



Date: September 20, 2023
To: Paul Zachary, Public Works Department Deputy Director
From: Henry Som de Cerff, Public Works Department Design Manager *HAS*
Subject: Standards and Specifications for Addition of Section 216 – PVC Drainage Structures

The Specification Review Committee recommends and asks the Public Works Department Deputy Director to approve the following:

Addition of Section 216 – PVC Drainage Structures

Addition to Material Specifications Approved Fittings Manufactures – PVC Drainage Structures

Please call me at (918)596-7355 if you have any questions.

Thank you.

APPROVED:



Paul Zachary, Deputy Director

10.05.23

Date

Cc: Public Works Department Specification Review Committee

216 PVC DRAINAGE STRUCTURES

- 216.1 Main body and pipe stubs of surface drainage structures shall conform to ASTM D1784 cell class 12454.
- 216.2 The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. The joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. For prefabricated PVC drainage structures, the pipe bell spigot shall be joined to the main body of the PVC drainage structures using a solvent weld connection.
 - 216.2.1 Flexible elastomeric seals shall conform to ASTM F477.
 - 216.2.2 PVC glue and primer used in the assembly of components shall conform to ASTM D2564 and ASTM F656 respectively.
- 216.3 Grates and frames for all surface drainage inlets shall be ductile iron for sizes 15", 18", 24", and 30" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05.
 - 216.3.1 12" and 15" square grates shall be hinged to the frame using pins.
- 216.4 The specified PVC surface drainage structure shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be ODOT Aggregate Base Type A. Bedding and backfill for surface drainage inlets shall be well placed and compacted uniformly in accordance with ASTM D2321.
- 216.5 PVC drainage structures shall be measured in linear feet from the bottom of the structure to the rim elevation. This overall height will take into account the minimum sump depths according to the manufacturer or specified deeper sumps when specified by the site plans. Castings furnished by the manufacturer are to be included in the cost of the PVC drainage structure, unless a replacement is needed.
- 216.6 The drain basin body may be cut at the time of the final grade. No brick, stone, or concrete block will be required to set the grate to the final grade height.
- 216.7 A concrete slab shall be poured under and around the grate and frame. The concrete slab must be designed taking into consideration the local soil

conditions, traffic loading, and other applicable design factors. Concrete shall be a minimum of 8" thick.

- 216.8 For other installation considerations such as migration of fines, ground water, and foundations, refer to ASTM D2321 guidelines.
- 216.9 Sumps shall be at inverts of outflow pipes to ensure all structures drain through the outlet pipe as intended.
- 216.10 Fittings for field connections to existing structures may be used with approval from the Engineer. submittal required.

MATERIAL SPECIFICATIONS APPROVED FITTINGS MANUFACTURERS

Tapping Saddles and Valves

American (DIP)
Baker Series 428 (Steel)
Clow (DIP)
Dresser (DIP)
Ford (DIP)
Hanson Concrete (Conc)
JCM Industries
Mueller (DIP)
PowerSeal (DIP)
PowerSeal Model 3417AS
Price Bros (Conc)
Rockwell 622 (Steel)
Smith-Blair (DIP)
TD Williamson (Conc)
Tyler (DIP)

Restrained Joint Systems

American Flex-Ring (DIP)
Clow TUFGRIP
EBAA Megalug (DIP, PVC)
Ford Meter Box Uni-Flange (DIP, PVC)
Griffin SNAP-LOK (DIP grav sanit, water)
Hanson Snap Ring & Harness Joint (Conc)
Hanson Weld (Steel)
McWane THRUST-LOCK (DIP grav sanit, water)
Northwest Weld (Steel)
Price Snap Ring & Harness Joint (Conc)
ROMAC Alpha & Alpha XL (DIP, PVC, HDPE)
Sigma Corporation ONE-LOK Series (DIP/PVC)
SIP Industries EZ GRIP (DIP, PVC)
Smith-Blair CAM-LOCK
Star StarGrip (DIP, PVC)
US Pipe TR Flex (DIP grav sanit, water)

Resilient Wedged Gate Valves

American

AVK
Clow
East Jordan
Kennedy
M&H
Mueller (Aquagrip allowed)
US Pipe

Ball Valves

Pratt

Couplings for Out-of-Round CI Pipe

Krausz
Smith-Blair
Straub
Viking-Johnson

Check Valves

American Flow Control
Clow
Kennedy
M&H
Mueller
US Pipe
ValMatic
Watts

4-Way Fire Hydrants

American Darling
Mueller (Aquagrip allowed)

3-Way Hydrants

American Darling B84B
AVK Series 2780 Nostalgic Style Dry Barrel
Clow Medallion
East Jordan WaterMaster 5CD250
Kennedy Guardian
Mueller Centurian (Aquagrip allowed)

Valve Boxes

(Includes Debric Cap)

East Jordan 85502737 (562-S)
SIGMA VB 262-35
Star VB 562SHD
Tyler 6850 Series 562-S
Bingham & Taylor ADP 90010 & P05ZHC2738A1W

4" Reversible Rim & 23¼" Lids (Water)

Deeter 1155-TUL-WAT
East Jordan 2132R-TUL-WAT
Neenah 1797-4R-TUL-WAT
Sigma MH121WV-35

