



**US Army Corps  
of Engineers**  
Portland District

**CONTRACT NO  
W9127N-13-P-0047**

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**BONNEVILLE LOCK AND DAM  
NORTH BONNEVILLE, SKAMANIA COUNTY, WASHINGTON**

**BONNEVILLE ADULT FISH FACILITY  
IMPROVEMENTS**

**CONTRACT PACKAGE**

SECTION 01 11 00.00 25

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

This Section provides a summary of the various Contract work elements and their relationship to each other. This summary does not provide the technical detail for particular work activities, but describes the work as a whole, providing overall perspective to the separate tasks and their interrelationships. Use this Section in conjunction with all the other Sections and the Drawings to establish the total work requirements.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The work includes modifications to the adult fish facility at Bonneville Dam and incidental related work. The work covered by this contract includes modification to weirs surrounding Valve 15, the fabrication and installation of two fish observation boxes, modifications to the fish bypass flumes, and the modification of the raw water supply system. This effort is to include all associated works required and described within this Contract package.

1.2.2 Location

The work shall be located near the tailrace area of Bonneville Dam Second Powerhouse. Contractor access to the work site will be from Washington State Route (SR) 14.

1.3 Description of Work to Be Performed

1.3.1 Weir Modifications

Modify the weirs surrounding Valve 15 as shown on Attachment A4. Exact measurements for all items shall be independently confirmed by the contractor prior to fabrication.

1.3.1.1 Replace Existing Weir Channels

Replace the entire existing channel sections and structural angles supporting the trashrack structure in-kind. Coat the new materials with an industry standard product for underwater applications to a minimum of 10 mils thickness using the manufacturer's recommendation unless directed otherwise.

1.3.1.2 New Stop Log Guide

Furnish and install new internal stop log guide, also painted per 1.3.1.1, to have the same height as the existing guides (124 inches) with equivalent width dimensions to hold the same size of stop logs. Material shall be A36 steel. The guide shall consist of two MC7 x 22.7 welded together along the back edges, with the openings to face out in opposite directions. The east

## Bonneville Dam AFF Improvements

side of the guide shall hold one end of the south weir stop logs and the west side of the guide shall have new porosity plate attached to the front. The new guide shall be located between the two existing guides for the south (long) weir and center of the guide shall be located as shown on Attachment A4.

### 1.3.1.3 New Stoplogs

Replace existing wooden stoplogs with new stoplogs where indicated on Attachment A4. The new stoplogs shall stack to the same elevation as the existing stoplogs. Provide two additional members of equivalent length and width in 4 inch height increments for each stoplog segment, to be used for flow and water level adjustment. The length & width dimension of the stop logs are shown below:

Weir 1 (south side)	Width= 5.5 in.	Length* = 60.5 in.	(new opening span about 4.5 feet)
Weir 2 (east side)	Width= 5.5 in.	Length** = 50 in.	(opening span about 3 feet)

\*Length 1 is 0.5 inches less than the measured inside distance between existing guides - 24 inch wide porosity plate - 1 inch thickness for new internal guide.

\*\*Length 2 is 0.5 inches less than the measured inside distance between existing guides.

Stoplogs shall be White oak. Contractor shall notify government of availability as soon as possible and submit alternative proposal for wood that fits in the slot appropriately. All dimensions shall be field verified by the contractor.

### 1.3.1.4 Stoplog Plating

Furnish and install new UV resistant UHMW plates 1/2 inch thick to go into the weir guide slots in front (upstream) of the new stop logs as shown on Attachment A4. A backer rod and caulking shall be applied around the edges to minimize leakage. The inside width of the MC7 x 22.7 C channel stop Log guides is 6 inches. The length and height of the two plates shall be the following:

Weir 1 (south side)	Height= 9 feet	Length = 60.5 in.	(new opening span about 4.5 feet)
Weir 2 (east side)	Height= 9 feet	Length = 50 in	(opening span about 3 feet)

Caulking shall be applied around the front (upstream) sides and bottom to minimize leakage around and under the plates. All dimensions shall be field verified by the contractor.

### 1.3.1.5 Perforated Plates

Furnish and install new perforated plates with the following dimensions:  
Plate thickness = 1/2 inches A36 steel  
Perforated sections shall consist of 3-inch diameter holes at 6-inch square grid centerline spacing, or 6.5-inch staggered centerline spacing (Porosity = 20 % in both cases).

Plate 1 (west side)	Height = 10 feet	Length = 48 inches	(opening width = 36 inches)
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## Bonneville Dam AFF Improvements

Plate 2 (south side)      Height = 10 feet      Length = 24 inches (opening width = 18 inches)

The plates shall be solid and perforated at the following levels starting at 0 from the bottom:

Plate 1 (south side)	Plate 2 (west side)
0 - 5 feet: solid	0 - 5 feet: solid
5 - 9 feet: perforated	5 - 10 feet: perforated
9 - 10 feet: solid	

Attach perforated plates, where indicated, to the front of the weir guides after proper cleaning and painting. These plates shall be bolted to the front of the weir guides at a minimum of one foot (center to center) along the length of the plate. Include a neoprene gasket material between the perforated plates and the weir guides to prevent leakage. Bolts shall be 1/2" stainless steel.

### 1.3.2 Observation Boxes

#### 1.3.2.1 Box Details

Provide and install the observation boxes as shown in Attachment A5 (Drawing M-002). Tanks shall be formed of .25 inch aluminum. Install tanks as shown on Attachment A5 (Drawing M-001).

#### 1.3.2.2 Fabrication

The bottom perforated plates shall be 1/4 inch UHMW with 1/4 inch holes on 3/4 inch centers. The top and bottom of each hole shall be countersunk a minimum of 1/8 inch. All corners shall be broken.

#### 1.3.2.3 Installation

Boxes shall be installed on a 3/4" threaded anchor to allow adjustment of the box angle to assist with fish release. Feet shall be installed in a level position. Modify screen and door on Brail pool to install box as shown. Location of the connection to the water supply shall be determined in the field. Piping from the water supply to the observation box shall be 3/4" Schedule 40 PVC. The last 10 feet of piping to the box shall be flexible to allow adjustment of box position. A secondary fill line shall be run to each box to fill the box after fish have been removed. The drain line shall include a 90 degree valve in the line at a convenient location to allow drain flow shutoff after fish handling. The top edge of the observation boxes shall be located at 28" as measured from the floor. Box stands can be fabricated out of 2" X 2" aluminum angle with rubber isolators where appropriate. The observation boxes shall retain the ability to be removed for cleaning or other purposes.

#### 1.3.2.4 Box Exit

Provide an SBR rubber "elephant's trunk" on the exit side of the box to ensure the vertical distance the fish will fall before entering the pool below is less than 1/2".

### 1.3.3 Bypass Flume Modifications

Modify the existing bypass flume as shown in Attachment A5 (Drawing M-001). The new piping extension shall match the existing pipe: 14 inch- Schedule 40 PVC. The 90-degree bend centerline radii shall be minimum 5 x Pipe OD

## Bonneville Dam AFF Improvements

and the bend shall be radiused rather than mitered for safe fish passage. All internal edges shall be smooth and free of sharp edges or burrs. A minimum of 1 inch radius shall be provided on edges. All gaps shall be less than 1/8 inch. Government inspection of all internal surfaces shall be completed prior to final assembly. The length of the outside (east & south) pipe shall be 21 feet 6 inches at 1 foot in 10 feet slope. The length of the inside (east & south) pipe shall be 17 feet 6 inches at 1 foot in 10 feet slope. The slope of the new elbow shall be adjusted as necessary to have the same start and end elevations as the outside pipe. Both pipes shall terminate at the same horizontal location and elevation. The pipes shall terminate less than 2.5 feet above the fishladder floor. The pipes shall be supported by Cooper B-Line B3140 pipe supports or approved equal. The pipe supports shall be mounted on a C6X4.5 channel mounted to the wall using epoxy anchors with proper embedment of all anchors. Connect flanges using manufacturer recommended gasket and flange kits.

### 1.3.4 Raw Water Supply System

Provide and install a new raw water supply pump and piping to increase the flow to the fish facility. The layout shall be similar to the existing system and tie into the existing system at the fishladder. Tie into the existing galvanized piping at the grating above the pump. The new piping system shall be routed along the same path as the existing and have the same size pipe, hose bibs, and pvc piping as currently installed. Reuse existing pipe as possible. The existing hose bib shall remain with an additional new hose bib manifold furnished and installed above the existing hose bib. New Schedule 80 pipe shall be installed from the pump discharge to the fishladder area. The new pump shall provide 170 gpm at 65' of head, a 5 HP motor. Route new water supply system to:

New fish observation tank inlets, 4 each.

3/4 inch PCVC to the switchgates for the bypass flumes.

