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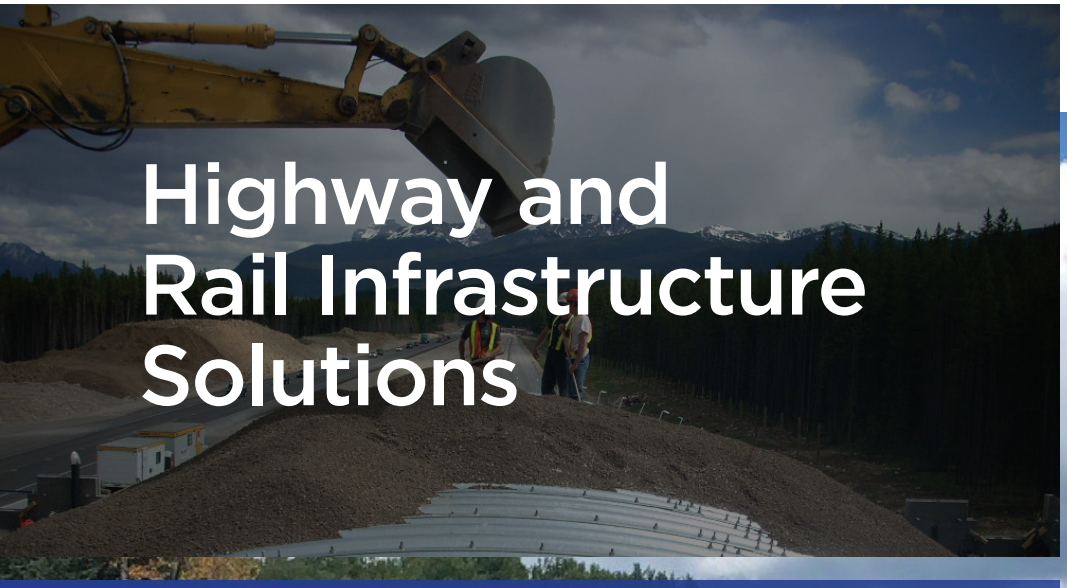
WGI Westman Group Inc.

armtec



Highway and Rail Infrastructure Solutions

Offering innovative products and solutions designed to meet the specialized needs of today's infrastructure projects.

HIGHWAY AND RAIL SOLUTIONS

Armtec has partnered with highway and railway engineers, contractors and project managers across Canada and overseas for over 100 years. Our cost-effective, innovative solutions meet the challenges of today's transportation and infrastructure projects and are well-suited for the remote locations encountered by road and rail engineers as they connect communities. Our products are easily installed using local construction resources without the need for sophisticated equipment. Armtec offers a full range of services, including project concept solutions, design and drawing preparation to help meet today's challenge of moving people and freight between strategic locations.

DRAINAGE SOLUTIONS

Corrugated Steel Pipe (CSP)

With a wide range of sizes, shapes, coatings, and materials options, Armtec's SteelCor corrugated steel pipe (CSP) and related products offer unparalleled versatility and flexibility when designing drainage solutions. CSP's light weight, strength, ease of installation, low maintenance and adaptability to various field conditions give it a distinct advantage over alternative products. Armtec's pipe is manufactured from factory-coated steel coil. Coatings include galvanized, aluminized steel type 2, and polymer-laminate to meet environmental conditions. The selection of steel thickness and corrugation profile depends on the type of structure, diameter, height of cover, and live load over the structure. Ultra Flo spiral rib pipe is also available for improved hydraulic efficiency.

