

CONTECH Natural Resource Solutions



CONTECH Construction Products Inc. is the nation's leading producer of bridge, drainage, erosion control, retaining wall, soil stabilization, sanitary and stormwater solutions for site development. CONTECH provides a much needed variety of heavy duty site solutions to serve the oil and gas, mining, alternative energy and forestry industries. Based on more than a century of research and practical field experience, we understand your natural resource

needs and our products are designed to provide practical, efficient and economic results. From enabling precise construction, rapid installation and easy maintenance to producing long-lasting, durable, resilient products, the experts at CONTECH are ready to help you develop – and implement – a solution that's right for you.

Structure and Bridge Solutions

Structural Plate

MULTI-PLATE® structures are formed from corrugated structural steel plates that are easily site-assembled to form shapes such as round pipe, arch and pipe arch. Aluminum Structural Plate provides all of the advantages of MULTI-PLATE with the addition of enhanced durability and lighter handling weight – 1/50 as much as reinforced concrete pipe. With spans up to 52 feet, SUPER-SPAN™ and SUPER-PLATE® structures are the most widely accepted long-span, corrugated steel bridge structures in the world with national specifications and proven durability.

Precast

CON/SPAN® Bridge Systems and BEBO® Concrete Arch Systems are the most widely accepted precast concrete arch bridge solutions. CON/SPAN's distinctive arch action utilizes fast, set-in-place construction on cast-in-place or precast concrete footings. Similarly, BEBO uses the fundamentals of soil-structure interaction to achieve superior strength and stability. Both precast arch systems can be provided with precast headwalls and wingwalls to meet the requirements for a wide range of industrial and mining applications. Spans are available from 12 feet to 102 feet.

Truss

Steadfast Vehicular Truss Bridges and Continental® Pedestrian Truss Bridges are durable and aesthetic solutions. Modular, prefabricated construction means fast installation and substantial cost savings. CONTECH truss bridges combine classic bridge design and construction that is customized and manufactured to your specifications with spans up to 150', 250', 400' and more.

Bridge Plank

For bridge deck rehabilitation and new construction, CONTECH Bridge Plank is an easy and economical solution. It can be used to replace worn-out wood or deteriorated concrete decks and restore strength to old structures.

Applications

Mining and Aggregate Tunnels

MULTI-PLATE round arch shapes are the most widely used structures for aggregate tunnels, surge piles and bulk storage facilities. Special features such as hopper openings, conveyor supports, bulkheads, escape laterals and elbows to accommodate grade changes and alignment are readily integrated.

Plate structures have also been utilized to extend and improve mine entrances, providing protection from falling rocks and debris. Additionally, CON/SPAN and BEBO precast arches can be adapted for use in industrial tunnel applications.

Grade Separations

Plate and Precast structures are commonly used for grade separations to eliminate dangerous intersections between off-highway haul trucks, railroads and public roads. These structures are strong enough to carry massive off-highway and railroad loads and are available in shapes to accommodate critical clearance boxes.

Environmental

Clear spans make CONTECH's plate, precast and truss structures all effective hydraulic solutions. From small drainage channels to large environmentally sensitive wetlands, shapes and spans are available for most needs.

Pipe Support

CONTECH's truss structures can carry utilities and piping across waterway channels or roadways. Our Continental and Steadfast structures can be designed to support heavy loads and piping systems of nearly any size diameter.



Drainage Solutions

Corrugated Metal Pipe

Corrugated Metal Pipe (CMP) offers an economical solution for all culvert, storm sewer, tunnel, foundation or specialty product applications found in the oil and gas, mining, alternative energy and forestry industries. A CMP solution can be engineered to withstand the demanding environmental and installation conditions in the natural resource market while offering structural strength, hydraulic advantages and durability.