### 1.4 CONTRACT DRAWINGS

a. The Drawings that accompany these Specifications are a part thereof.

b. One set of full size Contract drawings, maps, and Specifications will be furnished to the Contractor without charge per Section 00700 Contract Clause 252.236-7001, CONTRACT DRAWINGS AND SPECIFICATIONS. Reference publications will not be furnished.

c. Contractor shall immediately check furnished Drawings and notify the Government of any discrepancies.

### 1.5 OCCUPANCY OF PREMISES

a. Building(s) may be occupied during performance of work under this Contract.

b. Before work is started, the Contractor shall arrange with the Contracting Officer a sequence of procedure, means of access, space for storage of materials and equipment, and use of approaches, corridors, and stairways.

### 1.6 EXISTING WORK

In addition to Section 00700 Contract Clause 52.236-9, PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS:



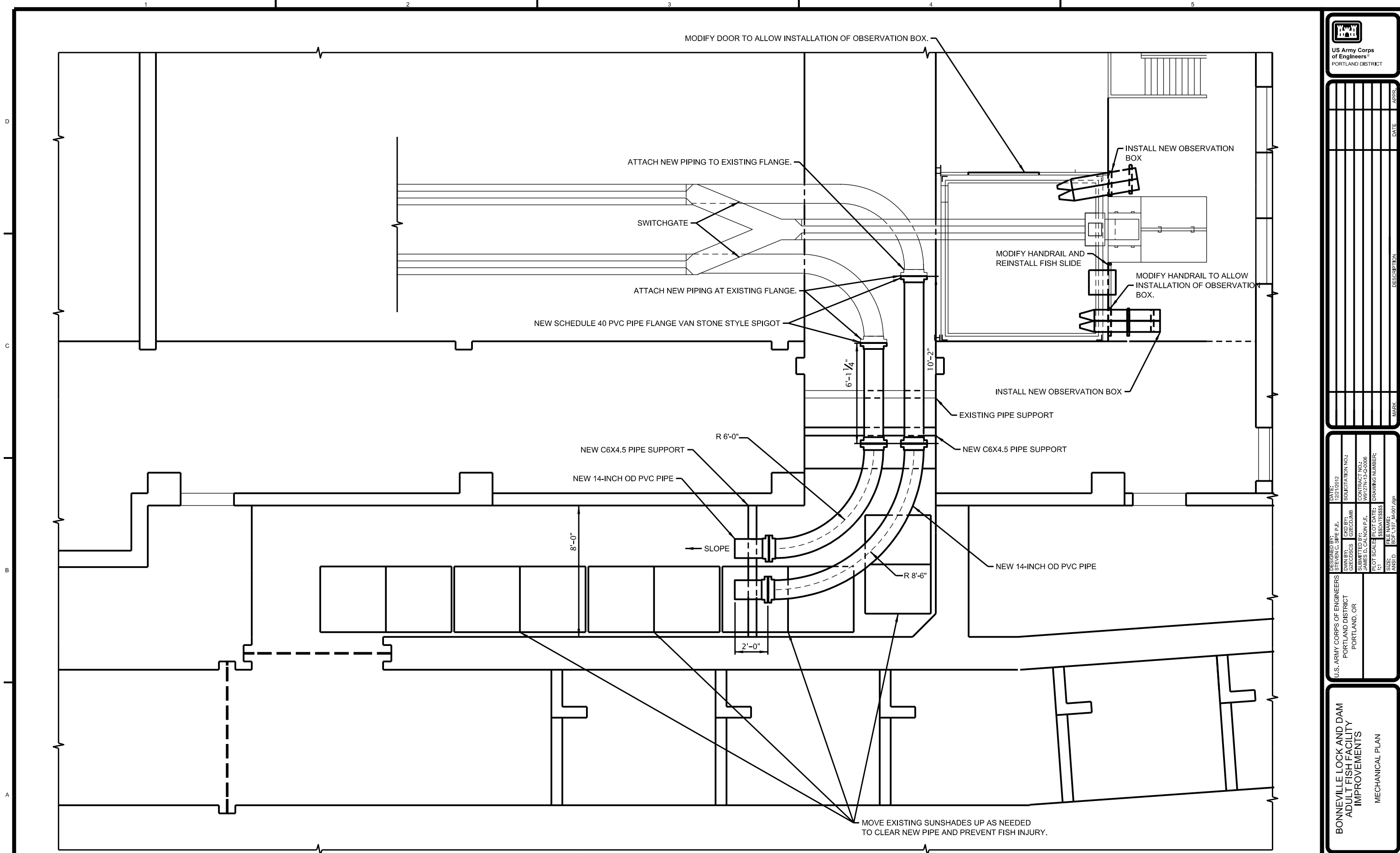
US Army Corps of Engineers  
PORTLAND DISTRICT

DATE	DESCRIPTION

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CONTRACT NO.: W9127N-13-Q-0006	CONTRACT NO.: W9127N-13-Q-0006
DRAWING NUMBER: 11	DRAWING NUMBER: 11
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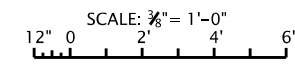
BONNEVILLE LOCK AND DAM  
ADULT FISH FACILITY  
IMPROVEMENTS  
MECHANICAL PLAN

SHEET IDENTIFICATION  
**M-001**  
SHEET 1 OF 5



### MECHANICAL PLAN

SCALE: 3/8" = 1'-0"



NOTES:

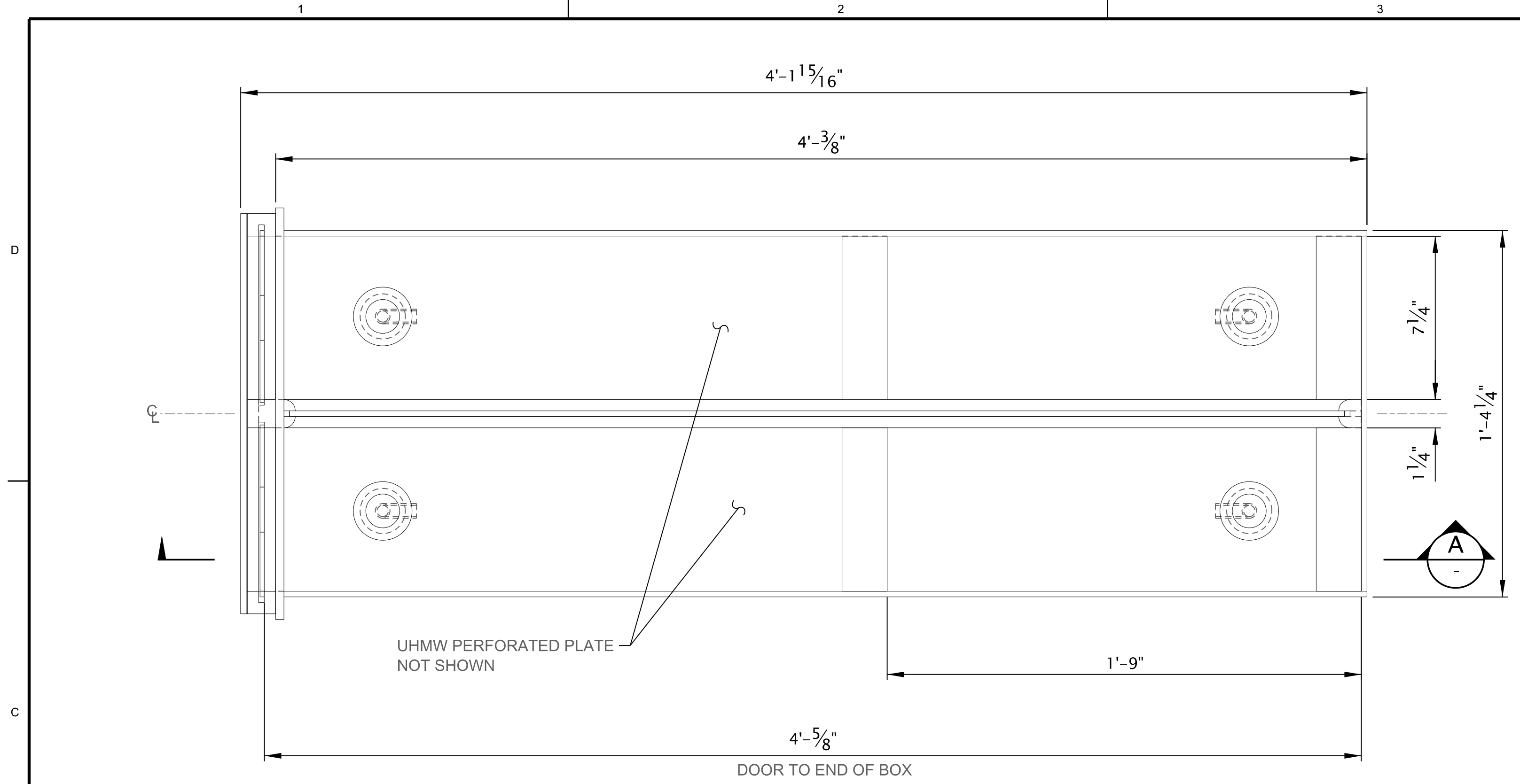
1. SCHEDULE 40 PVC PIPE
2. SLOPE PIPE 1 FOOT IN 10 FEET
3. END OF PIPE TO BE 2'-6" ABOVE FLOOR OF FISH LADDER
4. PAINT ALL NEW STEEL

DATE	DESCRIPTION	MARK	APPR.

