Corrugated Steel Pipe: Stormwater Management Systems

CSP provides a cost effective solution to stormwater management requirements and saves valuable space. These durable subsurface structures serve as detention, infiltration and filtration systems for site development.

STORMWATER MANAGEMENT

STORMWATER MANAGEMENT SYSTEMS

Stormwater management requirements have become a common practice for most site development. With the implementation of EPA's Phase II Stormwater Program (NPDES), these requirements will expand even further. Corrugated steel pipe (CSP) systems provide cost effective solutions to stormwater management requirements. Subsurface practices such as detention, infiltration, and filtration provide a method to meet stormwater objectives and permit efficient use of the site. Underground systems eliminate the hazards, risks and poor aesthetics of above ground ponds.

DETENTION SYSTEMS. CSP detention structures have been used predominantly to temporarily store runoff and release it at a predetermined rate. Large pipes are installed underground, often beneath parking lots, allowing above ground use of the site. The use of this land for other purposes results in substantial cost savings.

INFILTRATION. Where the proper soils are present, perforated CSP can be used as an infiltration system. This water quality practice duplicates undeveloped conditions by directing runoff back into the ground. CSP has the advantage of minimizing excavation, as compared to a conventional infiltration trench, and also allowing access into the system.

CSP SAND FILTERS. One of the most promising techniques of providing water quality improvement is through filtration. Runoff is passed through a filter media, typically sand, for treatment purposes. These systems provide high pollutant removal efficiencies and are particularly appropriate for the "ultra urban" environment.

VERSATILITY IN FABRICATION. CSP can be readily fabricated into elbows, tees, manifolds, inlets and outlet control structures. This flexibility in design and system layout cannot be achieved with other materials. Also, plant fabrication means faster installation and lower job site costs.

DETENTION SYSTEMS INFILTRATION SAND FILTERS STRENGTH D

STRENGTH. CSP provides a high strength containment system that can be used for heavy loading and low cover conditions. The combination of steel's proven long term material properties and fittings reinforcement (ASTM 998) design criteria ensures product performance throughout the life of the structure.

DURABILITY. Inspections performed by Parsons Brinkerhoff and research by Corrpro Companies confirms that CSP stormwater management systems are performing well. While conditions in most systems are benign, a broad range of CSP coating systems are available to economically meet any project design life.

DESIGN SOFTWARE. A computer program is available from NCSPA to perform the design of CSP detention structures.

DURABILITY VERSATILE

SPECIFICATIONS

ASTM

ASTM A760/A760M
Standard Specification for CSP, Metallic-Coated for Sewers and Drains

ASTM A762/A762M
Standard Specification for CSP, Polymer Precoated for Sewers and Drains

ASTM A796/A796M
Standard Practice for Structural Design of CSP, Pipe-Arches, and Arches for Storm and Sanitary Sewers

ASTM A798/A798M
Standard Practice for Installing Factory-Made CSP for Sewers and Other Applications

ASTM A849
Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe

ASTM 998
Fittings Reinforcement

AASHTO

AASHTO M-36M
Standard Specification for CSP, Metallic-Coated, for Sewers and Drains

AASHTO M-190M
Standard Specification for Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches

AASHTO M-245M
Standard Specification for CSP, Polymer Precoated, for Sewers and Drains

AASHTO Standard Specifications for Highway Bridges Division 1, Section 12
Soil Corrugated Metal Structure Interaction Systems

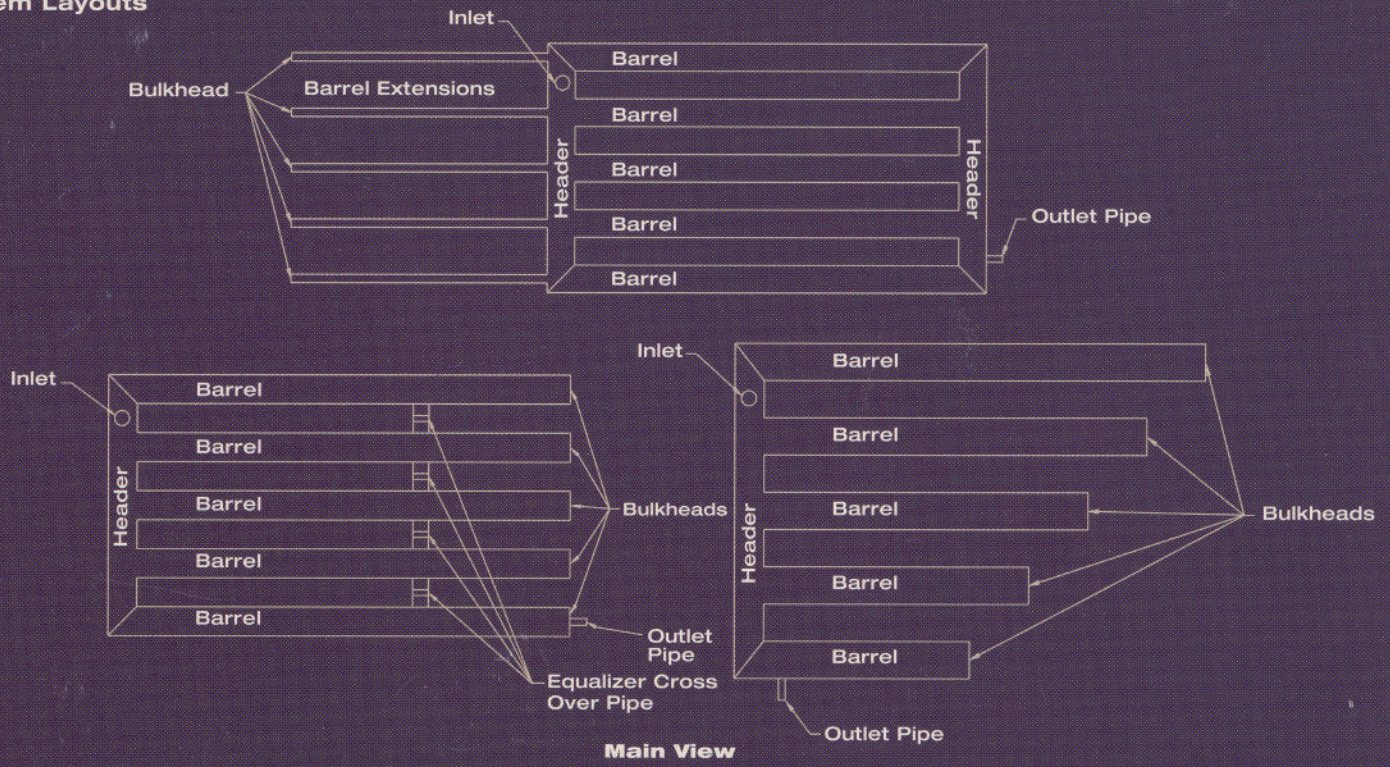
AASHTO Standard Specifications for Highway Bridges Division 2, Section 26
Metal Culverts

STORMWATER MANAGEMENT

STORM WATER MANAGEMENT

National Corrugated Steel Pipe Association
1255 Twenty-Third Street, NW
Washington, DC 20037-1174
Phone: 202.452.1700 . Fax: 202.833.3636
Email: csp@ncspa.org . www.ncspa.org

System Layouts



Main View

American Iron and Steel Institute
1101 17th Street, NW, Suite 1300
Washington, DC 20036-4700
www.steel.org/infrastructure