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				PROJECT ENGINEER:	S. GHIU
				DESIGNED BY:	S. GHIU
				DRAWN BY:	R. SHNAYDERMAN
				CHECKED BY:	M. PETERSON
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
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FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

GENERAL
SHEET INDEX

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	G-2

SHEET NUMBER

SHEET TITLE

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G-2 SHEET INDEX
G-3 DESIGN CRITERIA
G-4 PROCESS FLOW DIAGRAM FOR RESIDUALS
G-5 SITE AERIAL

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D-2 CENTRATE AND POLYMER SYSTEM, AND DIVERTER GATE PHOTOS
D-3 RESIDUALS BUILDING WALL SECTION
D-4 WALL AND CENTRATE - PHOTOS

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ENERGY RECOVERY FACILITY	
ENERGY RECOVERY TURBINES	
NUMBER	2
EQUIPMENT TAG NUMBER	ERT-123, ERT-124
CAPACITY, EACH	18 MGD
MIN. INLET PRESSURE	70 PSI
MAX INLET PRESSURE	100 PSI
GENERATOR OUTPUT	400 KW/EACH
RAW WATER STRAINERS	
TYPE	AUTOMATIC BACKWASH
NUMBER	3
EQUIPMENT TAG NUMBER	STR-111, STR-112, STR-113
CAPACITY	18 MGD
MAXIMUM HEAD LOSS	2 PSI
OPENING	0.50 mm
MOTOR HORSEPOWER	1/3 HP

MEMBRANE SYSTEM MODIFICATIONS	
SECOND STAGE MEMBRANE PUMPS	
EQUIPMENT TAG NUMBERS	P-370-1, P-370-2, P-370-3
TYPE	HORIZONTAL END SUCTION
CAPACITY, EACH	880 GPM
TOTAL DYNAMIC HEAD	80 FT
MOTOR HORSEPOWER	30 HP
MAXIMUM NPSH REQUIRED AT DESIGN FLOW	10 FT
DRIVE	VFD
CHEMICAL CLEANING SYSTEM	
TANKS	
TYPE	VERTICAL
NUMBER	2
EQUIPMENT TAG NUMBER	TK-315-1, TK-315-2
CAPACITY	18,000 GAL
PUMPS	
TYPE	HORIZONTAL END SUCTION
NUMBER	2
EQUIPMENT TAG NUMBER	P-315-1, P-315-2
CAPACITY, EACH	1200 GPM
TOTAL DYNAMIC HEAD	40 FT
MOTOR HORSEPOWER	25 HP
DRIVE	CONSTANT SPEED

2ND STAGE REJECT PUMPS (1)	
TYPE	HORIZONTAL END SUCTION
NUMBER	3
EQUIPMENT TAG NUMBER	P-36-1, P-36-2, P-36-3
CAPACITY, EACH	130 GPM
TOTAL DYNAMIC HEAD	25 FT
MOTOR HORSEPOWER	2 HP
DRIVE	VFD

RAW WATER EQUALIZATION TANK	
NUMBER	2
EQUIPMENT TAG NUMBER	TNK-211, TNK-212
VOLUME PER TANK	180,000 GAL

CHEMICALLY ENHANCED BACKWASH PUMPS	
NUMBER	2
EQUIPMENT TAG NUMBER	P-310-1, P-310-2
TYPE	DIAPHRAGM
CAPACITY, EACH	25 GPM
MOTOR	3 HP
DRIVE	VFD

AERATION SYSTEM	
FIRST STAGE BLOWERS	
TYPE	POSITIVE DISPLACEMENT
NUMBER	2
EQUIPMENT TAG NUMBER	B-85-C, B-85-D
CAPACITY	2,800 SCFM
DISCHARGE PRESSURE	4.5 PSI
MOTOR HORSEPOWER	100 HP
DRIVE	VFD
SECOND STAGE BLOWERS	
TYPE	POSITIVE DISPLACEMENT
NUMBER	2
EQUIPMENT TAG NUMBER	B-85-A, B-85-B
CAPACITY	2,800 SCFM
DISCHARGE PRESSURE	4.5 PSI
MOTOR HORSEPOWER	100 HP
DRIVE	VFD

FIRST STAGE BACKWASH SYSTEM PUMPS	
TYPE	END SUCTION
NUMBER	2
EQUIPMENT TAG NUMBER	P-380-1, P-380-2
CAPACITY	2,000 GPM
TDH	20.0 FT
MOTOR HORSEPOWER	15 HP
DRIVE	VFD
MEMBRANE TANK DRAIN PUMPS	
TYPE	END SUCTION
NUMBER	2
EQUIPMENT TAG NUMBER	P-314-1, P-314-2
CAPACITY	6,000 GPM
TDH	30.00 FT
MOTOR HORSEPOWER	60 HP
DRIVE	VFD

BACKWASH WASTE EQUALIZATION, MIXING AND RETURN	
BACKWASH WASTE EQUALIZATION TANK	
TOTAL DAILY FLOW TO BACKWASH EQUALIZATION	3.24 MGD
NUMBER OF BASINS	1
EQUIPMENT TAG NUMBER	TNK-8401
VOLUME	200,000 GALLON
MAXIMUM DETENTION TIME	216 MIN
SECOND STAGE RETURN PUMPS	
PUMP TYPE	DRY PIT SOLIDS HANDLING
NUMBER	3 (2 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-410-1, P-410-2, P-410-3
CAPACITY, EACH	1,321 GPM
TOTAL DYNAMIC HEAD	62 FT
MOTOR HORSEPOWER	40 HP
DRIVE	VFD
RECIRCULATION PUMPS	
PUMP TYPE	DRY PIT VERTICAL CHOPPER
NUMBER	2 (1 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-415-1, P-415-2
CAPACITY, EACH	1,100 GPM
TOTAL DYNAMIC HEAD	35 FT
MOTOR HORSEPOWER	25 HP
DRIVE	CONSTANT SPEED

THICKENED SOLIDS STORAGE AND MIXING (1)	
TANKS	
NUMBER	2
EQUIPMENT TAG NUMBER	TK-720-1 (EXIST), TK-720-2
TYPE	CONE BOTTOM
TOTAL STORAGE VOLUME	10,000 GAL
DETENTION TIME	8-16 HOURS
DIAMETER	9-FT-4-IN
SIDE SHELL HEIGHT	9-FT-5-IN
MIXING SYSTEM	
RECIRCULATION PUMP TYPE	ROTARY LOBE
NUMBER	3 (2 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-725-1, P-725-2, P-725-3
CAPACITY, EACH	60 GPM
DIFFERENTIAL PRESSURE	15 PSI
MOTOR HORSEPOWER	3 HP
DRIVE	CONSTANT SPEED

SOLIDS DEWATERING	
CENTRIFUGE	
NUMBER	2 (1 DUTY AND 1 STANDBY)
EQUIPMENT TAG NUMBER	CEN-731 (EXISTING), CEN-732
HYDRAULIC CAPACITY (GPM)	42 AT 2% SOLIDS FOR CEN-731 70 AT 1-2% SOLIDS FOR CEN-732
SLUDGE FLOW (MAX)	43,880 GPD
SLUDGE FLOW (AVG)	26,500 GPD
DEWATERED SOLIDS	
>25 PERCENT SOLIDS	
CENTRIFUGE FEED PUMPS	
PUMP TYPE	PROGRESSIVE CAVITY
NUMBER	3 (2 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-726-1, P-726-2 P-726-3
CAPACITY, EACH	80 GPM
DIFFERENTIAL PRESSURE	30 PSI
MOTOR HORSEPOWER	5 HP
DRIVE	VFD

CENTRATE PUMPS	
PUMP TYPE	PROGRESSIVE CAVITY
NUMBER	2 NEW (1 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-740-1, P-740-2
CAPACITY, EACH	170 GPM
DIFFERENTIAL PRESSURE	20 PSI
MOTOR HORSEPOWER	10 HP
DRIVE	VFD

CENTRATE STORAGE TANK	
NUMBER	1
EQUIPMENT TAG NUMBER	TNK-740
TYPE	316 STAINLESS STEEL
TOTAL STORAGE VOLUME	670 GAL (MIN)
DIMENSIONS	5FT X 5FT X 4FT

CATFLOC 4954 STORAGE AND FEED (1)	
BULK STORAGE TANK	
NUMBER	1 (EXISTING)
EQUIPMENT TAG NUMBER	TK-750
CAPACITY	1000.00 GAL
METERING PUMPS	
NUMBER	2 (1 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-754-1, P-754-2
TYPE	DIAPHRAGM METERING
CAPACITY, EACH	10.8 GPH

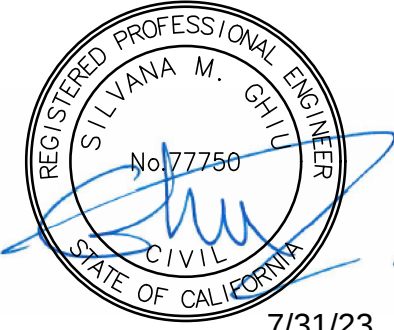
NALCLEAR 7768 STORAGE AND FEED (1)	
STORAGE TOTE	
NUMBER	1
EQUIPMENT TAG NUMBER	TK-751
CAPACITY	300 GAL
POLYMER MAKE - DOWN SYSTEM	
NUMBER	1
EQUIPMENT TAG NUMBER	P-752-1 CM-752-2
DILUTION WATER	30-300 GPH
NEAT POLYMER FEED PUMP	0.3-4.0 GPH
EQUIPMENT TAG NUMBER	P-752-1
TYPE	DIAPHRAGM METERING

POLYMER METERING PUMPS - THIRD STAGE	
NUMBER	2 (1 DUTY, 1 STANDBY)
EQUIPMENT TAG NUMBER	P-756-1, P-756-2
TYPE	DIAPHRAGM METERING
CAPACITY (EACH)	2.1 GPH
POLYMER METERING PUMPS - FOURTH STAGE	
NUMBER	2 EXISTING (1 DUTY, 1 STANDBY) 2 NEW (1 DUTY, 1 STANDBY)
TYPE	PERISTALTIC
EQUIPMENT TAG NUMBER	P-755-1, P-755-2 P-755-3, P-755-4
CAPACITY, EACH	0.01 - 100 GPH
POLYMER DAY TANK	
NUMBER	1 (NEW)
EQUIPMENT TAG NUMBER	TK-753
CAPACITY	405 GAL

ACH COAGULANT STORAGE AND FEED	
BULK STORAGE TANK	
NUMBER	1
EQUIPMENT TAG NUMBER	TK-810
CAPACITY	8,500 GAL
METERING PUMPS	
NUMBER	2 (1 DUTY, 1 STANDBY)
TYPE	DIAPHRAGM METERING
EQUIPMENT TAG NUMBER	P-815-1, P-815-2
CAPACITY, EACH	55 GPH

				PROJECT ENGINEER:	S. GHIU
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				DRAWN BY:	M. BURBA
				CHECKED BY:	M. PETERSON
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REV	ISSUED FOR	DATE	BY		

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DCM WTP STAGE 4 PROCESS UPGRADES

GENERAL
DESIGN CRITERIA

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	G-3

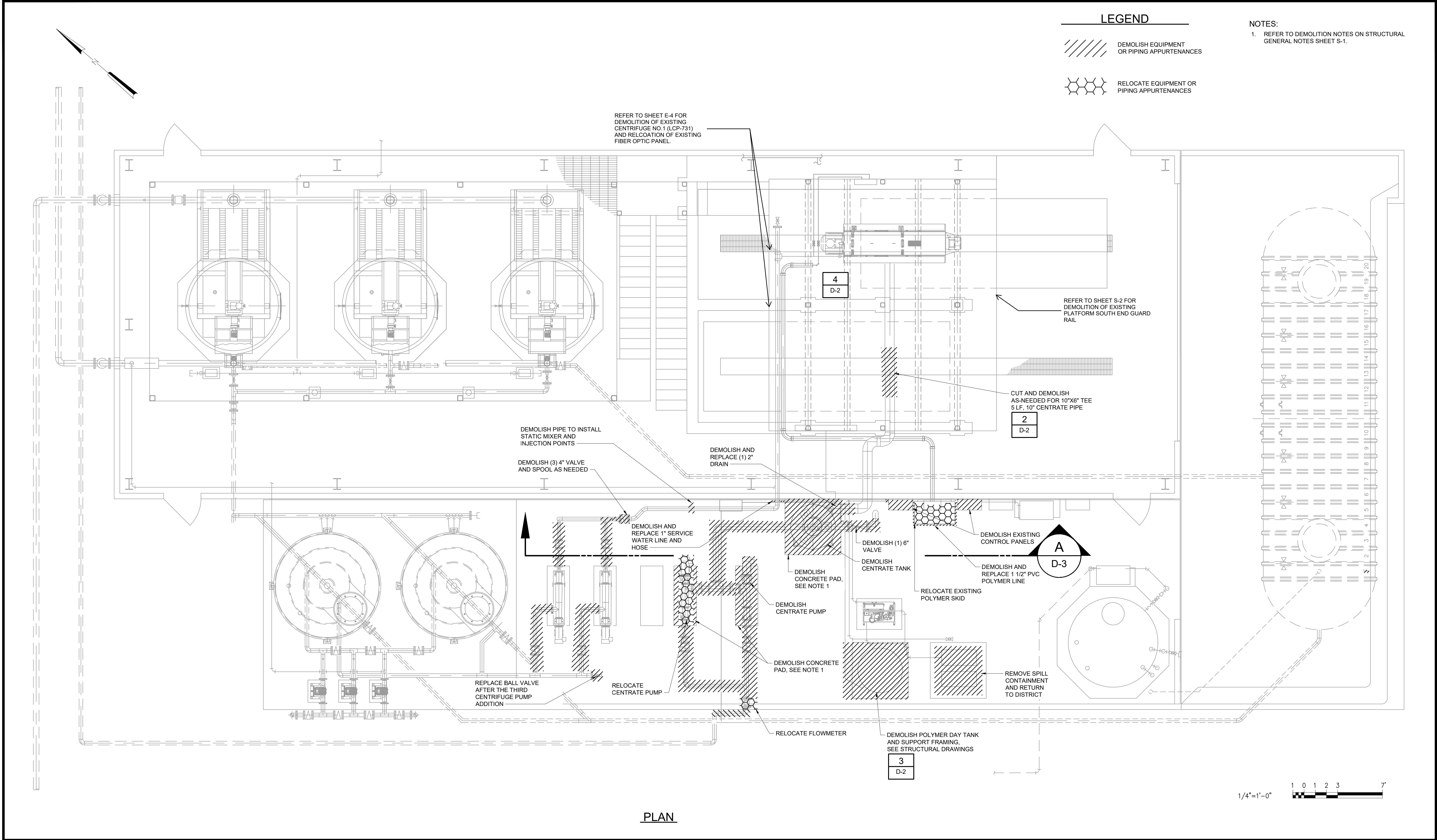
NOTES:

1. CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING OMWD CUSTOMER SERVICE FOR WATER CONNECTION.
2. CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING SDGE CUSTOMER SERVICE FOR POWER CONNECTION.



				PROJECT ENGINEER: S. GHIU			OLIVENHAIN MUNICIPAL WATER DISTRICT ENCINITAS, CALIFORNIA	GENERAL SITE AERIAL	DATE: JULY 2023
				DESIGNED BY: S. GHIU					HAZEN NO.: 20102-002
				DRAWN BY: R. SHNAYDERMAN					CONTRACT NO.: 1
				CHECKED BY: M. PETERSON					DRAWING NUMBER:
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REV	ISSUED FOR	DATE	BY	0 1/2" 1"					G-5

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PLAN

REV	ISSUED FOR	DATE	BY	PROJECT ENGINEER:	S. GHU
				DESIGNED BY:	S. GHU
				DRAWN BY:	J. COPPOLA
				CHECKED BY:	M. PETERSON
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION

7/31/23

Hazen

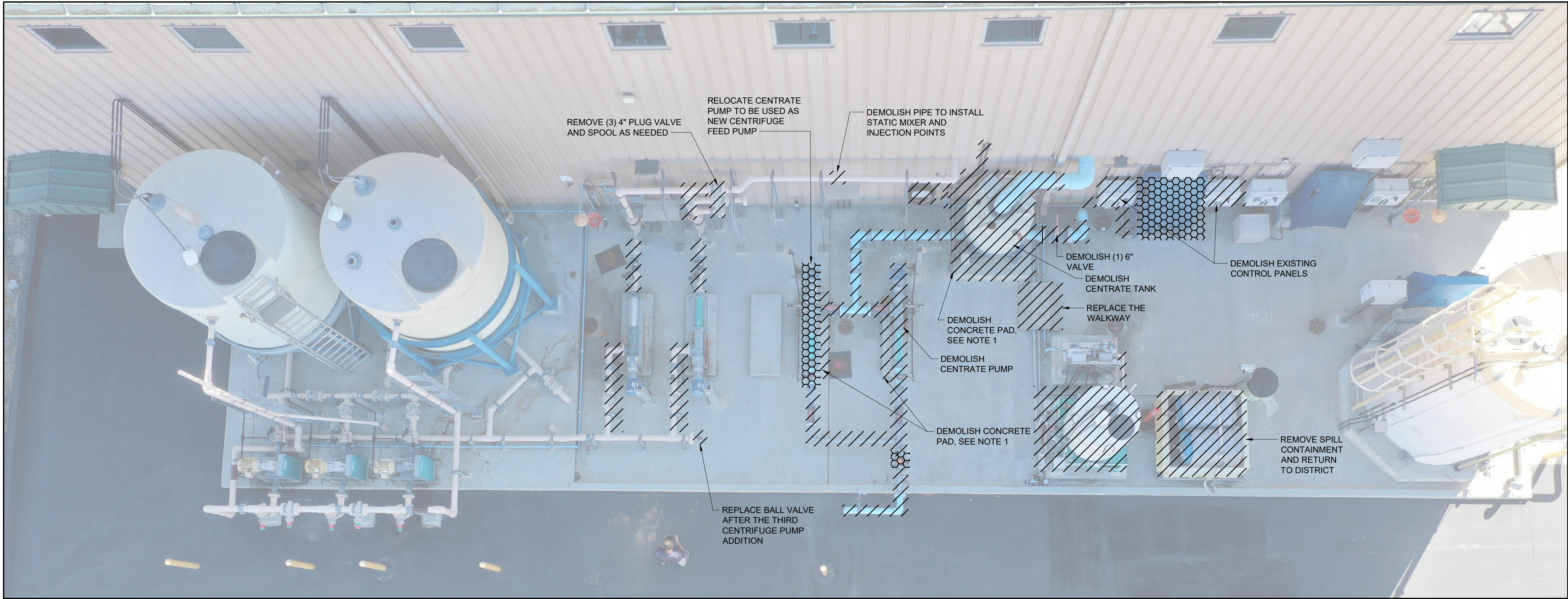
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DCM WTP STAGE 4 PROCESS UPGRADES

DEMOLITION
EXISTING CONDITIONS
AND DEMOLITION PLAN

DATE:	JULY 2023
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CONTRACT NO.:	1
DRAWING NUMBER:	D-1



LEGEND

DEMOLISH EQUIPMENT OR PIPING APPURTENANCES

RELOCATE EQUIPMENT OR PIPING APPURTENANCES

1

POLYMER AND CENTRATE AREA

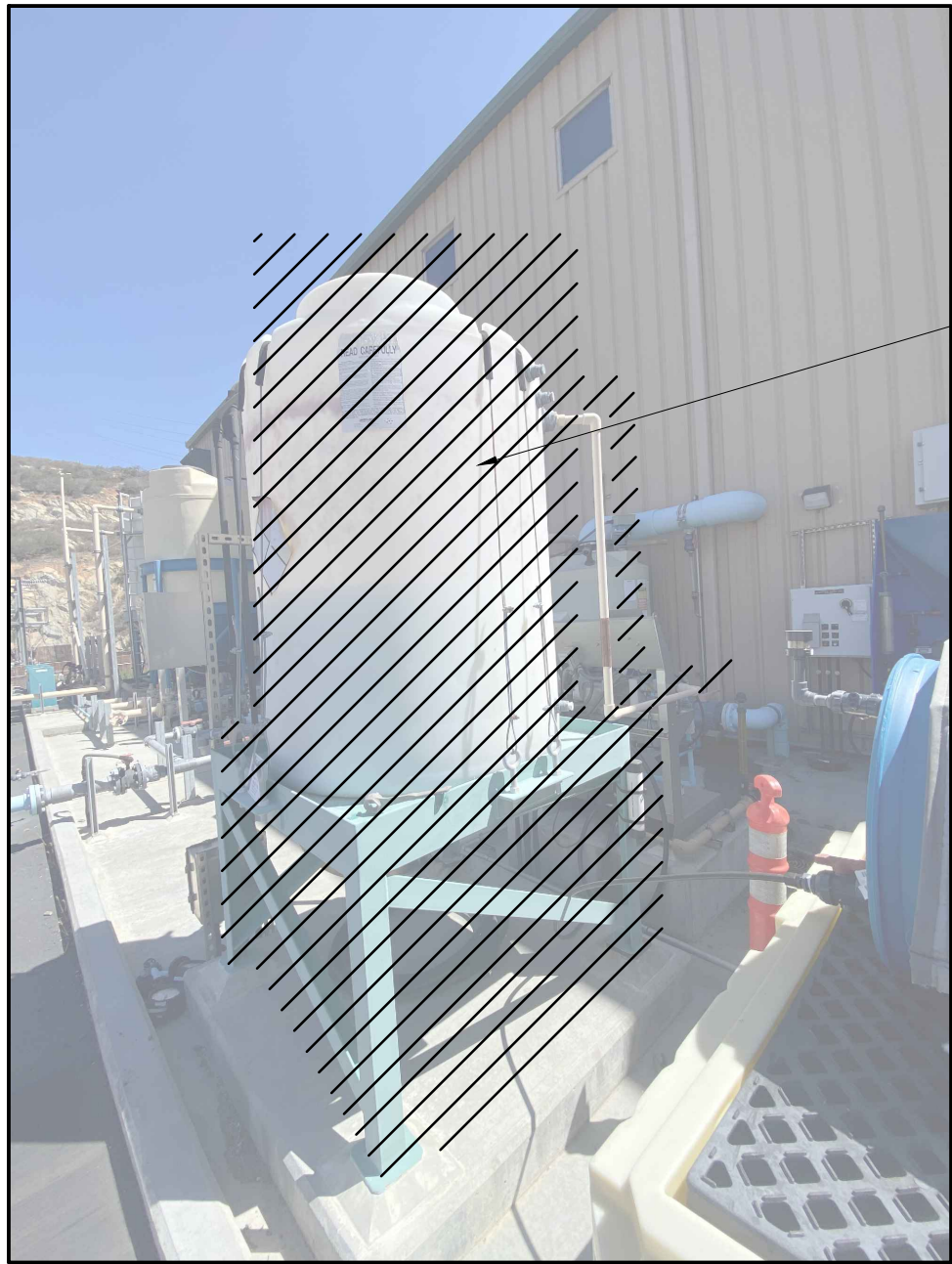
D-2



2

CENTRATE PIPING

D-1



3

POLYMER DAY TANK

D-1



4

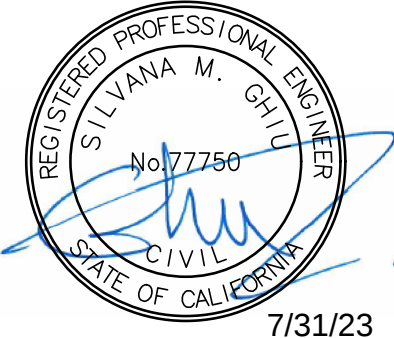
DIVERTER GATE

D-1

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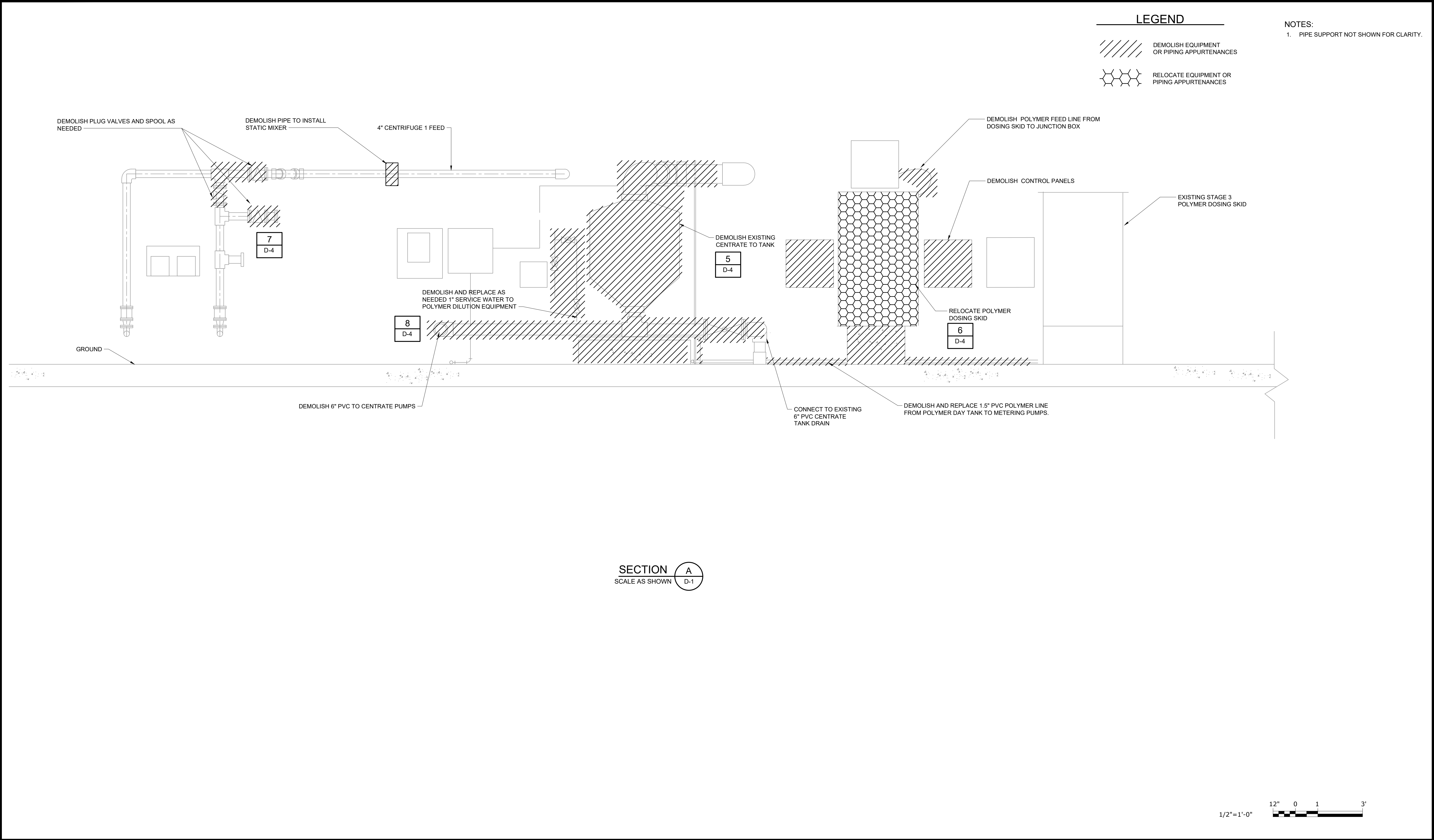
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DCM WTP STAGE 4 PROCESS UPGRADES

DEMOLITION
CENTRATE AND POLYMER SYSTEM,
AND DIVERTER GATE
PHOTOS

DATE:	JULY 2023
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LEGEND

DEMOLISH EQUIPMENT OR PIPING APPURTENANCES

RELOCATE EQUIPMENT OR PIPING APPURTENANCES

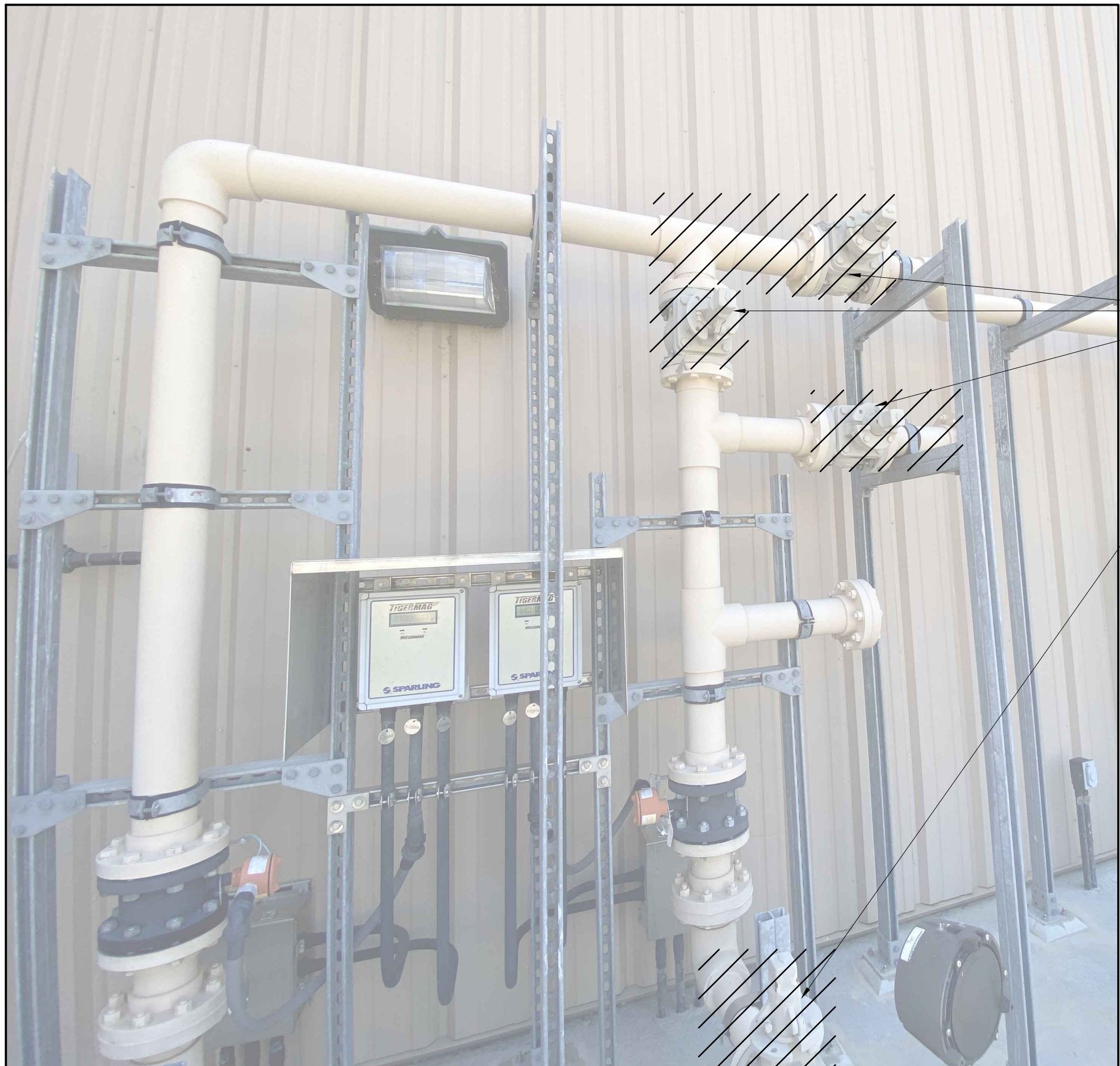
NOTES:
1. PIPE SUPPORT NOT SHOWN FOR CLARITY.

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File: C:\BMS\HAZEN\WID021987\ID-3 Saved by RSHNAYDERMAN Save date: 7/24/2023 5:11 PM
PLOT DATE: 7/24/2023 5:12 PM BY: RSHNAYDERMAN



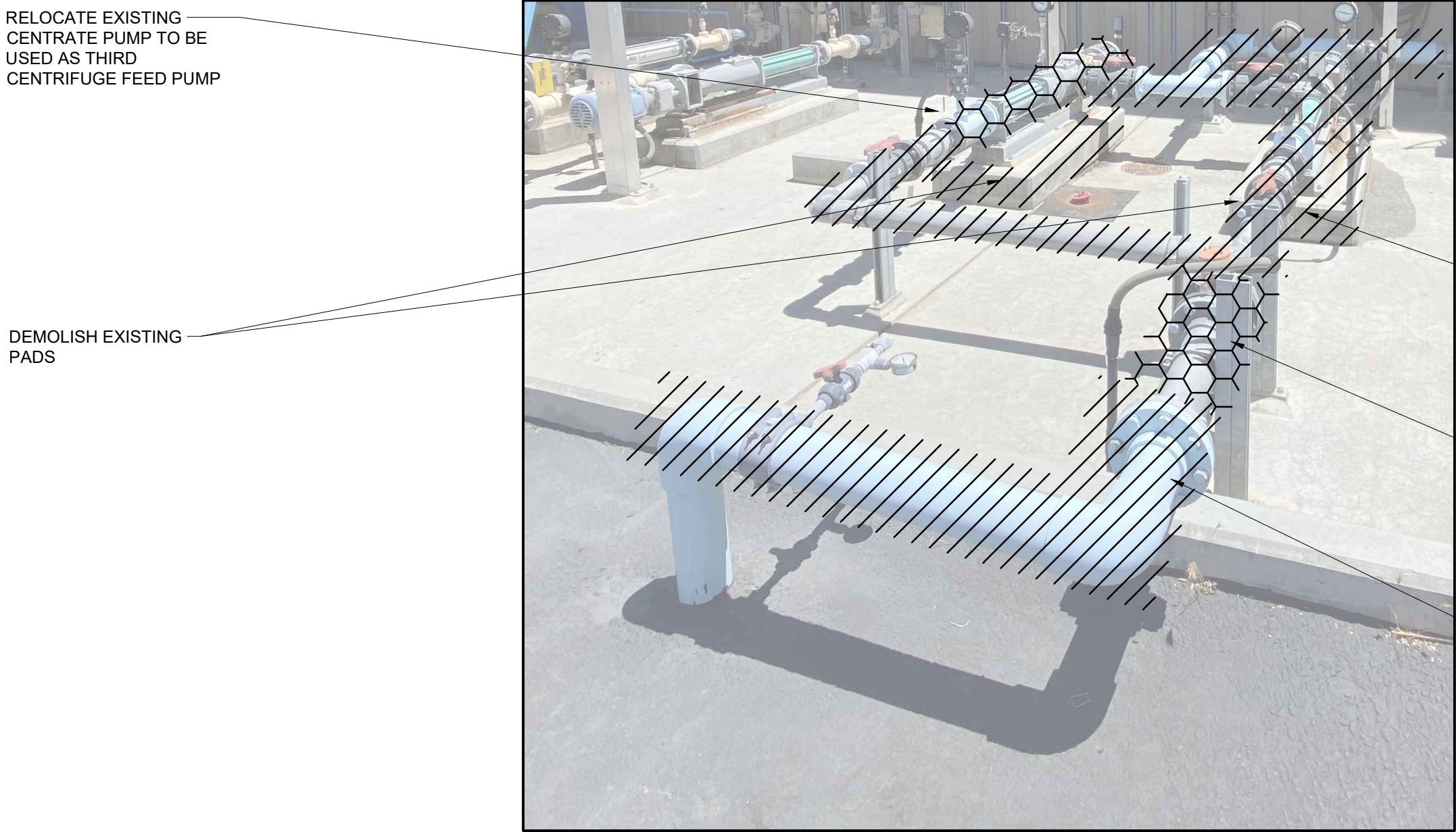
5 CENTRATE TANK
D-3



7 CENTRIFUGE FEED PUMP PIPING
D-3



6 POLYMER DOSING SKID
D-3



8 CENTRATE PUMPS
D-3

LEGEND

DEMOLISH EQUIPMENT OR PIPING APPURTENANCES

RELOCATE EQUIPMENT OR PIPING APPURTENANCES

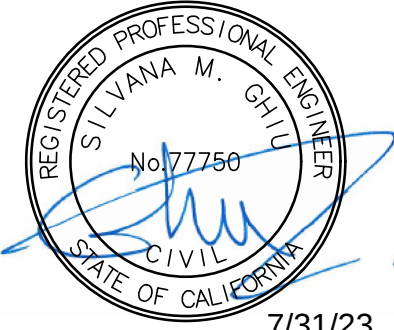
DEMOLISH PLUG VALVES (3) AND SPOOL AS NEEDED

DEMOLISH CENTRIFUGE FEED PUMPS AND EXISTING PIPING

File: C:\BMS\HAZEN\DWG\210102\198710.dwg Saved by: RSHNAYDERMAN Save date: 7/24/2023 5:14 PM
PLOT DATE: 7/24/2023 5:17 PM BY: RSHNAYDERMAN

				PROJECT ENGINEER:	S. GHU
				DESIGNED BY:	S. GHU
				DRAWN BY:	J.COPPOLA
				CHECKED BY:	M. PETERSON
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

DEMOLITION
WALL AND CENTRATE - PHOTOS

DATE: JULY 2023
HAZEN NO.: 20102-002
CONTRACT NO.: 1
DRAWING NUMBER: D-4

GENERAL STRUCTURAL NOTES

G-1

THESE NOTES ARE GENERAL AND SUPPLEMENT THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.

G-2

STANDARD DETAILS SHALL BE USED WHEN REFERRED TO OR WHEN NO MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.

G-3

DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE 2022 CALIFORNIA BUILDING CODE . THE DESIGN LOADS AND OTHER DESIGN VALUES GIVEN IN NOTES G-4 THROUGH G-8 WERE USED FOR DESIGN OF STRUCTURES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

G-4

LIVE LOADS:

STRUCTURE \ LEVEL	ROOF	TOP / FIRST FLOOR	BOTTOM / GROUND FLOOR
CENTRIFUGE PLATFORM	N/A	100 PLF	N/A

-ALL STAIRWAYS, LANDINGS AND PLATFORMS ARE DESIGNED FOR A LIVE LOAD = 100 PSF UNLESS NOTED OTHERWISE.

G-5

SNOW LOAD:

GROUND SNOW LOAD (Pg) = 0 PSF

G-6

WIND DESIGN CRITERIA:

BASIC DESIGN WIND SPEED (V) = 102 MPH
ALLOWABLE STRESS DESIGN WIND SPEED (V_{asd}) = 79 MPH
RISK CATEGORY = III
WIND EXPOSURE = C

PARAMETER \ STRUCTURE	PRESSURE COEFFICIENT G _{Cpi}	WIND DESIGN PRESSURE	COMPONENTS AND CLADDING	LATERAL LOAD RESISTING SYSTEM
EXTERIOR TANKS	BY MFR			

G-7

SEISMIC LOAD:

RISK CATEGORY = III
SEISMIC IMPORTANCE FACTOR (I_e) = 1.25
SITE CLASS = D
MAPPED SPECTRAL RESPONSE ACCELERATIONS (S_s/S₁) = 0.864/0.318
SPECTRAL RESPONSE ACCELERATIONS (S_M/S_{M1}) = 1.037/0.63
SPECTRAL RESPONSE COEFFICIENTS (S_{DS}/S_{D1}) = 0.691/0.420
SEISMIC DESIGN CATEGORY = D

PARAMETER \ STRUCTURE	BASIC STRUCTURAL SYSTEM	DESIGN BASE SHEAR	SEISMIC RESPONSE COEFFICIENT C _s	RESPONSE MODIFICATION COEFFICIENT R	ANALYSIS PROCEDURE
EXTERIOR TANKS	BY MFR				EQUIVALENT LATERAL FORCE

G-8

RAIN LOAD:
RAIN INTENSITY (i) = 1.28 IN/HR BASED ON 60 MINUTES PRECIPITATION INTENSITY

G-9

ALL DIMENSIONS INDICATED FOR EXISTING STRUCTURES SHALL BE VERIFIED BY FIELD MEASUREMENT. ALL DIMENSIONS THAT ARE CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER SHOP DRAWINGS PRIOR TO CONSTRUCTION.

G-10

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.

G-11

IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.

G-12

EQUIPMENT ANCHOR SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL ANCHOR PATTERNS SHALL BE TEMPLATED TO ENSURE ACCURACY OF PLACEMENT.

G-13

STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.

G-14

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND TEMPORARY SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

G-15

IF CONTRACTOR DESIRES TO TEMPORARILY PLACE OR MOVE LOADS ON OR ADJACENT TO EXISTING STRUCTURES OR UTILITIES DURING CONSTRUCTION PROCESS, CONTRACTOR IS EXCLUSIVELY RESPONSIBLE FOR MAINTAINING STRUCTURAL INTEGRITY AND AVOIDING OVERSTRESSING AND DAMAGING EXISTING STRUCTURES AND UTILITIES. CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS AND DRAWINGS VERIFYING THAT PROPOSED CONSTRUCTION (INCLUDING APPLICATION OF TEMPORARY CONSTRUCTION LOADS) WILL NOT OVERSTRESS OR DAMAGE EXISTING STRUCTURES AND UTILITIES. DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF CALIFORNIA.

STRUCTURAL METALS

M-1

DETAIL, FABRICATE, AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH ANSI/AISC 360 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST EDITION.

M-2

STEEL MATERIAL:

A) STRUCTURAL HSS:

B) STRUCTURAL PIPE:

C) PLATES, BARS AND ANGLES:

D) STRUCTURAL W, C, & MC SHAPES:

E) STRUCTURAL M & S SHAPES:

F) STRUCTURAL HP

G) ANCHOR RODS

ASTM A500, GRADE C (46/50 KSI) OR A1085 GRADE A (50 KSI)

ASTM A53, GRADE B (35 KSI)

ASTM A36 UNO (36 KSI)

ASTM A992 (50 KSI)

ASTM A36 (36 KSI)

ASTM A572 GRADE 50 (50 KSI)

ASTM F1554 GRADE 55 (55 KSI)

M-3

PROVIDE MINIMUM 3/4" DIAMETER ASTM F3125 GRADE A325 TYPE 1 OR GRADE F1852 TYPE 1 HIGH STRENGTH BOLTS WITH SNUG TIGHTENED TYPE N CONNECTIONS FOR STRUCTURAL STEEL UNLESS NOTED OTHERWISE. HOLES FOR BOLTS SHALL BE STANDARD SIZE UNLESS NOTED OTHERWISE.

M-4

PROVIDE TYPICAL STEEL BEAM CONNECTIONS FOR A CAPACITY OF NOT LESS THAN ONE HALF OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE AISC TABLES FOR ALLOWABLE LOADS OF BEAMS UNLESS NOTED OTHERWISE.

M-5

DO NOT PAINT STEEL SURFACES WHICH ARE TO BE WELDED OR ARE TO BE ENCASED IN CONCRETE.

M-6

ALL STAINLESS STEEL FABRICATIONS SHALL BE TYPE 316. NOTED OTHERWISE.

M-7

ALUMINUM SHALL BE ALLOY 6061-T6 UNLESS NOTED OTHERWISE.

M-8

ALL BOLTS, ANCHORS, AND CONCRETE ANCHORS CONNECTING ALUMINUM SHALL BE STAINLESS STEEL TYPE 316 FOR UNDERWATER APPLICATIONS AND TYPE 304 FOR ALL OTHER APPLICATIONS.

M-9

ALUMINUM SHALL BE ISOLATED FROM CONTACT WITH CONCRETE AND DISSIMILAR METALS.

M-10

ALL GROOVE AND BUTT WELDS SHALL BE FULL PENETRATION.

M-11

FILLET WELD SIZES SHALL NOT BE LESS THAN THE MINIMUM SIZE REQUIRED BY AISC CODE FOR PLATE SIZES TO BE CONNECTED AND SHALL BE APPLIED TO THE ENTIRE JOINT CONTACT LENGTH, AND NOT LESS THAN 3/16".

M-12

ALL WELDS SHALL BE PERFORMED IN THE SHOP UNLESS NOTED BY A FIELD WELD SYMBOL OR APPROVED BY ENGINEER.

M-13

BOTTOM SURFACES OF BASE PLATES SHALL BE GROUTED TO ENSURE FULL BEARING CONTACT WITH CONCRETE SLAB.

M-14

WHenever ONE MEMBER IS FASTENED TO ANOTHER WITH FASTENINGS (BOLTS, WELDS, ETC.) SET AT A UNIFORM SPACING, A MINIMUM OF TWO FASTENINGS PER PIECE SHALL BE CONNECTED AND THE FIRST AND LAST FASTENINGS SHALL BE LOCATED NOT TO EXCEED 0.25 OF FASTENER SPACING FROM EACH END.

FOUNDATIONS

F-1

CONCRETE (CAST-IN-PLACE) NOTES APPLY TO FOUNDATIONS.

F-2

ALLOWABLE SOIL BEARING PRESSURE BASED ON IBC CHAPTER 18, TABLE 1806.2, PRESUMPTIVE LOAD-BEARING VALUES.

F-3

MINIMUM DEPTH FROM ADJACENT FINISHED GRADE TO BOTTOM OF FOUNDATION = 12 INCHES, PER 2022 CBC, SECTION 1809.4.

F-4

STRUCTURES NOT LOCATED WITHIN A 100-YEAR FLOOD AREA PER FEMA MAPS.

DEMOLITION

D-1

FOR DEMOLITION REQUIREMENTS, REFER TO SPECIFICATION 02050 - DEMOLITION AND RENOVATION.

D-2

CONCRETE DEMOLITION WITHIN STRUCTURES BEING MODIFIED SHALL BE SELECTIVE DEMOLITION BY CORE DRILLING OR SAWCUTTING AND CAREFUL REMOVAL OF CONCRETE SHOWN TO BE REMOVED. NO OVER CUTTING OF AREAS TO BE DEMOLISHED SHALL BE PERMITTED. CONTRACTOR SHALL CORE DRILL CORNERS OF OPENING PRIOR TO SAWCUTTING. EXPLOSIVES AND VIBRATORY HAMMERS SHALL NOT BE USED FOR DEMOLITION WORK.

D-3

UNLESS ANCHORING DEVICES AND/OR REINFORCEMENT IS NOTED TO REMAIN FOLLOWING DEMOLITION, REMOVE AND/OR BURN BACK ANCHORS AND REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE AND VOIDS CREATED SHALL BE FILLED WITH EPOXY RESIN BINDER.

D-4

EMBEDDED CONDUIT ENCOUNTERED DURING DEMOLITION WORK LIMITS SHALL BE PERMANENTLY REROUTED AS NECESSARY. CONTRACTOR SHALL SUBMIT PROPOSED MEANS OF REROUTING ANY INTERFERING CONDUIT.

D-5

WHERE DRAWINGS INDICATE A CONCRETE EQUIPMENT PAD TO BE DEMOLISHED, THE FLOOR SLAB SURFACE SHALL BE REPAIRED AS APPROVED BY ENGINEER. FOLLOWING SELECT DEMOLITION AND REMOVAL OF THE EQUIPMENT PAD THE REPAIR SHALL BE:

A. SAWCUT THE FLOOR AROUND THE EQUIPMENT PAD PERIMETER TO A DEPTH OF 1/4".

B. SCARIFY AND REMOVE SLAB CONCRETE WITHIN THE PERIMETER TO A NOMINAL 1/4" DEPTH CLEAN AND REMOVE ALL CONCRETE LAITANCE

C. RESURFACE THE AREA BY APPLYING A POLYMER MODIFIED OR SILICA FUME ENHANCED CEMENTITIOUS REPAIR MORTAR, APPROVED BY THE ENGINEER, FOLLOWING THE MANUFACTURER'S SURFACE PREPARATION AND APPLICATION RECOMMENDATIONS. LEVEL AND FINISH THE SURFACE TO MATCH THE FLOOR SLAB SURROUNDING AREA.

D-6

PRIOR TO DEMOLITION OF SMALL OPENINGS (LESS THAN 6 INCHES IN SIZE) FOR PENETRATIONS, ETC., CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT. OPENINGS SHALL BE LOCATED TO AVOID CUTTING THROUGH EXISTING REINFORCEMENT, IF POSSIBLE. EXISTING REINFORCEMENT SHALL NOT BE CUT WITHOUT APPROVAL OF ENGINEER.

D-7

CONCRETE SURFACES LEFT EXPOSED FOLLOWING DEMOLITION SHALL BE SEALED WITH EPOXY RESIN COATING SUCH AS DURALKOTE 240 BY EUCLID CHEMICAL, OR APPROVED EQUAL.

D-8

DETAILED CONSTRUCTION AND DEMOLITION PLAN SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BY THE ENGINEER AND OWNER PRIOR TO BEGINNING CONSTRUCTION. ANY SHUTDOWNS SHALL BE SUBMITTED TO, COORDINATED WITH, AND APPROVED BY THE OWNER. ONCE APPROVED, CONTRACTOR SHALL PROVIDE A MINIMUM OF THREE (3) WEEKS NOTICE TO OWNER PRIOR TO SHUTDOWN.

EXISTING INFORMATION

X-1

ALL EXISTING INFORMATION SHOWN ON THESE DRAWINGS INCLUDING LOCATION, DIMENSIONS, ELEVATIONS, AND CONFIGURATIONS IS DERIVED FROM THE 2011 LT2 CONFORMED PLANS CONTRACT DRAWINGS AND IS NOT GUARANTEED TO BE COMPLETE OR CORRECT.

X-2

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR DEMOLITION AND MODIFICATIONS

CONCRETE (CAST-IN-PLACE)

C-1

DESIGN OF CONCRETE ELEMENTS INCLUDING WALLS, FORMED SLABS, BEAMS, AND COLUMNS IS IN ACCORDANCE WITH ACI 318 (CODE REQUIREMENTS FOR STRUCTURAL CONCRETE)

C-2

CONCRETE STRENGTH CLASSES (28-DAY COMPRESSIVE STRENGTH)

A) CLASS A2 CONCRETE (4,000 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE IN ALL STRUCTURES, UNLESS NOTED OTHERWISE ON THE DRAWINGS AND FOR ALL SIDEWALKS, CURB AND GUTTERS, AND PAVEMENT.

B) CLASS B CONCRETE (3,000 PSI): NORMAL WEIGHTH STRUCTURAL CONCRETE USED FOR DUCT BANK ENCASEMENTS, CATCH BASINS, FENCE AND GUARD POST EMBEDMENT, CONCRETE FILL, AND OTHER AREAS WHERE SPECIFICALLY NOTED ON CONTRACT DRAWINGS.

C-3

ALL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064.

C-4

CONCRETE COVER FOR REINFORCING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):

A) CONCRETE DEPOSITED DIRECTLY AGAINST SOIL:

B) CONCRETE EXPOSED TO WEATHER (#5 OR SMALLER):

C) CONCRETE EXPOSED TO WEATHER (#6 OR LARGER):

D) SLABS:

E) AT SURFACES CONTACTING FLUID:

F) BEAMS AND COLUMNS (TO MAIN REINFORCEMENT):

G) BEAMS AND COLUMNS (TO COLUMN TIES OR STIRRUPS):

H) WALLS 12" OR MORE:

I) WALLS LESS THAN 12" (#5 OR SMALLER):

J) WALLS LESS THAN 12" (#6 OR LARGER):

K) FOR SURFACES EXPOSED TO FLUID IN BEAMS, COLUMNS AND WALLS:

3"

1 1/2"

2"

1 1/2"

2"

1 1/2"

1 1/2"

2"

1 1/2"

2"

ADD 1/2" TO ABOVE VALUES

C-5

SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 UNLESS NOTED OTHERWISE. SPLICE LENGTH FOR TWO DIFFERENT SIZED BARS TO BE LAP SPLICED TOGETHER SHALL BE THE LENGTH OF THE LARGER BAR UNLESS NOTED OTHERWISE.

C-6

CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS NOT SHOWN SHALL BE SUBMITTED BY THE CONTRACTOR FOR THE APPROVAL OF THE ENGINEER PRIOR TO SUBMITTING REBAR SHOP DRAWINGS.

C-7

ALL JOINTS WHICH ARE IN MEMBERS IN CONTACT WITH LIQUID OR BELOW GRADE SHALL HAVE A WATERSTOP. CONTRUCTION JOINTS SHALL HAVE A 6" PVC RIBBED WATERSTOP. EXPANSION JOINTS SHALL HAVE A 9" PVC CENTER BULD RIBBED WATERSTOP. IN VERTICAL JOINTS, WATERSTOPS SHALL TERMINATE NO LESS THAN 18" ABOVE THE MAXIMUM WATER SURFACE OR 18" ABOVE GRADE, WHICHEVER IS HIGHER.

C-8

ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER.

C-9

EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE INSTALLED PRIOR TO PLACING CONCRETE.

C-10

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE PROVIDED.

