

## May 31, 2023

## SOLICITATION ADDENDUM NO. 1 ITB 22-0034 District Administration Office- Tenant Improvements

## THE FOLLOWING CHANGES/ADDITIONS TO THE ABOVE CITED SOLICITATION ARE ANNOUNCED:

This Addendum modifies the Invitation to Bid (ITB) document(s) only to the extent indicated herein. Allother areas not changed or otherwise modified by this Addendum shall remain in full force and effect. This Addendum is hereby made an integral part of the ITB document. Bidder must be responsive to any requirements of this Addendum as if the requirements were set forth in the ITB. Failure to do so may result in Bid rejection. See the ITB regarding requests for clarification or change and protests of this Addendum, and the deadlines for the foregoing.

This addendum is to be acknowledged in the space provided on the Bidder Certification form supplied in the solicitation document. Failure to acknowledge receipt of this addendum may be cause to reject your offer.

## The closing date Is: June 8, 2023 at 2:00 PM Pacific Time

## CLARIFICATIONS/QUESTIONS \*Please see Specification and Drawing Revisions attached.

QUESTION: Who is the Fire Alarm contractor for the District Administration Office?

ANSWER: We do not have anyone on board for this.

**QUESTION:** What is the last day we can walk the site with subcontractors? Is 24 hours ahead enough lead time for a job walk?

ANSWER: The last day to walk would be Monday, June 5<sup>th</sup>- between 2-4pm. Please contact us at <u>contracts@beaverton.k12.or.us</u> to schedule.

**QUESTION:** A1101/5 at Door A100A. What is the wall type at this new door location? **ANSWER:** The walls at Door A100A are to be type A1a.

**QUESTION:** A1101/5 between RR A101 and A102, the wall type indicated is A7, per page G1112 there are several A7 wall types with different framing requirements. Which A7 wall will this be?

ANSWER: The wall type between rooms A101 and A102 is to be type A7b.



# Project Addendum Number 01

<b>PROJECT</b> BSD Admin Office Tenant Improvement 1260 NW Waterhouse Ave Beaverton, OR 97006	PROJECT NUMBER: 142595	<b>ARCHITECT</b> Arcadis Architects (USA), Inc. 830 NE Holladay Street Portland, OR 97232
DISTRICT NAME: Beaverton Scho	ol District	<b>DATE</b> : 2023-05-26

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated 2023-04-21 and any previously issued addenda as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

## ITEM I – PROJECT MAUAL

## SECTION 32 13 13 CONRETE PAVING

1. Add this section in its entirety.

## SECTION 32 17 23 PAVEMENT MARKINGS

1. Add this section in its entirety.

## SECTION 32 17 26 TACTILE WARNING SURFACING

1. Add this section in its entirety.

## **ITEM II – DRAWINGS**

## SHEET G0000 – COVERSHEET:

1. Add 'G1301 – SITE PLAN' to sheet list.

## SHEET G1301 - SITE PLAN:

1. Add sheet in its entirety.

## **ITEM III – ATTACHMENTS**

- 1. Specifications: 321313, 321723, 321726
- 2. Drawings (Full Size): G1301

BIDDER SHALL NOTIFY ALL SUB-BIDDERS OF THIS ADDENDUM AND SHALL ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY INSERTING THE ABOVE ADDENDUM NUMBER IN THE SPACE PROVIDED ON THE BID FORM PRIOR TO SUBMITTING BIDS. FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.

END OF ADDENDUM NUMBER 01

## SECTION 32 13 13

#### CONCRETE PAVING

#### (Issued by Addendum 01)

## PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. Section Includes Concrete Paving Including the Following:
  - 1. Curbs.
  - 2. Walks.
- B. Related Requirements:
  - 1. Section 03 30 00 "Cast-in-Place Concrete" for general building applications of concrete.
  - 2. Section 07 92 00 "Joint Sealants" for joint sealants in isolation/expansion and contraction joints within concrete paving and in joints between concrete paving and asphalt paving or adjacent construction.
  - 3. Section 32 17 23 "Pavement Markings"
  - 4. Section 32 17 26 "Tactile Warning Surfacing" for detectable warning tiles.

