PORTABLE (JIB) CRANE NOTES:

1. ALL STEEL COMPONENTS SHALL BE POWDER COAT FINISH (RED OR YELLOW COLOR.)

2. PERFORM A NO-LOAD TEST AND A LOAD TEST ON EACH CRANE IN THE PRESENCE OF THE ENGINEER AND WOODLAND PULP.
   a. NO-LOAD TEST:
      i RAISE EMPTY HOOK TO WITHIN ABOUT 2 FEET OF ITS UPPER POSITION AND STOP.
      ii RAISE EMPTY HOOK TO ITS MAXIMUM LIFT.
      iii LOWER THE HOOK TO ABOUT 2 FEET ABOVE ITS LOWER POSITION AND STOP.

   b. LOAD TEST: WITH THE SHEAVE BLOCK AT THE FAR END OF THE BOOM, ROTATE THE BOOM TROUGH ITS FULL ROTATIONAL CAPABILITY. MOVE THE SHEAVE BLOCK TO INNER END OF THE BOOM AND ROTATE THE BOOM THROUGH ITS FULL ROTATIONAL CAPABILITY. LOWER LOAD CAREFULLY ONTO ITS SUPPORTS.

3. SYSTEM SHALL RUN SMOOTHLY, WITH NO BINDING, STOPPING, OR STICKING. ADJUST AND REALIGN EQUIPMENT AND RETEST IF BINDING, STOPPING OR STICKING OCCURS.

4. ENSIGN 500 MODEL 5PA5
   a. CONTRACTOR TO PROVIDE 1 ENSIGN 500 MODEL 5PA5 OR APPROVED EQUAL:
   b. 500 LB MINIMUM WORKING LOAD.
   c. MINIMUM HOOK REACH SHALL BE 36 INCHES.
   d. PROVIDE WORM GEAR HAND WINCH WITH BRAKE.
   e. MEET OSHA AND ANSI STANDARDS.
   f. ADJUSTABLE MAST MADE OF STRUCTURAL STEEL.
   g. MAXIMUM WEIGHT OF EACH CRANE PIECE SHALL BE 100 LBS.
   h. FLUSH FLOOR MOUNT SLEEVE, THERN MODEL 5BF5 OR APPROVED EQUAL:
      i MADE OF STRUCTURA STEEL.
      ii LOCATE FLUSH MOUNT SLEEVE WHERE SHOWN OR NOTED ON THE DRAWINGS.
      iii EACH MOUNT SHALL HAVE A CAP TO KEEP WATER AND DEBRIS OUT OF BASE WHEN CRANE IS REMOVED.

5. COMMANDER 2000 MODEL 5FT20
   a. CONTRACTOR TO PROVIDE 2 COMMANDER 2000 MODEL 5FT20 OR APPROVED EQUAL:
   b. 2000 LB MINIMUM WORKING LOAD.
   c. MINIMUM HOOK REACH SHALL BE 82 INCHES.
   d. PROVIDE WORM GEAR HAND WINCH WITH BRAKE.
   e. MEET OSHA AND ANSI STANDARDS.
   f. ADJUSTABLE MAST MADE OF STRUCTURAL STEEL.
   g. FLUSH FLOOR MOUNT SLEEVE, THERN MODEL 5BF20 OR APPROVED EQUAL:
      i MADE OF STRUCTURA STEEL.
      ii LOCATE FLUSH MOUNT SLEEVE WHERE SHOWN OR NOTED ON THE DRAWINGS.
      iii EACH MOUNT SHALL HAVE A CAP TO KEEP WATER AND DEBRIS OUT OF BASE WHEN CRANE IS REMOVED.
   h. WALL MOUNT SLEEVE, THERN MODEL 5BW20 OR APPROVED EQUAL:
      i MADE OF STRUCTURA STEEL.
      ii LOCATE FLUSH MOUNT SLEEVE WHERE SHOWN OR NOTED ON THE DRAWINGS.
      iii EACH MOUNT SHALL HAVE A CAP TO KEEP WATER AND DEBRIS OUT OF BASE WHEN CRANE IS REMOVED.

Staff Gauge

Staff Gauge	Location	Drawings	Staff Gauge Top Elevation (FT)	Staff Gauge Bottom Elevation (FT)	Staff Gauge Length (FT)
1	Tailrace by Fish Lift Entrance	M-002 & M-200	109.5	94.0	15.5
2	Upstream Fish Lift Entrance	M-002 & M-200	109.5	94.0	15.5
3	Between Stilling Wall and Weir Wall	M-002 & M-200	109.5	94.0	15.5
4	Tailrace by Fish Ladder Entrance	M-002 & M-200	109.5	94.0	15.5
5	Fish Ladder Entrance	M-002 & M-200	109.5	94.0	15.5
6	Fish Ladder Weir Pool # 63	M-002 & M-200	146.0	140.0	6.0
7	Fish Ladder Weir Pool # 64	M-002 & M-200	146.0	140.0	6.0
8	Fish Ladder Weir Pool # 65	M-002 & M-200	146.0	140.0	6.0
9	Fish Ladder Exit Pool	M-002 & M-200	146.0	140.0	6.0
10	Exit Flume near Viewing Window	M-002 & M-200	146.0	140.0	6.0
11	Downstream Bypass Trough	M-002 & M-200	146.5	140.0	6.5
12	Exit Flume near Hopper	M-002 & M-200	146.0	140.0	6.0

Water Level Sensor (WLS)

Water Sensor	Location	Drawings	Sensor Top Elevation (FT)	Sensor Bottom Elevation (FT)	Water Level Probe Length (FT)
1	Tailrace by Fish Lift Entrance	M-002 & M-200	110.0	92.0	18.0
2	Upstream Fish Lift Entrance	M-002 & M-200	110.0	92.0	18.0
3	Between Stilling Wall and Weir Wall	M-002 & M-200	110.0	92.0	18.0
4	Tailrace by Fish Ladder Entrance	M-002 & M-200	110.0	92.5	17.5
5	Upstream Fish Ladder Entrance	M-002 & M-200	110.0	92.5	17.5
6	Fish Ladder Exit Pool	M-002 & M-200	146.0	140.0	6.0
7	Exit Flume	M-002 & M-200	146.0	138.0	8.0
8	Downstream Bypass Trough	M-002 & M-200	146.0	139.0	7.0

Stilling Well Information

Stilling Well	Invert Elevation	Orientation
1	92.0	Bottom Opening facing centerline of fish lift entrance
2	92.0	Bottom Opening facing centerline of fish lift entrance
3	92.0	Bottom Opening facing centerline of fish lift flume
4	92.5	Bottom Opening facing tailrace near fish ladder entrance
5	92.5	bottom opening facing centerline of fish ladder
6	140.0	bottom opening facing centerline of fish ladder
7	138.0	Bottom Opening facing centerline of exit flume
8	139.0	Bottom Opening facing centerline of downstream bypass flume

Gate Schedule

Gate ID	Gate Name	Drawings	Material	Opening Width	Gate Height	Operating Head	Discharge
IG1	Fish Lift Isolation Gate	M-002 & M-100	Painted Carbon Steel	8.0'	12.6'	9.7'	Upward Opening
EG2	Fish Lift Entrance Gate	M-002 & M-101	Painted Carbon Steel	8.0'	12.5'	3.0'	Downward Opening
VG3	Fish Lift V-Gate	M-002 & M-102	Painted Carbon Steel	14.0'	15.5'	11.2'	Swing
HG5	Fish Lift Hopper Gate	M-002 & M-112	Painted Carbon Steel	3.0'	5.66'	5.66'	Downward Opening
IG6	Exit Flume Isolation Gate	M-002 & M-120	Painted Carbon Steel	8.0'	11.0'	10.0'	Upward Opening
IG10	Exit Flume Isolation Gate	M-002 & M-131	Painted Carbon Steel	6.0'	5.1'	4.4'	Upward Opening
OWG11	Fish Ladder Automatic Entrance Gate	M-002 & M-141	Painted Carbon Steel	2.0'	Adjustable	3.0'	Downward Opening
IG12	Fish Ladder Isolation Gate	M-002 & M-140	Painted Carbon Steel	2.0'	11.0'	8.1'	Upward Opening
OWG13	Fish Ladder Automatic Exit Gate	M-002 & M-142	Painted Carbon Steel	2.0'	Adjustable	3.0'	Downward Opening
(NIC) DSG14	Downstream Bypass Knife Gate	M-002 & M-160	Painted Carbon Steel	3.0'	3.0'	7.5'	Upward Opening
(NIC) DSG15	Downstream Bypass Knife Gate	M-002 & M-160	Painted Carbon Steel	3.0'	3.0'	7.5'	Upward Opening
IG16	Downstream Isolation Gate	M-002 & M-163	Painted Carbon Steel	6.0'	6.75'	5.4'	Upward Opening
IG17	Fish Ladder Exit Isolation Gate	M-002 & M-143	Painted Carbon Steel	2.0'	7.75'	6.8'	Upward Opening
TG18	Exit Flume Trap Gate	M-002 & M-124	Painted Carbon Steel	2.083'	10.292'	10.0'	Swing
TG19	Exit Flume Trap Gate	M-002 & M-124	Painted Carbon Steel	2.083'	10.292'	10.0'	Swing

Permanent Stoplogs (SL) and Spacer Frames (SF)

ID	Location	Type	Quantity	Drawing	Material	Opening Width
SF1	Spare for Fish Lift Concrete Flume	1' High Spacer Frame	2	M-118	Aluminum	14.0'
SF2	Spare for Fish Lift Concrete Flume	2' High Spacer Frame	1	M-118	Aluminum	14.0'
SF3	Fish Lift Stilling Wall	2' High Spacer Frame	3	M-118	Aluminum	14.0'
SF4	Fish Lift Curtain Wall	2' High Spacer Frame	3	M-118	Aluminum	14.0'
SL1	Fish Lift Stilling Wall	12" High Stoplog	9	S-101	Aluminum	14.0'
SL2	Fish Lift Stoplog Weir	12" High Stoplog	11	S-101	Aluminum	14.0'
SL3	Fish Lift Sill Wall	12" High Stoplog	3	S-101	Aluminum	14.0'
SL4	Fish Lift Curtain Wall	12" High Stoplog	9	S-101	Aluminum	14.0'
SL5	Bypass 1 Flume	6" High Stoplog	5	S-174	Aluminum	5.5'
SL6	Fish Lift Steel Flume	6" High Stoplog	5	S-137	Aluminum	6.0'

Hoist and Crane Schedule (Refer to Portable Jib Crane Notes)

Name	Location	Lifting Capacity	Crane/ Hoist/Base Model	Reach	Drawing	What is it lifting
HH4	Fish Lift Tower	30-Tons	See Spec 41 22 00	N/A	M-110	Hopper
CH1	Exit Flume Crowder	2-Ton	Harrington 2-Ton Electric Hoist Hook-Mounted (SNER020L-20)	N/A	S-126	Moving Floor
CH2	Exit Flume Crowder	1/2-Ton	Harrington 1/2 Ton Chain Hoist with Trolley (SNERM005S-L)	N/A	S-129	Crowder Screens
(NIC) JH1	Bypass Trough	1/2-Ton	Harrington Heavy-Duty Pillar Base Mounted Jib Crane 351-1000-20-12	20 ft	S-160	Backwash Pump
JH2	Bypass Trough	1/2-Ton	Harrington Heavy-Duty Pillar Base Mounted Jib Crane 351-1000-20-12	20 ft	S-160	Stoplogs
JH3	Fish Ladder/Exit Flume	1/2-Ton	Harrington Mast Type Jib Crane 314FC-1000-10-10	10 ft	C-142	Adjustable Weirs
5PT20_FM_1	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Flush Mounted Base	N/A	S-100	Stoplogs
5PT20_FM_2	Exit Flume	1-Ton	Commander 2000 Series 5PT20 - Flush Mounted Base	N/A	S-121	Bar Rack and Stoplogs
5PT20_FM_3	Fish Ladder Entrance	1-Ton	Commander 2000 Series 5PT20 - Flush Mounted Base	N/A	C-144	Stoplogs
5PT20_WM_1	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Wall Mounted Base	N/A	S-100	V-Gate Screens
5PT20_WM_2	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Wall Mounted Base	N/A	S-100	V-Gate Screens
5PT20_WM_3	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Wall Mounted Base	N/A	S-100	Perforated Plate Screen
5PT20_WM_4	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Wall Mounted Base	N/A	S-100	Perforated Plate Screen
5PT20_WM_5	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Wall Mounted Base	N/A	S-100	Perforated Plate Screen
5PT20_WM_6	Fish Lift Concrete Flume	1-Ton	Commander 2000 Series 5PT20 - Wall Mounted Base	N/A	S-100	Perforated Plate Screen
5PA5_FM_0	Fish Ladder Entrance	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-144	Safety Retrieval
5PA5_FM_1	Fish Ladder Pool 1	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-144	Safety Retrieval
5PA5_FM_2	Fish Ladder Pool 2	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-144	Safety Retrieval
5PA5_FM_3	Fish Ladder Pool 3	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-143	Safety Retrieval
5PA5_FM_4	Fish Ladder Pool 4	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-143	Safety Retrieval
5PA5_FM_5	Fish Ladder Pool 5	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-143	Safety Retrieval
5PA5_FM_6	Fish Ladder Pool 6	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-142	Safety Retrieval
5PA5_FM_7	Fish Ladder Pool 7	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-142	Safety Retrieval
5PA5_FM_8	Fish Ladder Exit	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-142	Safety Retrieval
5PA5_FM_9	Exit Flume	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	C-142	Safety Retrieval
5PA5_FM_10	Fish Lift Concrete Flume	1/4 Ton	Ensign 500 Series 5PA5 - Flush Mounted Base	N/A	S-100	Safety Retrieval

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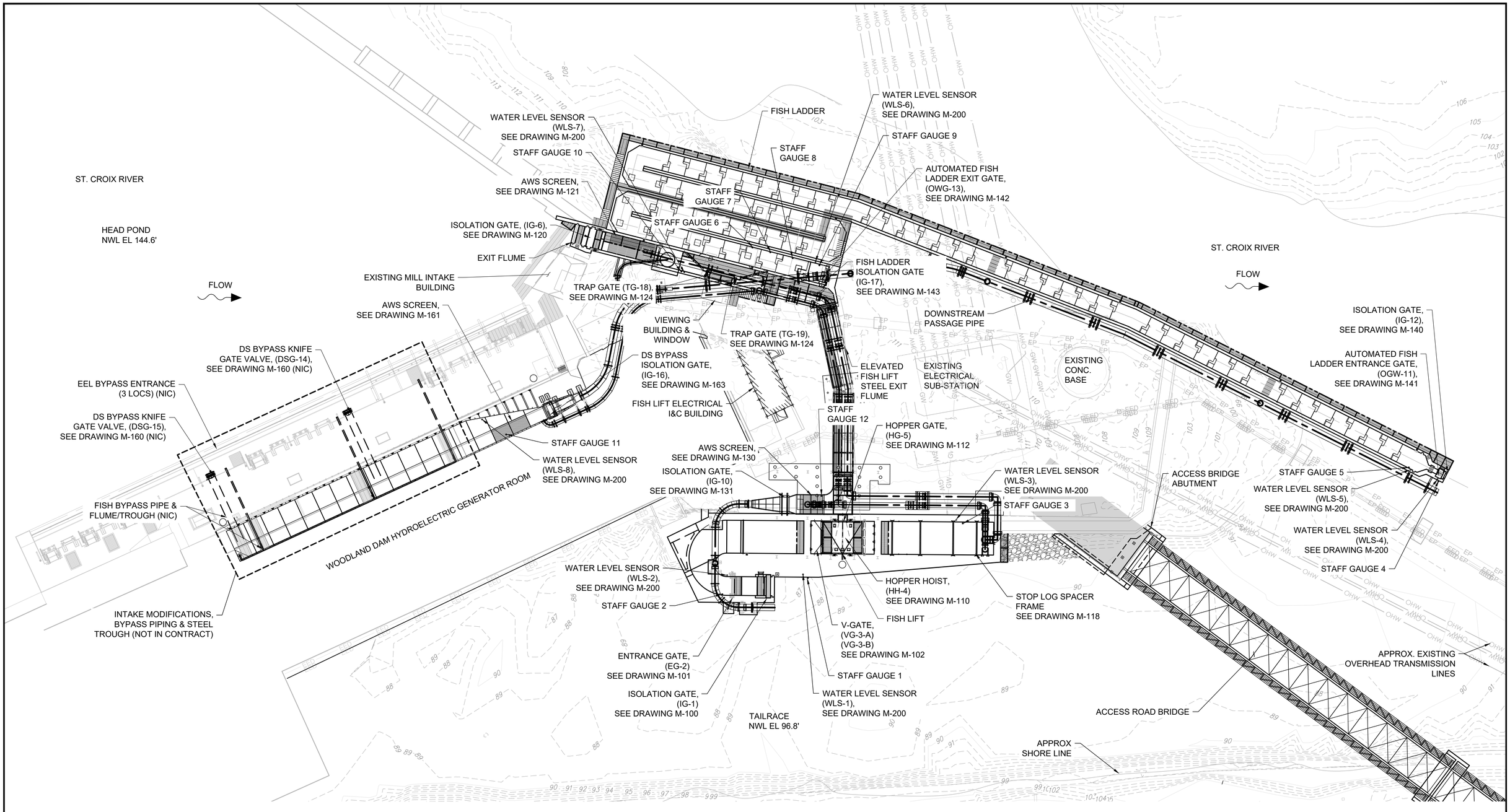
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

GENERAL MECHANICAL NOTES

PROJECT: 16667
DRAWN BY: C. HAGLER
DESIGNER: A. MENGERT
APPROVED BY: M. GRAESER
SHEET: 200 OF 240
DRAWING: M-001



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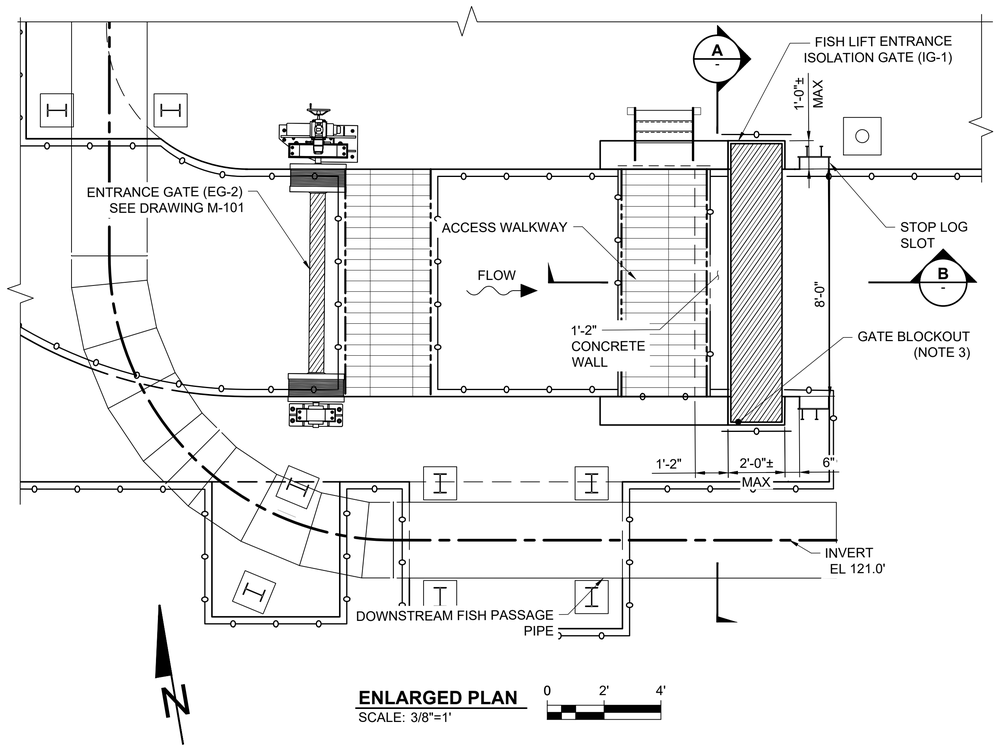
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

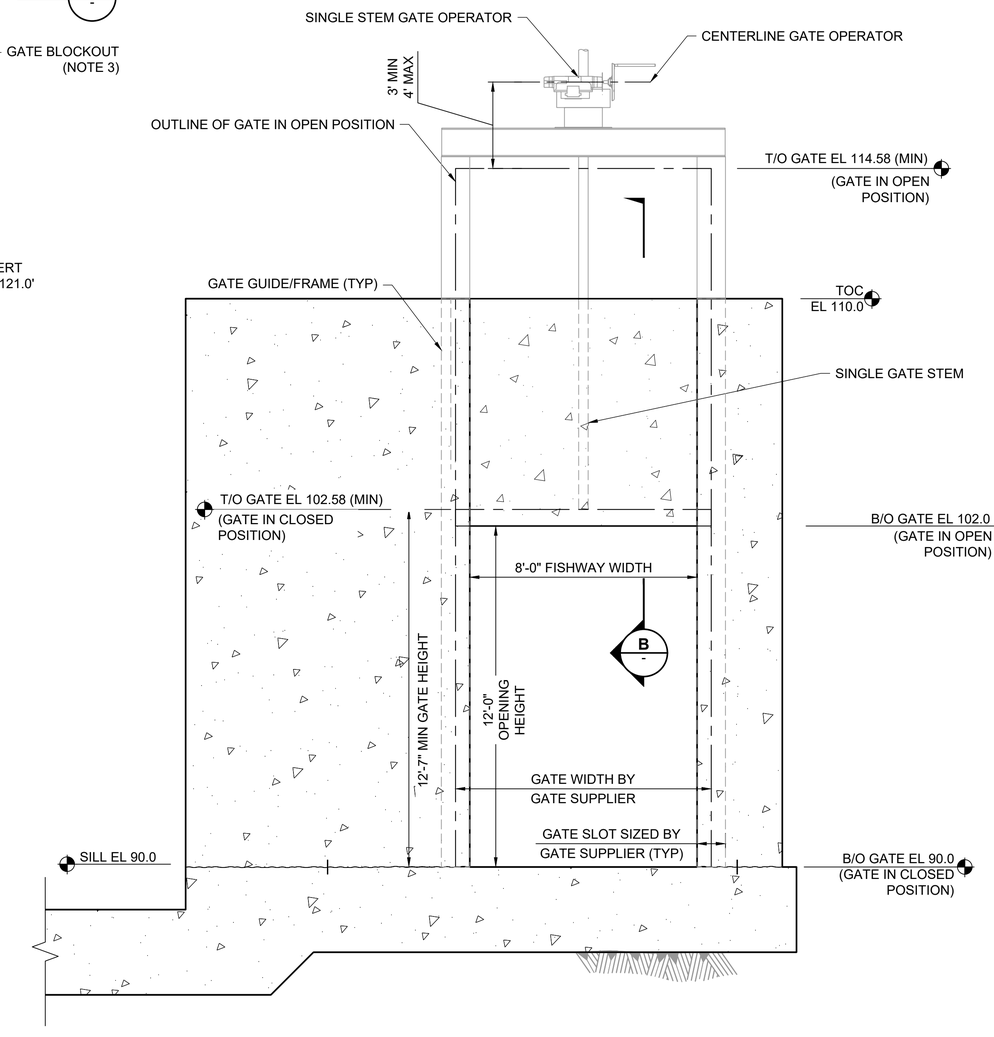
GENERAL MECHANICAL LAYOUT

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	201 OF 240
DRAWING:	M-002



ENLARGED PLAN
SCALE: 3/8"=1'

0 2' 4'

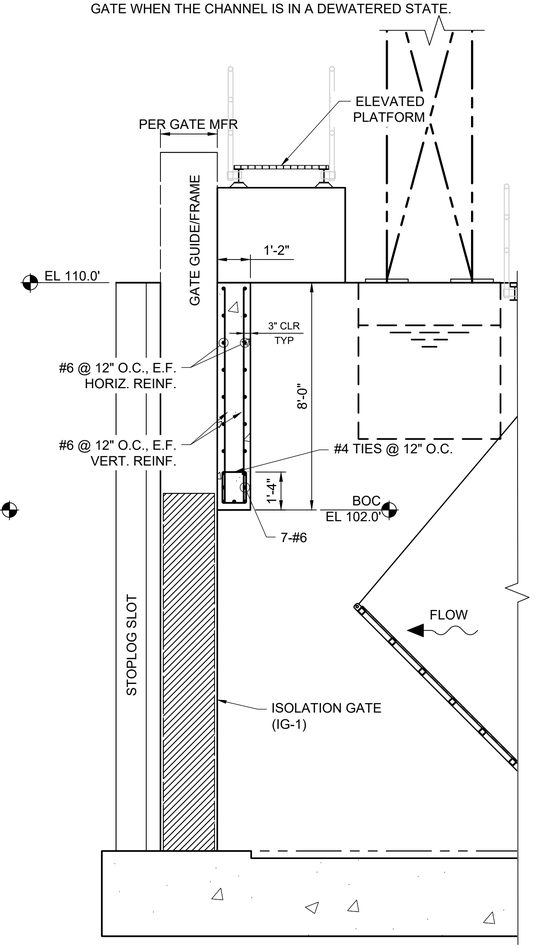


A **FISHWAY ENTRANCE ISOLATION GATE**
SCALE: 3/8"=1'-0"

0 2' 4'

NOTES:

1. GENERAL OVERVIEW OF FISH LIFT ENTRANCE ISOLATION GATE (IG-1):
   - SIZE OF OPENING, 8.0'W x 12.0'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
2. TAILWATER ELEVATIONS:
   - DESIGN LOW 95.6 FT
   - NORMAL 96.8 FT
   - DESIGN HIGH 99.7 FT
   - 100 YR FLOOD 109.0 FT
3. APPROXIMATE BLOCKOUT DIMENSIONS SHOWN FOR GATE IG-1. UPDATE WITH ACTUAL BLOCKOUT DIMENSIONS FOR GATE SUPPLIED.
4. THE GATE SHALL HAVE A FILL GATE THAT SHALL OPEN WITH THE MAIN OPERATOR TO REDUCE THE DIFFERENTIAL HEAD ON THE GATE WHEN THE CHANNEL IS IN A DEWATERED STATE.



B **SECTION**
SCALE: 3/8"=1'-0"

0 2' 4'

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WOODLAND FISH LIFT PASSAGE DESIGN

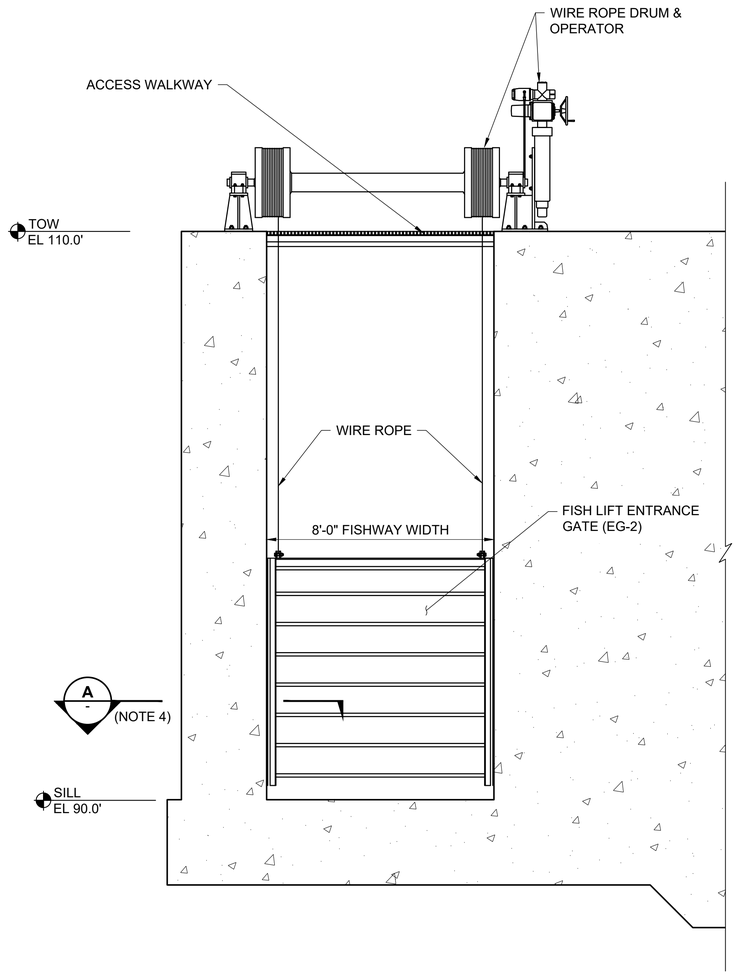
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT ISOLATION GATE (IG-1)

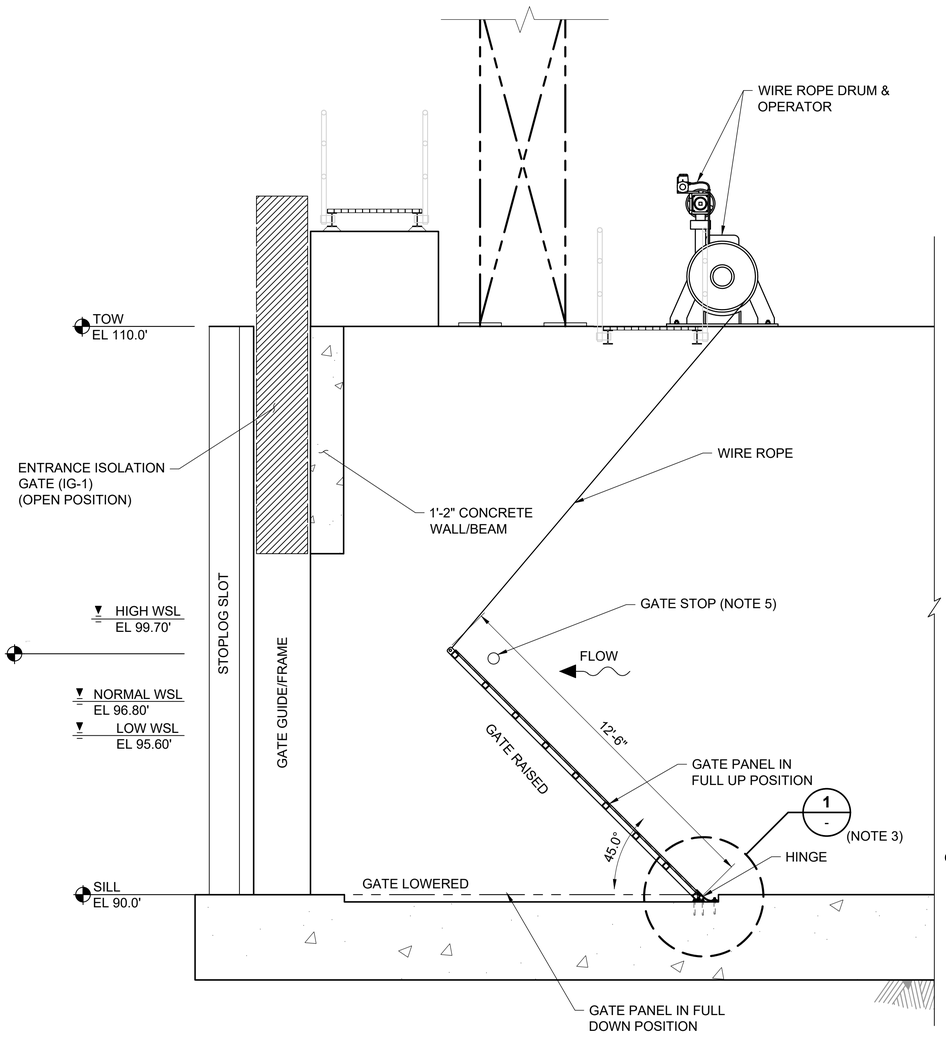
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	202 OF 240
DRAWING:	M-100

NOTES:

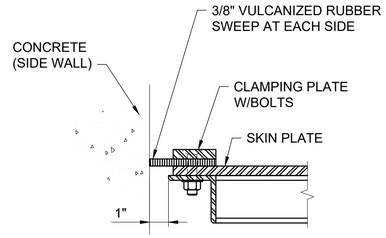
1. GENERAL OVERVIEW OF ENTRANCE GATE (EG-2):
   - MOVEMENT OF HINGE FLAP GATE: DOWNWARD OPENING, UPWARD CLOSING.
   - APPROXIMATE GATE SIZE 8.0' W x12.5'L
2. FISHWAY WATER ELEVATIONS:
   - LOW WSL 95.6'
   - NORMAL WSL 96.8'
   - HIGH WSL 99.7'
   - 100 YR FLOOD 109.0'
3. GENERAL GATE HINGE CONFIGURATION IS PROVIDED. THE FINAL GATE HINGE DETAILS WILL BE PER THE GATE MANUFACTURER.
4. GENERAL GATE SIDE SWEEP CONFIGURATION IS PROVIDED. THE FINAL GATE SIDE SWEEP DETAILS WILL BE PER THE GATE MANUFACTURER.
5. GATE MANUFACTURE TO PROVIDE GATE STOP IN WALL.



