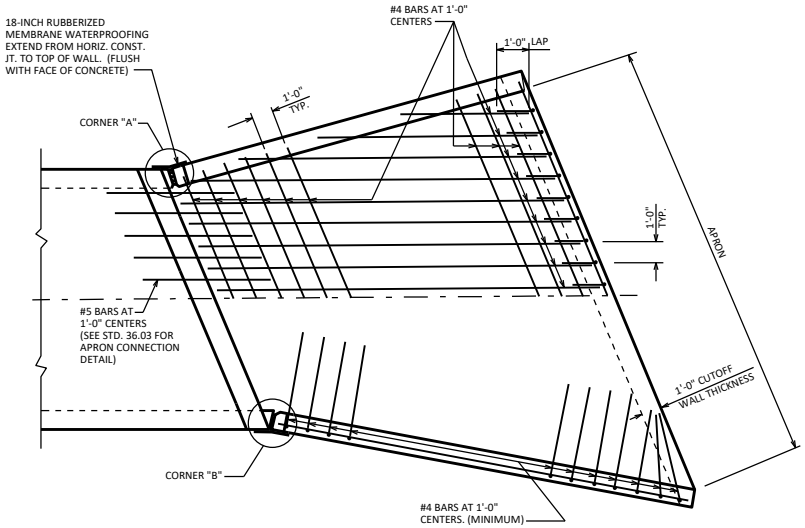
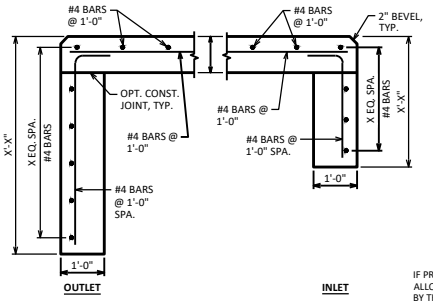
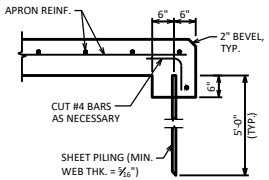


APRON DETAIL



CUTOFF WALLS



ALTERNATE CUTOFF WALLS

THE ABOVE ALTERNATIVE MAY BE USED IN LIEU OF CAST-IN-PLACE CONCRETE CUTOFF WALLS. PAYMENT WILL BE BASED ON THE CONCRETE CUTOFF WALLS.

NOTES

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE CONCRETE IN THE CUTOFF WALL MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

THE "ALTERNATE CUTOFF WALL" DETAIL SHOWN ON THIS SHEET MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUTOFF WALLS. PAYMENT SHALL BE BASED ON CONCRETE CUTOFF WALLS.

IF PRECAST ELEMENTS ARE ALLOWED (AS DETERMINED BY THE ENGINEER), INCLUDE THE FOLLOWING NOTES ON THE LAYOUT SHEET, AS REQUIRED.

THE CONTRACTOR MAY FURNISH (INSERT ALLOWABLE PRECAST ELEMENTS) IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES DESIGN SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL AND SPECIAL PROVISIONS. PAYMENT FOR THE PRECAST CULVERT SYSTEM SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES" FOR THE CAST-IN-PLACE CULVERT SYSTEM. ADDITIONAL ITEMS REQUIRED FOR THE PRECAST SYSTEM SHALL BE INCIDENTAL TO "CONCRETE MASONRY CULVERTS".