APPLICATIONS

- **Road culverts**
- **Storm sewers**
- **Stormwater detention systems**
- **Structure relines**

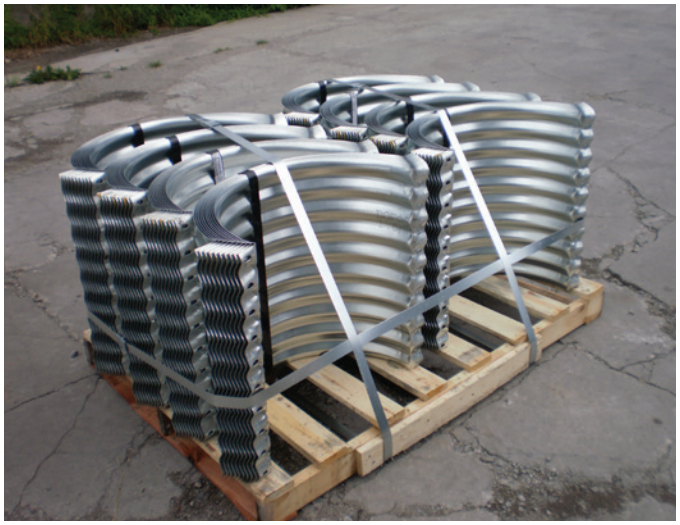
Nestable Pipe (CSP)

Flanged-type nestable CSP consists of half-round sections with integral side flanges that are bolted together to form a circular corrugated steel pipe. The product is especially useful when a casing is installed around an existing utility without disturbing its operation. The sections are nested and bundled together to save space during shipping, an advantage over standard CSP for projects in remote areas or overseas. The product lends itself well to transportation by air, rail or water.

APPLICATIONS

- **Road culverts**
- **Utility protection casings**

CORRUGATED STEEL PIPE (CSP)



NESTABLE PIPE (CSP)

HDPE (High Density Polyethylene) Tubing

Big 'O'® single-wall corrugated High Density Polyethylene (HDPE) tubing is a cost-effective solution for street and highway drainage applications, including edge drains, cross drains, and underdrains. It is offered in diameters from 75 mm (3") to 300 mm (12") and coil lengths (rolls) up to 1,067 m (3,500'). The product is available with solid wall, perforated wall or perforated wall with filter sock.

APPLICATIONS

- **Subdrains**
- **Edge drains**
- **Cross drains**
- **Underdrains**

HDPE Pipe

BOSS 2000® High Density Polyethylene (HDPE) pipe is a proven performer in the highway, municipal, industrial, and forestry drainage markets. Engineered for gravity flow systems, a wide range of BOSS pipe designs are available to meet specific standards and project requirements. The corrugated exterior wall and smooth interior combine structural strength and hydraulic efficiency. Polyethylene is a highly corrosion and abrasion-resistant material. Its light weight allows for ease of handling and quick installation.

APPLICATIONS

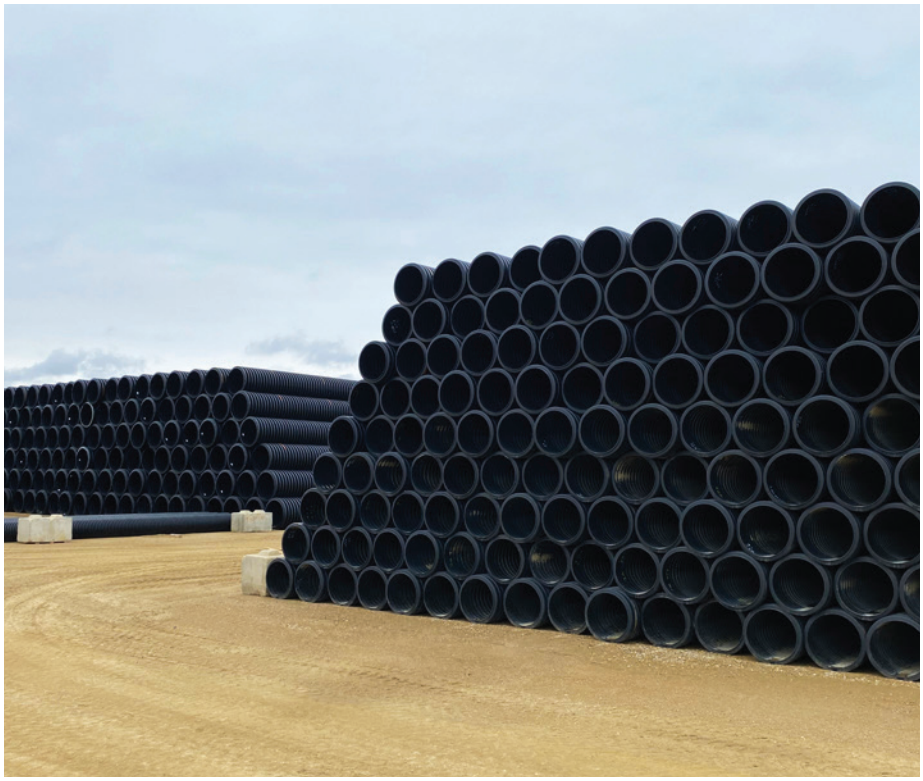
- **Road culverts**
- **Storm sewers**
- **Stormwater detention applications**