## 1.03 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

## 1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

#### 1.05 INFORMATIONAL SUBMITTALS

A. Joint spacing plan.

## 1.06 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
  - When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
  - 2. Do not use frozen materials or materials containing ice or snow.
  - Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

- C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hotweather conditions exist:
  - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  - 2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
  - 3. Fog-spray forms and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

## PART 2 – PRODUCTS

## 2.01 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

## 2.02 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
  - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

## 2.03 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
  - 1. Portland Cement: ASTM C150/C150M, gray Portland cement Type I.
- B. Normal-Weight Aggregates: ASTM C33/C33M, Class 4M, uniformly graded. Provide aggregates from a single source.
  - 1. Maximum Coarse-Aggregate Size: 3/4-inch nominal.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C260/C260M.
- D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
  - 1. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
- E. Water: Potable and complying with ASTM C94/C94M.

## 2.04 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.

## 2.05 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
  - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.

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- 2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.
- B. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
  - 1. Air Content, 3/4-inchNominal Maximum Aggregate Size: 6 percent plus or minus 1-1/2 percent.
- C. Concrete Mixtures: Normal-weight concrete.
  - 1. Compressive Strength (28 Days): 3300 psi.
  - 2. Maximum W/C Ratio at Point of Placement: 0.45.
  - 3. Slump Limit: 4 inches, plus or minus 1 inch.

## 2.06 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in performed strips.
- B. Epoxy-Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces, of class suitable for application temperature, of grade with requirements, and of the following types:
  - 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

## PART 3 – EXECUTION

## 3.01 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.02 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

## 3.03 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

## 3.04 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
  - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation/expansion joints.
  - 1. Butt Joints: Use epoxy-bonding adhesive at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Isolation/Expansion Joints: Form isolation and expansion joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
  - 1. Extend joint fillers full width and depth of joint.

- 2. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
- 3. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
- 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
- 5. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-half of the concrete thickness, as follows, to match jointing of existing adjacent concrete paving:
  - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius, or as indicated on plans. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
  - a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.
  - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
  - a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.
  - 3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

## 3.05 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
  - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies or side forms. Use

only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating dowels and joint devices.

- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

## 3.06 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
  - 1. Medium-to-Light-Textured Broom Finish: Draw a soft-bristle broom across floatfinished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
  - 2. Chemical Surface Retarder: After final floating, apply a hand-trowel finish followed by a surface light retarded finish to concrete. Apply to front entry plaza and west courtyard or as indicated on the drawings.
    - Apply Chemical Surface Retarder uniformly over the surface of freshly placed concrete as soon as concrete finishing is completed and the bleed water has disappeared from the surface from manufacturer's printed instructions.
    - 2) Test a section of the retarded surface prior to general aggregate exposure to determine if the underlying concrete has reached sufficient strength so that the aggregates will not be loosened or dislodged during removal procedures.
    - 3) Remove the retarded surface buy use of a long-handled, stiff-bristle brush and a pressure washer or a strong jet of water from a hose. Pressure washing will facilitate removal, especially in larger areas. Control runoff in accordance with local, state, and federal regulations.

## 3.07 INSTALLATION OF DETECTABLE WARNING SURFACING

- A. Cast-in-Place Detectable Warning Surfacing: Form blockouts in concrete for installation of surfacing specified in Section 32 17 26 "Tactile Warning Surfacing." Screed surface of concrete where tiles are to be installed to elevation, so that edges of installed surfacing will be flush with surrounding concrete paving.
  - 1. Embed tiles in fresh concrete to comply with Section 32 17 26 "Tactile Warning Surfacing" immediately after screeding concrete surface.
  - 2. Allow concrete to cure prior to installing detectable warning pavers.

## 3.08 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h before and during

finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture-retaining-cover curing as follows:
  - 1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.

## 3.09 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
  - 1. Elevation: 3/4 inch.
  - 2. Thickness: Plus 3/8-inch, minus 1/4 inch.
  - 3. Surface: Gap below 10-feet- long; unleveled straightedge not to exceed 1/2 inch.
  - 4. Joint Spacing: 3 inches.
  - 5. Contraction Joint Depth: Plus 1/4 inch, no minus.
  - 6. Joint Width: Plus 1/8 inch, no minus.