C-11

CONDUITS AND OTHER SIMILAR ITEMS EMBEDDED IN OR PENETRATING THROUGH CONCRETE SHALL BE SPACED ON CENTER NOT LESS THAN 3 TIMES THEIR OUTSIDE DIMENSION, BUT NOT LESS THAN 2 1/2" CLEAR. WHEN SUCH ITEMS ARE EMBEDDED IN WALLS OR SLABS, THEY SHALL NOT OCCUPY MORE THAN 1/3 OF THE MEMBER THICKNESS.

C-12

AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH ADHESIVE DOWELS AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3" FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.

C-13

ADJUST THE LOCATION OF DOWELS OR ANCHORS PLACED INTO HARDENED CONCRETE AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER. CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT PRIOR TO DRILLING HOLES FOR DOWELS OR ANCHORS.

C-14

CLEAR DISTANCE FROM ANCHOR RODS TO ANY CONCRETE EDGE SHALL BE 4" MINIMUM UNLESS NOTED OTHERWISE.

NONSTRUCTURAL COMPONENT ACHORAGE

A-1

ANCHORAGE OF ALL ARCHITECTURAL, MECHANICAL, ELECTRICAL COMPONENTS, SHALL BE DESIGNED AND INSTALLED TO RESIST THE CONTROLLING CONDITION OF OPERATIONAL FORCES, WIND FORCES OR SEISMIC FORCES IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. SEISMIC FORCES SHALL BE AS PER ASCE 7. COMPONENTS SHALL BE BOLTED, WELDED, OR OTHERWISE POSITIVELY FASTENED WITHOUT CONSIDERATION OF FRICTIONAL RESISTANCE PRODUCED BY THE EFFECTS OF GRAVITY. A CONTINUOUS LOAD PATH OF SUFFICIENT STRENGTH AND STIFFNESS TO RESIST REQUIRED FORCES SHALL BE PROVIDED BETWEEN THE COMPONENT AND THE SUPPORTING STRUCTURE. ANCHORAGE AND BRACING SHALL BE DESIGNED TO RESIST LOADS IN BOTH ORTHOGONAL DIRECTIONS (TRANSVERSE AND LONGITUDINAL) AND SHALL BE DESIGNED AND SEALED BY THE CONTRACTOR'S ENGINEER CURRENTLY REGISTERED IN THE STATE OF CALIFORNIA.

A-2

COMPONENT REACTION FORCES AT THE POINT OF ATTACHMENT TO THE STRUCTURE SHALL BE SUBMITTED TO AND COORDINATED WITH THE ENGINEER FOR CONFIRMATION THAT SUPPORTING STRUCTURE IS ADEQUATE TO RESIST REQUIRED REACTION FORCES.

A-3

CONTRACTOR SHALL PROVIDE SPECIAL SEISMIC CERTIFICATION (SSC) FROM MANUFACTURER OF EQUIPMENT FOR ALL SYSTEMS DEEMED NECESSARY BR SPECIFICATIONS. SPECIAL SEISMIC CERTIFICATION SHALL BE IN COMPLIANCE WITH ASCE 7

SPECIAL INSPECTIONS

SI-1

SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND THE 2022 CALIFORNIA BUILDING CODE.

DELEGATED STRUCTURAL DESIGN ITEMS

DSD-1

THE FOLLOWING ITEMS SHALL BE SUBMITTED AS DELEGATED STRUCTURAL DESIGNS DURING CONSTRUCTION, IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

A. PIPE SUPPORTS NOT SPECIFICALLY DESIGNED AND DETAILED ON THE CONTRACT DRAWINGS

B. EQUIPMENT ANCHORAGE

C. CENTRATE TANK AND ANCHORAGE

D. WASTE BIN GUIDE RAILS

E. POLYMER DAY TANK ANCHORAGE

F. ELECTRICAL EQUIPMENT ANCHORAGE

DSD-2

DRAWINGS AND CALCULATIONS FOR EACH ITEM SHALL BE SIGNED AND SEALED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.

				PROJECT ENGINEER:	S. GHIU
				DESIGNED BY:	J. BERGER
				DRAWN BY:	J. KASISCHKE
				CHECKED BY:	W. DRESSLER
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

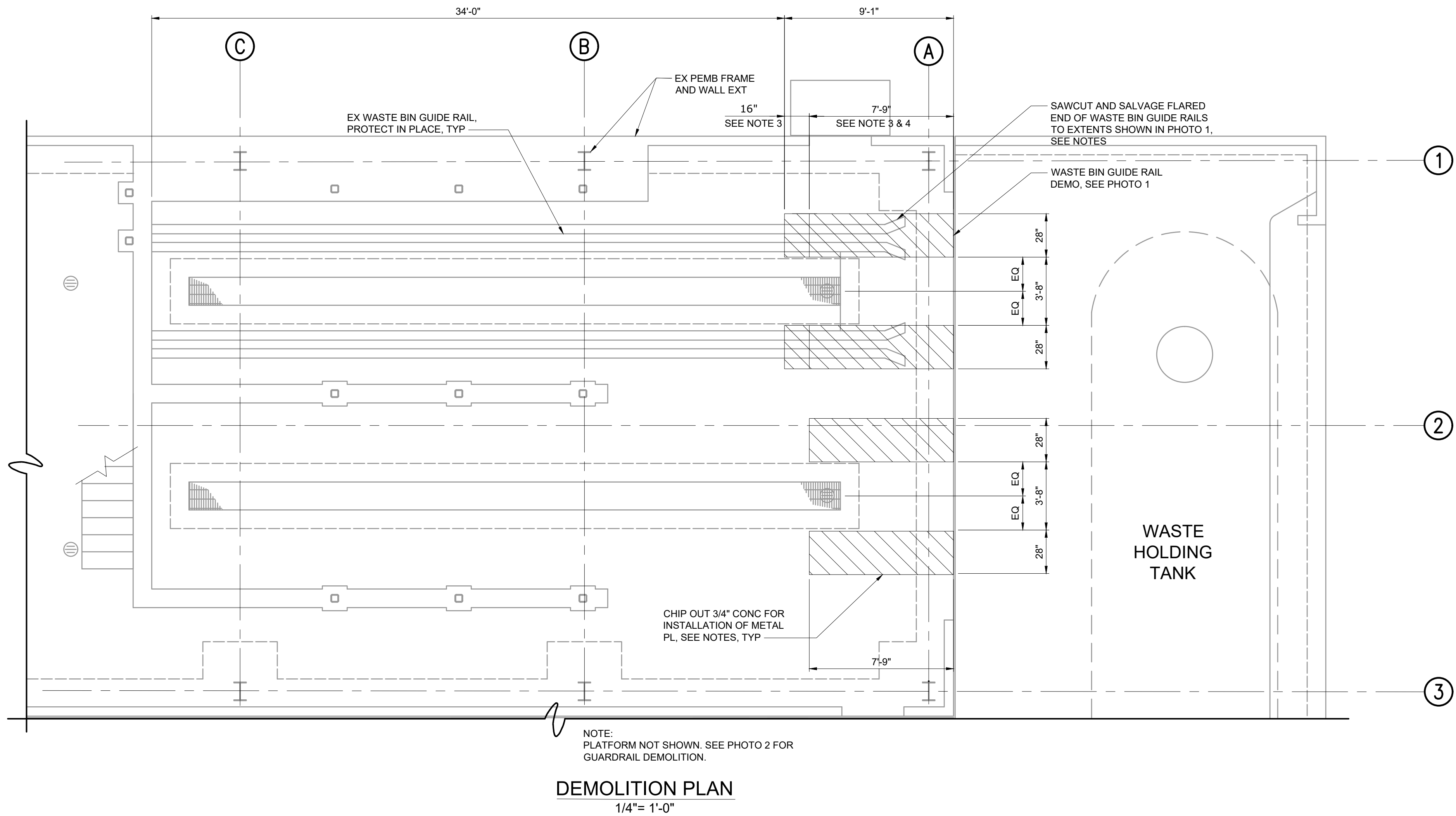
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
GENERAL NOTES - SHEET 1

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	S-1

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PLOT DATE: 7/26/2023 1:37 PM BY: JKASISCHKE



- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. DRAWING IS BASED ON 7S-1 OF THE LT2 RECORD DRAWINGS. DRAWING MODELED TO REFLECT EXISTING CONDITION WITH MODIFICATIONS SHOWN.
 3. CUT AND DISASSEMBLE WASTE BIN GUIDE RAILS, PER CONTRACTOR'S MEANS AND METHODS, TO THE EXTENTS SHOWN. GUIDE RAILS SHALL BE CUT A MINIMUM OF 16 INCHES BEYOND THE DOOR AS SHOWN, FOR REINSTALLATION OF SALVAGED FLARED END OF GUIDE RAILS. FLARED END OF GUIDE RAILS SHALL BE CLEAR OF THE DOOR OPENING AS SHOWN ON DRAWINGS.
 4. FOLLOWING REMOVAL OF GUIDE RAILS, CHIP OUT EXISTING CONCRETE FLOOR SURFACE 3/4 INCH DEEP FOR EXTENTS SHOWN IN PLAN. REFER TO DEMOLITION NOTES ON S-1 FOR CONCRETE REPAIR.
 5. GUARD RAIL ON EAST AND WEST SIDE OF PLATFORM SHALL BE PROTECTED. CONTRACTOR TO CUT GUARD RAIL ALONG SOUTH SIDE OF PLATFORM AT LOCATION SUITED FOR INSTALLATION OF RETURN END GUARD RAIL AT BOTH ENDS OF EAST AND WEST GUARD RAILS.

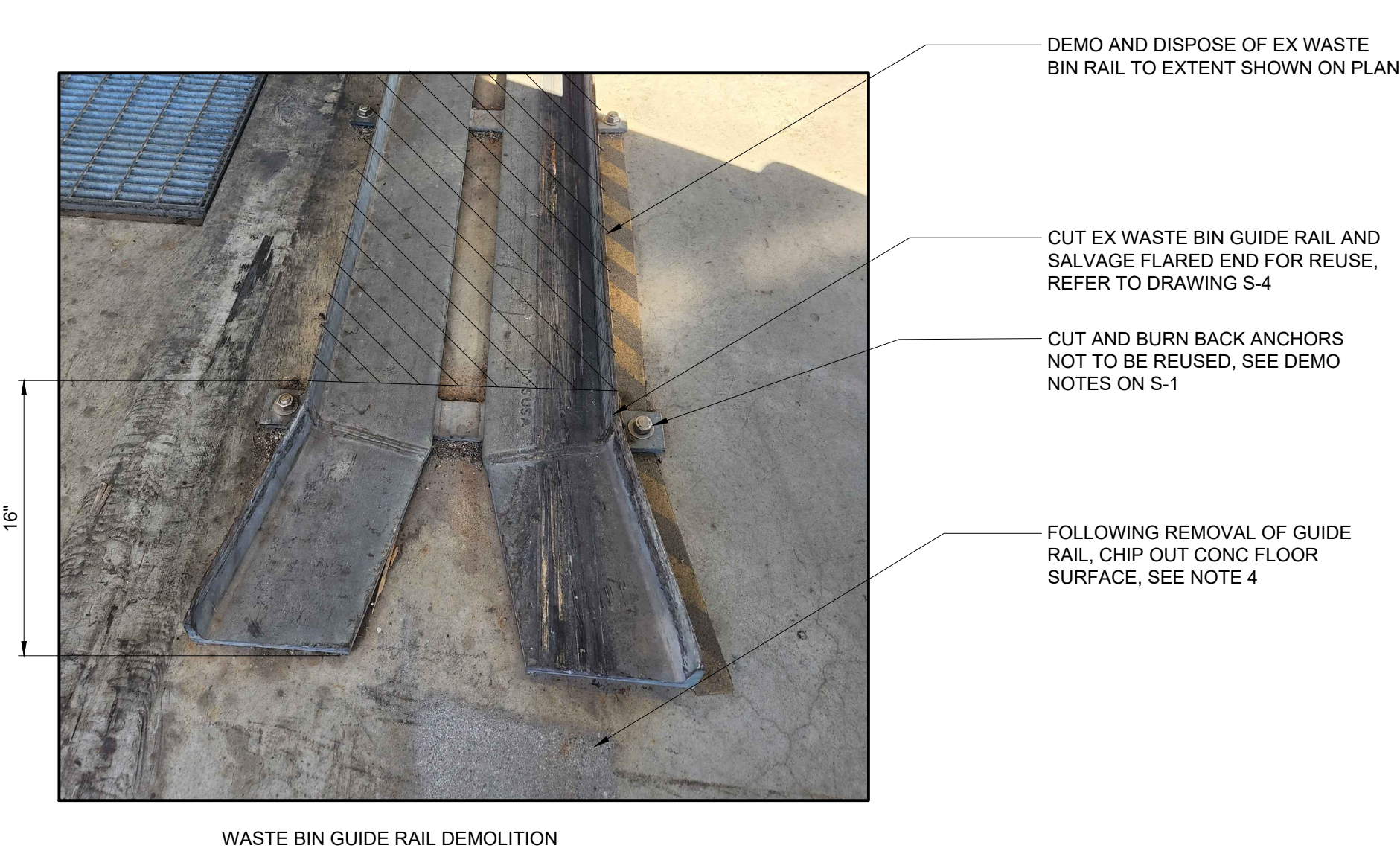


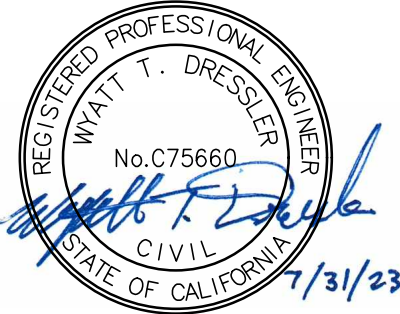
PHOTO 1
NTS S-2



PHOTO 2
NTS S-2

				PROJECT ENGINEER:	S. GHU
				DESIGNED BY:	J. BERGER
				DRAWN BY:	J. KASISCHKE
				CHECKED BY:	W. DRESSLER
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
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FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

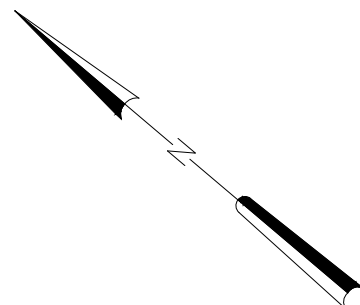
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
RESIDUALS HANDLING BUILDING
DEMOLITION PLAN

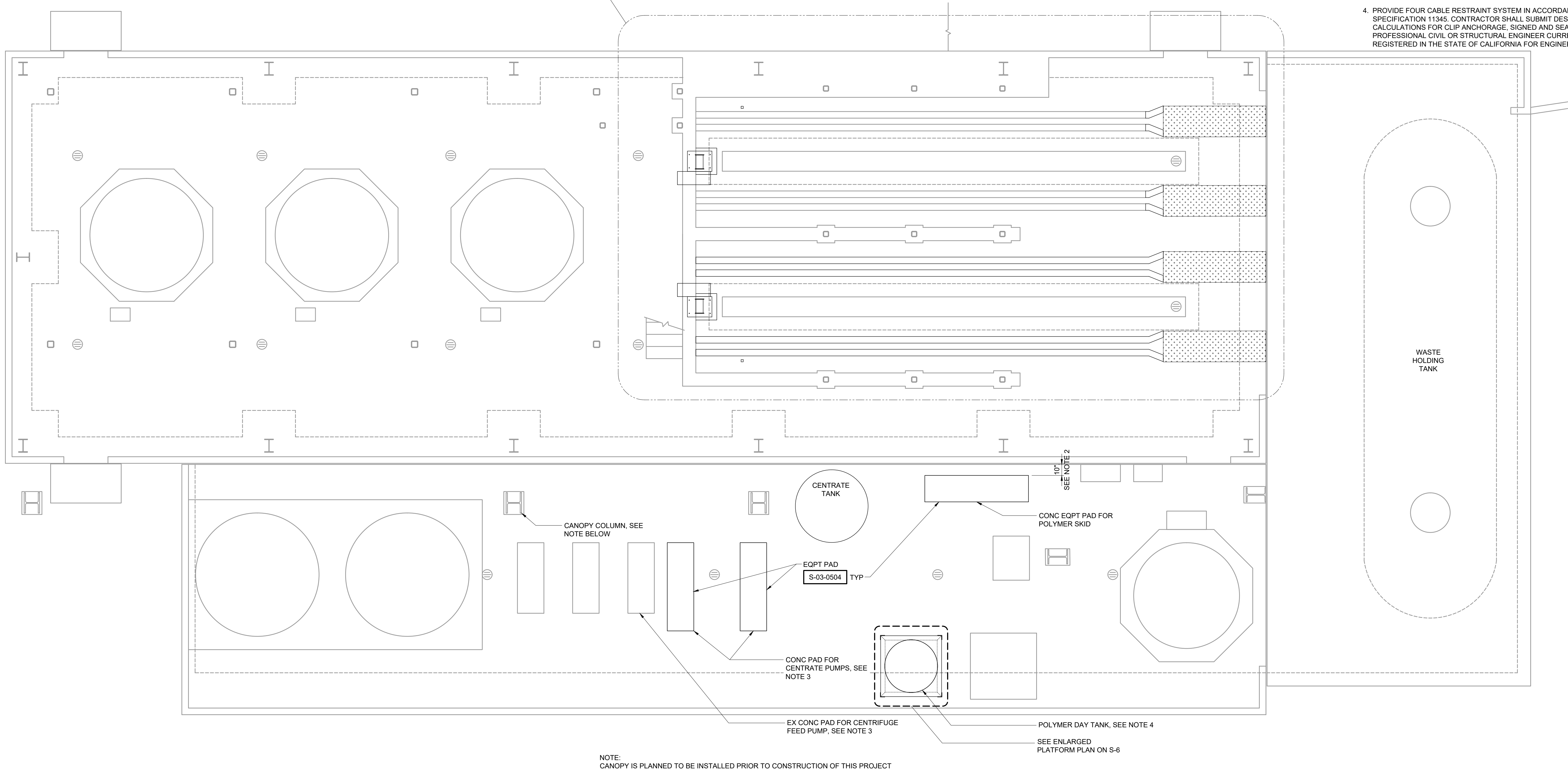
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	

S-2



SEE PARTIAL BOTTOM
PLAN ON S-4

- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. CONCRETE PAD FOR POLYMER SKID SHALL BE PLACED 2 INCHES CLEAR OF EXISTING CONDUIT. CONTRACTOR SHALL COORDINATE PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER AND MECHANICAL DRAWINGS.
 3. CONTRACTOR SHALL COORDINATE SIZE OF CONCRETE PUMP PAD WITH EQUIPMENT MANUFACTURER AND THE MECHANICAL DRAWINGS. CONTRACTOR SHALL SUBMIT EQUIPMENT ANCHORAGE CALCULATIONS, SIGNED AND SEALED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF CALIFORNIA, FOR ENGINEER'S REVIEW. IF ANCHORAGE CALCULATIONS INDICATE A LARGER PAD IS REQUIRED, CONTRACTOR SHALL NOTIFY THE ENGINEER.
 4. PROVIDE FOUR CABLE RESTRAINT SYSTEM IN ACCORDANCE WITH SPECIFICATION 11345. CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS FOR CLIP ANCHORAGE, SIGNED AND SEALED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF CALIFORNIA FOR ENGINEER'S REVIEW.



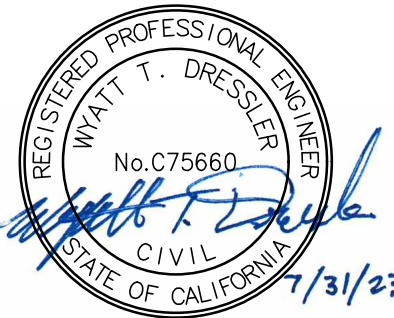
OVERALL BOTTOM PLAN
1/4"= 1'-0"

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PLOT DATE: 7/26/2023 1:39 PM BY: J.KASISCHKE

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PROJECT ENGINEER:	S. GHU
DESIGNED BY:	J. BERGER
DRAWN BY:	J.KASISCHKE
CHECKED BY:	W. DRESSLER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

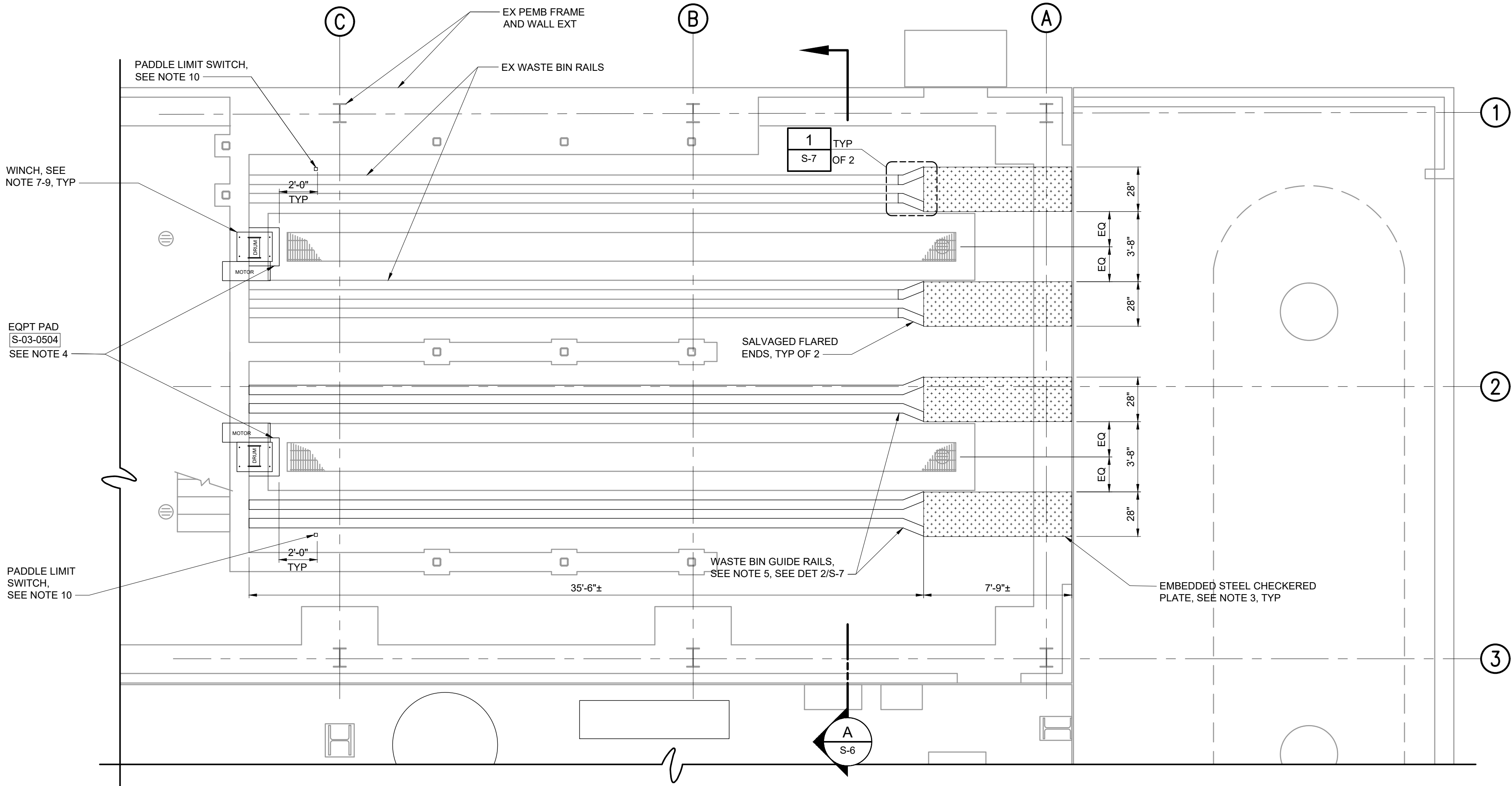
STRUCTURAL
RESIDUALS HANDLING BUILDING
OVERALL BOTTOM PLAN

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	S-3

- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. DRAWING IS BASED ON 7S-1 OF THE LT2 RECORD DRAWINGS. DRAWING MODELED TO REFLECT EXISTING CONDITION WITH MODIFICATIONS SHOWN.
 3. INSTALL 1/4" THICK STEEL CHECKERED PLATE OVER 1/2" OF NON-SHRINK GROUT TO EXTENTS SHOWN. FASTEN PLATE TO CONCRETE WITH 1/2" DIAMETER SCREW ANCHORS ON EACH SIDE OF PLATE WITH 4 MINIMUM EMBEDMENT. SCREW ANCHORS SHALL BE SPACED AT 24" ON CENTER, HAVE A 1 1/2" MINIMUM EDGE DISTANCE, AND SHALL BE COUNTER-SUNK ANCHOR HEAD. REFER TO SPECIFICATION 05050.
 4. CONTRACTOR SHALL COORDINATE DIMENSIONS OF EQUIPMENT PAD WITH WINCH MANUFACTURER. COORDINATE LOCATION OF WINCH BENEATH EXISTING STAIRS TO AVOID CONFLICT. ROUGHEN SURFACE OF EXISTING CONCRETE CURB TO 1/4" AMPLITUDE. PLACE TWO #4 ADHESIVE DOWELS, TOP AND BOTTOM, WITH 4 INCH EMBED INTO EXISTING CONCRETE CURB.
 5. CONTRACTOR SHALL FABRICATE AND INSTALL NEW WASTE BIN GUIDE RAILS SIMILAR TO EXISTING. ANCHORS FOR GUIDE RAIL ATTACHMENT TO FLOOR SHALL BE 3/4" DIAMETER ADHESIVE ANCHORS WITH 6" MINIMUM EMBEDMENT.
 6. REPAIR ANY GALVANIZED STEEL SURFACES THAT ARE ABRADED OR DAMAGED DURING DEMOLITION AND CONSTRUCTION IN ACCORDANCE WITH SPECIFICATION 05035.
 7. CONTRACTOR SHALL PROVIDE ONE WINCH, PER WASTE BIN, TO HORIZONTALLY PULL 20 CUBIC YARD WASTE BIN. WINCH SHALL HAVE MINIMUM LOAD RATING CAPACITY OF 3 TONS, MINIMUM MOTOR HORSEPOWER OF 3 HP, MINIMUM LINE PULL SPEED OF 10 FPM, AND MINIMUM WIRE ROPE LENGTH OF 50 FEET. ROPE SHALL BE FURNISHED WITH A SWIVEL HOOK MEETING MINIMUM LOAD RATING REQUIREMENTS. WINCH MOTOR SHALL BE 480V/3 PHASE. WINCH SHALL BE THERM MODEL 4WS6M12 OR EQUAL. WINCH SHALL FURNISHED WITH PADDLE LIMIT SWITCH. WINCH PENDANT CONTROL SHALL BE ON MINIMUM 25 FT CORD. CONTRACTOR SHALL COORDINATE ANCHOR BOLTS WITH SHOP DRAWING SUBMITTALS. CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCING BARS IN EXISTING CONCRETE CURB PRIOR TO DRILLING HOLES FOR ANCHOR BOLTS. NOTIFY THE ENGINEER IF ANCHOR BOLT LOCATIONS CONFLICT WITH EXISTING REINFORCING.
 8. CONTRACTOR SHALL VERIFY ADEQUACY OF THE EXISTING PICK POINT AS SHOWN IN THE PHOTO ON THIS PLAN SHEET AS A MEANS OF PULLING A FULLY LOADED WASTE BIN INTO THE BUILDING.
 9. WINCH SHALL PULL THE WASTE BIN WITH A CHAIN HOOKED AROUND THE EXISTING PICK POINT. HOOKING THE WINCH ROPE DIRECTLY TO THE EXISTING PICK POINT IS NOT PERMITTED. CONTRACTOR SHALL PROVIDE A STEEL CHAIN WITH A MINIMUM WORKING LOAD EQUAL TO THE MINIMUM LOAD RATING OF THE WINCH. LENGTH OF CHAIN SHALL BE THE GREATER OF 4 FT OR 2.5 TIMES THE DISTANCE FROM THE EDGE OF WASTE BIN TO PICK POINT TO ALLOW THE CHAIN TO BE WRAPPED AROUND THE PICK POINT. FREE ENDS OF THE CHAIN SHALL EXTEND BEYOND EDGE OF WASTE BIN. PROVIDE LOAD RATED ANCHOR SHACKLE OR SIMILAR AS A MEANS TO CONNECT THE FREE ENDS OF THE CHAIN TOGETHER AND PROVIDE A PICK POINT FOR THE WINCH HOOK.
 10. PADDLE LIMIT SWITCH SHALL BE PLACED 2 FEET FROM THE FACE OF THE CONCRETE PAD SUPPORTING THE WINCH. PADDLE LIMIT SWITCH SHALL BE MOUNTED 18" ABOVE FINISHED FLOOR ON UNISTRUT. CONTRACTOR SHALL FIELD LOCATE PADDLE LIMIT SWITCH SUCH THAT THE WASTE BIN MAKES CONTACT WITH THE SWITCH WITHOUT DAMAGE. INSTALL PADDLE LIMIT SWITCH IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



WASTE BIN AND PICK POINT
NTS

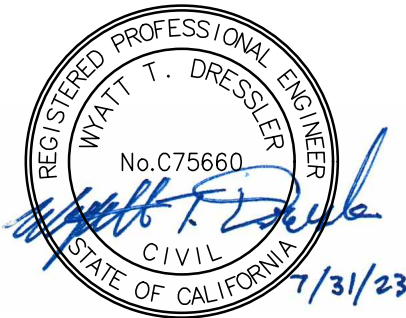


PARTIAL BOTTOM PLAN
1/4"= 1'-0"

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				PROJECT ENGINEER:	S. GHU
				DESIGNED BY:	J. BERGER
				DRAWN BY:	J. KASISCHKE
				CHECKED BY:	W. DRESSLER
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
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FOR CONSTRUCTION



Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

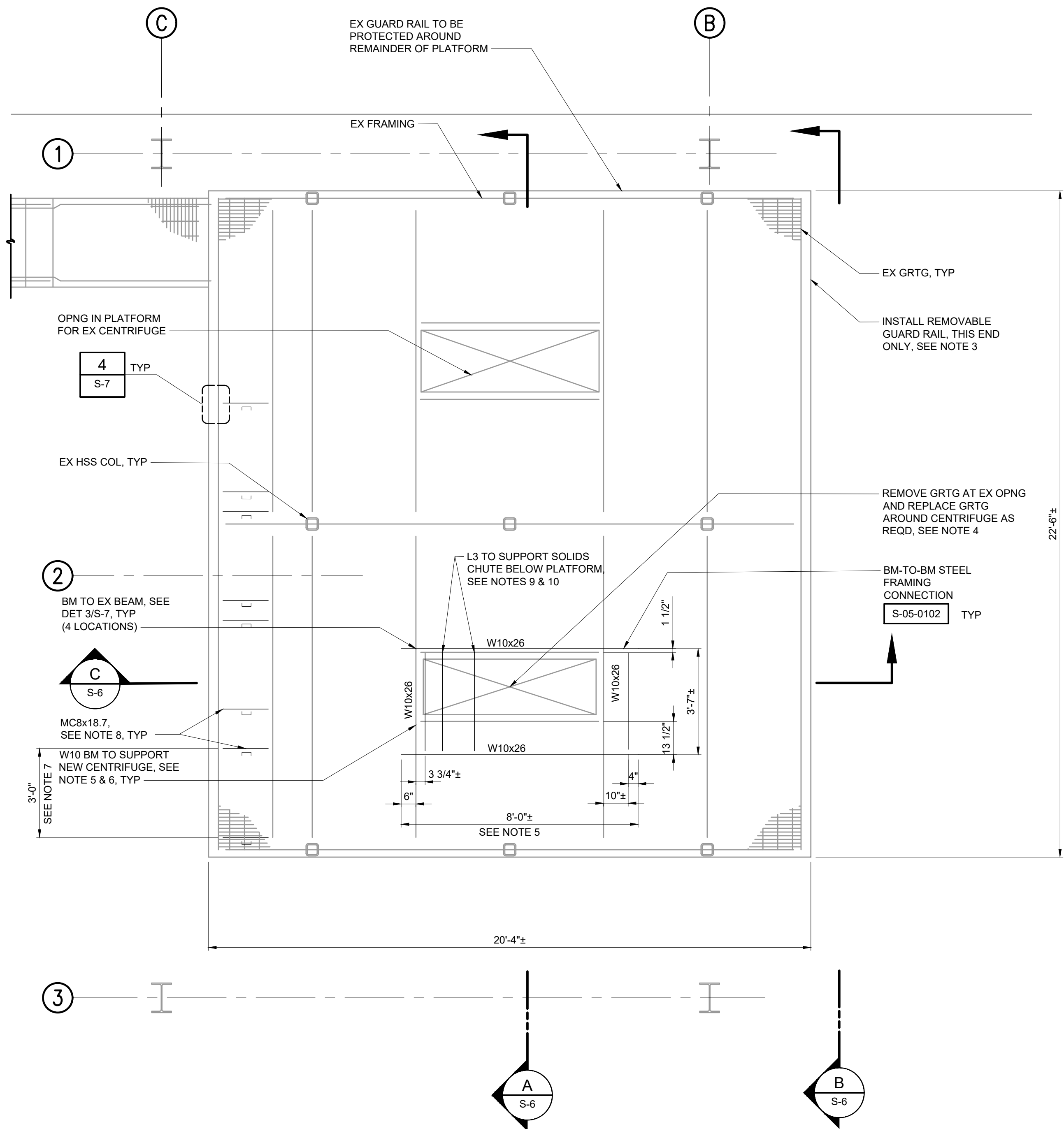
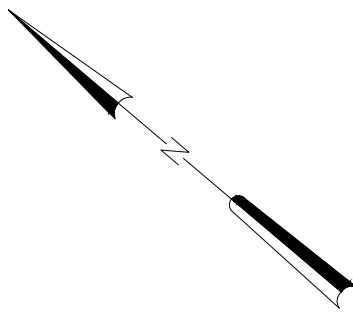
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
RESIDUAL HANDLING BUILDING
PARTIAL BOTTOM PLAN

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	S-4

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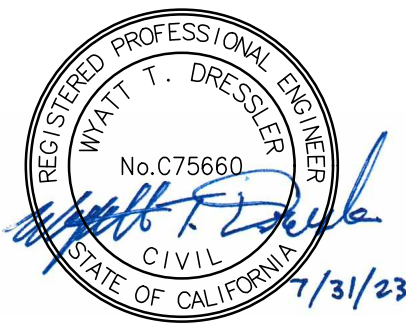


INTERMEDIATE PLAN
3/8"= 1'-0"

- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. DRAWING IS BASED ON 7S-2 OF THE LT2 RECORD DRAWINGS. DRAWING MODELED TO REFLECT EXISTING CONDITION WITH MODIFICATIONS SHOWN.
 3. FOLLOWING REMOVAL OF EXISTING GUARD RAIL ON SOUTH SIDE OF CENTRIFUGE PLATFORM, INSTALL 3 SECTIONS OF REMOVABLE GUARD RAIL. NOTCH GRATING AROUND REMOVABLE GUARD RAIL POST MOUNTS AS REQUIRED.
 4. REPLACE GALVANIZED STEEL GRATING DISRUPTED BY INSTALLATION OF BEAMS SUPPORTING THE NEW CENTRIFUGE IN-KIND. GRATING SHALL BE DESIGNED TO SPAN IN THE SAME DIRECTION AS EXISTING.
 5. CONTRACTOR SHALL COORDINATE LOCATION OF FRAMING MEMBERS WITH LOCATION OF CENTRIFUGE. REFER TO MECHANICAL DRAWINGS. FRAMING MEMBERS SUPPORTING NEW CENTRIFUGE SHALL BE LOCATED SUCH THAT THE CENTRIFUGE SUPPORTS ARE CENTERED ON THE BEAMS.
 6. CENTRIFUGE VIBRATION ISOLATORS SHALL BE DESIGNED SUCH THAT THE EXCITING FREQUENCY AFTER VIBRATION ISOLATORS FROM EQUIPMENT TRANSFERRED TO THE PLATFORM SHALL NOT EXCEED 3 HZ. REFER TO SPECIFICATION 11363. CONTRACTOR SHALL COORDINATE CONNECTION BETWEEN VIBRATION ISOLATOR AND STEEL FRAMING WITH VIBRATION ISOLATOR MANUFACTURER.
 7. CONTRACTOR SHALL COORDINATE LOCATION OF ELECTRICAL PANELS WITH ELECTRICAL DRAWINGS. CONTRACTOR SHALL SUBMIT FOR ENGINEER'S REVIEW, ELECTRICAL EQUIPMENT ANCHORAGE CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF CALIFORNIA.
 8. CONTRACTOR SHALL FIELD VERIFY SPACING OF EXISTING PLATFORM FRAMING MEMBERS AND COORDINATE ELECTRICAL PANEL ANCHORAGE WITH LOCATION OF EXISTING FRAMING MEMBERS. IF ELECTRICAL PANEL ANCHORS LAND ON EXISTING PLATFORM FRAMING MEMBERS, CHANNEL MEMBERS ARE NOT REQUIRED. IF ADDITIONAL SUPPORT MEMBERS ARE REQUIRED, CONTRACTOR SHALL COORDINATE FRAMING MEMBER LOCATION WITH PANEL LOCATION SUCH THAT THE ELECTRICAL PANEL ANCHORAGE POINTS ARE CENTERED IN THE TOP FLANGE.
 9. REPAIR ANY GALVANIZED STEEL SURFACES THAT ARE ABRADED OR DAMAGED DURING DEMOLITION AND CONSTRUCTION IN ACCORDANCE WITH SPECIFICATION 05035.
 10. CONTRACTOR SHALL INSTALL TWO STEEL L3X3X3/8 ANGLES TO SUPPORT SOLIDS WASTE CHUTE BELOW NEW CENTRIFUGE, SIMILAR TO THE EXISTING CENTRIFUGE. CONTRACTOR SHALL COORDINATE LOCATION OF SOLIDS WASTE CHUTE SUPPORT ANGLES WITH EQUIPMENT MANUFACTURER. SOLIDS WASTE CHUTE SHALL BE WELDED TO ANGLE STEEL SUPPORT MEMBERS. FASTEN EACH END OF ANGLE SUPPORT TO THE UNDERSIDE OF PLATFORM BEAM FLANGE WITH ONE 3/4" DIAMETER A325 BOLT WITH A MINIMUM 1 1/2" EDGE DISTANCE TO EDGE OF FLANGE.

				PROJECT ENGINEER:	S. GHU
				DESIGNED BY:	J. BERGER
				DRAWN BY:	J. KASISCHKE
				CHECKED BY:	W. DRESSLER
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

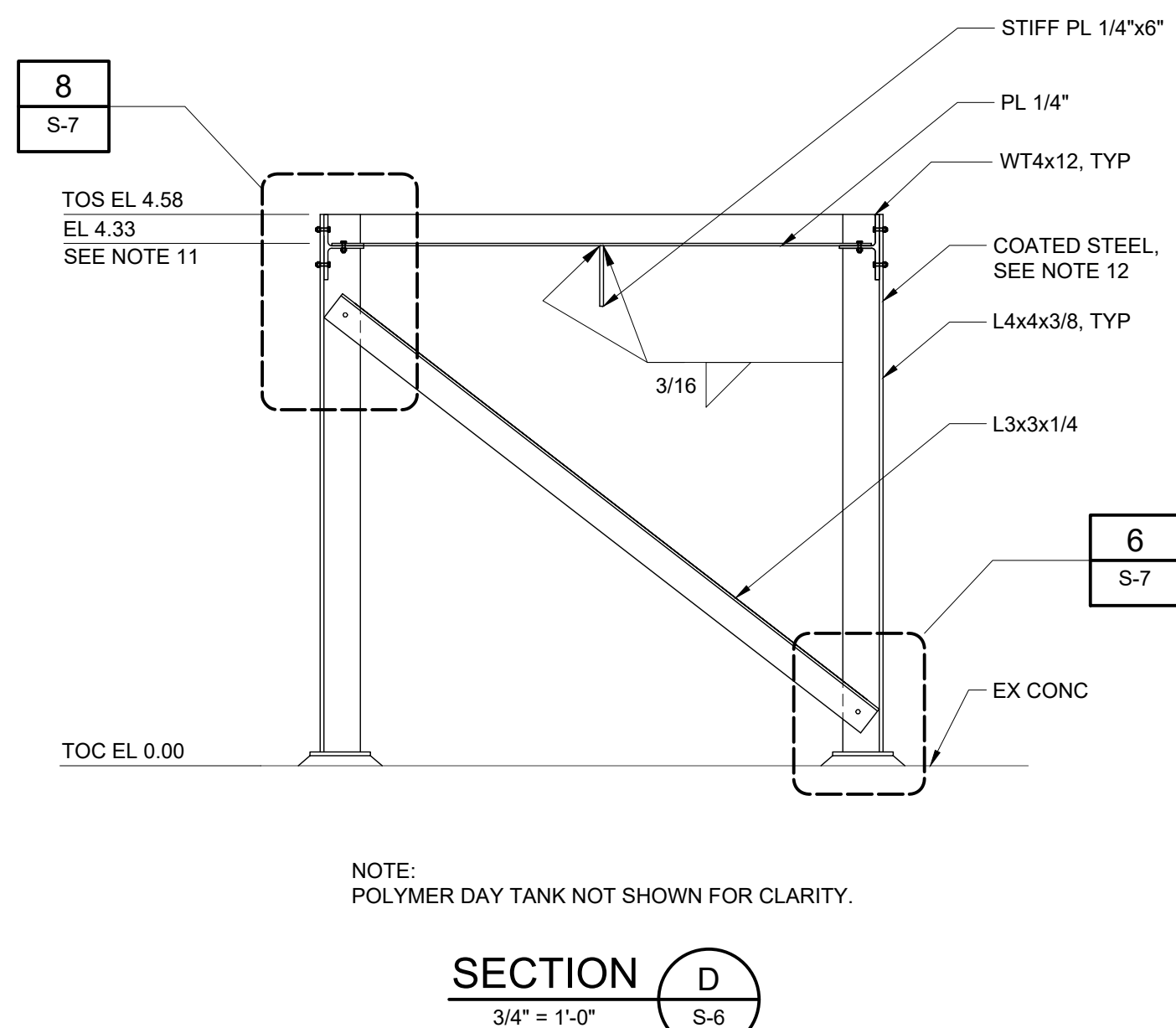
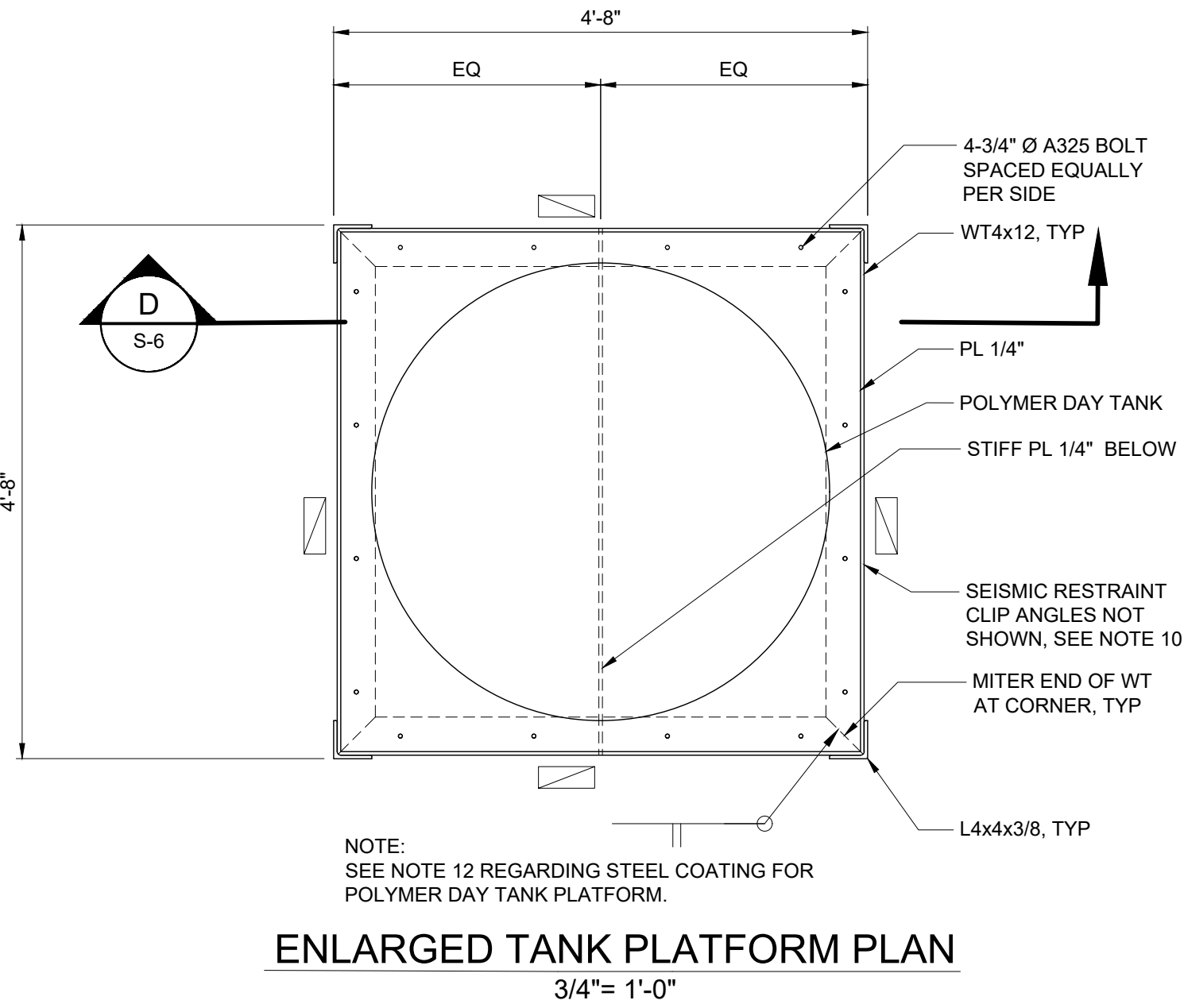
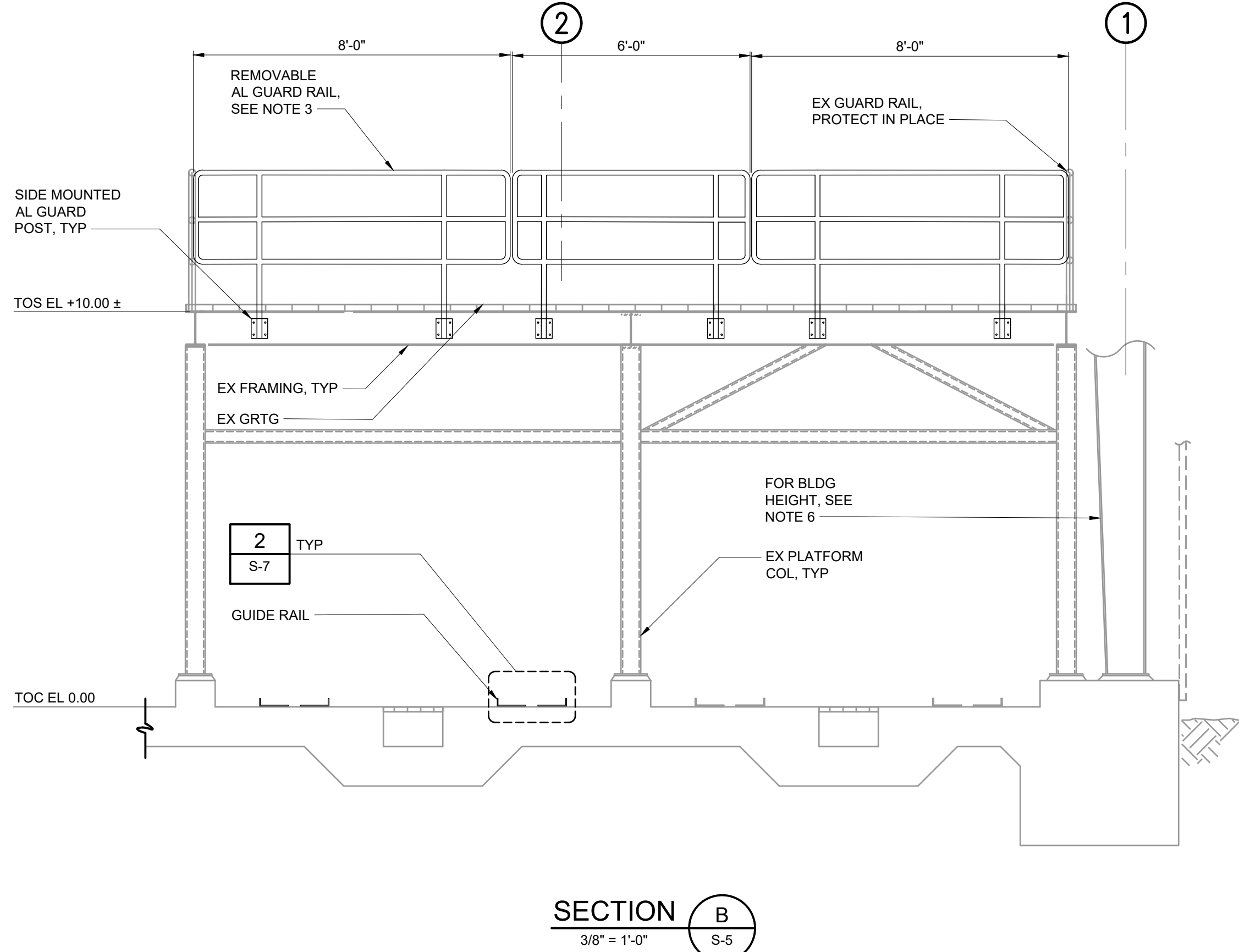
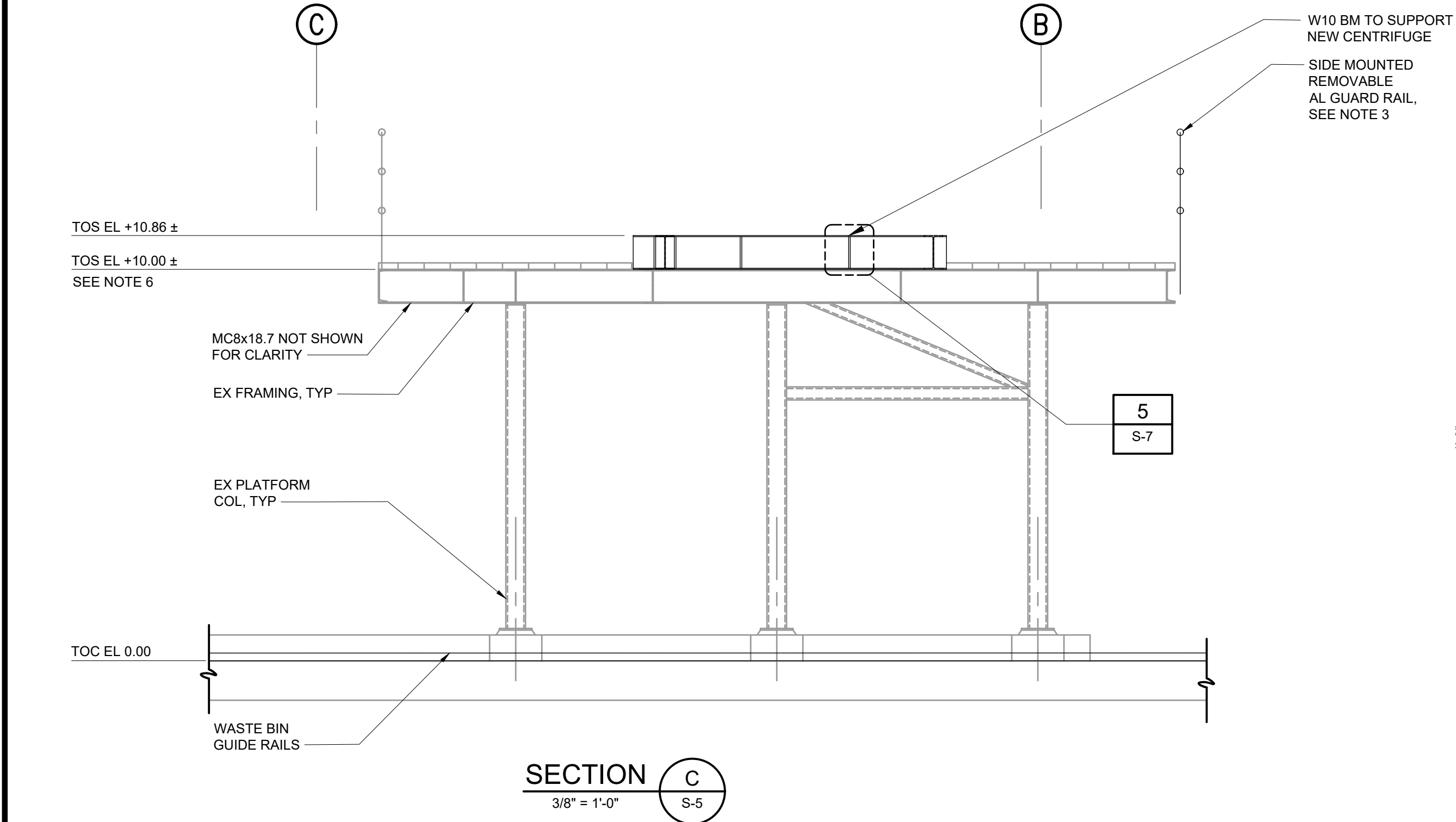
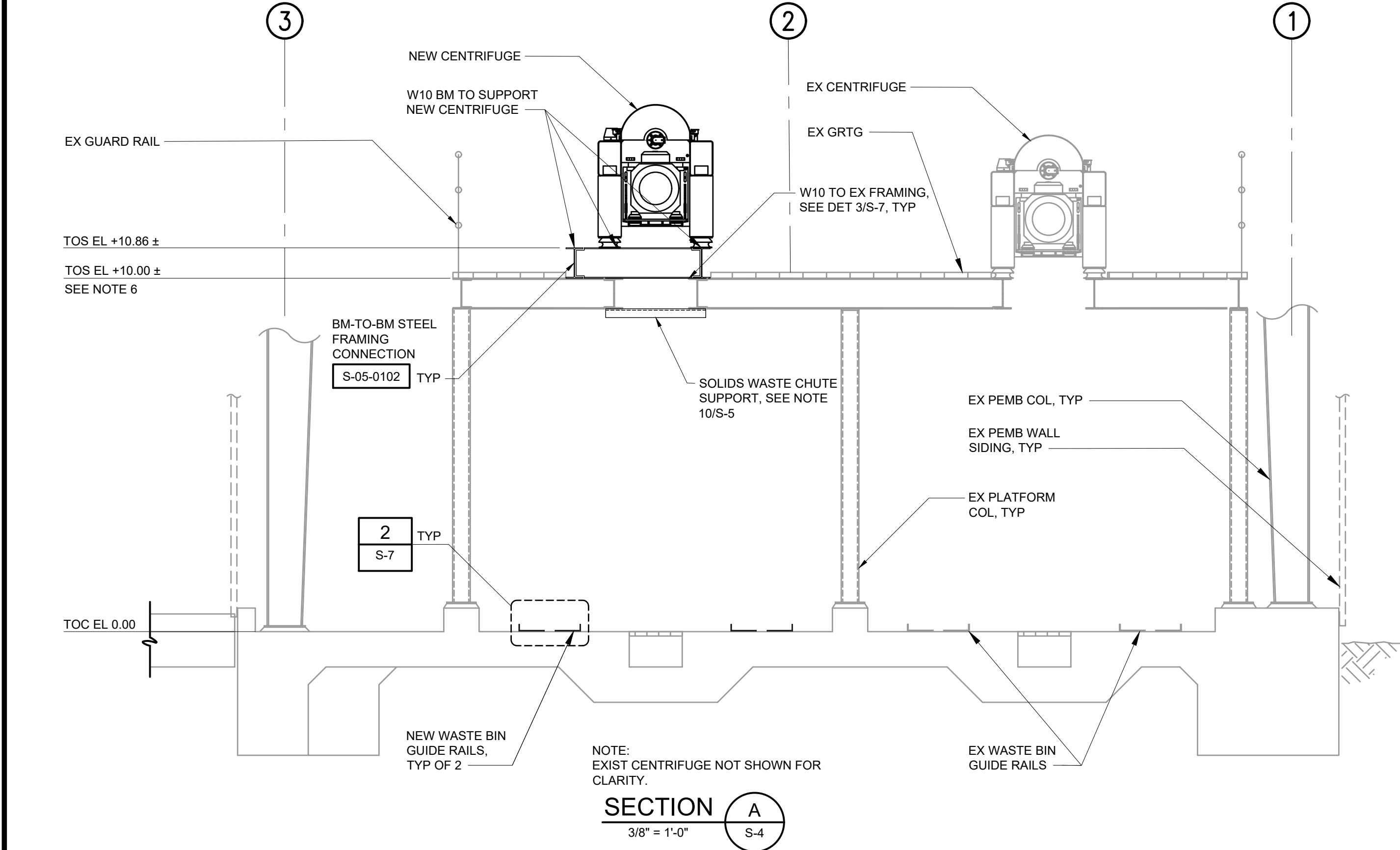
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
RESIDUALS HANDLING BUILDING
INTERMEDIATE PLAN

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	S-5

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- NOTES:
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 - DRAWING IS BASED ON 7S-2 OF THE LT2 RECORD DRAWINGS. DRAWING MODELED TO REFLECT EXISTING CONDITION WITH MODIFICATIONS SHOWN.
 - FOLLOWING REMOVAL OF EXISTING GUARD RAIL ON SOUTH SIDE OF CENTRIFUGE PLATFORM, INSTALL THREE SECTIONS OF REMOVABLE GUARD RAIL. REMOVABLE GUARD RAIL POSTS SHALL BE SIDE MOUNTED TO EXISTING FRAMING.
 - REPLACE GALVANIZED STEEL GRATING IN-KIND DISRUPTED BY INSTALLATION OF BEAMS SUPPORTING THE NEW CENTRIFUGE. GRATING SHALL BE DESIGNED TO SPAN IN THE SAME DIRECTION AS EXISTING.
 - CONTRACTOR SHALL COORDINATE LOCATION OF FRAMING MEMBERS WITH LOCATION OF CENTRIFUGE. REFER TO MECHANICAL DRAWINGS.
 - RESIDUALS HANDLING BUILDING EAVE HEIGHT IS APPROXIMATELY 31'-0" ABOVE GRADE PER LT2 RECORD DRAWINGS.
 - CONTRACTOR SHALL FABRICATE AND INSTALL NEW WASTE BIN GUIDE RAILS SIMILAR TO EXISTING. ANCHORS FOR GUIDE RAIL ATTACHMENT TO FLOOR SHALL BE 3/4" DIAMETER ADHESIVE ANCHORS WITH 6" MINIMUM EMBEDMENT.
 - REPAIR ANY GALVANIZED STEEL SURFACES THAT ARE ABRADED OR DAMAGED DURING DEMOLITION AND CONSTRUCTION IN ACCORDANCE WITH SPECIFICATION 05035.
 - 8 S-7 DENOTES L3X3X1/4 DIAGONAL BRACE.
 - POLYMER DAY TANK SEISMIC RESTRAINTS SHALL BE DESIGNED BY THE TANK MANUFACTURER. CONTRACTOR SHALL COORDINATE LOCATION OF CLIP ANGLE FOR SEISMIC RESTRAINTS WITH TANK MANUFACTURER. CLIP ANGLES SHALL BE WELDED TO OUTSIDE FACE OF WT MEMBERS.
 - BOTTOM OF POLYMER DAY TANK SHALL BE AT A MINIMUM ELEVATION OF 4'-3" ABOVE CONCRETE FLOOR.
 - POLYMER DAY TANK STEEL PLATFORM SHALL BE COATED IN ACCORDANCE WITH SPECIFICATION 09900.

