

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

**A. Section Includes:**

- 1. Cast-in-place steel detectable warning tiles.

**B. Related Requirements:**

- 1. Section 32 13 13 "Concrete Paving" for concrete walkways serving as substrates for tactile warning surfacing.

**1.3 ACTION SUBMITTALS**

**A. Product Data:** For each type of product.

**B. Shop Drawings** required for tactile plate installation:

- 1. Include plans, layout, and attachment details.

**C. Samples for Initial Selection:** For each type of exposed finish requiring color selection.

**D. Samples for Verification:** For each type of tactile warning surface, in manufacturer's standard sizes unless otherwise indicated, showing edge condition, truncated-dome pattern, texture, color, and cross section; with fasteners and anchors.

**1.4 CLOSEOUT SUBMITTALS**

**A. Maintenance Data:** For tactile warning surfacing, to include in maintenance manuals.

**1.5 QUALITY ASSURANCE**

**A. Mockups:** Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

- 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

**1.6 PREINSTALLATION MEETINGS**

**A. Preinstallation Conference:** Conduct conference at Project site.

## 1.7 PROJECT CONDITIONS

- A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.
- B. Weather Limitations for Adhesive Application:
  - 1. Apply adhesive only when ambient temperature is above 10 deg C and when temperature has not been below 2 deg C for 12 hours immediately before application. Do not apply when substrate is wet or contains excess moisture.
- C. Weather Limitations for Mortar and Grout:
  - 1. Cold-Weather Requirements: Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 2. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602. Provide artificial shade and windbreaks, and use cooled materials as required. Do not apply mortar to substrates with temperatures of 38 deg C and higher.
    - 1. When ambient temperature exceeds 38 deg C, or when wind velocity exceeds 13 km/h and ambient temperature exceeds 32 deg C, set unit pavers within 1 minute of spreading setting-bed mortar.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of tactile warning surfaces that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - 1. Deterioration of finishes beyond normal weathering and wear.
    - 2. Separation or delamination of materials and components.
  - 2. Warranty Period: Five years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 TACTILE WARNING SURFACING, GENERAL

- A. Accessibility Requirements: Comply with applicable provisions in The Accessibility for Ontarians with Disabilities Act (OADA) for tactile warning surfaces.
  - 1. For tactile warning surfaces composed of multiple units, provide units that when installed provide consistent side-to-side and end-to-end dome spacing that complies with requirements.

- B. Source Limitations: Obtain each type of tactile warning surfacing, setting material, anchor, and fastener from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

## 2.2 DETECTABLE WARNING TILES

- A. Product: Cast-in-place steel detectable warning tiles.

- B. Manufacturers:

1. Brad Dunlop, Regional Sales Manager

1. Bibby Ste Croix (Div of Canada Pipe Co. Ltd.)
2. 1757 Burlington Street East
3. Hamilton ON L8H 3L5
4. brad.dunlop@bibby-ste-croix.com

2. John DiCesare

1. GORA Construction Products
2. 1939 Kilgorman Way
3. London ON N6K 0G6
4. john@goracon.ca

3. Ted Lalogiannis, Director of Business Development

1. Ontario Utility Castings Inc.
2. P.O. Box 96761
3. RPO Jane/Major Mac
4. Vaughan ON L6A-0A2
5. ted@oucastings.

- C. Mounting:

1. Permanently embedded detectable warning tile wet-set into freshly poured concrete.
2. Permanently embedded detectable warning tile set into formed recess in concrete and adhered with mortar.

3. Replaceable embedded detectable warning tile fastened to permanently installed anchors.

## 2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of tactile warning surfaces, noncorrosive and compatible with each material joined, and complying with the following:
  1. Furnish Type 304 or 308 stainless-steel fasteners for exterior use.
  2. Fastener Heads: For nonstructural connections, use flathead or oval countersunk screws and bolts with tamper-resistant heads, colored to match tile.
- B. Adhesive: As recommended by manufacturer for adhering tactile warning surfacing unit to pavement.
- C. Sealant: As recommended by manufacturer for sealing perimeter of tactile warning surfacing unit.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that pavement is in suitable condition to begin installation according to manufacturer's written instructions. Verify that installation of tactile warning surfacing will comply with accessibility requirements upon completion.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION OF TACTILE WARNING SURFACING

- A. General: Prepare substrate and install tactile warning surfacing according to manufacturer's written instructions unless otherwise indicated.
- B. Place tactile warning surfacing units in dimensions and orientation indicated. Comply with location requirements of AASHTO MP 12.

### 3.3 INSTALLATION OF DETECTABLE WARNING TILES

- A. Cast-in-Place Detectable Warning Tiles:
  1. Concrete Paving Installation: Comply with installation requirements in Section 32 13 13 "Concrete Paving." Mix, place, and finish concrete to conditions complying with detectable warning tile manufacturer's written requirements for satisfactory embedment of tile.
  2. Set each detectable warning tile accurately and firmly in place and completely seat tile back and embedments in wet concrete by tamping or vibrating. If necessary, temporarily apply weight to tiles to ensure full contact with concrete.

3. Set surface of tile flush with surrounding concrete and adjacent tiles, with variations between tiles and between concrete and tiles not exceeding plus or minus 3 mm from flush.
4. Protect exposed surfaces of installed tiles from contact with wet concrete. Complete finishing of concrete paving surrounding tiles. Remove concrete from tile surfaces.
5. Clean tiles using methods recommended in writing by manufacturer.
6. Protect exposed surfaces of installed tiles from contact with wet concrete. Complete finishing of concrete paving surrounding tiles. Remove concrete from tile surfaces.
7. Clean tiles using methods recommended in writing by manufacturer.

#### 3.4 CLEANING AND PROTECTION

- A. Remove and replace tactile warning surfacing that is broken or damaged or does not comply with requirements in this Section. Remove in complete sections from joint to joint unless otherwise approved by Architect. Replace using tactile warning surfacing installation methods acceptable to Architect.
- B. Protect tactile warning surfacing from damage and maintain free of stains, discoloration, dirt, and other foreign material.

END OF SECTION