## 3.10 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.
- B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

## END OF SECTION

## SECTION 32 17 23

## **PAVEMENT MARKINGS**

## (Issued by Addendum 01)

## PART 1 – GENERAL

## 1.01 SUMMARY

- A. Section Includes:
  - 1. Painted markings applied to asphalt paving.

## 1.02 ACTION SUBMITTALS

- A. Product Data:
  - 1. Include technical data and tested physical and performance properties.

## 1.03 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

## PART 2 – PRODUCTS

## 2.01 MANUFACTURERS

- A. <u>Manufacturers:</u> Subject to compliance with general requirements, provide products by one of the following:
  - 1. Sherwin-Williams Company (The)
  - 2. Conco Paints.
  - 3. Ennis-Flint, Inc.
  - 4. Rodda Paint Co.
  - 5. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.

## 2.02 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in ICC A117.1 and the Oregon Structural Specialty Code, 2014.

## 2.03 PAVEMENT-MARKING PAINT

- A. Pavement-Marking Paint, Latex: MPI #97, latex traffic-marking paint.
  - 1. Color: White.

## PART 3 – EXECUTION

## 3.01 PAVEMENT MARKING

- A. Verify that pavement is dry and in suitable condition to begin pavement marking according to manufacturer's written instructions.
- B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.
- C. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- D. Sweep and clean surface to eliminate loose material and dust.
- E. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.
- F. Apply thermoplastic pavement markings according to Oregon Standard Specifications for Construction section 00867 and per manufacturer's recommendations.

## 3.02 PROTECTION AND CLEANING

- A. Protect pavement markings from damage and wear during remainder of construction period.
- B. Clean spillage and soiling form adjacent construction using cleaning agents and procedures recommend by manufacturer of affected construction.

## **END OF SECTION**

## SECTION 32 17 26

## TACTILE WARNING SURFACING

## (Issued by Addendum 01)

## PART 1 – GENERAL

## 1.01 SUMMARY

- A. Section Includes:
  - 1. Cast-in-place detectable warning tiles.
- B. Related Requirements:
  - 1. Section 32 13 13 "Concrete Pacing" for concrete walkways serving as substrates for tactile warning surfacing.

## 1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Warranty: Provide certified copies of manufacturer's product warranties.

## 1.03 QUALITY ASSURANCE

- A. Compliance with Regulations: Comply with requirements of state and local building codes and with rules and regulations relating to building accessibility.
- B. Qualifications of Manufacturer: Company specializing in manufacture of precast concrete paving units with a minimum of 10 continuous years of documented experience.
- C. Qualifications of Subcontractor: Subcontractor shall submit evidence of skill and not less than 5 years of experience in this product type.
- D. Precast concrete paving units shall have a compressive strength of 4,000 PSI minimum.

## 1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver all materials to the installation site in the manufacturer's original packaging. Packaging shall contain manufacturer's name, customer name, order, identification number, and other related information.
- B. Handle and store precast concrete paving units in accordance with manufacturer's recommendations.

## 1.05 WARRANTY

A. Provide warranty covering precast concrete paving units against defects in material and workmanship for a period of 5 years. Unusual abuse and neglect are excepted.

## 1.06 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 50 deg F and when temperature has not been below 35 deg F 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.

## PART 2 – PRODUCTS

## 2.01 TACTILE WARNING SURFACING, GENERAL

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- A. Accessibility Requirements: Comply with applicable provisions in ICC A117.1 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.

## 2.02 DETECTABLE WARNING TILES

- A. Cast-in-Place Detectable Warning Tiles: Accessible truncated-dome detectable warning tiles with replaceable surface configured for setting flush in new concrete walkway surfaces, with slip-resistant surface treatment on domes and field of tile.
  - 1. Engineered Plastics Inc.; Armor-Tile.
  - 2. Material: Cast-fiber-reinforced polymer concrete tile.
  - 3. Color: Black.
  - 4. Shapes and Sizes:
    - a. Rectangular panel, 24 by 60 inches or per plan.
    - b. Radius panel, nominal 24 inches deep by specified radius per plan.
  - 5. Dome Spacing and Configuration: Manufacturer's standard compliant spacing, in manufacturer's standard pattern.
  - 6. Mounting:
    - a. Permanently embedded detectable warning tile wet-set into freshly poured concrete.

