

Contract Drawings For

Spirit Lake Fish Hatchery

Upgrade for RAS - REBID

Architectural Structural Process Electrical

HDR Project No. 10232924
Spirit Lake, Iowa

Date: January 2021

DNR# 21-01-30-11

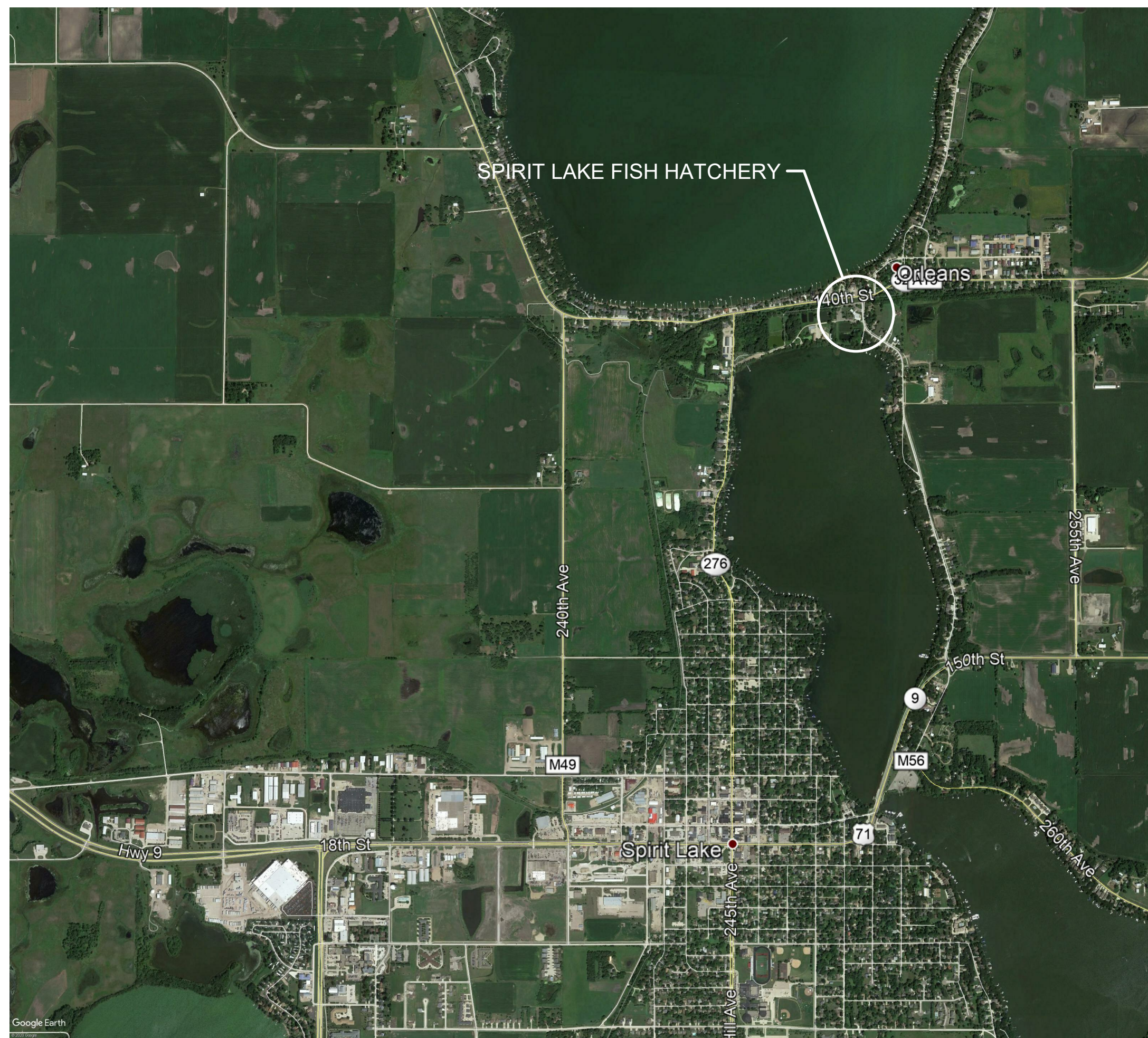
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AUTHORIZATION TO BID

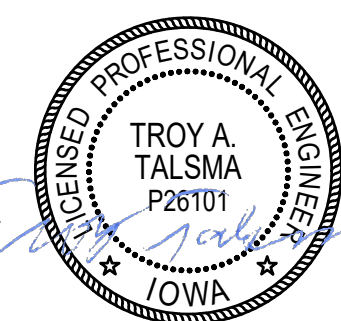
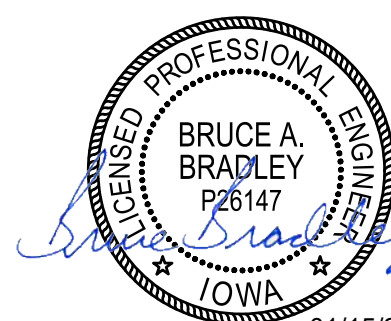
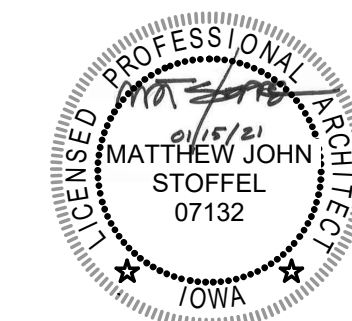
AUTHORIZATION - PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY DATE

ENGINEERING BUREAU CHIEF

DATE



ISSUED FOR REBID



MATERIALS IN PLAN/SECTION

	ACOUSTICAL CEILING TILE (SECTION)
	ASPHALT (PLAN OR SMALL-SCALE SECTION)
	ASPHALT (LARGE-SCALE SECTION)
	BATT INSULATION (SECTION)
	BRICK MASONRY (PLAN AND/OR SECTION)
	CHECKERED PLATE (PLAN)
	CONCRETE (PLAN AND/OR SECTION)
	CONCRETE MASONRY (PLAN AND/OR SECTION)
	DEMOLITION (PLAN AND/OR SECTION)
	EARTH (SECTION)
	FILTER POINT MAT (PLAN)
	FINISHED WOOD (SECTION)
	GLULAM LUMBER (SECTION)
	GRANULAR FILL (SECTION)
	GRATING (SECTION)
	GRATING (PLAN)
	GROUT (SECTION)
	GYPSUM BOARD (SECTION)
	METAL (SECTION)
	ORIENTED STRAND BOARD (SECTION)
	PARTICLE BOARD (SECTION)
	PLYWOOD (LARGE-SCALE SECTION)
	PLYWOOD (SMALL-SCALE SECTION)
	PRECAST CONCRETE (PLAN AND/OR SECTION)
	RIGID INSULATION (SECTION)
	RIPRAP (PLAN AND/OR SECTION)
	SAND (SECTION)
	SOD (SECTION)
	WEEP JOINT MORTAR PROTECTION SYSTEM (SECTION)
	WOOD - CONTINUOUS (SECTION)
	WOOD - BLOCKING (SECTION)

GENERAL SYMBOLOGY

ARROW INDICATES DIRECTION OF PLAN NORTH

NORTH ARROW

PLAN
1/4" = 1'-0"
PLAN TITLE

ARROW INDICATES DIRECTION OF SECTION CUT

FULL BUILDING SECTION CUT MARKER

SECTION LETTER

FLAG INDICATES DIRECTION OF SECTION CUT

SECTION CUT MARKER

SECTION LETTER

3/8" = 1'-0"

SHEET WHERE SECTION VIEW IS FIRST CUT *

SECTION
SECTION TITLE

DETAIL NUMBER

SHEET WHERE DETAIL IS LOCATED *

DETAIL MARKER
FOR REFERENCING DETAILS INCLUDED IN DRAWING SET.

XXXXXXXX

DETAIL MARKER
FOR REFERENCING DETAILS BOUND IN SPECIFICATIONS OR SEPARATE VOLUME.

DETAIL NUMBER

1/4" = 1'-0"

SHEET WHERE DETAIL IS LOCATED *

DETAIL
DETAIL TITLE

* EXCEPTIONS WHERE THE SHEET NUMBER IS REPLACED BY A DASH (-).
1) FOR COMMON DETAILS, SECTIONS, ELEVATIONS OR DETAILS THAT ARE CUT OR CALLED OUT ON MULTIPLE SHEETS.
2) SECTIONS, ELEVATIONS OR DETAILS THAT ARE LOCATED ON THE SAME SHEET THEY ARE CUT OR CALLED OUT ON.

GENERAL SYMBOLOGY

ARROW INDICATES POINT OF VIEW

ELEVATION NUMBER

INTERIOR EXTERIOR

SHEET WHERE ELEVATION IS LOCATED *

SINGLE ELEVATION OR PHOTO MARKER

ELEVATION NUMBER

ARROW INDICATES POINT OF VIEW ELEVATION

INDICATES SHEET WHERE ELEVATION IS LOCATED

MULTIPLE ELEVATION OR PHOTO MARKER

ELEVATION IDENTIFICATION NUMBER

3" = 1'-0"

SHEET WHERE POINT OF VIEW MARKER CAN BE FOUND *

ELEVATION
ELEVATION TITLE

TARGET ELEVATION

ARCHITECTURAL

ROOM NAME

XX-XX ROOM NUMBER

XXX X DOOR NUMBER

A COLUMN GRID LINE

X WALL TYPE

X WINDOW TYPE

X LOUVER

X ACCESSORY, FURNITURE, AND MISCELLANEOUS EQUIPMENT IDENTIFIER

KEY NOTE DESIGNATION

KEY NOTE NUMBER

#

GENERAL LINE SYMBOLOGY

4-HOUR FIRE RATED WALL

3-HOUR FIRE RATED WALL

2-HOUR FIRE RATED WALL

1-HOUR FIRE RATED WALL

COLUMN GRID LINE/CENTERLINE

IDENTIFICATION SYMBOLOGY

PIPING

FIGURE

36"-PLE

EXAMPLE

LINE SIZE

36"

SERVICE

PLANT EFFLUENT

EQUIPMENT IDENTIFICATION

FIGURE

NPWP-23

EXAMPLE

SERVICE ABBREVIATION

INDICATES NON-POTABLE WATER

EQUIPMENT ABBREVIATION

INDICATES PUMP

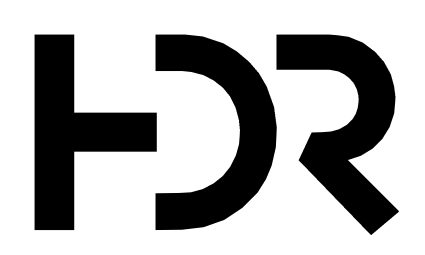
EQUIPMENT NUMBER

PUMP 23

GENERAL NOTES:

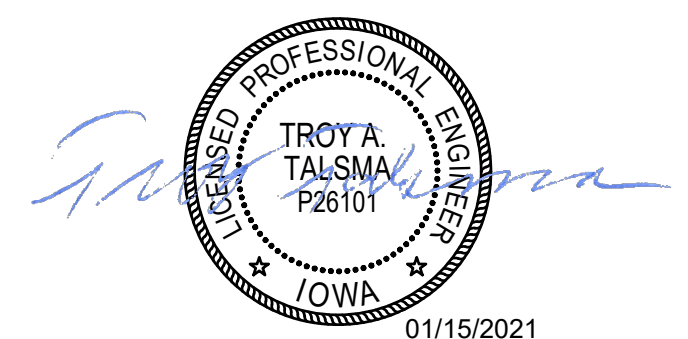
- THIS IS A STANDARD SHEET SHOWING COMMON SYMBOLOGY. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
- SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

I:\sp\enr\02\Active\Projects\3656410232924\6_0_CAD_BIM\6_2_WIP\Revit Models\10232924_00_D.rvt
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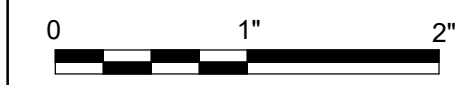


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



Spirit Lake Fish Hatchery Upgrade for RAS - REBID



GENERAL LEGEND

FILENAME | 10232924_00_D.rvt
SCALE | NONE

SHEET
G-2

Table with 4 columns (1-4) and 4 columns (5-8) containing abbreviations and their corresponding full names. Includes categories like AIR CONDITIONING, ARCHITECT/ENGINEER, etc.

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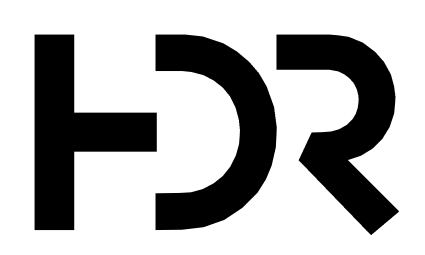
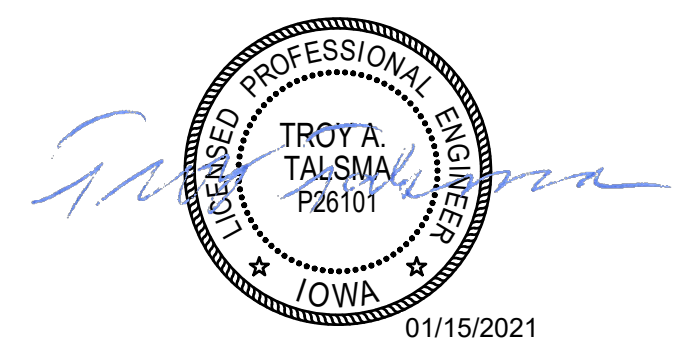


Table with columns: PROJECT MANAGER, ARCHITECTURAL, STRUCTURAL, PROCESS, ELECTRICAL, PROJECT NUMBER, DATE, DESCRIPTION. Includes names like M. COCHRAN, M. STOFFEL, B. BRADLEY, T. TALSMA, A. KANER.



Spirit Lake Fish Hatchery Upgrade for RAS - REBID



FILENAME: 10232924_00_D_rvt SCALE: NONE

SHEET G-3

ABBREVIATIONS

- GENERAL NOTES: 1. THESE ABBREVIATIONS APPLY TO THE ENTIRE SET OF CONTRACT DRAWINGS. 2. LISTING OF ABBREVIATIONS DOES NOT IMPLY THAT ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS. 3. ABBREVIATIONS SHOWN ON THIS SHEET INCLUDE VARIATIONS OF A WORD... 4. SEE INSTRUMENTATION AND GENERAL LEGEND SHEETS FOR PROJECT-SPECIFIC EQUIPMENT AND PIPING SYSTEM ABBREVIATIONS.

PIPING SYMBOLOLOGY			HVAC SYMBOLOLOGY		HVAC CONTROL SYMBOLOLOGY		AIR FLOW SCHEMATIC AND TEMPERATURE CONTROL DIAGRAM SYMBOLOLOGY																																																																																																																																																																																																																																																																												
VALVES <table border="1"> <tr> <th>SINGLE LINE</th> <th>DOUBLE LINE</th> <th>ISOLATION</th> </tr> <tr> <td></td> <td></td> <td>BALL VALVE</td> </tr> <tr> <td></td> <td></td> <td>BUTTERFLY VALVE</td> </tr> <tr> <td></td> <td></td> <td>DIAPHRAGM VALVE</td> </tr> <tr> <td></td> <td></td> <td>GATE VALVE</td> </tr> <tr> <td></td> <td></td> <td>GLOBE VALVE</td> </tr> <tr> <td></td> <td></td> <td>KNIFE GATE VALVE</td> </tr> <tr> <td></td> <td></td> <td>NEEDLE VALVE</td> </tr> <tr> <td></td> <td></td> <td>PINCH VALVE</td> </tr> <tr> <td></td> <td></td> <td>PLUG VALVE</td> </tr> <tr> <td></td> <td></td> <td>THREE-WAY BALL VALVE</td> </tr> <tr> <td></td> <td></td> <td>THREE-WAY PLUG VALVE</td> </tr> <tr> <td></td> <td></td> <td>BURIED BUTTERFLY VALVE</td> </tr> </table>			SINGLE LINE	DOUBLE LINE	ISOLATION			BALL VALVE			BUTTERFLY VALVE			DIAPHRAGM VALVE			GATE VALVE			GLOBE VALVE			KNIFE GATE VALVE			NEEDLE VALVE			PINCH VALVE			PLUG VALVE			THREE-WAY BALL VALVE			THREE-WAY PLUG VALVE			BURIED BUTTERFLY VALVE	MISCELLANEOUS <table border="1"> <tr> <td></td> <td>PIPE JOINT (SEE SPECS FOR REQUIREMENTS)</td> </tr> <tr> <td></td> <td>COMPRESSION SLEEVE TYPE COUPLING</td> </tr> <tr> <td></td> <td>FLANGED COUPLING ADAPTER (FCA)</td> </tr> <tr> <td></td> <td>FLEXIBLE CONNECTION</td> </tr> <tr> <td></td> <td>HARNESSED MECHANICAL COUPLING</td> </tr> <tr> <td></td> <td>PRESSURE GAGE (W/COCK)</td> </tr> <tr> <td></td> <td>TRAP</td> </tr> <tr> <td></td> <td>QUICK DISCONNECT CAM & GROOVE COUPLING</td> </tr> <tr> <td></td> <td>CAP OR PLUG</td> </tr> <tr> <td></td> <td>INTERIOR CLEANOUT</td> </tr> <tr> <td></td> <td>HOSE VALVE, HOSE BIBB, OR FLUSHING CONNECTION</td> </tr> <tr> <td></td> <td>HOSE RACK</td> </tr> <tr> <td></td> <td>FLOOR DRAIN</td> </tr> </table>			PIPE JOINT (SEE SPECS FOR REQUIREMENTS)		COMPRESSION SLEEVE TYPE COUPLING		FLANGED COUPLING ADAPTER (FCA)		FLEXIBLE CONNECTION		HARNESSED MECHANICAL COUPLING		PRESSURE GAGE (W/COCK)		TRAP		QUICK DISCONNECT CAM & GROOVE COUPLING		CAP OR PLUG		INTERIOR CLEANOUT		HOSE VALVE, HOSE BIBB, OR FLUSHING CONNECTION		HOSE RACK		FLOOR DRAIN	<table border="1"> <tr> <td></td> <td>SUPPLY AIR OR OUTSIDE AIR DUCT UP (SECTION CUT, FIRST DIMENSION DUCT WIDTH)</td> </tr> <tr> <td></td> <td>SUPPLY AIR OR OUTSIDE AIR DUCT DOWN (NO SECTION CUT)</td> </tr> <tr> <td></td> <td>RETURN AIR DUCT UP (SECTION CUT)</td> </tr> <tr> <td></td> <td>RETURN AIR DUCT DOWN (NO SECTION CUT)</td> </tr> <tr> <td></td> <td>EXHAUST AIR DUCT UP (NO SECTION CUT)</td> </tr> <tr> <td></td> <td>EXHAUST AIR DUCT DOWN (NO SECTION CUT)</td> </tr> <tr> <td></td> <td>ROUND ELBOW UP</td> </tr> <tr> <td></td> <td>ROUND ELBOW DOWN</td> </tr> <tr> <td></td> <td>TRANSITION - DOUBLE SIDED</td> </tr> <tr> <td></td> <td>TRANSITION - ONE SIDED</td> </tr> <tr> <td></td> <td>TRANSITION - RECTANGULAR TO ROUND DUCT</td> </tr> <tr> <td></td> <td>STANDARD BRANCH - FOR SUPPLY AIR W/ EXTRACTOR AND RETURN AIR W/O EXTRACTOR</td> </tr> <tr> <td></td> <td>ELBOW - W/TURNING VANE (RECTANGULAR)</td> </tr> <tr> <td></td> <td>ELBOW - W/TURNING VANES (RECTANGULAR), SMOOTH RADIUS</td> </tr> <tr> <td></td> <td>GOOSENECK HOOD (COWL)</td> </tr> <tr> <td></td> <td>RECTANGULAR DUCT OR OPENING SIZE FIRST NUMBER INDICATES SIZE OF SIDE SHOWN</td> </tr> <tr> <td></td> <td>ROUND DUCT SIZE</td> </tr> <tr> <td></td> <td>RECTANGULAR DUCT INCLINE - RISE OR DROP IN RESPECT TO THE AIR FLOW</td> </tr> <tr> <td></td> <td>ROUND DUCT INCLINE - RISE OR DROP IN RESPECT TO THE AIR FLOW</td> </tr> <tr> <td></td> <td>HIDDEN DUCT</td> </tr> <tr> <td></td> <td>DUCT ELEVATION TAG ABOVE FINISH FLOOR</td> </tr> <tr> <td></td> <td>PRESSURE/TEMPERATURE TEST PLUG (PETE PLUG OR EQUAL)</td> </tr> <tr> <td></td> <td>SOUND ATTENUATOR</td> </tr> <tr> <td></td> <td>SPLITTER DAMPER</td> </tr> <tr> <td></td> <td>VD = VOLUME DAMPER BDD = BACKDRAFT DAMPER</td> </tr> <tr> <td></td> <td>MOD = MOTOR OPERATED DAMPER</td> </tr> <tr> <td></td> <td>FIRE DAMPER</td> </tr> <tr> <td></td> <td>SMOKE DAMPER</td> </tr> <tr> <td></td> <td>SMOKE AND FIRE DAMPER</td> </tr> <tr> <td></td> <td>ZD = ZONE DAMPER</td> </tr> </table>			SUPPLY AIR OR OUTSIDE AIR DUCT UP (SECTION CUT, FIRST DIMENSION DUCT WIDTH)		SUPPLY AIR OR OUTSIDE AIR DUCT DOWN (NO SECTION CUT)		RETURN AIR DUCT UP (SECTION CUT)		RETURN AIR DUCT DOWN (NO SECTION CUT)		EXHAUST AIR DUCT UP (NO SECTION CUT)		EXHAUST AIR DUCT DOWN (NO SECTION CUT)		ROUND ELBOW UP		ROUND ELBOW DOWN		TRANSITION - 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ONE LINE		ACOUSTICAL LINING - DUCT DIMENSIONS FOR NET FREE AREA		SUPPLY AIR REGISTER OR GRILLE - W/ DUCT-MOUNTED EXTRACTOR		EXHAUST AIR OR RETURN AIR REGISTER OR GRILLE		SUPPLY AIR ASSEMBLY SQUARE DIFFUSER		SUPPLY AIR ASSEMBLY ROUND DIFFUSER		WALL LOUVER		ACCESS DOOR		UNDERCUT DOOR 3/4"		ACCESS DOOR OR ACCESS PANEL IN DUCTWORK		INTAKE OR RELIEF HOOD		DOOR GRILLE		BACKDRAFT DAMPER		EXHAUST ROOF VENTILATOR PROPELLER OR CENTRIFUGAL TYPE		PROPELLER WALL FAN		ROOM AIR CONDITIONING UNIT		INTAKE/EXHAUST LOUVER		SUPPLY, RETURN OR EXHAUST FAN		AIR FILTER	<table border="1"> <tr> <td></td> <td>TEMPERATURE CONTROLLER</td> </tr> <tr> <td></td> <td>TEMPERATURE TRANSMITTER</td> </tr> <tr> <td></td> <td>TEMPERATURE SWITCH</td> </tr> <tr> <td></td> <td>THERMOSTAT</td> </tr> <tr> <td></td> <td>TEMPERATURE SENSOR</td> </tr> <tr> <td></td> <td>TEMPERATURE INDICATOR</td> </tr> <tr> <td></td> <td>PERCENTAGE TIMER</td> </tr> <tr> <td></td> <td>RECEIVER CONTROLLER</td> </tr> <tr> <td></td> <td>HAND-OFF-AUTO</td> </tr> <tr> <td></td> <td>MOTOR STARTER</td> </tr> <tr> <td></td> <td>DAMPER ACTUATOR</td> </tr> <tr> <td></td> <td>PRESSURE INDICATOR</td> </tr> <tr> <td></td> <td>FREEZE STAT</td> </tr> <tr> <td></td> <td>FIRE STAT</td> </tr> <tr> <td></td> <td>DIFFERENTIAL PRESSURE SWITCH</td> </tr> <tr> <td></td> <td>SMOKE DETECTOR</td> </tr> <tr> <td></td> <td>FLOW SWITCH</td> </tr> <tr> <td></td> <td>PRESSURE SWITCH</td> </tr> <tr> <td></td> <td>TIME DELAY</td> </tr> <tr> <td></td> <td>MINIMUM POSITION RELAY</td> </tr> <tr> <td></td> <td>SIGNAL</td> </tr> <tr> <td></td> <td>ANALOG OUTPUT</td> </tr> <tr> <td></td> <td>ANALOG INPUT</td> </tr> <tr> <td></td> <td>DIGITAL OUTPUT</td> </tr> <tr> <td></td> <td>DIGITAL INPUT</td> </tr> <tr> <td></td> <td>COMMON PORT</td> </tr> <tr> <td></td> <td>SIGNAL PORT</td> </tr> <tr> <td></td> <td>NORMALLY OPEN</td> </tr> <tr> <td></td> <td>NORMALLY CLOSED</td> </tr> <tr> <td></td> <td>BALANCING VALVE</td> </tr> <tr> <td></td> <td>RESISTANCE HEATING CONTACTOR</td> </tr> <tr> <td></td> <td>TEST-AUTO</td> </tr> <tr> <td></td> <td>TEST-OFF-AUTO</td> </tr> <tr> <td></td> <td>ELECTRIC SIGNAL</td> </tr> <tr> <td></td> <td>PIPING</td> </tr> <tr> <td></td> <td>BULB-TYPE THERMOSTAT</td> </tr> <tr> <td></td> <td>DIESEL EXHAUST SENSOR</td> </tr> <tr> <td></td> <td>CARBON DIOXIDE SENSOR</td> </tr> <tr> <td></td> <td>VOLUME DAMPER - MANUAL</td> </tr> <tr> <td></td> <td>VOLUME DAMPER - MOTORIZED</td> </tr> </table>			TEMPERATURE CONTROLLER		TEMPERATURE TRANSMITTER		TEMPERATURE SWITCH		THERMOSTAT		TEMPERATURE SENSOR		TEMPERATURE INDICATOR		PERCENTAGE TIMER		RECEIVER CONTROLLER		HAND-OFF-AUTO		MOTOR STARTER		DAMPER ACTUATOR		PRESSURE INDICATOR		FREEZE STAT		FIRE STAT		DIFFERENTIAL PRESSURE SWITCH		SMOKE DETECTOR		FLOW SWITCH		PRESSURE SWITCH		TIME DELAY		MINIMUM POSITION RELAY		SIGNAL		ANALOG OUTPUT		ANALOG INPUT		DIGITAL OUTPUT		DIGITAL INPUT		COMMON PORT		SIGNAL PORT		NORMALLY OPEN		NORMALLY CLOSED		BALANCING VALVE		RESISTANCE HEATING CONTACTOR		TEST-AUTO		TEST-OFF-AUTO		ELECTRIC SIGNAL		PIPING		BULB-TYPE THERMOSTAT		DIESEL EXHAUST SENSOR		CARBON DIOXIDE SENSOR		VOLUME DAMPER - MANUAL		VOLUME DAMPER - MOTORIZED	AIR FLOW SCHEMATIC AND TEMPERATURE CONTROL DIAGRAM SYMBOLOLOGY <table border="1"> <tr> <td></td> <td>CHILLED WATER COOLING COIL</td> </tr> <tr> <td></td> <td>HOT WATER HEATING COIL</td> </tr> <tr> <td></td> <td>DIRECT EVAPORATIVE COOLER</td> </tr> <tr> <td></td> <td>DIRECT EXPANSION COOLING COIL</td> </tr> <tr> <td></td> <td>ELECTRIC HEATING COIL</td> </tr> <tr> <td></td> <td>VFD (VARIABLE FREQUENCY DRIVE)</td> </tr> <tr> <td></td> <td>CONSTANT AIR VOLUME BOX WITH REHEAT COIL</td> </tr> <tr> <td></td> <td>VARIABLE AIR VOLUME BOX WITH REHEAT COIL</td> </tr> </table>			CHILLED WATER COOLING COIL		HOT WATER HEATING COIL		DIRECT EVAPORATIVE COOLER		DIRECT EXPANSION COOLING COIL		ELECTRIC HEATING COIL		VFD (VARIABLE FREQUENCY DRIVE)		CONSTANT AIR VOLUME BOX WITH REHEAT COIL		VARIABLE AIR VOLUME BOX WITH REHEAT COIL
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PROCESS, MECHANICAL AND PLUMBING LEGEND

0 1" 2"

FILENAME | 10232924_00_D.rvt

SCALE | NONE

SHEET | G-4

ONE-LINE, POWER, AND LIGHTING SYMBOLOGY

LOW VOLTAGE CIRCUIT BREAKER (CB), RATING AND NO. OF POLES AS SHOWN. WHEN SPECIFIC TYPE, OTHER THAN MCCB, IS REQUIRED, X INDICATES TYPE.

TYPES:
 MCCB - MOLDED CASE
 ICCB - INSULATED CASE
 LVP - LOW VOLTAGE POWER
 MCP - MOTOR CIRCUIT PROTECTOR (RATING PER CONNECTED LOAD)

TRIP UNIT:
 L - LONG TIME PICKUP
 S - SHORT TIME PICKUP
 I - INSTANTANEOUS PICKUP
 G - GROUND FAULT PICKUP
 A - ARC ENERGY REDUCTION MODE

INTERLOCK: X - INDICATES TYPE
TYPES:
 E - ELECTRICAL
 M - MECHANICAL
 K - KEY

GROUND FAULT PROTECTION

MEDIUM VOLTAGE CIRCUIT BREAKER

FUSE, RATING, AND NUMBER OF FUSES AS NOTED

FUSED CUTOFF, CURRENT RATING, FUSE RATING, AND QUANTITY AS NOTED

FUSIBLE SWITCH, CURRENT RATING, FUSE RATING, AND QUANTITY AS NOTED (3 POLE UON)

NON-FUSED SWITCH, CURRENT RATING, AND NUMBER OF POLES AS NOTED (3 POLE UON)

DISCONNECT OR DRAWOUT CONNECTION

MAGNETIC MOTOR STARTER AND SEPARATELY MOUNTED COMBINATION MAGNETIC MOTOR STARTER

MOTOR/LOAD CONTROLLER AND SEPARATELY MOUNTED MOTOR/LOAD CONTROLLER WITH SHORT CIRCUIT PROTECTION AND DISCONNECT

MOTOR STARTER AND CONTROLLER SUBSCRIPTS:
 A - MAGNETIC STARTER NEMA SIZE
 B - STARTER TYPE
 NONE - FULL VOLTAGE NON-REVERSING (FVNR)
 FVR - FULL VOLTAGE REVERSING
 2S - TWO SPEED
 RVAT - REDUCED VOLTAGE AUTO TRANSFORMER

C - CONTROL DIAGRAM OR CONTROLS SCHEDULE NUMBER (IF REQUIRED)

D - CONTROLLER TYPE
 VFD - VARIABLE FREQUENCY DRIVE
 SS - SOLID STATE
 CONT - CONTACTOR

SEPARATELY MOUNTED COMBINATION MOTOR STARTER OR CONTROLLER; SEE ELECTRICAL ONE - LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION

SEPARATELY MOUNTED MOTOR STARTER OR CONTROLLER; SEE ELECTRICAL ONE-LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION.

NON-FUSED SAFETY SWITCH, 30A, 3P, X INDICATES AMP RATING GREATER THAN 30A

FUSED SAFETY SWITCH, 3P, X INDICATES AMP RATING GREATER THAN 30A, Y INDICATES FUSE SIZE

SEPARATELY MOUNTED CIRCUIT BREAKER; SEE ELECTRICAL ONE - LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION

MOTOR WITH DESIGN HORSEPOWER (WHEN INDICATED)

GENERATOR

TRANSFER SWITCH, CURRENT RATING, AND NUMBER OF POLES AS NOTED
 ATS - AUTOMATIC
 MTS - MANUAL

TRANSFORMER
 Δ 3-PHASE, 3-WIRE DELTA CONNECTION
 ⚡ 3-PHASE, 4-WIRE GROUNDED WYE CONNECTION

SWITCHBOARD OR PANELBOARD; NAME, VOLTAGE, PHASE, NUMBER OF WIRES WHEN INDICATED

NON-MOTOR LOAD WITH DESIGN KVA, KW, OR AMP

VOLTAGE TRANSFORMER (VT, PT, OR CPT)

CURRENT TRANSFORMER (CT)

UTILITY WATT-HOUR METER PER UTILITY REQUIREMENTS

DIGITAL METERING PACKAGE

GROUND

LIGHTNING ARRESTER

LOW VOLTAGE SURGE PROTECTIVE DEVICE

SELECTOR SWITCH

PUSHBUTTON

INSTRUMENTATION / CONTROL DEVICE

SOLENOID VALVE

CONTROL PANEL INTEGRAL OR PROVIDED WITH ASSOCIATED EQUIPMENT

CONTROL PANEL WITH DISCONNECT SWITCH INTEGRAL OR PROVIDED WITH ASSOCIATED EQUIPMENT

JUNCTION OR PULL BOX

PANELBOARD (250V TO 600V)

PANELBOARD (LESS THAN 250V)

ELECTRICAL EQUIPMENT ENCLOSURE: SWITCHBOARD, MOTOR CONTROL CENTER, CONTROL PANEL, TRANSFORMER OR OTHER EQUIPMENT AS INDICATED. ESTIMATED SIZE AS INDICATED. WHEN USED X INDICATES EQUIPMENT TYPE.

EQUIPMENT TYPES:
 ATS - AUTOMATIC TRANSFER SWITCH
 CP - CONTROL PANEL
 MTS - MANUAL TRANSFER SWITCH
 MCC - MOTOR CONTROL CENTER
 UPS - UNINTERRUPTIBLE POWER SUPPLY
 VFD - VARIABLE FREQUENCY DRIVE
 SB - SWITCHBOARD
 SG - SWITCHGEAR
 T - TRANSFORMER

CEILING/PENDANT/BOLLARD MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED

CEILING/PENDANT/BOLLARD MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED, EMERGENCY (INTERNAL OR EXTERNAL POWER SOURCE AS INDICATED)

WALL MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED

WALL MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED, EMERGENCY (INTERNAL OR EXTERNAL POWER SOURCE AS INDICATED)

WALL MOUNTED FLOOD LUMINAIRE, LAMP TYPE AS SPECIFIED

POLE/STANCHION MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED

POLE/STANCHION MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED, EMERGENCY (INTERNAL OR EXTERNAL POWER SOURCE AS INDICATED)

POLE/STANCHION MOUNTED FLOOR LUMINAIRE, LAMP TYPE AS SPECIFIED

CEILING/PENDANT MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED

WALL MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED

CEILING/PENDANT MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED, ALL OR PARTIAL EMERGENCY (INTERNAL OR EXTERNAL POWER SOURCE AS INDICATED)

WALL MOUNTED LUMINAIRE, LAMP TYPE AS SPECIFIED, ALL OR PARTIAL EMERGENCY (INTERNAL OR EXTERNAL POWER SOURCE AS INDICATED)

EMERGENCY LIGHT, NUMBER OF ATTACHED HEADS AS SHOWN

EMERGENCY LIGHT, REMOTE MOUNTED HEAD

DOUBLE-FACED CEILING OR WALL MOUNTED EXIT LIGHT; DIRECTIONAL ARROWS (IF REQUIRED) AS INDICATED ON PLANS

SINGLE-FACED CEILING OR WALL MOUNTED EXIT LIGHT; DIRECTIONAL ARROWS (IF REQUIRED) AS INDICATED ON PLANS

LIGHTING FIXTURE SUBSCRIPTS:
 X - INDICATES LUMINAIRE TYPE PER LUMINAIRE SCHEDULE
 Y - INDICATES CIRCUIT NUMBER FROM PANELBOARD
 Z - INDICATES CONTROLLING SWITCH (IF REQUIRED)
 NL - NIGHT LIGHT UNSWITCHED

WALL SWITCH
SUBSCRIPTS:
 X - INDICATES TYPE
 NONE - SINGLE POLE
 2 - DOUBLE POLE
 3 - THREE-WAY
 4 - FOUR-WAY
 K - KEY SWITCH
 P - PILOT LIGHT
 L - LIGHTED HANDLE
 DM - DIMMING
 MC - MOMENTARY CONTACT
 T - TIMER
 Y - INDICATES CONTROLLING SWITCH (IF REQUIRED)

MANUAL MOTOR STARTER
SUBSCRIPTS:
 X - INDICATES TYPE
 HP - HORSEPOWER RATED
 TE - HORSEPOWER RATED WITH THERMAL ELEMENT
 FT - HORSEPOWER RATED WITH FUSETRON FUSE
 Y - INDICATES SWITCH TYPE
 NONE - TOGGLE SWITCH TYPE
 R - ROTARY SWITCH TYPE

PHOTOCELL

TIME CLOCK

LIGHTING CONTROL OCCUPANCY SENSOR, WALL MOUNTED, X INDICATES SPECIFIC TYPE AS SPECIFIED

LIGHTING CONTROL OCCUPANCY SENSOR, CEILING MOUNTED, X INDICATES SPECIFIC TYPE AS SPECIFIED

ROOM/AREA LIGHTING CONTROL TYPE. SEE LIGHTING CONTROL SCHEDULE FOR REQUIREMENTS

LOW VOLTAGE DIGITAL WALL SWITCH, NUMBER INDICATES QUANTITY OF PUSH BUTTONS PER SINGLE GANG PLATE, LETTER INDICATES CONTROL ZONE WHEN SHOWN

PLUG-IN RECEPTACLE STRIP, QUANTITY AND SPACING OF RECEPTACLES AS NOTED OR SPECIFIED

SPECIAL-PURPOSE RECEPTACLE AS DEFINED ON PLANS

TWO RECEPTACLES IN 2-GANG BOX UNDER COMMON COVER PLATE

DUPLEX RECEPTACLE

SIMPLEX RECEPTACLE

RECESSED FLOOR MOUNTED BOX, QUANTITY AND TYPE OF RECEPTACLES AS INDICATED

SUBSCRIPTS:
 X - INDICATES TYPE
 GFCI - GROUND FAULT CIRCUIT INTERRUPTER
 IG - ISOLATED GROUND
 TR - TAMPER RESISTANT
 PLH - PLUG LOAD HALF CONTROLLED
 PLD - PLUG LOAD DUAL CONTROLLED
 USB - USB CHARGING STATION
 SPD - SURGE PROTECTIVE DEVICE
 Y - INDICATES CIRCUIT NUMBER FROM PANELBOARD

CONDUIT TURNING UP

CONDUIT TURNING DOWN

HOMERUN TO SOURCE (E.G. PANELBOARD, MCC) NUMBER IN PARENTHESES REPRESENTS CONDUCTOR SIZE OTHER THAN #12 SINGLE PHASE: 2#12, 1#12G IN 3/4" C THREE PHASE: 3#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED, CONDUCTOR SIZE IS FOR ENTIRE CIRCUIT, SOURCE TO LAST DEVICE. ALSO, SEE ONE LINE DIAGRAM FOR CIRCUIT REQUIREMENTS

CONDUIT CONNECTION TO EQUIPMENT

CIRCUIT RUN BETWEEN DEVICES EXPOSED IN NON-ARCHITECTURALLY FINISHED AREAS; CONCEALED IN ARCHITECTURALLY FINISHED AREAS. CONDUIT AND CONDUCTOR SIZES SHALL BE THE SAME AS THE HOMERUN FOR THE CIRCUIT.

CONDUIT RUN BETWEEN DEVICES CONCEALED IN NON-ARCHITECTURALLY FINISHED AREAS OR UNDER FLOOR SLAB. CONDUIT AND CONDUCTOR SIZES SHALL BE THE SAME AS THE HOMERUN FOR THE CIRCUIT.

CIRCUIT HASH MARKS (WHEN INDICATED); LONG, SHORT, SINGLE DOT, AND DOUBLE DOT REPRESENT PHASE, NEUTRAL, EQUIPMENT GROUND, AND ISOLATED EQUIPMENT GROUND, RESPECTIVELY. X REPRESENTS CONDUCTOR SIZE OTHER THAN #12 IN 3/4" CONDUIT.

CIRCUIT CONTINUATION

CONDUIT STUBBED OUT AND CAPPED

CORD AND PLUG CONNECTION

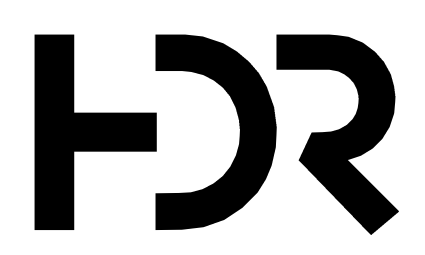
CONDUIT TAG OR CIRCUIT NUMBER - WIRE AND CONDUIT SIZE AS SPECIFIED IN CIRCUIT SCHEDULE ON THE SHEETS

GROUND CABLE

GROUND ROD

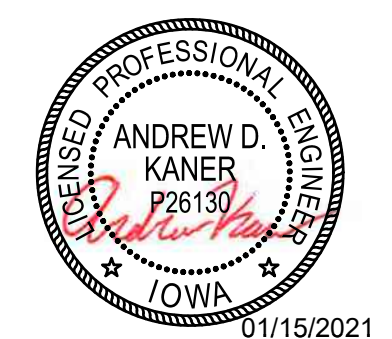
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 3. SEE P&ID LEGEND SHEET FOR PROJECT SPECIFIC EQUIPMENT SYMBOLS, EQUIPMENT ABBREVIATIONS, AND PIPING SYSTEM ABBREVIATIONS.

