-5 PAD

NOT TO SCALE

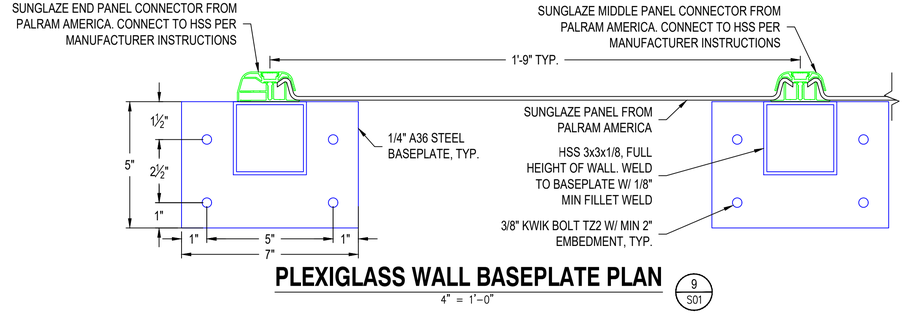
4 S01



PUMPS 6-7 PAD

NOT TO SCALE

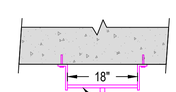
5 S01



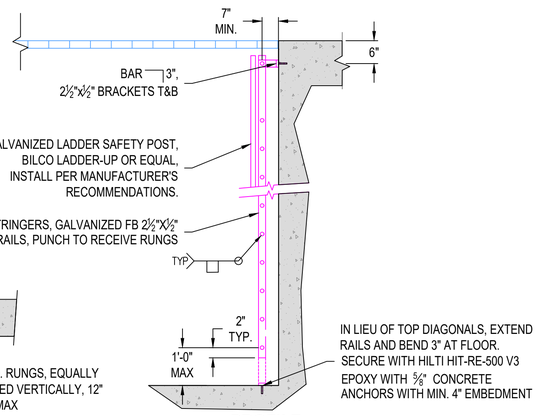
PLEXIGLASS WALL BASEPLATE PLAN

4" = 1'-0"

9 S01



PLAN

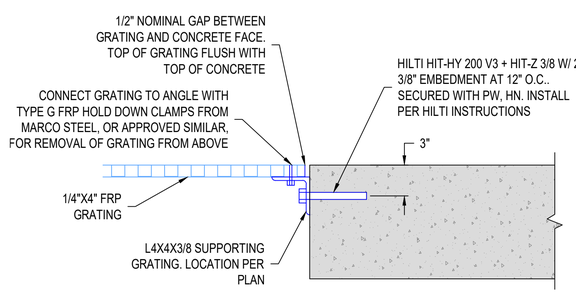


PROFILE

LADDER DETAIL

NOT TO SCALE

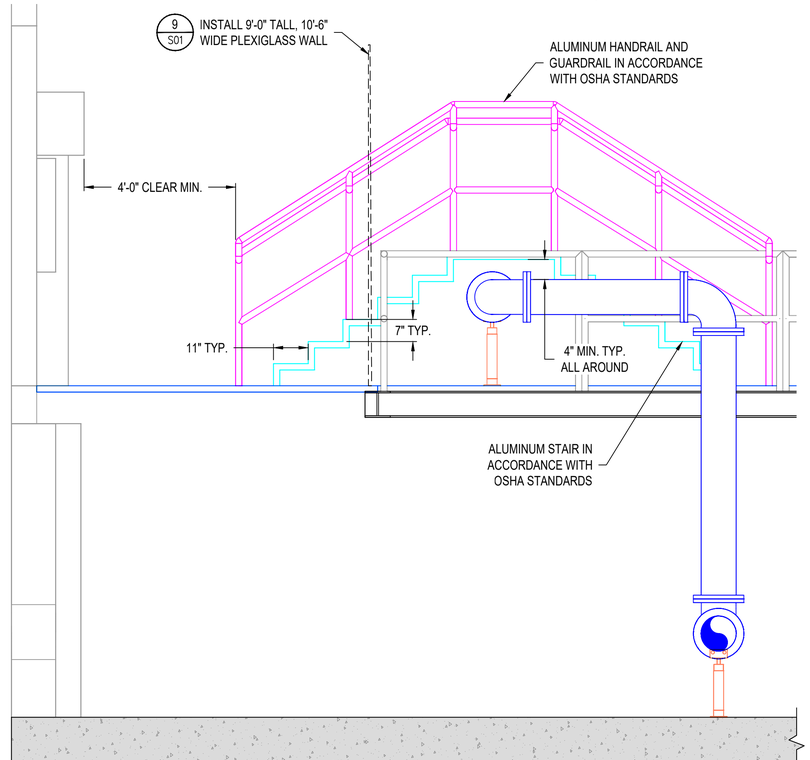
6 S01



GRATING SUPPORT DETAIL

1 1/2" = 1'-0"

7 S01



GRATE STAIR AND PLATFORM ELEVATION

1/2" = 1'-0"

8 S01

RH2

SIGNED: 01/23/2024

CITY OF MERCER ISLAND
BOOSTER PUMP STATION UPGRADES

PROPOSED STRUCTURAL

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

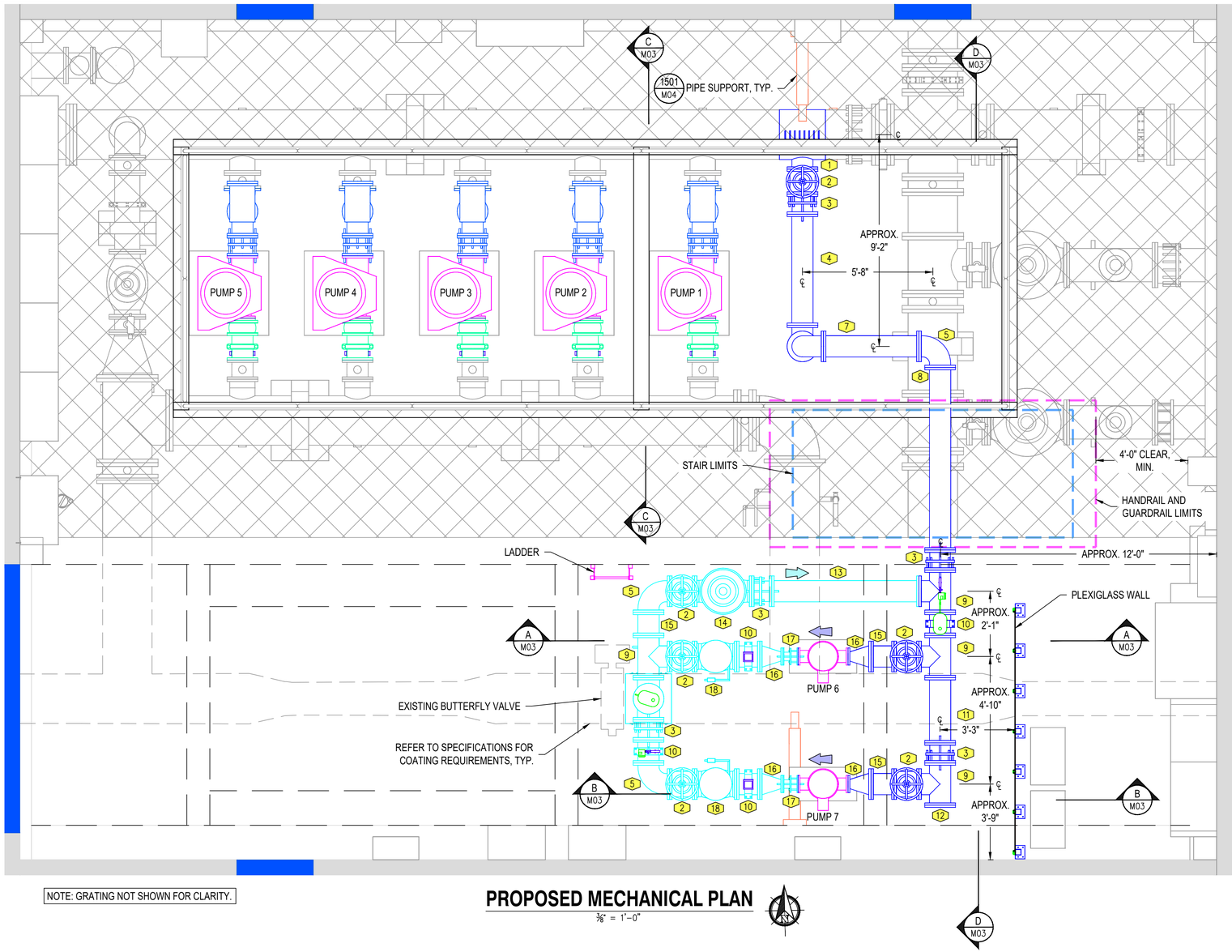
JOB NO.: 21-0228
FILENAME: MBPS-D-S02.DWG
CLIENT: MI
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: MCCB
REVIEWED: EH

