CONSTRUCTION DETAILS
Typical Gravity Wall Section

- **Leveling pad (As specified by Engineer)**
- **Drain (As specified by Engineer)**
- **Drainstone (AASHTO No. 57 or equivalent)** to extend at least 12" (305 mm) behind blocks
- **Non-woven geotextile fabric** (if specified by Engineer based on site soil conditions)
- **Fill wedge between adjacent blocks with drainstone (all blocks)**
- **Fill vertical core slot with drainstone (PC blocks)**
- **Middle block (Typical)** Block widths vary with design
- **Solid bottom block** Block widths vary with design
- **Exposed wall (Height varies with design)**
- **Grade to drain surface water away from wall**
- **Setback = 1 3⁄8" (41 mm)**
- **5° batter angle on wall**
- **Solid bottom block**
- **Bury depth**
- **Leveling pad (As specified by Engineer)**

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Typical XL Gravity Wall Section

- Setback = 1" (25 mm)
- Standard blocks (1" Wall Batter Angle)
- Drainage to surface water away from the wall
- Top block
- Drainage to outlet (as specified by Engineer)
- Non-woven geotextile fabric at back of XL blocks and between drain stone and retained soil (if specified by Engineer based on site soil conditions)
- Non-woven geotextile fabric between adjacent blocks at face (required)
- Fill all void spaces in and between blocks with drain stone (AASHTO No. 57 or equivalent)
- Gravity drain to outlet (as specified by Engineer)
- Leveling pad (as specified by Engineer)

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Large Batter Wall Section

- Setback = 9 3/8" (238 mm)
- (27.5° Batter Angle on Wall)
- Exposed Wall Height
- Min. Bury Depth
- Leveling Pad
- Non-Woven Geotextile Fabric (if specified by Engineer based on site soil conditions)
- Redi-Rock Blocks with Knobs in the 9" (230 mm) Setback Position (Typical)
- Perforated Sock Drain (As specified by Engineer)
- Leveling Pad (As specified by Engineer)

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TYPICAL CONSTRUCTION DETAILS

**Alternating Planter & Standard Batter Wall Section**

The Redi-Rock retaining blocks are available with multiple shear knob size and location options, to permit wall batter design flexibility. This detail depicts alternating 16⅜" (422 mm) Planter and 15⅜" (41 mm) Standard setback blocks, however designs are possible using more than one Standard setback block between Planter blocks. The regular repetition of combinations of different setback blocks within a wall profile can have structural and aesthetic significance.Abrupt changes in wall batter that carry over multiple blocks are not recommended.

- **Effective Wall Setback**
  - Varies, Depending Upon Combination of Blocks Used to Construct Wall.

- **Min. Bury Depth**

- **Leveling Pad**
- **Move Blocks Forward During Installation to Engage Shear Knobs (Typical)**

- **Infill Stone (No. 57 or Equivalent)**

- **Fill Between Adjacent Blocks and at least 12" (305 mm) Behind Blocks**

- **Top Block**

- **Drainage aggregate**
- **Leveling Pad (As specified by Engineer)**

- **Non-Woven Geotextile Fabric (If Specified by Engineer)**

- **Reinforced Soil**
- **Drain (As specified by Engineer)**

- **Perforated Sock Drain**

- **Retained soil**
- **Exposed Wall (Height varies with design)**

- **The Redi-Rock retaining blocks are available with multiple shear knob size and location options, to permit wall batter design flexibility. This detail depicts alternating 16⅜" (422 mm) Planter and 15⅜" (41 mm) Standard setback blocks, however designs are possible using more than one Standard setback block between Planter blocks. The regular repetition of combinations of different setback blocks within a wall profile can have structural and aesthetic significance. Abrupt changes in wall batter that carry over multiple blocks are not recommended.**

**Typical Reinforced Wall Section**

- **Grade to drain surface water away from wall**

- **Non-woven geotextile fabric**

- **12" (305 mm) wide strip of geogrid wrapped through block and extending full length (L) back into reinforced fill zone (Typical)**

