

PRECAST CONCRETE PRODUCT GUIDE

REINFORCED CONCRETE PIPE (RCP)

Precast RCP delivers long-term performance, hydraulic reliability and proven durability for stormwater and sanitary infrastructure.

OVERVIEW

Reinforced concrete pipe (RCP) is a rigid, steel-reinforced conduit used in stormwater and sanitary sewer systems. Designed to carry external loads through its inherent structural strength, RCP performs reliably in a wide range of installation conditions, including deep burial and high-traffic applications.

Manufactured in controlled plant environments and produced in accordance with established industry standards, precast RCP provides consistent quality, predictable performance and long service life. Its rigidity helps maintain pipe shape over time, preserving hydraulic capacity, while its mass and durability make it well-suited for demanding infrastructure environments.

KEY BENEFITS

- **High Structural Capacity:** Engineered for heavy loads and deep burial with customizable wall thickness and reinforcement.
- **Durable by Design:** Low permeability, high-quality concrete resists cracking and long-term deterioration.
- **Long Service Life:** Designed to perform for decades with minimal maintenance in buried environments.
- **Shape Retention:** Rigid structure maintains diameter over time, preserving hydraulic performance.
- **Resistant to Flotation:** High mass helps prevent flotation in high groundwater conditions.
- **Fire-Resilient:** Non-combustible material suitable for tunnels, industrial sites and fire-prone areas.
- **Versatile Applications:** Available in a wide range of sizes, configurations and specialty designs including jacking pipe.
- **Proven and Standardized:** Supported by established ASTM and AASHTO standards for design and installation.

SPECIFICATION SNAPSHOT

Specification	Details
Diameter Range	12 in. to 144+ in. (larger diameters available)
Compressive Strength	Typically requires 6,000+ psi (project-specific)
Joints	Tongue-and-groove or gasketed watertight joints
Compliance Standards	ASTM C76 (storm drain), ASTM C506 (arch pipe), ASTM C507 (elliptical pipe), AASHTO M170
Material	Precast concrete, steel cage reinforcement
Common Applications	Stormwater drainage, sanitary sewer, culverts, detention systems

For additional product resources scan or visit:
precast.org/products/pipes



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PRECAST PROJECT SPOTLIGHT

CHESTNUT STREET PLAZA



Project Owner: City of Stillwater



Location: Stillwater, Minnesota

PRECAST PRODUCTS USED

- **Reinforced Concrete Pipe (RCP):** Created the underground detention system that stores and manages stormwater runoff.
- **Catch Basins:** Captured stormwater from the streetscape and conveyed it to the detention system.
- **Manholes:** Provided access for inspection, monitoring and maintenance of the stormwater infrastructure.

THE CHALLENGE

Downtown redevelopment required reliable stormwater detention beneath a high-traffic public space.

THE SOLUTION

Large-diameter reinforced concrete pipe combined stormwater storage capacity with the durability and structural performance required for a revitalized downtown district.



NPCA Member Producer for Project:
County Materials Corp.

RELIABLE STORMWATER INFRASTRUCTURE FOR A HISTORIC DOWNTOWN REDEVELOPMENT

Stillwater's Chestnut Street Plaza transformed a former highway corridor into a pedestrian-focused destination featuring retail locations, public gathering spaces, art installations and entertainment venues. To support the redevelopment and protect the area from flooding, the project team specified large-diameter reinforced concrete pipe for an underground stormwater detention system.

The project incorporated 150 linear feet of 96-inch-diameter reinforced concrete pipe, along with precast catch basins and manholes. Reinforced concrete pipe was selected for its structural strength, durability and ability to perform in demanding urban environments with heavy traffic loads.

As a rigid system, reinforced concrete pipe maintains its shape and hydraulic capacity over time while providing a service life that can extend for decades. These characteristics make it well-suited for municipal stormwater infrastructure where long-term performance and reduced maintenance are priorities.



Because construction occurred in a busy downtown district, efficient delivery and installation were essential to maintaining access for businesses and minimizing disruption to the surrounding community. Precast concrete components enabled rapid installation and helped keep the project on schedule.

The completed stormwater system supports the long-term success of the Chestnut Street Plaza redevelopment by helping protect public spaces, businesses and infrastructure while providing reliable stormwater management beneath one of Stillwater's most active downtown destinations.



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