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S01
SHEET NO.: 04
12



NOTE: GRATING NOT SHOWN FOR CLARITY.

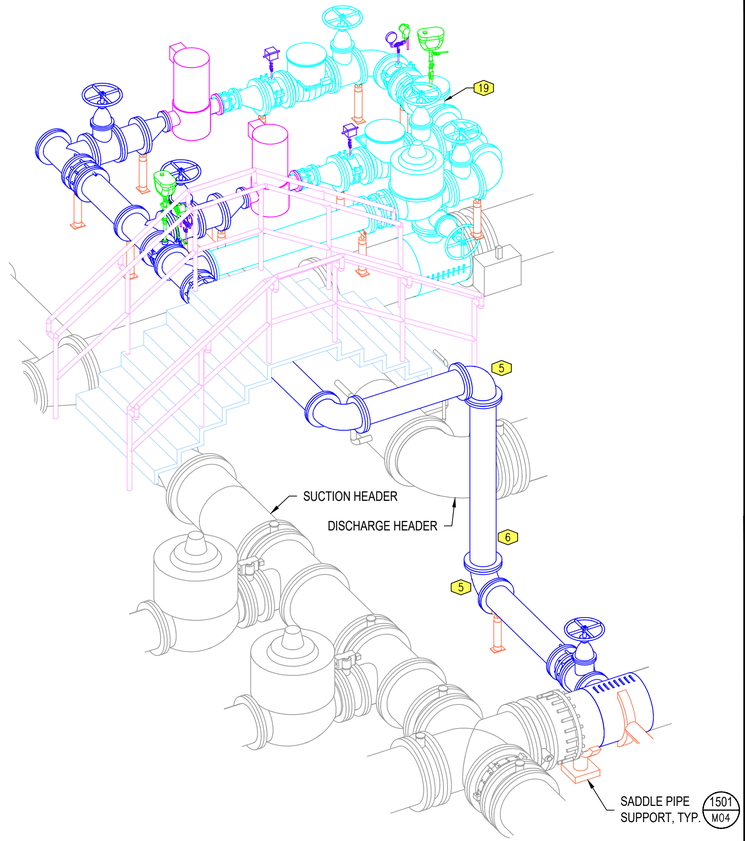
PROPOSED MECHANICAL PLAN

3/8" = 1'-0"

MECHANICAL FITTING LEGEND

1. 24"x10" TAPPING TEE
2. 10" GATE VALVE (FLxFL)
3. 10" DISMANTLING JOINT, INSTALL AT NOMINAL LAY LENGTH
4. 10" DI SPOOL (FLxFL), LENGTH 4'-10"
5. 10" DI 90° BEND (FLxFL)
6. 10" DI SPOOL (FLxFL), LENGTH 7'-1"
7. 10" DI SPOOL (FLxFL), LENGTH 4'-2"
8. 10" DI SPOOL (FLxFL), LENGTH 7'-11"
9. 10" DI TEE (FLxFL)
10. 10" DI SPOOL (FLxFL), LENGTH 1'-0" WITH 10" TAPPING SADDLE CENTERED ON SPOOL
11. 10" DI SPOOL (FLxFL), LENGTH 2'-10"
12. 10" DI BLIND FLANGE
13. 10" DI SPOOL (FLxFL), LENGTH 6'-5"
14. 10" CONTROL VALVE (FLxFL)
15. 10" DI SPOOL (FLxFL), LENGTH 1'-0"
16. 10"x4" DI ECCENTRIC REDUCER (FLxFL)
17. 4" DISMANTLING JOINT, INSTALL AT NOMINAL LAY LENGTH
18. 10" SWING CHECK VALVE (FLxFL)
19. 10" DI CROSS (FLxFL)

NOTE: SEE DWG NO. M03 FOR PIPES AND FITTINGS NOT CALLED OUT THIS SHEET.



PROPOSED PUMP 6 AND 7 MECHANICAL OBLIQUE VIEW

NOT TO SCALE

NOTE: STRUCTURAL ELEMENTS SUCH AS WALLS AND FLOORS NOT SHOWN FOR CLARITY.

RH2

EDWIN HALEY — STATE OF WASHINGTON — 38889 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

MARIE CHRISTINE CELTIS DEAN — STATE OF WASHINGTON — 22011224 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND

BOOSTER PUMP STATION UPGRADES

PROPOSED MECHANICAL PLAN

JOB NO.: 21-0228
CLIENT: MI
FILENAME: MBPS-D-MEC02.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: MCCB
REVIEWED: EH

REVISIONS

NO.	DESCRIPTION	DATE	BY
			REVIEW

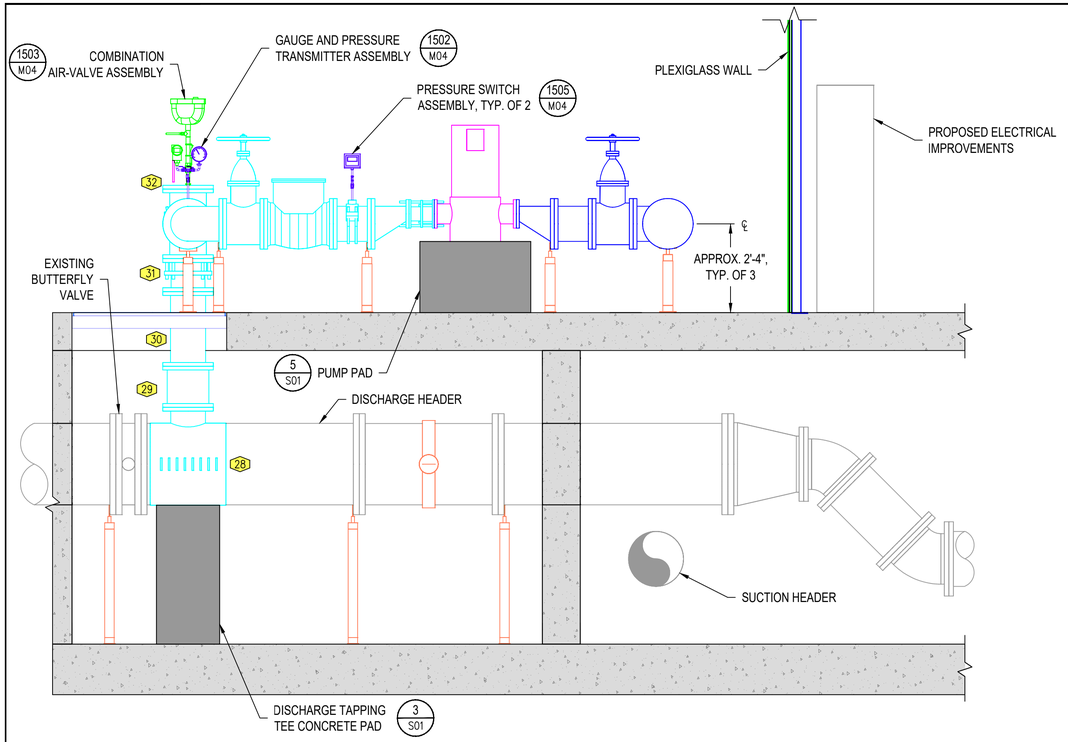
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M02

