

StoneWall[®] SELECT[®]

SPECIFICATION

GENERAL INFORMATION

1.1 SCOPE:

Work includes the manufacture, delivery and installation of concrete retaining wall units as required by the drawings and specifications.

1.2 RELATED SECTIONS:

A Section 02265 pertaining to geogrid wall reinforcement.

B. Section 02223 pertaining to backfill requirements.

1.3 APPLICABLE DOCUMENTS:

ASTM STANDARDS:

- C 90 Hollow, load-bearing, concrete masonry units.
- C 33 Specifications for concrete aggregates.
- C 140 Methods for sampling and testing masonry units.
- D 1557 Lab compaction characteristics of soil using modified effort.

OTHER STANDARDS:

- NCMA Tek 2-4a, 15-5
- NCMA SRWU-1 Determination of Connection Strength between Geosynthetics and Segmental Concrete Units.
- NCMA SRWU-2 Determination of Shear Strength between Segmental Concrete Units
- NCMA Design Manual for Segmental Concrete Units.

1.4 DELIVERY AND STORAGE:

A. The contractor shall check the material upon delivery to assure that the style, color etc. comply with the specification and that the materials are not damaged or defective. Materials that do not meet the specifications or are defective or damaged shall not be used for construction.

B. The contractor shall protect the material from ice, snow, excessive mud or any agent that will bond to the unit.

RETAINING WALL

2.1 MATERIALS:

A. Concrete Retaining Wall Units

1. Units shall be StoneWall SELECT Retaining Wall units manufactured in color selected by the architect.
2. Retaining wall units shall be manufactured in accordance with NCMA Tek 2-4a, ASTM C 90 requirements. Minimum compressive strength $\geq 3,000$ psi. Maximum absorption 5-9% in lbs./cu. ft.

3. Exterior dimensions for StoneWall SELECT units shall be 12" x 8" x 16" to cover 1.13 units per square foot.

4. Color used in units shall not exceed 10% of the weight of the Portland cement in the unit.

5. Units shall be capable of making inside and outside curves that meet a variety of radii, but not less than a 4'9" radius. Remove the knock-off wings for outside curves.

6. Units shall provide a weight of 120 psf when filled with aggregate. The unit fill shall be measured at an effective weight of 80%.

7. Units shall be interlocked with glass filled polymer clips, 2 per StoneWall SELECT unit. The clips will be installed at the job site in the indented slots in the rear face shell of the unit so that the long leg of the clip is adjacent to the back face of the unit and the short leg projects into the core of the unit.

8. The interlock system shall provide a setback of 3/4" per layer of StoneWall SELECT for a wall batter of 5°.

B. Interlocking Clips:

1. Clips shall be molded, glass filled polymer composite.
2. Clips shall have the following tested properties: Shear resistance - the clips provide 440 lb./ft. of shear resistance at zero normal load.

C. Base Material:

1. Base material for the granular wall footing shall be well graded gravel with a Unified Soil Classification of GW. A minimum of 6" of compacted base is required.
2. A concrete footing may be substituted for the granular base.

D. Unit Fill:

1. Unit fill shall be clean, crushed stone, or well graded aggregate with a GW Unified Soil Classification. The fill shall have a maximum size of 3/4" and shall not have a fine content (passes #200 sieve) greater than 10% such as AASHTO No. 57 or 67.
2. Unit fill shall extend at least 6" behind the rear face shell of the concrete unit.

E. Wall Backfill and Compaction:

1. Existing soil on site may be used for backfill behind the unit fill unless deemed unsuitable by the engineer. When the backfill material contains excessive fines a protective fabric will be used to insure against contamination of the unit fill.
2. Always compact the backfill behind the wall, to 95% of maximum density, after each course is laid. A hand operated mechanical plate should be used within 3 ft. of the StoneWall SELECT units.

F. Drain Tile:

1. Drain tile shall be plastic, concrete or equal with a minimum diameter specified by the engineer or designer.

2.2 RETAINING WALL INSTALLATION:

A. Excavation:

1. Contractor shall excavate the site as required by the construction drawings.

B. Foundation Soil Preparation:

1. The foundation soil shall be excavated as required by the construction drawings.

2. The engineer shall examine the foundation soil for approval. Unsuitable soil will be removed and replaced with acceptable soil.

C. Base Footing:

1. Install footing as shown on the construction drawings. A 6" minimum thickness is required.

2. Granular footing material shall be compacted with a mechanical plate compactor to 95% of maximum modified proctor density (see ASTM D1557 for testing soil compaction characteristics).

3. Prepare the base footing so that the entire length and width of the StoneWall SELECT unit is in contact with the footing.

D. StoneWall SELECT Installation:

1. Lay a row of StoneWall SELECT units edge to edge on the prepared foundation following the lines shown on the construction drawing. Check for straightness. Level each unit from side to side. Do not pitch the unit towards the front.

2. Fill the units, and behind the units 6" to 12", with granular aggregate. Compact all unit fill and backfill. Do not use mechanical equipment on the units and do not operate heavy equipment within 3 feet of the wall. Clean the top of the units so they are free of aggregate before installing the next course.

3. Slide two interlocking clips onto the back of each block, in the clip grooves, one clip per groove, with the single leg of the clip extending up from the core of the unit.

4. Stagger (half bond) the second course on top of the base course so that the clips extend into the cores of the unit being laid. Pull the unit to the front of the wall until the back face shell tightly engages the clips. Repeat steps 2 and 3 until the specified height is obtained.

5. At the end of each course turn the units at a radius into the bank or use the 90° corner unit.

E. Cap Unit Installation:

1. Cap units are installed as the last course on the wall. Use a high strength and flexible concrete adhesive compound to bond the cap to the wall. Apply the adhesive as recommended by the manufacturer on the front and back face shells of the StoneWall SELECT unit. Install the cap with or without an overhang as required by the architect.

F. Drain Tile Installation:

1. The installation of the drain tile shall be required directly behind the StoneWall SELECT unit at grade level. Cover the drain tile with the granular fill. Install drain tile bleeders wherever necessary or as required by the engineer.

G. Geogrid Installation:

1. Place and compact the granular unit fill within and behind the StoneWall SELECT unit.

2. Place and compact soil behind the granular fill in the reinforced zone.

3. Clean off the top of the StoneWall SELECT unit.

4. Cut the geogrid to the specified length.

5. Place the grid to the front of the StoneWall SELECT unit making sure that the strength direction of the grid is perpendicular to the wall.

6. Install the interlocking clips. Lay another course of StoneWall SELECT units. Repeat step 1.

7. Tension the grid before and during backfill placement. Repeat step 2.

8. Execute compaction to 95% of maximum density when 8" of backfill has been placed.

9. Place additional geogrid lengths at required vertical elevations by repeating steps 1-8.

10. Use only light weight, hand-operated compaction equipment within 3 feet of the wall units.



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