NOTICE TO BIDDERS

FASHION INSTITUTE OF TECHNOLOGY

CAMPUS WIDE LANDSCAPE MAINTENANCE

IFB # C1235

Bids which must include the entire package for the above work located on the FIT campus will be received by:

FIT Purchasing Department at its office located at 333 Seventh Avenue, 15th Floor, New York, NY 10001 (Tel: 212-217-3630)

Each Bid must be identified, on the outside of the envelope, with the name and address of the Bidder and designated as Bid for the project titled above. When a sealed Bid is placed inside another delivery jacket, the Bid delivery jacket must be clearly marked on the outside:

“BID ENCLOSED TO BE OPENED ONLY BY AUTHORIZED OFFICIAL” and “ATTENTION: WALTER WINTER, PURCHASING OFFICE”, ”C1235”

Fashion Institute of Technology will not be responsible for receipt of Bids, which does not comply with these instructions. Late Bids will be returned unopened.

Only those Bids in the hands of FIT’s Purchasing Office, on or before, 12:00 PM, February 5th will be considered.

Bids shall be publicly opened and read aloud after 12:01 PM in the Purchasing Office at 333 Seventh Ave, 15th Floor, New York City.
ATTACHMENT A

CAMPUS-WIDE LANDSCAPE MAINTENANCE

INVITATION FOR BID NUMBER C1235

BID CHECKLIST

☐ Did you include all required documentation?

☐ Bid Security or Bid Bond not required for this Bid.

☐ Did you complete in full the Bid Analysis Pages?

☐ Did you sign for each addendum received? (If, any were sent out)

☐ Did you complete the Contractor Reference Sheet? (See Attachment B)

☐ Can you provide the required levels of insurance coverage? (As per Contract Terms and Conditions, page 8, I. Insurance Requirements)
FIT requests a minimum of three references for projects of similar size and scope. Please complete the following information for each reference:

1) Contact Name/Title: ______________________________________________________
   Company Name/Address: ______________________________________________________
   Phone Number: ______________________________________________________
   Project: ______________________________________________________
   
   FOR FIT USE ONLY – REFERENCE RESPONSES:
   Project Cost: _________________________________________________________________
   Quality of Work: _____________________  Site Maintenance: _____________________
   Scheduling: _____________________  Safety Standards: _____________________
   Cooperation: _____________________  Report Submittals: _____________________
   Permits: _____________________  Payments: _____________________
   Other Relevant Factors: ______________________________________________________
   Overall Performance Rating: Excellent ___ Satisfactory ___ Marginal ___ Unsatisfactory ___

2) Contact Name/Title: ______________________________________________________
   Company Name/Address: ______________________________________________________
   Phone Number: _____________________________________________________________
   Project: __________________________________________________________________
   
   FOR FIT USE ONLY – REFERENCE RESPONSES:
   Project Cost: _________________________________________________________________
   Quality of Work: _____________________  Site Maintenance: _____________________
   Scheduling: _____________________  Safety Standards: _____________________
   Cooperation: _____________________  Report Submittals: _____________________
   Permits: _____________________  Payments: _____________________
   Other Relevant Factors: ______________________________________________________
   Overall Performance Rating: Excellent ___ Satisfactory ___ Marginal ___ Unsatisfactory ___

3) Contact Name/Title: ______________________________________________________
   Company Name/Address: _____________________________________________________
   Phone Number: ______________________________________________________
   Project: ______________________________________________________
   
   FOR FIT USE ONLY – REFERENCE RESPONSES:
   Project Cost: _________________________________________________________________
   Quality of Work: _____________________  Site Maintenance: _____________________
   Scheduling: _____________________  Safety Standards: _____________________
   Cooperation: _____________________  Report Submittals: _____________________
   Permits: _____________________  Payments: _____________________
   Other Relevant Factors: ______________________________________________________
   Overall Performance Rating: Excellent ___ Satisfactory ___ Marginal ___ Unsatisfactory ___

FIT
Interviewer: _________________________________
(Print Name)
Signature: _________________________________
Date: _________________________________
SPECIFICATIONS FOR  
CAMPUS-WIDE LANDSCAPE MAINTENANCE  

INVITATION FOR BID NUMBER C1235  

I. INTRODUCTION  

The Fashion Institute of Technology (“FIT” or “College”), a community college of art and design, business and technology of the State University of New York, currently has an enrollment of approximately 10,000 full and part-time students. Located in the Chelsea area of Manhattan, FIT’s facilities are composed of a twelve building complex containing administrative/academic offices, classrooms, computer labs, and studios. There are three (3) residence halls located on West 27th Street that currently house approximately 1,250 students and one (1) residence hall located at 406 West 31st Street that houses approximately 1,100 students. One separate not-for-profit corporation were established pursuant to the laws of the State of New York to own and operate these residence halls for the benefit of FIT and its students. Contractor will be required to enter into parallel contracts for the Work at the residence hall buildings and such Contracts will contain the same terms and conditions as this Contract.  

II. SCOPE OF WORK  

A. The work to be done under the Contract, in accordance with the Contract Documents, consists of performing, installing, furnishing and supplying all materials, equipment, accessories, labor and incidentals necessary or convenient for the Campus-Wide Landscape Maintenance project both at grade and on the green roots at the Fashion Institute of Technology and carrying out all of the duties and obligations imposed upon the Contractor by the Contract Documents. Work shall begin on or about the end of March 2015 and go for a period of one year.  

B. Such services shall not include electrical, mechanical, H.V.A.C. and plumbing.  

III. BIDDER REQUIREMENTS  

Bidder shall meet the following requirements and submit necessary information with the Bid. FIT reserves the right to determine whether a Bidder has substantially met all the Bid requirements and to ask for additional information prior to making such a determination.  

A. Bidder shall have been in the Landscape Maintenance business for a minimum of three (3) years immediately prior to the date of this Bid. Submit proof with your Bid.
B. Bidder shall provide a minimum of three (3) references of contracts of similar scope and nature entered into within the past three (3) years. Bidder shall provide the name, title, address and current telephone number of a contact person for each such contract.

C. Bidder shall evidence financial viability by providing financial statements for the prior two (2) years.

D. Bidder shall provide a list of current licenses, certificates, registrations, permits and other authorizations from all governmental entities having jurisdiction over Bidder’s operations under this contract. This shall include a copy of a NYS DEC Licensed Certified Pesticide Applicator and a NYS ICA Arborists and Licensed by NYC Dept. of Parks. Proof of the following certificate will also be requested: 10 Hour OSHA Outreach Training Program.

IV. APPROVAL OF SUBCONTRACTORS

1. Subcontracting shall be permitted for the following type of Services pursuant to Section X, Contract Terms and Conditions:

   - Services to develop, amend and/or upgrade EHS Plan

V. PREVAILING WAGE

Bidders are required to conform to all New York State Prevailing Wage Laws. A copy of the prevailing wage schedule, for New York County, can be found at the New York State Department of Labor website. [www.labor.ny.gov](http://www.labor.ny.gov)

VI. BID DESIGNATION

Bids must be enclosed in sealed envelopes and each Bid shall bear on the outside of the envelope the name of the Bidder, its address, and its telephone number and designated as Bid for the following:

FASHION INSTITUTE OF TECHNOLOGY
CAMPUS-WIDE LANDSCAPE MAINTENANCE – C1235
Due: On or before February 5th, 2015 on or before 12PM

Bids received late will not be considered and will be returned to the bidder unopened. The bidder assumes the risk of any delay in the mail. The bidder further assumes the responsibility for having his bid deposited with an authorized member of Purchasing Office on time, whether be sent by mail courier or personal delivery. No faxed, verbal, emailed or telephone bids will be considered.
VII. **PRE-BID MEETING, SITE INSPECTION AND WRITTEN QUESTIONS**

A mandatory Pre-Bid meeting for prospective Bidders will be held on **January 14th, 2015 at 10:00 AM** at the Fashion Institute of Technology, Building “C” Lobby, Marvin Feldman Center, 27th Street between 7th and 8th Avenues. Failure to attend shall be grounds for rejection of your bid.

Bidder shall examine the Bid Documents carefully. Before bidding, Bidder shall make any requests for interpretation of Bid documents or clarification of any ambiguity therein that should have been detected by a reasonably prudent bidder. Questions shall be submitted in writing to the attention of Purchasing Department via facsimile number 212.217.3631, on or before **January 21st, 2015** by 4:00PM. Answers shall be provided in writing in a timely manner. Reference Bid # C1235.

VIII. **MISCELLANEOUS**

A. FIT reserves the right to request clarifications from bidders for purposes of assuring a full understanding of responsiveness and further reserves the right to permit revisions from all bidders determined to be susceptible to being selected for contract award, prior to award.