## 2.03 DETECTABLE WARNING PAVERS

- A. Precast paving units consisting of Portland cement, aggregate, and color admixtures.
- B. Basis of Design
  - 1. Manufacturer: Stepstone, www.stepstoneinc.com
  - 2. Product: truncated dome paver
  - 3. Size: 12 x 12 x 2 inches
  - 4. Color: charcoal 511
  - 5. Or approved equal.

## 2.04 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 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. Portland Cement Mortar that meets or exceeds ANSI A118.4 requirements when mixed with water or a latex admixture, and is designed for installation of large format tile in pedestrian areas.
- C. Non-shrink grout that meets or exceeds ANSI A118.7 when mixed with water or a latex admixture.

## PART 3 – EXECUTION

## 3.01 EXAMINATION

A. Verify that pavement is in suitable condition to begin installation according to manufacturer's instructions. Verify that installation of tactile warning surfacing will comply with accessibility requirements upon completion.

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B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.02 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.
- C. Cast-in-Place Detectable Warning Tiles: Set each detectable warning tile accurately and firmly in place and completely seat tile back and embedments in wet concrete by tamping or vibrating. Set surface of tile flush with surrounding concrete and adjacent tiles. Remove concrete from tile surfaces and clean using methods recommended in writing by manufacturer.
- D. 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.
- E. Protect tactile warning surfacing from damage and maintain free of stains, discoloration, dirt, and other foreign material.

## 3.03 INSTALLATION OF TRUNCATED DOME PAVERS

- A. Installation shall comply with requirements of applicable building codes and state and local jurisdictions.
- B. Install Truncated Dome Pavers in a mortar bed in accordance with the specifications defined in the CTMA Handbook for Concrete Tiles. Maintain straight pattern lines.
- C. 100% paver bonding coverage is recommended, with a minimum acceptable coverage of 95% for exterior installations or 80% for interior installations. Back buttering is mandatory to obtain a minimum of 95% coverage.
- D. Clean any mortar off the face of the pavers immediately. Never leave a 'cement haze' on the concrete paver's surface.
- E. Provide for expansion and control joints as specified per TCA detail EJ-171-current year. Follow expansion and control joint materials manufacturer's instructions.
- F. Typical joints between mortar-set Truncated Dome Pavers are from 3/16" to 1/4" wide. Refer to Section 2.4.C for standard dimensional paver tolerances. (Note: Recommended minimum spacing at bottom of pavers is 1/16".")
- G. Place grout between Truncated Dome Pavers in accordance with the specifications defined in the CTMA Handbook for Concrete Tiles.
- H. Follow grout manufacturer's directions for use of grout. Grout shall fill joint completely.
- I. Truncated Dome Pavers are concrete and the cementitious material in grout will permanently bond to the pavers. Clean any grout off the face of the pavers immediately. Never leave a 'cement haze' on the concrete paver's surface.