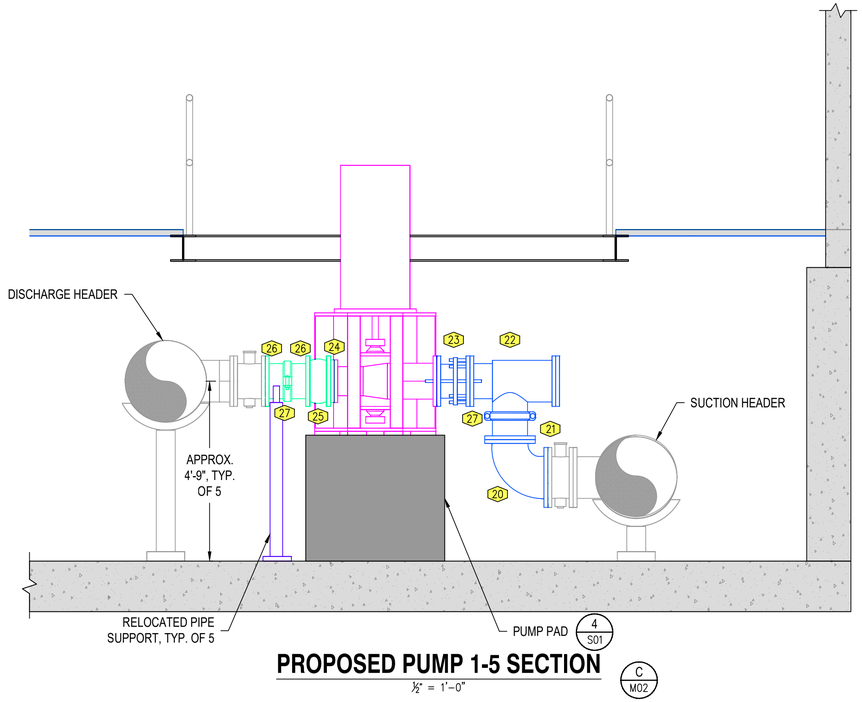
SHEET NO.: 05 12



PROPOSED MECHANICAL SECTION

B M02

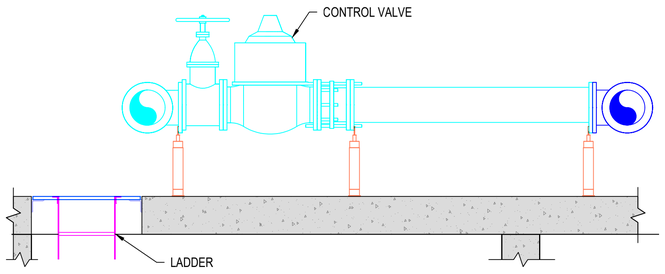
½" = 1'–0"



PROPOSED PUMP 1-5 SECTION

C M02

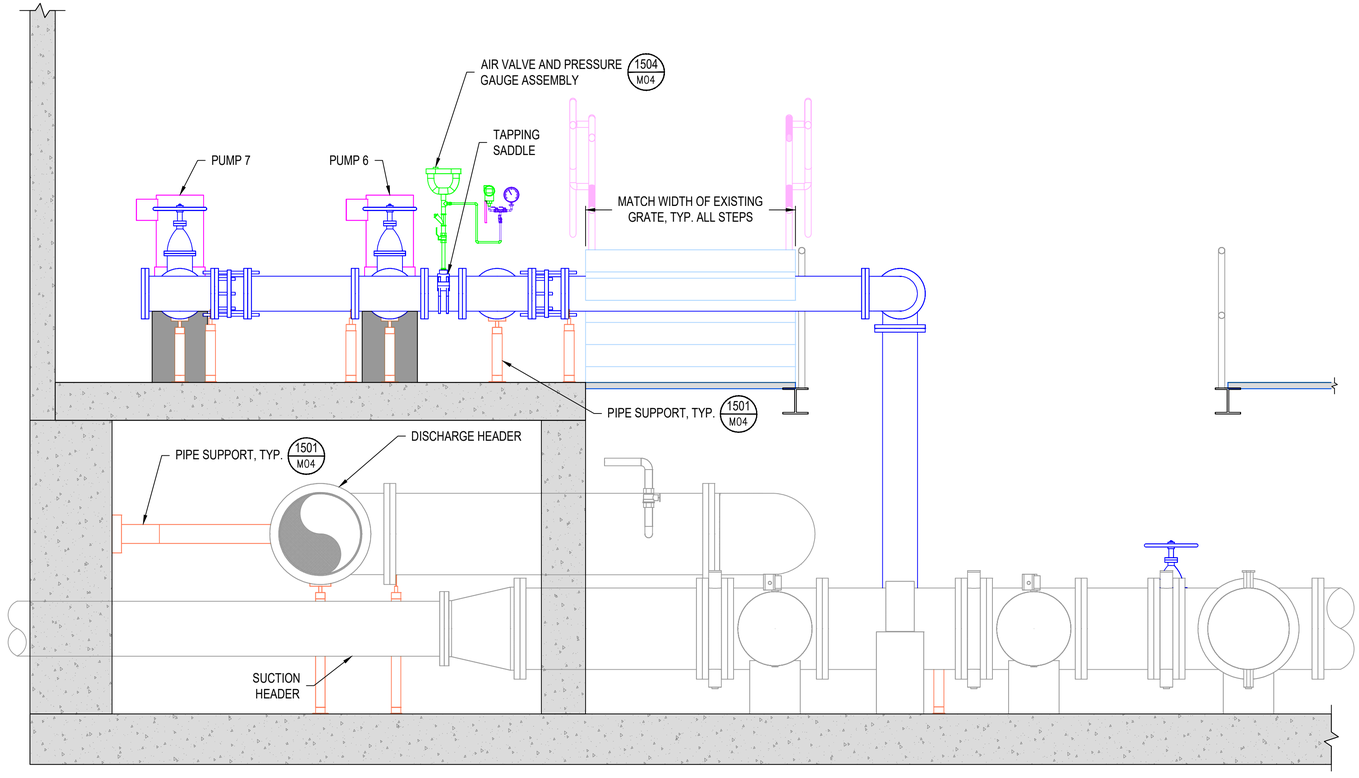
½" = 1'–0"



PROPOSED MECHANICAL SECTION

A M02

½" = 1'–0"



PROPOSED MECHANICAL SECTION

D M02

½" = 1'–0"

MECHANICAL FITTING LEGEND

- 20 12"x10" DI REDUCING 90° BEND (FLxFL)
- 21 10" DI SPOOL (FLxGR), LENGTH 0'-7½"
- 22 10" SUCTION DIFFUSER (GRxFL)
- 23 10" DISMANTLING JOINT, INSTALL AT NOMINAL LAY LENGTH
- 24 10"x8" DI SPACE SAVER FLANGE REDUCER
- 25 10" WAFER STYLE DUAL DISC CHECK VALVE
- 26 10" DI SPOOL (FLxGR), LENGTH 0'-7"
- 27 10" VICTAULIC COUPLING
- 28 24"x10" TAPPING TEE
- 29 10" GATE VALVE (FLxFL)
- 30 10" DI SPOOL (FLxFL), LENGTH 2'-0"
- 31 10" DISMANTLING JOINT, INSTALL AT NOMINAL LAY LENGTH
- 32 10" DI BLIND FLANGE WITH 2" THREADED TAP

NOTE: SEE DWG NO. M02 FOR PIPES AND FITTINGS NOT CALLED OUT THIS SHEET.