B. FIT reserves the right to reject separable portions of any offer, to negotiate terms and conditions consistent with the bid, and to make an award for any or all remaining portions.

C. FIT reserves the right to eliminate mandatory requirements unmet by all bidders.

D. Any additional vendor terms which are attached or referenced with a submission shall not be considered part of the bid or proposal, but shall be deemed included for informational purposes only.

**TECHNICAL SPECIFICATIONS TO FOLLOW**
TECHNICAL SPECIFICATIONS

A. FIT’S EHS PLAN

Contractor shall complete the attached Work-Specific Environment, Health and Safety Plan (“EHS Plan”) which will be reviewed and approved by FIT’s EHS compliance director prior to commencement of Work. Contractor shall include the costs of completing the EHS Plan in the Bid Price.

B. CONTRACTOR’S RESPONSIBILITIES

A. Contractor shall take all measurements, determine material requirements and note conditions at work site in connection with all Work.

B. Contractor shall provide temporary barricades and other forms of protection required to protect FIT property, personnel and the general public. The use of explosives is prohibited.

C. Contractor shall apply for, obtain and pay for all permits, certificates, inspections and approvals required in connection with all Work.

D. Contractor shall perform the following Work:

1. Spring Clean-up
2. Fall Clean-up
3. Construction Waste Management
4. Landscape Maintenance: to include all necessary additional planting, planting materials, watering, cultivation, weeding, pruning, wound dressing, disease and insect pest control, protective spraying, replacement of unacceptable material, straightening of plants which lean or sag, adjustment of plants which settle or are planted too low, and any other procedure consistent with good horticultural practice necessary to ensure normal, vigorous and healthy growth of all plant material as noted in the Landscape Plan.

5. Soil Testing
6. Fertilizing
7. Mulching
8. Filling Sinkholes
9. Seasonal Color Installation
10. Seasonal Color Maintenance
11. Excavation of Plant Material
12. Transplanting
13. Maintenance of All Green Roofs

C. PERIOD OF PERFORMANCE

Contractor shall be required to perform Campus-Wide Landscape Maintenance services from on or about mid-March 2015 for a period of one year on a schedule approved by FIT. (According to prevailing weather.)

D. CONTRACTOR’S REPRESENTATIVE

Contractor shall assign a member of its supervisory staff (“Contractor’s Representative”) to this Contract. Contractor shall provide the name and resume of Contractor’s Representative to FIT at the time of Notice to Commence Performance. FIT shall approve and reserves the right to request a replacement upon reasonable notice. Said Supervisor shall be experienced with a minimum of three (3) years in the type of project scope given. Said Contractor’s Representative shall be available for consultation during normal business hours. Supervisor shall have 10 Hours of OSHA Outreach Training Program.

E. QUALITY ASSURANCE, STANDARDS AND CODES

A. All work and materials specifically and not specifically described that are required for complete and proper roof repair work shall be provided by Contractor and shall be new, first quality of their respective kinds, and subject to approval of FIT.

B. In addition to the above requirements, Contractor shall comply with the New York City Building Code, National Fire Code (N.F.P.A), Local Fire Department Regulations, Local Water Company Rules and Regulations, Occupational Safety and Health Act (OSHA) and other State and Local Authorities having Jurisdiction per requirement of FIT’s work specific EHS Plan.

F. PAYMENT & CERTIFIED PAYROLLS

Contractor shall provide sufficient and appropriate documentation for all invoices to FIT including submittal of invoices for actual cost of materials, signed tickets for additional labor, labor rates and certified payrolls. Filing of such payrolls shall comply with the Labor Law and is a condition precedent to payment. FIT reserves the right to request additional information at any time.
Contractor required to submit Monthly Contractor’s Compliance Form with each Payment Requisition.

Contractor required to submit a Certificate of Monthly Payment Waivers of Lien signed by each Sub-contractor with each Payment Requisition.

G. TERMS AND RENEWALS

A. The term of Contract shall be for one (1) year commencing on or about mid-March 2015.

PROJECT TECHNICAL SPECIFICATIONS AND DRAWINGS TO FOLLOW.
TABLE OF CONTENTS

PROJECT NO. IFB # C1235

PROJECT TITLE Landscape Maintenance
Fashion Institute of Technology

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 10 00 - Summary of Work
Section 01 74 19 - Construction Waste Management

DIVISION 2 – SITEWORK

Section 02 10 00 – General Sitework
Section 02 21 00 – Maintenance of Trees, Shrubs and Groundcovers
Section 02 22 00 - Spring and Fall Clean Up

DIVISION 3 – CONCRETE

None

DIVISION 4 – MASONRY

None

DIVISION 5 – METALS

None

DIVISION 6 - WOOD, PLASTICS, AND COMPOSITES

None

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

None

DIVISION 8 - OPENINGS

None

DIVISION 9 – FINISHES

None

DIVISION 10 – SPECIALTIES

None

DIVISION 11 – EQUIPMENT

None

TOC-1
DIVISION 12 – FURNISHINGS

None

DIVISION 14 – CONVEYING EQUIPMENT

None

DIVISION 21 – FIRE PROTECTION

None

DIVISION 22 – PLUMBING

None

DIVISION 26 – ELECTRICAL

None

DIVISION 27 – COMMUNICATIONS

None

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

None

DIVISION 31 – EARTHWORK

None

DIVISION 32 - EXTERIOR IMPROVEMENTS

Section 32 00 00 – Preservation of Trees and Other Vegetation
Section 32 93 01 – Planting
Section 32 94 01 – Perennials, Annuals, Bulbs
Section 32 95 00 – Green Roof Maintenance
Section 32 96 00 – Transplanting

DIVISION 33 – UTILITIES

None
LIST OF DRAWINGS

GENERAL

Cover Sheet
G-001 Index, Abbreviations, Notes & Symbols

ARCHITECTURAL

L-100 Large Scale Site Construction and Planting Plan
PL-101 Enlarged Planting Plans
PL-102 Enlarged Planting Plan

GREEN ROOF (For Reference Only)

David Dubinsky Student Center (Building A)
A-000.00 Title Sheet
A-001.00 Proposed Roof Plan
A-002.00 Roofing Details
A-003.00 Roofing Details
A-004.00 Green Roof Details & Roof Structural Analysis
A-055.00 Existing Floor Plan

Shirley A. Goodman Resource Center (200 West 27th St)
A-000.01 Title Sheet
A-001.00 Proposed Roof Plan
A-002.00 Key Plan & Bulkhead Elevations
A-001.00 As Built Proposed Roof Plan
SK-3 As Built Proposed Roof Plan

TOC-3
## Bridge Between Goodman and Pomerantz (D/E Bridge)

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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>A-000.00</td>
<td>Site Plan &amp; Notes</td>
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<tr>
<td>A-001.00</td>
<td>Base Bid Legend &amp; Energy Chart</td>
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<tr>
<td>A-002.00</td>
<td>Proposed Roof Plan</td>
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<tr>
<td>A-003.00</td>
<td>Roofing Details</td>
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<td>A-004.00</td>
<td>Roofing Details</td>
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<tr>
<td>A-006.00</td>
<td>Green Roof Details</td>
</tr>
<tr>
<td>A-007.00</td>
<td>Products &amp; Submissions</td>
</tr>
</tbody>
</table>
PART 1   GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The work to be done under the Contract consists of performing, installing, furnishing and supplying all materials, equipment, labor and incidentals necessary or convenient for the maintenance of the referenced project at the Fashion Institute of Technology.

B. The main features of the work is indicated as follows. The attached construction Documents are for reference only to the site.

1.02 PHYSICAL COMPLETION DATE

A. Physically complete the Work within time frame established by the College.

1. The approval of the agreement by the College constitutes notice to the Contractor that a fully executed contract exists between the Contractor and the College.

1.03 EXAMINATION OF PREMISES

A. Discrepancies in Existing Conditions

1. During the process of the Work, should conditions be encountered that materially differ from those shown on the Drawings or indicated in the Specifications, or conditions which could not reasonably have been anticipated, which conditions will materially affect the cost of the Work, such conditions shall immediately be called to the attention of the Landscape Architect, before they are further disturbed. The Landscape Architect will promptly investigate the conditions and if it is found that they do so materially differ, shall issue a clarification.