ELEVATION LOOKING UPSTREAM (GATE LOWERED)
SCALE: 3/8"=1'-0"
0 2' 4'

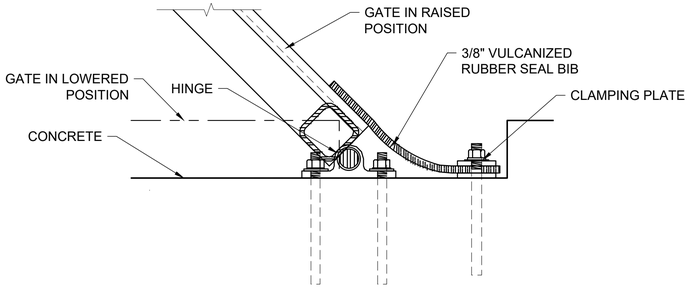


SIDE ELEVATION (GATE RAISED)
SCALE: 3/8"=1'-0"
0 2' 4'



(SEE NOTE 4)

A - SECTION
SCALE: 3"=1'-0"
0 6" 1'



(SEE NOTE 3)

1 - DETAIL
SCALE: 3"=1'-0"
0 6" 1'

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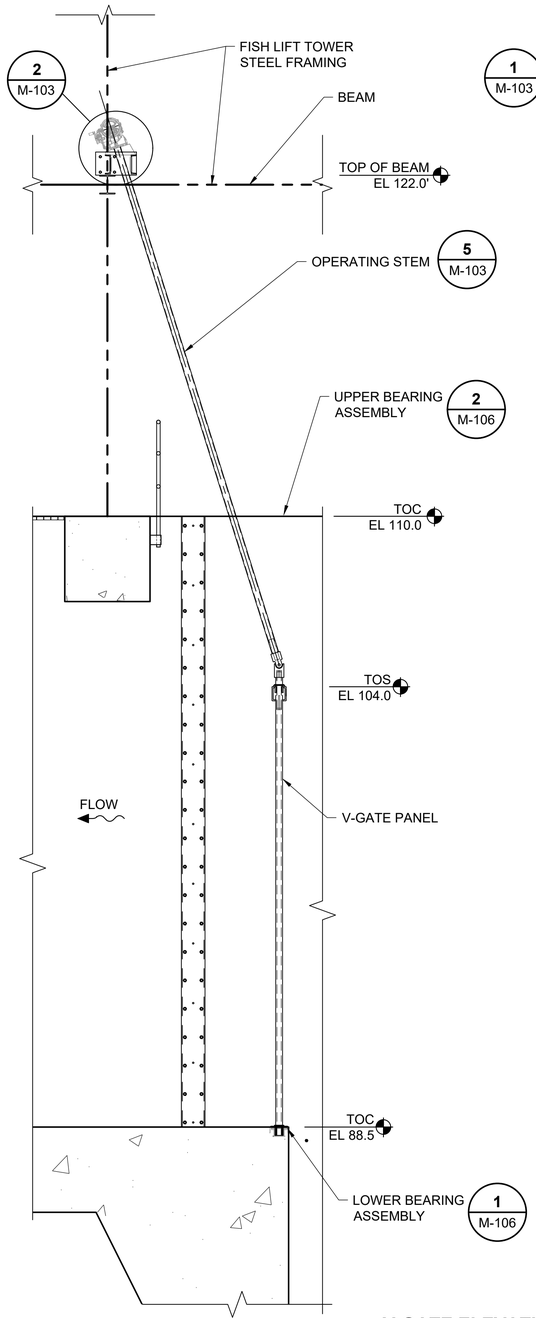
WOODLAND FISH LIFT PASSAGE DESIGN

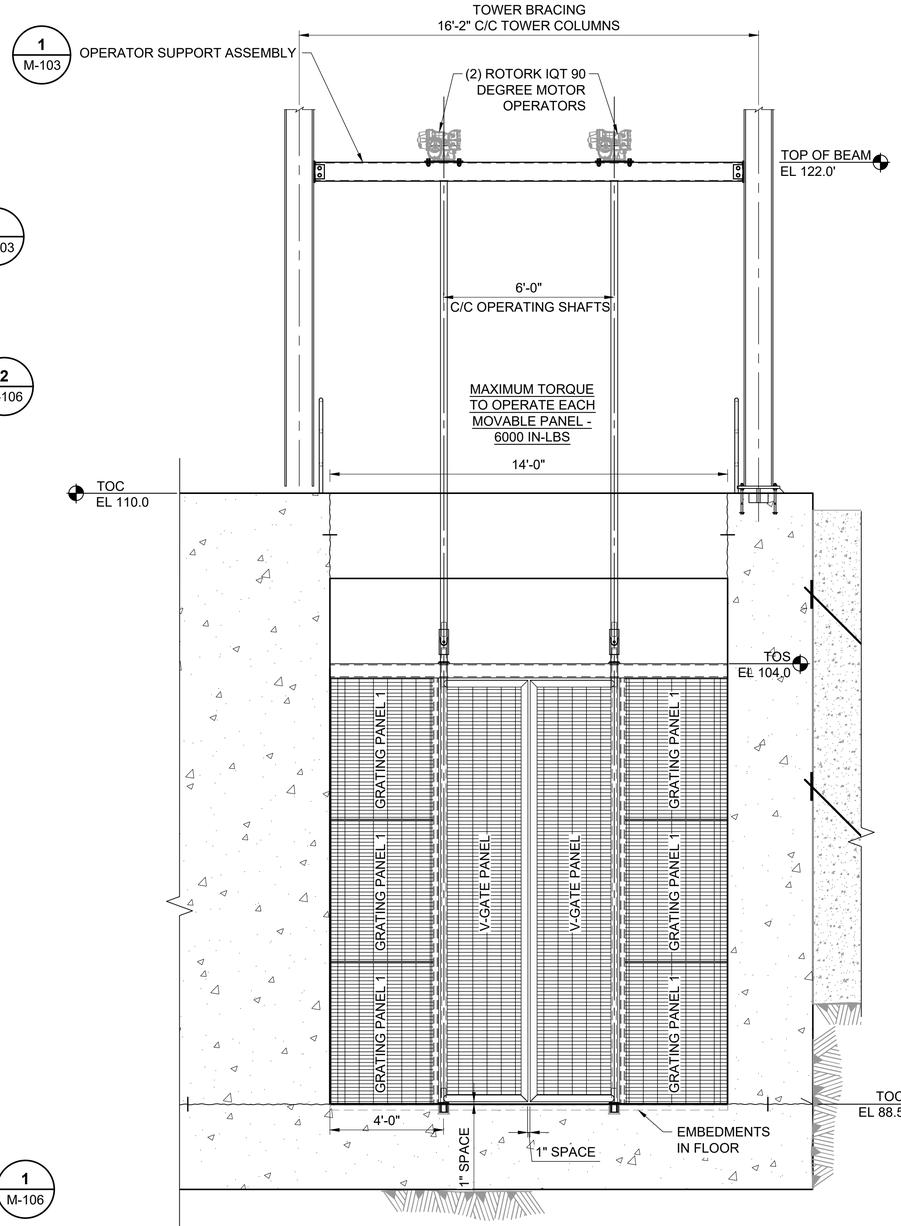
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT ENTRANCE GATE (EG-2)

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	203 OF 240
DRAWING:	M-101



SIDE ELEVATION

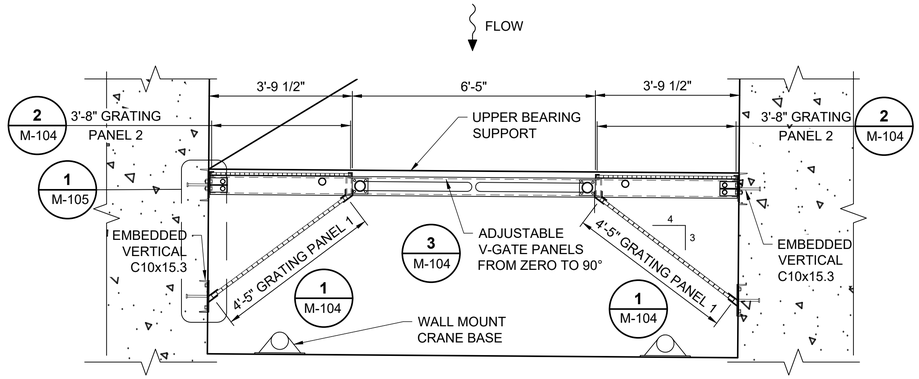


V-GATE ELEVATION VIEWS
SCALE: 3/8"=1'-0"
1' 0 1' 2'

ELEVATION LOOKING UPSTREAM
V-GATE CLOSED POSITION

NOTE:

1. THE GRATING PANELS TYPE 1 & 2 ARE REMOVABLE FOR CLEANING.



ENLARGED PLAN
SCALE: 1/2"=1'
1' 0 1' 2'

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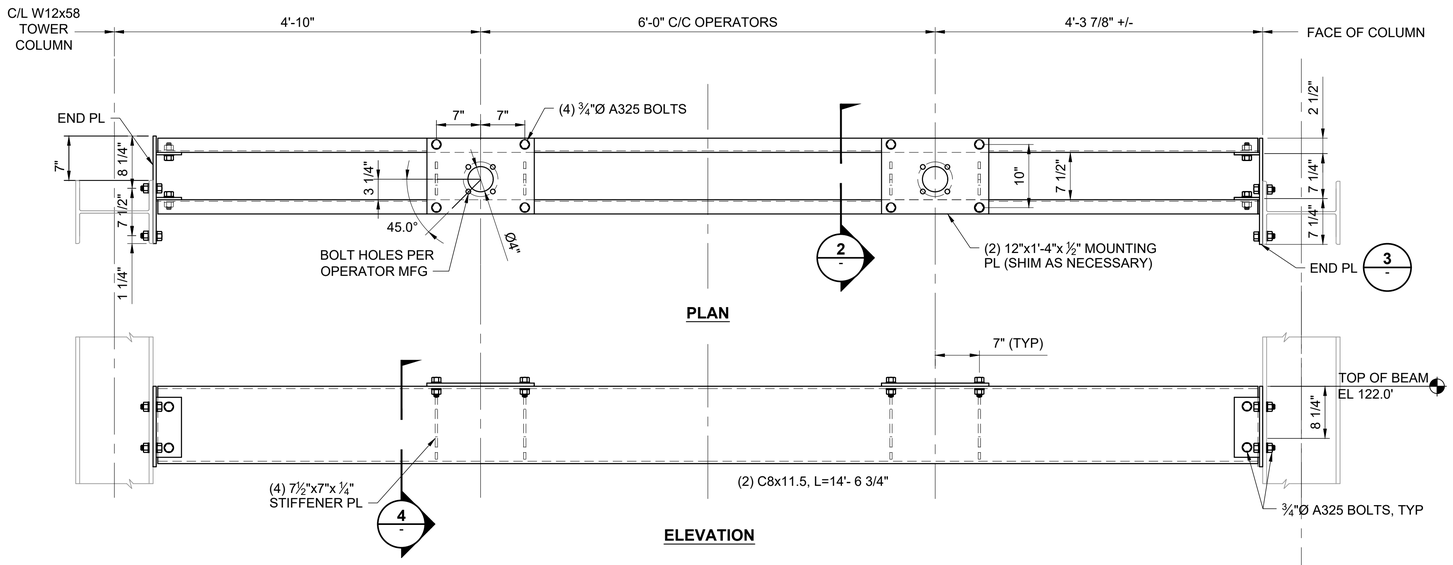
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

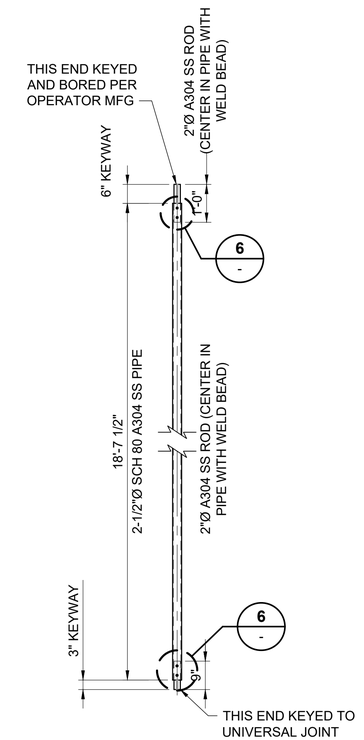
FISH LIFT V-GATE (VG-3)

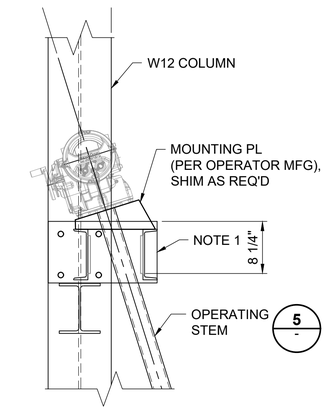
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	204 OF 240
DRAWING:	M-102

NOTES:
1. BOLTS AND STIFFENER PLATES NOT SHOWN FOR CLARITY.
2. ALL CARBON STEEL ITEMS SHALL BE GALVANIZED

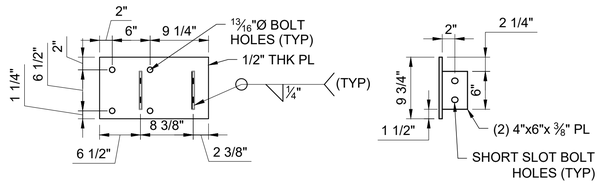


1 / M-102 — OPERATOR SUPPORT ASSEMBLY
SCALE: 1"=1'-0"
0 1' 2'



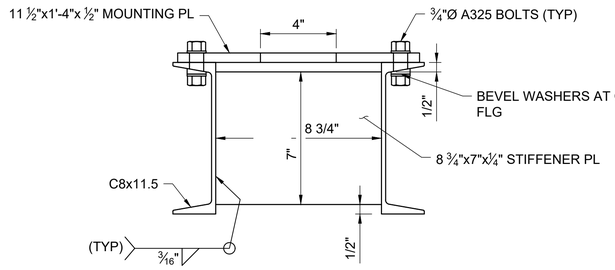


2 / M-102 — END PLATE ASSEMBLY
SCALE: 1"=1'-0"
0 1' 2'

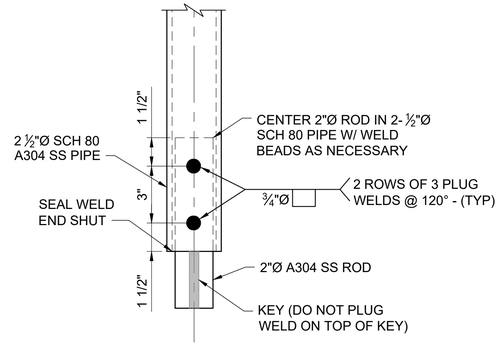


3 / - — END PLATE DETAIL (2 REQUIRED)
SCALE: 1"=1'-0"
0 1' 2'

5 / M-102 — OPERATING STEM (2 REQUIRED)
SCALE: 1/2"=1'-0"
0 2' 4'



4 / - — STIFFENER DETAIL (TYPICAL)
SCALE: 3"=1'-0"
0 6" 1'



6 / - — PLUG WELD DETAIL (2 LOC)
SCALE: 3'=1'-0"
0 6" 1'

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REVISION	DESCRIPTION OF ISSUE / REVISION	REVISED BY
5/2/2025	ISSUED FOR BID	M. GRAESER

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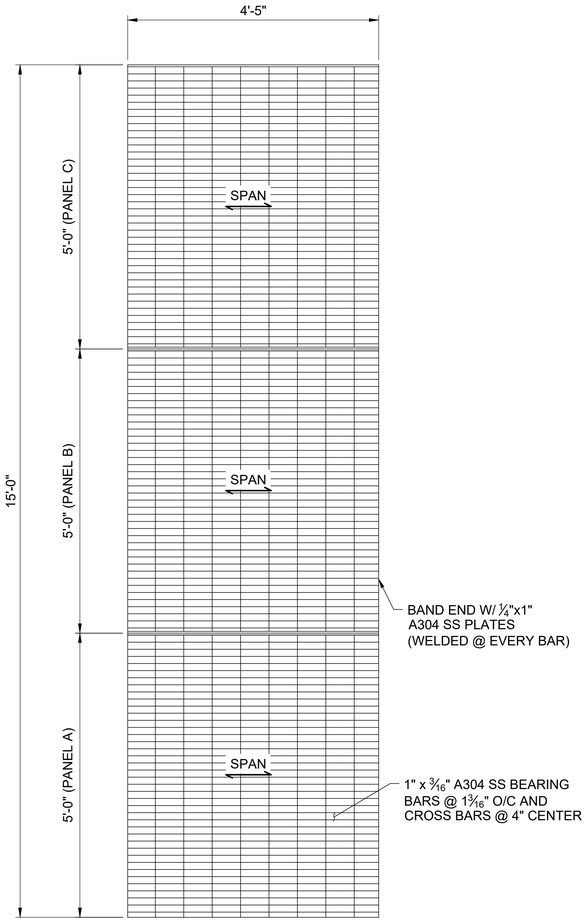
WOODLAND FISH LIFT PASSAGE DESIGN

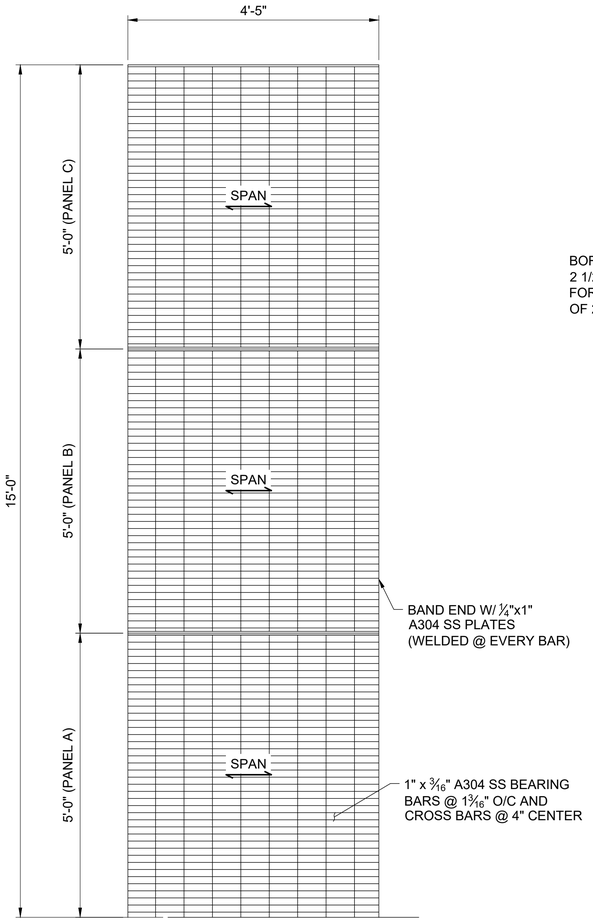
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT V-GATE (VG-3)
OPERATOR SUPPORT ASSEMBLY

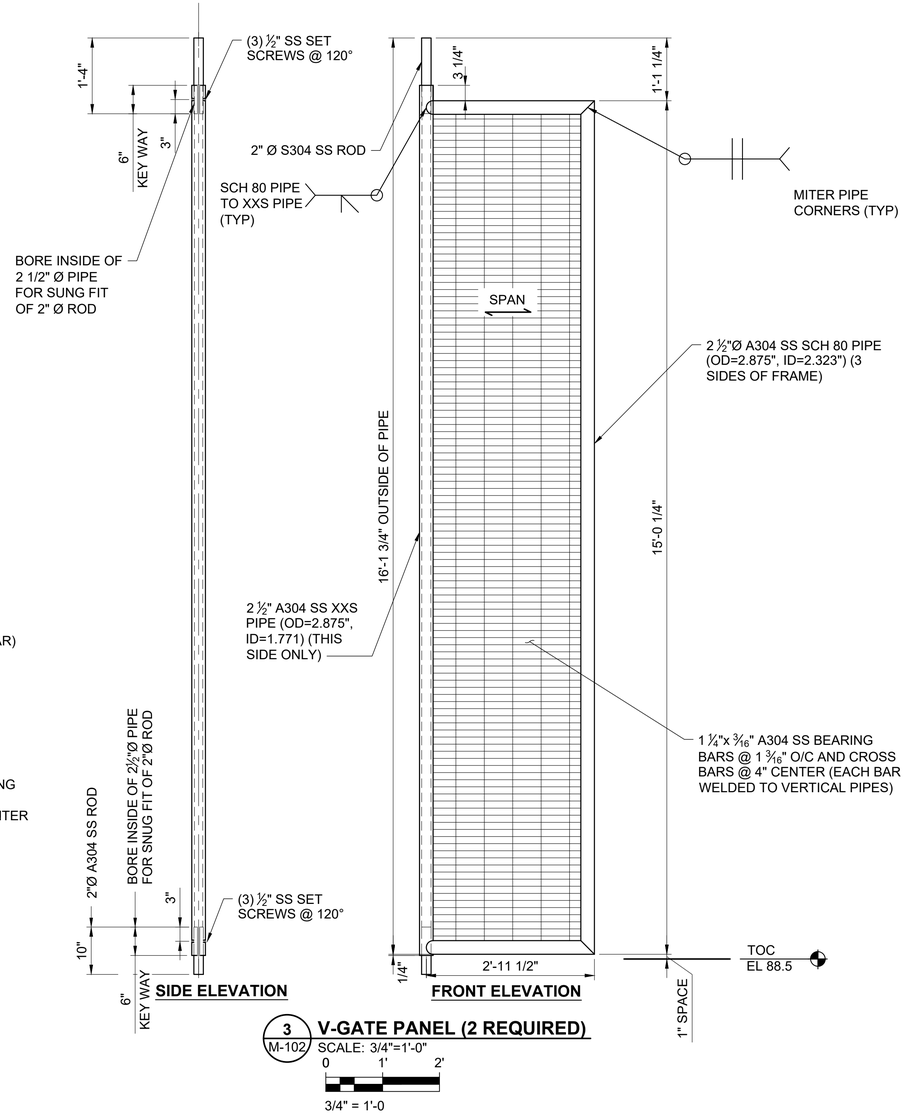
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	205 OF 240
DRAWING:	M-103



1 M-102 GRATING PANEL 1 (2 REQUIRED)
SCALE: 3/4"=1'-0"
0 1' 2'
3/4" = 1'-0



2 M-102 GRATING PANEL 2 (2 REQUIRED)
SCALE: 3/4"=1'-0"
0 1' 2'
3/4" = 1'-0



SIDE ELEVATION

FRONT ELEVATION

3 M-102 V-GATE PANEL (2 REQUIRED)
SCALE: 3/4"=1'-0"
0 1' 2'
3/4" = 1'-0

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5/2/2025	ISSUED FOR BID	M. GRAESER

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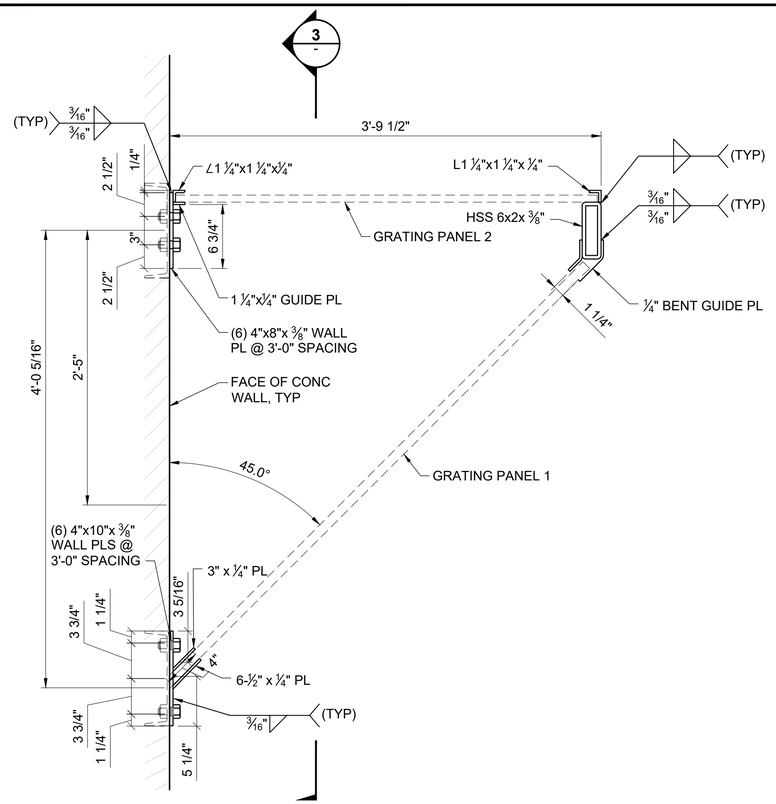
WOODLAND FISH LIFT PASSAGE DESIGN

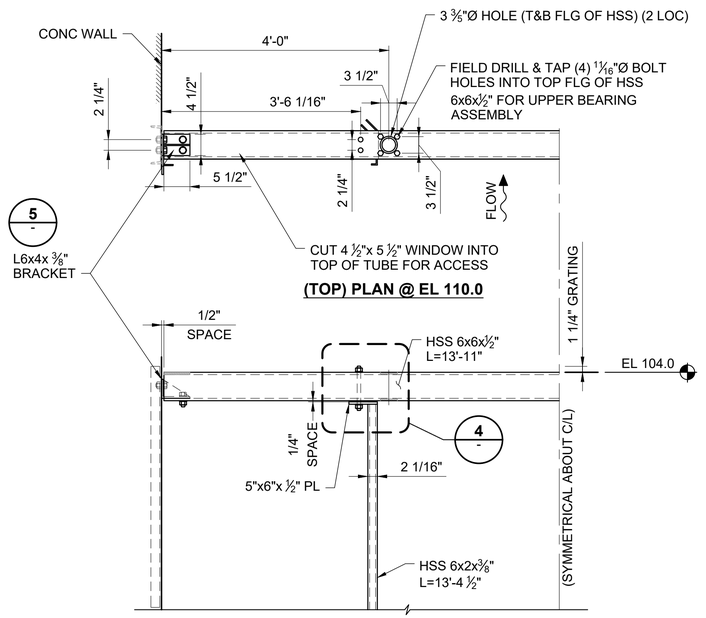
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT V-GATE (VG-3)
GRATING DETAILS

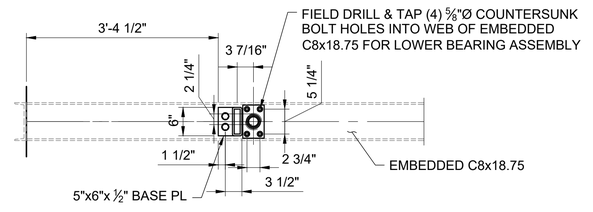
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	206 OF 240
DRAWING:	M-104



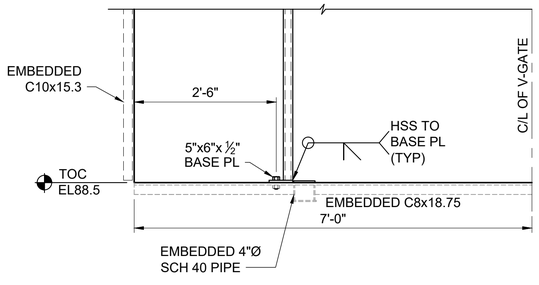
1 M-102 ENLARGED PLAN GRATING PANEL GUIDES
SCALE: 1 1/2"=1'-0" 0 1' 2'



(TOP) ELEVATION

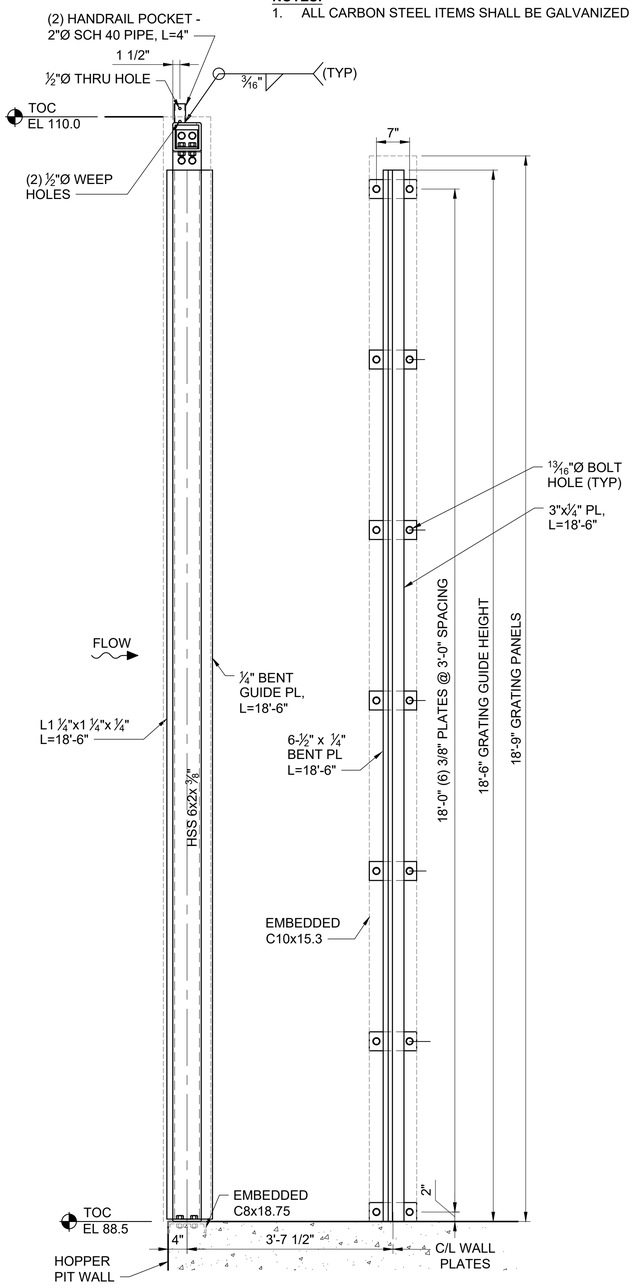


(BOT) PLAN @ EL 88.5

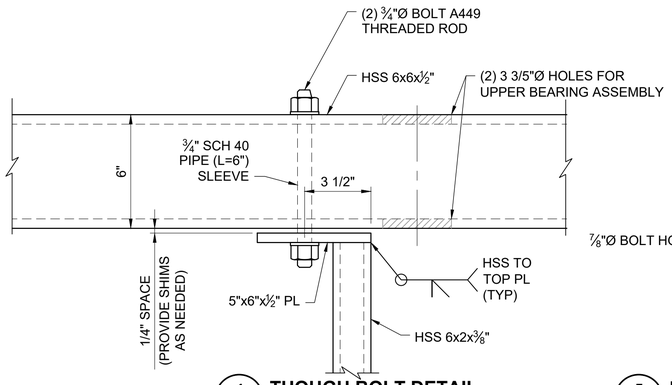


(BOT) ELEVATION

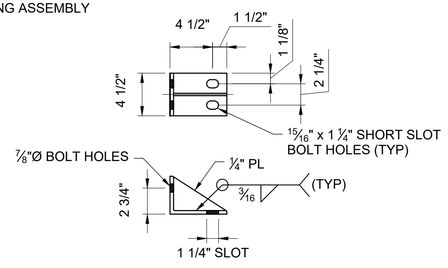
2 STEEL FRAMING FRONT ELEVATION (GUIDES NOT SHOWN)
SCALE: 3/4"=1'-0"
0 1' 2'



3 STEEL FRAMING SIDE ELEVATION
SCALE: 3/4"=1'-0"
0 1' 2'



4 THOUGH BOLT DETAIL
SCALE: 3"=1'-0"
0 6" 1'

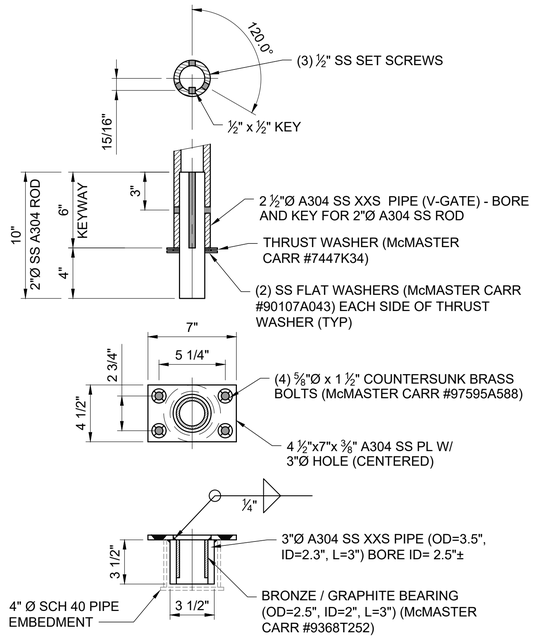


5 L6x4x3/8" BRACKET DETAIL (2 REQUIRED)
SCALE: 1 1/2"=1'-0"
0 1' 2'

NOTES:
1. ALL CARBON STEEL ITEMS SHALL BE GALVANIZED

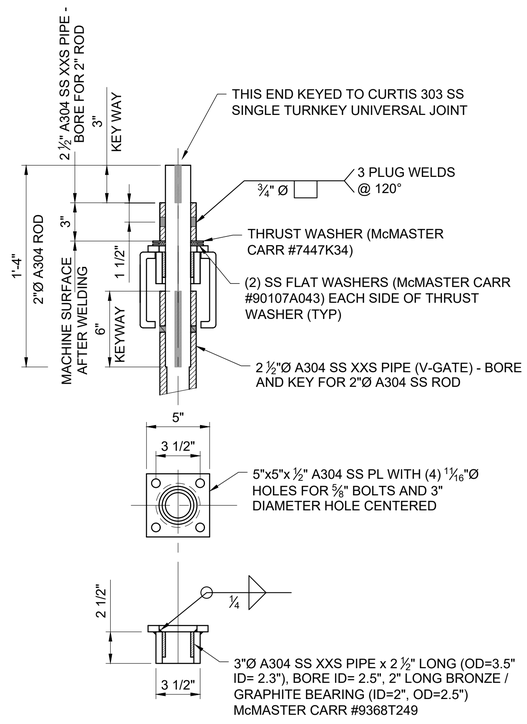
a verdantas company ALDEN	**ISSUED FOR BID** NOT FOR CONSTRUCTION MAY 2, 2025			VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	WOODLAND FISH LIFT PASSAGE DESIGN MAINE DEPARTMENT OF MARINE RESOURCES	FISH LIFT V-GATE (VG-3) OPERATOR SUPPORT ASSEMBLY	PROJECT: 16667 DRAWN BY: C. HAGLER DESIGNER: A. MENGERT APPROVED BY: M. GRAESER SHEET: 207 OF 240 DRAWING: M-105

REVISION	DESCRIPTION OF ISSUE / REVISION	REVISED BY
5/2/2025	ISSUED FOR BID	M. GRAESER



1 M-102 **LOWER BEARING ASSEMBLY (2 REQUIRED)**
SCALE: 2"=1'-0"

0 6" 1'



NOTE:

CLEARANCE BETWEEN PIN AND BEARING
0.005" INTERFERENCE FIT OF BEARING INTO
PIPE HOUSING 0.0015".

