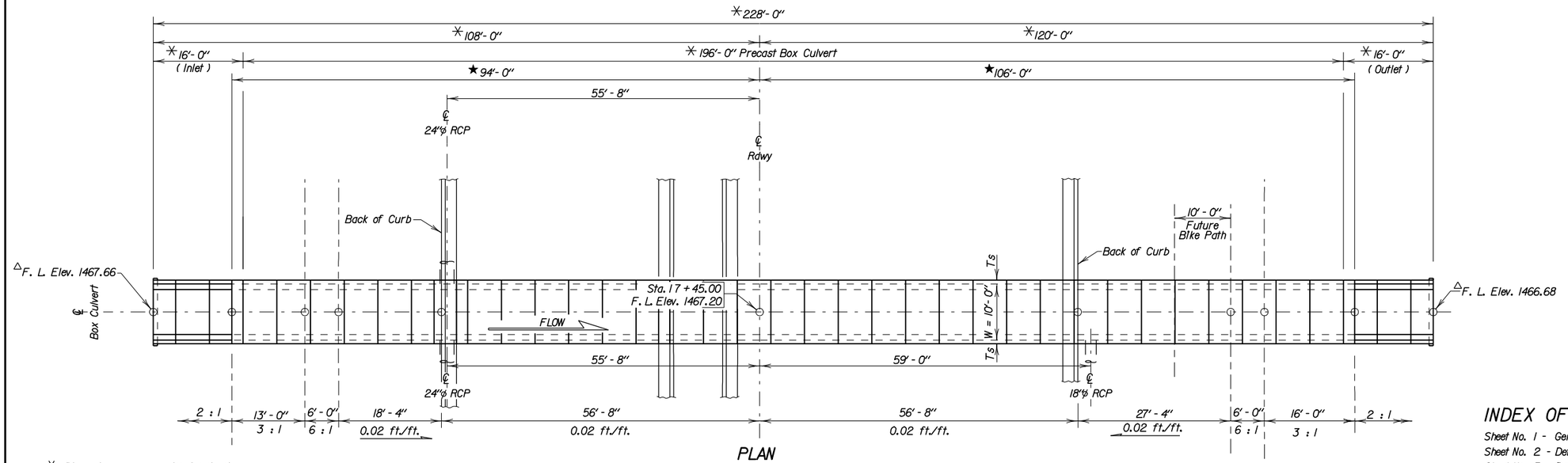
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0011(31)70	1	3

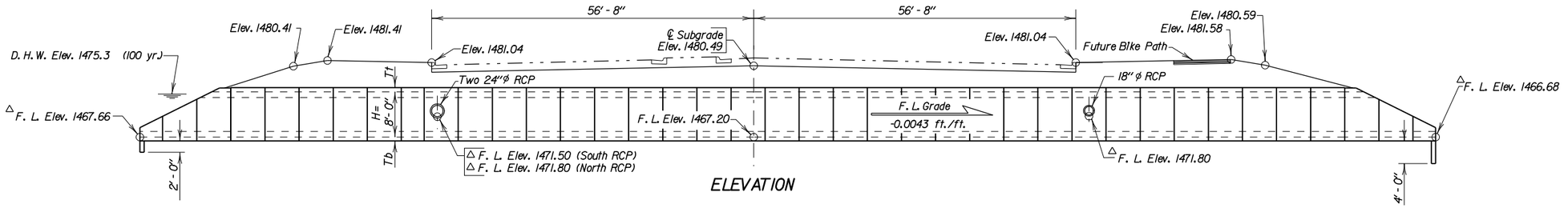


PLAN

✳ Dimension may vary with fabrication. See Shop Plans for actual installation length.

△ Based on dimensions shown.

★ Minimum distance to satisfy fill slope.

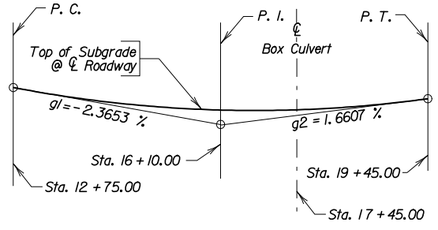


ELEVATION

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall

P. I. Sta. 16 + 10.00
Elev. 1477.04 (Subgrade)
V. C. = 670'



VERTICAL CURVE DATA

INDEX OF CULVERT SHEETS-

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
10' x 8' Precast Concrete Box Culvert, Furnish	Ft.	196
10' x 8' Precast Concrete Box Culvert End Section, Furnish	Each	2

SPECIFICATIONS

Use South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

GENERAL NOTES

Design shall be in accordance with Section 560 of the South Dakota Standard Specifications with the following criteria:

