SECTION 32 14 13 – precast concrete unit paving

1. General
   1. SUMMARY
      1. This Section includes requirements for supply and installation of exterior precast concrete unit paving on compacted sand bed.
      2. Related Requirements:
         1. Section 05 50 00 – Metal Fabrications.
         2. Section 31 23 33 – Trenching and Backfilling.
         3. Section 31 32 19.23 – Geotextile Layer Separation.
         4. Section 32 12 16 – Asphalt Paving for Parking Lots and Driveways.
         5. Section 32 14 40 – Stone Paving.
   2. administrative requirements
      1. Coordination: Coordinate requirements for installation of bedding and geotextile separation layer insulation specified in Section 31 05 17 and Section 31 32 19.23 – Geotextile Layer Separation, with requirements for installation of precast concrete unit paving in this Section.
      2. Pre-Construction Conference: Arrange a site meeting attended by the Contractor, the Subcontractor, the Consultant, materials supplier(s), and other relevant personal before commencement of work for this Section as indicated in Section 01 31 19 – Project Meetings.
   3. submittals
      1. Provide required product information in accordance with Section 01 33 00 – Submittal Procedures.
      2. Action Submittals: Provide the following submittals before starting any Work of this Section:
         1. Product Data: Submit manufacturers product data for each type of product specified.
         2. Shop Drawings: Submit shop drawings incorporating plans, elevations, sections, and details for all Work in this Section. The details shall illustrate and note all material thicknesses, types and finishes, type of construction including joint sizing and edging requirements.
         3. Samples for Verification: Submit samples for verification for each type and colour of precast concrete unit paver.
   4. QUALITY ASSURANCE
      1. Qualifications: Provide proof of qualifications when requested by Consultant:
         1. Supplier: Obtain precast units of a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer.
   5. DELIVERY, STORAGE AND HANDLING
      1. Delivery and Acceptance Requirements: Deliver precast units to site using protective covers to prevent staining and soiling arising from transportation and weather; separated from alkali sources and ground moisture; and do not permit units to come into contact with oil or grease.
      2. Storage and Handling Requirements: Store units on elevated platforms in a dry location; stacked so that structural design loads of floor or pavement structures are not exceeded and as follows:
         1. Cover tops and sides of stacks with waterproof sheeting securely tied to pallets if units are not stored in an enclosed location; do not wrap units completely, ensure that air can circulate around units.
         2. Store aggregates where grading and other required characteristics can be maintained; store to prevent contamination by substances deleterious to performance and appearance.
   6. SITE CONDITIONS
      1. Site Measurements: Verify dimensions by site measurements before fabrication and indicate measurements on shop drawings where precast units are indicated to fit around other construction; coordinate fabrication schedule with construction progress to avoid delaying the Work.
      2. Established Dimensions: Establish dimensions and proceed with fabricating precast units without site measurements where site measurements cannot be made without delaying the Work; coordinate construction to ensure that actual site dimensions correspond to established dimensions; allow for trimming and fitting.
2. Products
   1. MATERIALS
      1. Granular Base:
      2. Conforming to OPSS Form No. 1010, Class 'A' aggregate:

|  |  |
| --- | --- |
| Granular Base | |
| Sieve Size | % Passing by Weight |
| 7/8” | 100 |
| 5/8” | 75 - 100 |
| 1/2” | 65 - 90 |
| #5 | 35 - 55 |
| #16 | 15 - 45 |
| #50 | 5 - 22 |
| #200 | 0 - 8 |