- **Move blocks forward during installation to engage shear knobs (Typical)**

- **Setback ≤ 1 ½" (41 mm) (0° batter angle on wall)**

- **28" (710 mm) PC Middle block (Typical)**

- **28" (710 mm) PC Bottom block**

- **Drain (As specified by Engineer)**

- **Leveling pad (As specified by Engineer)**

- **Only use strips of Mirafi geogrid that have been factory cut and are certified for width and strength by TenCate Mirafi.**

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Typical Construction Details

Conceptual Seawall Detail

- Grade to drain surface water away from wall
- Drainstone (AASHTO No. 57 or Equivalent)
- Non-woven geotextile fabric
- Block widths and setbacks vary with design
- Steel Reinforcement
- As Required per Footing Design
- Shear Cub (Up on Top of Footing) for Bottom Block Sliding Resistance
- Shear Key for Wall Sliding Resistance
- Footing Size and Dimensions per Site Specific Design
- Optional Concrete Footing

Notes:
- Use ASTM No. 57 stone (or as specified by local Professional Engineer) to infill between blocks.
- Preliminary wall height charts do not apply and should not be used for walls in water applications due to the variety of site-specific variables.
- Contact your local Professional Engineer for specific details and final design.
- Walls may require geogrid reinforcement.
- Refer to final engineering plans.

Conceptual Sheetpile Protected Seawall Detail

- Ground Surface
- Water Surface (Elevation Varies)
- Armor Stone (If Specified)
- Steel Sheet Pile (Design as Required for Long Term Scour Depth and Global Stability)
- Non-woven geotextile fabric
- ASTM No. 57 Drainstone

Notes:
- Use ASTM No. 57 stone (or as specified by local Professional Engineer) to infill between blocks.
- Maximum wall height charts are not provided for walls in water applications due to the variety of site-specific variables. Contact your local Professional Engineer for specific details and final design.
- Walls may require geogrid reinforcement. Refer to final engineering plans.
- Seawalls could be constructed with filled trough Planter Blocks using a 165° setback per course.

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Intended for poor-draining retained soils and/or areas with potential groundwater impact.

**Reinforced Soil Zone**

- **Drainage composite (Chimney drain)**
- **Non-woven geotextile fabric (AASHTO M288 Survivability Class 2) glued to back of blocks to cover vertical joints**

**Typical Section - Option 1**

- **Drain pipe (As specified)**
- **Coarse drainage aggregate (AASHTO No. 57 or equivalent)**
- **18" x 12" (457 mm x 305 mm) non-woven geotextile fabric (AASHTO M288 Survivability Class 3) in corner of joint between adjacent blocks**
- **Drainage aggregate (In wedge between blocks, in vertical core slot, and 12" (305 mm) behind blocks)**

**Typical Section - Option 2**

- **Drain pipe (As specified)**
- **Drainage aggregate (In wedge between blocks and in vertical core slot)**
- **Non-woven geotextile fabric (AASHTO M288 Survivability Class 3)**

**Blanket and Chimney Drain Section**

- **Lintel (Section 1 or 2)**
- **Drainage aggregate (AASHTO No. 57 or equivalent)**
- **Coarse drainage aggregate (AASHTO No. 57 or equivalent)**
- **24" (610 mm) (Or as Specified)**
- **24" (610 mm) (Or as Specified)**
- **Drain pipe (As specified)**
- **Non-woven geotextile fabric at back of XL blocks and between drainstone and retained soil (if specified by Engineer based on site soil conditions)**

**Alternate Detail for Concrete or Impervious Leveling Pad**

- **Crushed stone leveling pad**
- **Perforated pipe, gravity drain to outlet (as specified by Engineer)**
- **Concrete or impervious leveling pad**

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**Typical Drainage Detail - Isometric View**