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ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924



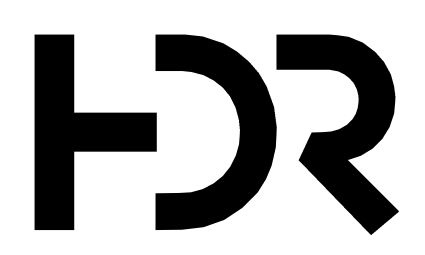
Spirit Lake Fish Hatchery Upgrade for RAS - REBID

ELECTRICAL LEGEND 1

0	1"	2"	FILENAME	10232924_00_D.rvt
			SCALE	NONE

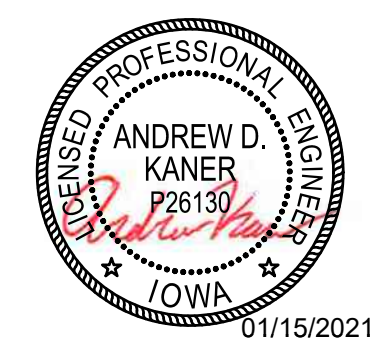
SHEET
G-5

COMMUNICATION SYMBOLOGY		EMERGENCY ALARM SYMBOLOGY		CONTROL SYMBOLOGY		CONTROL SYMBOLOGY	
WALL MOUNTED TELEPHONE OUTLET WALL MOUNTED DATA OUTLET WALL MOUNTED COMBINATION TELEPHONE AND DATA OUTLET RECESSED FLOOR MOUNTED TELEPHONE OUTLET RECESSED FLOOR MOUNTED DATA OUTLET RECESSED FLOOR MOUNTED COMBINATION TELEPHONE AND DATA OUTLET		ALARM BELL ALARM HORN ALARM FLASHING LIGHT ALARM BELL AND FLASHING LIGHT COMBINATION UNIT ALARM HORN AND FLASHING LIGHT COMBINATION UNIT PUSHBUTTON OR PULLSTATION		ELECTRICAL CONNECTION NO ELECTRICAL CONNECTION SOLENOID VALVE CONTROL/RELAY COIL: X-INDICATES TYPE Y-INDICATES LOOP NUMBER, WHEN USED TYPES: CR-CONTROL RELAY TC-TIME CLOCK PC-PHOTOCELL LC-LIGHTING CONTACTOR DP-DEFINITE PURPOSE TR-TIMING RELAY M-MOTOR STARTER NORMALLY OPEN CONTACT (N.O.) NORMALLY CLOSED CONTACT (N.C.) NORMALLY OPEN TIME DELAY RELAY CONTACT WITH TIME DELAY ON CLOSING AFTER COIL IS ENERGIZED NORMALLY CLOSED TIME DELAY RELAY CONTACT WITH TIME DELAY ON OPENING AFTER COIL IS ENERGIZED NORMALLY OPEN TIME DELAY RELAY CONTACT WITH TIME DELAY ON OPENING AFTER COIL IS DE-ENERGIZED NORMALLY CLOSED TIME DELAY RELAY CONTACT WITH TIME DELAY ON CLOSING AFTER COIL IS DE-ENERGIZED NORMALLY OPEN TEMPERATURE SWITCH; CLOSE ON RISING TEMPERATURE NORMALLY CLOSED TEMPERATURE SWITCH; OPEN ON RISING TEMPERATURE NORMALLY OPEN FLOW SWITCH; CLOSE ON INCREASING FLOW NORMALLY CLOSED FLOW SWITCH; OPEN ON INCREASING FLOW NORMALLY OPEN LEVEL SWITCH, CLOSE ON RISING LEVEL NORMALLY CLOSED LEVEL SWITCH, OPEN ON RISING LEVEL NORMALLY OPEN PRESSURE SWITCH, CLOSE ON INCREASING PRESSURE NORMALLY CLOSED PRESSURE SWITCH, OPEN ON INCREASING PRESSURE NORMALLY OPEN LIMIT SWITCH, CLOSE ON REACHING LIMIT NORMALLY CLOSED LIMIT SWITCH, OPEN ON REACHING LIMIT MICROPROCESSOR (PLC, RTU, ETC.) OUTPUT MICROPROCESSOR (PLC, RTU, ETC.) INPUT FIELD WIRING EXTERNAL TO CONTROL PANEL 3 POSITION SELECTOR SWITCH, MAINTAINED CONTACTS; UNLESS OTHERWISE NOTED, 2-POSITION SIMILAR NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT UNLESS OTHERWISE NOTED NORMALLY CLOSED PUSHBUTTON, MOMENTARY CONTACT UNLESS OTHERWISE NOTED	INDICATING LIGHT: X INDICATES LENS COLOR PUSH TO TEST INDICATING LIGHT: X INDICATES LENS COLOR LENS COLORS: R - RED Y - YELLOW G - GREEN W - WHITE B - BLUE A - AMBER THERMAL OVERLOAD ELEMENT THERMAL OVERLOAD RELAY CONTACT. WHEN SHOWN X INDICATES QUANTITY. CONTROL POWER TRANSFORMER (CPT) RUN TIME METER		
AUDIO/VISUAL SYMBOLOGY		SITE SYMBOLOGY					
TELEVISION OUTLET CEILING MOUNT SPEAKER WALL MOUNT SPEAKER SPEAKER SUBSCRIPTS: X - INDICATES HEIGHT HORN TYPE TRANSDUCER VOLUME CONTROL HEAD END EQUIPMENT FLOOR MOUNTED MICROPHONE JACK WALL MOUNTED MICROPHONE JACK		EXTERIOR PAD MOUNTED TRANSFORMER POLE - MOUNTED TRANSFORMER ELECTRICAL HANDHOLE OR MANHOLE X - INDICATES SEQUENCE NUMBER Y - MHX OR HHX POLE/STANCHION MOUNTED FLOOD LUMINAIRE, LAMP TYPE AS SPECIFIED POLE MOUNTED AREA OR ROADWAY LUMINAIRE, LAMP TYPE AS SPECIFIED HIGH MAST LIGHTING, NUMBER OF LUMINAIRES AS SPECIFIED LIGHTING FIXTURE SUBSCRIPTS: X - INDICATES LUMINAIRE TYPE PER LUMINAIRE SCHEDULE Y - INDICATES CIRCUIT NUMBER FROM PANELBOARD POWER POLE DOWNGUY UNDERGROUND (UNO) ELECTRICAL AND COMMUNICATION SYSTEMS PATHWAY OVERHEAD ELECTRICAL AND COMMUNICATION SYSTEMS PATHWAY					
SECURITY SYMBOLOGY							
DOOR POSITION SWITCH COMBINATION ELECTRIC DOOR STRIKE AND POSITION SWITCH PROXIMITY CARD READER PROXIMITY CARD READER WITH KEYPAD DUAL TECHNOLOGY MOTION DETECTOR REQUEST TO EXIT MOTION DETECTOR REQUEST TO EXIT PUSH BUTTON GLASS BREAK DETECTOR CCTV CAMERA PAN/TILT/ZOOM WHEN INDICATED SECURITY EQUIPMENT CABINET REMOTE KEYPAD/CONTROL STATION							

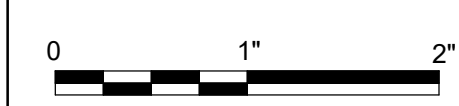


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER		M. COCHRAN
ARCHITECTURAL	M. STOFFEL	
STRUCTURAL	B. BRADLEY	
PROCESS	T. TALSMA	
ELECTRICAL	A. KANER	
PROJECT NUMBER		10232924



Spirit Lake Fish Hatchery Upgrade for RAS - REBID

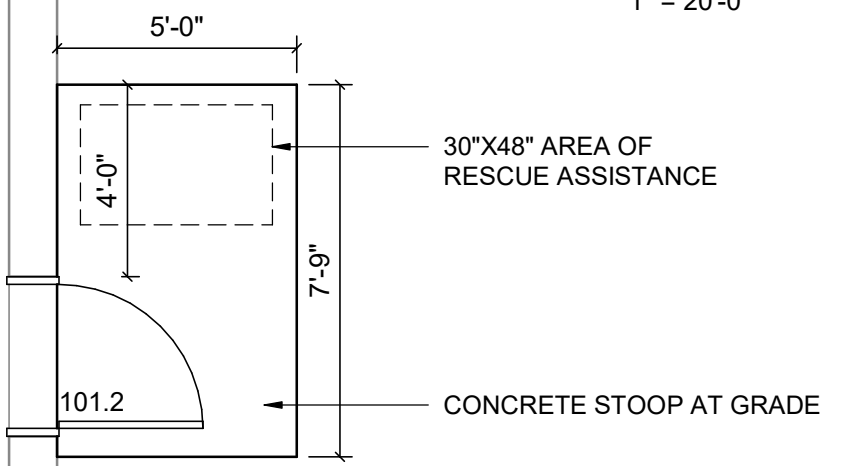
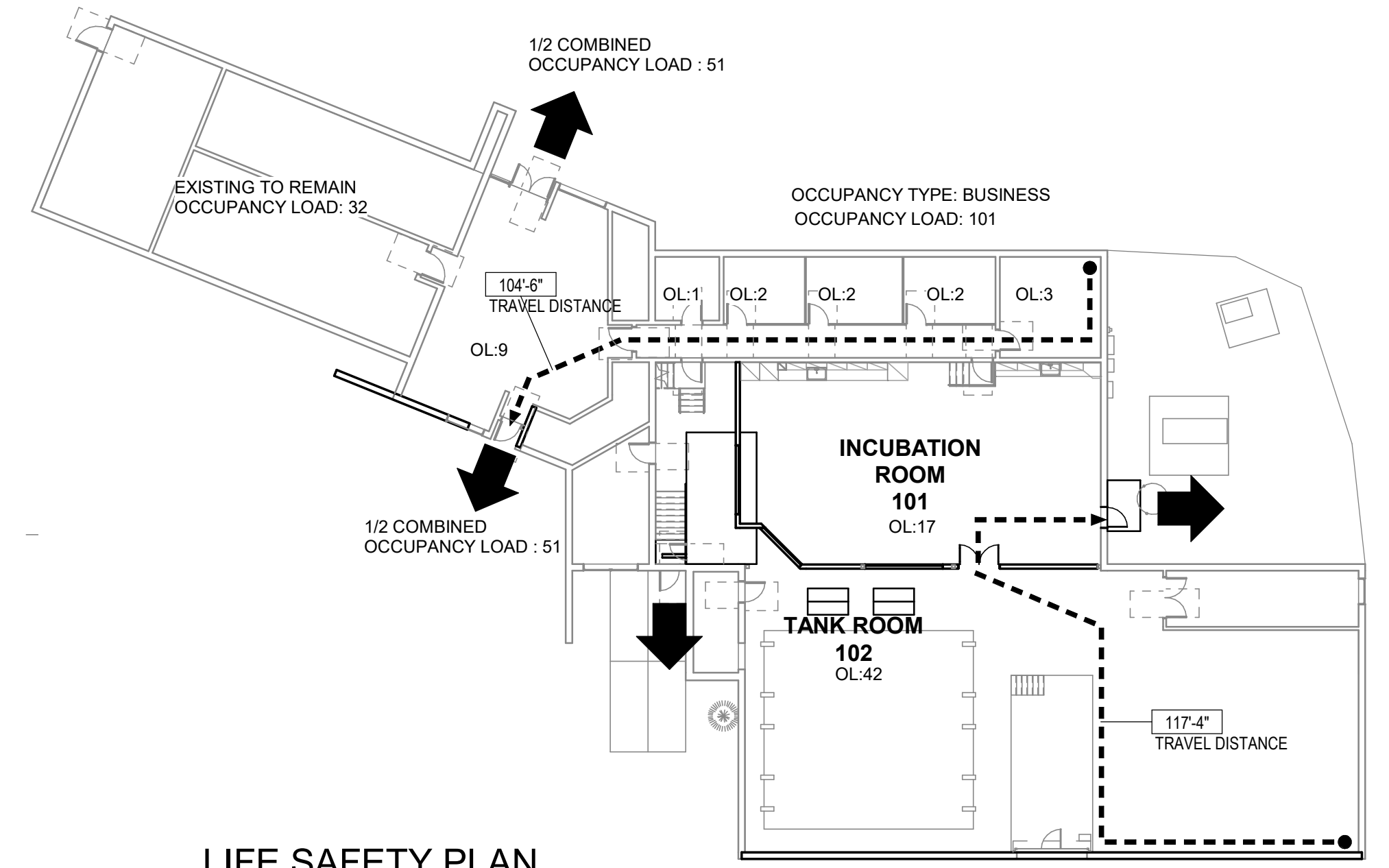
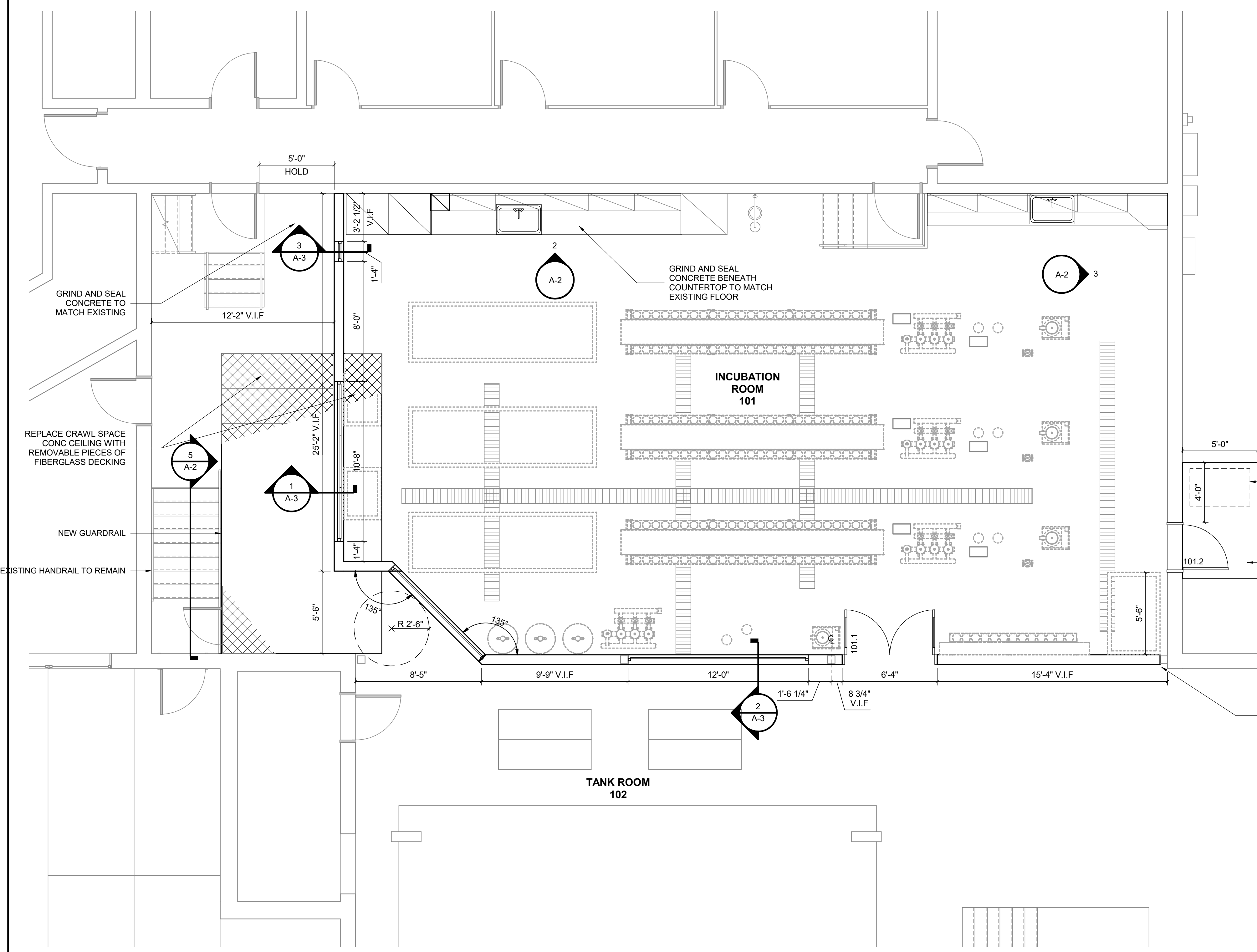


ELECTRICAL LEGEND 2

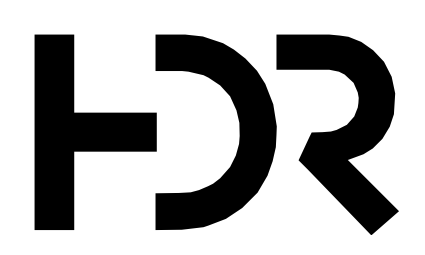
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SHEET
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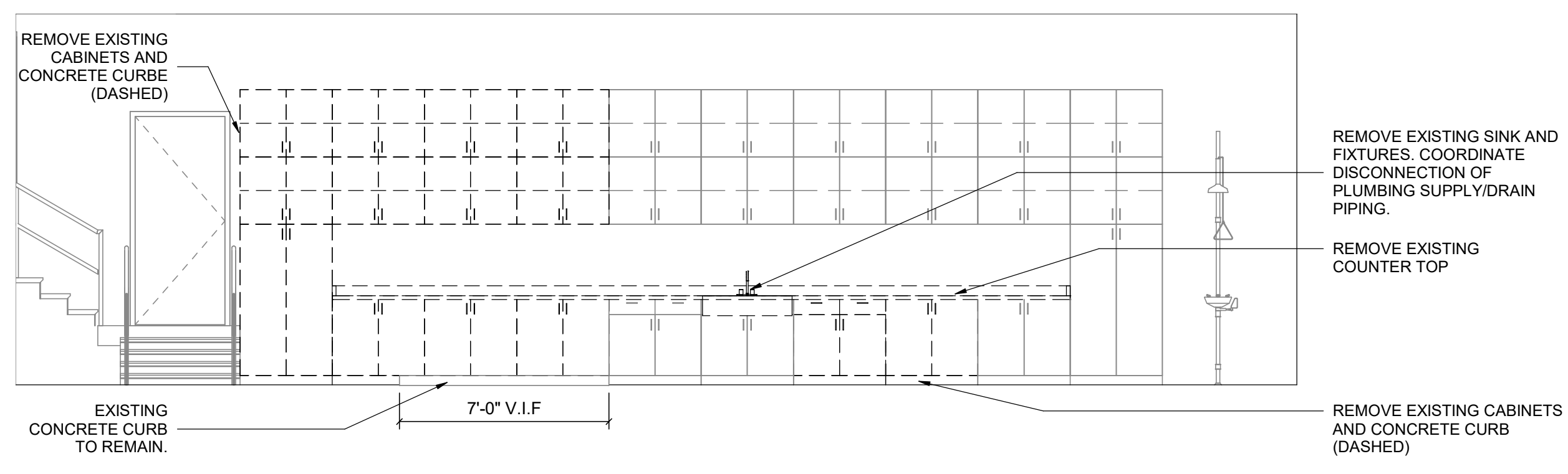
Spirit Lake Fish Hatchery Upgrade for RAS - REBID

PARTIAL FLOOR PLAN - NEW WORK

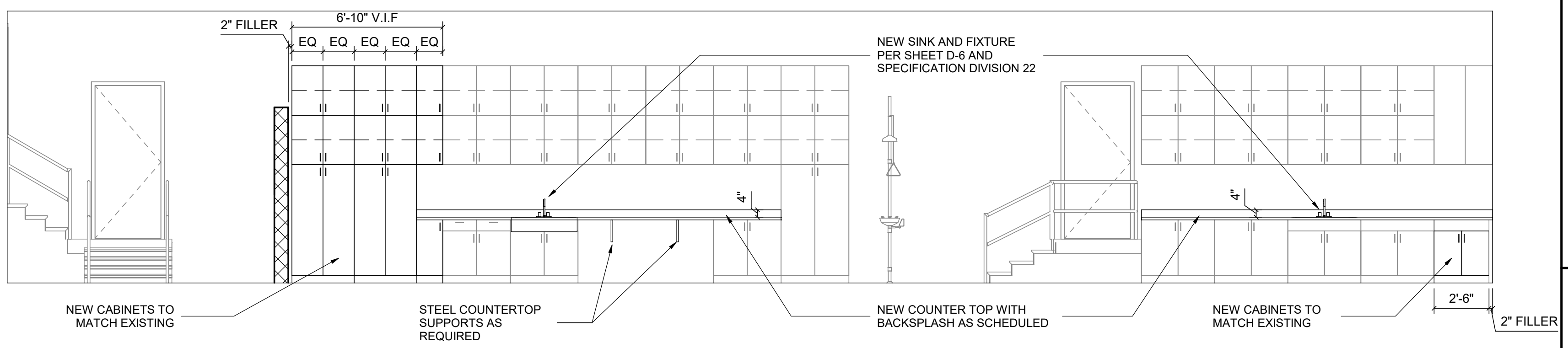
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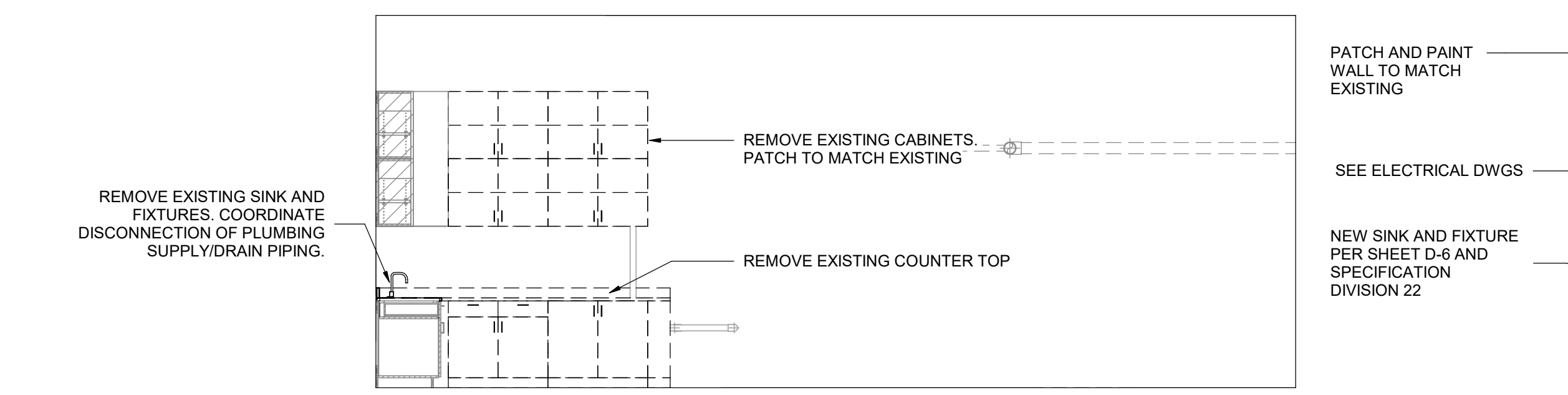
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A-1



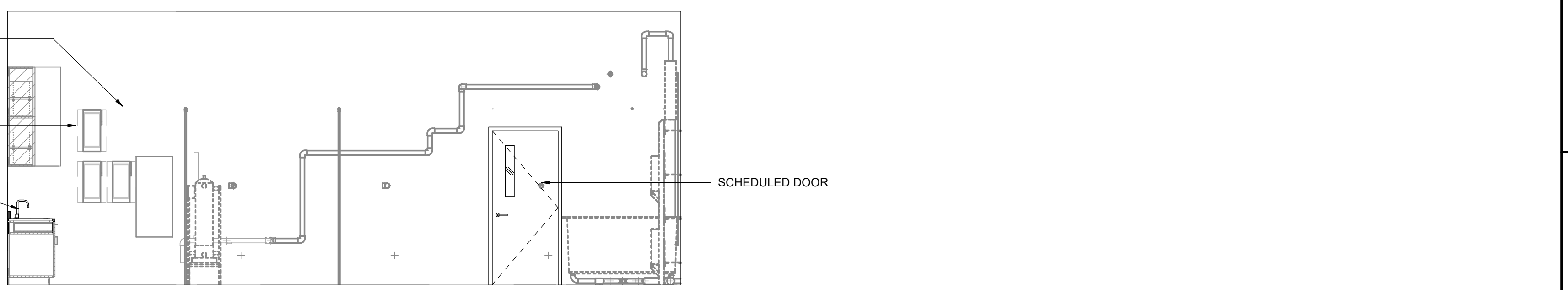
1 PARTIAL NORTH ELEVATION - INCUBATION ROOM 101 - DEMOLITION
1/4" = 1'-0"



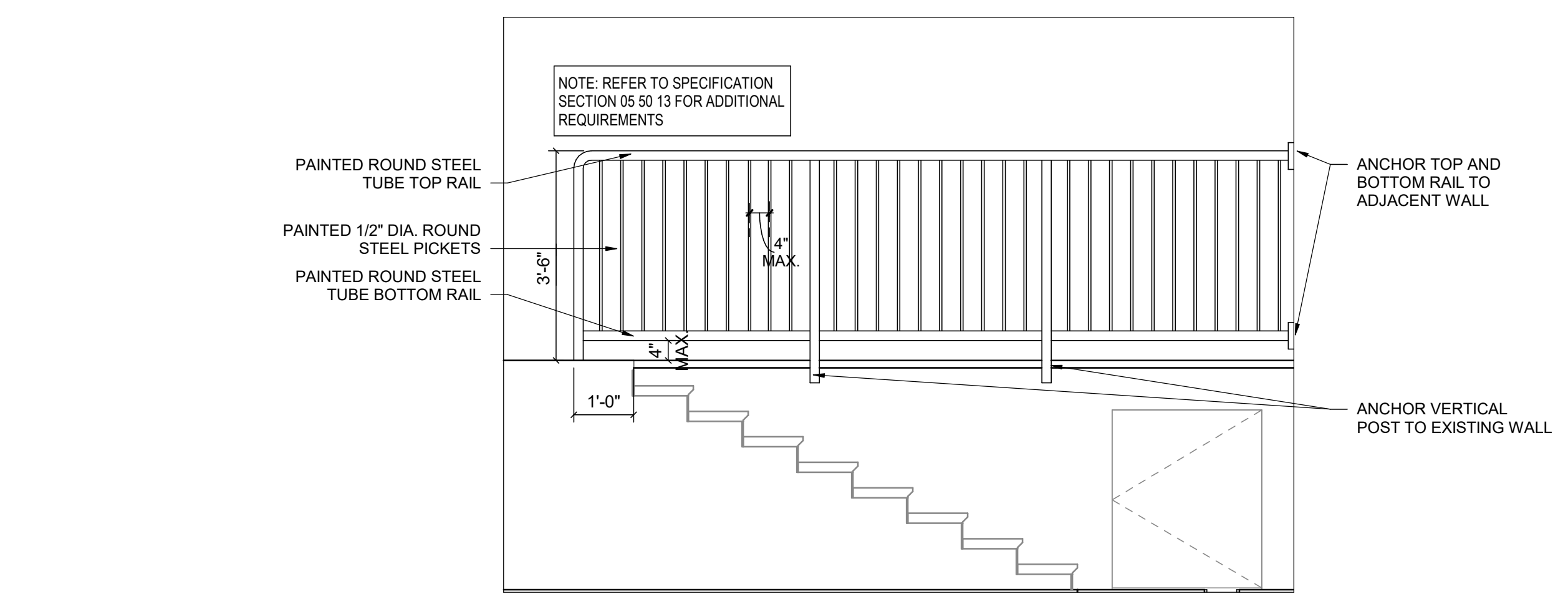
2 NORTH ELEVATION - INCUBATION ROOM 101
1/4" = 1'-0"



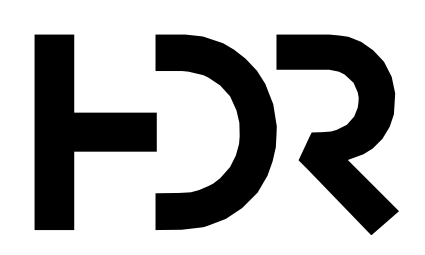
3 EAST ELEVATION - INCUBATION ROOM 101 - DEMOLITION
1/4" = 1'-0"



4 EAST ELEVATION - INCUBATION ROOM 101
1/4" = 1'-0"

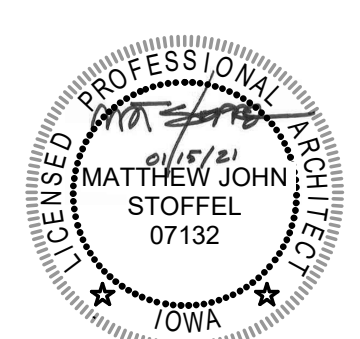


5 GUARDRAIL ELEVATION
1/2" = 1'-0"



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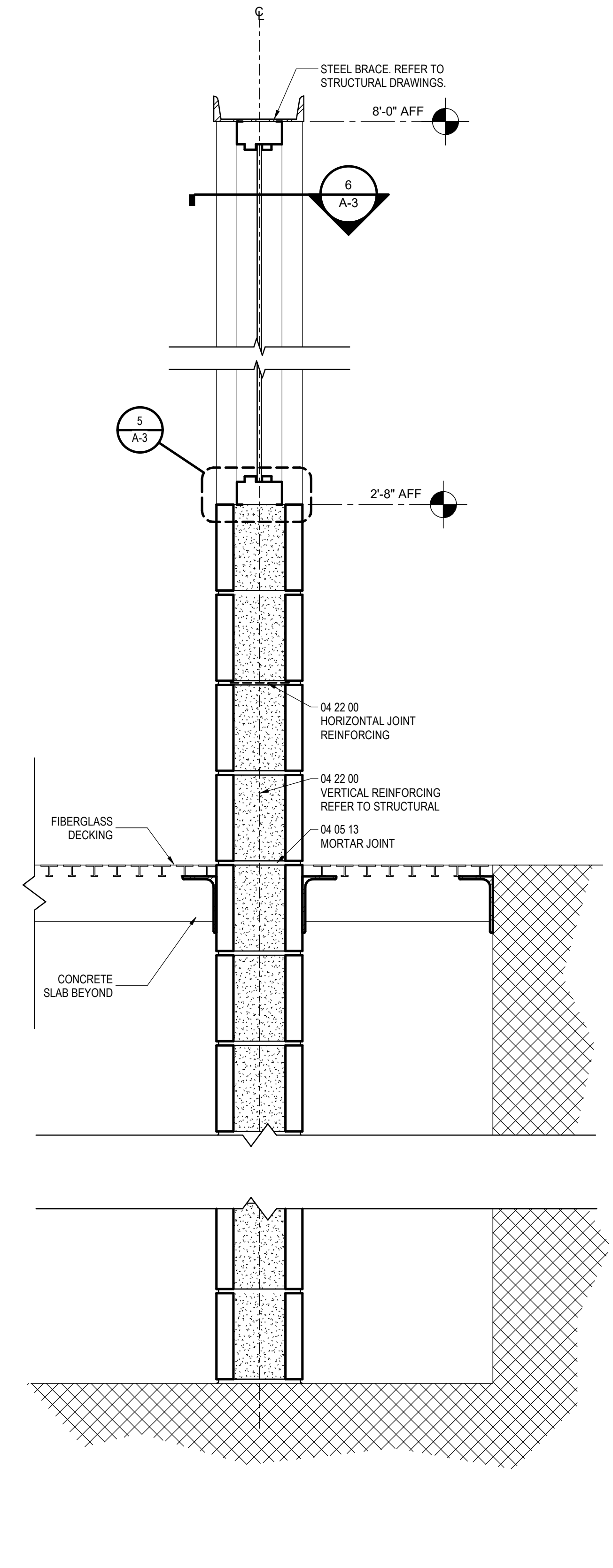


ELEVATIONS

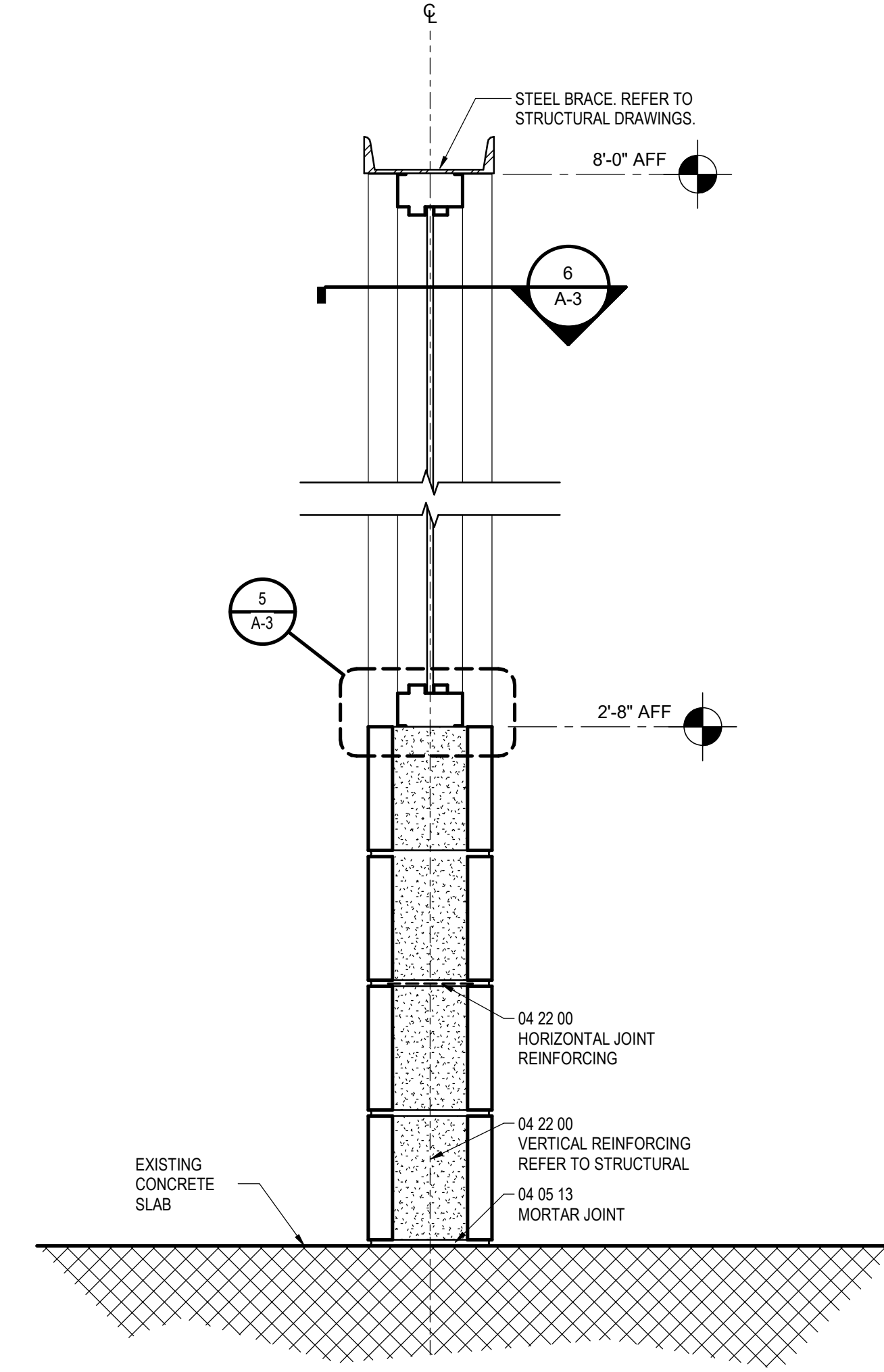
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SCALE | As indicated

SHEET
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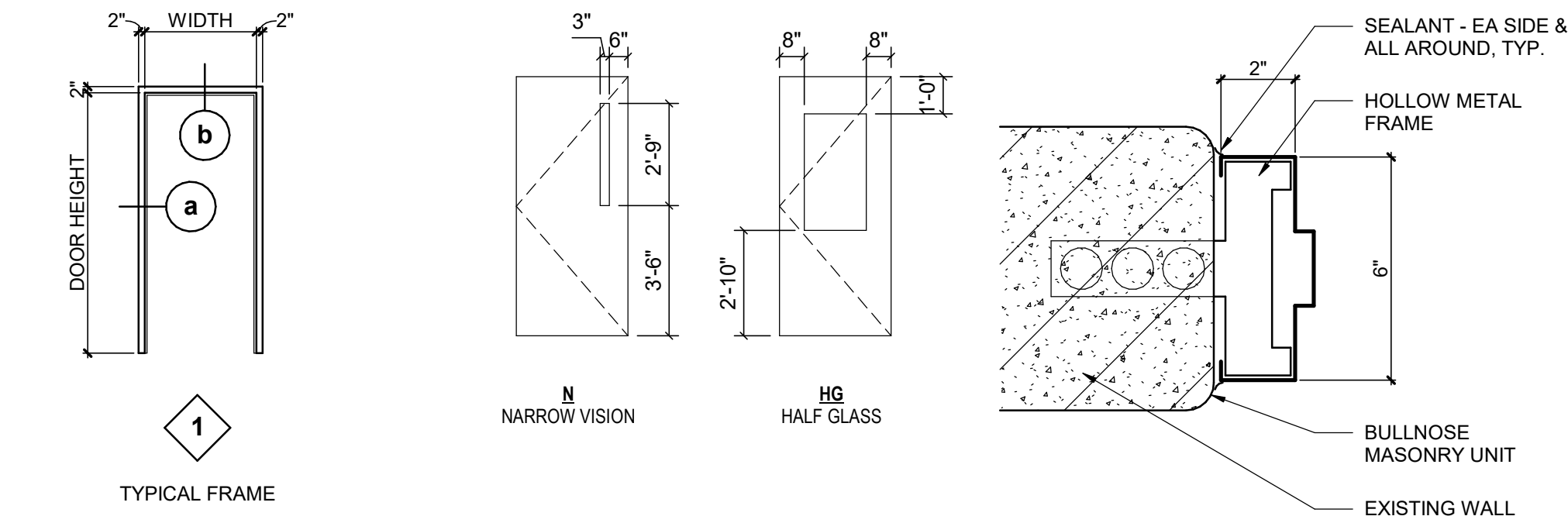


1 WALL SECTION @ PIT
1 1/2" = 1'-0"

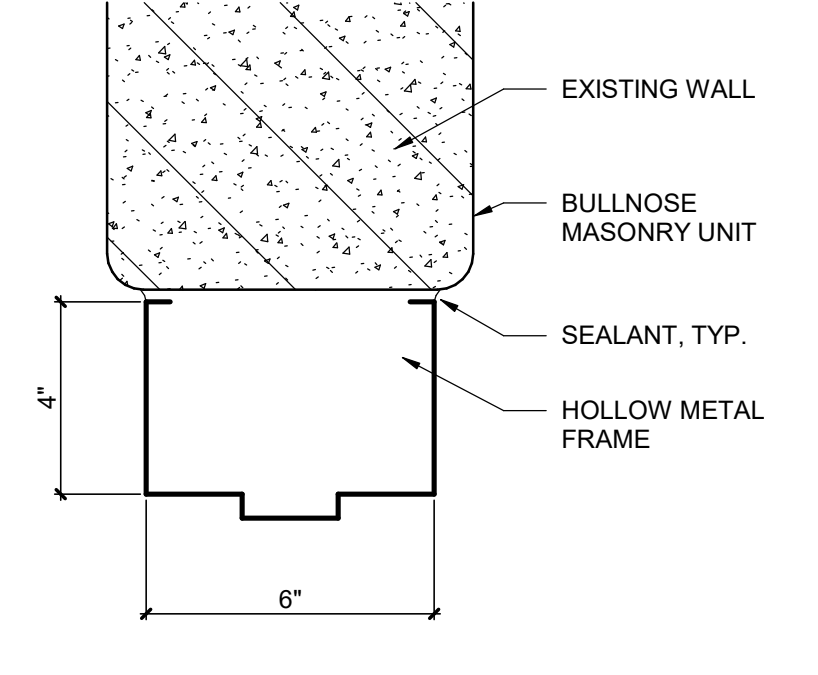


2 WALL SECTION @ CONCRETE SLAB
1 1/2" = 1'-0"

3 WALL SECTION @ WINDOW
1 1/2" = 1'-0"

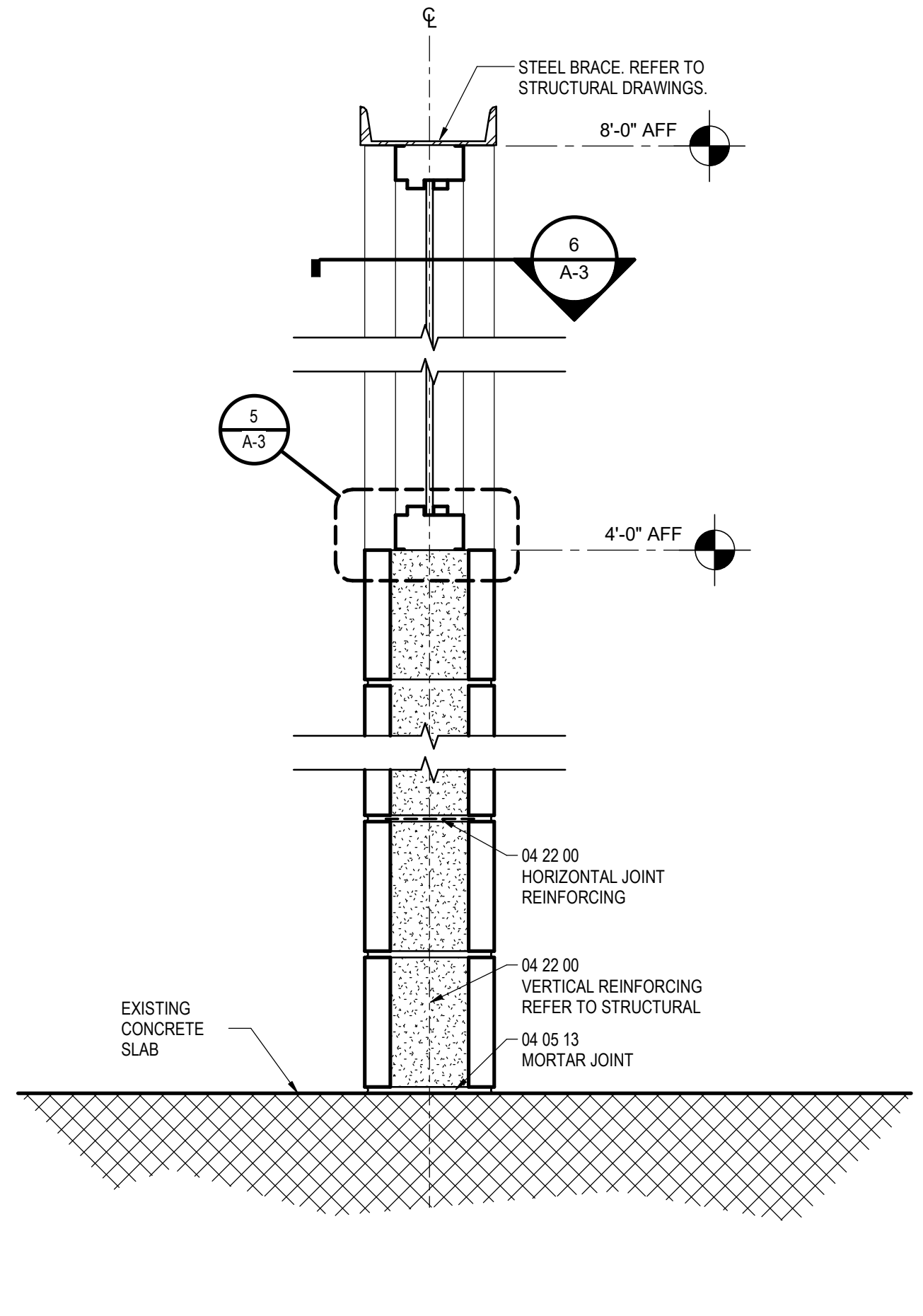


DOOR FRAME TYPE 1/4" = 1'-0"
DOOR PANEL TYPE 1/4" = 1'-0"
a DOOR JAMB DETAIL 3" = 1'-0"

