SECTION 32 17 13.19 – precast concrete parking bumpers

1. General
   1. SUMMARY
      1. This Section includes for the supply and installation of precast concrete wheel stops and anchors for installation at parking areas illustrated.
      2. Related Requirements:
         1. Section 32 12 16 – Asphalt Paving for Parking Lots and Driveways.
         2. Section 32 14 40 – Stone Paving.
   2. REFERENCE STANDARDS
      1. CSA A23.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
      2. CSA A3000-08, Cementitious Materials Compendium.
      3. CPCI Handbook.
   3. PERFORMANCE REQUIREMENTS
      1. Perform Work in accordance with CSA A23.4, CSA A251, CPCI Handbook. Where requirements of one standard exceed another, the most restrictive requirement will govern.
   4. administrative requirements
      1. 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.
   5. 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, and type of construction.
         3. Samples for Verification: Submit samples for verification for each type and colour of precast concrete parking bumper.
   6. DESIGN REQUIREMENTS
      1. Reinforce units to withstand handling stresses, temperature changes, loads and all other dead and live loads.
   7. 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.
   8. DELIVERY, STORAGE AND HANDLING
      1. Deliver precast architectural wheel stop concrete units to Project site in quantities and times to ensure continuity of installation. Store units at Project site to prevent cracking, distorting, warping, staining, or other physical damage, and so markings are visible.
      2. Units showing such defects will be replaced and made good together with all work of other trades damaged during removal of defective precast units at no expense to the Owner.
2. Products
   1. MATERIALS
      1. Hydraulic cement: To CAN/CSA A3000, General Use Type GU, grey.
      2. Water: To CSA A23.1/A23.2, clear potable.
      3. Aggregates: To CSA A23.1/A23.2, normal weight, containing no shale, with light steel grey coloured aggregate, crushed to 10 mm (3/8") maximum size, with none passing a 2.36 mm (#200) sieve.
         1. Colour Admixture: Normal grey cement as indicated.
      4. Reinforcing steel: To CSA G30.18, Grade 400.
      5. Steel Pins: To CAN/CSA G40.20/G40.21, Grade 300W.
   2. CONCRETE MIXES
      1. Prepare design mixes for each type of concrete required. Design mixes may be prepared by a qualified independent testing agency or by qualified precast plant personnel at precast concrete wheel stop fabricator's option.
      2. Limit water soluble chloride ions to the maximum percentage by weight of cement permitted by CSA standard.
      3. Normal Weight Concrete Mixes: Proportion mixes by either laboratory trial batch or field test data methods with materials to be used on Project, to provide normal weight concrete with the following properties:
         1. Compressive Strength (28 Days): 34.5 MPa (5000 psi).
         2. Maximum Water Cementitious Materials Ratio: 0.45.
   3. FABRICATION
      1. Moulds: Accurately construct moulds, mortar tight, of sufficient strength to withstand pressures due to concrete placement operations and temperature changes and for pre-stressing operations.
      2. Cast slots, holes, and other accessories in precast concrete wheel stop units to receive dowels and other similar work as indicated.
      3. Reinforcement: Comply with recommendations in CPCI Manual of Standard Practice for fabricating, placing, and supporting reinforcement.
      4. Mix concrete according to fabricators mix design requirements in this Section.
   4. FINISHES
      1. Exposed Exterior Smooth Surface Finish: Provide surfaces free of pockets, sand streaks, and honeycombs, with uniform colour and texture.
3. EXECUTION
   1. EXAMINATION
      1. Examine exposed surfaces for compliance with requirements for dimensional and elevation tolerances.
   2. INSTALLATION
      1. Cast concrete wheel stops, nominally 2440 mm (8') long to manufacturer's standard with smooth face profile and anchor holes at either end.
      2. Orient precast concrete wheel stop units centred on parking stalls as illustrated. Anchor by driving 10 mm (3/8") steel pins 305 mm (12") into asphalt paving and sub structure.
      3. Remove and replace damaged precast concrete wheel stop units.
   3. CLEANING
      1. Clean exposed surfaces of precast concrete wheel stop units after erection to remove markings, dirt, and stains.
      2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes.

END OF SECTION