- Grade to drain surface water away from wall
- Extend geotextile over drainstone and below surface materials
- Drainstone (AASHTO No. 57 or equivalent) to extend at least 12 inches (305 mm) behind 18-inch high Redi-Rock blocks
- Non-woven geotextile fabric at back of XL blocks and between drainstone and retained soil (if specified by Engineer based on site soil conditions. Shown cut away.)
- Fill all void spaces in and between blocks with drainstone (AASHTO No. 57 or equivalent)
- Crushed stone leveling pad
- Perforated pipe, gravity drain to outlet (as specified by Engineer)

**Wall Drain Weep Hole Options**

- Custom Pipe Cast into Block
  - Solid PVC or HDPE drain pipe cast into block
  - Diameter = 3" (76 mm) or 4" (102 mm) as specified on plans
  - Pipe to extend 6" (152 mm) to 8" (203 mm) from back of block for connection to perforated wall drain
- Notch ± 2.5" x 5" (64 mm x 127 mm) hole in side of a Redi-Rock block
- Place Solid PVC or HDPE drain pipe through notched hole and grout pipe in place
- Connect to perforated wall drain

**Field Installed Pipe**

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90° Outside Corner

Isometric View of Corner

Top View of Bottom Two Rows

The top row of blocks in this diagram are shown in red. They have been cut out in line with their bottom grooves to show how they fit with the knobs on the bottom row of blocks.

10" (254 mm) knob is fully engaged

Non-woven geotextile fabric in all joints between blocks (Typical)

90 Degree Corner block

Steps Through Wall

Freestand Blocks or Retaining Blocks (Per Design)

Retaining Wall Blocks (Per Design)

Step Blocks Placed Tight Against Wall Return Wall. Field Cut Step Blocks to Fit When Return Wall Has Batter

Slope 1%-2% for Drainage

12" min.

Approach Grade

6" TYP

6" TYP

6" Compacted Granular Base Below Steps

Stair Section

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Notes:
- Wall is flush with building.
- Rows 2, 4, 6, and 8 require approximately 1/8" (3 mm) gaps between blocks for length of wall given.
- Solution shown based on a 24" (610 mm) wide corner block.

Flush End to 90° Corner

Double 90° Outside Corner - Short Block Solution

<table>
<thead>
<tr>
<th>Row</th>
<th>Short Blocks Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2 and 3</td>
<td>1 per Row</td>
</tr>
<tr>
<td>4 and 5</td>
<td>2 per Row</td>
</tr>
<tr>
<td>6 and 7</td>
<td>3 per Row</td>
</tr>
<tr>
<td>8</td>
<td>4 per Row</td>
</tr>
</tbody>
</table>

Alternate long and short face of Freestanding Corner block on either end of row for proper spacing (Typical)

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One knob on each block must be removed from the planter blocks at the transition into and out of planters. Planter transitions will alter the bond (vertical joint) alignment from course to course.

Transitions Into Planters

Transition From 5° Batter to 9" (230 mm) Setback

Grade to wrap along wall return as needed if heights of wall sections differ

Blocks to extend into the retained soil as needed

Untextured top of block and stone infill between adjacent blocks will be visible (Typical)

Preferred option is to start construction at transition and work away in both directions. If construction cannot start at transition, blocks must be field cut as needed to fit.
TYPICAL CONSTRUCTION DETAILS

90° Outside Corner for 9" (230 mm) Setback Walls

- Special 9" (230 mm) Setback Block with 7 1/2" (190 mm) diameter knobs (Typical)
- Untextured top of block and stone infill between adjacent blocks will be visible (Typical)

Freestanding Corner Top Block (Typical)

Multiple Row Installation

- The top row of blocks in this diagram have been cutout in line with their bottom grooves to show how they fit with the knobs on the bottom row of blocks.
- 10" (254 mm) knob fully engaged with the groove on the block above (Typical)
- 7 1/2" (190 mm) knobs do not interfere with the groove on the block above (Typical)
- Special 9" (230 mm) setback block with 7 1/2" (190 mm) knobs (Typical)