REV	ISSUED FOR	DATE	BY	PROJECT ENGINEER: S. GHU
				DESIGNED BY: J. BERGER
				DRAWN BY: J. KASISCHKE
				CHECKED BY: W. DRESSLER
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
WATT T. DRESSLER
No. C75660
CIVIL
STATE OF CALIFORNIA
7/31/23

Hazen

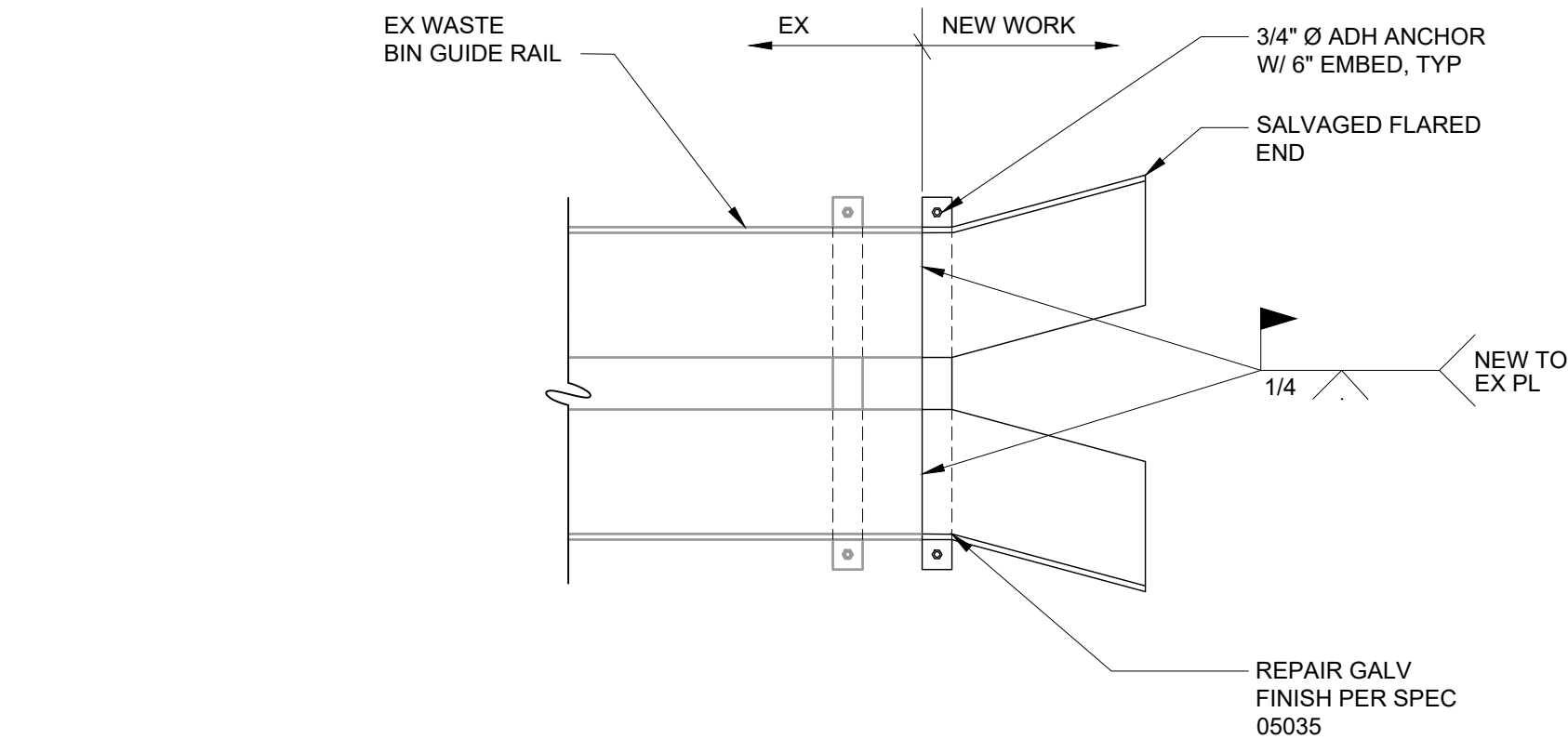
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ENCINITAS, CALIFORNIA

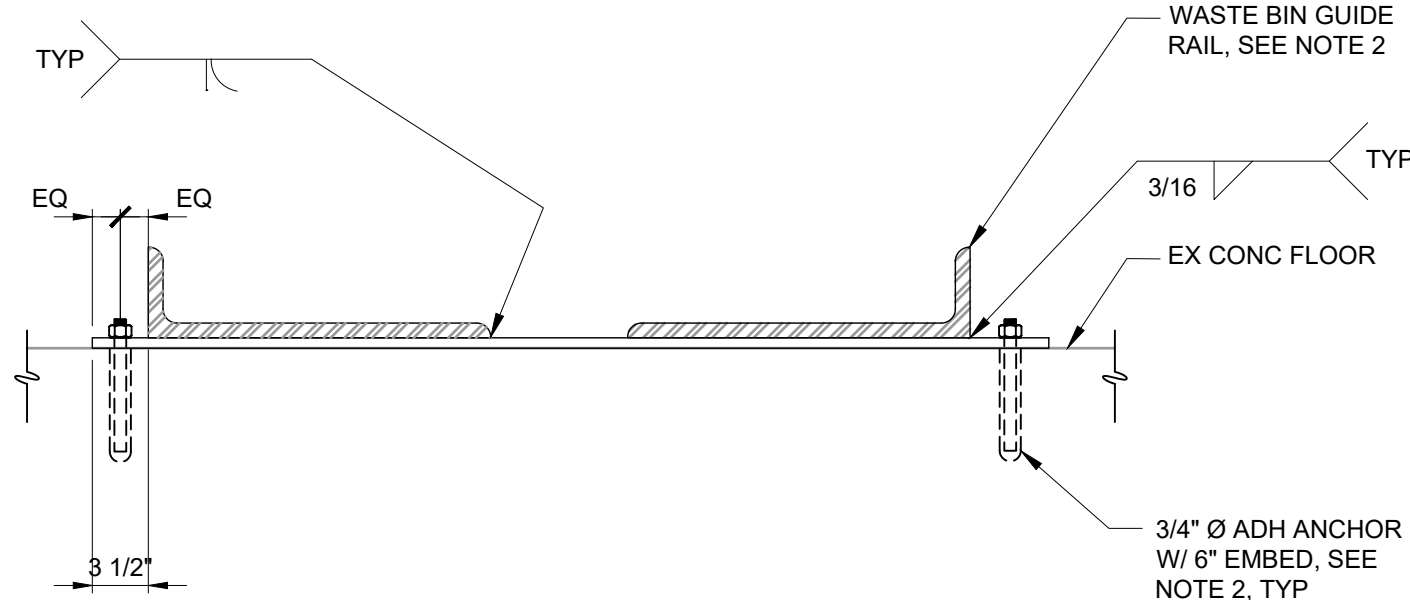
DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
RESIDUAL HANDLING BUILDING
SECTIONS

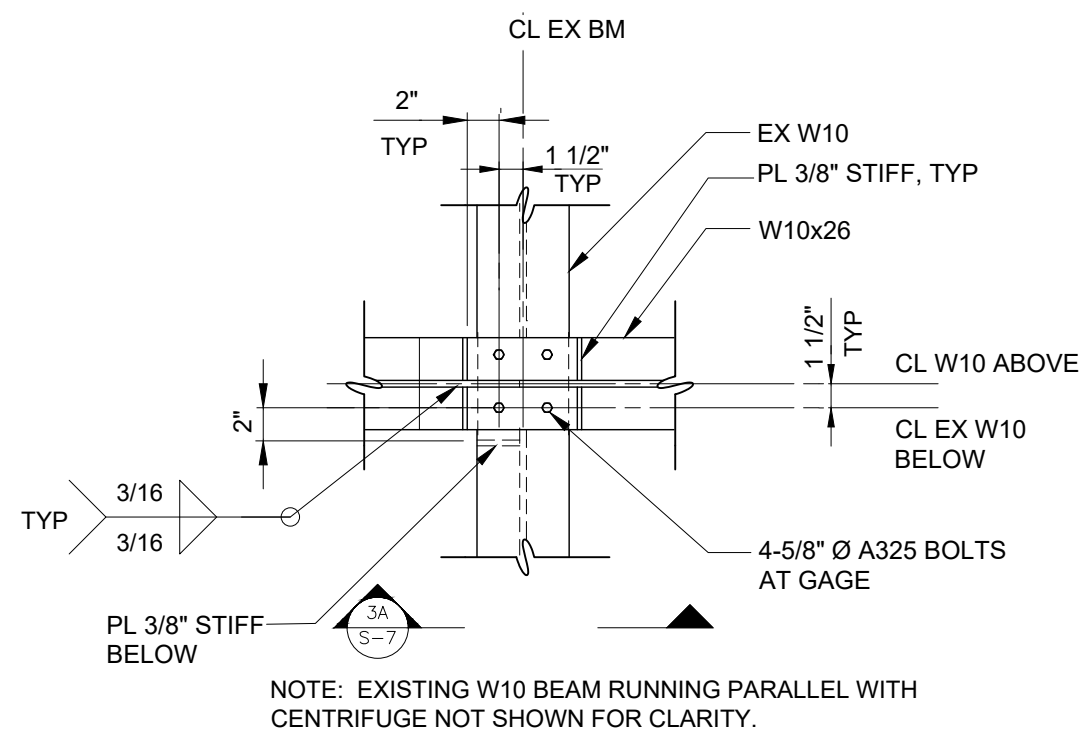
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	S-6



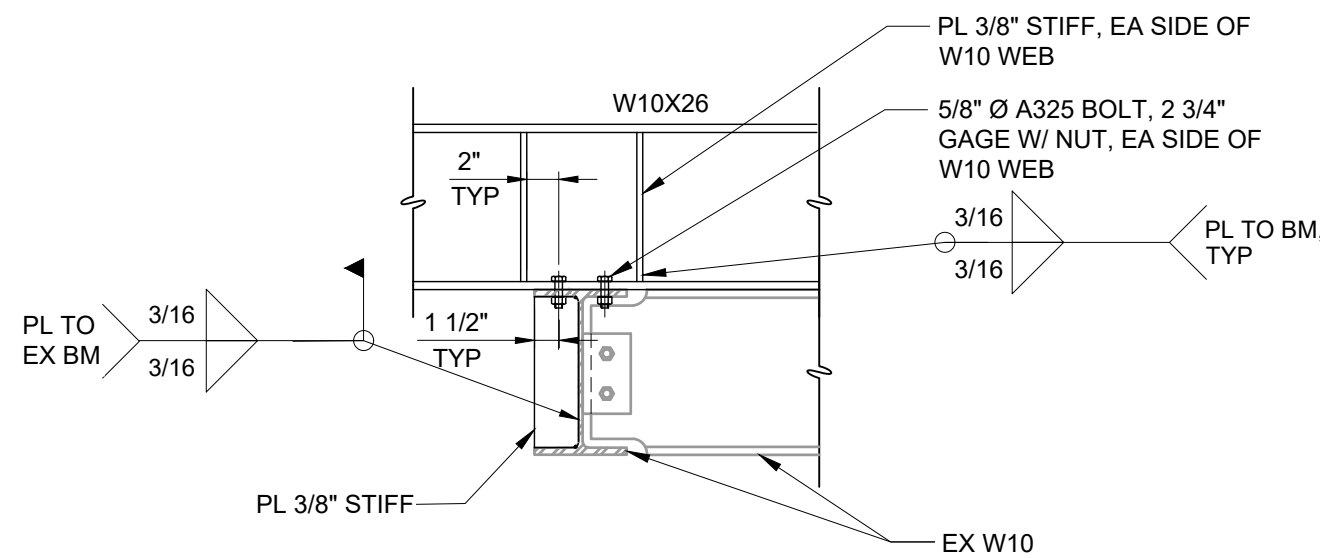
DETAIL 1
1" = 1'-0"



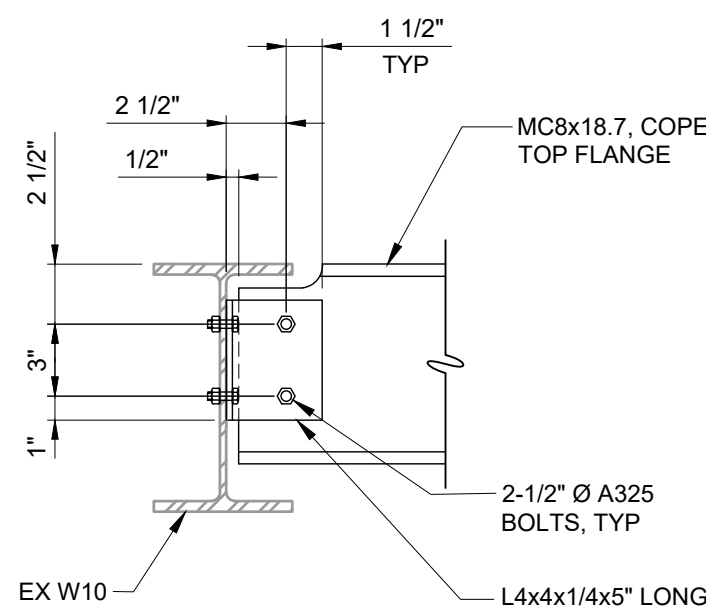
DETAIL 2
1" = 1'-0"



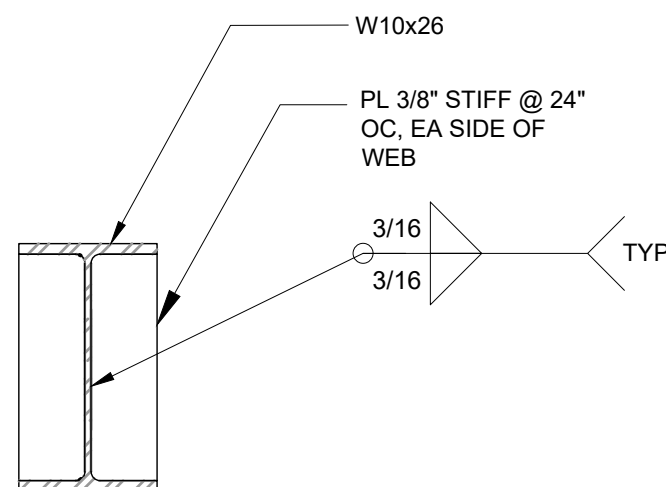
DETAIL 3
1" = 1'-0"



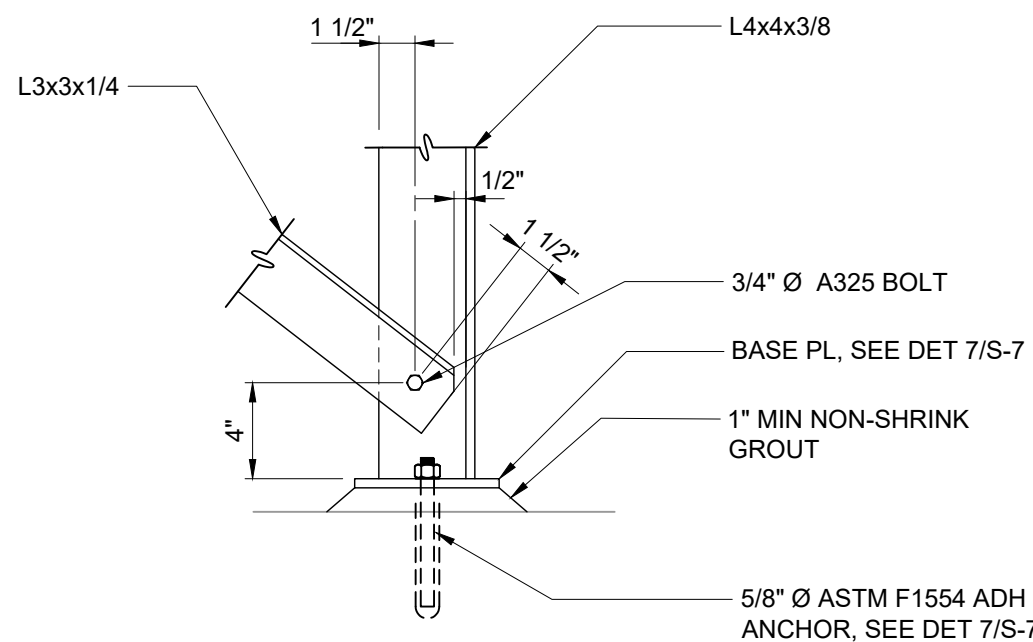
SECTION 3A
1" = 1'-0"



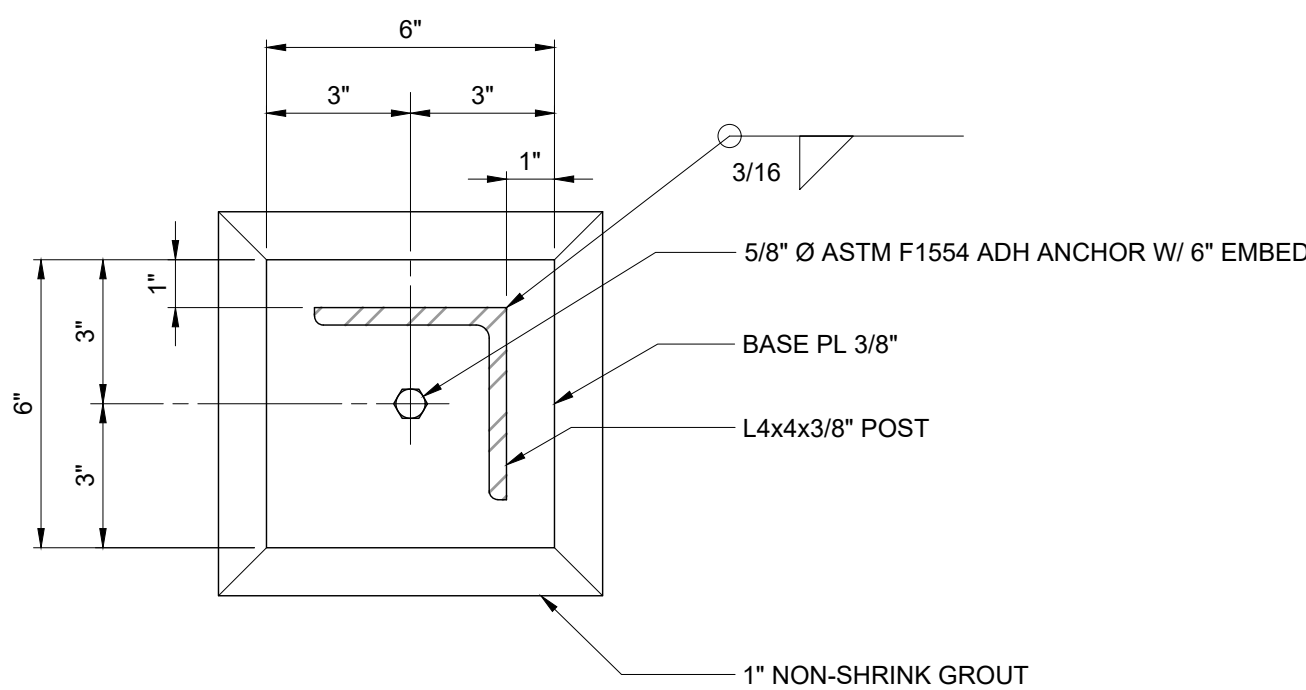
DETAIL 4
1 1/2" = 1'-0"



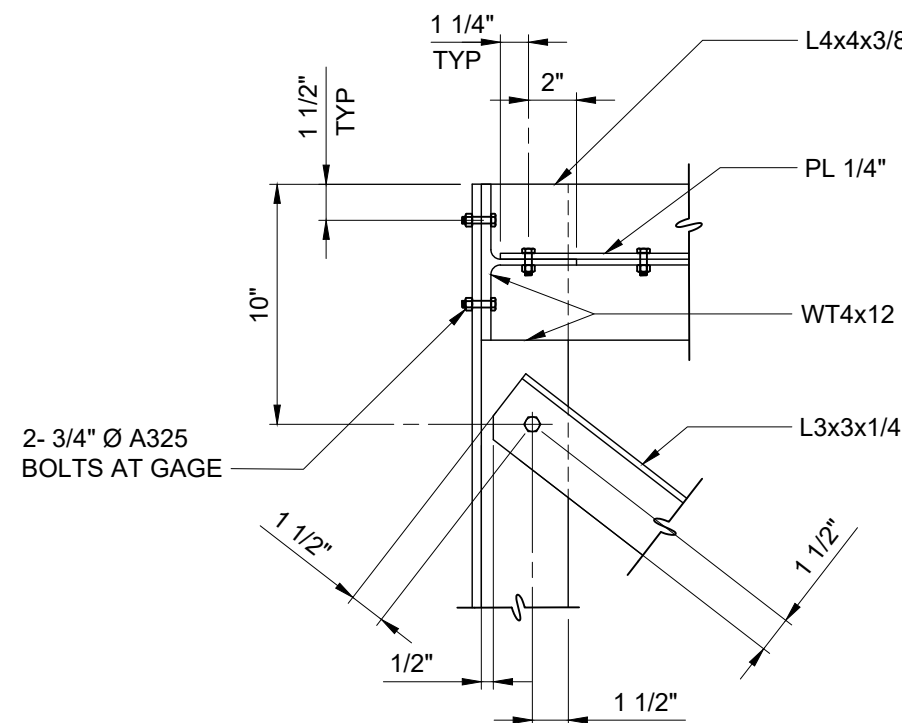
DETAIL 5
1 1/2" = 1'-0"



DETAIL 6
1 1/2" = 1'-0"



DETAIL 7
3" = 1'-0"



DETAIL 8
1 1/2" = 1'-0"

NOTES:

- ALL STEEL MEMBERS INSIDE RESIDUAL HANDLING BUILDING SHALL BE GALVANIZED STEEL, UNLESS NOTED OTHERWISE. REFER TO SPECIFICATION 05035.
- CONTRACTOR SHALL FABRICATE AND INSTALL NEW WASTE BIN GUIDE RAILS INCLUDING FLARED END, SIMILAR TO EXISTING GUIDE RAIL SIZE AND DIMENSIONS. ANCHORS SHALL BE INSTALLED AT SIMILAR SPACING AS EXISTING WASTE BIN GUIDE RAILS.
- POLYMER DAY TANK STEEL PLATFORM SHALL BE COATED IN ACCORDANCE WITH SPECIFICATION 09900.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	S. GHIU
DESIGNED BY:	J. BERGER
DRAWN BY:	J. KASISCHKE
CHECKED BY:	W. DRESSLER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
WYATT T. DRESSLER
No. C75660
CIVIL
STATE OF CALIFORNIA
7/31/23

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
RESIDUAL HANDLING BUILDING
DETAILS

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	S-7

DEVELOPMENT LENGTH OF STANDARD HOOKS

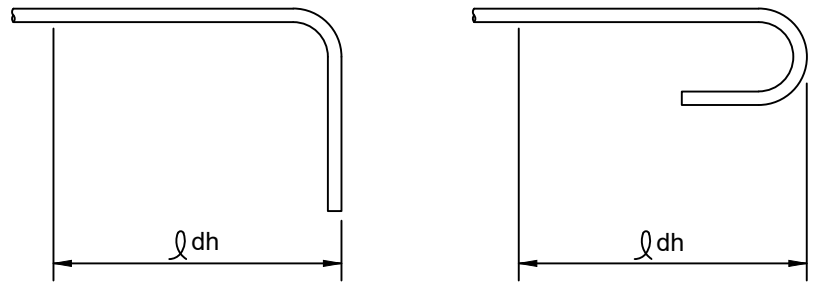
FOR UNCOATED BARS IN TENSION

fy = 60,000 psi

fc' = 4000 psi OR GREATER

BAR SIZE	DEVELOPMENT LENGTH, ℓ_{dh}	
	BASIC	W/ CONC COVER *
#3	8"	6"
#4	10"	7"
#5	1'-0"	9"
#6	1'-3"	11"
#7	1'-5"	1'-0"
#8	1'-7"	1'-2"
#9	1'-10"	1'-4"
#10	2'-1"	1'-6"
#11	2'-3"	1'-7"

* SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2 1/2"; AND FOR 90° HOOK, END COVER BEYOND OUTSIDE END OF HOOK AT LEAST 2".



BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH

FOR UNCOATED BARS IN TENSION

fy = 60,000 psi

CLEAR COVER $\geq$ 1.5 INCHES

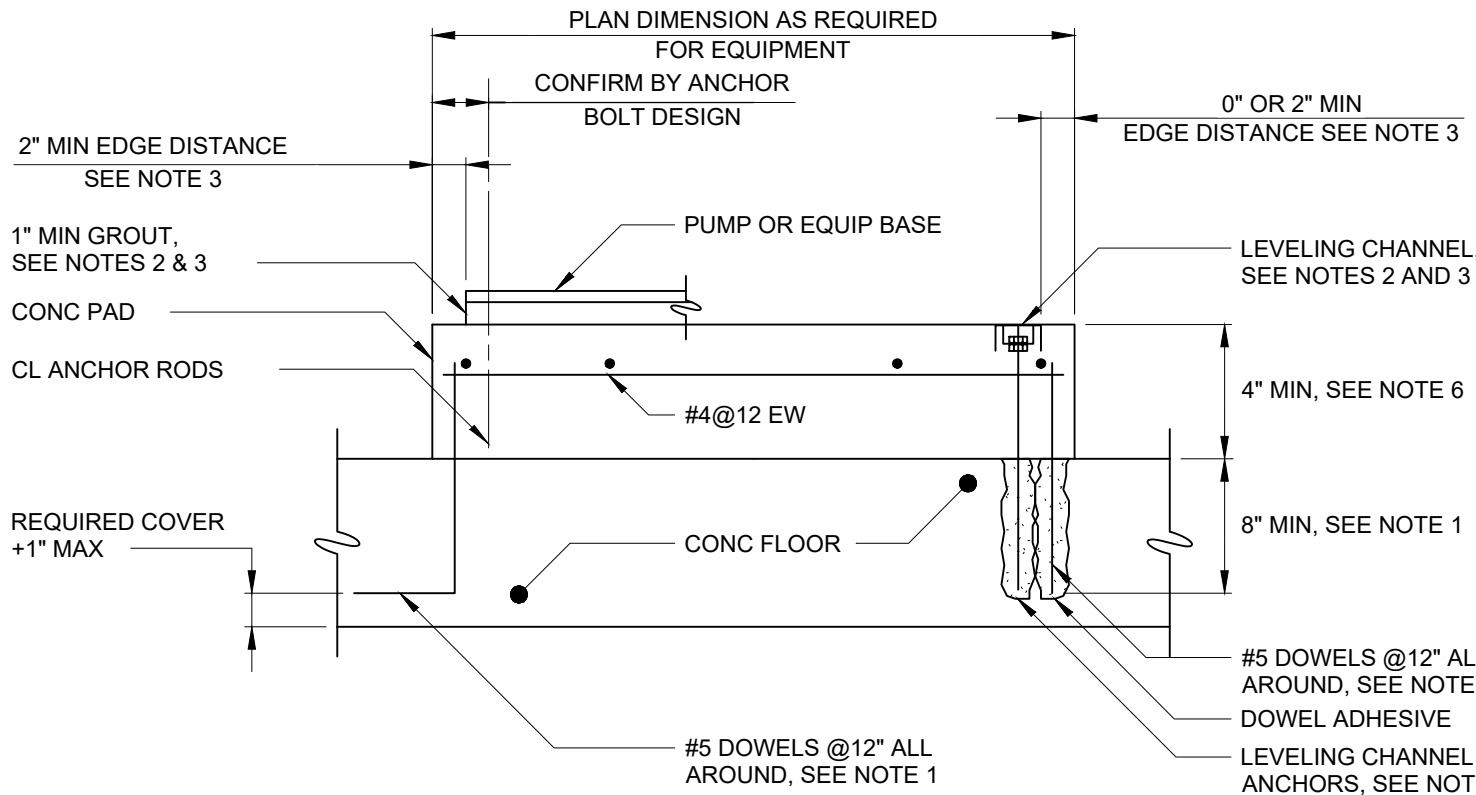
fc' = 4000 psi OR GREATER

NORMAL WEIGHT CONCRETE

BASIC DEVELOPMENT LENGTH ℓ _d				BAR SIZE	CLASS B SPLICE LENGTH 1.3 x ℓ _d			
CLEAR SPACING ≥ 3"		CLEAR SPACING <3"			CLEAR SPACING ≥ 3"		CLEAR SPACING <3"	
BASIC	TOP *	BASIC	TOP *		BASIC	TOP *	BASIC	TOP *
1'-0"	1'-0"	1'-0"	1'-4"	# 3	1'-0"	1'-3"	1'-4"	1'-8"
1'-0"	1'-3"	1'-7"	2'-1"	# 4	1'-3"	1'-8"	2'-1"	2'-9"
1'-3"	1'-7"	2'-4"	3'-0"	# 5	1'-7"	2'-0"	3'-0"	3'-11"
1'-6"	1'-11"	3'-1"	4'-0"	# 6	1'-11"	2'-5"	4'-0"	5'-2"
2'-5"	3'-1"	4'-11"	6'-4"	# 7	3'-1"	4'-0"	6'-4"	8'-3"
3'-0"	3'-11"	6'-0"	7'-9"	# 8	3'-11"	5'-1"	7'-9"	10'-1"
3'-8"	4'-9"	6'-9"	8'-9"	# 9	4'-9"	6'-3"	8'-9"	11'-4"
4'-6"	5'-10"	7'-7"	9'-10"	# 10	5'-10"	7'-7"	9'-10"	12'-9"
5'-5"	7'-0"	8'-5"	10'-11"	# 11	7'-0"	9'-1"	10'-11"	14'-2"

* TOP REINFORCEMENT IS ANY HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.

** FOR MATERIALS OR CONDITIONS DIFFERENT FROM THOSE STATED, LENGTHS SHOWN IN CHART SHALL BE MODIFIED TO CONFORM TO THE PROVISIONS OF ACI 318-14, SECTION 25.3.



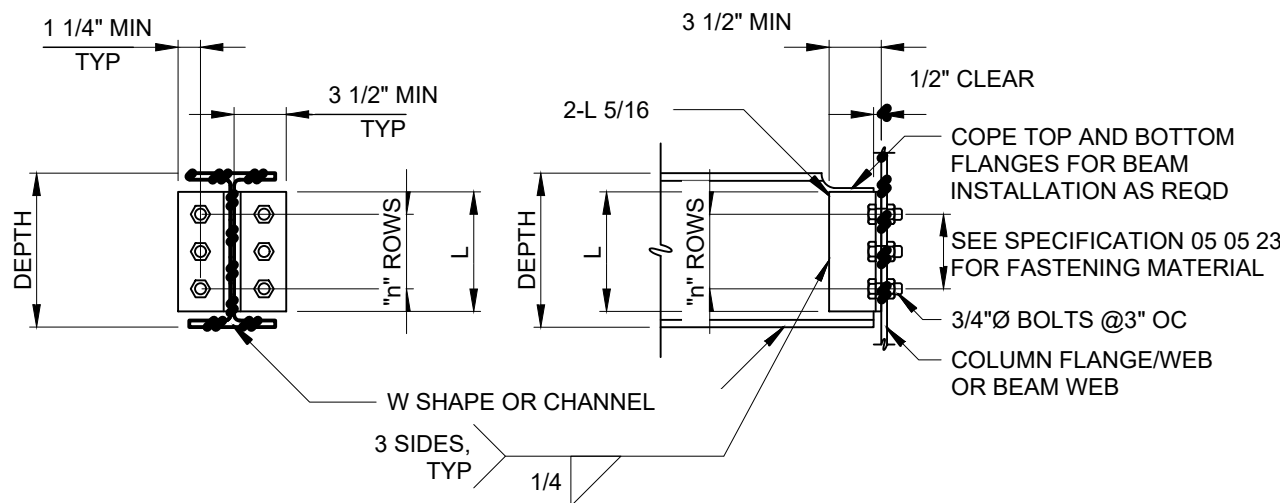
NOTES:

- DOWELS MAY BE CAST IN WITH 90° HOOK OR ANCHORED WITH DOWEL ADHESIVE AT CONTRACTORS OPTION. WHERE FLOOR IS 8" THICK OR LESS, USE #4 DOWELS EMBEDDED TO WITHIN 2" OF BOTTOM OF FLOOR SLAB.
- THE CONTRACTOR SHALL PROVIDE LEVELING CHANNELS AND LEVELING CHANNEL ANCHORS FOR SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S LEVELING TOLERANCES. THE CONTRACTOR SHALL PROVIDE 1" MINIMUM NON-SHRINK GROUT FOR PUMPS AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S UNIFORM BEARING AND LEVELING REQUIREMENTS.
- PRIOR TO PLACING CONCRETE PAD, LEVELING CHANNEL SIZE AND MEANS OF INSTALLATION, ANCHORAGE, GROUT, CONCRETE EDGE DISTANCE, AND CONCRETE BLOCKOUTS REQUIREMENTS SHALL BE COORDINATED WITH EQUIPMENT MANUFACTURER.
- COAT DISSIMILAR MATERIALS PER THE CONTRACT DOCUMENTS.
- STAGGER CHANNEL ANCHORS AND PAD DOWELS.
- FOR PADS 24" OR GREATER IN DEPTH, PROVIDE #4@8" HORIZONTAL SKIN REINFORCING AROUND PERIMETER OF PAD.

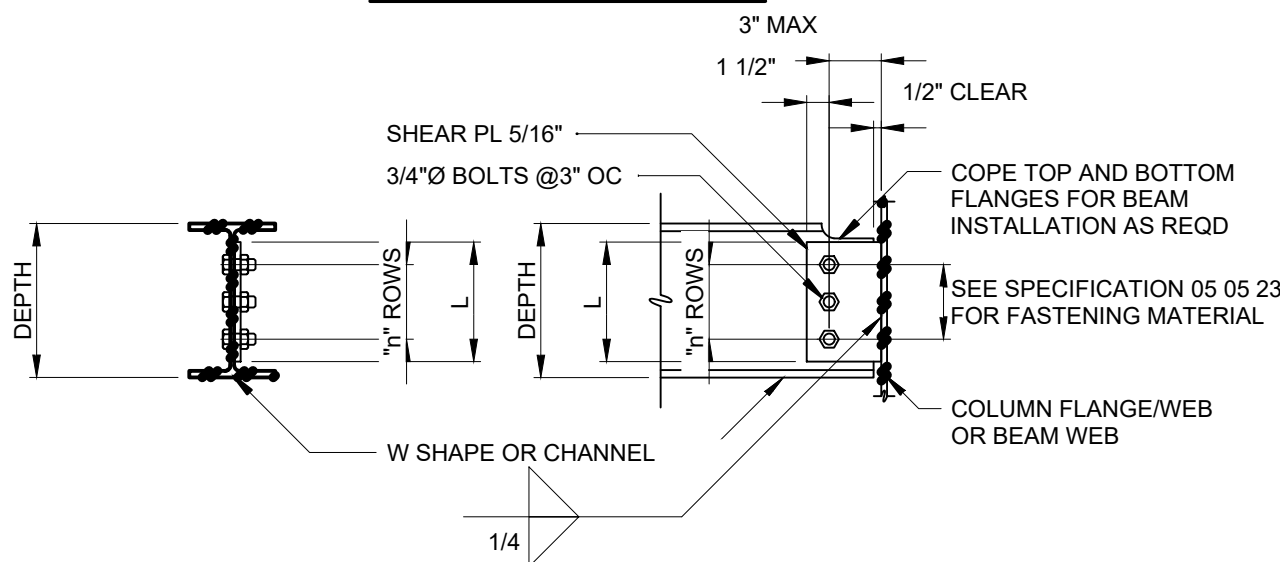
EQUIPMENT PAD

S-03-0504

NOMINAL BEAM DEPTH, INCHES	(n) ROWS	L, INCHES
8-10	2	5 1/2"



TYPE I DOUBLE ANGLE



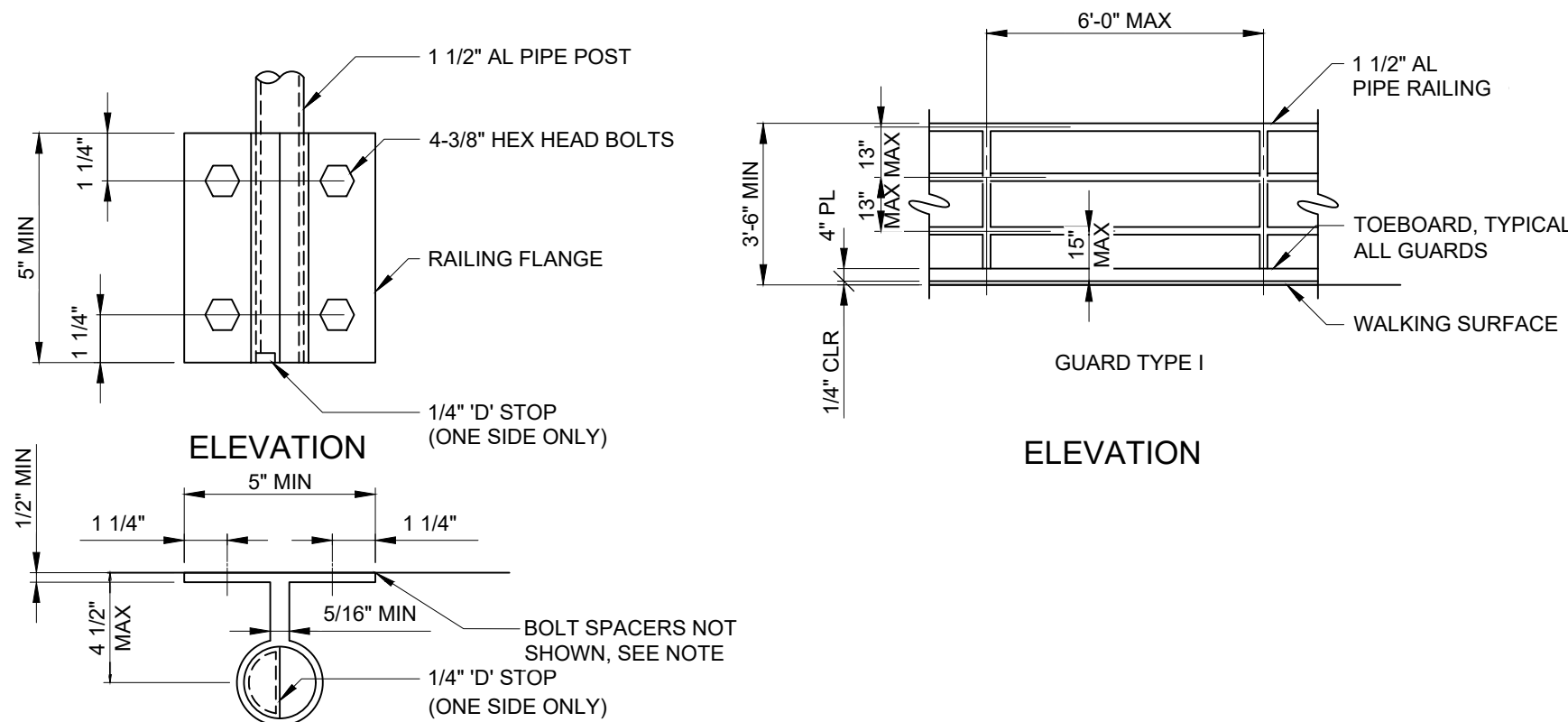
TYPE II SINGLE PLATE

NOTE:
TYPE I DOUBLE ANGLE CONNECTION
SHALL BE USED UNO ON DRAWINGS.

STEEL FRAMING CONNECTION
S-05-0102

W SHAPED LOWER BOUND CAPACITY (KIPS) SEE NOTES TO ENGINEER			
DOUBLE ANGLE		SINGLE PLATE	
ASD	LRFD	ASD	LRFD
12.4	18.7	12.4	18.7
23.0	34.4	23.0	34.4
39.0	58.5	39.0	58.5
69.0	103.6	54.1	81.3
94.4	141.4	59.3	89.1
128.8	193.2	72.1	108.0
151.3	227.0	84.7	127.0
185.0	278.0	94.8	142.0
205.0	308.0	105.0	157.0

NOTE : CHART NOT
APPLICABLE TO CHANNELS



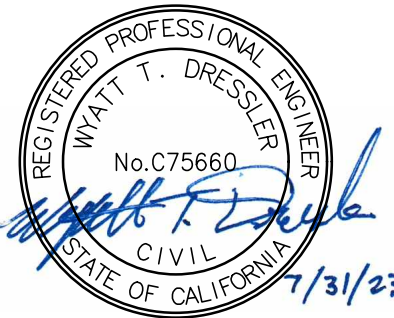
NOTE:
CONTRACTOR SHALL USE BOLT SPACERS BETWEEN
GUARD SIDE MOUNT AND BEAM WEB TO ENSURE GUARD
RAIL EXTENDS BEYOND BEAM FLANGE.