- Lightweight, easy handling
- Fast, economical installation
- Superior strength to weight ratio
- Diameters to 192"
- Pipe or arch shapes
- Lengths to 48' and more
- Offered in a variety of coatings and gages

End Sections

CONTECH End Sections are available in round or pipe arch shapes providing improved hydraulics and an easy erosion control method for drainage applications.

DuroMaxx ASTM F2562

DuroMaxx™ reinforced storm drain pipe utilizes steel reinforcing ribs to provide strength and pressure rated high performance polyethylene resin for durability, offering exceptional service and long life. Additionally, higher flow rates are achieved with the smooth polyethylene inner water way wall possibly providing a reduced pipeline diameter and added cost savings.

PVC PIPE — AASHTO M304, ASTM F949, ASTM D3034 and ASTM D2680

CONTECH offers high performance PVC pipe for sanitary sewer, culvert, storm sewer, underdrain, roof drain and rehabilitation applications.

Applications

Air Power/Windmill

CONTECH large-diameter CMP is used as a deep foundation form at the base of the windmill. CMP is placed vertically to act as a form for the poured-in-place concrete foundation along with being used in the many access roads.

Cattle Guards

CONTECH Cattle Guards utilizing CMP serve as an obstacle to prevent hooved animals from crossing. It consists of a grid of bars or tubes, made of steel, firmly fixed on the ground with a depression underneath so that the holes are wide enough for an animal's leg to fall through, but narrow enough that a vehicle's wheels will not.

Additional Corrugated Metal Pipe Applications

- Culverts
- Storm Sewers
- Foundation Forms
- Shaft Liners
- Aggregate Tunnels
- Reclaim Tunnels
- Escape Tunnels
- Mine Portals
- Utility Conduit
- Meter and Valve Boxes
- Erosion Control Management
- Environmental Management
- Ventilation Tunnels
- Conveyor Enclosures

Irrigation

DuroMaxx reinforced irrigation pipe provides an effective and economical solution for low head water transmission used in irrigation ditch enclosure lines. The combination of High-Density Polyethylene Resin (HDPE) with steel reinforcing ribs provides exceptional performance and ease of installation.

A-2000/D-2000 PVC pipe, manufactured from high quality pressure rateable PVC compound, offers an exceptionally smooth interior (Manning's "n" = 0.009) and excellent joint tightness. A-2000/D-2000 is an economical high performance alternative for low head applications up to 36 inches in diameter.



Wall and Soil Stabilization Solutions

Bin-Wall

CONTECH Bin-Walls™ are a system of adjoining, closed-faced, 10-foot wide bins that flex against minor, unforeseen ground movements. The bins are sturdy, lightweight steel that are easily bolted together at the job site and in difficult or restrictive conditions. A fully enclosed face protects against the loss of fill material.

Metric Sheeting

CONTECH Metric Sheeting is a medium-weight sheeting that provides an economical and structurally sound solution for several types of temporary and permanent structures. CONTECH's wider sheets have fewer interlocks resulting in less permeability. Also a higher degree of stiffness produces the industry's best strength-to-weight ratio and less driving effort.

Wire Walls

CONTECH wire walls and wire face walls are excellent for building over foundations with a large anticipated settlement or differential settlements beyond the capabilities of a conventional concrete faced system. They can economically reach remote areas by special transportation including plane, helicopter or pack animal. Wire walls can be used with on-site fill materials and provide an economical and attractive, natural looking (after vegetation) solution.

Modular Gabion Systems

Modular Gabion Systems are engineered welded wire mesh products of varying sizes for earth retention and soil stabilization, erosion control and flood control, and landscape and architectural applications. Gabions are assembled on the job site, set into place, and filled with stone to form a flexible, permeable, monolithic structure that provides low cost, long-term erosion control and soil stabilization.

Applications

Bridges and Roadways

CONTECH Bin-walls can be used for solving right-of-way problems on grade separation, and protecting tunnels and bridges as headwalls and wingwalls. CONTECH Bin-walls offer a lower initial cost and reduced maintenance expenses, along with a quick and easy installation method.