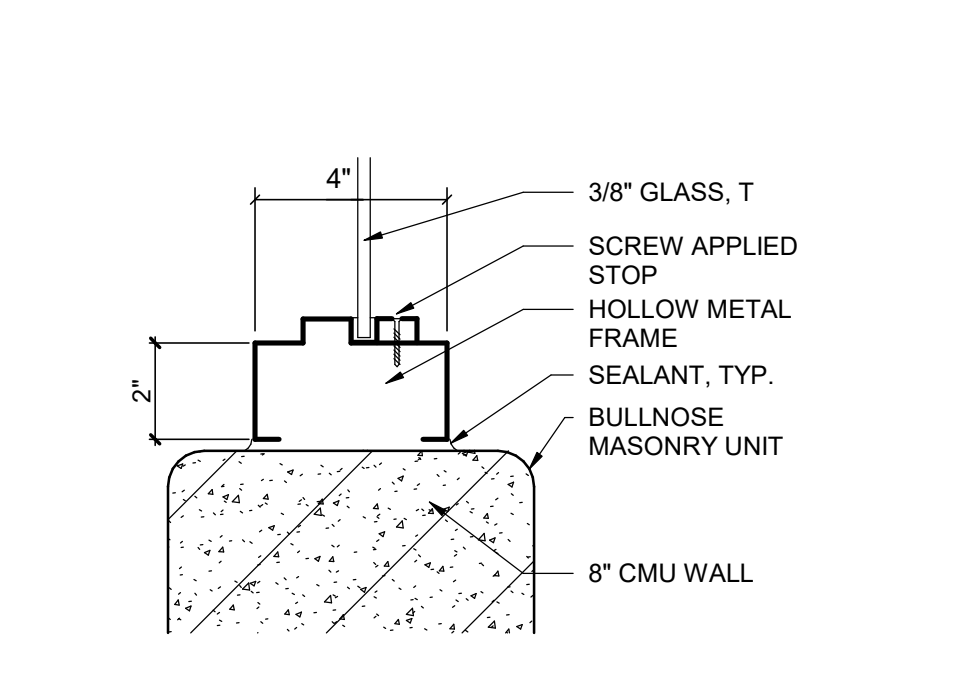


b DOOR HEAD DETAIL 3" = 1'-0"

DOOR AND FRAME SCHEDULE																	
IDENTIFICATION	DIMENSION				PANEL				FRAME				SILL HEIGHT	FIRE RATING	STC Rating	OVT Hardware Set	NOTES
	W1	W2	TOTAL	H	T	PANEL COUNT	TYPE	MATERIAL	FINISH	GLAZING	TYPE	MATERIAL					
101.1	3'-0"	3'-0"	6'-0"	7'-10"	0'-13/4"	2	HG	HM	PAINTED	T	1	HM	PAINTED	0"			
101.2	3'-0"	3'-0"	3'-0"	7'-0"	0'-13/4"		N	HM	PAINTED	T	1	HM	PAINTED	0"			

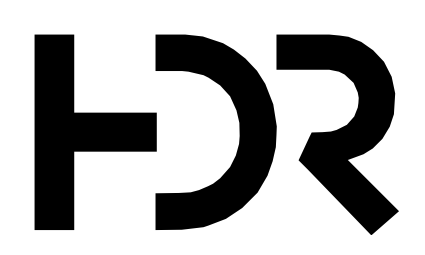


5 WINDOW SILL DETAIL 3" = 1'-0"



6 WINDOW JAMB DETAIL 3" = 1'-0"

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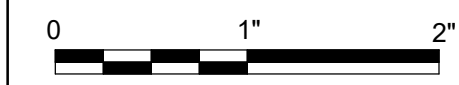


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Spirit Lake Fish Hatchery Upgrade for RAS - REBID



DETAILS

FILENAME | 10232924_0_A.rvt
SCALE | As indicated

SHEET
A-3

GENERAL

- G1. SCOPE**
THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.
- G2. APPLICABLE SPECIFICATIONS AND CODES**
A. INTERNATIONAL BUILDING CODE (IBC) 2015 WITH APPLICABLE EDITIONS OF THE CODE REFERENCED STANDARDS.
B. LOCAL JURISDICTION AMENDMENTS
- G3. DESIGN CRITERIA**
1. APPLIES TO ALL STRUCTURES (UNO)
A. DEAD LOAD:
1. ACTUAL TRIBUTARY STRUCTURE WEIGHT
B. LIVE LOAD:
1. GRATING: 100 PSF
- G4. SAFETY**
SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LIVE LOADS ONLY AS A COMPLETED STRUCTURE.
- G5. OPENINGS**
OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.
- G6. STANDARD DETAILS**
THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWINGS THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.
- G7. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR APPROVAL.**
- G8. CONTRACTOR TO SUBMIT FOR REVIEW ALL EQUIPMENT SIZES, OPERATING WEIGHTS, VIBRATION FORCES, SUPPORT LOCATIONS, ALONG WITH ANY FLOOR OPENINGS, NOTCHES, AND RECESSES REQUIRED BY SUCH EQUIPMENT. CONCRETE SUPPORT PADS AND/OR FRAMING REQUIRED TO SUPPORT SAID EQUIPMENT SHALL NOT BE FABRICATED AND PLACED UNTIL THE CONCRETE SUPPORT PADS AND/OR FRAMING IS APPROVED TO SUPPORT THE EQUIPMENT.**

CONCRETE

- C1. DESIGN STRENGTHS:**
F_c = 4000 PSI
F_y = 60,000 PSI
- C2. CONCRETE COVER**
UNLESS OTHERWISE NOTED, PROVIDE CONCRETE COVER FOR REINFORCING AS FOLLOWS:
CONCRETE DEPOSITED AGAINST EARTH: 3"
ALL OTHER: 2"
SEE DRAWINGS FOR EXCEPTIONS
- C3. SEE SPECIFICATIONS FOR REINFORCING PLACEMENT REQUIREMENTS.**
- C4. REFER TO OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION FOR EMBEDDED ITEMS AND PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS. AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT, REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.**
- C5. PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES. NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.**
- C6. FIELD ADJUST REINFORCING AT OPENINGS AND EMBEDDED ITEMS AS INDICATED.**
- C7. ANCHOR BOLTS NOT SPECIFIED BY ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER, RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH APPLICABLE PROJECT AND CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.**
- C8. ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.**
- C9. ALL CAST IN PLACE AND POST-INSTALLED ANCHORS INDICATED IN THE STRUCTURAL DOCUMENTS SHALL COMPLY WITH APPENDIX D OF ACI 318 AND CHAPTER 19 OF THE IBC. ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE THE ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT.**

MASONRY

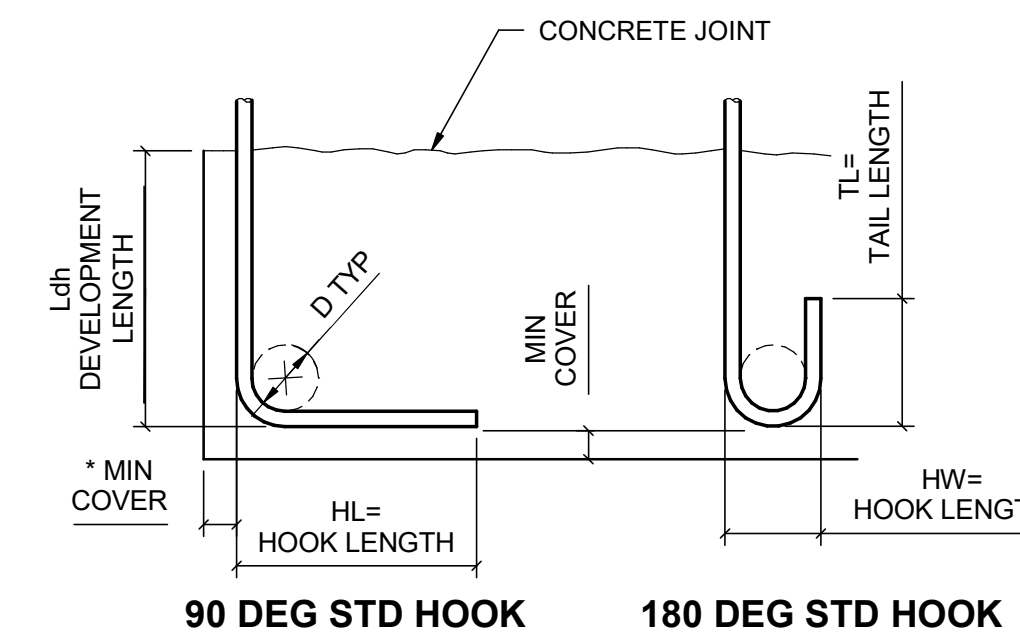
- M1. DESIGN STRENGTHS:**
F_m = 1500 PSI
F_y = 60,000 PSI
- M2. GROUT FOR FILLING MASONRY CAVITIES TO BE COARSE GROUT UNO, MAXIMUM COARSE AGGREGATE SIZE IS 3/8 INCH.**
- M3. GROUT POURS SHALL NOT EXCEED 4 FEET IN HEIGHT UNLESS CLEANOUTS ARE PROVIDED IN THE BOTTOM COURSE OF THE CELL(S) TO BE GROUTED AND WRITTEN PERMISSION IS OBTAINED FOR HIGH LIFT GROUTING.**
- M4. RESTRICTED BAR ANCHORAGE:**
IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOK. SHOW ON SHOP DRAWINGS AND HIGHLIGHT WITH A BOX TO BRING TO ENGINEER'S ATTENTION.
- M5. ANCHOR BOLTS:**
ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE THE ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT.
- M6. IF BOND BEAMS AT INTERSECTING WALLS ARE SHOWN ON THE DRAWINGS TO MEET AT DIFFERENT ELEVATIONS, EXTEND REINFORCING OF BOTH BOND BEAMS AROUND INTERSECTING CORNER NOT LESS THAN 4 FEET IN EACH DIRECTION.**
- M7. LINTEL BLOCKS SHALL NOT BE USED AS BOND BEAM BLOCKS EXCEPT AT OPENINGS WHERE BOND BEAMS AND LINTELS COINCIDE.**

STEEL

- S1. DESIGN STRENGTHS:**
WIDE FLANGE F_y=50 KSI
ALL OTHER PLATES AND SHAPES: F_y=36 KSI
- S2. DIMENSIONS:**
TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.
- S3. ELEVATIONS:**
TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE UNO.
- S4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC SPECIFICATIONS.**
- S5. ALL BOLTED STRUCTURAL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS OTHERWISE SPECIFIED TO BE SLIP-CRITICAL. PROVIDE LOAD INDICATING WASHERS AT SLIP-CRITICAL CONNECTIONS.**
- S6. CONFORM TO AISC 360, STEEL CONSTRUCTION MANUAL.**

ALUMINUM

- A1. STRUCTURAL ALUMINUM YIELD STRENGTHS**
STRUCTURAL ALUMINUM: F_y=35 KSI
STRUCTURAL ALUMINUM IS ALLOY 6061-T6 UNO
- A2. DIMENSIONS:**
TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.
- A3. ELEVATIONS:**
TOP OF ALUMINUM REFERS TO TOP SURFACE OR FLANGE OF MEMBER UNO.
- A4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE FOR THE MATERIAL THICKNESS IN ACCORDANCE WITH THE LATEST EDITION OF THE "ALUMINUM DESIGN MANUAL" BY THE ALUMINUM ASSOCIATION.**
- A5. ALUMINUM IN CONTACT WITH DISSIMILAR MATERIALS OR CONCRETE:**
CONTACT SURFACES SHALL BE PROVIDED WITH GALVANIC SEPERATION PER SPECIFICATIONS.



BAR SIZE GRADE 60	HL	HW	TL	D	f _c =4.0 OR 4.5 KSI
					L _{dh}
#3	6"	3"	3"	2 1/4"	6"
#4	8"	4"	4 1/2"	3"	7"
#5	10"	5"	5"	3 3/4"	9"
#6	1'-0"	6"	6"	4 1/2"	10"
#7	1'-2"	7"	7"	5 1/4"	12"
#8	1'-4"	8"	8"	6"	14"
#9	1'-7"	11 3/4"	10 1/2"	9 1/2"	15"
#10	1'-10"	1'-1 1/4"	11 1/2"	10 3/4"	17"
#11	2'-0"	1'-2 3/4"	1'-1"	12"	19"

COMPLYING WITH MINIMUM COVER REQUIREMENTS OF ACI 318, 12.5.3. OTHERWISE L_{dh} MUST BE RE-CALCULATED.

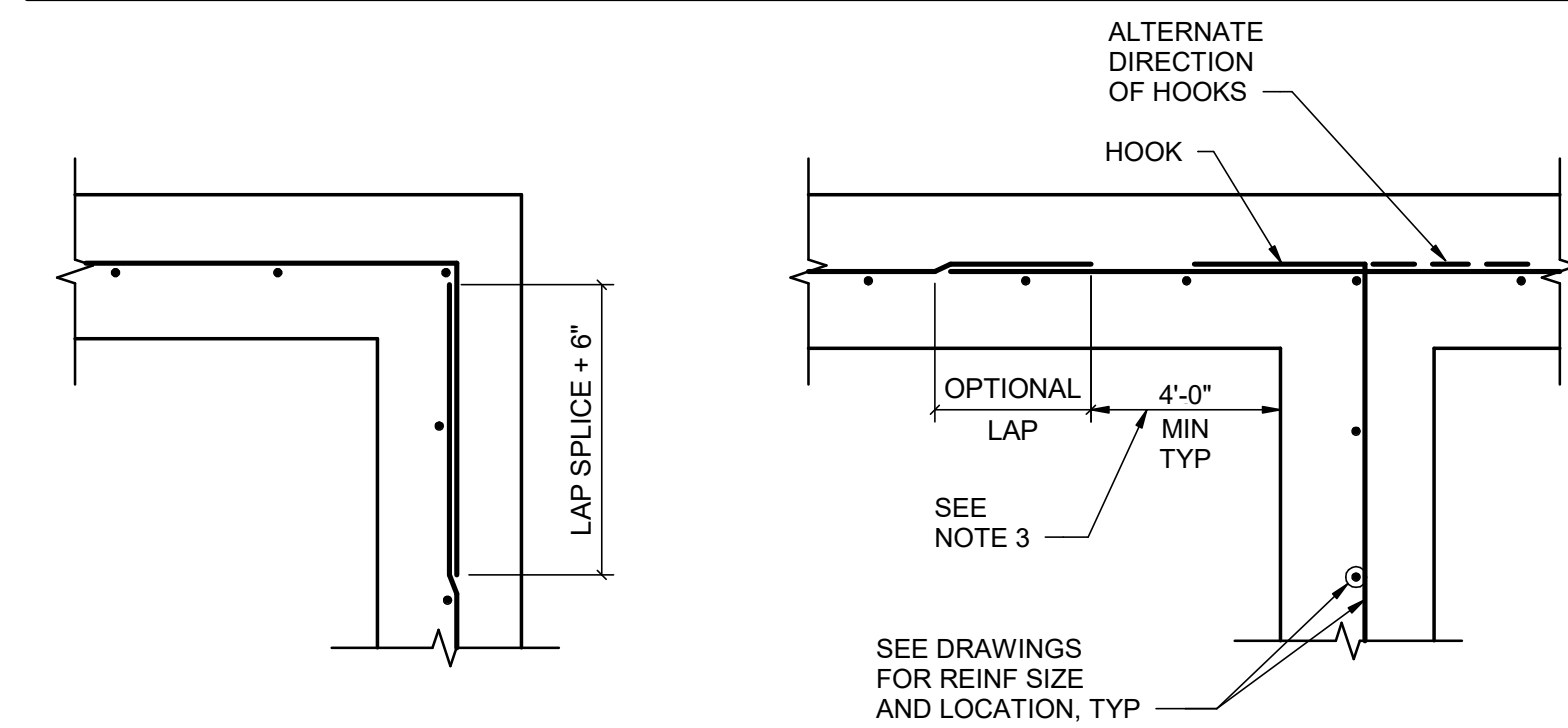
REINFORCING HOOK SCHEDULE

NOTES:

- PROVIDE MINIMUM LAP SPlice LENGTHS AND EMBEDMENTS PER TABLE UNLESS NOTED OTHERWISE. EMBEDMENT LENGTH EQUALS THE LAP SPlice LENGTH UNLESS OTHERWISE NOTED.
- BAR SPACING AT LAP SPlice IS THE MINIMUM CLEAR DISTANCE BETWEEN LAPPED BARS PLUS ONE BAR DIAMETER.
- ALL SPlices TO BE CONTACT SPlices AND WIRED TOGETHER UNLESS OTHERWISE APPROVED BY THE ENGINEER.

LAP SPlice AND EMBEDMENT LENGTHS		
f _c = 4.0 ksi f _y = 60 ksi		
BAR	BARS SPACED GREATER THAN 4"	BARS SPACED LESS THAN OR EQUAL TO 4"
#3	14"	20"
#4	19"	32"
#5	29"	46"
#6	39"	62"
#7	55"	87"
#8	69"	107"
#9	76"	116"
#10	97"	140"
#11	120"	146"

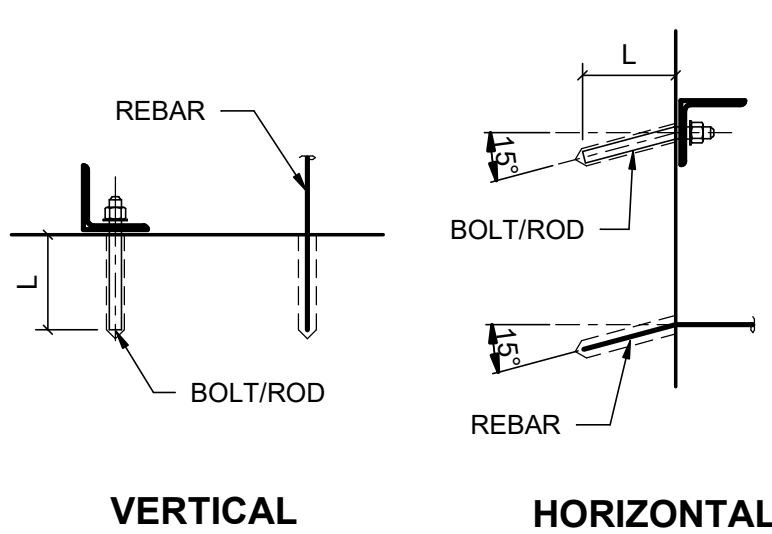
CONCRETE REINFORCING LAP AND EMBEDMENT SCHEDULE



NOTES:

- ALL HOOKS SHALL BE STD 90 DEGREE HOOKS.
- SEE DRAWINGS FOR ADDITIONAL HORIZONTAL BARS. STAGGER BETWEEN TYPICAL REINF SPACING, EXTEND TO 1/5 OF DISTANCE TO NEAREST ADJACENT WALL IN EACH DIRECTION, UNO.
- OPTIONAL LAP LOCATION. APPLIES TO BOTH DOUBLE AND SINGLE LAYER CONDITIONS TYP.

WALL REINFORCEMENT AT CORNERS AND INTERSECTIONS

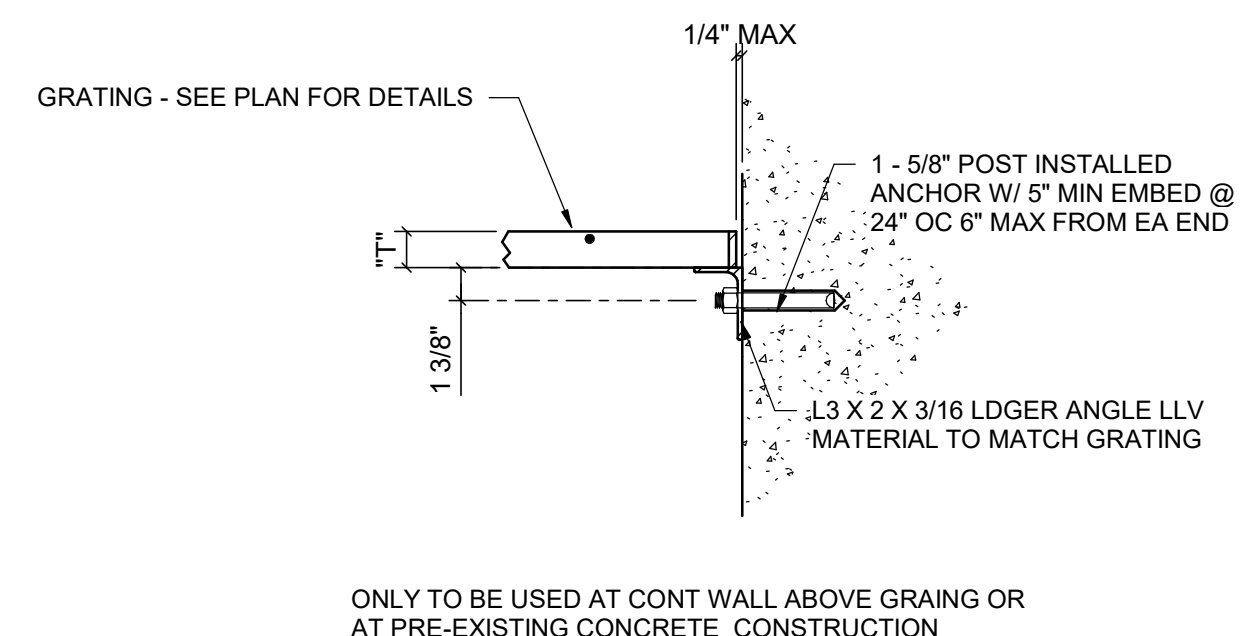


BAR SIZE	REINFORCING BARS		ANCHOR BOLTS/RODS	
	EMBED LENGTH (L)	DIA (IN)	EMBED LENGTH (L)	
#3	4"	3/8"	5"	
#4	5"	1/2"	6"	
#5	6"	5/8"	7"	
#6	7"	3/4"	8"	
#7	8"	7/8"	9"	
#8	9"	1"	10"	
#9	10"			
#10	12"			

NOTES:

- ADHESIVE TYPE IS SUBJECT TO APPROVAL OF THE ENGINEER OF RECORD.
- EMBEDMENT LENGTHS SHOWN ARE MINIMUM UNLESS NOTED OTHERWISE ON DRAWINGS OR AS OTHERWISE REQUIRED BY SPECIFICATIONS.
- FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATION SECTION 03 15 19.

ADHESIVE ANCHOR DETAIL AND SCHEDULE

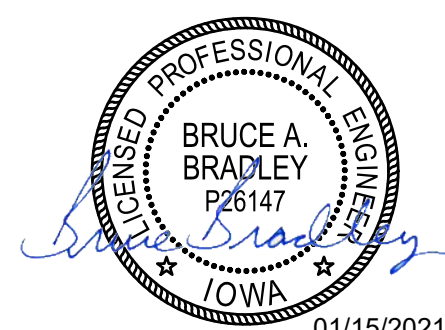


NOTES:

- GRATING SIZE PER CONTRACT DOCUMENTS.
- ANGLES MOUNTED ON MSONRY SHALL HAVE CELLS GROUTED SOLID TO ACCEPT POST-INSTALLED ANCHORS
- ATTACH GRATING TO ALL SUPPORT ANGLES WITH BOLTED LIPS, SPACED AT 2'-0" MAX CENTERS
- PROVIDE DISSIMILAR MATERIAL PROTECTION FOR ALUMINUM IN CONTACT WITH CONCRETE PER SPECIFICATION.

GRATING AND SUPPORT

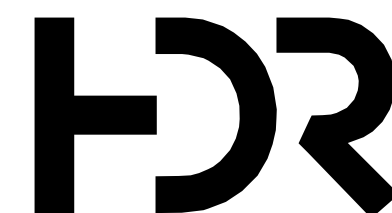
PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924

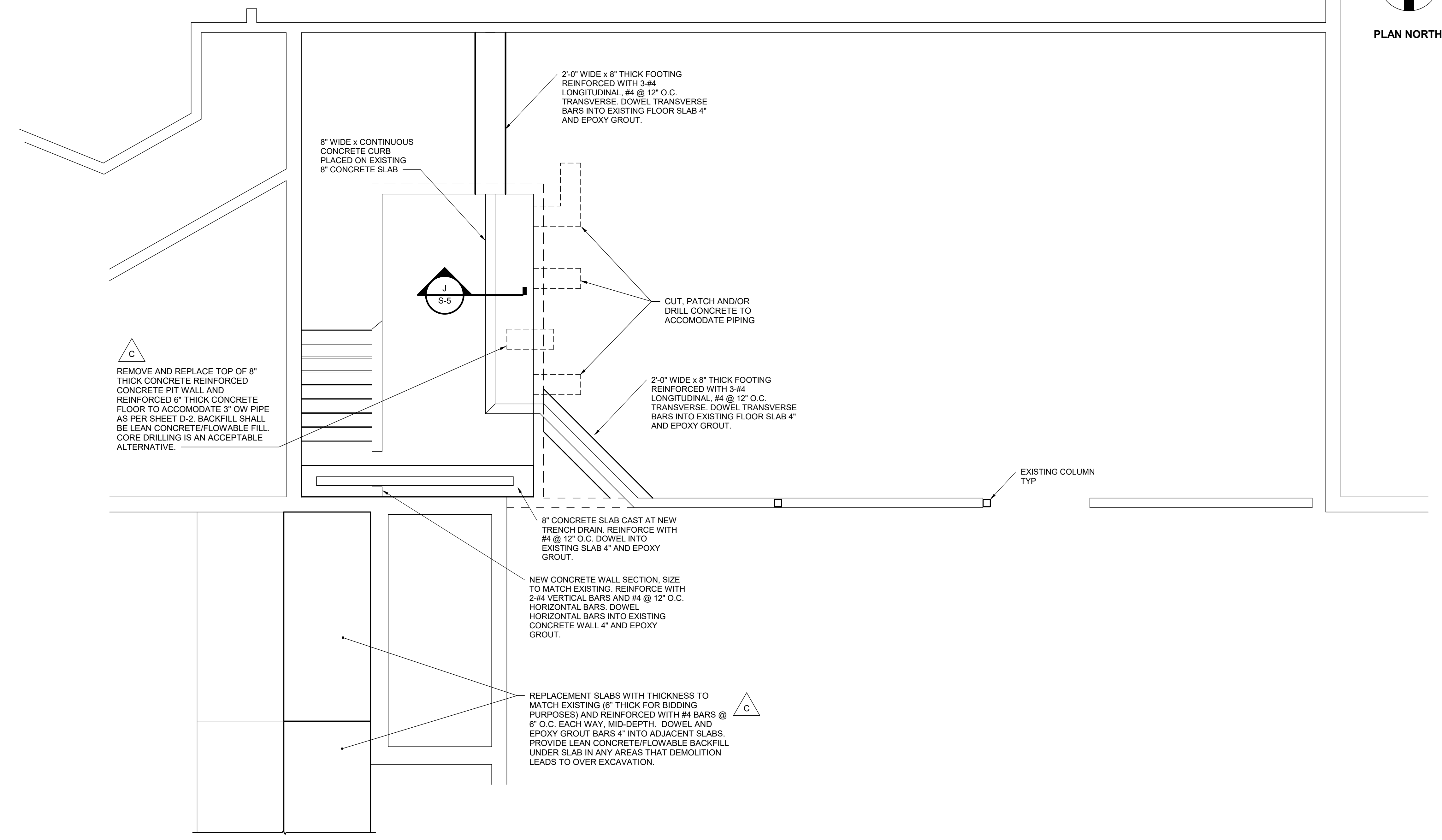
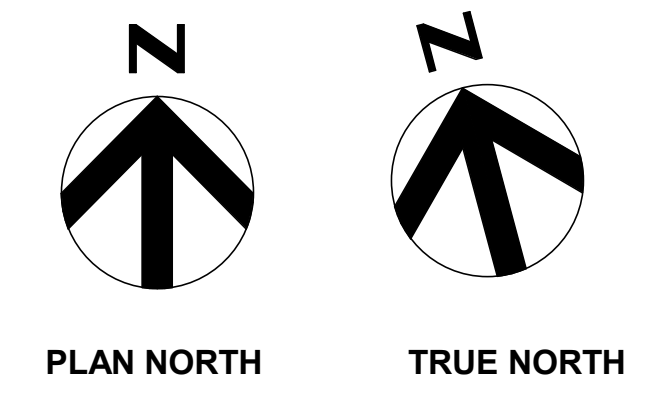


Spirit Lake Fish Hatchery Upgrade for RAS - REBID

GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS

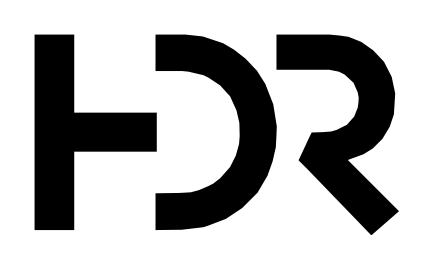
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SCALE	As indicated





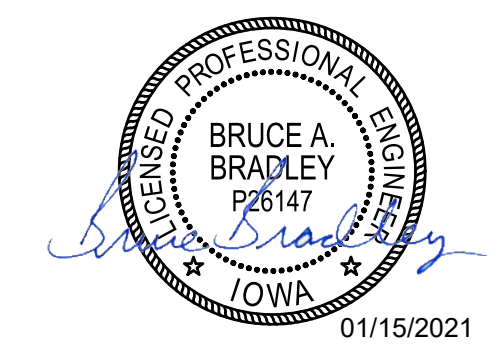
SLAB PLAN
1/4" = 1'-0"

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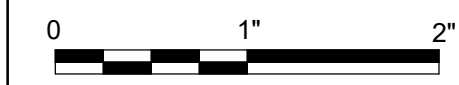


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
C	09/11/2020	ADDENDUM 2
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	

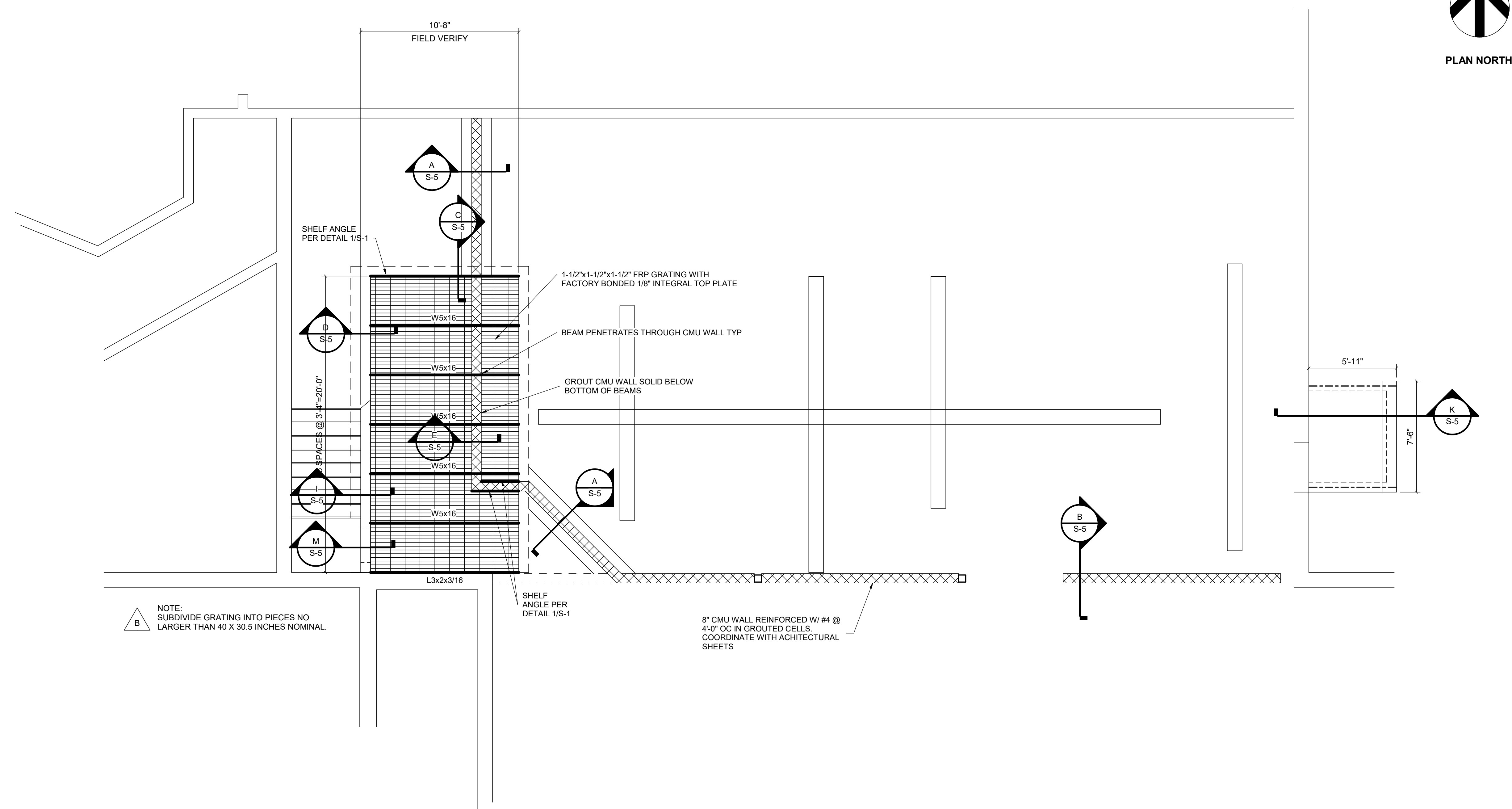
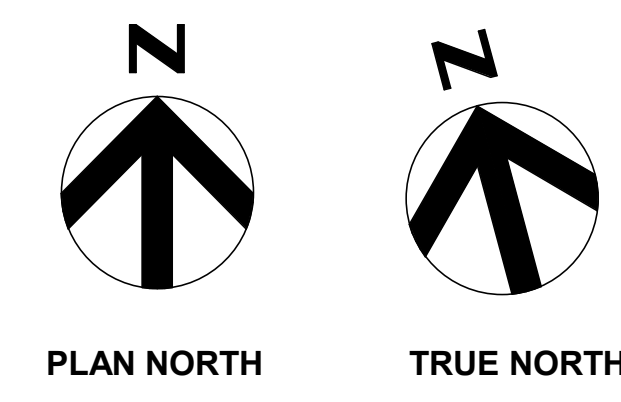


Spirit Lake Fish Hatchery Upgrade for RAS - REBID



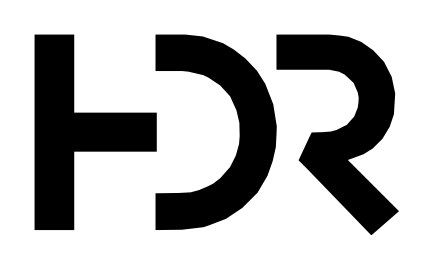
SLAB PLAN
FILENAME | 10232924_0_A.rvt
SCALE | 1/4" = 1'-0"

SHEET
S-2



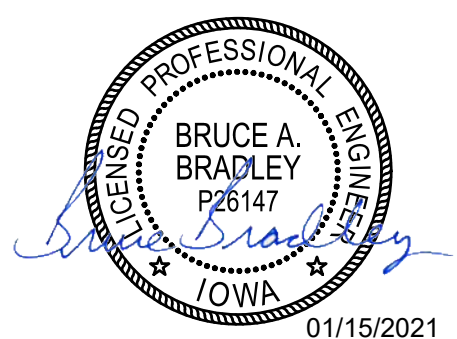
NOTE:
 SUBDIVIDE GRATING INTO PIECES NO
 LARGER THAN 40 X 30.5 INCHES NOMINAL.