2. Since the installation of the original design, some plant material has died and been replaced with other species. Some material has died and not been replaced and still others have been transplanted due to overgrowth. Under this contact, the Landscape Maintenance Contractor to make an on-going update of existing plant material as well as annotate any changes to the hardscape. This is to begin in the spring and continue through early summer once all material is accounted for. The contactor will be provided with plans, devoid of all material for mark-up purposes. Mark-ups to be done in the field by hand, noted on the drawing with approximate size of plants. These marked-up plans will be supplied to the Landscape Architect to update the drawings in AutoCadd. During the duration of the contract, should any material be modified due to death, disease or relocation, the Landscape Architect shall be notified and appropriate revisions of plans will be made by the Architect. On-going updated plans will be provided to FIT Facilities for their records.
3. The contractor is responsible for the on-going maintenance of the green roofs as indicated by the attached construction drawings and planting plans. Prior to beginning maintenance an assessment and report to be made by the Contractor, indicating the percentage of plant material requiring replacement.

1.04 CONNECTION TO ELECTRICAL EQUIPMENT OR SYSTEMS

A. Contractor will not be allowed to tie into electrical equipment or systems until the FIT Facilities Management Department has reviewed and approved the connection.

1. Submit written procedures to the FIT Facilities Management Department, detailing how the connection Work is proposed to be performed.

2. After procedures have been approved, notify the FIT Representative at least three working days prior to the connection Work so that arrangements can be made to have a FIT Facilities Management Department Representative Witness the Work.

1.05 CONTRACTOR USE OF PREMISES

A. Comply with the Facility's Visitor Identification Policy. A copy of the current policy will be distributed at the initial job meeting.

B. Work hours shall be as established by the Facilities Department.

C. Check in with the Facility Representative, as directed, at the beginning of each work day. Furnish information regarding where employees will be working during the day and their anticipated number of hours.

D. Comply with applicable Federal and State of New York Right-to-know Law provisions and supply copies of the appropriate Material Safety Data Sheets (MSDS) to the FIT Facility's Safety Director.

E. Do not diminish the level of life safety during performance of the Work.

1.06 REFERENCE SPECIFICATIONS AND STANDARDS

A. Comply with the requirements of the various specifications and standards referred to in these specifications, except where they conflict with the requirement of these specifications. Such reference specifications and standards shall be the date of latest revision in effect at the time of receiving bids, unless the date is given.

1.07 LAYING OUT

A. Examine the Contract Documents thoroughly and promptly report any discrepancies to the Landscape Architect before commencing the Work.
B. Plant replacement or new evergreens between August 15 and September 15 or during April or May before start of new growth.

C. Plant tulip bulbs annually during October 15 – November 15 at the direction of the Landscape Architect.

D. Annuals to be planted at the earliest time in April based upon weather permitting and availability of material, then again in September for fall color.

1.08 CLEANING UP

A. Clean up and containerize the rubbish (refuse, debris, waste materials, and removed materials and equipment) resulting from the Work at the end of each work day and leave work areas broom clean. Locate containerized rubbish where directed.

B. Remove piled rubbish from property at least once a week or more often if the rubbish presents a hazard. Properly dispose of rubbish. Burning of rubbish will not be permitted.

C. Remove spent tulip bulbs once dead headed.

1.09 SUSTAINABILITY REQUIREMENTS

A. The Contractor shall meet sustainability performance and documentation requirements to comply with New York City Local Law 86 of 2005, and to achieve the following objectives: sustainable site use, water use reduction, conservation of energy and resources.

B. Sustainability performance requirements include, but are not limited to: water use reduction, energy conservation, construction waste management.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. This Section includes requirements for Construction Waste Management (CWM), with criteria for recycling and/or salvaging demolition and construction waste generated during the project. A Construction Waste Management Plan shall be developed for approval by the FIT Facilities Department. The Plan shall be implemented throughout the duration of the project, and shall be documented in accordance with the SUBMITTALS Article below.

B. Each Contractor shall supply the means for recycling job site waste. Locations for removal bins or dumpsters shall be coordinated with the FIT Facilities Representative. Following contract award, the Contractor may elect a single entity to act as the construction waste manager.

1.02 PERFORMANCE REQUIREMENTS

A. The Landscape Contractor shall prepare and submit a Construction Waste Management Plan (CWM) to the Facilities Representative for approval. The CWM Plan shall outline the provisions to be implemented to recycle and salvage demolition and construction waste generated during the project.

B. Upon approval of the CWM Plan by the Facilities Representative, it shall be implemented throughout the duration of the project, and documented in accordance with the SUBMITTALS Article below.

C. The Construction Waste Management Plan shall include, but not be limited to, the following components:

1. Listing of Targeted Materials: Develop a list of the waste materials from the Project that will be targeted for reuse, salvage, or recycling. The following materials shall be accounted for (materials that will not be recycled shall be indicated as such):
   a. Cardboard, paper, packaging.
   b. Clean dimensional wood, palette wood.
   c. Beverage containers.
   d. Woods.

2. Landfill Information: Provide the name of the landfill(s) where trash will be disposed of and the applicable landfill tipping fee(s).

3. Sorting Method: Provide a description of the proposed means of sorting and transporting the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or
whether mixed materials will be collected by a waste hauler and removed from the site for off-site sorting).

4. Packaging Waste: Provide an estimate of packaging materials generated, and note whether suppliers will eliminate or take back packaging.

5. Field Conditions: Include provisions in the Construction Waste Management Plan for addressing conditions in the field that do not adhere to the CWM Plan, including provisions to implement a stop work order, or to rectify non-compliant conditions.

6. Recycling facilities: Provide the name of the recycling facilities(s) where materials will be sent for recycling, how it will be recycled, and the applicable fee(s).

7. Additional Information: Include any additional information deemed relevant to describe the scope and intent of the CWM Plan to the Facilities Representative.

8. Subcontractor Requirements: Construction Waste Management and recycling requirements shall be incorporated into all Subcontractor’s contracts.

1.03 SUBMITTALS

A. Submittal Requirements:

1. A copy of the Construction Waste Management Plan, as defined in the PERFORMANCE REQUIREMENTS Article above.

2. In conjunction with payment applications, contractors shall submit a monthly Waste Management submission. This submission shall include waste receipts for the payment period and a completed Waste Management Form for the same payment period.

3. Calculations and supporting documentation to demonstrate end-of-project recycling rates meeting the requirements of the Construction Waste Management Plan. The process for recording and assembling documentation shall be as follows:

   a. Record and document the total weight (in tons) of all demolition and construction waste materials sent to the landfill. Monthly Waste Management Reporting Forms (sample included at the end of this Section identified as Exhibit “A”) shall be used as the basis for determining the total amount of waste landfill for the project. The monthly reporting forms shall specify:

      1) The number of dumpsters or other containers sent to the landfill for that month.

      2) The volume (in cubic yards) of each dumpster or container sent to the landfill for that month.

      3) The type of waste contained in each dumpster or container.
4) The weight of the waste in each dumpster or container. If the weight of the waste is not directly measured for each dumpster or container, the following Solid Waste Conversion Factors shall be used to convert the volume of waste to weight:

<table>
<thead>
<tr>
<th>Solid Weight Conversion Factors</th>
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<tbody>
<tr>
<td>Mixed Waste</td>
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<tr>
<td>Wood</td>
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<tr>
<td>Cardboard</td>
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<tr>
<td>350 lbs/cubic yard</td>
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<tr>
<td>300 lbs/cubic yard</td>
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<tr>
<td>100 lbs/cubic yard</td>
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5) Identification of the landfill. In addition, provide the name of the landfill that will be accepting the materials. Receipts or other proof of facility reception of materials is required.

b. Record and document the total weight (in tons) of all demolition and construction waste materials recycled or salvaged. Monthly Waste Management Reporting Forms shall be used as the basis for determining the total amount of waste recycled or salvaged for the project. The monthly reporting forms shall specify:

1) The number of dumpsters or other containers of recycled or salvaged materials for that month.
2) The volume (in cubic yards) of each dumpster or container of recycled or salvaged materials for that month.
3) The type of recycled or salvaged material contained in each dumpster or container.
4) The weight of the recycled or salvaged material in each dumpster or container. If the weight of the material is not directly measured for each dumpster or container, the Solid Waste Conversion Factors listed for landfill waste above shall be used, where applicable, to convert the volume of material to weight. For materials not contained in the Solid Waste Conversion Factors above propose a conversion factor for review by the Director’s Representative.

5) In addition, provide the name of the receiving facilities/companies that will be purchasing or accepting the recycled or salvaged materials. Receipts or other proof of facility reception of materials is required.

6) For materials separated for recycling off-site, establish a method for tracking the weight of the recycled material. The method shall be included in the CWM Plan for the Director’s Representative review and approval.
c. Calculate the end-of-project recycling rate percentage by dividing the recycled and salvaged waste (in tons) by the total waste generated (recycled, salvaged, and landfilled waste – also in tons), and multiplying by 100.

d. For materials turned over to others for reuse, provide documentation on company letterhead indicating the material(s), the quantity (either by weight or units), the date and the intended reuse of the product.