Top View of Bottom Two Rows

- Recess pocket and lifting insert may be visible
- Options: Fill with tinted mortar or use custom blocks without top lifter if desired (Typical)

Double 90° Outside Corner for 9" (230 mm) Setback Walls

- 9" (230 mm) Setback 27 3/8" (695 mm) Short block (Typical)
- Untextured top of block and stone infill between adjacent blocks will be visible (Typical)

Freestanding Corner Top block (Typical)

1st Row Installation

- Short Block Requirements
  - (1) 9" (230 mm) Setback Short block on the 2nd row
  - (2) 9" (230 mm) Setback Short block on the 3rd row
  - (3) 9" (230 mm) Setback Short block on the 4th row
  - (4) Additional 9" (230 mm) Setback Short block for every additional row to the top of the wall

2nd Row Installation

- Alternating long and short face of Freestanding Corner Top block on either end of row for proper spacing (Typical)

3rd Row Installation

- Recess pocket and lifting insert may be visible
- Options: Fill with tinted mortar or use custom blocks without top lifter if desired (Typical)

Stagger Short block spacing as needed to help maintain running bond installation pattern as close as possible

4th Row Installation

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This drawing shows typical installation details required for setback walls with the bottom of the wall aligned. Specific block placement will vary depending on site grades.

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Freestanding and Cap Block Coping

Secure cap block to freestanding block with polyurethane sealant. Optional shear lugs cast into cap block or rebar ties that can be embedded in site-cast concrete (with garden block) are also available.

Setback = 0" (0 mm) on Freestanding blocks
Setback = 2 7/8" (73 mm) when 10" (254 mm) knob used
Setback = 1 5/8" (41 mm) when 7 1/2" (190 mm) knob used
Setback = 0" (0 mm) on Freestanding blocks

Varies

Freestanding and Cap Block Coping

Setback = 0" (0 mm) on Freestanding blocks
Setback = 2 7/8" (73 mm) when 10" (254 mm) knob used
Setback = 1 5/8" (41 mm) when 7 1/2" (190 mm) knob used
Setback = 0" (0 mm) on Freestanding blocks

Varies

Freestanding blocks used where block is exposed and textured surface is required on both sides of wall

(Optional) Freestanding blocks can be secured to retaining blocks with J-Bolt connection

One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round “hersey kiss” shaped dollops located in two rows at the top of Freestanding blocks at 8" (203 mm) on center.

Grass Swale

Slope varies with project

3'-10" (1.17 m) Minimum

2'-10" (0.86 m) Minimum

Grade swale cross-slope to provide 1% to 2% (minimum) fall parallel to wall

Drainage Swale Behind Wall

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Concrete Swale

Non-woven geotextile fabric (AASHTO M288 Survivability Class 2)

Concrete 6" (152 mm) thick (Minimum)

Varies with slope

Non-woven geotextile fabric (AASHTO M288 Survivability Class 2)

Slope varies with project

Grade swale around blocks in step down areas

Scree chutes as required

Drainage Swale Options

Non-woven geotextile fabric (AASHTO M288 Survivability Class 2)

30 mil PVC or EPDM geomembrane (Textured on both sides)

Concrete Swale

Grass Swale

Drainage Swale Behind Wall

Slope varies with project

Varies with slope

Grade swale cross-slope to provide 1% to 2% (minimum) fall parallel to wall

3'-10" (1.17 m) Minimum

2'-10" (0.86 m) Minimum

Slope varies with project

Concrete 6" (152 mm) thick (Minimum)

Non-woven geotextile fabric (AASHTO M288 Survivability Class 2)

Slope varies with project

Grade swale around blocks in step down areas

Rock check dams as required

Drainage Swale Options

3'-0" (0.9 m)

Minimum

2'-10" (0.86 m)

Minimum

8" (203 mm)

3'-10" (1.17 m)

Minimum

2'-10" (0.86 m)

Minimum

8" (203 mm)
Top Block Coping Option

Stack bricks under back corner of Corner Garden block to keep block supported prior to backfilling.