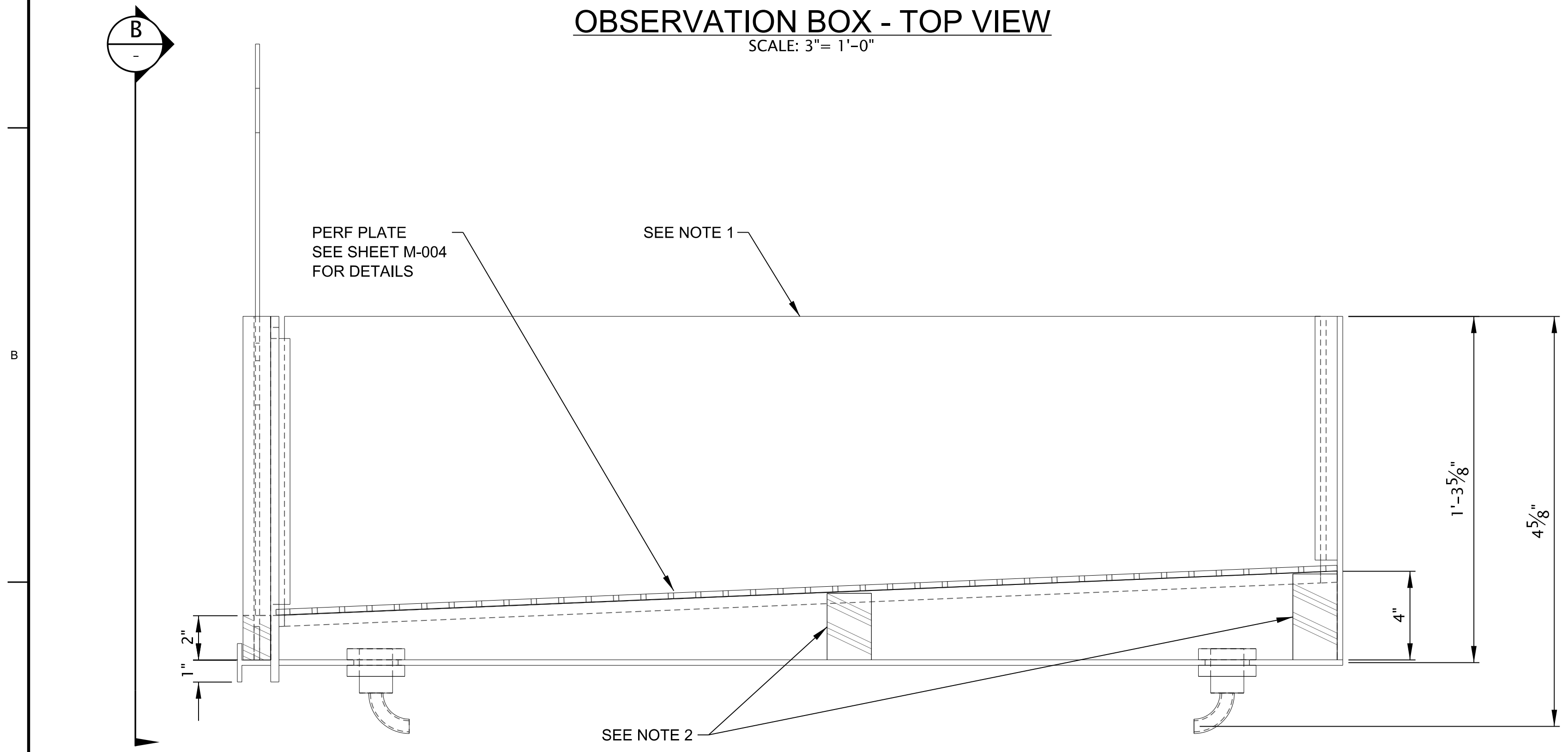
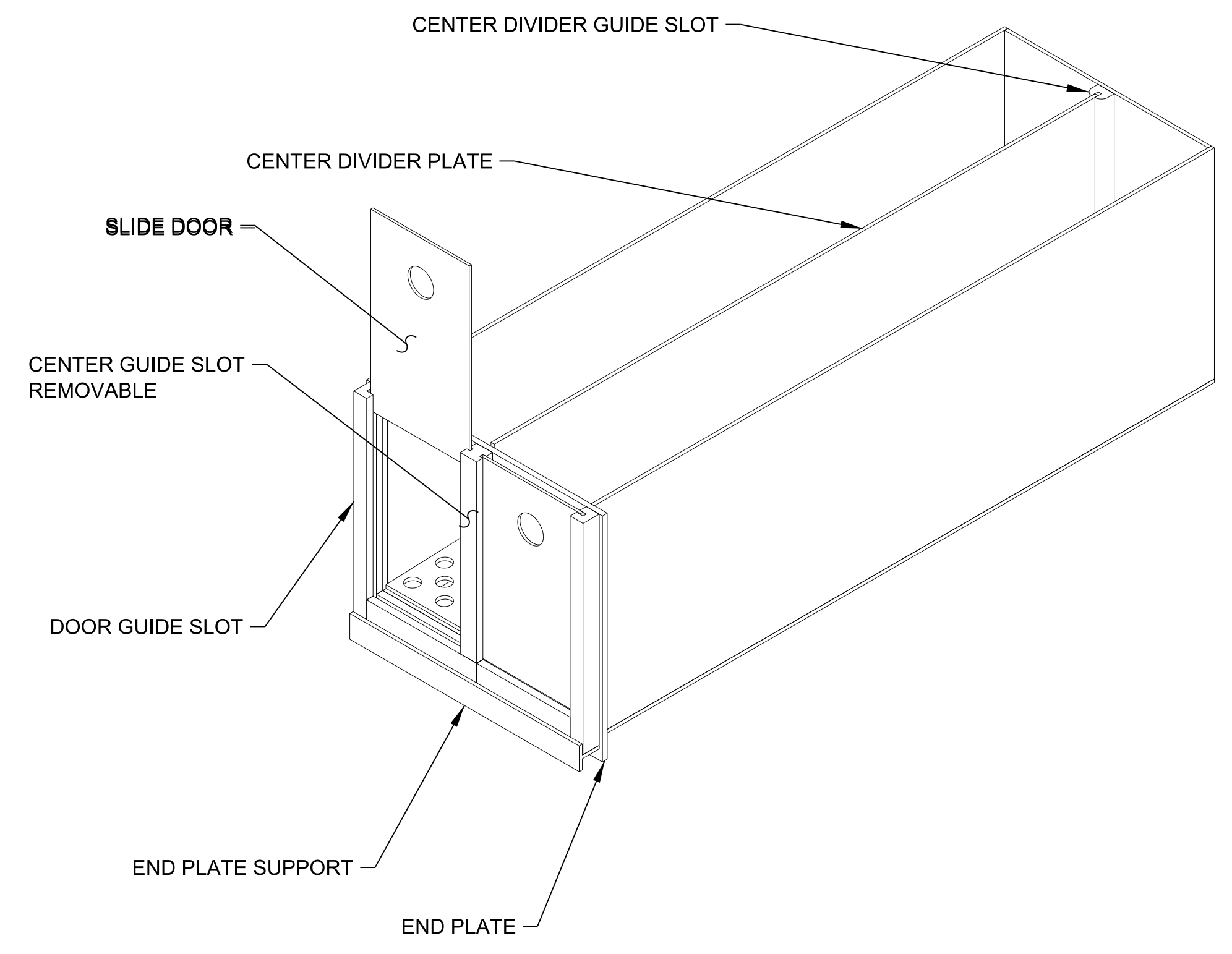
DESIGNED BY: P.E. GREGG	DATE: 12/21/2012
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DESIGNED BY: GREGG	W9127N-13-Q-006
DESIGNED BY: GREGG	DRAWING NUMBER:
DESIGNED BY: GREGG	FILE NAME:
DESIGNED BY: GREGG	ANSI D