2 M-102 **UPPER BEARING ASSEMBLY (2 REQUIRED)**
SCALE: 2"=1'-0"

0 6" 1'

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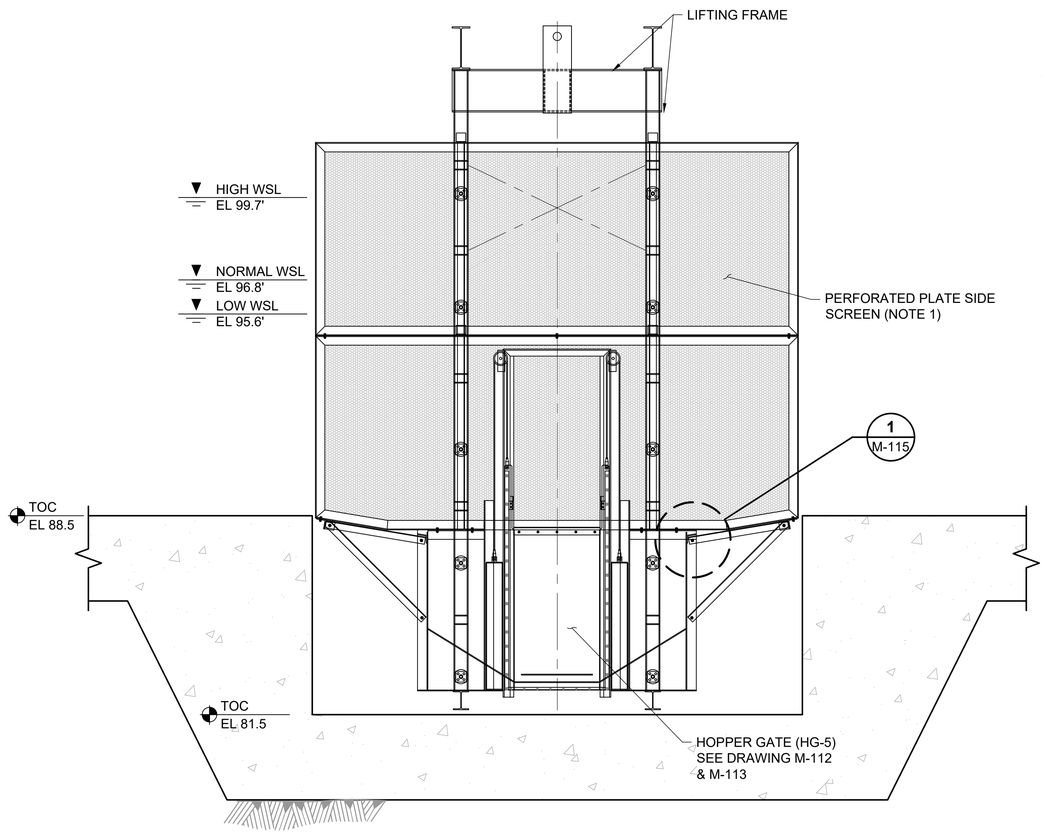
WOODLAND FISH LIFT PASSAGE DESIGN

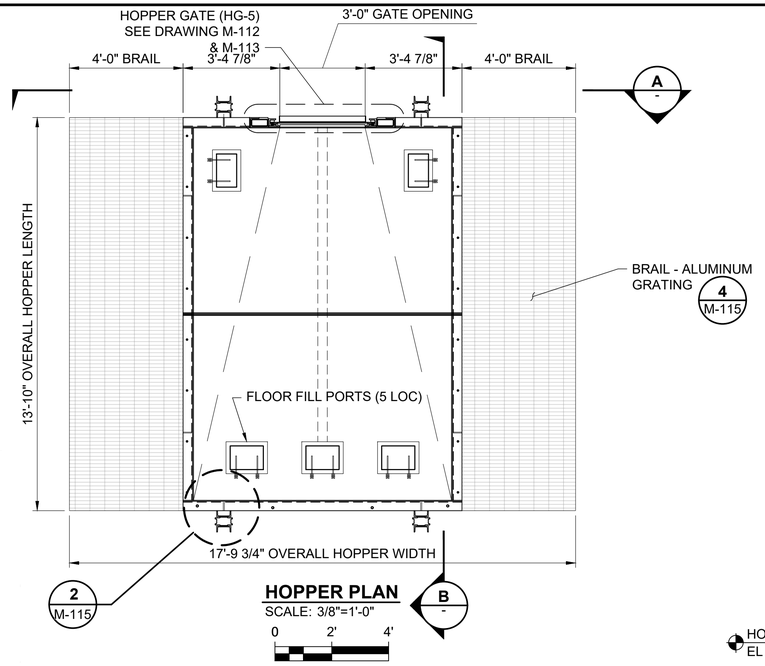
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT V-GATE (VG-3)
BEARING DETAILS

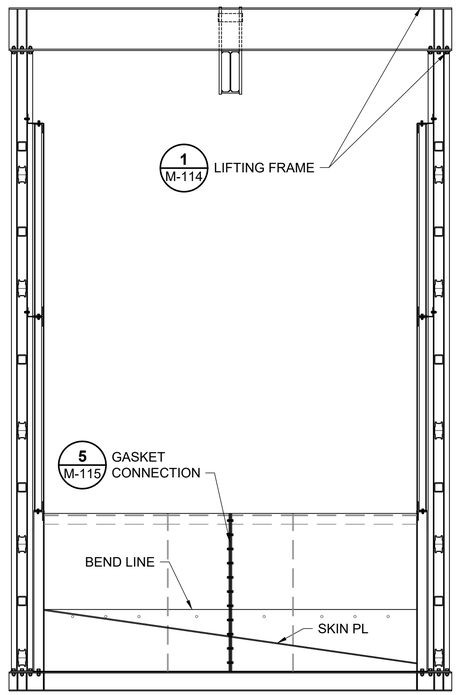
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	208 OF 240
DRAWING:	M-106



A - **ELEVATION OF HOPPER LOWERED (BOTTOM POSITION)**
SCALE: 3/8" = 1'-0"



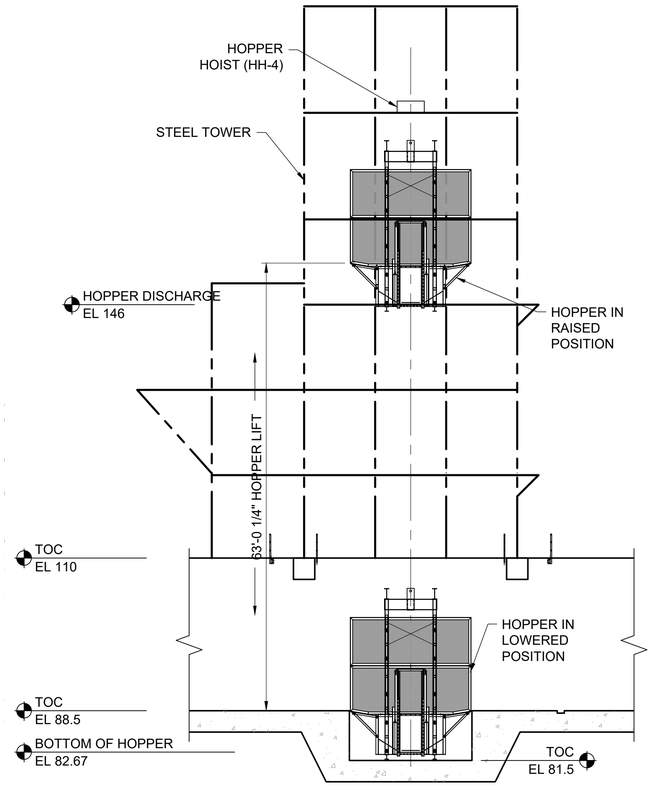
HOPPER PLAN
SCALE: 3/8"=1'-0"
0 2' 4'



B - **SIDE ELEVATION**
SCALE: 3/8" = 1'-0"
0 2' 4'

NOTES:

1. SMOOTH SIDE OF PERFORATED PLATE SHALL FACE THE INSIDE OF THE HOPPER.
2. HOPPER MATERIALS SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS NOTED OTHERWISE.



HOPPER TRAVEL
SCALE: 3/32"=1'-0"
0 32' 64'

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MAY 2, 2025

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5/2/2025	ISSUED FOR BID	M. GRAESER

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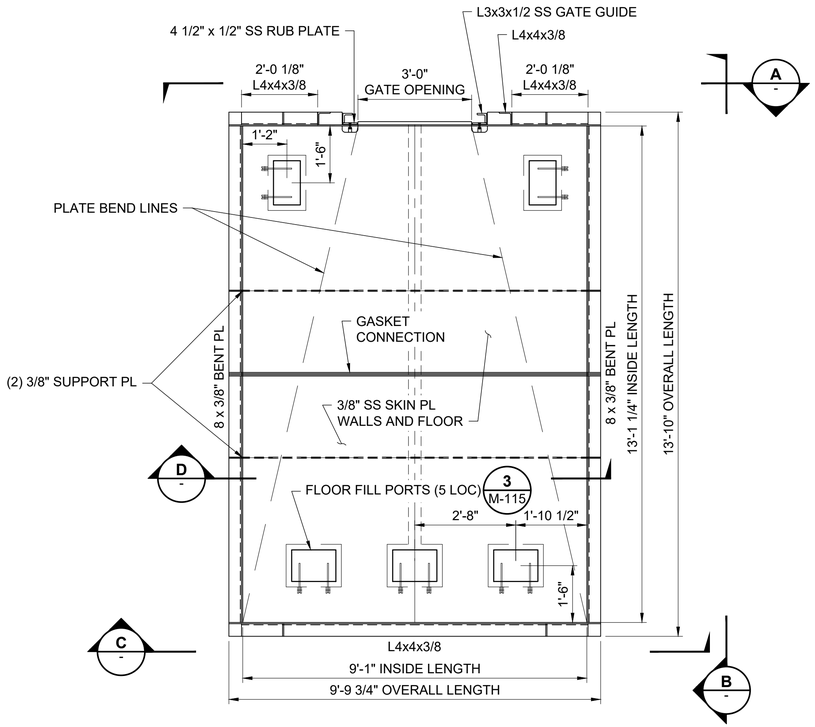
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

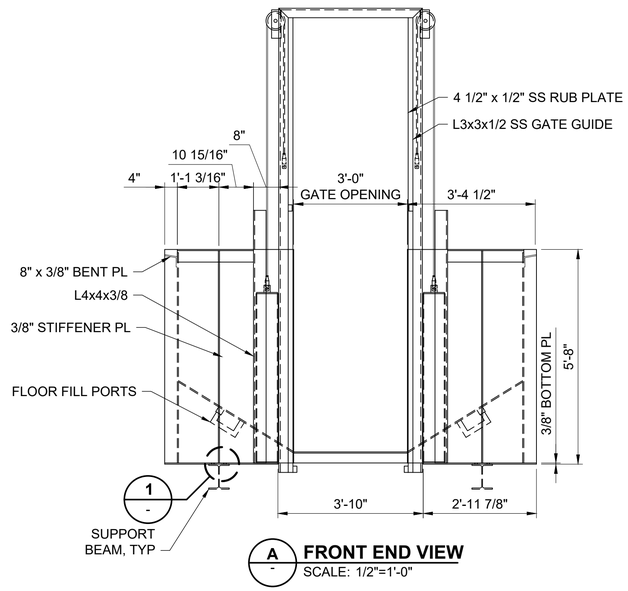
FISH LIFT HOPPER - GENERAL LAYOUT AND INFORMATION

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	209 OF 240
DRAWING:	M-110



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

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

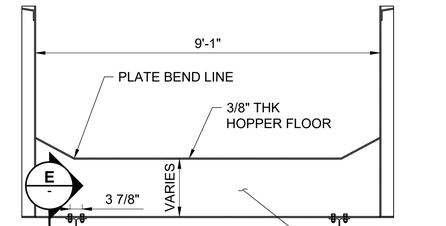


A FRONT END VIEW
SCALE: 1/2"=1'-0"

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

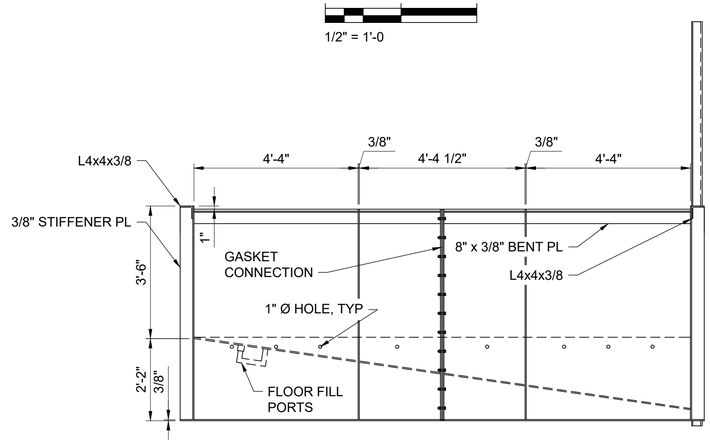
NOTES:

1. NET HOPPER VOLUME=490 CUBIC FEET
2. ALL INTERIOR HOPPER PLATE JOINTS SHALL BE SEAL WELDED.
3. ALL INTERIOR SURFACES & FISH CONTACT AREAS SHALL BE SMOOTH & BURR FREE.
4. GRIND ALL INTERIOR EDGES TO MINIMUM 1/8"R.
5. HOPPER SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS NOTED OTHERWISE.



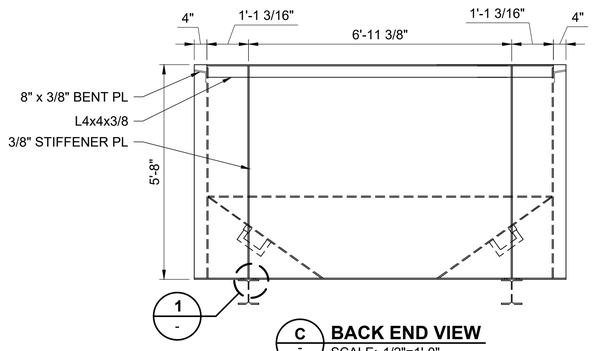
D SECTION
SCALE: 1/2" = 1'-0"

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



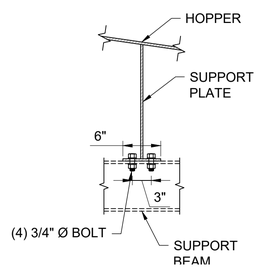
B SIDE VIEW
SCALE: 1/2"=1'-0"

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



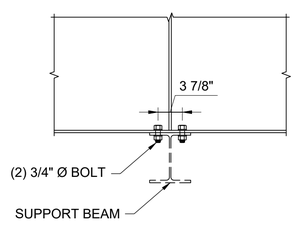
C BACK END VIEW
SCALE: 1/2"=1'-0"

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



E SECTION
SCALE: 1" = 1'-0"

0 1' 2'
1" = 1'-0



1 DETAIL
SCALE: 1" = 1'-0"

0 1' 2'
1" = 1'-0

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MAY 2, 2025

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5/2/2025	ISSUED FOR BID	M. GRAESER

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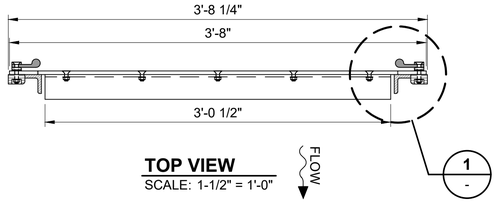
WOODLAND FISH LIFT PASSAGE DESIGN

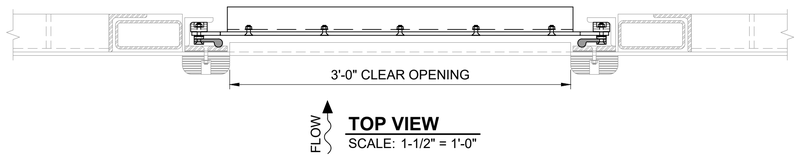
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT HOPPER SECTIONS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	210 OF 240
DRAWING:	M-111



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



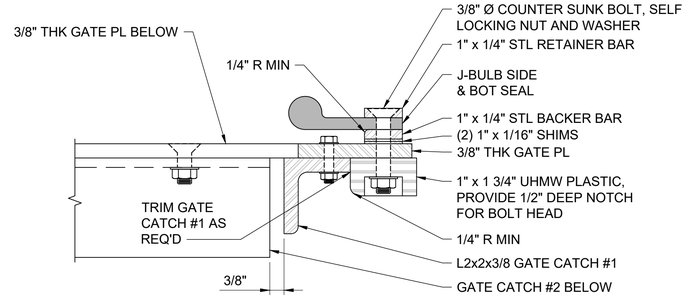
TOP VIEW
SCALE: 1-1/2" = 1'-0"

NOTE:

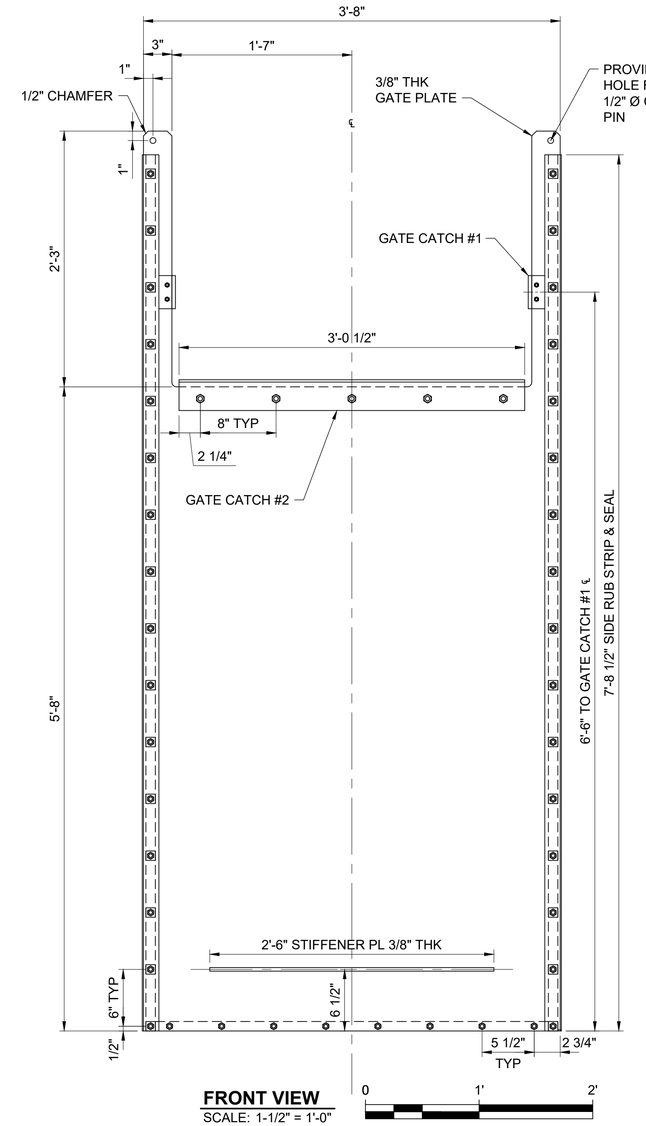
1. HOPPER GATE MATERIAL SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS NOTED OTHERWISE.

J-BULB SEAL NOTES:

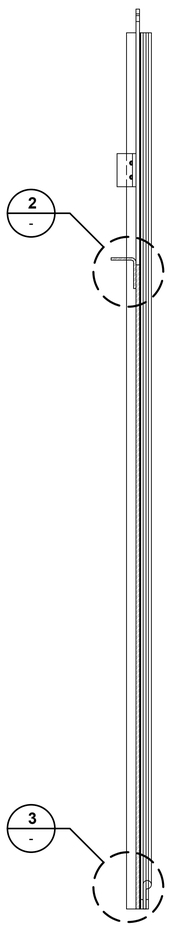
1. TIGHTEN BOLTS ATTACHING SEAL, PAST SNUG TIGHT.
2. EACH CORNER PIECE SHALL BE ONE MONOLITHIC PIECE MOLDED TO WITH 1'-0" OF LENGTH IN EACH DIRECTION.
3. SEAL SHALL BE AS LONG AS PRACTICAL TO REDUCE THE NUMBER OF SPLICES.
4. SPLICES SHALL BE COMPLETED IN THE SHOP AND SHALL BE HOT VULCANIZED.



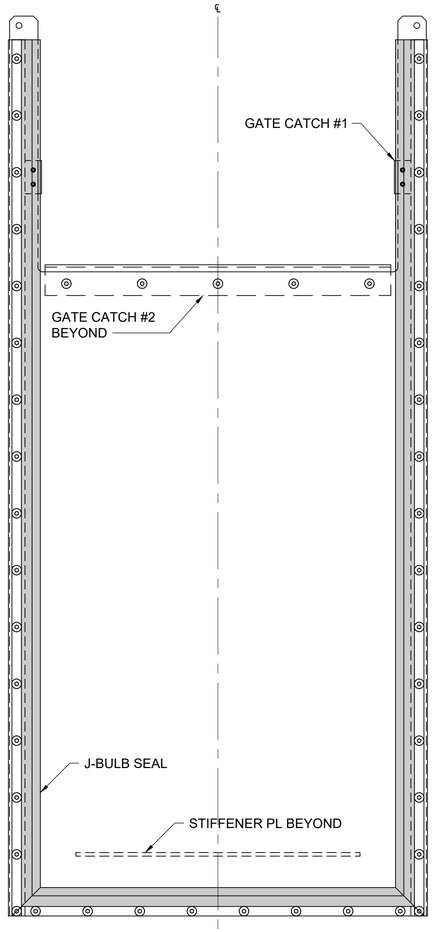
1 DETAIL
SCALE: 6" = 1'-0"
0 3" 6"



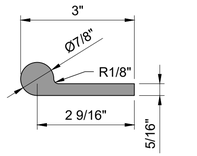
FRONT VIEW
SCALE: 1-1/2" = 1'-0"
0 1' 2'



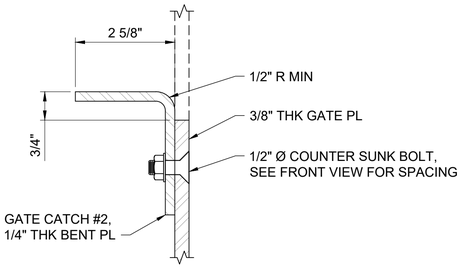
SIDE VIEW
SCALE: 1-1/2" = 1'-0"



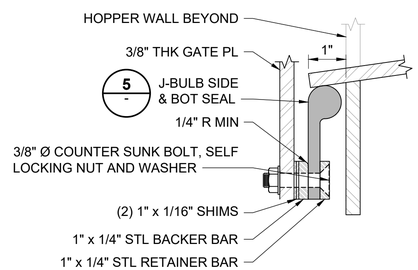
BACK VIEW
SCALE: 1-1/2" = 1'-0"
0 1' 2'



4 DETAIL
SCALE: 6" = 1'-0"
0 3" 6"



2 DETAIL
SCALE: 6" = 1'-0"
0 3" 6"



3 DETAIL
SCALE: 6" = 1'-0"
0 3" 6"

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MAY 2, 2025

REVISION	DESCRIPTION OF ISSUE / REVISION	REVISED BY
5/2/2025	ISSUED FOR BID	M. GRAESER

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WOODLAND FISH LIFT PASSAGE DESIGN

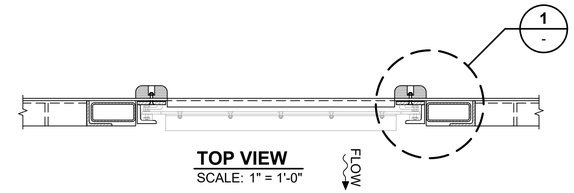
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT HOPPER - HOPPER GATE (HG-5) SECTIONS AND DETAILS

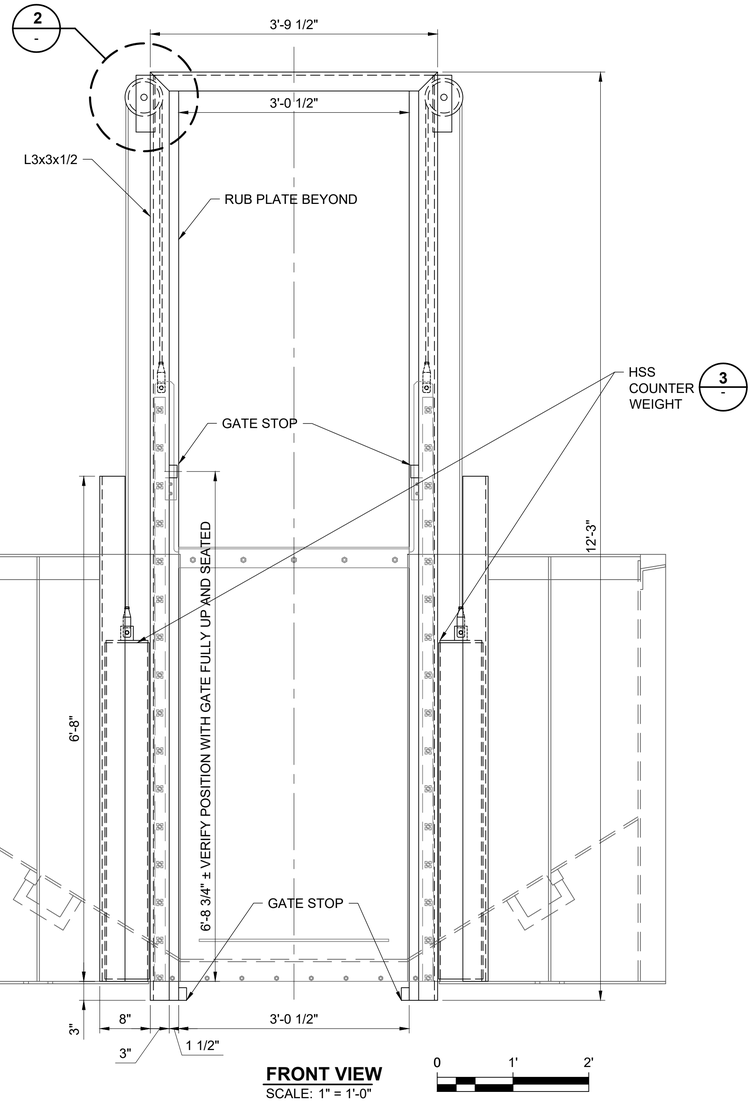
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	211 OF 240
DRAWING:	M-112

NOTES:

1. CROSBY SHEAVE FOR 3/8" WIRE ROPE PART NO. 907424.
2. ZINC PLATED CARBON STEEL WITH COTTER PIN, 2 1/4" USABLE LENGTH. MCMASTER CARR PART NO. 97245A721.
3. 3/8" Ø WIRE ROPE GALVANIZED STEEL. MCMASTER CARR PART NO. 1549N14.
4. PLUG-LOCK WIRE ROPE FITTING WITH CLEVIS. MCMASTER CARR PART NO. 3473T441.
5. HOPPER GATE FRAME MATERIALS SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS NOTED OTHERWISE.

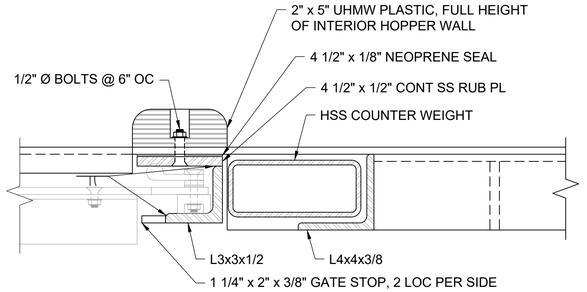


TOP VIEW
SCALE: 1" = 1'-0"



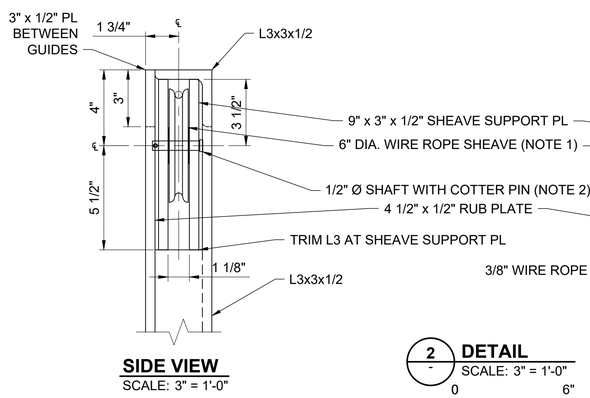
FRONT VIEW
SCALE: 1" = 1'-0"

0 1' 2'

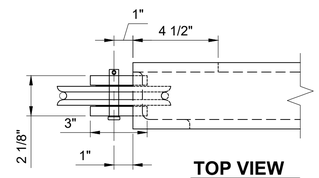


1 - DETAIL
SCALE: 3" = 1'-0"

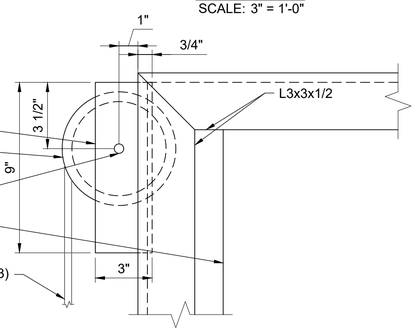
0 6" 1'



SIDE VIEW
SCALE: 3" = 1'-0"



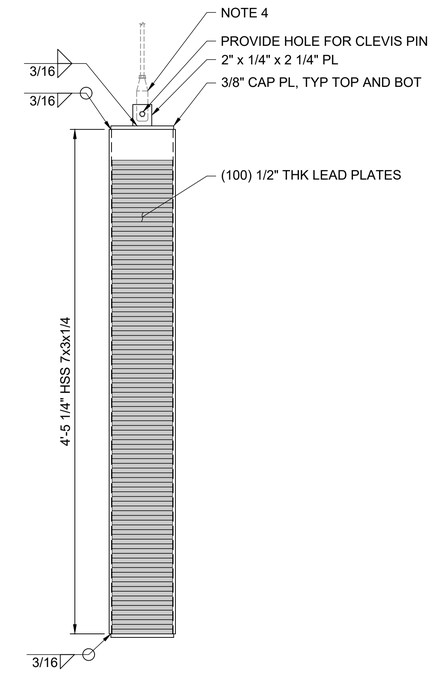
TOP VIEW
SCALE: 3" = 1'-0"



FRONT VIEW
SCALE: 3" = 1'-0"

2 - DETAIL
SCALE: 3" = 1'-0"

0 6" 1'



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

0 1' 2'

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MAY 2, 2025

REVISION	DESCRIPTION OF ISSUE / REVISION	REVISED BY
5/2/2025	ISSUED FOR BID	M. GRAESER

VERIFY SCALE
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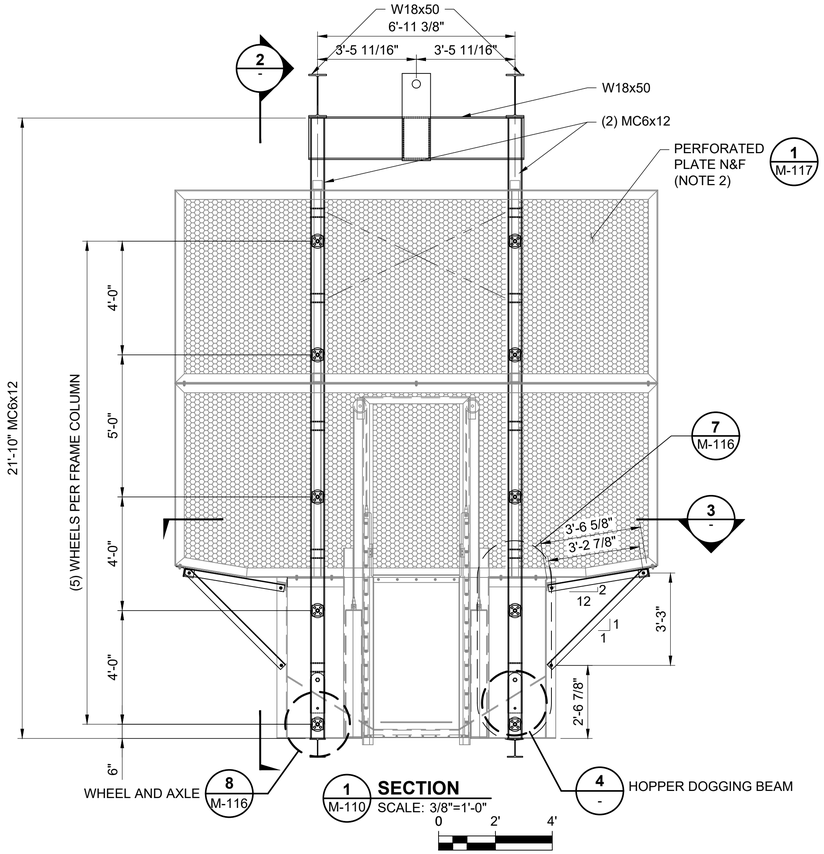
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

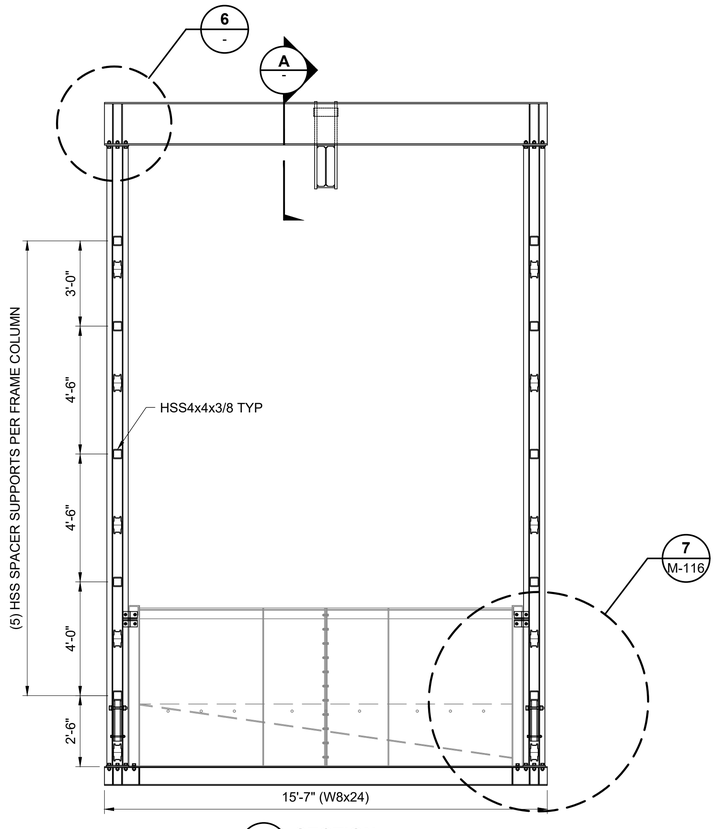
FISH LIFT HOPPER GATE FRAME

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	212 OF 240
DRAWING:	M-113



1 M-110 **SECTION**
SCALE: 3/8"=1'-0"

0 2' 4'

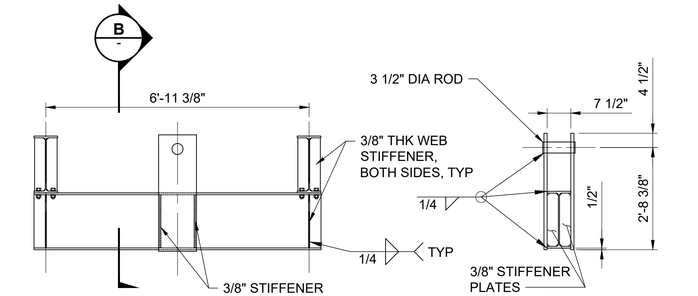


2 **SECTION**
SCALE: 3/8"=1'-0"

0 2' 4'

NOTES:

1. HOPPER LIFTING FRAME MATERIALS SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS NOTED OTHERWISE.
2. SMOOTH SIDE OF PERFORATED PLATE SHALL FACE THE INSIDE OF THE HOPPER.