ALUMINUM GUARDS AND HANDRAILS

S-05-0601 R

REV	ISSUED FOR	DATE	BY	PROJECT ENGINEER: S. GHU
				DESIGNED BY: J. BERGER
				DRAWN BY: J. KASISCHKE
				CHECKED BY: W. DRESSLER
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

FOR CONSTRUCTION



Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

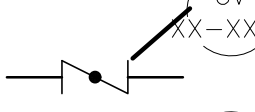
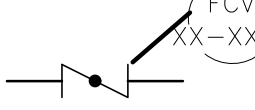
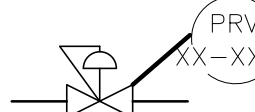
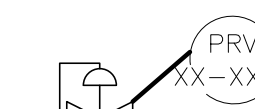
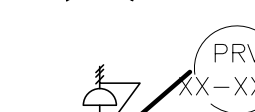
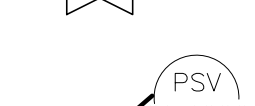
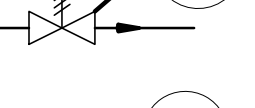
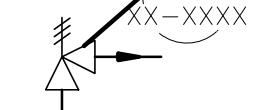
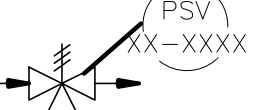
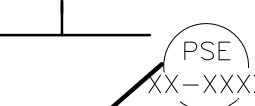
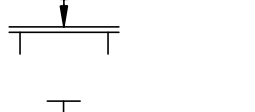
DCM WTP STAGE 4 PROCESS UPGRADES

STRUCTURAL
STANDARD DETAILS - SHEET 1

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	SD-1

<u>SYMBOLS (ABBREVIATIONS)</u>		
	UNCLASSIFIED. TYPE AS SHOWN ON THE DRAWINGS ADJACENT TO SYMBOL	
	GATE VALVE	(GV)
	KNIFE GATE VALVE	(KG)
	GLOBE VALVE	(GLV)
	BALL VALVE	(BV)
	3-WAY BALL VALVE	(BV3)
	4-WAY BALL VALVE	(BV4)
	RECYCLE CONTROL VALVE	(RCV)
	CONE VALVE	(CNV)
	NEEDLE VALVE	(NV)
	PINCH VALVE	(PV)
	DIAPHRAGM VALVE	(DV)
	BUTTERFLY VALVE	(BFV)
	PLUG VALVE	(PV)
	3-WAY PLUG VALVE	(PV3)
	4-WAY PLUG VALVE	(PV4)
	CHECK VALVE, GENERAL SYMBOL	(CKV)
	BALL CHECK VALVE	(BCV)
	DOUBLE DOOR CHECK VALVE	(DDCV)
	SOLENOID VALVE	(SV)
	MOTOR OPERATED VALVE	(MOV)
	3-WAY SOLENOID VALVE	(SV3)
	4-WAY SOLENOID VALVE	(SV4)
	ANGLE VALVE	(AV)
	QUICK CONNECT COUPLING	(QCC)
	SLUICE GATE	(SLG)
	BULKHEAD GATE	(BHG)
	SLIDE GATE	(SG)
	WEIR SLIDE GATE	(WG)
	STOP PLATE GUIDES	(SPG)
	FLAP VALVE	(FLV)
	SHEAR GATE	(SHG)
	FLEX JOINT	(FJ)
	PRESSURE REDUCING REGULATOR SELF CONTAINED	(PRV)
	PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP	(PRV)

SYMBOLS

	CONTROL VALVE	(CV)
	FLOW CONTROL VALVE	(FCV)
	BACK PRESSURE REGULATOR	(PRV)
	BACK PRESSURE REGULATOR SELF CONTAINED	(PRV)
	BACK PRESSURE REGULATOR WITH EXTERNAL PRESSURE TAP	(PRV)
	PRESSURE REDUCING REGULATOR WITH INTEGRAL OUTLET PRESSURE RELIEF VALVE	(PRV)
	PRESSURE RELIEF OR SAFETY VALVE, STRAIGHT-THROUGH PATTERN, SPRING OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT	(PSV)
	PRESSURE RELIEF OR SAFETY VALVE, GENERAL SYMBOL	(PSV)
	VACUUM RELIEF VALVE, GENERAL SYMBOL	(VRV)
	PRESSURE AND VACUUM RELIEF VALVE, SPRING OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT	(PSV)
	RUPTURE DISK OR SAFETY HEAD FOR PRESSURE RELIEF	(PSE)
	RUPTURE DISK OR SAFETY HEAD FOR VACUUM RELIEF	(PSE)
	PRESSURE AND VACUUM RELIEF MANHOLE COVER	(PSE)
	SLIDE PLATE	(SP)
	MANUAL VOLUME DAMPER	(VD)
	BACKDRAFT DAMPER	(BDD)
	FOOT VALVE	(FV)
	DIFFERENTIAL PRESSURE REDUCING REGULATOR WITH INTERNAL AND EXTERNAL PRESSURE TAPS	(PDCV)

VALVE ACTUATORS

	DIAPHRAGM, SPRING OPPOSED		CYLINDER POSITIONER
	DIAPHRAGM, SPRING OPPOSED WITH POSITIONER		EXAMPLE POSITIONER
	DIAPHRAGM, PRESSURE-BALANCED		ANY CYLINDER ASSEMBLY BE POSITIONED
	ROTARY MOTOR. (SHOWN TYPICALLY WITH ELECTRIC SIGNAL. MAY BE HYDRAULIC OR PNEUMATIC)		FLOAT
	SOLENOID		FLOAT
	CYLINDER, SINGLE-ACTING, SPRING OPPOSED WITHOUT POSITIONER, OR PILOT.		FLOAT

PIPE AND FITTING SYMBOLS		
DOUBLE LINE PIPING	SINGLE LINE PIPING	
		PROCESS PIPING:
		EXISTING PROCESS PIPING
		FUTURE PROCESS PIPING
		WELDED JOINT
		FLANGED JOINT SIMPLIFIED REPRESENTATION. (SEE NOTE 1)
		FLANGED JOINT (SEE NOTE 1)
		COUPLING FOR GROOVED END JOINTS:
		(F) FLEXIBLE
		(R) RIGID
		MECHANICAL JOINT (SEE NOTE 1)
		PUSH ON JOINT OR CAULKED BELL & SPIGOT JOINT (SEE NOTE 1)
		FLANGE x PLAIN END PIPE COUPLING (FLANGE ADAPTOR)
		PIPE COUPLING (SLEEVE-TYPE)
		FLEXIBLE COUPLING OR EXPANSION JOINT (SLEEVE TYPE)
		ONE OR TWO LETTERS IDENTIFYING THE TYPE. REFER TO SPECIFICATIONS.
		FLEXIBLE COUPLING OR EXPANSION JOINT (BELLOWS TYPE)
		FLANGE GUARD

PIPE AND FITTING SYMBOLS NOTES:

1. GENERIC JOINT SYMBOL IS USED FOR ALL SINGLE LINE PIPING SHOWN ON THE INTERIOR AND EXTERIOR PIPING DRAWINGS.
2. BOTH, DETAILED AND SIMPLIFIED FLANGE REPRESENTATION SYMBOLS MAY BE SHOWN ON THE DRAWINGS.
3. UNLESS MODIFIED BY THE GENERAL PROJECT NOTES OR DETAILED ON THE LAYOUT AND SCHEMATIC DRAWINGS PIPE AND FITTING JOINT REQUIREMENTS FOR THE VARIOUS PIPE MATERIALS ARE DEFINED IN THE SPECIFICATIONS AND ARE INDICATED ON THE PROCESS PIPE SCHEDULES

<u>PROCESS PIPE IDENTIFICATION</u>		<u>PIPE MATERIALS</u>	
<u>PROCESS FLOW STREAMS</u>		<u>PIPE MATERIALS</u>	
AIR	- LOW PRESSURE AIR (FROM BLOWERS)	BS	- BLACK STEEL PIPE
ACH	- ALUMINUM CHLOROHYDRATE	CI	- CAST IRON
BPR	- BACKPULSE RECYCLE	CU	- COPPER
BPW	- BACKPULSE WATER SUPPLY	CPVC	- CHLORINATED POLYVINYL CHLORIDE
BW	- BACKWASH WATER SUPPLY	DI	- DUCTILE IRON
BWW	- BACKWASH WASTE	DIGL	- DUCTILE IRON GLASS LINED
CA	- PLANT AIR (COMPRESSED)	FRP	- FIBERGLASS REINFORCED PLASTIC
CEB	- CHEMICAL ENHANCED BACKWASH	GS	- GALVANIZED STEEL
CEN	- CENTRATE	HDPE	- HIGH DENSITY POLYETHYLENE
CF	- CATIONIC CAGULANS (CATFLOC)	PCCP	- PRESTRESSED CONCRETE CYLINDER PIPE
CIP	- CLEAN-IN-PLACE	PP	- POLYPROPYLENE
CIPR	- CIP RETURN	PPSTL	- POLYPROPYLENE LINED STEEL
CIPW	- CIP WASTE	PVC	- POLYVINYL CHLORIDE
CIT	- CITRIC ACID	RC	- REINFORCED CONCRETE
CS	- CAUSTIC SODA, SODIUM HYDROXIDE	RUB	- SEWER PIPE RUBBER
DR	- DRAIN, DRAIN WATER	SS	- STAINLESS STEEL
FDW	- MEMBRANE FEED WATER	STL	- STEEL
FH	- FIRE HYDRANT	TUB	- CHEMICAL TUBING
FM	- FLOW METER		
FW	- FINISHED WATER		
MIT	- MEMBRANE INTEGRITY TEST AIR (COMPRESSED)		
NaF	- SODIUM FLUORIDE		
NH3	- AMMONIA		
OF	- OVERFLOW		
PEA	- ANIONIC POLYMER		
PEC	- CATIONIC POLYMER		
PERM	- MEMBRANE PERMEATE		
POTW	- POTABLE WATER		
PW	- PROTECTED WATER		
RJT	- MEMBRANE REJECT		
RW	- RAW WATER		
RWW	- RECYCLED WASH WATER		
SA	- SAMPLE		
SAN	- SANITARY SEWER		
SBS	- SODIUM BISULFITE		
SD	- STORM DRAIN		
SHC	- SODIUM HYPOCHLORITE		
TS	- THICKENED SLUDGE		
TSD	- THIRD STAGE DECANT		
TSI	- THIRD STAGE INFLUENT		
TW	- TREATED WATER		
V	- VENT		
VAC	- VACUUM		

PROCESS VALVE LOOP IDENTIFICATION

INDICATES DEVICE FURNISHED BY EQUIPMENT VENDOR

FUNCTION IDENTIFICATION CONFORMING TO CURRENT ISSUE OF "ISA STD. ISA-S5.1" (EX: FLOW CONTROL VALVE)

INSTRUMENT LOOP NUMBER.

MECHANICAL DRAWINGS SHOW ONLY PRIMARY INSTRUMENT ELEMENTS. FOR ADDITIONAL DETAILS REFER TO INSTRUMENTATION SPECIFICATIONS.

TYPICAL INSTRUMENTATION AND LOOP TAG

PIPE TAG

12" BWW-DI

3/4" SBS-CPVC

(3) 3/4" SHC-CPVC

(3) 3/4" SHC CPVC

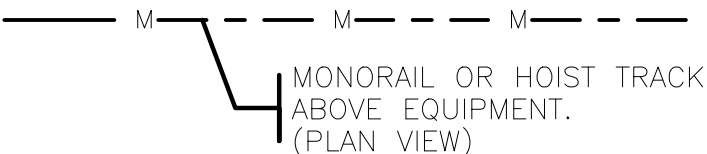
NUMERICAL INDICATOR FOR MULTIPLE IDENTICAL FLOWSTREAMS

PIPE MATERIAL SEE ABBREVIATIONS AND DEFINITIONS (OPTIONAL)

NOMINAL PIPE SIZE

PROCESS FLOW STREAM SEE ABBREVIATIONS AND DEFINITIONS

MISCELLANEOUS SYMBOLS



MONORAIL OR HOIST TRACK
ABOVE EQUIPMENT.
(PLAN VIEW)



LIFTING HOOK ABOVE EQUIPMENT.
(PLAN VIEW)

LEGENDS SYMBOLS AND ABBREVIATIONS SHOWN ON SHEETS M-1, M-2 AND M-3 INDICATE STANDARD SYMBOLS AND ABBREVIATIONS AND ARE PERTINENT TO THE CONDITIONS ON THIS SET OF DRAWINGS TO THE EXTENT APPLICABLE.

ADDITIONAL LEGENDS AND/OR ABBREVIATIONS MAY APPEAR IN THIS SET OF DRAWINGS TO INDICATE SPECIFIC CONDITIONS.

				PROJECT ENGINEER:	S. GHIU
				DESIGNED BY:	S. GHIU
				DRAWN BY:	R. SHNAYDERMAN
				CHECKED BY:	M. PETERSON
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
SILVANA M. GHU
No. 77750
CIVIL
STATE OF CALIFORNIA
7/31/23

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

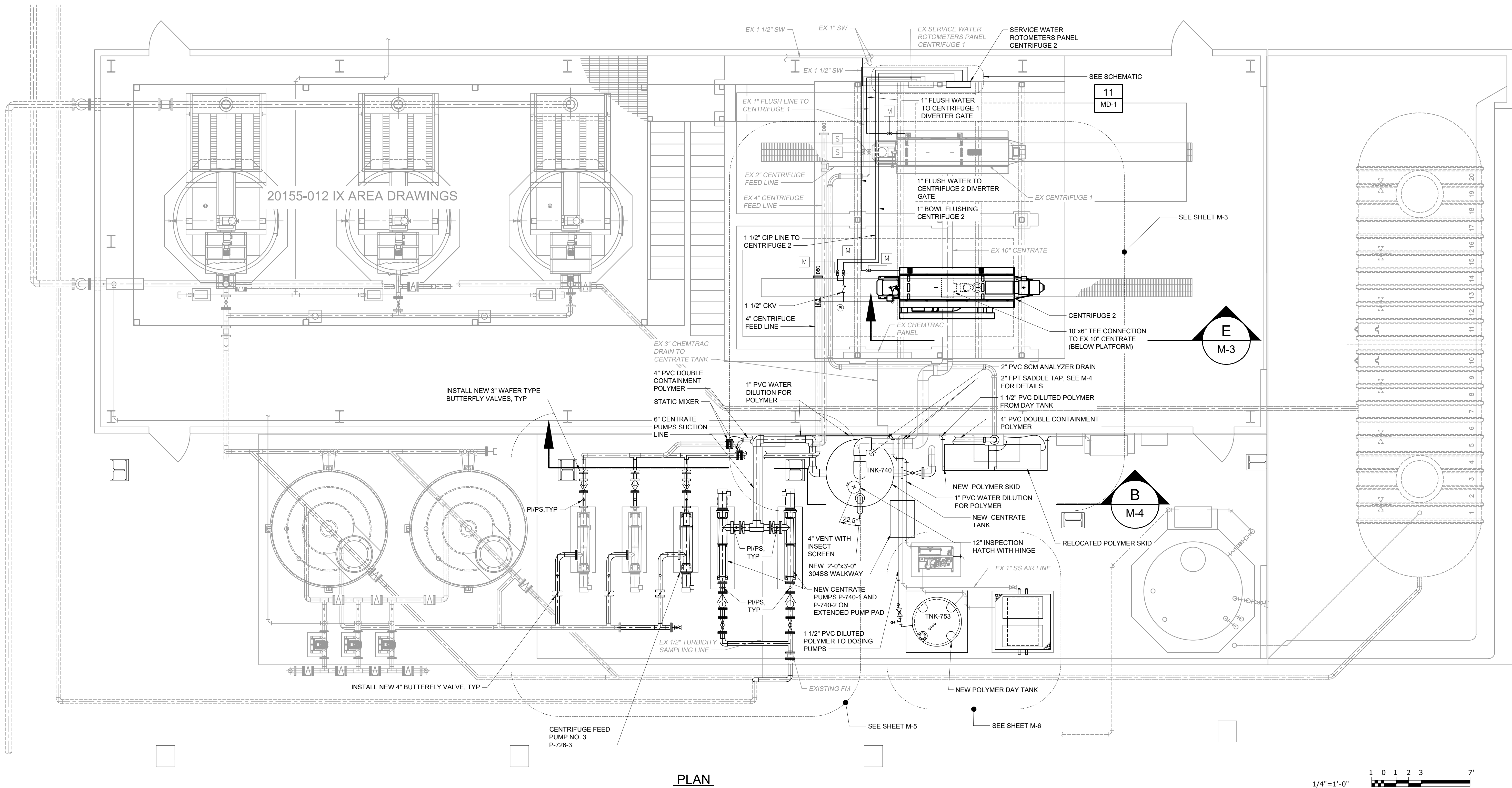
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL NOTES AND LEGEND

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	M-1

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.



PLAN

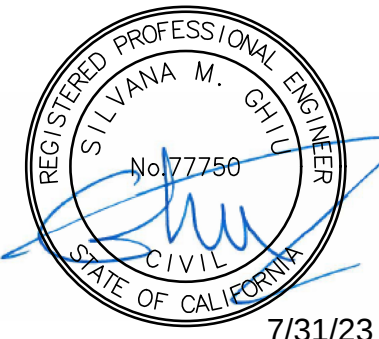
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PLOT DATE: 7/28/2023 3:48 PM BY: RSHNAYDERMAN

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	S. GHIU
DESIGNED BY:	S. GHIU
DRAWN BY:	R. SHNAYDERMAN
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION



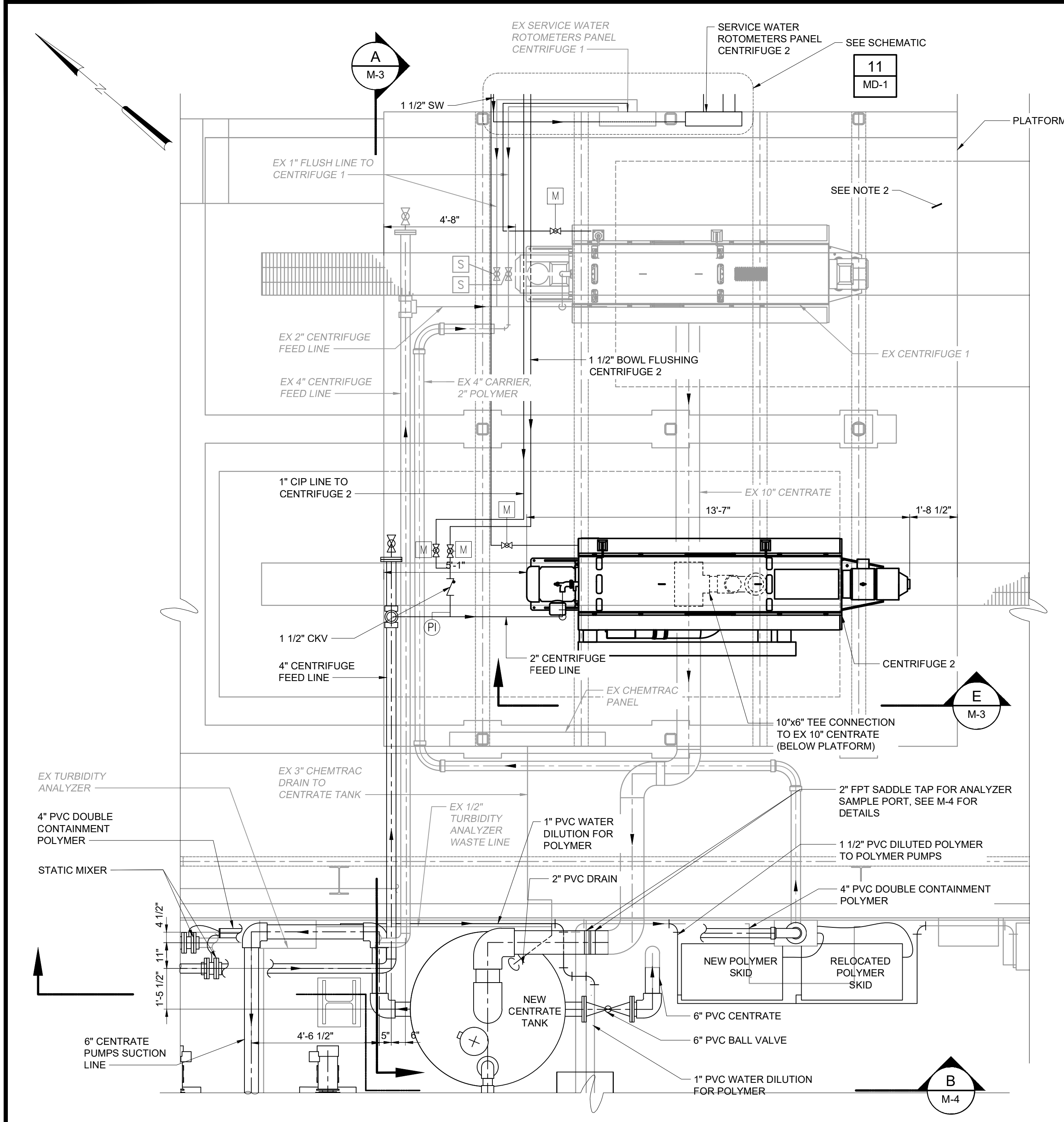
Hazen
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OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

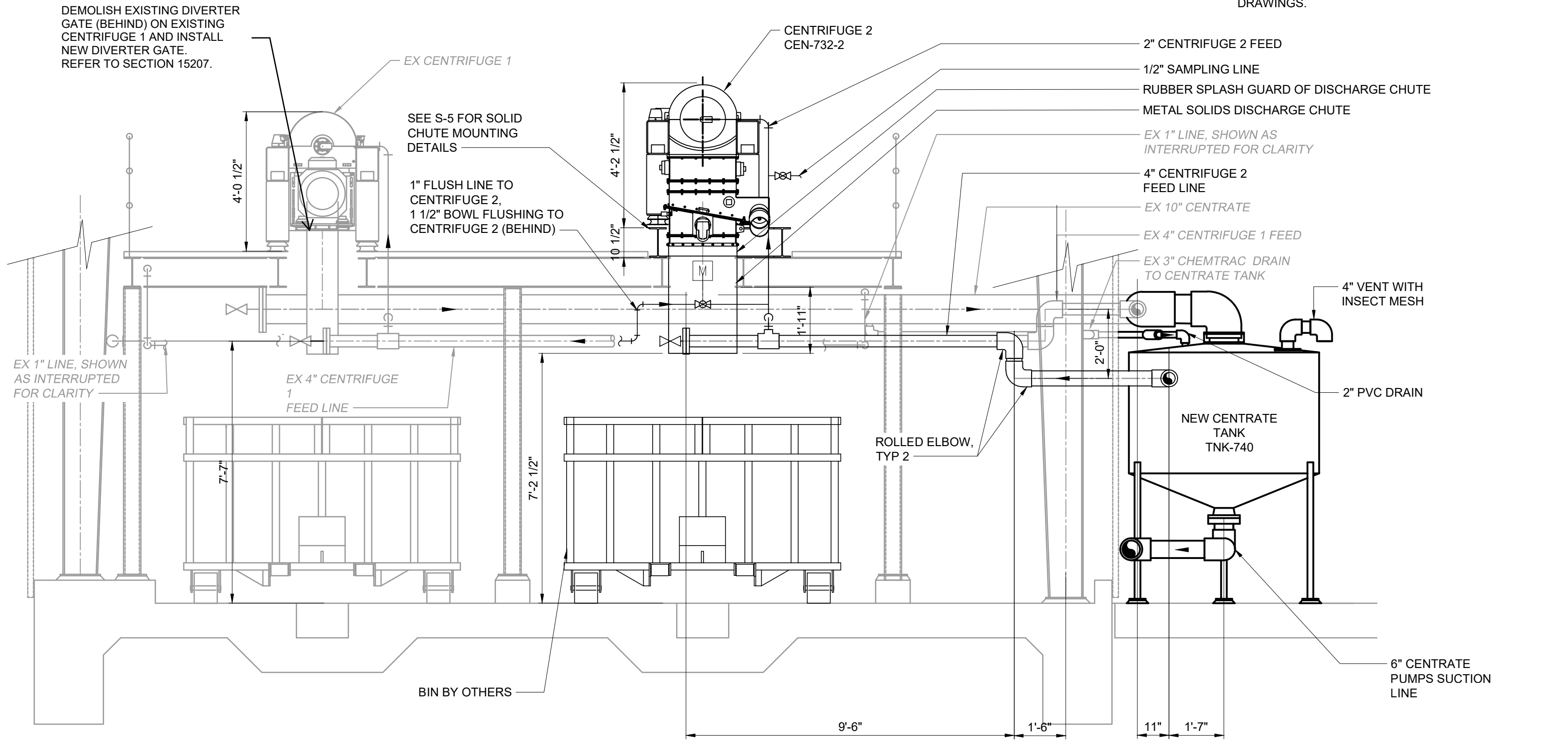
DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL
OVERALL SITE PLAN

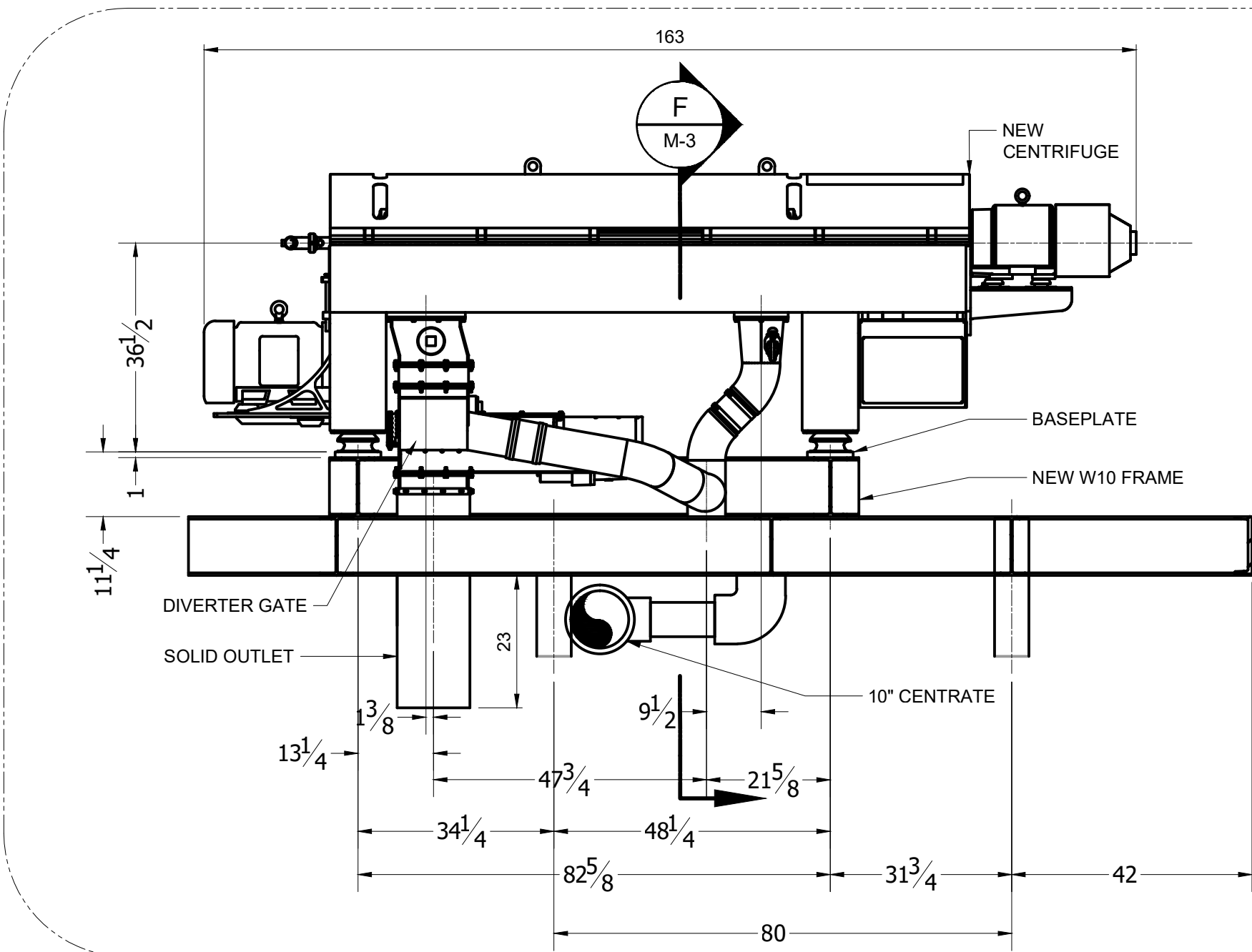
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	M-2



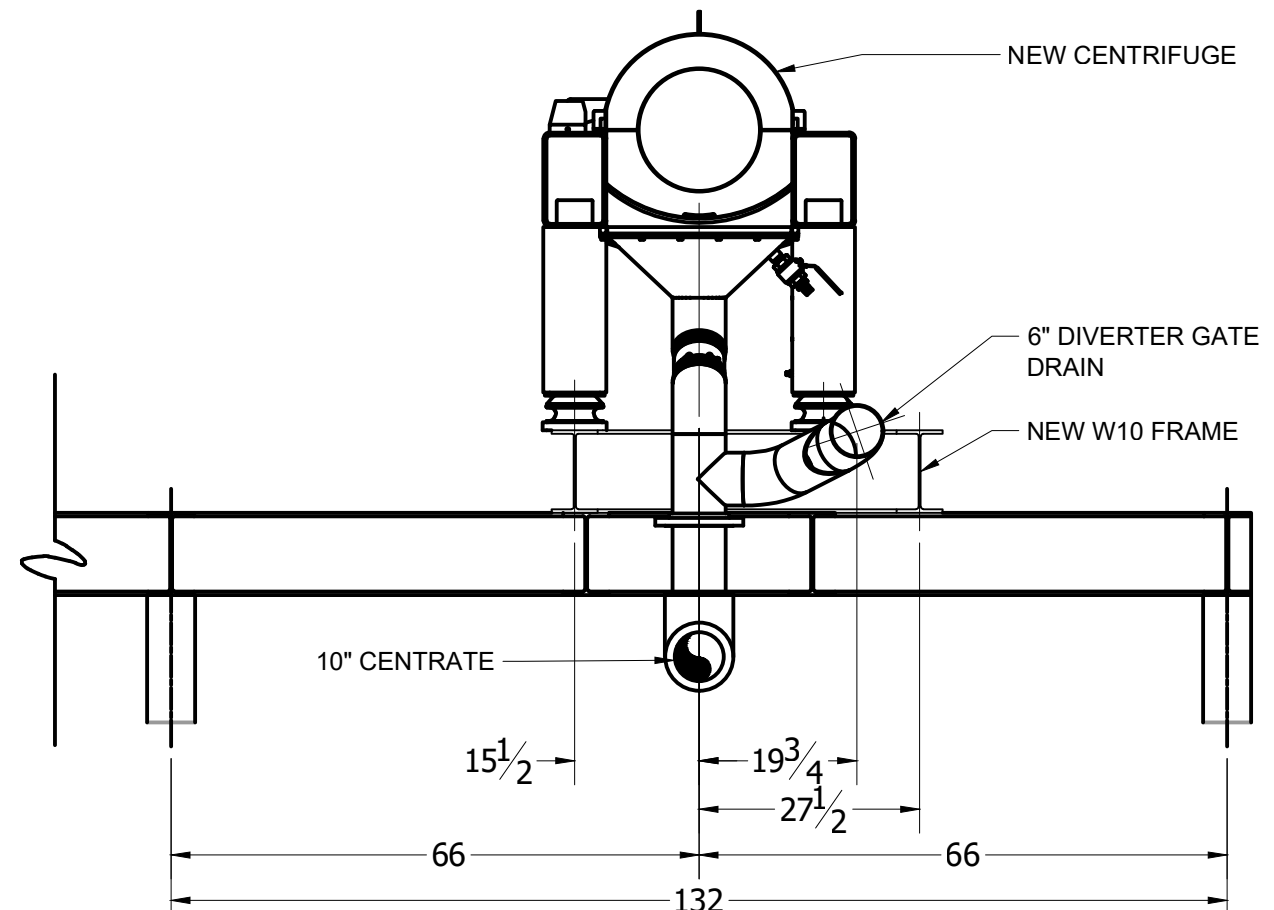
PARTIAL PLAN
3/8"=1'-0"



SECTION A
3/8"=1'-0"



SECTION E
1/2"=1'-0"



SECTION F
3/8"=1'-0"

- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. PLATFORM GRATING IS NOT SHOWN FOR CLARITY.
 3. RESIDUALS HANDLING BUILDING EAVE HEIGHT IS APPROXIMATELY 31'-0" ABOVE GRADE PER LT2 RECORD DRAWINGS.

				PROJECT ENGINEER:	S. GHUI
				DESIGNED BY:	S. GHUI
				DRAWN BY:	R. SHNAYDERMAN
				CHECKED BY:	M. PETERSON
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1" 
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

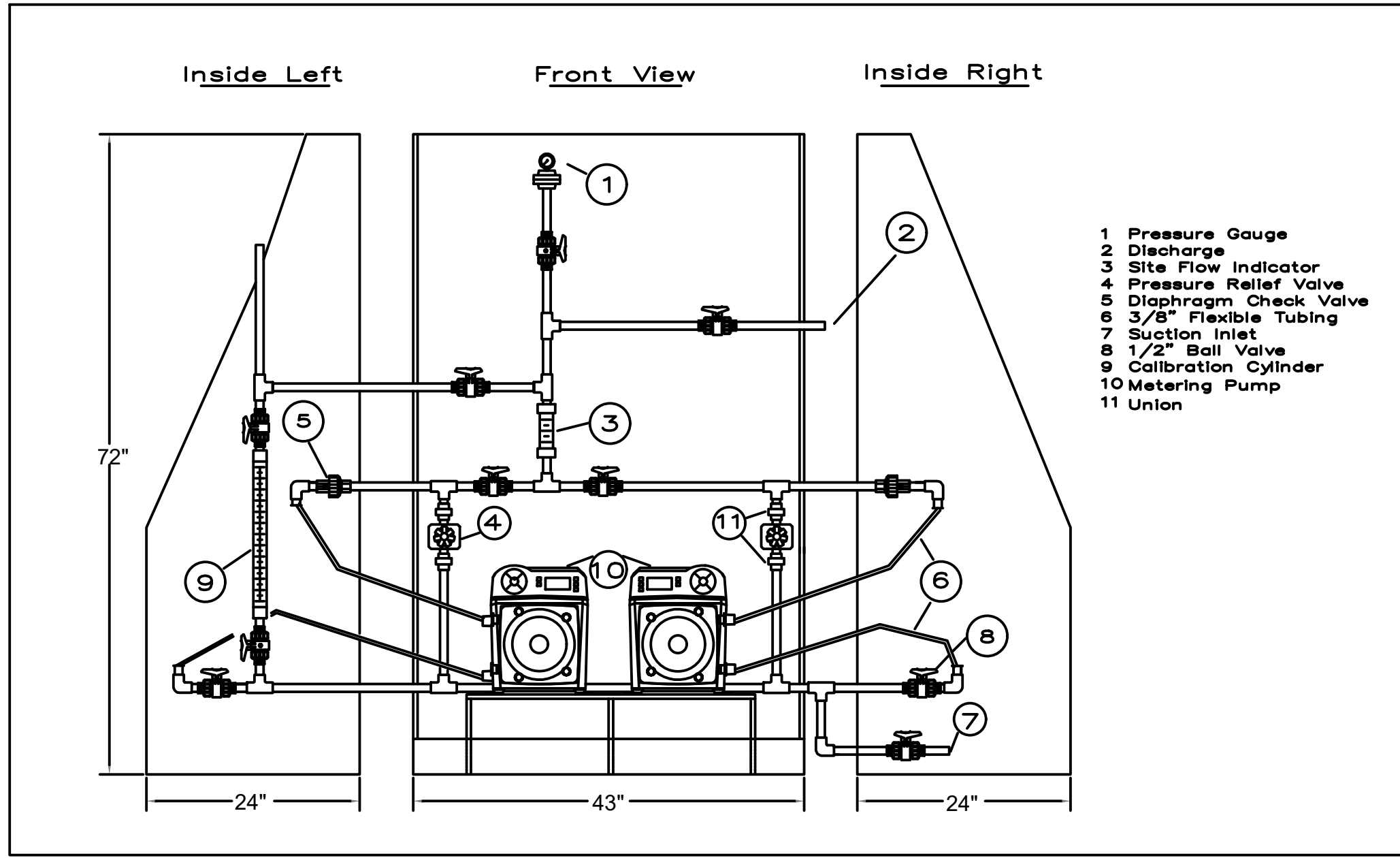
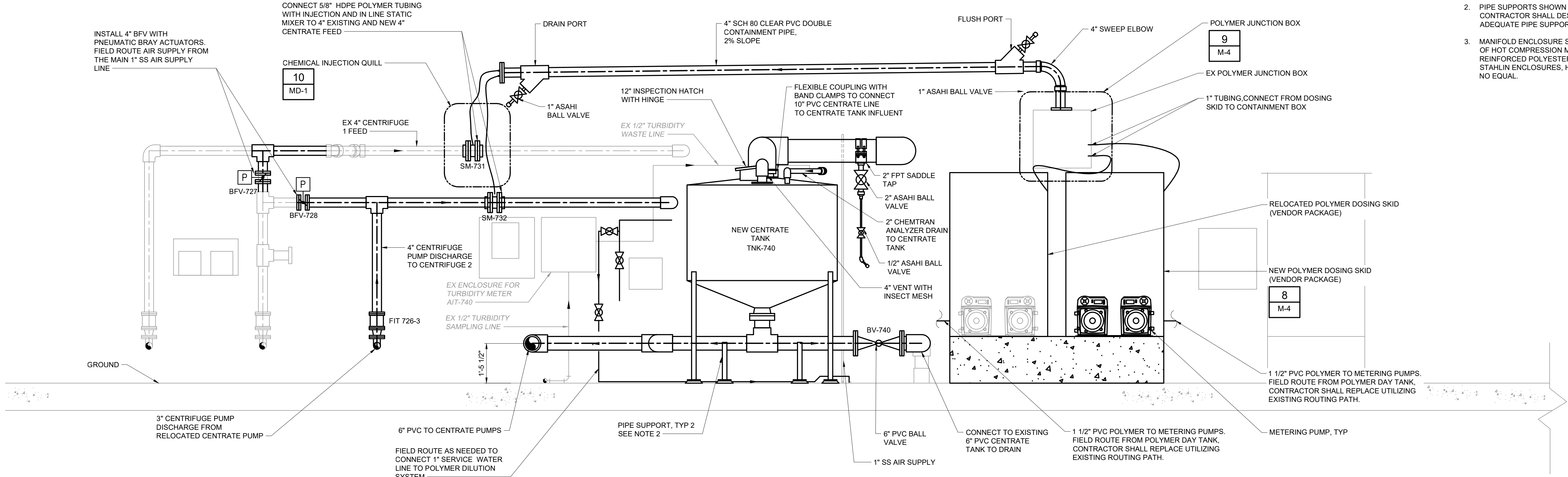
DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL
PARTIAL PLAN AND SECTIONS
FOR CENTRIFUGE

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	M-3

File: C:\BMSHAZEN\DWG\21980M-3.dwg Saved by: RSHNAYDERMAN Save date: 7/27/2023 3:27 PM
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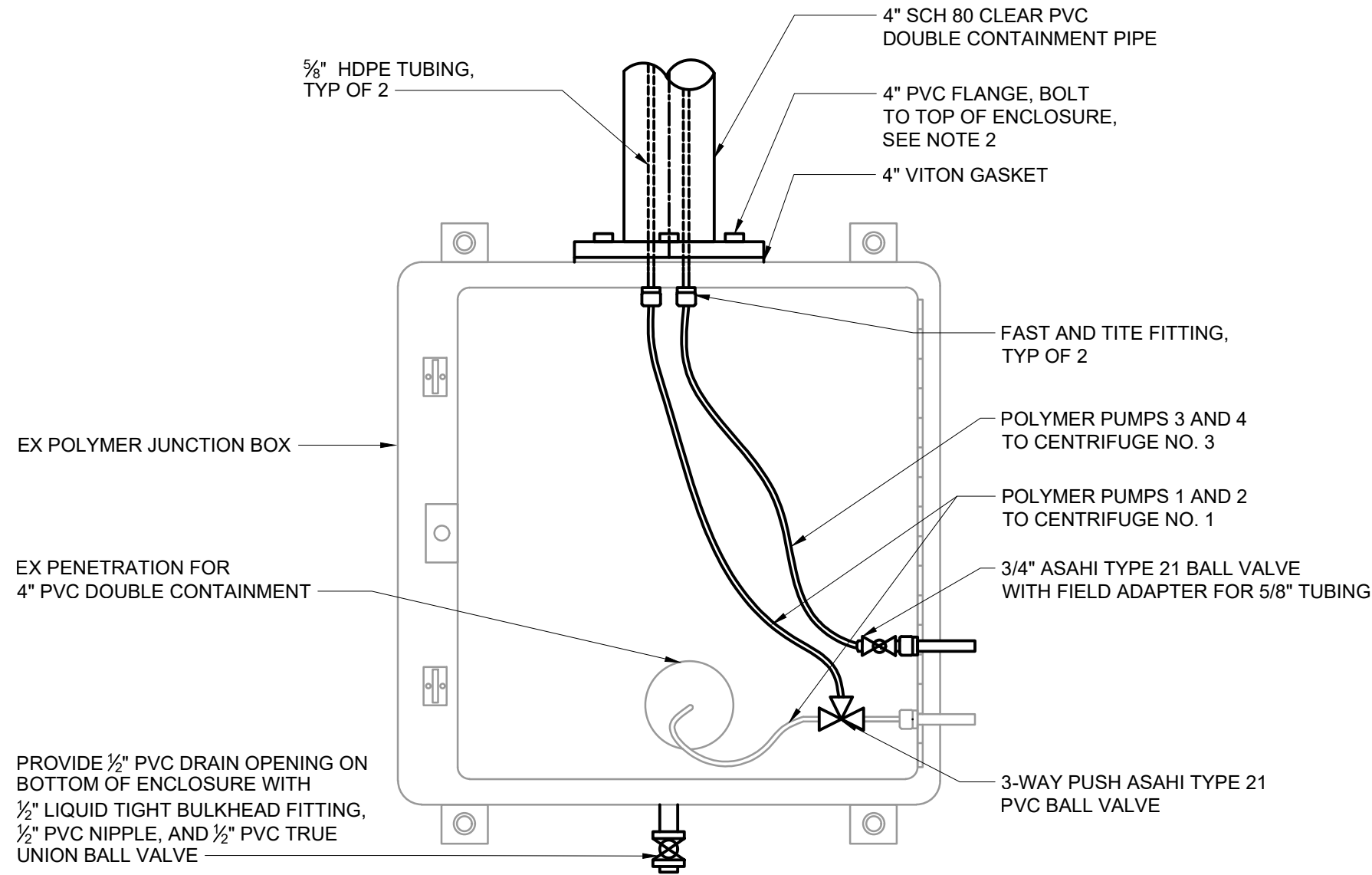
- NOTES:
- STRUCTURAL SUPPORT FOR CANOPY NOT SHOWN FOR CLARITY.
 - PIPE SUPPORTS SHOWN SCHEMATICALLY. CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE PIPE SUPPORT.
 - MANIFOLD ENCLOSURE SHALL BE CONSTRUCTED OF HOT COMPRESSION MOLDED FIBERGLASS REINFORCED POLYESTER. MANUFACTURED BY STAHLIN ENCLOSURES, HWT CONFIGURATION, NO EQUAL.



METERING PUMP SKID (VENDOR PACKAGE)

DETAIL	8
NTS	M-4

SECTION B
1/2"=1'-0"

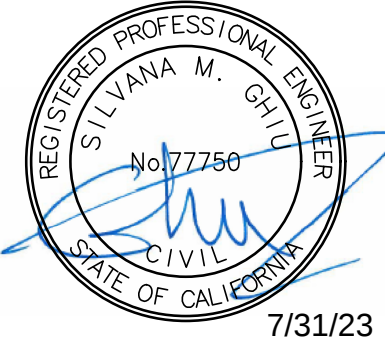


POLYMER JUNCTION BOX

DETAIL	9
NTS	M-4

					PROJECT ENGINEER:	S. GHIU
					DESIGNED BY:	S. GHIU
					DRAWN BY:	R. SHNAYDERMAN
					CHECKED BY:	M. PETERSON
					IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1" 
REV		ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



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HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

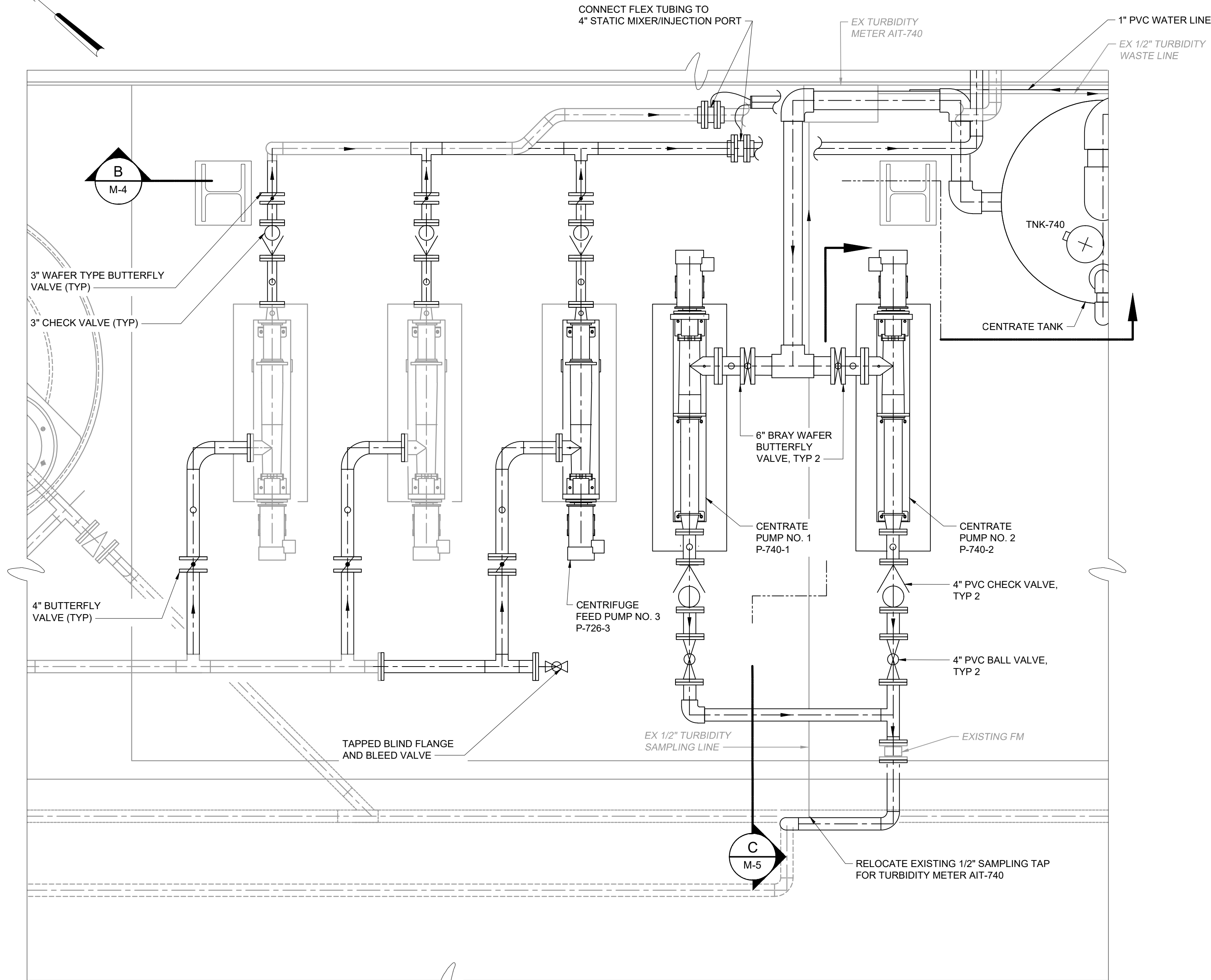
DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL
RESIDUAL BUILDING WALL
SECTION

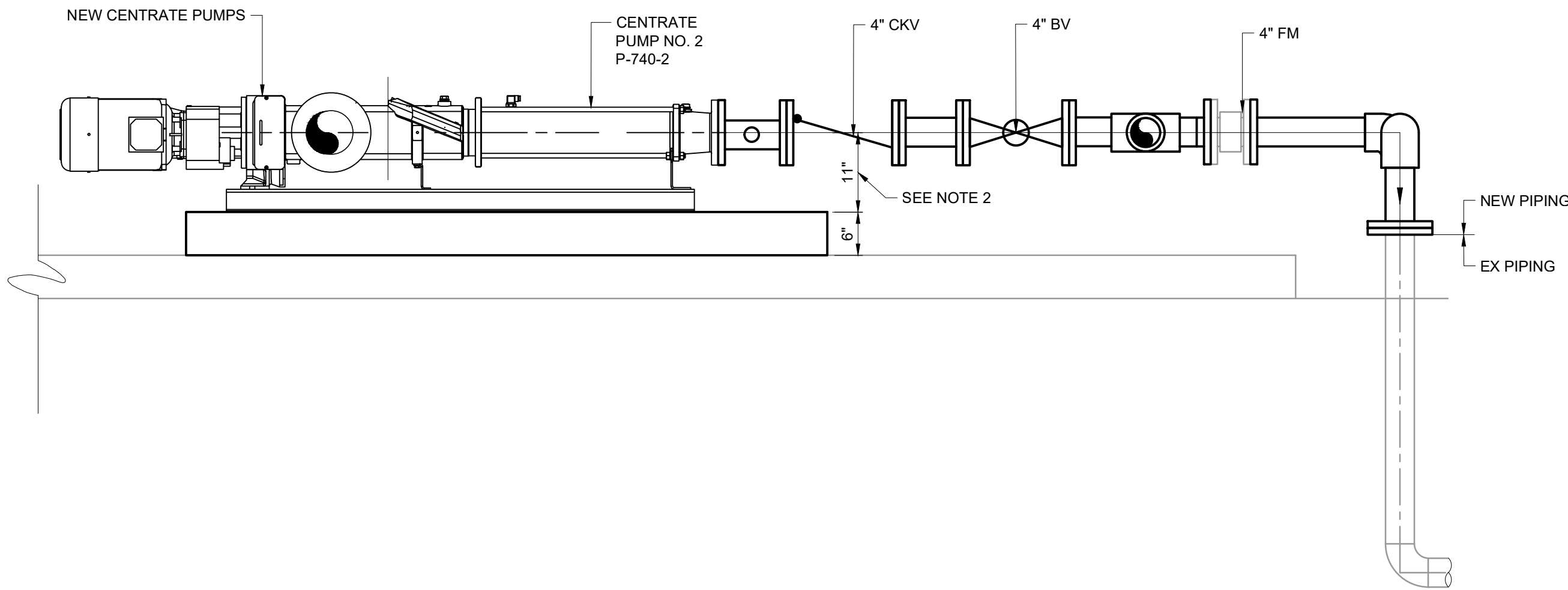
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	

M-4

- NOTES:
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 - CONTRACTOR TO FIELD ALIGN THE PUMP ELEVATION TO MATCH 6" PVC PIPE CENTRATE TANK DISCHARGE.



PARTIAL PLAN
1/2"=1'-0"



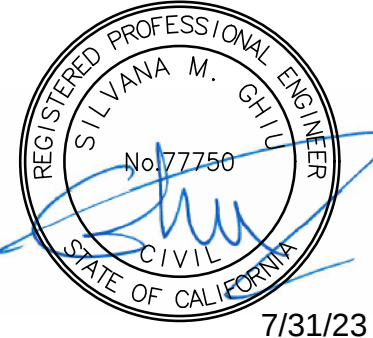
SECTION C
3/4"=1'-0"

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PLOT DATE: 7/24/2023 11:51 AM BY: RSHNAYDERMAN

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	S. GHIU
DESIGNED BY:	S. GHIU
DRAWN BY:	R. SHNAYDERMAN
CHECKED BY:	M. PETERSON
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION



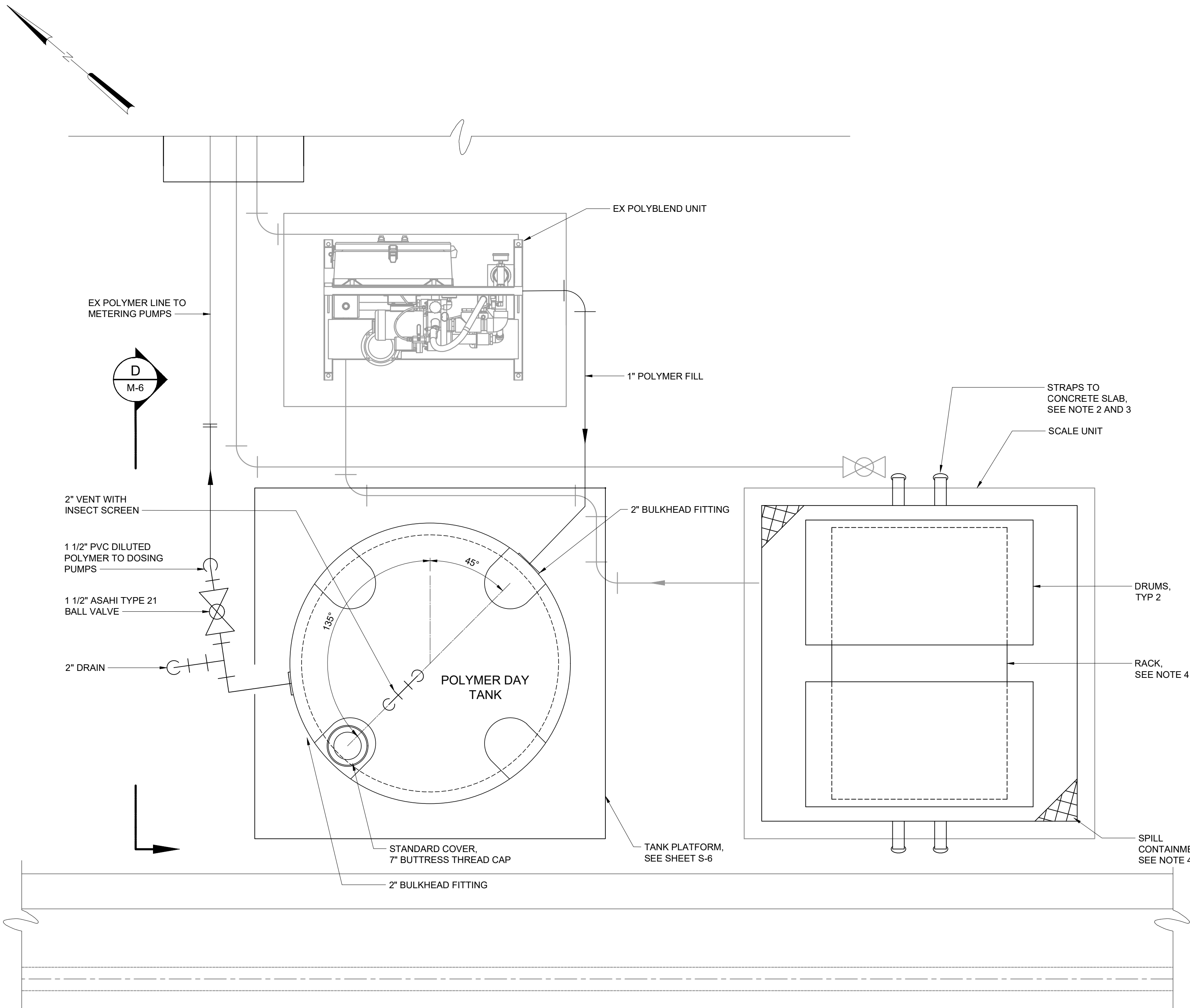
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HAZEN AND SAWYER
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ENCINITAS, CALIFORNIA

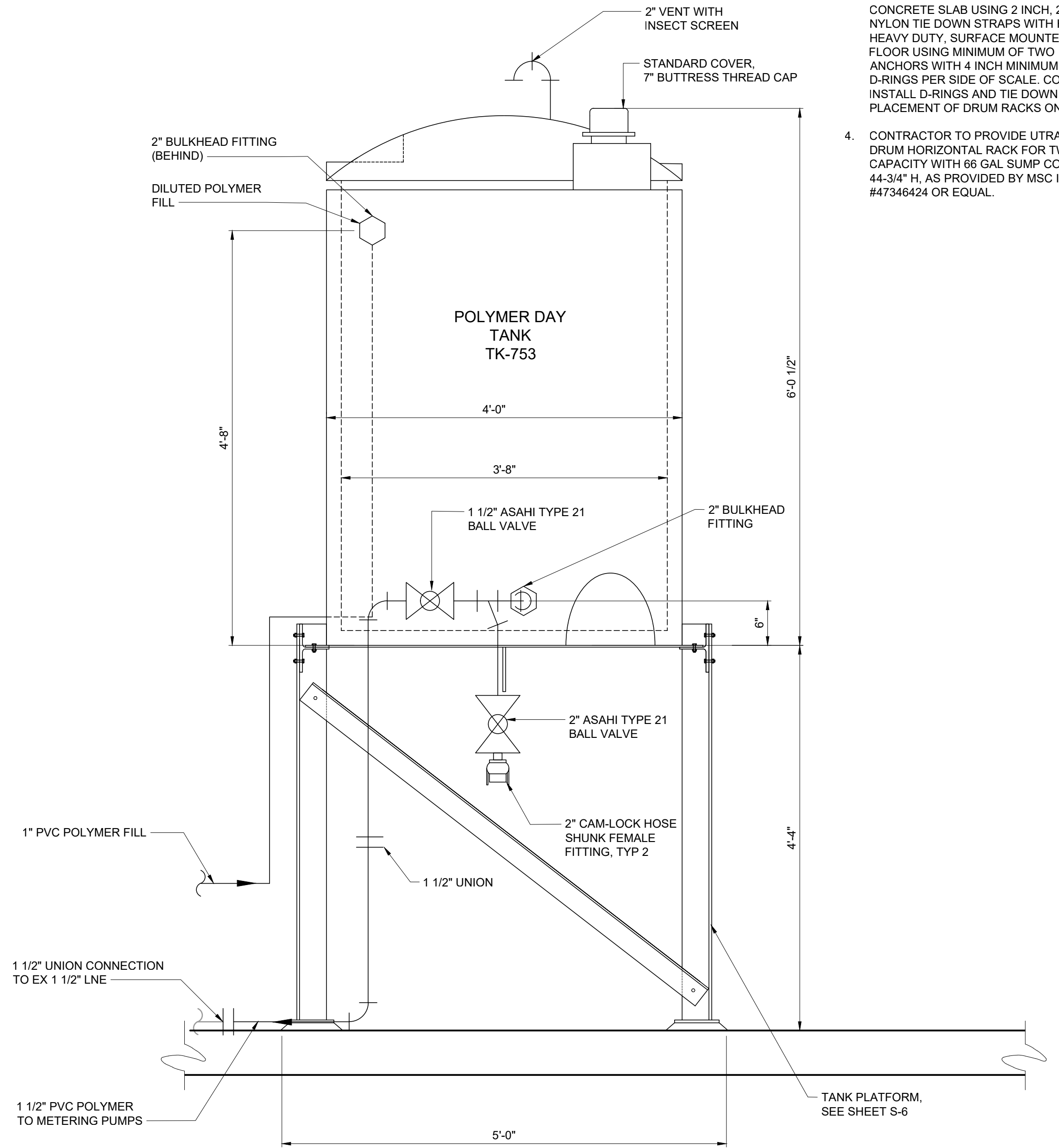
DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL
PARTIAL PLAN AND SECTION FOR
CENTRATE AND CENTRIFUGE PUMPS

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	M-5



PARTIAL PLAN
1"=1'-0"



SECTION D
1"=1'-0"

- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. CONTRACTOR SHALL SECURE BOTH POLYMER DRUMS TO DRUM RACK AND CONTAINMENT SYSTEM USING 2 INCH, 40 FT LONG CAM BUCKLE NYLON TIE DOWN STRAP. WRAP THE DOWN STRAP BELOW CONTAINMENT SYSTEM AND ALL THE WAY AROUND, SIMILAR TO EXISTING. CONTRACTOR SHALL FIELD PLACE DRUM RACK ON CONTAINMENT SYSTEM SUCH THAT TIE DOWN STRAPS CAN BE WRAPPED AROUND CONTAINMENT SYSTEM.
 3. CONTRACTOR SHALL SECURE POLYMER DRUM RACK TO CONCRETE SLAB USING 2 INCH, 20 FT LONG CAM BUCKLE NYLON TIE DOWN STRAPS WITH HOOKS. INSTALL FOUR HEAVY DUTY, SURFACE MOUNTED D-RINGS TO CONCRETE FLOOR USING MINIMUM OF TWO 1/2 INCH DIAMETER SCREW ANCHORS WITH 4 INCH MINIMUM EMBED. PLACE TWO D-RINGS PER SIDE OF SCALE. CONTRACTOR SHALL FIELD INSTALL D-RINGS AND TIE DOWN STRAPS BASED ON PLACEMENT OF DRUM RACKS ON CONTAINMENT SYSTEM.
 4. CONTRACTOR TO PROVIDE UTRATECH POLYETHYLENE P2 DRUM HORIZONTAL RACK FOR TWO DRUMS 1,500 LB CAPACITY WITH 66 GAL SUMP CONTAINMENT, 53" L x 53" W x 44-3/4" H, AS PROVIDED BY MSC INDUSTRIAL SUPPLY #47346424 OR EQUAL.

