

## SPECIFICATION FOR ROSETTA<sup>®</sup> HARDSCAPES WALL SYSTEM – CAST IN PLACE CONCRETE DESIGN OPTION

### PART 1: GENERAL

#### 1.1 Scope

Work includes furnishing and installing concrete retaining wall units to the lines and grades designated on the construction drawings and as specified herein.

#### 1.2 Reference Standards

- ASTM C33 Concrete Aggregates
- ASTM C94 Ready-Mixed Concrete
- ASTM C140 Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
- ASTM C1372 Segmental Retaining Wall Units

#### 1.3 Delivery, Storage, and Handling

- A. Contractor shall check the materials upon delivery to assure proper material has been received.
- B. Contractor shall prevent excessive mud, wet cement and like materials from coming in contact with the SRW units.
- C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project.

### PART 2: MATERIALS

#### 2.1 Wall Units

- A. Wall units shall be Rosetta Outcropping Blocks as produced by Brown's Concrete Products Limited.
- B. Outcropping blocks shall meet Rosetta Hardscapes<sup>®</sup> specifications and be made from wet cast concrete in accordance with the following chart:

Climate (Weathering Regions per ASTM C33)	Air Content	28 Day Compressive Strength <i>psi</i> (MPa)	Slump* <i>in</i> (cm)	Min. Concrete Temp. at Placement °F (°C)
Negligible	1%-4%	4000 (27.6)	3 to 5 (7.6 to 10.2)	50 (10)
Moderate	3%-6%	4000 (27.6)	3 to 5 (7.6 to 10.2)	50 (10)
Severe	4%-7%	4000 (27.6)	3 to 5 (7.6 to 10.2)	50 (10)

\*Higher slumps are allowed if achieved by use of appropriate admixtures. Notwithstanding anything stated above, all material used in the wall units must meet applicable ASTM and local requirements for exterior concrete.

- C. All Rosetta Hardscapes<sup>®</sup> products shall use frost-free aggregate.

D. Exterior block dimensions, as measured in accordance with ASTM C140, shall be uniform and consistent. Maximum dimensional deviations shall be 0.125 inch (3.2 mm) or 2%, whichever is less, excluding the architectural surface. Maximum width (face to back) deviation including the architectural surface shall be 1.0 inch (2.5 cm).

E. Exposed faces shall have a textured finish. Other surfaces to be smooth form type. Dime-size bug holes on the block face may be patched and/or shake-on color stain can be used to blend into the remainder of the block face.

F. Shear heels shall be intact and free from cracks or other defects.

#### 2.2 Aggregates and Backfill

A. Leveling pad shall be crushed stone. A plastic drain with gravity outlet shall be placed in the bottom of the stone leveling pad.

B. Drainstone material shall be 19 mm pea gravel washed stone, shall be placed to a minimum of 1 foot (0.30 m) width behind the back of the wall, and shall extend vertically from the top of the Cast-in-place concrete to an elevation 4 inches (10.2 cm) below the top of wall.

C. Backfill material shall be approved by the geotechnical engineer. Site excavated soils may be used if approved unless otherwise specified in the drawings. Unsuitable soils with a PI>6, organic soils and frost susceptible soils shall not be used within a 1 to 1 influence area.

D. Non-woven geotextile fabric shall be placed between the back of the blocks and the drainstone (to prevent migration of the drainstone through the face of the wall), and between the Cast-in-place concrete and the leveling pad / blocks (to prevent migration of concrete into the stone voids of the leveling pad or between the blocks). Additional non-woven geotextile fabric shall be placed between the Backfill material and Drainstone if there is a concern by the Engineer with the Backfill material flowing into and clogging the Drainstone.

E. Where additional fill is needed, Contractor shall submit samples and specifications to the Engineer for approval.

#### 2.3 Cast-in-place Concrete

A. Cast-in-place concrete shall be standard 25 MPa concrete as per ASTM C94. Dimensions of Cast-in-place concrete block as per design drawing.

B. Rebar tie shall be M10, minimum length 18" (45.7 cm). Rebar shall be bent into individual U-shapes, 9" (22.9 cm) minimum per leg, to be wrapped around each lifting hook (cast in the back of the Outcropping blocks) that is in the height of the Cast-in-place concrete.