FLOOR PLAN
 1/4" = 1'-0"

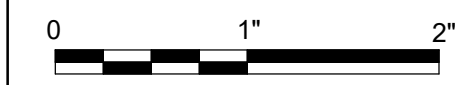


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
B	09/04/2020	ADDENDUM 1
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924



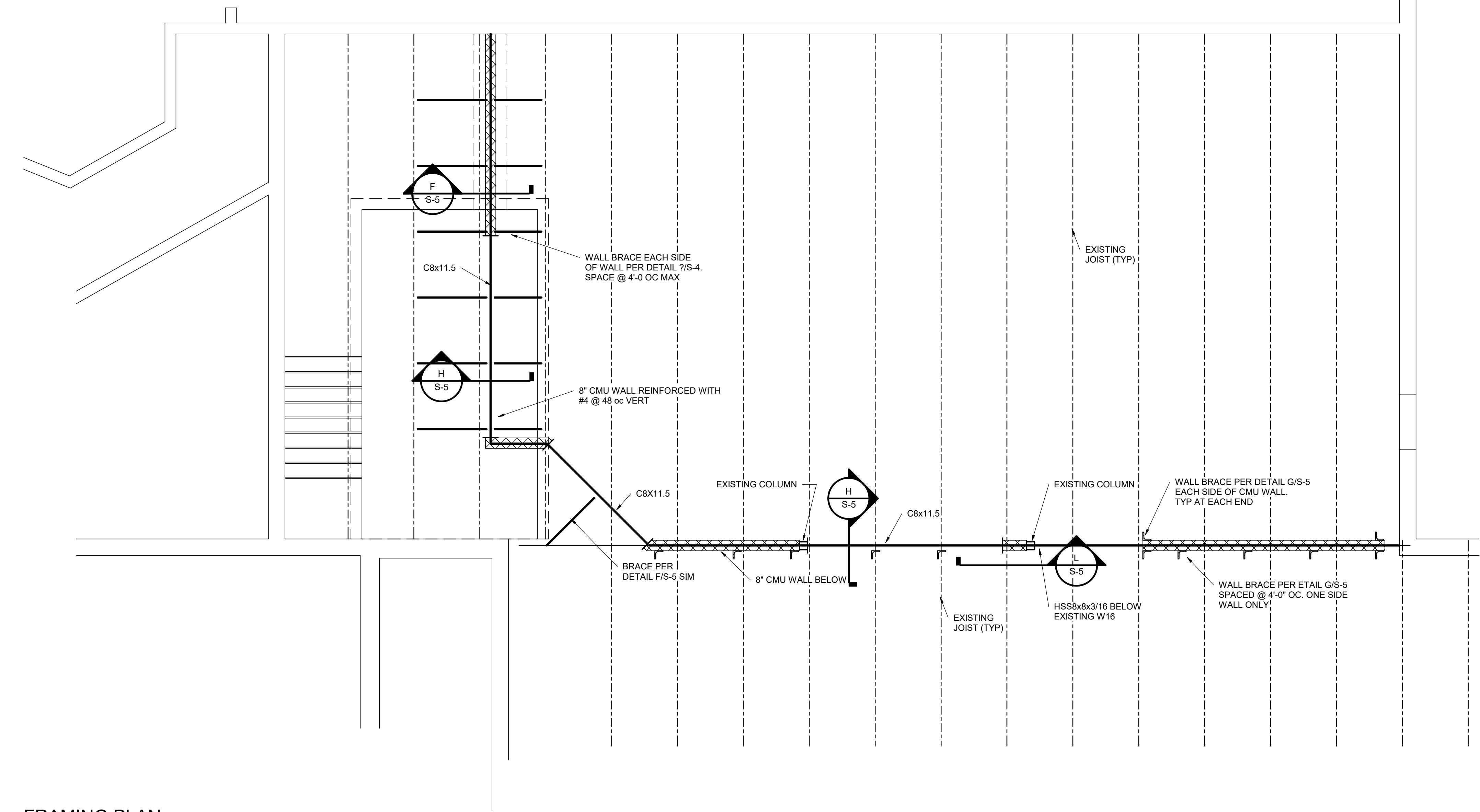
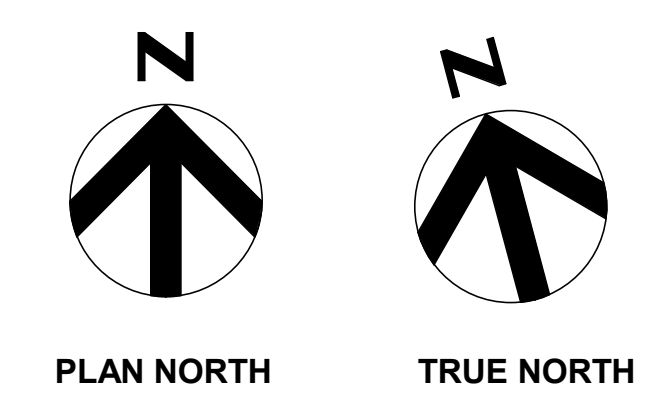
**Spirit Lake Fish Hatchery
 Upgrade for RAS - REBID**



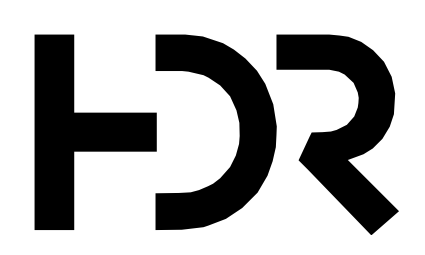
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 SCALE | 1/4" = 1'-0"

SHEET
S-3

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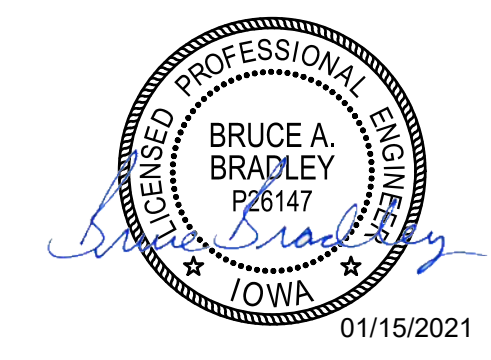


FRAMING PLAN
1/4" = 1'-0"



ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924

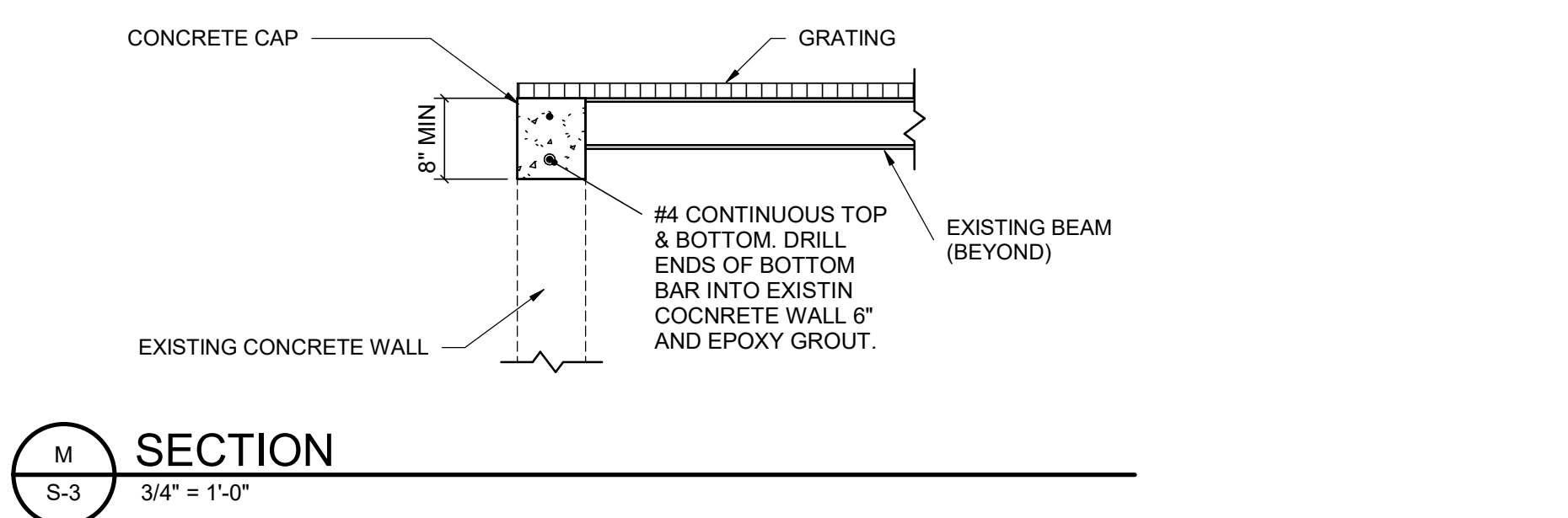
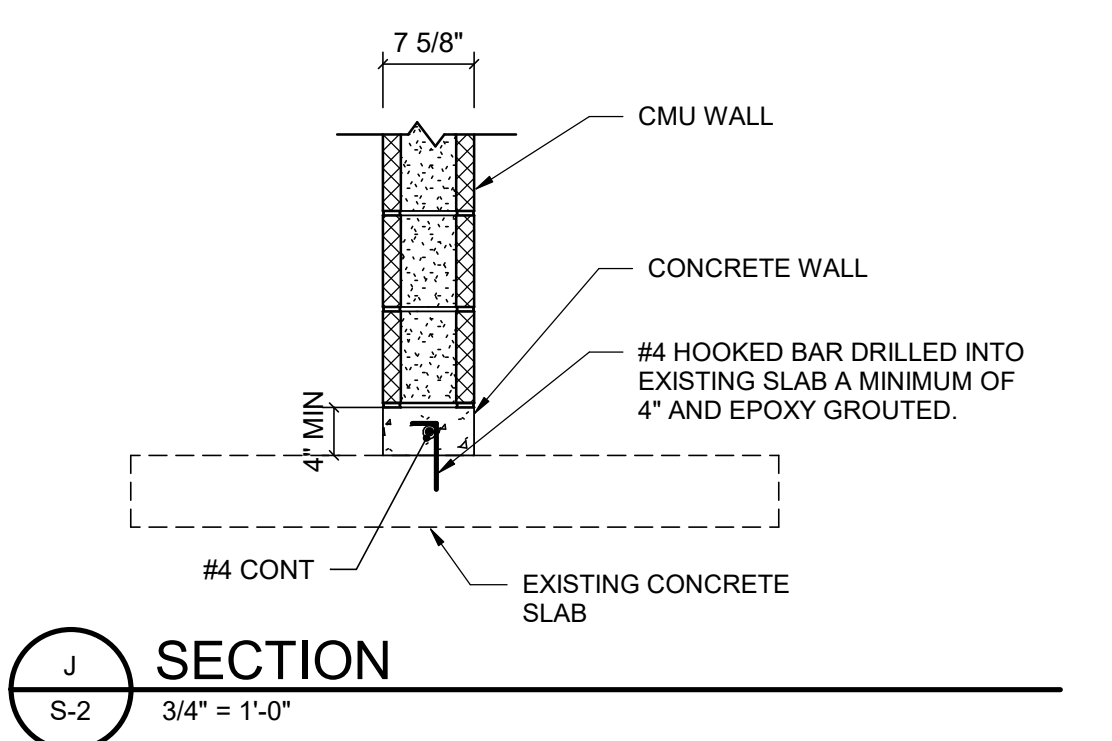
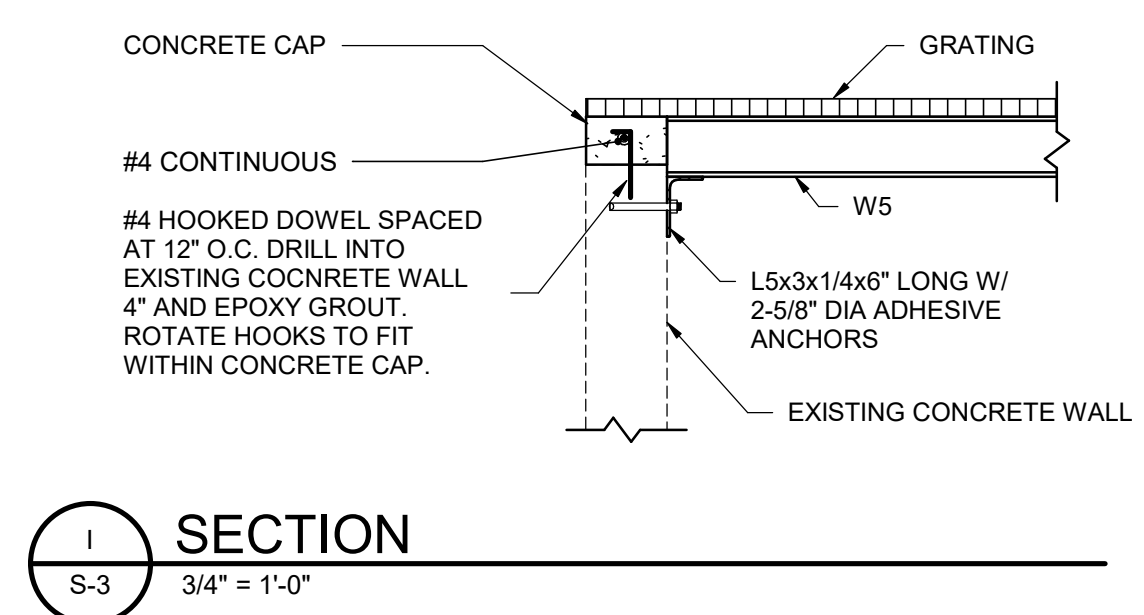
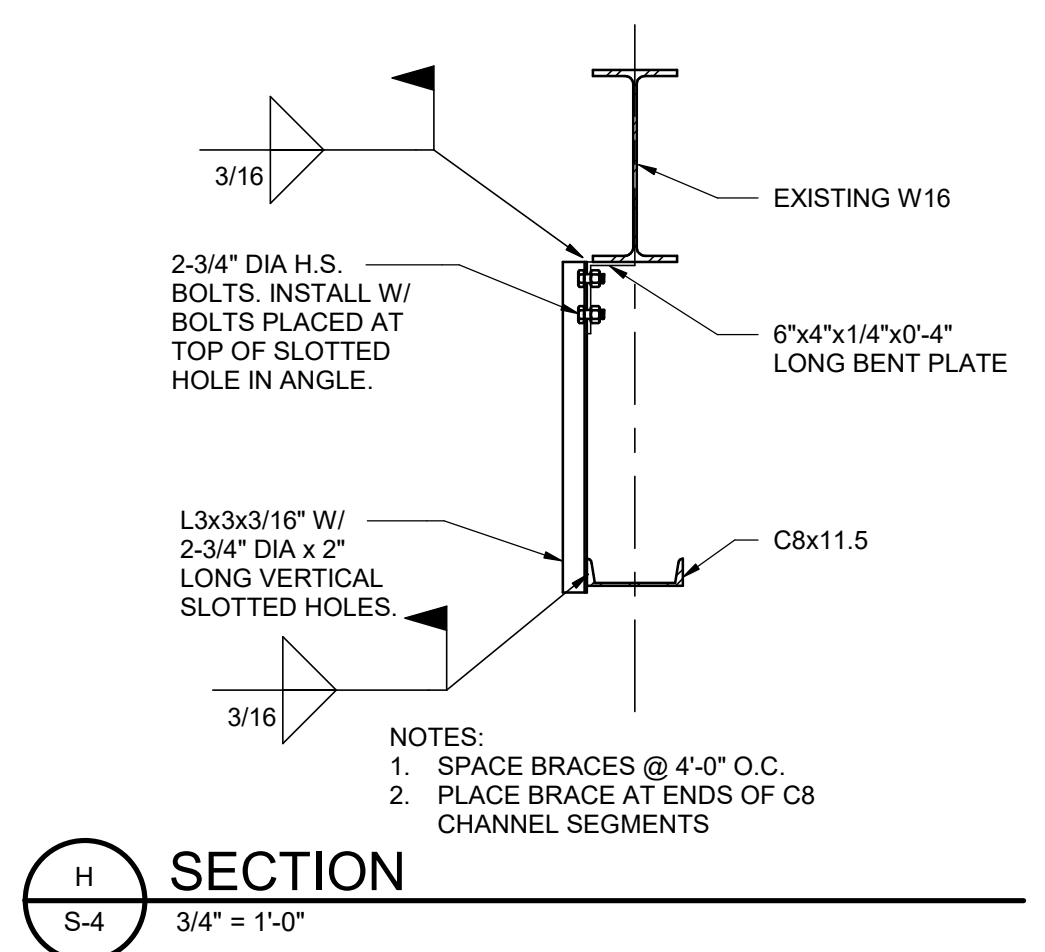
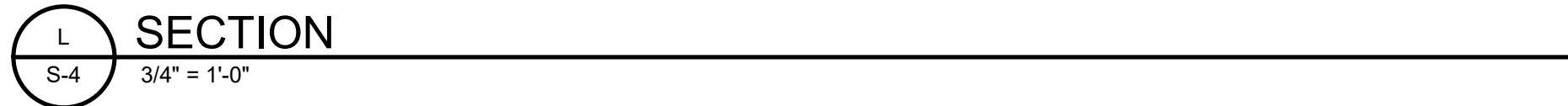
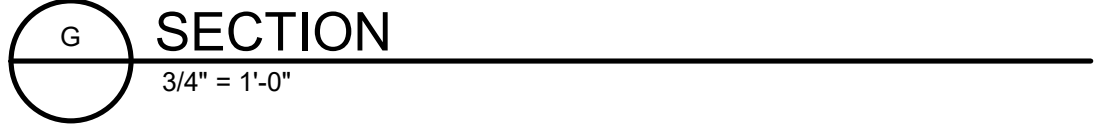
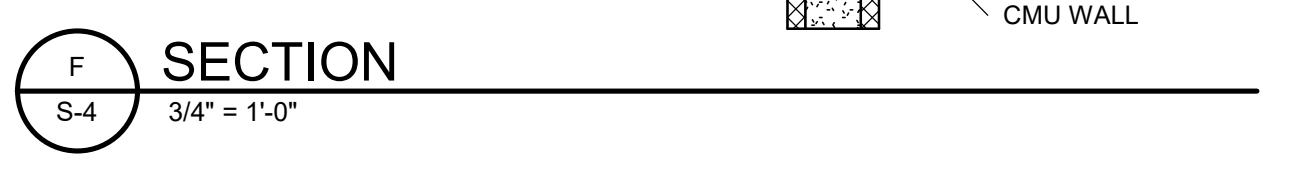
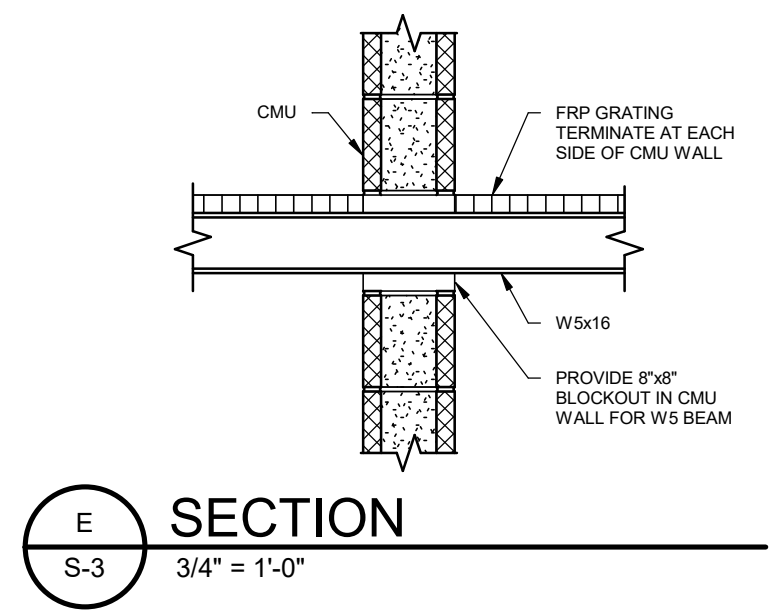
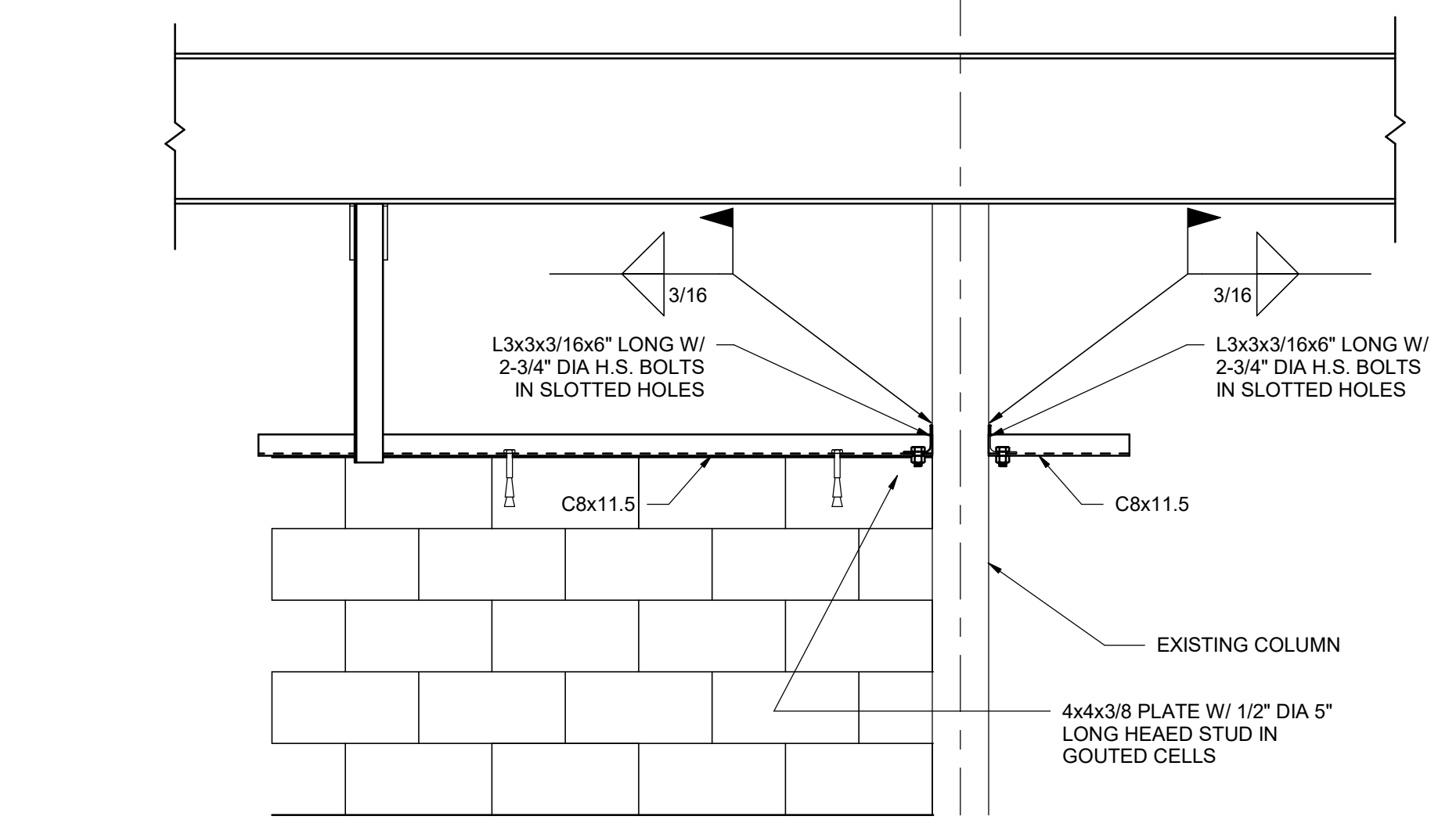
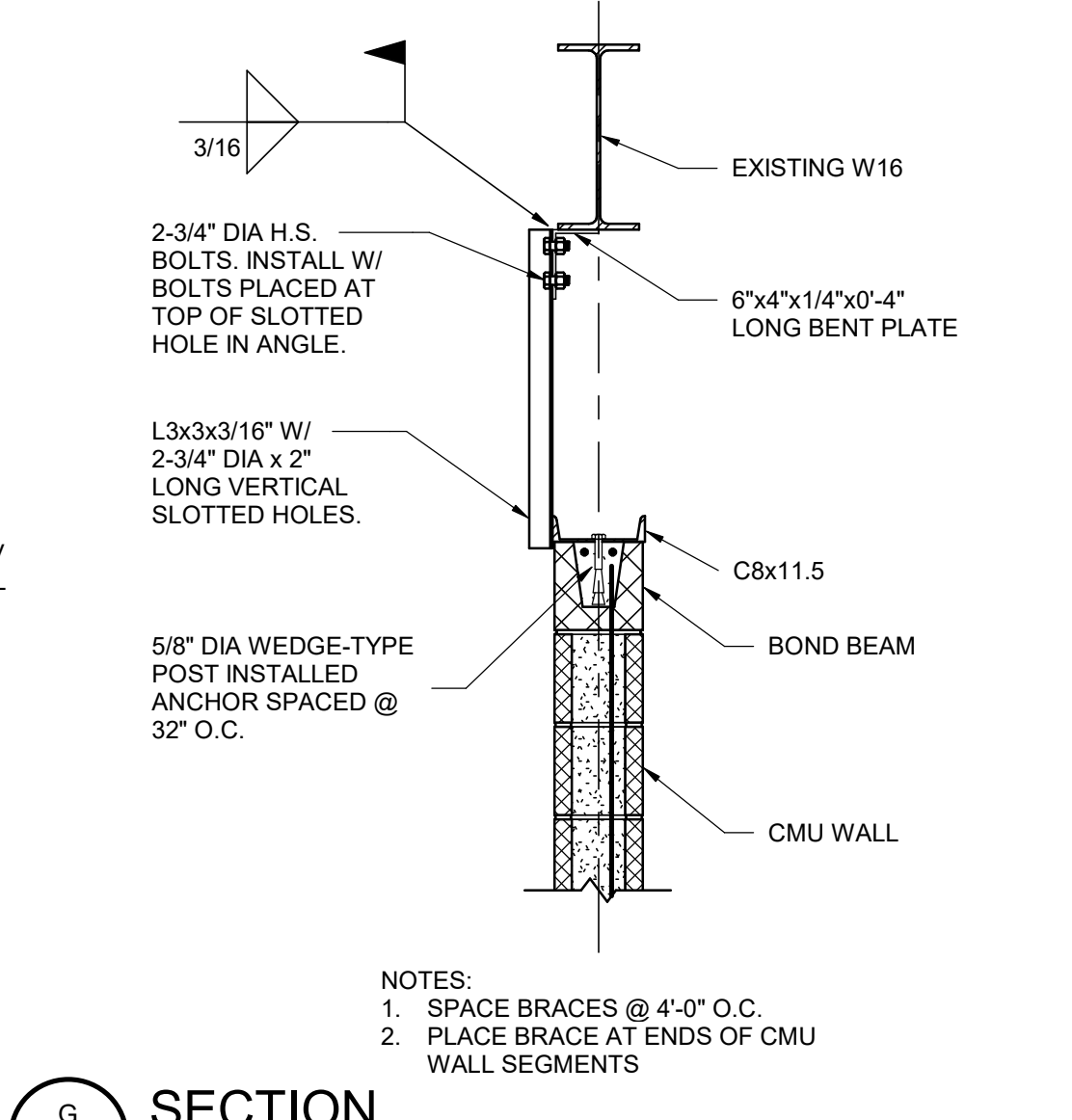
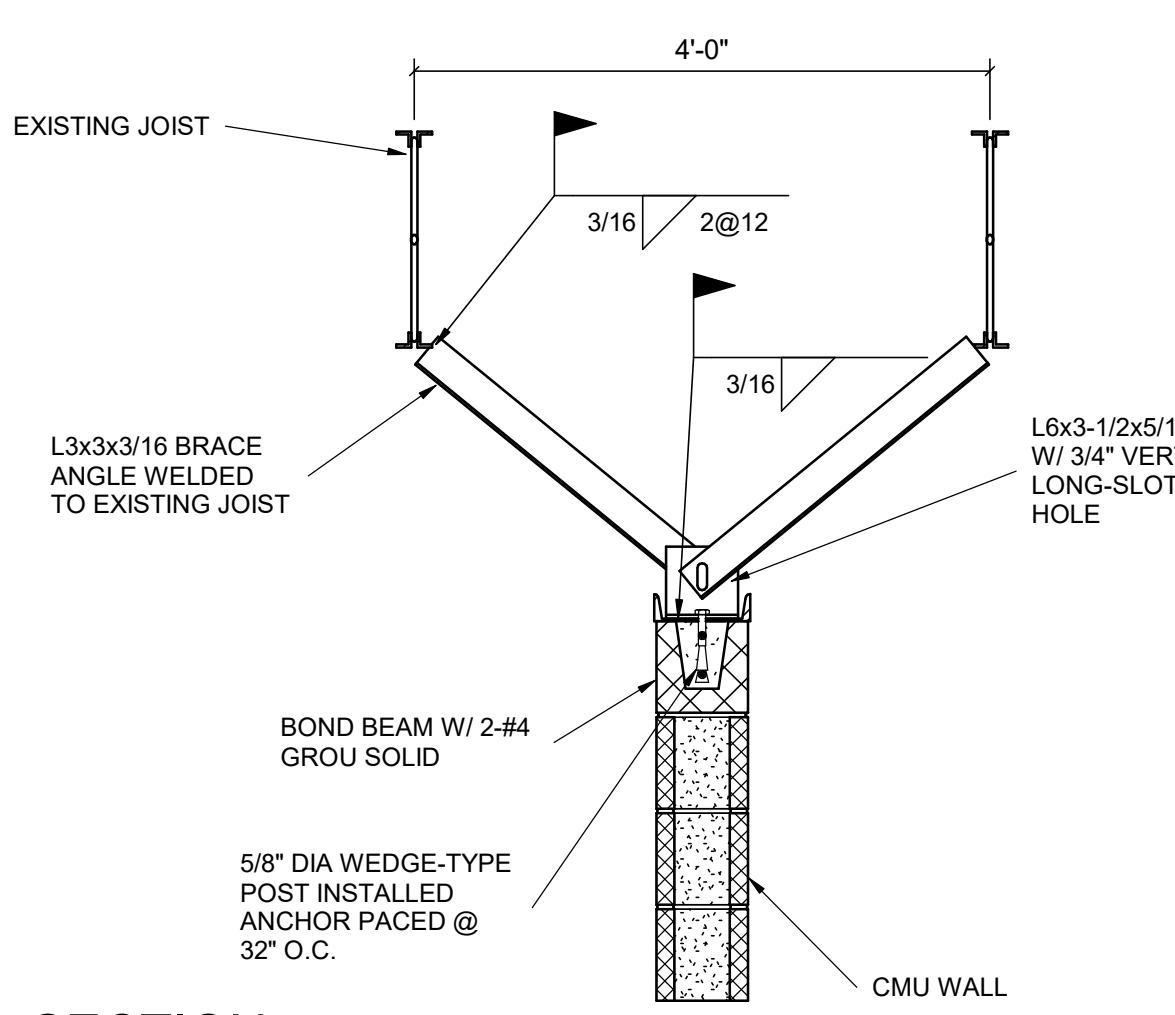
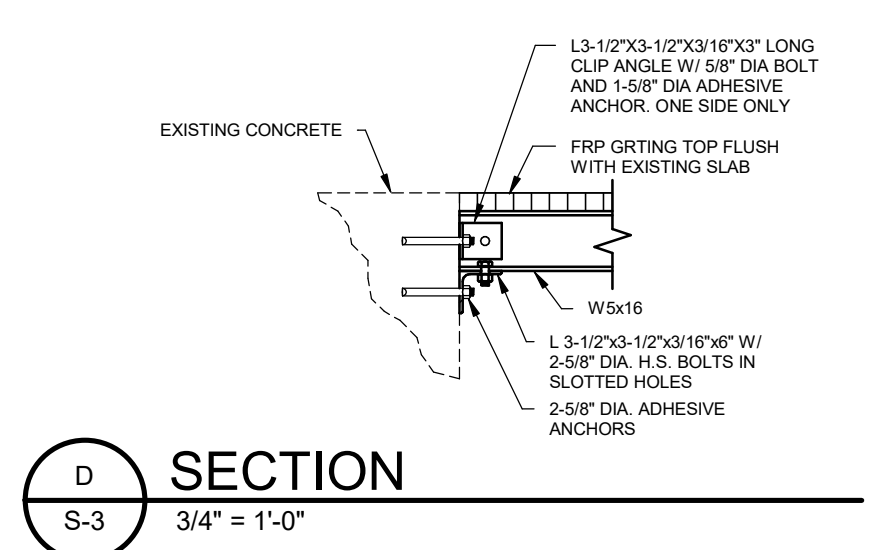
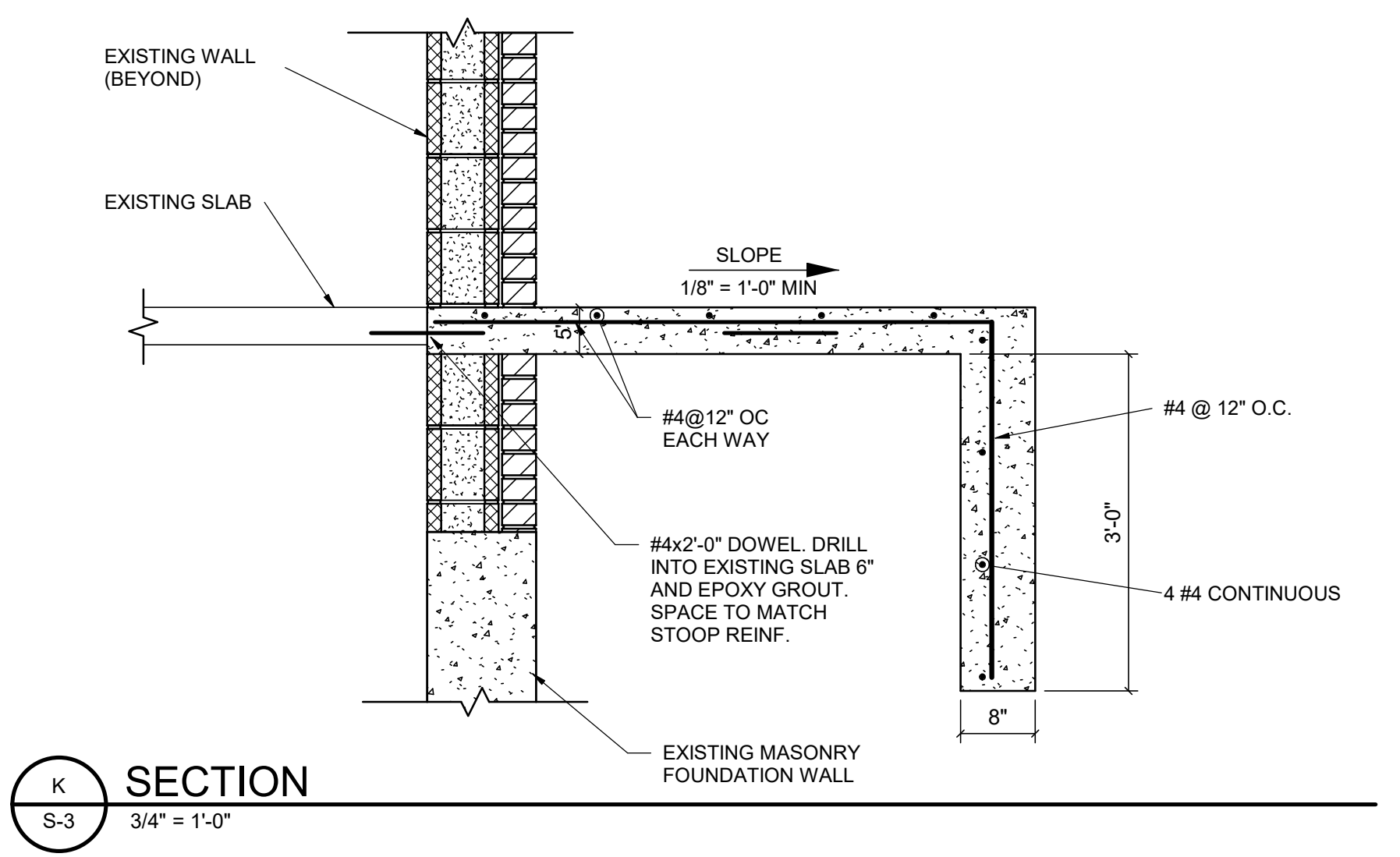
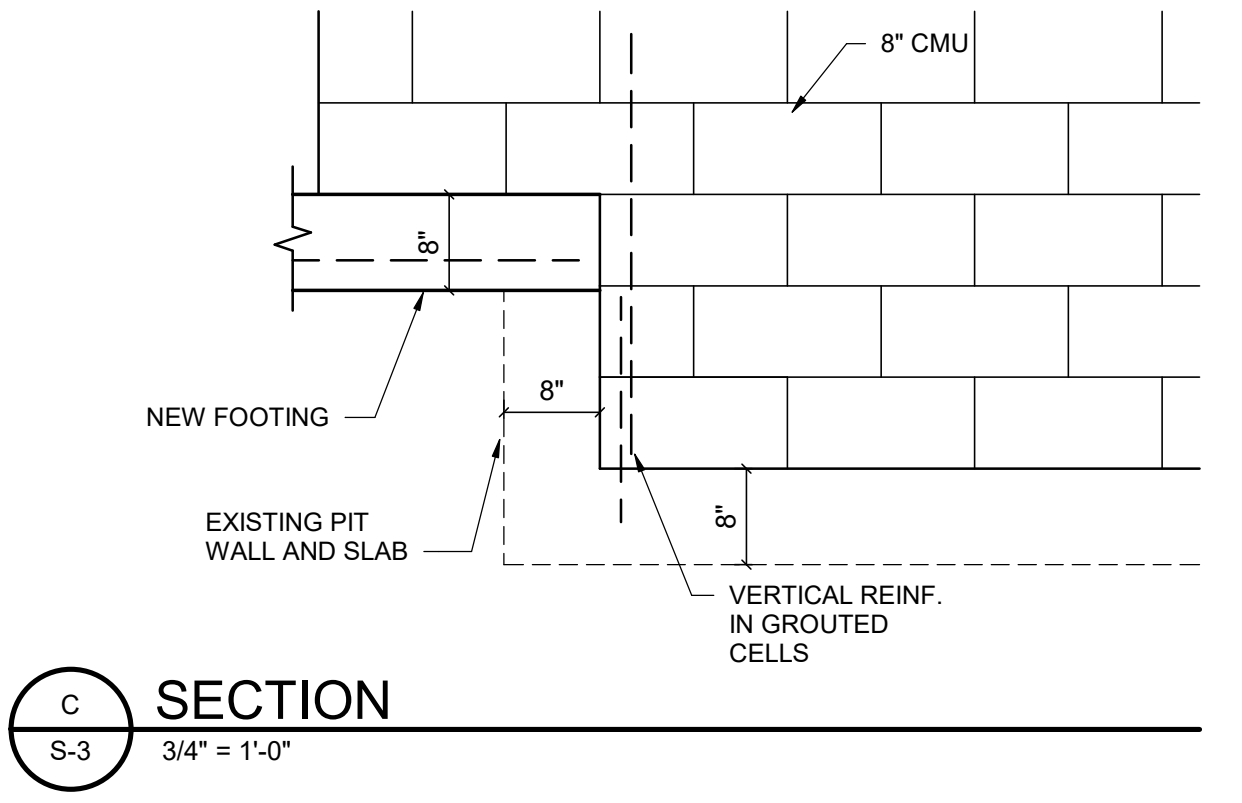
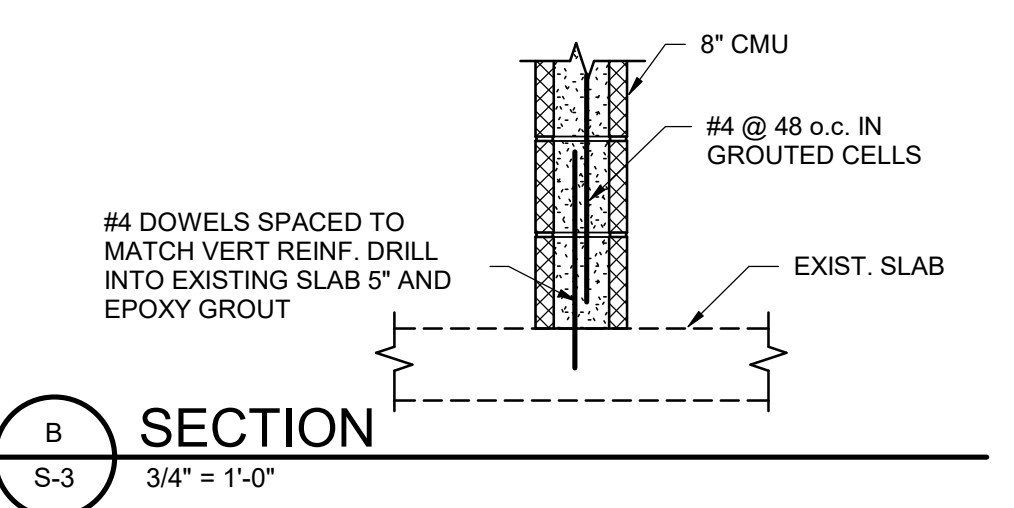
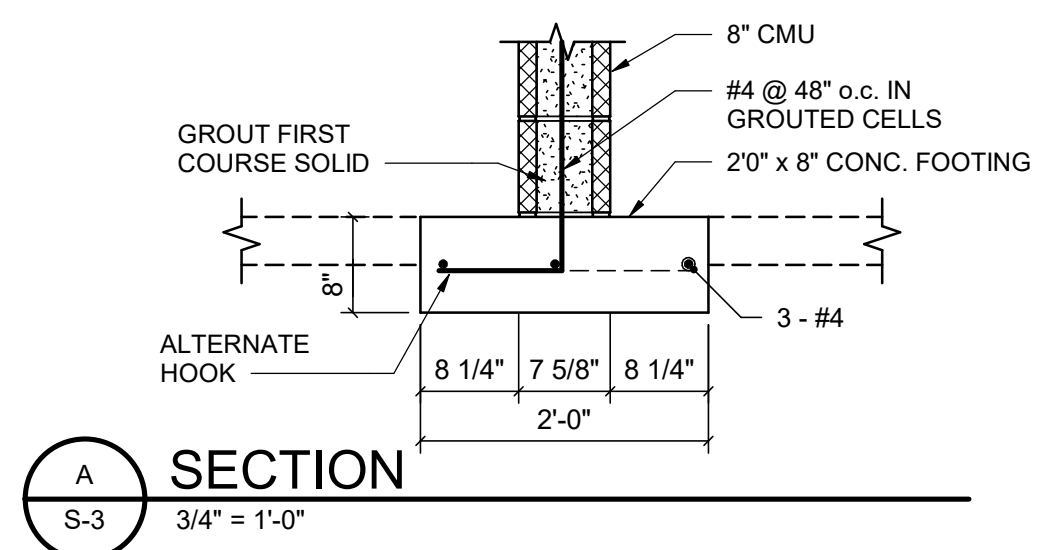


Spirit Lake Fish Hatchery Upgrade for RAS - REBID

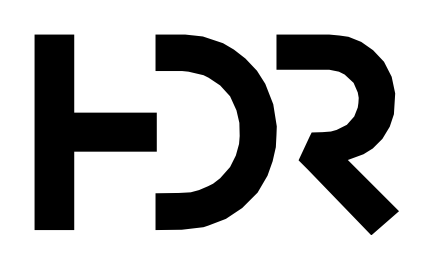
STRUCTURAL FRAMING PLAN

FILENAME: 10232924_0_A.rvt
 SCALE: 1/4" = 1'-0"
 SHEET: **S-4**

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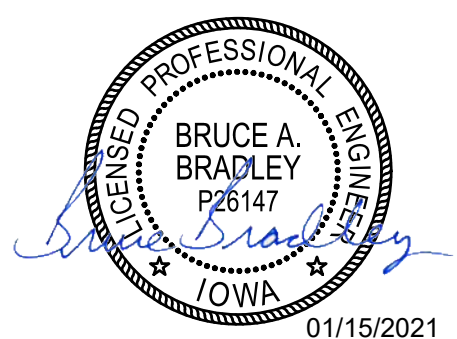


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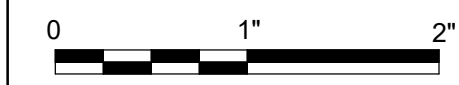


ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	
ARCHITECTURAL	M. COCHRAN
STRUCTURAL	M. STOFFEL
PROCESS	B. BRADLEY
ELECTRICAL	T. TALSMA
	A. KANER
PROJECT NUMBER 10232924	