* + 1. Precast Concrete Unit Steps:
       1. 191 mm (7-1/2") thick precast concrete step system, solid cast.
       2. Sizes - Riser:
          1. Type 1: 270 mm x 1524 mm (11" x 5').
          2. Type 2: 270 mm x 1829 mm (11" x 6').
       3. Sizes - Porch:
          1. 914 mm x 1829 mm (3' x 6').
       4. Basis of Design Material: Durastep by Armtec.
       5. Surface Finish and Colour: As selected by the Consultant from the manufacturer's standard product line.
    2. Precast Concrete Unit Pavers:
       1. Size: 100 mm x 100 mm x 410 mm (4" x 4" x 16").
       2. Type: Plank Paver.
       3. Applications: Pedestrian traffic.
       4. Joint Sizing: 50 mm (2"), as indicated on the Drawings.
       5. Basis of Design Material: Promedade Paver, Plank Style by Unilock..
       6. Surface Finish and Colour: As selected by the Consultant from the Manufacturers standard product line.
    3. Sand Setting Bed: Concrete Sand conforming to CSA A23.1. Gradation for fine aggregate.
    4. Joint Filler:
       1. Mixture of polymer binders and sand, allowing firm lock between concrete paver joints once set.
       2. Applications: Horizontal and sloped surfaces.
       3. Maximum Joint Spacing: 38 mm (1-1/2").
       4. Basis of Design Material: Permapro XP Polymeric Sand by Permacon.
    5. Edge Restraint: Galvanized steel angle, as indicated in Section 05 50 00 – Metal Fabrications.
    6. Separation Geotextile: Nonwoven geotextile fabric, manufactured for separation applications, comprised of polypropylene fibres tangled together in a needle-punching process, as indicated in Section 31 32 19.23 – Geotextile Layer Separation.

1. Execution
   1. examination
      1. Examine exposed surfaces for compliance with requirements for dimensional and elevation tolerances.
   2. PREPARATION
      1. Set out work from lines and levels shown on Drawings.
      2. Fine grade, shape, and compact subgrade to minimum of 98% Standard Proctor Density.
   3. INSTALLATION
      1. Separation Geotextile: As indicated in Section 31 32 19.23 – Geotextile Layer Separation.
      2. Granular Base:
         1. Place compacted Granular 'A' to thickness as indicated on detail drawings, over separation geotextile.
      3. Levelling Sand Bed:
         1. Spread sand evenly over granular base to required elevations.
         2. Compact sand bed to a minimum thickness as indicated on Drawings.
      4. Precast Paving:
         1. Cut, drill, and fit unit pavers as required accommodating Work of other trades.
         2. Cut pavers accurately and without damage. Smooth exposed cut edges with abrasive stone, where exposed. Chipped or split edges are not acceptable; minimum unit width 1/2 unit.
         3. Fit units accurately at intersections; fit units closely around penetrations so that plates, collars, and similar appurtenances will overlap cuts.
         4. Distribute units of acceptable colour range or texture evenly over entire installation to avoid patches or streaks, to produce a homogeneous blending of all units.
         5. Set units level, plumb, square, and true with uniform joints. Chipped, broken, or blemished units shall be rejected.
         6. Paving shall be true in plane, level to a tolerance of 3 mm in 3050 mm (1/8" in 10') measured in any direction with no apparent lippage between adjacent paving.
         7. Lay paving to prevent water puddles or ponding, slope surface towards two level drains.
         8. Tamp units into sand bed to achieve full contact.
         9. Clean surfaces of unit paver and maintain free of abrasive and staining substances.
      5. Edge Restraint:
         1. Install as per concrete unit paver manufacturer's recommendations.
      6. Unit Pavers with Sand Joints:
         1. Install pavers with joints dimensions indicated on Drawings.
         2. Tamp down and level pavers with mechanical plate vibrator as recommended by the manufacturer until pavers are true to grade and free of movement.
         3. Fill spaces between pavers by sweeping in sand joint filler.
         4. Pass mechanical plate vibrator on sand cushion over surface course to achieve compaction of sand in joints.
         5. Surface of Finished Pavement: Free from depressions exceeding 3 mm (1/8") as measured with 3 m (10') straight edge.
      7. Sweep surface course clean.
   4. CLEANING AND ADJUSTMENT
      1. Cleaning: Perform final cleaning as required.
         1. Keep installed Work clean as Work progresses.
         2. Clean and repair surfaces that become soiled or otherwise damaged arising from Work of this Section; provide protection from damage arising from adjacent work of other Sections.
         3. Replace paving materials that cannot be cleaned at no additional cost to the Owner.
         4. Remove all debris, equipment and excess material resulting from Work of this Section on completion of Work of this Section.
      2. Adjustment and replacement work shall be performed as specified in this Section with materials of same size, variety and quality of material replaced.
      3. Replacement work shall be done under an additional guarantee of the same length and conditions as described in this Specification. It shall date from time of Consultant's approval of replacement work.

END OF SECTION