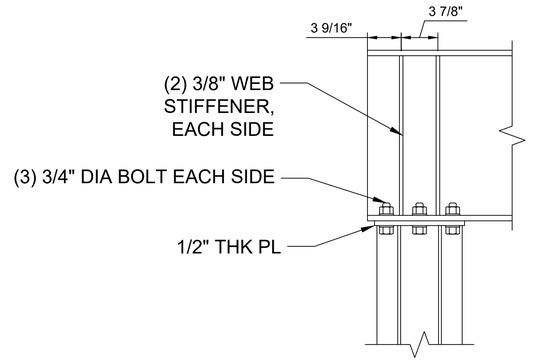


A **SECTION**
SCALE: 1/2"=1'-0"

0 2' 4'

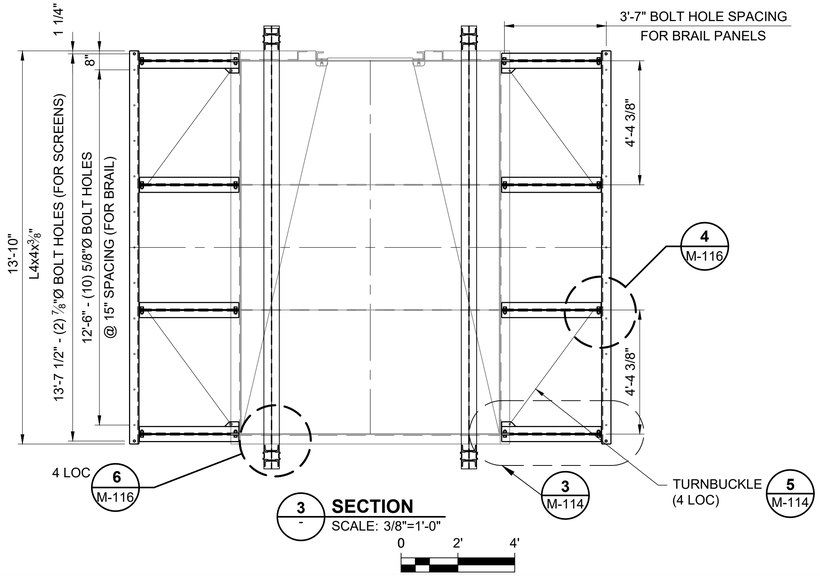
B **SECTION**
SCALE: 1/2"=1'-0"

0 2' 4'



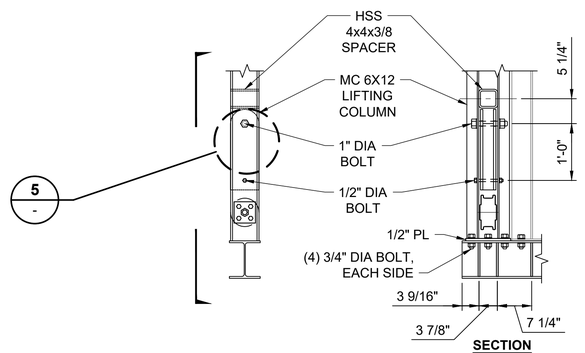
6 **CONNECTION DETAIL**
SCALE: 1 1/2"=1'-0"

0 1' 2'



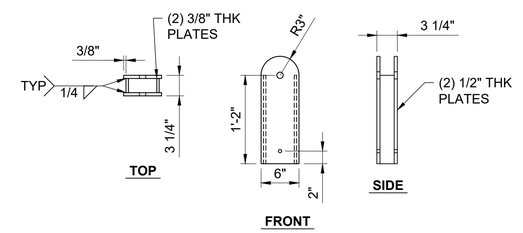
3 **SECTION**
SCALE: 3/8"=1'-0"

0 2' 4'



4 M-114 **HOPPER DOGGING BEAM**
SCALE: 3/4"=1'-0"
M-116

0 1' 2'



5 **HOPPER DOGGING BEAM**
SCALE: 1"=1'-0"

0 1' 2'

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5/2/2025	ISSUED FOR BID	M. GRAESER

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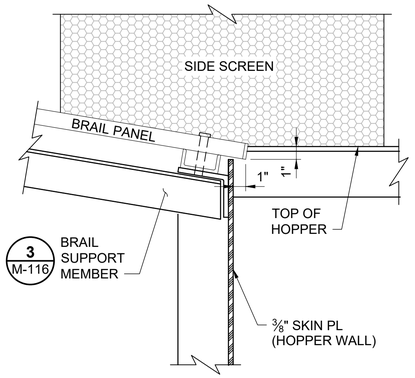
WOODLAND FISH LIFT PASSAGE DESIGN

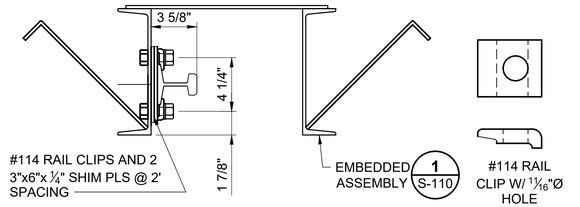
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT HOPPER LIFTING FRAME

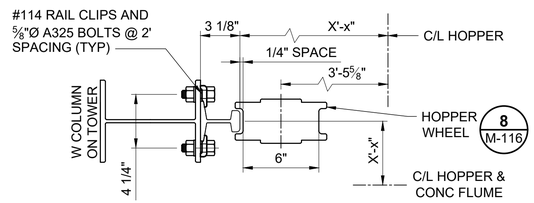
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	213 OF 240
DRAWING:	M-114



1 M-110 BRAIL TO HOPPER DETAIL
SCALE: 2"=1'-0"

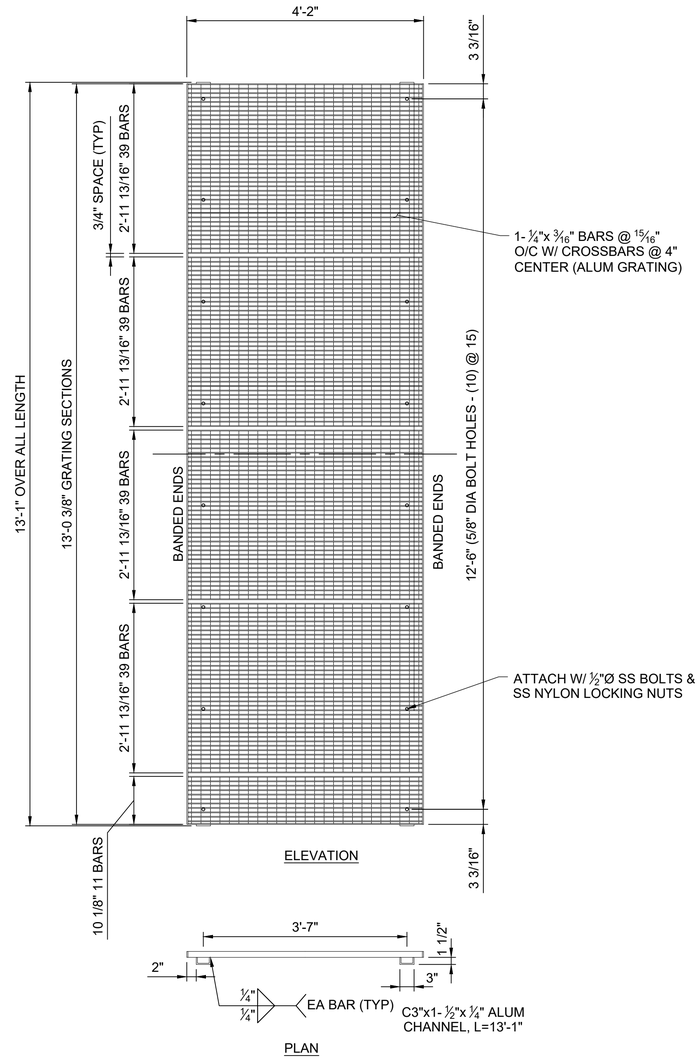


BELOW EL 110.0



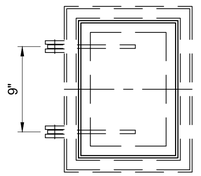
ABOVE EL 110.0

2 M-110 ASCE 30 LB RAIL CONNECTION DETAILS
SCALE: 2" = 1'-0"



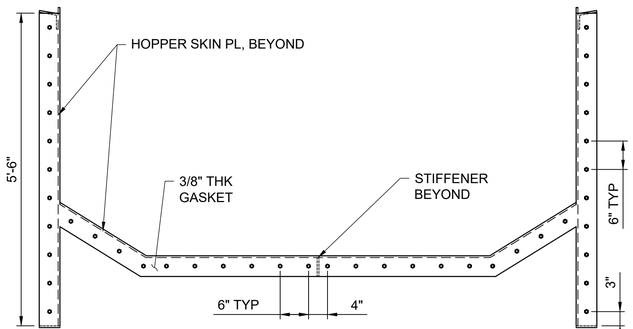
4 M-110 BRAIL DETAIL (2 PANELS REQUIRED)
SCALE: 3/4" = 1'-0"

0 1' 2'



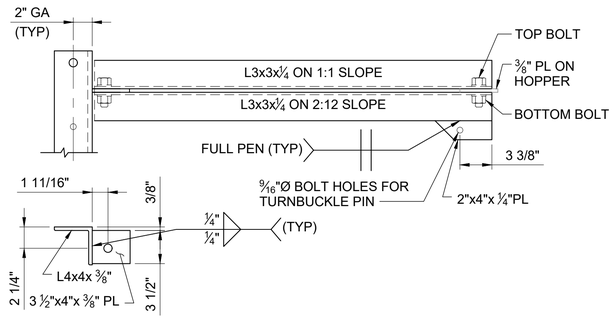
3 M-111 FLOOR FILL PORT
SCALE: 1 1/2" = 1'-0"

0 1' 2'

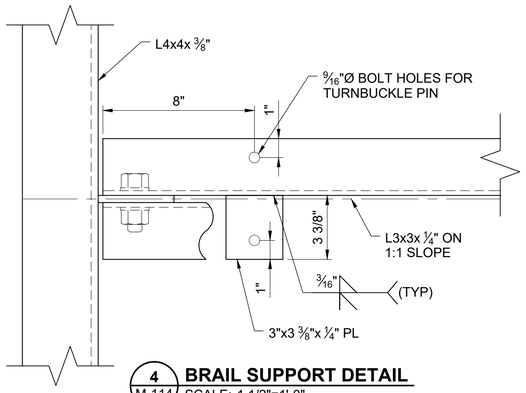


5 M-110 GASKET DETAIL
SCALE: 3/4" = 1'-0"

0 1' 2'



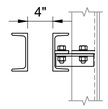
3 M-114 BRAIL SUPPORT DETAIL
SCALE: 1 1/2"=1'-0"
0 1' 2'

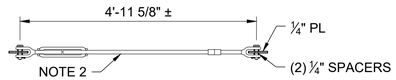


4 M-114 BRAIL SUPPORT DETAIL
SCALE: 1 1/2"=1'-0"
0 1' 2'

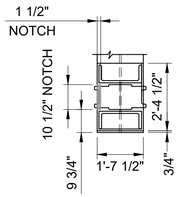
NOTES:

1. HOPPER STRUCTURAL ITEMS SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS NOTED OTHERWISE.
2. 1/2" GALVANIZED TURNBUCKLE - (McMASTER CARR #3001T57) AND JAM NUT SET (#3000T56), 5/8" DIA (11 TPI) GALVANIZED THREADED EXTENSION ROD, AND GALVANIZED COUPLING.

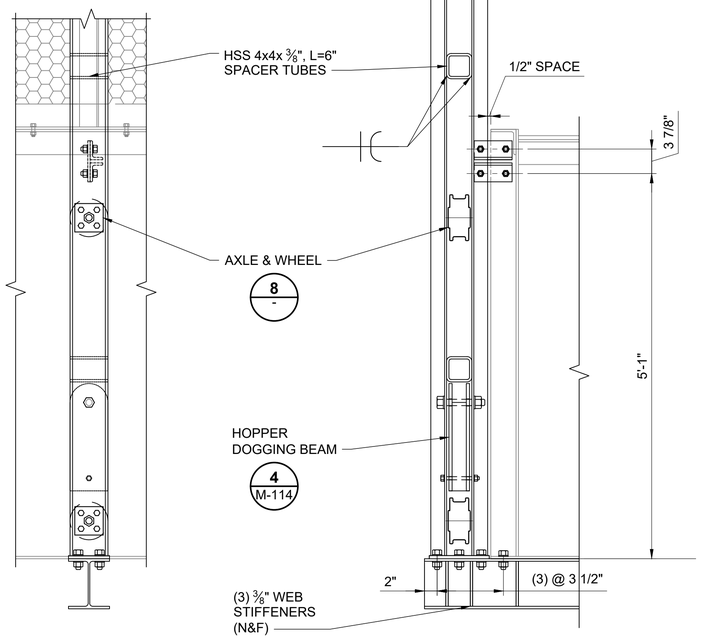




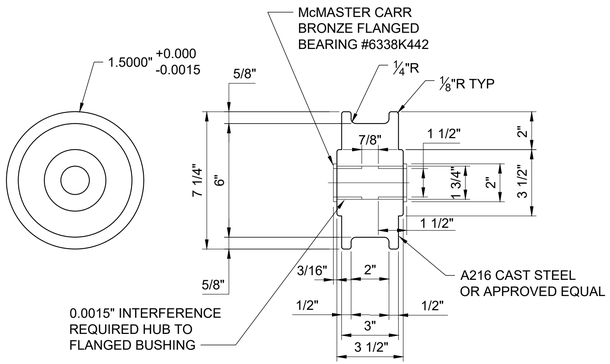
5 M-114 TURNBUCKLE DETAIL
SCALE: 1"=1'-0"
0 1' 2'

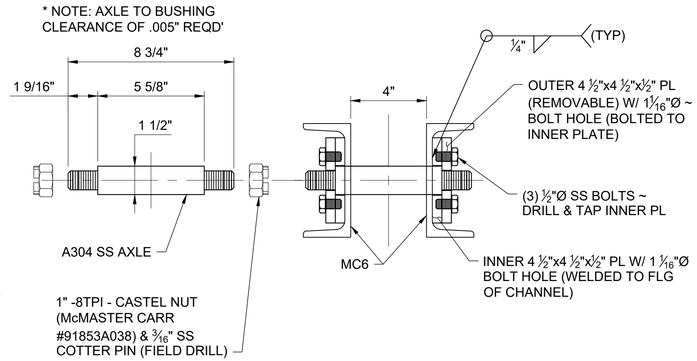


6 M-114 NOTCH DETAIL
SCALE: 3/8"=1'-0"
0 2' 4'



7 M-114 CONNECTION DETAIL
SCALE: 1"=1'-0"
0 1' 2'





8 - AXLE DETAIL AND WHEEL
M-114 SCALE: 3"=1'-0"
M-115
M-116
0 6" 1'

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MAY 2, 2025

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5/2/2025	ISSUED FOR BID	M. GRAESER

VERIFY SCALE
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WOODLAND FISH LIFT PASSAGE DESIGN

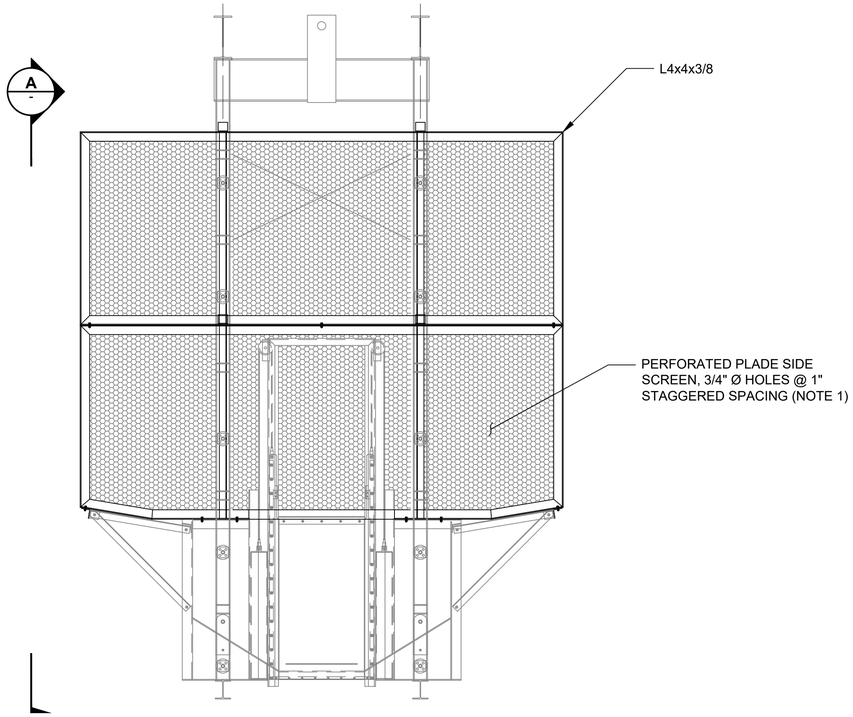
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT HOPPER DETAILS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	215 OF 240
DRAWING:	M-116

NOTES:

1. SMOOTH SIDE OF PERFORATED PLATE SHALL FACE THE INSIDE OF THE HOPPER.

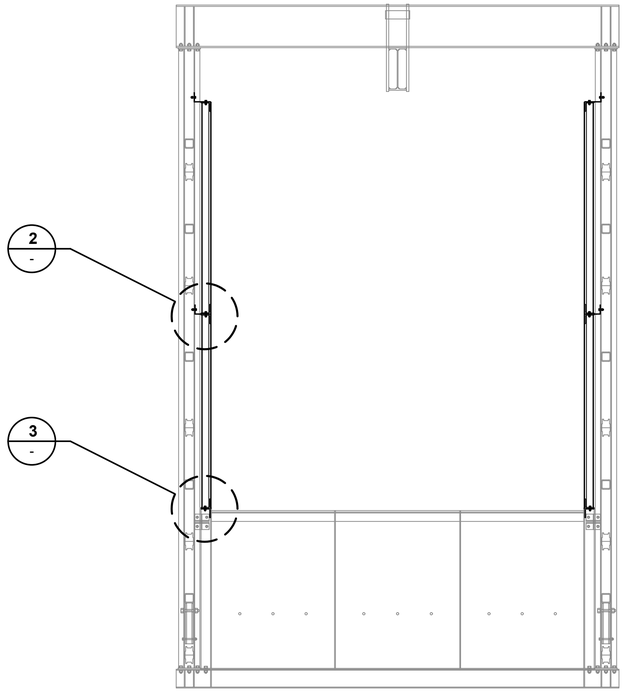


1 M-114 HOPPER PERFORATED PLATE

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

0 2' 4'

3/8" = 1'-0

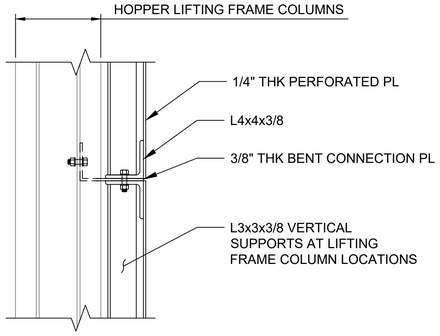


A - ELEVATION

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

0 2' 4'

3/8" = 1'-0

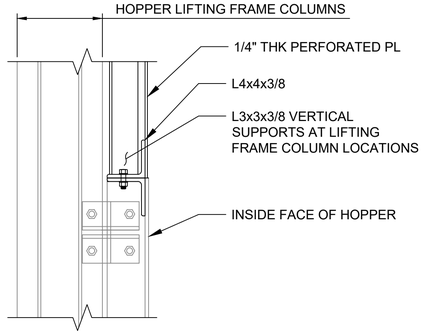


2 - CONNECTION DETAIL

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

0 2' 4'

3/8" = 1'-0



3 - CONNECTION DETAIL

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

0 2' 4'

3/8" = 1'-0

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WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

FISH LIFT HOPPER SIDE GRATING

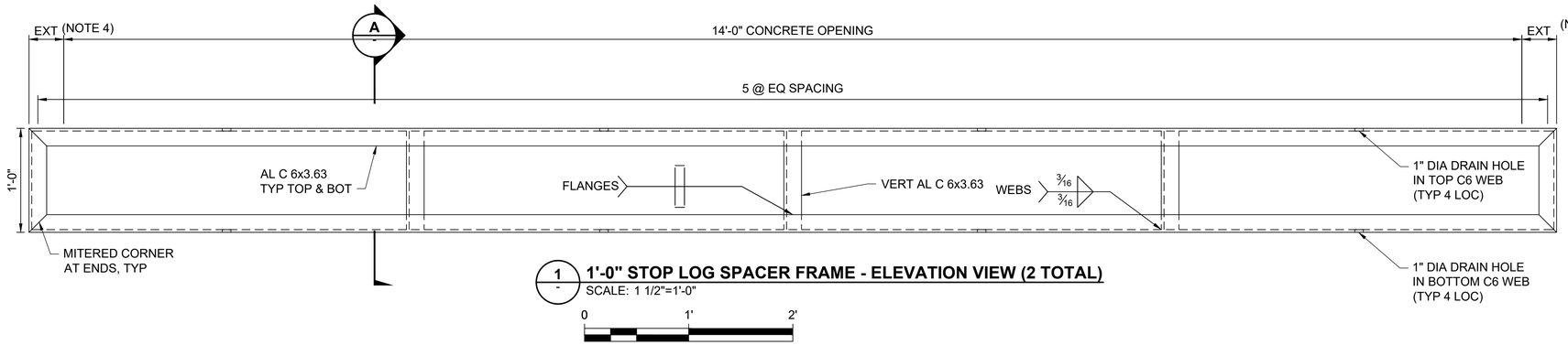
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	216 OF 240
DRAWING:	M-117

ALUMINUM NOTES:

1. ALUMINUM SHAPES SHALL BE ALLOY TYPE 6061-T6.
2. ALUMINUM WELDING SHALL BE PER AWS D1.2
3. ALL ALUMINUM SURFACES IN CONTRACT WITH DISSIMILAR METALS AND MATERIALS HALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

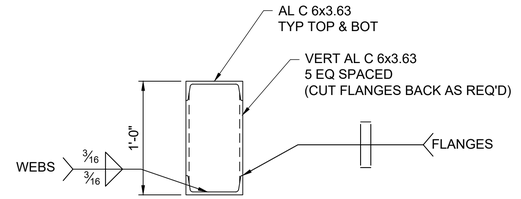
NOTES:

1. PROVIDE (2) 1'-0" SPACER FRAMES.
2. PROVIDE (7) 2'-0" SPACER FRAMES.
3. DESIGN ASSUMES 6" WIDE STOP LOG. PRIOR TO SPACER FRAME FABRICATION, COORDINATE CHANNEL DEPTH WITH STOP LOG MANUFACTURER.
4. MATCH STOP LOG SPACER FRAME LENGTH WITH STOP LOG LENGTH.
5. STOP LOG SPACER FAME SHALL ALUMINUM.
6. APPROXIMATE WEIGHT OF 1'-0" SPACER FRAME = 125 LBS.
7. APPROXIMATE WEIGHT OF 2'-0" SPACER FRAME = 145 LBS.



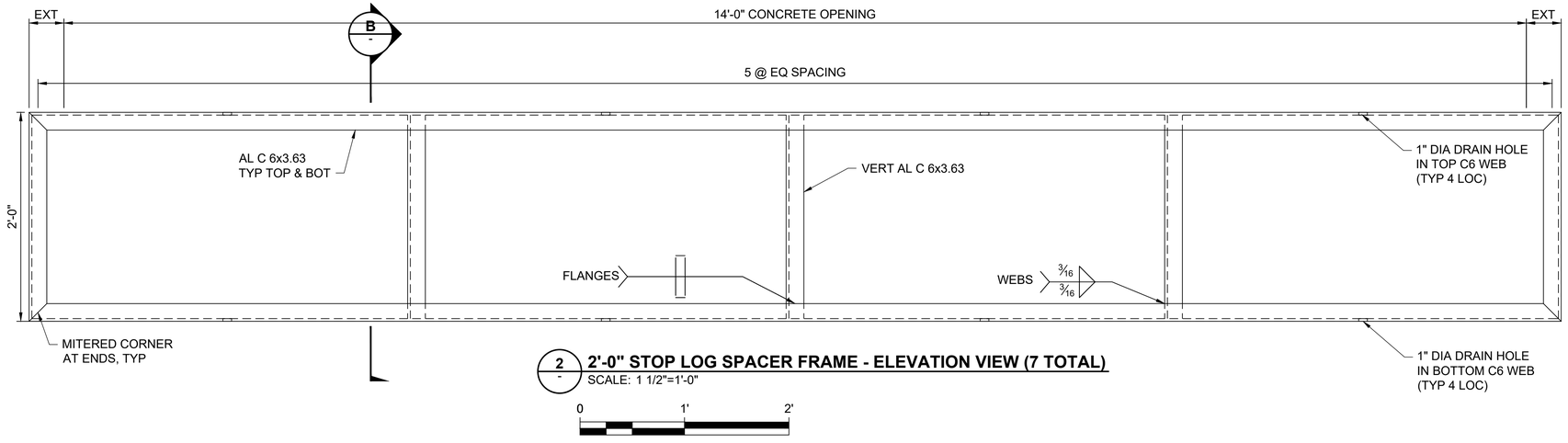
1 - 1'-0" STOP LOG SPACER FRAME - ELEVATION VIEW (2 TOTAL)
SCALE: 1 1/2"=1'-0"

0 1' 2'



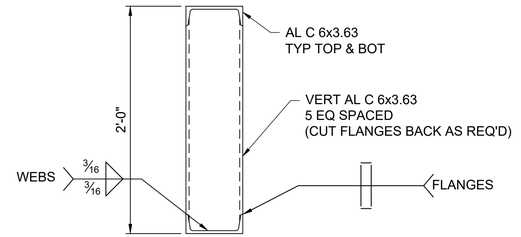
A - 1'-0" STOP LOG SPACER FRAME - SECTION
SCALE: 1 1/2"=1'-0"

0 1' 2'



2 - 2'-0" STOP LOG SPACER FRAME - ELEVATION VIEW (7 TOTAL)
SCALE: 1 1/2"=1'-0"

0 1' 2'



B - 2'-0" STOP LOG SPACER FRAME - SECTION
SCALE: 1 1/2"=1'-0"

0 1' 2'

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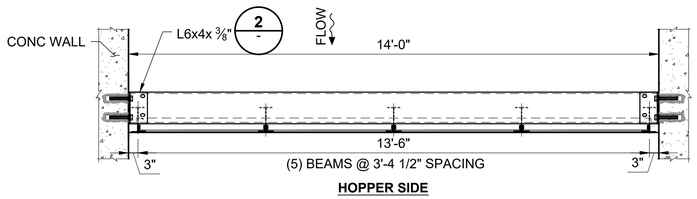
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

STOP LOG SPACER FRAMES

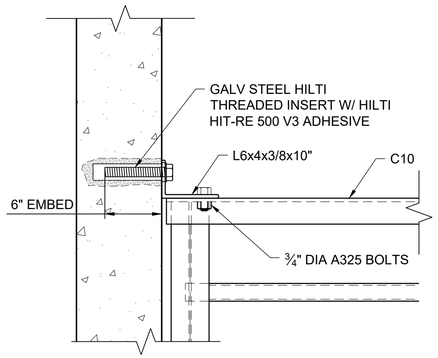
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	217 OF 240
DRAWING:	M-118



FRAMING PLAN AT EL 105.0'

SCALE = 1/2" = 1'

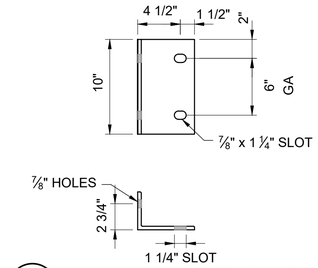
0 2' 4'



1 - CONNECTION DETAIL

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

0 1' 2'



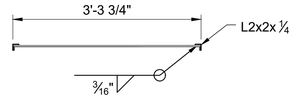
2 - L6x4x3/8"x10" DETAIL (2 REQUIRED)

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

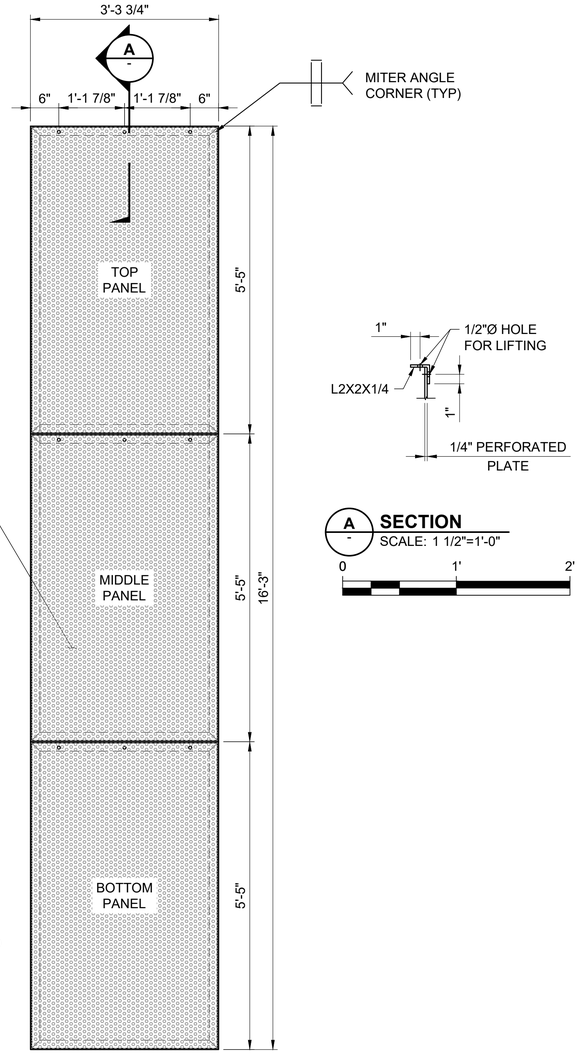
0 1' 2'

NOTES:

1. ALL CARBON STEEL ITEMS SHALL BE GALVANIZED.
2. APPROXIMATE WEIGHT OF EACH PERFORATED PLATE PANEL =150 LBS.



PLAN



A - SECTION

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

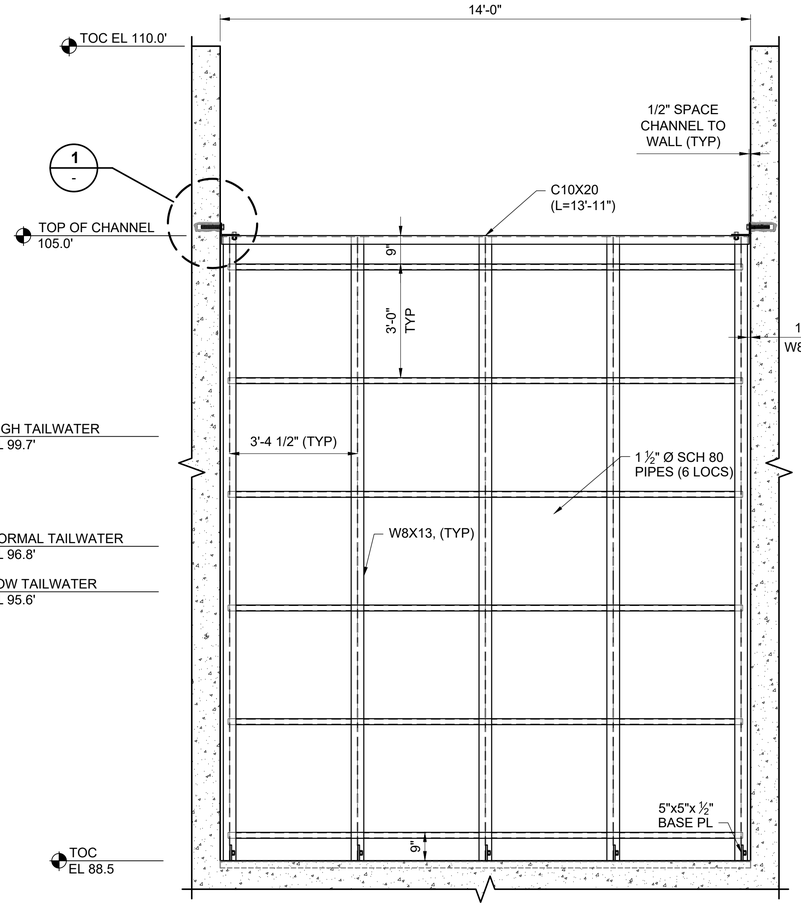
0 1' 2'

ELEVATION

4 - REMOVABLE PERFORATED PLATE

SCALE: 3/4"=1'-0"

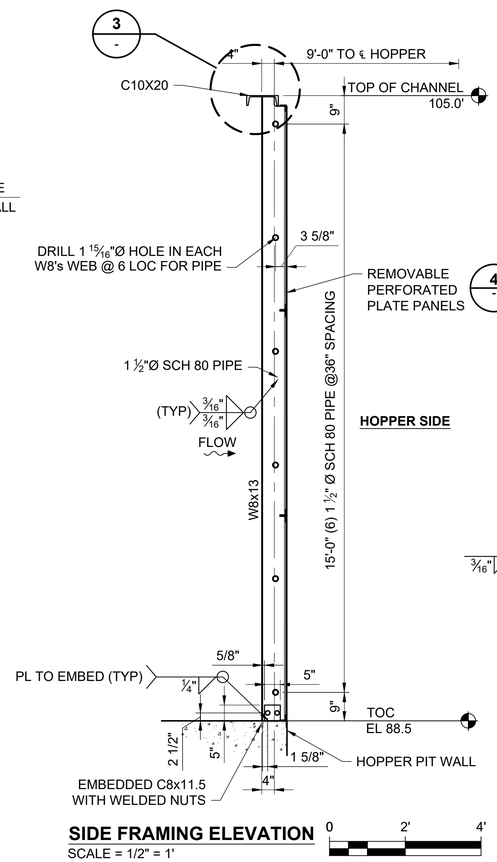
0 1' 2'



ELEVATION LOOKING DOWNSTREAM

SCALE = 1/2" = 1'

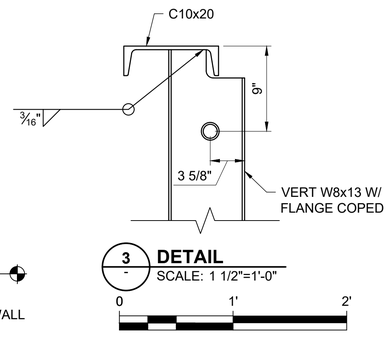
0 2' 4'



SIDE FRAMING ELEVATION

SCALE = 1/2" = 1'

0 2' 4'