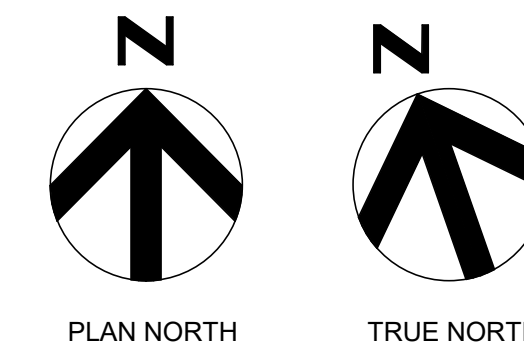


Spirit Lake Fish Hatchery
Upgrade for RAS - REBID

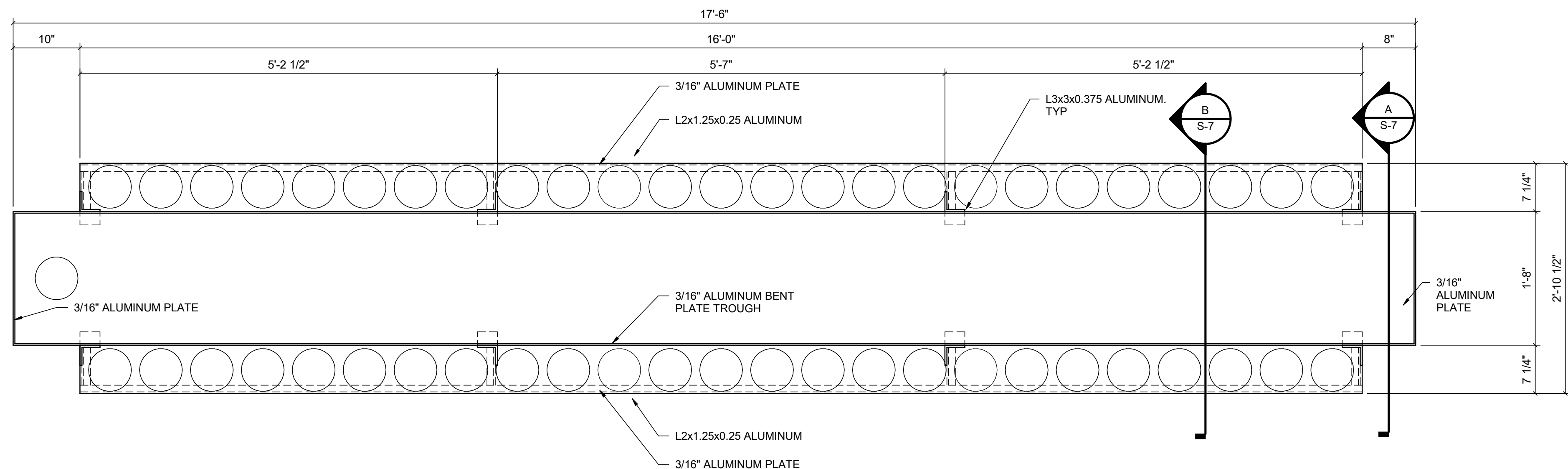


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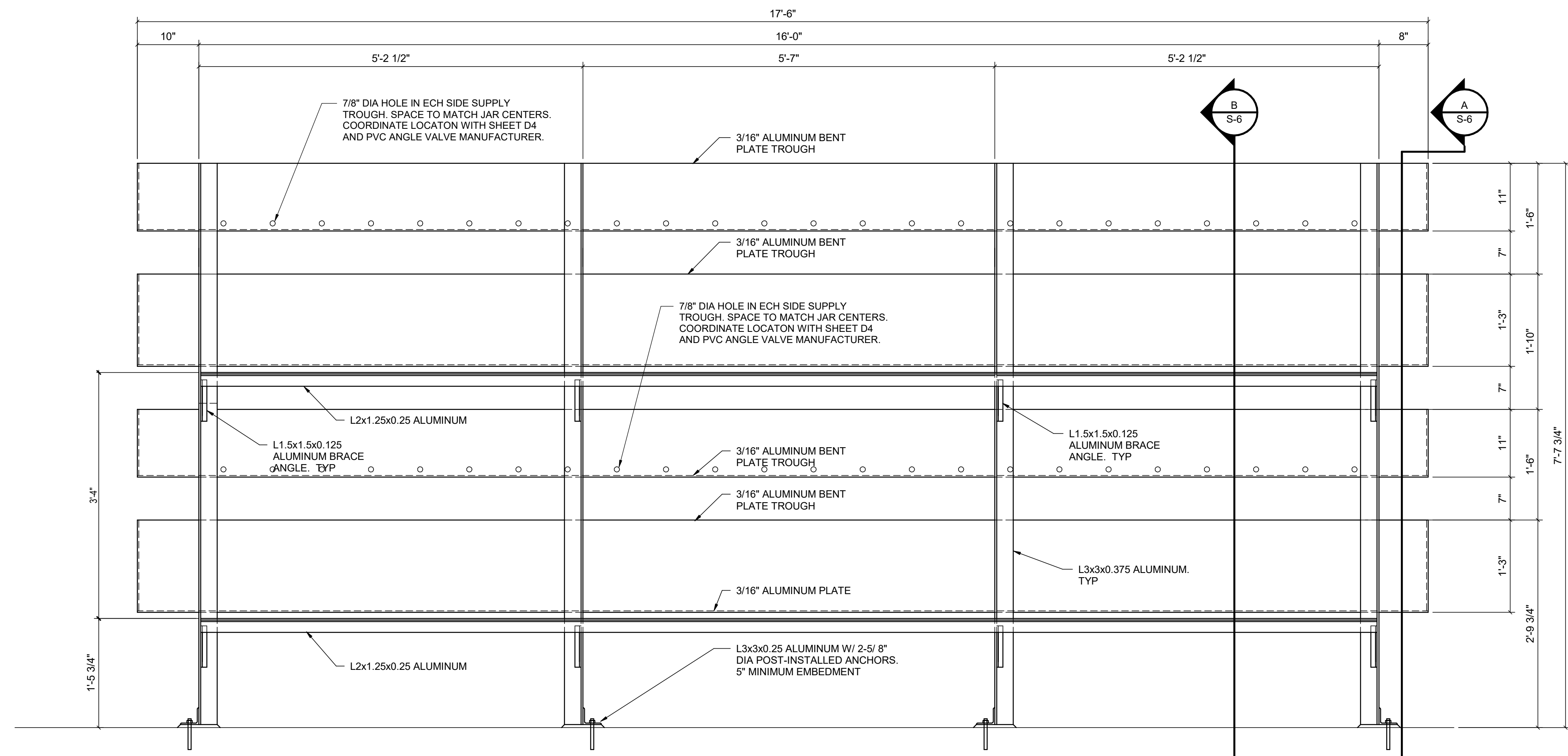
SHEET
S-5



- GENERAL NOTES:**
- SEE SHEET D-4 FOR PIPING.
 - THREE JAR RACKS REQUIRED

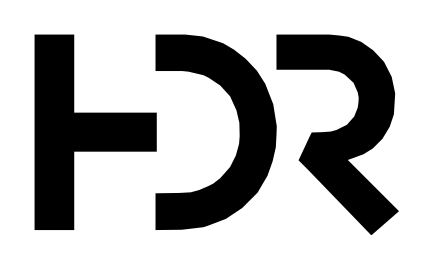


1 WALLEYE JAR RACK PLAN
1" = 1'-0"



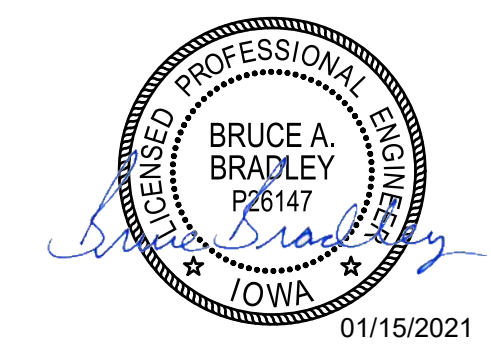
2 WALLEYE JAR RACK ELEVATION
1" = 1'-0"

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ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
C	09/11/2020	ADDENDUM 2
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924



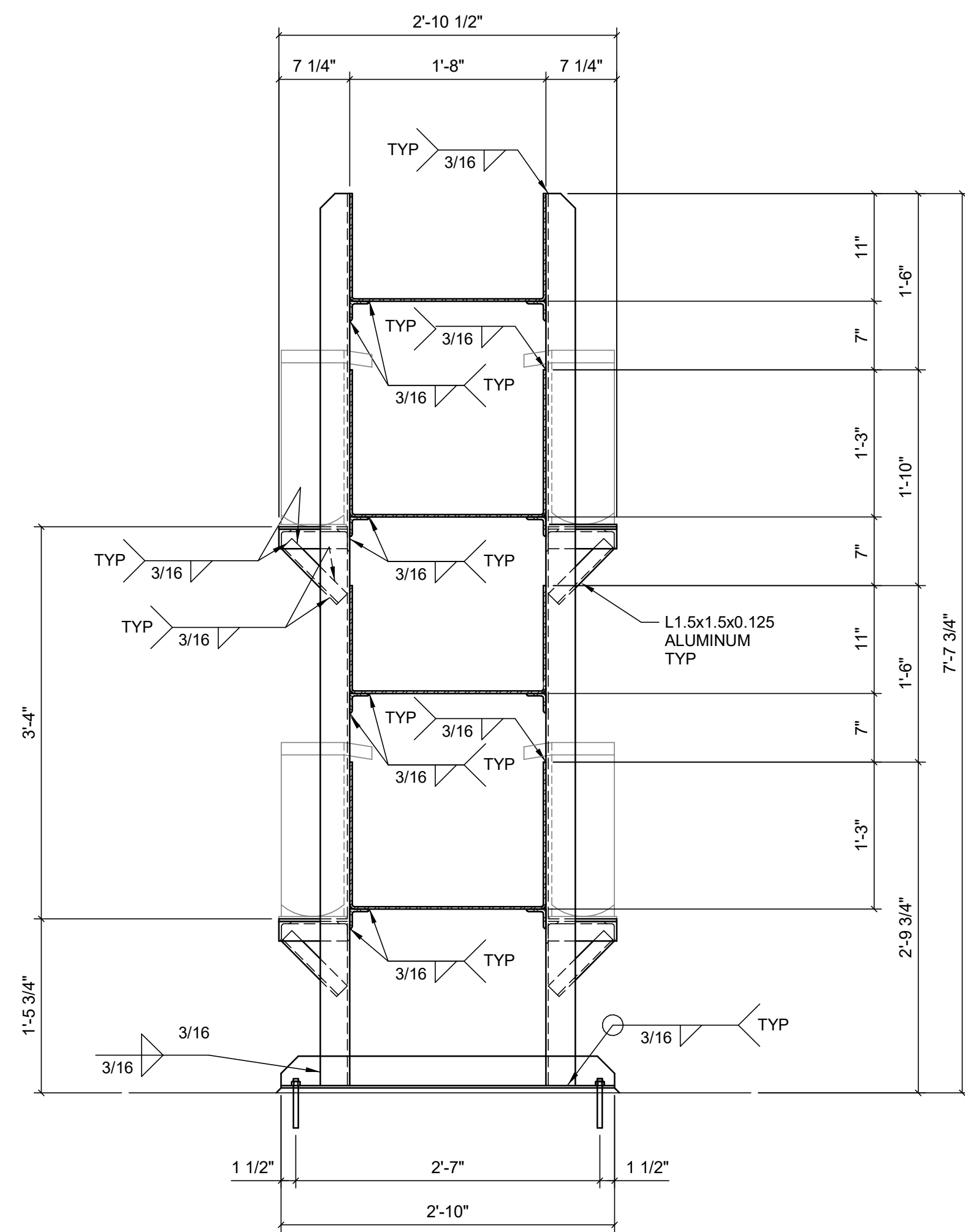
**Spirit Lake Fish Hatchery
Upgrade for RAS - REBID**

WALLEYE JAR RACK PLAN & ELEVATION

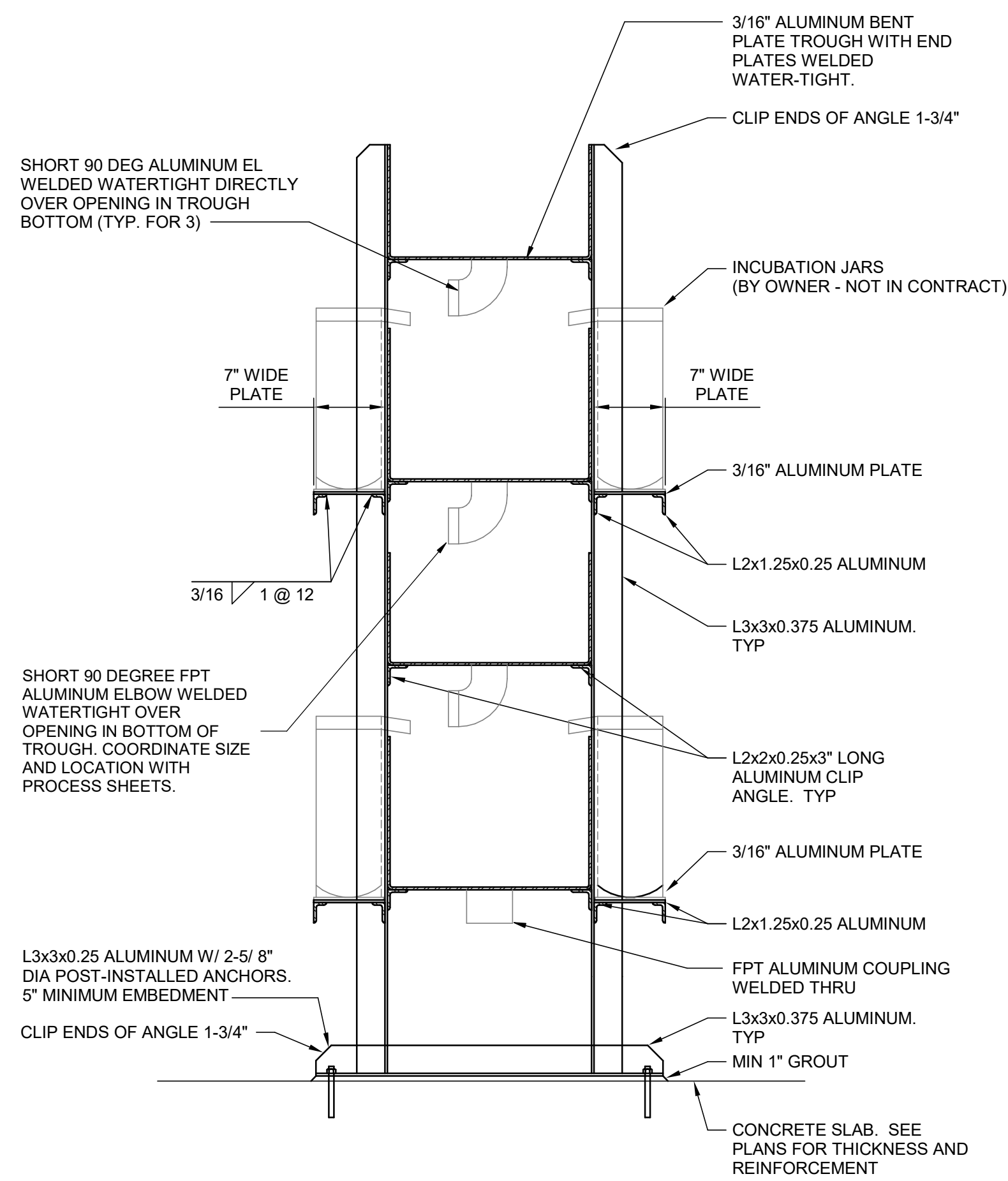
0 1" 2"

FILENAME | 10232924_0_A.rvt
SCALE | 1" = 1'-0"

SHEET
S-6

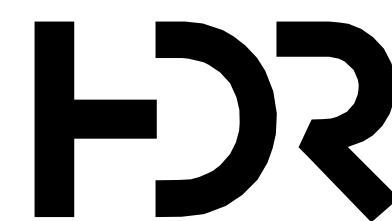


A
S-6
WALLEYE JAR RACK SECTION
1" = 1'-0"



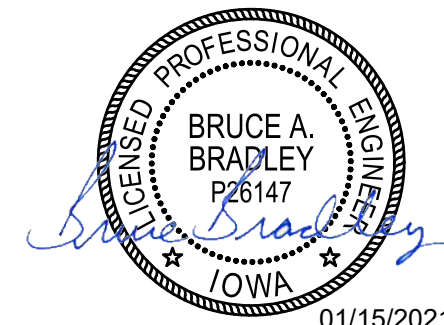
B
S-6
WALLEYE JAR RACK SECTION
1" = 1'-0"

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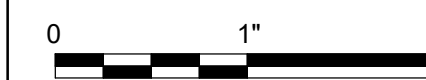
ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



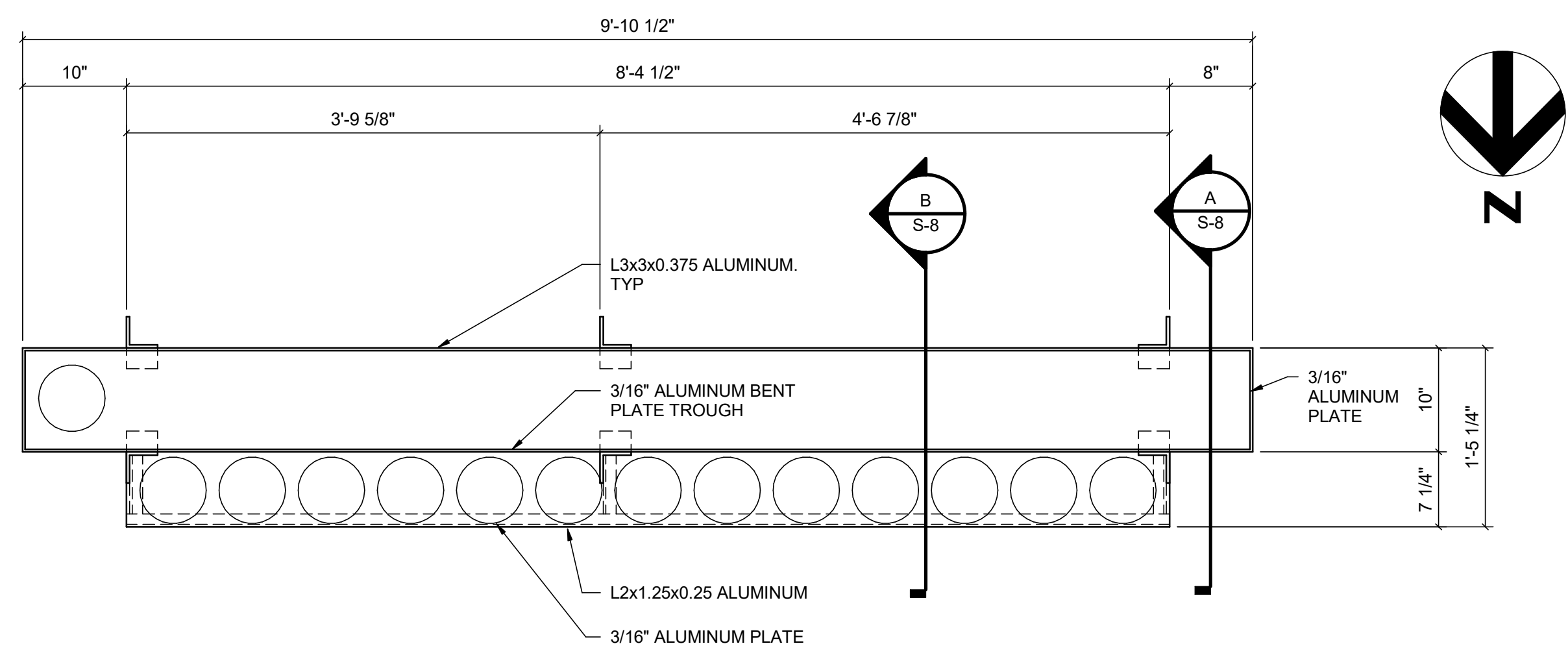
**Spirit Lake Fish Hatchery
Upgrade for RAS - REBID**

WALLEYE JAR RACKS SECTIONS & DETAILS

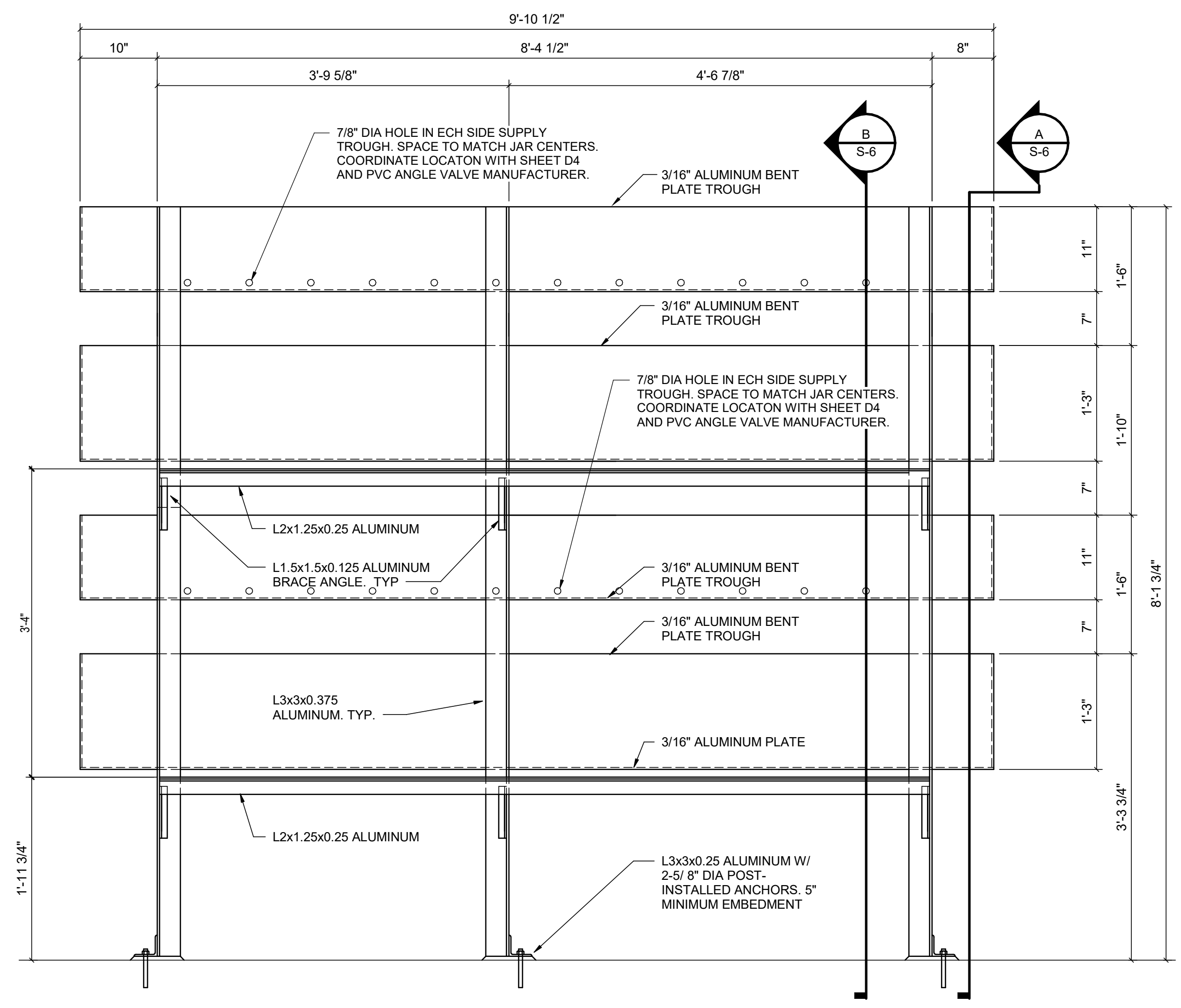


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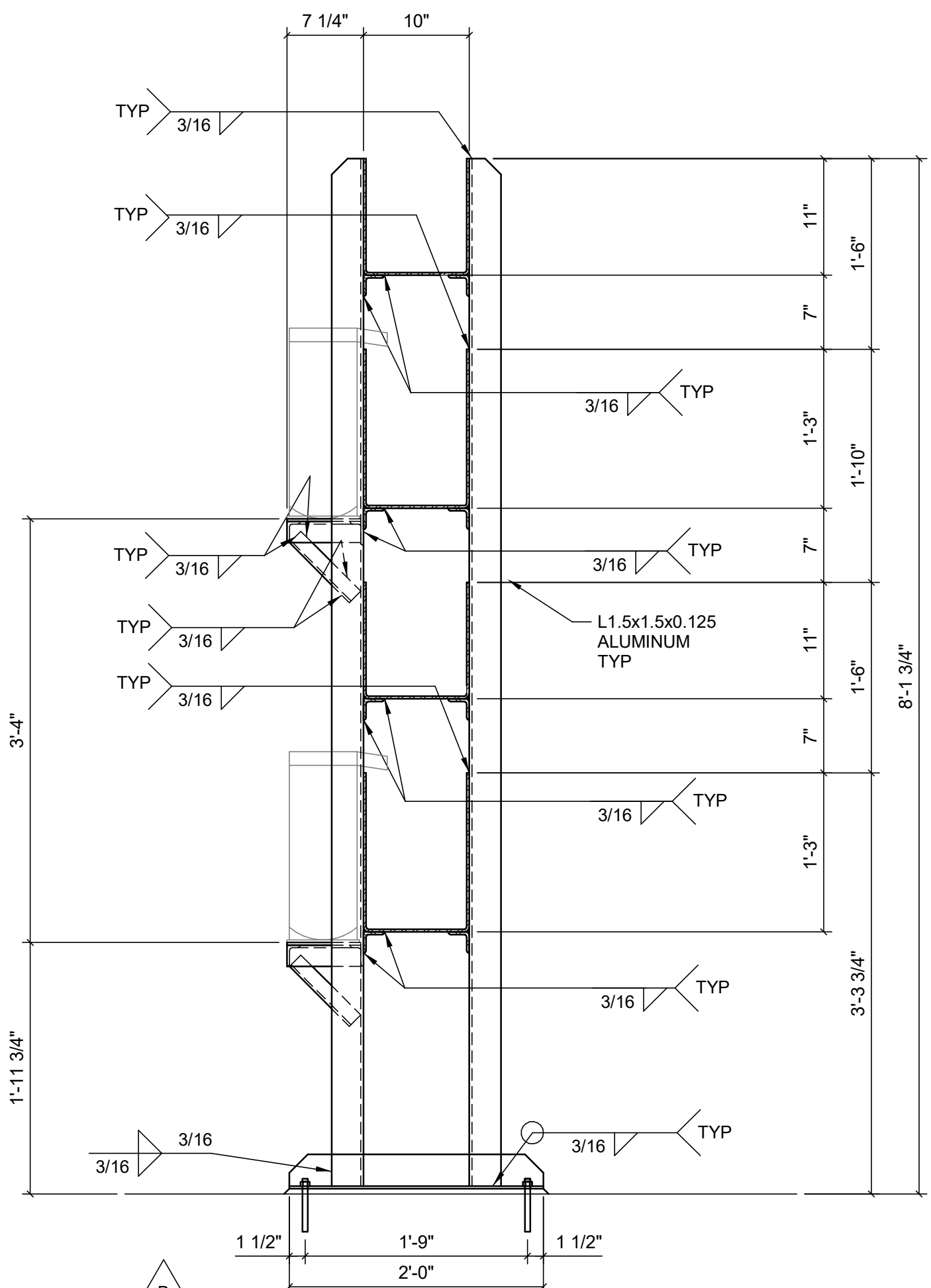
SHEET
S-7



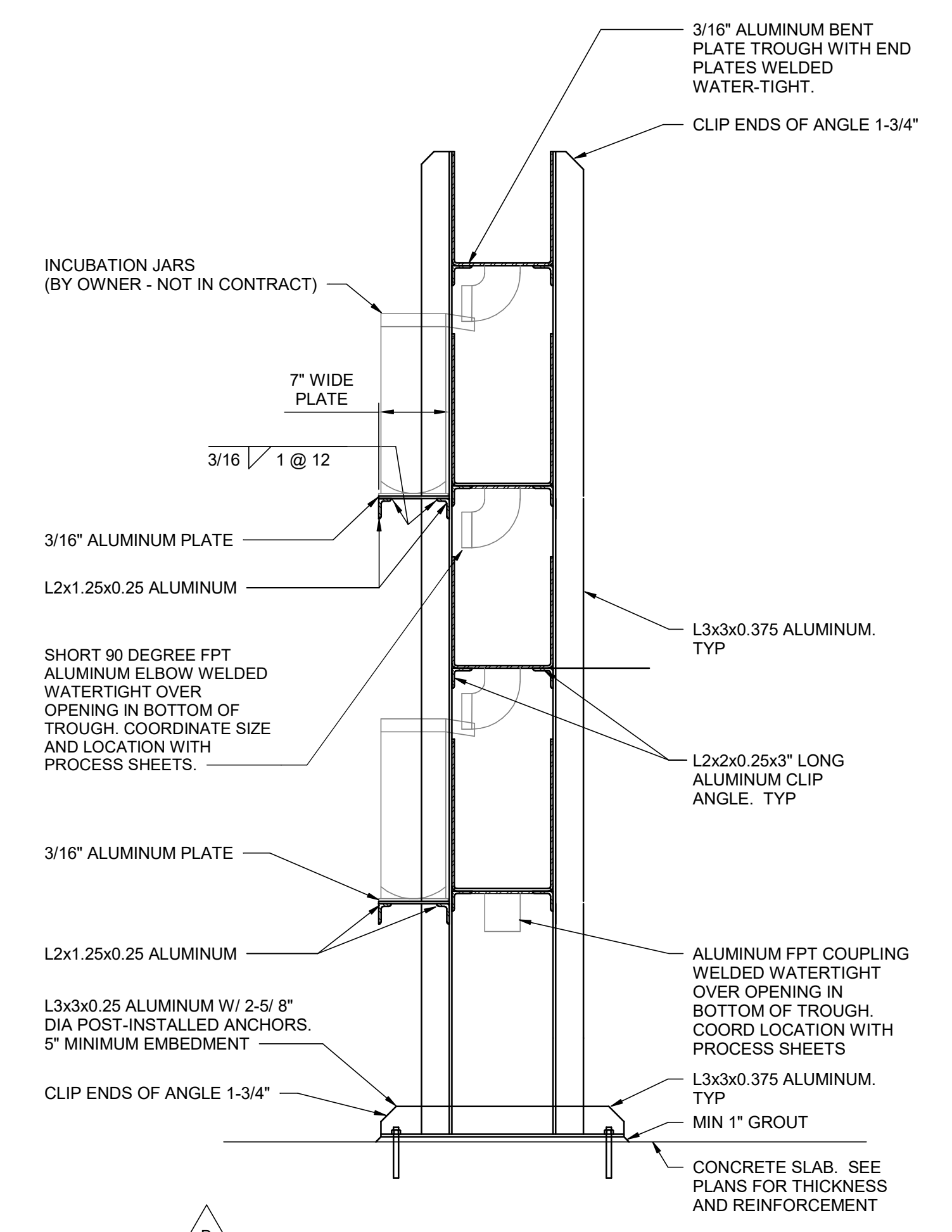
1 ESOCID JAR RACK PLAN
1" = 1'-0"



2 ESOCID JAR RACK ELEVATION
1" = 1'-0"

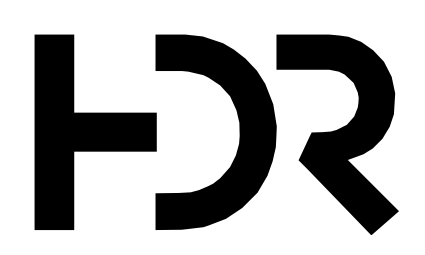


ESOCID JAR RACK SECTION
1" = 1'-0"



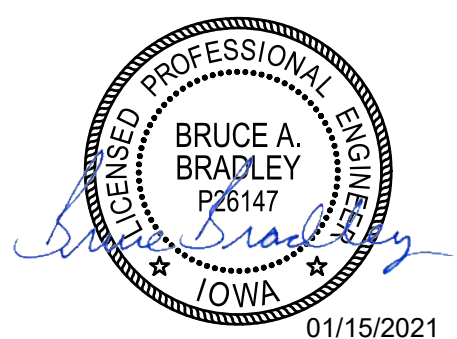
ESOCID JAR RACK SECTION
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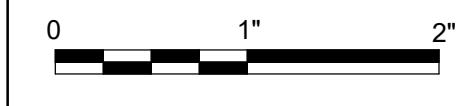


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	
ARCHITECTURAL	M. COCHRAN
STRUCTURAL	M. STOFFEL
PROCESS	B. BRADLEY
ELECTRICAL	T. TALSMA
	A. KANER
PROJECT NUMBER 10232924	



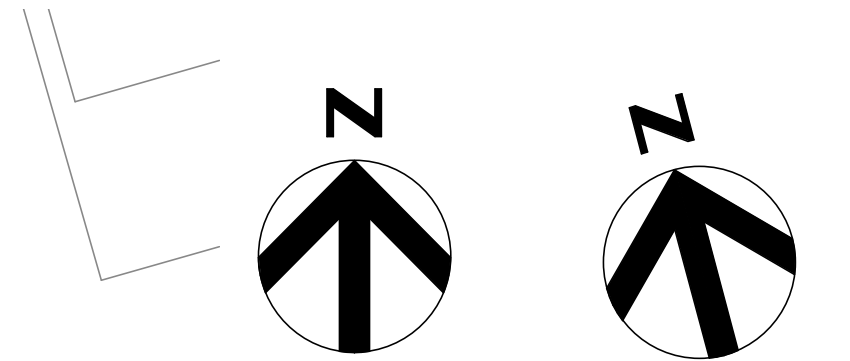
Spirit Lake Fish Hatchery
Upgrade for RAS - REBID



FILENAME 10232924_0_A.rvt
SCALE 1" = 1'-0"

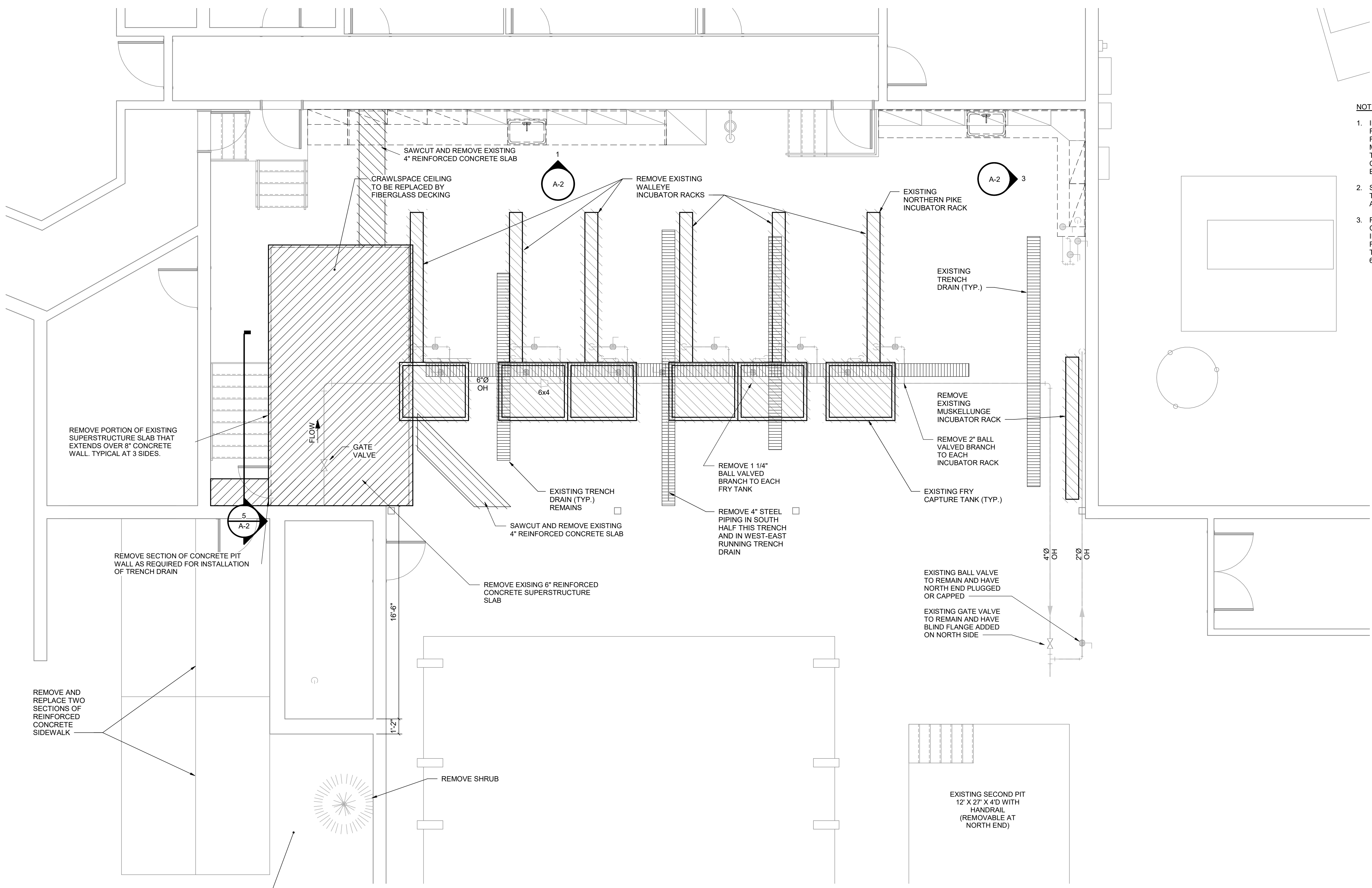
SHEET
S-8

ESOCID JAR RACK PLANS & SECTIONS



NOTES:

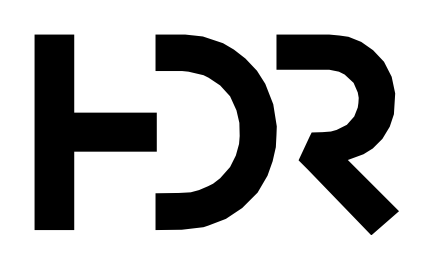
1. INCUBATOR RACKS ARE STEEL AND THEIR STEEL FRAMES SHALL BE CUT INTO TWO PIECES AS REQUESTED BY HATCHERY MANAGER AND MOVED TO THE EXISTING SECOND PIT. THE TROUGHS OF THE INCUBATORS AND THE FRY CAPTURE TANKS SHALL BE MOVED TO THE EXISTING SECOND PIT.
2. SEE ALSO SHEET D-1 (INCLUDING ANY ADDENDA THERETO) FOR OTHER CONCRETE REMOVAL ADJACENT TO EAST SIDE OF CRAWL SPACE.
3. REMOVE ALL PIPING SHOWN DOWNSTREAM OF 6" GATE VALVE. OH = OVERHEAD PIPING WHICH IS INSTALLED AND INSULATION SHALL BE REMOVED. OFFER PIPE, VALVES, AND HANGERS TO HATCHERY MANAGER. BLIND FLANGE PIPE AT 6" GATE VALVE. PIPE IS SCH 80 PVC.