RH2

EDWIN HALME — STATE OF WASHINGTON — 38889 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

MARIE CHRISTINE CELTRA DEAN — STATE OF WASHINGTON — 22011224 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND

BOOSTER PUMP STATION UPGRADES

PROPOSED MECHANICAL SECTIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

JOB NO.: 21-0228
CLIENT: M-I
FILENAME: MBPS-D-MEC02.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: MC/CB
REVIEWED: EH

SCALE: SHOWN

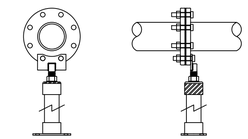
0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

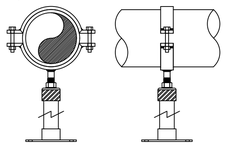
DWG NO.: M03

SHEET NO.: 06

12



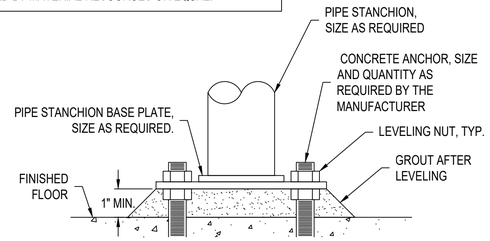
TYPE A - FLANGE SUPPORT
(TYP. AT VALVES, METERS, AND FITTINGS)



TYPE C - SADDLE CLAMP SUPPORT
(TYP. AT PIPING)

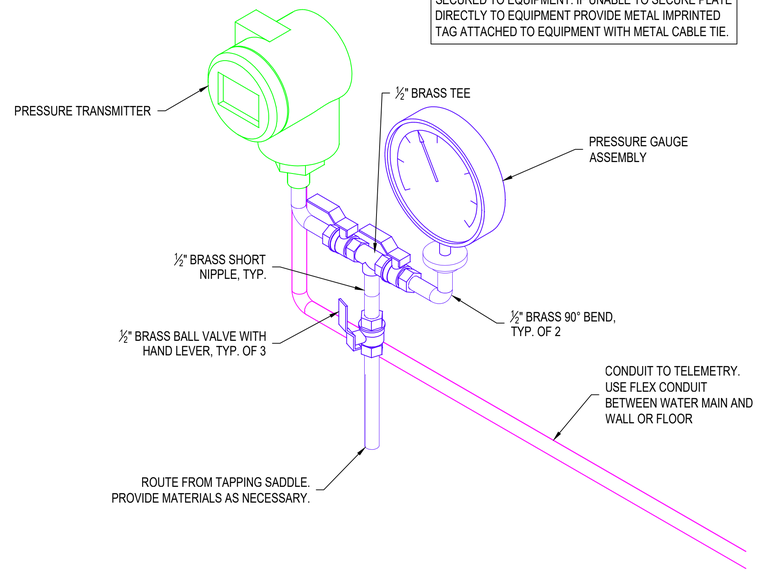
NOTES:
- CONTRACTOR SHALL PROVIDE SUPPORTS AS NEEDED TO SECURE PIPING SYSTEM IN NORMAL AND TEST OPERATING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF THE NECESSARY PIPE SUPPORTS, HANGERS AND SEISMIC BRACING. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. SUBMIT DESIGN WITH PIPING PLAN.
- SADDLE AND SADDLE CLAMP SUPPORTS SHALL BE "STANDON" BRAND AS MANUFACTURED BY MATERIAL RESOURCES OR EQUAL.

PIPE SUPPORT DETAIL
NOT TO SCALE
1501 –

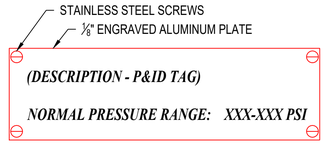


PIPE STANCHION DETAIL
NOT TO SCALE

NOTES:
NAMEPLATE LABEL SHALL MATCH EXISTING AND BE SECURED TO EQUIPMENT. IF UNABLE TO SECURE PLATE DIRECTLY TO EQUIPMENT PROVIDE METAL IMPRINTED TAG ATTACHED TO EQUIPMENT WITH METAL CABLE TIE.

