

**CITY OF COLUMBUS, OHIO
DEPARTMENT OF PUBLIC UTILITIES**

SUPPLEMENTAL SPECIFICATION 1600

GREEN INFRASTRUCTURE SUBMITTAL REQUIREMENTS

DATED JANUARY 10, 2020

1600.00	PURPOSE OF THIS SPECIFICATION
1600.01	GI SITE ACTIVITY PLAN SUBMITTAL REQUIREMENTS
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GREEN INFRASTRUCTURE SUBMITTAL REQUIREMENTS

1600.00 Purpose of the Specification. Supplemental Specification 1600 – Green Infrastructure Submittal Requirements is intended to summarize all submittals for procedures, materials, and testing requirements associated with green infrastructure (GI) projects. In the event that a Supplemental Specification for Green Infrastructure conflicts with this Section, then the Supplemental Specification will take precedence. Unless otherwise specified, all submittals shall be provided to the City at least one month prior to delivery of materials to the project site.

1600.01 GI SITE ACTIVITY PLAN SUBMITTAL REQUIREMENTS

1600.01.1 Description. The Site Activity Plan should be submitted and approved prior to commencement of any field activities and should contain a CPM Construction Schedule, a Runoff Management Plan, A Site Access Plan and a Site Utilization Plan.

1600.01.2 CPM Construction Schedule

- A. The Contractor shall submit to the Engineer an Initial/Baseline Construction Schedule within fifteen calendar days from the Notice to Proceed as described in CMSC 108.03.B.1. This schedule shall include the green infrastructure specific items listed in SS 1601.02.
- B. Monthly Progress Update to schedule prior to the 5th of every month per CMSC 108.03.B.3.
- C. In addition to the requirements of CMSC 108.03 the Contractor shall be required on a biweekly basis to provide information of where (citing addresses, intersections) work is anticipated and impacts (water service interruption, closed sidewalk, lane restrictions) for the upcoming 2 week period.

1600.01.3 Runoff Management Plan for Construction of GI Facilities

- A. Method and plan outlining the Contractor's approach to runoff management and the protection of green infrastructure facilities prior to, during, and following construction per SS 1601.03.
- B. Plan to address sedimentation of GI facility per SS 1601.03.

1600.01.4 Site Access Plan

- A. Plan sheet and notes illustrating the Contractor's approach to Site Access for construction related access, non-construction related access, and maintenance of traffic in and around the site per SS 1601.04.
- B. Map showing haul roads for heavy and large equipment access per SS 1601.04. Haul roads that must be located within the footprint of the project shall also include a plan for decompaction of the site.

- C. Description and/or map of material delivery procedures per SS 1601.04. Storage and handling of materials shall be in accordance with CMSC Section 106.

1600.01.5 Site Utilization Plan

- A. Plan sheet and notes illustrating the Contractor's approach to protecting green infrastructure facilities from construction traffic, material storage, and erosion/sedimentation caused by typical construction activity, including:
 - 1. A description of the open excavation protection that will be employed per SS 1601.05.
 - 2. A description of how private property will be protected per SS 1601.05.
 - 3. A description of how trees will be protected and a map showing trees to receive protection per SS 1601.05.
 - 4. A description of how existing structures and utilities will be protected per SS 1601.05.
 - 5. A description of how flow in sewers, drains, and water courses will be maintained during the progress of the work per SS 1601.05.
 - 6. A map showing the location of anticipated material storage, laydown areas, and temporary facilities per SS 1601.05.
 - 7. A description of how stored materials will be protected during the course of the work per SS 1601.05.
 - 8. A description of methods for disposal of materials per SS 1601.05.
 - 9. A description of the equipment and methods used to backfill with specified materials in a manner that does not compact the subgrade or backfill materials of green infrastructure facilities per SS 1601.05.

1600.02 GI EARTHWORK SUBMITTALS

- A. At least one month prior to beginning excavation activities, submit description of equipment and methods that will be used to excavate GI facility and backfill with specified materials in a manner that does not compact the subgrade per SS 1602.03.

1600.03 TREE PROTECTION SUBMITTALS

- A. No submittal requirements are contained in SS 1603.

1600.04 BIORETENTION SOIL SUBMITTALS

- A. Name, address, phone, and contact for each laboratory that will be used to test and/or certify the materials.