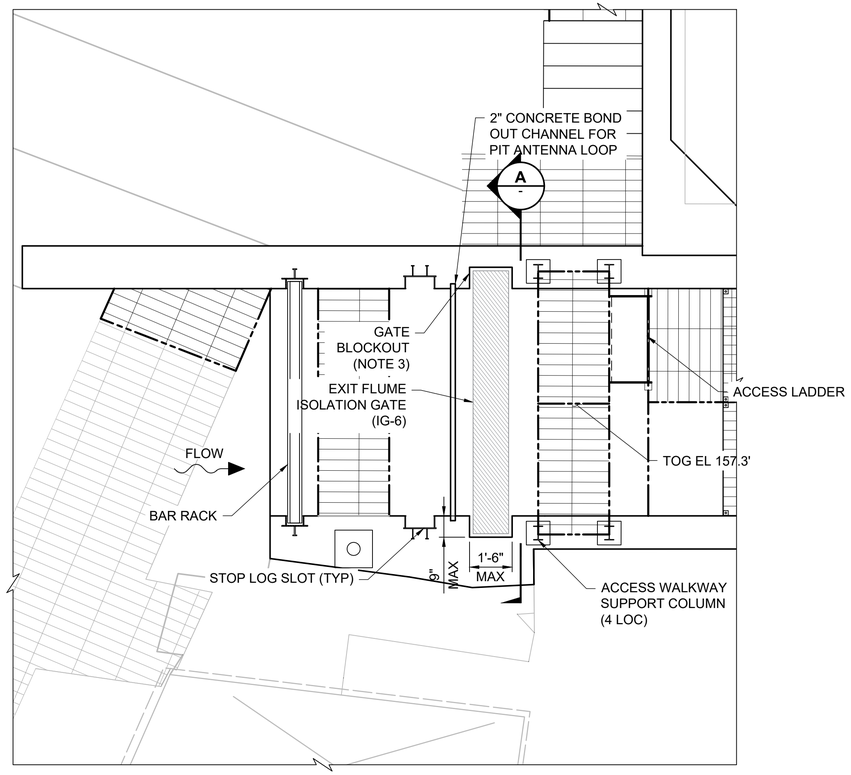


3 - DETAIL

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

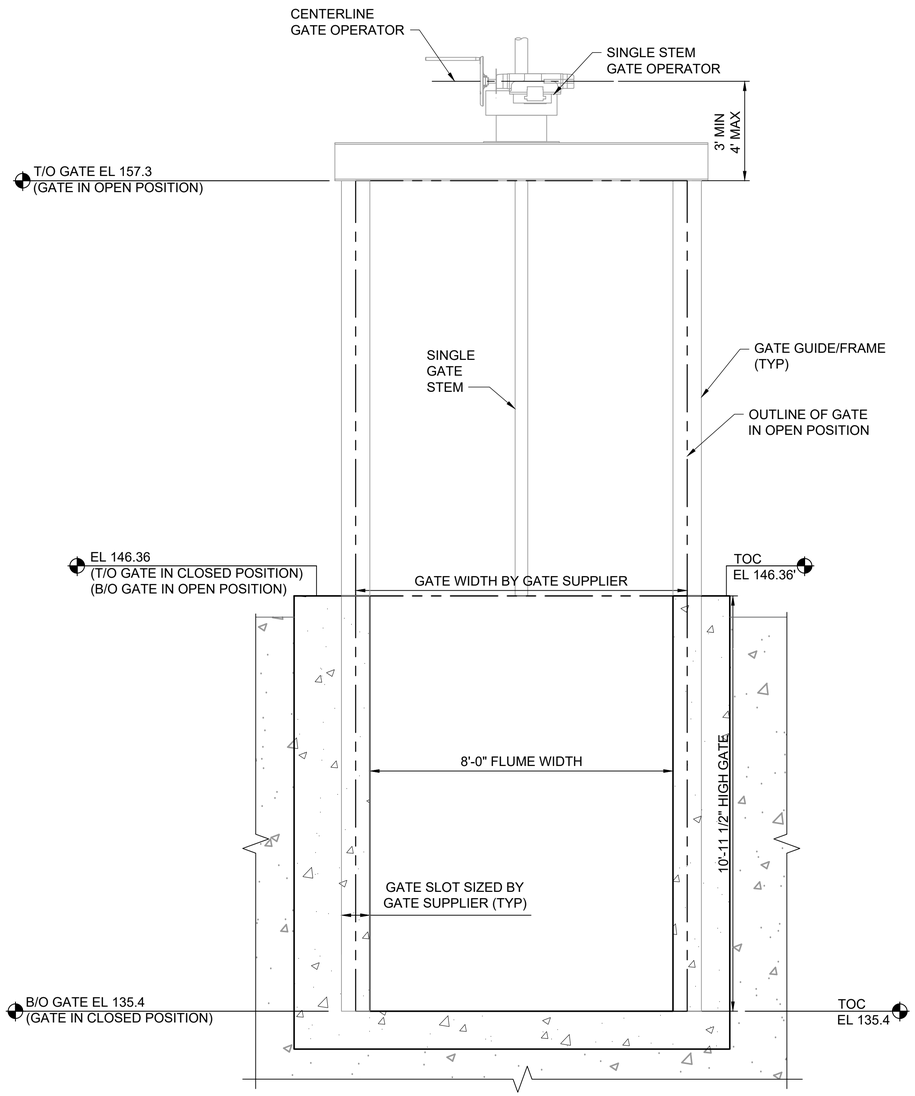
0 1' 2'

1/4" PERFORATED
PLATE, 1/2" Ø HOLES,
50% POROSITY



ENLARGED PLAN
SCALE: 3/8"=1'

0 2' 4'



A - EXIT FLUME ISOLATION GATE
SCALE: 1/2"=1'-0"

0 2' 4'

NOTES:

1. GENERAL OVERVIEW OF EXIT FLUME ENTRANCE ISOLATION GATE (IG-6):
   - SIZE OF OPENING, 8.00'W x 10.96'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
2. HEADPOND ELEVATIONS:
   - DESIGN LOW 144.0 FT
   - NORMAL 144.6 FT
   - DESIGN HIGH 145.4 FT
3. APPROXIMATE BLOCKOUT DIMENSIONS SHOWN FOR GATE IG-6. UPDATE WITH ACTUAL BLOCKOUT DIMENSIONS FOR GATE SUPPLIED.

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5/2/2025	ISSUED FOR BID	M. GRAESER

VERIFY SCALE
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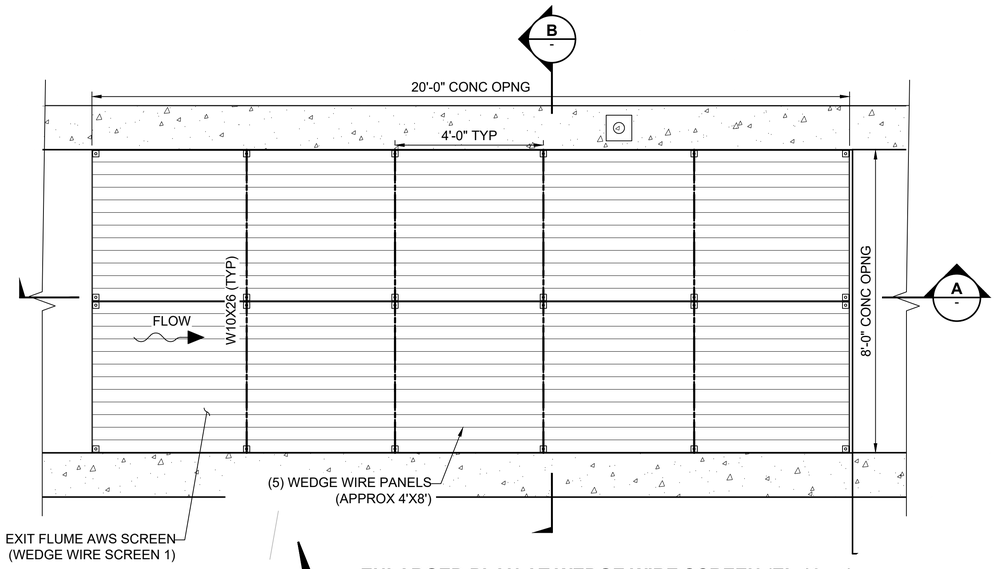
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME ISOLATION GATE (IG-6)

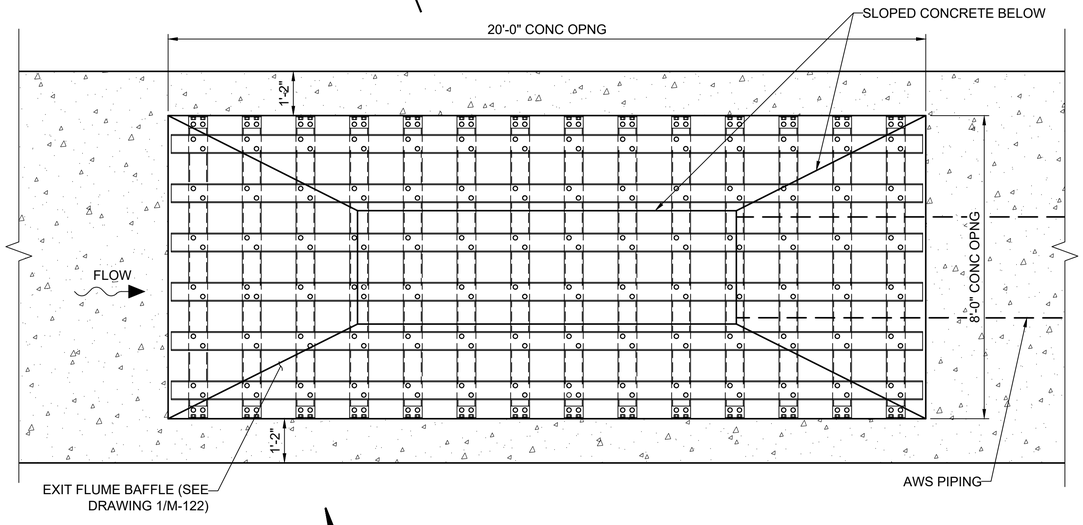
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	219 OF 240
DRAWING:	M-120



ENLARGED PLAN AT WEDGE WIRE SCREEN (EL 135.4)

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

1' 0 1' 2'



ENLARGED PLAN AT BAFFLE (EL 134.1)

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

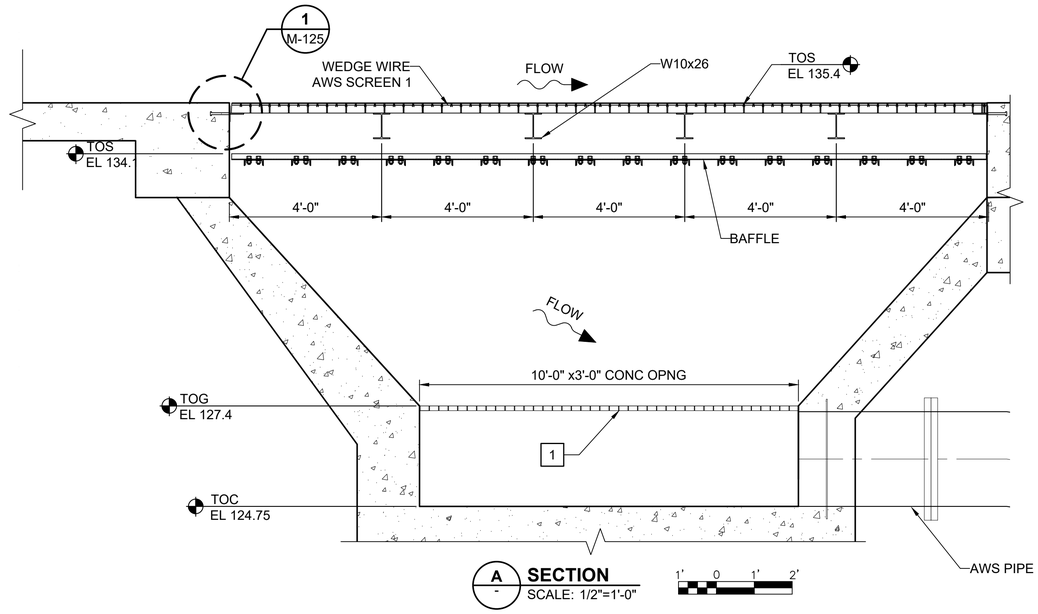
1' 0 1' 2'

KEYED NOTES:

1. GALVANIZED STEEL GRATING, 1½"x3/16" BEARING BARS @ 1 3/16" O.C. AND CROSS BARS @ 4" O.C. BAND ALL EDGES OF GRATING. USE SADDLE CLIPS, MINIMUM 4 PER PANEL.
2. GRATING SUPPORT TYPE 2 (2 / S-503)

NOTES:

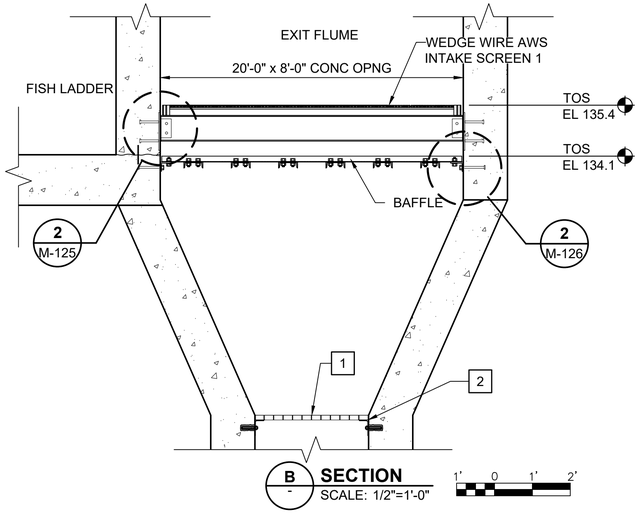
1. PROVIDE AIR BURST SYSTEM. SEE SPECIFICATION 35 20 13 FOR DETAILS.
2. WIRE ORIENTATION SHALL BE PARALLEL TO FLOW. THE SCREEN SHALL BE MOUNTED FLUSH WITH THE STRUCTURE AND NO GAPS GREATER THAN 1/4 INCH.
3. COORDINATE WITH MANUFACTURER FOR ANY REQUIRED SPACERS BETWEEN THE SCREENS. MANUFACTURER SHALL PROVIDE DETAIL FOR SMOOTH TRANSITION BETWEEN WEDGE WIRE SCREEN PANELS.
4. BAFFLES, CONNECTIONS, EMBEDS, AND BOLTS SHALL BE GALVANIZED STEEL.



A - SECTION

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

1' 0 1' 2'



B - SECTION

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

1' 0 1' 2'

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WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME AWS SCREEN AND BAFFLE

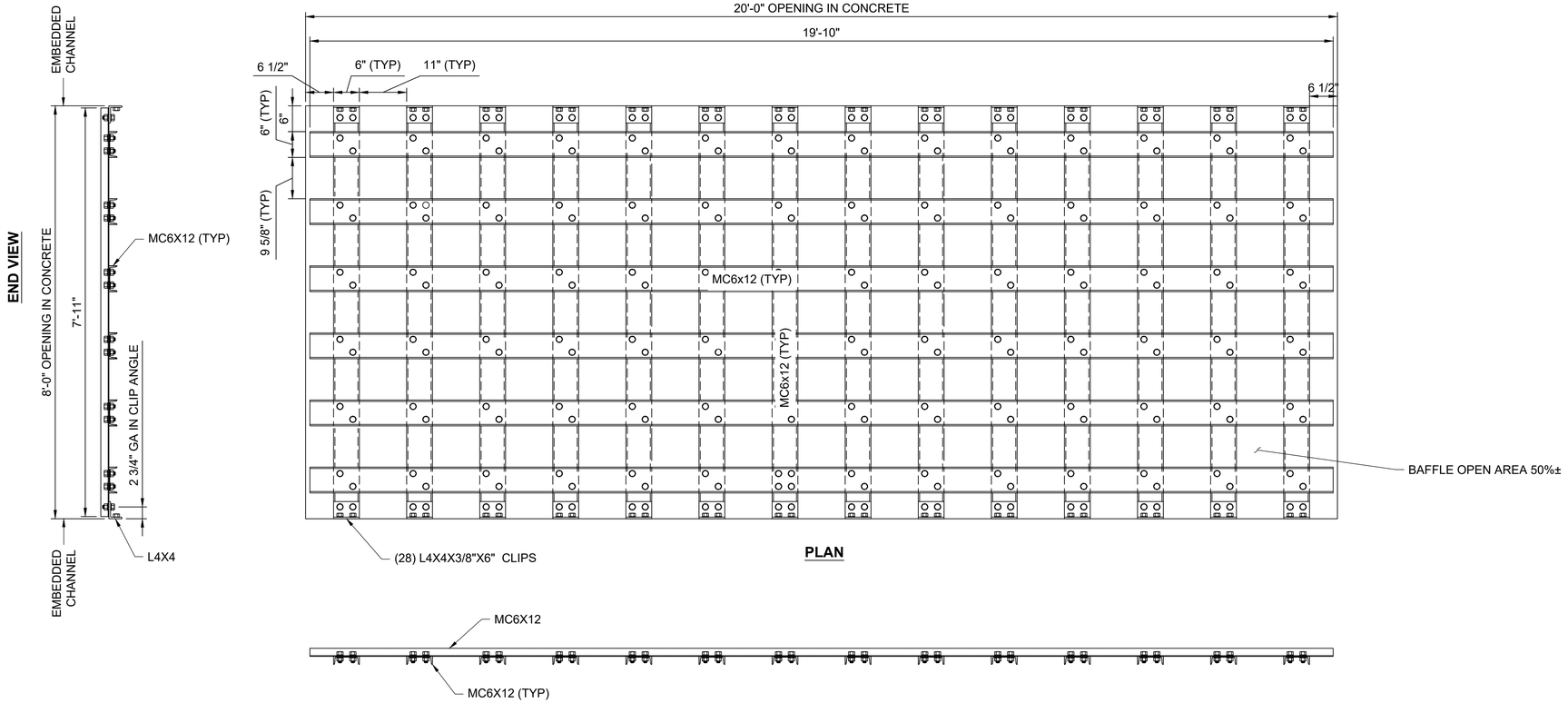
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	220 OF 240
DRAWING:	M-121

NOTE:

1. BAFFLES, CONNECTIONS, EMBEDS, AND BOLTS SHALL BE GALVANIZED STEEL.

EMBEDMENT NOTE:

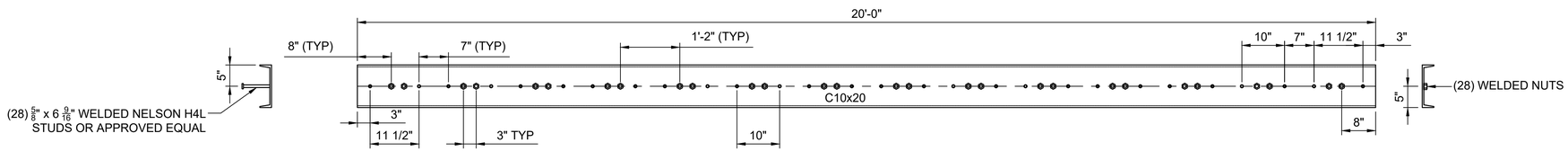
1. NUTS WELDED TO STRUCTURAL MEMBERS SHALL BE 3/4" DIAMETER, 10 TPI (UNO)-ALL AROUND FILLET WELD.



1 EXIT FLUME BAFFLE DETAIL

M-122 SCALE: 3/4"=1'-0"

0 1' 2'



2 EMBEDMENT (2 LOCS, ONE AS SHOWN - ONE OPP HAND)

- SCALE: 3/4"=1'-0"

0 1' 2'

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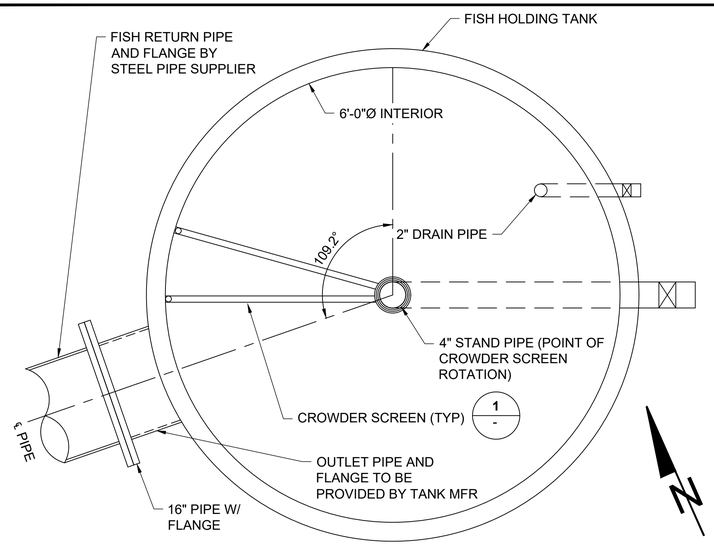
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME BAFFLE AND EMBEDMENT

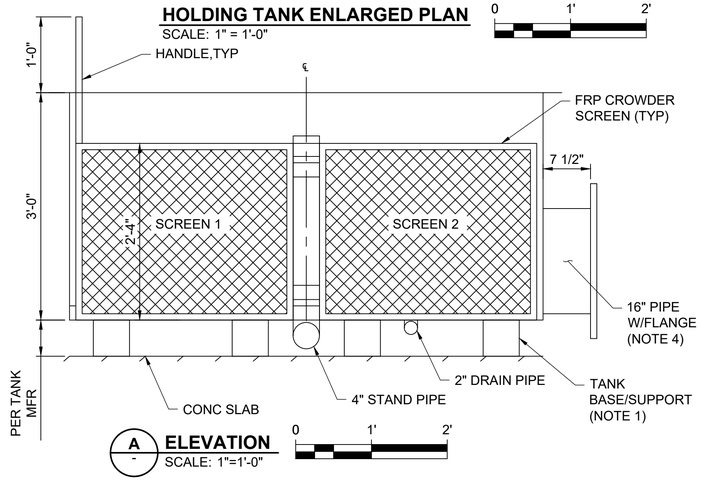
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	221 OF 240
DRAWING:	M-122



HOLDING TANK ENLARGED PLAN

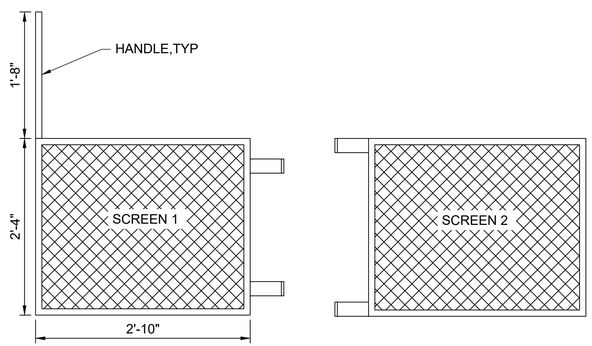
SCALE: 1" = 1'-0"

0 1' 2'



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

0 1' 2'

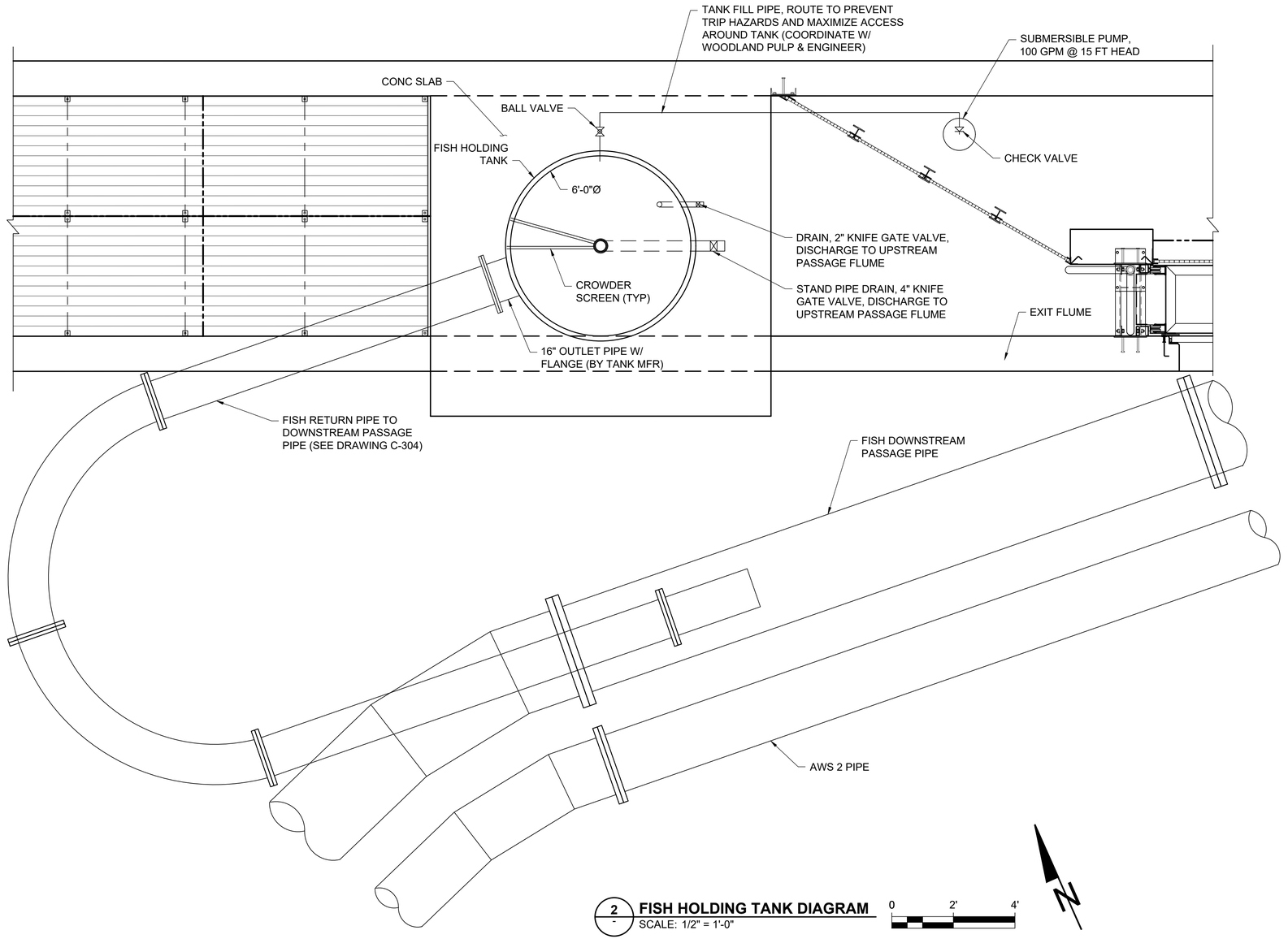


1 **FRP REMOVABLE CROWDER SCREEN**
SCALE: 1"=1'-0"

0 1' 2'

NOTES:

1. TANK MANUFACTURER TO PROVIDE ANCHORAGE TO CONCRETE SLAB. ANCHORAGE SHALL BE GALV. OR STAINLESS STEEL.
2. TANK MANUFACTURER SHALL BE AQUA TANK SOLUTIONS OR APPROVED EQUAL.
3. TANK AND ACCESSORIES SHALL BE FRP.
4. OUTLET PIPE FLANGE BOLT PATTERN SHALL MATCH FISH RETURN STEEL PIPE FLANGE BOLT PATTERN.
5. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SECTION 01 33 00.
6. SUBMIT FABICATION DRAWINGS OF FRP TANK AND ACCESSORIES. INCLUDE PLANS, SECTIONS, DETAILS AND BILL OF MATERIALS.
7. SUBMIT MANUFACTURERS INSTALLATION INSTRUCTIONS.
8. EXPOSED SURFACES SHALL BE SMOOTH.
9. AFTER FABRICATION, SEAL CUT ENDS, HOLES, AND ABRASIONS OF FRP ITEMS WITH A COMPATIBLE RESIN COATING TO PREVENT INTRUSION OF MOISTURE.



2 **FISH HOLDING TANK DIAGRAM**
SCALE: 1/2" = 1'-0"

0 2' 4'

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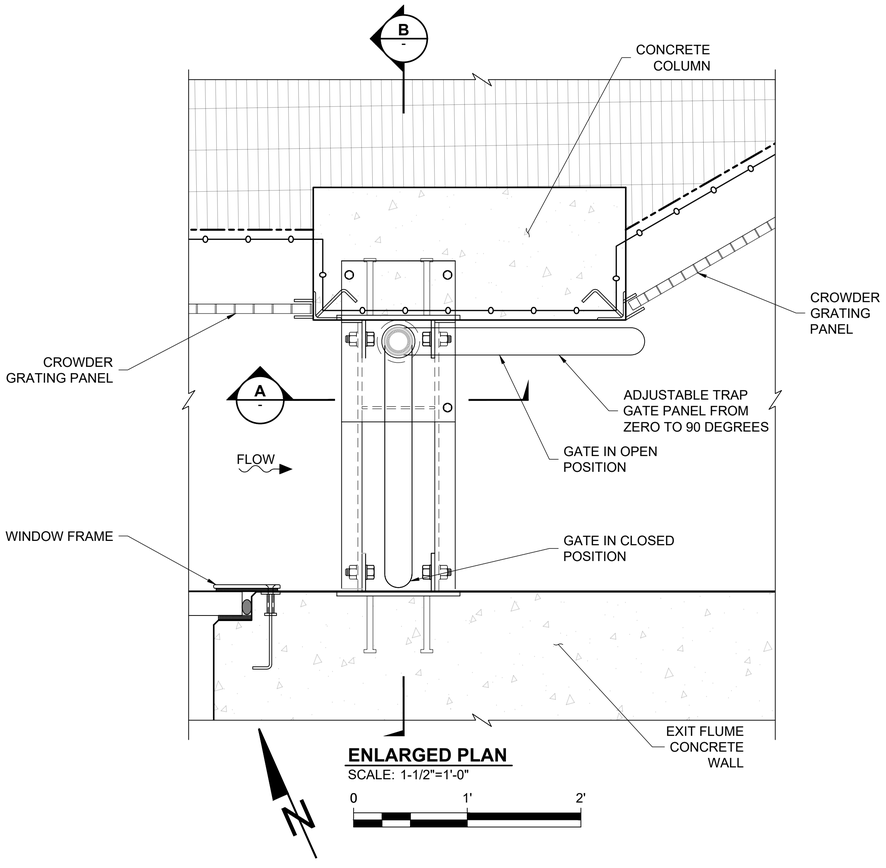
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

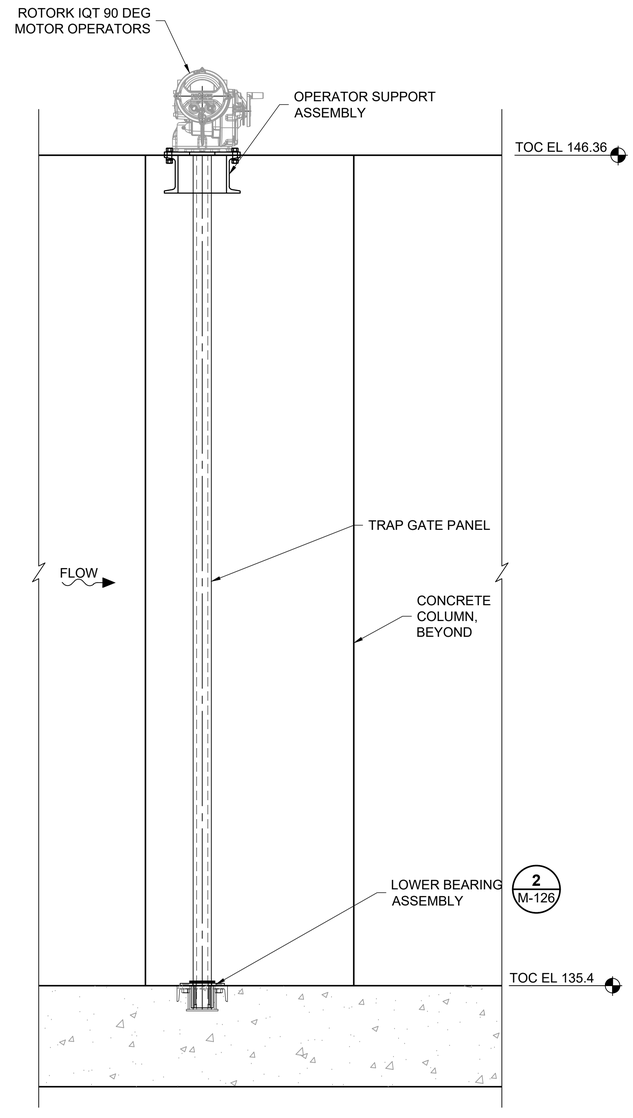
FISH HOLDING TANK

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	222 OF 240
DRAWING:	M-123



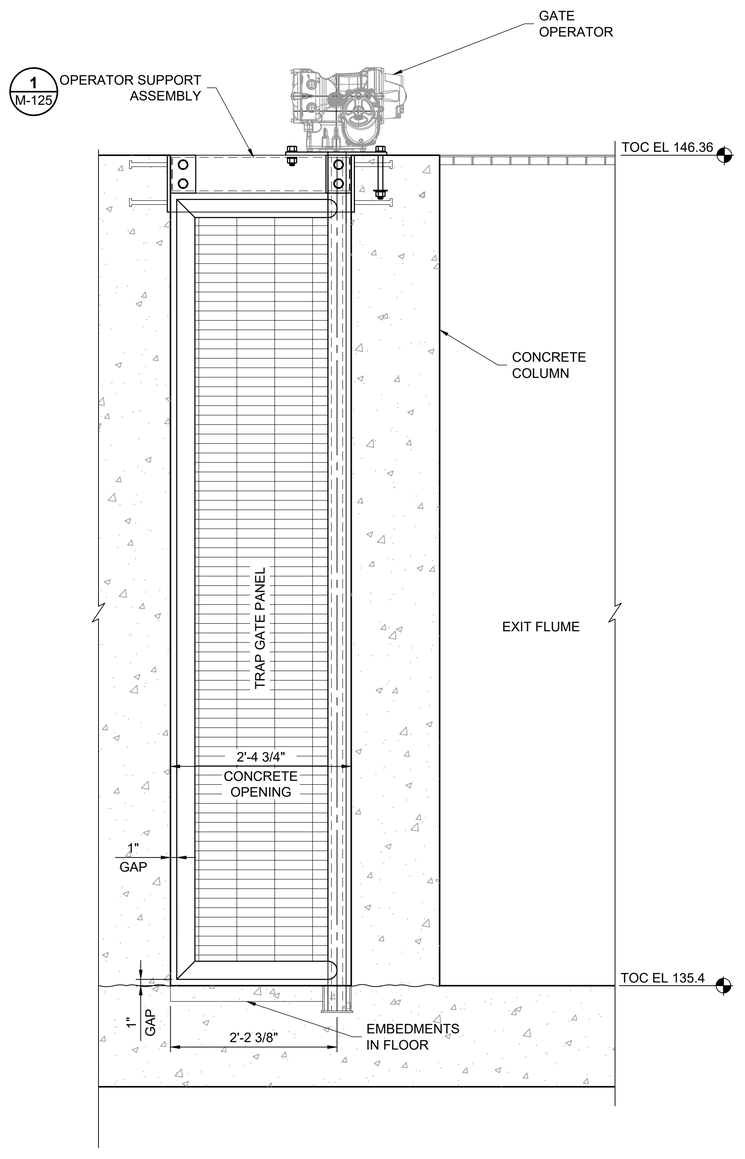
ENLARGED PLAN
SCALE: 1-1/2"=1'-0"

