The MagnumStone™ product is a large block, hollow core, wet-cast segmental retaining wall system that uses nearly half the amount of concrete per face metre when compared to traditional solid systems. The environmental and economical advantages of the pre-cast hollow block MagnumStone™ product are unprecedented in the retaining wall industry. Because of its size and design flexibility, MagnumStone™ is ideal for almost any retaining wall project from residential to large commercial installations.

Unit to unit connection uses our patented, mortarless, SecureLog™ interlock system (no expensive, time consuming pins or clips) and are light enough that they can be moved two at a time with lighter machinery such as a standard Bobcat.

A wet cast segmental retaining wall product provides freeze/thaw durability advantages over competing products, a critical factor for the Departments Of Transport work that MagnumStone™ is very well suited for. The wet-cast process also allows for unique through-wall applications, and face options for various projects.
MAGNUMSTONE RETAINING WALL

The System

Half High Base

Half High

Half High Top

Standard Top

Half High Corner/End Unit

Standard Corner/End Unit

Standard Base

MAGNUMSTONE RETAINING WALL UNITS

The Units

Standard

Half High

Half High Corner/End Unit

Standard Corner/End Unit

Left and Right

Standard Base

Standard Top

Half High Base

Half High Top

305mm

305mm

305mm

406mm

406mm

406mm
MAGNUMSTONE RETAINING WALL UNITS

**Standard Top Unit**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face Width</td>
<td>1219mm</td>
</tr>
<tr>
<td>Back Width</td>
<td>991mm</td>
</tr>
<tr>
<td>Depth</td>
<td>610mm</td>
</tr>
<tr>
<td>Height</td>
<td>610mm</td>
</tr>
<tr>
<td>Face Area</td>
<td>0.72sq m</td>
</tr>
<tr>
<td>Batter</td>
<td>20.7mm/unit</td>
</tr>
<tr>
<td>Vertical</td>
<td>0mm/unit</td>
</tr>
<tr>
<td>Weight</td>
<td>553kg</td>
</tr>
<tr>
<td>Volume Voids</td>
<td>0.18m³</td>
</tr>
<tr>
<td>Gravel Fill Weight</td>
<td>907kg</td>
</tr>
</tbody>
</table>

**Assumption:** Aggregate (Blue Metal 20mm) density = 1967kg/m³

**Half High Unit**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face Width</td>
<td>1219mm</td>
</tr>
<tr>
<td>Back Width</td>
<td>991mm</td>
</tr>
<tr>
<td>Depth</td>
<td>610mm</td>
</tr>
<tr>
<td>Height</td>
<td>305mm</td>
</tr>
<tr>
<td>Face Area</td>
<td>0.37sq m</td>
</tr>
<tr>
<td>Batter</td>
<td>25.3mm/unit (4.53 Deg)</td>
</tr>
<tr>
<td>Vertical</td>
<td>0mm/unit</td>
</tr>
<tr>
<td>Weight</td>
<td>340kg</td>
</tr>
<tr>
<td>Volume Voids</td>
<td>0.09m³</td>
</tr>
<tr>
<td>Gravel Fill Weight</td>
<td>517kg</td>
</tr>
</tbody>
</table>

**Assumption:** Aggregate (Blue Metal 20mm) density = 1967kg/m³
MAGNUMSTONE RETAINING WALL UNITS

Half High Base Unit

Isometric Bottom View

Dimensions
Face Width: 1219mm
Back Width: 991mm
Depth: 610mm
Height: 305mm
Face Area: 0.372m²
Batter: 25.3mm/unit (4.53 Deg)
Vertical: 0mm/unit
Weight: 328kg
Volume Voids: 0.09m³
Gravel Fill Weight: 505kg

Isometric Top View

Side View

Top View

Assumption: Aggregate (Blue Metal 20mm) density = 1967kg/m³

MAGNUMSTONE RETAINING WALL UNITS

Half High Top Unit

Isometric Bottom View

Dimensions
Face Width: 1219mm
Back Width: 991mm
Depth: 610mm
Height: 305mm
Face Area: 0.372m²
Batter: 25.3mm/unit (4.53 Deg)
Vertical: 0mm/unit
Weight: 312kg
Volume Voids: 0.09m³
Gravel Fill Weight: 489kg

Isometric Top View

Side View

Top View

Assumption: Aggregate (Blue Metal 20mm) density = 1967kg/m³
Corner/End Units

**Isometric View**

**Dimensions**
- Top Face Width: 660mm
- Bottom Face Width: 711mm
- Top Narrow Face: 51mm
- Bottom Narrow Face: 102mm
- Height: 610mm
- Face Area: 0.434m²
- Batter: 50.7mm/unit
- Vertical: 0mm/unit
- Weight: 154kg

**Isometric View**

**Dimensions**
- Top Face Width: 686mm
- Bottom Face Width: 711mm
- Top Narrow Face: 76mm
- Bottom Narrow Face: 102mm
- Height: 610mm
- Face Area: 0.217m²
- Batter: 25.3mm/unit
- Vertical: 0mm/unit
- Weight: 77kg
**DISCLAIMER.** This chart is for initial estimation purposes only. Do not use for final design or construction. Retain a licensed professional engineer to design every wall on a case-by-case basis using site-specific criteria. The accuracy and use of this document are the sole responsibility of the user. All calculations were performed based on AS4678. The bearing capacity of base soils will be no less than 150kPa. All soils have been assumed to be less than 20kg/m³. Global Stability Analysis has not been performed.
MAGNUMSTONE RETAINING WALL DESIGN

Double Deep Gravity Wall

**Soil Separating Filter Fabric**

**Planting Soil**

**Clear Crushed Drain Rock Behind Wall**

**Magnumstone**

**Compacted Gravel Leveling Pad**

**Compacted Impervious Materials at Toe of Wall**

**Drain Pipe Outlet**

**Retained Soil**

**H1 Single Unit Height**

**H2 Double Deep Unit Height**

**H Total Height**

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Planting Soil Pockets

Plantable Materials
Shrubs, Small Trees, etc.

