IOWA DOT
Highway Division

Reinforced Concrete Pedestrian Tunnel Standards

General Notes:

1. The reinforced concrete pedestrian tunnel sections are designed for HL-93 live load and earth fills of varying heights.
2. Vertical earth pressure, EV=0.120 kcf.
   Horizontal earth pressure, EHmax = 0.060 kcf max, EHmin = 0.030 kcf.
3. The reinforced concrete pedestrian tunnel sections are designed for Class 1 exposure conditions except:
   Class 2 exposure condition is utilized for the slab design in 0' fill instances.
4. All slab and floor reinforcing steel is to be supported at intervals of not more than 3'-0" in either direction as outlined in the Standard Specifications.
5. The clear distance from face of concrete to near edge or end of reinforcing bar to be 2" unless otherwise noted.
6. Except for dowel bars 5r1 in slab, longitudinal reinforcing is not to extend thru the construction joints.
7. Floor of barrel shall receive a broomed finish meeting the requirements of Article 2511.03,B,3,b, of the Standard Specifications and meet the smoothness requirements of Article 2511.03,B,5,b, of the Standard Specifications. Sides of footing are to be formed to ensure correct line and grade. Following broom finishing of the sidewalk surface, apply white pigmented liquid curing compound to the sidewalk in accordance with Section 2301.03,K,2, of the Standard Specifications. Do not damage the broom finish by using additional curing methods that include fabric, plastic, or other covers during the initial curing period. Ensure that coverings will not damage the broom finish by waiting until surface has sufficiently set before application.
8. The permissible construction joint at the top of the walls may be lowered at the Contractor's option with Engineer's approval.
9. The reinforcement supplied for this structure shall be Grade 60 reinforcement in accordance with the Standard Specifications. The design stresses are based on Grade 60 reinforcement.
10. The vertical bars in the walls may be spliced above the footing at the Contractor's option as follows:

Bar Size Number	4	5	6	7
Minimum Splice Length	20"	24"	29"	34"

This splice, if used, will be at the Contractor's expense.

11. Reinforcing bar clearances will be as follows:
    Edge clearances: 2" except
    Top of floor 2¼" to near transverse reinforcing bar
    Bottom of floor 3½" to near transverse reinforcing bar
    End clearances:
    Vertical top 2"
    Vertical bottom 3" or 3½" if overall height of the culvert is not to a full inch
    Transverse 2"
12. These pedestrian tunnel standards label all reinforcing steel with English notation (5a1 is ⅝ inch diameter bar). English reinforcing steel received may display the following "bar designation". The "bar designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	4	5	6	7	8	9
Bar Designation	13	16	19	22	25	29

13. All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.
14. All construction joints shall be formed with a beveled keyway except at bell joints.
15. All beveled keyways shall be centered.
16. Keyway size shall be 2"x4" except the keyway between the barrel floor and wall and the headwall apron and wingwall shall be 2"x6".

General Notes Continued:

17. Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.
18. If 0' of fill is specified, details for paving notch and reference to epoxy coating of slab reinforcing steel, if applicable, shall be included in the final plans.
19. All dimensions are in feet and inches unless otherwise noted or shown.
20. PVC waterstop shall be applied to the transverse construction joints in the slab, walls, and floor. PVC waterstop shall be installed in accordance with the Manufacturer's recommendations. Omit PVC waterstop when bell joints are used. The following is a listing of approved PVC waterstop:
    1. Greenstreak #738
    2. Southern Waterstops 25RCB
    3. Approved Equal
21. Bentonite waterstop shall be applied to the longitudinal construction joints at the top and bottom of the walls. Bentonite waterstop shall be installed with a Manufacturer's approved adhesive in accordance with the Manufacturer's recommendations. The following is a listing of approved bentonite waterstop:
    1. Greenstreak Swellstop
    2. Henry Hydro-Flex
    3. Approved Equal
22. Bentonite waterstop shall be protected from exposure to moisture prior to concrete placement. Bentonite waterstop that has swelled prior to concrete placement shall be replaced at no cost to the State.
23. Waterproof membrane shall be applied to the outside face of the transverse construction joints in the slab and walls. Waterproof membrane shall be installed with a Manufacturer's approved adhesive in accordance with the Manufacturer's recommendations. Omit waterproof membrane when bell joints are used. The following is a listing of approved waterproof membrane:
    1. W.R. Meadows Mel-Rol
    2. Grace Construction Products Bituthene 3000 (Below Grade)
    3. Approved Equal

Index for Pedestrian Tunnel Standards:

Specifications:

Design:
AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017.

Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, current series, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions.

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017:
Reinforcing steel in accordance with AASHTO LRFD Section 5, Grade 60.
Concrete in accordance with AASHTO LRFD Section 5, f'c = 4.0 KSI.

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

Cast-In-Place Standard Design - Walkways and Trails

Reinforced Concrete Pedestrian Tunnel

August, 2020

Index & General Notes

PT G1-20

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