Uniflanges

EBAA Series 2100 Megaflange

1½" & 2" Meter Setters

AY McDonald 20C615WFFF6654 (1½")
AY McDonald 20C715WGFF7766x22.75 (2")
Ford B-C10046-011 (1½"), B-C10046-013(2")
Mueller 1½" x 15" B2423, 2" x 15" B2423

Air Relief Valves (Water)

A.R.I
APCO
Crispin
ValMatic

Air Relief Valves (Sanitary Sewer)

A.R.I

Butterfly Valves

Mueller
Pratt

Butterfly Valves - Water Supply Plant Only

Av-Tek - DEX2504 (6" to 48")

Manhole Grade Adjustment Rings

Cretex Pro-Ring
Deeter 1856 (CI only)
East Jordan V-1901 series (CI only)

Chimney Adjustment Rings

GNC Concrete Products (Concrete)
Ladtech (HDPE)

Fittings

American
Clow
East Jordan
Griffin
Krausz
McWane
Pipeline Components (PCI)
Sigma
SIP Industries
Star
Tyler
US Pipe

4" Reversible Rim & 23¼" Lids (Stm)

(Only McGard system allowed for sealed lids)

Deeter 1155-TUL-STM
East Jordan 2132R-TUL-STM
Neenah 1797-4R-TUL-STM
Sigma MH121TW-35

4" Reversible Rim & 23¼" Lids (San)

(Only McGard system allowed for sealed lids)

Deeter 1155-TUL-SAN
East Jordan 2132R-TUL-SAN
Neenah 1797-4R-TUL-SAN
Sigma MH121N-35

8" Non-Reversible Rim & 23¼" Lid (San)

(Only McGard system allowed for sealed lids)

Deeter 1265-TUL-SAN
East Jordan 2132-TUL-SAN
Neenah 1797-TUL-SAN
Sigma MH122N-35

4" Reversible Rim & 31½" Lid (San)

(Only McGard system allowed for sealed lids)

Deeter 1296-R-TUL-SAN
East Jordan 2230-R-TUL-SAN
Sigma MH123N-35

8" Non-Reversible Rim & 23¼" Lid (Stm)

(Only McGard system allowed for sealed lids)

Deeter 1265-TUL-STM
East Jordan 2132-TUL-STM
Neenah 1797-TUL-STM
Sigma MH122T-35

4" Reversible Rim & 31½" Lid (Stm)

(Only McGard system allowed for sealed lids)

Deeter 1296-R-TUL-STM
East Jordan 2230-R-TUL-STM
Sigma MH123T-35

Cast Iron Curb Inlet – 6" Barrier

Deeter 2445
East Jordan 00760065
Neenah R-3076-6BOK

Lampholes (with closed pickhole)

Deeter 1828
Deeter 1828-B (Bolted Ring & Cover)
East Jordan 3312800lid/3342800frame

Vane Grates – “Drain to River” with “COT”

East Jordan 00760033
Neenah 3076-3000

Type “D” 27⁷/₈” Circular Grate

Deeter 1950
East Jordan 00210032

Bicycle Safe 17³/₄” x 29³/₄” Grate

East Jordan 44230231grate/FA1833032G0frame
Neenah 3076-0015

Bolted Bicycle Safe Trench Grate

East Jordan 00697033
Neenah 3076-0019

Solid Knobby Frame / 27⁷/₈” Circular Lid

Deeter 1159 Frame /1159 Lid
East Jordan 00210002
Neenah 1682-0001 Frame / R1682 Solid Lid

Vertical Standard Stormwater Grate

Neenah R5050

Cast Iron Curb Inlet – 8” Barrier

East Jordan 00760067
Neenah R-3076-8BOK

Cast Iron Curb Inlet – 6” Mountable

East Jordan 00760063
Neenah R-3076-6M

Single Inlet Frame

East Jordan 00760011
Neenah 3076-0001

Center Inlet Frame

East Jordan 00760017
Neenah 3078-0001

Left Inlet Frame

East Jordan 00760013
Neenah 3077-0001

Right Inlet Frame

East Jordan 00760015
Neenah 3077-0002

Water Meter Cans, Rims, Lids (non-lockable)

Carson 1520
Carson 1730
DFW Plastics DFW14800A.18.1
East Jordan 18 x 18 Assembly 32534019 (3/4” x 5/8”)
East Jordan 18 x 24 assembly 32535019 (1”)
East Jordan 36 x 36 Assembly 00842804 (1½”)
East Jordan 36 x 36 Assembly NCR06-569B (2”)
Pencell Plastics (5/8” - 3/4” and 1”)
Sigma 18 x 18 MB-161TT-35 (3/4” x 5/8”)
Sigma 18 x 24 MB-163TT-35 (1”)
Sigma 36 x 36 MB-147TT-35 (1½”)
Sigma 36 x 36 MB-147T2-35 (2”)

Corrugated Polypropylene Stormsewer Pipe

ADS HP Storm Pipe (15” – 60”)

PEX Service Line

Uponor Aqua PEX Blue 5306
Viega PureFlow PEX Blue 5306

PVC Drainage Structures

ADS Nyloplast Drain Basin
ADS Nyloplast Add-A-Branch
ADS Nyloplast Corrugated Coupling
ADS Nyloplast Inline Drains
ADS Nyloplast Grates
ADS Nyloplast Roadway Inlets

Valve Box Stabilizers

BoxLock
Bingham & Taylor ADP90010