Perforated Drain Pipe
Surrounded by Clear Crushed Drain Rock

Drain Pipe Outlet

Compacted Impervious Materials at Toe of Wall

Soil Separating Filter Fabric

Planting Soil

Foundation Soil

Compacted Gravel Leveling Pad

Compacted Impervious Materials

Retained Soil

Excavation Cut Line

Compacted Backfill

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MAGNUMSTONE RETAINING WALL DESIGN

1.22m Plantable Wall

Planting Soil Pockets

Soil Type Height Exposed Height Embedded Total

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Height Exposed</th>
<th>Height Embedded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>34˚ Soil</td>
<td>4.42m</td>
<td>0.24m</td>
<td>4.66m</td>
</tr>
<tr>
<td>30˚ Soil</td>
<td>3.29m</td>
<td>0.18m</td>
<td>3.47m</td>
</tr>
<tr>
<td>26˚ Soil</td>
<td>2.40m</td>
<td>0.15m</td>
<td>2.62m</td>
</tr>
</tbody>
</table>

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**Planting Soil Pockets**

**Plantable Materials**

- Shrubs, Small Trees, etc.

**Perforated Drain Pipe**

Surrounded by Clear Crushed Drain Rock

**Drain Pipe Outlet**

**Planting Soil**

**Foundation Soil**

**Compacted Impervious Materials at Toe of Wall**

**Compacted Gravel Leveling Pad**

**Compacted Backfill**

**Retained Soil**

**Soil Separating Filter Fabric**

**1.83m Plantable Wall**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Height Exposed</th>
<th>Height Embedded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>34˚ Soil</td>
<td>2.46m</td>
<td>2m</td>
<td>3.66m (full)</td>
</tr>
<tr>
<td>30˚ Soil</td>
<td>2.59m</td>
<td>1.5m</td>
<td>2.74m (full+half)</td>
</tr>
<tr>
<td>26˚ Soil</td>
<td>1.68m</td>
<td>1.5m</td>
<td>1.83m (full+half)</td>
</tr>
</tbody>
</table>

**Soil Type Height Exposed Height Embedded Total**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Height Exposed</th>
<th>Height Embedded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>34˚ Soil</td>
<td>2.6m</td>
<td>1.5m</td>
<td>1.83m (half)</td>
</tr>
<tr>
<td>30˚ Soil</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>26˚ Soil</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**1.83m Plantable Wall Charts**

*Lowest Possible Height: 305mm x 6 = 1830mm*

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MAGNUMSTONE RETAINING WALL DESIGN

Steel/Concrete Wall

- Clear Crushed Drain Rock Behind Wall
- Steel Reinforcement
- Magnumstone
- Concrete Filled Hollow Cores
- Perforated Drain Pipe Surrounded by Clear Crushed Rock Wrapped with Filter Fabric
- Soil Separating Filter Fabric
- Planting Soil
- Compacted Impervious Materials at Toe of Wall
- Retained Soil
- Compacted Backfill
- Excavation Cut Line
- Concrete footing, size may vary (Size May Vary Consult Engineer)
- Foundation Soil

MAGNUMSTONE RETAINING WALL DESIGN

Interlock/Drainage

- Securelug and Interlock
- Hollow Core
- Maximum Water Flow for Vertical Permeability
- Vertical Permeability

MAGNUMSTONE RETAINING WALL DESIGN

Interlock

- Securing and Interlock
- Hollow Core
- Clear Crushed Drain Rock in Hollow Core
- Compacted Backfill

MAGNUMSTONE RETAINING WALL DESIGN

Vertical Permeability
**MAGNUMSTONE RETAINING WALL DESIGN**

**Outside Curve**

- Geogrid
- PVC Flex Pipe
- Magnumstone

**Minimum Achievable Radius = ±3.7m**

**Inside Curve**

- Magnumstone
- Larger Radius
- Smaller Radius

**75mm Backfill Materials between geogrid overlaps**

- Approved backfill material compacted 152 - 203mm lifts

- Clear crushed drain gravel

- Unreinforced triangle

- Main geogrid layer

- Correct geogrid orientation

- Geogrid placed centre to reinforced triangle zone

- Secondary geogrid layer

Approved backfill material compacted 152 - 203mm lifts
MAGNUMSTONE RETAINING WALL DESIGN

Outside Corner

- Magnumstone unit centred to first unit
- Clear crushed drain gravel
- Main geogrid layer
- Approved backfill material compacted 132-203mm lifts
- Correct geogrid orientation

Inside Corner

- Magnumstone unit centred to first unit
- Clear crushed drain gravel
- Main geogrid layer
- Approved backfill material compacted 132-203mm lifts
- Correct geogrid orientation
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Brickworks Building Products is one of Australia’s largest and most diverse building material producers and providers. With our heritage as one of Australia’s founding brick businesses many generations ago, we hold the values of family, community, sustainability, innovation and quality at our core. We know our quality products last forever, which is why our some of products come with a 100 year guarantee.

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