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PLOT DATE: 7/29/2023 3:41 PM BY: RSHNAYDERMAN

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	S. GHU
DESIGNED BY:	S. GHU
DRAWN BY:	R. SHNAYDERMAN
CHECKED BY:	M. PETERSON
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION

7/31/23

Hazen

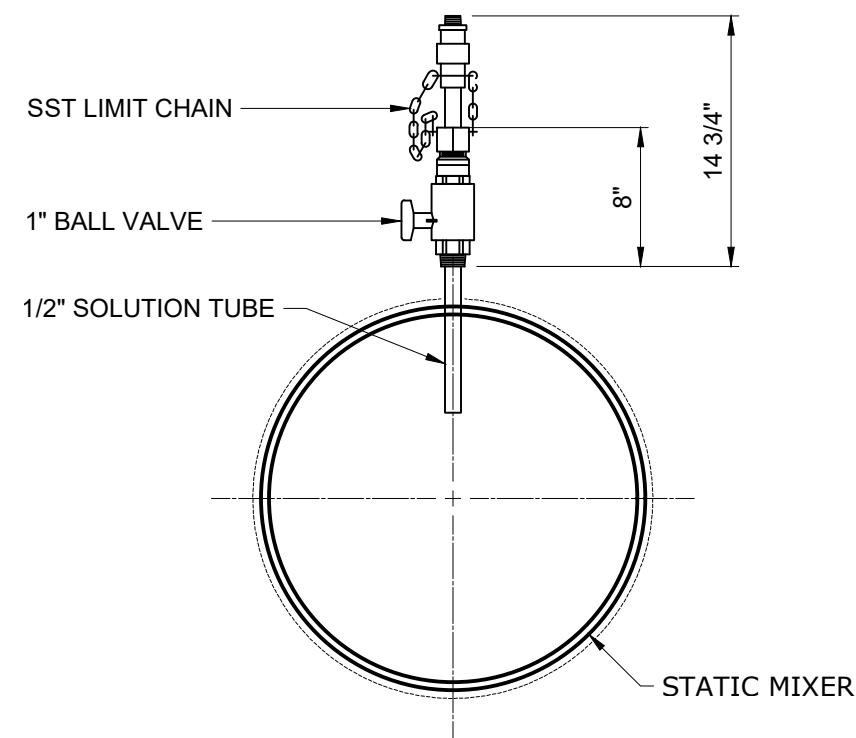
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
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OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL
PARTIAL PLAN AND SECTIONS
FOR POLYMER SYSTEM

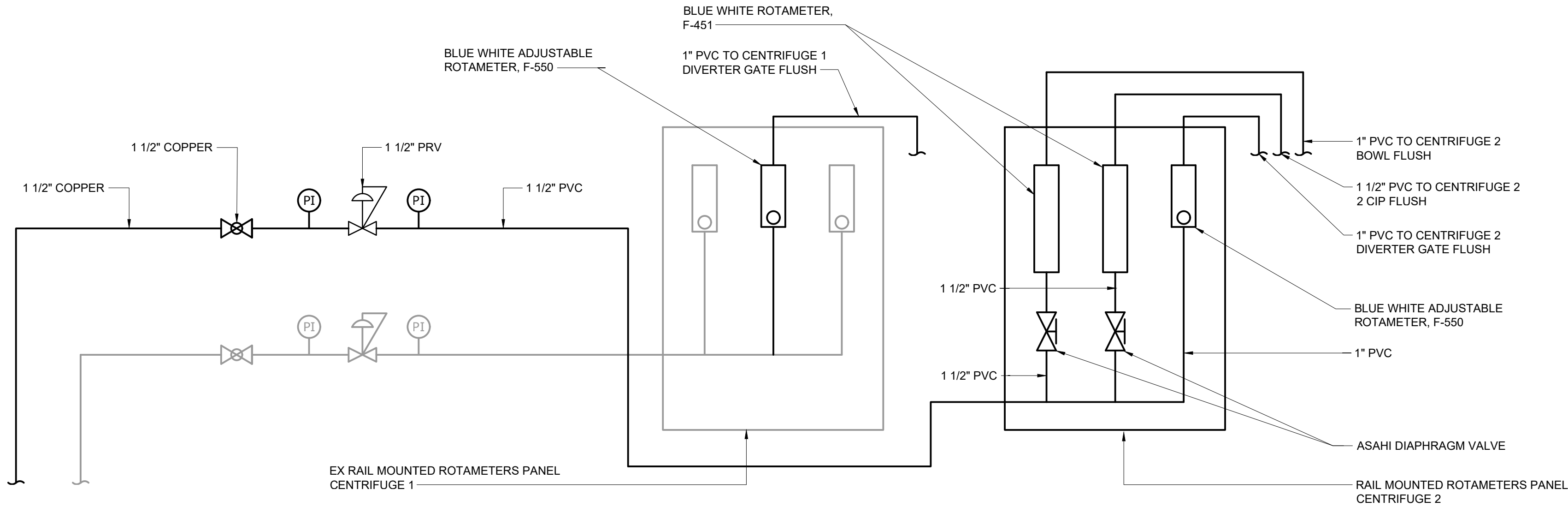
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	M-6



- NOTES
1. ALL COMPONENTS OF INJECTION QUILL SHALL BE 316 SST

SAFE-T-FLO CHEMICAL INJECTION QUILL MODEL EB-164

DETAIL	10
NTS	M-4



ROTAMETER PANELS

DETAIL	11
NTS	M-3

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PLOT DATE: 7/24/2023 12:03 PM BY: RSHNAYDERMAN

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PROJECT ENGINEER:	S. GHIU
DESIGNED BY:	S. GHIU
DRAWN BY:	R. SHNAYDERMAN
CHECKED BY:	M. PETERSON
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
SILYANA M. GHIU
No. 77750
CIVIL
STATE OF CALIFORNIA
7/31/23

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

MECHANICAL
MECHANICAL DETAILS

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	MD-1

SYMBOL	DESCRIPTION
	INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE "A"=FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "b"=CONTROLLED BY SWITCH "b" "3"=CIRCUIT NUMBER
	FLUORESCENT TYPE LIGHTING FIXTURE NOTATIONS SAME AS ABOVE.
	WALL OUTLET AND INCANDESCENT COMPACT FLUORESCENT OR H.I.D. LIGHTING FIXTURE. NOTATIONS SAME AS ABOVE.
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS BU-1 = FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) 3 = SUPERVISORY CIRCUIT (+) = FIXTURE TAG NUMBER
	REMOTE ADJUSTABLE EMERGENCY LAMP HEAD * = HOME RUN TO BU INDICATED R-2 = FIXTURE TYPE SEE LIGHTING FIXTURE SCHEDULE
	WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE WHEN USED, ARROW INDICATES DIRECTION OF EGRESS
	BRANCH CIRCUIT CONDUIT WITH 2#12,1#12G, 3/4" C. INSTALLED EXPOSED. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS. DOES NOT APPLY TO UNDERGROUND DUCTBANKS.
	CONDUIT TURNING UP. COMMENTS SAME AS ABOVE.
	CONDUIT TURNING DOWN
	CONDUIT STUBBED OUT AND CAPPED
	CONDUIT RUN CONCEALED, (2#12, 1#12G, 3/4" C. UNLESS OTHERWISE NOTED.)
	LIQUIDTITE FLEXIBLE CONDUIT. (2#12, 1#12G, 3/4" C. UNLESS OTHERWISE NOTED.)
	HOMERUN, CIRCUITS 1 AND 3 RUN TO PANEL LP-1
	LIGHTING PANELBOARD [**=NAME AS INDICATED
	POWER PANELBOARD [**=NAME AS INDICATED
	JUNCTION BOX
	TWO 3" CONDUITS EACH CONTAINS THREE #3/0 AWG CONDUCTORS AND ONE #2 GROUND.
	THREE (3) NO.12 AWG CONDUCTORS AND ONE (1) NO.12 EQUIPMENT GROUNDING CONDUCTOR
	INSTRUMENT CABLE, TWISTED PAIR OR TRIPLEX AS NOTED WITH OVERALL SHIELD AND JACKET, CONDUCTOR SIZE AND QUANTITY AS NOTED
	SINGLE POLE SWITCH, "g" INDICATES CONTROL OF LIGHTS "g" "m" INDICATES MOTOR HORSPWER RATED.
	THREE WAY SWITCH, "g" INDICATES CONTROL OF LIGHTS "g"
	DUPLEX RECEPTACLE, 20A, 120V, 3W, SINGLE PHASE * C = MOUNTED ABOVE COUNTER TOP OF = GROUND FAULT INTERRUPTER TYPE WP = WEATHERPROOF 3 = BRANCH CIRCUIT NUMBER T = TRANSIENT VOLTAGE SURGE SUPPRESSOR IC = ISOLATED GROUND
	SIMPLEX RECEPTACLE, 120V, 20A, 2P, 3W, NOTATIONS SAME AS ABOVE FOR DUPLEX RECEPTACLE * TL = LOCKING TYPE WP = WEATHERPROOF
	SPECIAL PURPOSE RECEPTACLE * = VOLTAGE RATING 3 = NUMBER OF POLES 4W = WIRES IN ADDITION TO GROUND 60 = AMPERE RATING
	TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SWITCH
	TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4"-6") K = KEY SWITCH
	PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SWITCH
	PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4"-6")
	TELEPHONE CABINET OR BACKBOARD AS SPECIFIED
	LIGHTING CONTACTOR, MECHANICALLY HELD TYPE
	DAMPER MOTOR
	PHOTOCELL
	FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'-0"
	HEAT ACTUATED FIRE DETECTOR 200 = 200°F FIXED TEMP R = FIXED TEMP, RATE-OF-RISE TYPE
	SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED. I = IONIZATION TYPE D = DUCT SMOKE DETECTOR
	PAGING SPEAKER FLUSH MOUNTED. CEILING TYPE
	PAGING SPEAKER SURFACE MOUNTED. CEILING TYPE
	FIRE ALARM STROBE, MOUNT UP 6"-8". NUMERAL INDICATES CANDELA RATING
	FIRE ALARM HORN AND STROBE LIGHT COMBINATION. MOUNT UP 6"-8". NUMERAL INDICATES CANDELA RATING
	SPRINKLER FLOW ALARM SWITCH
	FIRE ALARM CONTROL PANEL
	SECURITY ALARM CONTROL PANEL
	WEATHERPROOF HI-INTENSITY FIRE ALARM BEACON
	SPRINKLER VALVE SUPERVISORY SWITCH
	SECURITY ALARM DOOR SWITCH
	SECURITY ALARM KEY PAD
	SECURITY ALARM MOTION DETECTOR
	INDICATES MOTOR STARTER OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE
	EYE WASH SHOWER ALARM STATION
	SECURITY ALARM CARD ACCESS READER
	EXOTHERMIC WELD CONNECTION

ONE LINE OR CONTROL DIA.	PLAN	DESCRIPTION
		LOW VOLTAGE CIRCUIT BREAKER, THREE POLE UNLESS NOTED OTHERWISE
		COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS NOTED OTHERWISE: * FVNR = FULL VOLTAGE NON-REVERSING RVAT = REDUCED VOLTAGE AUTO TRANSFORMER 2SW = TWO SPEED, ONE WINDING 2SW = TWO SPEED, TWO WINDING SS = SOLID STATE SOFT MOTOR STARTER
		NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A
		FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE AMPERE RATING AND FUSE SIZE AS NOTED
		MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER P = PILOT LIGHT 2 = 2 POLES
		TRANSFORMER, RATING AND CONNECTIONS AS NOTED
		CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES
		POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTS
		SURGE ARRESTER
		SPECIAL CAPACITOR SC SURGE CAPACITOR PF POWER FACTOR CORRECTION CAPACITOR
		GROUND OR GROUND ROD
		FUSE, AMPERE RATING AS NOTED
		MOTOR, NUMERAL INDICATES HORSEPOWER
		GENERATOR, RATINGS AND CONNECTIONS AS NOTED
		VOLTMETER WITH SWITCH, 3 PHASE * RANGE AS NOTED
		AMMETER WITH SWITCH, 3 PHASE * RANGE AS NOTED
		METER - INDICATING/RECORDING TYPE * WM - WATTMETER WHM - WATTHOUR METER WHDM - WATTHOUR DEMAND METER PF - POWER FACTOR METER ETM - RUNNING TIME METER TRANSDUCER * AX - CURRENT TRANSDUCER WX - WATT TRANSDUCER WHX - WATT WATTHOUR TRANSDUCER
		UNIT HEATER - ELECTRIC HEATING COIL AND FAN # = RATING
		UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN
		KEY INTERLOCK
		MECHANICAL CONNECTION OR INTERLOCK
		CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
		CONDUCTORS ELECTRICALLY CONNECTED
		INDICATES LIMITS OF EQUIPMENT OR WIRING ENCLOSURE
		PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN NORMALLY CLOSED
		PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN NORMALLY OPEN
		EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR, MAINTAINED CONTACT, PUSH-TO-STOP, PULL TO RESET.
		START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP
		START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP
		TWO POSITION SELECTOR SWITCH, MAINTAINED CONTACT POSITION 1-CONTACT 2-CONTACT A X 0 X B 0 0 X X-CLOSED O-OPEN
		THREE POSITION SELECTOR SWITCH, MAINTAINED CONTACT POSITION 1-CONTACT 2-CONTACT 3-CONTACT A X 0 0 0 B 0 0 0 X C 0 0 0 X * NAMEPLATE (A/B/C) HOA - HAND/OFF/AUTO LOR - LOCAL/OFF/REMOTE RSL - RAISE/STOP/LOWER HOR - HAND/OFF/REMOTE TOA - TEST/ON/AUTO
		MOTOR OPERATED GATE OR VALVE.
		MOTOR OPERATED REMOTE CONTROL STATION.
		CABLE SEAL AND EXPLOSION PROOF SEAL FITTING
		AUTOMATIC OR MANUAL TRANSFER SWITCH "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STAND BY OR ALTERNATE SOURCE 100 A INDICATES CONTINUOUS CURRENT RATING

ONE LINE OR CONTROL DIA.	PLAN	DESCRIPTION
		LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSSES ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL
		PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSSES ON RISING PRESSURE NORMALLY OPEN, CLOSSES ON DROPPING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY CLOSED, OPENS ON DROPPING PRESSURE
		TEMPERATURE ACTUATED SWITCH (THERMOSTAT) NORMALLY OPEN, CLOSSES ON RISING TEMPERATURE NORMALLY OPEN, CLOSSES ON DROPPING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE
		FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSSES ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW
		POSITION (LIMIT) SWITCH NORMALLY OPEN - HELD CLOSED NORMALLY OPEN NORMALLY CLOSED - HELD OPEN NORMALLY CLOSED
		SOLENOID OPERATED VALVE
		STRIP HEATER OR HEATING ELEMENT
		PILOT LIGHT, COLOR AS NOTED * R - RED G - GREEN A - AMBER B - BLUE W - WHITE
		RELAY COIL, NUMBER AS INDICATED
		MOTOR STARTER COIL, NUMBER AS INDICATED
		CONTACT, NORMALLY OPEN (NO)
		CONTACT, NORMALLY CLOSED (NC)
		OVERLOAD RELAY HEATER (OL)
		TIME DELAY RELAY, RANGE AS NOTED TDE-TIME DELAY AFTER ENERGIZATION-ON DELAY TDD-TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY NOTC - NORMALLY OPEN, TIMED CLOSE WHEN ENERGIZED NCTO - NORMALLY CLOSED, TIMED OPEN WHEN ENERGIZED NCTO - NORMALLY OPEN, TIMED OPEN WHEN DE-ENERGIZED NCTC - NORMALLY CLOSED, TIMED CLOSE WHEN DE-ENERGIZED
		RESISTANCE TEMPERATURE DETECTOR
		FIELD INSTRUMENT, TAG NO. AS INDICATED ## - INDICATES LOOP NO. * - INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS SEE LOCATION LEGEND ON DRAWINGS
		INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED
		VIBRATION DETECTOR
		ELAPSED TIME METER
		INDICATES THAT ALL LUMINAIRES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED
		INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 12 CONSTRUCTION AND SUITABLE FOR USE IN A DAMP OR WET LOCATION
		INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF WATERTIGHT OR NEMA 4 CONSTRUCTION SUITABLE FOR USE IN A WET LOCATION, UNLESS NOTED OTHERWISE
		PHOTO VANTAGE POINT AND DIRECTION # IS THE PHOTO ID XX IS THE SHEET WHERE PHOTO IS FOUND
		GROUND WELL

STANDARD ABBREVIATIONS			
A	AMPERES	MCP	MOTOR CIRCUIT PROTECTOR
AC	ALTERNATING CURRENT	MFCP	MEMBRANE FILTRATION CONTROL PANEL
AF	AMPERE FRAME	MFH	MANHOLE
AFC	ABOVE FINISHED CONCRETE	MIN	MINIMUM OR MINUTE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MOV	MOTOR OPERATED VALVE ACTUATOR
AIC	AMPERE INTERRUPTING CURRENT	MTG	MOUNTING
AT	AMPERE TRIP	MTR	MOTOR
ATS	AUTOMATIC TRANSFER SWITCH	N	NEUTRAL
AUX	AUXILIARY	NA	NON-AUTOMATIC
AUTO	AUTOMATIC	NC	NORMALLY CLOSED
AWG	AMERICAN WIRE GAUGE	NCTC	NORMALLY CLOSED, TIME CLOSE
BC	BARE COPPER	NCTO	NORMALLY CLOSE, TIME OPEN
BD	BOARD	NEC	NATIONAL ELECTRIC CODE
BKR	BREAKER	NIC	NOT IN CONTRACT
BLDG.	BUILDING	NO	NUMBER
BW	BACK WASH	NO	NORMALLY OPEN
C	CONDUIT	NOIC	NORMALLY OPEN, INSTANTANEOUS CLOSE
CB	CIRCUIT BREAKER	NOTC	NORMALLY OPEN, TIME CLOSE
CKT	CIRCUIT	NOTO	NORMALLY OPEN, TIME OPEN
CLG	CEILING	NP	NAMEPLATE
C.O.	CONDUIT ONLY	NTS	NOT TO SCALE
COND	CONDUCTOR	O/H	OVERHEAD LINE
CONT	CONTROL	OL	OVERLOAD
CONTD	CONTINUED	OTT	OVERTEMP SWITCH
CPT	CONTROL POWER TRANSFORMER	PB	PUSHBUTTON
CP	CONTROL PANEL	PB	PULLBOX
CT	CURRENT TRANSFORMER	PC	PHOTOCELL
CU	COPPER	PCV	PUMP CONTROL VALVE
CR	CONTROL RELAY	PE	PHOTOELECTRIC EYE
DC	DIRECT CURRENT	PLC	PROGRAMMABLE LOGIC CONTROLLER
DISC	DISCONNECT	PMR	POWER MONITOR RELAY
DISC SW	DISCONNECT SWITCH	PNL	PANEL
DDM	DIGITAL METERING MODULE	POS	POSITION
DDPT	DOUBLE POLE DOUBLE THROW	PR	PAIR
DPST	DOUBLE POLE SINGLE THROW	PRI	PRIMARY
DS	DISTRIBUTION SECTION	PS	PRESSURE SWITCH
DWG	DRAWING	PT	POTENTIAL TRANSFORMER
DWP	LOS ANGELES DEPARTMENT OF WATER AND POWER	PVC	POLYVINYL CHLORIDE
DS	DOOR SWITCH	PVC/RGS	PVC JACKETED RIGID GALVANIZED STEEL CONDUIT
E,LELEV	ELEVATION	PW	PART WINDING
EO	ELECTRICALLY OPERATED	RECEP	RECEPTACLE
ER	ENERGY RECOVERY	RGS	RIGID GALVANIZED STEEL CONDUIT
EXIST	EXISTING	RH	RESIDUALS HANDLING
FBO	FURNISHED BY OWNER	RTU	REMOTE TERMINAL UNIT
FDR	FEEDER	RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
FIN	FINISHED	RVD	REDUCED VOLTAGE WYE DELTA
FLA	FULL LOAD AMPS	SCE	SOUTHERN CALIFORNIA EDISON
FLEX	FLEXIBLE	SEL	SELECTOR
FM	FLOW METER	SP	SPARE
FS	FLOW SWITCH	SPEC	SPECIFICATION
FT OR ' FT	FEET OR FOOT	SS	STAINLESS STEEL
FT	FLOW TRANSMITTER	SPDT	SINGLE POLE DOUBLE THROW
FUT	FUTURE	SPST	SINGLE POLE SINGLE THROW
FVNR	FULL VOLTAGE NON REVERSING	ST	SHUNT TRIP
GALV	GALVANIZED	STA	STATION
GD	GAS DETECTORS	STL	STEEL
GEN	GENERATOR	STP	SHIELDED TWISTED PAIR
GFI	GROUND FAULT INTERRUPTER	STR	STARTER
GFP	GROUND FAULT PROTECTION	STT	SHIELDED TWISTED TRIPLET
GND OR G	GROUND	SV	SOLENOID VALVE
GRS	GALVANIZED RIGID STEEL	SW	SWITCH
HH	HANDHOLE	SWBD	SWITCHBOARD
HOA	HAND/OFF/AUTO	TB	TERMINAL BOX
HTR	HEATER	TD	TIME DELAY
HS	HAND SWITCH	TEL	TELEPHONE
IC	INTERRUPTING CURRENT	TEMP	TEMPERATURE
IN OR " IN	INCHES OR INCH	TERM	TERMINAL
INDICATING	INDICATING	TM	TELEMTRY
INST	INSTANTANEOUS	TS	TEMPERATURE SWITCH
INSTR	INSTRUMENT	TS2W	TWO SPEED TWO WINDING
INTLK	INTERLOCK	TW/SH	TWISTED SHIELDED TYPICAL
JB OR J	JUNCTION BOX, CONDULET OR FITTING AS REQUIRED BY NEC. UNLESS OTHERWISE NOTED	UNGND	UNDERGROUND
K&A	KILO AMPERES	UON	UNLESS OTHERWISE NOTED
KW	KILOWATTS	V	VOLTS
L	LENGTH	VD	VOLTAGE DROP
LCL	LONG CONTINUOUS LOAD	VFD	VARIABLE FREQUENCY DRIVE
LCP	LOCAL CONTROL PANEL	W	WATTS
LES	LOCAL EMERGENCY STOP	W/	WITH
LEV	LEVEL	W/O	WITHOUT
LIM	LIMIT	WP	WEATHERPROOF
LR	LOCAL/REMOTE	XFMR	TRANSFORMER
LOR	LOCAL/OFF/REMOTE	XP	EXPLOSION PROOF
LOS	LOCKOUT STOP STATION	ZS	POSITION SWITCH OR LIMIT SWITCH
LS	LEVEL OR LIMIT SWITCH	3W	THREE WIRE
LT	LIGHT	4W	FOUR WIRE
LTG	LIGHTING		
LTV	LOW VOLTAGE		
MA	MILLIAMPERE		
MAINT	MAINTAINED		
MAN	MANUAL		
MAX	MAXIMUM		
MC	MAINTAINED CONTACT		
MCC	MOTOR CONTROL CENTER		
MCM	THOUSAND CIRCULAR MILS		

GENERAL NOTE

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

NOTES:

- SCOPE: THE WORK SPECIFIED IN THIS SECTION INCLUDES PROVIDING LABOR, MATERIAL, EQUIPMENT AND SERVICES NECESSARY FOR INSTALLING ELECTRICAL EQUIPMENT AND CONTROL PANELS, INCLUDING ROUTING OF ALL CONDUITS AND WIRINGS.
- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. THE EQUIPMENT FOOTPRINTS AND LOCATIONS ARE SHOWN FOR CONTRACTOR TO FIELD VERIFY BEFORE INSTALLATION. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA INFORMATION AS INDICATED ON THE DRAWINGS AND PROVIDE A DETAILED ELECTRICAL SITE PLAN TO SCALE FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE A SET OF AS-BUILT DRAWINGS INDICATING ALL CHANGES MADE DURING CONSTRUCTION AND DEVIATIONS FROM THE ELECTRICAL DRAWINGS.
- ALL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE, NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL CODES. WHERE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS, THE CONSTRUCTION DOCUMENTS SHALL GOVERN, BUT THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE ANY CODE OR REGULATIONS.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE UNDERWRITERS LABEL (UL) AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY ARE DESIGNED AND APPROVED.
- UNLESS OTHERWISE NOTED, ALL WIRES SHALL BE COPPER. ALL WIRES SHALL BE UL LISTED, RATED FOR 600V, STRANDED COPPER CONDUCTORS TYPE XHHW-2 INSULATION. NO. 12 MINIMUM FOR POWER, TYPE XHHW-2 INSULATION, NO. 14 MINIMUM FOR CONTROL, AND TWISTED SHIELDED PAIR OR TRIAD CABLES, NO. 16 MINIMUM FOR INSTRUMENTATION.
- THE CONTRACTOR SHALL PROVIDE ALL WIRES AND CONDUITS WITH MINIMUM BENDS (MAXIMUM FOUR 90 DEG. BENDS), AND IN SUCH MANNER AS TO CONFORM TO THE STRUCTURE. AVOID OBSTRUCTIONS, PRESERVE HEAD ROOM, KEEP OPENINGS AND PASSAGEWAYS CLEAR AND MEET ALL STRUCTURAL CODE REQUIREMENTS.
- THE CONTRACTOR SHALL NOT BORE, NOTCH OR IN ANYWAY CUT INTO STRUCTURAL MEMBER WITHOUT PREWRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
- THE ENTIRE ELECTRICAL INSTALLATION, INCLUDING ALL METALLIC STRUCTURES AND SUPPORT SHALL BE GROUNDED AS REQUIRED BY NEC AND ALL APPLICABLE LOCAL CODES.
- THE ENTIRE WIRING SYSTEM SHALL BE TESTED FOR SHORT CIRCUITS, GROUNDS AND INSULATION RESISTANCE BETWEEN CONDUCTORS AND GROUND.
- ALL FIXTURES AND ELECTRICAL EQUIPMENT INSTALLED SHALL HAVE ENCLOSURE WITH NECA RATING 4X FOR CHEMICAL CORROSIVE RESISTIVE CONDITIONS, NEMA 4 FOR WET AREA AND CLASS 1, DIV. 1 FOR HAZARDOUS CONDITIONS.
- ALL ABOVE AND UNDERGROUND CONDUITS IN HAZARDOUS LOCATIONS, INCLUDING FITTINGS, CONTROL STATIONS AND LOCKOUT STOP SHALL BE PVC COATED GALVANIZED RIGID STEEL WITH 3/4 INCH MINIMUM TRADE SIZE. A CONTINUOUS PIECE OF CONDUIT SHALL BE USED IN CHEMICAL CONTAINMENT AREAS TO MINIMIZE THE POSSIBILITY OF THE CONDUIT SYSTEM ACTING AS A DRAIN. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
- ALL CONDUITS SHALL HAVE ALL CONNECTIONS AND TERMINATIONS SEALED WATER AND GAS TIGHT, ANY WALL PENETRATION SHALL BE WATER AND GAS TIGHT SEAL RECOMMENDED BY VENDOR.
 - 3/4" (MIN.) CONDUIT RUN
 - EXPOSED IN UNFINISHED AREAS.
 - CONCEALED ABOVE HUNG CEILINGS AND IN WALLS IN FINISHED AREAS.
 - 1" (MIN.) CONDUIT RUN
 - CONCEALED UNDERGROUND.
 - NO. 12 COPPER (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED.
- SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 2'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED, EXCEPT RECEPTACLES IN CONCRETE BLOCK WALLS, IN OFFICES OR AREAS WITH HUNG CEILINGS, WHICH SHALL BE MOUNTED 1'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES IN CONTAINMENT AREAS SHALL BE MOUNTED 1'-0" ABOVE HIGH WATER LEVEL, UNLESS OTHERWISE NOTED. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
- SWITCHGEAR AND MCC COMPARTMENT DESIGNATIONS AS INDICATED BELOW:

BLANK: NOT INTENDED FOR USE. PLATE ONLY

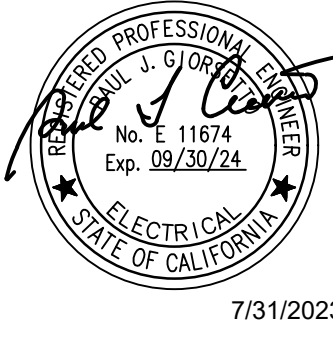
SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE SHOWN

SPARE: CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED, SIZE AS INDICATED FOR FUTURE USE

REV	ISSUED FOR	DATE	BY		

PROJECT ENGINEER:	S. GHUI
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	B. VUE
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

FOR CONSTRUCTION



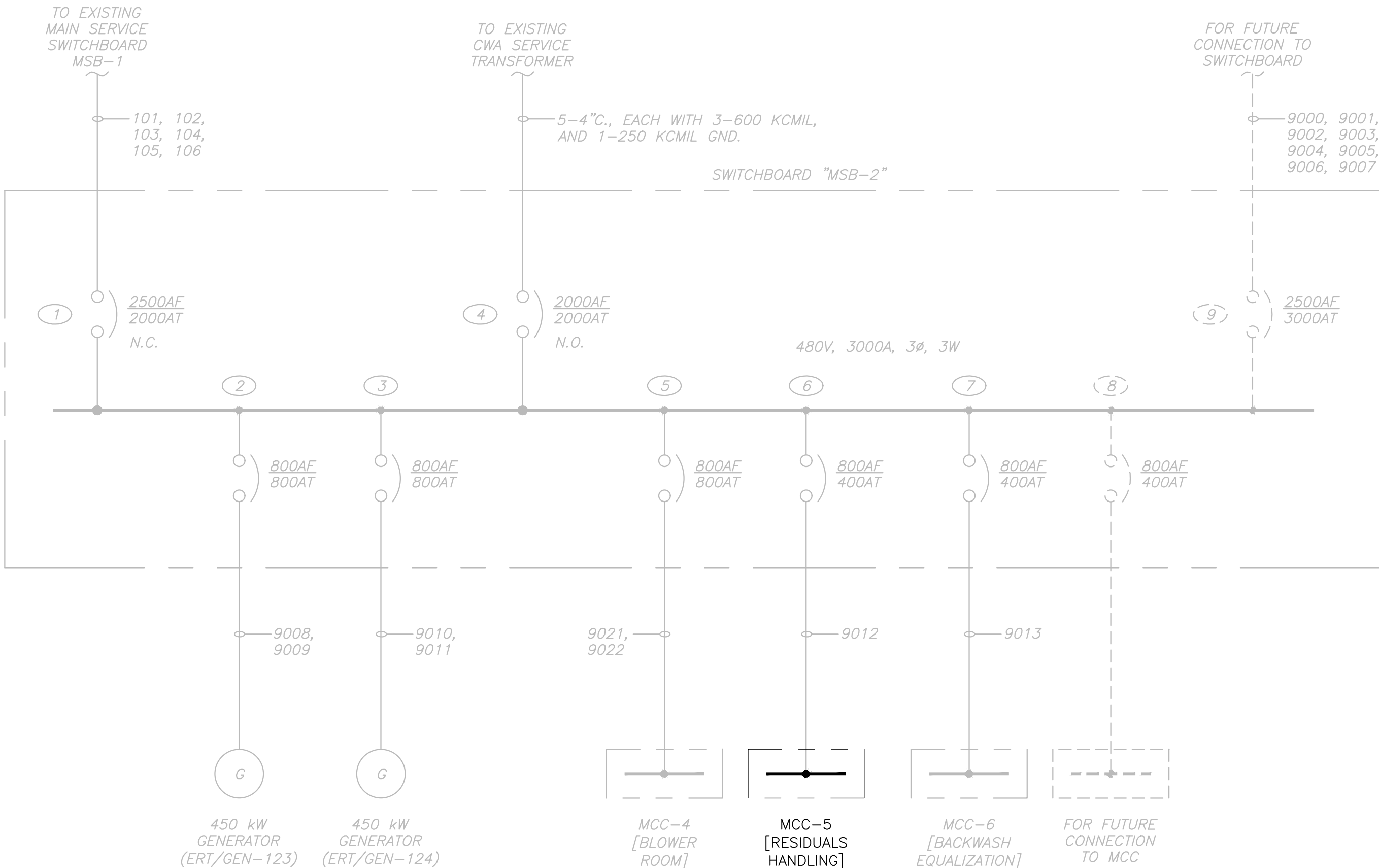
7/31/2023

Hazen

HAZEN AND SAWYER

1

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SWITCHBOARD MSB-2
ONE LINE DIAGRAM
N.T.S.

NOTES:

1. MCC-5 REVISIONS INCLUDE NEW WORK PROVIDED UNDER THIS CONTRACT. SEE SHEET E-3.

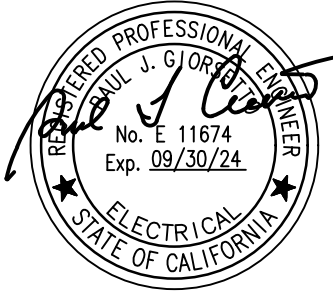
Treatment Plant (Existing Connected)	Hp/Kva	Amps
MSB-1 (existing)	3050	
MCC-1 (existing)	225	270
MCC-2 (existing)	260	310
MCC-3 (existing)	25	30
MSB-2 (existing)	660	
MCC-4 (existing)	100	120
MCC-5 (proposed)	160	192
MCC-6 (existing)	400	480
Sub-total	3710	4512
LCL (25%)		1128
Total		5640

NET INCREASE IN CONNECTED LOAD IS
APPROXIMATELY 68 KVA.

2. SWITCHBOARD MSB-2 LOCATED IN EXISTING ELECTRICAL ROOM IN EXISTING MEMBRANE FACILITY. REFER TO RECORD DRAWING SHEET 3E-1.

				PROJECT ENGINEER:	S. GHU
				DESIGNED BY:	P. GIORSETTO
				DRAWN BY:	B. VUE
				CHECKED BY:	M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL
NEW SWBD MSB-2 ONE LINE DIAGRAM

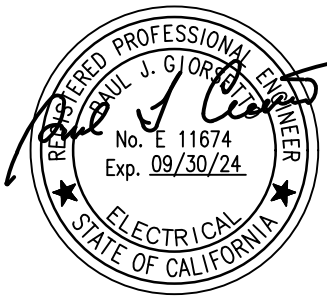
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	

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PLOT DATE: 9/20/2023 9:31 AM BY: BEEVUE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	S. GHIU
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	B. VUE
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION



7/31/2023



Hazen

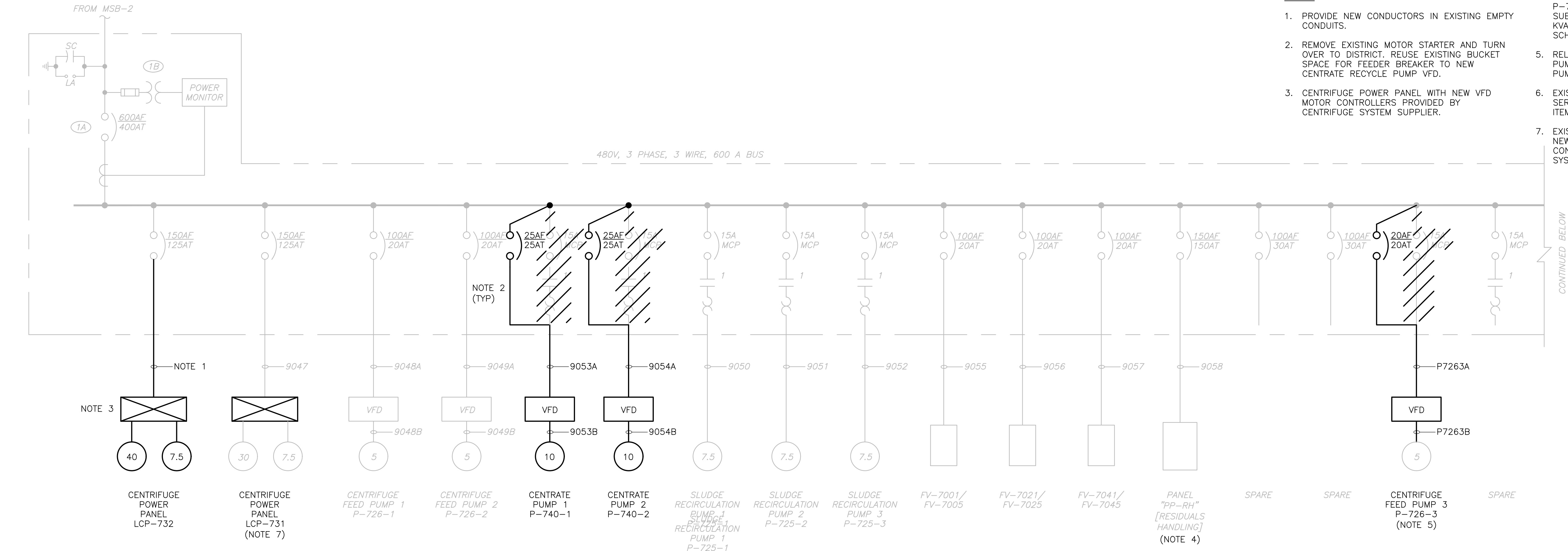
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ENCINITAS, CALIFORNIA

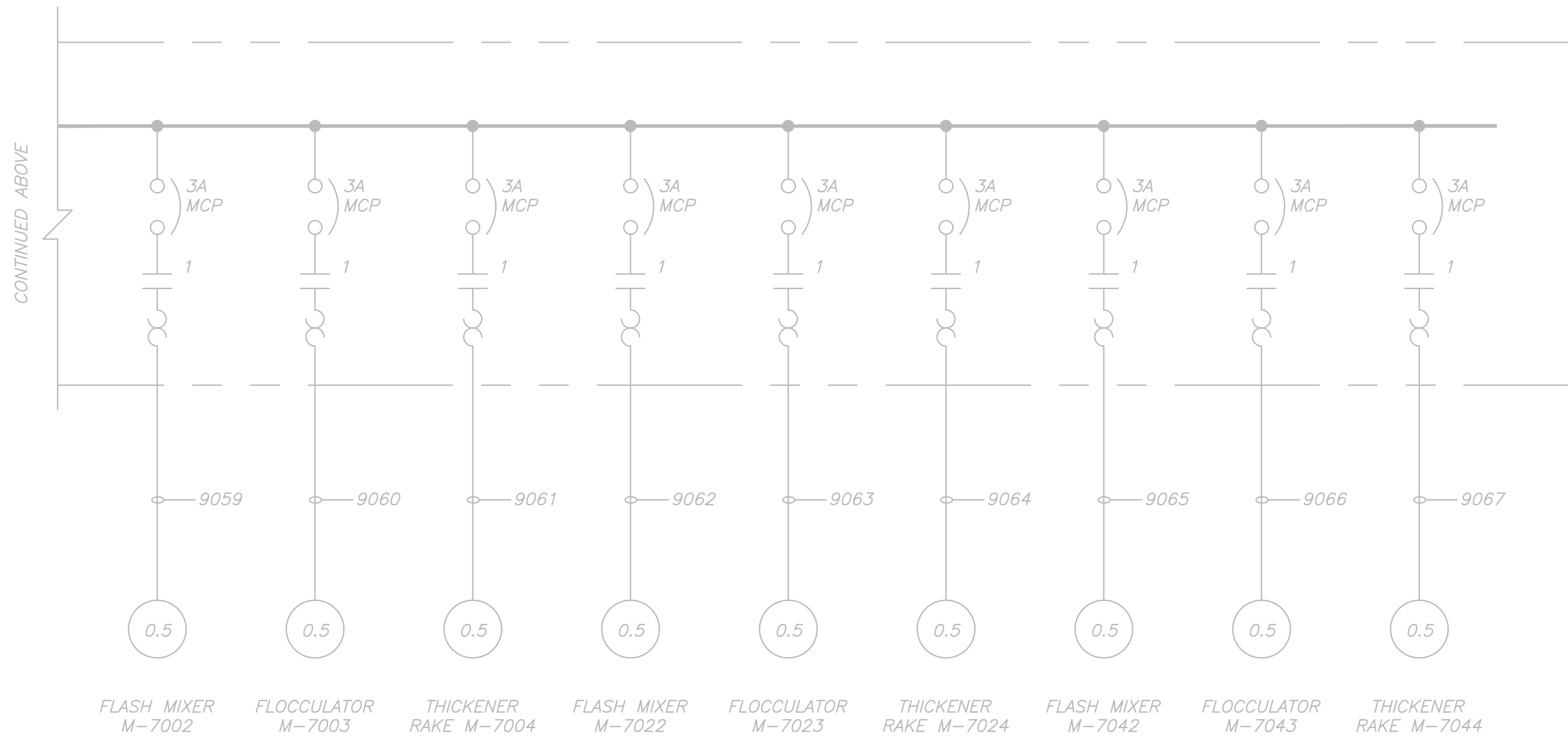
DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL
MCC-5 ONE LINE DIAGRAM AND ELEVATION

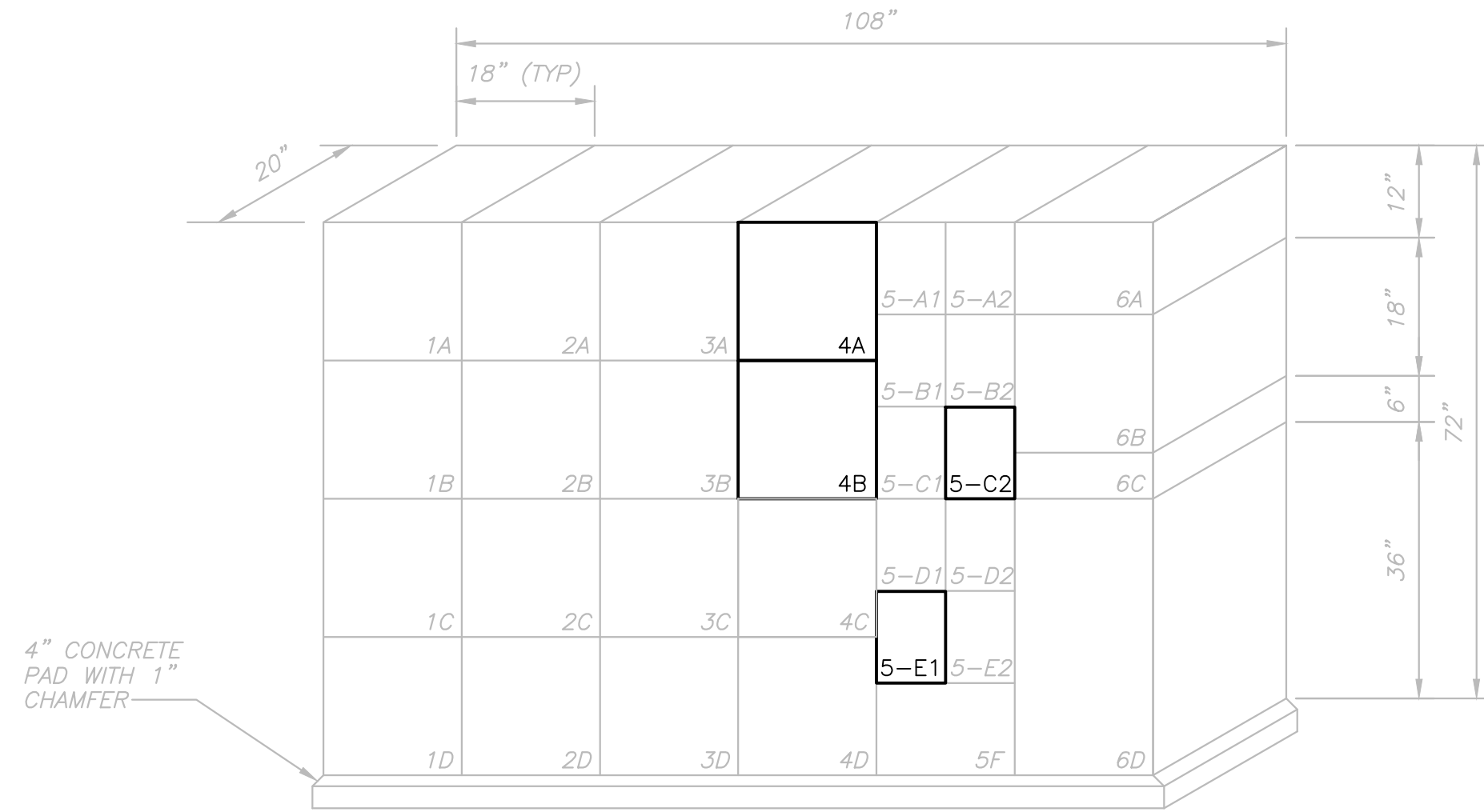
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	E-3



- NOTES:
- PROVIDE NEW CONDUCTORS IN EXISTING EMPTY CONDUITS.
 - REMOVE EXISTING MOTOR STARTER AND TURN OVER TO DISTRICT. REUSE EXISTING BUCKET SPACE FOR FEEDER BREAKER TO NEW CENTRATE RECYCLE PUMP VFD.
 - CENTRIFUGE POWER PANEL WITH NEW VFD MOTOR CONTROLLERS PROVIDED BY CENTRIFUGE SYSTEM SUPPLIER.
 - POLYMER METERING PUMPS P-755-3 AND P-755-4 POWERED FROM PANEL LP-RH, SUBFED FROM 480V PANEL PP-RH AND 30 KVA XFMR (NOT SHOWN). SEE PANEL SCHEDULES ON SHEET E-7.
 - RELOCATE AND INSTALL EXISTING CENTRATE PUMP P-740-1 AS NEW CENTRIFUGE FEED PUMP NO.3 (P-726-3).
 - EXISTING MCC 5 IS AN EATON FREEDOM SERIES 2100. ORDER NUMBER LSN0007954, ITEM 020 LAC APRIL 2012.
 - EXISTING LCP-731 TO BE REPLACED WITH NEW LCP-731 WITH NEW VFD MOTOR CONTROLLERS PROVIDED BY CENTRIFUGE SYSTEM SUPPLIER.

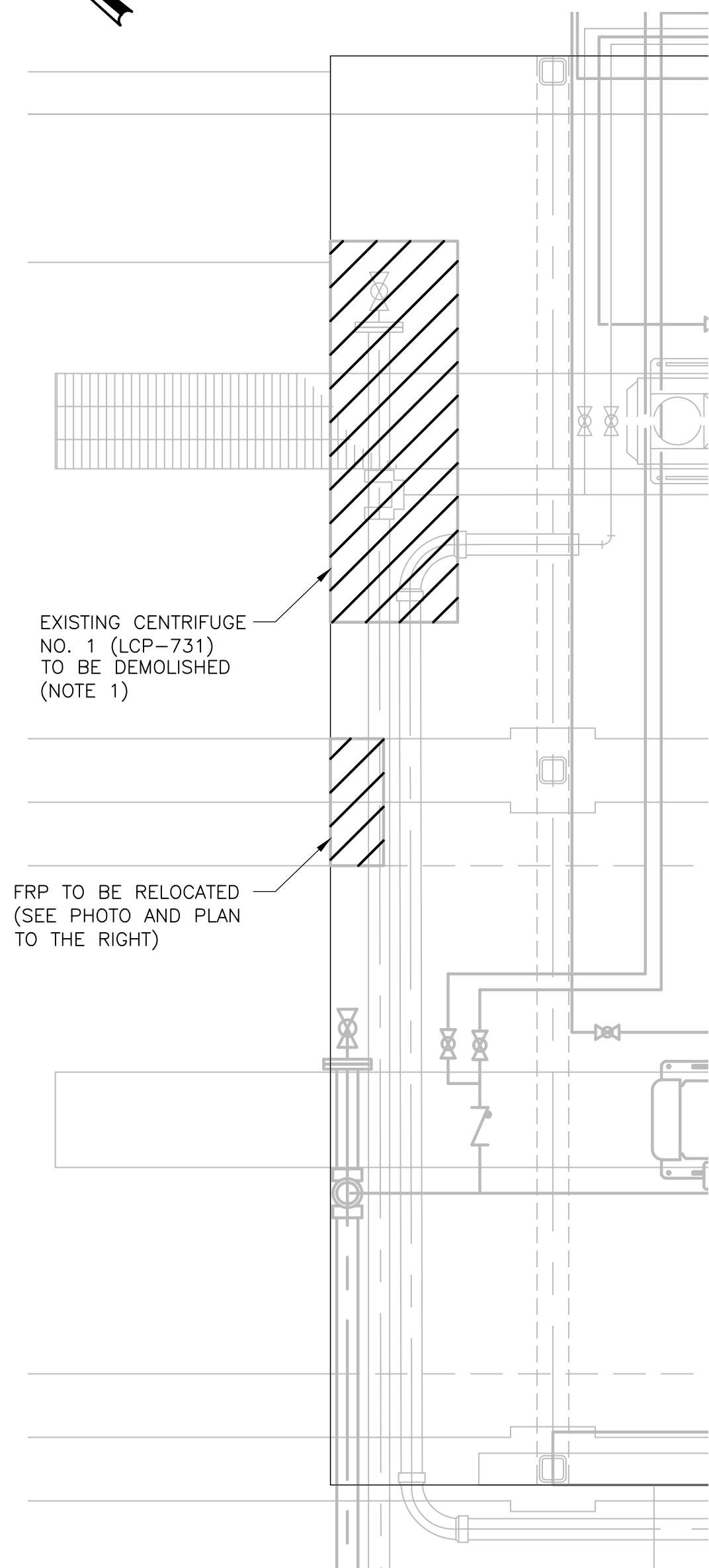
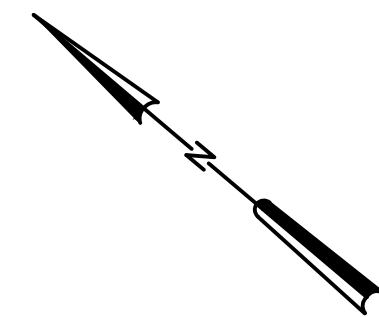


MCC-5
ONE LINE DIAGRAM
N.T.S.