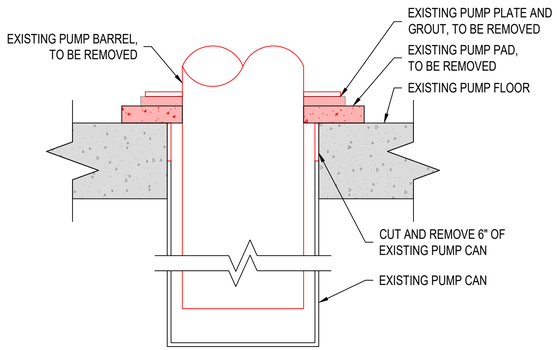


GAUGE AND PRESSURE TRANSMITTER ASSEMBLY
NOT TO SCALE
1502 –

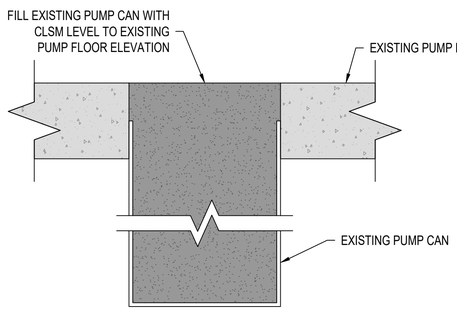


NOTE: SEE SPECIFICATIONS FOR DESCRIPTION, P&ID TAG, AND PRESSURE RANGE INFO

IDENTIFICATION AND CALIBRATION PLATE DETAIL

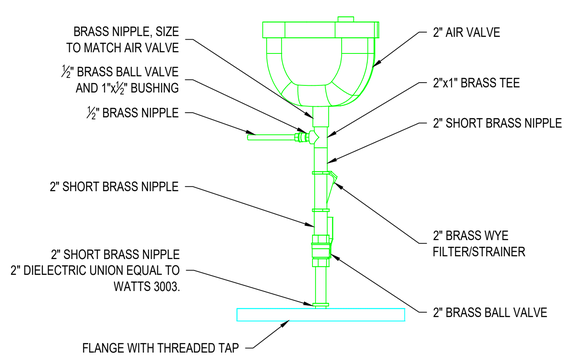


PUMP CAN DEMOLITION

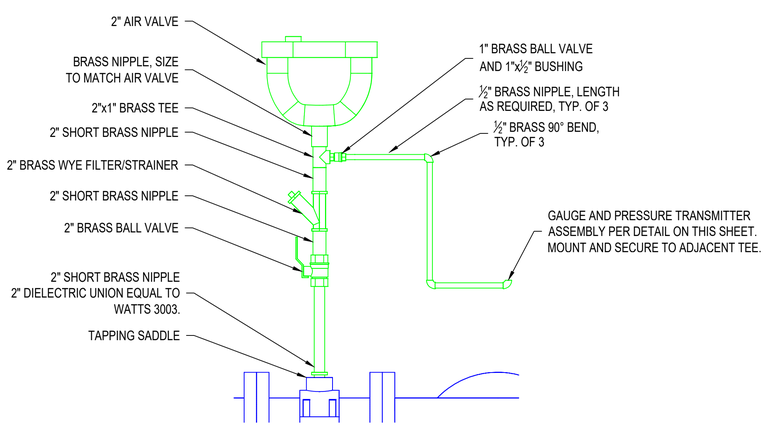


PUMP CAN ABANDONMENT

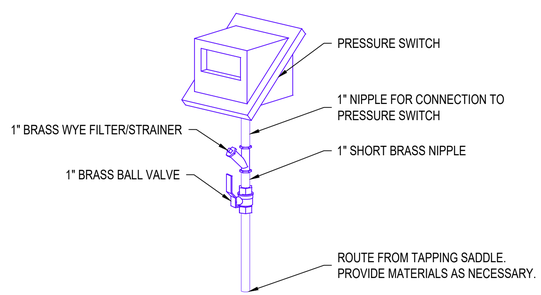
PUMP CAN ABANDONMENT DETAIL
NOT TO SCALE
1506 –



COMBINATION-AIR VALVE ASSEMBLY
NOT TO SCALE
1503 –



AIR VALVE & PRESSURE GAUGE ASSEMBLY
NOT TO SCALE
1504 –



PRESSURE SWITCH ASSEMBLY
NOT TO SCALE
1505 –

RH2

EDWIN HALE — STATE OF WASHINGTON — 38886 — REGISTERED PROFESSIONAL ENGINEER
SIGNED: 01/23/2024

MARIE CHRISTINE CELTRA DEAN — STATE OF WASHINGTON — 22011224 — REGISTERED PROFESSIONAL ENGINEER
SIGNED: 01/23/2024

CITY OF MERCER ISLAND
BOOSTER PUMP STATION UPGRADES

MECHANICAL DETAILS 1

JOB NO.: 21-0228
CLIENT: MI
FILENAME: MBPS-D-MEC03.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: MCCB
REVIEWED: EH

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M04
SHEET NO.: 07 12

ONE-LINE DIAGRAM SYMBOLS

- CIRCUIT BREAKER
  - XXX/YY – CB SIZE & NO. OF POLES
  - ET – ELECTRONIC TRIP
  - TM – THERMAL MAGNETIC BREAKER
  - MCP – MOTOR CIRCUIT PROTECTOR
  - SE – SERVICE ENTRANCE
  - GFI – GROUND FAULT INTERRUPTER
- FUSE
- FUSED DISCONNECT SWITCH
- PLUG–IN CONNECTION
- RTM – RUN TIME METER
- OC – MOTOR OPERATION COUNTER
- SSRVS – SSRVS – SOLID STATE REDUCED VOLTAGE STARTER
- VARIABLE FREQUENCY DRIVE
- MOTOR STARTER
- MOTOR STARTER W/ OPERATOR DEVICES
  - A – HAND–OFF–AUTO
  - B – OPERATIONAL COUNTER
  - C – RUN TIME METER
  - D – RUN LIGHT
  - E – FAIL LIGHT
  - F – EMERGENCY STOP
- K – KIRK KEY INTERLOCK
- POWER TRANSFORMER
- CONTROL POWER TRANSFORMER
- TRANSFORMER
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- CONTACTOR
- CAPACITOR
- ENGINE GENERATOR
- GENERATOR CONNECTION RECEPTACLE
- S/N – SOLID NEUTRAL
- TB – TERMINAL BLOCK
- SURGE PROTECTION DEVICE
- SPD – SURGE PROTECTION DEVICE (ALTERNATIVE)

GROUNDING SYSTEM SYMBOLS

- GROUND
- METAL PIPE GROUND
- CONNECTION POINT, EXOTHERMIC WELD. CADWELD OR APPROVED EQUAL.
- GROUND ROD SIZED PER N.E.C. USE EXOTHERMIC WELD CONNECTION AT THE GROUND ROD.
- PIGTAIL, BARE COPPER, LENGTH AS REQUIRED, 8" MINIMUM.
- CONNECTION POINT, MECHANICAL, COMPRESSION TYPE.

ELECTRICAL SITE PLAN SYMBOLS

- UTILITY POLE AND GUY WIRE
- HH – MANHOLE OR HANDHOLE
- P – BURIED POWER VAULT OR MANHOLE
- T – TELEPHONE VAULT OR PEDESTAL
- F – FIBER OPTICS VAULT OR PEDESTAL
- LUMINAIRE
- PAD–MOUNT TRANSFORMER

PANELBOARDS, SWITCHES, AND EQUIPMENT

- SERVICE ENTRANCE, SWITCHGEAR, MOTOR CONTROL CENTER, OR PANELBOARD
- SURFACE MOUNTED PANELBOARD
- FLUSHED MOUNTED PANELBOARD
- NXX – FIELD CONTROL STATION WITH NEMA REQUIREMENTS.
  - N1 – NEMA 1
  - N3R – NEMA 3R
  - N4 – NEMA 4
  - N4SS – NEMA 4 STAINLESS STEEL
  - N4F – NEMA 4 FIBERGLASS
  - N6 – NEMA 6
  - N12 – NEMA 12 GASKETED
- EQUIPMENT MOUNTING STAND
- T – HEATER, WATTAGE NOTED
- EQUIPMENT CONNECTION
- M – SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- HP – THREE PHASE MOTOR. HORSEPOWER AS NOTED
- HP – SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- ELECTRICAL PLUG
- DISCONNECT SWITCH
- F – FUSED DISCONNECT SWITCH
- COMBINATION MOTOR STARTER AND DISCONNECT SWITCH

RECEPTACLES AND JUNCTION BOX SYMBOLS

- J – CEILING JUNCTION BOX
- J – WALL JUNCTION BOX
- J – FLOOR JUNCTION BOX
- DUPLEX WALL RECEPTACLE , 120V
  - WP = WEATHERPROOF
  - G = GROUNDED
  - IG = ISOLATED GROUND
  - GFI = GROUND FAULT INTERRUPTER
- DOUBLE DUPLEX
- SINGLE RECEPTACLE, 120V
- SINGLE RECEPTACLE, 208V
- DUPLEX FLOOR RECEPTACLE, 120V
- SPECIAL PURPOSE WALL RECEPTACLE, RATING AS NOTED
- CLOCK
- TV – TELEVISION
- TELEPHONE
- TELEPHONE/DATA WITH CABLE
- TELEPHONE/DATA WITHOUT CABLE

SWITCH OUTLETS

- S – STANDARD SWITCH, 120VAC, 20 AMP
- S_3 3WAY – 3–WAY SWITCH, 120VAC, 20 AMP
- S_{HOA} HOA – 3–POSITION SWITCH, 120VAC, 20 AMP, LABEL SWITCH POSITION HAND–OFF–MOTION OR PHOTO

S_{DEE} SINGLE–POLE	S_P PILOT–LIGHTED
S_2 DOUBLE–POLE	S_K KEY–OPERATED
S_3 THREE WAY	S_{LV} LOW VOLTAGE
S_4 FOUR WAY	S_M MASTER
S_D DIMMER	M PUSHBUTTON
S_{OS} OCCUPANCY SENSOR	

LIGHTING FIXTURES/DEVICES

- FLUORESCENT FIXTURE
- WALL/CEILING MOUNTED FIXTURE
- EMERGENCY LIGHT WITH SELF CONTAINED BATTERY
- SURFACE OR PENDANT MOUNTED FIXTURE
- RECESSED FIXTURE
- MD – MOTION DETECTOR
- PC – PHOTO CONTROL CELL

FIRE SYSTEM SYMBOLS

- H – HEAT DETECTOR
- S – SMOKE DETECTOR
- D – FIRE ALARM DISPATCH STROBE ALARM
- A – FIRE ALARM AUDIBLE/VISUAL ALARM
- F – FIRE ALARM MANUAL PULL STATION

ADDITIONAL SYMBOLS

- S – SOUND SYSTEM SPEAKER
- V – SOUND SYSTEM VOLUME CONTROL
- B – DOORBELL

VALVE SYMBOLS

- PILOT VALVE SOLENOID
- VALVE
- CHECK VALVE
- CONTROL VALVE

ABBREVIATIONS

SPDT – SINGLE POLE, DOUBLE THROW
SPST – SINGLE POLE, SINGLE THROW
DPST – DOUBLE POLE, SINGLE THROW
WP – WEATHER–PROOF
GFI – GROUND FAULT INTERRUPT
P – POWER
C – CONTROL
J – INSTRUMENTATION
PC – POWER & CONTROL
CJ – CONTROL & INSTRUMENTATION
CKT. – CIRCUIT
C.O. – CONDUIT ONLY
N.L. – NIGHT LIGHT
AL. – ALUMINUM
CU. – COPPER

