Revised 01-2023: Added Granular Leveling Material requirements Section 4117 of Standard Spec. and note including cost of material and labor associated with Granular Leveling Material.
Updated Granular Leveling Material Detail, was Special Backfill Material Detail. Removed Special Backfill from notes and update Bridges and Structures Bureau terminology.
Removed Shop Drawing Submittals table and replaced with "Note to Detailer" to add CADD Cell E65 "Working Drawing & Calc. Submittals" table to plan set.
ENGLISH_LRFD_SIGNED_PRECAST_PEDESTRIAN_TUNNEL_STANDARDS.DGN - 7001P - THIS SHEET ISSUED 08-2020

General Notes:

It is the intent of this design to construct a ___ x ___ x ___ precast concrete pedestrian tunnel with cast-in-place end sections and headwalls at Sta. _____ skewed 0°.

The precast RCB culvert sections are designed for HL-93 live load and earth fills of _____ feet.

Utility companies and municipalities whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Contractor of the construction starting date.

All dimensions are in feet and inches unless otherwise noted or shown.

The precast RCB barrel sections shall conform to Iowa D.O.T. precast reinforced concrete pedestrian tunnel standards.

Excess Class 20 excavation material suitable for backfilling shall be stockpiled at the construction site, as directed by the Engineer.

The length in linear feet of precast reinforced concrete pedestrian tunnel will be based on the plan quantity. For the number of linear feet given on the plan, the Contractor will be paid the contract unit price per linear foot. The payment shall be full compensation for furnishing all material, labor and equipment necessary to complete the work except for bid items "Class 20 Excavation", "Structural Concrete (RCB Culvert)", "Reinforcing Steel".

The Contractor shall furnish and install culvert ties for all joints between precast barrels.

Culvert ties shall be included in the cost for precast concrete box culvert. Tie rods will be 1 inch diameter steel and shall meet requirements of ASTM A709 Grade 36 or equal.

Culvert tie assemblies shall be galvanized after fabrication.

The limits for excavation for the precast concrete pedestrian tunnel shall be as shown on the "Granular Leveling Material Detail".

A minimum of 6 inches of Granular Leveling Material shall be used as bedding for the precast concrete pedestrian tunnel. The bedding shall be shaped to a flat base using a template. All costs including material and labor associated with providing and installing the Granular Leveling Material shall be included in the bid item "Precast Reinforced Concrete Pedestrian Tunnel".

The Granular Leveling Material shall meet the requirements of Section 4117 of the Standard Specifications.

All costs for sawcutting, sealant, and labor to install the 'C' joint to be included in the price bid for Concrete Overlay.

The Contractor shall submit details of the proposed precast concrete box sections for this project. The details shall include the following information as found on the "PT-Submittal Shop Drawing 7020P" standard sheet:

a. A Situation Plan drawing showing the back to back parapet dimension for the line of the culvert sections.
b. Dimension the number of precast sections and section lengths.
c. A detail of the precast barrel sections showing a cross section view of the section, steel locations, dimensions, etc.

The Contractor shall provide all information shown on the submittal shop drawing sheet. Shop drawings shall be submitted with the following naming convention:

(Paren)_County_DesignNumber_SubmittalDescription.pdf
Example: (090)_BlackHawk_Design915_DeckDrains.pdf

Approval of details is not required for projects conforming to the Iowa D.O.T. Precast Reinforced Concrete Pedestrian Tunnel Standards. However, the details shall be received by the Bridges and Structures Bureau prior to the start of fabrication.

Notes to detailers:

Include the following bid items for concrete overlay work:
- 2310-5151040 Portland Cement Concrete Overlay, Furnish Only
- 2310-5151045 Portland Cement Concrete Overlay, Placement Only (SY)

If pedestrian tunnel is part of a primary project, include an Estimate Reference note for the 2310 bid items stating that Section 2310.03,C,1,a shall not apply.

If anti-graffiti coating is intended for project, include Bid Item 2599-9999018 Anti-Graffiti Coating (SY) and list the SP title in the Estimate Reference Information. The attached SP should be turned in to Specifications' SP turn-in folder at least one week prior to letting.

