

Wellsville-Mendon Conservation District

Design Standards and Standard Drawings

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STANDARD DRAWINGS DISCLAIMER:

THE DRAWINGS PROVIDED IN THESE STANDARDS ARE ONLY INTENDED TO SHOW THE TYPE OF FACILITIES THAT WILL BE ACCEPTABLE TO WMCD. THESE ARE NOT INTENDED TO BE USED DIRECTLY IN THE DESIGN OF FACILITIES AS EACH ENCROACHMENT/CROSSING HAS ITS OWN UNIQUE CIRCUMSTANCE, DIMENSIONS, DESIGN CRITERIA, ETC. IT IS THE RESPONSIBILITY OF THE DESIGN ENGINEER, WHO WILL STAMP THE DRAWING, TO ENSURE THAT EACH CROSSING IS DESIGNED PROPERLY.

BY USING ANY DETAILS IN THESE DRAWINGS, YOU ACKNOWLEDGE THAT YOU HAVE VERIFIED THE STANDARD DRAWING DETAIL IS ADEQUATE FOR INCORPORATING INTO YOUR DESIGN. FRANSON CIVIL ENGINEERS WILL NOT BE HELD LIABLE FOR ANY USE OF THESE DRAWINGS. CONTACT CHAD BROWN FROM FRANSON CIVIL ENGINEERS FOR ANY QUESTIONS REGARDING THESE STANDARD DRAWINGS.

WELLSVILLE-MENDON
CONSERVATION DISTRICT



DESIGNER:	VINCE HOGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GURR	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	NO.	DATE
		REVISIONS	
		DESCRIPTION	

WELLSVILLE-MENDON CONSERVATION DISTRICT
STANDARD DRAWINGS
COVER SHEET

01-Cover Sheet.dwg
03/1021 Wellsville Mendon Canal Reviews 2021 Standard Drawings
LAYOUT: Cover

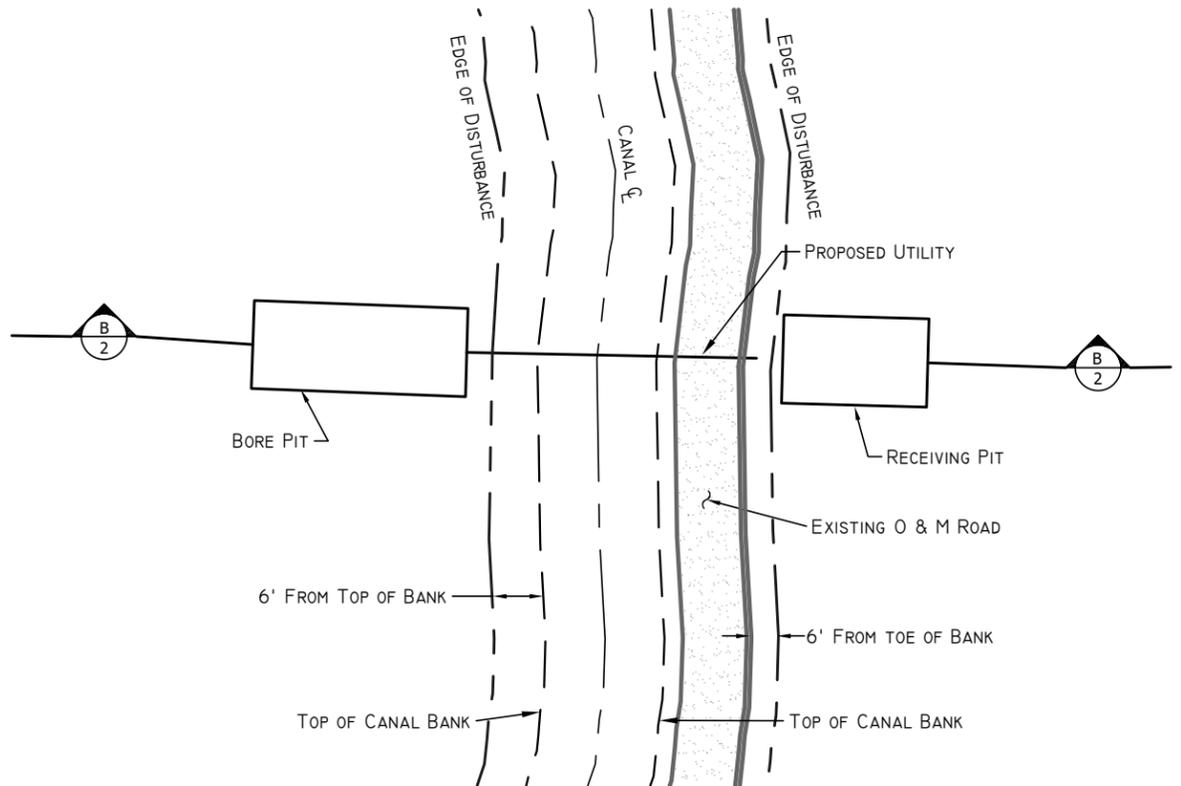
JOB NO. 1021

DESIGNER:	VINCE HOGGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GUNN	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	REVISIONS	DESCRIPTION

WELLSVILLE-MENDON CONSERVATION DISTRICT
STANDARD DRAWINGS
CANAL BORING DETAILS
02-Boring Details.dwg
03/10/21 Wellsville Mendon Canal Revisions 2021 Standard Drawings
LAYOUT: Boring Details

NOTES:

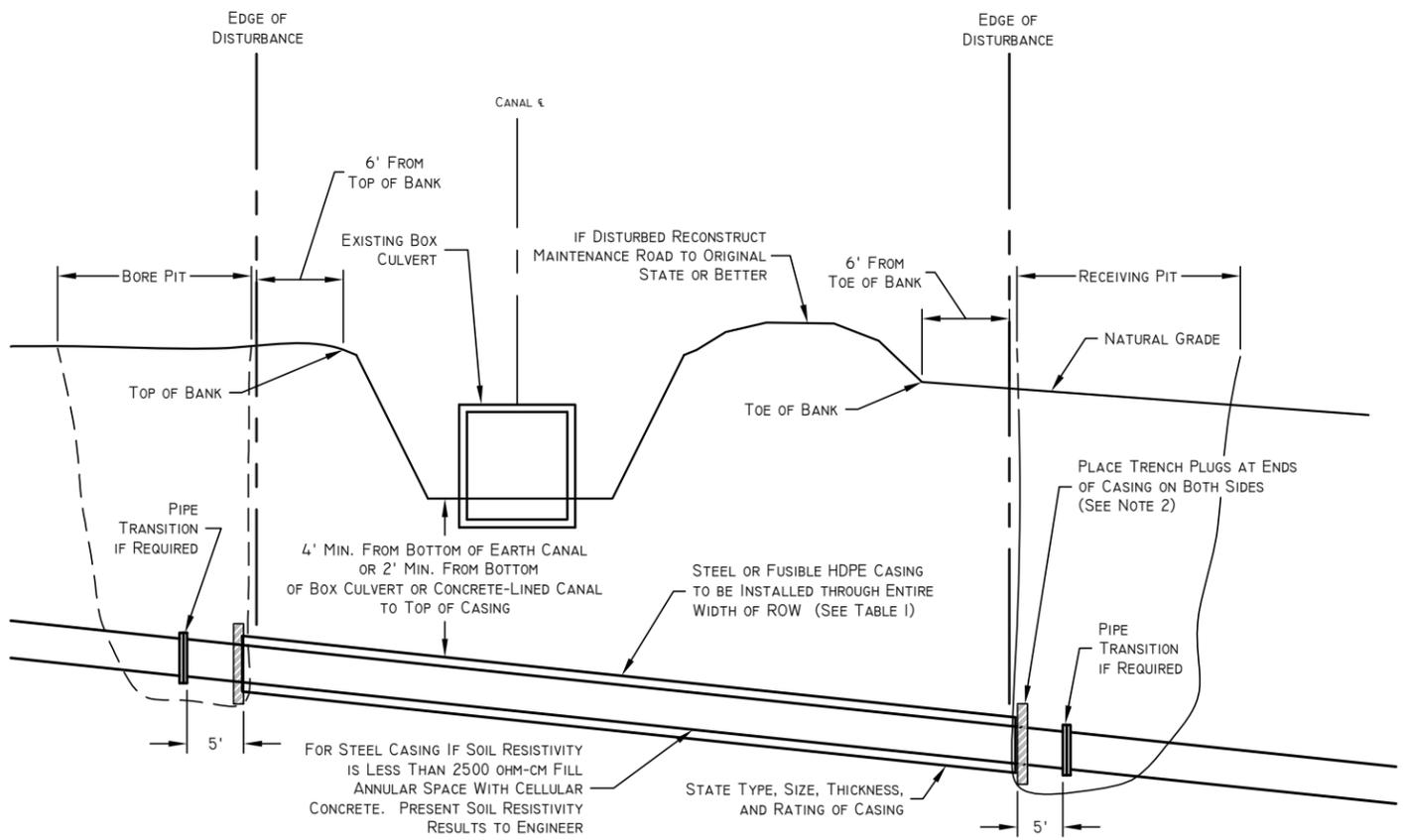
1. BORE PIT COMPACTION TO BE 95% STANDARD PROCTOR DENSITY.
2. TRENCH PLUGS ARE TO BE PLACED IN LOCATIONS SHOWN ON BOTH SIDES FOR WIDTH OF TRENCH AND 12 INCHES ABOVE AND BELOW CASING PIPES AND A MINIMUM THICKNESS OF 24 INCHES. PLUGS SHALL BE A 10% BENTONITE AND 90% CLAY MIXTURE, OR SHALL BE A FLOWABLE FILL CONCRETE.
3. STORMWATER RUNOFF ENTERS THE CANAL DURING STORM EVENTS OR AT OTHER UNEXPECTED TIMES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE WORK SITE.
4. WATERLINE PIPE INSIDE OF CASING SHALL HAVE RESTRAINING JOINTS.
5. CASING MUST BE A MINIMUM OF 2 FEET BELOW THE BOTTOM OF THE EXISTING CANAL BOX CULVERT OR CONCRETE-LINED CANAL AND 4 FEET BELOW EARTHEN CANAL BOTTOM. IN AREAS OF SAND OR COBBLES, THIS DISTANCE MAY NEED TO BE INCREASED.
6. BORE PITS MUST BE PLACED 6' FROM TOE OF CANAL BANK ON DOWNHILL SIDE AND 6' FROM THE TOP OF CANAL BANK ON UPHILL SIDE.
7. CARRIER PIPE SHALL HAVE ADEQUATE CASING SPACERS PER MANUFACTURERS SPECIFICATIONS.
8. CROSSING MUST BE PERPENDICULAR TO CANAL UNLESS APPROVED BY ENGINEER.