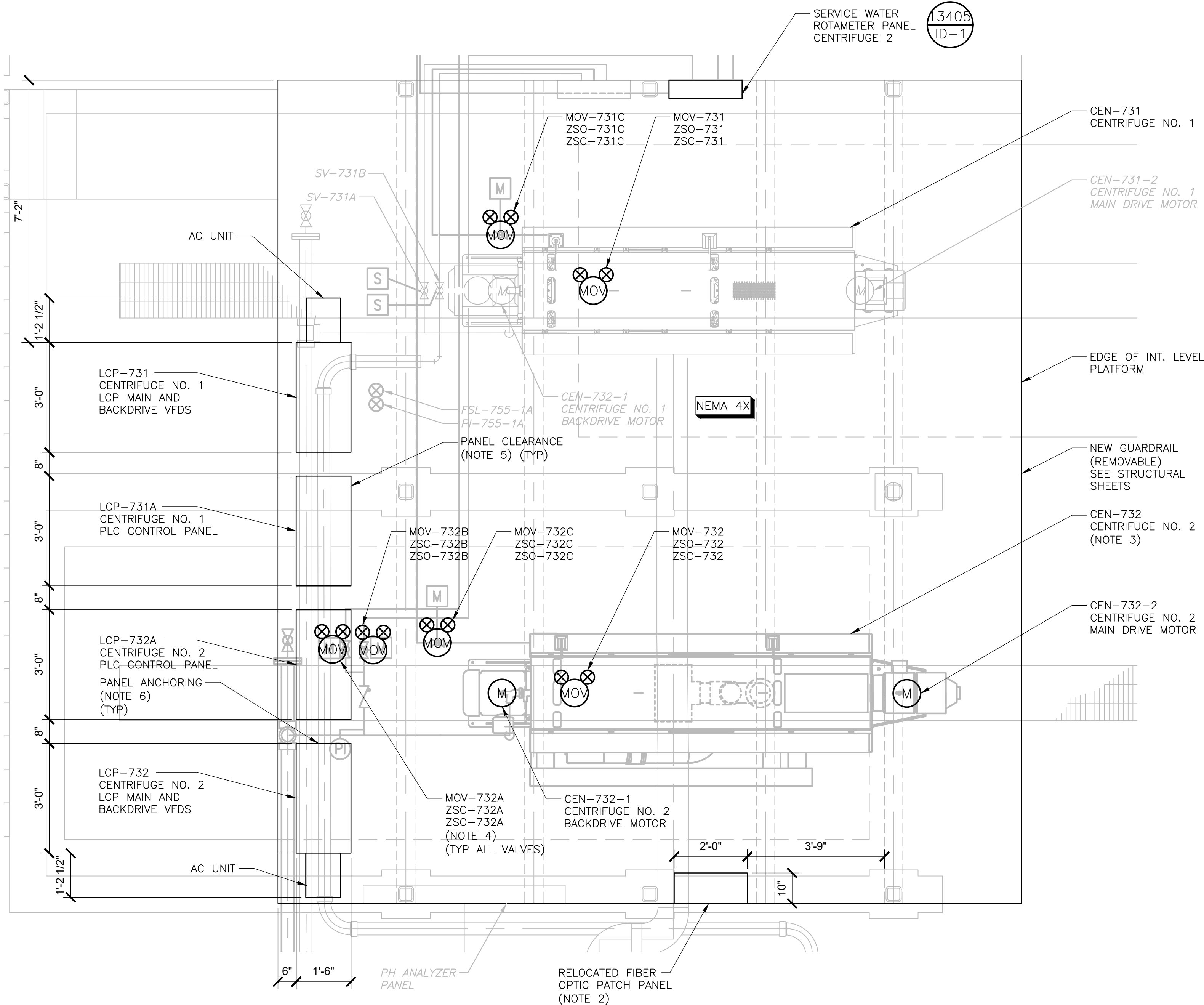


MCC-5
ELEVATION
N.T.S.

MCC-5 NAMEPLATE SCHEDULE	
NO.	EQUIPMENT DESCRIPTION
1A	FLASH MIXER (M-706L)
1B	FLOCCULATOR (M-7003)
1C	THICKENER RAKE (M-7004)
1D	FLASH MIXER (M-7022)
2A	FLOCCULATOR (M-7023)
2B	THICKENER RAKE (M-7024)
2C	FLASH MIXER (M-7042)
2D	FLOCCULATOR (M-7043)
3A	SLUDGE RECIRCULATION PUMP 1 (P-725-1)
3B	SLUDGE RECIRCULATION PUMP 1 (P-725-2)
3C	SLUDGE RECIRCULATION PUMP 1 (P-725-3)
3D	THICKENER RAKE (M-7044)
4A	CENTRATE PUMP 1 (P-740-1)
4B	CENTRATE PUMP 2 (P-740-2)
4C	SPARE
4D	SPARE
5-A1	SPARE
5-A2	SPARE
5-B1	SPARE
5-B2	SPARE
5-C1	CENTRIFUGE POWER PANEL MOTOR A&B (LCP-731)
5-C2	CENTRIFUGE POWER PANEL MOTOR A&B (LCP-732)
5-D1	CENTRIFUGE FEED PUMP NO. 1 (P-726-1)
5-D2	CENTRIFUGE FEED PUMP NO. 2 (P-726-2)
5-E1	CENTRIFUGE FEED PUMP NO. 3 (P-726-3)
5-E2	RESIDENTIAL HANDLING PANELBOARD (PP-RH)
5F	SPARE
6A	POWER METER
6B	SURGE PROTECTION DEVICE
6C	SPARE
6D	MAIN BREAKER

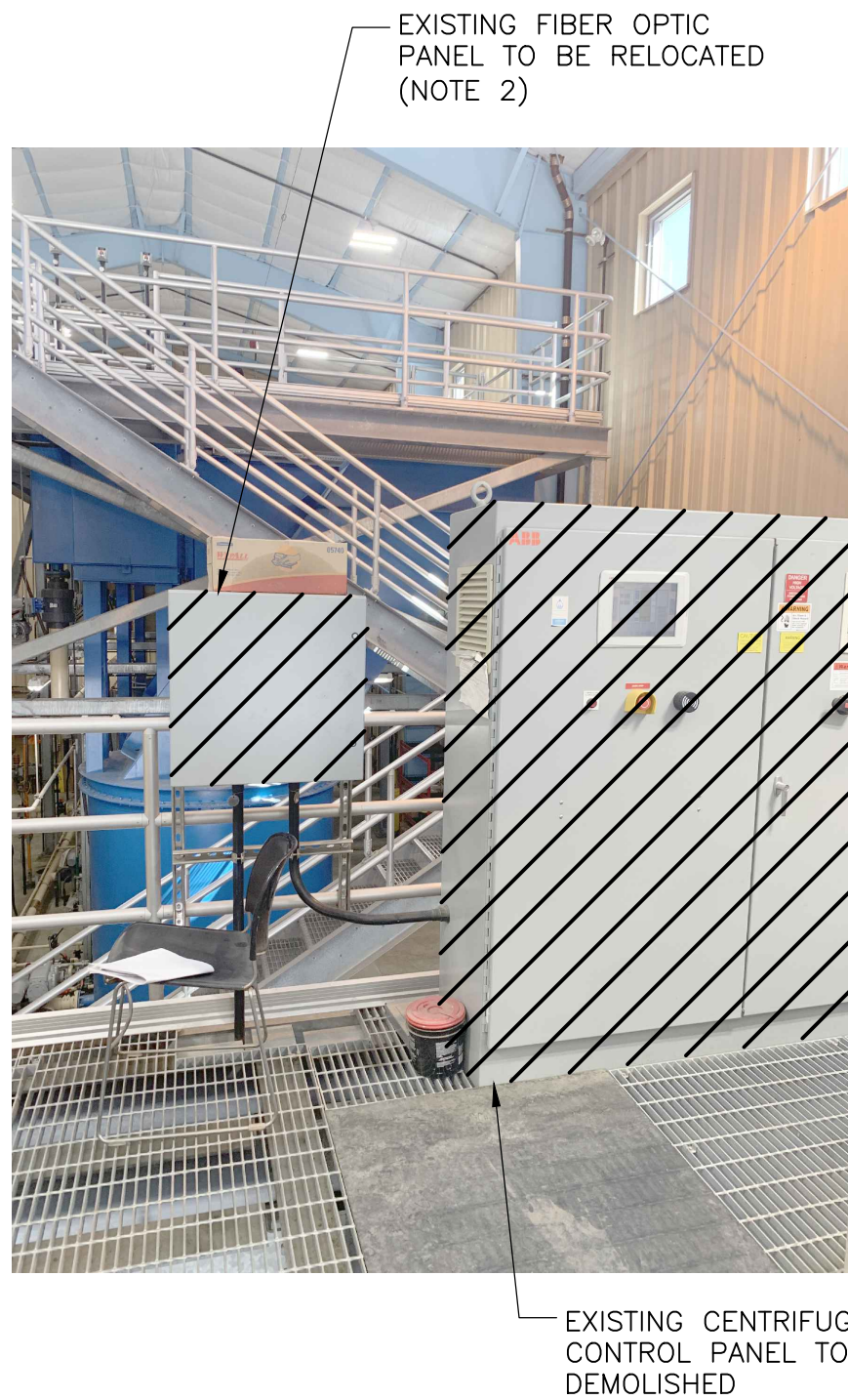


ELECTRICAL DEMOLITION DETAIL



POWER AND SIGNAL PLAN

- NOTES:
1. PROVIDE TWO NEW PANELS FOR EXISTING CENTRIFUGE NO. 1 AND DEMOLISH EXISTING PANEL AS SHOWN. INTERCEPT EXISTING CONDUITS AT PLATFORM LEVEL AND PROVIDE NEW BARRIERED 10x10 WIREWAY FOR INTERCEPTING EXISTING CONDUITS. PROVIDE NEW CONDUITS TO NEW PANEL LOCATIONS AND REPLACE ALL EXISTING CENTRIFUGE WIRING. REFER TO CENTRIFUGE INTERCONNECTION DIAGRAM INCLUDED AS REFERENCE DRAWINGS.
 2. INTERCEPT EXISTING FIBER CONDUIT BELOW PLATFORM WITH NEW ELBOW CONDUITS AND ROUTE NEW CONDUIT TO NEW FIBER OPTIC PANEL LOCATION. PROVIDE NEW FIBER CABLES FROM PLC PANEL CC-RHB. PROVIDE CONDUIT AND NEW FIBERS FROM RELOCATED PATCH PANEL ENCLOSURE TO NEW CENTRIFUGE CONTROL PANELS. FIELD LOCATE FINAL PANEL LOCATION WITH OMWD. STRAP PANEL TO GUARDRAIL SIMILAR TO EXISTING.
 3. PROVIDE ALL NEW CONDUIT AND WIRE FOR NEW CENTRIFUGE NO. 2 AS REQUIRED BY CENTRIFUGE SYSTEM SUPPLIER. REFER TO CENTRIFUGE INTERCONNECTION DIAGRAM INCLUDED AS REFERENCE DRAWINGS.
 4. ALL NEW VALVES ARE LOCATED UNDERNEATH THE PLATFORM DECK.
 5. PROVIDE MINIMUM CLEAR SPACE AS REQUIRED BY THE NEC. PROVIDE 48-INCH MINIMUM CLEAR SPACE IN FRONT OF VFD PANELS (LCP-731 AND LCP-732). PROVIDE 36-INCH MINIMUM CLEAR SPACE IN FRONT OF PLC CONTROL PANELS (LCP-731A AND LCP-732A).
 6. ALL NEW CENTRIFUGE SYSTEM CONTROL PANELS SHALL BE ANCHORED TO THE CENTRIFUGE PLATFORM FRAMING MEMBERS IN ACCORDANCE WITH GENERAL STRUCTURAL NOTES ON SHEET S-1 AND SPECIFICATION SECTION 01350. LOCATE AND ANCHOR ELECTRICAL PANELS AS CLOSE TO THE GUARDRAIL TOE BOARD AS POSSIBLE TO ENSURE REQUIRED NEC CLEARANCES BETWEEN PANEL FRONT AND CENTRIFUGE EQUIPMENT.



CENTRIFUGE #1, EXISTING ELECTRICAL PANELS

PHOTO 1
SCALE: NTS

1/2" = 1'-0"

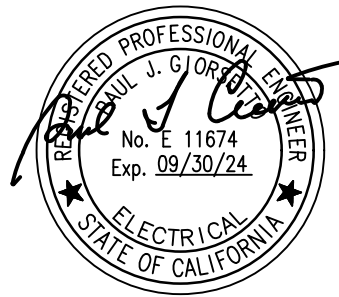


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PROJECT ENGINEER:	S. GHIU
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	A. PRIOR
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION



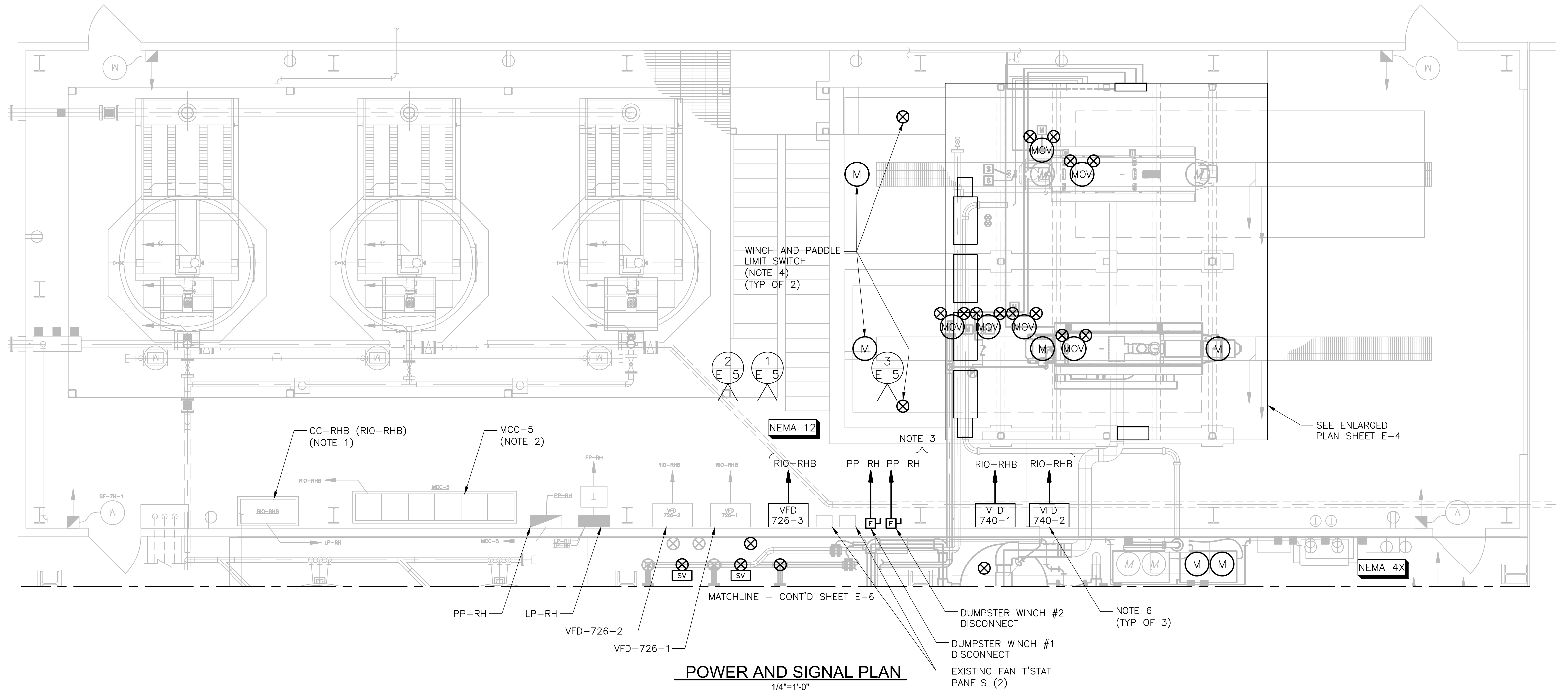
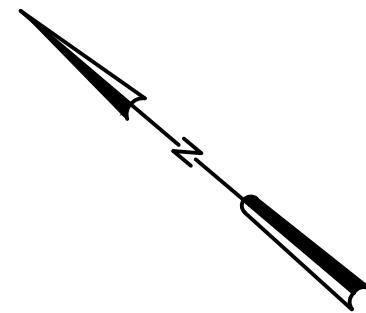
Hazen
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11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

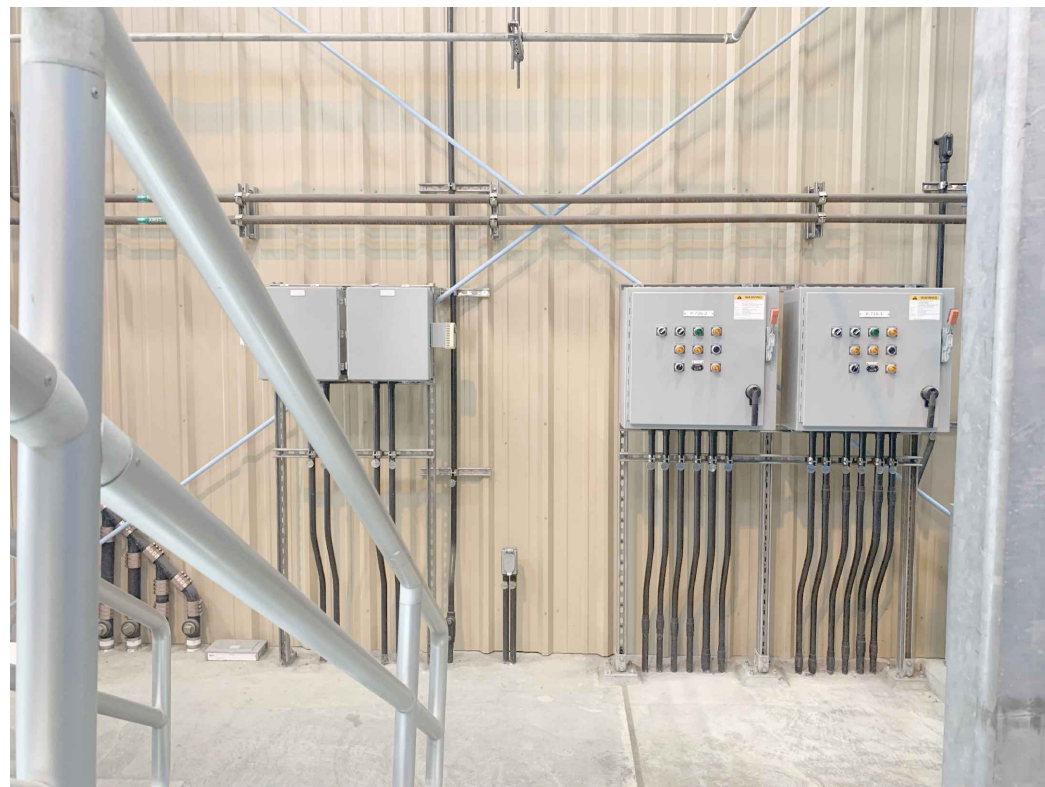
DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL
RESIDUALS HANDLING BLDG INT. LEVEL -
POWER AND SIGNAL PLAN

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	



POWER AND SIGNAL PLAN
1/4"=1'-0"



LEFT: FAN T-STAT CP RIGHT: P-726-1 AND P-726-2 VFD

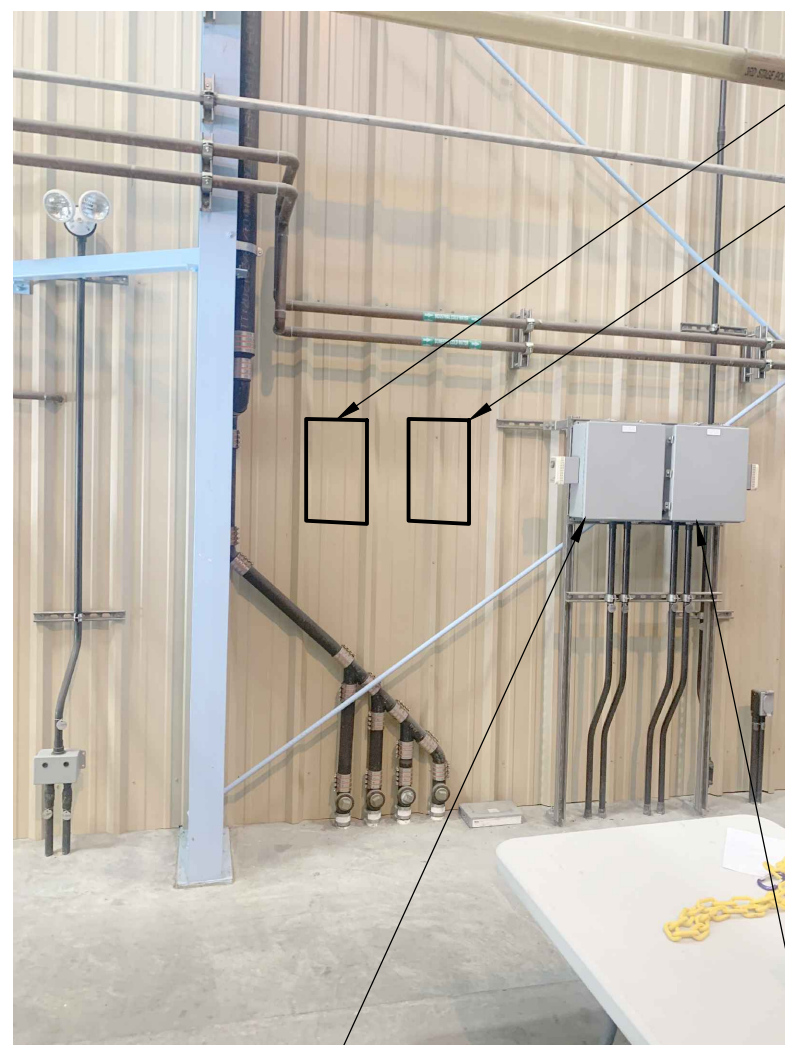
NEW EQUIPMENT LOCATIONS NOT SHOWN IN THIS VIEW

PHOTO 1
SCALE: NTS



LEFT: FAN T-STAT CP RIGHT: P-726-1 AND P-726-2 VFD

PHOTO 2
SCALE: NTS



LEFT: EF-7H-01/SF-7H-01 T-STAT CP RIGHT: EF-7H-02/SF-7H-02 T-STAT CP

PHOTO 3
SCALE: NTS

NOTES:

1. PROVIDE MODIFICATIONS TO EXISTING CC-RHB (RIO-RHB) INPUT/OUTPUT AND NETWORK CONNECTIONS. SEE SHEET I-3.
2. PROVIDE MODIFICATIONS TO EXISTING MCC-5. SEE SHEET E-3.
3. FIELD COORDINATE FINAL PANEL LOCATIONS WITH EXISTING PANELS. REFER TO PHOTOGRAPHS THIS SHEET.
4. WINCH AND PADDLE LIMIT SWITCH PROVIDED BY WINCH SUPPLIER. SEE ALSO SHEET S-4. PROVIDE CONDUIT AND WIRE FROM RESPECTIVE WINCH DISCONNECT SWITCH TO WINCH CONTROLLER AND FROM WINCH CONTROLLER TO WINCH AND PADDLE LIMIT SWITCH AS REQUIRED BY THE MANUFACTURER AND AS SHOWN ON SHEET S-4.
5. PROVIDE WINCH FUSED DISCONNECT SWITCH. FUSE SIZE AS RECOMMENDED BY WINCH SUPPLIER.
6. PROVIDE NEMA 12 ENCLOSURES FOR NEW CENTRATE AND FEED PUMP VFDs AS SPECIFIED IN SECTION 16260.

1/4"=1'-0"

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PROJECT ENGINEER:	S. GHU
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	A. PRIOR
CHECKED BY:	-
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION

7/31/2023

Hazen

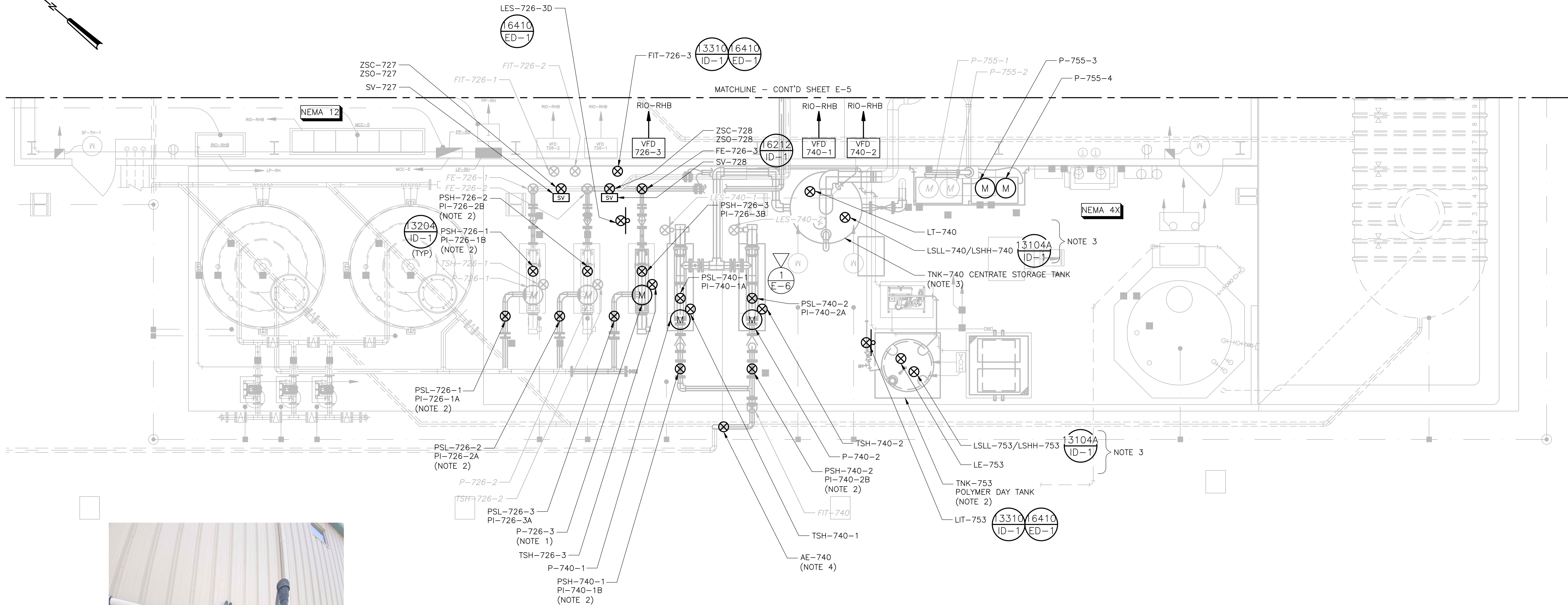
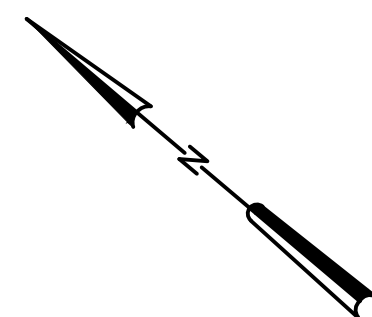
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL
RESIDUALS HANDLING BLDG BOTTOM LEVEL -
POWER AND SIGNAL PLAN

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	E-5



CHEMICAL FEED AREA - POWER AND SIGNAL PLAN

1/4"=1'-0"



EXISTING CENTRATE TANK

PHOTO

1

SCALE: NTS

NOTES:

1. RELOCATE AND INSTALL EXISTING CENTRATE PUMP #3 P-740-1 AS NEW CENTRIFUGE FEED PUMP P-726-3.
2. REPLACE EXISTING INSTRUMENTATION WITH NEW. REUSE EXISTING CONDUIT AND WIRE.
3. EXISTING CENTRATE TANK REPLACED WITH NEW. PROVIDE NEW INSTRUMENTATION FOR NEW TANK. PROTECT EXISTING CONDUIT STUB-UPS IN PLACE AT BASE OF EXISTING PAD - REFER TO PHOTO ON THIS SHEET. PROVIDE CONDUIT MOUNTING ANCHORED TO THE EXISTING PAD SIMILAR TO DETAIL 16131 SHEET E-10.
4. EXISTING TURBIDIMETER SENSOR ELEMENT TO BE RELOCATED TO NEW PIPING AS SHOWN ON MECHANICAL DRAWINGS. REUSE EXISTING CONDUIT AND MANUFACTURER'S CABLE. LOCATION OF EXISTING TURBIDIMETER TRANSMITTER TO REMAIN UNCHANGED.

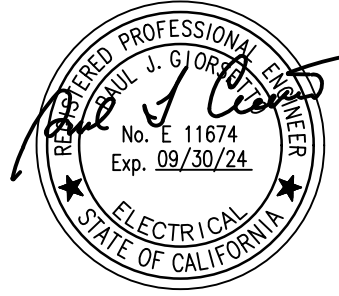
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REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	S. GHU
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	A. PRIOR
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION



7/31/2023

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL
CHEMICAL FEED AREA -
POWER AND SIGNAL PLAN

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	E-6

File: C:\BMS\HAZEN\WDO219889\E-07 Swwd by BEEV\IE Save date: 9/20/2023 9:44 AM
PLOT DATE: 9/20/2023 9:45 AM BY: BEEVUE

CONDUIT SCHEDULE					
Conduit Tag	Size [in.]	Fill	From	To	Comments
S1000	1 1/4	6 PAIR Fiber Optics	CONDULET	FFP	NEW FROM RELOCATED FFP TO CONDULET. PROVIDE NEW CABLE IN EXISTING CONDUIT FROM CONDULET TO CC-RHB. SEE PLAN DRAWING
L7001	3/4	(3)#12, (1)#12-G	LP-RH	DUMPSTER WINCH #1	NEW
L7002	3/4	(3)#12, (1)#12-G	LP-RH	DUMPSTER WINCH #2	NEW
C7263A	1	(14)#14-C, (1)#14-G	CC-RHB	VFD-726-3	NEW
L7263A	3/4	(2)#14-C, (1)#14-G	LP-RH	FE/FIT 726-3	NEW CONDUCTORS IN EXISTING CONDUIT
P7263A	1	(3)#10, (1)#12-G	MCC-5	VFD-726-3	NEW
S7263A	3/4	(1)TSP-C	FE/FIT 726-3	CC-RHB	NEW CONDUCTORS IN EXISTING CONDUIT
C7263B	1	(8)#14-C, (1)#14-G	VFD-726-3	P-726-3	NEW
P7263B	1	(3)#10, (1)#12-G	VFD-726-3	P-726-3	NEW
S7263	1	(2)TSP-C	CC-RHB	VFD-726-3	NEW
C7270A	3/4	(2)#12-C, (1)#14-G	CC-RHB	SV-727	NEW
C7270B	3/4	(4)#14-C, (1)#14-G	CC-RHB	ZSO/ZSC-727	NEW
C7280A	3/4	(2)#12-C, (1)#14-G	CC-RHB	SV-728	NEW
C7280B	3/4	(4)#14-C, (1)#14-G	CC-RHB	ZSO/ZSC-728	NEW
S7310A	1	6 PAIR Fiber Optics	FFP	LCP-731A	NEW
S7310	1 1/2	(5)TSP-C	LCP-731	LCP-731A	NEW
P7311	3/4	(3)#10, (1)#12-G	LCP-731	CEN-731-1	NEW
C7312	3/4	(2)#14-C, (1)#14-G	LCP-731A	SV-731A	NEW
P7312	1	(3)#8, (1)#12-G	LCP-731	CEN-731-2	NEW
C7313	3/4	(2)#14-C, (1)#14-G	LCP-731A	SV-731B	NEW
P7313	3/4	(3)#12, (1)#12-G	LCP-731	MOV-731	NEW
P7314	3/4	(3)#12, (1)#14-G	LCP-731	MOV-731C	NEW
C7315		(8)#14-C, (1)#14-G	LCP-731A	ZSO/ZSC/HS-731	NEW
C7316	3/4	(8)#14-C, (1)#14-G	LCP-731A	ZSO/ZSC/HS-731C	NEW
C731A	2	(2)#12, (50)#14-C, (1)#12-G	LCP-731	LCP-731A	NEW
S7320A	1	6 PAIR Fiber Optics	FFP	LCP-732A	NEW
C7320	2	(2)#12, (50)#14-C, (1)#14-G	LCP-732	LCP-732A	NEW
S7320	1 1/2	(5)TSP-C	LCP-732	LCP-732A	NEW
P7321	3/4	(3)#10, (1)#12-G	LCP-732	CEN-732-1	NEW
P7322	1	(3)#8, (1)#12-G	LCP-732	CEN-732-2	NEW
C7323	3/4	(8)#14-C, (1)#14-G	LCP-732A	ZSO/ZSC-732/HS-732	NEW
P7323	3/4	(3)#12, (1)#12-G	LCP-732	MOV-732	NEW
C7324	3/4	(8)#14-C, (1)#14-G	LCP-732A	ZSO/ZSC-732/HS-732A	NEW
P7324	3/4	(3)#12, (1)#14-G	LCP-732	MOV-732A	NEW
C7325	3/4	(8)#14-C, (1)#14-G	LCP-732A	ZSO/ZSC-732/HS-732B	NEW
P7325	3/4	(3)#12, (1)#14-G	LCP-732	MOV-732B	NEW
C7326	3/4	(8)#14-C, (1)#14-G	LCP-732A	ZSO/ZSC-732/HS-732C	NEW
P7326	3/4	(3)#12, (1)#14-G	LCP-732	MOV-732C	NEW
P7401A	3/4	(3)#10, (1)#12-G	MCC-5	VFD-740-1	NEW
C7401B	3/4	(10)#14-C, (1)#14-G	VFD-740-1	CC-RHB	NEW
P7401B	3/4	(3)#10, (1)#12-G	VFD-740-1	P-740-1	NEW
S7401	1	(2)TSP-C	VFD-740-1	CC-RHB	NEW
P7402A	3/4	(3)#10, (1)#12-G	MCC-5	VFD-740-2	NEW
C7402B	3/4	(10)#14-C, (1)#14-G	VFD-740-2	CC-RHB	NEW
P7402B	3/4	(3)#10, (1)#12-G	VFD-740-2	P-740-2	NEW
S7402	1	(2)TSP-C	VFD-740-2	CC-RHB	NEW
L7553A	3/4	(2)#12, (1)#12-G	LP-RH	P-755-3	NEW
C7553B	3/4	(10)#14-C, (1)#14-G	CC-RHB	P-755-3	NEW
S7553	1	(2)TSP-C	CC-RHB	P-755-3	NEW
L7554A	3/4	(2)#12, (1)#12-G	LP-RH	P-755-4	NEW
C7554B	3/4	(10)#14-C, (1)#14-G	CC-RHB	P-755-4	NEW
S7554	1	(2)TSP-C	CC-RHB	P-755-4	NEW

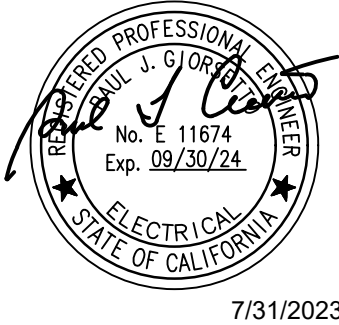
PANEL "LP-RH" 120/208V 3PH 4W			
CIR	LOAD	CIR	LOAD
1	OUTDOOR LIGHTING	2	CC-RHB
3	OUTDOOR LIGHTING	4	CC-RHB
5	LIGHTING-SWITCH"A"	6	RECEPTACLES-PLATFORM
7	LIGHTING-SWITCH"B"	8	RECEPTACLES
9	LIGHTING-SWITCH"C"	10	RECEPTACLES
11	LIGHTING-SWITCH"D"	12	LP-RH-1
13	LIGHTING-SWITCH"E"	14	LP-RH-1
15	EXIT LIGHTING	16	LP-RH-1
17	WIT-751	18	EYE WASH STATIONS
19	POLY BLEND UNIT	20	AIT-710-1
21	FACP	22	AIT-720-2, AIT 720-1
23	FIT-710, FIT-711, FIT-712, FIT-740	24	POLYMER PUMP 3
25	FIT-726-1; FIT-726-2	26	POLYMER PUMP 4
27	SP	28	AIT-740, AIT-710-2
29	FIT-726-3	30	SPARE
31	EF-7H-01/ SF-7H-01	32	SPARE
33	EF-7H-01/ SF-7H-01	34	SPARE
35	EF-7H-01/ SF-7H-01	36	SPARE
37	EF-7H-02/ SF-7H-02	38	SPARE
39	EF-7H-02/ SF-7H-03	40	SPARE
41	EF-7H-02/ SF-7H-04	42	SPARE

150 AMP MAIN BREAKER 150 AMP BUS RATING 480 VOLTS						PANELBOARD PP--RH 42 POLES 42 KA SHORT CIRCUIT RATING ELECTRONIC GRADE: NO						LOCATION: RESIDUALS HANDLING FACILITY ENCLOSURE RATING: NEMA 4 MOUNTING: SURFACE					
CIRCUIT NO.	DESCRIPTION	PHASE A	PHASE B	PHASE C	BREAKER AMPS/POLES	NOTES	CIRCUIT NO.	DESCRIPTION	PHASE A	PHASE B	PHASE C	BREAKER AMPS/POLES	NOTES				
1	LP--RH (VIA 30 KVA TRANSFORMER)	10			50/3		2	SPARE				30/3					
3			10				4										
5				10			6										
7	MOV--710--1	0.333			20/3		8	MOV--710--2	0.333			20/3					
9			0.333				10			0.333							
11				0.333			12				0.333						
13	MOV--711--1	0.333			20/3		14	MOV--711--2	0.333			20/3					
15			0.333				16			0.333							
17				0.333			18				0.333						
19	MOV--712--1	0.333			20/3		20	MOV--712--2	0.333			20/3					
21			0.333				22			0.333							
23				0.333			24				0.333						
25	DUMPSTER WINCH #1	1.67			20/3		26	DUMPSTER WINCH #2	1.67			20/3					
27			1.67				28			1.67							
29				1.67			30				1.67						
31	SPARE				20/3		32	SPARE				20/3					
33							34										
35							36										
37	SPARE				20/3		38	SPARE				20/3					
39							40										
41							42										
TOTAL PHASE KVA THIS SIDE		12.669	12.669	12.669				TOTAL PHASE KVA THIS SIDE	2.669	2.669	2.669						
								TOTAL KVA PER PHASE	15.338	15.338	15.338						
								TOTAL THREE PHASE KVA	46.014								

NOTES:
1. ONLY NEW CONDUITS ARE SHOWN IN THIS CONDUIT SCHEDULE. LOCATIONS FOR ALL INSTRUMENT SHALL BE DETERMINED IN THE FIELD.

				PROJECT ENGINEER:	S. GHUI
				DESIGNED BY:	P. GIORSETTO
				DRAWN BY:	B. VUE
				CHECKED BY:	M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

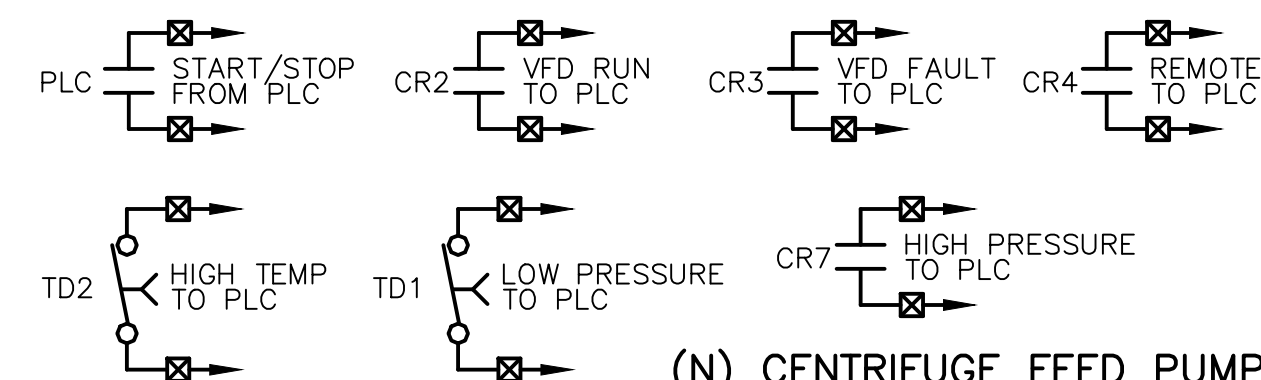
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL
PANELBOARD, CONDUIT AND WIRE SCHEDULES

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	

E-7



(TYPICAL FOR PUMP P-726-3
AND PUMPS P-740-1 & P-740-2)



N.T.S.

