Retaining Wall System

❖ Prestige & Quality
❖ Near Vertical Walls
❖ Do It Yourself
❖ No Concrete Footings
❖ Flexible - 90° Corners, Steps, Straight or Curved Walls
❖ Commercial or Civil Walls to 6 Meters High

Australian Owned, Australian Designed and Manufactured – All Profits Remain In Australia.
Dig out trench approx. 250mm deep. The trench should be 600mm wide. Place and well compact 150mm to 200mm of fine crushed rock (gravel). This base thickness depends on the wall height e.g. 150mm thick for 1 metre high, extra thickness for higher walls may be required, subject to engineers design. Spread 25mm of either sharp sand or metal dust over the compacted base. This should be in a straight line and checked with a level. If the wall is stepped, start at the lowest point.

The first block course is now bedded into the sand bed. The use of a level and string is recommended to ensure that the first course is laid correctly. For walls up to 1 metre high, make sure at least 100mm of the first block course is buried below the finished ground level. Allow approx. 200mm for walls over 1 metre high and 300mm for walls over 2 metres high. Compact gravel along the front of the blocks to stabilise.

Place P.V.C. ag-pipe with a geotextile sock drain behind the wall, with a 1 in 100 fall. Backfill behind the blocks approx. 200-300mm using 10-20mm clean, free-draining material (e.g. blue metal). Ensure that each block is also well filled with free-draining material. Backfill behind the drainage layer with your chosen backfill material in a maximum of 200mm layers. Compaction rate of 95% must be achieved (use only hand operated plate compactors close to wall). Do not use soft or wet clay to backfill. Be careful not to mechanically compact too close to the wall.
Step 5: **LAYING GEOGRID**

Clean any debris from the top of the wall to ensure the next block and or the geogrid layer sits perfectly. Roll the geogrid perpendicular to the wall, pull tight and cut to the required length. Ensure that the geogrid sits within 15mm of the face of the block, so that the purpose made connecting lugs can interlock. Butt join the geogrid along the length of the wall. Place the next course on top of the geogrid.

Step 6: **LAYING ADDITIONAL COURSES**

Lay the next course and subsequent courses to a string line following the same procedure, as outlined previously, e.g. clean the top of the blocks, fill the block cores and form a 300mm drainage layer behind the blocks, backfilling in max. 200mm layers, as per step 4. Ensure backfill if compacted to 95%.

Step 7: **LAYING CAPPING UNITS**

Once backfilling and cleaning is completed as per step 5, fix the purpose made Tasman Capping blocks with adhesive. For domestic situations, a waterproof construction adhesive is recommended. For high use areas, a 2-part epoxy is preferred.

Step 8: **SURFACE DRAINAGE LAYER**

Care should be taken where possible to divert water away from the wall face. If the surface water cannot be taken away from the top of the wall, place a 100-150mm clay (or similar) impermeable layer on top of the wall fill (see figure 2). If soil is used on top of wall, a layer of geotextile must be used to stop any soil filtering down through the drainage layer (see figure 1).

**Curves**

For Convex curved walls simply knock the back fin off the block with a hammer.

**MINIMUM RADIUS**
- Tasman Blocks: 1300mm
- Tasman Half Blocks: 650mm

This is the min. radius of the top course. Adjust lower courses allowing for 10mm step back.

**Corners**

Corners are built by adhesively fixing the purpose made corner blocks to alternate courses. Allowances should be made for a 10mm step back per course. Lugs must be removed from the Tasman Blocks to ensure that the corner block fits evenly.* Separate data sheets available.

**Steps**

Steps can be easily built using a combination of Tasman Blocks and capping units. The step risers are built with Tasman blocks. The capping units are then adhered to the top of the blocks to form the treads.