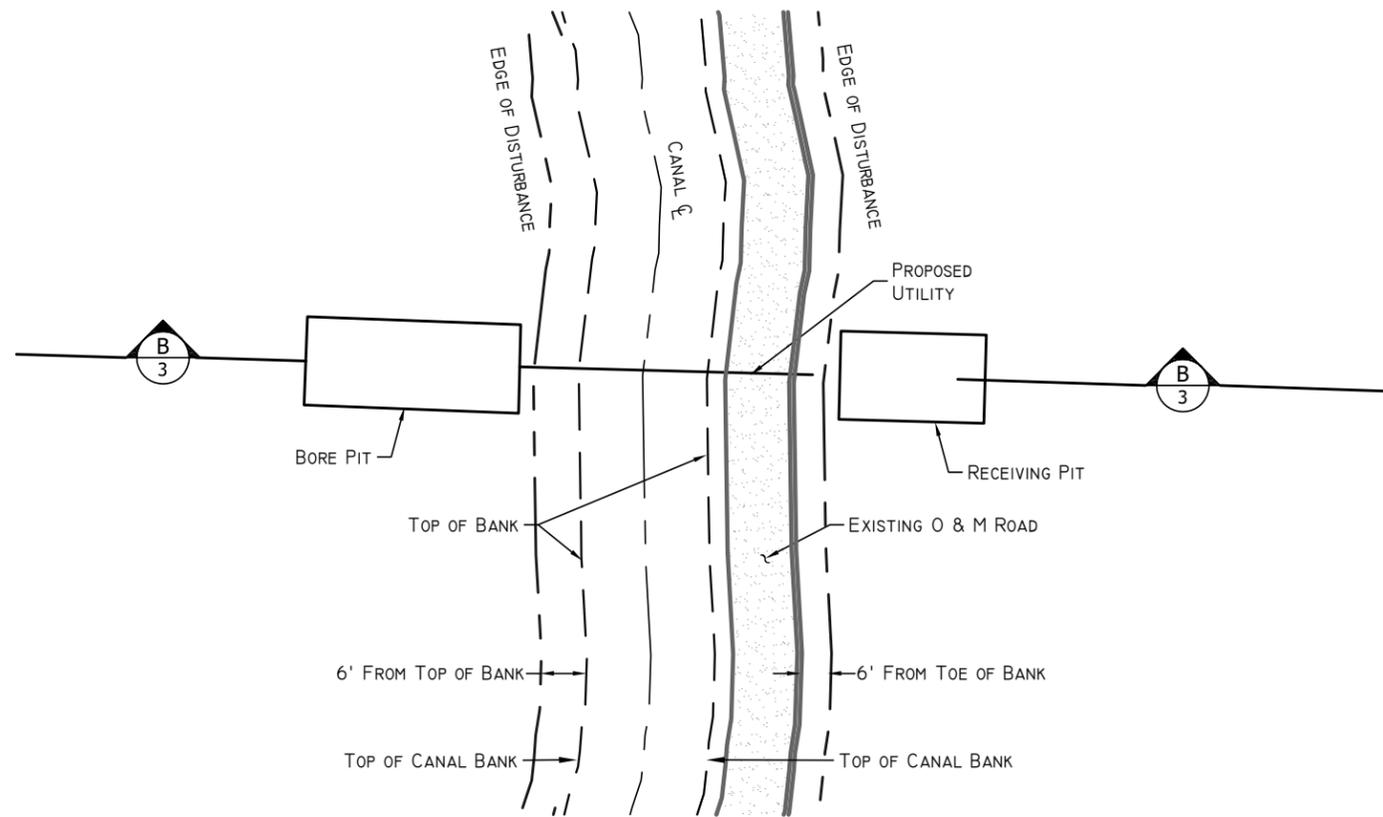
A BORING UNDER CANAL PLAN VIEW
NTS

TABLE I
STEEL CASING THICKNESS

DIAMETER (INCHES)	MINIMUM WALL THICKNESS (INCHES)
12"	0.188"
14" - 16"	0.312"
18"	0.312"
20" - 22"	0.375"
24" - 26"	0.438"
28" - 32"	0.500"
34" - 36"	0.562"
38" - 42"	0.562"