If colored sealer coating is intended for project, include Bid Item 2403-7303000 Structural Concrete Coating (SY) and list the DS title in the Estimate Reference Information. The attached DS should be turned in to Specifications' DS turn-in folder at least one week prior to letting.

ADA (and FHWA) allows up to a 5% grade on sidewalks without handrails and level landings. Beyond 5% and up to 8.33%, handrails and level landings would be required at 30'-0" maximum intervals.

Designer to evaluate water drainage in pedestrian tunnel. If profile is very flat or other circumstances exist that may lead to ponding within tunnel, Designer should consider adding a crown to the concrete overlay or pitching the overlay to one side to minimize ponding in travelway.

Designer to provide longitudinal subdrains at base of pedestrian tunnel. Provide appropriate details to show the outletting of subdrains based on site conditions.

If concrete form liner and rustications are applied to wingwalls, add notes to "Structural Concrete (RCB Culvert)" bid item estimate reference information stating costs associated with form liner, rustications and mockup panel are included with bid item.

Standards:
For details and notes not shown refer to the following Iowa D.O.T. - Highway Standards:

Standard	Issued	Revised
?	?	?

Summary of Reinforcing Steel

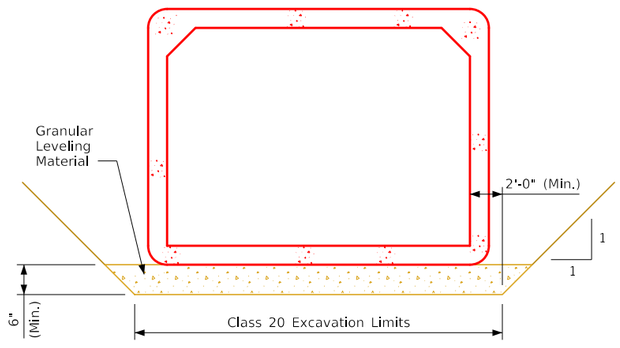
Location	Quantity	Total
___ Headwall 0° Skew	2 at ?	?
___ Barrel End Section	? at ?	?
	Total (LB)	?

Concrete Placement Quantities

Location	Footing	Walls	Slab	Total
___ Headwall 0° Skew	2 at	2 at	✳ 2 at	?
___ Barrel End Section	? at ?	? at ?	? at ?	?
Total (CY)	?	?	?	?

✳ Includes parapet and top of wingwall.

Note to Detailer:
Incorporate CADD Cell E65 for Working Drawing and Calculations Submittals table into plan set.



Granular Leveling Material Detail

Granular Leveling Material Shall Terminate 2'-0" Beyond the End of the Precast Barrel.

General Notes & Quantities

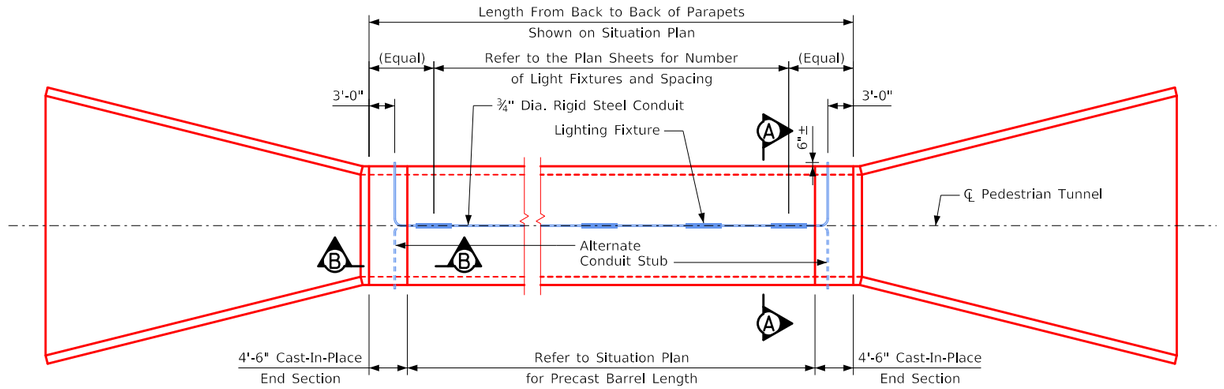
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	Precast Pedestrian Tunnel General Notes & Quantities	Standard Sheet 7001P	COUNTY	PROJECT NUMBER	SHEET NUMBER