Grade drops along back and end of Corner Garden block

Alternate Garden Block Placement

Sawcut and remove inside edge of Corner Garden block and fill with topsoil (Recommended).

Grade drops along side of Corner Garden block

Note: Corner Garden Blocks are shown, Half Corner Garden Blocks are optional as grading permits.

Grade Change on Top of Wall Using 9" (230 mm) Stepdown Blocks

Freestanding block or Top Retaining block (Typical)

9" (230 mm) Stepdown block (Garden insert optional). Typically, secured to Retaining block with Polyurethane Sealant or Segmental Retaining Wall Adhesive.

Sawcut and remove inside edge of Corner Garden block and fill with topsoil (Optional)

Field cut stepdown block to length (if needed)

Middle Block with no knobs (Typical)

(Specialty block / Non-inventory item)

Retaining blocks (Typical)

Sealant Adhesive: One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C1192, peel strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at 8" (203 mm) on center, immediately below the 9" (230mm) Stepdown Block.

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### Geogrid Layout for Convex Curves and Radial Corners

Geogrid strips may be overlapped directly. Reinforcement effective unit perimeter for pullout calculations, $C = 1.5$ (1 side full contact with soil, 1 side partial contact with soil)

1. Place 18" (457 mm) high piece of non-woven geotextile fabric (AASHTO M288 Survivability Class 3) in joint between blocks (Typical)
2. Place stone in joint between adjacent blocks
3. Geogrid strips (for blocks one layer down)
4. Geogrid strips (for blocks on current layer)

### Geogrid Layout for Concave Curves and Radial Corners

Geogrid strips may be overlapped directly.

### Minimum radius for bottom row

<table>
<thead>
<tr>
<th>Number of courses</th>
<th>Height of wall</th>
<th>Radius from face of block</th>
<th>Distance between blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1'-6&quot; (0.46 m)</td>
<td>14'-6&quot; (4.42 m)</td>
<td>0.13&quot; (3 mm)</td>
</tr>
<tr>
<td>2</td>
<td>2'-0&quot; (0.61 m)</td>
<td>14'-8&quot; (4.47 m)</td>
<td>0.21&quot; (5 mm)</td>
</tr>
<tr>
<td>3</td>
<td>2'-6&quot; (0.76 m)</td>
<td>14'-10&quot; (4.42 m)</td>
<td>0.28&quot; (7 mm)</td>
</tr>
<tr>
<td>4</td>
<td>3'-0&quot; (0.91 m)</td>
<td>15'-0&quot; (4.57 m)</td>
<td>0.35&quot; (9 mm)</td>
</tr>
<tr>
<td>5</td>
<td>3'-6&quot; (1.06 m)</td>
<td>15'-2&quot; (4.57 m)</td>
<td>0.43&quot; (11 mm)</td>
</tr>
<tr>
<td>6</td>
<td>4'-0&quot; (1.22 m)</td>
<td>15'-4&quot; (4.42 m)</td>
<td>0.50&quot; (13 mm)</td>
</tr>
<tr>
<td>7</td>
<td>4'-6&quot; (1.37 m)</td>
<td>15'-6&quot; (4.69 m)</td>
<td>0.57&quot; (15 mm)</td>
</tr>
<tr>
<td>8</td>
<td>5'-0&quot; (1.52 m)</td>
<td>15'-8&quot; (4.68 m)</td>
<td>0.63&quot; (16 mm)</td>
</tr>
<tr>
<td>9</td>
<td>5'-6&quot; (1.67 m)</td>
<td>15'-10&quot; (4.57 m)</td>
<td>0.70&quot; (18 mm)</td>
</tr>
<tr>
<td>10</td>
<td>6'-0&quot; (1.83 m)</td>
<td>15'-12&quot; (4.57 m)</td>
<td>0.76&quot; (19 mm)</td>
</tr>
<tr>
<td>11</td>
<td>6'-6&quot; (1.98 m)</td>
<td>15'-14&quot; (4.57 m)</td>
<td>0.83&quot; (21 mm)</td>
</tr>
<tr>
<td>12</td>
<td>7'-0&quot; (2.13 m)</td>
<td>15'-16&quot; (4.59 m)</td>
<td>0.89&quot; (22 mm)</td>
</tr>
<tr>
<td>13</td>
<td>7'-6&quot; (2.29 m)</td>
<td>15'-18&quot; (4.57 m)</td>
<td>0.95&quot; (24 mm)</td>
</tr>
<tr>
<td>14</td>
<td>8'-0&quot; (2.44 m)</td>
<td>15'-20&quot; (4.57 m)</td>
<td>1.01&quot; (26 mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance between blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>14'-6&quot; (4.42 m) is the minimum radius for Redi-Rock blocks. It occurs when all the blocks are placed tight together. A larger radius is required on the bottom row of a Redi-Rock wall to account for the batter between courses of blocks and still provide enough space to construct the top row of blocks.</td>
</tr>
</tbody>
</table>