CONTECH Wire Walls and Wire Face Walls combine the structural benefits of a conventional concrete-faced system with the economy of wire facing. They can serve as headwalls and wingwalls for bridges and tunnels and provide solutions for grading separation. They also serve as primary feeder walls and offer temporary staging. Both CONTECH Wire Walls and Wire Face Walls provide cost savings due to their light weight and simple installation process. Installation does not require complex forms, experienced labor or heavy equipment.

CONTECH Metric Sheeting offers solutions for light-duty earth retention needs. Installation can be conducted with two laborers by pushing into the ground with a backhoe. In more difficult driving conditions, it can be driven with conventional drop hammers, vibratory drivers and diesel hammers.

Water Applications

CONTECH Bin-Walls can be used in water environments among several other applications with difficult or restrictive conditions. Unlike crib-type retaining wall construction through which fill material can escape, CONTECH Bin-Walls have greater strength and stability. Installation does not require expensive equipment or skilled labor.

CONTECH Metric Sheeting speeds work, enables safer working conditions and reduces cost for a variety of applications including cut-off walls and check dams. As a medium-weight sheeting, CONTECH Metric Sheeting serves when heavy hot-rolled sheeting is impractical or when wooden sheeting is expensive, cumbersome or structurally inadequate.



Erosion Control and Soil Stabilization Solutions

A-Jacks

A-Jacks® are highly stable concrete armor units designed to interlock into a flexible, highly permeable matrix and can be installed either randomly or in a uniform pattern. The interstices, formed within the A-Jacks matrix, provide approximately 40% void space. The voids can provide habitat for aquatic life when applied as a reef, revetment or soil support system in river applications.

ArmorFlex

ArmorFlex® is a flexible, interlocking matrix of machine-compressed, cellular concrete blocks of uniform size, shape and weight. The matrix is laced with a series of cables, which allows for the placement of large mats of blocks. ArmorFlex revetment systems combine porosity, flexibility, vegetation encouragement and habitat enhancement with a rigid lining's non-erodible self-weight and the high-tractive force resistance.

Tensor Geogrids

Tensor Biaxial (BX) and Uniaxial (UX) geogrids permit heavy construction on sites with weak soils, eliminating all or most other foundation and/or soil stabilization work. By internally reinforcing all types of soils and construction fill material, Tensor geogrids create a stiffened, reinforced prism capable of supporting critical, engineered structures.

Woven & Non-Woven Geotextiles

Woven geotextiles are generally preferred for applications with high strength properties, less critical filtration requirements and those applications not requiring planar flow. Woven geotextiles, on a unit basis, achieve higher strengths at lower elongations than non-woven geotextiles and are extremely efficient in strength priority applications.

Non-woven geotextiles provide filtration and planar flow, reduce hydrostatic pressure and prevent subsoil migration.

Applications

Drop Structures

ArmorFlex articulating concrete block systems and A-Jacks armor units are used to construct highly stable channel drop structures in steep bed grade applications. An efficient and interlocking design, which uses less material compared to conventional techniques such as rip rap, provides maximum energy dissipation. Installation time is also dramatically reduced because of their unique cabled design.

High Velocity Channels

The Armorflex Tapered Block Series is capable of providing erosion protection in high velocity applications, such as spillways, overtopping and diversion channels. As a cost effective alternative to reinforced concrete lining or grouted rip rap, the Armorflex Tapered Series provides needed protection while fulfilling environmental quality requirements including vegetation promotion, habitat enhancement and associated water quality benefits.

Outfall Protection

The unique shape and interlocking design of ArmorFlex cabled systems and ArmorLoc hand placed systems provide permanent erosion protection at culvert outfall locations. Unlike dumped stone, which typically requires maintenance and replenishment after periodic events, ArmorFlex & ArmorLoc systems are permanent solutions that dramatically reduce life-cycle costs.

