Selecting the Right Stormwater Solution Just Got Easier...

It’s simple to choose the right stormwater solution to achieve your goals with the Contech Stormwater Solutions Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a treatment best management practice (BMP) for the balance. Finally, select a detention system to address any outstanding downstream erosion.

Learn more about all of our stormwater technologies at www.ContechES.com/stormwater

The Contech Design Your Own Detention System (DYODS®) tool fully automates the layout process for stormwater detention and infiltration systems and produces CAD and PDF files that can be used for creating plans and specs, and for estimating total installed costs.

To use the Design Your Own Detention or Infiltration System tool, visit: www.ContechES.com/dyods
Our underground systems offer you flexibility and customization for either detention or infiltration applications – metal, concrete, and plastic systems are available.

**Detention systems** are used to reduce the quantity of stormwater runoff leaving a site by temporarily storing the runoff that exceeds a site’s allowable discharge rate, and releasing it slowly over time.

**Infiltration** systems are used to reduce the volume of stormwater runoff being discharged from a site by allowing stored water to infiltrate the surrounding soil. This runoff reduction strategy is a major part of a low impact development design.

### Corrugated Metal Pipe (CMP)
Versatile and cost-effective, CMP is available in a variety of coatings and is the ideal choice for detention and infiltration.

### DuroMaxx®
Steel reinforced polyethylene pipe has multiple joint types available, including watertight to fit your project requirements.

### ChamberMaxx®
Open-bottom polyethylene chambers economically infiltrate runoff and optimize storage on shallow sites.

### Terre Arch™
Modular, multi-chambered, precast concrete stormwater storage system.

### CON/SPAN®
Precast concrete system with a wide range of span and rise combinations available.

Learn more at www.ContechES.com/detention
Corrugated Metal Pipe for Stormwater Detention and Infiltration

Meet your stormwater quantity and runoff reduction requirements with ease

Contech’s corrugated metal pipe (CMP) underground detention/ infiltration systems can be sized and shaped to meet your site-specific needs. The versatile material provides almost limitless opportunities to match individual site requirements while lowering site development costs.

Usable

• Service life guidance of 75+ years for certain materials in recommended environments.* Please refer to the Corrugated Metal Pipe Detention Design Guide for additional information.
• Handles fill heights in excess of 100 feet
• 100% traceable material – can maintain performance in recommended environments even when recycled
• Homogenous material – eliminates failures due to stress cracks, shrinkage cracks and air voids
• Various coatings available
  – Aluminized Steel Type 2
  – Galvanized
  – CORLIX®
  – Polymeric Coating

Versatile

• Wide range of shapes and sizes – round and pipe-arch in diameters from 6 to 144 inches
• Variety of layouts – rectangular, L-shape and staggered cells are frequently used
• Array of fittings – tees, wyes, elbow, saddle branches, manifolds, reducers and custom fabrication available

Easy to Install and Maintain

• Flexible and forgiving during installation
• Lightweight for easy handling
• Quick assembly shortens site development time
• Integrated outlet control structure eliminates need for downstream control structure
• Manhole riser sections, complete with ladders facilitate any access and scheduled maintenance

* Service life guidance provided by National Corrugated Steel Pipe Association (NCSPA) and/or AK Steel Corporation. See NCSPA.org website or consult your engineer of record for additional information on service life, recommended environments and field studies on various materials and coatings. Corrosive environments, such as seawater and road/de-icing salt infiltration, and other environments with pH and resistivity outside of the recommended range may cause premature corrosion and reduce actual service life. Because site conditions vary, Contech does not guaranty or warrant service life guidance for materials and coatings.
Applications

Detention
Contech CMP detention systems store stormwater runoff exceeding a site’s allowable discharge rate and release it slowly over time. Installed below grade, the systems maximize property usage and meet your specific water quantity requirements. CMP detention systems are available in all AASHTO M-36 Types.

High Volume Storage
Contech plate systems allow for high volume stormwater storage in small footprint areas. The systems are offered in a wide variety of shapes and sizes in both aluminum and galvanized steel. Full-pipe systems and three-sided structures with open bottoms can be used for infiltration. The systems are bolted together in the field, which reduces the number of freight loads. Remote sites or projects with challenging accessibility often utilize plate systems.