0 1' 2'



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

0 1' 2'



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

0 1' 2'

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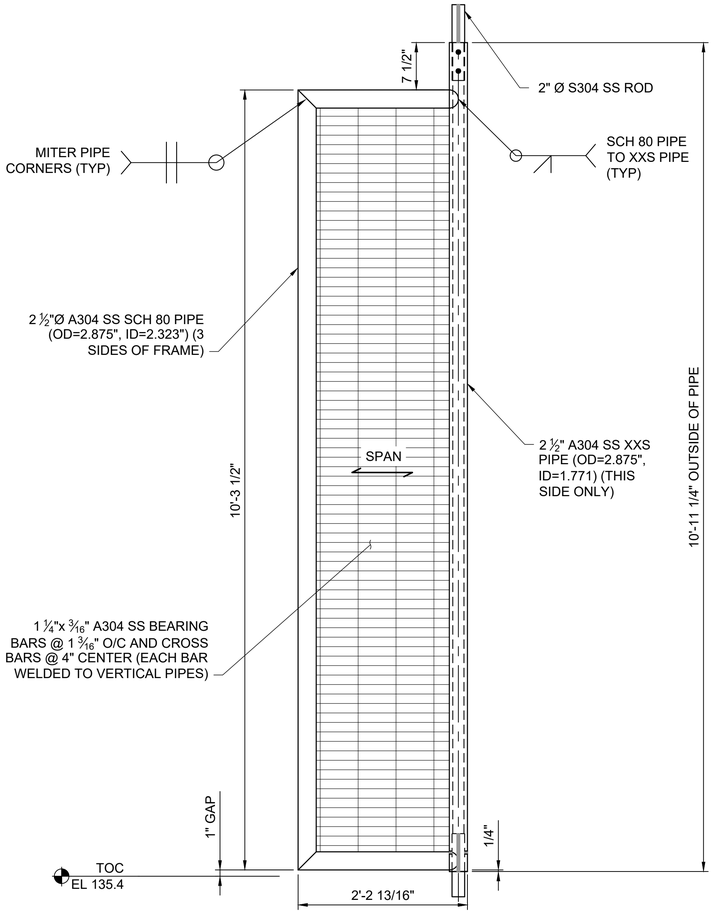
WOODLAND FISH LIFT PASSAGE DESIGN

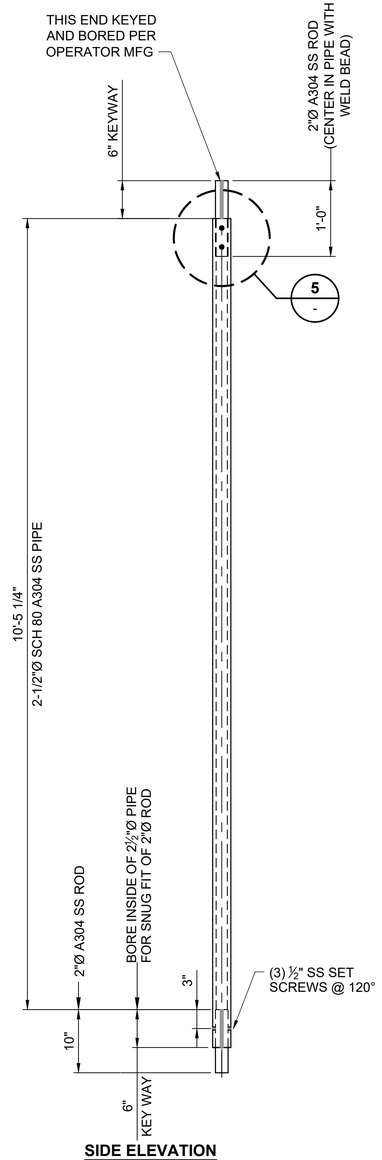
MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME TRAP GATE (TG-18 & TG-19)
PLAN AND SECTIONS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	223 OF 240
DRAWING:	M-124



FRONT ELEVATION



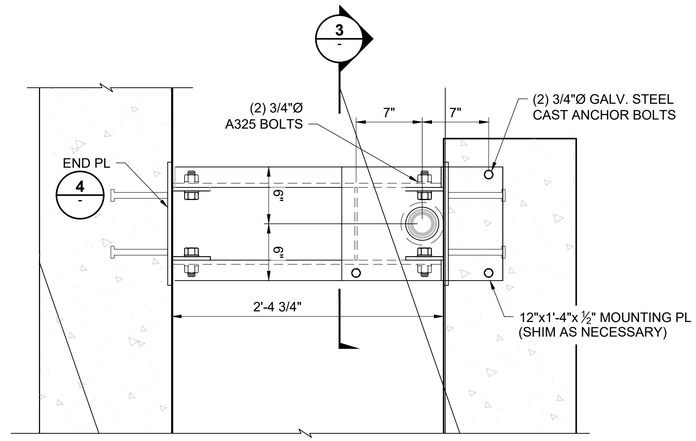
SIDE ELEVATION

1 TRAP GATE PANEL (2 REQUIRED)
SCALE: 1"=1'-0"

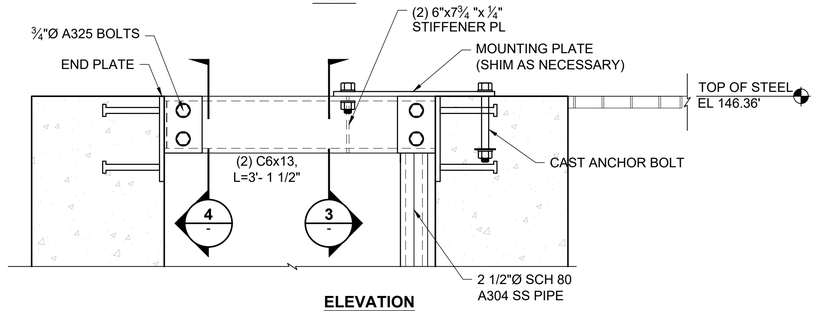
0 1' 2'

2 OPERATING STEM (2 REQUIRED)
SCALE: 3/4"=1'-0"

0 1' 2'



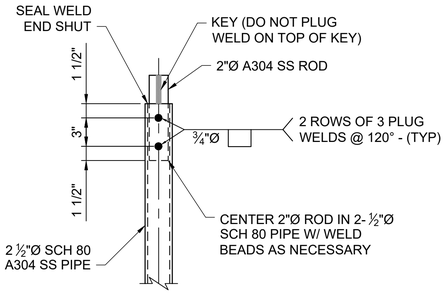
PLAN



ELEVATION

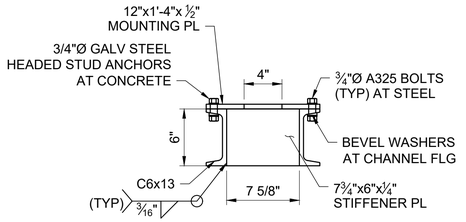
1 OPERATOR SUPPORT ASSEMBLY (2 REQUIRED)
S-124 SCALE: 1 1/2"=1'-0"

0 1' 2'



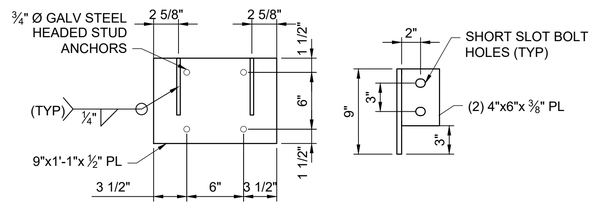
5 OPERATING SUPPORT ASSEMBLY
SCALE: 1-1/2"=1'-0"

0 1' 2'



3 STIFFENER DETAIL
SCALE: 1 1/2"=1'-0"

0 1' 2'



4 END PLATE DETAIL (4 REQUIRED)
SCALE: 1 1/2"=1'-0"

0 1' 2'

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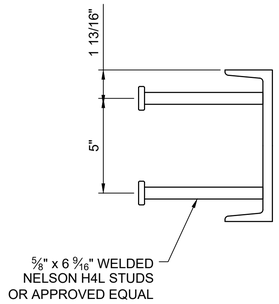
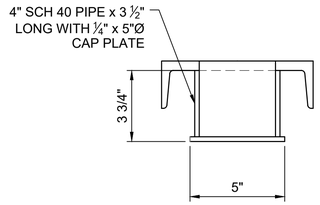
WOODLAND FISH LIFT PASSAGE DESIGN

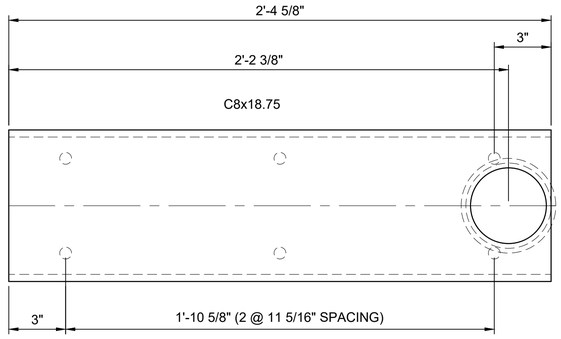
MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME TRAP GATE (TG-18 & TG-19)
OPERATOR SUPPORT ASSEMBLY

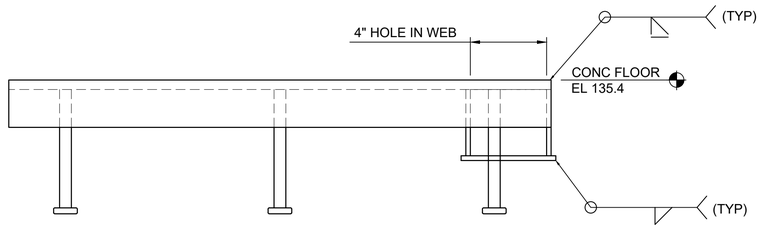
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	224 OF 240
DRAWING:	M-125







PLAN



ELEVATION

1 - TRAP GATE FLOOR EMBEDMENT (2 LOC)

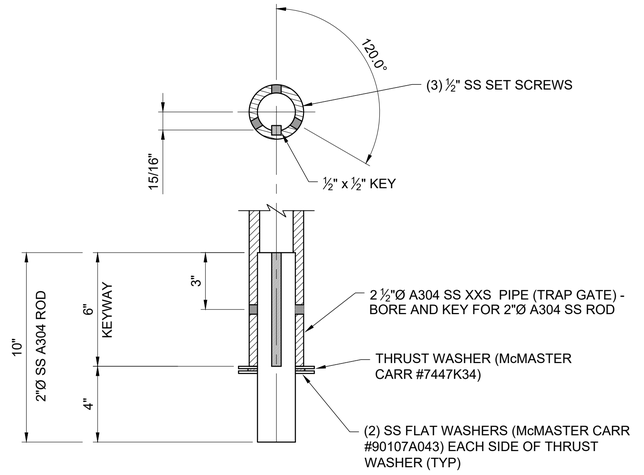
SCALE: 3"=1'-0"

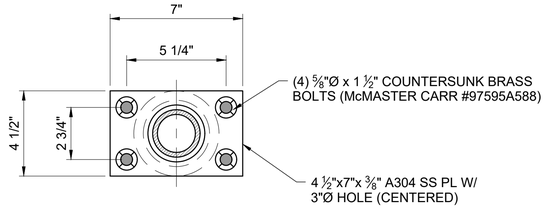
0 6" 1'

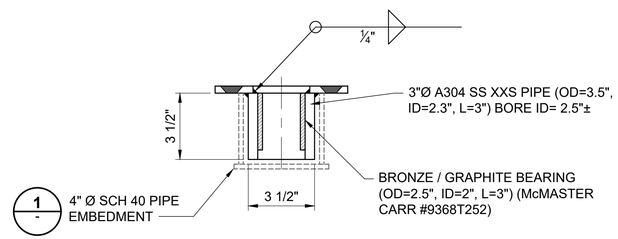
3 - EMBEDMENT

SCALE: 3"=1'-0"

0 6" 1'







2 M-124 - LOWER BEARING ASSEMBLY (2 REQUIRED)

SCALE: 3"=1'-0"

0 6" 1'

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WOODLAND FISH LIFT PASSAGE DESIGN

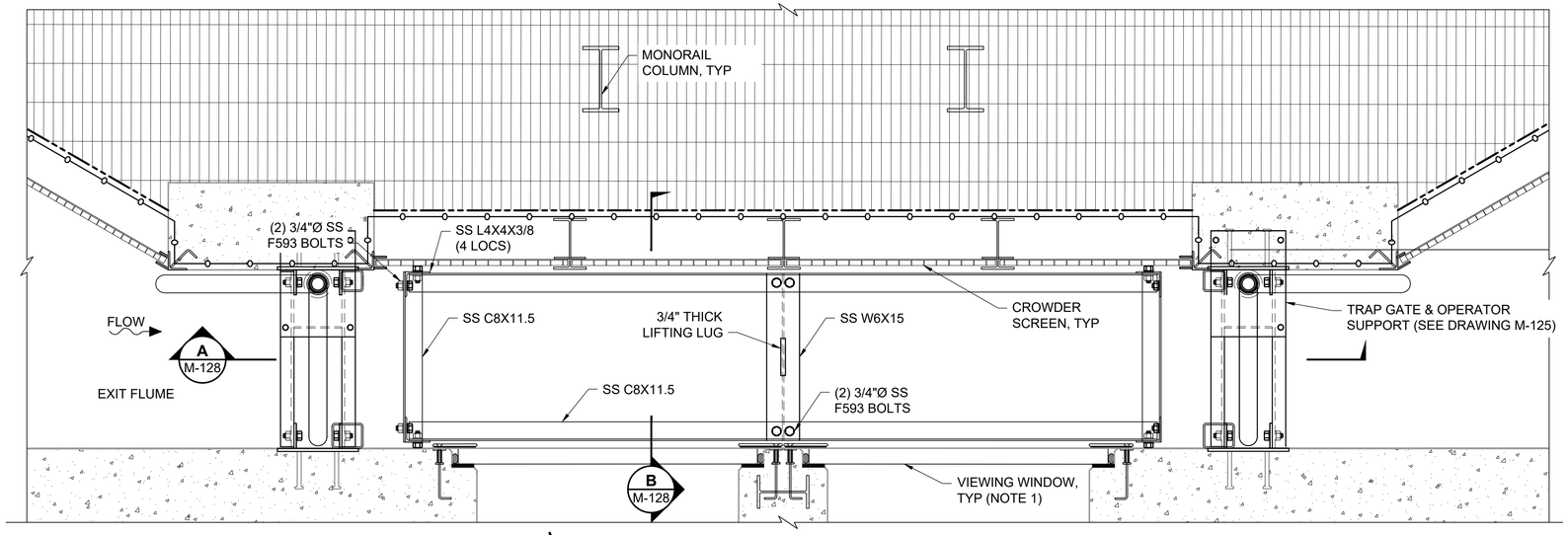
MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME TRAP GATE (TG-18 & TG-19)
EMBEDMENT AND BEARING DETAILS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	225 OF 240
DRAWING:	M-126

NOTES:

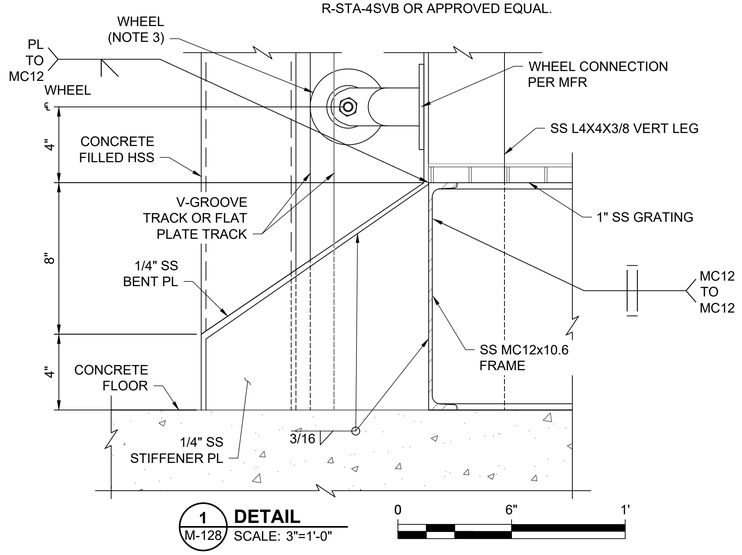
1. COUNTING BUILDING NOT SHOWN FOR CLARITY.
2. STAINLESS STEEL GRATING 1" X 3⁄16" BEARING BARS @ 1 3⁄16" O.C. AND CROSS BARS @ 4" O.C. BAND ALL EDGES OF GRATING. WELD TO THE FRAME.
3. WHEELS SHALL BE HAMILTON V-GROOVED WHEEL MODEL R-STA-4SVB OR APPROVED EQUAL.



RAISABLE FLOOR TOP PLAN VIEW

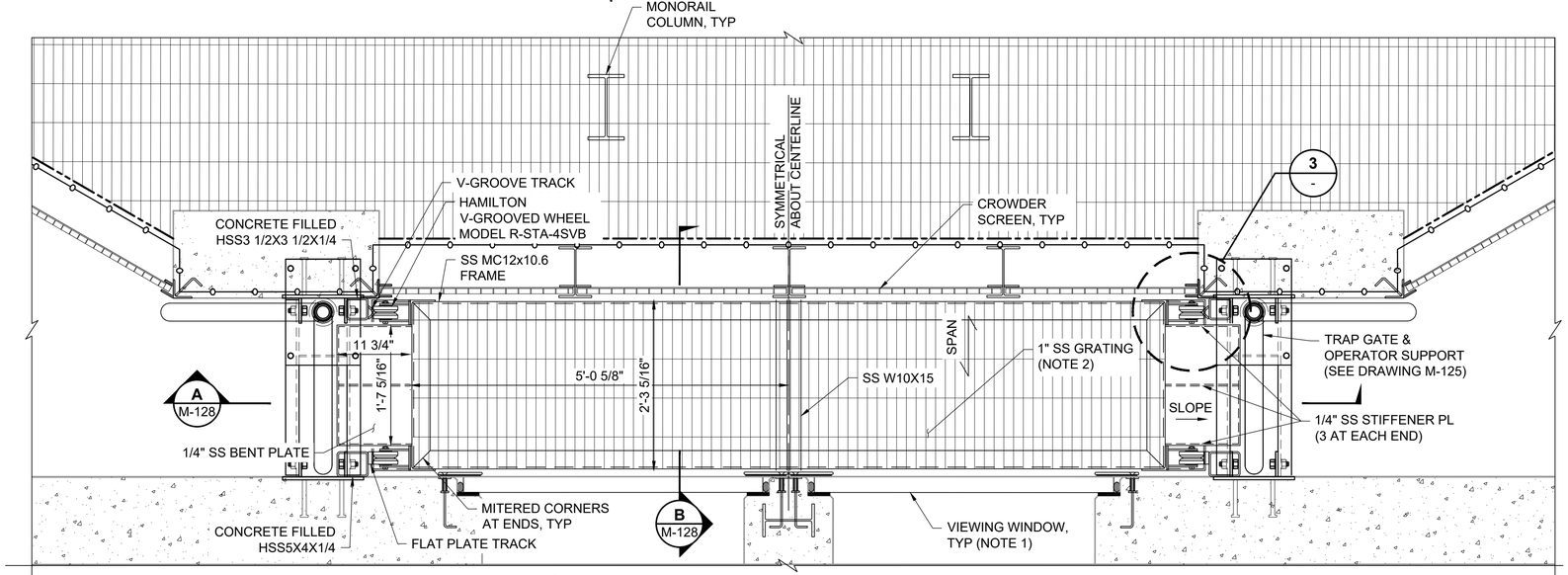
SCALE: 1"=1'-0"

0 1' 2'



1 M-128 DETAIL SCALE: 3"=1'-0"

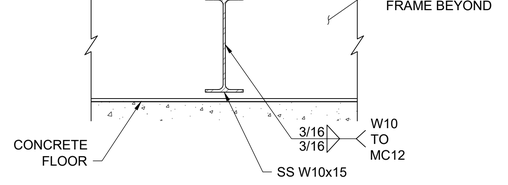
0 6" 1'



RAISABLE FLOOR PLAN VIEW

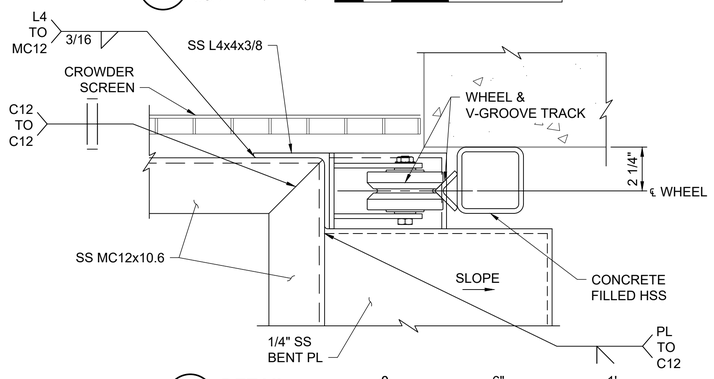
SCALE: 1"=1'-0"

0 1' 2'



2 M-128 DETAIL SCALE: 1 1/2"=1'-0"

0 1' 2'



3 - DETAIL SCALE: 3"=1'-0"

0 6" 1'

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5/2/2025	ISSUED FOR BID	M. GRAESER

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WOODLAND FISH LIFT PASSAGE DESIGN

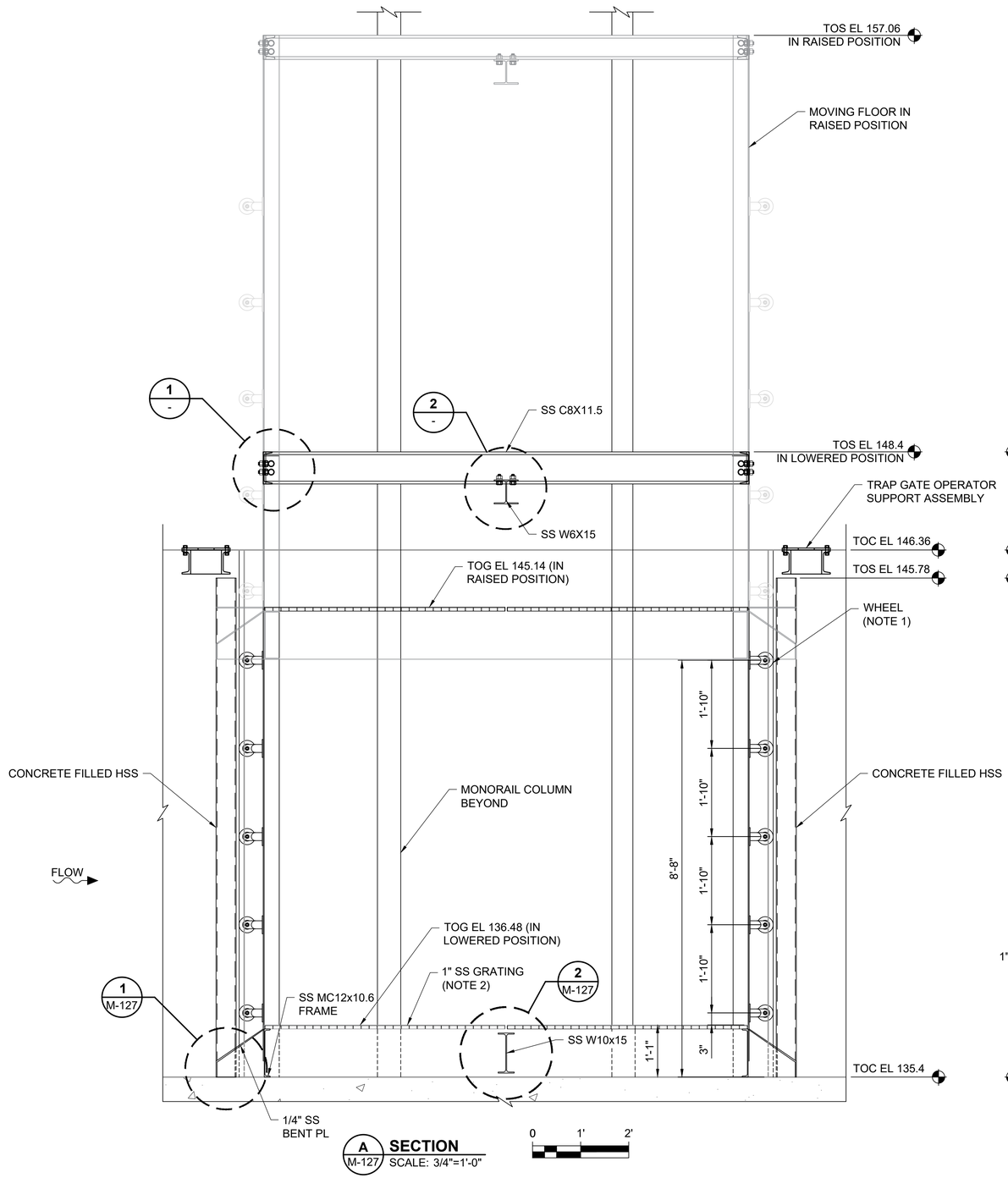
MAINE DEPARTMENT OF MARINE RESOURCES

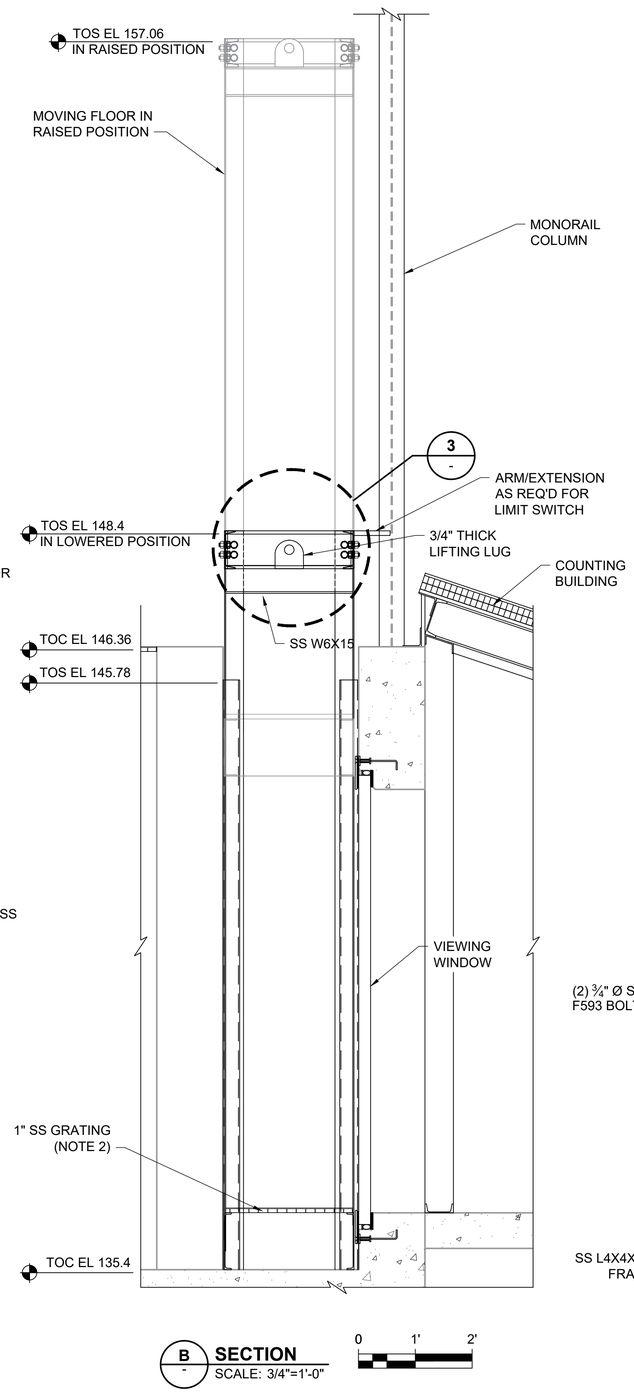
MOVING FLOOR PLANS AND DETAILS

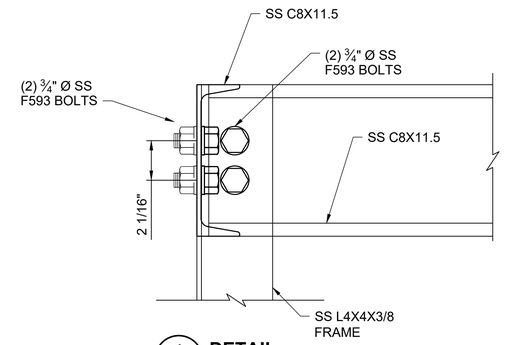
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	226 OF 240
DRAWING:	M-127

NOTES:

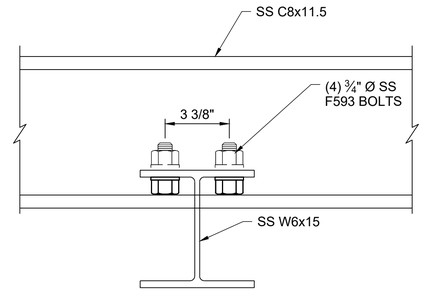
1. WHEELS SHALL BE HAMILTON V-GROOVED WHEEL MODEL R-STA-4SVB OR APPROVED EQUAL.
2. STAINLESS STEEL GRATING 1" X 3/16" BEARING BARS @1 3/16" O.C. AND CROSS BARS @ 4" O.C. BAND ALL EDGES OF GRATING. WELD TO THE FRAME.



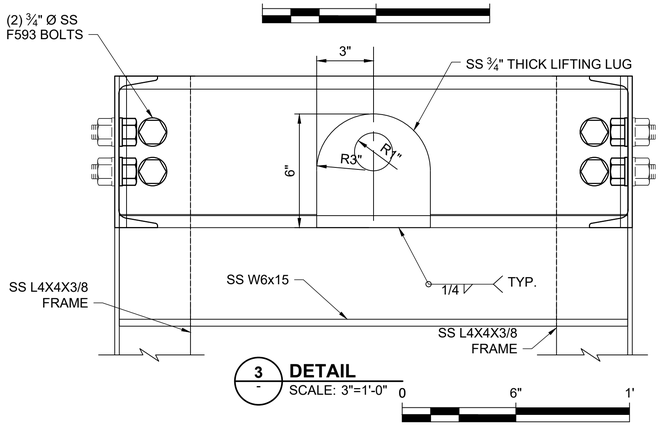




1 - **DETAIL**
SCALE: 3"=1'-0"
0 6" 1'



2 - **DETAIL**
SCALE: 3"=1'-0"
0 6" 1'



3 - **DETAIL**
SCALE: 3"=1'-0"
0 6" 1'

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WOODLAND FISH LIFT PASSAGE DESIGN

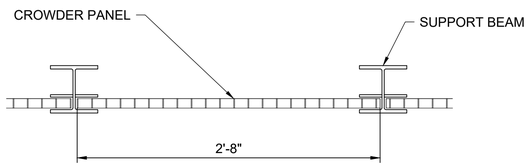
MAINE DEPARTMENT OF MARINE RESOURCES

MOVING FLOOR SECTIONS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	227 OF 240
DRAWING:	M-128

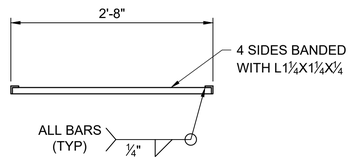
NOTES:

1. 4 SCREENS SHALL HAVE REMOVABLE WHITE FIBERGLASS PANEL INSERTS.
2. ALL CARBON STEEL ITEMS SHALL BE GALVANIZED.
3. WEIGHT OF GRATING SCREEN = 230 LBS.