DEMOLITION PLAN

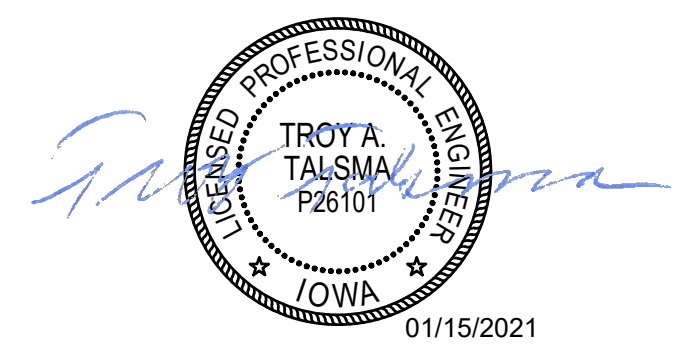
1/4" = 1'-0"

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ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



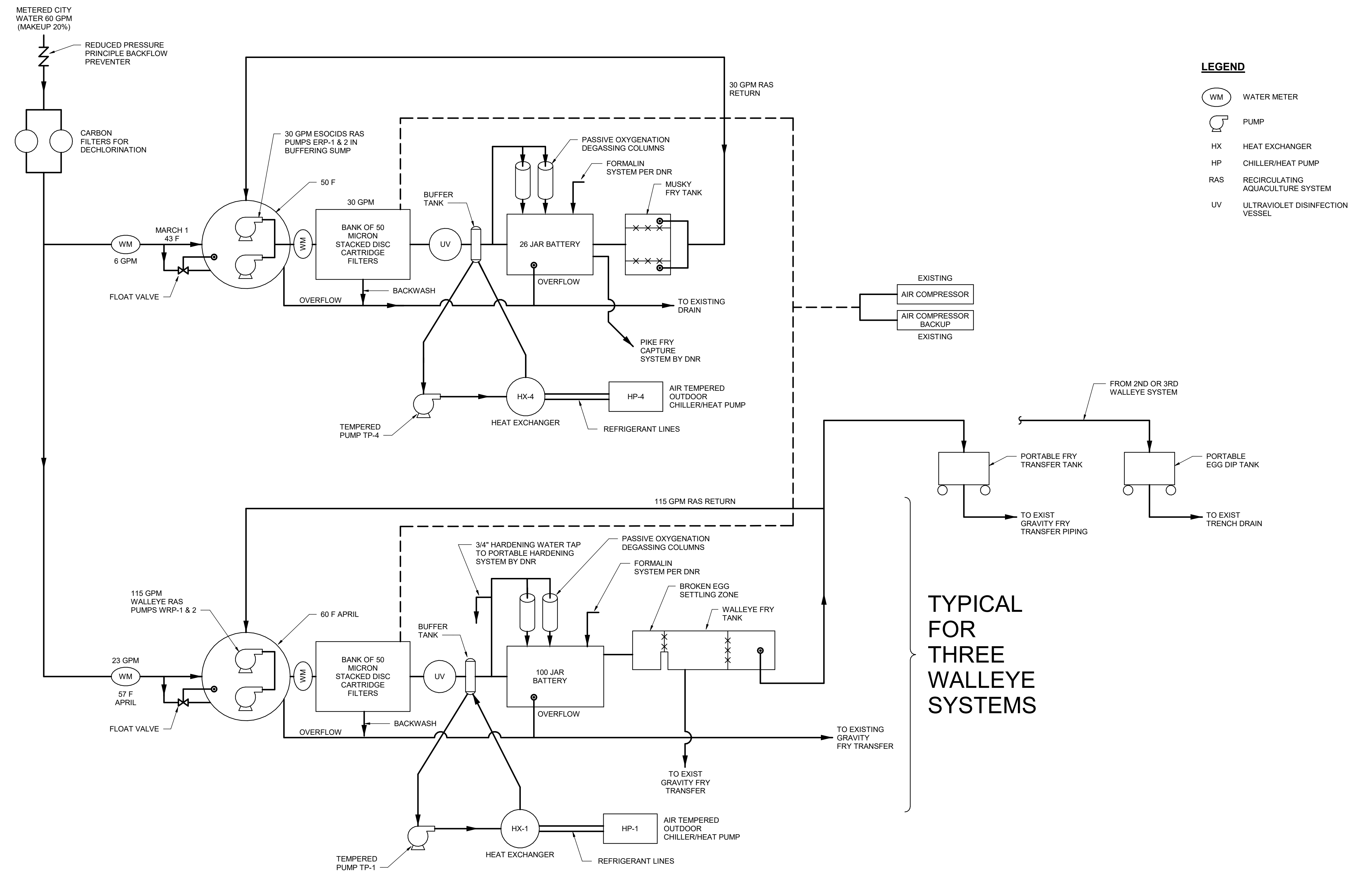
Spirit Lake Fish Hatchery Upgrade for RAS - REBID

PARTIAL FLOOR PLAN - DEMOLITION

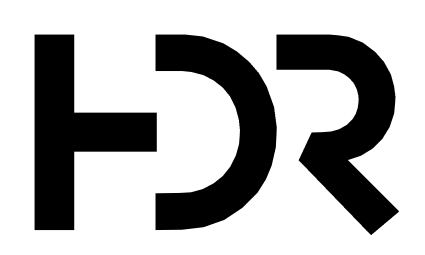
SCALE 1/4" = 1'-0"

FILENAME 10232924_0_A.rvt

SHEET X-1

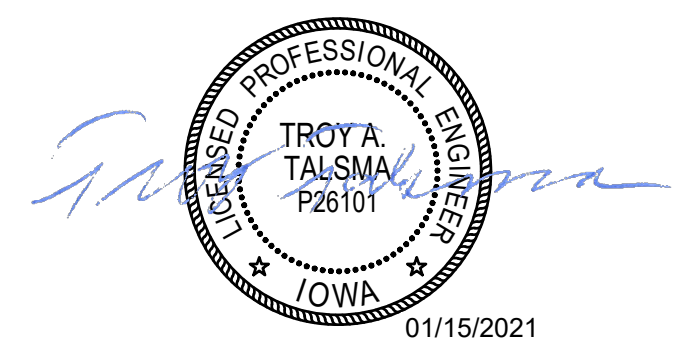


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ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



Spirit Lake Fish Hatchery Upgrade for RAS - REBID

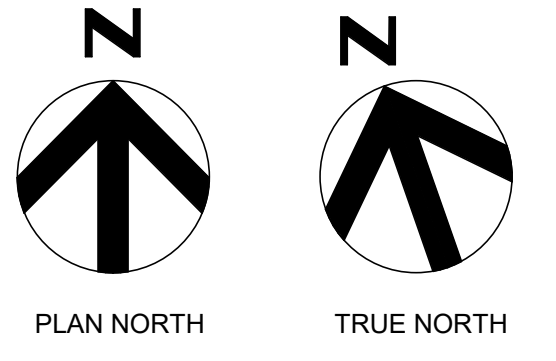
PROCESS FLOW DIAGRAM

0 1" 2"

FILENAME | 10232924_00_D.rvt
SCALE | 12" = 1'-0"

SHEET
D-1

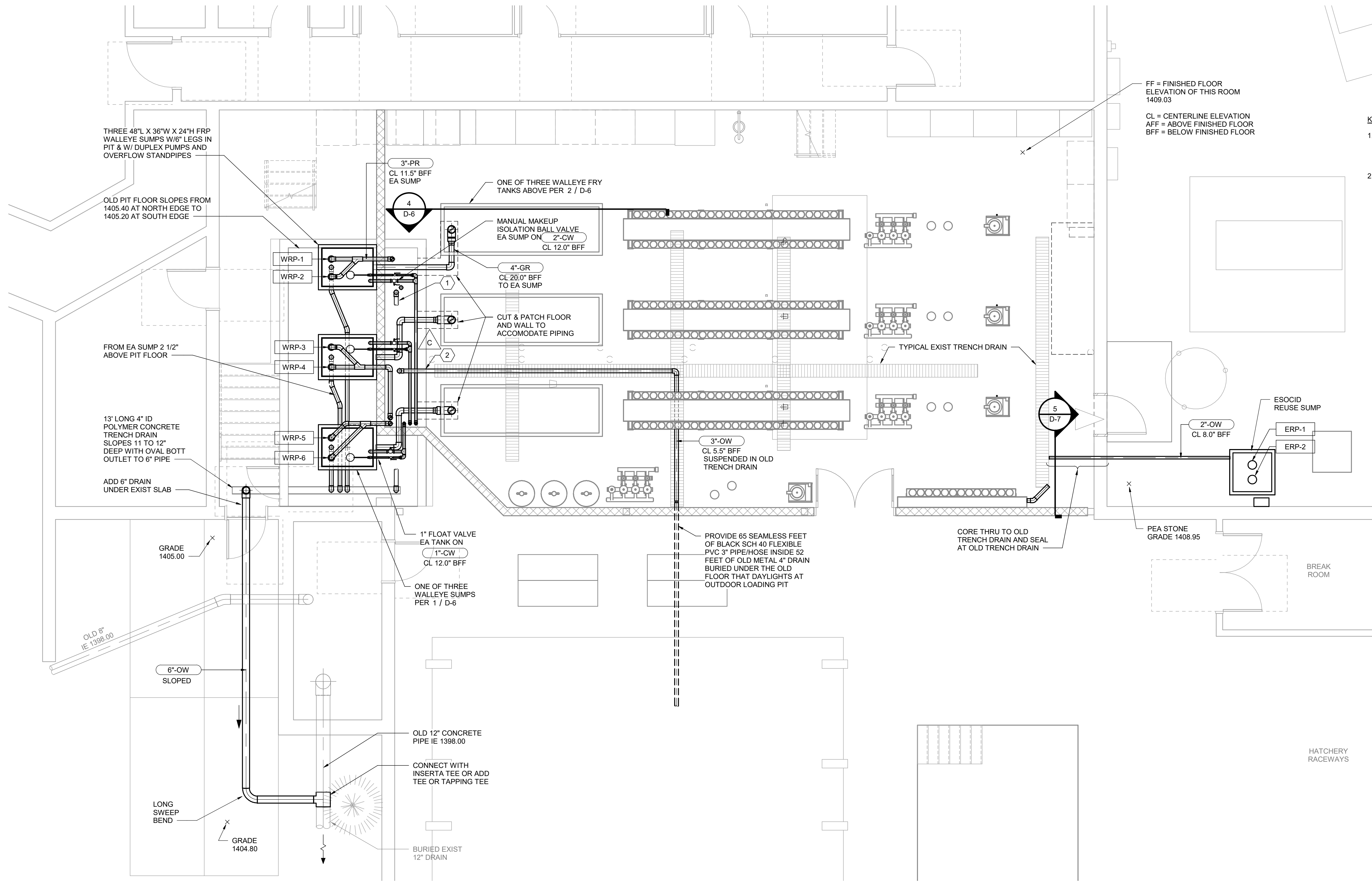
1 2 3 4 5 6 7 8



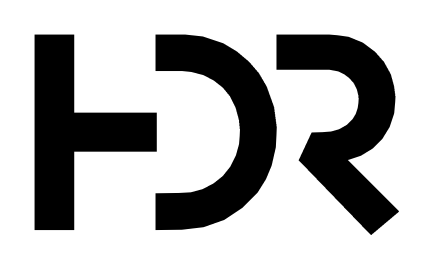
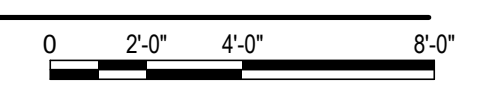
FF = FINISHED FLOOR ELEVATION OF THIS ROOM 1409.03
 CL = CENTERLINE ELEVATION
 AFF = ABOVE FINISHED FLOOR
 BFF = BELOW FINISHED FLOOR

KEYED NOTES (#)

- 3" OW RISER IMMEDIATELY UNDER PIT DECKING THEN DOWN ACROSS PIT FLOOR TO TRENCH DRAIN WHERE FLOOR ELS SHALL BE TILTED.
- THE TOP OF THE 8" THICK REINFORCED CONCRETE PIT WALL AND THE REINFORCED 6" THICK CONCRETE FLOOR BETWEEN THE WEST END OF THE TRENCH DRAIN AND THE PIT WHERE THE 3" OW IS SHOWN SHALL BE REMOVED AND REPLACED AS NEEDED FOR THE PIPE. BACKFILL SHALL BE LEAN CONCRETE/FLOWABLE FILL. CORE DRILLING IS AN ACCEPTABLE ALTERNATIVE.

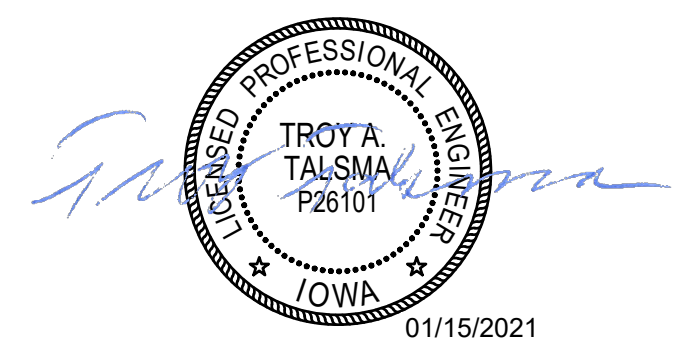


BELOW FLOOR PLAN
 1/4" = 1'-0"



ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
C	09/11/2020	ADDENDUM 2
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



Spirit Lake Fish Hatchery Upgrade for RAS - REBID

PROCESS PLAN BELOW FLOOR

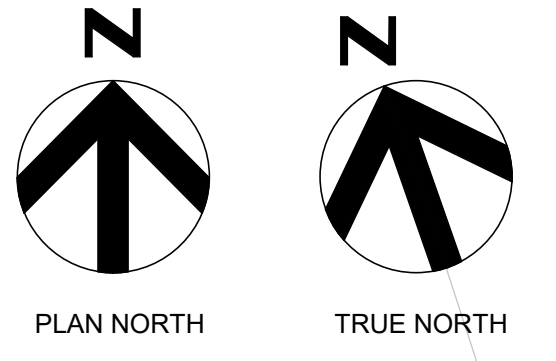


FILENAME | 10232924_00_D.rvt
 SCALE | 1/4" = 1'-0"

SHEET
D-2

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1 2 3 4 5 6 7 8



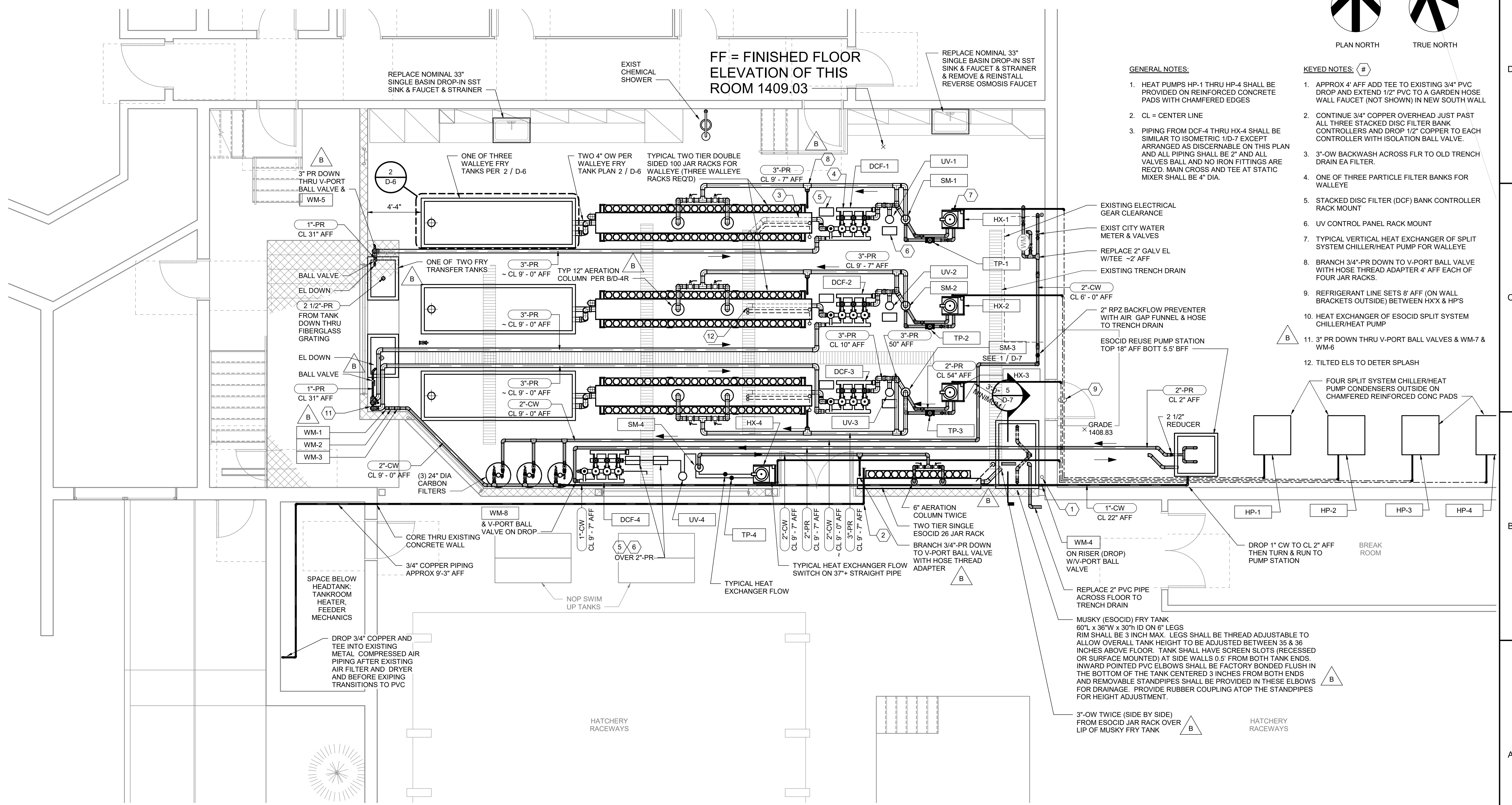
FF = FINISHED FLOOR
ELEVATION OF THIS
ROOM 1409.03

GENERAL NOTES:

- HEAT PUMPS HP-1 THRU HP-4 SHALL BE PROVIDED ON REINFORCED CONCRETE PADS WITH CHAMFERED EDGES
- CL = CENTER LINE
- PIPING FROM DCF-4 THRU HX-4 SHALL BE SIMILAR TO ISOMETRIC 1/D-7 EXCEPT ARRANGED AS DISCERNABLE ON THIS PLAN AND ALL PIPING SHALL BE 2" AND ALL VALVES BALL AND NO IRON FITTINGS ARE REQD. MAIN CROSS AND TEE AT STATIC MIXER SHALL BE 4" DIA.

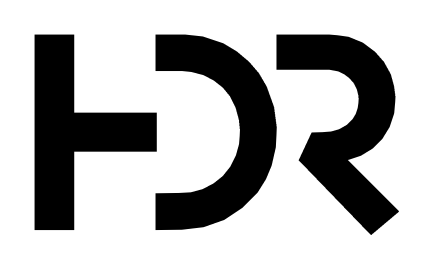
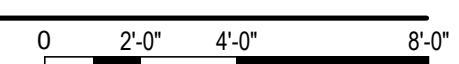
KEYED NOTES: #

- APPROX 4" AFF ADD TEE TO EXISTING 3/4" PVC DROP AND EXTEND 1/2" PVC TO A GARDEN HOSE WALL FAUCET (NOT SHOWN) IN NEW SOUTH WALL
- CONTINUE 3/4" COPPER OVERHEAD JUST PAST ALL THREE STACKED DISC FILTER BANK CONTROLLERS AND DROP 1/2" COPPER TO EACH CONTROLLER WITH ISOLATION BALL VALVE.
- 3"-OW BACKWASH ACROSS FLR TO OLD TRENCH DRAIN EA FILTER.
- ONE OF THREE PARTICLE FILTER BANKS FOR WALLEYE
- STACKED DISC FILTER (DCF) BANK CONTROLLER RACK MOUNT
- UV CONTROL PANEL RACK MOUNT
- TYPICAL VERTICAL HEAT EXCHANGER OF SPLIT SYSTEM CHILLER/HEAT PUMP FOR WALLEYE
- BRANCH 3/4"-PR DOWN TO V-PORT BALL VALVE WITH HOSE THREAD ADAPTER 4" AFF EACH OF FOUR JAR RACKS.
- REFRIGERANT LINE SETS 8" AFF (ON WALL BRACKETS OUTSIDE) BETWEEN HXX & HPS
- HEAT EXCHANGER OF ESOCID SPLIT SYSTEM CHILLER/HEAT PUMP
- 3" PR DOWN THRU V-PORT BALL VALVES & WM-7 & WM-6
- TILTED ELS TO DETER SPLASH



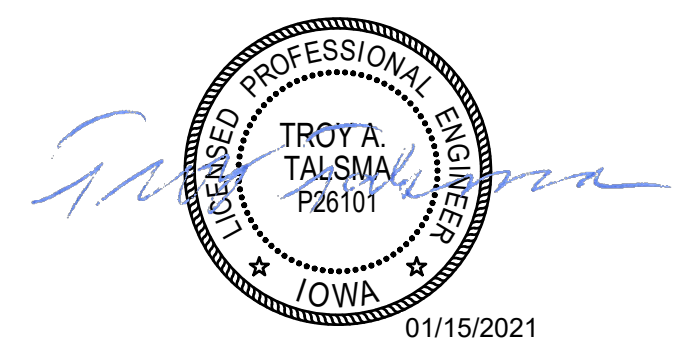
ABOVE FLOOR PLAN

1/4" = 1'-0"



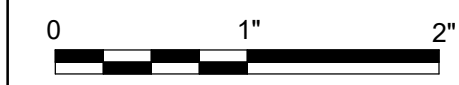
ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924



Spirit Lake Fish Hatchery Upgrade for RAS - REBID

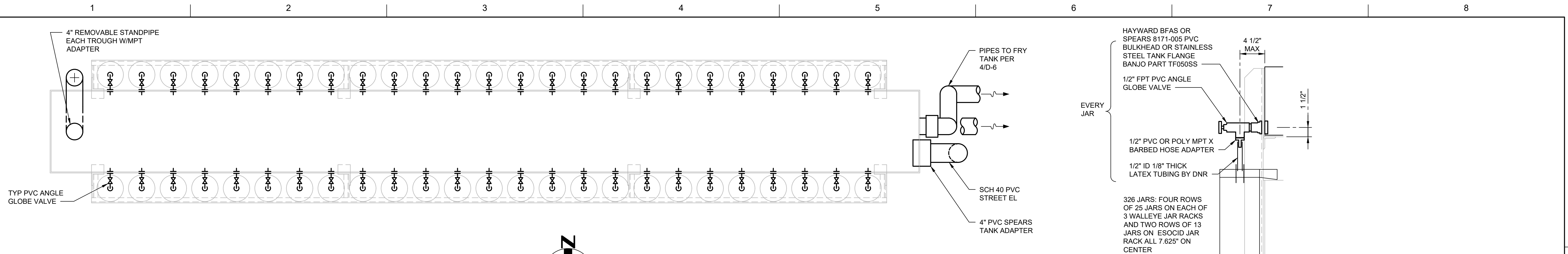
PROCESS PLAN ABOVE FLOOR



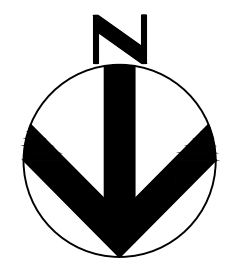
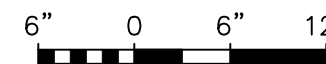
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SCALE 1/4" = 1'-0"

SHEET D-3

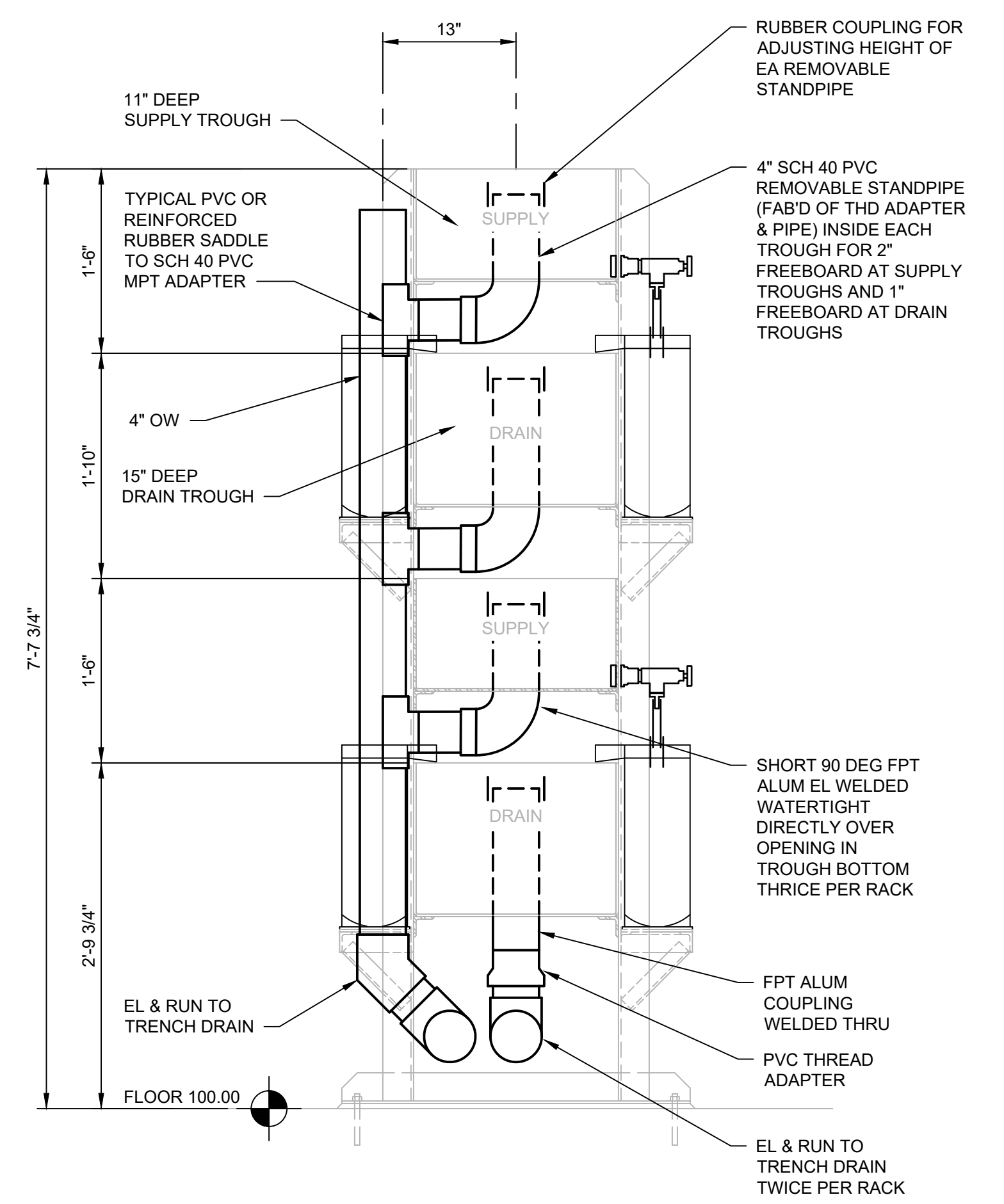
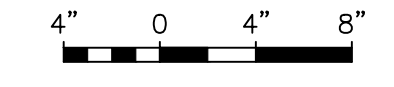
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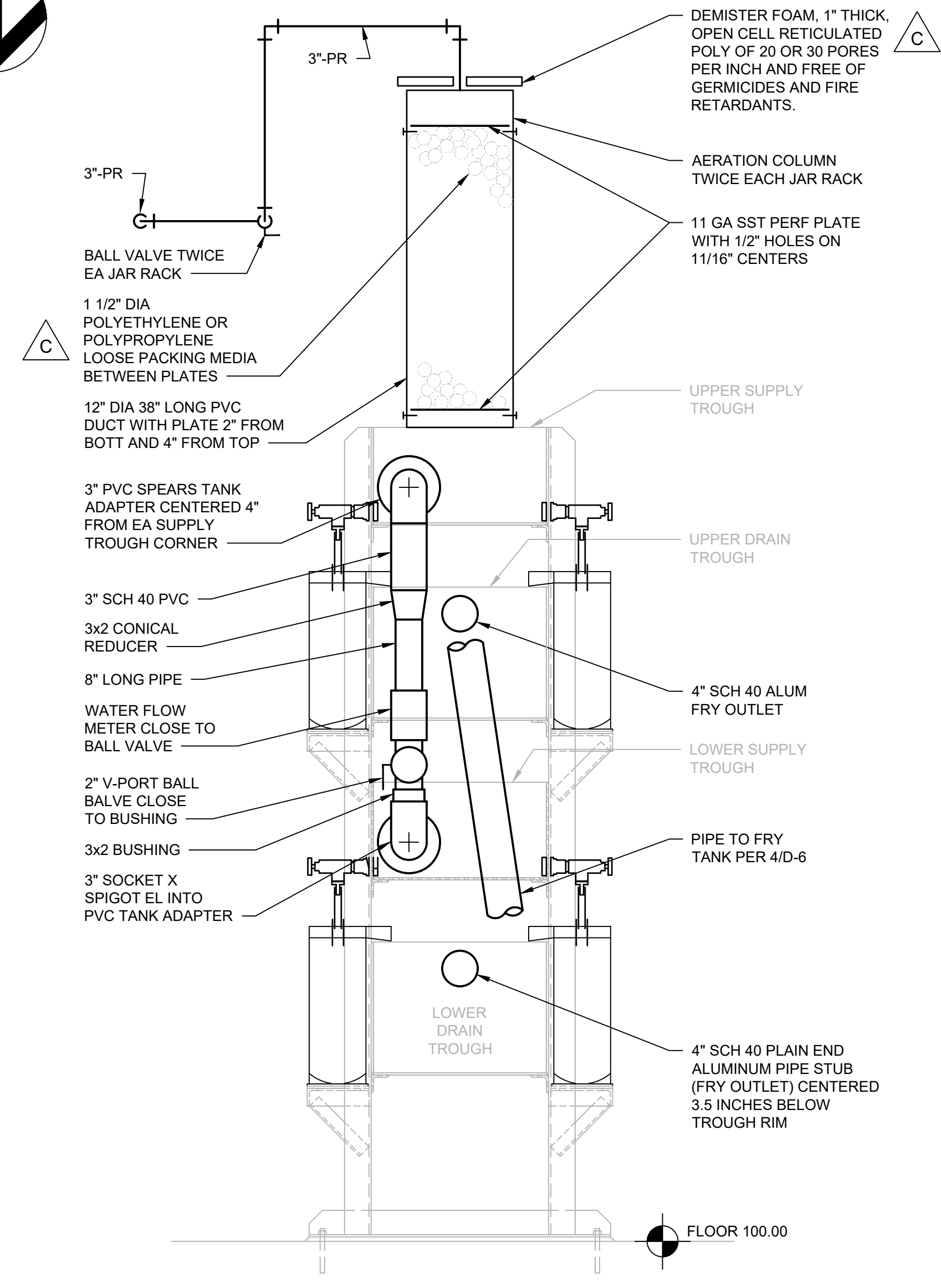
1 JAR RACK PIPING PLAN (AERATION COLUMNS NOT SHOWN)
 APPROX SCALE: 1" = 1'-0"



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



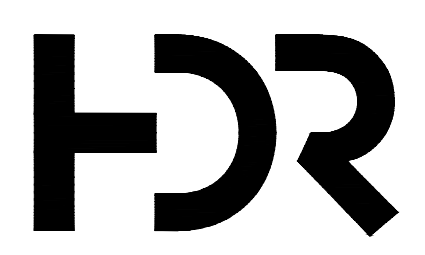
A JAR RACK PIPING EAST END
 SCALE: 1" = 1'-0"



B JAR RACK PIPING WEST END
 SCALE: 1" = 1'-0"

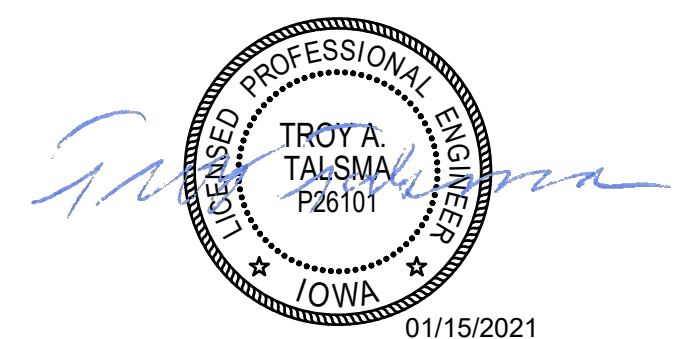


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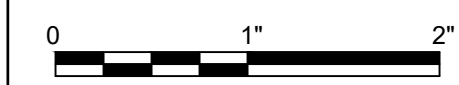
ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924



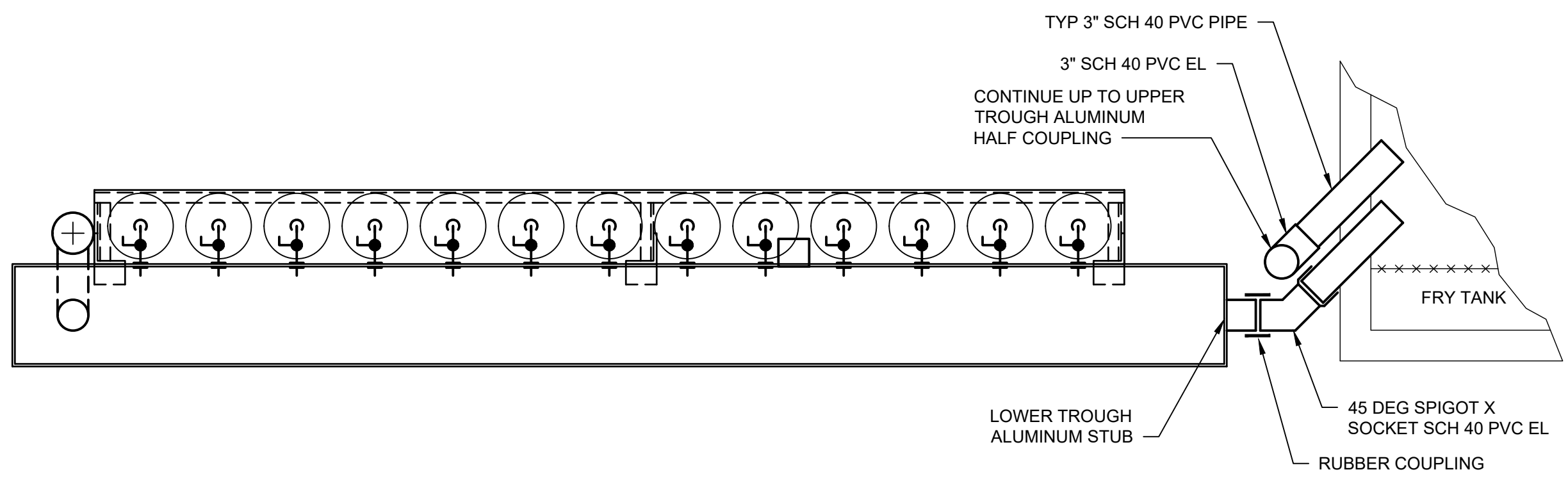
**Spirit Lake Fish Hatchery
 Upgrade for RAS - REBID**

WALLEYE JAR RACK PIPING

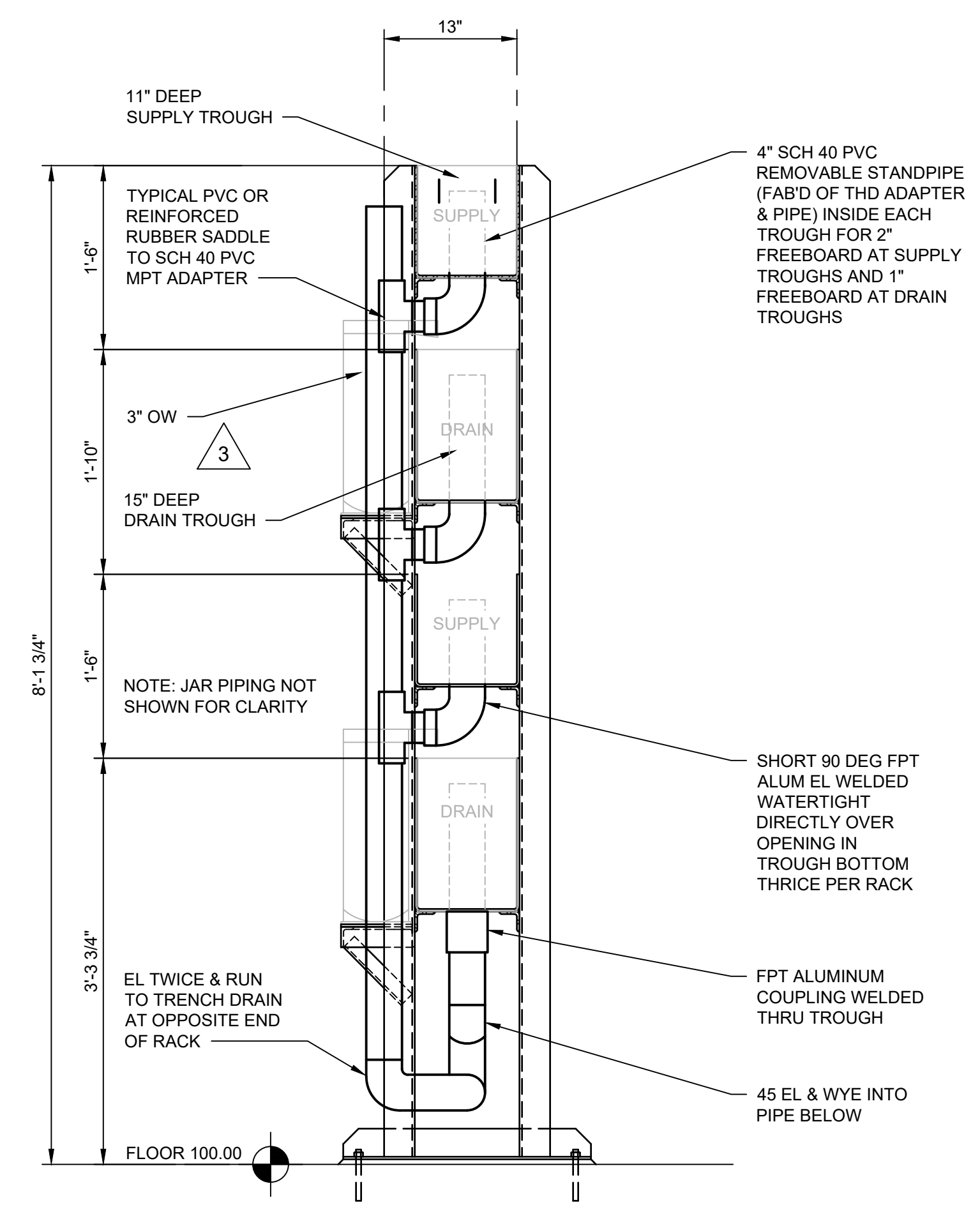


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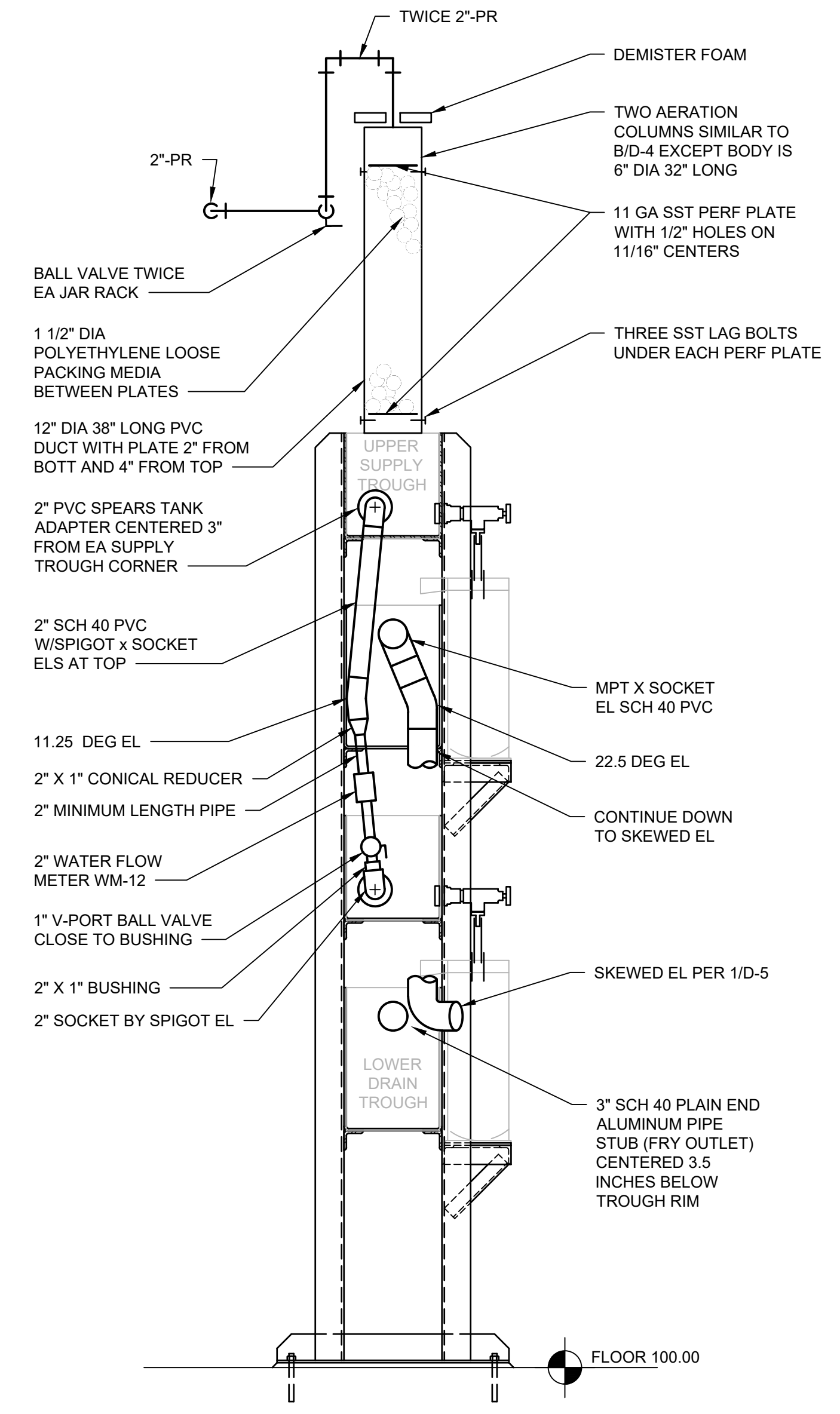
SHEET
D-4 B



1 ESOCID JAR RACK PIPING PLAN (AERATION COLUMNS NOT SHOWN)
 APPROX SCALE: 1" = 1'-0"
 6" 0 6" 12"

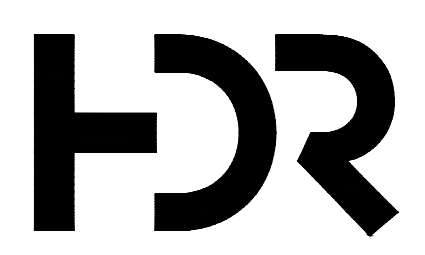


A ESOCID JAR RACK PIPING WEST END
 SCALE: 1" = 1'-0"
 6" 0 6" 12"



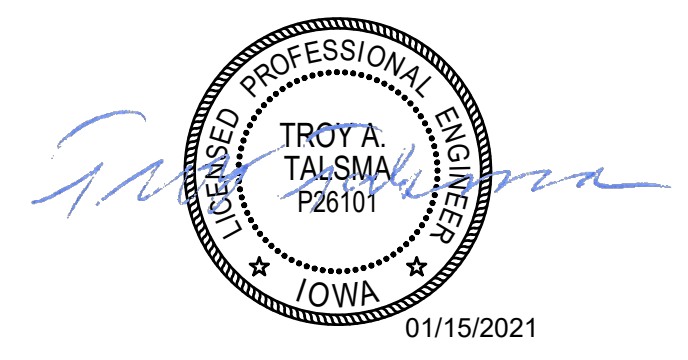
B ESOCID JAR RACK PIPING EAST END
 SCALE: 1" = 1'-0"
 6" 0 6" 12"

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ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
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A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924