Infiltration
CMP pipe and pipe-arch is available fully or partially perforated to meet your Low Impact Development (LID) requirements. Subsurface perforated CMP infiltration systems store stormwater runoff in the pipe and surrounding stone during a storm until it can be slowly released into the surrounding native soil.

Low profile/Low drop
When vertical space must be maximized, small diameter or pipe-arch shaped CMP can be used.

Small diameter, perforated CMP is available in 6”, 8”, 10”, 12”, 15” and 18” diameters. The low, wide pipe-arch design allows for greater storage in a shallow profile than typical round pipe without losing any structural integrity. Pipe arch is produced in six wall thicknesses including 18, 16, 14, 12, 10 and 8 gage, which are available with either helical or annular corrugations.

Learn more at www.ContechES.com/detention
Innovations

On-Site Manufacturing
Contech’s MOBILE PIPE® mill can be delivered to remote locations and assembled on-site for fast and cost effective steel pipe manufacturing. The MOBILE PIPE mill is designed to be a self-supporting factory that can be quickly deployed and put into production. Once on-site, pipe manufacturing progresses quickly enough to allow pipe installation within four hours.

MOBILE PIPE can produce corrugated metal pipe in a variety of sizes. Diameters from 2’-16’ and lengths up to 35’ can be accommodated. This pipe meets the same levels of quality construction as does all Contech manufactured pipe, with high coil feed rate speeds and the same lock-seem edge process used in conventional pipe manufacturing.

Innovative Solutions for Challenging Sites
The flexibility of CMP allows you to create innovative solutions when dealing with challenging sites. For example, when trying to meet runoff reduction requirements, your site may be mostly impervious or you may have a thin, shallow clay layer just below the surface, limiting the infiltration capacity of surface BMPs. One solution is to utilize CMP infiltration wells. First, collect the site runoff using our Slotted Drain™ around the perimeter of each drive isle. The Slotted Drain then directs water into vertical lengths of perforated CMP. The vertical perforated CMP is long enough to penetrate the clay layer and infiltrate the stormwater into a highly permeable alluvial layer about 12’-14’ belowground. This allows the developer to meet the LID requirements and eliminate the need for the extended detention basin.
## Sizing

### Round Pipe – CMP and Plate (CMP → 6-in to 144-in; Plate → 60-in to 240-in)

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<thead>
<tr>
<th>Diameter (inches)</th>
<th>Volume (ft³/ft)</th>
<th>Min. Cover Height</th>
<th>Diameter (inches)</th>
<th>Volume (ft³/ft)</th>
<th>Min. Cover Height</th>
<th>Diameter (inches)</th>
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### Pipe-Arch – CMP

#### 1/2” Deep Corrugations

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#### 1” Deep Corrugations

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<th>Shape (inches)</th>
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<th>Shape (inches)</th>
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### Pipe-Arch – MULTI-PLATE®

#### 2” Deep Corrugations

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#### 3” Corner Radius (Rc)

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<td>30”</td>
<td>20.2 x 13.0</td>
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**DuroMaxx® SRPE for Stormwater Detention and Infiltration**

**The Strength of Steel. The Durability of Plastic.**

It’s the ideal combination of materials that makes DuroMaxx an exceptional pipe. 80 ksi steel reinforcing ribs provide the strength, and pressure rated Polyethylene Resin (PE) provides the durability. This combination of materials results in an extraordinarily strong and durable pipe. DuroMaxx is designed with a smooth inner wall for outstanding hydraulic capacity and provides the properties you can count on for long-term service and performance in the most demanding environments.

DuroMaxx detention systems can incorporate a wide range of fittings such as bends, risers, bulk headed ends and inlet/outlet pipes. The systems can be custom manufactured to individual lengths in sizes and configurations that can be economically transported and assembled on site.

**Benefits**

- Utilizing larger diameters whenever possible reduces storage cost per gallon. DuroMaxx is available up to 120 inches.
- Steel reinforcing results in smaller outside diameter dimensions when compared to corrugated HDPE pipe or reinforced concrete pipe. When maximum diameter selection is limited by minimal cover, DuroMaxx can typically be upsized by 6 inches or more, resulting in reduced overall water storage cost.
- Reinforced steel fittings create a stronger and more reliable system when compared to non-reinforced HDPE pipe materials.
- Available with perforations for retention and recharge applications.
- A variety of joint configurations and joint tightness levels are available to meet your specific project needs.
Savings
DuroMaxx pipe is lightweight and can be easily handled and quickly installed, often eliminating the need to use heavy construction equipment. The outside diameter (OD) of DuroMaxx is smaller than other conventional pipe materials, resulting in less trench excavation. As the two main cost drivers to install underground detention products are manpower and machinery, DuroMaxx provides the opportunity to save in both, resulting in less overall spending. The longer lengths and easy joint assembly are just some of the DuroMaxx installation advantages. DuroMaxx should be installed in accordance with nationally accepted ASTM D2321 installation practices. Contact your local Contech representative for the DuroMaxx Installation Guide.