1. Design Live Load: HS20-44, Alternate Loading, and Construction Loading consisting of one axle gross weight = 95,850 lbs. The construction load shall not be applied until a minimum of 3 ft. of fill has been placed over the Box Culvert. If other Construction Loads in excess of legal load are anticipated by the Contractor, the Contractor shall submit a design analysis for the anticipated Construction Loading, through the proper channels, to the Office of Bridge Design for approval.
2. The design of the barrel sections shall be based on a minimum fill height of one (1) foot and include all subsequent fill heights up to and including the maximum fill height of 7 ft. over the box culvert.
3. Minimum inside corner fillet shall be 6 in.
4. Minimum precast barrel section length shall be 4 ft.
5. Lift holes shall be plugged with an approved nonshrinkable grout.
6. The Fabricator shall imprint on the structure the date of construction as specified and detailed on Standard Plate No. 460.02.
7. Installation of the precast sections shall be in accordance with the final approved shop plans.
8. A design and check design done by S.D. Registered Engineers shall be submitted to the Office of Bridge Design thru proper channels for the sections with the 18" and 24" R.C.P. thru the sidewall.

DESIGN MIX OF CONCRETE

1. Mix shall be as per fabricator's design, however minimum compressive strength shall not be less than 4500 p.s.i. at 28 days.
2. Type II cement is required.

SHOP PLANS

The fabricator shall initially submit three (3) copies of the shop plans to the Office of Bridge Design for review. One reviewed copy will be sent back to the fabricator who will then make changes, if any, and then send the Office of Bridge Design seven (7) final approved copies for distribution. Include design and check design, if applicable, with initial submittal.

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

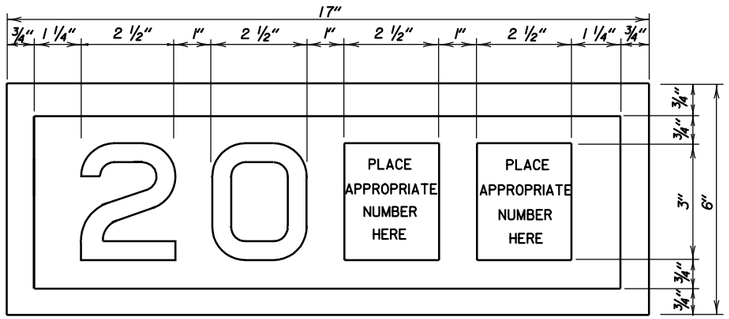
GENERAL DRAWING, QUANTITIES AND NOTES
FOR
10' X 8' BOX CULVERT (PRECAST)

STA. 17+45.00 — 0° SKEW
STR. NO. 50-240-221 — SEC. 25/30-T10IN-R49/48W
OVER SIOUX FALLS BASIN 303-02 — P 0011(31)70
PCN 01AP — HS 20-44 (& ALT.)

MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
MARCH 2007

DESIGNED BY	DRAWN BY	CHECKED BY	
DC	JK	PW	Kevin N. Goeden
MINNO1AP	01APKA01		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0011(31)70	2	3



YEAR PLATE DETAILS

NOTES:

1. Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.

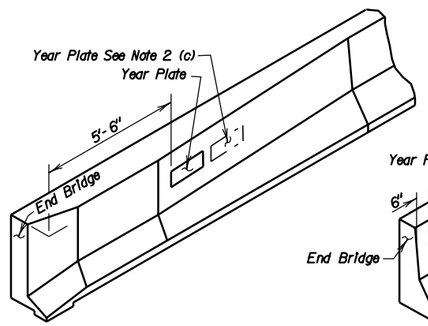
2. Year plates shall be located on structure (s) as follows:

   a. On cast-in-place box culverts the year plates shall be four and one - half (4 1/2) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.

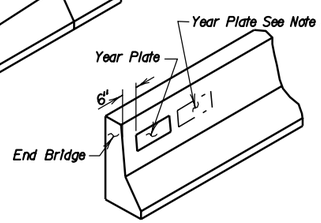
   b. On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'-6" from the end of the bridge, or as designated by the Engineer. There shall be one year plate at each end of the bridge on opposite sides.

   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date shall be placed as listed above and the other located adjacent to it. Both year plates shall be shown at each end of the bridge on opposite sides.

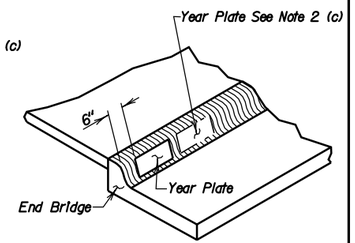
3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work shall be incidental to the other contract items.



