

NOTES

1. ALL CONCRETE USED FOR CONSTRUCTION OF STORM DRAIN STRUCTURES, FOOTING SLABS, END SECTIONS, ENDWALLS, ETC. SHALL BE MD DEPT. OF TRANS. S.H.A. STANDARD MIX NO. 3 CONCRETE WITH A COMPRESSIVE STRENGTH OF 3,500 P.S.I. AT 28 DAYS. FLOW CHANNELS MAY BE MIX NO. 2 WITH A COMPRESSIVE STRENGTH OF 3,000 P.S.I. AT 28 DAYS. ALL CONCRETE SHALL HAVE 5%-8% AIR AND 2"-5" SLUMP. DO NOT ADD WATER TO CONCRETE SURFACES FOR FINISHING. NO BRICK SHALL BE USED FOR FLOW CHANNEL CONSTRUCTION.
2. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615 GRADE 60 AND WELDED WIRE FABRIC SHALL MEET ASTM A185. REINFORCING STEEL SHALL HAVE 2" COVER UNLESS OTHERWISE SPECIFIED. ALL HORIZONTAL REINFORCING STEEL IN STRUCTURE WALLS SHALL EXTEND 16" MINIMUM PAST THE WALL CORNERS AND BE BENT AT 90° SO AS TO TIE TO THE CORRESPONDING HORIZONTAL REINFORCING STEEL OF THE ADJACENT STRUCTURE WALL.
3. BRICK MAY BE SUBSTITUTED FOR CONCRETE IN MANHOLE AND INLET WALL CONSTRUCTION IF APPROVED IN WRITING BY THE CITY ENGINEER. A TYPICAL BRICK WALL SHALL BE DOUBLE BRICK CONSTRUCTION WITH A HEADER COURSE EVERY 7TH COURSE WITH TOOLED JOINTS ON THE INSIDE FACES AND PARGING (CEMENT MORTAR 1/2" MIN. THICKNESS) ON THE OUTSIDE FACES. BRICK SHALL CONFORM TO ASTM C32. MORTAR CEMENT SHALL BE TYPE "N" UNLESS OTHERWISE SPECIFIED. BRICK SHALL NOT BE USED FOR FLOW CHANNEL CONSTRUCTION.
4. LADDER RUNGS SHALL BE INSTALLED IN ALL STORM DRAIN STRUCTURES WITH A DIFFERENCE IN ELEVATION OF 4 FEET OR MORE FROM THE INVERT GRADE TO THE FINISH GRADE OF THE GRATE OR RIM. LADDER RUNG CONSTRUCTION SHALL BE IN ACCORDANCE WITH PLATE SD-012.
5. FLOW CHANNELS AND BENCHES SHALL BE CONCRETE ONLY AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH PLATE SD-013.
6. FRAMES AND COVERS SHALL BE CAST IRON AND WEIGH APPROXIMATELY 250 LBS AND 170 LBS RESPECTIVELY IF MD DEPT. OF TRANS. S.H.A. STANDARD NO. MD-383.31 AND MD-383.32 ARE SPECIFIED. FRAMES AND COVERS SHALL BE CAST IRON AND WEIGH APPROXIMATELY 66 LBS AND 107 LBS RESPECTIVELY IF MD DEPT. OF TRANS. S.H.A. STANDARD NO. MD-383.61 IS SPECIFIED. COVERS SHOULD BE CAST WITH THE WORDS "STORM DRAIN" ON THE SURFACE. ALL FRAMES AND COVERS SHALL BE PAINTED WITH BENJAMIN MOORE ULTRA SPEC LOW LUSTRE (HP 25) NO. 82 SAFETY BLACK (TWO COATS) OR WITH AN APPROVED EQUAL.
7. ALL INLET FRAMES AND GRATES, STEEL CHANNELS, ETC. SHALL BE SQUARE, FLAT, AND STRAIGHT AND SHALL BE GALVANIZED AFTER FABRICATION.
8. STORM DRAIN PIPE IN THE PUBLIC RIGHT OF WAY SHALL CONFORM TO ASTM C76 CLASS 4, WALL "B", OR GREATER, AND SHALL BE LAID TO THE EXACT GRADE AND LINE SPECIFIED AND SHALL FORM A TRUE AND SMOOTH LINE OF SEWER THROUGH THE JOINTS. SMALL EXCAVATIONS WILL BE MADE FOR THE BELLS, BUT NO LARGER THAN REQUIRED. ALL PIPE SHALL BE LAID WITH THE BELLS UPGRADE. REFER TO THE MD DEPT. OF TRANS. S.H.A. STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 303, LATEST EDITION.
9. PRECAST STRUCTURES ARE PERMISSIBLE PROVIDED SHOP DRAWINGS HAVE BEEN SIGNED AND SEALED BY A MARYLAND PROFESSIONAL ENGINEER AND HAVE BEEN SUBMITTED TO AND APPROVED BY THE CITY ENGINEER PRIOR TO FABRICATION.
10. STORM DRAIN ENDWALLS, END SECTIONS, OUTFALLS, PIPE ENCASEMENTS, AND ANY OTHER RELATED ITEMS NOT DETAILED HEREIN SHALL CONFORM TO THE MD DEPT. OF TRANS. S.H.A. STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION.
11. IN AREAS OF PROPOSED FILL OR EXCAVATIONS MADE PRIOR TO INSTALLATION OF STORM DRAIN (TEST PITS, ETC.) FILL SOILS SHALL BE PLACED AND PROPERLY COMPACTED AT A MINIMUM OF 1' ABOVE THE TOP OF PROPOSED STORM DRAIN BEFORE THE EXCAVATION FOR THIS PROPOSED STORM DRAIN TAKES PLACE.



CITY OF HAGERSTOWN, MARYLAND – ENGINEERING DIVISION

STORM DRAIN STANDARD DETAIL STRUCTURES AND PIPE GENERAL NOTES

ISSUE DATE: _____	
REVISIONS	
01-01-07	01-02-25
_____	_____
Plate SD-010	