Fittings
DuroMaxx pipe is available with a full range of fabricated fittings such as elbows, tees, wyes, slope junctions and reducers. Both standard and custom fittings can be readily fabricated, which can result in fewer concrete structures and lower project costs.

Sizes
Available in diameters from 30 to 120 inches and manufactured in standard lengths of 14 or 24 feet with bell and spigot joints, DuroMaxx has fewer joints to assemble on site, resulting in faster installation rates for the contractor. If your project requires custom lengths, contact your Contech representative for details and availability.

Applications
- Stormwater detention
- Detention for other liquids (glycol, combined sewer overflow systems, etc.)
- Infiltration (perforated DuroMaxx allows for infiltration)

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<th>Pipe ID (inches)</th>
<th>Bell OD (inches)</th>
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<th>Max. Cover (ft)</th>
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* Currently available with welded coupler (WC) joints or plain ended with steel external band.
ChamberMaxx® for Stormwater Detention and Infiltration

Use Lightweight Chambers to Meet Runoff Reduction Requirements
The ChamberMaxx corrugated, open-bottom chamber system allows you to meet runoff reduction requirements by providing economic infiltration. Design your low impact development (LID) site by incorporating this below grade system to maximize available land for development or green space. ChamberMaxx is most effective on sites where the depth from finished grade to storm sewer outlet is less than 54-inches (1.37-meters).

Maximum Volume in Small Footprint
• Low profile shape (30” rise) – Economical for shallow applications
• 47 ft³ (1.3 m³) of storage per chamber

Strong and Durable
• Manufactured per ASTM F 2418-05
• Injection molded using structurally efficient and corrosive resistant polypropylene resin
• Structurally designed to exceed HS-20/HS-25 live loads in accordance with AASHTO (Section 12) LRFD design specifications for stormwater chambers
• Integral end caps eliminate the expensive loose end caps and add to chamber strength

Easy Installation
• Lightweight - Installed by hand without the need for heavy equipment
• Locally available direct from Contech - Short lead time with local installation support

Include pretreatment for your best practice designs
Applications

Subsurface Infiltration
The open-bottom plastic chamber allows infiltration into surrounding soil, effectively achieving runoff reduction objectives often required by an LID design.

By utilizing subsurface infiltration, space is preserved for development, runoff is reduced or eliminated and groundwater recharge can occur. The ChamberMaxx is ideal when you need to maximize storage capacity in a shallow footprint.

Bioretention
ChamberMaxx is designed with a minimum of 6” stone above and below the units. The ChamberMaxx can help make bioretention practical by storing 75.1 CF per unit, including storage in stone, before discharging back into the surrounding soil.

Sizing
The ChamberMaxx system combines middle chambers, which are open on both ends, with start and end chambers, which include an integral end wall. ChamberMaxx utilizes a header manifold system that can be manufactured from various materials. Commonly utilized header pipe materials are corrugated metal pipe (CMP) and HDPE pipe, and are available from Contech in a single package. The start and end chambers can accept up to a 24-inch diameter (0.61 meter) inlet pipe.

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<td>(m)</td>
<td>lbs</td>
<td>in (m)</td>
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<td>96.2</td>
<td>(2.44)</td>
<td>50.2</td>
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<td></td>
<td>78.1</td>
<td>(2.13)</td>
</tr>
<tr>
<td>Middle</td>
<td>51.4</td>
<td>(1.31)</td>
<td>30.3</td>
<td>(0.77)</td>
<td>73.0</td>
<td>(33.11)</td>
<td>91.0</td>
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<td></td>
<td>85.4</td>
<td>(2.17)</td>
<td>47.2</td>
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<td></td>
<td>75.1</td>
<td>(2.13)</td>
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<td>End</td>
<td>51.4</td>
<td>(1.31)</td>
<td>30.3</td>
<td>(0.77)</td>
<td>76.0</td>
<td>(34.47)</td>
<td>92.0</td>
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<td>88.5</td>
<td>(2.25)</td>
<td>46.2</td>
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<td></td>
<td></td>
<td></td>
<td>74.1</td>
<td>(2.10)</td>
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*6” (152mm) of stone above and below chamber, 5.6” (142mm) chamber spacing and 40% porosity.