BONNEVILLE LOCK AND DAM  
ADULT FISH FACILITY  
IMPROVEMENTS  
OBSERVATION BOX

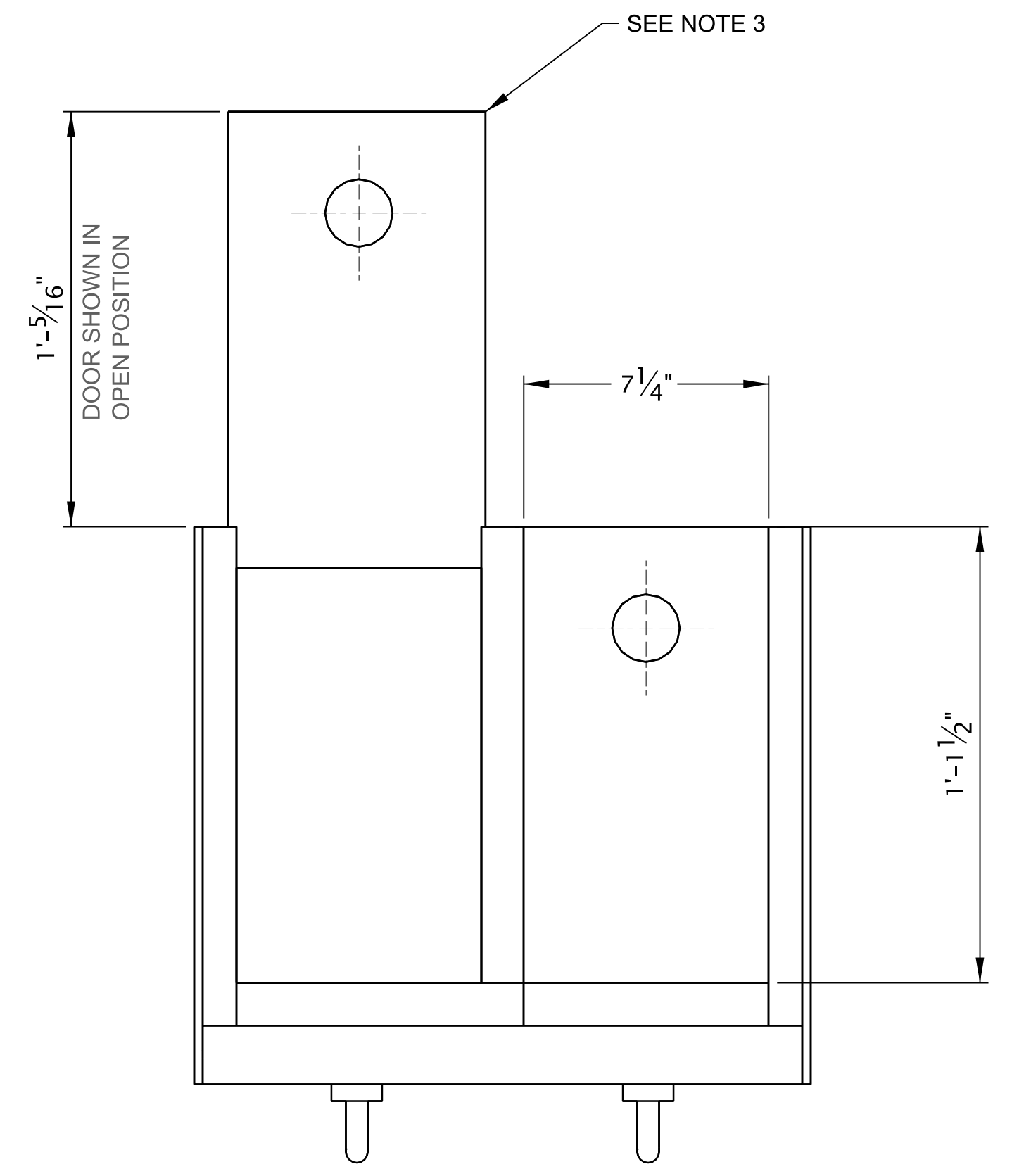
SHEET IDENTIFICATION  
**M-002**  
SHEET 2 OF 5



**OBSERVATION BOX - TOP VIEW**  
SCALE: 3" = 1'-0"



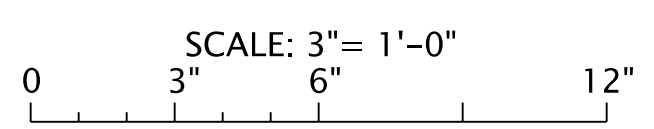
**A SECTION**  
SCALE: 3" = 1'-0"



**B SECTION**  
SCALE: 3" = 1'-0"

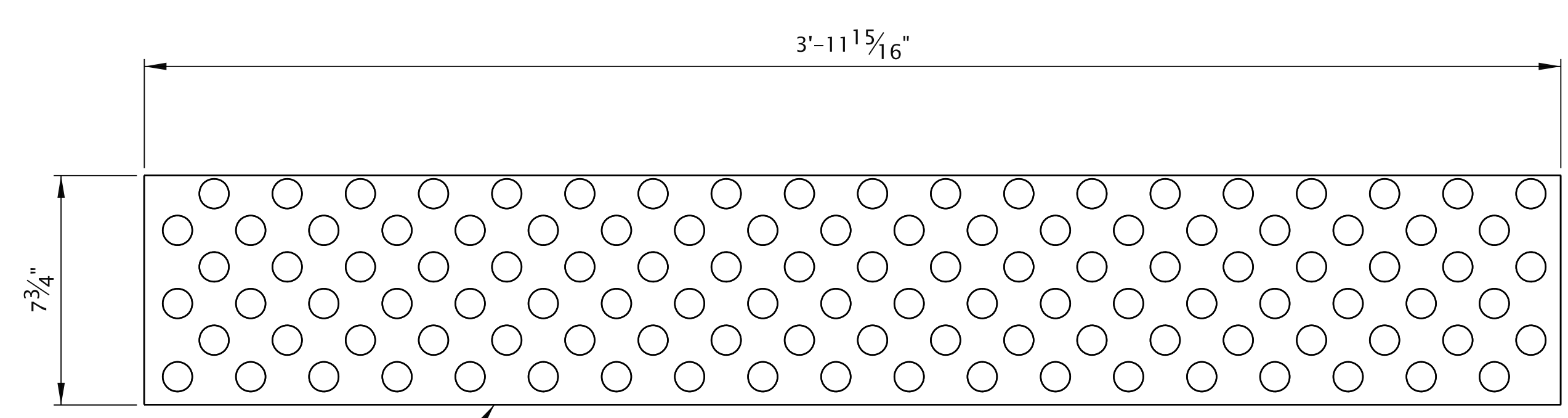
NOTES:

1. BOXES FABRICATED FROM 1/4 INCH ALUMINUM
2. ALL GUIDES AND INTERNAL SUPPORTS FABRICATED FROM UHMW
3. DOORS AND CENTER DIVIDER ARE 3/16 UHMW