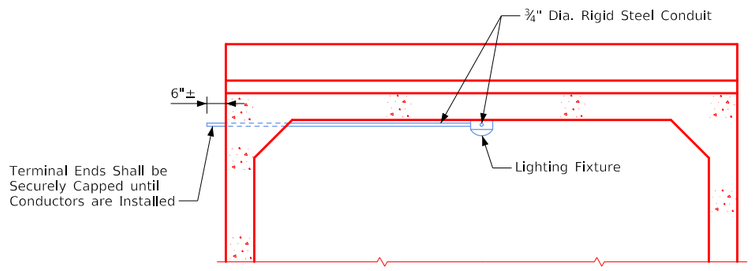
12/28/2022 4:26:27 PM bkloss pw:\\NTPwintl.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards Development V8i\Culverts\EnglishPrecastPedestrianTunnel.dgn 7001P 11x17_pdf.pltcfg

General Lighting Notes:

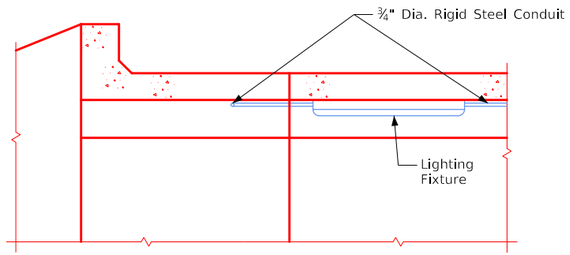
1. Construction shall conform to Section 2523 of the Standard Specifications as applicable to the project.
2. See design plans for project specific details (electrical service routing, handhole locations, control cabinet details, lighting fixture specification, conductor requirements, etc.).
3. Secure conduit and lighting fixtures to concrete with post-installed anchors. Type and size to be approved by the Engineer.



Tunnel Plan



Section A-A



Section B-B

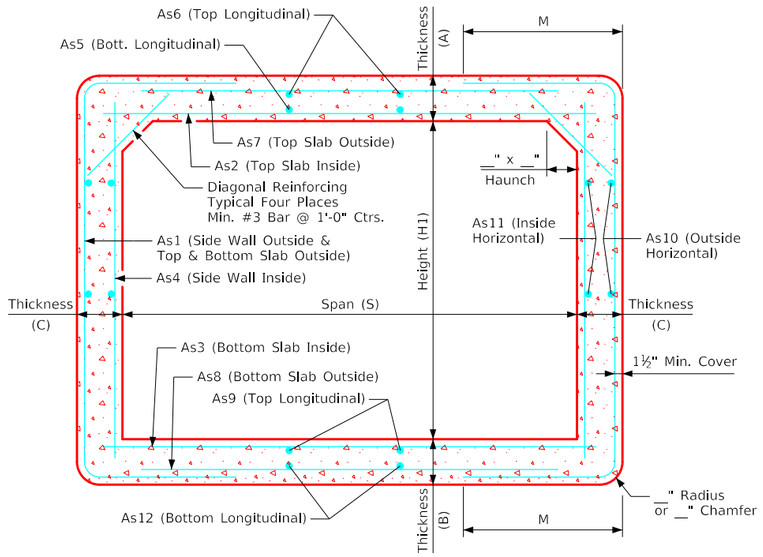
Lighting Details

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	Precast Pedestrian Tunnel Lighting Details	Standard Sheet 7010P	COUNTY	PROJECT NUMBER	SHEET NUMBER