Learn more at www.ContechES.com/detention
Terre Arch™ for Stormwater Detention and Infiltration

Terre Arch (East Coast Only)

Terre Arch is a modular, multi-chambered, precast concrete stormwater storage system that is engineered especially for underground installation. Terre Arch utilizes a proven arch design to provide a simple solution for stormwater detention and retention-recharge.

Terre Arch’s patented, fiber-reinforced design is lightweight, yet incredibly strong. With a load-bearing rating of HS-25 (with 12” cover from the top of the arch to final grade), each section can support heavy gross weight trucks and machinery allowing installation equipment direct access to the site during installation, dramatically reducing installation time and labor. Each Terre Arch installs quickly. The TA26 adds 319 CF of installed storage, and the TA48 adds 608 CF of installed storage in a matter of minutes.

Features:

• 100+ year design life
• Minimum 5,000 psi compressive strength
• HS-25 load rating
• No concrete foundation required
• 12” minimum cover above arch
• Simple and fast installation; install 30,000 - 50,000 cubic feet of storage per day
• Provides maintenance access to individual chambered rows

Elevation View

Terre Arch 26 Structure

Terre Arch 48 Structure
CON/SPAN® for Stormwater Detention and Infiltration

Large Volume, modular concrete system
CON/SPAN® is a modular precast system designed to provide concrete belowgrade stormwater detention or infiltration. Combining the CON/SPAN arch unit with precast walls and cast-in-place foundations allows for an array of configurations to meet nearly any site need.

Features:
Superior Durability and Structural Integrity
• Can be designed for any loading condition including HS 20-44, HS 25-44, AREMA (railroad) and aircraft loading
• Precast continuous foundation ensures structural integrity and eliminates differential settlement
• Manufactured from precast concrete in quality controlled environment – Superior quality over cast-in-place
Versatile, Modular Design
• Full range of spans and heights
• Variety of layouts available, including multiple cells and staggered ends
• Skewed pieces allow a curved alignment to follow roadway or other challenging locations

The Right Partner Can Make All the Difference
Regardless of your project’s objectives and constraints, our team of stormwater design engineers, regulatory managers, and local stormwater consultants is here to provide you with expert advice and assistance. If your goal is to eliminate or detain runoff, you can rely on Contech for a wide range of subsurface infiltration, detention, and rainwater harvesting solutions. If treatment is needed, our landscape-based biofiltration or subsurface filtration designs can fit into virtually any site and can be tailored to address specific pollutants.

At every stage of your project, count on Contech to provide engineering services:
• Regulatory guidance and permitting assistance
• Preliminary standard details and/or site specific final CAD drawings and specifications
• Low Impact Development design assistance
• Engineering calculations for hydraulics/hydrology, rainwater harvesting, and detention/retention
• Online “Design Your Own” tools
• Review of preliminary site design, feasibility screening, and layout assistance
• Value engineering – cost estimates and options analysis
• Pre-construction support, project scheduling, and contractor coordination
• Installation and construction support
• Maintenance support through guidance manuals, demonstrations and qualified contractor identification

Learn more at www.ContechES.com/detention
University of Wisconsin — Stevens Point
Stevens Point, Wisconsin

- The University was seeking a “green” solution to drainage design, but had limited pervious areas.
- The economical solution provided was an underground **corrugated metal pipe infiltration system** that could store more than 8,622 cubic feet, preventing flooding of the parking lot and then slowly discharging the stormwater into the surrounding soil over time.
- The system met the University’s design criteria for storage, infiltration, strength, durability and cost.

Camp Murray Infiltration System
Tillicum, Washington

- A large parking lot for military vehicles and equipment was regularly overflowing onto adjacent property. The Washington State Military Department needed a high-tech stormwater pollutant removal system to trap and treat the stormwater runoff.
- A 13-cartridge Stormwater Management StormFilter® vault was chosen to be installed beneath the parking lot where it would pretreat a significant portion of the runoff. Downstream, a **ChamberMaxx®** plastic chamber system was installed in order to collect, retain and infiltrate the remaining runoff.