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Block placement - First row

Set the first block in back row of blocks tight against the end block in the 90° wall

Set the middle of the first block in 90° wall ± 4" (102 mm) past the end of the block in the row below to align back of knobs on the back row

Align back of knobs

Geogrid Layout for 90° Inside Corner

Geogrid strips (for blocks on current layer)

Geogrid strips (for blocks one layer down)

Top View

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Block placement - Second row

Set back row of blocks first

Set 90° wall ± 4" (102 mm) from the middle of the end block to align back of knobs on the 90° wall

Align back of knobs

Top View

Geogrid Layout for 90° Outside Corner

Geogrid strips (for blocks on current layer)

Geogrid strips (for blocks one layer down)

Geogrid strips may be overlapped directly

Reinforcement effective unit perimeter for pullout calculations, C = 1.5 (1 side full contact with soil, 1 side 50% contact with soil)

Top View

Block Layout for 90° Outside Corner

The top row of blocks are shown in red. They have been cutout in line with their bottom grooves to show how they fit with the knobs on the bottom row of block.

The geogrid strips are not shown for clarity.

Top View of Corner

3D View of Corner

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3D View from Back

Light pole base or concrete pile
Maximum diameter = 32” (0.81 m)
Spacing = 46 1/8” (1.17 m) centers

Geogrid strips installed every other row of blocks
(25% coverage ratio)

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Light Pole Base or Concrete Pile in Reinforced Soil Zone

Top View

Manhole or Large Obstruction in Reinforced Soil Zone

Threaded rod cast into block (Typical)
Structural beam (2 steel channels shown)

Threaded rod (Typical)
Pipe (Typical)

Hooked rod with threaded end cast into block (Typical)

Steel structural elements to be sized and galvanized per engineer for project specific requirements.

Structural tube or pipe (Typical)

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Manhole or other large obstruction
Utilities in the Reinforced Soil Zone

Keep sufficient separation to meet max geogrid slope and clearance requirements.

Maintain 3” (76 mm) minimum between geogrid and pipe.

Wrap pipe joints with non-woven geotextile fabric (AASHTO M288 Survivability Class 2).

48” (1.22 m) wide minimum centered on joint.

Storm or sanitary sewer pipe installed parallel to wall.

AASHTO No. 57 stone (or equivalent).

6” (152 mm) minimum around pipe.

Maintain 3” (76 mm) minimum between geogrid and pipe.

Install geogrid strips above and below pipe.

"Dry" Utilities (Electric, Gas, Telecommunications)

"Dry" Utilities installed parallel to wall.

Install geogrid strips above and below pipe.

Redi-Rock International follows the recommendations of FHWA GEC 011 and discourages placing pipes or other horizontal obstructions behind the wall in the reinforced soil zone. Placing pipes in this zone could lead to maintenance problems and potential wall failure.
These generic pedestrian guard and fence details show a few potential options for their installation on the top of a Redi-Rock retaining wall. It is the design engineer’s responsibility to fully design and detail the connection of the guard posts to the retaining wall blocks and assure acceptable resistance to the applied forces. Redi-Rock blocks are plain concrete, without steel reinforcement.

