

Drainage Structures Notes:

1. Mortar joints 1/2" +/- 1/8" thick.
2. Use class "A" concrete (3,000 PSI) throughout.
3. Use forms for construction of floor slab.
4. Deduct from pipe(s) for total Cu. Yds. Of brick masonry.
5. Use #4 bar dowels at 12" O.C.
6. Use brick or concrete block which complies with the requirements of NCDOT Section 840 of the Standard and Specifications (latest revision).
7. Steps shall be installed in all catch basins over 3'-6" in depth at 15" O.C.. Depth shall be measured from the top of gutter to invert. Galvanized reinforced steel shall not be used for steps. See NCDOT standard drawing #840.66.
8. A concrete base pad per NCDOT standard drawing #840.00 shall be added for reinforced concrete pipes set at the floor slab.
9. Construct with pipe crowns matching.
10. Chamfer all exposed corners 1".
11. Boxes may be reinforced masonry, masonry, precast concrete or cast-in-place reinforced concrete.
12. Any non-standard box (non-standard meaning not shown in this manual), is to be designed by a NC Professional Engineer and approved by the City Engineer.
13. For basins 8'-0" in depth or less use 8" thick walls. If depth of basin is over 8'-0", wall thickness shall be 12" from bottom to 6'-0" in depth and 8" for the remaining depth of the basin. Basins over 12' in total depth shall be designed by a NC Professional Engineer and approved by the City engineer. Four inch walls are not allowed on drainage structures. Bottom slab on structures shall be reinforced when box depth exceeds 8 ft. All reinforced slabs to be designed H20, detailed by a NC Professional Engineer and approved by the City engineer.
14. Steps are to be PS1-PF as manufactured by M. A. Industries or an approved equal. Locate on non-pipe walls. Steps shall meet OSHA requirements and shall be stagger spaced at 15" o/c.
15. Mortar in masonry boxes is to be type M.
16. Clay brick structures are not to be allowed.
17. Concrete pipe is to be minimum class III.
18. All cast-in-place or precast concrete drainage structures located in paved areas accessible to truck loadings to be designed to meet AASHTO HS 20-44 loading. See manufacturers details for wall, top and bottom thickness.
19. Inside of boxes shall allow for 6" of clearance on both sides of pipe. The dimension shown on the structures in this manual are minimum dimensions. For boxes with greater dimensions, either corbel walls, add a reinforced concrete top slab or lengthen box by adding additional grates & frames. Top and bottom slabs to be designed by NC Professional Engineer and approved by the City Engineer for H20 loading.
20. Maximum horizontal span of an 8" thick wall shall not exceed 8' for boxes of 8 feet or less in depth and 10 feet for boxes 12 feet or less in depth. NCPE to verify based on soil type, ground water elevation and surcharge conditions.

Details Provided by APPIAN Consulting Engineers - www.applanengineers.com



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USE WITH THE STANDARD SPECIFICATIONS ONLY

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DRAINAGE STRUCTURES NOTES

SCALE:
Not to Scale

DETAIL#
638.01

REVISION DATE:
06/2017

SHEET#
1 of 1