PART 2 PRODUCTS
(Not Used)

PART 3 EXECUTION

3.01 IMPLEMENTATION

A. The Landscape Contractor shall be responsible for the provision of containers and the removal of all waste, non-returned surplus materials, and rubbish from the site in accordance with the Waste Management Plan. The Landscape Contractor shall oversee and document the results of the Plan. The Sub-Contractors shall be responsible for collecting, sorting, and positing in designated areas, their waste, non-returned surplus materials, and rubbish, as per the Waste Management Plan.

B. Instruction. The General Contractor shall provide on-site instruction of appropriate separation, handling and recycling, salvage, reuse and return methods to be used by all parties in appropriate stages of the Project.

C. Separation Facilities: The General Contractor shall lay out a specific area(s) to facilitate separation of materials for potential recycling, salvage, reuse and return. Each potential material shall be collected and stored to avoid being mixed with other materials. Recycling and waste bin areas are to be kept neat and clean, and clearly marked.

3.02 MEETINGS

A. Conduct Construction Waste Management meetings. Meetings shall include Subcontractors affected by the CWM Plan. At a minimum, waste management goals and issues shall be discussed at the following meetings:
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

3.03 MONTHLY WASTE MANAGEMENT REPORTING FORMS

CONSTRUCTION WASTE MANAGEMENT 01 74 19 - 4
A. Monthly Waste Management Reporting Forms, as required in the SUBMITTALS Article above, shall be submitted to the Facilities Representative and Architect for review throughout the duration of the project.

END OF SECTION
Project Name) (Exhibit “A”)
CONTRACTOR C&D WASTE MANAGEMENT FORM
For Waste Generated On-Site

Company: ____________________________________
Contact: ____________________________________
Phone: ____________________________________

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<th>Material Description</th>
<th>Total Weight</th>
<th>% Reused on-site</th>
<th>% Recycled off-site</th>
<th>% Sent to landfill</th>
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**Reused Material:** Materials that can be reused in their original form without any reprocessing.

**Recycled Material:** Material that would otherwise be destined for landfill but is diverted from the waste stream, reintroduced as material feedstock and reprocessed into new end products, without any reprocessing.
SECTION 02 10 00 - GENERAL SITEWORK

1.0 GENERAL SITEWORK

1.01 SCOPE OF WORK

A. Landscape maintenance shall include all necessary additional seasonal plantings, watering, cultivation, weeding, pruning, wound dressing, disease and insect pest control, protective spraying, replacement of unacceptable material, dividing, transplanting, straightening of plants which lean or sag, adjustment of plants which settle or are planted too low, and any other procedure consistent with good horticultural practice necessary to ensure normal, vigorous and healthy growth of all plant material currently existing or new material at grade or on the rooftops.

B. The Contractor shall provide all materials, labor and equipment required and as necessary to complete all landscape maintenance work as outlined in the contract, which includes the beds and pots on 27th Street and the Green Roofs.

C. The Contractor shall be familiar with each landscaped area at the site and roofs, and how the existing condition will affect his/her work.

D. All work shall be performed from 9:00 am - 5:00 pm on Monday through Friday. Alternate hours and weekend work is permissible upon coordination with the FIT Facilities Department.

1.02 STANDARDS

A. All landscape maintenance services shall be performed by trained personnel using current, acceptable horticultural practices.

B. All work shall be performed in a manner which maintains the original intent of the landscape design.

C. All chemical applications shall be performed in accordance with City of New York, State of New York, and federal laws, utilizing Environmental Protection Agency (EPA) registered materials and methods of application. These applications shall be performed under the supervision of a NTSDEC Licensed Certified Applicator. Copies of licenses must be provided to the FIT Facilities Department.

1.03 APPROVALS

A. Any work performed in addition to that which is outlined in this specification shall only be done upon written approval by the Owner.
B. All seasonal color, plants and selections, if not originally approved by the Landscape Architect shall be approved by the owner prior to ordering and installation.

C. Any damage to the landscape, irrigation system, structures, walkways, on-ground lighting, stone walls, fences, and other amenities caused by the Contractor will be repaired by the contractor without charge to the Owner. There shall be no damage to any areas contiguous to work areas. The Contractor shall repair any damage caused by its crews and shall be responsible for any personal property of the Owner or Owner's patrons damaged or unlawfully removed by its crews.

D. The Contractor shall make every effort to maintain the health and growth of all plant material. The Contractor shall be responsible to guarantee new plant material for a period of one year. If the Contractor is obviously negligent in the performance of his/her work as outlined in the bid, he/she will be responsible for full replacement.

E. The Contractor shall protect his/her work, materials, and equipment on the job and is responsible for any and all damage to its work by reason of negligence, carelessness, and any cause whatsoever, until the contract is completed and has been accepted by the Owner and the Owner shall not be responsible for any loss of damage thereto.

1.04 SOIL TESTING

A. Contractor, at a minimum, shall perform one soil test initially, in each bed on grade and in each of the tree pots to determine the proper amount and type of fertilizer to apply to all planting beds depending upon plant material type.

B. Contractor shall perform soil tests as needed or at the request of the Owner's representative to identify nutrient imbalances or deficiencies causing plant material decline. The Owner and Landscape Architect shall be notified of the recommendations prior to approval. All necessary corrections to be made at an additional cost to the Owner.

1.05 PRODUCTS

A. Pesticides, fertilizers, lime, etc. used in landscape maintenance operations shall be selected based on the most current information provided by the Cornell University Cooperative Extension and the New York State Department of Environmental Conservation and currently labeled by the EPA for its proposed use.

B. All replacement plant material shall be nursery grown, balled and burlapped or containerized. No bare root material shall be used as replacement plant material. If burlapped, burlap to be cut down by 1/3 of the ball prior to planting.

C. All plant material shall meet the American Standard for Nursery Stock (Ansi Z60.1) published by the American Association of nurserymen, Washington D.C.
D. All chemical applications shall be performed in accordance with current State of New York and City of New York laws utilizing EPA registered materials and methods of application MEA product data must be submitted to the Landscape Architect and the FIT Safety Director, prior to use.

1.06 WORKMANSHIP

A. During landscape maintenance operations, all areas shall be kept neat and clean. Precautions shall be taken to avoid damage to existing structures including but not limited to building structures, signage, sidewalks, stone walls, and fences. All work shall be performed in a safe manner to the operators, any pedestrians and occupants at adjacent landscaped areas. Precautionary cones and tape to be used for protection of pedestrians.

B. The Contractor shall at all times keep the premises free from accumulation of waste material, debris, and rubbish and at the completion of each work day and of the work, contractor shall remove from the premises all debris, rubbish, implements, equipment and surplus material and shall leave the buildings and property broom clean or its equivalent. All waste material shall be disposed of properly and at a facility permitted by the City or State to take such waste material.

C. Any damage to the landscape, irrigation system, structures, walks, stone walls, fences and other amenities caused by the Contractor will be repaired by the Contractor without charge to the Owner. Contractor shall repair any damage caused by its crews to any areas contiguous to work areas and shall be responsible for any personal property of the Owner or Owner's patrons damaged or unlawfully removed by its crews.

D. The Contractor shall make every effort to maintain the health and growth of all plant material. The Contractor shall be responsible to guarantee a new plant material for a period of one year. If the Contractor is obviously negligent in the performance of his/her work as outlined in the bid, he/she will be responsible for full replacement.

E. The Contractor shall protect his/her work, materials, and equipment on the job and is responsible for any and all damage to its work for reason of negligence, carelessness, and any cause whatsoever, until the contract is completed and has been accepted by the Owner and the Owner shall not be responsible for any loss of damage thereto.

1.07 CONTRACTOR'S EMPLOYEES

A. Contractor represents that every member of its crews working at the job site shall be a fully qualified employee of the Contractor experienced and/or properly trained in landscape maintenance.

B. Pesticide applications shall be performed under the supervision of a NYSDEC Licensed Certified Pesticide Applicator. Contractor to provide licenses to the
Landscape Architect and the FIT Safety Director for their record. Any and all Contractor's employees shall be properly trained, licensed, and certified to handle and apply such chemicals. The employees shall conduct themselves properly on-site with respect to the students, faculty and administration.

C. All Contractor's employee's operating any vehicle shall be properly trained and licensed to operate such vehicle or machinery in accordance with all State and local codes and laws.

D. The Contractor shall not award any work to any subcontractor without prior written approval of the Owner. The approval will not be given until the contractor submits a written statement containing such information as the Owner may require concerning the proposed subcontractor, such as the scope of the subcontract, together with any other information and affidavits that the Owner may request.

1.08 SCHEDULE

A. At the start of the Contract the Contractor will provide a detailed schedule to the Owner and Landscape Architect, for their approval, outlining dates that include but are not limited to: Maintenance visits, pruning, fertilizing, planting, transplanting and all work included within the Contract, both at grade and on the roof tops.