- B. Description of the equipment and methods that will be used to mix the aggregate, planting soil, and compost to produce the bioretention soil media.
- C. One month prior to installation of material submit bioretention soil mixture, mulch, sand, topsoil, and bed edging material sources, manufacturer's literature, samples, product data, testing, and laboratory certifications per SS 1604.03.
- D. One month prior to installation of any materials the Contractor must submit documentation of the Contractor's qualifications which are in accordance with SS 1604.05.

1600.05 PERMEABLE PAVEMENT

- A. Manufacturers' Information: Shall include product information, test results within the last two years, installation instructions and MSDS data for the following:
 - 1. Subgrade Stabilization Geotextile
 - 2. Aggregate Sub-base, No. 2 or 4 stone
 - 3. Aggregate Base, No. 57 stone
 - 4. Aggregate Setting Bed
 - 5. Cellular Confinement System
 - 6. Concrete or Clay Pavers

The contractor shall not start work until manufacturers' information and samples have been approved by the Engineer. Quality control tests as applicable shall be submitted to the Engineer within 5 days of the undertaking the respective test.

- B. Samples
 - 1. At the request of the Engineer, Contractor shall submit for approval up to 20 full size samples of each Paver type/size/thickness/color/finish specified on the plans; the samples shall represent the range of shape, texture and color of the respective type for Engineer selection.
 - 2. Minimum 40 lb. sample of each aggregate material for independent testing.
- C. Test Reports for Quality Control: Prior to delivery of the associated material to the site, the Contractor shall submit the following product specific documentation for approval:
 - 1. Subgrade Stabilization Geotextiles:
 - i. Certification: The contractor shall provide to the Engineer a certificate stating the name of the manufacturer, product name, style number, and chemical composition of the filaments or yarns and other pertinent information to fully describe the geotextile. The Certification shall state that the furnished geotextile meets minimum average roll value (MARV)

requirements of the specification as evaluated under the Manufacturer's quality control program. The Certification shall be attested to by a person having legal authority to bind the Manufacturer. Certifications from Private Label distributors will not be accepted.

- ii. Manufacturer Quality Control: Testing shall be performed at an on-site laboratory accredited by GAI-LAP for tests required for the geotextile, at frequency meeting of exceeding ASTM D4354.
- iii. Manufacturer's certifications and testing of quality assurance samples obtained using Procedure B of ASTM D4354. A lot size for conformance or quality assurance sampling shall be the shipment quantity of the given product or a truckload of the given product, whichever is smaller.

2. Aggregates:

- i. Sieve analysis per ASTM C136.
- ii. Resistance to Degradation of Small-Sized and Large-Sized Coarse Aggregates by Abrasion and Impact in the Los Angeles Machine per ASTM C131 and ASTM C535.
- iii. Percentage of angular and sub-angular particles per ASTM D2488.

3. Cellular Confinement System

- i. Manufacturer's product data sheets
- ii. Manufacturer's Certificate of Analysis: Manufacturer shall supply certificate of analysis containing the following test results for the cellular confinement material used for the project: Base Resin Lot Number(s), Resin Density per ASTM D1505, Production Lot Numbers(s), Material Thickness, Short Term Seam Peel Strength, and percentage of Carbon Black.

1600.06 GI ESTABLISHMENT SUBMITTALS

- A. Contractor qualifications per SS 1609.04.
- B. Certifications for new materials and plants that are installed during the Period of Establishment per SS 1609.03.
- C. Material data, testing results, certifications and other submittal data that has been updated or revised since the date of initial submittals as required per SS 1609.03.
- D. List of the anticipated establishment visit dates and total number of visits in accordance with the Applicable Standards defined in SS 1609.
- E. Written maintenance schedule per SS 1609.03.
- F. Monthly report of activities during the previous month describing the information required per CSMC SS 1609.06.

G. In the event that chemical application is the only viable option, the Contractor shall submit a request to the City for approval to apply chemicals that includes the type of chemical to be applied, the application rate, proposed application dates, and procedures in accordance with SS 1609.05.C.

1600.07 GI DESIGN COMPONENT SUBMITTALS

1600.07.1 Description. This work consists of submittal requirements for the installation of components for the use in green infrastructure applications including grates, covers, trench drains, wheel guards, observation wells, utility sleeves, and weirs.

1600.07.2 Submittals. The Contractor shall prepare drawings and submittals when required by the Contract Documents and after verifying applicable field and plan elevations, dimensions, geometries, and conditions.