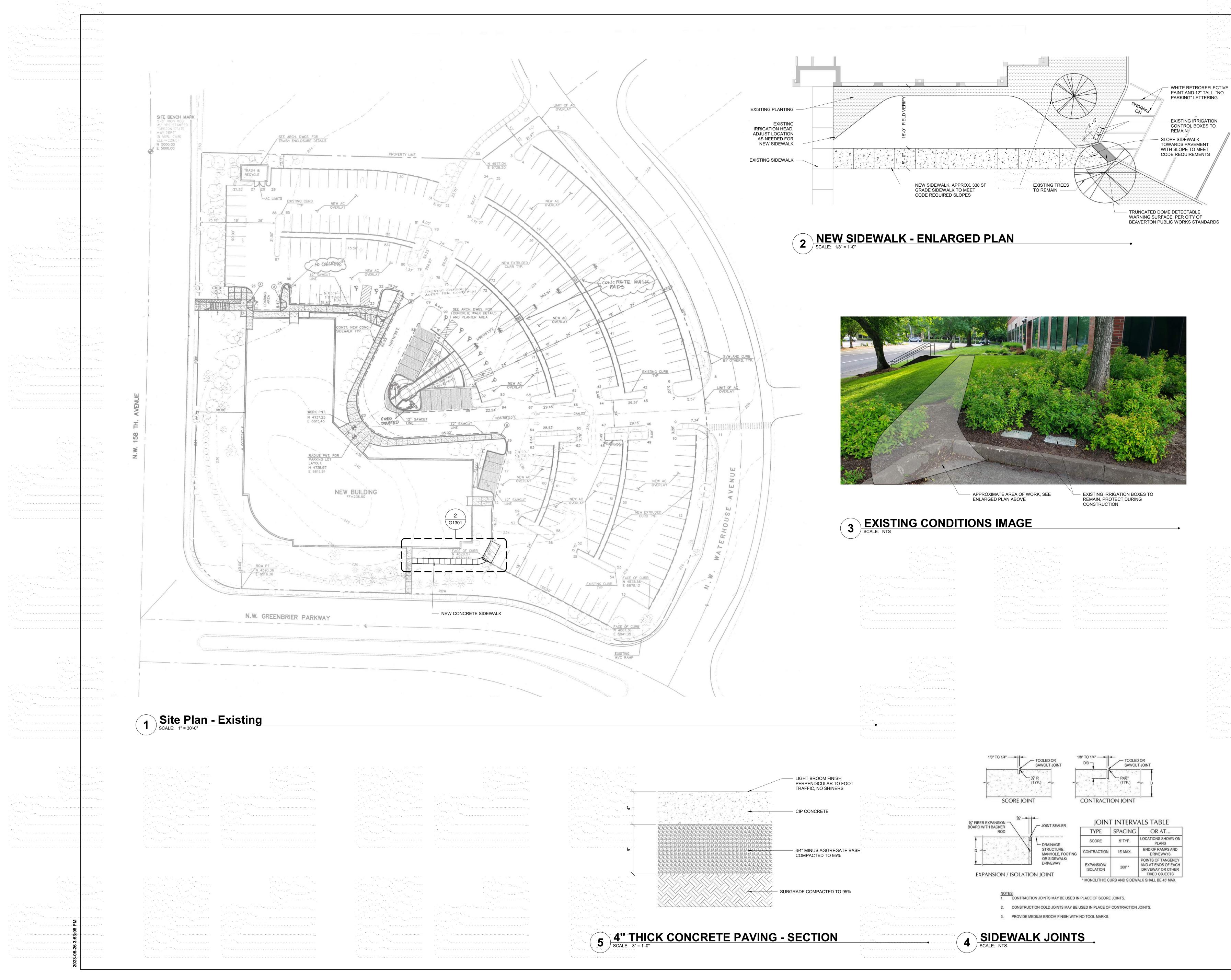
## 3.04 CLEANING AND PROTECTION

- 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 the Engineer. Replace using tactile warning surface installation method acceptable to Engineer.
- B. Protect tactile warning surfacing from damage and maintain free of stains, discoloration, dirt, and other foreign material.
- C. Clean exposed surfaces of precast concrete paving units. Use cleaners appropriate for precast concrete finishes and colors. Acid based cleaners will permanently alter the finish and color.

## 3.05 COMPLETION

- A. Protect tactile warning surfacing and pavers from damage due to subsequent building operations.
- B. After installation and before completion, inspect tactile warning surfacing and pavers for construction damage and obtain new tactile warning surfacing and pavers if required.
- C. Immediately prior to final acceptance of project, clean tactile warning surfacing and pavers.

## END OF SECTION



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	TIPE	SPACING	OK AL
	SCORE	5' TYP.	LOCATIONS SHOWN ON PLANS
NG	CONTRACTION	15' MAX.	END OF RAMPS AND DRIVEWAYS
	EXPANSION/ ISOLATION	200' *	POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY OR OTHER FIXED OBJECTS