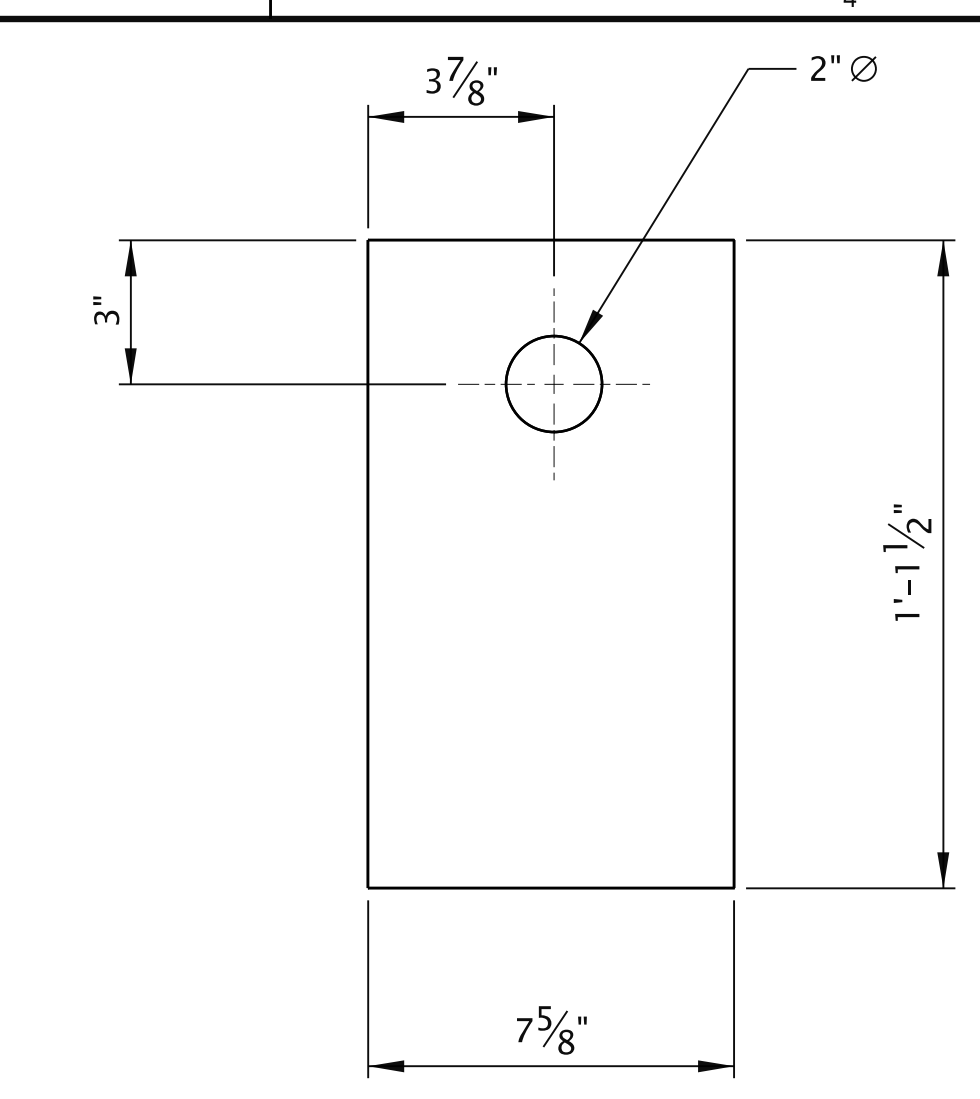




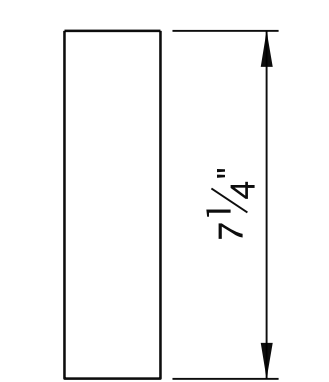


PERF PLATE 1/4 INCH UHMW  
1/4 INCH STAGGERED HOLE  
MINIMUM 50% OPEN AREA

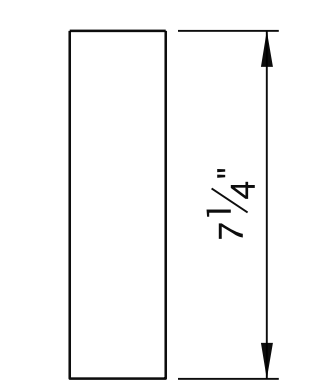
**UHMW PERFORATED PLATE**  
SCALE: 3"= 1'-0"  
(2 REQ.)  
MIRRORED ABOUT CENTERLINE



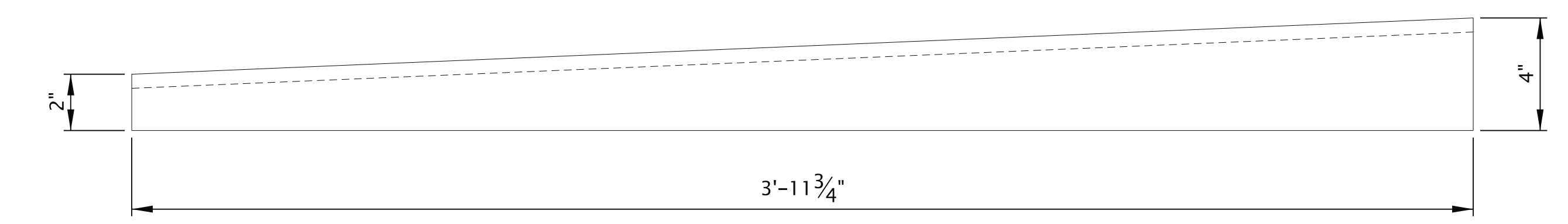
**SLIDE DOOR**  
SCALE: 3"= 1'-0"  
(2 REQ.)



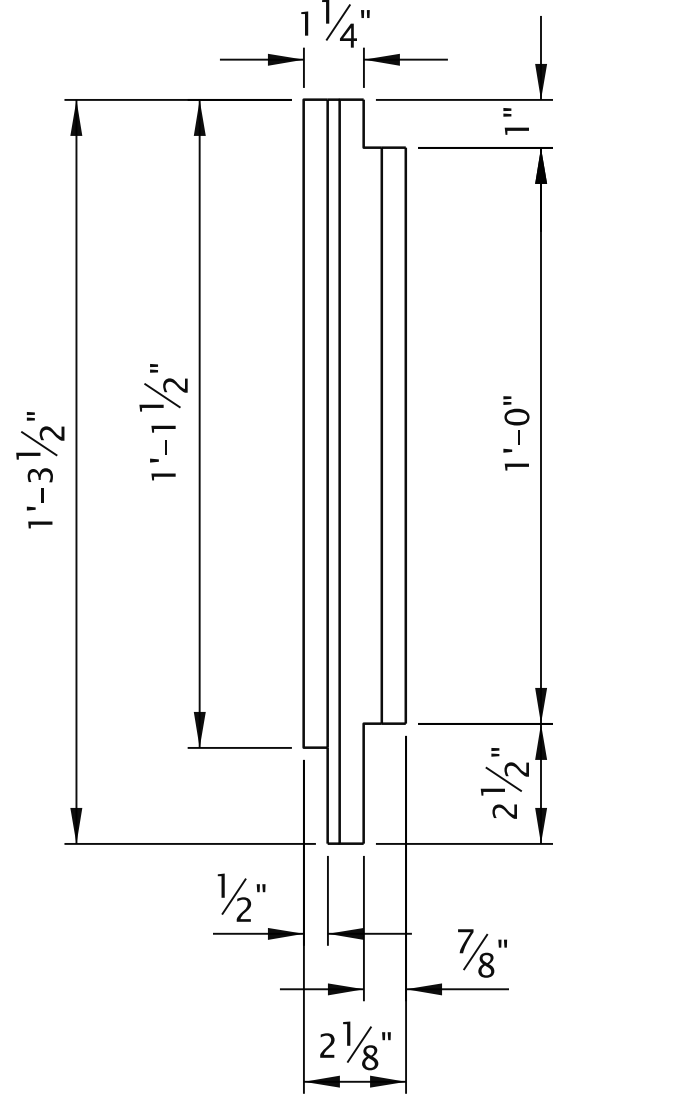
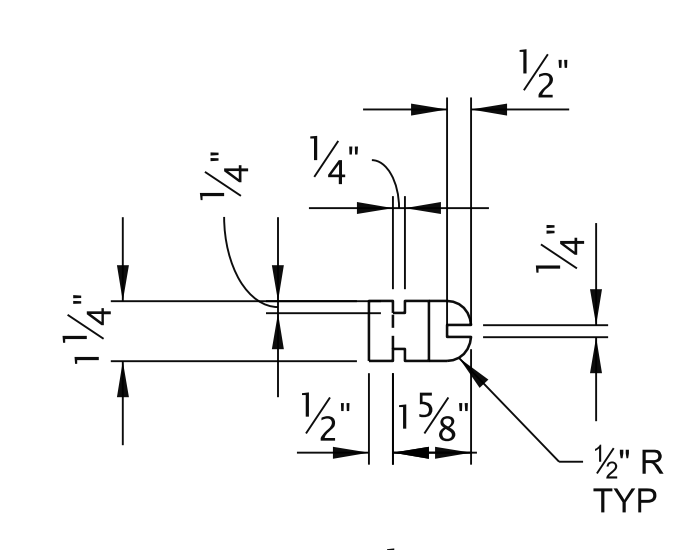
**MIDDLE INTERNAL SUPPORT**  
SCALE: 3"= 1'-0"  
(2 REQ.)



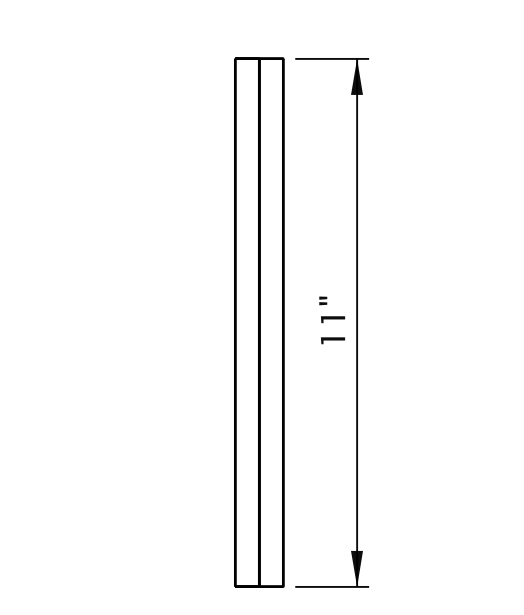
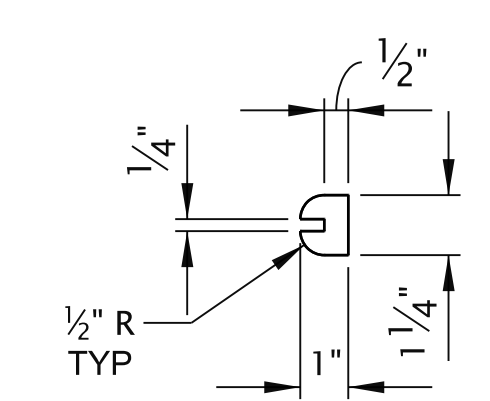
**REAR INTERNAL SUPPORT**  
SCALE: 3"= 1'-0"  
(2 REQ.)