1.09 INSPECTION

A. The Owner, Landscape Architect and the Contractor shall have a bi-weekly walk-through of the site from the beginning of the contract through November 15, 2015. During the walk-through, plant health, pruning, spacing, planting and any items outlined within the specification can be discussed and direction for corrective measures will be given to the Contractor.
PART I- GENERAL

1.01 SPRING CLEAN-UP

A. Contractor shall take inventory of all planting beds and planters for existing conditions at time of spring clean-up.

B. Beds, sidewalks and patios shall be raked and swept for the removal of leaves, broken branches and other debris having accumulated over the winter months.

C. All herbaceous perennials shall be cut back to the ground to allow new growth to freely develop.

D. Contractor shall take care to examine all ornamental trees and all shrubs for broken or damaged branches as a result of winter winds, ice and snow. Contractor shall pay particular attention to trees over walks and sitting areas for hangers and dead wood which may present a danger to pedestrians and occupants of sitting areas and commonly used outdoor spaces. Damaged branches, hangers, and dead wood shall be removed from trees. Damaged branches and dead canes shall be removed from shrubs.

E. Dead trees, shrubs and ground cover shall be removed as required or as directed by the Owner or Landscape Architect. Any removals shall be approved and/or immediately reported to the Owner or Owner's Representative and annotated on the planting plan.

F. All beds shall be mulched in early spring with black bark mulch. Perennial areas shall be mulched to a depth of 1 1/2 to 2" taking care not to cover or obstruct existing groundcovers. All tree and shrub areas shall be prepared and mulched to a depth of 1 1/2 to 2". Bed preparation shall include removing all weeds, cleaning up said bed, edging and cultivating decayed mulch into the soil. Debris from edging shall be removed from beds and the areas swept clean. Caution shall be taken to avoid flying debris. Safety glasses shall be worn during this operation.

G. Beds shall be kept free of weeds through the spring. Pre-emergent (soil applied) and post-emergent (foliar applied) herbicides shall be used where and when applicable and in accordance with the product's label.

H. For spring maintenance of bulbs and seasonal color displays, see Section 32 93 02.

1.02 FALL CLEAN-UP

A. All trees and shrubs shall be examined for damaged and dying branches which shall be promptly removed. Contractor shall pay particular attention to trees over walks and sitting areas for hangers and dead wood which may present a danger to pedestrians and occupants of sitting and commonly used outdoor areas.
Damaged branches, hangers, and dead wood shall be removed from trees. Damaged branches and dead canes shall be removed from shrubs.

B. All fallen leaves shall be removed from beds, walks, and patio areas. Leaves shall be removed as necessary from beds until all leaves have fallen from trees. Contractor shall pay particular attention to leaves along pedestrian ways and those that may collect at catch basins and drains to insure proper basin function.

C. All fallen leaves shall be removed from the site once in October, twice in November and once in December. If requested by Owner, supplemental leaf removals shall be performed by the Landscape Contractor at an additional cost to the Owner.

1.03 PRUNING

A. All trees, shrubs, and groundcover shall be pruned when appropriate and or necessary to remove dead or damaged branches, develop the natural form of the plant and create the effect intended by the designer. Except for desired hedges, or to conform to design intent, all pruning and thinning of plants shall be done to retain their natural shapes.

B. Pruning Guidelines
   1. Prune plants that flower before the end of June immediately after flowering. Flower buds develop during the previous growing season, so that fall, winter or spring pruning would reduce the spring flowering of the plant.
   2. Prune plants that flower in summer or autumn in winter or spring before new growth begins, since these plants develop flowers on new growth.
   3. Delay pruning plants grown for ornamental fruits such as viburnums.
   4. Any severe pruning of evergreens should be done in early spring.
   5. Broadleaf evergreen shrubs shall be hand pruned to maintain their natural appearance after the new growth hardens off.
   6. Hedges or shrubs which require shearing to maintain a formal appearance shall be pruned as required. Dead wood shall be removed from sheared plants before the first shearing of the season.
   7. Groundcover shall be edged and pruned as needed to contain them within their borders.
   8. Thinning: Remove branches and water sprouts by cutting them back to their point of origin on parent stems. This method will result in a more open plan, without stimulating excessive growth.
   9. Renewal Pruning: Remove oldest branches or canes of shrub at ground, leaving the younger more vigorous branches. Remove weak stems. On overgrown plants, this method may best be done over a three year period. Renewal pruning may be used on most deciduous shrubs.
   10. Ground cover shall be trimmed twice 92) per season.
1.04 ARBORIST

A. The monitoring and care of existing trees shall be done by a licensed Arborist with a NYS ISA certification and recognized as a tree surgery or pruning specialist with five (5) years experience. Verification of license and qualifications shall be submitted to the Owner and Landscape Architect for review and approval.

B. The Contractor shall ensure that all personnel are trained on the latest and proper techniques of tree care and pruning, utilizing the proper tools in a good workmanlike manner and employing all safety measures for personnel and nearby pedestrians and occupants while on the job.

C. Pruning in general shall consist of cutting back and removal of all dead wood, broken, fungus and insect-infected, superfluous or intertwining branches; dead or decaying stubs, suckers and removal of all other undesirable growth from one-half inch (9/16") in diameter and over as directed by the Landscape Architect. All injured areas of a tree where healing is not taking place properly shall be treated in accordance with acceptable horticultural practices.

D. The Contractor shall carefully project against damage to all existing trees, and other plant material and site amenities. He shall be liable for any and all damage to property, vehicles, caused by tree pruning operations. All damaged trees or other plant material, site amenities, or vehicles shall be replaced or restored to their original condition to the satisfaction of the Owner and Landscape Architect.

1.05 ARBORIST PRUNING TECHNIQUES

A. All cuts shall be made sufficiently close to the parent stem so that healing can readily start under normal conditions. The Contractor shall precut limbs over one (1) inch in diameter to prevent splitting. Where possible all pruning shall be done to a lateral branch (drop-crotch pruning). Contractor shall be careful not to leave stubs.

B. When pruning, attention shall be given to symmetrical appearance. Top is to be higher and sides reduced in order to maintain a tree-like form and be typical of their species.

C. If the Contractor is pruning a tree to compensate for root damage as a result of excavation that impacted the root system, not more than one-third of the total area should be reduced at a single operation.

D. In lifting the bottom branches of trees for under clearance, care should be given to symmetrical appearance and cuts not made that they will prevent normal sap flow. All branches shall be removed to a height sufficient to permit free passage of pedestrians and occupants as well as vehicular traffic, as directed by the Owner and/or Landscape Architect.
E. Remove all crossed or rubbing branches where practicable so the removal will not leave large holes in the general outline of the tree.

F. All pruned material and all other debris and waste shall be removed from the site upon completion of the site visit and disposed of at a properly permitted waste and/or recycling facility.

G. Contractor shall examine trees for disease and insects and provide treatment as necessary, at an additional cost to the Owner.

1.06 FERTILIZING

A. For trees, the rate of fertilization depends on the tree species, tree vigor, area available for fertilization and growth stage of the tree. Mature trees benefit from fertilization every three to four years; younger trees shall be fertilized more often during rapid growth stages. Upon award of contract, Contractor shall develop a fertilization plan dependent upon an inventory and condition of the trees. A soil sample shall be taken around any poorly growing trees at time of awarded contract and the results shall be reviewed with the Owner and Owner's Representative.

B. The Contractor shall protect his/her work, materials, and equipment on the job and is responsible for any and all damage to its work for reason of negligence, carelessness, and any cause whatsoever, until the contract is completed and has been accepted by the Owner and the Owner shall not be responsible for any loss of damage thereto.

1.07 MULCHING

A. All tree and shrub beds will be prepared and mulched, with black bark mulch, where necessary to a depth of 1 1/2 to 2" annually with quality mulch made from clean wood waste; no treated wood shall have been used to manufacture the mulch. Bed preparation before mulching shall include removing all weeds, cleaning up said bed, edging and cultivating decayed mulch into the soil. Debris from edging is to be removed from beds and disposed of properly. If deemed necessary or practical, a pre-emergent (soil applied) herbicide may be applied to the soil to inhibit the growth of future weeds.

B. Mulch in excess of 2" will be removed from bed areas. Contractor shall take special care in mulching operations not to over mulch or cover the base of trees and shrubs or cover over groundcovers. Mulch shall carefully be worked in between leaders and foliage of groundcover to keep leaders and foliage exposed.

1.08 WEEDING

A. All beds shall be weeded on a continuous basis throughout the growing season to maintain a neat appearance at all times.
B. Pre-emergent (soil applied) or post-emergent (foliar applied) herbicide shall be used where and when applicable and in accordance with the product's label.