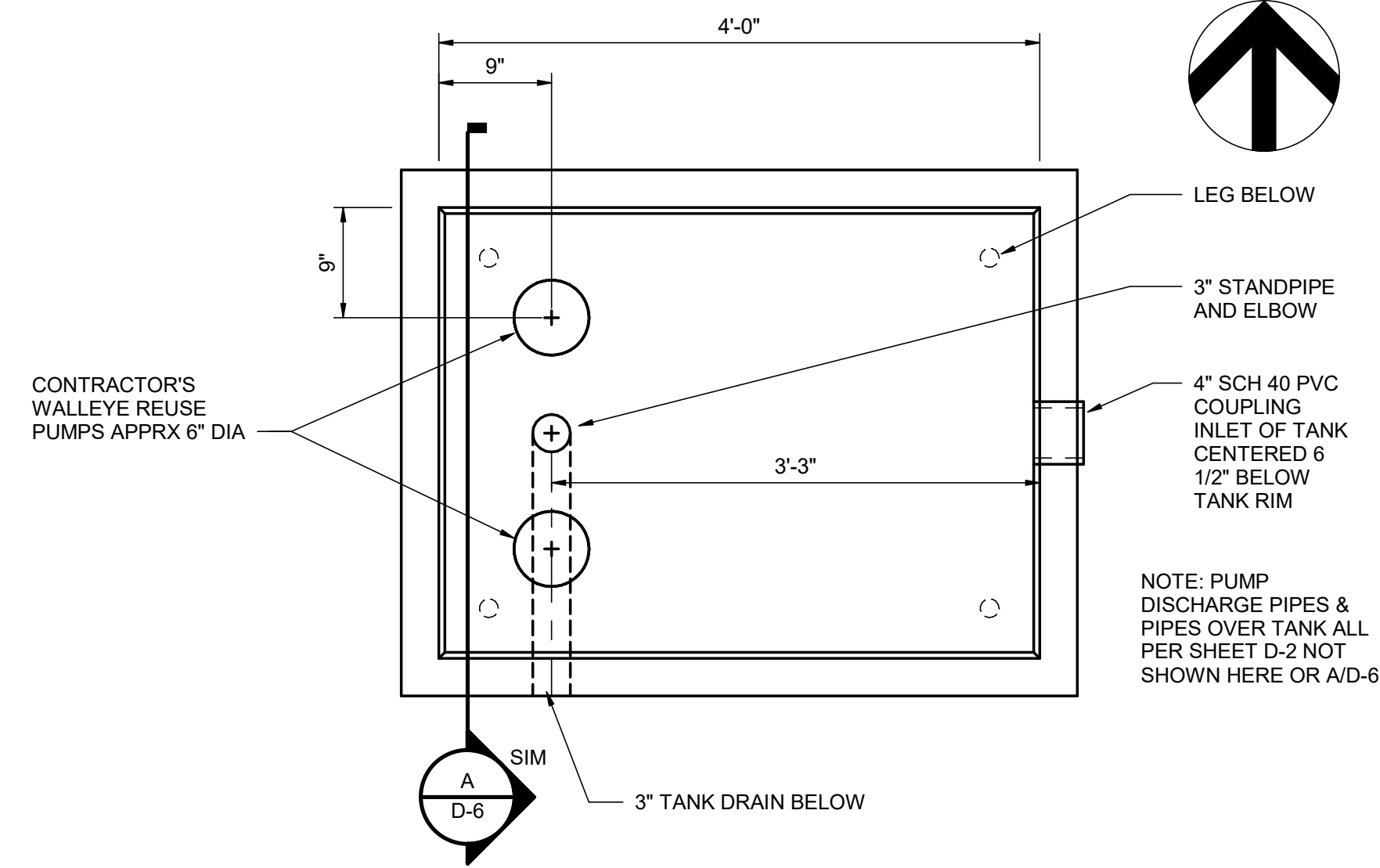


**Spirit Lake Fish Hatchery
 Upgrade for RAS - REBID**

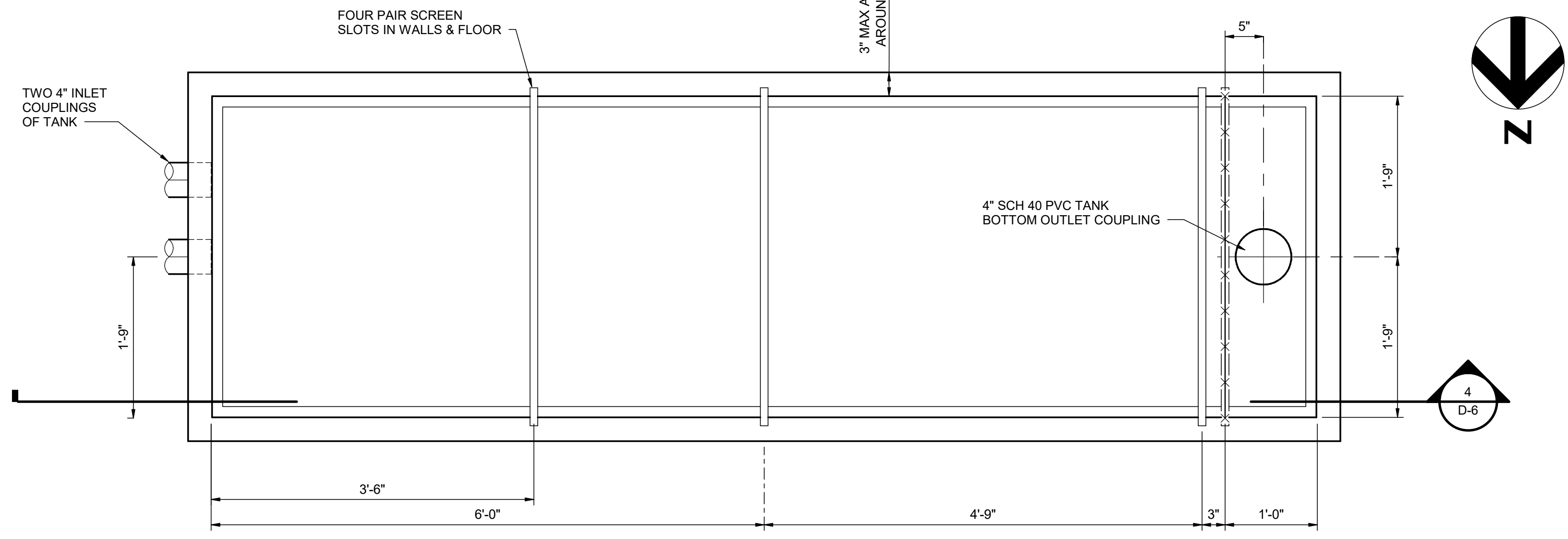
ESOCID JAR RACK PIPING

0 1" 2"
 FILENAME D-5.DWG
 SCALE AS NOTED

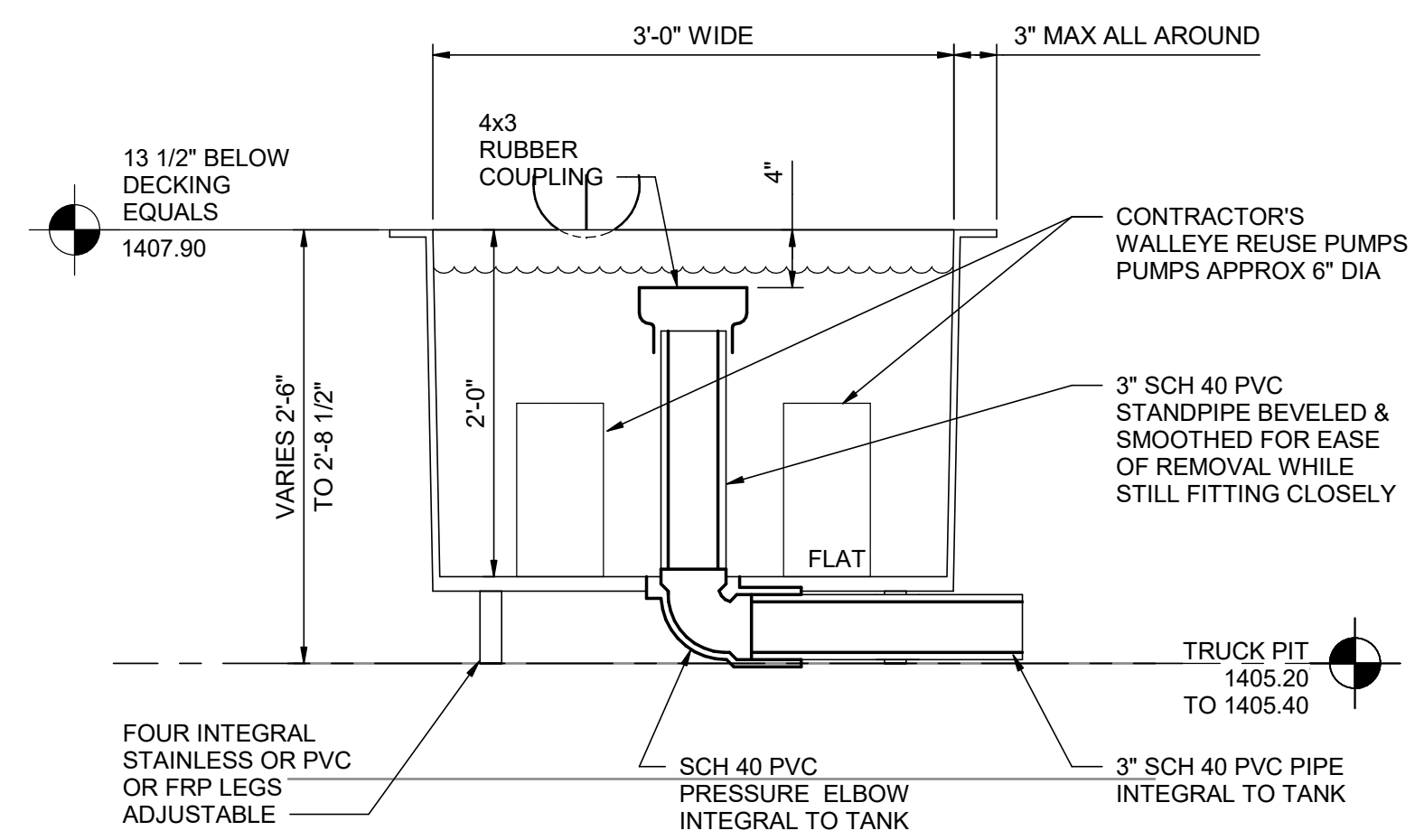
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D-5



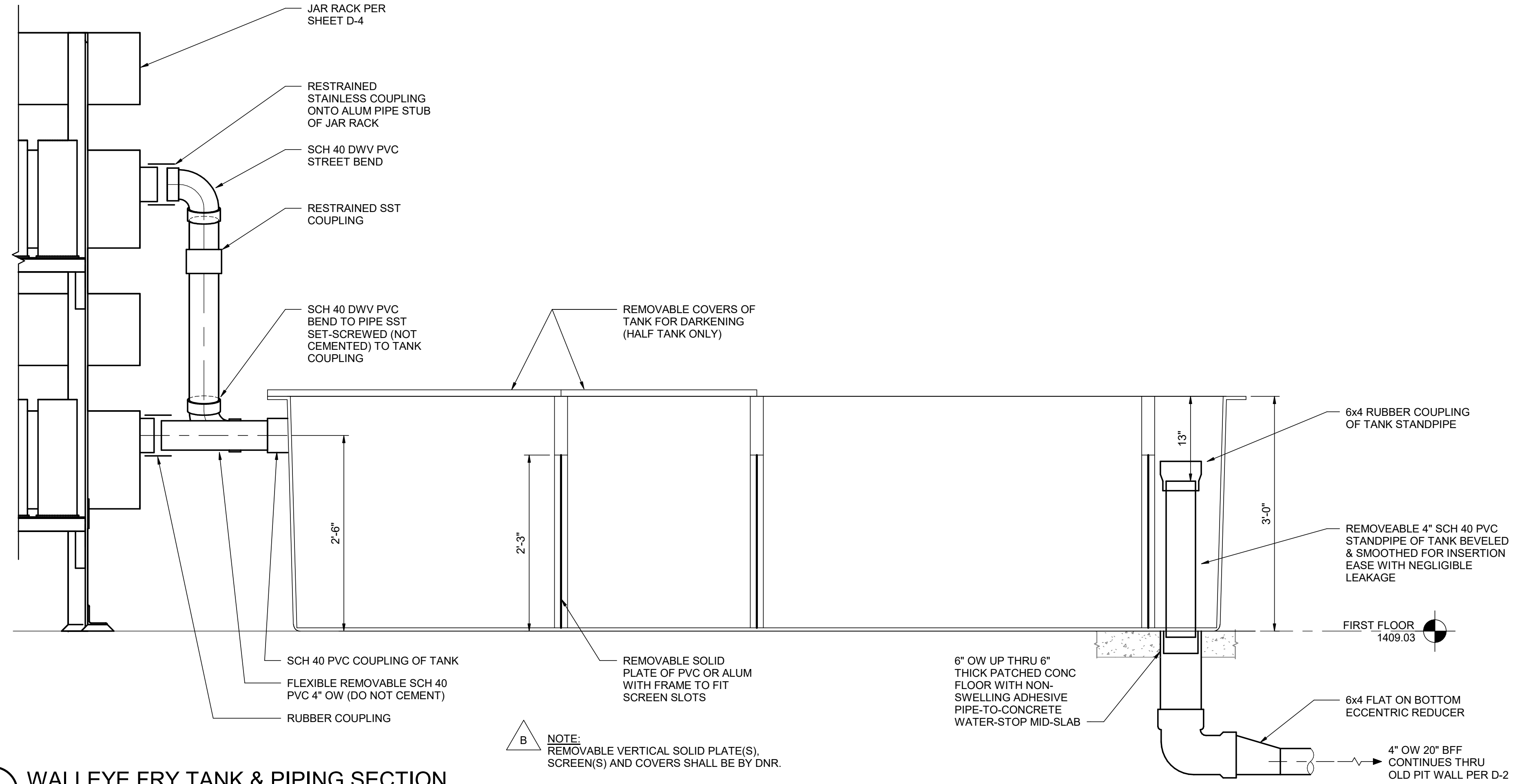
1 WALLEYE SUMP PLAN
1" = 1'-0"



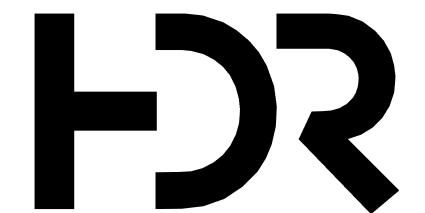
2 WALLEYE FRY TANK PLAN
1" = 1'-0"



A WALLEYE SUMP WIDTH SECTION
1" = 1'-0"

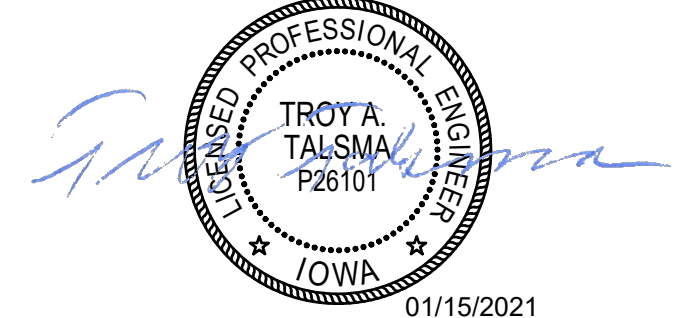


4 WALLEYE FRY TANK & PIPING SECTION
1" = 1'-0"

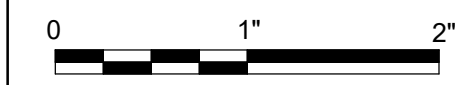


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A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



Spirit Lake Fish Hatchery
Upgrade for RAS - REBID

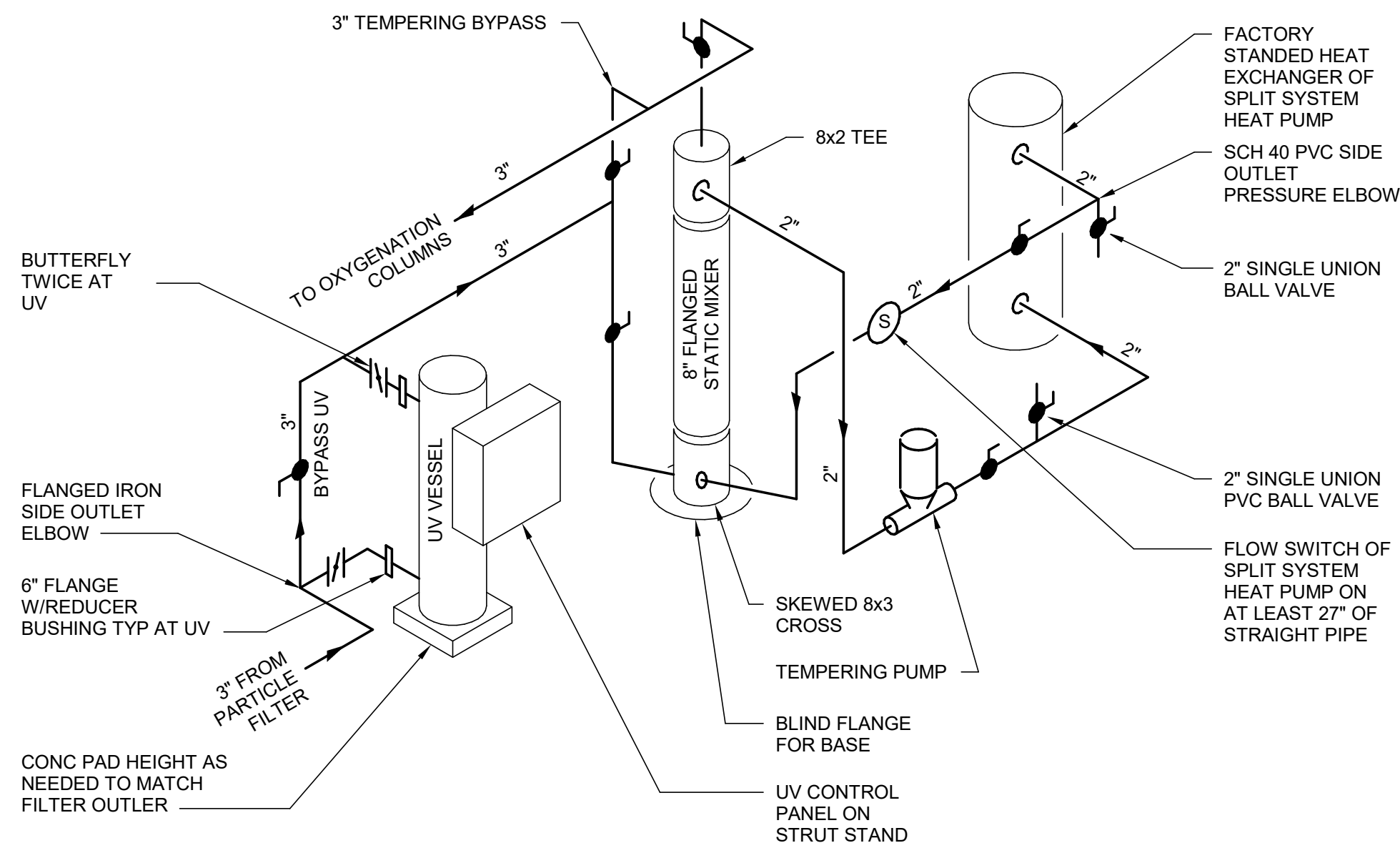


AQUACULTURE TANKS

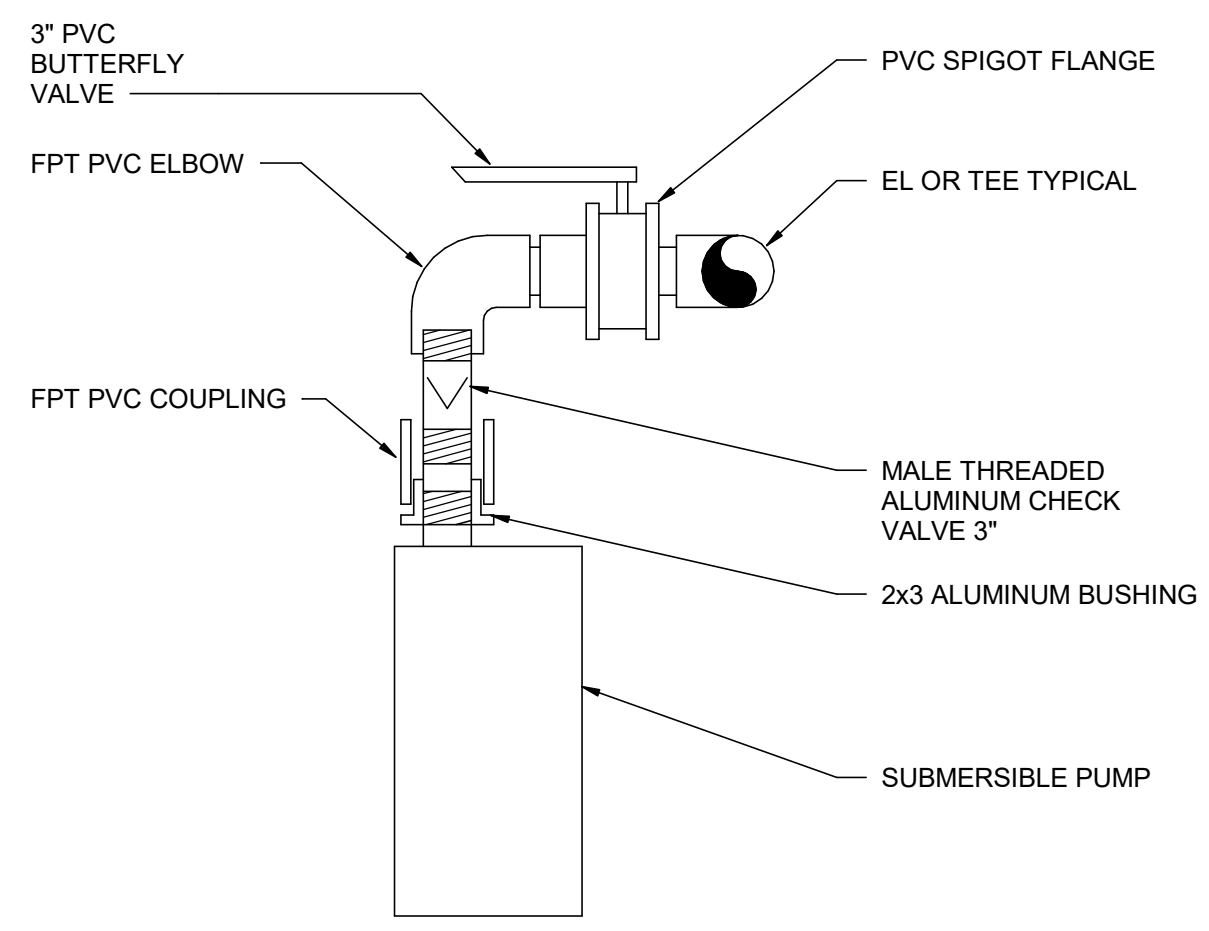
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SHEET
D-6

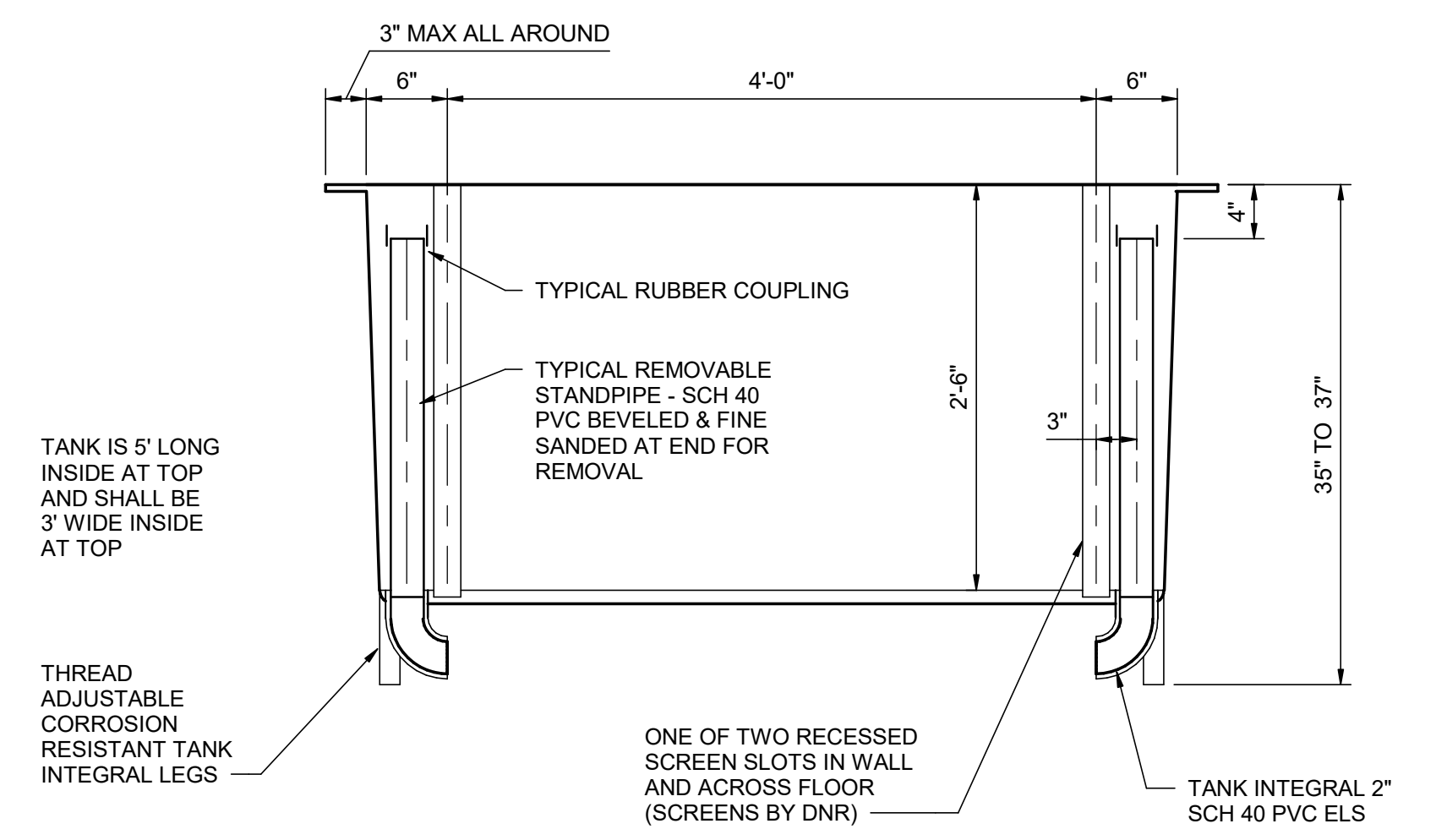
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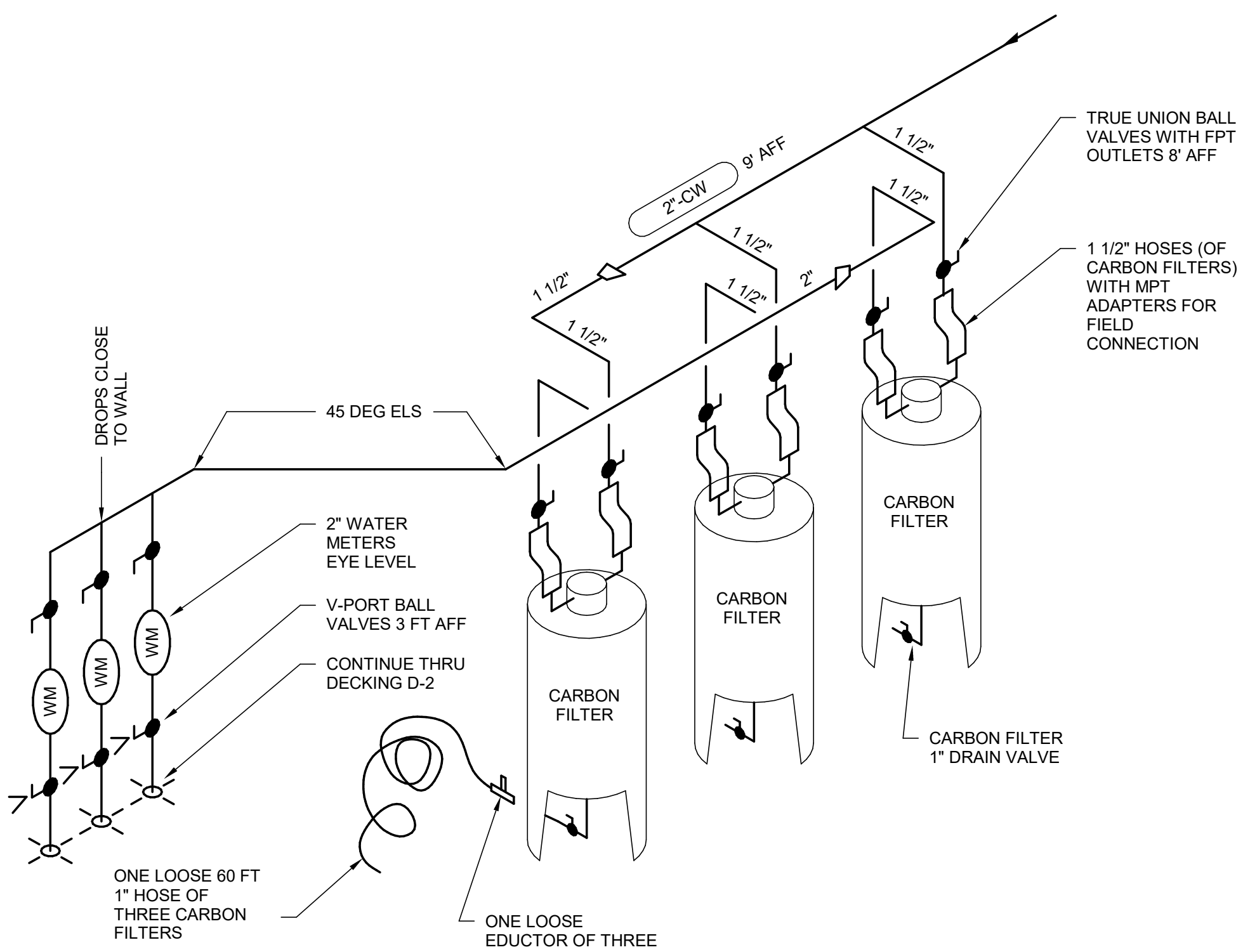
1 WALLEYE UV & TEMPERING WATER ISOMETRIC
NOT TO SCALE



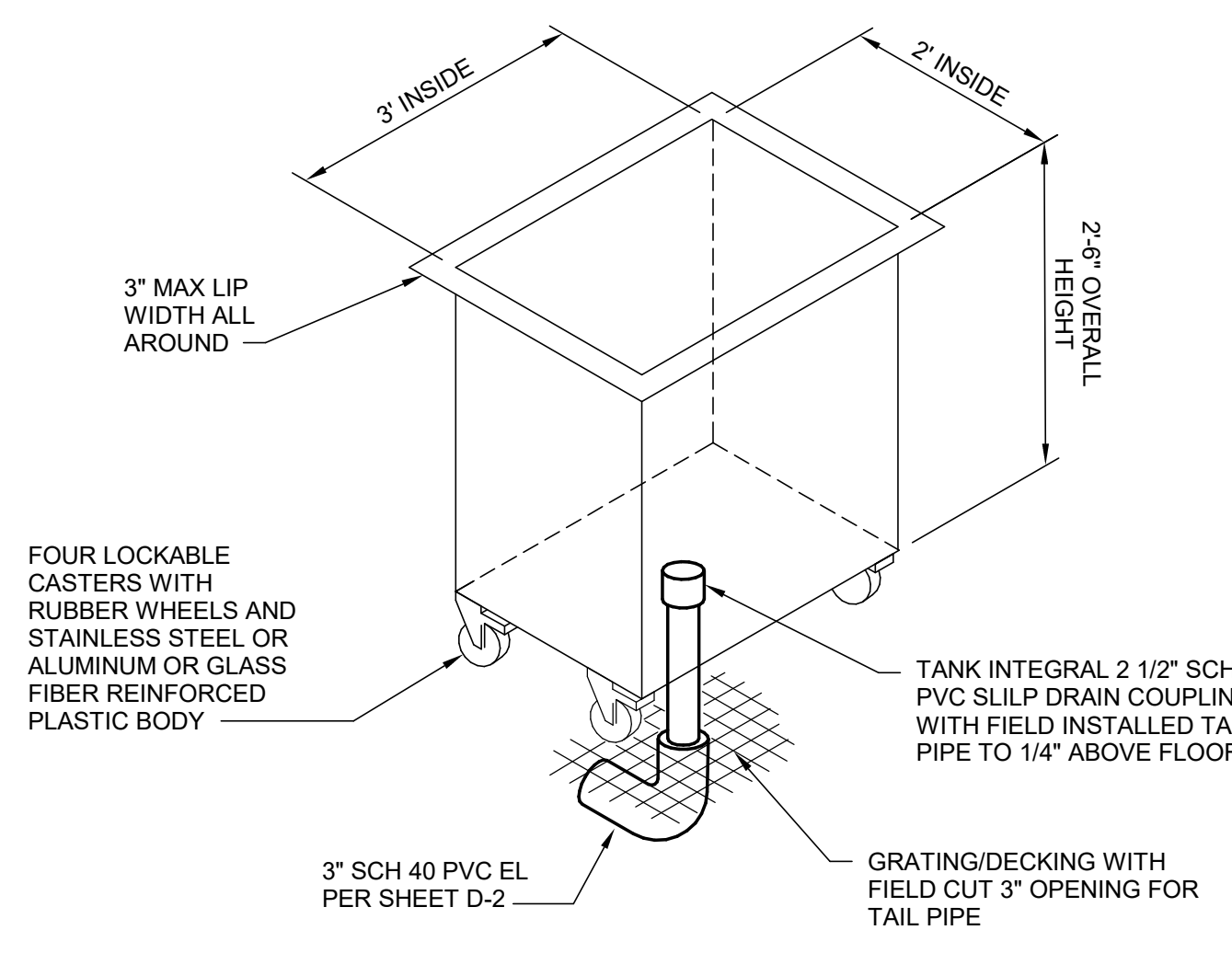
2 WALLEYE REUSE PUMP DETAIL
NOT TO SCALE



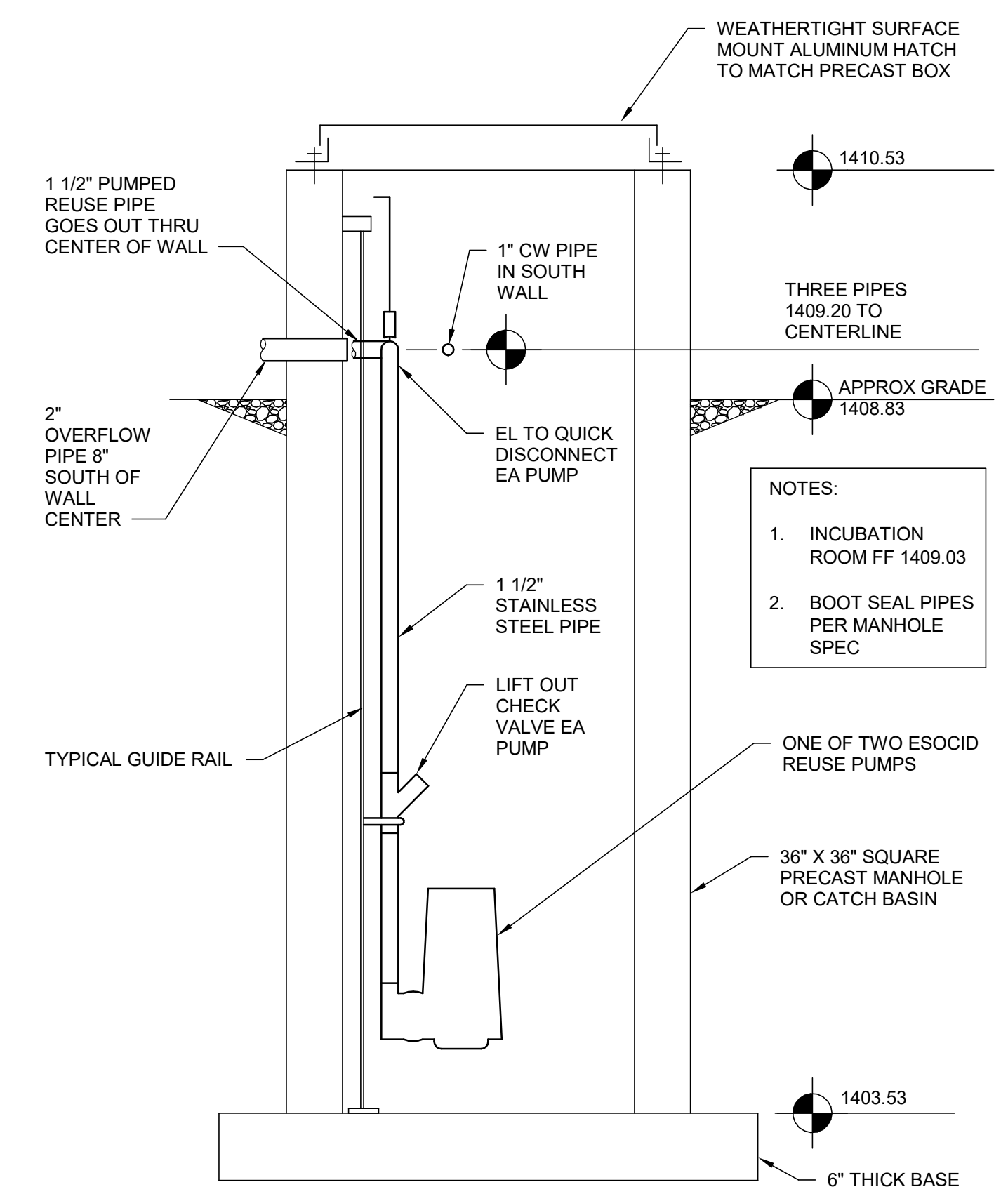
5 MUSKY (ESOCID) FRY TANK AXIAL SECTION
NOT TO SCALE



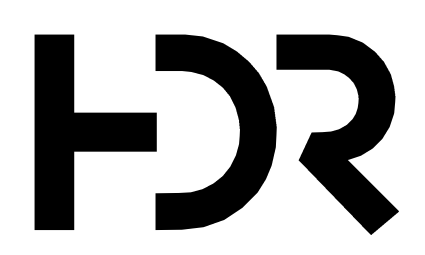
3 CARBON FILTERS ISOMETRIC
NOT TO SCALE



4 FRY TRANSFER TANK (FIBERGLASS TANK, 2 REQ'D)
NOT TO SCALE

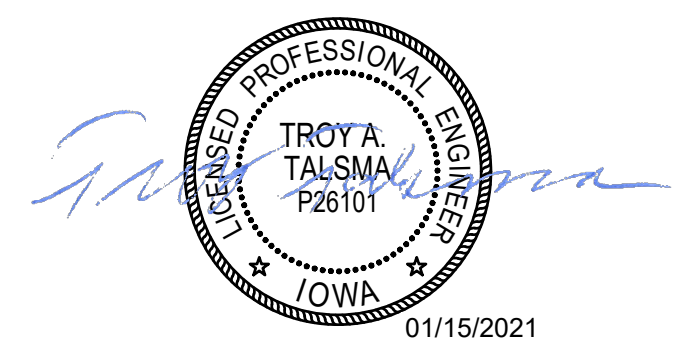


6 ESOCID REUSE PUMP STATION & PIPING
NOT TO SCALE



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PROJECT MANAGER	
ARCHITECTURAL	M. COCHRAN
STRUCTURAL	M. STOFFEL
PROCESS	B. BRADLEY
ELECTRICAL	T. TALSMA
	A. KANER
PROJECT NUMBER 10232924	



Spirit Lake Fish Hatchery Upgrade for RAS - REBID

PROCESS EQUIPMENT DETAILS

0 1" 2" FILENAME 10232924_00_D.rvt SCALE As indicated SHEET D-7

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1

2

3

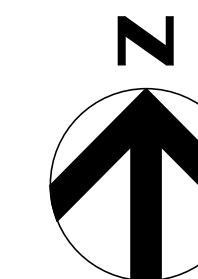
4

5

6

7

8



PLAN NORTH



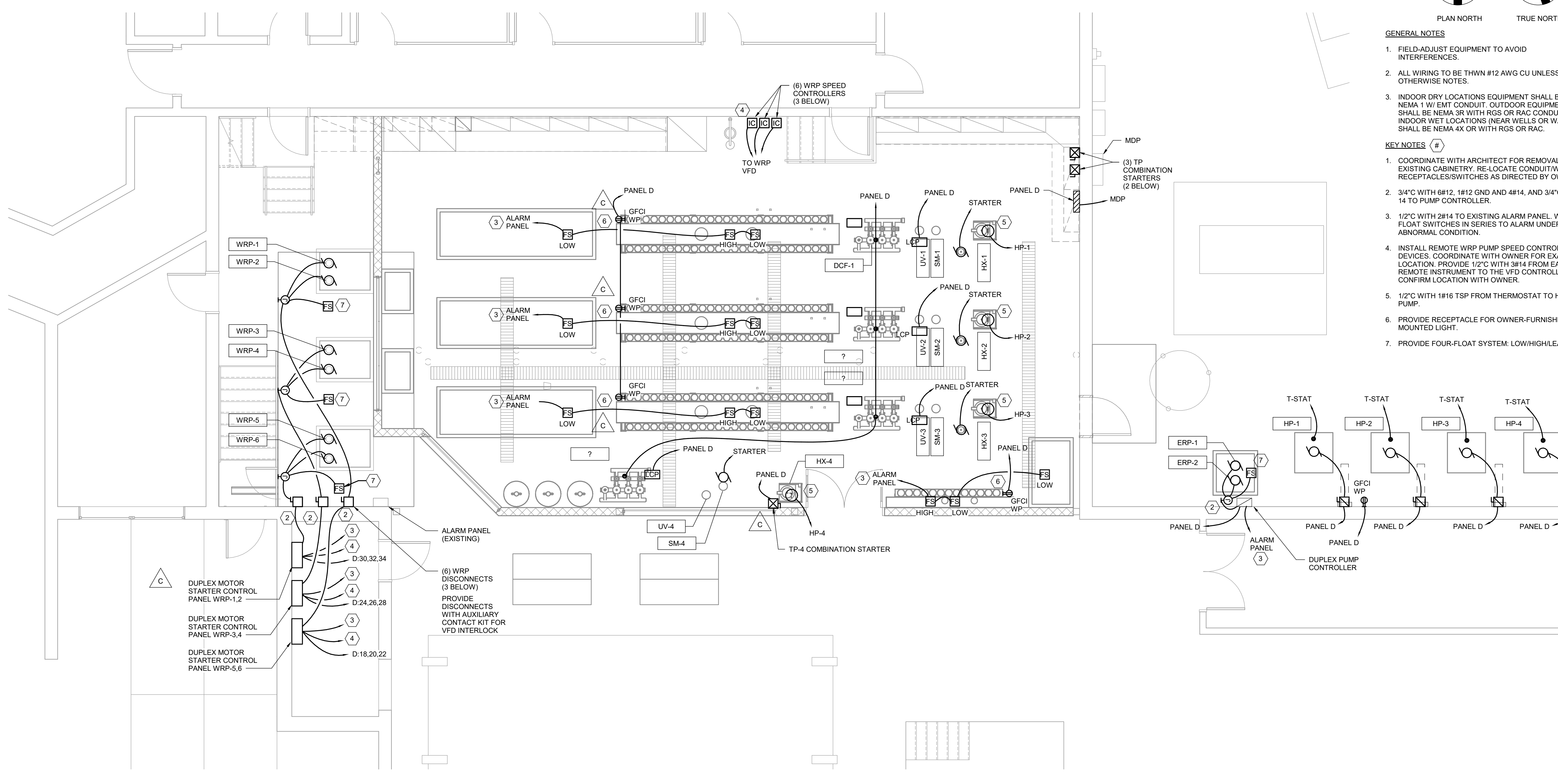
TRUE NORTH

GENERAL NOTES

- 1. FIELD-ADJUST EQUIPMENT TO AVOID INTERFERENCES.
- 2. ALL WIRING TO BE THWN #12 AWG CU UNLESS OTHERWISE NOTES.
- 3. INDOOR DRY LOCATIONS EQUIPMENT SHALL BE NEMA 1 W/ EMT CONDUIT. OUTDOOR EQUIPMENT SHALL BE NEMA 3R WITH RGS OR RAC CONDUIT. INDOOR WET LOCATIONS (NEAR WELLS OR WATER) SHALL BE NEMA 4X OR WITH RGS OR RAC.