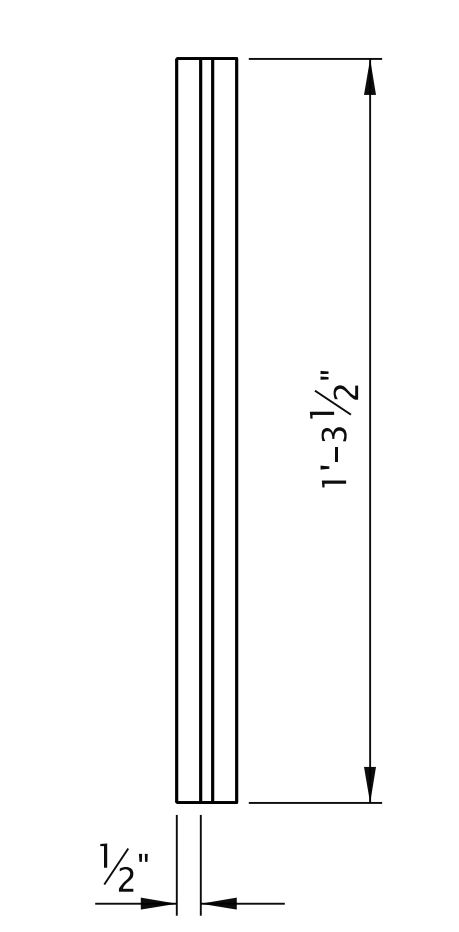
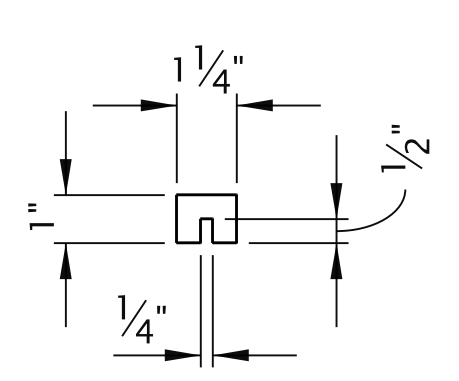
**CENTER DIVIDER WALL BASE / PERF PLATE SUPPORT**  
SCALE: 3"= 1'-0"



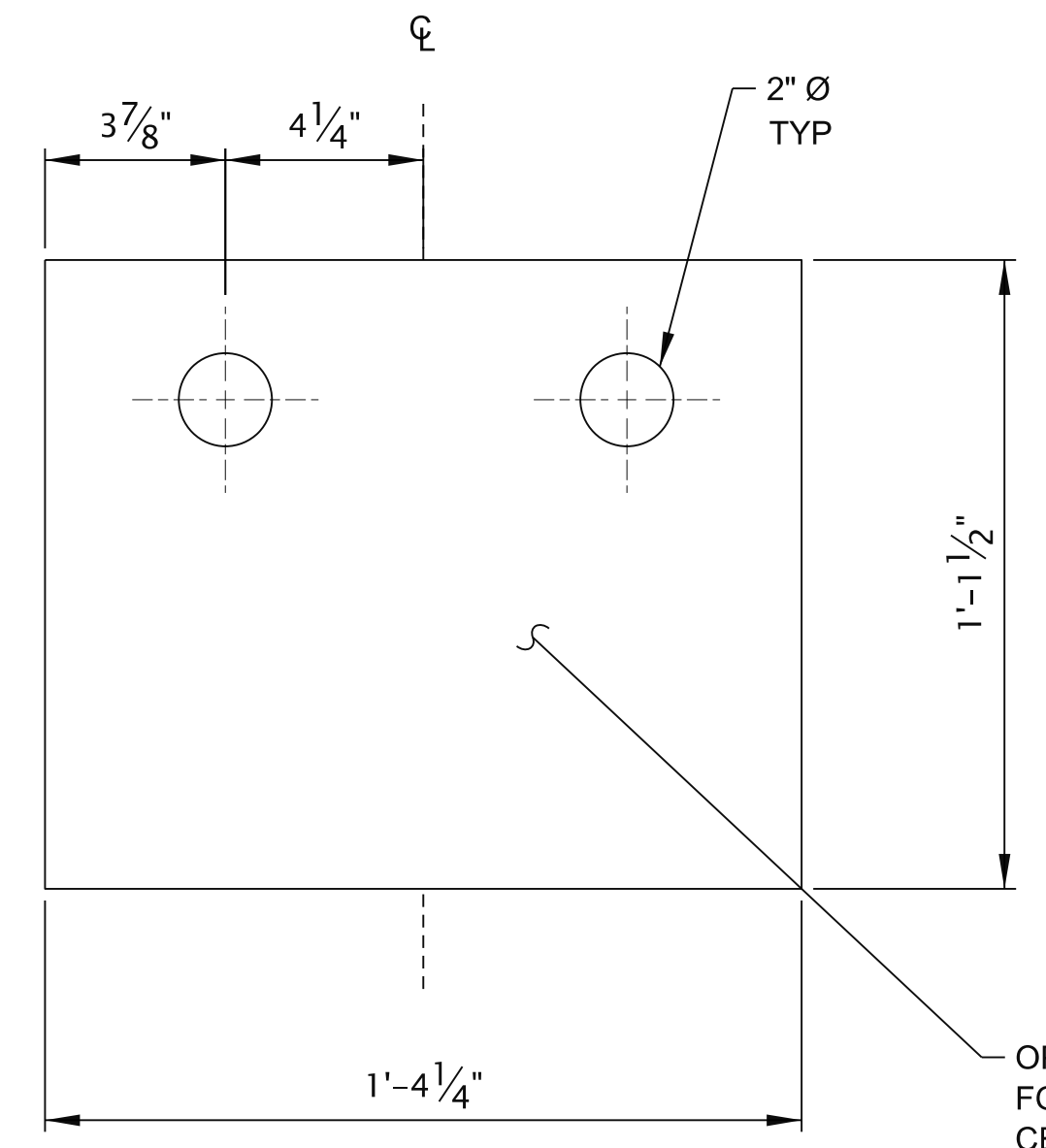
**FRONT CENTER DIVIDER WALL AND DOOR SLOT GUIDE**  
SCALE: 3"= 1'-0"



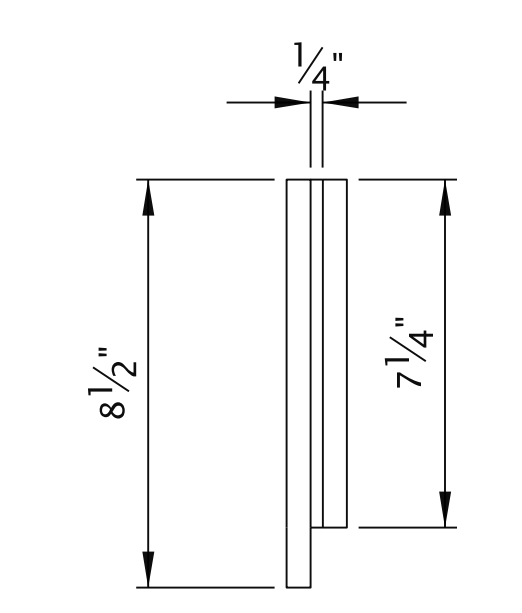
**REAR CENTER DIVIDER WALL GUIDE**  
SCALE: 3"= 1'-0"



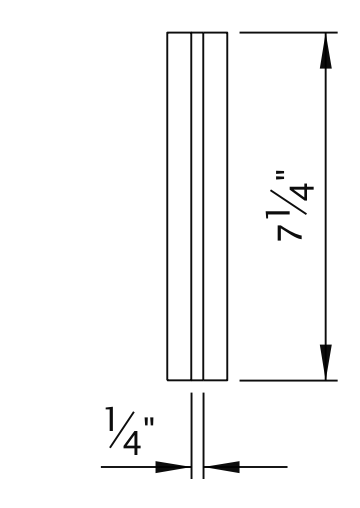
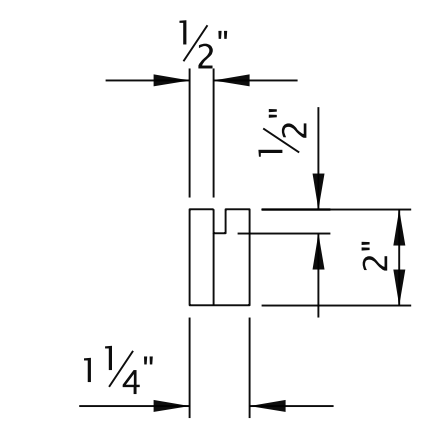
**SLIDE DOOR GUIDE**  
SCALE: 3"= 1'-0"  
(2 REQ.)