1.09 WATERING

A. The site has an irrigation system, and the Contractor shall be responsible to monitor its effectiveness and report any deficiencies to the Owner.

B. Contractor shall not be responsible for any hand-watering of trees, shrubs or groundcover except at the time new plantings are being added.

C. Contractor to provide instructions to the FIT Maintenance crew regarding watering material that should occur outside of Contractor's site visits.

1.10 INSECT AND DISEASE CONTROL: TREES, SHRUBS AND GROUNDCOVER

A. Contractor shall be responsible for monitoring the landscape site on a regular basis. The monitoring frequency shall be once every week. This does not include the maintenance and planting as aforementioned and defined. Trained personnel shall monitor for plant damaging insect activity, plant pathogenic diseases and potential cultural problems in the landscape. The pest or cultural problem will be identified under the supervision of the Contractor.

B. Plant pathogenic disease problems identified by the Contractor that can be resolved by pruning or physical removal of damaged plant parts will be performed as part of the contract. For an additional fee, plant pathogenic diseases that can be resolved through properly timed applications of fungicides shall be made when the Owner authorizes same. If the Contractor notes an especially insect or disease prone plant species in the landscape, he/she will suggest and seek approval from the Owner or the Owner's Representative, immediate removal replacement with a more pest resistant cultivar or species that is consistent with the intent of the landscape design.

C. If required, the Contractor shall propose, or work within an existing, integrated pest management (IPM) approach that seeks to use natural or biological substances or those that are the least toxic to human and other non-target organisms focusing on long-term prevention or suppression of pest problems with minimum impact on human health and the environment.

D. An Integrated Pest management (IPM) program shall be developed using the latest guidance and recommendations coming from the New York State IPM program at Cornell University, New York State Agricultural Experiment Station. Contractor shall abide by all guidance and regulatory requirements of the City of New York, Department of health and the Department of Environmental Protection.
END OF SECTION
SECTION 02 10 00 - SPRING AND FALL CLEAN UP

1.0 GENERAL SERVICES AND PERIODIC CLEANING

1.01 LITTER

A. Planting beds, sidewalks, plaza area and fence lines shall be cleared of any visible debris from landscaping or litter during the weekly or bi-weekly visits.

B. The Contractor shall be responsible for cleanup of debris caused by normal seasonal wind and thunderstorms or branches breaking during ice and snow storms.

C. Landscape debris generated by the service visit shall be blown-off or swept and removed at each scheduled visit.

1.02 LEAF REMOVAL

A. Leaves shall be removed from the beds during regular service visits during the growing season.

B. During the prominent leaf drop season, leaves shall be removed from beds and paved areas during each regular service visit.

C. Leaves shall be removed from the site and legally disposed.

1.03 SPRING CLEAN UP

A. In regions where landscape services are interrupted between the fall and the spring, extra time is required to clean up landscape debris that has accumulated during the winter.

B. Weather conditions permitting, Contractor shall perform a spring clean-up during the first week of April to include:

1. Sweep or blow all walkways
2. Pick up and remove all branches, twigs, leaves and debris that collected through the winter.
3. Clean and rake out all beds
4. Turn mulch (not soil) in planting beds prior to first plantings of the spring.
5. Spring clean up is to be completed as soon as weather and ground conditions permit.
6. Pre-emergent herbicides in a brand name appropriate to plant species shall be used in tree pits and shrub beds. Follow-up applications shall be used as required.
7. Trees, shrubs and ground covers shall be fertilized once in the spring with a balanced commercial blend fertilizer.

1.04 FALL CLEAN UP

A. Contractor shall perform a fall clean-up and keep pace with defoliation and continue to perform the following until all foliage has dropped from the trees.

1. Clean and rake out all beds
2. Remove all dead foliage, rake leaves, remove branches and other debris from premises.
3. Sweeping and blowing of sidewalks as required to keep the area free from landscape debris.
SECTION 32 00 00 – PRESERVATION OF TREES AND OTHER VEGETATION

PART 1  GENERAL

1.01 DESCRIPTION

This item shall govern the proper care and treatment of all trees and other vegetation in the vicinity of any development activity.

1.02 SUBMITTALS

The submittal requirements for this specification item shall include:

A. Identification of the location, type of protective fencing (i.e. A or B), materials of construction and installation details, if a tree requires transplanting, removal or other construction activities take place near a tree.

B. Proposed tree dressing.

1.03 MATERIALS

A. Protective Fencing

Protective Fencing is designated as the materials used to protect the root zones of trees. Two basic types of protective fencing materials are allowed. Type A is typical application and shall be installed where damage potential to a tree root system is high, while Type B shall be installed where damage potential is minimal. The specific type of protective fencing for the work shall be as indicated by the Architect in the field.

1. Type B Wood Fence (Typical Application-high potential damage)
   Type B protective fencing shall be installed and shall consist of any vertical planking attached to 2x4-inch (50 x 100 mm) horizontal stringers which are supported by 2x4-inch (50 x 100 mm) intermediate vertical supports and a 4x4-inch (100 x 100mm) at every fourth vertical support.

2. Type B Other Materials (Limited Application-minimum potential damage)
   The following materials may be permitted as alternates for limited or temporary applications (3 days or less) where tree damage potential is minimal.
   a. High visibility plastic construction fencing.
      The fabric shall be 4 feet (1.2 meters) in width and made in high density polyethylene resin, extruded and stretched to provide a highly visible international orange, non-fading fence. The fabric shall remain flexible from -60°F to 200°F (-16°C TO 93°C) and shall be inert to most chemicals and acid. The fabric pattern may vary from diamond to circular with a minimum unit weight of 0.4 lbs./Ft/ (0.6 kilograms per meter)
      The fabric shall have a 4 foot (1.2 meter) width minimum tensile yield strength (Horizontal) of 2000 psi [13.9 megaPascals], ultimate tensile strength 2680 psi [18.5 megaPascals] (Horizontal) and a maximum opening no greater than 2 inches (50 mm)
   b. Other approved equivalent restraining material.
The fencing materials, identified in (a) and (b) above, shall be supported by steel pipe, tee posts, U posts 2” x 4” (50 mm x 100 mm) timber posts that are a minimum of 5-1/2 feet (1.68 meters) in height and spaced no more than 8 feet (2.44 meters) on centers. The fabric shall be secured to posts by bands or wire ties.

B. Tree Dressing

Tree dressing of any damaged areas shall be accomplished using any approved asphaltic tree wound paint, immediately after damage occurs.

1.04 CONSTRUCTION METHODS

A. Protective Fencing

All trees and shrubs in the proximity of any construction areas shall be carefully checked for damage prior to initiation of any development activity. All individual trees, shrubs, and natural areas scheduled for preservation shall be protected during construction with temporary fencing. Protective fences (section 610S.3.A) shall be installed prior to the start of any site preparation work (clearing, grubbing, or grading), and shall be maintained in functioning condition throughout all phases of the construction project. Protective fence locations in close proximity to intersection streets or drives shall adhere to the sight distance and desirable sight triangle.

1. Protective fences shall be constructed at the locations (typically the outer limits of the Critical Root Zone) and with materials indicated on the Drawings to prevent the flowing:
   a. Soil compaction in the root zone area resulting from vehicular traffic to storage of equipment or materials.
   b. Root zone disturbances due to grade changes [greater than 6” (150 mm) cut or fill] or trenching not reviewed and authorized by the Architect.
   c. Damage to exposed roots, trunks or limbs by mechanical equipment.
   d. Other activities detrimental to trees such as chemical storage, concrete trunk cleaning, and fires.

2. Exceptions to the installation of protective fences at the tree drip lines may be permitted in the following cases:
   a. Where there is to be an approved grade change, tree well, or other such site development, the fence shall be erected approximately 2 to 4 feet (0.6 to 1.2 meters) beyond the area of disturbance.
   b. When trees are located close to a proposed building or other construction activity, the fence shall be erected to allow 6 to 10 feet (1.8 to 3 meters) work space between the fence and the structure and apply organic mulch to a depth of four (4) to six (6) inches [100 to 150 mm] in the unprotected root zone area.
   c. When there are street-side pedestrian walkways, fences shall be constructed in a manner that does not obstruct safe passage.
   d. When there are severe space constraints due to tract size or other special requirements, the Contractor shall contact the Architect to discuss alternative. When any of the exceptions listed above will result in a fence being located closer than five (5) feet (1.5 meters) to a tree trunk, the Contractor shall also
protect the trunk with strapped-on planking to a height of 8 feet [2.4 meters] (or to the limits of lower branching) in addition to the reduced fencing required.