Red Lion Horn Field Stadium
York County, Pennsylvania

- Red Lion Area School District’s Red Lion Horn Field, its stadium facility for football and baseball games, was in need of renovation.
- The original suggested stormwater solution would have delayed the project’s aggressive schedule. To meet the tight time frame, Contech was able to value engineer the **Terre Arch™ stormwater management system** for this project.
- Due to Terre Arch’s efficient and fast installation, the contractor was able to finish the project prior to the football team’s first scheduled home game, allowing the team to play their full home schedule in their newly renovated stadium.
Project Profiles: Contech Detention and Infiltration Systems in Action

Corryville Crossings  
Cincinnati, Ohio

- Corryville Crossings is a 80,000 SF development that will create approximately 400 jobs and $24 million of new construction. An underground detention product was necessary to regulate stormwater flow.
- **DuroMaxx steel reinforced polyethylene (SRPE) pipe** was chosen because it is designed to contain the water and slowly release it into the main system over a period of time. In addition, it provides a strong, reliable detention system with a watertight joint solution.

St. Vincent Hospital – Carmel Campus  
Indianapolis, Indiana

- While expanding its existing site, St. Vincent Hospital installed a loop of large diameter **ULTRA FLO® corrugated metal pipe** to provide for the required stormwater detention under a parking lot. Controlled release into an adjacent protected wetland was also facilitated through a 15 inch outfall pipe.
- The system provides a variety of benefits, including increased safety from less open bodies of water, decreased liability costs, reduced maintenance costs, preservation of usable land value, ability to expand on existing land and reduction of biological/microbial vector diseases.

Bryan’s Lift Station Improvements  
Monticello, Indiana

- Bryan’s Lift Station, an area still utilizing combined sanitary and storm sewers, needed to be replaced due to an inability to handle peak storm flow.
- With tight site constraints and poor subsurface conditions, **DuroMaxx® pipe** was ideal for maximizing capacity while minimizing the overall footprint.
- The DuroMaxx Combined Sewer Overflow system was designed for 395,000 gallons of storage, while also offering easier constructability and room for future expansion.
- The use of electrofusion joints offers watertight protection, without the need for water or air testing of the full system, since each joint is individually vacuum tested.

Learn more at www.ContechES.com/detention
Dig Deeper
Find all the information you need at www.ContechES.com, including field and laboratory test results, approvals, brochures, design guides, standard details, and specifications within the product section of our site.

Connect with Us
We’re here to make your job easier – and that includes being able to get in touch with us when you need to. Go to www.ContechES.com/ConnectwithContech. While you’re there, be sure to check out our upcoming seminar schedule or request an in-house technical presentation.

Start a Project
If you are ready to begin a project, contact your local representative to get started. Or you can check out our design toolbox for all our online resources at www.ContechES.com/designtoolbox. 

Links to Stormwater Tools:
To use the Land Value Calculator, visit: www.ContechES.com/lvc
(look under the Stormwater Management section to download the Land Value Calculator)

To use the Design Your Own Detention System tool, visit: www.ContechES.com/dyods

To use the Design Your Own Hydrodynamic Separator tool, visit: www.ContechES.com/dyohds

To use the Rainwater Harvesting Runoff Reduction Calculator tool, visit: www.ContechES.com/rwhcalculator

To use the LID Site Planner, visit: www.ContechES.com/LIDsiteplanner

COMPLETE SITE SOLUTIONS

STORMWATER SOLUTIONS
Helping to satisfy stormwater management requirements on land development projects
• Stormwater Treatment
• Detention/Infiltration
• Rainwater Harvesting
• Biofiltration/Bioretention

PIPE SOLUTIONS
Meeting project needs for durability, hydraulics, corrosion resistance, and stiffness
• Corrugated Metal Pipe (CMP)
• Steel Reinforced Polyethylene (SRPE)
• High Density Polyethylene (HDPE)
• Polyvinyl Chloride (PVC)

STRUCTURES SOLUTIONS
Providing innovative options and support for crossings, culverts, and bridges
• Plate, Precast & Truss bridges
• Hard Armor
• Retaining Walls
• Tunnel Liner Plate

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