THE CONTRACTOR SHALL FOLLOW THESE NOTES WHEN PRECAST ELEMENTS ARE USED IN LIEU OF THE CAST-IN-PLACE ELEMENTS:

THE FOLLOWING SPECIAL PROVISIONS SHALL BE USED:
- PRECAST CONCRETE WINGWALLS (STRUCTURE) (SPV.0060)
- PRECAST CONCRETE BOX CULVERT, (SPAN SIZE) FT X (RISE SIZE) FT (SPV.0090)

THE FOLLOWING STANDARDS SHALL BE USED:
- PRECAST CONCRETE BOX CULVERT DETAILS (STANDARD 36.05)
- PRECAST WINGS, HEADERS, AND CUTOFF WALLS FOR PRECAST CONCRETE BOX CULVERT (STANDARD 36.06)

THE MOST CURRENT STANDARDS AND SPECIAL PROVISIONS CAN BE OBTAINED ON THE BUREAU OF STRUCTURES' WEBSITE:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/design-policy-memos.aspx

JOINT TIES ARE REQUIRED (INSERT LOCATIONS WHERE JOINT TIES ARE REQUIRED).

(INSERT PRECAST BOX CULVERT UNDERCUT AND BEDDING BACKFILL NOTES. NOTES SHALL BE COMPATIBLE WITH A 6" MINIMUM TYPE B BEDDING. REFER TO STANDARD 9.02 FOR TYPICAL CULVERT UNDERCUT AND BEDDING NOTES.MODIFY NOTES AS REQUIRED.)

IF PRECAST ELEMENTS ARE NOT ALLOWED (AS DETERMINED BY THE ENGINEER), INCLUDE THE FOLLOWING NOTE ON THE LAYOUT SHEET.

(INSERT PRECAST ELEMENTS) NOT ALLOWED.

DESIGNER NOTES (CAST-IN-PLACE CONCRETE)

ALL BAR STEEL FOR CAST-IN-PLACE CONCRETE BOX CULVERTS SHALL BE UNCOATED, EXCEPT WHEN FILL IS LESS THAN 2-FT WHILE SUPPORTING TRAFFIC LOAD, EPOXY COATED BARS SHALL BE USED IN THE TOP SLAB (TOP , BOTTOM, AND CORNER BARS). PRECAST BOX CULVERT NOT ALLOWED FOR WHEN FILL IS LESS THAN 2-FT WHILE SUPPORTING TRAFFIC LOAD.

BAR STEEL FOR CAST-IN-PLACE CONCRETE APRONS SHOULD BE UNCOATED AND BAR STEEL FOR WINGWALL DOWELS AND ALL WINGWALL BARS SHALL BE EPOXY COATED.

FOR "B" DESIGNATED CONCRETE BOX CULVERTS HAVING THEIR TOP SURFACE AT GRADE, HAND HELD FINISHING MACHINES MAY BE USED. NOTE THIS ON PLANS WHEN APPLICABLE.

SEE STANDARDS 9.02 AND 36.01 FOR ADDITIONAL NOTES.

DESIGNER NOTES (PRECAST CONCRETE)

IT IS THE RESPONSIBILITY OF THE DESIGNER TO DETERMINE IF PRECAST ELEMENTS ARE ALLOWED. FOR SITE CONDITIONS NOT COVERED BY THE STANDARD DETAILS AND SPECIAL PROVISIONS, ADDITIONAL NOTES AND DETAILS MAY BE REQUIRED.

ALLOWABLE PRECAST ELEMENTS INCLUDE: BOX CULVERT BARREL SECTIONS, WINGWALLS, HEADERS, AND CUTOFF WALLS. APRON FLOORS SHALL BE CAST-IN-PLACE, UNLESS DESIGNED OTHERWISE. THE DESIGNER SHALL DETERMINE IF PRECAST ELEMENTS ARE ALLOWED ON A PROJECT-BY-PROJECT BASIS.

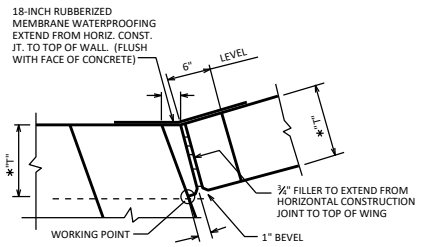
PROVIDE CAST-IN-PLACE DETAILS ONLY, UNLESS SPECIAL PRECAST DETAILS ARE REQUIRED OR WHEN A PRECAST ONLY DESIGN IS PROVIDED.