**Grouted Connection (1 Block)**
- Grout fence or railing post in place
- Field core into Top block

**Grouted Connection (2 Blocks)**
- Grout fence or railing post in place
- Field core into block in second course

**Flange Bolted Connection**
- Flange base plate attached to top block with adhesive set anchor bolts

**Moment Slab Connection**
- Flange or railing post
- Core and grout or connect with flanged base plate
- Reinforced concrete sidewalk

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**Common Fence or Pedestrian Guard Connection Locations**
- **Top View**
  - Top block (Width per design)
- **Side View**
  - Embedment depth as required to resist overturning forces on appurtenance
  - Top block (Width per design)
- **Front View**
  - Fence or pedestrian guard post
- **Connection Option #1**
  - Anchor into the top block
  - Consider block lengths when determining post spacing
  - Weight of a single block available to resist overturning forces
- **Connection Option #2**
  - Grout posts in v-shaped opening between top blocks
  - Spacing in multiples of 46 1/8” (1172 mm)
  - Weight of a 2 adjacent blocks available to resist overturning forces
- **Connection Option #3**
  - Core through top block and grout posts in V-shaped opening between lower blocks
  - Spacing in multiples of 46 1/8” (1172 mm)
  - Weight of a 2 adjacent blocks on second level down and 3 top row blocks available to resist overturning forces
Sealant Adhesive: One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round “hersey kiss” shaped dollops located in two rows at the top of the Freestanding blocks at 8” (203 mm) on center.

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TRIM TEXTURE AS REQUIRED FOR GOOD FIT BETWEEN BLOCKS

CUT CORNER BLOCK TO ALLOW FOR CONTINUATION OF REBAR

ATTACH FLANGE MOUNTED FENCE POSTS TO CAP UNIT WITH CONCRETE ANCHOR BOLTS (RED HED TRU-BOLT WEDGE ANCHORS OR EQUAL).

SET CAP BLOCK ON TOP F-HC UNIT AND EMBED STEEL REINFORCEMENT IMMEDIATELY AFTER PLACEMENT OF CAST-IN-PLACE CONCRETE.

F-CHC CORNER HOLLOW CORE FREESTANDING BLOCK

F-HC HOLLOW CORE FREESTANDING BLOCKS

CAST-IN-PLACE CONCRETE IN HOLLOW CORE OF F-HC UNITS AND IN TOP HALF OF VERTICAL CORE SLOT IN PC BLOCKS IMMEDIATELY BELOW F-HC BLOCKS, MINIMUM 28 DAY COMpressive STRENGTH = 4,000 psi.

No. 6 HORIZONTAL BARS, CONTINUOUS, 24" OVERLAP ON ENDS TYPICAL, BOTH SIDES OF CENTER CORE.

No. 6 VERTICAL BARS, 11 ½" O.C. TYPICAL, BOTH SIDES OF CENTER CORE.

No. 3 BAR HOOK - WRAP AROUND LIFTING INSERT IN TOP OF BLOCK AND EXTEND INTO HOLLOW CORE AREA OF F-HC BLOCK.

RECESSED LIFTING HOOK AREA FILLED WITH CAST-IN-PLACE CONCRETE (WHEN FREESTANDING BLOCKS ARE FILLED).

COVER TOP OF RETAINING BLOCKS AND ALL EXPOSED GEOGRID WITH 6 mil VISQUEEN PLASTIC LAYER.

NO. 57 STONE INFILL IN VERTICAL CORE SLOT BETWEEN ADJACENT BLOCKS, AND 12" BEHIND BACK OF BLOCKS.

FILL BOTTOM HALF OF VERTICAL CORE SLOT FOR PC BLOCKS IMMEDIATELY BELOW FREESTANDING BLOCKS.