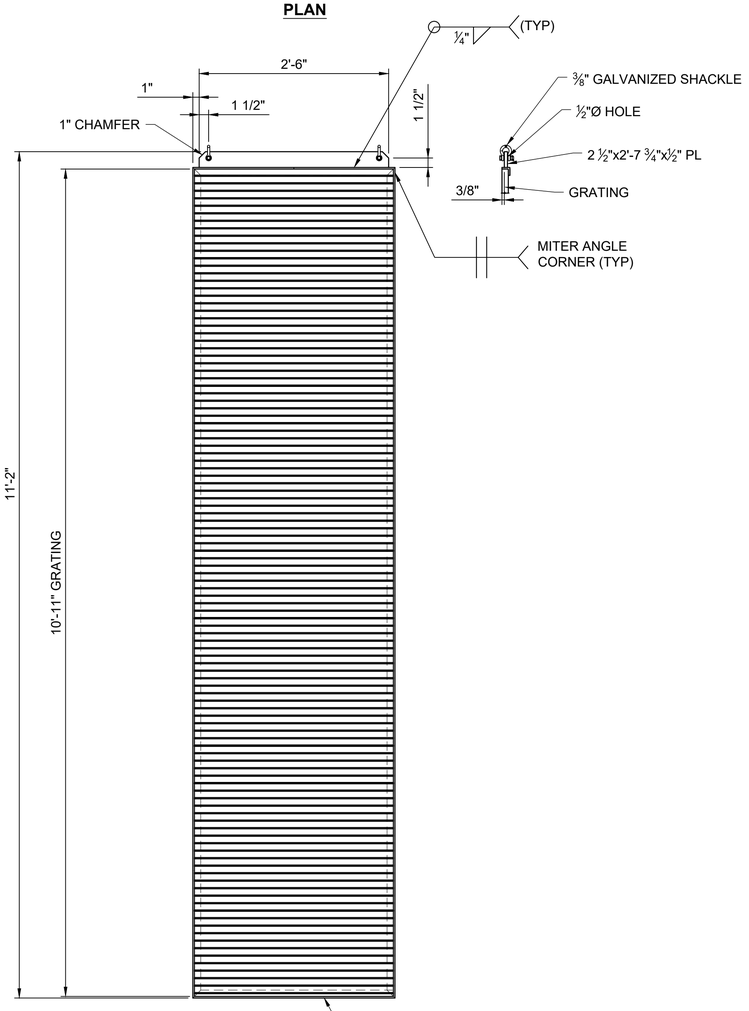


ENLARGED AREA PLAN
SCALE: 1 1/2"=1'-0"

0 1' 2'



PLAN



ELEVATION

CROWDER REMOVABLE SCREEN PANELS (12 REQUIRED)
SCALE: 1"=1'

0 1' 2'

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WOODLAND FISH LIFT PASSAGE DESIGN

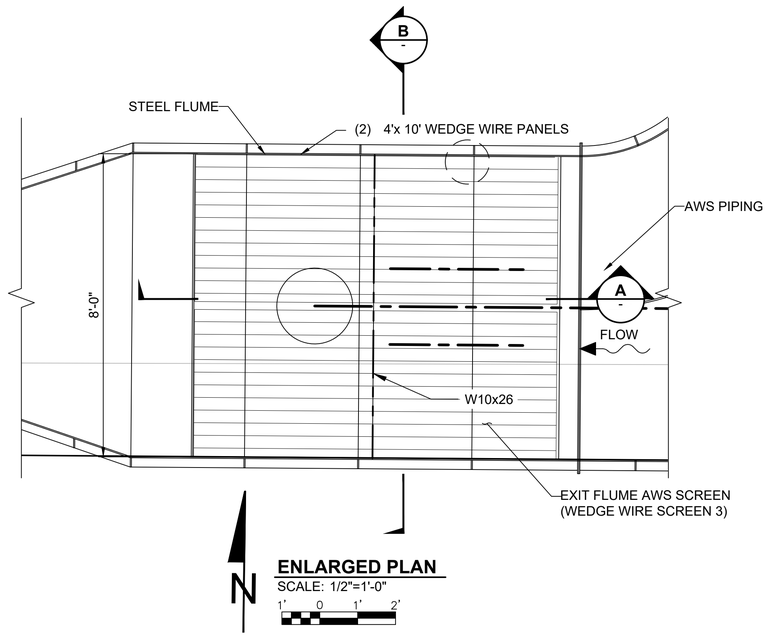
MAINE DEPARTMENT OF MARINE RESOURCES

CROWDER SCREEN DETAILS

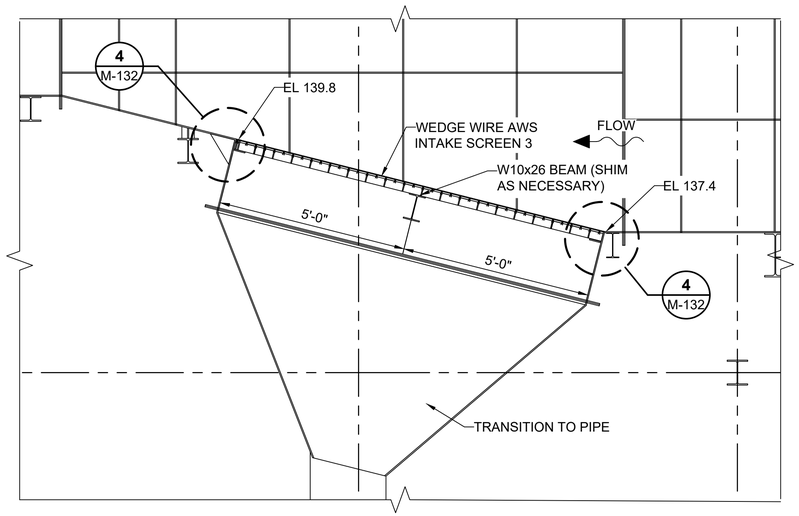
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	228 OF 240
DRAWING:	M-129

NOTES:

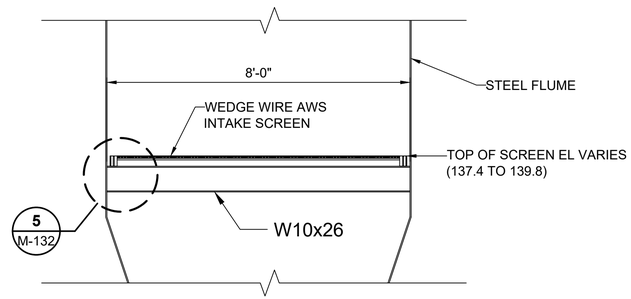
1. PROVIDE AIR BURST SYSTEM. SEE SPECIFICATION 35 20 13 FOR DETAILS.
2. WIRE ORIENTATION SHALL BE PARALLEL TO FLOW. THE SCREEN SHALL BE MOUNTED FLUSH WITH THE STRUCTURE AND NO GAPS GREATER THAN 1/4 INCH.
3. COORDINATE WITH MANUFACTURER FOR ANY REQUIRED SPACERS BETWEEN THE SCREENS. MANUFACTURER SHALL PROVIDE DETAIL FOR SMOOTH TRANSITION BETWEEN WEDGE WIRE SCREEN PANELS.



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



A **SECTION**
SCALE: 1/2"=1'-0" 2'
1' 0 1'



B **SECTION**
SCALE: 1/2"=1'-0"
1' 0 1' 2'

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WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

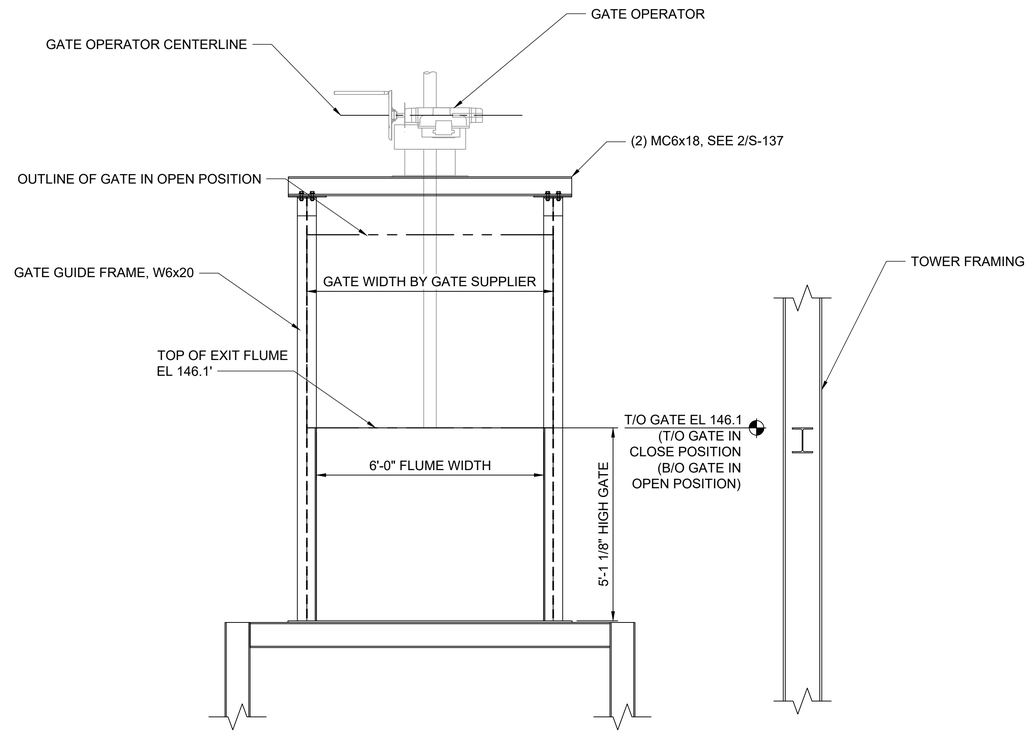
EXIT FLUME WEDGE WIRE SCREEN 3

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	229 OF 240
DRAWING:	M-130

NOTES:

1. GENERAL OVERVIEW OF EXIT FLUME BYPASS ISOLATION GATE (IG-10)
   - SIZE OF OPENING, 6.00'W x 5.10'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
2. FLUME WATER ELEVATIONS:
   - LOW WSL 144.0'
   - NORMAL WSL 144.6'
   - HIGH WSL 145.4'

EXIT FLUME ENLARGED PLAN
SCALE: 1/4"=1'-0"
0 4' 8'



A EXIT FLUME ISOLATION GATE
SCALE: 1/2"=1'-0"
0 2' 4'

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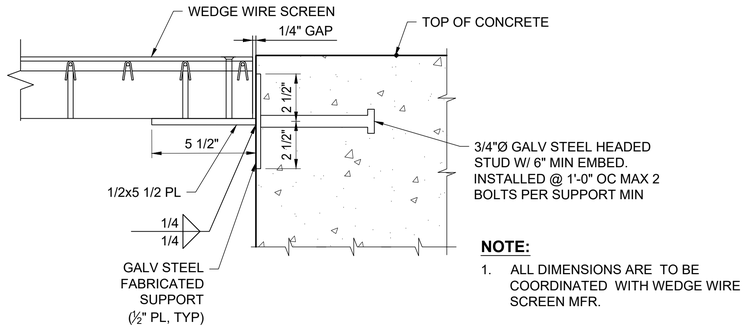
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME ISOLATION GATE (IG-10)

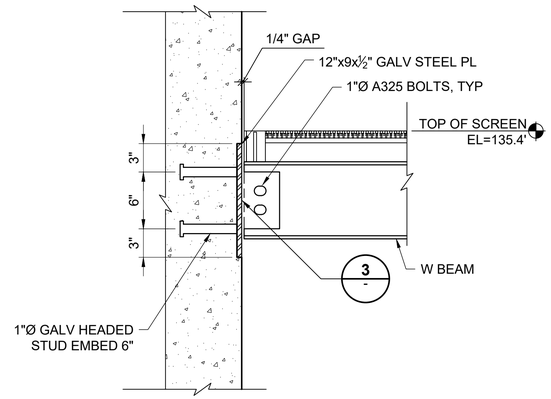
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	230 OF 240
DRAWING:	M-131



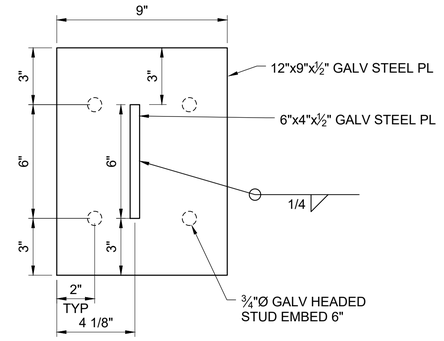
NOTE:

1. ALL DIMENSIONS ARE TO BE COORDINATED WITH WEDGE WIRE SCREEN MFR.

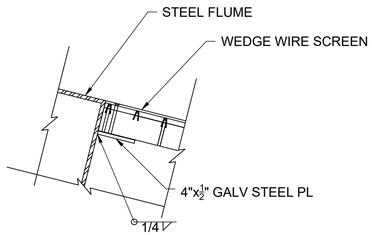
1 M-122 WEDGE WIRE SCREEN SUPPORT
SCALE: 3"=1'-0"
0 6" 1'



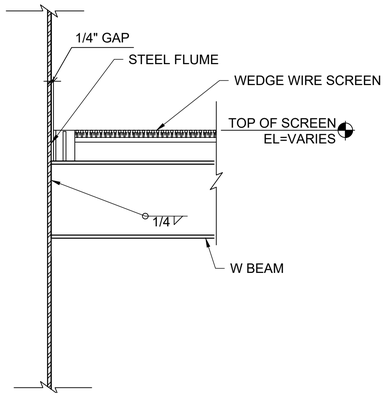
2 M-122 CONNECTION SECTION
SCALE: 1-1/2"=1'-0"
0 1' 2'



3 - CONNECTION PLATE DETAIL
SCALE: 3"=1'-0"
0 6" 1'



4 M-130 M-161 CONNECTION SECTION
SCALE: 1-1/2"=1'-0"
0 1' 2'



5 M-130 M-161 CONNECTION SECTION
SCALE: 1-1/2"=1'-0"
0 1' 2'

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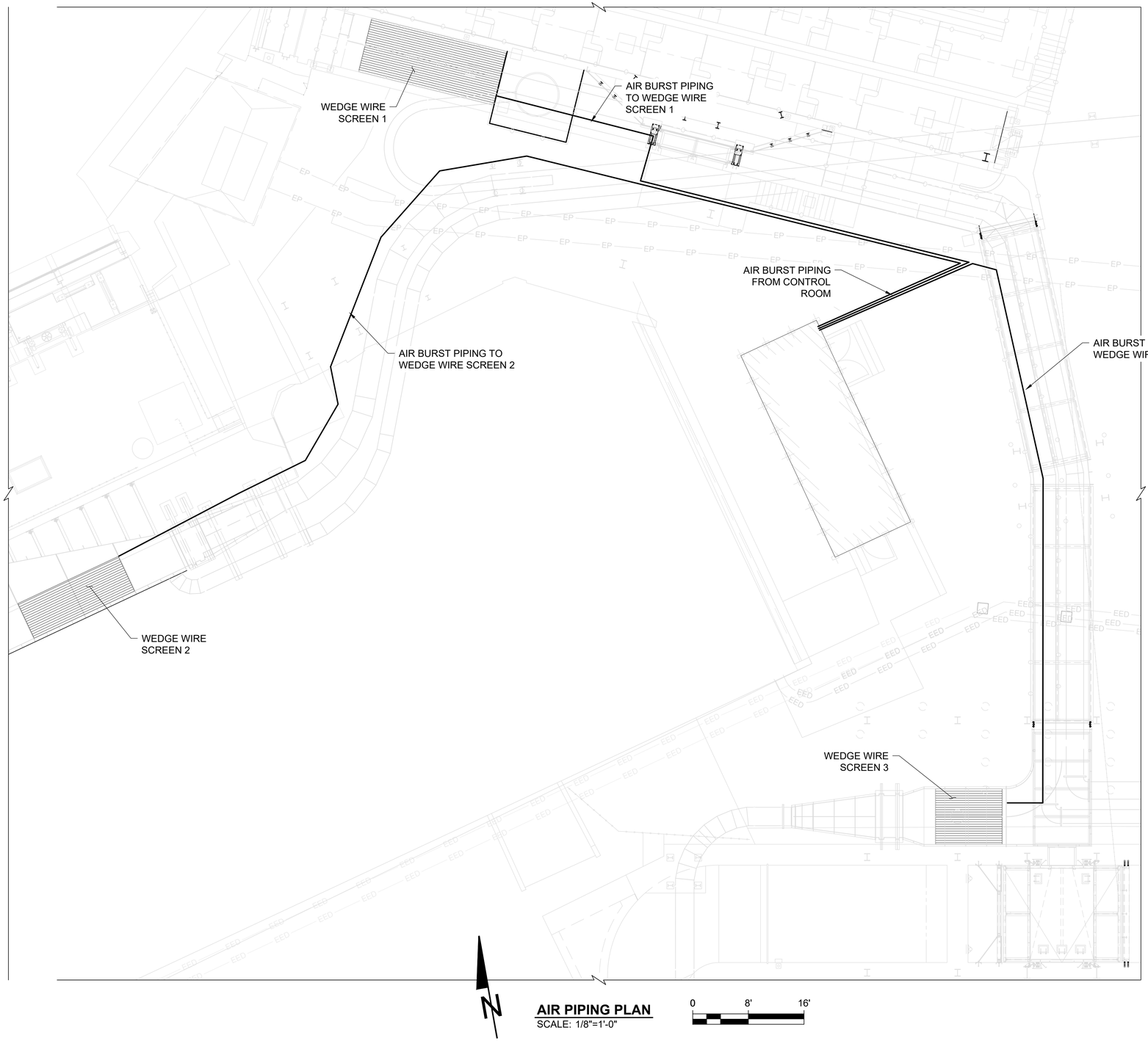
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

EXIT FLUME WEDGE WIRE SCREEN DETAILS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	231 OF 240
DRAWING:	M-132

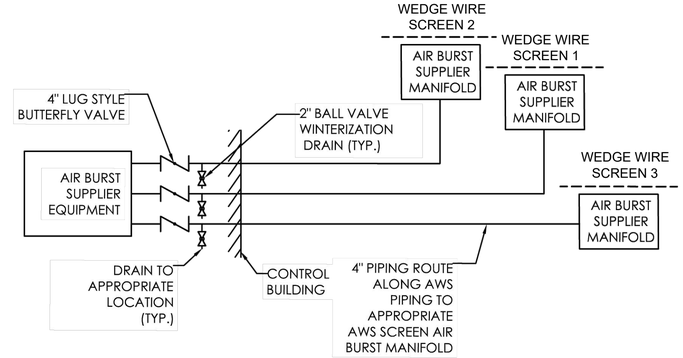


AIR PIPING PLAN
SCALE: 1/8"=1'-0"

0 8' 16'

NOTES:

1. AIR BURST PIPING TO BE 4" STAINLESS STEEL, COMPATIBLE WITH 150# CLASS FLANGES ON VENDOR SUPPLIED EQUIPMENT.
2. ADDITIONAL DETAILED SPECIFICATIONS TO BE PROVIDED BY AIR BURST SUPPLIER.
3. AIR BURST SYSTEM COMPONENTS SUPPLIED BY VENDOR TO BE ASSEMBLED IN ACCORDANCE WITH VENDOR SPECIFICATIONS.
4. AIR BURST PIPING SHOULD BE ROUTED ALONG AWS PIPING TOO UTILIZE SUPPORTS AS MUCH AS POSSIBLE.
5. AIR BURST PIPING TO BE INSTALLED TO FACILITATE DRAINING FOR WINTERIZING (SLOPED TO DRAINS IN CONTROL BUILDING.)



LINE DIAGRAM
SCALE: N.T.S.

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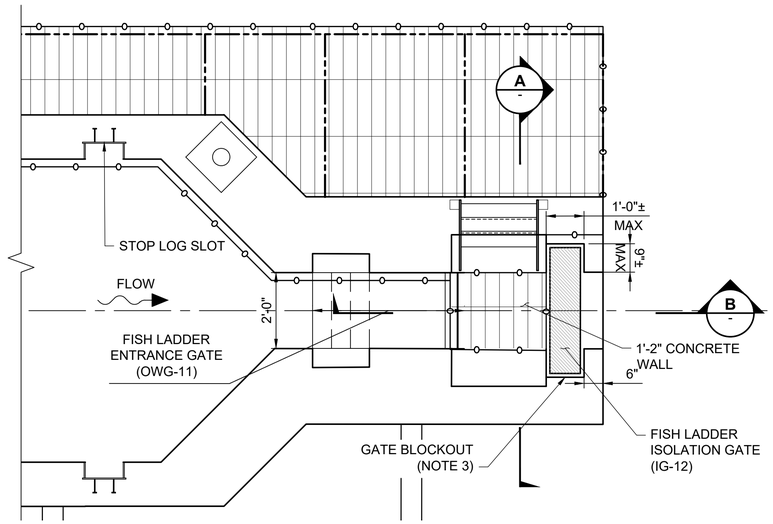
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

AIR BURST PIPE LAYOUT

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	232 OF 240
DRAWING:	M-133

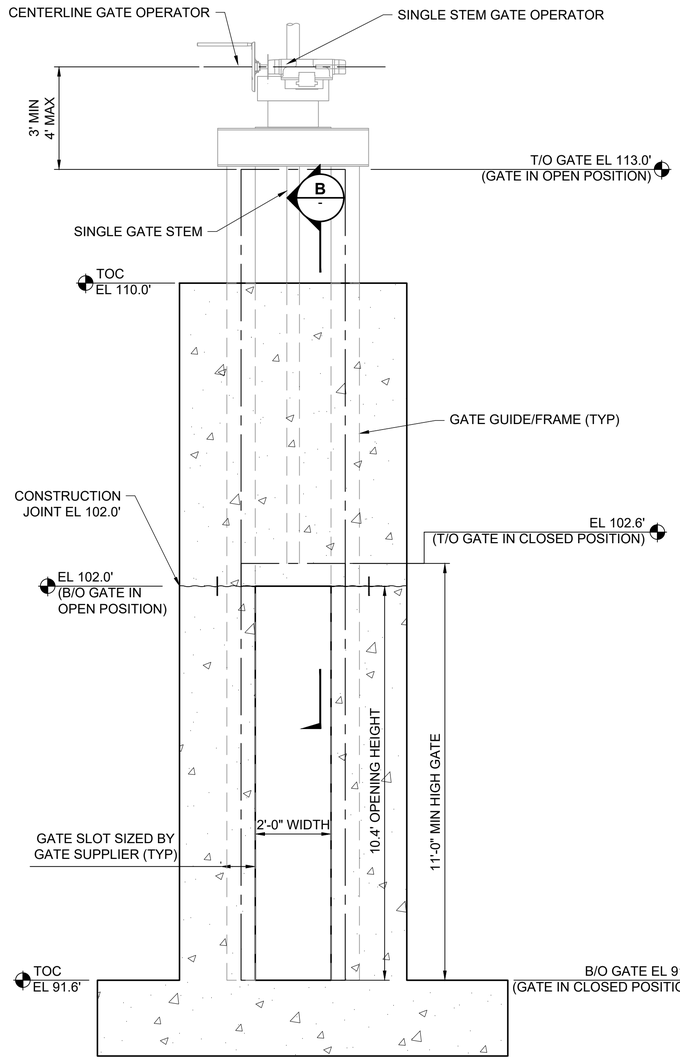


ENLARGED PLAN
SCALE: 1/2"=1'-0"

0 2' 4'

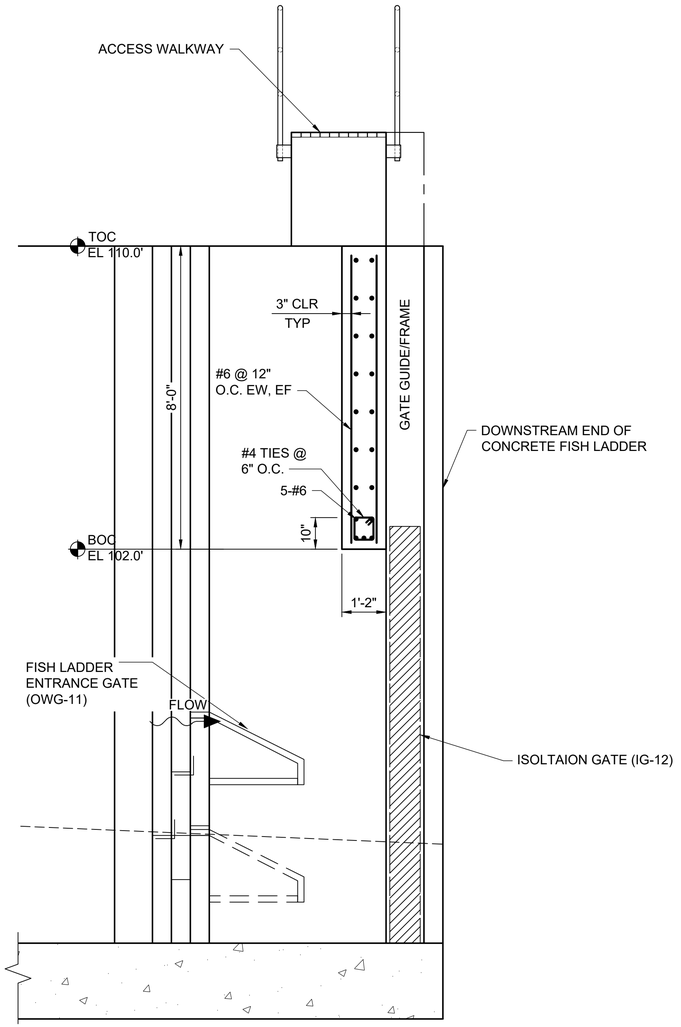
NOTES:

1. GENERAL OVERVIEW OF FISH LADDER ENTRANCE ISOLATION GATE (IG-12):
   - SIZE OF OPENING, 2.00'W x 10.4'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
   - MINIMUM GATE HEIGHT:11.0'
2. TAILWATER ELEVATIONS:
   - DESIGN LOW 95.6 FT
   - NORMAL 96.8 FT
   - DESIGN HIGH 99.7 FT
3. APPROXIMATE BLOCKOUT DIMENSIONS SHOWN FOR GATE IG-12. UPDATE WITH ACTUAL BLOCKOUT DIMENSIONS FOR GATE SUPPLIED.



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

0 2' 4'



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

0 2' 4'

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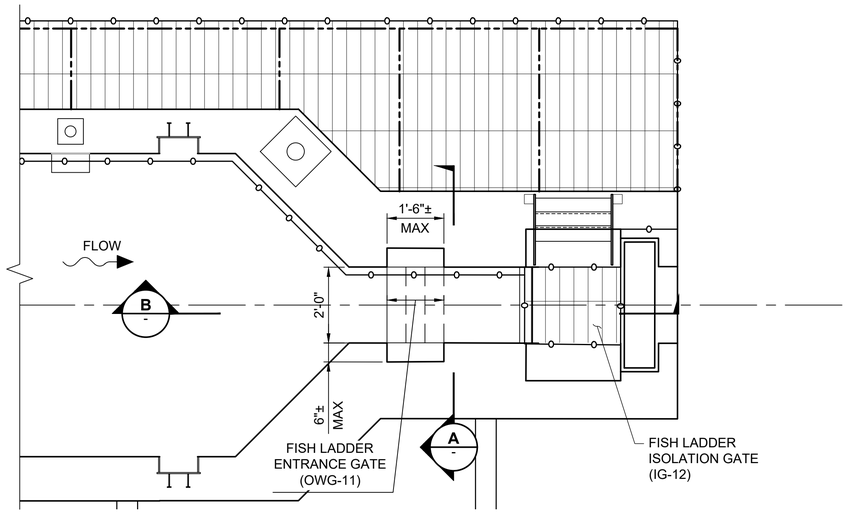
WOODLAND FISH LIFT PASSAGE DESIGN

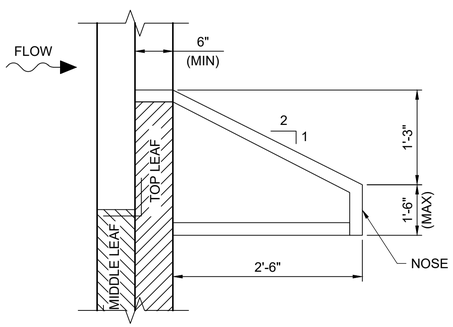
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LADDER ISOLATION GATE (IG-12)

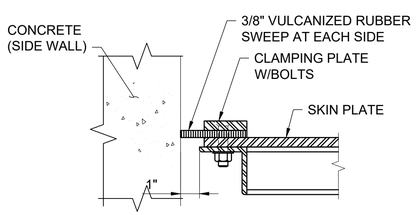
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	233 OF 240
DRAWING:	M-140



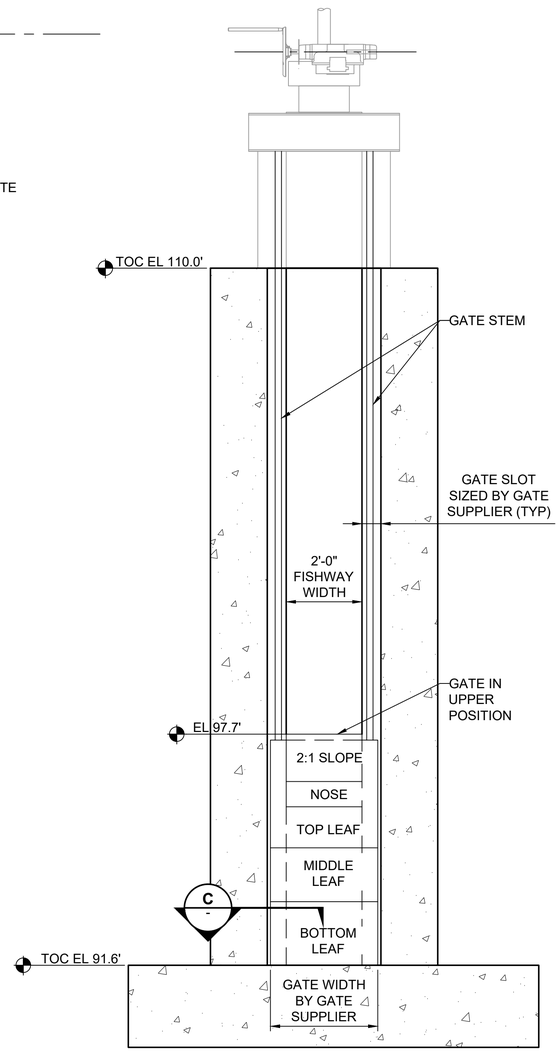
ENLARGED PLAN
SCALE: 1/2"=1'-0"
0 2' 4'



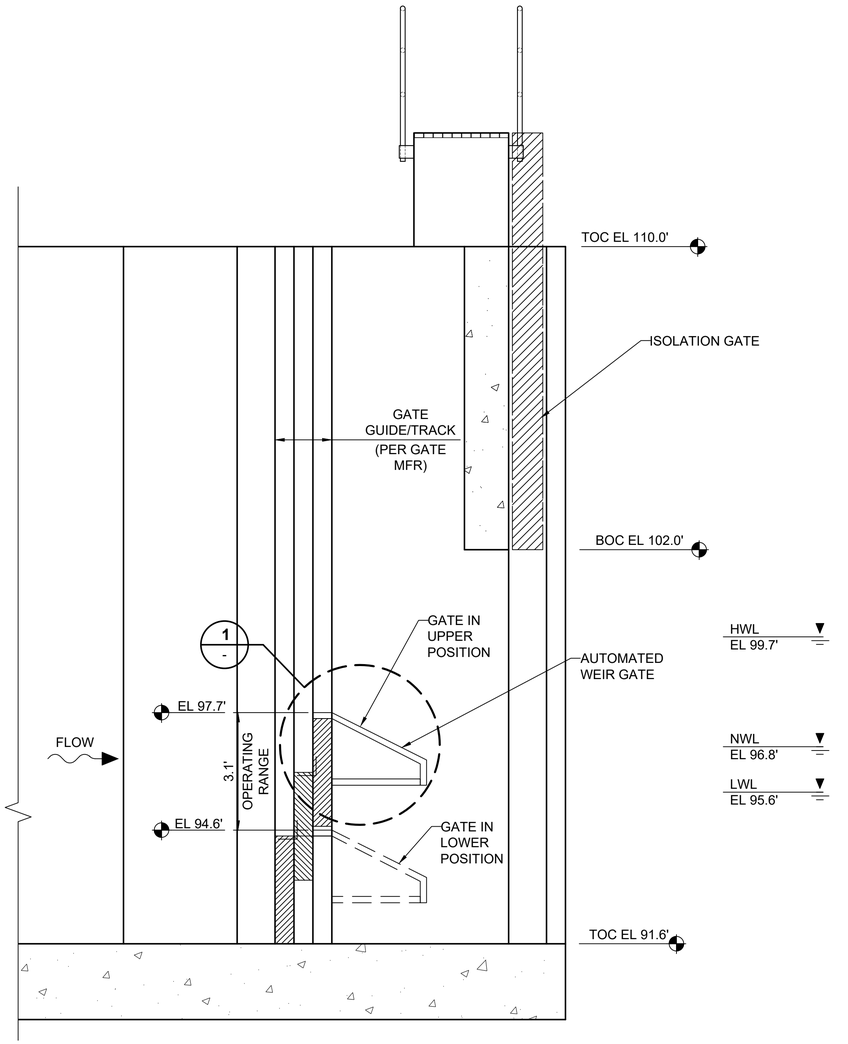
1 - **GATE WEIR DETAIL**
SCALE: NTS



C - **SECTION**
SCALE: 3"=1'-0"
0 6" 1'



A - **SECTION**
SCALE: 1/2"=1'-0"
0 2' 4'



B - **SECTION**
SCALE: 1/2"=1'-0"
0 2' 4'

NOTES:

1. GENERAL OVERVIEW OF FISH LADDER ENTRANCE WEIR GATE (DWG-11):
   - 3.1' OPERATING RANGE
   - OPERATING WIDTH 2.0'
2. TAILWATER ELEVATIONS:
   - DESIGN LOW 95.6 FT
   - NORMAL 96.8 FT
   - DESIGN HIGH 99.7 FT
3. APPROXIMATE BLOCKOUT DIMENSIONS SHOWN FOR GATE IG-12. UPDATE WITH ACTUAL BLOCKOUT DIMENSIONS FOR GATE SUPPLIED.