HDPE and CSP Stormwater Dentention Systems

Stormwater detention systems capture and store stormwater in underground tanks made from a system of CSP, Spiral Rib, or HDPE pipes. Water is detained for the storm period before being recharged to the ground or discharged to a collector system. Stormwater detention systems are custom-designed and manufactured to suit any site plan and storm conditions. The diameter, size and configuration are designed to optimize storage volume based on footprint, burial depth, and discharge/recharge rates. Fittings, catch basins, manifolds and discharge outlets are factory-made for ease of installation on site.

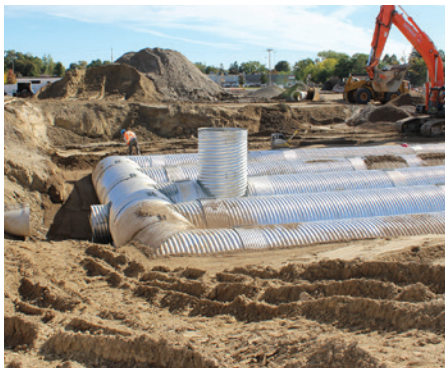
APPLICATIONS

- **Subsurface drainage**
- **Edge drainage**
- **Transmission of low-flow stormwater**



BOSS 2000

BOSS 2000



STORMWATER DETENTION SYSTEM

COLLECTOR PANS FOR REFUELING AND LIQUID LOADING FACILITIES

Armtec collector pans are modular systems of steel pans and drains, installed on railroad tracks to catch wastes such as spilled diesel fuel, oils, greases and other pollutants. The collector pan system covers the area between and immediately outside rails. Cross drains installed at right angles to the track between the ties carry wastes and rainwater into under-drains and onto treatment and disposal facilities, including settling basins, grit chambers and oil-water separators. Configurations are custom-designed and fabricated to suit site conditions. All components are factory-made for easy field installation.

APPLICATIONS

- **Fueling stations**
- **Ready tracks**
- **Tank car loading and unloading areas**
- **Washing and cleaning facilities**

COLLECTOR PANS

TUNNEL LINER PLATE

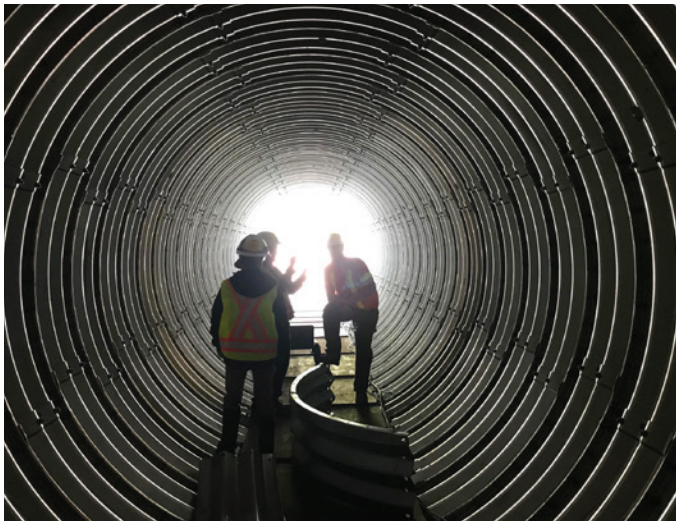
Tunnel Liner Plate is a segmented corrugated steel plate system designed specifically for lining soft ground tunnels and relining existing conduits under highways and railroads. Individual plates weigh between 15 kg and 41 kg – light enough to carry by hand into a confined space. Plates are bolted together into continuous rings, advancing tunnels in 500mm long segments. Diameters range from 1.3 m to 6 m. Grout ports and plugs are factory-installed to facilitate post-installation grouting.