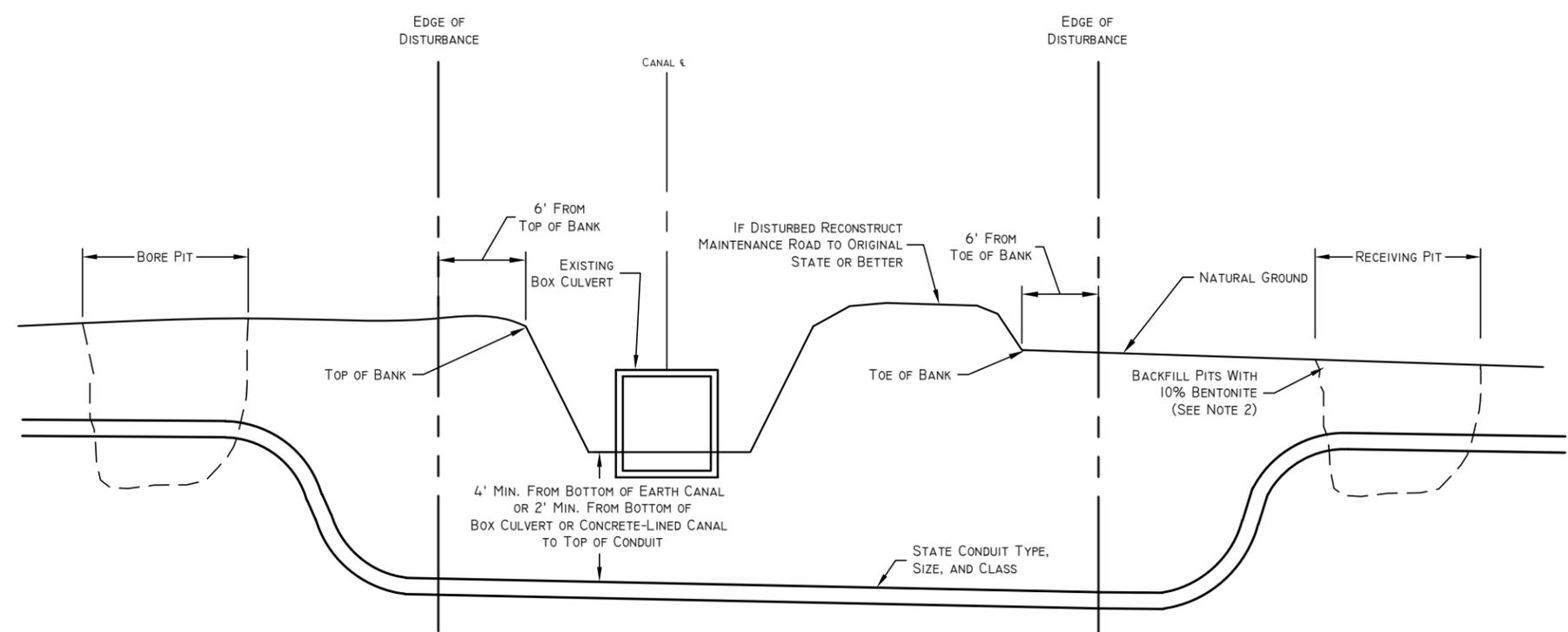
B BORE CASING CROSS SECTION
NTS



A DIRECTIONAL DRILL UNDER CANAL
NTS

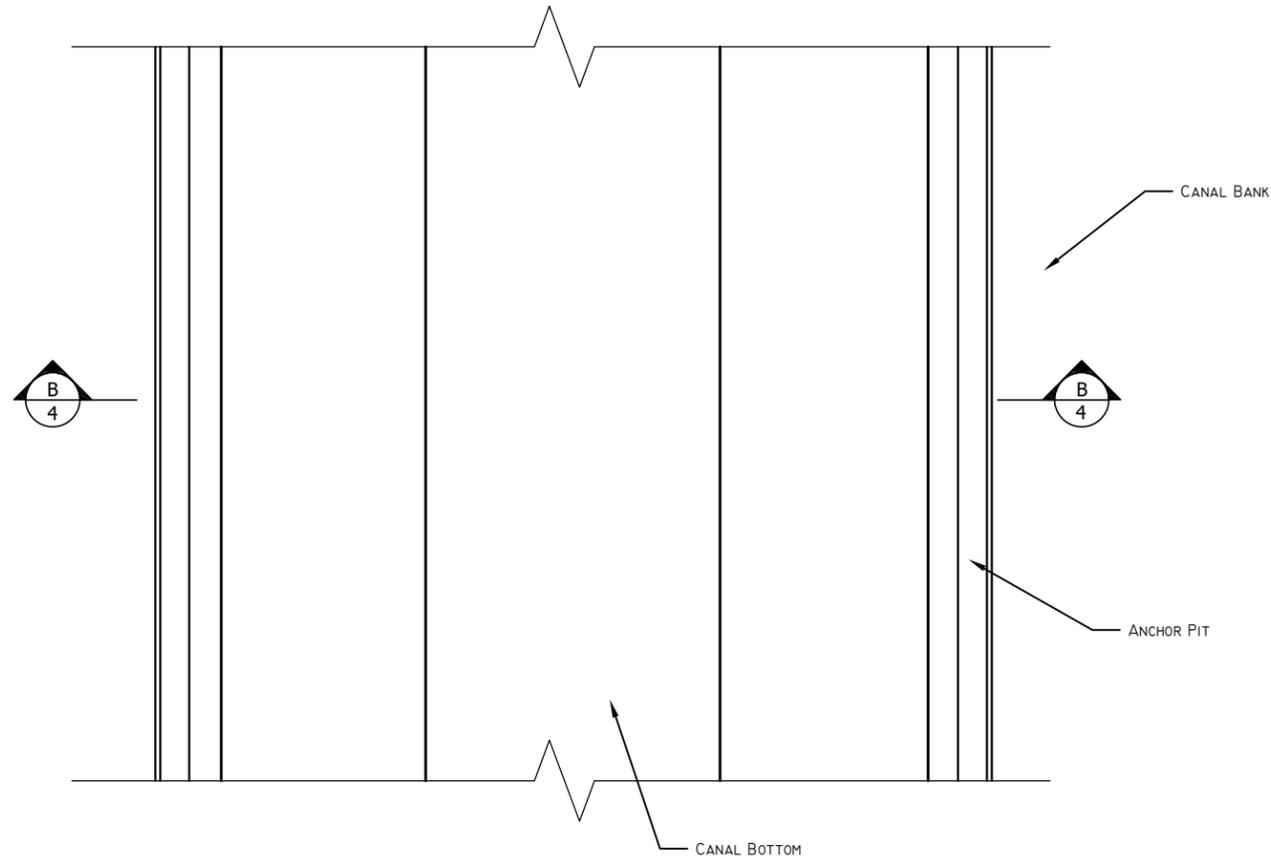
NOTES:

1. BORE PIT COMPACTION TO BE 95% STANDARD PROCTOR DENSITY.
2. FILL BORE PITS WITH A MIXTURE OF NATIVE MATERIAL AND 10% BENTONITE POWDER TO CREATE A SEAL THAT WILL PREVENT WATER FROM FOLLOWING THE NEW CONDUIT.
3. STORMWATER RUNOFF ENTERS THE CANAL DURING STORM EVENTS OR AT OTHER UNEXPECTED TIMES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE WORK SITE.
4. CONDUIT MUST BE A MINIMUM OF 2 FEET BELOW THE BOTTOM OF THE EXISTING CANAL BOX CULVERT OR CONCRETE-LINED CANAL AND 4 FEET BELOW EARTHEN CANAL BOTTOM. IN AREAS OF SAND OR COBBLES, THIS DISTANCE MAY NEED TO BE INCREASED.
5. BORE PITS MUST BE PLACED 6' FROM TOE OF CANAL BANK ON THE DOWNHILL SIDE, AND 6' FROM THE TOP OF THE CANAL BANK ON THE UPHILL SIDE.

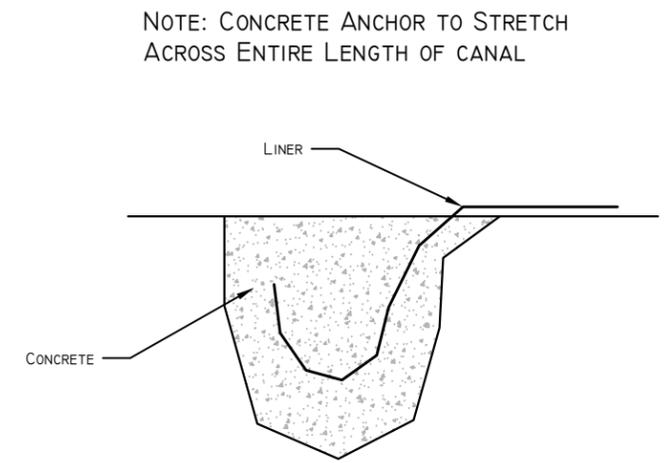


B DIRECTIONAL DRILL CROSS SECTION
NTS

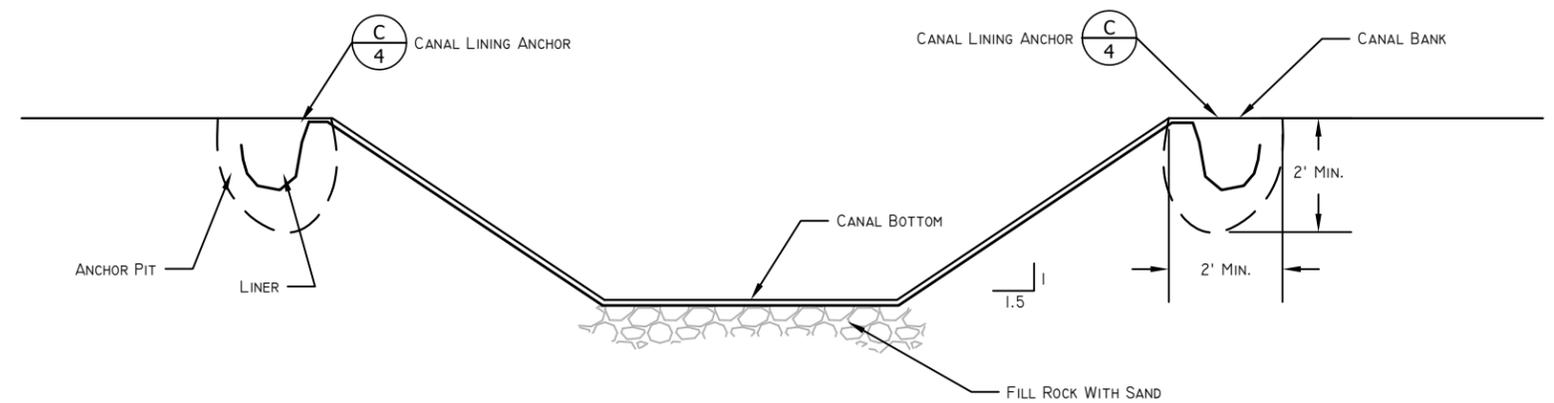
DESIGNER:	VINCE HOGGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GURR	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	REVISIONS	DESCRIPTION