HOA	HAND–OFF–AUTO SWITCH
RTM	RUN TIME METER
OC	OPERATION COUNTER
MRIL	MOTOR RUN INDICATION LIGHT
SFIL	SEAL FAIL INDICATION LIGHT
SFTR	SEAL FAIL TRIP RESET
OTIL	OVER TEMPERATURE INDICATION LIGHT
MOIL	MOTOR OVERLOAD INDICATION LIGHT

INDICATE TYPE BY LETTER

V
AH

INSTRUMENT METER

A – AMMETER	VAR – VARMETER
AH – AMPERE–HOUR	VARH – VARHOUR METER
PF – POWER FACTOR	W – WATTMETER
V – VOLTMETER	WH – WATTHOUR METER
VA – VOLT AMMETER	

RACEWAY LEGEND

SITE PLAN LEGEND

- P – PROPOSED POWER
- TEL – PROPOSED TELEPHONE
- TELM – PROPOSED INSTRUMENTATION
- FO – PROPOSED FIBER OPTICS

BUILDING OR FACILITY PLAN LEGEND

- 480 VOLT EXPOSED RACEWAY
- 480 VOLT WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- 120/208/240 VOLT EXPOSED RACEWAY
- 120/208/240V WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- CONTROL OR INSTRUMENTATION EXPOSED RACEWAY
- CONTROL OR INSTRUMENTATION, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- HOME RUN TO PANELBOARD OR AS INDICATED
- CONDUIT RUN, BROKEN AND CONTINUED SAME SHEET OR AS NOTED
- FLEXIBLE CONDUIT
- CONDUIT RUN. HATCH MARKS INDICATE NUMBER OF CONDUCTORS
- ½" GRC, 2–#12 – CALLOUT INDICATING CONDUIT SIZE, NUMBER AND SIZE OF WIRE.
- XXX – CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT BENT UP OR TOWARD
- CONDUIT BENT DOWN OR AWAY
- CAPPED CONDUIT

ONE-LINE DIAGRAM INFORMATION

- EXISTING EQUIPMENT AND CONDUIT
- PROPOSED EQUIPMENT AND CONDUIT
- GROUNDING EQUIPMENT AND CONDUCTORS
- CONDUIT, WIRING OR EQUIPMENT TO BE REMOVED

LADDER LOGIC SYMBOL LEGEND

- INDICATOR LIGHT – INDICATOR LIGHT
  - A – AMBER G – GREEN
  - B – BLUE R – RED
  - C – CLEAR W – WHITE
- RELAY (XYZ 123) – RELAY
  - TR – TIMED RELAY
  - CR – CONTROL RELAY
- LIMIT SWITCH – LIMIT SWITCH, NORMALLY OPEN
- FLOAT SWITCH – FLOAT SWITCH, NORMALLY OPEN
- LIMIT SWITCH – LIMIT SWITCH, NORMALLY CLOSED
- FLOAT SWITCH – FLOAT SWITCH, NORMALLY CLOSED
- TIME DELAY CONTACT – TIME DELAY CONTACT, NORMALLY OPEN, TIME TO CLOSE
- PUSHBUTTON – PUSHBUTTON, NORMALLY CLOSED
- TIME DELAY CONTACT – TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO OPEN
- PUSHBUTTON – PUSHBUTTON, NORMALLY OPEN
- TIME DELAY CONTACT – TIME DELAY CONTACT, NORMALLY OPEN, TIME TO OPEN
- THERMOSTAT – THERMO SWITCH, NORMALLY OPEN
- TIME DELAY CONTACT – TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO CLOSE
- THERMOSTAT – THERMO SWITCH, NORMALLY CLOSED
- RELAY CONTACT, NC / RELAY CONTACT, NO – RELAY CONTACT, INSTANTANEOUS CHANGE
- FLOWSWITCH – FLOWSWITCH, NORMALLY OPEN
- PRESSURE SWITCH – PRESSURE SWITCH, NORMALLY OPEN
- FLOWSWITCH – FLOWSWITCH, NORMALLY CLOSED
- PRESSURE SWITCH – PRESSURE SWITCH, NORMALLY CLOSED
- 2 POLE SWITCH

LADDER LOGIC LINETYPES

- COMPONENT INSTALLED INSIDE ENCLOSURE
- COMPONENT INSTALLED ON FRONT OF ENCLOSURE
- FIELD CONNECTED COMPONENT

- 3 POLE SWITCH

GENERAL NOTES

1. THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS PAGE WILL APPEAR IN THIS SET OF PLANS.

2. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN REVIEWED BY THE ENGINEER.

RH2

MARK W. BRANCOM – STATE OF WASHINGTON – 51835 – REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND
MBBPS BOOSTER PUMP STATION UPGRADES

ELECTRICAL LEGEND

JOB NO.: 21-0228	REVIEW
CLIENT: MI	BY
FILENAME: MBPS-D-ELEC01.DWG	
SAVE DATE: Jan 22, 2024	
PLOT DATE: Jan 22, 2024	DESCRIPTION
ENGINEER: BPC	DATE
REVIEWED: MWB	NO.

REVISIONS

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E01

SHEET NO.: 08 12

POWER CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
P1	PANEL "MSBD"	PUMP 6 VFD ENCLOSURE	1"	(3) – #8, (1) – #10 GRD	
P2	PANEL "MSBD"	PUMP 7 VFD ENCLOSURE	1"	(3) – #8, (1) – #10 GRD	
P3	PUMP 6 VFD ENCLOSURE	PUMP 6	1"	(3) – #8, (1) – #10 GRD	
P4	PUMP 7 VFD ENCLOSURE	PUMP 7	1"	(3) – #8, (1) – #10 GRD	