ALL REINFORCING STEEL TO CONFORM TO ASTM A416 OR AASHTO M21, GRADE 60.
**Freestanding Block Coping with Fence Attachment**

- **BEND DETAIL**
  - CAP BLOCK CAST WITH R-ANCHORS (SPECIALTY BLOCK)

- **END VIEW**
  - CAP BLOCK CAST WITH R-ANCHORS (SPECIALTY BLOCK)

- **Joining Flange Mounted Fence Posts to Cap Unit**
  - With Concrete Anchor Bolts (Redi Hed Tru Bolt Wedge Anchors or Equals)

- **Set Cap Block on Top of F-HC Unit and Embed Steel Reinforcement Immediately After Placement of Cast-in-Place Concrete**

- **Cast-in-Place Concrete in Hollow Core of F-HC Units and in Top Half of Vertical Core Slot in PC Blocks Immediately Below F-HC Blocks**
  - Minimum 28 Day Compressive Strength = 4,000 psi

- **No. 6 Vertical Bars, 11.5" O.C.**
  - Typical, Both Sides of Center Core

- **No. 6 Horizontal Bars, Continuous, 24" Overlap on Ends**
  - Typical, Both Sides of Center Core

- **No. 3 Bar Hook - Wrap Around Lifting Insert in Top of Block and Extend into Hollow Core Area of F-HC Block**

- **Cover Top of Retaining Blocks and All Exposed Geogrid with 6 mil Visqueen Plastic Layer**

- **No. 57 Stone Infill in Vertical Core Slot, Between Adjacent Blocks, and 12" Behind Back of Blocks**

- **Fill Bottom Half of Vertical Core Slot for PC Blocks Immediately Freestanding Blocks**

**Post and Beam Guardrail**

- **Section View**
  - Geogrid installed on block one layer down (Typical)
  - Geogrid installed on block one layer down (Typical)

- **Top View**
  - Geogrid installed on block one layer down (Typical)

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TYPICAL CONSTRUCTION DETAILS

Cast-in-Place Moment Slab Traffic Barrier - Flat Grade Installation

- Expansion joints shall be provided in moment slab every 90'-0" (27.4 m). Expansion joint shall be dot standard detail. Typical features shown for reference.
- Contraction joints shall be provided in moment slab every 30'-0" (9.1 m) between expansion joints. Contraction joint shall be dot standard detail. Typical features shown for reference.

Cast-in-Place Moment Slab Traffic Barrier - Sloping Installation

- Expansion joints shall be provided in moment slab every 90'-0" (27.4 m). Expansion joint shall be dot standard detail. Typical features shown for reference.
- Contraction joints shall be provided in moment slab every 30'-0" (9.1 m) between expansion joints. Contraction joint shall be dot standard detail. Typical features shown for reference.

Materials

Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength shall be 4,000 psi (27.6 MPa) or higher as specified. Reinforcing steel shall conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design

Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment slab reinforcement shown is based on AASHTO LRFD Bridge Design Specifications, 5th edition, 2010, TL-4. Loading detailed in Table A13.2.1.

The selection and use of this detail, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the registered professional engineer in charge of the project.
Design of reinforced concrete moment slab by local engineer to meet project requirements.

Rebar shown in barrier block meets AASHTO TL-3 loading requirements. Rebar design in barrier block is intended to be modified as necessary to meet other loading conditions.

All reinforcing steel shall be grade 60 (414 MPa) deformed rebar. All concrete shall have a minimum 28 day compressive strength of 4000 psi (27.6 MPa).

Rebar design in barrier block is intended to be modified as necessary to meet other loading conditions.

All reinforcing steel shall be grade 60 (414 MPa) deformed rebar. All concrete shall have a minimum 28 day compressive strength of 4000 psi (27.6 MPa).

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Rebar shown in barrier block meets AASHTO TL-3 loading requirements. Rebar design in barrier block is intended to be modified as necessary to meet other loading conditions.

All reinforcing steel shall be grade 60 (414 MPa) deformed rebar. All concrete shall have a minimum 28 day compressive strength of 4000 psi (27.6 MPa).