JERSEY BARRIER
(With Endblock)



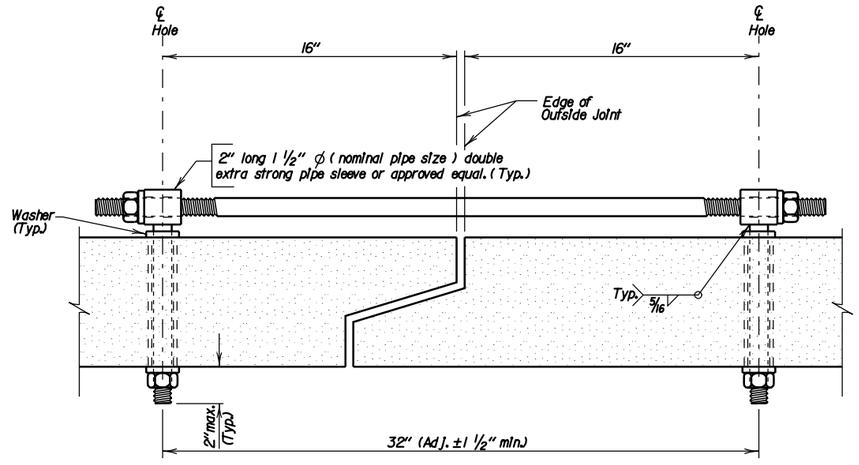
JERSEY BARRIER



TYPE B CURB

March 31, 2000

Published Date: 1st Qtr. 2007	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 of 1



TIE BOLT ASSEMBLY

GENERAL NOTES:

1. All holes for tie bolts shall be cast-in-place, 16 in. from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.

2. Ties shall be 1" ϕ and conform to the requirements of ASTM A36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.

3. Welding and weld inspection shall be in conformance with the current edition of the AWS D1.1 Structural Steel Welding Code.

4. Tie Bolt Assembly shall be galvanized in accordance with ASTM A153.

5. Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.

6. All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per foot for the corresponding "Precast Concrete Box Culvert, Furnish" bid item.

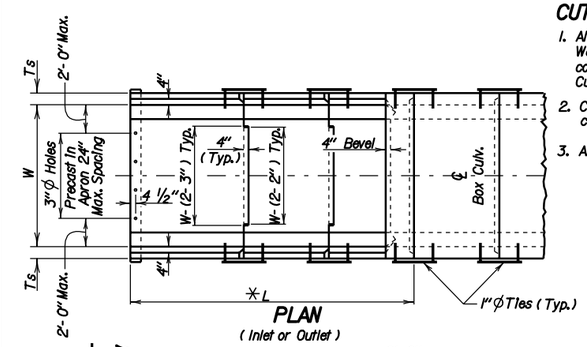
April 25, 2006

Published Date: 1st Qtr. 2007	SDDOT	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
			Sheet 1 of 1

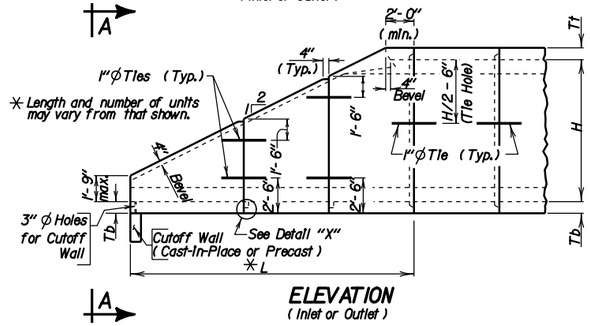
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0011(31)70	3	3

CUTOFF WALL

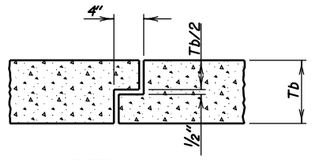
1. All costs associated with furnishing and installing the Cutoff Wall, whether precast or cast-in-place, shall be incidental to the contract unit price per each for the corresponding "Precast Box Culvert End Section, Furnisht bid item.
2. Concrete for cast-in-place cutoff wall shall be Class M6 concrete in accordance with the Standard Specifications.
3. All reinforcing steel shall conform to ASTM A615 Grade 60.