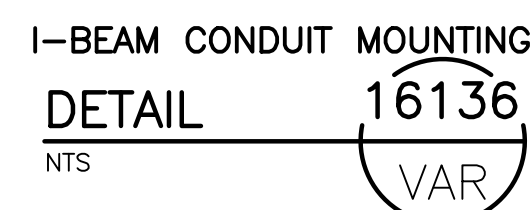
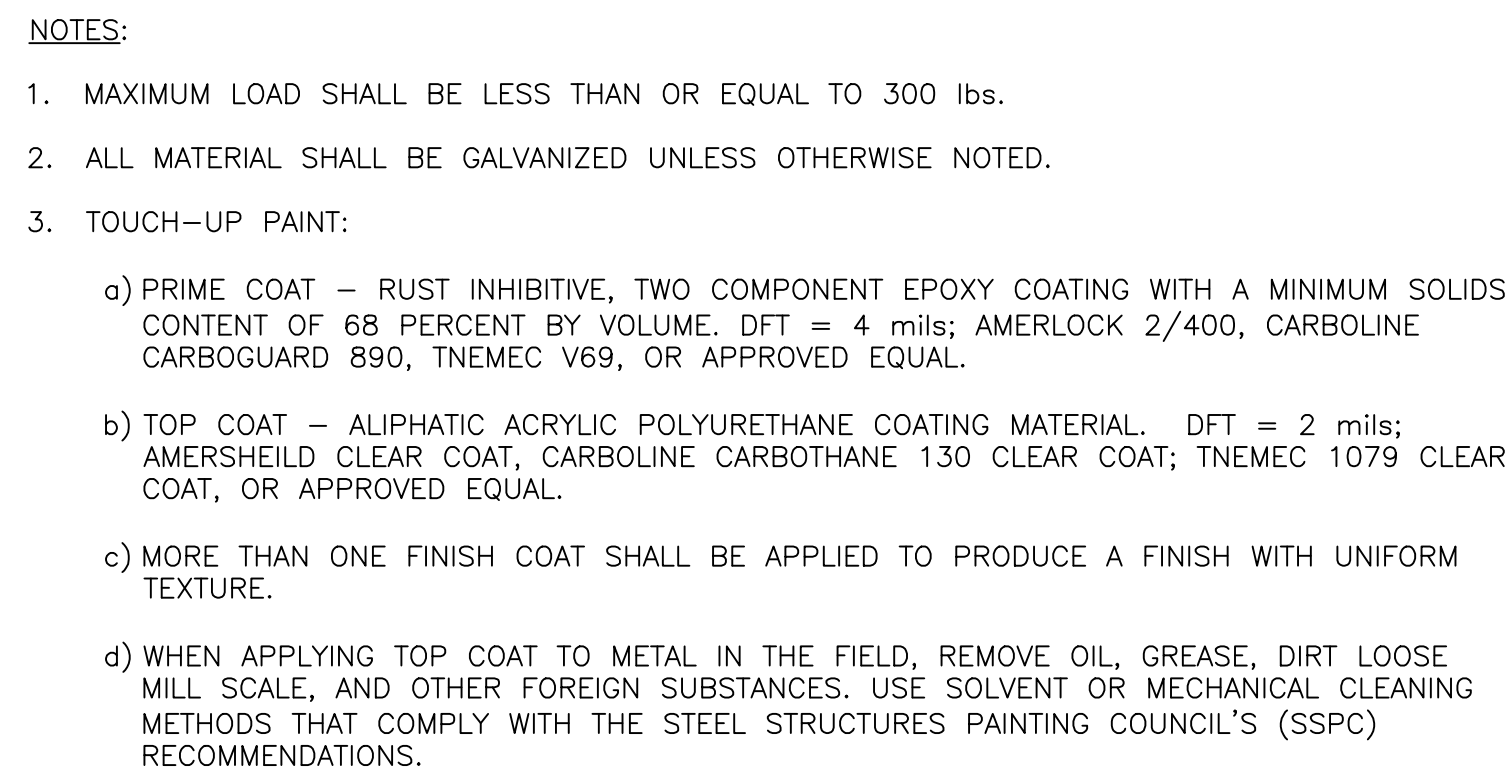
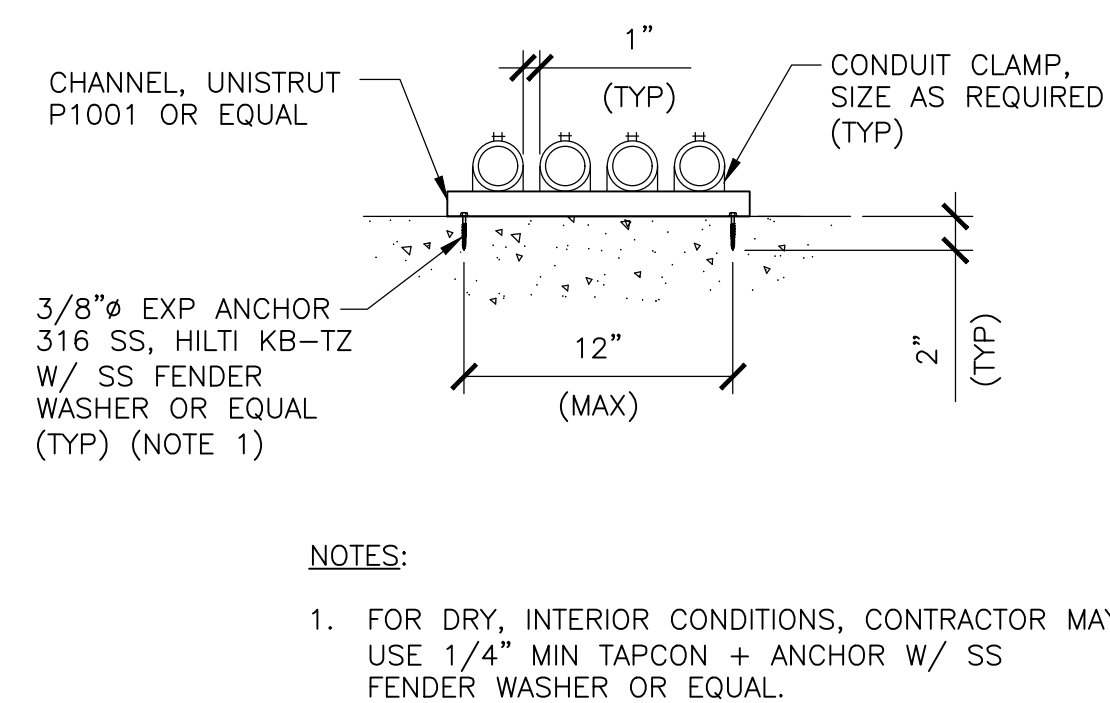
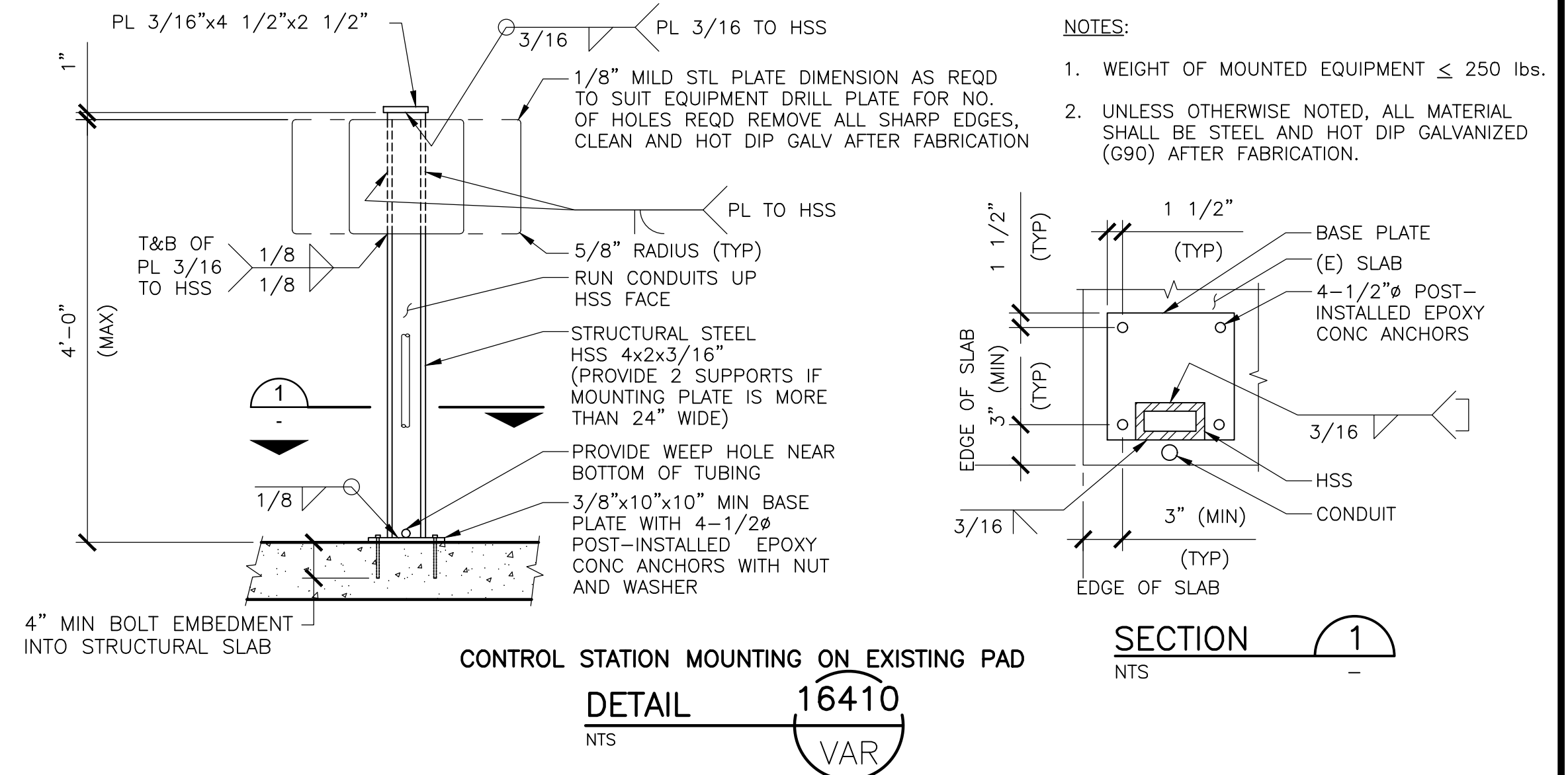
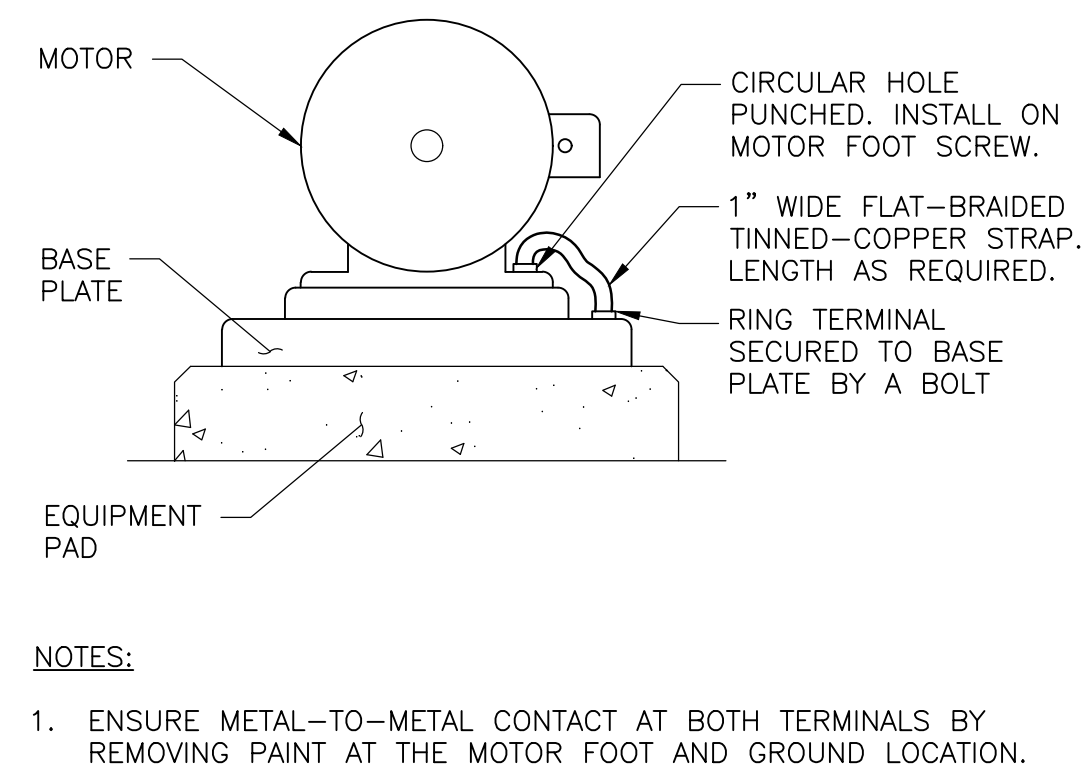
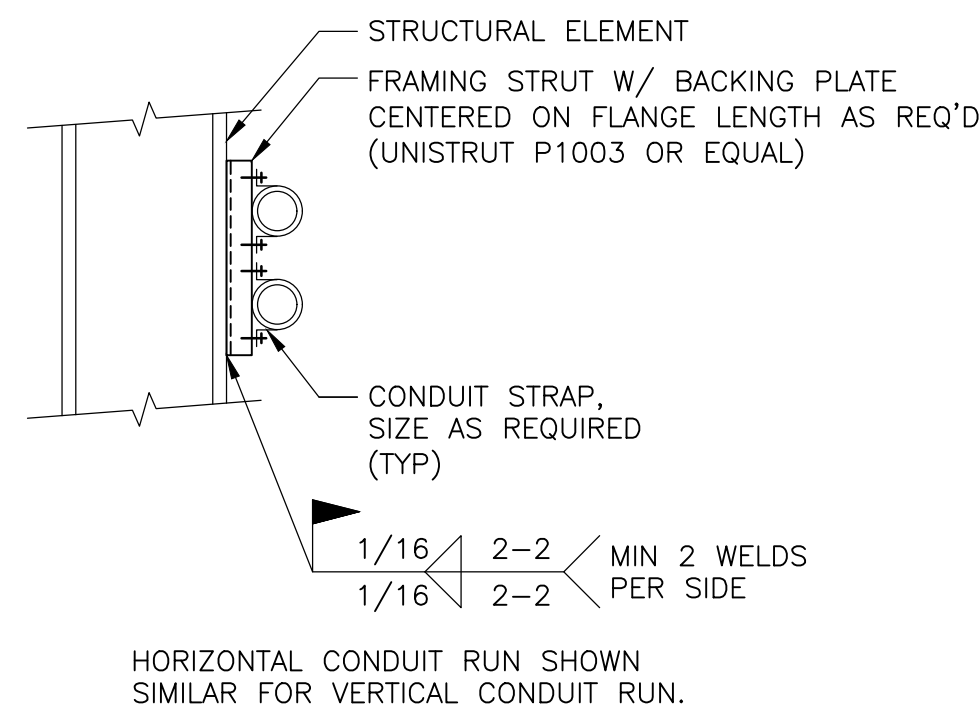
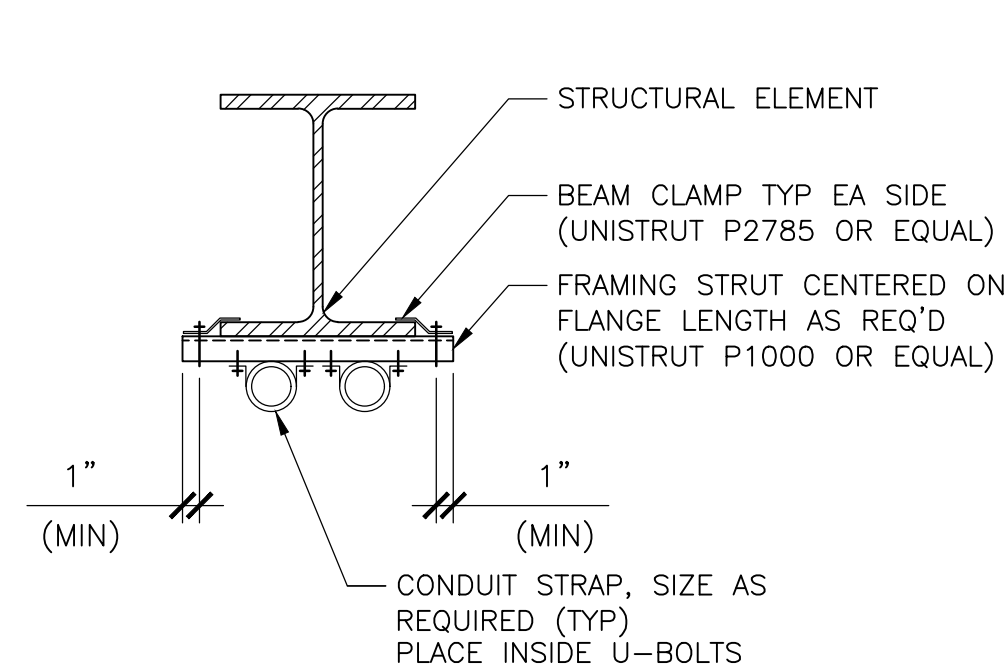
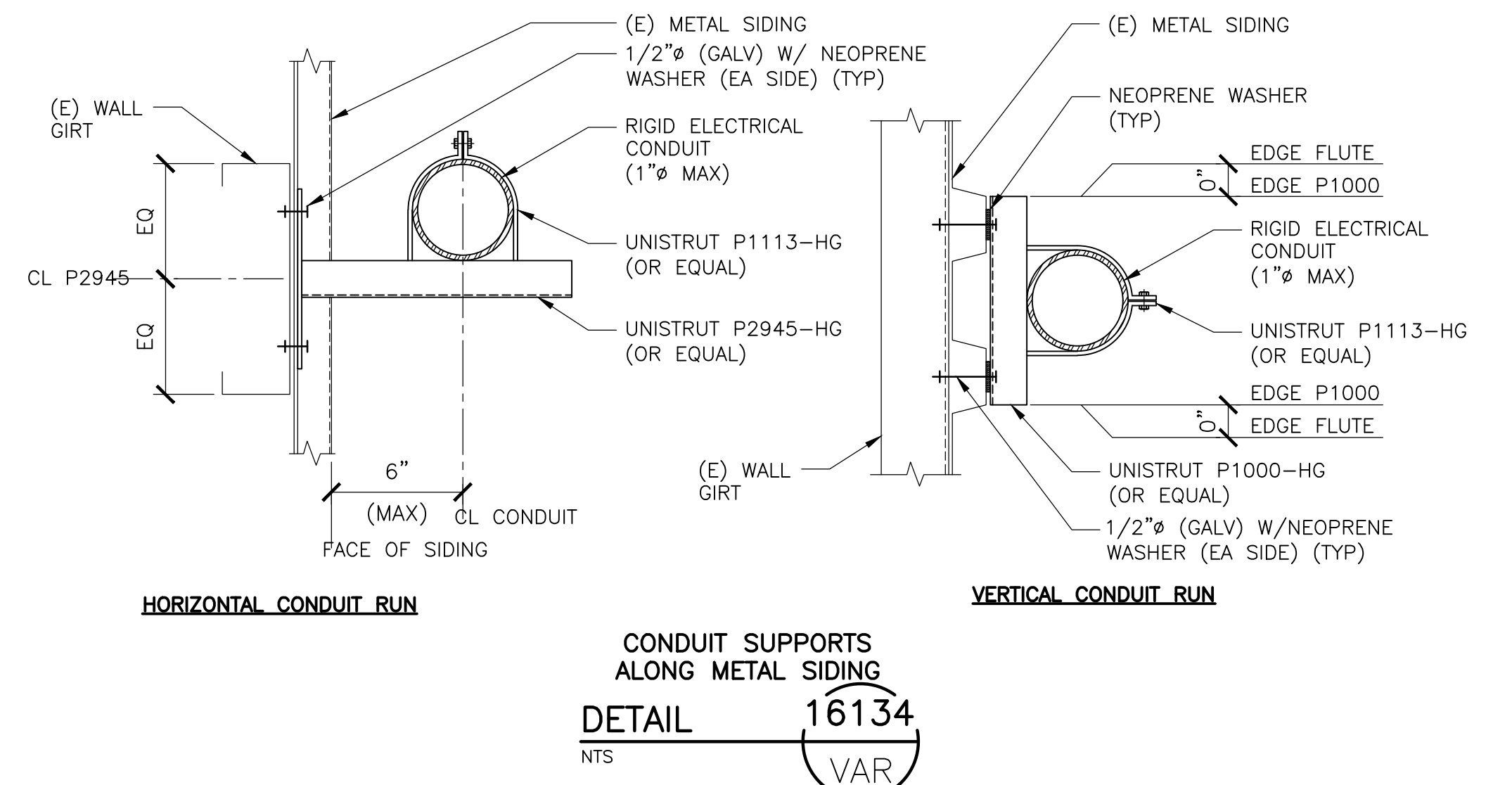
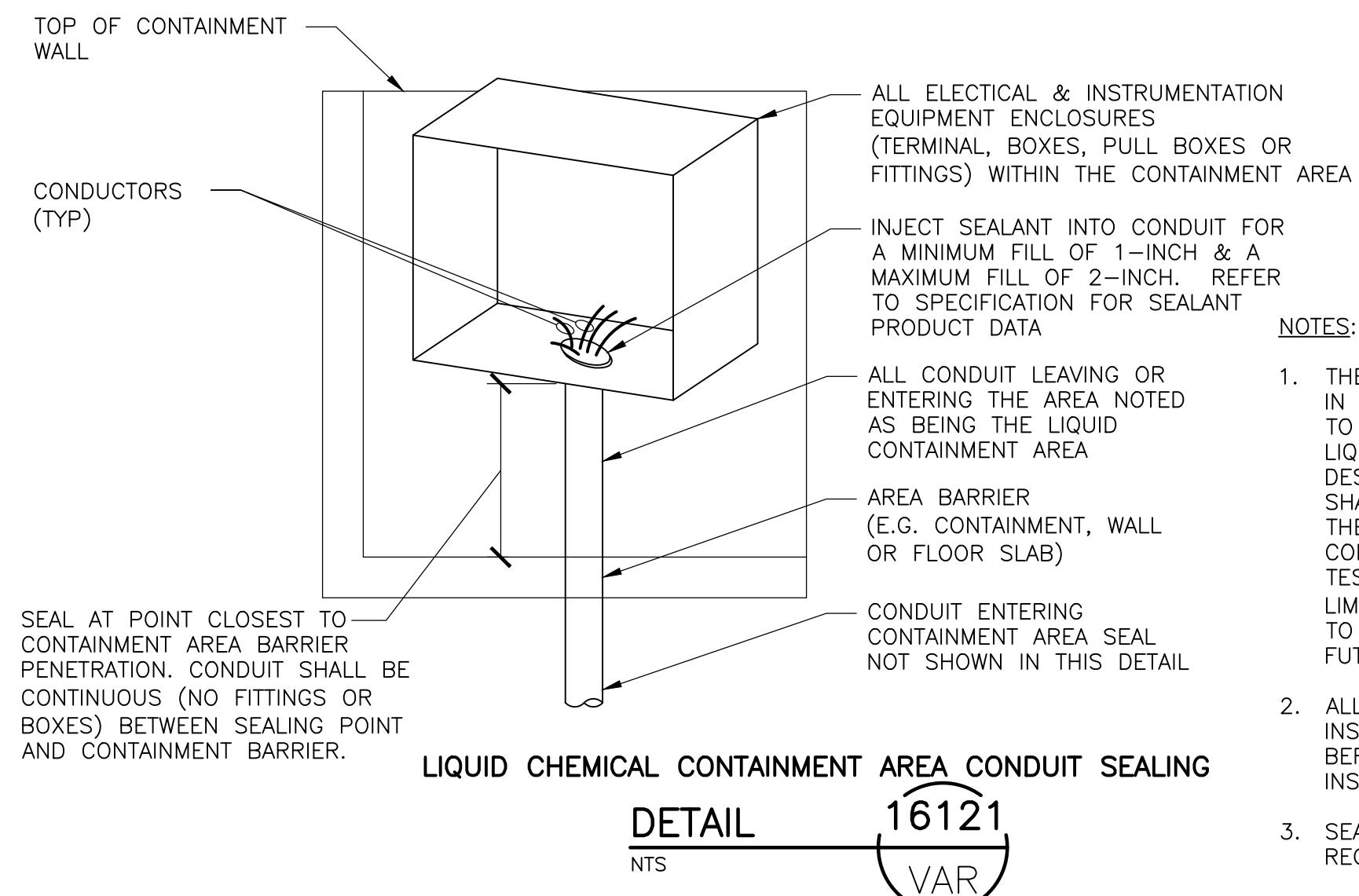
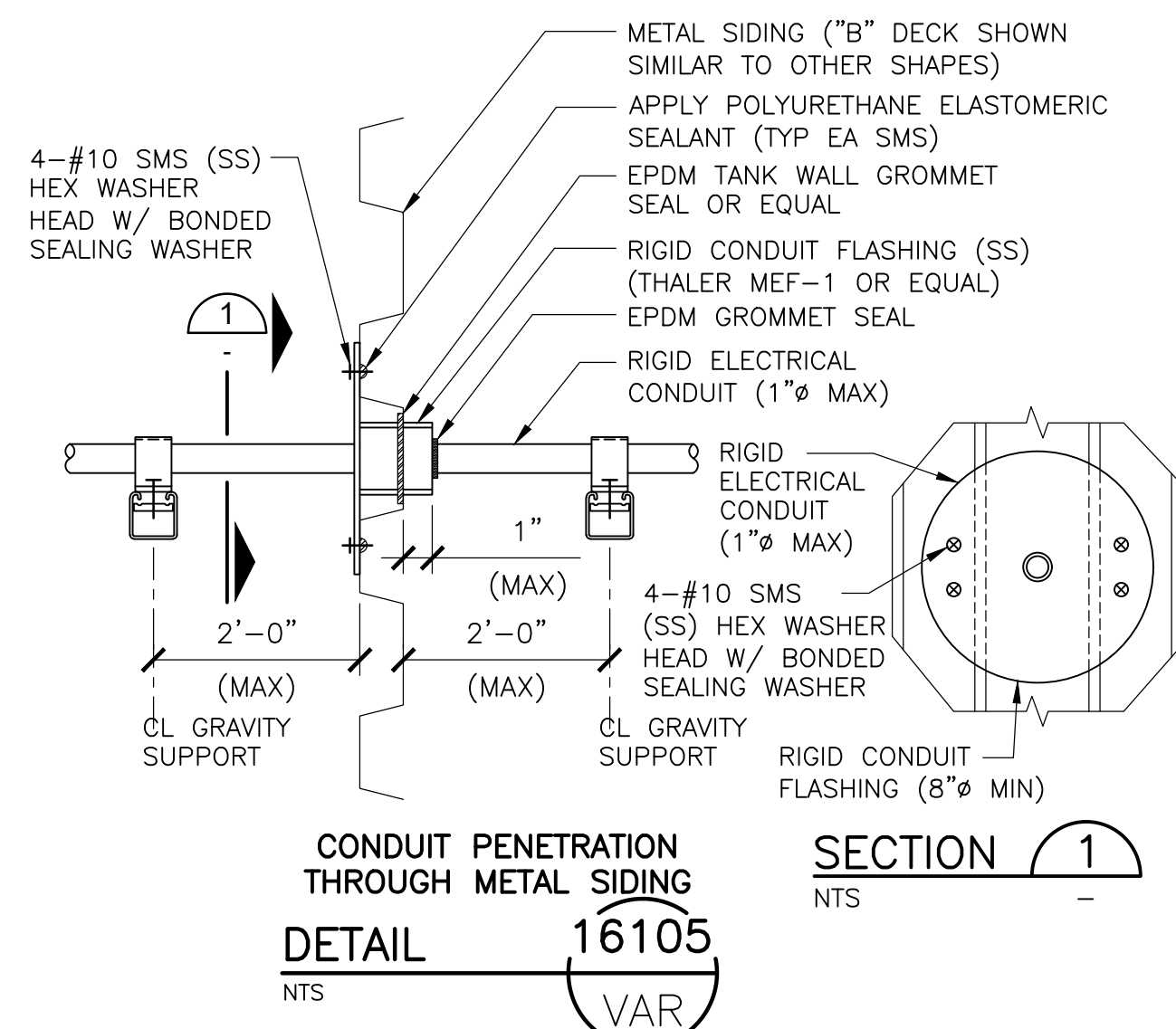
NOTES:

1. ALL EQUIPMENT LOCATED AT VFD EXCEPT WHERE NOTED OTHERWISE.

LEGEND:

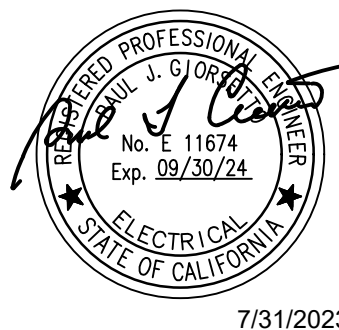
▲	AT FIELD EQUIPMENT LOCATION
●	AT PLC CONTROL PANEL
■	AT REMOTE CONTROL STATION IF REQUIRED

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	E-9



				PROJECT ENGINEER:	S. GHIU
				DESIGNED BY:	P. GIORSETTO
				DRAWN BY:	B. VUE
				CHECKED BY:	M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1" 
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen
HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

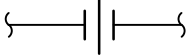
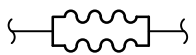
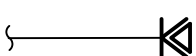
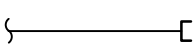
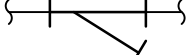
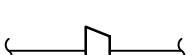
DCM WTP STAGE 4 PROCESS UPGRADES

ELECTRICAL STANDARD DETAILS

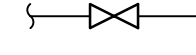
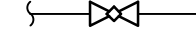
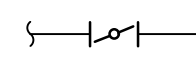
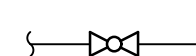
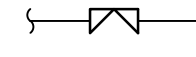
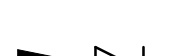
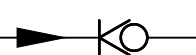
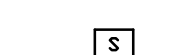
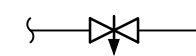
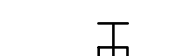
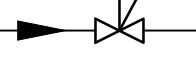
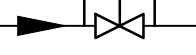
DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	ED-1

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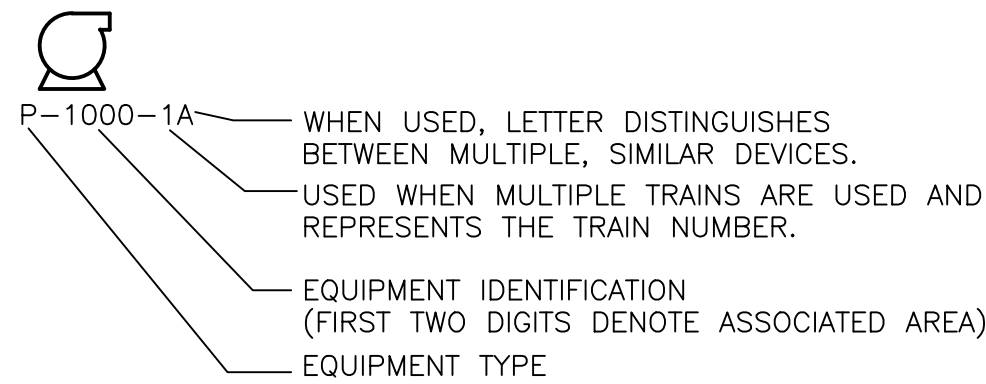
PIPE LINE SYMBOLS

	PIPE UNION
	FLEXIBLE BELLOWS TYPE COUPLING
	FLEXIBLE COUPLING (GENERAL SYMBOL)
	QUICK CONNECT TYPE COUPLING
	HOSE CONNECTION
	Y-STRAINER
	REDUCER/ENLARGER
	BLIND FLANGE
	CONTINUED PIPE
	DIAPHRAGM ISOLATOR
	OPEN EQUIPMENT DRAIN
	DIFFUSER
	BASKET STRAINER
	FILTER
	PULSATION DAMPNER
	MAJOR PROCESS LINE
	MINOR PROCESS LINE
	DOUBLE WALLED PIPE
	ELECTRIC (OR STEAM) TRACING
	DRAWING INTERFACE FLAG
	TO/FROM LOCATION

VALVE SYMBOLS

	GATE VALVE (GV)
	PLUG VALVE (PV)
	BUTTERFLY VALVE (BFV)
	BALL VALVE (BV)
	GLOBE VALVE (GLV)
	PINCH VALVE (PCHV)
	DIAPHRAGM VALVE (DV)
	SWING CHECK VALVE (CV)
	BALL CHECK VALVE (BCV)
	SOLENOID VALVE (SV)
	NEEDLE VALVE (NV)
	KNIFE VALVE (KNV)
	MUD VALVE (MV)
	PRESSURE REGULATING VALVE (PREGV)
	BACK PRESSURE REGULATING VALVE (BPV)
	DIFFERENTIAL PRESSURE REGULATING VALVE W/ EXTERIOR TAPS
	SELF-CONTAINED DIFFERENTIAL PRESSURE REGULATING VALVE
	SELF-CONTAINED DIFFERENTIAL PRESSURE REGULATING VALVE (SOLENOID OPERATED)
	PRESSURE RELIEF VALVE (PRV)
	VACUUM RELIEF VALVE (VRV)
	BLOCK AND BLEED VALVE

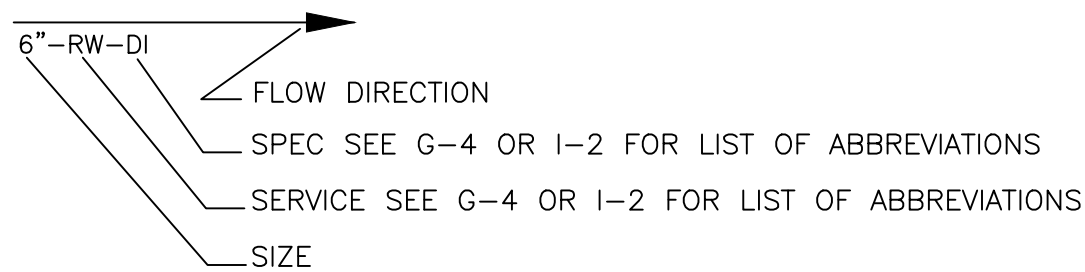
TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION



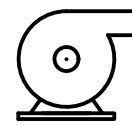
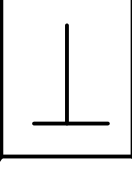
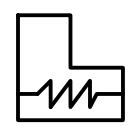
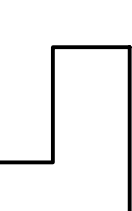
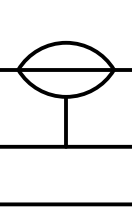
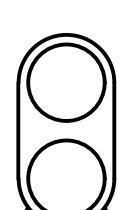
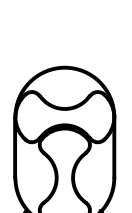
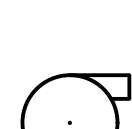
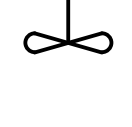
VALVE ACTUATORS

	HAND (MANUALLY) OPERATED
	DIAPHRAGM, SPRING OPPOSED
	DIAPHRAGM, PRESSURE-BALANCED
	ROTARY MOTOR. (SHOWN TYPICALLY WITH ELECTRIC SIGNAL MAY BE HYDRAULIC OR PNEUMATIC)
	SOLENOID
	ELECTROHYDRAULIC
	HYDRAULICALLY ACTUATED
	CYLINDER, SINGLE-ACTING, SPRING OPPOSED WITHOUT POSITIONER OR PILOT.
	CYLINDER, DOUBLE ACTING, WITHOUT POSITIONER OR PILOT
	EXAMPLE OF CYLINDER WITH POSITIONER
	ANY CYLINDER THAT IS ASSEMBLED WITH A PILOT SO THAT ASSEMBLY IS ACTUATED BY ONE CONTROLLED INPUT. PILOT MAY BE POSITIONER, SOLENOID VALVE, SIGNAL CONVERTER, etc.
	FLOAT ACTUATOR

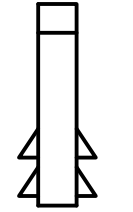
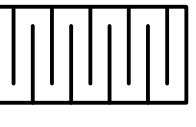
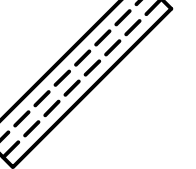
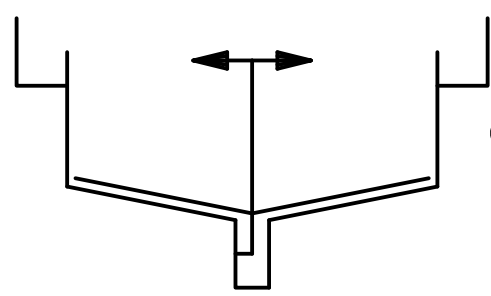
TYPICAL PIPE TAG NUMBERS & DESIGNATION



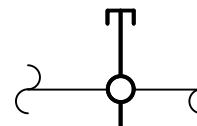
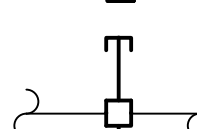
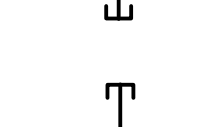
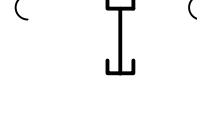
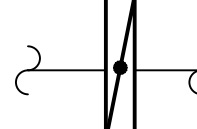
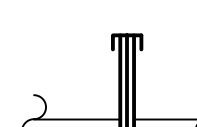
PROCESS EQUIPMENT

	CENTRIFUGAL PUMP
	PLUNGER / POSITIVE DISPLACEMENT PUMP
	PROGRESSING CAVITY PUMP
	DIAPHRAGM METERING PUMP
	AIR OPERATED DIAPHRAGM PUMP
	ROTARY PUMP
	ROTARY BLOWER
	CENTRIFUGAL BLOWER
	BELT CONVEYOR
	SCREW CONVEYOR
	GRINDER
	MIXER
	SUBMERSIBLE PUMP

GENERAL NOTES

1. REFER TO SHEET I-2 FOR ADDITIONAL NOTES	
	VERTICAL TURBINE PUMP
	STATIC MIXER
	MEHCANICAL SCREEN
	CALIBRATION COLUMN
	CLARIFIER

GATE SYMBOLS

	SLUICE GATE (SLG)
	SLIDE GATE (SG)
	WEIR SLIDE GATE (WSG)
	BUTTERFLY GATE
	BULK HEAD GATE
	WICKET GATE

REV	ISSUED FOR	DATE	BY	PROJECT ENGINEER: S. GHU
				DESIGNED BY: P. GIORSETTO
				DRAWN BY: B. VUE
				CHECKED BY: M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
				0 1/2" 1"

FOR CONSTRUCTION



7/31/2023

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

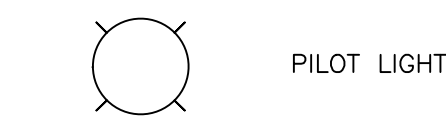
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
PROCESS AND INSTRUMENTATION DIAGRAM
SYMBOLS AND LEGEND
SHEET 1 OF 2

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	

	LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	LOCATION NORMALLY NOT ACCESSIBLE TO OPERATOR
PRIMARY LOCATION OR CONTROL PANEL			
SECONDARY LOCATION OR CONTROL PANEL			

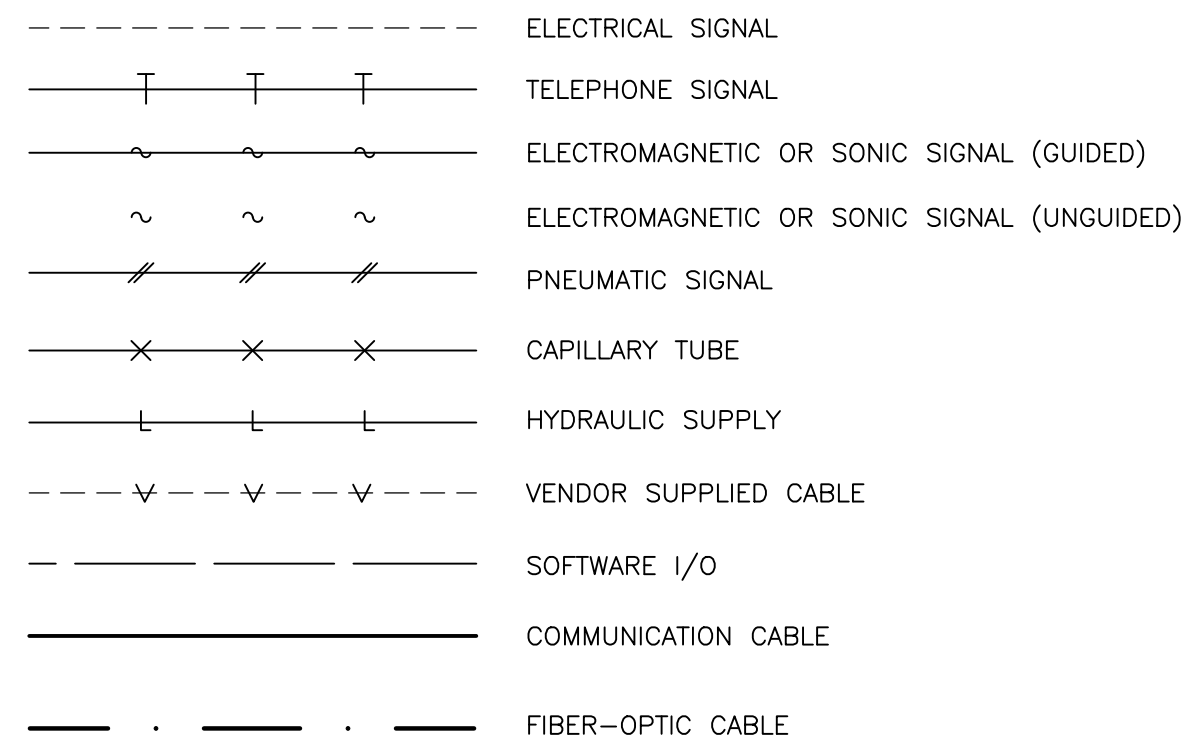


	MOTOR (CONSTANT SPEED)
	MOTOR (VARIABLE SPEED)
	INDICATES INTERLOCK OR LOGIC IN A MOTOR CONTROL CENTER
	INDICATES GENERAL OR MISCELLANEOUS HARDWIRED INTERLOCK
	MOTOR STARTER
	SILICONE CONTROL RECTIFIER
	VARIABLE FREQUENCY DRIVE
	PURGE OR FLUSHING DEVICE

AO	=	AUTO/OFF	LES	=	LOCAL EMERGENCY STOP
AM	=	AUTO/MANUAL	LA	=	LOCAL/AUTO
CM	=	COMPUTER/MANUAL	LR	=	LOCAL/REMOTE
CL	=	COMPUTER/LOCAL	MAO	=	MANUAL/OFF/AUTO
OC	=	OPEN/CLOSE	OC	=	OPEN/CLOSE
EM	=	EMERGENCY STOP	CA	=	OPEN/CLOSE/AUTO
FR	=	FORWARD/REVERSE	OCR	=	OPEN/CLOSED/REMOTE
FOR	=	FORWARD/OFF/REVERSE	OO	=	ON/OFF
FOS	=	FAST/SLOW	OOA	=	ON/OFF/AUTO
FOS	=	FAST/OFF/SLOW	OOR	=	ON/OFF/REMOTE
HO	=	HAND/OFF/AUTO	OSC	=	OPEN/STOP/CLOSE
HL	=	HOLD LAG/STANDBY	RSL	=	RAISE/STOP/LOWER
LOC	=	LOCAL/OFF/COMPUTER	SR	=	START/STOP
LOR	=	LOCAL/OFF/REMOTE	SOR	=	START/OFF/RESET

	FIRST LETTER		SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER		
A	ANALYSIS	DIFFERENTIAL	ALARM	USER'S CHOICE CONTROL	USER'S CHOICE		
B	BURNER, COMBUSTION		RATIO			USER'S CHOICE	
C	USER'S CHOICE					SENSOR (PRIMARY ELEMENT)	
D	USER'S CHOICE						GLASS OR VIEWING DEVICE
E	VOLTAGE						
F	FLOW RATE	HIGH (OPENED)					
G	USER'S CHOICE		SCAN				
H	HAND (MANUAL)			TIME RATE OF CHANGE			
I	CURRENT				PILOT LIGHT		
J	POWER					CONTROL STATION	
K	TIME	USER'S CHOICE					
L	LEVEL		USER'S CHOICE				
M	MOISTURE			MOMENTARY			
N	USER'S CHOICE				USER'S CHOICE		
O	USER'S CHOICE					ORIFICE	
P	PRESSURE OR VACUUM	POINT (TEST CONNECTION)					
Q	QUANTITY		RECORD				
R	RADIATION			SWITCH			
S	SPEED, FREQUENCY OR SOLENOID				MULTIFUNCTION (1)		
T	TEMPERATURE					TRANSMIT	
U	MULTIVARIABLE (1)	VALVE, DAMPER OR LOUVER					
V	VIBRATION, MECH ANAL.		WELL				
W	WEIGHT OR FORCE			MULTIFUNCTION (1)			
X	STATUS OR UNCLASSIFIED				X—AXIS		
Y	EVENT, STATE OR PRESENCE					Y—AXIS	
Z	POSITION	Z—AXIS					
			RELAY, COMPUTE OR CONVERT				
				DRIVE, ACTUATE OR UNCLASSIFIED FINAL ELEMENT			

INSTRUMENT LINE SYMBOLS



MEASURED VARIABLE OR OUTPUT FUNCTION FROM "INSTRUMENTATION FUNCTIONAL CODE" TABLE.

ANALOG INPUT (AI)

ANALOG OUTPUT (AO)

DIGITAL INPUT (DI)

DIGITAL OUTPUT (DO)

BLANK = CLOSE ON ACTIVATION
O = OPEN ON ALARM

BLANK = MAINTAINED (ELECTRICALLY HELD)
M = MOMENTARY
L = LATCHED

	MAGNETIC FLOW METER		FLOAT SWITCH
	TURBINE OR PROPELLER FLOW METER		ULTRASONIC LEVEL SENSOR
	AVERAGING PITOT TUBE		RADAR LEVEL SENSOR
	ULTRASONIC FLOW METER		CAPACITANCE LEVEL SENSOR
	ROTAMETER		PRESSURE GAUGE
	WEIR		DIFFERENTIAL PRESSURE GAUGE
	ORIFICE PLATE		TEMPERATURE GAUGE
	VENTURI TUBE		GENERAL ANALYZER
	FLUME	pH=pH DO=DISSOLVED OXYGEN H2S=HYDROGEN SULFIDE LEL=% LOWER EXPLOSIVE O2=OXYGEN O3=OZONE NH3=NITRATE TSS=TOTAL SUSPENDED SOLIDS SC=STREAMING CURRENT CL=CHLORINE TURB=TURBIDIMETER	
	GENERAL INSERTION FLOW METER		

1. THIS LEGEND APPLIES TO P&IDs ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
2. IN GENERAL THIS LEGEND SHEET AND THE P&IDS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION (ISA) STANDARDS FOR PRACTICES FOR INSTRUMENTATION. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE PROJECT REQUIREMENTS.
3. SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE P&IDS.
4. SEE ELECTRICAL AND MECHANICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS
5. LIGHTER WEIGHT LINES, SHOWN AS _____, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE EXISTING. WEIGHTED LINES, SHOWN AS _____, OR HEAVIER _____, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE NEW.

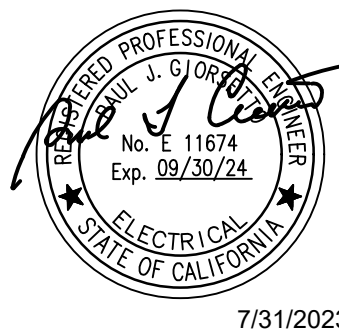
ACH	ALUMINUM CHLOROHYDRATE
AI	ANALOG IN
AO	ANALOG OUT
CA	CITRIC ACID
CAS	CAUSTIC
CIP	CLEAN-IN-PLACE
CPU	CENTRAL PROCESSOR UNIT
DI	DIGITAL OR DISCRETE INPUT
DO	DIGITAL OUTPUT
DR	DRAIN
FC	FAIL CLOSED
FO	FAIL OPEN OR FIBER OPTIC
HDV	HYDRAULICALLY ACTUATED VALVE
HMI	HUMAN MACHINE INTERFACE
MA	MOTOR ACTUATOR
MCC	MOTOR CONTROL CENTER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PER	PERMEATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
RW	RAW WATER
SBI	SODIUM BISULFITE
SHC	SODIUM HYPOCHLORITE
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
RIO	REMOTE INPUT/OUTPUT RACK
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE

UPS	→	UPS POWER VIA PCSS PROVIDED UPS DIRECT CONNECTION
<u>UPS</u>	→	UPS POWER VIA PCSS PROVIDED UPS LIGHTING PANEL
120VAC	→	PCSS SUPPLIED PANEL ELECTRICAL SOURCE
<u>ES</u>	→	VENDOR SUPPLIED PANEL ELECTRICAL SOURCE
<u>ES</u>	→	NON-PCSS SUPPLIED PANEL ELECTRICAL SOURCE
IA	→	INSTRUMENT AIR SOURCE

NOTE 1: ALL POWER SOURCES ARE 120 VAC UNLESS OTHERWISE STATED ON THE DRAWINGS
NOTE 2: REFER TO UPS SPECIFICATIONS FOR POWER REQUIREMENTS OF PANEL
NOTE 3: REFER TO OTHER SPECIFICATION SECTIONS FOR POWER REQUIREMENTS OF INSTRUMENTS

				PROJECT ENGINEER:	S. GHIU
				DESIGNED BY:	P. GIORSETTO
				DRAWN BY:	B. VUE
				CHECKED BY:	M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1" 
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

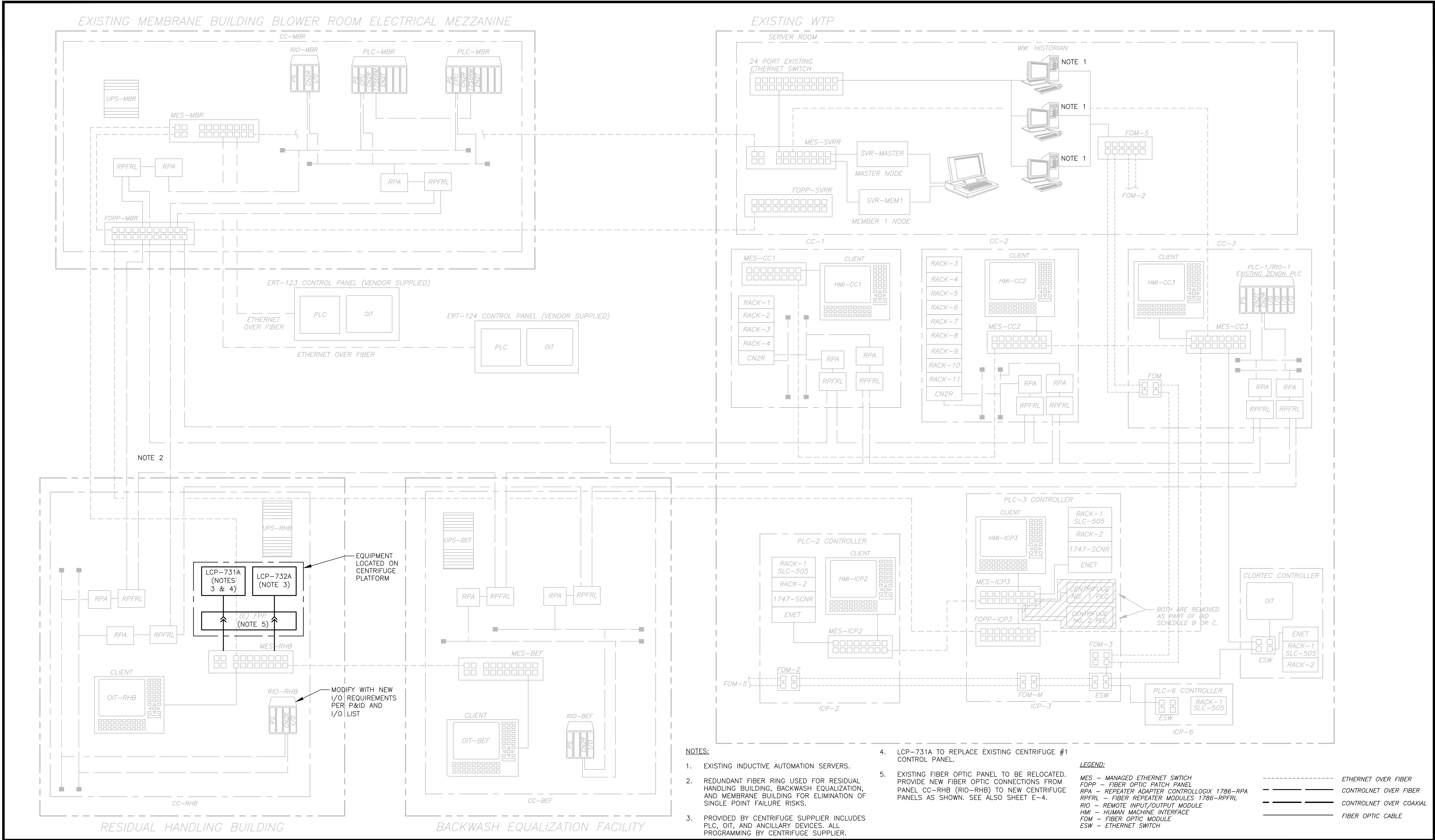
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
PROCESS AND INSTRUMENTATION DIAGRAM
SYMBOLS AND LEGEND
SHEET 2 OF 2

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	

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PLOT DATE: 9/20/2023 9:52 AM BY: BEEVUE



PROJECT ENGINEER:	S. GHU
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	B. VUE
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR
DATE	BY

FOR CONSTRUCTION

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

7/31/2023

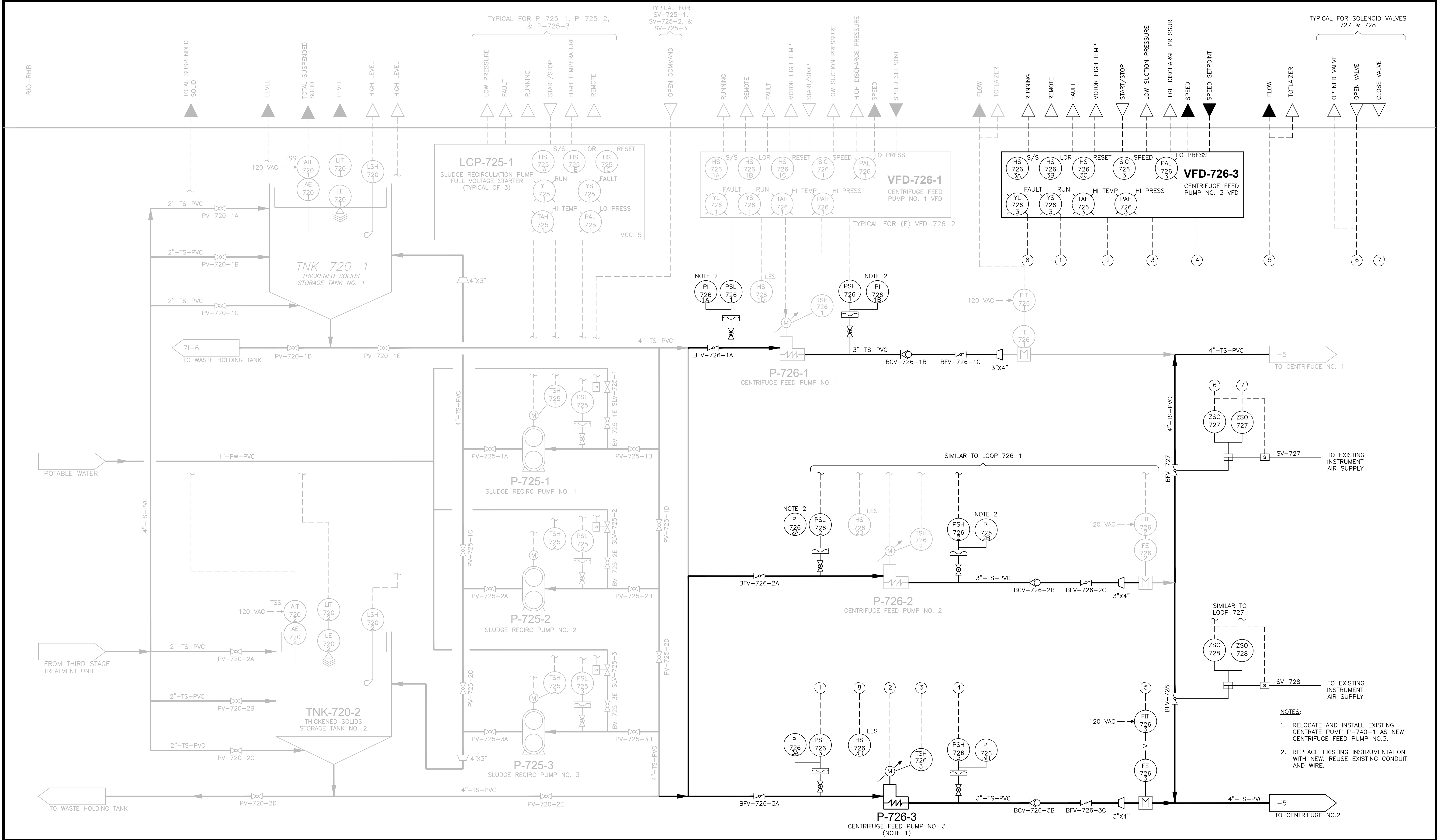
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
CONTROL SYSTEM ARCHITECTURE

DATE: JULY 2023
HAZEN NO.: 20102-002
CONTRACT NO.: 1
DRAWING NUMBER: I-3

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PLOT DATE: 9/20/2023 10:09 AM BY: BEEVUE



- NOTES:
1. RELOCATE AND INSTALL EXISTING CENTRATE PUMP P-740-1 AS NEW CENTRIFUGE FEED PUMP NO.3.
 2. REPLACE EXISTING INSTRUMENTATION WITH NEW. REUSE EXISTING CONDUIT AND WIRE.

				PROJECT ENGINEER:	S. GHUI
				DESIGNED BY:	P. GIORSETTO
				DRAWN BY:	B. VUE
				CHECKED BY:	M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION

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SAN DIEGO, CALIFORNIA 92130

7/31/2023

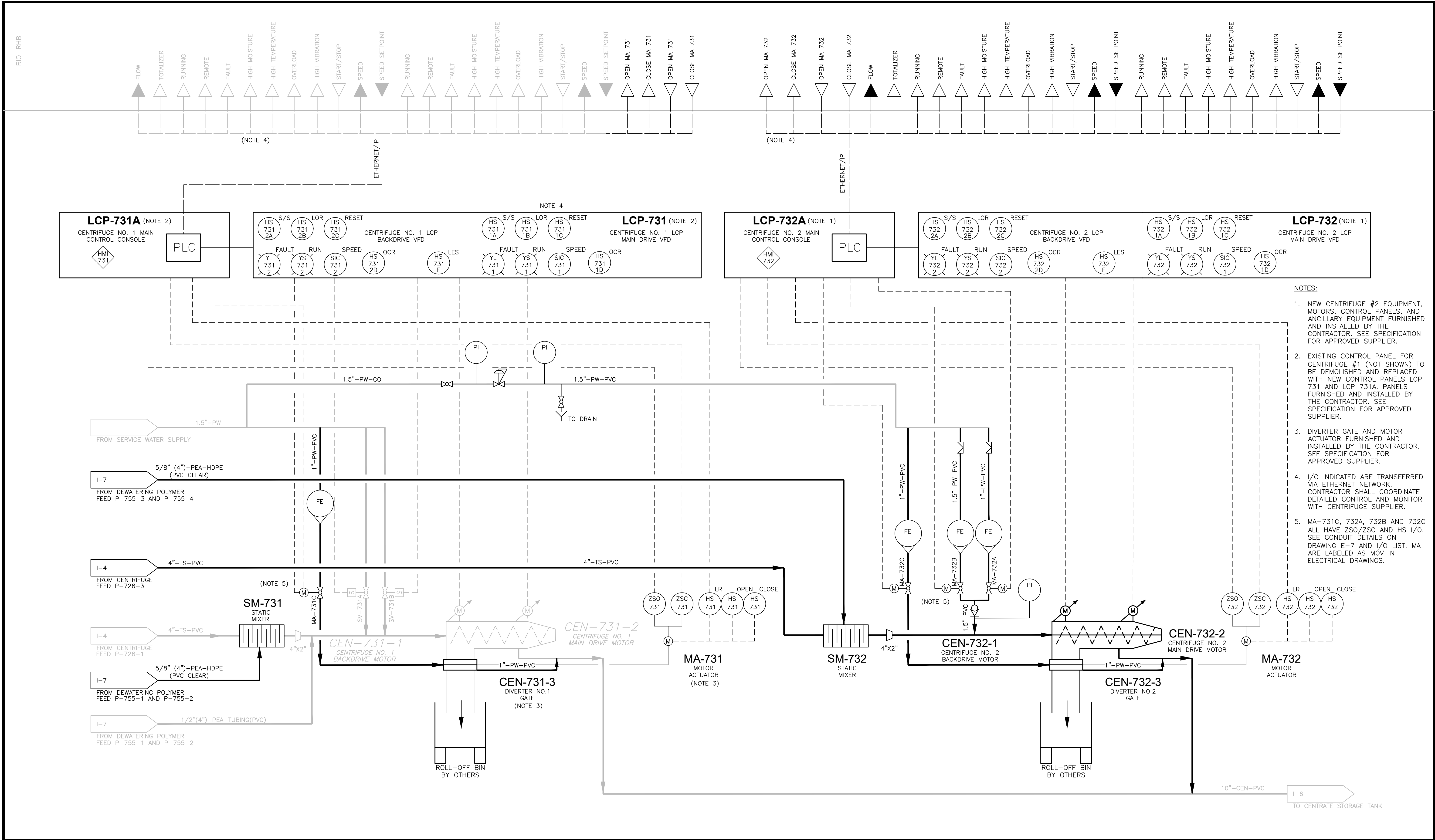
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
PROCESS AND INSTRUMENTATION DIAGRAM
CENTRIFUGE FEED PUMPS

DATE: JULY 2023
HAZEN NO.: 20102-002
CONTRACT NO.: 1
DRAWING NUMBER:
I-4

File: C:\BMSHAZEN\DWG\219879106 Saved by BEEVUE Save date: 7/31/2023 4:52 PM
PLOT DATE: 9/20/2023 9:53 AM BY: BEEVUE



- NOTES:**
1. NEW CENTRIFUGE #2 EQUIPMENT, MOTORS, CONTROL PANELS, AND ANCILLARY EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SPECIFICATION FOR APPROVED SUPPLIER.
 2. EXISTING CONTROL PANEL FOR CENTRIFUGE #1 (NOT SHOWN) TO BE DEMOLISHED AND REPLACED WITH NEW CONTROL PANELS LCP 731 AND LCP 731A. PANELS FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SPECIFICATION FOR APPROVED SUPPLIER.
 3. DIVERTER GATE AND MOTOR ACTUATOR FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SPECIFICATION FOR APPROVED SUPPLIER.
 4. I/O INDICATED ARE TRANSFERRED VIA ETHERNET NETWORK. CONTRACTOR SHALL COORDINATE DETAILED CONTROL AND MONITOR WITH CENTRIFUGE SUPPLIER.
 5. MA-731C, 732A, 732B AND 732C ALL HAVE ZSO/ZSC AND HS I/O. SEE CONDUIT DETAILS ON DRAWING E-7 AND I/O LIST. MA ARE LABELED AS MOV IN ELECTRICAL DRAWINGS.