Pier Scour Protection

ArmorFlex and A-Jacks are accepted pier scour countermeasures according to Federal Highway Administration (FHWA) guidelines. These highly engineered systems provide a maximum factor of safety to critical structures.

Streambank Erosion

The A-Jacks and ArmorFlex systems offer permanent solutions to streambank erosion by armoring the area of maximum scour. These systems also promote native vegetation for a natural enhancement.



Erosion Control

Pyramat High Performance Turf Reinforcement Mats

For a reliable, permanent erosion and reinforcement matrix, Pyramat® High Performance Turf Reinforcement Mats (HP-TRMs) are the strongest, most durable choice available. The tensile strength of HP-TRMs exceeds the AASHTO M288 standard for geotextile stabilization and offers more than 10 times the strength of standard mats.

Landlok Erosion Control Blanket

Unlike loose fiber mulches, Landlok® Erosion Control Blankets (ECBs) lock seed and soil in place, which encourages faster vegetation growth because the root system can establish solid ground support. All ECBs are available with a rapidly degrading net or a more environmentally-friendly jute netting.

Landlok Turf Reinforcement Mats

Turf Reinforcement Mats (TRMs) are flexible, three-dimensional reinforcement systems that remain a permanent part of the application and anchor mature plants to the soil for superior, long-term erosion resistance.

Tunnel Liner Plate

CONTECH 2-Flange Liner Plate provides optimum shaft stability and protection when constructing new utility tunnels, relining structures under highways and railroads and lining vertical shafts. It offers the highest continuous ring stiffness and high compression joint strength. CONTECH 2-Flange Liner Plate has effective stiffness that is more than twice that of the same gage (thickness) of 4-Flange Liner Plate.

Applications

Slope Erosion Protection

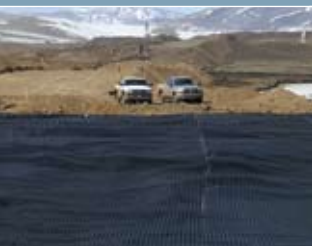
Cut and fill slopes occurring during construction are a major contributor to soil erosion and associated water quality impacts. CONTECH's full line of degradable Erosion Control Blankets (ECBs) and Turf Reinforcement Mats (TRMs) protect vulnerable slopes while promoting the establishment of natural vegetation.

Low Flow Channels and Ditches

CONTECH's ECB and TRM soft armored erosion control solutions offer cost-effective alternatives to dumped stone for feeder channels and diversion ditches. Their installation is fast, easy and does not require any heavy equipment. The result is a savings of both production time and project costs.

Vertical Shaft Applications

Vertical shafts are required for many microtunneling, slip-lining and tunnel installations. These shafts vary in diameter from a few feet to more than 50 feet and frequently have depths exceeding 60 feet. In each case, maintaining shaft integrity requires a dependable support system. CONTECH's 2-Flange Liner Plate and MULTI-PLATE® can be used as cost-efficient shaft liner systems that minimize installation expense and, most importantly, create a safe working environment when properly designed and installed.



Stormwater Solutions

CONTECH serves the natural resource sector by providing reliability and flexibility to meet environmental permit requirements. We understand the changing regulatory environment and offer complete sales and engineering support to service your needs. Our products capture and remove pollutants such as suspended solids, oils and grease, dissolved metals, organics and nutrients from stormwater runoff or diluted wastewater discharge. Because our systems are passive and do not add chemicals, they may be deployed without concern for utilities, treatment by-products or effects to sensitive waterways.

StormFilter

The Stormwater Management StormFilter® removes the most challenging target pollutants – including fine solids, soluble heavy metals, oil and total nutrients – using a variety of sustainable media. Available in six configurations optimized for different applications, this cost-effective, passive filtration system is highly reliable and easy to install.

VortClarex

VortClarex®, a highly-efficient oil/water separator, utilizes a coalescing media to remove virtually all free oil from contaminated flows. Typically sized, VortClarex removes oil droplets down to 60 microns and achieves an effluent concentration of 10 ppm or less.