# SPECIFICATION FOR ROSETTA HARDSCAPES® WALL SYSTEM

## PART 3: CONSTRUCTION OF WALL SYSTEM

### 3.1 Contractor Certification

A. Contractor shall have successfully completed the Precast Modular Block Installation Certification Training offered by Rosetta Hardscapes® prior to commencement of work. Arrangements can be made by contacting Glenn Herold at 705-929-3809. Allow 1 (one) full day for training.

### 3.2 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings.

### 3.3 Foundation Soil Preparation

A. Native foundation soil shall be compacted to 95% of standard proctor or 90% of modified proctor prior to placement of the leveling pad material.

B. In-situ foundation soil shall be examined by the geotechnical engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable, compacted material.

### 3.4 Leveling Pad Placement

A. Leveling Pad shall be placed as shown on the construction drawings.

B. Leveling Pad shall be placed on undisturbed native soils or suitable replacements fills as directed by the geotechnical engineer.

C. Leveling Pad shall be compacted to 95% of standard proctor or 90% of modified proctor to ensure a level, hard surface on which to place the first course blocks. Pad shall be constructed to the proper elevation to ensure the final elevation shown on the plans.

D. Leveling Pad shall have a 6 inch (15.2 cm) minimum depth. Pad dimensions shall extend beyond the front of the blocks to a distance at least equal to the depth of the pad, and beyond the back of the blocks for the full depth of the Cast-in-place concrete.

### 3.5 Unit Installation

A. The first course of blocks shall be placed on the prepared Leveling Pad with the aesthetic surface facing out and the back edges tight together. All blocks shall be checked for level and alignment as they are placed. Rosetta blocks shall be placed with the back of the blocks offset from the back of wall reference line based on their unit height. A 6 inch (15.2 cm) high Rosetta block shall be offset 4.5 inches (11.4 cm) from the reference line, a 12 inch (30.5 cm) high Rosetta block shall be offset 3 inches (7.6 cm) from the reference line, an 18 inch (45.7 cm) high Rosetta block shall be offset 1.5 inches (3.8 cm) from the reference line, and a 24 inch (61.0 cm) high Rosetta block shall be set with the back of the block flush with the reference line.

B. Ensure that blocks are in full contact with Leveling Pad. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.

C. Install next course of blocks on top of base row to bring total wall height up to 2' (600 mm). Blocks shall be placed fully forward so shear heels at back of lower blocks are fully engaged. Check each block for proper alignment and level. DO NOT stack blocks greater than 2' (600 mm) for safety reasons.

D. Place and compact Backfill in front of entire base row to firmly lock them in place.

E. Place geotextile over leveling pad and back side of blocks. Form back side of Cast-in-place concrete as required and at the specified distance from the back of the blocks. Position rebar at each of the lifting hooks. Pour Cast-in-place concrete to within 2" (50 mm) of the top of the blocks (2" space needed for shear heels on next course of blocks). Where design of Cast-in-place concrete exceeds 2' (600 mm), include a notch at the top of the Cast-in-place concrete.

F. Install next 2' (600 mm) of blocks in like manner as outlined above. Continue to extend the geotextile up back side of blocks. Position remainder of rebar and pour Cast-in-place concrete to the specified height.

G. After allowing the Cast-in-place concrete to cure, place plastic drain with gravity outlet as shown on the drawings. Backfill to a minimum 12 inch (30.5 cm) width behind the block with Drainstone, balance of the excavation with approved Backfill material. Spread Drainstone / Backfill in uniform lifts not exceeding 8 inches (20.3 cm). Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Hand-operated plate compaction equipment shall be used around the block and within 3 feet (0.91 m) of the wall to achieve consolidation. Compact backfill to 95% of standard proctor (ASTM D 698, AASHTO T-99) density within 2% of its optimum moisture content.

H. Install each subsequent course in like manner as outlined above. Repeat procedure to the extent of the wall height. Check each block for proper alignment and level. All excess material shall be swept from top of units.

I. Stop Drainstone 4" (100 mm) from the top of the wall and wrap top of Drainstone with geotextile. Backfill with topsoil to top of wall.

J. Allowable construction tolerance at the wall face is 2 degrees vertically, 3 inch (7.6 cm) maximum, and 1 inch in 10 feet (2.5 cm in 3.05 m) horizontally.

K. All walls shall be installed in accordance with local building codes and requirements.

## PART 4: AVAILABILITY

Browns Concrete Products Limited  
3075 Herold Drive, Sudbury, ON P3E 6K9  
1-800-461-4888  
www.brownsconcrete.com bcpl@bell.net