A CANAL LINER PLAN
NTS



C CANAL LINING ANCHOR
NTS

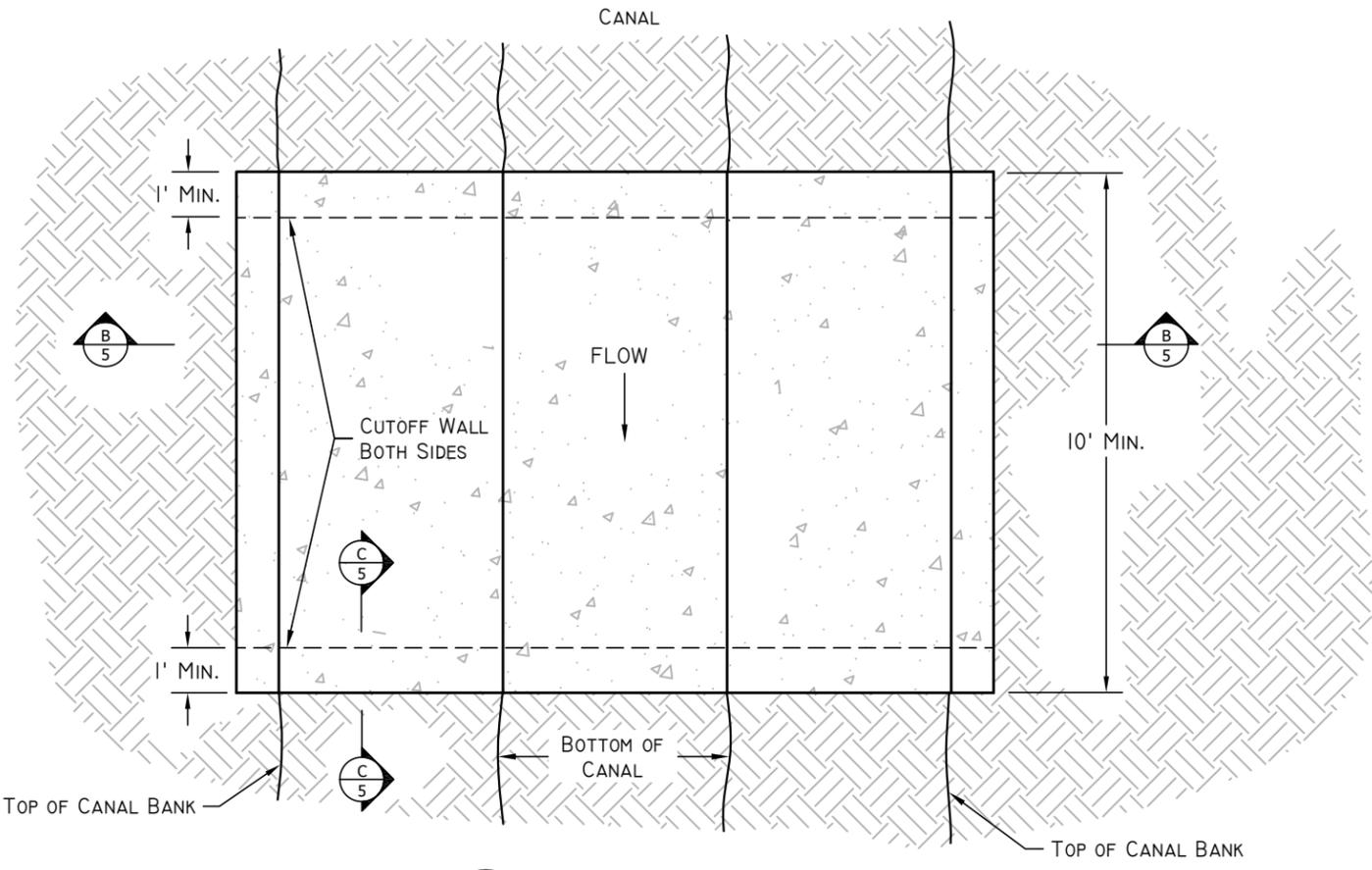


B MEMBRANE LINER CROSS SECTION
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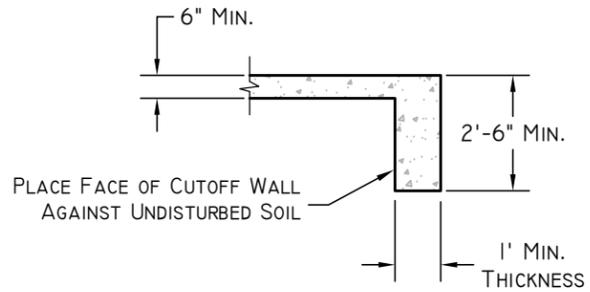
DESIGNER:	VINCE HOGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GURR	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	REVISIONS	DESCRIPTION

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DRAFTSMAN:	MATT GURR	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	REVISIONS	DESCRIPTION

WELLSVILLE-MENDON CONSERVATION DISTRICT	
STANDARD DRAWINGS	
CONCRETE CANAL LINER	
04-Concrete Liner.dwg	03/10/21
Wellsville Mendon Canal Revisions 2021 Standard Drawings	
JOB NO.	2/021

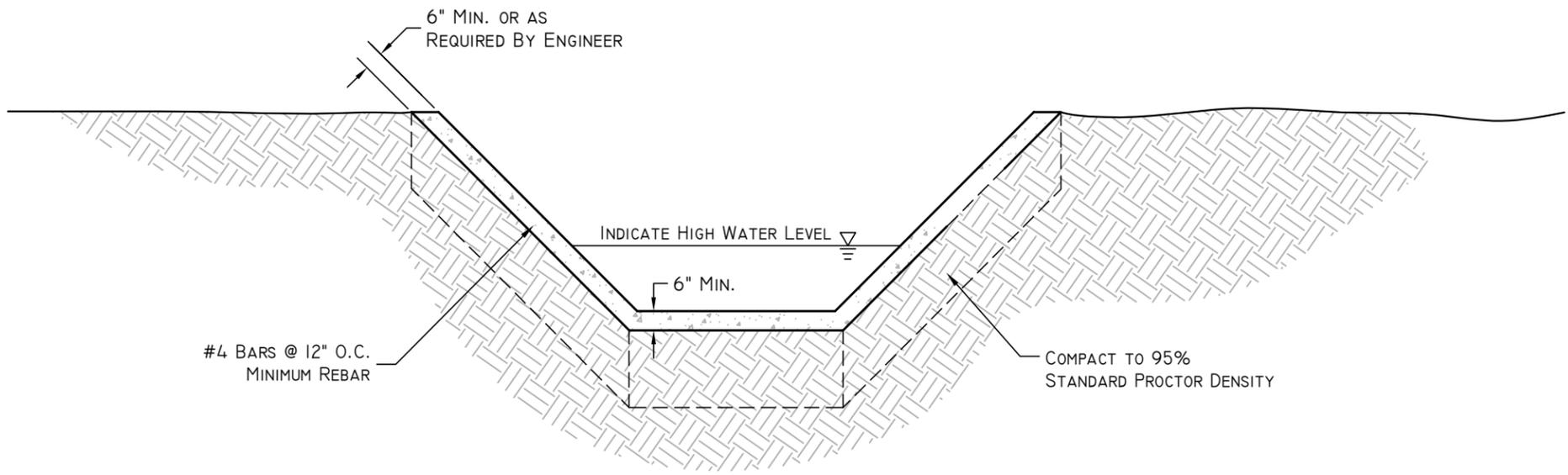


(A) CONCRETE LINER PLAN
NTS



NOTE:
ENGINEER TO DETERMINE REBAR SIZE
AND SPACING IN CUTOFF WALL.

(C) CUTOFF WALL CROSS SECTION
NTS



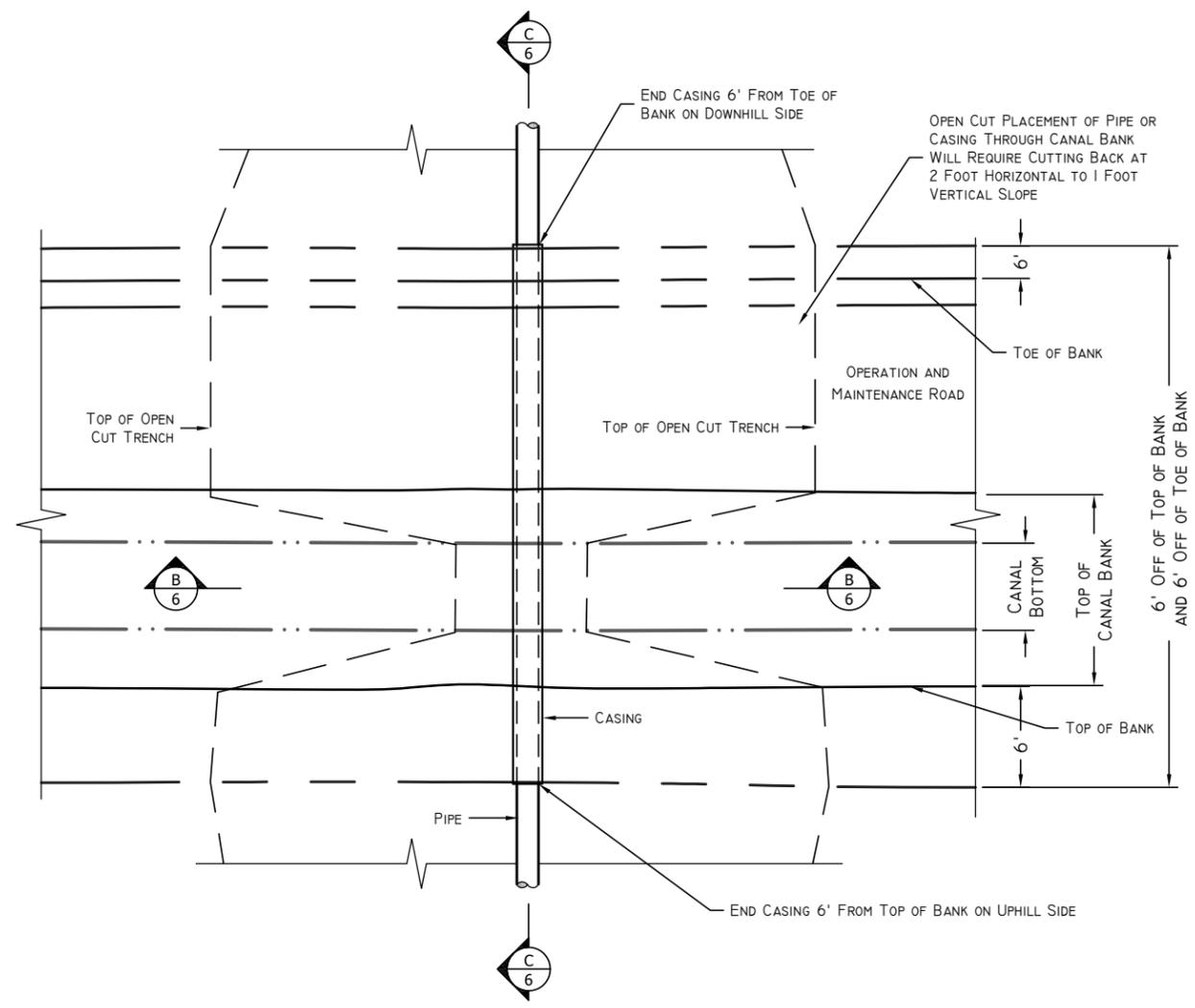
(B) CONCRETE LINER CROSS SECTION
NTS

DESIGNER:	VINCE HOGE	NO.	DATE
DRAFTSMAN:	MATT GURR	INTS.	
PROJECT LEADER:	CHAD BROWN	REVISIONS	
PRINT DATE:	JANUARY 30, 2026	DESCRIPTION	

