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PIPELINE
Published by the NATIONAL CORRUGATED STEEL PIPE ASSOCIATION
Fall 2009

Duluth Solves Drainage Problem with CSP

by Brad Shaffer

Project: Residence Inn by Marriott
Duluth, Minnesota

Owner: The Kohler Organization
Aberdeen, South Dakota

Engineer: Lightowler Johnson Associates
Fargo, North Dakota

Supplier: Johnston Fargo Culvert
Blaine, Minnesota

Like many areas around the country, drainage design is a major concern to the City of Duluth. The Residence Inn is a four-story 92 unit hotel in Duluth, Minnesota that was built adjacent to Central Entrance, a major arterial roadway. This development is built upon a naturally sloping hillside that drains through several residential neighborhoods from the west to the east.

The City of Duluth required detention of the runoff as well as treatment of the sediment contained within the runoff. The engineer for this project, Lightowler Johnson, decided to use corrugated steel pipe for the storm sewer system, including the manholes and the detention system. The detention system was designed utilizing a corrugated steel arched pipe to allow for additional cover over the pipe as well as minimizing the depth of burial. By using a 72" equivalent arch pipe with final dimensions of 81" x 59", this enabled the contractor to excavate 13" less soil. The detention system was designed to maintain a two-foot pool stage for sediment settling. While the discharge pipe into the Duluth drainage system was constructed above the pool stage of the detention system.

The manholes on this project were designed with a two-foot sump for the sediment to settle. Additionally, the manholes were constructed with welded stubs to allow for ease of banding onto the corrugated steel pipe sections. This banding configuration eliminated the need for grouting between the manholes and the pipe, also allowing the contractor to continue laying pipe even after the pipes were banded together, and not having to let the grout set overnight.

The reality is that steel is the greenest drainage solution you can specify. When you specify or use steel for your next project, you're getting more than just the most durable drainage product. Corrugated Steel Pipe (CSP) is the industry's most environmentally-friendly material because it's the world's most recycled material.

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CSP is ideal for entire stormwater systems, underground storm chambers and bridge replacements. Steel meets our national, regional and local demands with an economical solution that deserves to be specified.

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