CONTROL CONDUIT AND CONDUCTOR SCHEDULE

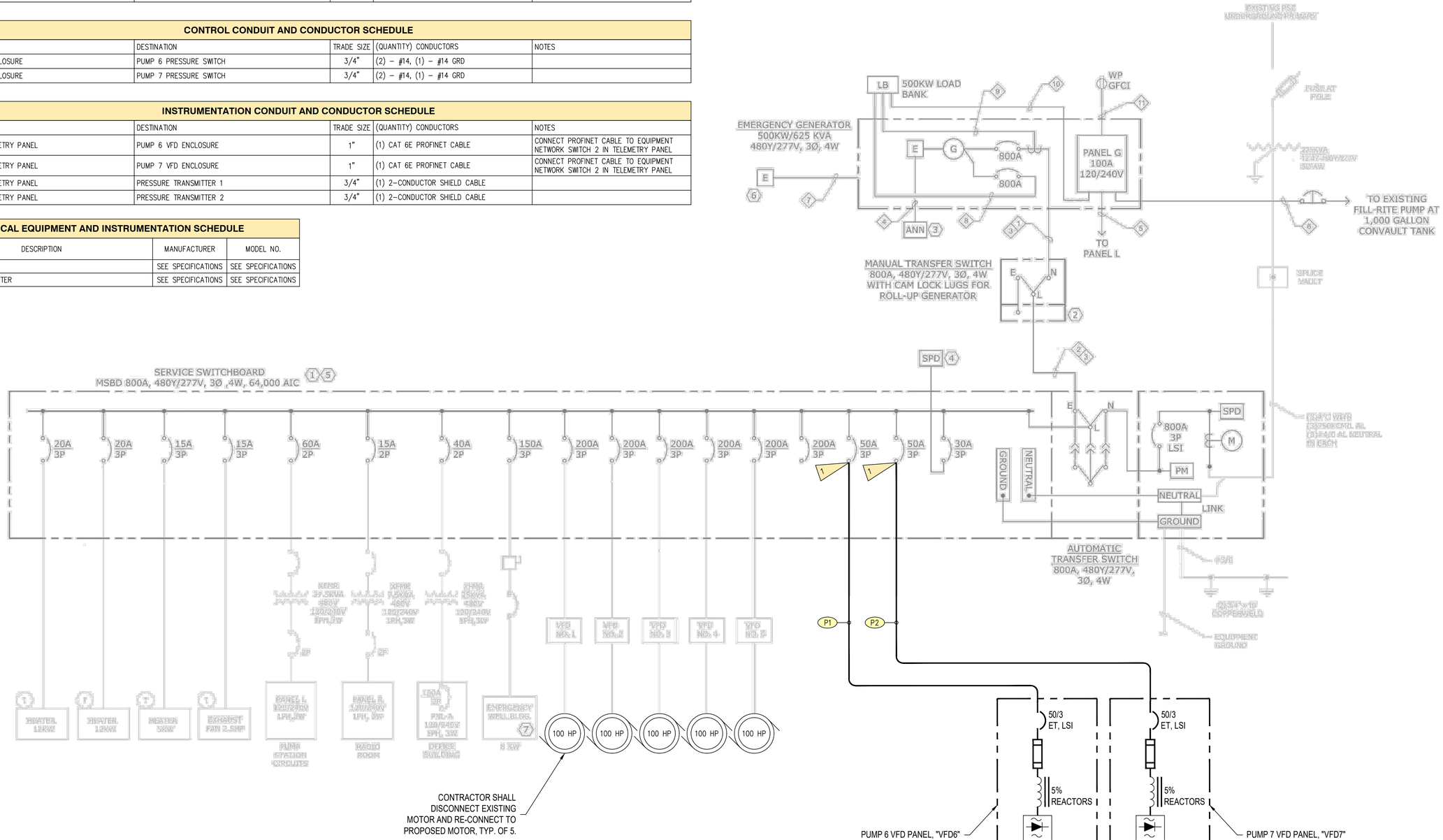
CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
C1	PUMP 6 VFD ENCLOSURE	PUMP 6 PRESSURE SWITCH	3/4"	(2) – #14, (1) – #14 GRD	
C2	PUMP 7 VFD ENCLOSURE	PUMP 7 PRESSURE SWITCH	3/4"	(2) – #14, (1) – #14 GRD	

INSTRUMENTATION CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
J1	PROPOSED TELEMETRY PANEL	PUMP 6 VFD ENCLOSURE	1"	(1) CAT 6E PROFINET CABLE	CONNECT PROFINET CABLE TO EQUIPMENT NETWORK SWITCH 2 IN TELEMETRY PANEL
J2	PROPOSED TELEMETRY PANEL	PUMP 7 VFD ENCLOSURE	1"	(1) CAT 6E PROFINET CABLE	CONNECT PROFINET CABLE TO EQUIPMENT NETWORK SWITCH 2 IN TELEMETRY PANEL
J3	PROPOSED TELEMETRY PANEL	PRESSURE TRANSMITTER 1	3/4"	(1) 2-CONDUCTOR SHIELD CABLE	
J4	PROPOSED TELEMETRY PANEL	PRESSURE TRANSMITTER 2	3/4"	(1) 2-CONDUCTOR SHIELD CABLE	

ELECTRICAL EQUIPMENT AND INSTRUMENTATION SCHEDULE

ITEM	DESCRIPTION	MANUFACTURER	MODEL NO.
A	PRESSURE SWITCH	SEE SPECIFICATIONS	SEE SPECIFICATIONS
B	PRESSURE TRANSMITTER	SEE SPECIFICATIONS	SEE SPECIFICATIONS



ELECTRICAL NOTES

1. CONTRACTOR SHALL CONNECT PROPOSED CONDUCTORS TO EXISTING CIRCUIT BREAKER, TYP. OF 2.
2. SEE THIS SHEET FOR CONDUIT AND CONDUCTOR SCHEDULE.

ONE-LINE DIAGRAM

NOT TO SCALE

RH2

MARK W. BRAMSON — STATE OF WASHINGTON — 51835 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND
BOOSTER PUMP STATION UPGRADES

ONE LINE DIAGRAM

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB NO: 21-0228
CLIENT: MI
FILENAME: MBPS-D-ELEC02.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: BPC
REVIEWED: MWB

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E02

SHEET NO.: 09

EXISTING TELEMETRY PANEL

PROPOSED TELEMETRY PANEL, BY OTHERS

J3

DISCONNECT ALL PUMP CABLES AND RECONNECT TO PROPOSED PUMP, TYP. OF 5

PROPOSED BOOSTER PUMP, TYP. OF 5.

EXISTING VFD ENCLOSURE, TYP. OF 5.

TRANSFORMER, BY OTHERS

PANEL "L", BY OTHERS

PANEL "MDSB", BY OTHERS

AUTOMATIC TRANSFER SWITCH, BY OTHERS

SERVICE DISCONNECT AND SPD, BY OTHERS

CURRENT TRANSFORMER AND UTILITY METER, BY OTHERS

CONTRACTOR SHALL CONSTRUCT CONDUIT SUPPORT OF 1-5/8" SST UNISTRUT TO FACILITATE ROUTING RACEWAY, TYP. ALL CONDUITS. UNISTRUT SHALL BE SECURED TO FLOOR AND WALL.

PUMP 6

PUMP 7

PROPOSED TELEMETRY PANEL

PUMP 6 VFD PANEL, "VFD6"

PUMP 7 VFD PANEL, "VFD7"

ELECTRICAL NOTES	
XX	1. SEE DWG NO. E02 FOR CONDUIT AND CONDUCTOR SCHEDULE.
X	2. SEE DWG NO. E02 FOR EQUIPMENT SCHEDULE.

ELECTRICAL PLAN

½" = 1'-0"

RH2

MARK W. BRAMSEN — STATE OF WASHINGTON — 51835 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND

BOOSTER PUMP STATION UPGRADES

ELECTRICAL PLAN

ENGINEER: BPC
REVIEWED: MWB
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
CLIENT: MI
FILENAME: MBPS-D-ELEC03.DWG
JOB NO.: 21-0228

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

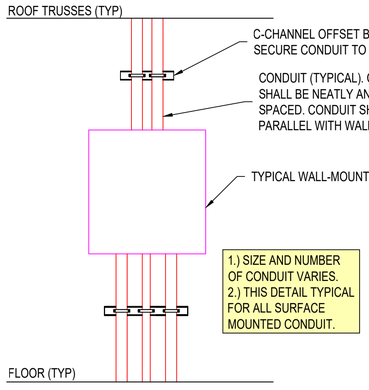
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