Oil Stop Valve

The Oil Stop Valve protects waterways from oil or petroleum spills. The passive spill stop valve detects accumulations of oil and activates a valve that positively stops the flow of stormwater and oil upstream from the valve.

Applications

Vehicle maintenance or equipment storage areas

Vehicle maintenance, repair and equipment storage areas release pollutants that can be transported into storm drains by stormwater runoff. Pollutants include metal bearing particulates, paint from surface preparation and painting, suspended solids from grinding and sanding and oils and grease from machining or working with vehicles. The StormFilter with fine leaf compost (CSF®), zeolite, perlite or granular active carbon (GAC) media is effective for removing suspended solids, oils, grease and metals from these operations.

Electric Power Generation

Dissolved copper and other metals leaching from condenser tubing, spill prevention, control of petroleum based lubricants and transformer or cooling fluids are typical of this industry. Suitable treatment technologies include the StormFilter for metals and the VortClarex and the Oil Stop Valve target petroleum based fluids.

Metal Roofing

Metal sheeting used for on-site structures or roofing are sinks for zinc and airborne particulates. The StormFilter with CSF or zeolite media is excellent for removing zinc and fine particulates.



Stormwater Solutions

Collector Pans

CONTECH Collector Pans™ are an ideal solution for controlling soil contamination at rail sites. These all-steel pans and drains are easily installed on existing or new tracks to catch wastes such as spilled or leaking fuel, oils, chemicals and other harmful pollutants.

Vortechs®, CDS®, VortSentry® and VortSentry® HS

CONTECH's hydrodynamic separator systems effectively remove sediment, debris, free oil and grease. They can be utilized as pretreatment systems in the mining and energy sectors to extend the maintenance life and performance of the StormFilter and VortClarex systems.

Catch Basin Inserts

The Triton Catch Basin Insert traps hydrocarbons and other contaminants such as metals, sand, silt, trash and debris. Easy to install in new and existing drop and curb inlets, they are available in round, square, rectangular, low profile and custom sized models. They allow for quick and easy maintenance made available by disposable Media-Pak cartridges, constructed from durable geotextile, polypropylene fabric.

CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, retaining walls, sanitary sewer, stormwater, erosion control and soil stabilization products.

For more information, call one of CONTECH's Regional Offices located in the following cities:

Ohio (Corporate Office)	513-645-7000
California (San Bernardino)	909-885-8800
Colorado (Denver)	303-431-8999
Florida (Tampa)	727-544-8811
Georgia (Atlanta)	770-409-0814
Indiana (Indianapolis)	317-842-7766
Kansas (Kansas City)	913-906-9200
Maryland (Baltimore)	410-740-8490
Oregon (Portland)	503-258-3180
Texas (Dallas)	972-590-2000

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Applications

Fueling and Petroleum Storage Areas

Treating stormwater runoff or containing spills from these areas can be accomplished using a VortClarex or Oil Stop Valve. If the area is small and involves direct sheet flow into a catch basin, the CatchBasin, StormFilter or a Triton Catch Basin Insert with our environmentally safe absorbent material can be effective.

Mining Drainage

Groundwater seepage flows through mine tunnels to their entrance and emerges as metal laden mine drainage. A vast amount of heavy metals such as zinc and lead are discharged to public waterways. The StormFilter with cation-exchange media such as zeolite is effective for removing heavy metals from mine drainage.

CONTECH Stormwater Benefits:

- Environmentally Sustainable – our systems are passive and require no power or chemical additives
- Compact and Cost Effective – below-grade systems maximize land use
- Flexible Product Configurations – customizable to target site specific pollutants and maintenance needs
- Meet Requirements – products recognized nationwide for achieving exceptionally high and consistent discharge water quality
- Risk Management – reduce environmental exposure and costly fines