PLAN
(Inlet or Outlet)

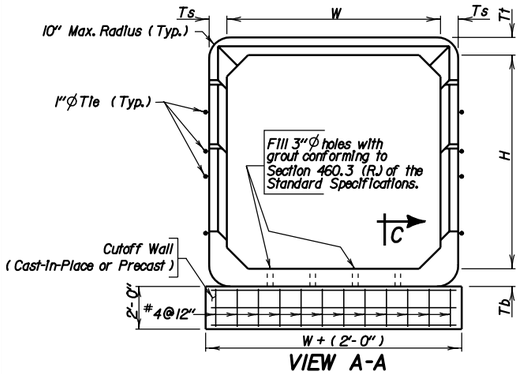


ELEVATION
(Inlet or Outlet)

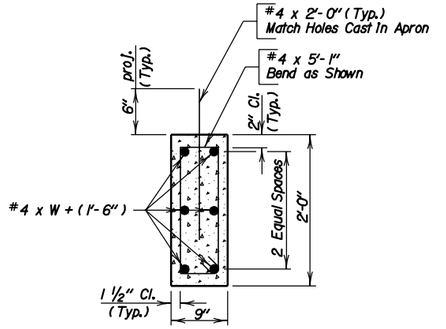


DETAIL "X"

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



VIEW A-A



SEC. C-C

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
L = Length of End Section

NOTE:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, and Ts dimensions shall be furnished by the Contractor.

April 25, 2006

Published Date: 1st Qtr. 2007

SDDOT

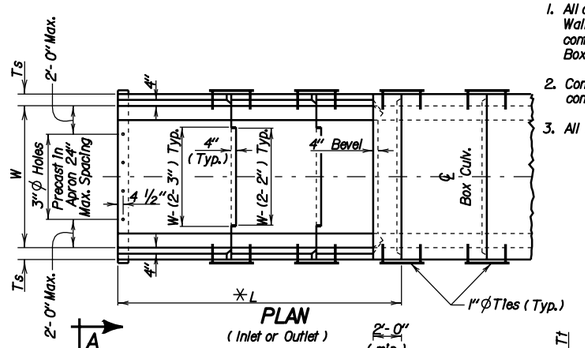
PRECAST SINGLE BOX CULVERT SLOPED END SECTION DETAILS WITH 2'-0" CUTOFF WALL

PLATE NUMBER 560.10

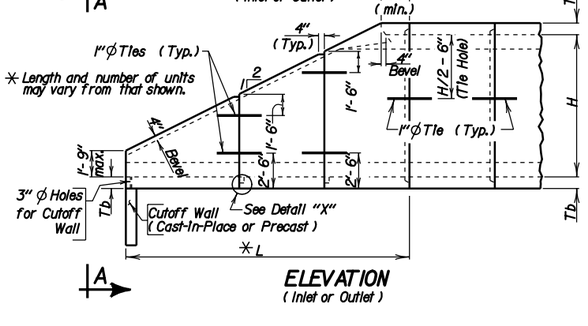
Sheet 1 of 1

CUTOFF WALL

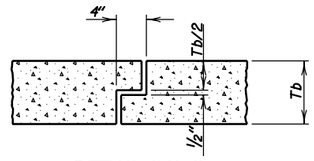
1. All costs associated with furnishing and installing the Cutoff Wall, whether precast or cast-in-place, shall be incidental to the contract unit price per each for the corresponding "Precast Box Culvert End Section, Furnisht bid item.
2. Concrete for cast-in-place cutoff wall shall be Class M6 concrete in accordance with the Standard Specifications.
3. All reinforcing steel shall conform to ASTM A615 Grade 60.



PLAN
(Inlet or Outlet)

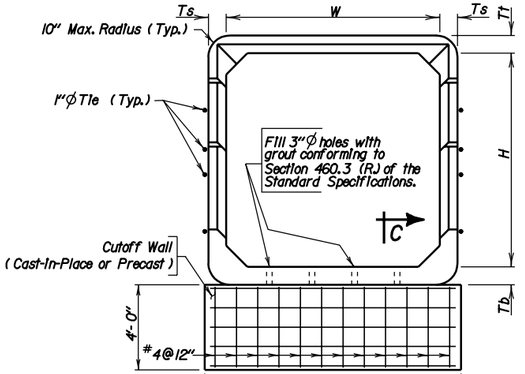


ELEVATION
(Inlet or Outlet)

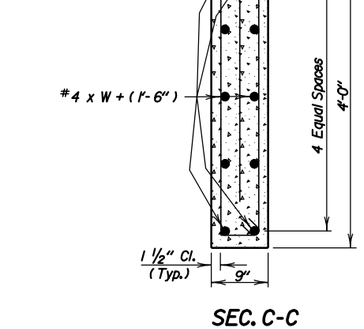


DETAIL "X"

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



VIEW A-A



SEC. C-C

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
L = Length of End Section

NOTE:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, and Ts dimensions shall be furnished by the Contractor.

April 25, 2006

Published Date: 1st Qtr. 2007

SDDOT

PRECAST SINGLE BOX CULVERT SLOPED END SECTION DETAILS WITH 4'-0" CUTOFF WALL

PLATE NUMBER 560.11

Sheet 1 of 1

10' X 8' BOX CULVERT (PRECAST)
STR. NO. 50-240-221
MARCH 2007