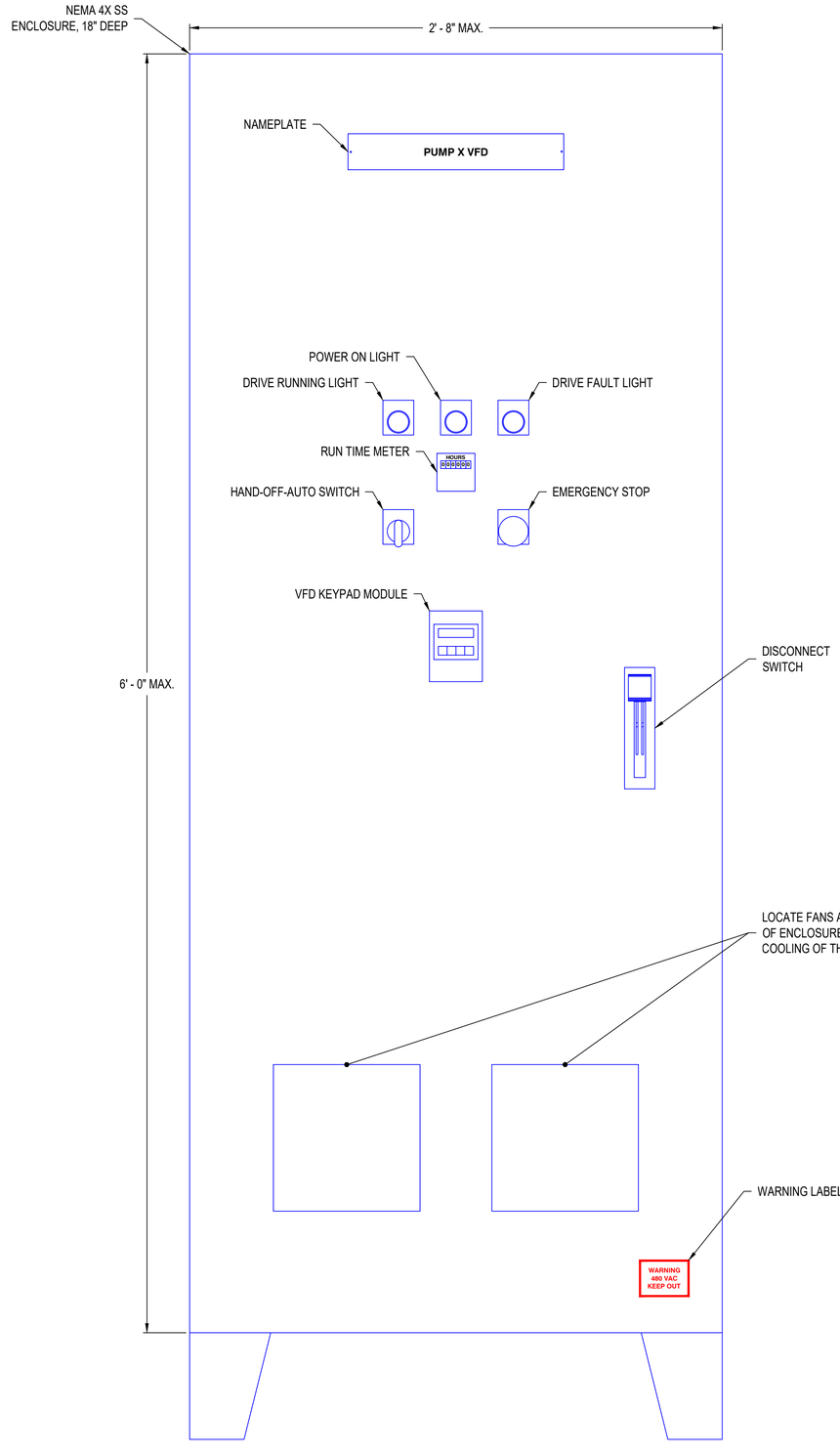
DWG NO.: E03

SHEET NO.: 10 12



SURFACE MOUNTED CONDUIT DETAIL

NOT TO SCALE



VFD PANEL LAYOUT, TYP.

NOT TO SCALE

RH2

MARK B. BRAMSON
STATE OF WASHINGTON
51835
REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND

BOOSTER PUMP STATION UPGRADES

ELECTRICAL DETAILS

JOB NO.: 21-0228
CLIENT: MI
FILENAME: MBPS-D-ELEC04.DWG
SAVE DATE: Jan 22, 2024
PLOT DATE: Jan 22, 2024
ENGINEER: BPC
REVIEWED: MWB

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

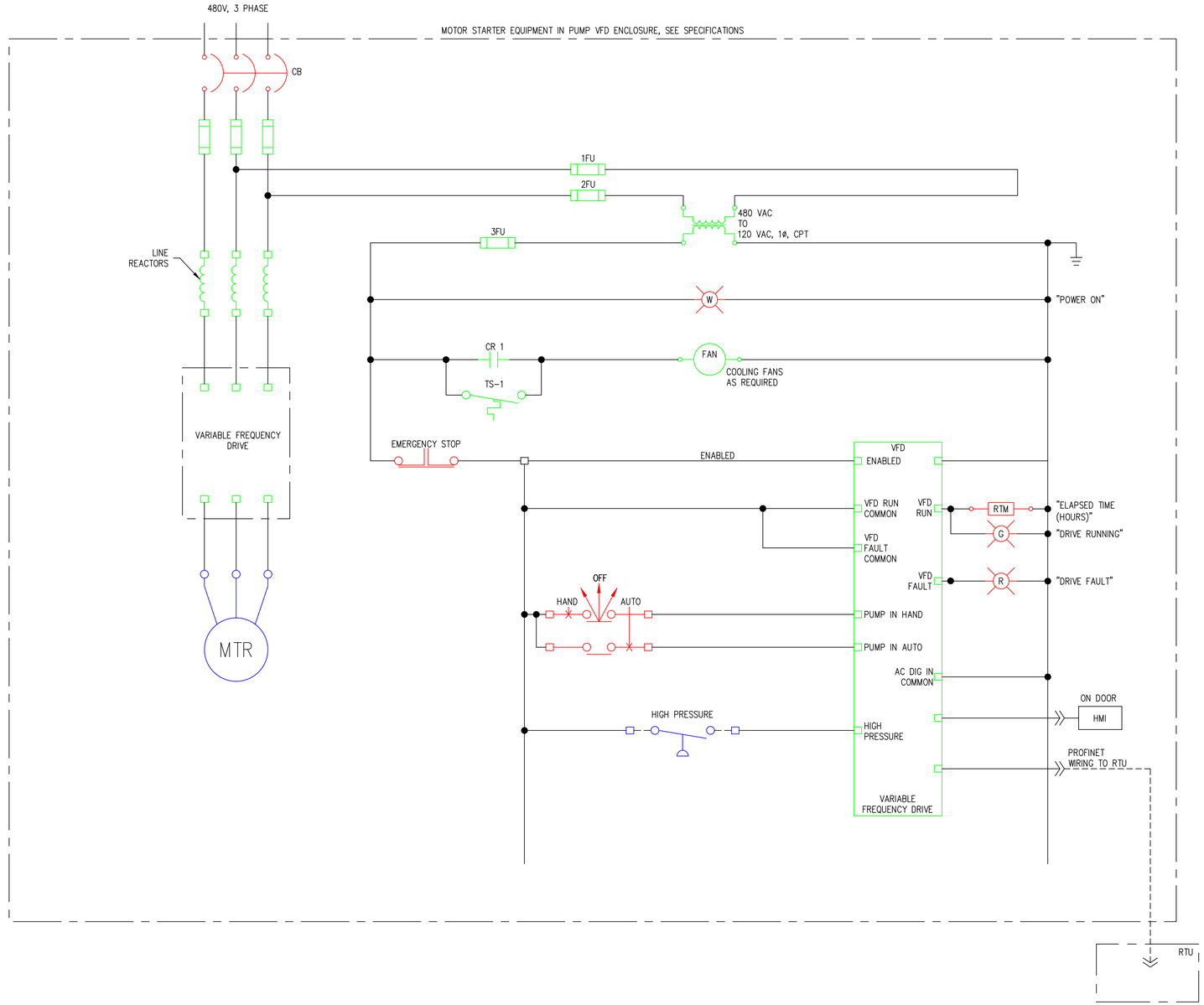
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E04

SHEET NO.: 11 12



VFD CONTROL LOGIC, TYP.

NO SCALE

RH2

MARK W. BRAMSON
STATE OF WASHINGTON
51835
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: 01/23/2024

CITY OF MERCER ISLAND

BOOSTER PUMP STATION UPGRADES

CONTROL LOGIC DIAGRAM

JOB NO.:	21-0228
CLIENT:	MI
FILENAME:	MBPS-D-ELEC05.DWG
SAVE DATE:	Jan 22, 2024
PLOT DATE:	Jan 22, 2024
ENGINEER:	BPC
REVIEWED:	MWB

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E05

SHEET NO.: 12 / 12