*NOTE: For terraced walls, fences above walls and any specialised applications, contact your supplier.*
Maximum wall heights for Tasman block gravity retaining walls

**Tasman** retaining walls that comply with the maximum wall height shown in table 1 can be built as gravity walls (REFER CONSTRUCTION NOTES). These walls use the weight and interlocking mechanisms of the **Tasman** blocks to retain an embankment. **Tasman** retaining walls that exceed the height of table 1 will require Fortrac® Geogrid soil reinforcement (see table 2). **Tasman** walls, together with Fortrac® Geogrids locked into the patented interlocking blocks, provide a reinforced soil mass for walls up to 6 metres high.

**TABLE 1: Tasman Block UNREINFORCED Retaining Walls** (See figure 1)

<table>
<thead>
<tr>
<th>BACKSLOPE CONDITIONS / LOADINGS</th>
<th>BACKFILL / RETAINED SOIL TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level, with NO SURCHARGE</td>
<td>Type 1</td>
</tr>
<tr>
<td>Domestic Vehicles</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

| Level, with NO SURCHARGE        | Type 1 | Type 2 | Type 3 |
| Domestic Vehicles               | 0.7    | 0.9    | 0.9    |
|                                | 0.5    | 0.7    | 0.7    |

* Increased wall heights may be achieved by core filling with no fines concrete.

**Engineering** – To comply with most council requirements, please seek specific engineering advice for walls over 1 metre high or for low walls carrying car traffic, etc.

1. The following assumptions have been made regarding soil properties:
   a. Infill soil types – As above: Internal friction angle ≥ 20° - 24°
   b. Bearing pad – Compacted density angle: at least 18.6 kg/m³
      – Effective internal friction angle: at least 37°
      – Effective cohesion: at least 5kPa
2. Caution is required when using heavy or dry clays as retained soil or backfill.
3. Surcharge loads are as follows: Domestic vehicles – 500 kg/m² (5kPa)
   Heavy vehicles – to be separately assessed
4. The wall footing shall consist of a compacted, well-graded gravel footing 600mm wide x 150mm deep for walls up to 1 metre high, with the first course at least 100mm below finished ground level. For walls over 1 metre high, an engineer will consider extra depth in the gravel footing along with a minimum 200mm embedment of the first course, subject to soil conditions.
5. Drainage shall be supplied in the form of a slotted P.V.C. ag-pipe with geotextile sock drain (as shown in figure 2, fall at 1:100min. to S/W disposal system) or with weep holes. A 300mm drainage layer of uniformly graded gravel shall be provided behind the wall.
6. Geogrid soil reinforcement shall be Fortrac® installed in accordance with the manufacturer’s recommendation. Fortrac® geogrid is to be unrolled perpendicular to the wall.
7. The geogrid reinforcing should be butt joined, or aligned vertically. Where overlapping can occur (e.g. curved walls) the geogrid must be separated with a minimum of 100mm of backfill material.
8. The Unreinforced soil design table should be used for low, non-structural garden walls only.
9. The Reinforced soil design table complies with AS 4678 and is based on Tasman blocks 390mm L x 225mm W x 200mm H.
10. For backslope conditions greater than 1 in 4, seek specific engineering advice.
11. Vehicle traffic should be allowed no closer than 1 metre behind the wall.

Engineering by: Dale P Luck & Associates Consulting Engineers and Quasar Management Services Pty Ltd.
### TABLE 2: Tasman Block REINFORCED Retaining Walls (See figure 2)

<table>
<thead>
<tr>
<th>Wall Height ( 'H' ) (m)</th>
<th>Layers of Geogrid</th>
<th>Spacing ( 's' ) (m)</th>
<th>Type of Geogrid</th>
<th>Geogrid Lengths ( 'L' ) (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8</td>
<td>2</td>
<td>0.4</td>
<td>35/20-20</td>
<td>1.6</td>
</tr>
<tr>
<td>1.2</td>
<td>3</td>
<td>0.4</td>
<td>35/20-20</td>
<td>1.8</td>
</tr>
<tr>
<td>1.6</td>
<td>4</td>
<td>0.4</td>
<td>35/20-20</td>
<td>1.9</td>
</tr>
<tr>
<td>2.0</td>
<td>5</td>
<td>0.4</td>
<td>55/30-20</td>
<td>2.2</td>
</tr>
<tr>
<td>2.4</td>
<td>6</td>
<td>0.4</td>
<td>55/30-20</td>
<td>2.6</td>
</tr>
<tr>
<td>2.8</td>
<td>7</td>
<td>0.4</td>
<td>55/30-20</td>
<td>3.1</td>
</tr>
</tbody>
</table>