PRECAST ONLY DESIGNS REQUIRE PRIOR APPROVAL BY THE BUREAU OF STRUCTURES. SEE BRIDGE MANUAL SECTIONS 36.11.4 AND 36.12 FOR ADDITIONAL INFORMATION. IF USED, PROVIDE PRECAST DETAILS FOLLOWING STANDARDS 36.05 AND 36.06 WITH THE FOLLOWING SPECIAL PROVISIONS:
- PRECAST CONCRETE WINGWALLS (STRUCTURE) (SPV.0060)
- PRECAST CONCRETE BOX CULVERT, (SPAN SIZE) FT X (RISE SIZE) FT (SPV.0090)

JOINT TIES ARE REQUIRED BETWEEN THE LAST TWO BARREL SECTIONS ON SKEWED STRUCTURES OR AT OTHER LOCATIONS DETERMINED BY THE ENGINEER. WHEN JOINT TIES ARE REQUIRED AT OTHER LOCATIONS, PROVIDE A PLAN NOTE OR LIMITS IDENTIFYING THE REQUIRED JOINT TIE LOCATIONS. SITES SUSCEPTIBLE TO DIFFERENTIAL SETTLEMENT MAY WARRANT JOINT TIES ALONG THE BOX CULVERT LENGTH.

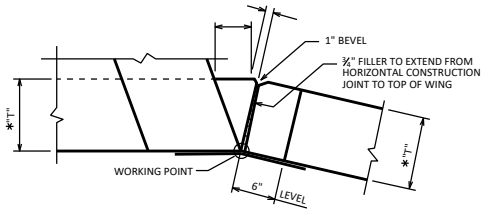
SEE STANDARDS 9.02 AND 36.01 FOR ADDITIONAL NOTES.

SEE STANDARDS 36.05 AND 36.06 FOR PRECAST BOX CULVERT DETAILS.



CORNER "A"

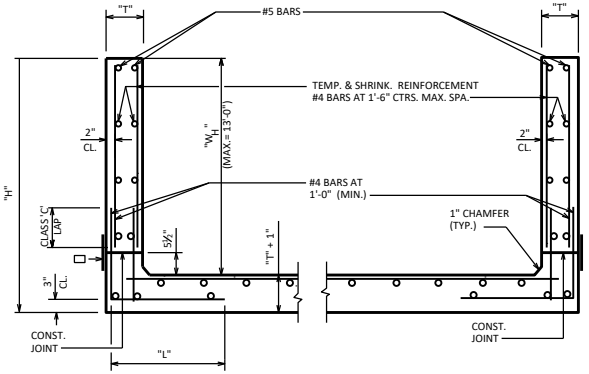
* DIMENSION "T" TO BE DETERMINED FROM BARREL DESIGN



CORNER "B"

"H" (FT.)	"L" (FT.)
≤ 5'-0"	3'-8"
> 5'-0" – 7'-0"	5'-2"
> 7'-0" – 8'-0"	6'-1"
> 8'-0" – 9'-0"	6'-9"
> 9'-0" – 10'-0"	7'-4"
> 10'-0" – 11'-0"	7'-8"
> 11'-0"– 12'-0"	8'-0"
> 12'-0" – 13'-0"	8'-4"
> 13'-0" – 14'-0"	8'-6"

"H" IS MAX. WING WALL HEIGHT



SECTION THRU WINGWALLS

☐ 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING ALONG HORIZ. CONSTR. JT. IN WING.

THE AREA OF REINFORCING STEEL NOT IDENTIFIED IN SECTIONS SHALL CONFORM TO THE FOLLOWING TEMPERATURE AND SHRINKAGE REQUIREMENTS:

THICKNESS	T&S REINF.
≤ 12"	#4 @ 18"
> 12" – 18"	#4 @ 12"

BOX CULVERT APRON DETAILS

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 7-25

STANDARD 36.02