

S1.11 Landmax® Retention/Detention Pipe System Specification

Scope

This specification describes LandMax Retention/Detention Pipe Systems for use in non-pressure gravity-flow storm water collection systems utilizing a continuous outfall structure.

Pipe Requirements

Retention/Detention systems may utilize any of the various pipe products below.

- N-12® ST IB pipe (per AASHTO) shall meet AASHTO M294, Type S or ASTM F2306.
- N-12 ST IB pipe (per ASTM F2648) shall meet ASTM F2648.
- N-12 MEGA GREEN™ ST IB shall meet ASTM F2648.
- N-12 WT IB pipe (per AASHTO) shall meet AASHTO M294, Type S or ASTM F2306.
- N-12 WT IB pipe (per ASTM F2648) shall meet ASTM F2648.
- N-12 MEGA GREEN WT IB shall meet ASTM F2648.

Joint Performance

Plain End/Soil tight (ST IB)

ST IB pipe shall be joined using a bell & spigot joint. The bell & spigot joint shall meet the soil-tight requirements of ASTM F2306 and gaskets shall meet the requirements of ASTM F477.

Plain End pipe & fittings connections shall be joined with coupling bands covering at least two full corrugations on each end of the pipe. Gasketed soil-tight coupling band connections shall incorporate a closed-cell synthetic expanded rubber gasket meeting the requirements of ASTM D1056 Grade 2A2. Gaskets, when applicable, shall be installed by the pipe manufacturer

Gasketed connections shall incorporate a closed-cell synthetic expanded rubber gasket meeting the requirements of ASTM D1056 Grade 2A2. Gaskets, when applicable, shall be installed by the pipe manufacturer.

Watertight (WT IB):

WT IB pipe shall be joined using a bell & spigot joint. The joint shall be watertight according to the requirements of ASTM D3212. Gaskets shall meet the requirements of ASTM F477. 12- through 60-inch (300 to 1500 mm) diameters shall have an exterior bell wrap installed by the manufacturer.

Pipe & fitting connections shall be with a bell and spigot connection utilizing a welded bell and valley or saddle gasket. The joint shall meet the watertight requirements of ASTM D3212 and gaskets shall meet the requirements of ASTM F477. Detention systems are subject to greater leakage than typical single run storm sewer application and therefore are not appropriate for applications requiring long-term fluid containment or hydrostatic pressure. For additional details refer to Technical Note 7.01 *Rainwater Harvesting with HDPE Cisterns*.

Fittings

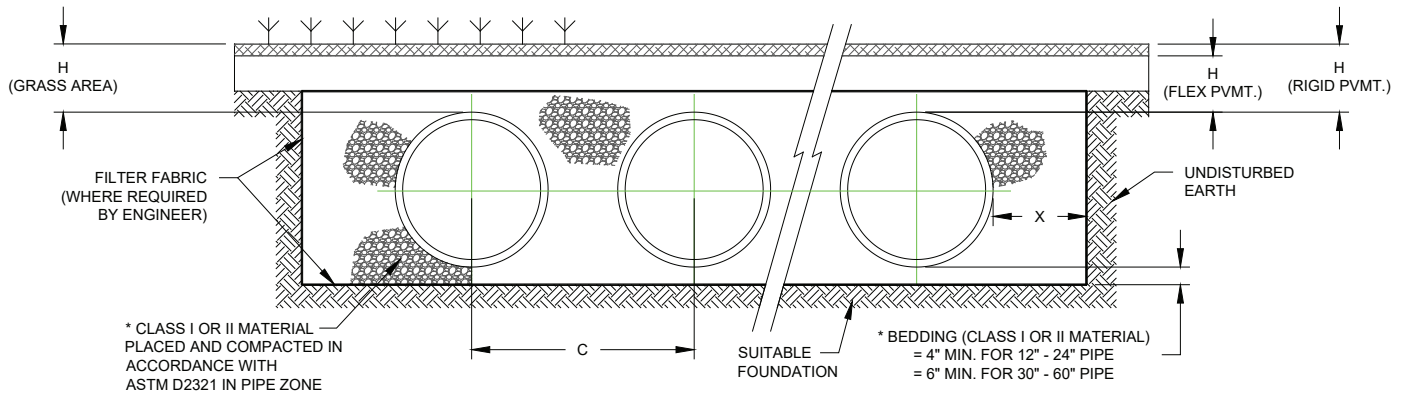
Fittings shall conform to ASTM F2306 and meet joint performance requirements indicated above for fitting connections. Custom fittings are available and may require special installation criterion.

Installation

Installation shall be in accordance with ASTM D2321 and ADS recommended installation guidelines, with the exception that minimum cover in non-traffic areas for 12- through 60-inch (300 to 1500mm) diameters shall be one foot (0.3m). Minimum cover in trafficked areas for 12- through 36-inch (300 to 900mm) diameters shall be one foot (0.3m) and for 42- through 60-inch (1050 to 1500mm) diameters, the minimum cover shall be two feet (0.6m). Backfill shall consist of Class 1 (compacted) or Class 2 (minimum 90% SPD) material, with the exception that 60-inch fittings shall use Class 1 (compacted) material only. Minimum cover heights do not account for pipe buoyancy. Refer to ADS Technical Note 5.05 HDPE Pipe Flotation for buoyancy design considerations. Maximum cover over system using standard backfill is 8 feet (2.4m); contact a representative when maximum fill height may be exceeded. Additional installation requirements are provided in the Drainage Handbook Section 6 Retention/

Detention or ASTM F2306, complies with the requirements in the Build America, Buy America (BABA) Act.

Typical Retention/Detention Cross Section



MINIMUM H (GRASS) = 12" FOR 12" THROUGH 60" HDPE PIPE
 MINIMUM H (FLEX PVMT.), H (RIGID PVMT) = 12" FOR UP TO AND INCLUDING 36" HDPE PIPE
 = 24" FOR 42" THROUGH 60" HDPE PIPE

* CLASS I BACKFILL REQUIRED AROUND 60" DIAMETER FITTINGS.

MAXIMUM FILL HEIGHT LIMITED TO 8-FT OVER FITTINGS FOR STANDARD INSTALLATIONS. CONTACT REPRESENTATIVE WHEN MAXIMUM FILL HEIGHTS EXCEED 8-FT FOR INSTALLATION CONSIDERATIONS.

Additional References

Drainage Handbook Section 6 *Retention/Detention*

Technical Note 6.01 *Retention/Detention System Maintenance*

Technical Note 7.01 *Rainwater Harvesting with HDPE Pipe*

Standard Detail 701 Retention-Detention System (Plan View)

Standard Detail 702 Retention-Detention System (Cross-Section)

Standard Detail 703 Retention-Detention System (Riser & Cleanout)

Standard Detail 704 Flowable Fill Installation (Nyloplast® Riser)

All references are available for download at adspipe.com