#### Geogrid Spacing
- Bottom Layer: Top of 1st course (200mm from base).
- Intermediate Layers: 400-600mm max.
- Top Layer: 400mm from top course.
- Geogrid lengths from design table above are measured from the back of the wall.

#### Drainage System
- A permeable drainage layer at least 300mm wide adjacent to the stem of the wall.
- A slotted PVC agricultural pipe, with geofabric sock if appropriate, or equivalent system, draining to the storm water system.
- A catch drain capable of removing surface water from the top of the embankment.
- A surface-sealing layer that prevents the ingress of surface water into the fill behind the wall.

#### Drainage fill material should be:
- A single-sized gravel or crushed rock in the range of 10 to 20mm, designated GP, or a well graded gravel, designated GW, with a minimum particle size at least 5mm. The drainage fill must be free draining, particularly in the lower parts of the wall. It should be positioned so that it delivers water at the level of the drainage pipe, which must slope along the length of the wall.

To minimise the effect of clogging, position the drainage pipe in the drainage fill at a minimum uniform grade of 1 in 100. The agricultural pipe should be connected to a PVC stormwater pipe and brought through the front face of the wall at intervals not exceeding 30m. Where practical, it should be connected to the storm-water system at the lower end of each run, and must drain positively away from the base of the retaining wall. The whole of the disturbed fill surface should be sealed by at least 150mm of compacted clay and properly drained.

#### Reinforced Infill Soil
- Reinforced infill material, i.e. the fill that is strengthened by the geogrids, should not contain large or sharp material that will damage the geogrids. It must also be capable of being fully compacted to form a solid mass reinforced by the geogrids. Well-graded gravel (GW) is recommended (Type C soils per reinforced design table above).
Tasman Wall Block
390mm x 225mm x 200mm
13 per m²
75 per pallet
Code: 225-01

Tasman Half Wall Block
190mm x 225mm x 200mm
26.5 per m²
150 per pallet
Code: 225-03

Tasman 200mm Capping Block
200mm x 225mm x 60mm
5 per lineal metre
300 per pallet
Code: 60-230

Tasman Full Cap
390mm x 240mm x 60mm
2.5 per lineal metre
120 per pallet
Code: 60-240
Note: These caps are made by another manufacturer and colour variation may occur between these caps and Baines blocks.

Tasman Full Corner Block
145mm x 340mm x 200mm
(Available in left or right)
Right hand corner shown
Code: 225-34

Tasman Half Corner Block
145mm x 235mm x 200mm
(Available in left or right)
Right hand corner shown
Code: 225-14

Fortrac® Geogrid
Roll size 2.50m W x 200m L
Types available
35/20-20; 55/30-20; 80/30-2

Bull Nose Cap
585mm x 245mm x 60mm
1.7 per lineal metre
120 per pallet
Code: 50-245
Note: These caps are made by another manufacturer and colour variation may occur between these caps and Baines blocks.

*Computer Design Program Available*
(Complies with AS4578/HB156-2002)

Colours displayed in this brochure are to be used as a guide only. Colours are as close as printing process will allow.
Displays in stores may vary to actual colour due to batch variation. Obtain samples from Baines Masonary for current batch colour.
Care should be taken to order sufficient product to complete job at one time to avoid batch variation.
Surplus blocks not returnable. No claims after 7 days or once products have been incorporated in construction.

CHECK WITH YOUR LOCAL COUNCIL TO ENSURE ALL LOCAL BUILDING CODES ARE COMPLIED WITH