Tunnel Liner Plates can be completely assembled from inside the tunnel and grouted at regular intervals. As the tunnel progresses, the liner plate continually generates ring support, providing a safe launch region for workers and equipment to advance.

APPLICATIONS

- **Soft ground tunnels**
- **Relines of underground structures**
- **Vertical shafts and caissons**

TUNNEL LINER PLATE - TUNNEL RELINE



TUNNEL LINER PLATE

BRIDGING SOLUTIONS

Multi Plate

Multi Plate is a versatile and economical pipe and bridge product with a proven history of performance dating back to 1932. It is a component system made of curved, corrugated steel plates, fasteners and, where applicable, footing channels. Structural plate corrugated steel pipe (SPCSP) structures are assembled in the field using plates curved specifically for the particular shape designed. Plates are galvanized for typical applications and additional durability is provided with the use of polymer-coated galvanized plate (Strata-Cat).

Multi Plate is most commonly used as the steel element of a buried soil-steel structure, but it can also be part of structures such as rock fall protection and portals, aggregate storage bins, water intakes, caissons and more. Available shapes include round, ellipse, arch, pipe-arch and underpass profiles. Standard spans range from 1.5 m to 8.5 m.

APPLICATIONS

- **Road and rail culverts**
- **Short-span bridges**
- **Vehicular, animal and pedestrian underpasses**

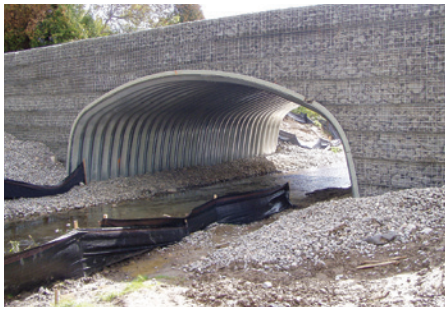
BRIDGE-PLATE®

BRIDGE-PLATE is a deep corrugated structural plate (DCSP) product, enabling the construction of long-span soil-steel structures. High bending strength of the plate sections in comparison to standard SPCSP products permits the use of long-radius arc, thus increasing the range of shapes and spans that can be designed. BRIDGE-PLATE is available in arched, ellipse, round and box-culvert shapes. Spans range from 4 m to 18 m, with larger structures being custom-made. Structures are assembled in the field using plates curved specifically for the shape designed. An engineered backfill of compacted granular material is required to complete the installation of the BRIDGE-PLATE structure.

APPLICATIONS

- **Bridges**
- **Stream crossings**
- **Grade separations (road/rail)**
- **Structure relines**
- **Wildlife crossings**

STRUCTURAL PLATE - GRADE SEPARATION



BRIDGE-PLATE

MULTI PLATE

SOIL REINFORCEMENT AND RETENTION

GEOSYNTHETICS

Base Stabilization

Armtec carries a full line of woven and non-woven geosynthetics such as geotextiles manufactured from polyester or polypropylene. Low up-front cost and highly predictable performance makes them a particularly cost-effective solution in soil engineering. Geosynthetics are available in a range of weights and strengths to suit design requirements and site conditions.