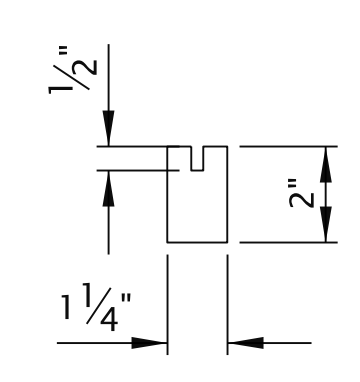
**OPTIONAL SLIDE DOOR**  
SCALE: 3"= 1'-0"



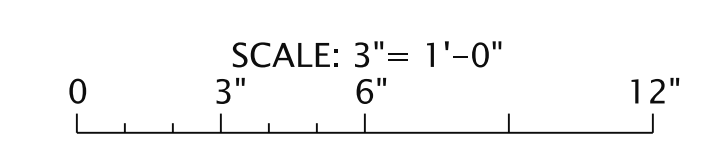
**LEFT SIDE SLIDE DOOR BASE**  
SCALE: 3"= 1'-0"



**RIGHT SIDE SLIDE DOOR BASE**  
SCALE: 3"= 1'-0"



OPTIONAL FULL WIDTH DOOR FOR USE WHEN FRONT CENTER DIVIDER WALL AND DOOR SLOT GUIDE IS REMOVED



NOTES:

1. BOXES FABRICATED FROM 1/4 INCH ALUMINUM
2. ALL GUIDES AND INTERNAL SUPPORTS FABRICATED FROM UHMW
3. DOORS AND CENTER DIVIDER ARE 3/16 UHMW

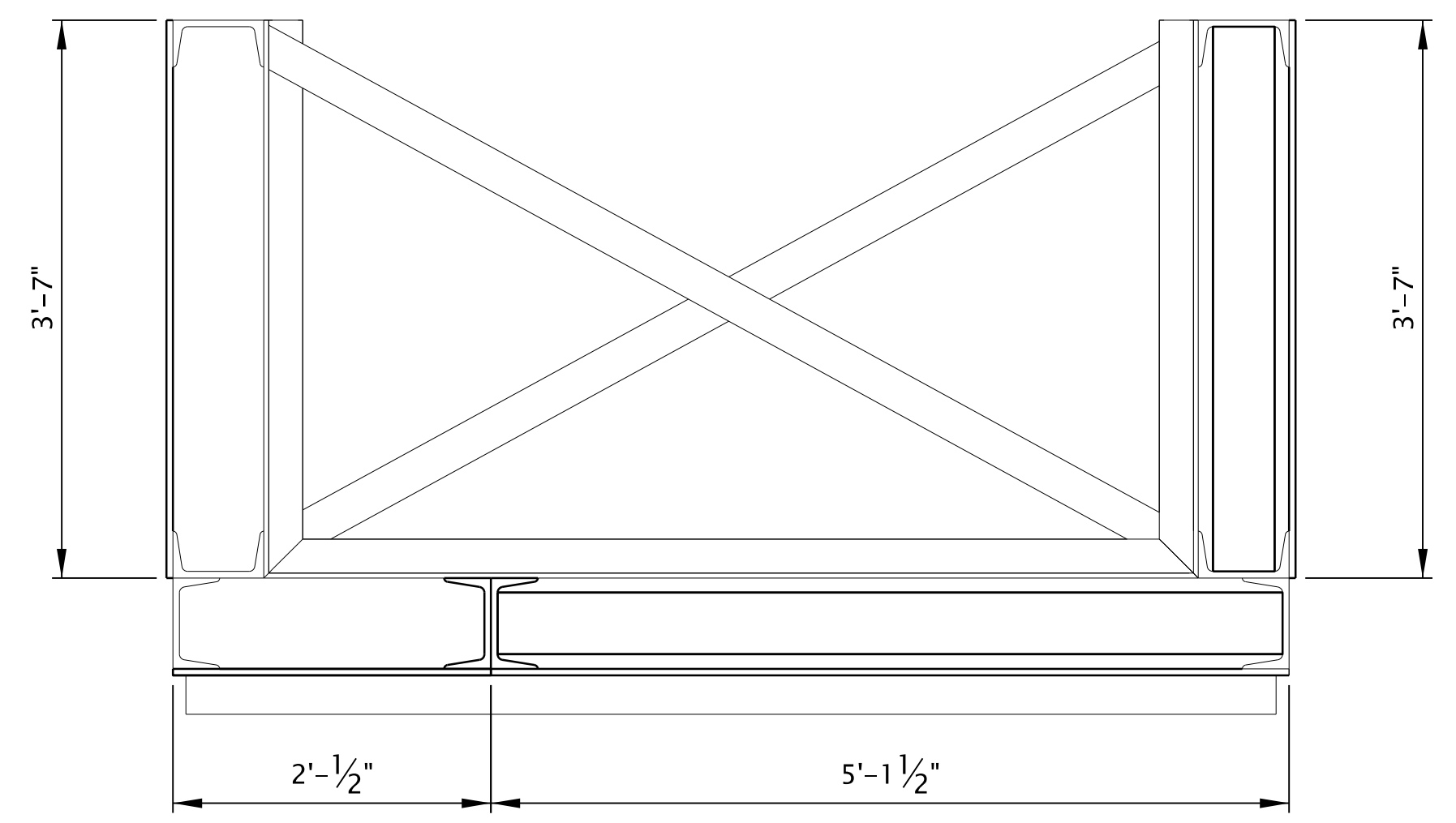


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DESIGNED BY: P.E. GREGOR	CONTRACT NO.:	DATE
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CHECKED BY: GREGOR	FILE NAME: BDF1107_M-004.dgn	DESCRIPTION

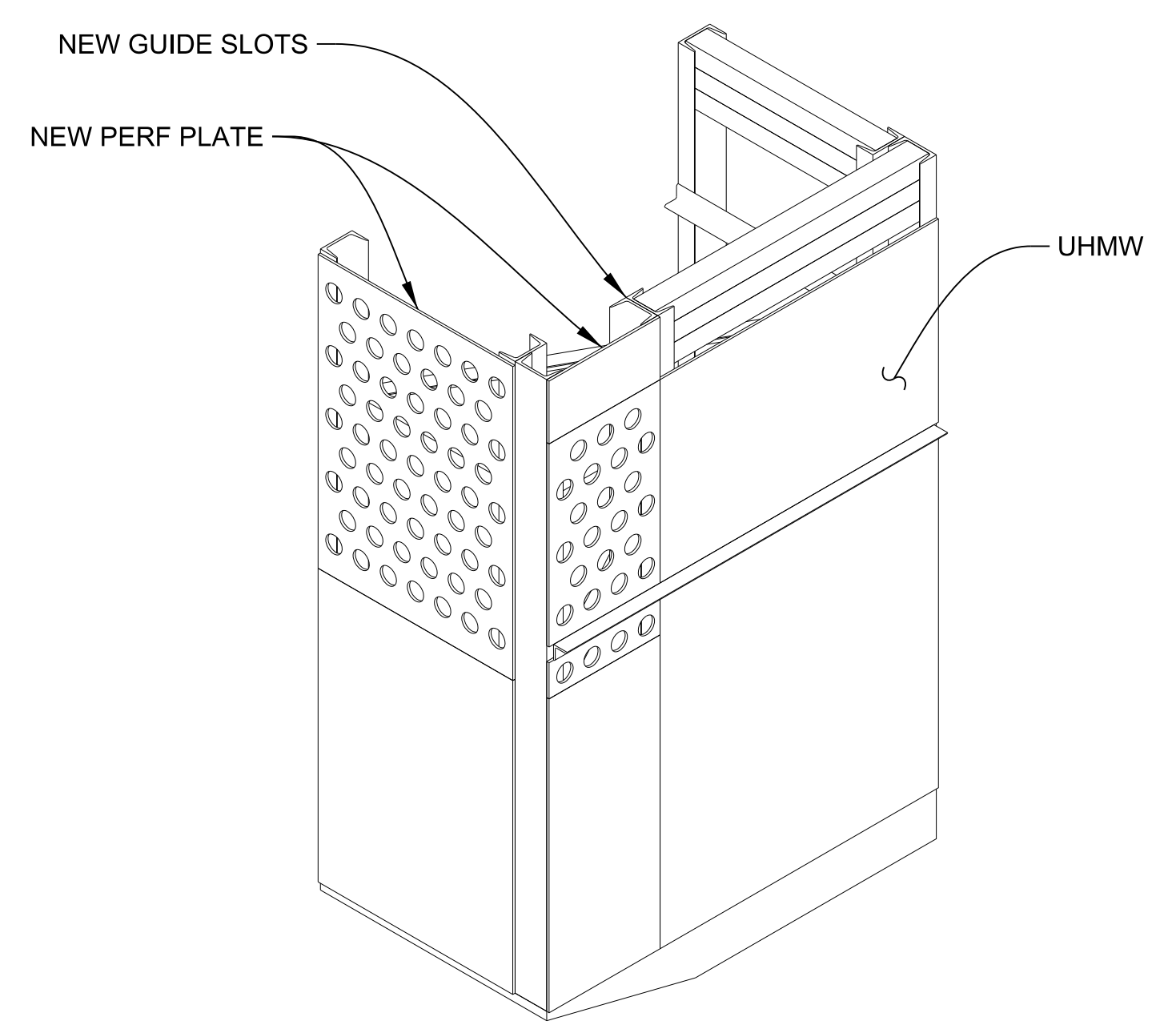
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	FILE NAME: BDF1107_M-004.dgn	DRAWING NUMBER:

BONNEVILLE LOCK AND DAM  
ADULT FISH FACILITY  
IMPROVEMENTS  
OBSERVATION BOX DETAILS II

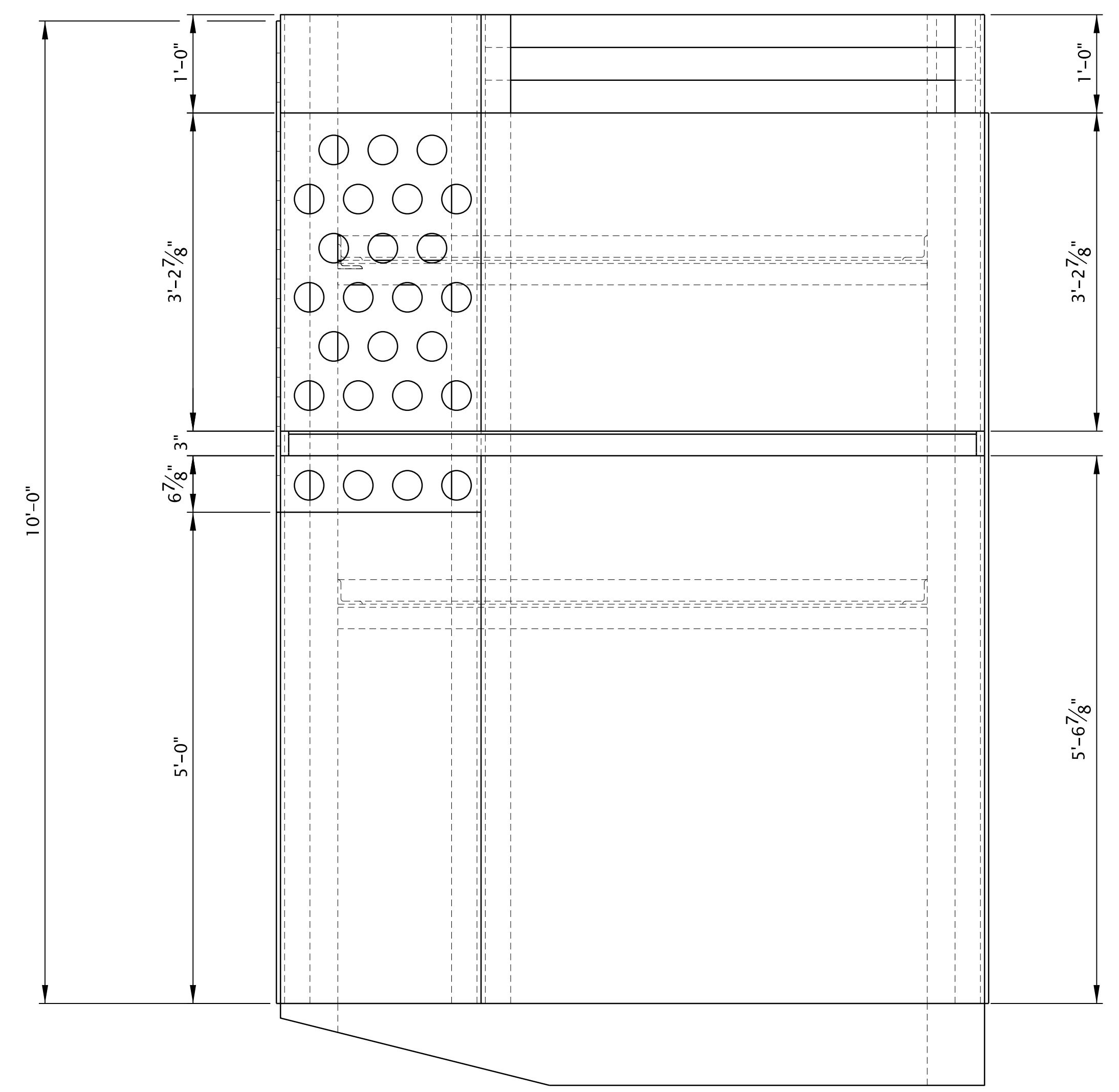
SHEET IDENTIFICATION  
**M-004**  
SHEET 4 OF 5



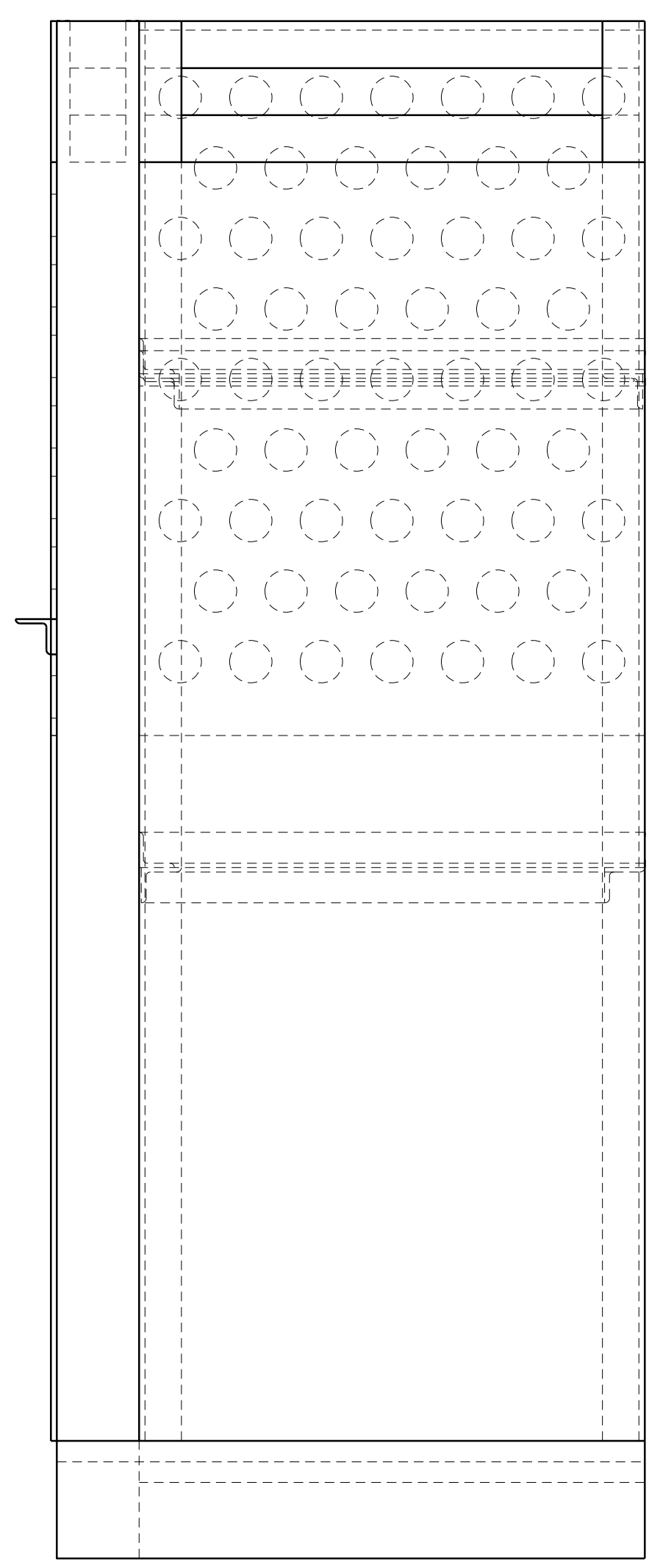
**PLAN VIEW**  
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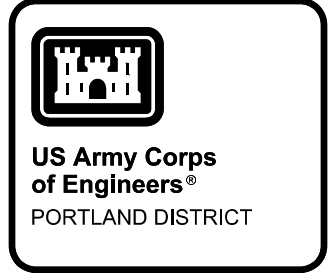
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SCALE: N.T.S.



**ELEVATION**  
SCALE: 1" = 1'-0"



**RIGH T SIDE - ELEVATION**  
SCALE: 1" = 1'-0"



MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OR	DESIGNED BY: JAMES D. CALNON P.E.	DATE: 12/21/2012
	REVIEWED BY: GREGG D. RALPH	SOLICITATION NO.: W9127N-13-Q-006
	CONTRACT NO.: W9127N-13-Q-006	
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**BONNEVILLE LOCK AND DAM  
ADULT FISH FACILITY  
IMPROVEMENTS**

VALVE NO. 15 WEIR  
BOX DETAILS

**SHEET IDENTIFICATION**  
**M-005**  
SHEET 5 OF 5

