

Exhibit B9 Preliminary Exterior Improvements Inspection Requirements

COOPER UNIVERSITY HEALTH CARE
COOPER UNIVERSITY HOSPITAL – TOWER A
CAMDEN, NEW JERSEY

SECTION 321313

CONCRETE SIDEWALK AND PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including without limitation all terms and conditions of the Contract, all Drawings, all Specifications, are incorporated into this Section and are part of this Section.

1.2 SECTION INCLUDES

- A. Concrete sidewalk work shall consist of the construction of Portland Cement concrete sidewalks and slabs at locations and grades as shown or may be determined from the Drawings.

1.3 RELATED SECTIONS

- A. Contract drawings and specifications

1.4 REFERENCES

- A. Concrete shall conform to the requirements of the NJDOT Standards Specifications for Road and Bridge Construction, latest edition.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Work and materials shall conform with the New Jersey Department of Transportation Standard Specifications for Highway and Bridge Construction, latest edition.
- B. Concrete shall be White Portland Cement Type 1 Normal, air entrained 4% to 7% and shall test 4,500 psi minimum at 28 days.
- C. Joint filler shall consist of a fibrous, non-extrudable bitumastic material, ½-inch thick.
- D. Reinforcement shall be welded wire fabric conforming to ASTM A185 and CASI Manual of Standard Practice, latest revision.

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2.2 SUBMITTALS

- A. Prior to construction the Contractor shall supply to Construction Manager, for the review and approval of the Engineer, State-approved concrete mix and materials for the proposed sidewalk and paving. The Contractor shall provide written certification to the Construction Manager that the source of the concrete is a State-approved plant and meets the State specifications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The subgrade for all sidewalks and concrete pavement shall be constructed smooth and even and at the prescribed grade. The subgrade shall be shaped and compacted in conformance with the requirements of Section 310000 - Earthwork of these Specifications. In locations inaccessible to large rollers, a mechanical compactor equivalent to a 1-ton walk-behind vibratory roller shall be utilized to compact the subgrade. Care shall be taken such that smooth transitions result in all areas where new sidewalks meet adjacent existing pavements.
- B. Sidewalk shall be of monolithic construction five (5) inches thick unless noted otherwise on the Drawings. The concrete finish shall be made with a wood float, broomed to a neat nonskid surface. Traverse and longitudinal expansion joints, ½-inch wide, shall be provided at intervals of not more than 20 ft and filled with a fibrous, non-extrudable bitumastic joint filler. The top of all joint filler shall be set 1/4 inch below the top of the sidewalk. Transverse surface grooves shall be cut in the sidewalk between expansion joints at even intervals approximately equal to the width of sidewalk. Additional jointing patterns are indicated on the Drawings where applicable.
- C. Concrete shall be cured using a clear or translucent liquid compound which shall be applied immediately following the concrete finishing operation.
- D. Contractor is responsible for protecting concrete sidewalk and paving areas during installation.
- E. Concrete sidewalk and paving areas shall be clean, neat, and free of stains and other markings upon completion.

3.2 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. Testing and Inspecting: The Developer may engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Inspections:
 - 1. Verification of use of required design mixture.
 - 2. Concrete placement, including conveying and depositing.
 - 3. Curing procedures and maintenance of curing temperature.

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4. Continuous inspection is required for placement of concrete. Inspection to include performing slump, air content and temperature measurements of concrete at the time of making specimens for strength tests.
 5. Inspection reports shall be submitted to Developer, Design Consultant and Contractor within 24 hours of inspection.
- C. Concrete Tests: Testing of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
3. Testing Frequency: Obtain two concrete cylinder per delivery truck of concrete mixture.
 4. Slump: ASTM C 143/C 143M; one test at point of placement. Perform additional tests when concrete consistency appears to change.
 5. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 6. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 7. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each sample.
 8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 10. Test results shall be reported in writing to Developer, Design Consultant, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Design Consultant. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Design Consultant. Additional testing, if required, shall be at the contractor's expense.

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12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

END OF SECTION

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CONCRETE CURBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including without limitation all terms and conditions of the Contract, all Drawings, all Specifications, are incorporated into this Section and are part of this Section.

1.2 SECTION INCLUDES

- A. Work shall consist of the construction of full height and depressed Portland Cement concrete curbing at sidewalk/roadway locations and the construction of concrete curbing at sidewalk/grasses or landscaped area locations. Locations and details of each type of curbing are indicated in the Drawings.

1.3 RELATED SECTIONS

- A. Contract drawings and specifications

1.4 REFERENCES

- B. Standards
 1. ASTM C175 - Standard Specifications for Air Entraining Portland Cement.
 2. AASHTO M-213 - Standard Specifications for Preformed bituminous impregnated joint filler.
 3. New Jersey Department of Transportation Standard Specifications for Highway and Bridge Construction (latest edition).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Work and materials shall conform with the New Jersey Department of Transportation Standard Specifications for Highway and Bridge Construction, latest edition.
- B. Concrete shall be White Portland Cement, Type 1 Normal, air entrained 4% to 7% and shall test 4,500 psi (min) compressive strength at 28 days conforming to the standards specified in the NJDOT Standard Specifications for Road and Bridge Construction, latest edition.

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- C. Joint filler shall be 1/2-inch thick, non-extrudable, fibrous bitumastic material.
- D. Subgrade material shall conform to the requirements of Section 310000 - Earthwork of these Specifications.

2.2 SUBMITTALS

- E. Prior to construction the Contractor shall supply to Construction Manager, for the review and approval of the Engineer, State-approved concrete mix, and materials for the proposed curbing. The Contractor shall provide written certification to the Construction Manager that the source of the concrete is a State-approved plant and meets the State specifications.

PART 3 - EXECUTION

3.1 METHOD OF CONSTRUCTION

- A. Portland Cement concrete curb shall be constructed at locations and grades as shown on or may be determined from the Drawings.
- B. Care shall be taken such that smooth transitions result in all areas where new curbs meet existing curbs.
- C. The complete curb shall not vary more than 1/2 inch from plan grade and shall not deviate from line more than 1/4 inch in 10 feet.
- D. Vertical expansion joints shall be located every 10 feet and where curbs abut a concrete surface and shall be 1/2 inch wide.
- E. Concrete shall be placed in forms and rodded to prevent honey combs.
- F. Concrete curbs shall be cured with clear or translucent liquid compound which shall be applied as soon as the concrete has been finished.
- G. Compacted subbase material shall be placed under and around curb as indicated in Section 310000 – Earthwork of these Specifications.
- H. Contractor is responsible for protecting concrete curb during installation.
- I. Concrete curb shall be clean, neat, and free of stains and other markings upon completion.

END OF SECTION