NFLOW HDPE

Durability

HDPE is a tough material that can withstand handling and installation processes. It is the most chemically inert drainage product available. NFLOW pipe is effective in a PH range from 2 to 14. no other drainage product can consistently perform in such a large PH range.

Abrasion can be the most destructive force that drainage pipes will endure, specifically the invert of the pipe. Abrasion is caused by bedload that is carried by high velocities. HDPE is highly resistant to abrasive wear due to its physical makeup and ductility.

The resistivity of soils does not effect the performance of HDPE. NFLOW pipe has an excellent record of success in both alkali and acid installations, and it exceeds expectations in harsh environments.

Structural Integrity

All flexible pipe develops structural strength through soil-pipe interaction. The soil provides the stiffness for the pipe. Flexible pipe will deflect until the soil halts deflection. The performance of the flexible pipe improves as the quality of the surrounding backfill improves.

Selection of backfill material is critical to pipe durability. Class I, II, and III are acceptable materials. Class III requires fill height limitations and care during installation. All materials should be compacted to 90% Standard Proctor Density.

Southeast Culvert, Inc. recommends following the practices of ASTM D2321 “Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications” or contact your SEC representative for suggestions.

Applications

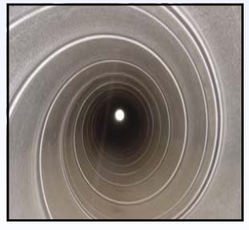
NFLOW pipe meets all governing specifications for AASHTO M 294 Type S pipe. NFLOW is designated for storm sewer and culvert installations. It may also be utilized for underground detention.. HDPE ideal for roof drainage systems due to its versatility. This product may be specified as cross drain or storm drain for any type of private or public work.

Hydraulics

NFLOW is manufactured with a smooth interior allowing for more efficient flow. HDPE has a Mannings “n” of .010 to .013, similar to results found with reinforced concrete pipe tests. Increased flow means that smaller HDPE pipe may be substituted for larger pipe with a higher Mannings value. NFLOW can also be used for flat grades, for improved water flow, or where lack of fill height is an issue.

Value Engineering

Southeast Culvert offers many products to add value to any drainage project. Using NFLOW for small diameter pipe and MAXFLOW spiral rib for larger diameters gives contractors an option other than RCP. These products have equivalent flow characteristics, but the material cost and installation cost of HDPE and steel is much less than concrete. Contact SEC for money saving suggestions.



NFLOW HDPE

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Products and Services

- HDPE (Plastic Pipe) - Double Layer In-Line Bell
- Detention Systems
- End Treatments
- Specialty Fabrications
- Max Flow Spiral Rib Pipe (smooth interior)
- Corrugated Metal Pipe Storm Drain Systems
- Structural Plate
- Asphalt Coating

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NFLOW HDPE

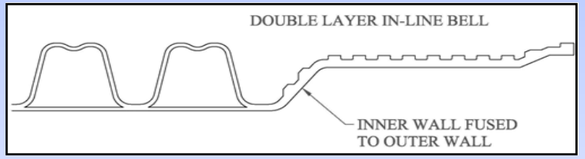
In the past two decades the face of the storm drainage industry has drastically changed. Materials engineering has provided a pipe product with the highest strength to weight ratio available among drainage products. HDPE has built its reputation on durability, performance and economics. The reliability of HDPE has made it the product of choice by many contractors, engineers and county/state agencies.

Southeast Culvert, Inc. produces HDPE in diameters from 12” - 60” with the latest technology available. Combined with Maxflow spiral rib metal pipe, with a Mannings “n” of .012, Southeast Culvert can value engineer any drainage application using both HDPE and corrugated steel drainage products.

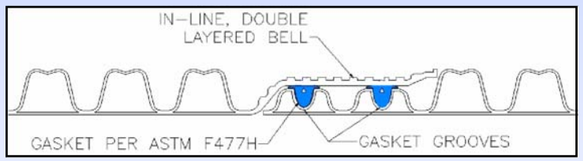
Coupling System

NFLOW HDPE is designed with performance in mind. The bell/ spigot system may be engaged in two configurations to meet project requirements, one gasket for standard pipe or two gaskets for enhanced performance.

Every joint contains patented polyisoprene gaskets that are factory installed and meet ASTM F477H. NFLOW is manufactured with a “double layer in-line” bell in order to add stiffness and shape control to the pipe joint. It is produced with an in-line bell/spigot joint so that the pipe can be nested for larger truckload shipments. The low profile in-line bell also eliminates digging bell holes during installation. Certified lab testing per ASTM D3212 achieves a 13 psi coupling joining system with just one gasket.



NFLOW Water-tight Joint (ASTM D3212)
(12” - 60”)
In-line double layered bell with single gasket coupling system. SEC will supply the single gasket joint unless otherwise instructed.



NFLOW Enhanced Performance Joint
(12” - 60”)
In-line double layered bell with double gasket for the ultimate coupling system.

Applicable Standards

Southeast Culvert HDPE will meet or exceed the following standards:
-AASHTO M252 (Corrugated Polyethylene Pipe)
-AASHTO M294 (Smooth Interior Type S)
-AASHTO SECTION 18 (Soil-Thermoplastic Pipe Interaction)
-AASHTO SECTION 30 (Installation of Thermoplastic Pipe)
-ASTM F477 (Joint Performance)
-ASTM D2321 (Installation of Thermoplastic Pipe)
-ASTM D3212 (Joints Using Elastomeric Seals)
-ASTM D3350 (Polyethylene Pipe and Fittings Materials)

NFLOW HDPE

Inside Diameter (in.)	Outside Diameter (in.)	Handling Weight (lbs./ft)	Waterway Area (ft^2)	Height of Cover Limits* (ft.)	Minimum Stiffness (psi)
12	15	3	.79	20	50
15	18	5	1.23	20	42
18	21	7	1.77	20	40
24	28	11	3.14	20	34
30	35	16	4.91	20	28
36	41	21	7.07	20	22
42	48	27	9.62	20	19
48	54	34	12.57	20	17
60	67	56	19.63	20	14

*NOTES:
1. Height of Cover Limits from GDOT Standard 1030P
2. Cover measured from top of pipe to top of roadway
3. Backfill compacted to 90% density per AASHTO T-99
4. Soil density = 120 lbs./ft^3

Specialty Fabrications

Southeast Culvert can provide a variety of specialty fabrications in HDPE. These structures are advantageous for complex systems such as roof drainage and underground detention manifolds. HDPE can also be fabricated into drop inlets for yard or sports field drainage problems. Each inlet is supplied with a removable grate for maintenance purposes. Fabrications can be made to order. Contact SEC for more information.

End Treatments

A variety of end treatments can be utilized on HDPE pipe outlets. Flared end sections, steel and HDPE, are typical and cost effective methods of spreading out flow and preventing scour. Safety flared end sections may also be used. Safety ends are typical for county and state right of ways. If steel end sections are used, a tapered sleeve will aid with ease of attachment. HDPE may also be beveled to match slopes on the jobsite. If a beveled end is chosen it is beneficial to pour a concrete collar to protect the pipe end. Concrete headwalls can be formed with a plastic stub so that HDPE may be joined with a split coupler. Functionality and aesthetics are important for choosing an end treatment, SEC, Inc. can provide further information concerning these issues.