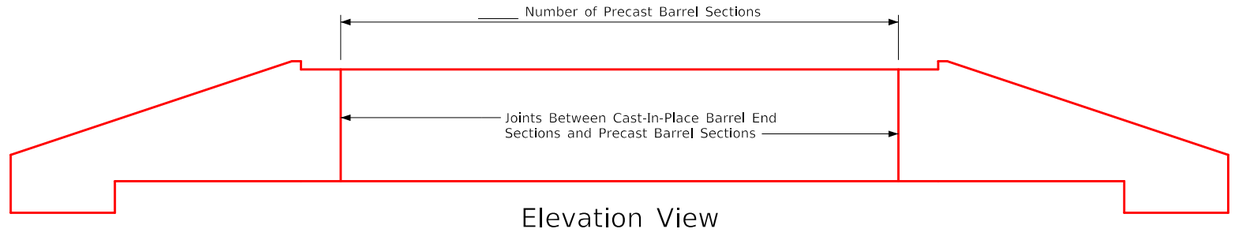
12/28/2022 4:26:29 PM bkloss pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards Development V8i\Culverts\EnglishPrecastPedestrianTunnel.dgn 7010P 11x17_pdf.pltcfg



Barrel Section

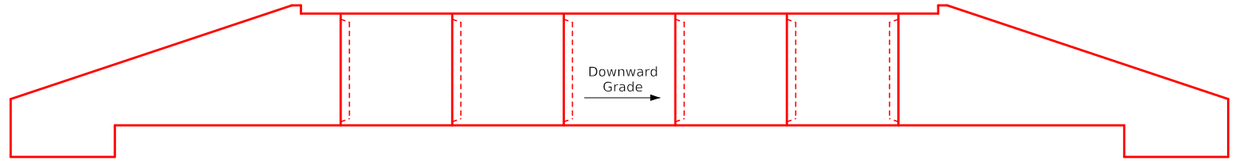
Loading, Design Methods and Materials

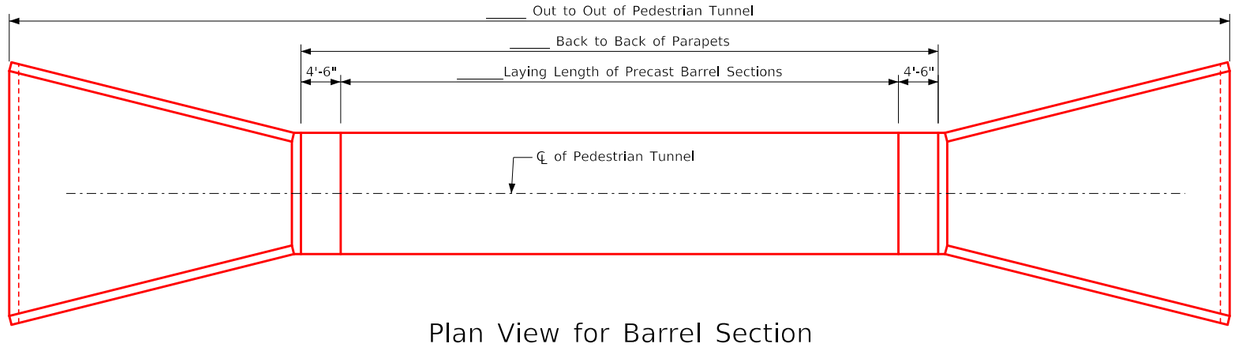
Any precast box culvert designs submitted, that vary from the IDOT Standards, shall be designed and sealed by a professional Engineer currently registered in the state of Iowa. Nonstandard designs shall be based on the design criteria used for the IDOT Standards. Minimum laying length shall be 4'-0". Minimum concrete strength, f'c, shall be 5 KSI.



Elevation View

(Show the Number of Precast Barrel Sections)





Plan View for Barrel Section

(Show Overall Length and Back to Back of Parapets)

___ FT. x __ FT. x ____ FT. Pedestrian Tunnel

Barrel Section

Design Earth Cover (FT)	f'c (KSI)	A (IN.)	B (IN.)	C (IN.)	M (IN.)		Circumferential Reinforcement																					
							As1		As2		As3		As4		As5		As6		As7		As8		As9		As10		As11		As12	
							Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2	Layer 1	Layer 2
						Bar Size																						
						Spacing (IN.)																						
						Area (IN.²/FT)																						