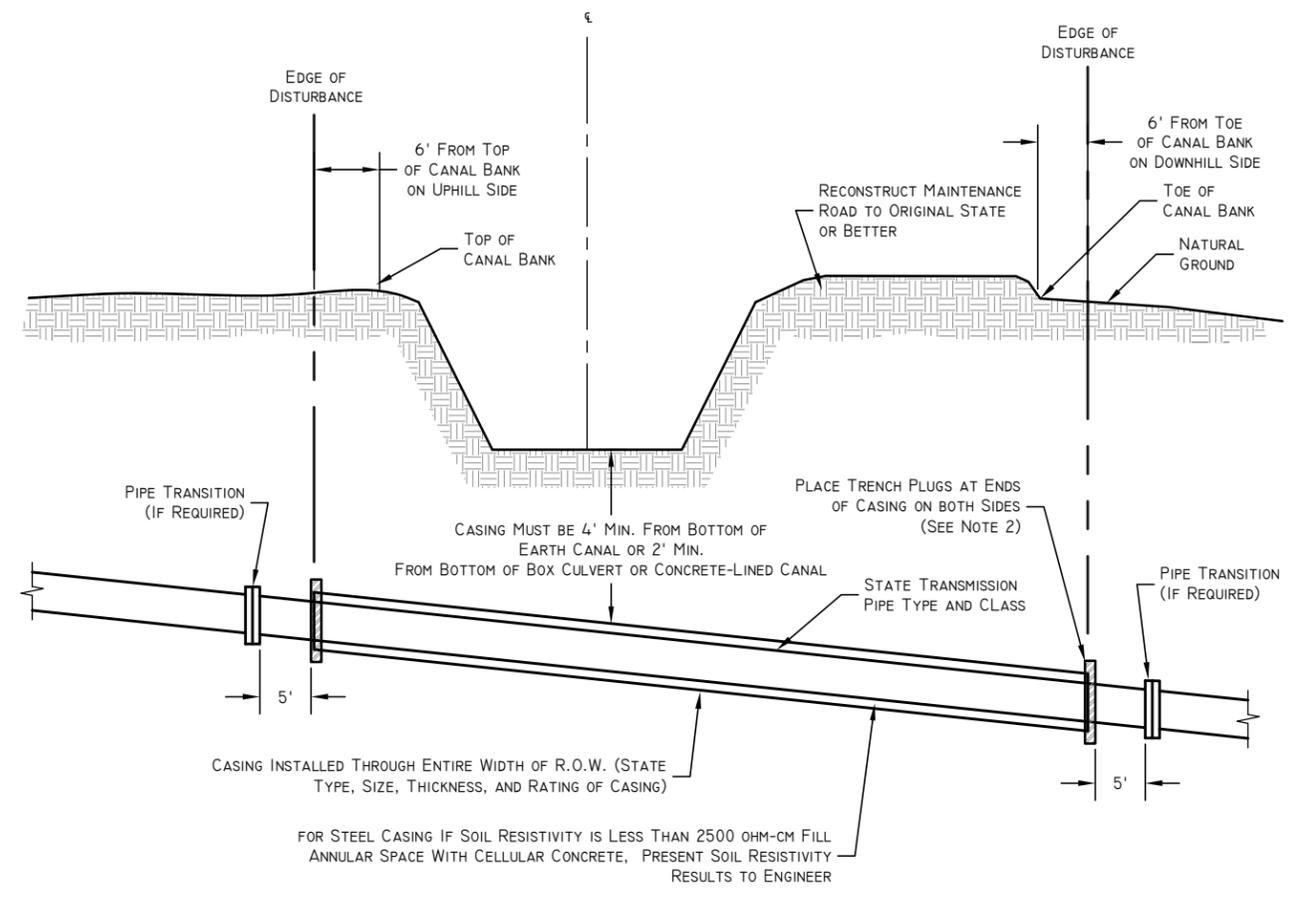
WELLSVILLE-MENDON CONSERVATION DISTRICT
STANDARD DRAWINGS
OPEN CUT DETAILS

06-Open Cut Details.dwg
03/21/2021 Wellsville Mendon Canal Reviews 2021 Standard Drawings
LAYOUT: Details

JOB NO. 2/021



A OPEN CUT PLAN VIEW
NTS



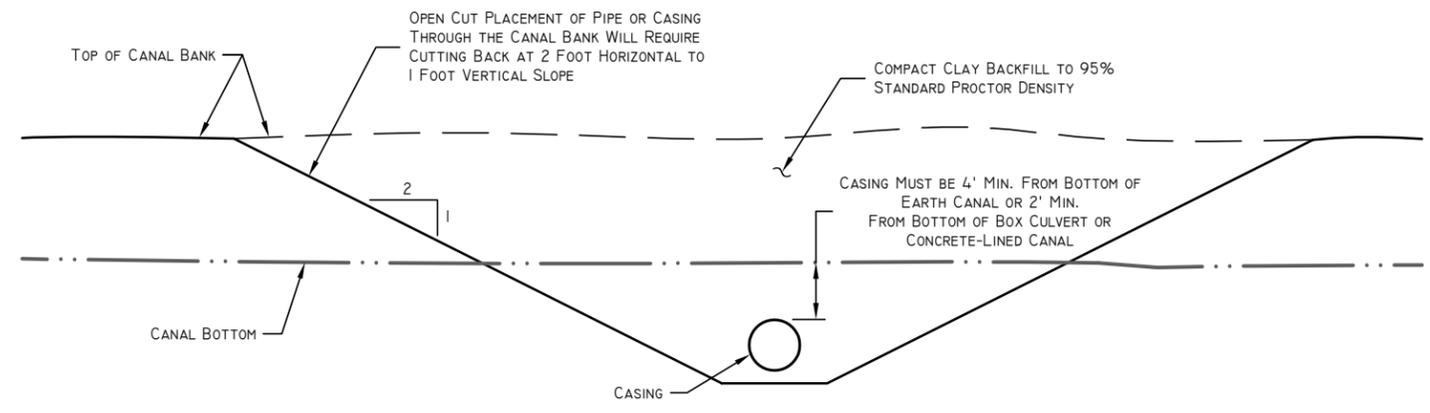
C OPEN CUT CANAL CROSSING PROFILE
NTS

NOTES:

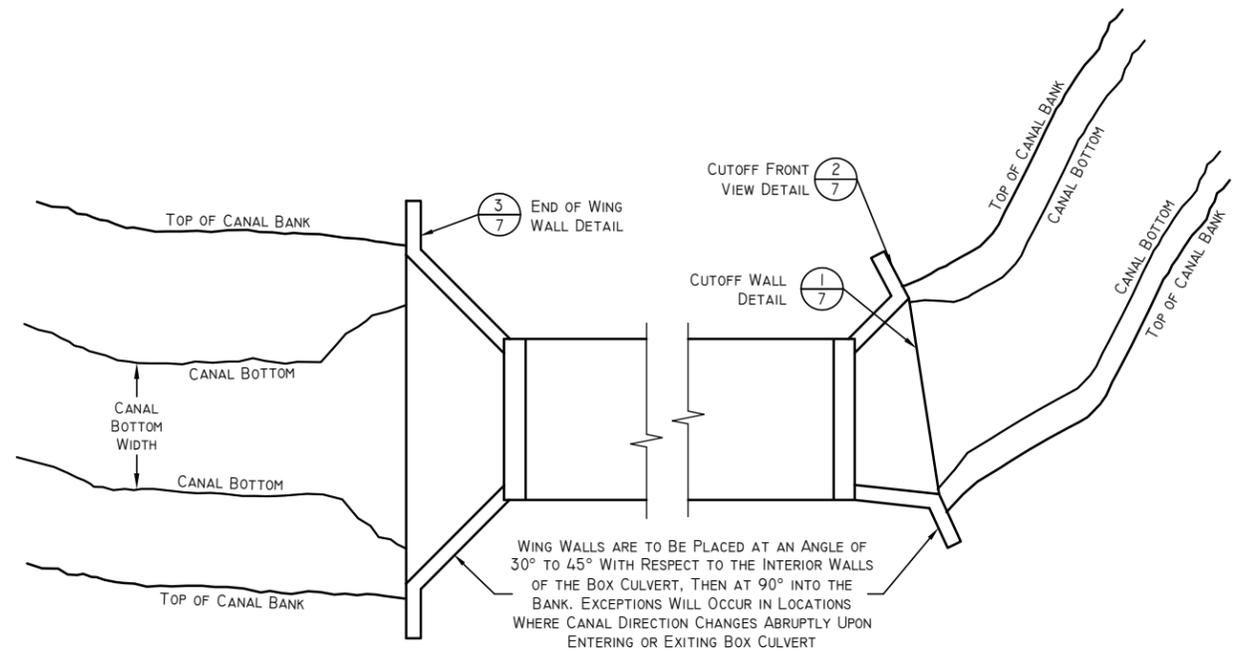
- REMOVAL AND REPLACEMENT OF CANAL FLOOR AND BANKS WILL REQUIRE TESTING AND PROCTORS BY A LICENSED SOILS LAB. COMPACTION TO BE 95% STANDARD PROCTOR DENSITY.
- TRENCH PLUGS ARE TO BE PLACED IN LOCATIONS SHOWN ON BOTH SIDES FOR WIDTH OF TRENCH AND 12 INCHES ABOVE AND BELOW CASING PIPES AND A MINIMUM THICKNESS OF 24 INCHES. PLUGS SHALL BE A 10% BENTONITE AND 90% CLAY MIXTURE, OR SHALL BE A FLOWABLE FILL CONCRETE.
- STORM WATER RUNOFF ENTERS THE CANAL DURING STORM EVENTS OR AT OTHER UNEXPECTED TIMES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE WORK SITE.
- WATERLINE PIPE INSIDE OF CASING SHALL HAVE RESTRAINING JOINTS.
- CASING MUST BE 4' MIN. FROM BOTTOM OF EARTH CANAL OR 2' MIN. FROM BOTTOM OF BOX CULVERT OR CONCRETE-LINED CANAL.
- END PIPE CASING 6' FROM THE TOP OF THE CANAL BANK ON THE UPHILL SIDE AND 6' FROM THE TOE OF THE CANAL BANK ON THE DOWNHILL SIDE.
- CARRIER PIPE SHALL HAVE ADEQUATE CASING SPACERS. PER MANUFACTURERS SPECIFICATIONS.