PROJECT ENGINEER:	S. GHUI
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	B. VUE
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR
DATE	BY

FOR CONSTRUCTION

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11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

7/31/2023

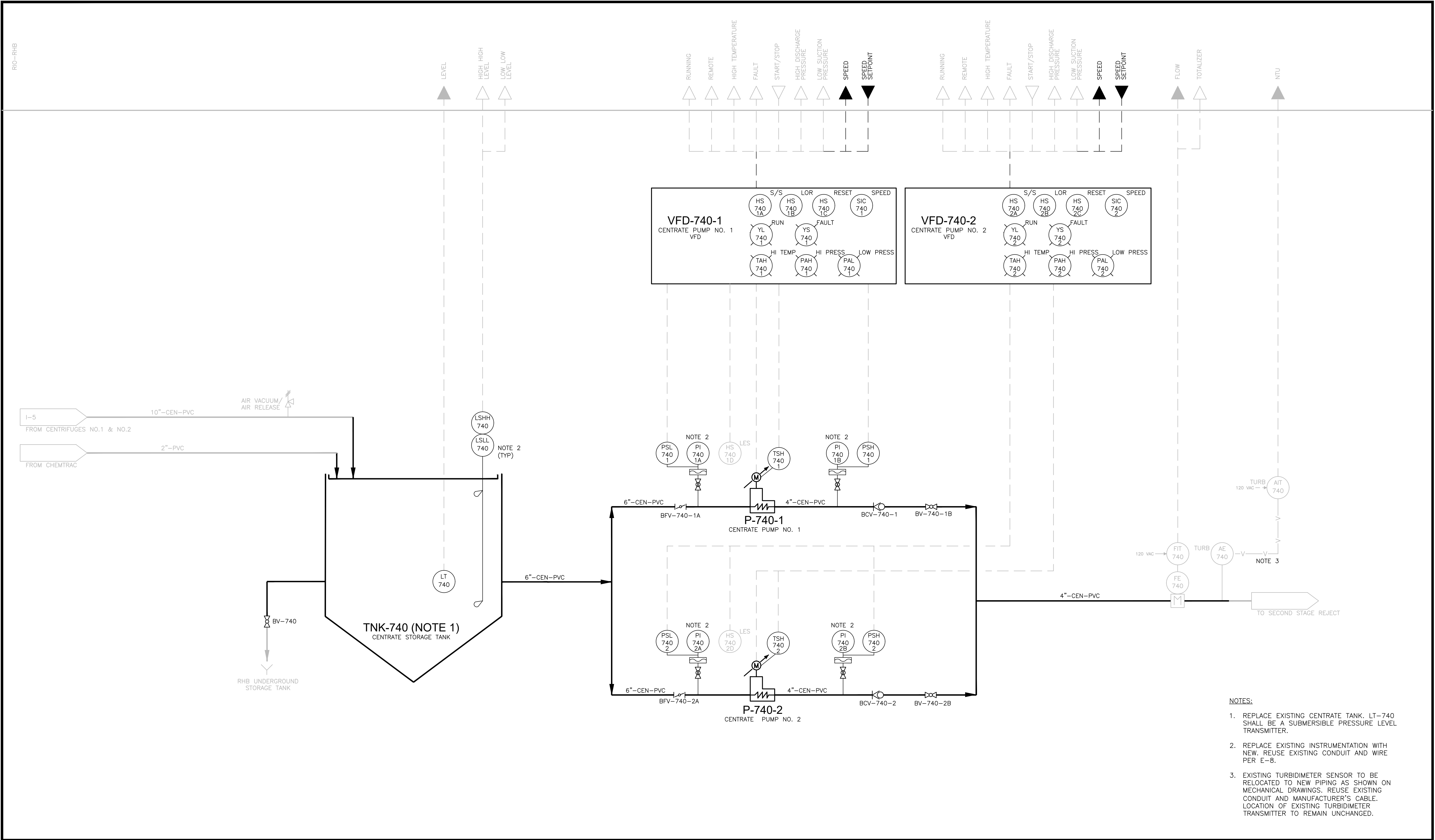
OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
PROCESS AND INSTRUMENTATION DIAGRAM
CENTRIFUGES NO.1 AND NO. 2

DATE: JULY 2023
HAZEN NO.: 20102-002
CONTRACT NO.: 1
DRAWING NUMBER: I-5

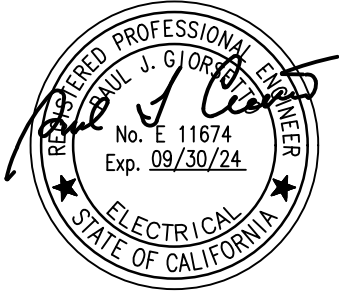
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PLOT DATE: 9/21/2023 4:59 PM BY: BEEVUE



- NOTES:
1. REPLACE EXISTING CENTRATE TANK. LT-740 SHALL BE A SUBMERSIBLE PRESSURE LEVEL TRANSMITTER.
 2. REPLACE EXISTING INSTRUMENTATION WITH NEW. REUSE EXISTING CONDUIT AND WIRE PER E-8.
 3. EXISTING TURBIDIMETER SENSOR TO BE RELOCATED TO NEW PIPING AS SHOWN ON MECHANICAL DRAWINGS. REUSE EXISTING CONDUIT AND MANUFACTURER'S CABLE. LOCATION OF EXISTING TURBIDIMETER TRANSMITTER TO REMAIN UNCHANGED.

				PROJECT ENGINEER:	S. GHIU
				DESIGNED BY:	P. GIORSETTO
				DRAWN BY:	B. VUE
				CHECKED BY:	M. ERWIN
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

FOR CONSTRUCTION



7/31/2023

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11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
PROCESS AND INSTRUMENTATION DIAGRAM
CENTRATE TANK AND PUMPS

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	



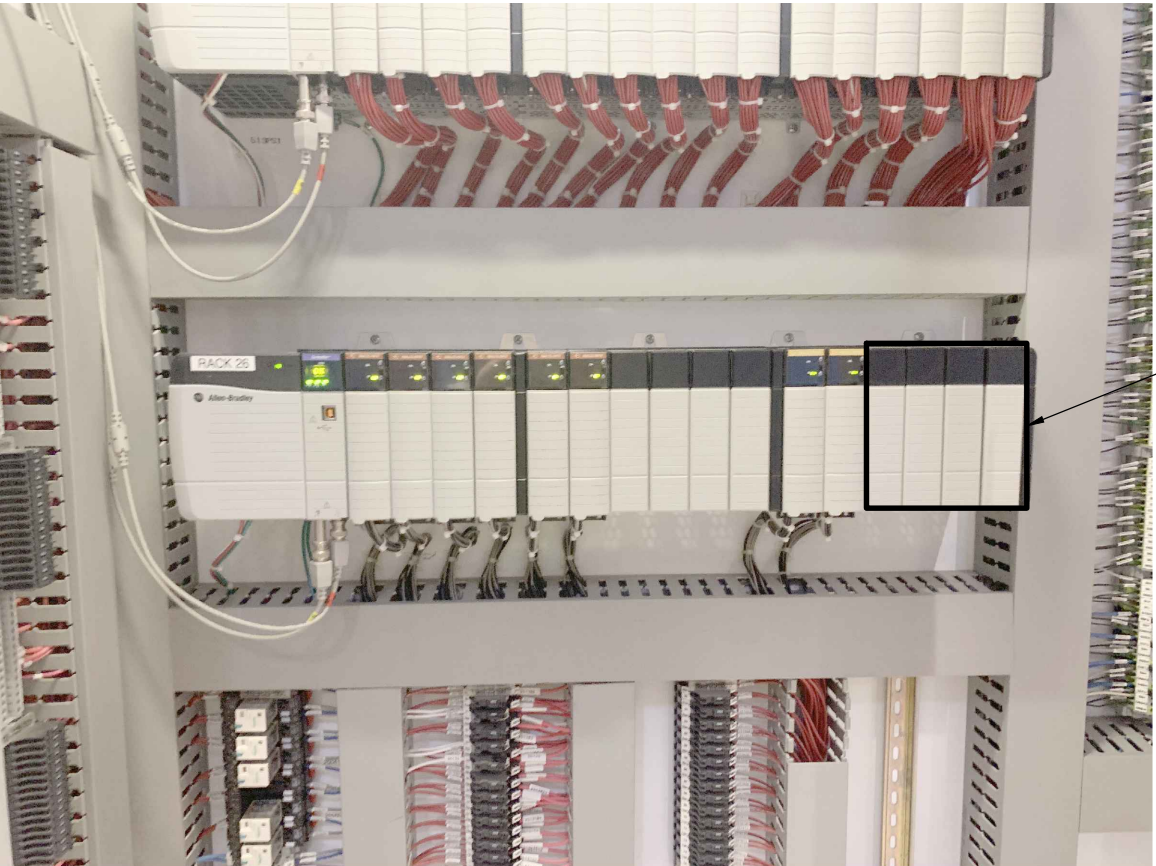
EXISTING PANEL CC-RHB
BACKPANEL

PHOTO 1
SCALE: NTS



EXISTING PANEL CC-RHB
PLC RACK 25 (REMOTE I/O)

PHOTO 2
SCALE: NTS



PROVIDE NEW I/O PER I/O LIST IN
EXISTING RACK 26 SPARE SLOTS

EXISTING PANEL CC-RHB
PLC RACK 26 (REMOTE I/O)

PHOTO 3
SCALE: NTS



EXISTING PANEL CC-RHB
LEFT SIDE PANEL
NETWORK SWITCH

PHOTO 4
SCALE: NTS



EXISTING PANEL CC-RHB
LEFT SIDE PANEL
NETWORK INTERFACE MODULES

PHOTO 5
SCALE: NTS



PROVIDE NEW I/O PER I/O LIST IN
EXISTING RACK 26 SPARE SLOTS

EXISTING PANEL CC-RHB
PLC RACK 26 (REMOTE I/O)
SPARE SLOTS

PHOTO 6
SCALE: NTS

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PROJECT ENGINEER:	S. GHU
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	B. VUE
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

FOR CONSTRUCTION

Hazen

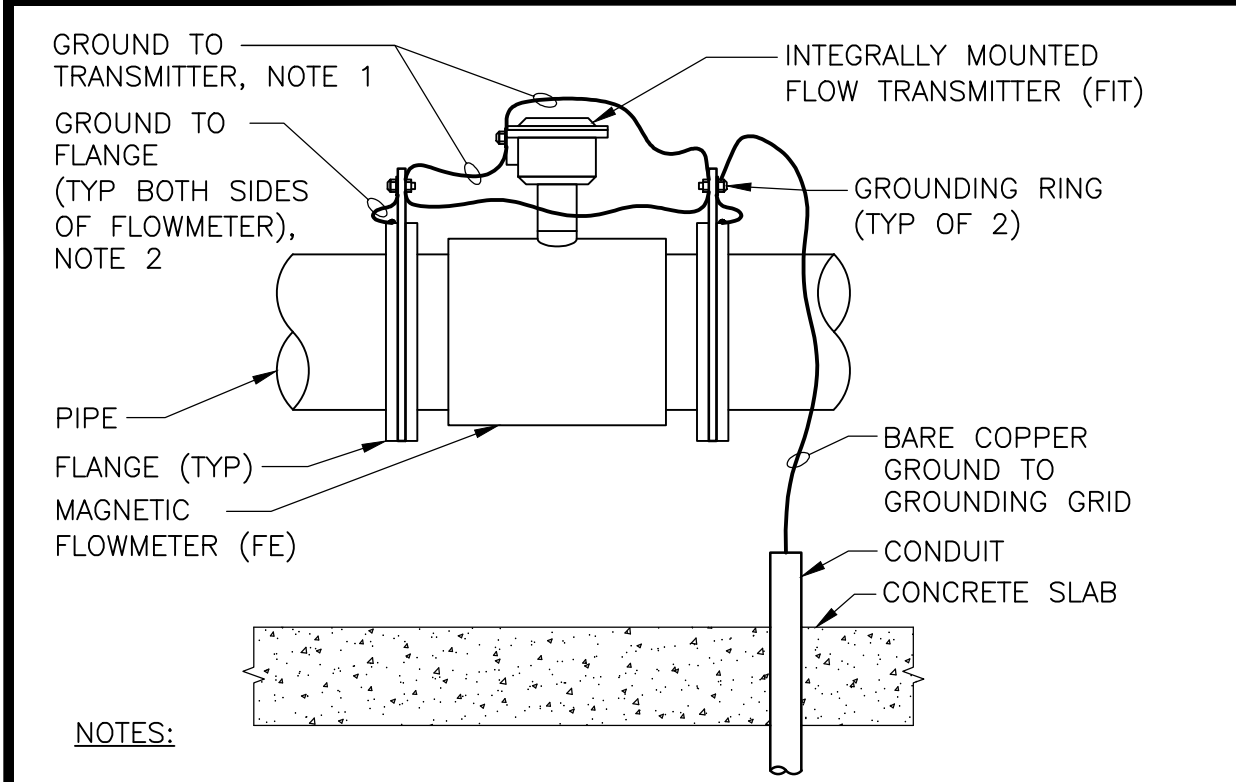
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SAN DIEGO, CALIFORNIA 92130

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ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

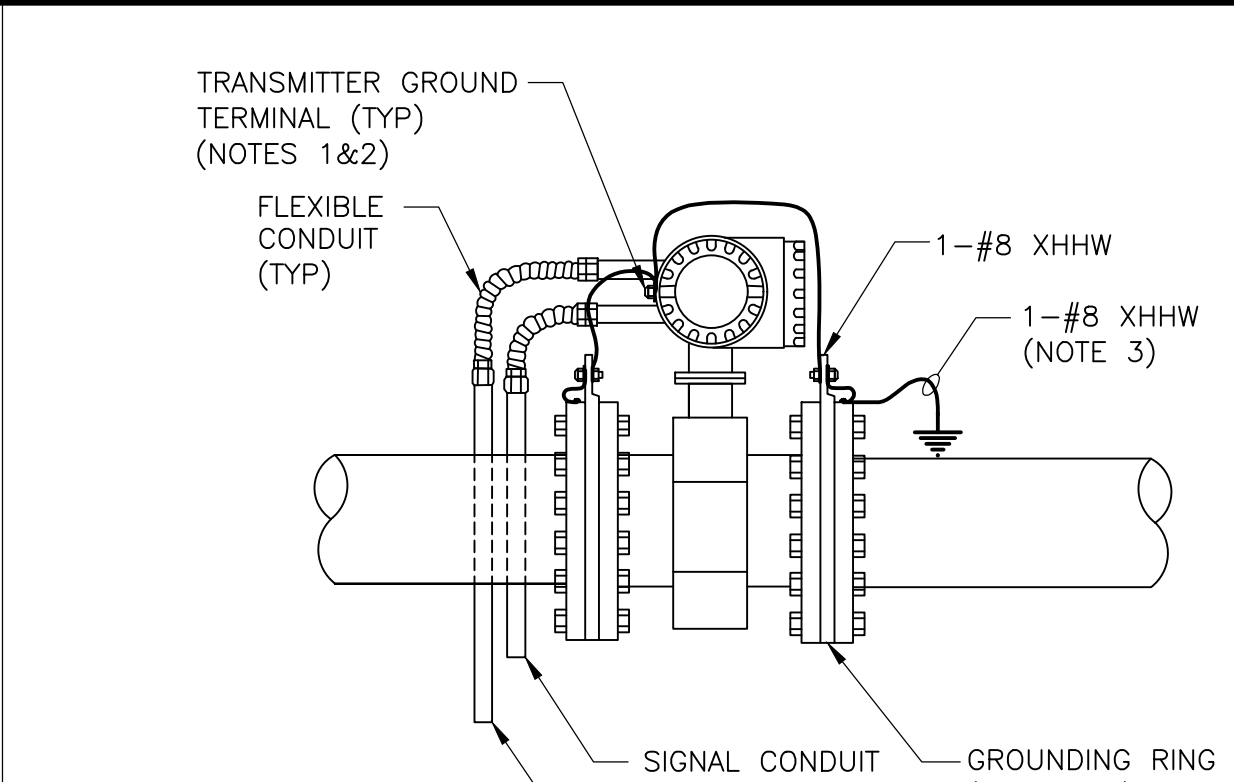
PLC PANEL LAYOUT

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	I-8



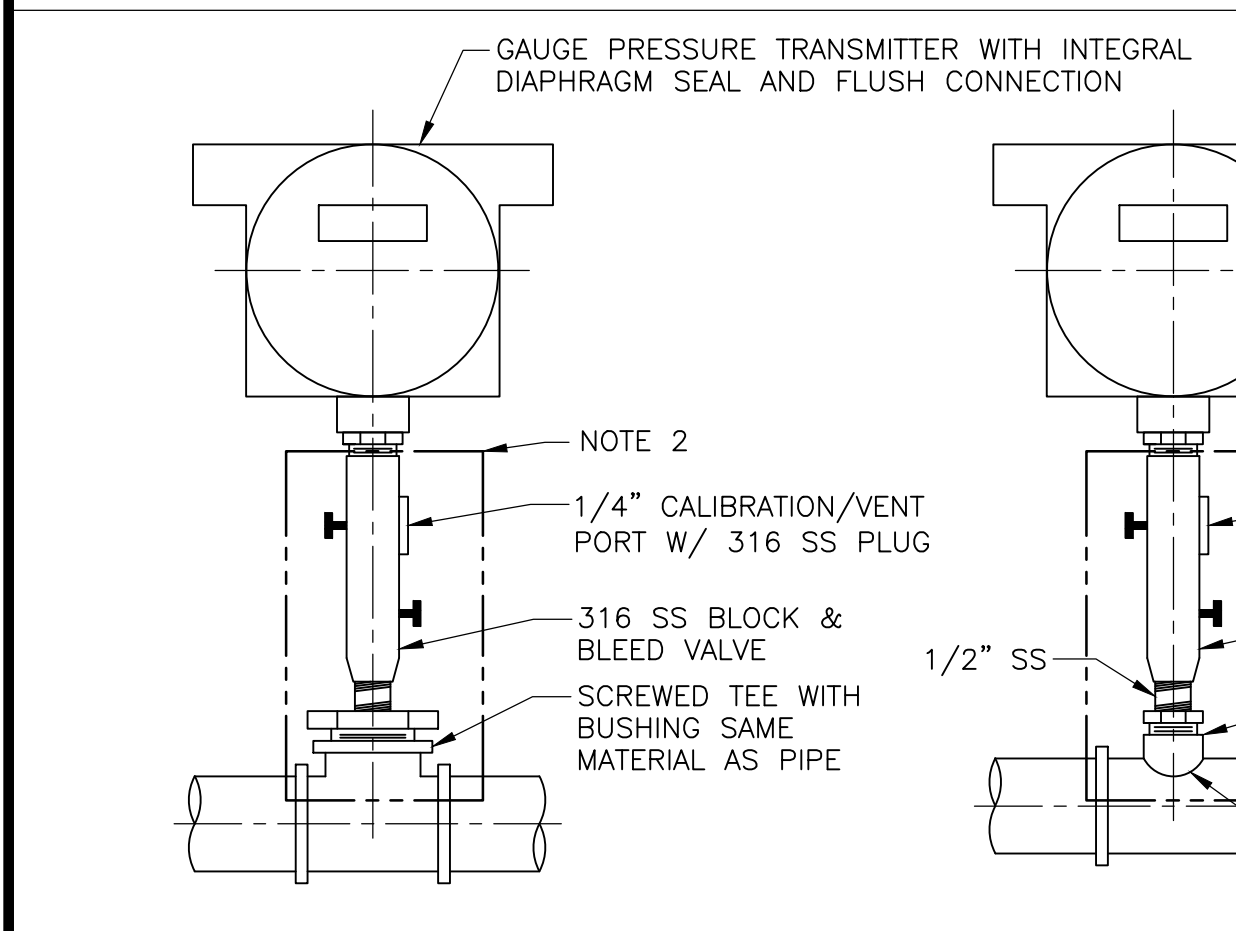
- NOTES:
1. IN CASES WHERE THE TRANSMITTER IS NOT INTEGRAL TO THE SENSOR, OMIT GROUNDING WIRES TO TRANSMITTER AND PROVIDE BONDING JUMPER BETWEEN GROUND RINGS.
 2. WHERE NON-CONDUCTIVE PIPE IS USED, OMIT GROUND TO FLANGE.

MAGNETIC FLOWMETER GROUNDING
DETAIL 16212
NTS VAR



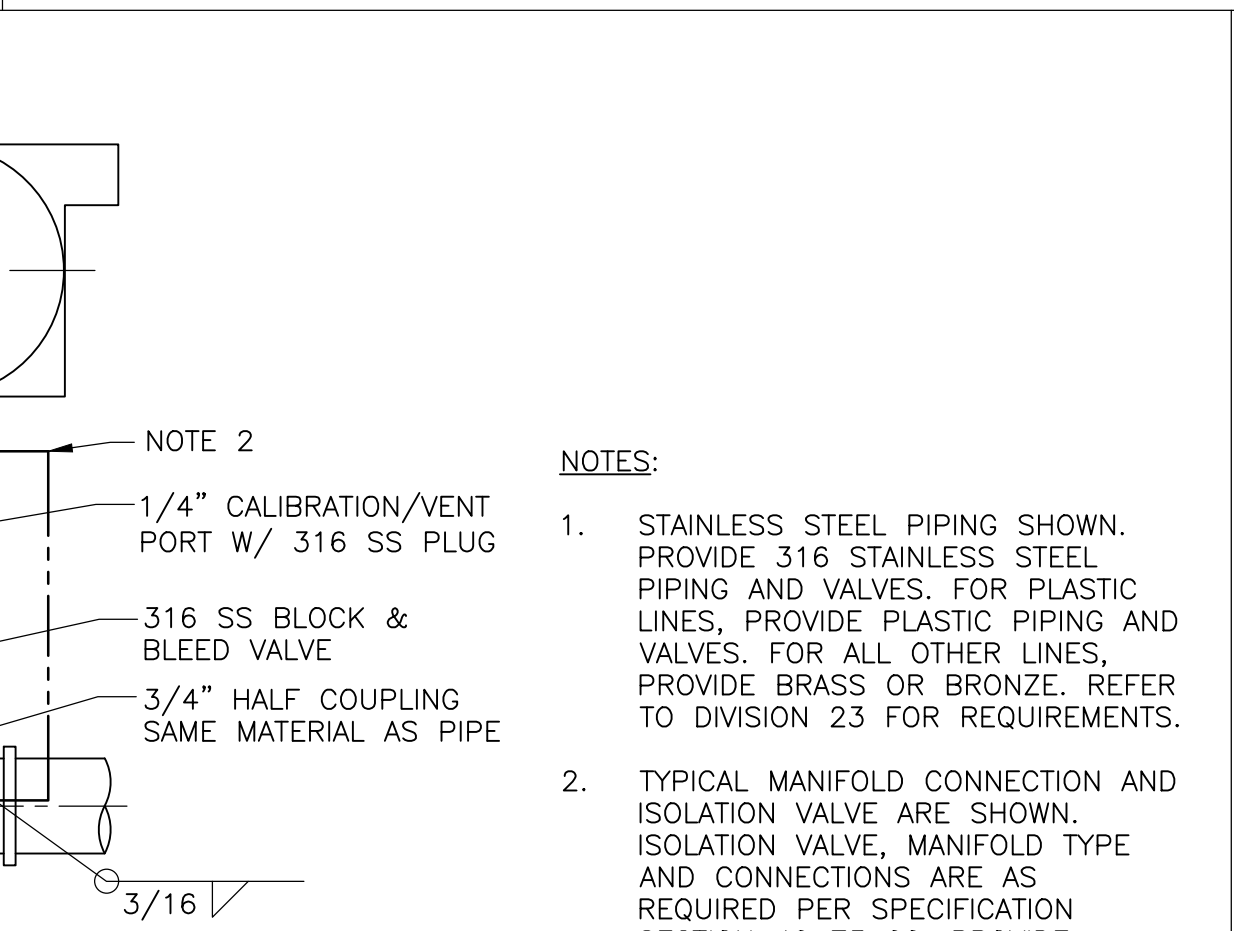
- NOTES:
1. VERIFY ZERO GROUND POTENTIAL BETWEEN FLOW TUBE AND TRANSMITTER GROUND TERMINAL.
 2. CONNECT TRANSMITTER GROUNDING TERMINAL TO GROUND RINGS.
 3. CONNECT METER BODY TO EARTH GROUND POTENTIAL.
 4. INSTALL GROUNDING RINGS TO EQUALIZE POTENTIAL BETWEEN FLUID AND MAGMETER.

INTEGRAL MAGNETIC FLOW METER GROUNDING
DETAIL 13001
NTS VAR



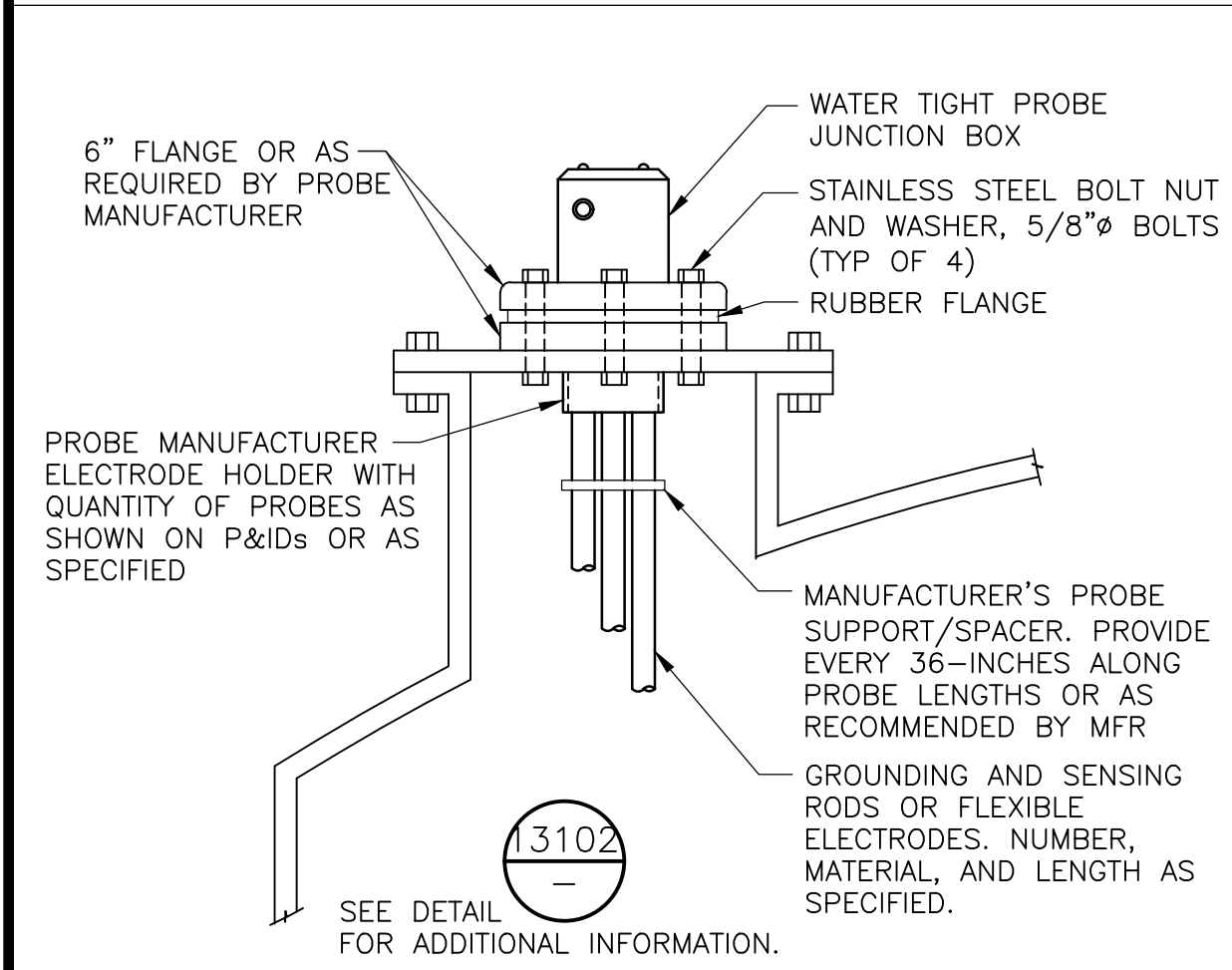
3 1/2" DIAMETER PIPE AND SMALLER
DIRECT PIPE MOUNT GAUGE PRESSURE TRANSMITTER

DETAIL 13204
NTS VAR

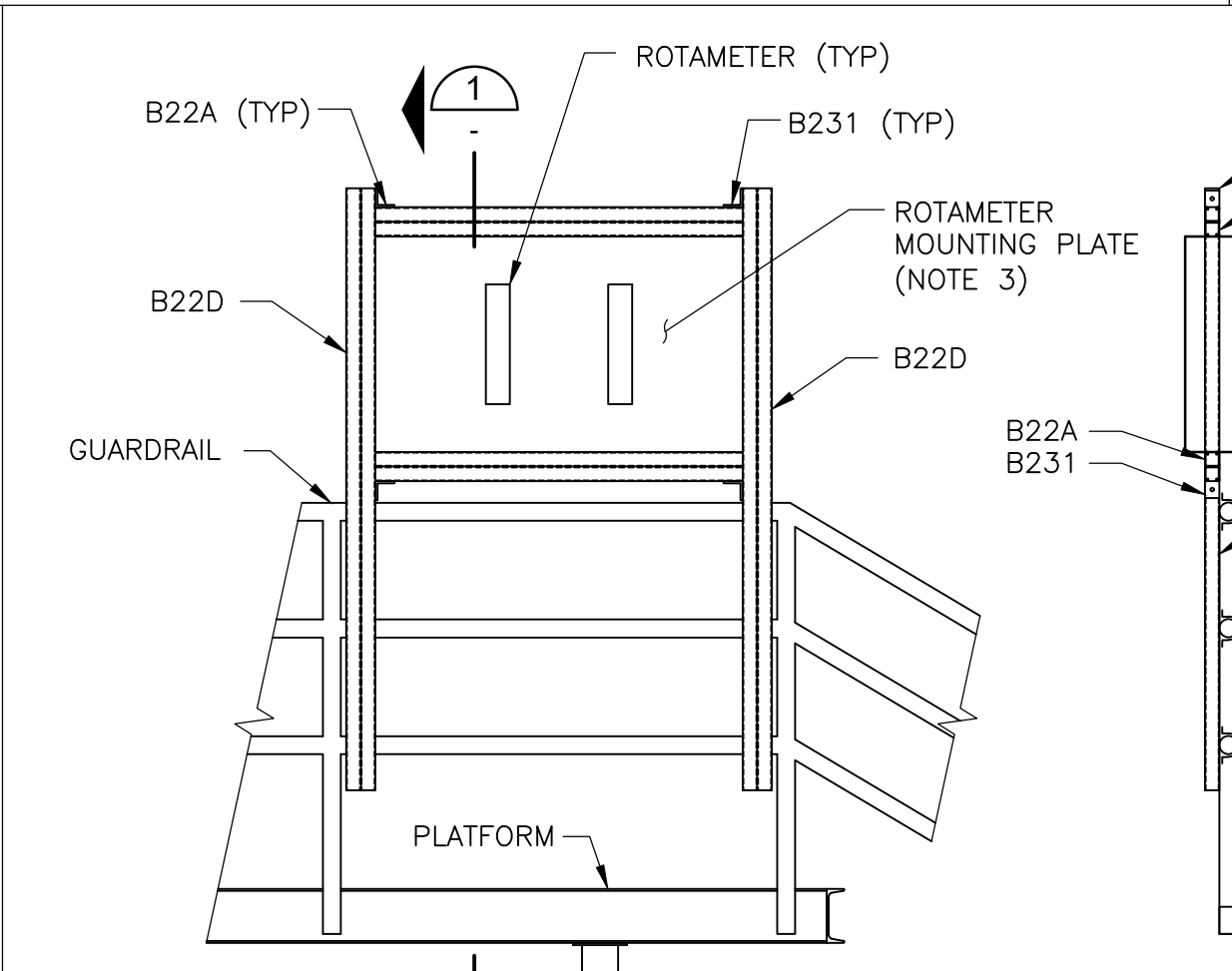


4" DIAMETER PIPE AND LARGER
DIRECT PIPE MOUNT GAUGE PRESSURE TRANSMITTER

DETAIL 13204
NTS VAR



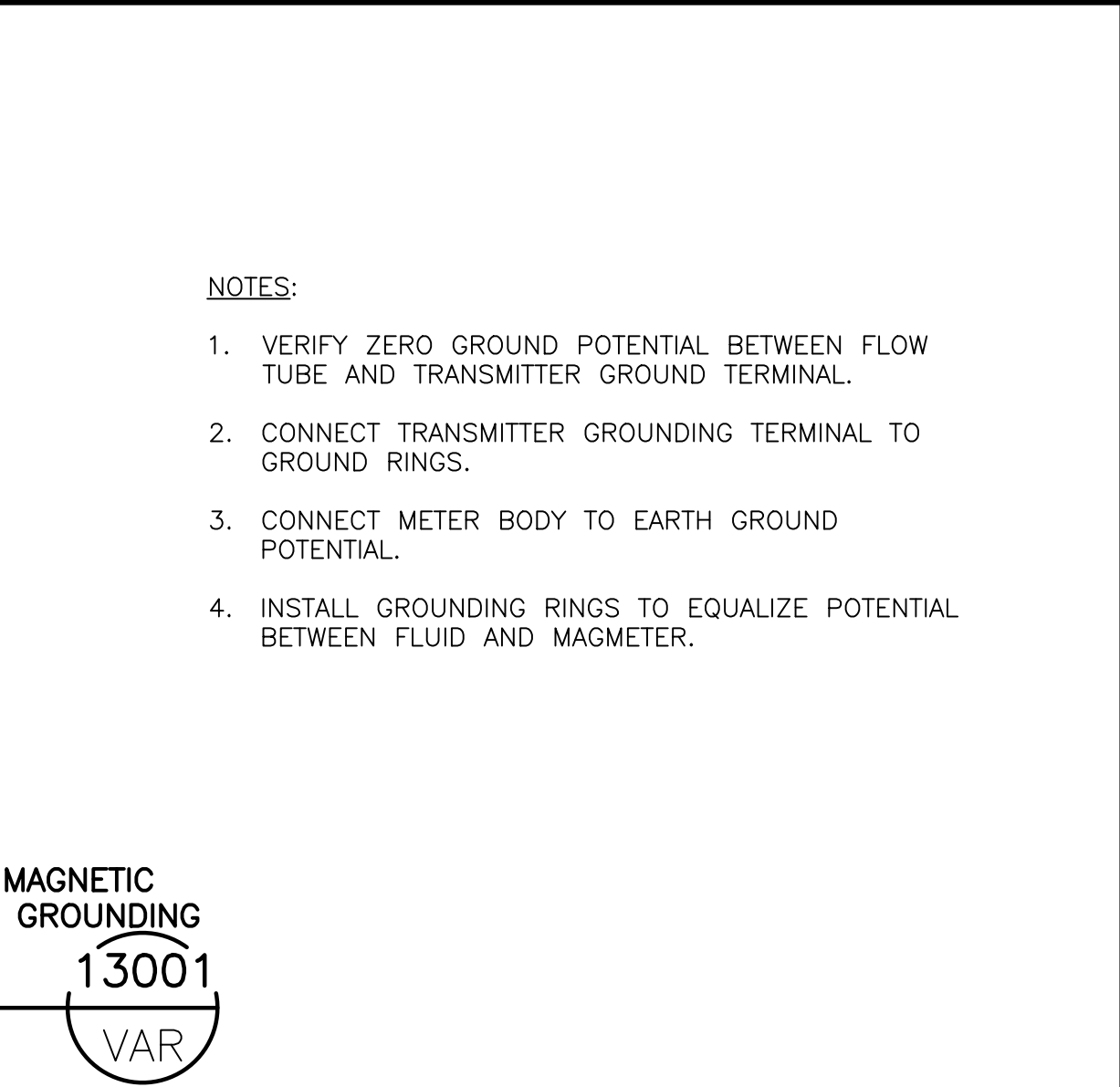
LEVEL PROBE INSTALLATION
DETAIL 13104A
NTS VAR



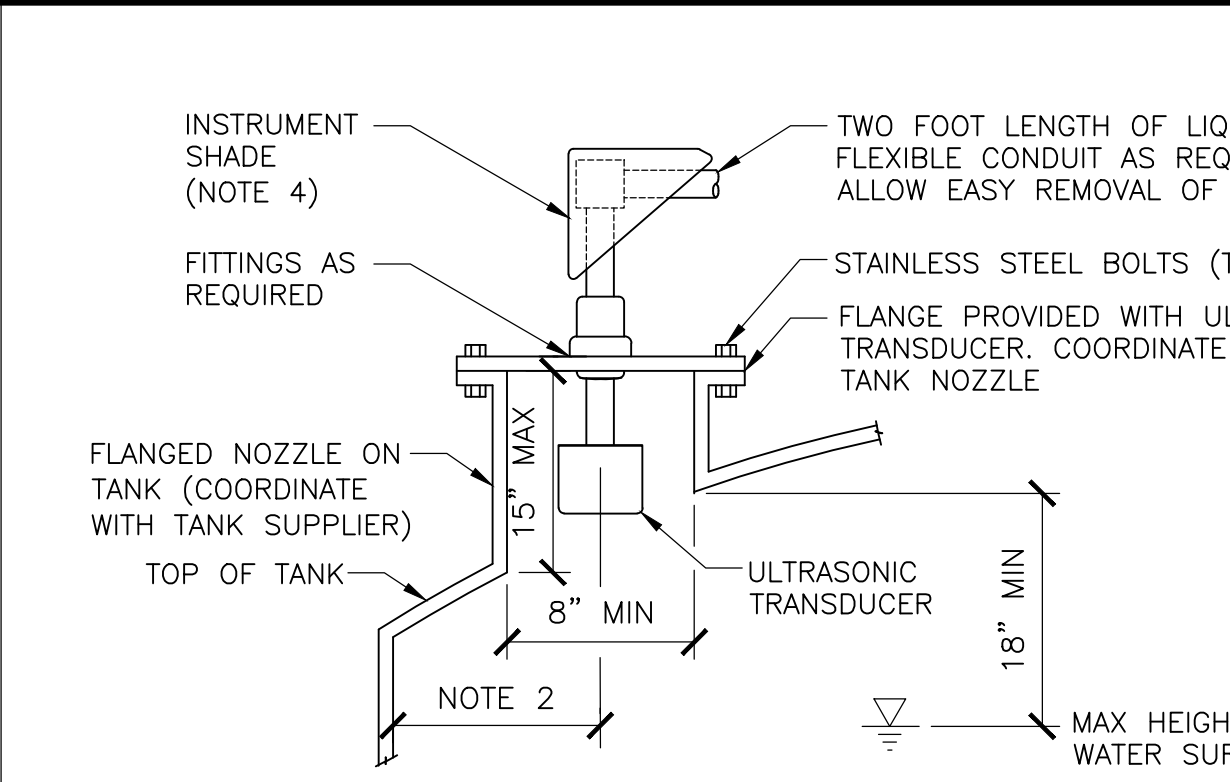
ROTAMETER MOUNTING SUPPORT ON GUARDRAIL
SECTION 1
NTS

REV	ISSUED FOR	DATE	BY

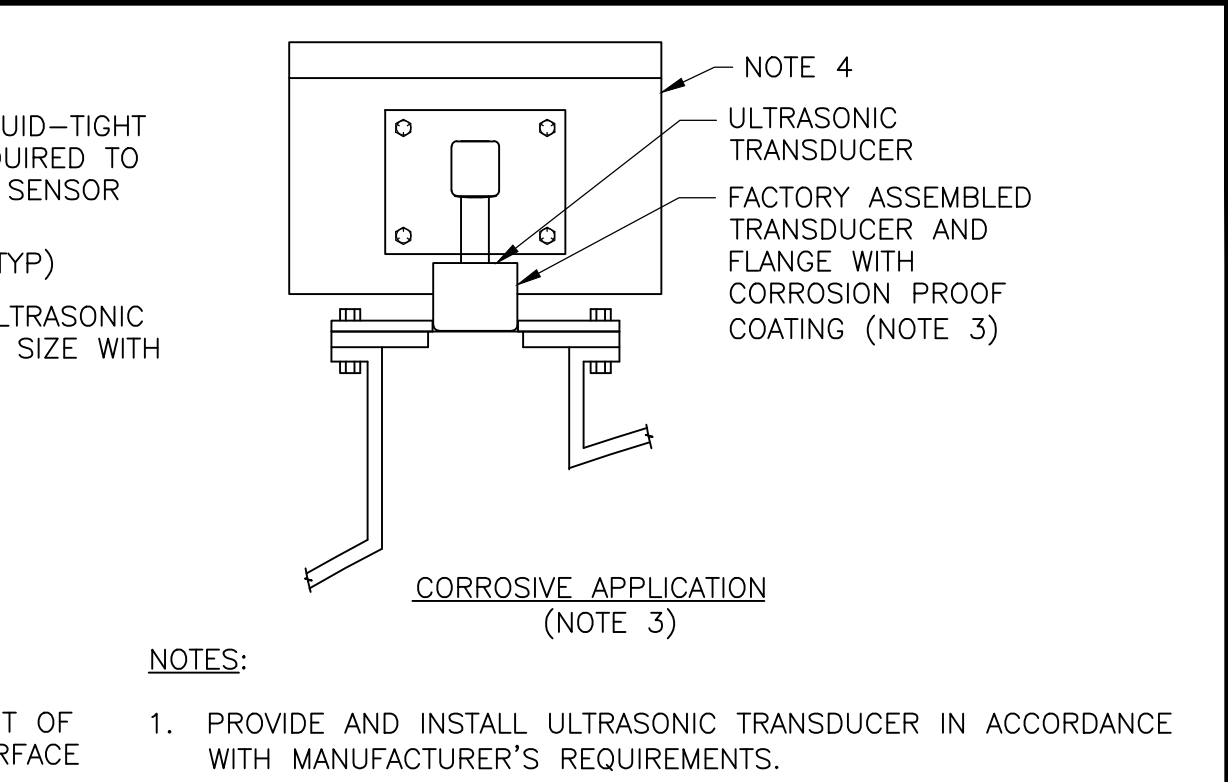
PROJECT ENGINEER:	S. GHUI
DESIGNED BY:	P. GIORSETTO
DRAWN BY:	B. VUE
CHECKED BY:	M. ERWIN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"



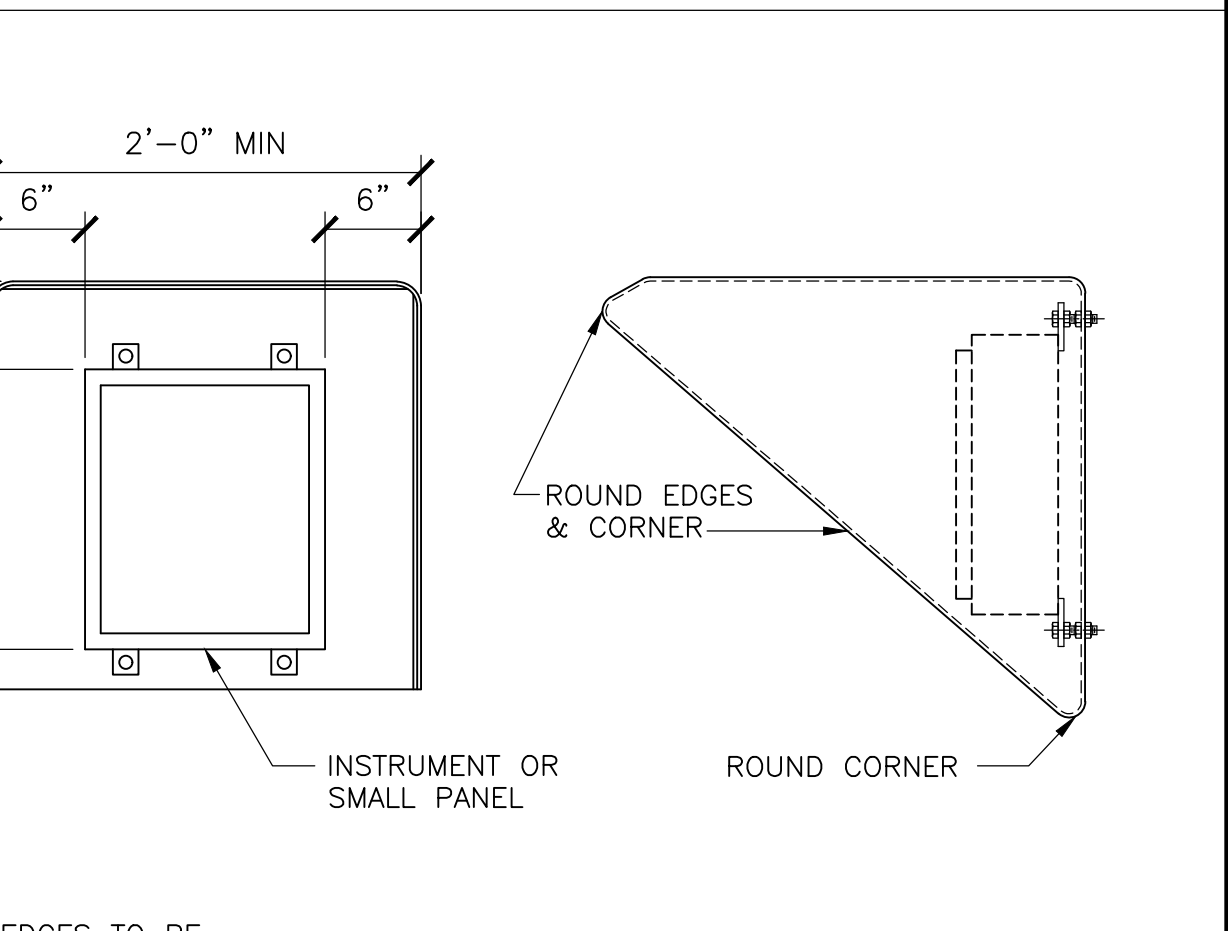
RAIN HOOD AND SUNSHIELD INSTALLATION
DETAIL 13310
NTS VAR



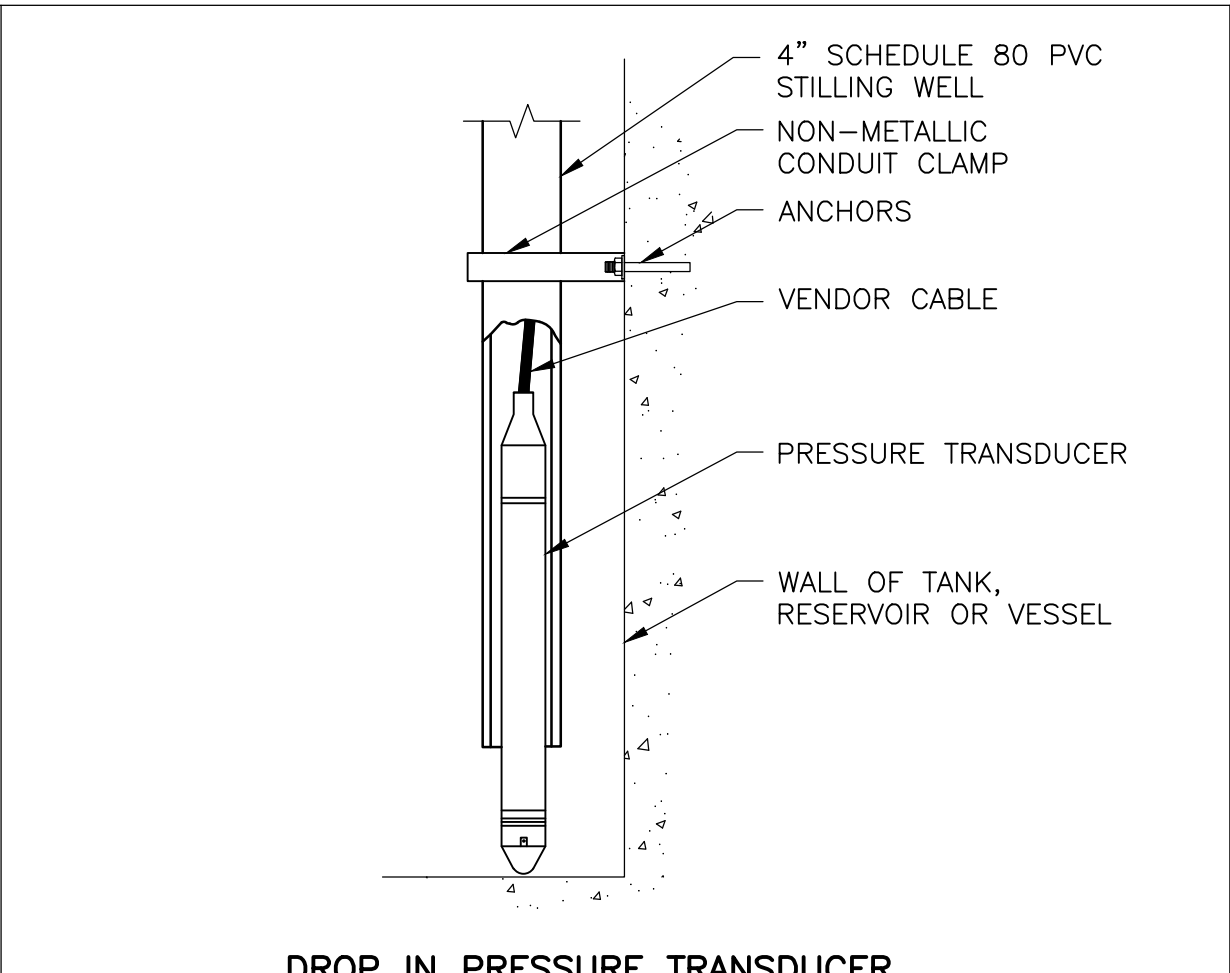
ULTRASONIC LEVEL SENSOR CLOSED TOP TANK INSTALLATION
DETAIL 13102
NTS VAR



- NOTES:
1. PROVIDE AND INSTALL ULTRASONIC TRANSDUCER IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
 2. MINIMUM OFFSET OF NOZZLE FROM INTERIOR TANK WALL SHALL BE 1'-0" FOR A MEASURING RANGE OF 0-18' (FROM TRANSDUCER FACE). FOR MEASURING RANGES GREATER THAN 0-18' REFER TO THE SPECIFICATIONS.
 3. PROVIDE A CHEMICALLY IMPERVIOUS COATING EXTENDING OVER THE ENTIRE FLANGE FACE FOR CORROSIVE ENVIRONMENTS.
 4. PROVIDE INSTRUMENT SUNSHIELD BY ANDERSON GREENWOOD INSTRUMENTATION MODEL 5L; OR APPROVED EQUAL. OPENED AREA SHALL BE INSTALLED FACING NORTH.



NOTE:
1. ALL EXPOSED EDGES TO BE GROUND SMOOTH AND BURR FREE.



DROP IN PRESSURE TRANSDUCER STILLING WELL INSTALLATION
DETAIL 13106A
NTS VAR

File: C:\BMS\HAZEN\DWG\210102\210102-01.dwg Saved by BEEVUE Save date: 7/31/2023 4:52 PM
PLOT DATE: 9/20/2023 9:55 AM BY: BEEVUE

Hazen

HAZEN AND SAWYER
11260 EL CAMINO REAL, SUITE 102
SAN DIEGO, CALIFORNIA 92130

OLIVENHAIN MUNICIPAL WATER DISTRICT
ENCINITAS, CALIFORNIA

DCM WTP STAGE 4 PROCESS UPGRADES

INSTRUMENTATION
STANDARD DETAILS 1

DATE:	JULY 2023
HAZEN NO.:	20102-002
CONTRACT NO.:	1
DRAWING NUMBER:	ID-1