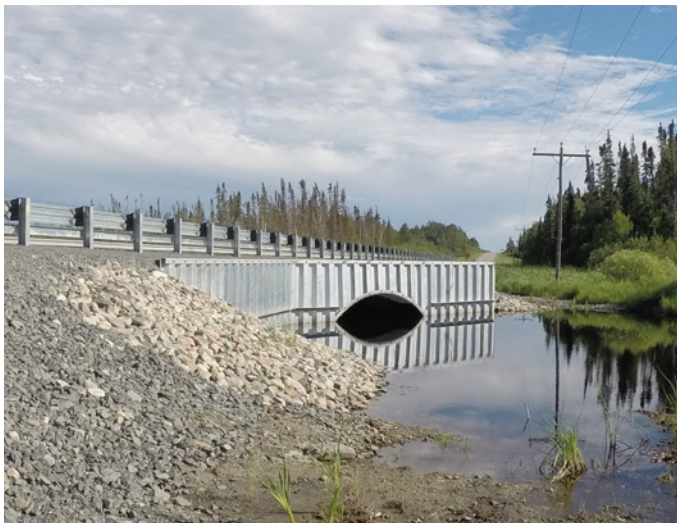
Steep Slope Stabilization

High-strength geosynthetics are commonly used in reinforced soil structures such as retaining walls, steep slopes and embankments.

APPLICATIONS

- **Base reinforcement**
- **Separation and soil stabilization for roadways**
- **Parking lots and railways**

GEOTEXTILES



SHEET PILING

Steel Sheet Piling

Steel sheeting is a profiled piling system suitable for installation using low-velocity hammers, vibratory hammers or by trenching. Interlocking seams at each vertical edge allow adjacent parts to be mechanically joined to construct continuous walls. The product can be quickly installed and is economical. Steel sheet piling is available in black steel or in hot-dip galvanized steel.

APPLICATIONS

- **Trench shoring**
- **Culvert headwalls**
- **Culvert cut-off walls**
- **Freshwater shore protection**
- **Freshwater docks and loading ramps**

Bin Wall Retaining Wall

Bin Wall is a versatile gravity retaining wall system made of rugged galvanized steel components. The system consists of adjoining, closed-face steel bins filled with compacted granular material and designed to the height and depth needed to resist overturning and sliding forces typical of gravity wall systems. The unique design enables Bin Wall to adjust to minor ground movement without cracking or bulging.

Standard factory components can be used to construct walls with heights of up to 10 m. Walls can be installed on side or lateral slopes, curves and where there are changes in elevation, either above or below the wall. All connections are bolted on-site.

APPLICATIONS

- **Road or rail retaining walls**
- **Loading ramps**
- **Bridge abutments**
- **Docks and piers for freshwater marinas**
- **Solid waste transfer units**
- **Aircraft blast walls (military)**

BIN WALL

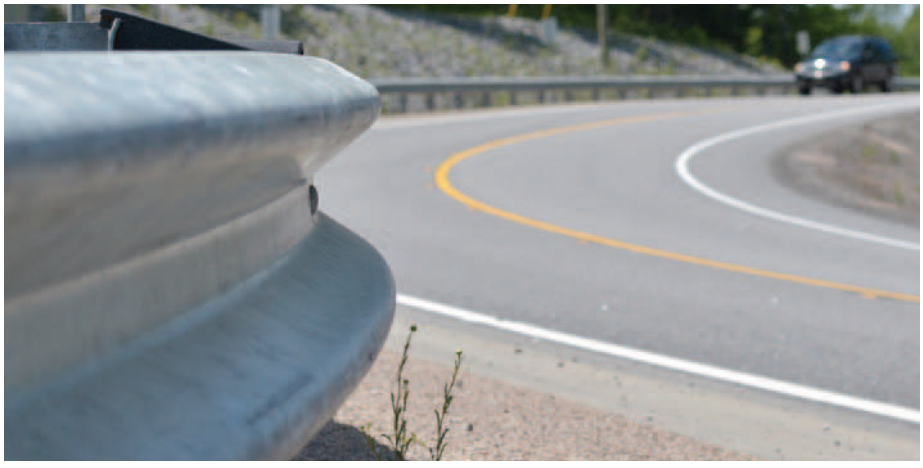
HIGHWAY SAFETY

Steel Highway Guardrails

Guardrail provides highly visible protection in all weather conditions, helping to increase driver confidence. The Guardrail system absorbs the impact of out-of-control vehicles while guiding the vehicle to safer stops. Proven results and consistent material quality make steel Guardrail systems the right barrier choice.