TABLE I
STEEL CASING THICKNESS

DIAMETER (INCHES)	MINIMUM WALL THICKNESS (INCHES)
12"	0.188"
14" - 16"	0.312"
18"	0.312"
20" - 22"	0.375"
24" - 26"	0.438"
28" - 32"	0.500"
34" - 36"	0.562"
38" - 42"	0.562"



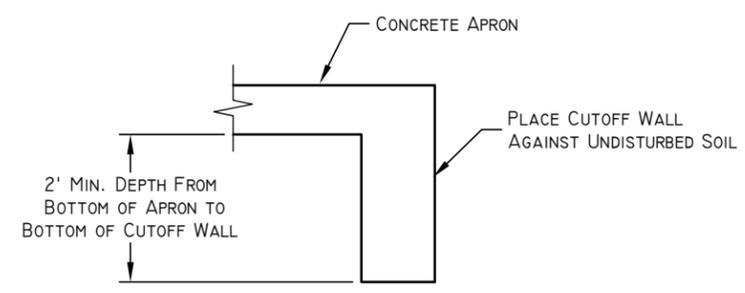
B OPEN CUT CANAL CROSSING CROSS SECTION
NTS



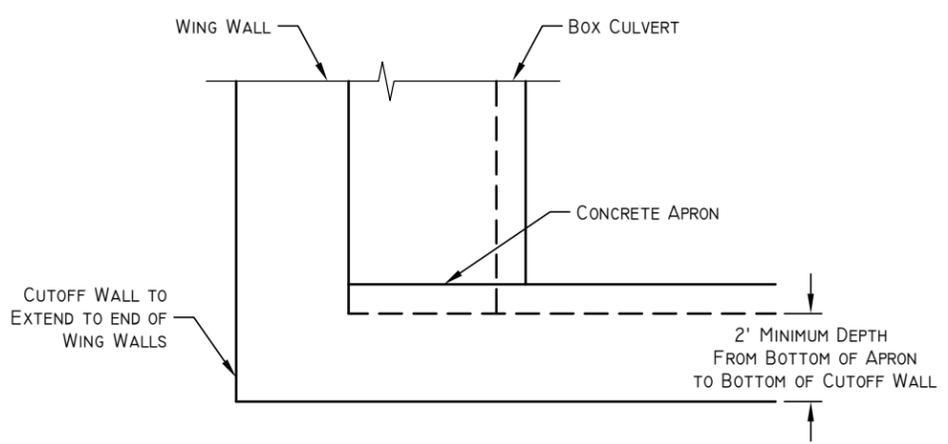
A PLAN VIEW OF BOX CULVERT
NTS

NOTES:

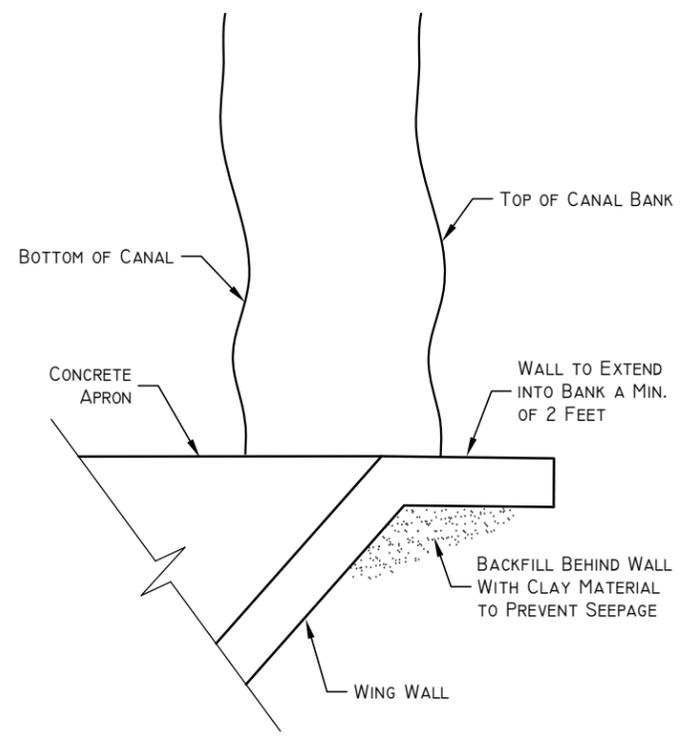
1. BOX CULVERTS TO HAVE A MINIMUM HEIGHT OF 3 FEET.
2. WIDTH OF BOX CULVERT IS TO MATCH EXISTING CHANNEL BOTTOM.
3. ACCESS TO CANAL OPERATION AND MAINTENANCE ROAD SHALL BE INSTALLED WITH CURB CUTS AT DRIVE APPROACHES AND THICKENED CONCRETE AT SIDEWALKS.
4. CUTOFF WALLS AND APRONS BETWEEN WING WALLS ARE REQUIRED.
5. END OF WING WALL SHALL NOT INTERFERE WITH OPERATION AND MAINTENANCE ROAD.
6. 6 FOOT CHAIN LINK FENCE OR 4 FOOT PARAPET WALL IS REQUIRED ON ALL BOX CULVERTS THAT CARRY PEDESTRIAN TRAFFIC. EXCEPTIONS MAY OCCUR WHERE LOCAL ORDINANCES NOTE OTHERWISE AND UPON APPROVAL BY CANAL COMPANY.
7. DRAWINGS SUBMITTED FOR REVIEW ARE TO SHOW PLAN AND PROFILE VIEWS, NOTE SLOPE, INCLUDE DETAIL INDICATING REBAR SIZE AND SPACING, AND STATE TRAFFIC LOADING.
8. CASINGS MUST HAVE A MINIMUM OF 2 FEET BETWEEN TOP OF CASING AND BOTTOM OF BOX CULVERT.
9. ALL CONCRETE USED IN CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. THE CONCRETE MIX SHALL INCLUDE BETWEEN 5% AND 7% AIR ENTRAINMENT.