B. Repair to Damage

Tree roots scarred by equipment shall be cut cleanly and covered with topsoil. When tree roots are pruned, a comparable portion of selected branches shall be cut from the tree on the opposite side. Limb pruning shall be made at the branch collar. All limbs greater than 1 inch (25mm) in diameter shall be precut in accordance with ANSI 300 pruning methods to prevent splitting. All cut limbs shall be treated with an approved tree dressing. Tools shall be disinfected with alcohol or 5 ppm chlorine solution between repairs to trees to prevent the transmission of diseases from one tree to another. All trees damaged during construction shall receive an application of fertilizer within a drip line at the rate of 4 pounds per caliper inch (.07 kilograms per caliper mm).

C. Tree Removal

Any trees which are indicated for removal or which may interfere with the construction shall be removed subject to the approval of the Architect. When a tree or shrub is scheduled for removal, after the removal, soil shall be placed in the hole to a depth matching the existing grade. The tree shall be cut into sections that can be managed, removed from the site and improvements and vegetation in the work area will begin. All damage resulting from tree removal or pruning shall be repaired at the Contractor’s own expense.

D. Final Clean-up

All temporary tree and shrub preservation and protection measures shall be removed when any construction has been completed.

END OF SECTION
SECTION 32 93 01 - PLANTING

PART 1  GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Transplanting: Section 32 96 00

1.02 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature.


1.03 SUBMITTALS

A. List of Plants: Before plant material is shipped to the project site, submit a complete itemized list of all plants including the source of supply.

B. Product Data: Furnish the following with each planting material delivery.
   1. Invoice indicating sizes and variety of plant material.
   2. Labels for each plant or bundles of plants indicating name and size.

1.04 QUALITY ASSURANCE

A. Worker’s Qualifications: The persons performing the planting and their supervisor shall be personally experienced in the planting and caring of plant material and shall have been regularly employed by a company engaged in the planting and caring of plant material for a minimum of 3 years.

B. Caliper trees up to 4 inches in caliber at a point 6 inches above ground and trees over 4 inches in caliber 12 inches above ground.

C. Do not use woody plant material from regions south of latitude 39 degrees unless such material has been lined out in nurseries located north of latitude 39 degrees for at least 2 growing seasons. Latitude 39 degrees is approximately a line from Annapolis, MD to Cincinnati, OH.

1.05 DELIVERY, STORAGE AND HANDLING

A. Notify the Architect 48 hours in advance of delivery of plant material.

B. Protect plants against climatic and mechanical injuries.
C. Deliver fertilizer in manufacturer’s standard sized bags showing weight, analysis, and manufacturer’s name. Store under a waterproof cover or in a dry place as designated by the Facility.

1.06 PROJECT CONDITIONS

A. Water will be furnished by FIT from existing hose bibs as directed. Furnish hoses and connections required to adequately water plants.

1.07 SCHEDULING

A. Plant deciduous, woody plants between October 1 and May 15 whenever temperature is above 32 degrees F and soil is in workable condition, unless otherwise approved in writing by Architect.

B. Plant evergreens between August 15 and September 15 or during April or May before start of new growth.

1.08 PLANTING GUARANTEE

A. The guarantee shall extend for a period of one year from the date of physical completion. Physical completion for the Work of this Section is the date or dates when all the planting operations, or seasonal portions of the planting operations, or replacement planting operations have been completed and are accepted by the Architect.

PART 2 PRODUCTS

2.01 PLANTS

A. Shrubs and Trees:
   1. Nursery grown stock unless otherwise indicated in the itemized plant list.
   2. Acclimated plants true to genus and species.
   3. Well developed root and branch systems. Do not prune branches before delivery.
   4. Free of disease, insect eggs, bark abrasions, and disfiguring knots.
   5. Buds intact and reasonably closed at time of planting.
   6. Balled and burlapped from soil which will hold a natural ball. Manufactured balls are unacceptable.
   7. Conform to size indicated or larger, or within the minimum maximum size when so indicated. Larger plants cut back to specified dimensions will not be accepted.

B. Trees:
   1. Single erect leader from ground to top, surrounded with uniformly arranged branches.
   2. Free from frost cracks, broken bark, and dead or broken branches.
3. Transplanted, or root pruned 360 degrees at least once during the previous 3 years.

2.02 PLANTING SOIL

A. Topsoil for Planting Soil: Obtain from outside sources.

B. Soil Amendments (For every 4 cu yd of topsoil):
   1. Peat Moss: 7-1/2 cu ft bale or 15 bushels (loose measure).
   2. Fertilizer: 5 lb.

C. In the presence of the Architect, place the soil amendments over the topsoil piles and turn over the combined elements a minimum of 3 times until thoroughly mixed.

2.03 FERTILIZER

A. Bonemeal: Commercial, steamed finely ground material containing not less than 1.0 percent nitrogen and 11 percent phosphoric acid.

B. Commercial Fertilizer (10-6-4): Containing not less than 10 percent nitrogen, 6 percent available phosphoric acid and 4 percent water soluble potash.

2.04 MULCH

A. Wood Chips: Hardwood or softwood chips produced by a standard wood chipping machine, free of leaves, young green growth, wood shavings, sawdust, or any foreign material. Chips shall not exceed 3 inches in greatest dimension.

B. Black Shredded Mulch: Wood fiber produced from either hardwood or softwood trees, free of tannic acid, leaves, young green growth, wood shavings, sawdust or other objectionable foreign material.

2.05 MISCELLANEOUS MATERIALS

A. Stakes, Deadmen and Guy Stakes: Sound, durable White or Red Cedar, or other approved wood, free of insect or fungus infestation.

B. Guy Wire or Cable: No. 12 galvanized iron wire or cable.

C. Tree Wrapping: 4 inch wide strips of waterproof paper 30-30-30 Krinklecraft by Eaton Brothers Corp., P.O. Box 60, Hamburg, NY 14075, (800) 433-3244.

D. Protective Hose: 2-ply garden hose cut to required lengths to protect tree trunk’s from damage by wires.
E. Tree Wound Paint: Antiseptic, waterproof, adhesive, elastic tree wound paint containing no kerosene, coal tar, creosote, or other material harmful to cambium or living tissue.

F. Anti-desiccants: Wilt-Pruf by Wilt-Pruf Products, Inc., P.O. Box 469, Essex, CT 06426, (203) 767-7033.

G. All miscellaneous material listed herewith will be the cost responsibility of the Contractor.

PART 3 EXECUTION

3.01 INSPECTION

A. Do not plant any plant material until after inspection and approval by Architect. Secure written approval of any substitutions before planting. Remove rejected material from planting areas.

3.02 PREPARATION

A. Planting Layout:
   1. Stake out tree locations and planting areas.
   2. Obtain layout approval from the Architect prior to excavations of plant pits and beds.

B. Plant Pit Dimensions: Minimum width 12 inches, measured at the ground surface.
   1. Balled and Burlapped Plants:
      a. Pit Depth: Not to exceed the ball depth.
      b. Pit Width: Measured at the ground surface, 3 times the width of the ball or as indicated.
   2. Container Grown Plants: 2 times the diameter of the container measured at the ground surface.
   3. Ground Cover Beds: Excavate entire bed to a depth of 6 inches.
   4. Bare Root Plants: Diameter equal to width of roots spread to natural position plus 24 inches, measured at the ground surface.
   5. Hedge Trenches: 18 inches wide and 18 inches deep.

C. Excavation: Excavate pits to the dimensions specified. Dispose of excavated material of the site unless otherwise directed.

3.03 PLANTING

A. Setting Plants:
   1. Backfill pits with planting soil and firm to the level upon which plants were previously growing. Set plants plumb. Plant budded or grafted plants 2 inches below bud or graft line. Complete backfilling with planting soil and settle continually with water.
2. Balled Plants: Set plants in position and backfill 1/3 depth of ball. Remove burlap from top and adjust to eliminate air pockets. Complete backfill and settle with water.

3. Bare-root Plants: Set plant in position and place planting soil around roots settling with water. Use care to avoid bruising or breaking roots when firming soil. Prune bruised or broken roots.

B. Wrapping: Wrap deciduous trees within 4 days after planting from the ground line to the height of the second branches. Wrap in a single layer wound spirally starting from base and overlapping 1-1/2 inches. Secure wrapping in place by use of approved staples or other approved methods and materials.

C. Staking: Set tree stakes into solid ground below bottom of roots before backfilling. Place stakes at the outer edge of the roots or ball in line with the prevailing wind at a 10 degree angle from the tree trunk.

D. Anti-Desiccant: Apply anti-desiccant spray to broadleaved ericaceous plants planted in the Fall season, as directed.

E. Surface Finish: Form saucer at grade soil line to form a basin on lower side of slope plantings, which will catch and retain water. Top dress basins with fertilizer spread evenly at the rate of 1-1/2 pounds per square yard of plant pit surface. Break saucers and basins before ground freezes.

