



| PIPE SIZE | HP STORM PIPE OD | N-12 STORM PIPE OD | "A" MIN. HOLE Ø |
|-----------------|-------------------|--------------------|--------------------|
| 12" (300mm) | 14.5" (368mm) | 14.5" (368mm) | 19.50" (495mm) |
| 15" (375mm) | 17.6" (447mm) | 18" (457mm) | 23.00" (584mm) |
| 18" (450mm) | 21.2" (538mm) | 22" (559mm) | 26.50" (673mm) |
| 24" (600mm) | 27.8" (706mm) | 28" (711mm) | 33.25" (845mm) |
| 30" (750mm) | 35.1" (892mm) | 36" (914mm) | 40.50" (1029mm) |
| 36" (900mm) | 41.1" (1044mm) | 42" (1067mm) | 47.00" (1194mm) |
| 42" (1050mm) | 47.7" (1212mm) | 48" (1219mm) | 53.00" (1346mm) |
| 48" (1200mm) | 53.6" (1361mm) | 54" (1372mm) | 59.00" (1499mm) |
| 60" (1500mm) | 66.3" (1684mm) | 67" (1702mm) | 72.00" (1829mm) |

- NOTES:**
1. INSERT PIPE INTO HEADWALL, WITH PIPE RESTING ON BEDDING. THE PIPE SHOULD BE IN THE APPROXIMATE CENTER OF THE OPENING.
 2. GROUT PIPE INTO CONCRETE STRUCTURE WITH NON-SHRINK GROUT. SOLID MASONRY UNITS, FULLY GROUTED IN PLACE, MAY BE USED TO HELP FILL LARGE VOIDS. SEE STANDARD DETAILS STD-203 AND 206A FOR ADDITIONAL INFORMATION ON THE APPLICATION OF WATERSTOP.
 3. PIPE AT AND AROUND STRUCTURE CONNECTION TO BE INSTALLED PER ASTM D2321, LATEST EDITION. SEE STANDARD DETAIL 100 SERIES FOR PIPE INSTALLATION DETAILS AND TECHNICAL NOTE: 5.04 CONNECTIONS TO MANHOLES AND STRUCTURES FOR ADDITIONAL INFORMATION.
 4. PIPE BELLS TO BE COMPLETELY REMOVED BEFORE MAKING A CONNECTION.
 5. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. SEE TECHNICAL NOTE: 5.05 PIPE FLOTATION FOR ADDITIONAL INFORMATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

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|-------|--------------------------|-----|----------|-------|
| REV 3 | CONNECTIONS, OD'S, NOTES | RKC | 3/5/26 | CJD |
| REV. | DESCRIPTION | BY | MM/DD/YY | CHK'D |

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**N-12/HP STORM WATERSTOP GASKET
STANDARD END SECTION CONNECTION DETAILS**

DRAWING NUMBER: **STD-113E**

4640 TRUEMAN BLVD
HILLIARD, OHIO 43026

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|-----------|------------|
| DRAWN BY: | NAB |
| DATE: | 12/17/2020 |
| CHK'D BY: | CKM |
| SCALE: | NTS |
| SHEET: | 1 OF 1 |