1 CUTOFF WALL DETAIL
NTS



2 CUTOFF FRONT VIEW DETAIL
NTS



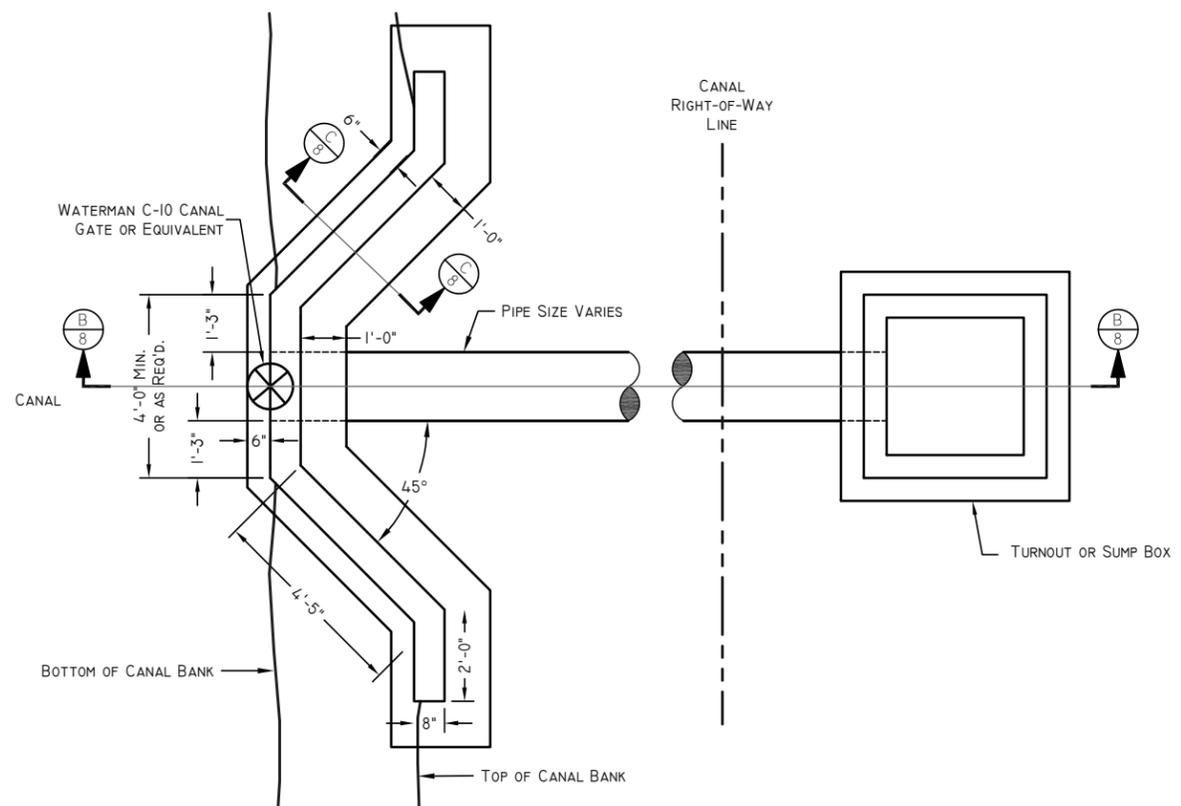
3 END OF WING WALL DETAIL
NTS

DESIGNER:	VINCE HOGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GURR	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	REVISIONS	DESCRIPTION

WELLSVILLE-MENDON CONSERVATION DISTRICT
STANDARD DRAWINGS
BOX CULVERT DETAILS
07-Box Culvert Details.dwg
03/31/2021 Wellsville Mendon Canal Reviews 2021 Standard Drawings
LAYOUT: Details

DESIGNER:	VINCE HOGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GUMR	PRINT DATE:	JANUARY 30, 2026
NO.	DATE	REVISIONS	DESCRIPTION

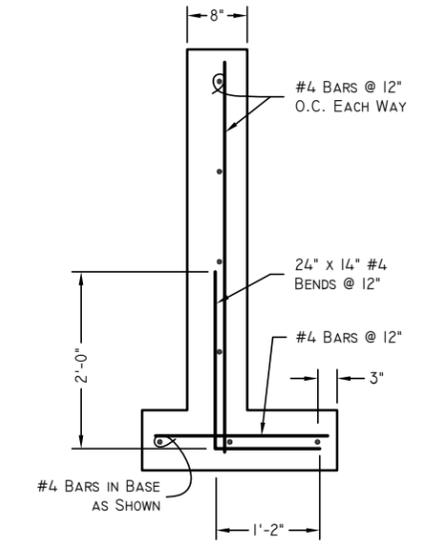
WELLSVILLE-MENDON CONSERVATION DISTRICT
STANDARD DRAWINGS
TURNOUT DETAILS
08-Weir Turnout Gate.dwg
03/1021 Wellsville Mendon Canal Revisions 2021 Standard Drawings
JOB NO. 2/021



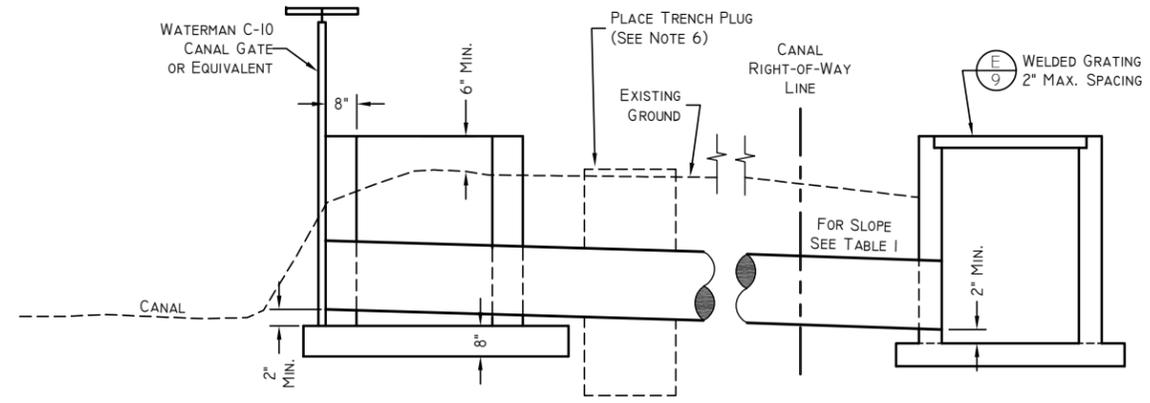
A TURNOUT PLAN
NTS

NOTES:

- LID DETAILS FOR BOX SHOWN ON SHEET
- BOX NOT TO BE PLACED IN DRIVEWAYS, ROADS, OR OTHER TRAFFIC AREAS.
- ALL PIPES IN BOXES SHALL BE GROUTED AND WATERTIGHT.
- BOX WALL THICKNESS AND REINFORCEMENT ARE DEPENDENT ON SITE CONDITIONS AND DEPTH. MINIMUM SIZE AS SHOWN.
- DIMENSIONS SHOWN ON WALLS AND BOXES ARE MINIMUM SIZE. SPECIFIC SITE CONDITIONS OF BOXES AND WALLS MAY REQUIRE ADDITIONAL THICKNESS OR WIDTH.
- TRENCH PLUG TO BE PLACED IN LOCATION SHOWN FOR WIDTH OF TRENCH AND 12 INCHES ABOVE AND BELOW PIPE AND A THICKNESS OF 24 INCHES. PLUGS SHALL BE A 10% BENTONITE AND 90% CLAY MIXTURE, OR A FLOWABLE FILL CONCRETE.
- THE INVERT OF THE TURNOUT PIPE SHALL BE A MINIMUM OF 2 INCHES OFF THE BOTTOM OF THE CANAL AND NOT THE CURRENT SILT LAYER.