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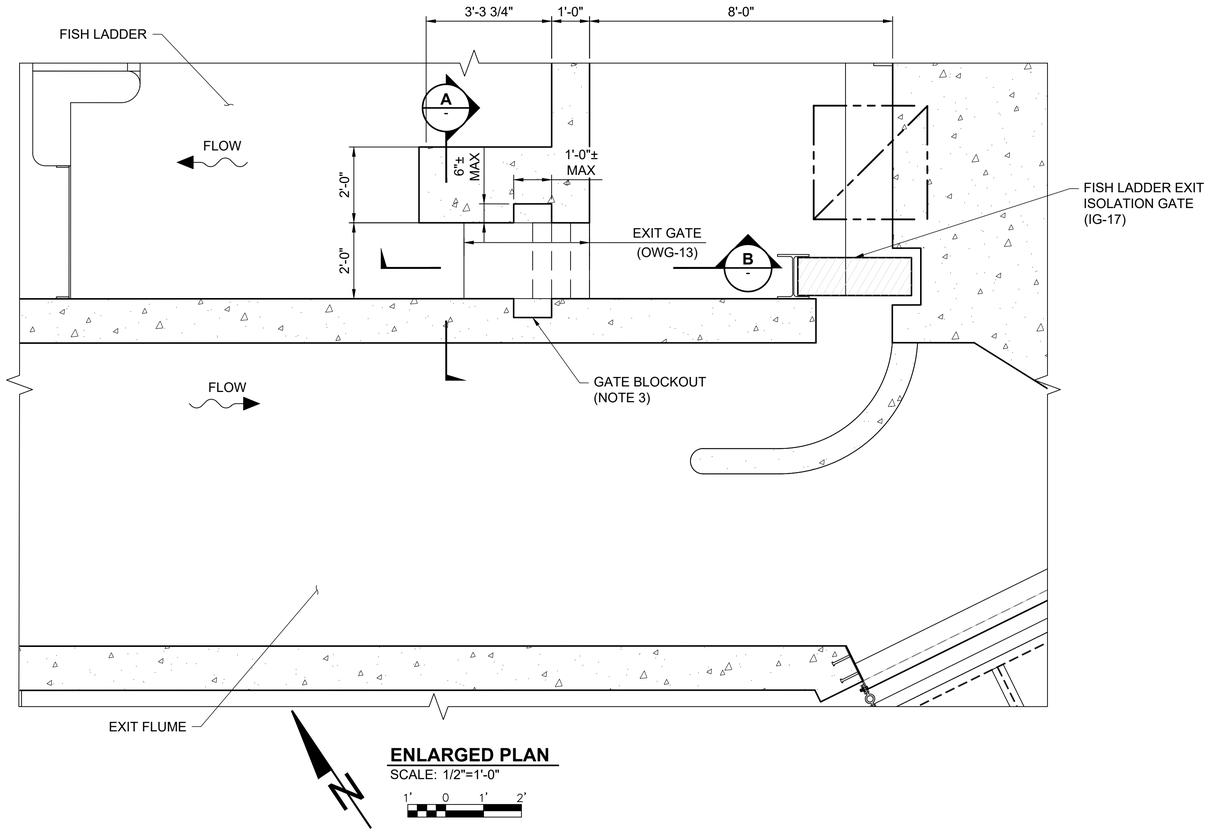
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

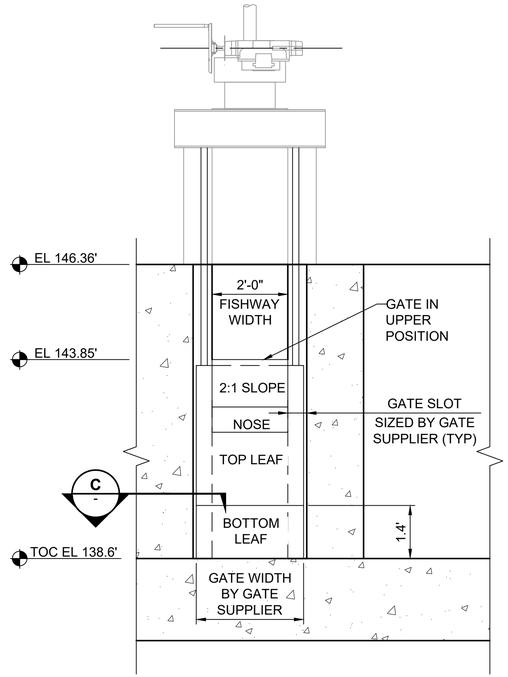
FISH LADDER AUTOMATIC ENTRANCE GATE (OWG-11)

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	234 OF 240
DRAWING:	M-141



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

1' 0 1' 2'

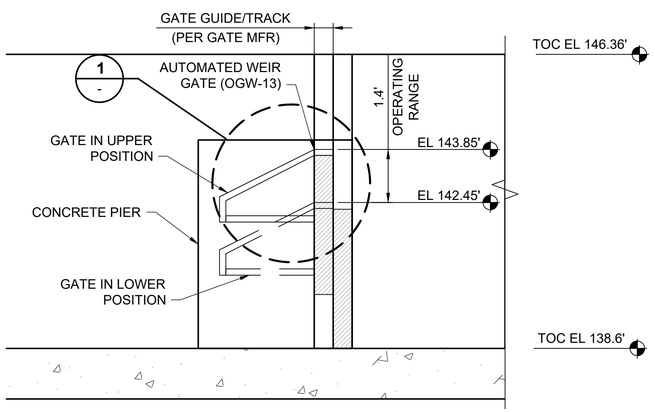


A - **SECTION**
SCALE: 1/2"=1'-0"

1' 0 1' 2'

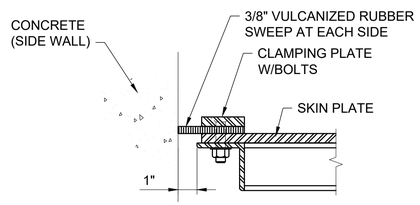
NOTES:

1. GENERAL OVERVIEW OF FISH LADDER EXIT WEIR GATE (OWG-13):
   - 2 SECTION TELESCOPING LEAF GATE
   - 1.4' OPERATING RANGE
   - OPENING WIDTH 2.0'
   - MOVEMENT OF WEIR GATE: DOWNWARD OPENING, UPWARD CLOSING
2. HEAD POND ELEVATIONS:
   - DESIGN LOW 144.0 FT
   - NORMAL 144.6 FT
   - DESIGN HIGH 145.4 FT
3. APPROXIMATE BLOCKOUT DIMENSIONS SHOWN FOR GATE OWG-13. UPDATE WITH ACTUAL BLOCKOUT DIMENSIONS FOR GATE SUPPLIED.
4. GENERAL GATE SIDE SWEEP CONFIGURATION IS PROVIDED. THE FINAL GATE SIDE SWEEP DETAILS WILL BE PER THE GATE MANUFACTURER.

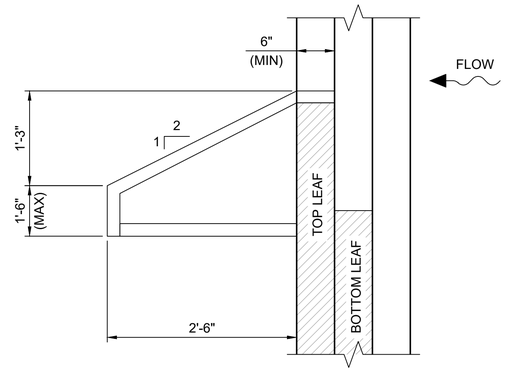


B - **SECTION**
SCALE: 1/2"=1'-0"

1' 0 1' 2'



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



1 - **GATE WEIR DETAIL**
SCALE: N.T.S.

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WOODLAND FISH LIFT PASSAGE DESIGN

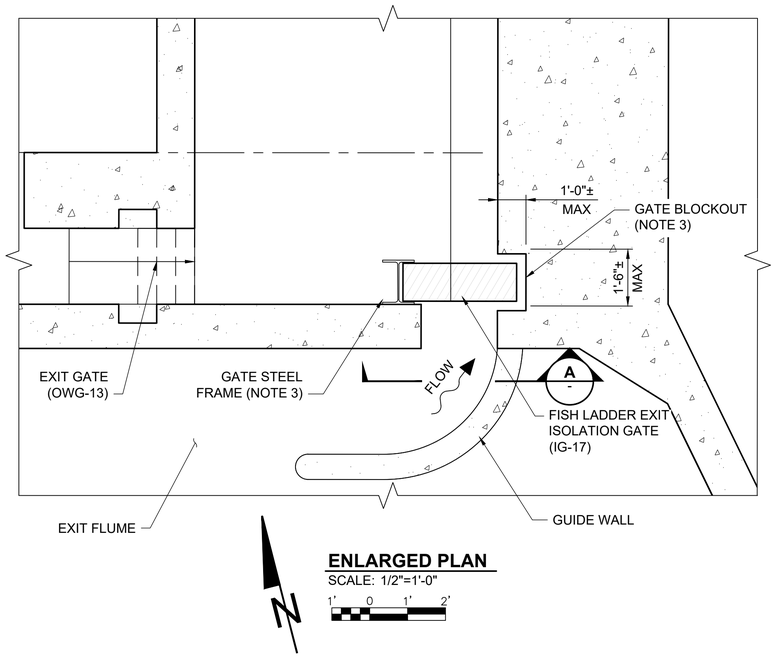
MAINE DEPARTMENT OF MARINE RESOURCES

FISH LADDER AUTOMATIC EXIT GATE (OWG-13)

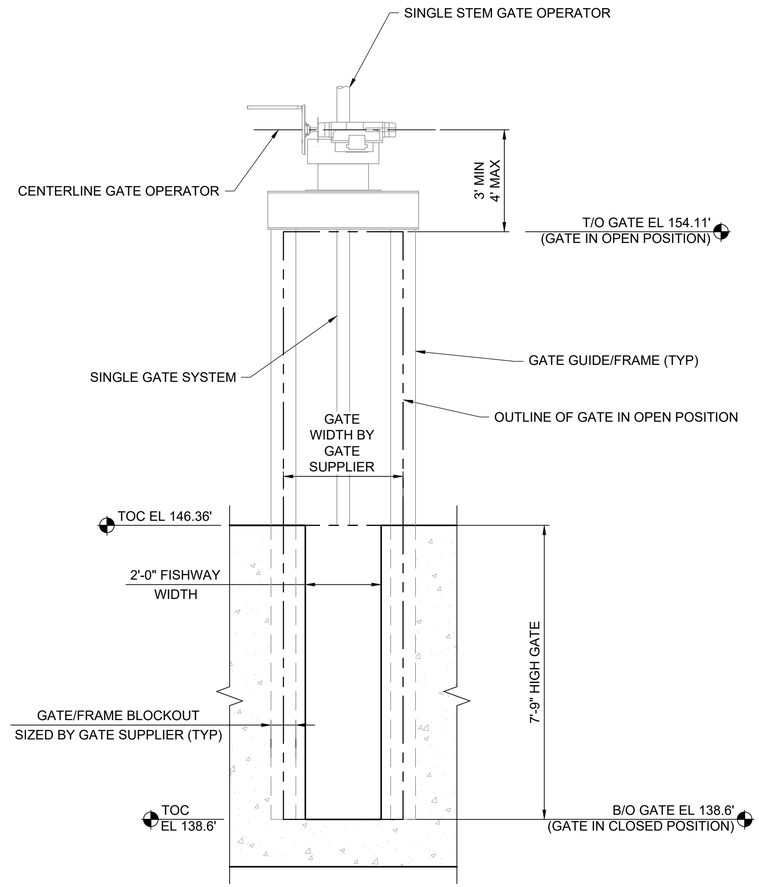
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	235 OF 240
DRAWING:	M-142

NOTES:

1. GENERAL OVERVIEW OF FISH LADDER EXIT ISOLATION GATE (IG-17):
   - SIZE OF OPENING, 2.00'W x 7.75'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
2. FLUME WATER ELEVATIONS:
   - LOW WSL 144.0'
   - NORMAL WSL 144.6'
   - HIGH WSL 145.4'
3. APPROXIMATE STEEL FRAME AND BLOCKOUT DIMENSIONS SHOWN FOR GATE IG-17. UPDATE WITH ACTUAL BLOCKOUT DIMENSIONS FOR GATE SUPPLIED.



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



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

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WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

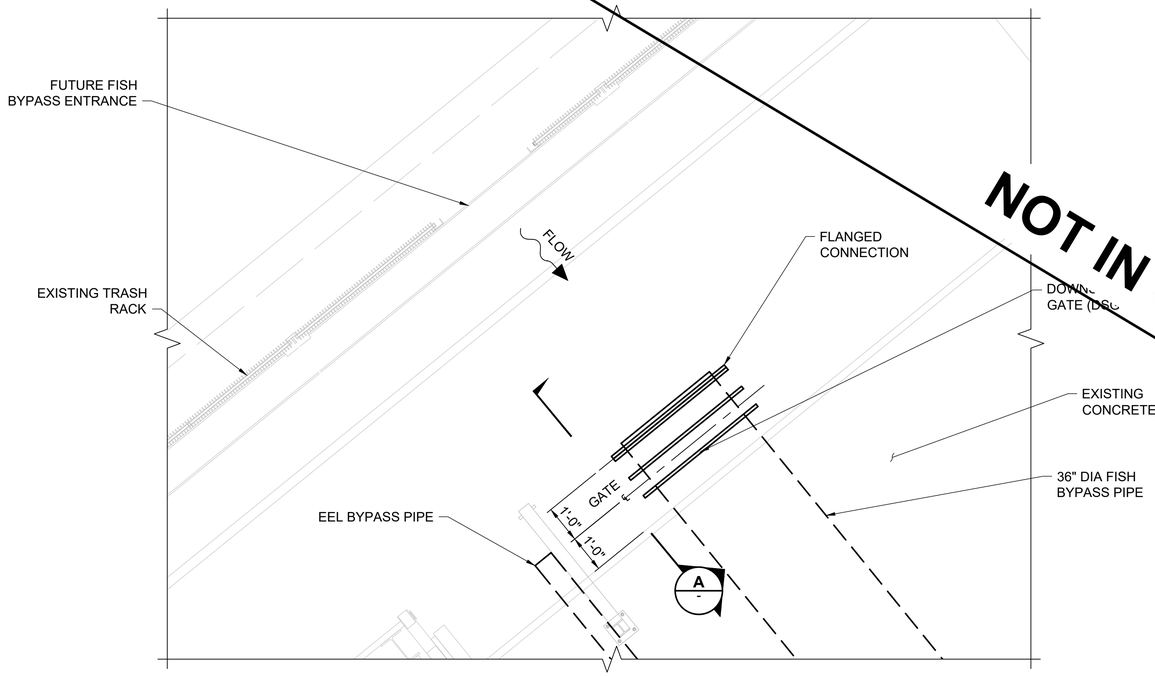
FISH LADDER EXIT ISOLATION GATE (IG-17)

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	236 OF 240
DRAWING:	M-143

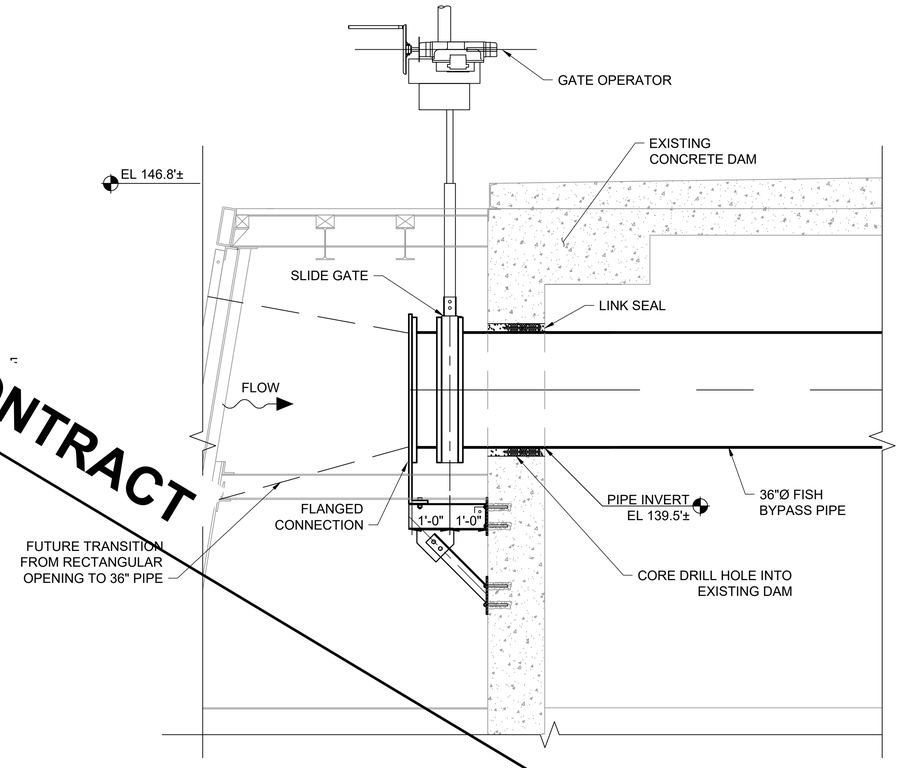
NOTES:

1. GENERAL OVERVIEW OF DOWNSTREAM PASSAGE INTAKE SLIDE GATE (DSG-14 & DSG-15):
   - SIZE OF GATE, 3.0'W x 3.0'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
   - DESIGN HEAD - 7FT UNSEATING

2. HEAD POND ELEVATIONS:
   - DESIGN LOW 144.0 FT
   - NORMAL 144.6 FT
   - DESIGN HIGH 145.4 FT



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



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

NOT IN CONTRACT

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WOODLAND FISH LIFT PASSAGE DESIGN

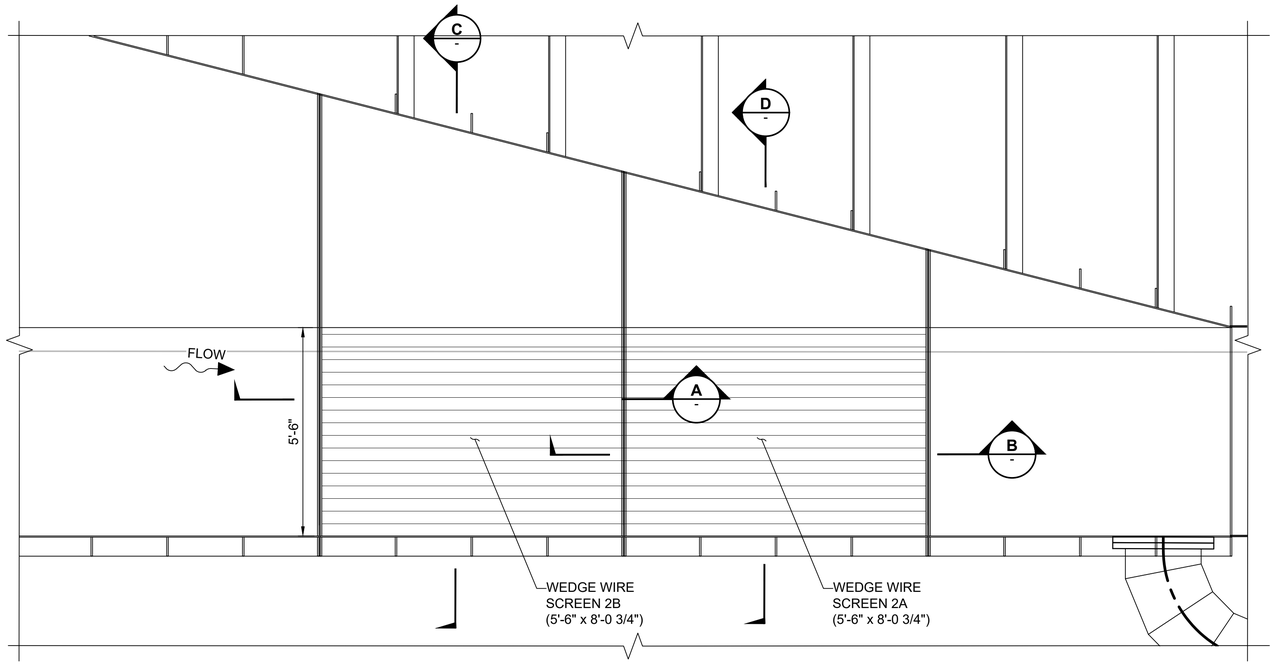
MAINE DEPARTMENT OF MARINE RESOURCES

DOWNSTREAM BYPASS SLIDE GATE (DSG-14 & DSG-15) (NOT IN CONTRACT)

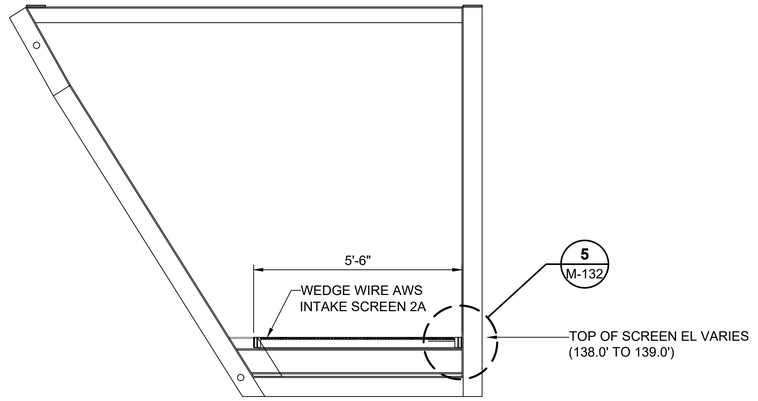
PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	237 OF 240
DRAWING:	M-160

NOTES:

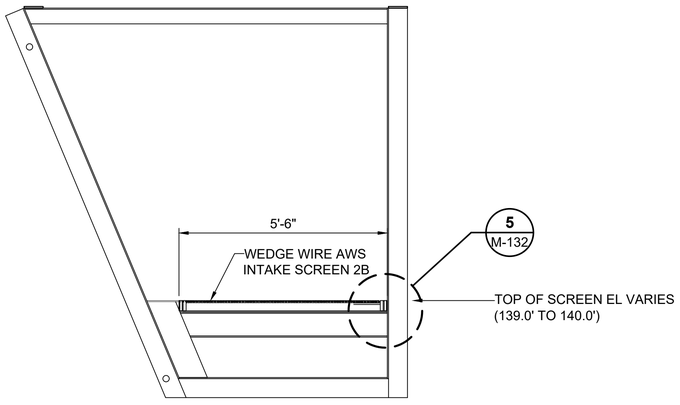
1. PROVIDE AIR BURST SYSTEM. SEE SPECIFICATION 35 20 13 FOR DETAILS.
2. WIRE ORIENTATION SHALL BE PARALLEL TO FLOW. THE SCREEN SHALL BE MOUNTED FLUSH WITH THE STRUCTURE AND NO GAPS GREATER THAN 1/4 INCH.
3. COORDINATE WITH MANUFACTURER FOR ANY REQUIRED SPACERS BETWEEN THE SCREENS. MANUFACTURER SHALL PROVIDE DETAIL FOR SMOOTH TRANSITION BETWEEN WEDGE WIRE SCREEN PANELS.



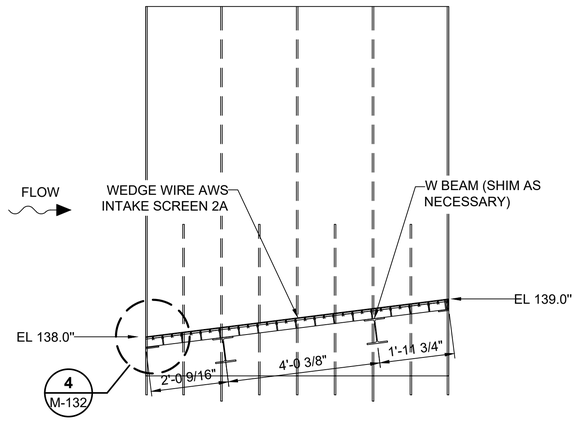
ENLARGED PLAN
SCALE: 1/2"=1'-0"
0 2' 4'



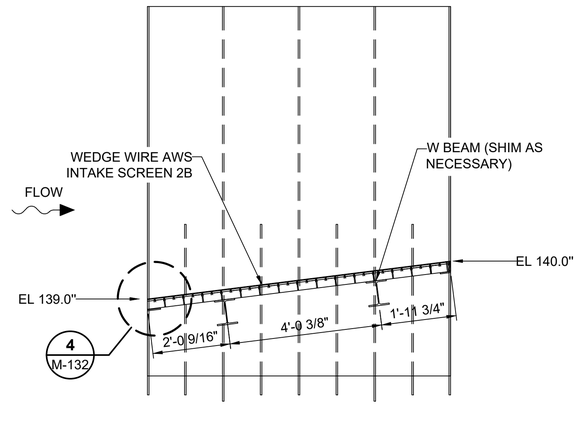
A SECTION
SCALE: 1/2"=1'-0"
0 2' 4'



B SECTION
SCALE: 1/2"=1'-0"
0 2' 4'



C SECTION
SCALE: 1/2"=1'-0"
0 2' 4'



D SECTION
SCALE: 1/2"=1'-0"
0 2' 4'

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WOODLAND FISH LIFT PASSAGE DESIGN

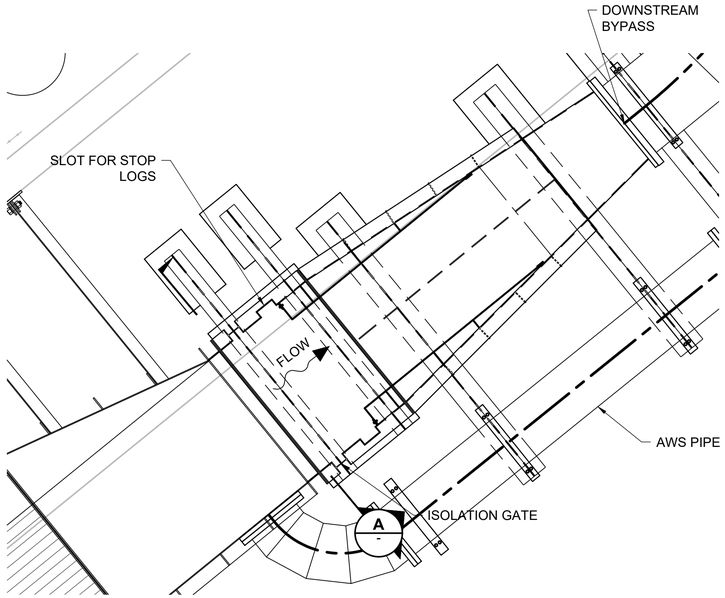
MAINE DEPARTMENT OF MARINE RESOURCES

DOWNSTREAM BYPASS SCREEN

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	238 OF 240
DRAWING:	M-161

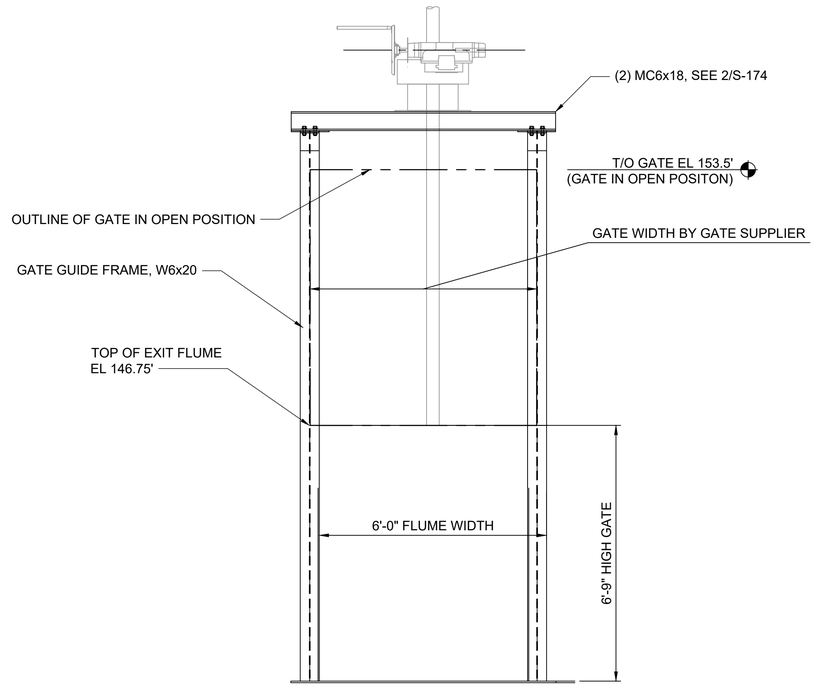
NOTES:

1. GENERAL OVERVIEW OF DOWNSTREAM PASSAGE INTAKE ISOLATION GATE (IG-16):
   - SIZE OF GATE, 5.5'W x 6.75'H
   - MOVEMENT OF GATE. UPWARD OPENING.
   - OPERATION OF GATE: OPEN / CLOSE
2. HEAD POND ELEVATIONS:
   - DESIGN LOW 144.0 FT
   - NORMAL 144.6 FT
   - DESIGN HIGH 145.4 FT



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

0 2' 4'
3/8" = 1'-0



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

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

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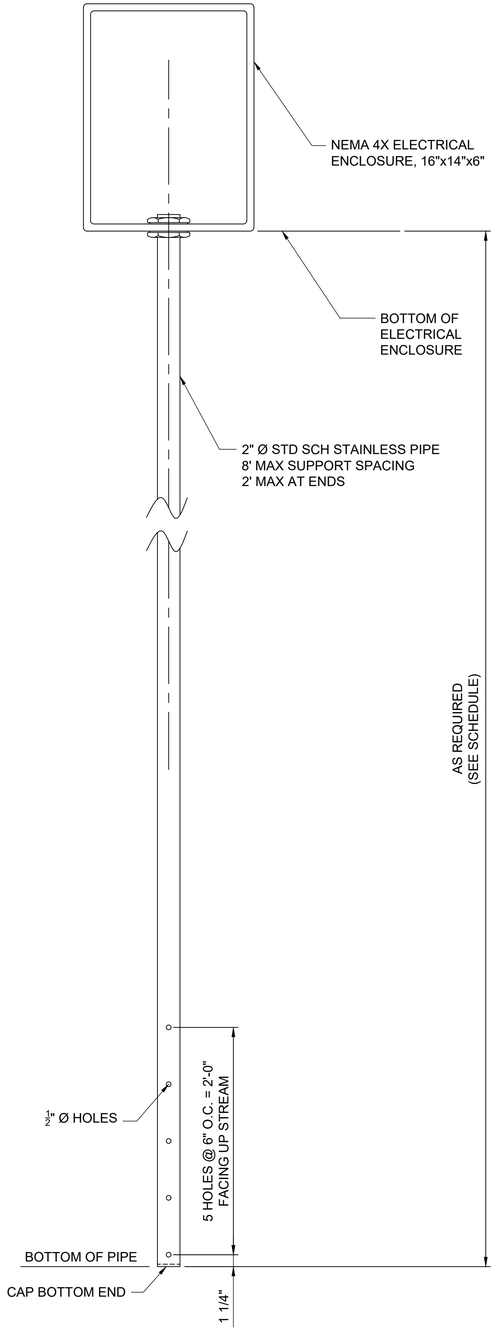
WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

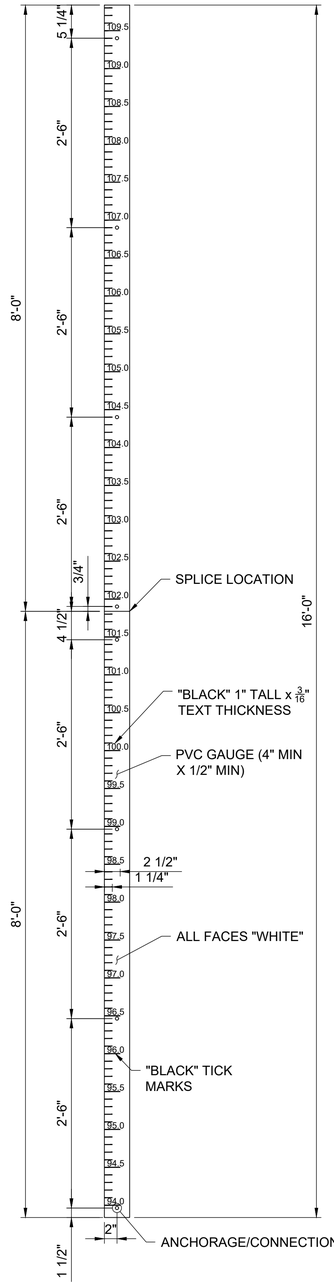
DOWNSTREAM ISOLATION GATE
(IG-16)

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	239 OF 240
DRAWING:	M-163



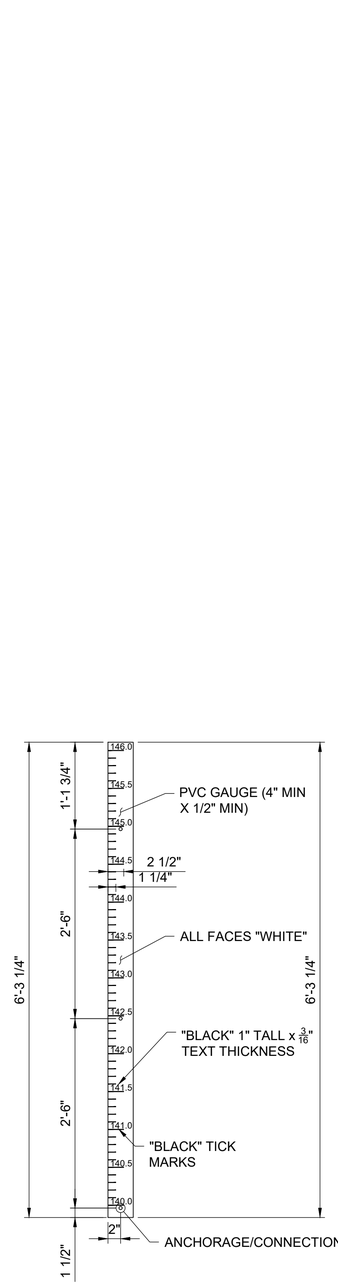
1 M-002 **STILL WELL WATER LEVEL PROBE**
SCALE: 1-1/2"=1'-0"

0 1' 2'



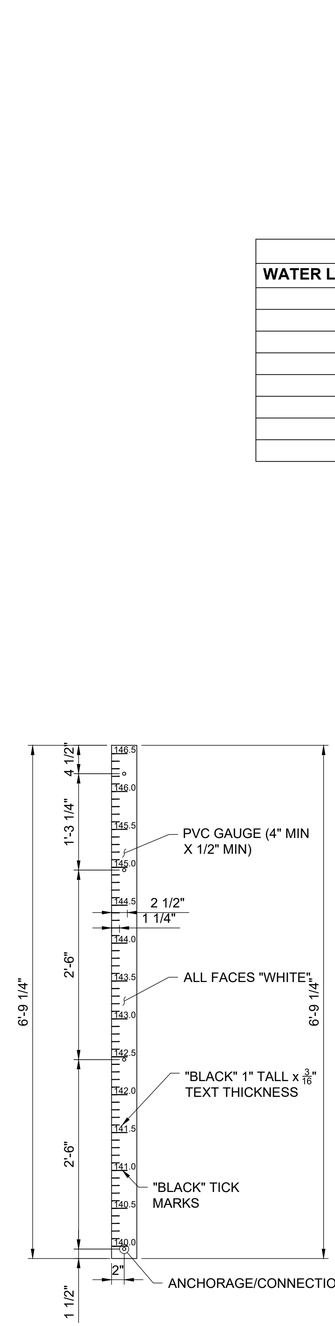
2 M-002 **STAFF GAUGES 1 THRU 5**
SCALE: 1"=1'-0"

0 1' 2'



3 M-002 **STAFF GAUGES 6 THRU 10 AND 12**
SCALE: 1"=1'-0"

0 1' 2'



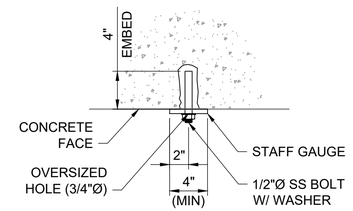
4 M-002 **STAFF GAUGE 11**
SCALE: 1"=1'-0"

0 1' 2'

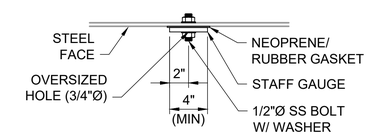
NOTES:

1. STAFF GAUGES SHALL BE FROM PREMIER STAFF GAUGE SPECIALTIES (STAFFGAUGES.COM) OR APPROVED EQUAL.
2. SUBMIT STAFF GAUGE SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION AND ORDERING.

STILL WELL WATER LEVEL PROBE SCHEDULE		
WATER LEVEL SENSOR (WLS)	**LENGTH**	**LOCATION**
1	18.0'	FISH LIFT FLUME - ENTRANCE
2	18.0'	FISH LIFT FLUME
3	18.0'	FISH LIFT FLUME
4	17.5'	FISH LADDER - ENTRANCE
5	17.5'	FISH LADDER
6	6.5'	ELEVATED FISH LADDER
7	8.5'	EXIT FLUME
8	7.5	BYPASS TROUGH



CONCRETE



STEEL

5 M-200 **STAFF GAUGE ANCHORAGE/CONNECTION**
SCALE: 1-1/2"=1'-0"

0 1' 2'

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WOODLAND FISH LIFT PASSAGE DESIGN

MAINE DEPARTMENT OF MARINE RESOURCES

WATER LEVEL SENSOR (WLS) AND STAFF GAUGE DETAILS

PROJECT:	16667
DRAWN BY:	C. HAGLER
DESIGNER:	A. MENGERT
APPROVED BY:	M. GRAESER
SHEET:	240 OF 240
DRAWING:	M-200