KEY NOTES (#)

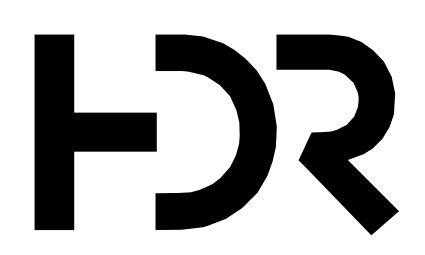
- 1. COORDINATE WITH ARCHITECT FOR REMOVAL OF EXISTING CABINETRY. RE-LOCATE CONDUIT/WIRE AND RECEPTACLES/SWITCHES AS DIRECTED BY OWNER.
- 2. 3/4" C WITH 6#12, 1#12 GND AND 4#14, AND 3/4" C WITH 8#14 TO PUMP CONTROLLER.
- 3. 1/2" C WITH 2#14 TO EXISTING ALARM PANEL. WIRE FLOAT SWITCHES IN SERIES TO ALARM UNDER ABNORMAL CONDITION.
- 4. INSTALL REMOTE WRP PUMP SPEED CONTROL DEVICES. COORDINATE WITH OWNER FOR EXACT LOCATION. PROVIDE 1/2" C WITH 3#14 FROM EACH REMOTE INSTRUMENT TO THE VFD CONTROLLER. CONFIRM LOCATION WITH OWNER.
- 5. 1/2" C WITH 1#16 TSP FROM THERMOSTAT TO HEAT PUMP.
- 6. PROVIDE RECEPTACLE FOR OWNER-FURNISHED, RACK-MOUNTED LIGHT.
- 7. PROVIDE FOUR-FLOAT SYSTEM: LOW/HIGH/LEAD/LAG.



POWER PLAN

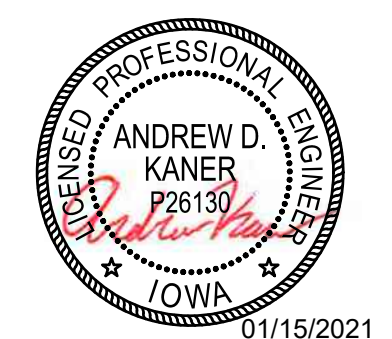
1/4" = 1'-0"

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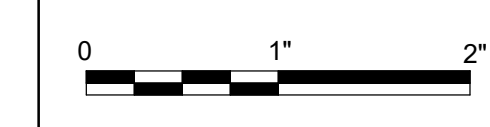


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D	01/15/2021	ISSUED FOR REBID
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PROJECT MANAGER M. COCHRAN	
ARCHITECTURAL	E. HOSSEINKHANI
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMAN
ELECTRICAL	A. KANER
PROJECT NUMBER 10232924	



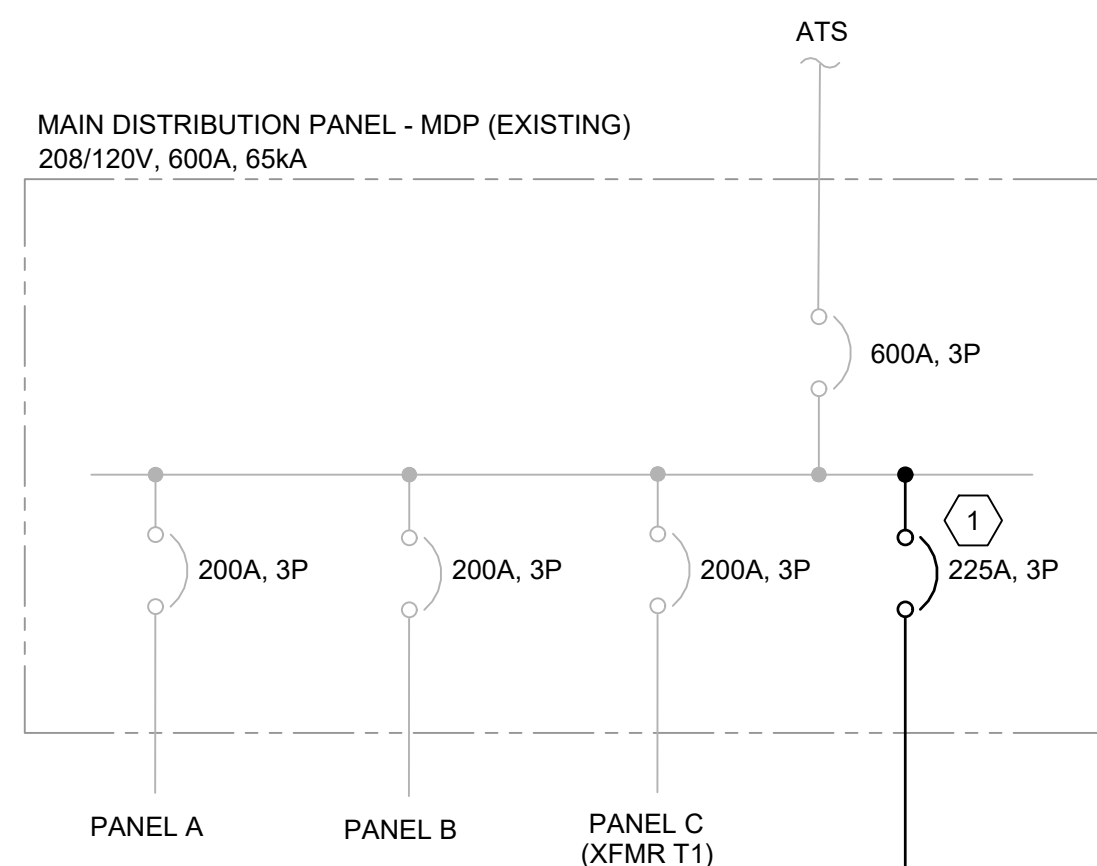
Spirit Lake Fish Hatchery Upgrade for RAS - REBID



POWER PLAN

FILENAME | 10232924_0_E.rvt
SCALE | 1/4" = 1'-0"

SHEET E-1



MAIN ELECTRICAL DISTRIBUTION PANEL - MDP					
LOAD DESCRIPTION	CIRCUIT BREAKER			FEEDER TO LOAD	
	AMP	POLE	SCCR	WIRE SIZE	CONDUIT SIZE
PANEL A	200	3	65K	*	*
PANEL D	225	3	65K	*	*
PANEL B	200	3	65K	*	*
PANEL C VIA TRANSFORMER T1	200	3	65K	*	*
SPACE	200	3	65K		
SPACE	200	3	65K		

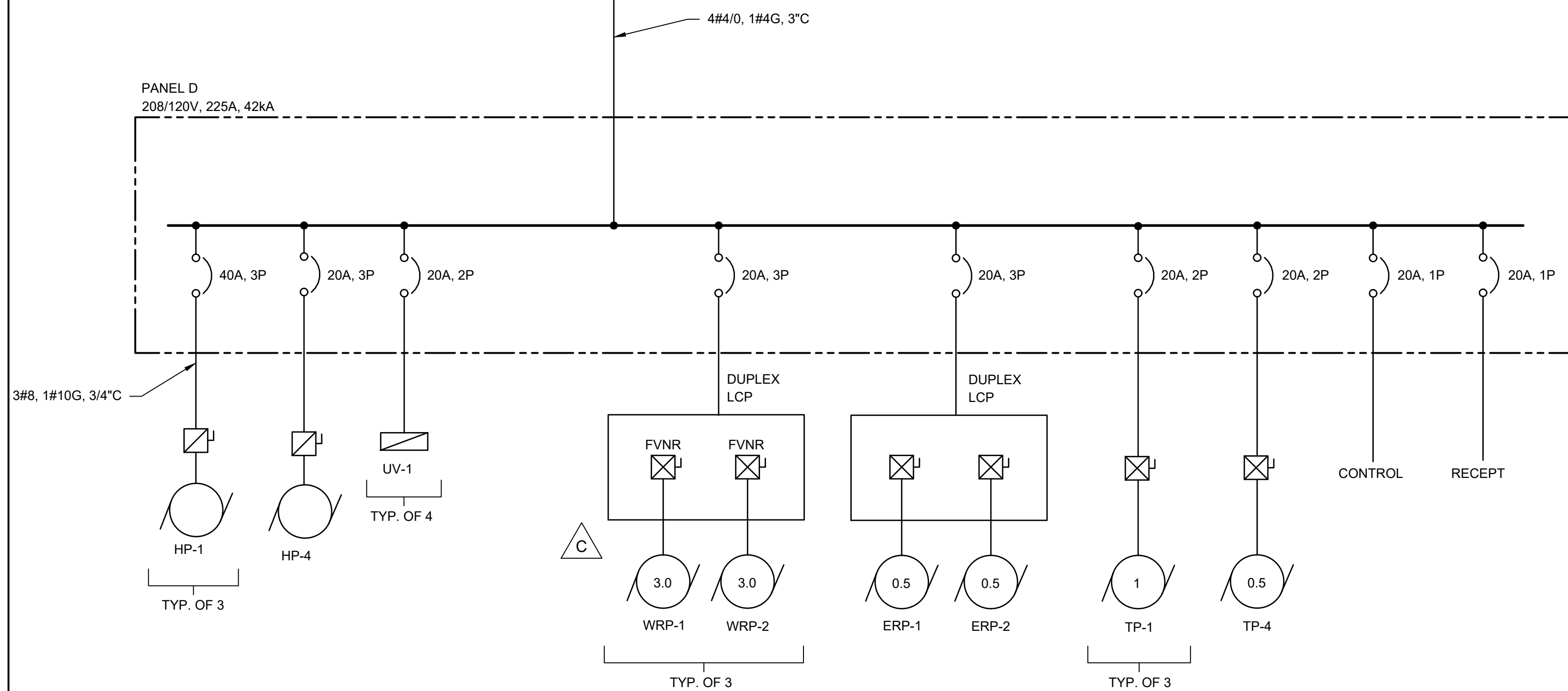
*REFER TO ONE-LINE DIAGRAM VOLTS/PHASE/WIRE CONNECT.

120/208V-3PHASE-4W

BUS RATING: 600A

MAIN BREAKER RATING: 600A

SHORT CIRCUIT CURRENT RATING: 65,000A



PANELBOARD NO: D

VOLTAGE: 208Y/120 BUS RATING (A): 225 ENCLOSURE: NEMA 1

PHASE: 3 MAIN OC DEVICE: MLO MOUNTING: SURFACE

WIRE: 4+GND INTERRUPTING RATING (KA): 42

200% NEUTRAL: NO SERVICE ENTRANCE LABEL: NO INTEGRAL SPD: YES

CKT NO.	DESCRIPTION	CONNECTED LOAD (VA)				OCP	P	OCP	P	CONNECTED LOAD (VA)				DESCRIPTION	CKT NO.	
		LTS	REC	MECH	MISC					LTS	REC	MECH	MISC			
1				2,300			A	20	2					250	UV-1	2
3	HP-1			2,300		40	B	20	2					250		4
5				2,300			C	20	2					250		6
7				2,300			A	20	2					250	UV-2	8
9	HP-2			2,300		40	B	20	2					250		10
11				2,300			C	20	2					250	UV-3	12
13				2,300			A	20	2					250		14
15	HP-3			2,300		40	B	20	2					250	UV-4	16
17				2,300			C						1,584			18
19				1,485			A	20	3				1,584		WRP-1,2 CONTROLLER	20
21	HP-4			1,485		20	B	20	3				1,584			22
23				1,485			C						1,584			24
25	DCF-1 CNTRL POWER					20	A	20	3				1,584		WRP-3,4 CONTROLLER	26
27	DCF-2 CNTRL POWER					20	B	20	3				1,584			28
29	DCF-3 CNTRL POWER					20	C	20	3				1,584			30
31	DCF-4 CNTRL POWER					20	A	20	3				1,584		WRP-5,6 CONTROLLER	32
33				915		20	B	20	3				1,584			34
35				915		20	C						576			36
37				915		20	A	20	3				576		ERP-1,2 CONTROLLER	38
39				915		20	B						576			40
41				915		20	C				720				RECEPT	42
43				915		20	A				180				EXTERIOR RECEPT	44
45				915		20	B	20	1						SPARE	46
47				915		20	C	20	1						SPARE	48
49				915		20	A	20	1						SPARE	50
51	SPARE					20	B	20	1						SPARE	52
53							C								SPACE ONLY	54
55	SPACE ONLY						A								SPACE ONLY	56
57	SPACE ONLY						B								SPACE ONLY	58
59	SPACE ONLY						C								SPACE ONLY	60

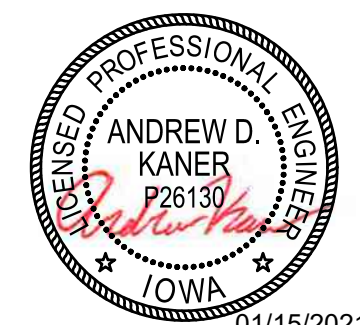
LOAD SUMMARY										PHASE BALANCE		
CONNECTED LOAD (KVA)	LTS	REC	MECH	MISC	SPARE	TOTAL	208 LINE-TO-LINE VOLTS			PHASE A (KVA)	PHASE B (KVA)	PHASE C (KVA)
0.0	0.9	48.5	2.0	---	51.4							
DEMAND FACTOR	1.25	1.00	1.00	1.00	20%	---	143 CONNECTED AMPS					
DESIGN LOAD (KVA)	0.0	0.9	48.5	2.0	10.3	61.6	171 DESIGN AMPS					

1 ONE LINE DIAGRAM
NOT TO SCALE



ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
C	09/11/2020	ADDENDUM 2
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	
ARCHITECTURAL	M. COCHRAN
STRUCTURAL	M. STOFFEL
PROCESS	B. BRADLEY
ELECTRICAL	T. TALSMAN
	A. KANER
PROJECT NUMBER 10232924	



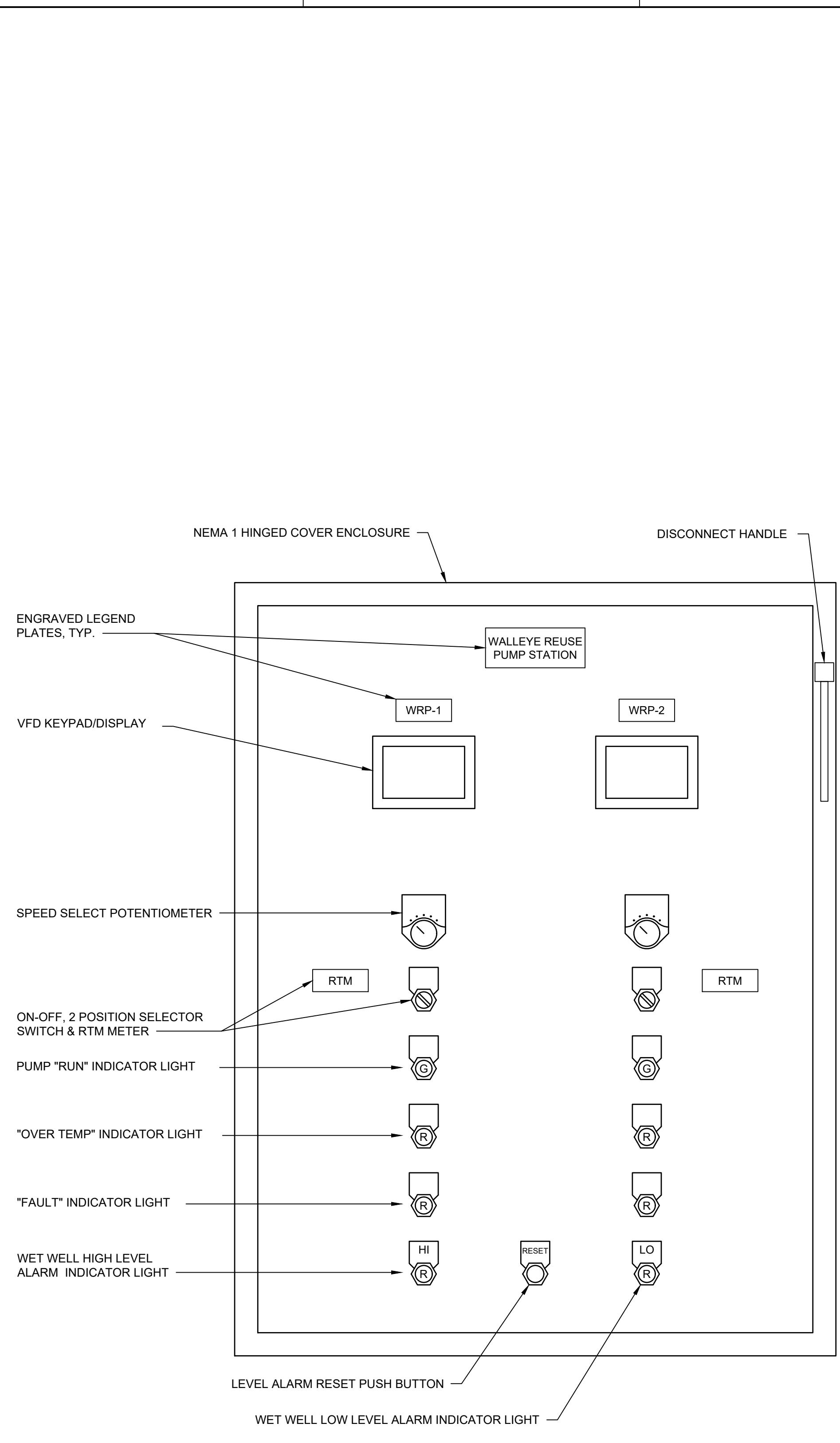
Spirit Lake Fish Hatchery Upgrade for RAS - REBID



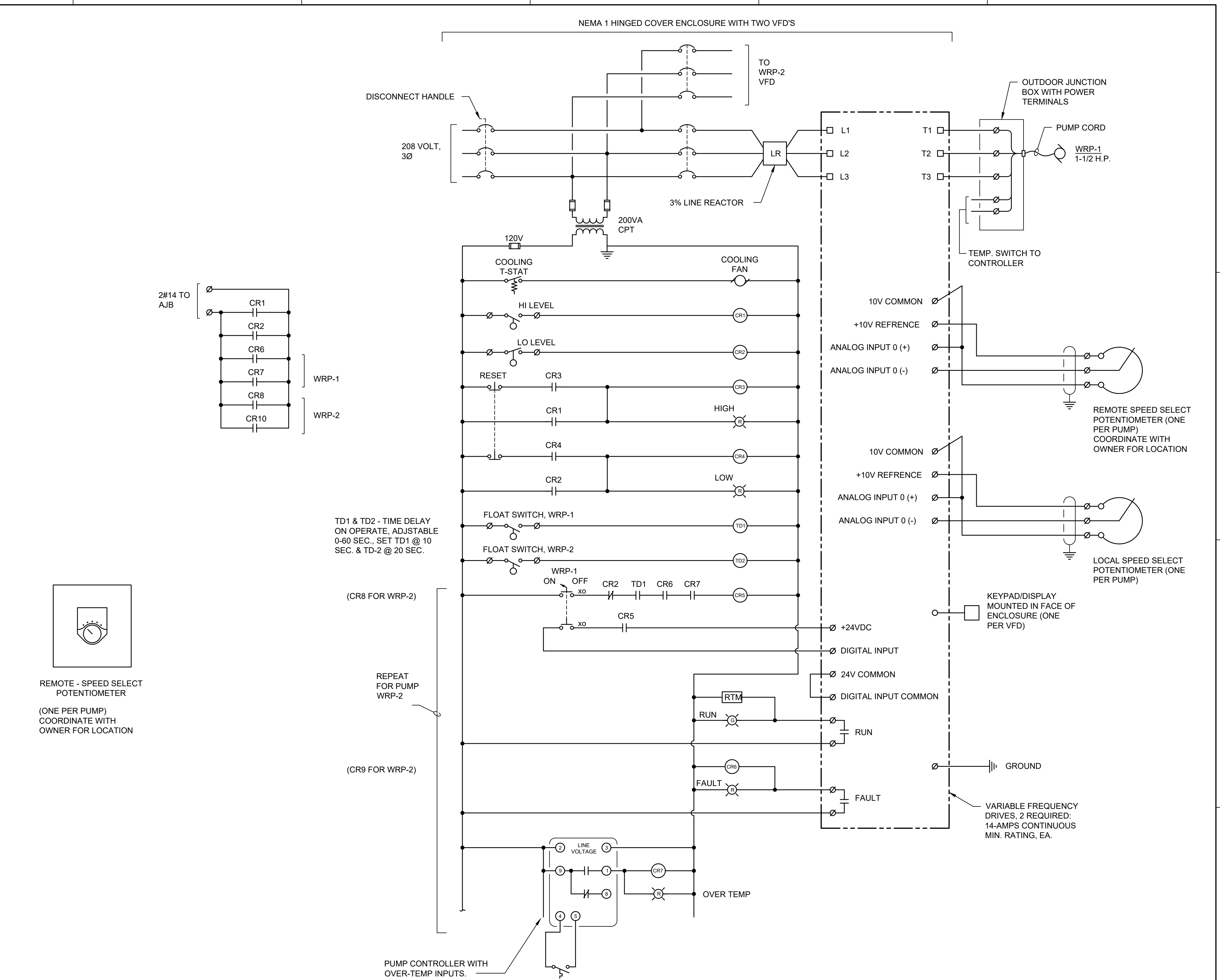
FILENAME: E-2.DWG
SCALE: AS NOTED

SHEET E-2

ELECTRICAL DETAILS

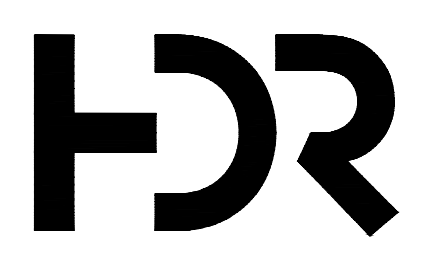


2 WRP - WALLEYE REUSE PUMP STATION CONTROL PANEL
NOT TO SCALE



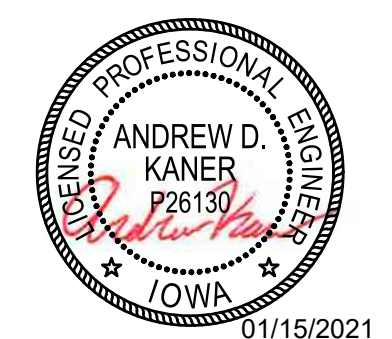
1 WRP - WALLEYE REUSE PUMP CONTROL PANEL - WIRING DIAGRAM
NOT TO SCALE

C:\working\central\1804520\5-3.dwg, Layout1, 1/15/2021, 11:23:39 AM, LTRAVIS

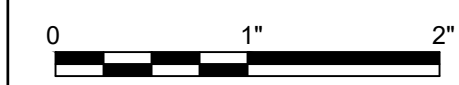


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
C	09/11/2020	ADDENDUM 2
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	M. COCHRAN
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER	10232924



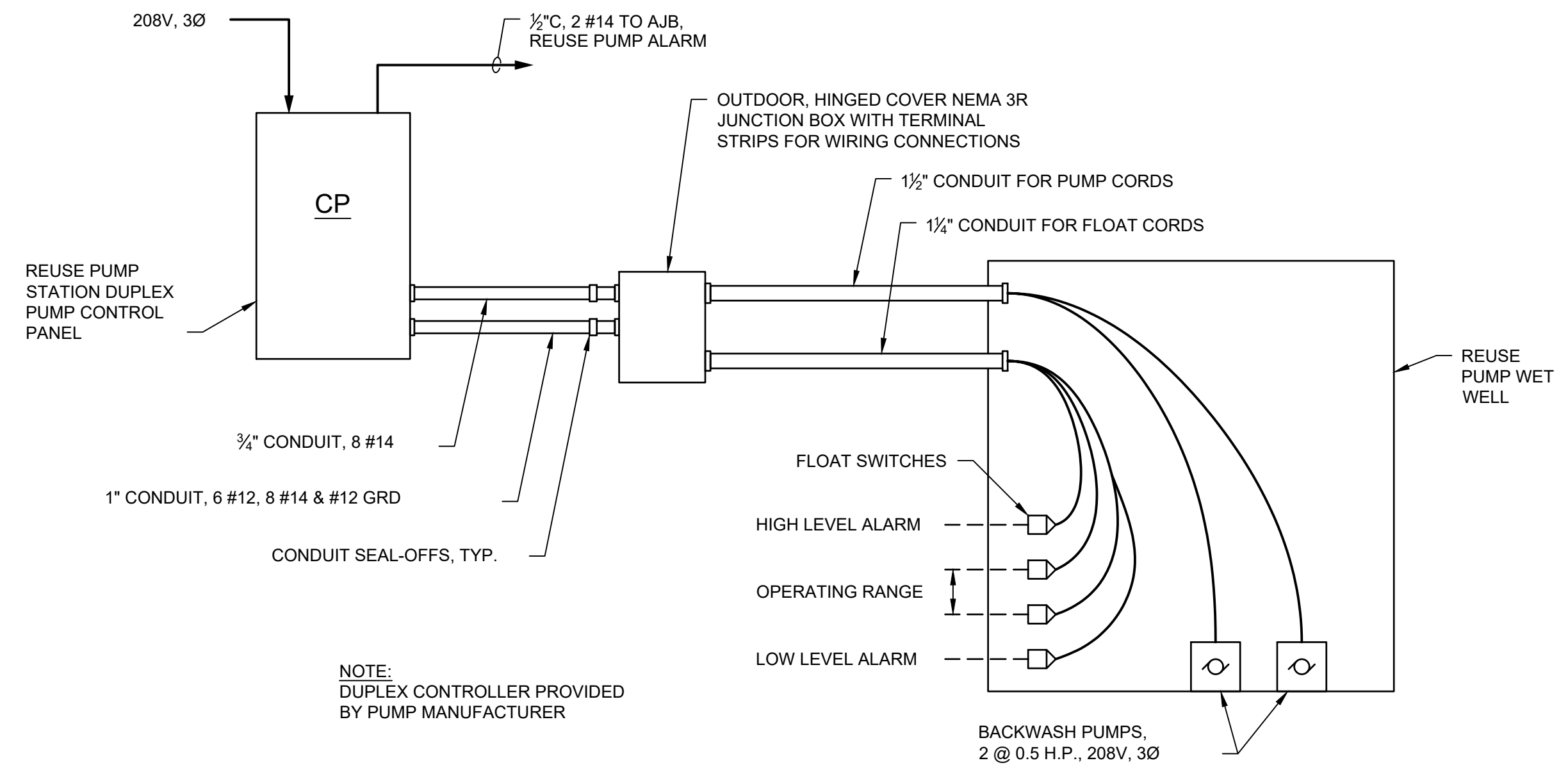
**Spirit Lake Fish Hatchery
Upgrade for RAS - REBID**



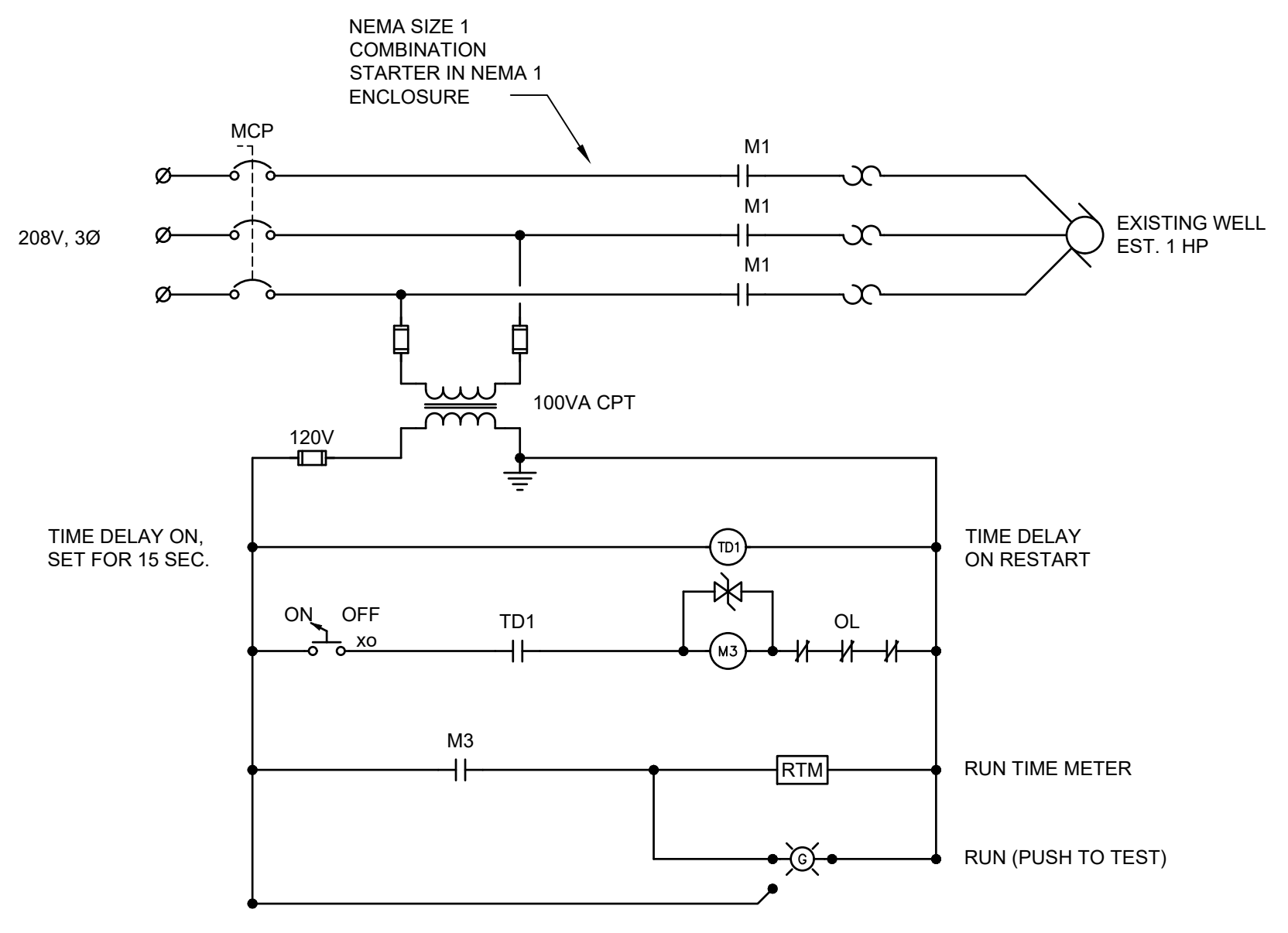
FILENAME | E-3.DWG
SCALE | AS NOTED

SHEET
E-3

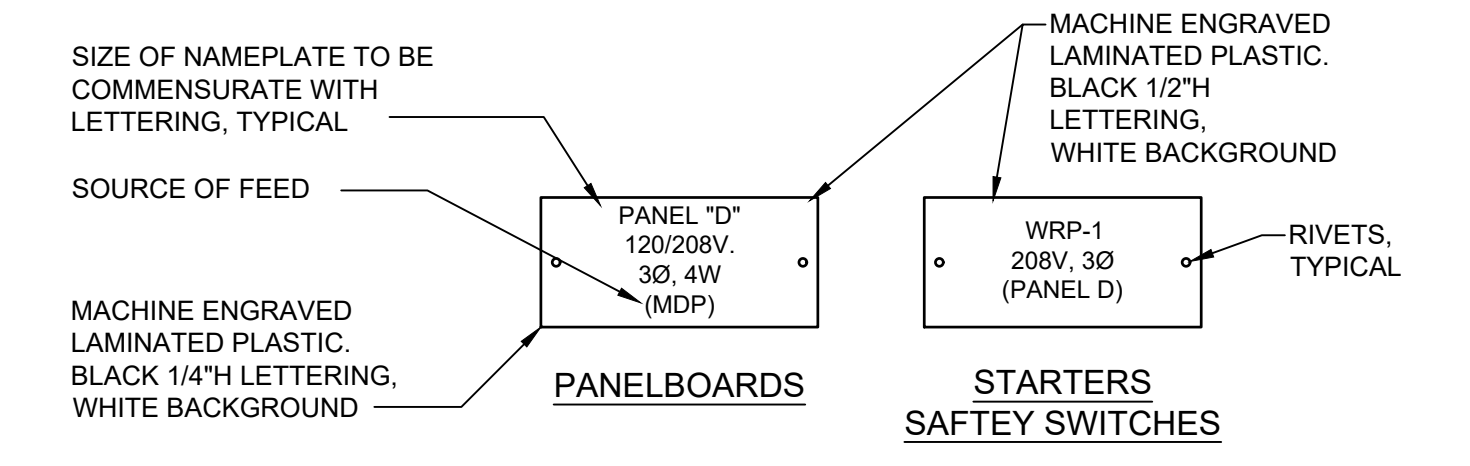
ELECTRICAL DETAILS



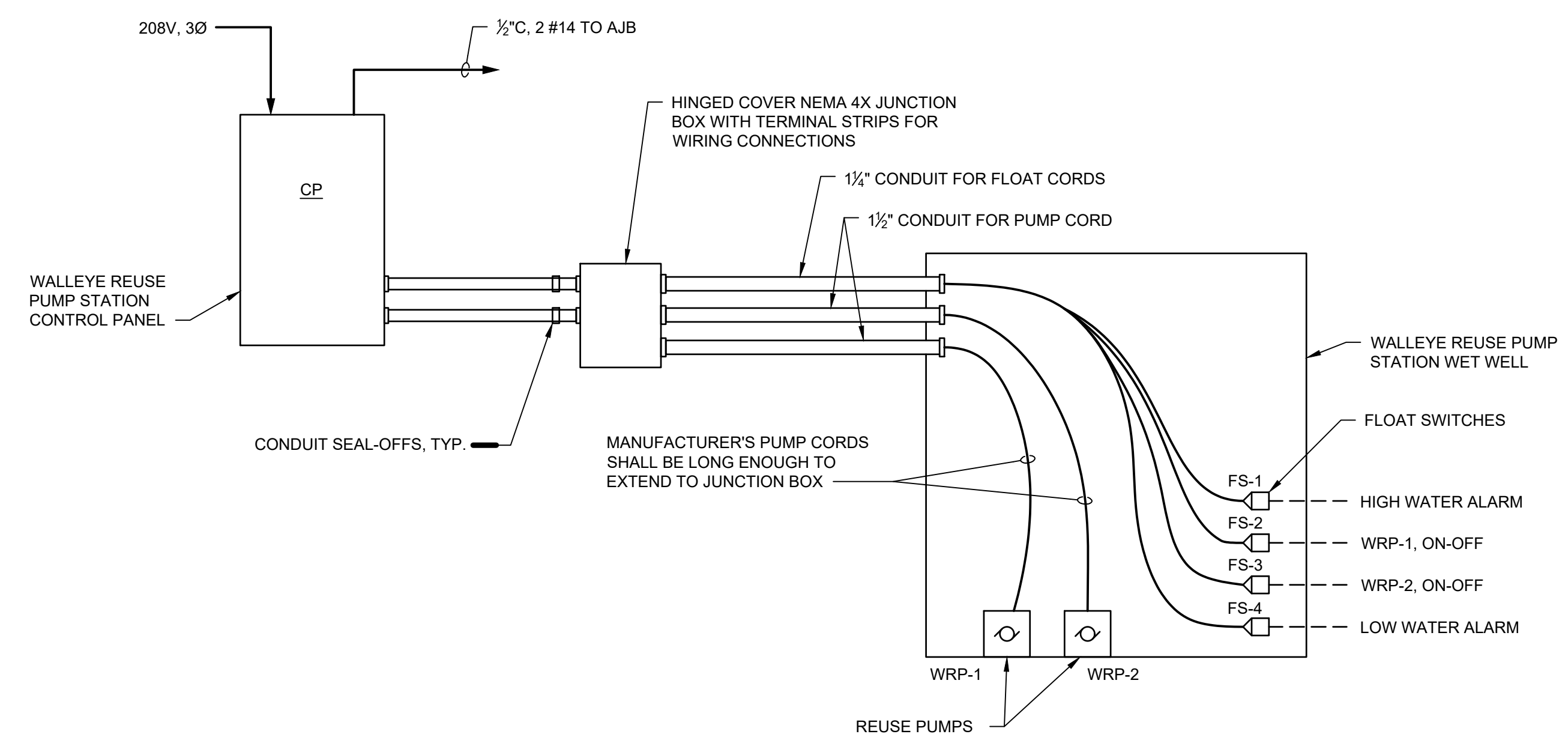
1 ESOCID REUSE PUMP STATION - BLOCK DIAGRAM
NOT TO SCALE



3 TP-1 WIRING DIAGRAM
TEMPERED WATER PUMP
NOT TO SCALE



5 NAME PLATES DETAIL
NOT TO SCALE



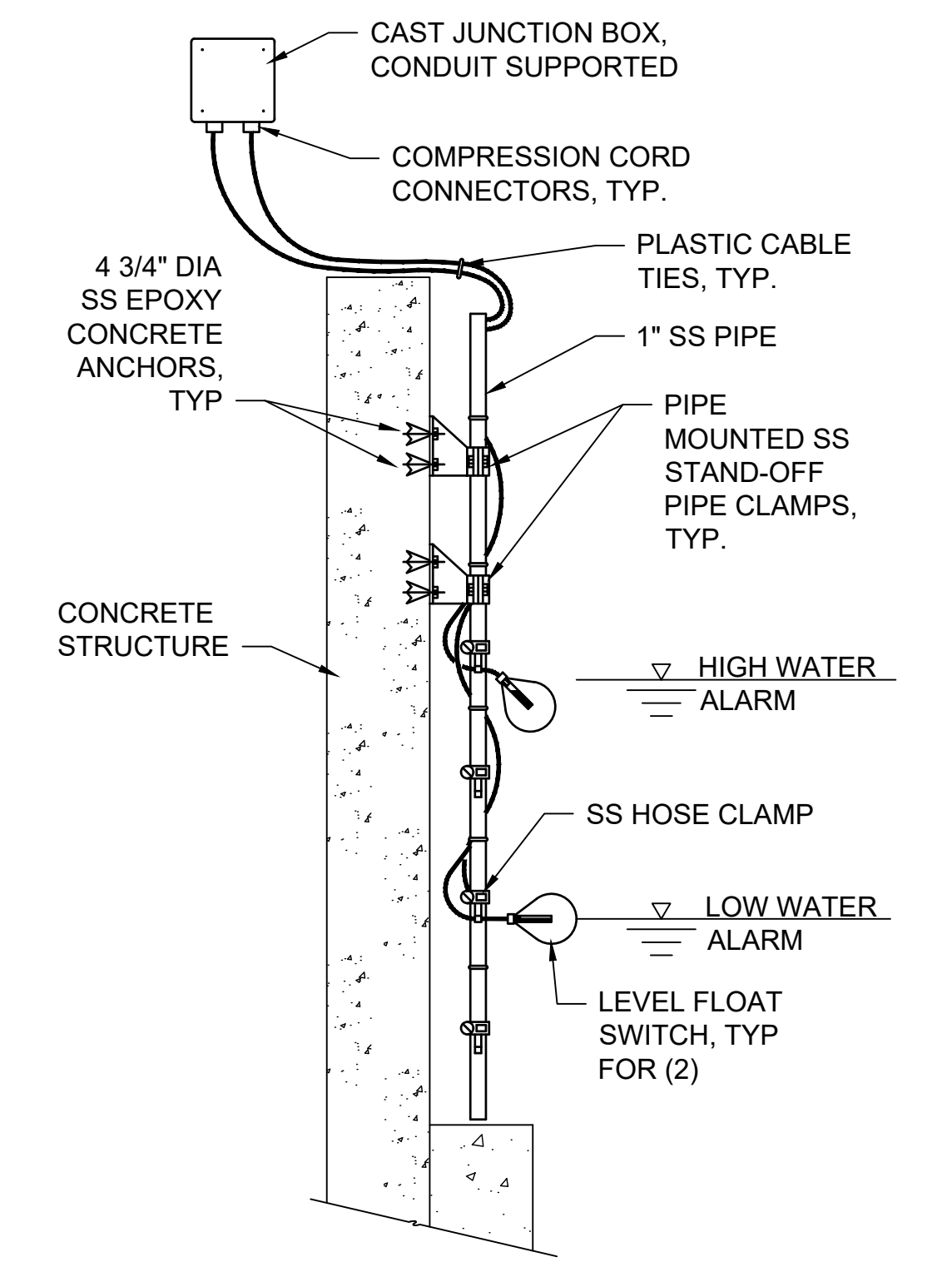
2 WALLEYE REUSE PUMP STATION - BLOCK DIAGRAM
NOT TO SCALE
OTHER WRP PUMP STATIONS ARE SIMILAR



FROM ALARM JUNCTION BOX: 16#14

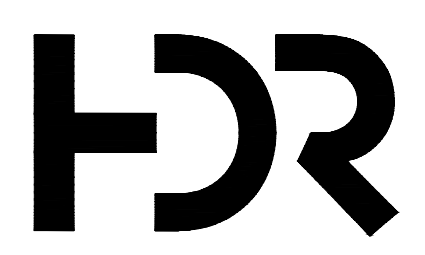
4 HATCHERY ALARM DETAIL
NOT TO SCALE

ALARM PANEL TERMINALS	
TERMINALS	DESCRIPTION
1a - 1b	EXISTING
2a - 2b	EXISTING
3a - 3b	EXISTING
4a - 4b	WALLEYE REUSE PUMP STATION (WRP-1,2) - ALARM
5a - 5b	WALLEYE REUSE PUMP STATION (WRP-3,4) - ALARM
6a - 6b	WALLEYE REUSE PUMP STATION (WRP-5,6) - ALARM
7a - 7b	ESOCID REUSE PUMP STATION (ERP-1,2) - ALARM
8a - 8b	WALLEYE JAR RACK 1 - LEVEL ALARM
9a - 9b	WALLEYE JAR RACK 2 - LEVEL ALARM
10a - 10b	WALLEYE JAR RACK 3 - LEVEL ALARM
11a - 11b	ESOCID JAR RACK 1 - LEVEL ALARM
12a - 12b	



6 LEVEL SWITCH MOUNTING BRACKET
NOT TO SCALE

C:\working\central\1141804520E-4.dwg, Plot, 1/15/2021 11:24:59 AM, LTRAVIS

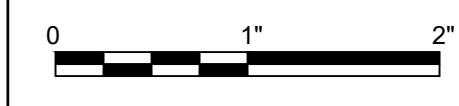


ISSUE	DATE	DESCRIPTION
D	01/15/2021	ISSUED FOR REBID
A	08/21/2020	ISSUED FOR BID

PROJECT MANAGER	
M. COCHRAN	
ARCHITECTURAL	M. STOFFEL
STRUCTURAL	B. BRADLEY
PROCESS	T. TALSMA
ELECTRICAL	A. KANER
PROJECT NUMBER: 10232924	



Spirit Lake Fish Hatchery Upgrade for RAS - REBID



ELECTRICAL DETAILS

FILENAME: E-4.DWG
SCALE: AS NOTED

SHEET: E-4