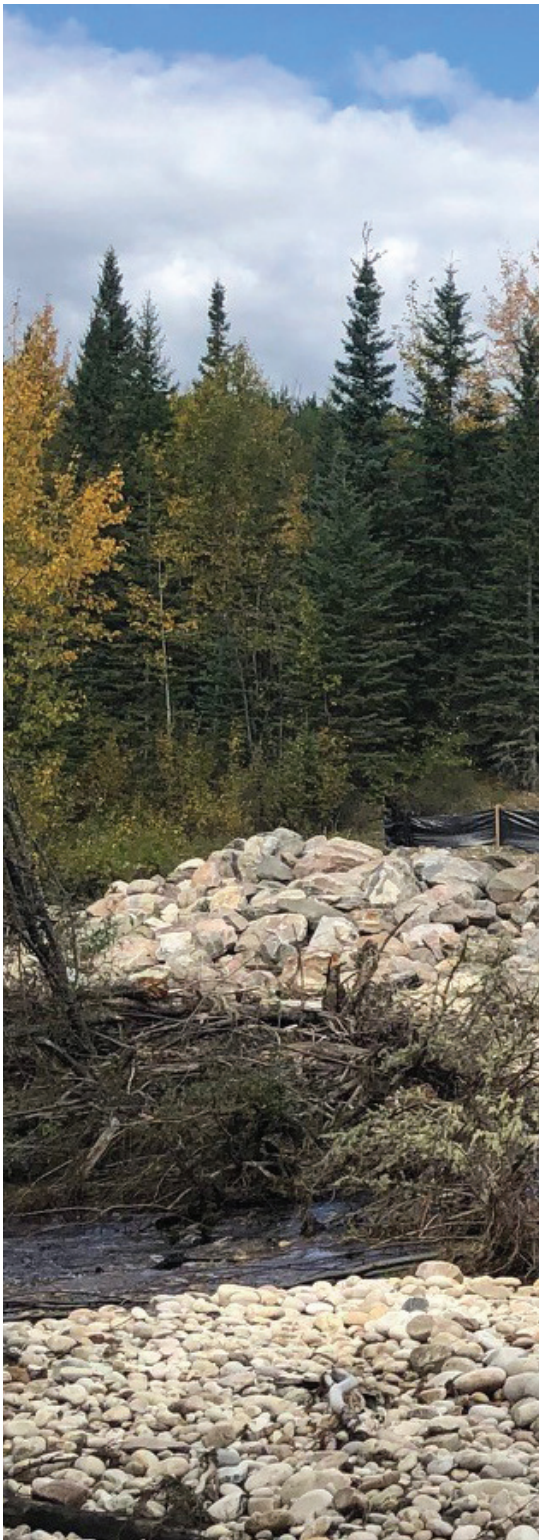
APPLICATIONS

- **Highway and road medians**
- **Curb lanes**



GUARDRAIL

Armtec is environmentally conscious
by supporting limited paper usage.



ATLANTIC
Shediac, NB
Sackville, NB
Truro, NS
Bishop's Falls, NL
St. John's, NL

CENTRAL
Cambridge, ON
Comber, ON
Forest, ON
Guelph, ON
Peterborough, ON
Sudbury, ON
Thunder Bay, ON
Tillsonburg, ON
Walkerton, ON
St-Augustin, QC
St-Clet, QC

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Edmonton, AB
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Ponoka, AB
Redwater, AB
Winnipeg, MB
Regina, SK
Saskatoon, SK

WEST
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Genelle, BC
Langley, BC
Nanaimo, BC
Prince George, BC

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Armtec is a leading Canadian infrastructure and construction materials company combining creative engineered solutions, relevant advice, dedicated people, proven products and a national presence with a local focus on exceptional customer service.

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