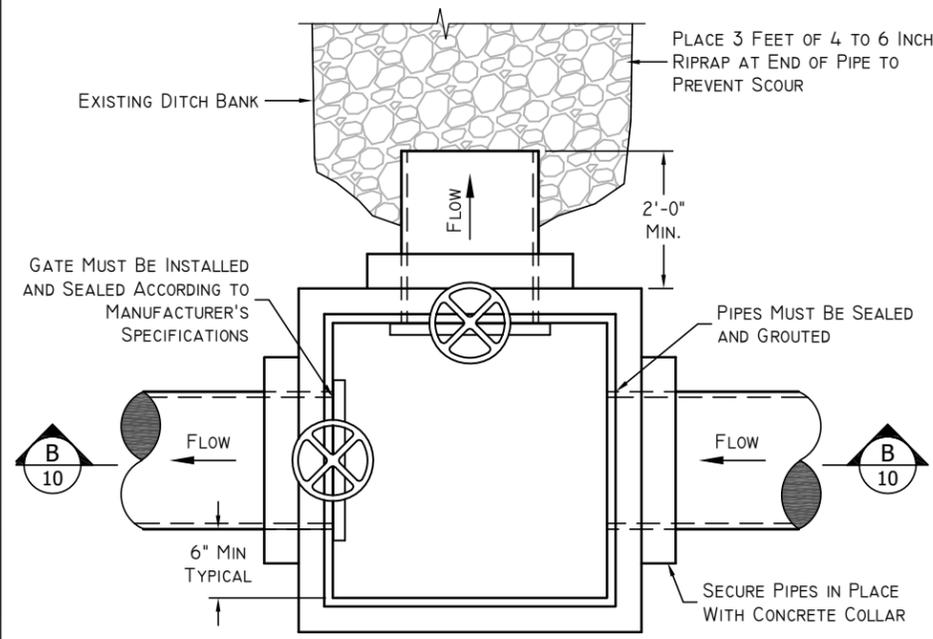
C MINIMUM REBAR DETAIL
NTS



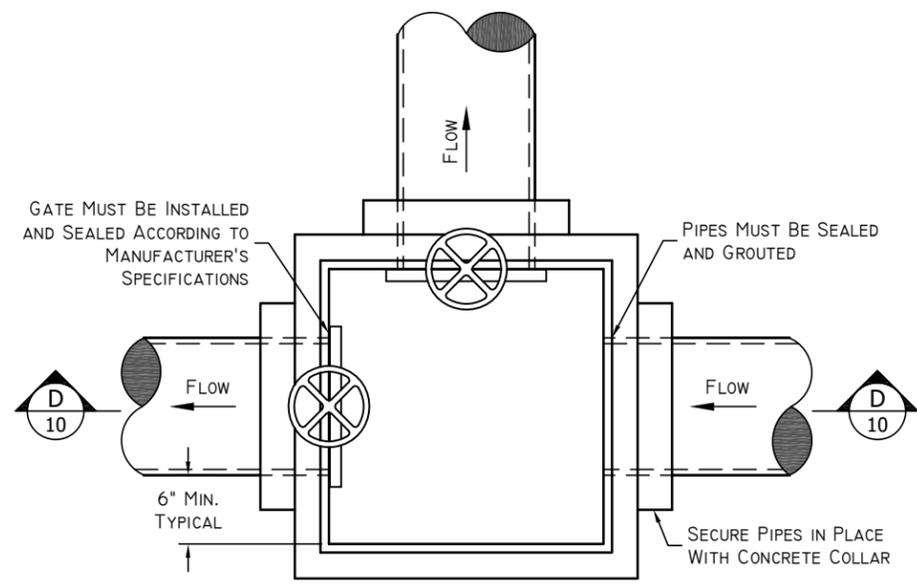
B TURNOUT SECTION
NTS

TABLE I

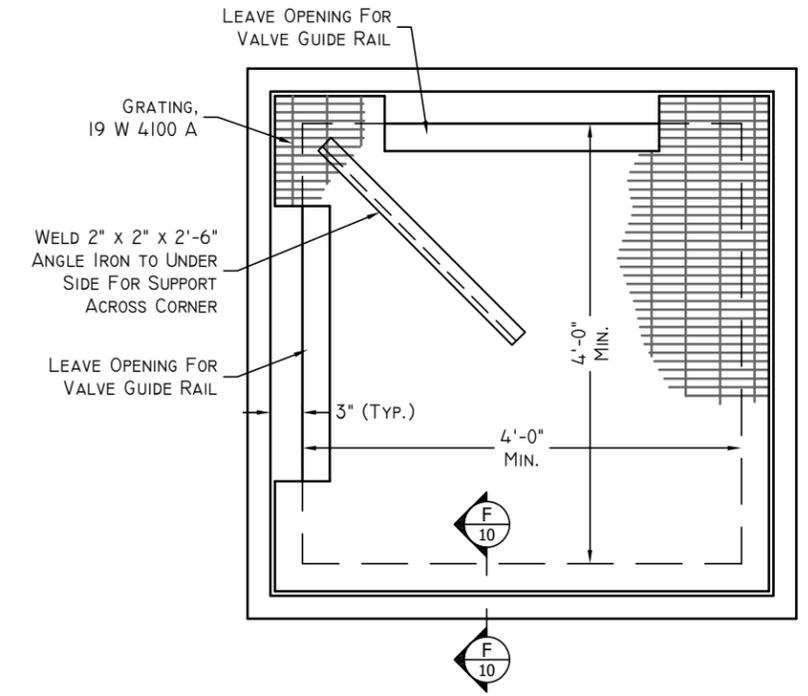
MINIMUM PIPE SLOPES		
PIPE SIZE	MIN. SLOPE, FT/FT	MIN. SLOPE, %
12"	0.002	.2%
15"	0.0015	.15%
18"	0.0012	.12%
24"	0.0008	.08%
30"	0.00058	.058%



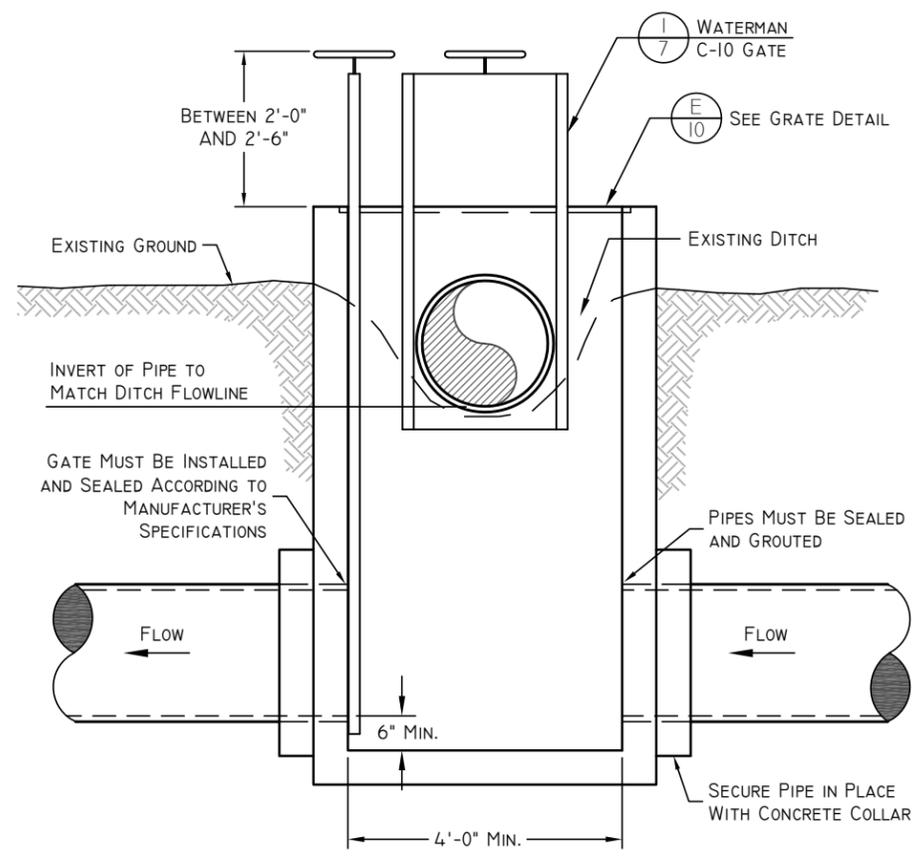
A TURNOUT BOX PLAN
NTS



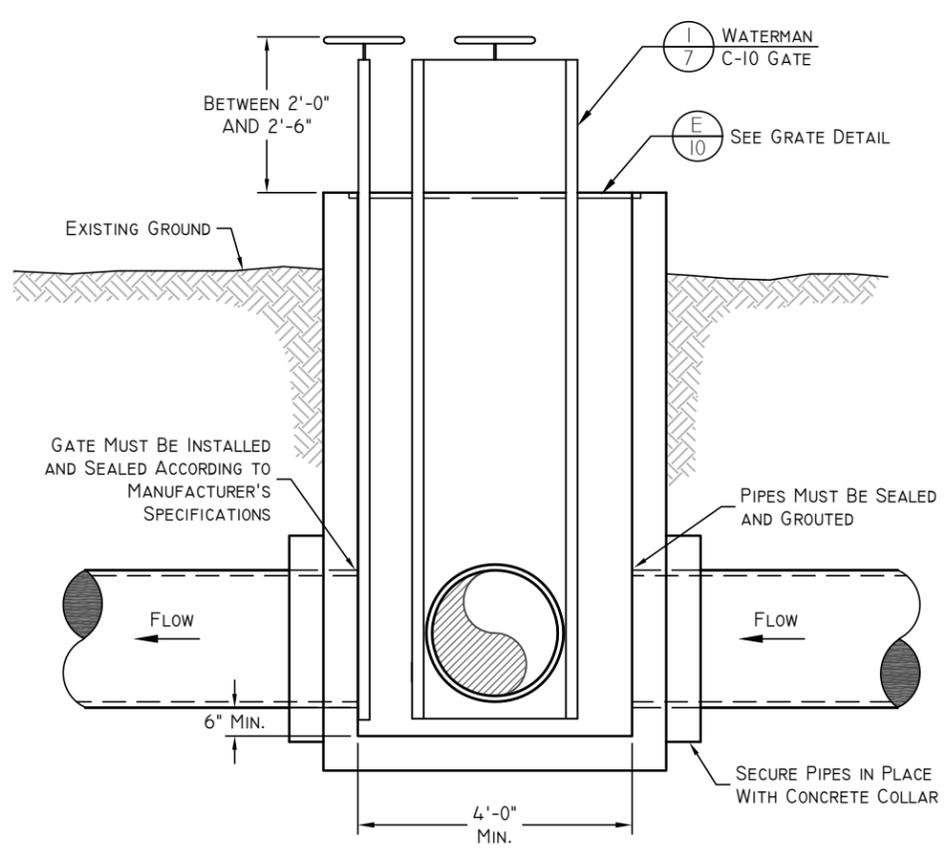
C DIVERSION BOX
NTS



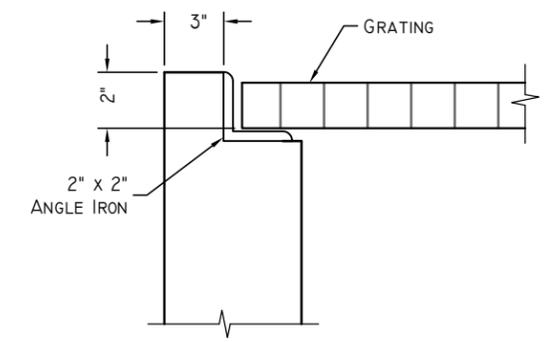
E GRATE DETAIL - TOP VIEW
NTS



B TURNOUT BOX SECTION
NTS



D DIVERSION BOX SECTION
NTS



F GRATING LIP SECTION
NTS

- NOTES:
1. ALL PIPES INTO BOX SHALL BE GROUTED AND WATERTIGHT WITH CONCRETE COLLAR.
 2. BOXES MAY BE PRECAST OR CAST IN PLACE. BOXES SHALL HAVE A MINIMUM INTERIOR WIDTH AND LENGTH OF 4' WITH MINIMUM OF #4 REBAR @ 12" O.C. BOXES MUST BE SUBMITTED FOR REVIEW.
 3. TURNOUT AND DIVERSION BOXES SHALL NOT BE PLACED IN ROADWAY.
 4. GRATE TO BE GALVANIZED.

DESIGNER:	VINCE HORGE	PROJECT LEADER:	CHAD BROWN
DRAFTSMAN:	MATT GURR	PRINT DATE:	JANUARY 30, 2026
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