F. Mulching:
   1. Spread mulch over finished surface of each plant, plant bed and hedge trench in the following amounts:
      a. Wood Chips: 3 inches.
      b. Shredded Wood: 2 inches.
   2. Water plants thoroughly after mulching.

G. Pruning: Prune immediately after planting using sharp tools approved by the Architect. Remove approximately 1/3 of the wood of deciduous plants, maintaining the natural habit of the plant. Cut no leaders. Paint pruning cuts 3 inches in diameter or over with tree wound paint.

H. Guying: Guy deciduous trees 4 inches and over in caliber; trees over 6 feet high with 3 or more stems; and evergreens 6 feet or over in height, with 3 guys immediately after planting. Attach guys to stakes and trees as indicated. Connect multi-stem trees with protected connecting wires maintaining each stems relationship to one another.

I. Establishment of Planting: Maintain plantings immediately following planting operations and continue throughout the guarantee period. Establishment of plantings shall consist of keeping plants in healthy, growing conditions by watering, weeding, cultivating, pruning, spraying, tightening of guys, remulching and by any other necessary operations of establishment. Water all plants at least once a week between April 1 and October 31 with approximately 5 gallons per square yard (1 inch layer of water) per watering unless otherwise directed.
Provide additional watering during periods of dry weather when required or when directed. Treat plants with good horticultural preventative or remedial measures to control insects, diseases or rodents.

3.04 INSPECTIONS AND REPLACEMENTS

A. The following inspections apply only to this Section and supersede inspections specified in Section 01770.

1. Physical Completion Inspection and Replacements: Notify the Architect in writing at least ten days prior to requested date of physical completion inspection. Remove and replace dead, unhealthy or badly impaired plants according to the original specification, if so directed. Replace plants during the next planting season if this inspection is not within a planting season.

2. End of Guarantee Inspection and Replacements: Remove stakes, guy wires and tree wrapping at the end of the one year guarantee period unless otherwise directed. Remove and replace dead, unhealthy or impaired plants according to original specification, as directed. Replace plantings during the next planting season if end of guarantee period is not within a planting season.

END OF SECTION
SECTION 32 94 01 PERENNIALS, ANNUALS, BULBS

PART 1 GENERAL

1.01 SEASONAL COLOR INSTALLATION

A. The installation of perennials and annuals, unless specified herein, shall be performed by the Contractor at a fixed cost to the Owner each year depending upon rotation indicated by the Landscape Architect. Each season the Contractor will be provided with a planting plan with quantities. Quantities typically range from 1,000-1,500 tulip bulbs. This cost varies upon selection and is an additional cost to the Owner.

B. Plant replacement and seasonal planting installation techniques shall be done in accordance with the Campus Landscape specifications, SECTION 32 93 01.

1.02 SEASONAL COLOR MAINTENANCE

A. Perennialization of Bulbs

1. When planting bulbs, remove outer skin, spray bulbs with rodent deterrent, allow to dry before planting.

2. Till soil (without disturbing established plant material) well to aerate to a depth of 12 inches.

3. Plant bulbs in fall at least six (6) weeks before the soil freezes to allow for root establishment.

4. After flowering, cut off spent flower heads.

5. Allow leaves of daffodils and other bulbs such as hyacinth to remain for six weeks after flowers have faded and leaves have turned yellow. cut off at base.

6. Apply fertilizer after flowering in spring, and again in fall. Apply 10-10-10 at the rate of 2 pounds per 100 square feet, or top-dress with compost 1" deep. Fall fertilization with bulb fertilizer or mulch with 1" of compost at time of planting.

B. Flower Rotations

1. Bulbs: Tulips- Remove the entire bulb after flowers have faded or at the direction of the Landscape Architect, and install new bulbs in the fall.

2. Summer Annuals or Fall Annuals

a. Dead heading: Pinch and remove dead flowers or annuals with each scheduled weekly maintenance.

b. Fertilizing Summer Annuals: Fertilize using one of two methods: Apply a slow release fertilizer in May following manufacturer's recommendations. A booster such as 10-10-10 may be necessary in late summer. Or, apply a liquid fertilization of 20-20-20 per 100 gallons of water monthly; or mulch with compost, prior to planting, 1" deep.

c. Removal: Fall annuals such as chrysanthemums, cockscomb, aster, etc. are to be installed. The Landscape Architect will provide the Contractor with a
planting plan and a quantity of material. Summer annuals shall be removed in early fall when fall plants are available for installation. Fall annuals are to be removed once they begin to fade due to killing frost.

C. Perennials

1. After installation: A time-released fertilizer to be incorporated during plant installation, no more fertilizer need be applied during the first growing season.

2. The following year:
   a. Fertilize perennials with a slow release fertilizer or any 50% organic fertilizer, or mulch perennials with compost 1" deep.
   b. Cut all deciduous perennials flush to the ground by March 1, if not already having been cut the previous fall, to allow new growth to freely develop.
   c. Mulch the perennial bed once in early spring at a 1/2" to 1' depth. If soil is bare in late fall, remulch lightly to protect perennials.
   d. Inspect for insect or disease problems on perennials.
   e. Weed beds containing perennials as previously noted.
   f. Prune branching species to increase density. Cut only the flowering stems after bloom period. Do not remove foliage.

3. The following fall, cut back deteriorating plant parts unless instructed to retain for winter interest, e.g. ornamental grasses.

4. Divide plants that eventually overcrowd the space provided. Divide according to species type and at the direction of the Architect, transplant to other parts of the Campus.

END OF SECTION
SECTION 32 95 00 - GREEN ROOF ASSEMBLY

PART 1 GENERAL

1.1 SUMMARY

A. Section specifies all labor, materials, transportation, equipment and services necessary to maintain a complete green roof assembly, as shown on the Drawings and as described herein.

1.2 REFERENCES

A. Referenced standards and abbreviations. (Where applicable, use the most recent available standard.)
   4. ASTM D422: Standard Test Method for Particle-Size Analysis of Soils
   5. UL Inc.: Class a Classification for use in Ballasted Systems
   7. Recommended Chemical Soil Testing Procedures, North Central Region Publication #221 – abbreviated as “RCSTP”
   8. USDA Handbook #60 – abbreviated as “USDA”

1.3 SYSTEM DESCRIPTION

A. Design:
   1. The green roof system is a modular, multi-course system, consisting of a growth media layer installed over a synthetic sheet drain. The vegetation and planting medium are contained in spread trays covering large expanses of three roofs.
   2. This assembly is compatible with pedestrian access and walkway elements.

B. Performance Requirements:
   1. Maintain a perennial vegetated ground cover.
   2. Maintain efficient drainage of moisture that is in excess of that required for the vigorous growth of the installed vegetation.
   3. Maintain system properly so as to protect roof waterproofing materials from damage caused by exposure to ultraviolet radiation, physical abuse, and rapid temperature fluctuations.
   4. Retain moisture at Maximum Water Capacity, in accordance with the referenced FLL or ASTM E-2397 standards.
   5. Replace materials or components and amend or refresh the media as required.

1.4 QUALITY ASSURANCE

A. The work of this section shall be performed by a contractor that specializes in green roof installation work and green roof assemblies. This company shall document the successful completion of at least 5 previous extensive roof projects.
B. Temporary surface spray irrigation will be required during the first full growing season. The design and implementation of temporary irrigation is the responsibility of the Contractor. A suitable source of water supply shall be provided by the Owner. The irrigation dosing requirements to facilitate plant establishment shall be determined by the experienced Contractor.

C. Integration: All scope items related directly or indirectly to the green roof assembly shall be provided by one contractor. Tasks in addition to those specifically mentioned in this Specification may include the installation of:
1. Paths and walkways
2. Irrigation
3. Stone

D. Contractor shall furnish a quality control Green Roof specialist to observe critical aspects of the existing installation.

E. Laboratory: Tests shall be conducted by an independent laboratory with the experience and capability to conduct the tests indicated. These may include, but are not limited to:
1. A & L Great Lakes Laboratories, Inc. 3504 Conestoga Drive, Fort Wayne, IN 46808-4413 [260-483-4759]

PART 2 MATERIALS

2.1 GROWTH MEDIA

A. M2 Extensive Growth Media that is a mixture of mineral and organic components and that satisfies the following specifications:
1. Air Filled Porosity at Maximum Water Capacity (ASTM-E2399) \( \geq 10\% \)
2. Maximum Water Capacity (ASTM-E2399) \( \geq 35\% \) (vol)
3. Density at Maximum Water Capacity (ASTM-E2399) \( \leq 75 \text{ lb/ft}^3 \)
4. Saturated Hydraulic Conductivity (ASTM-E2399) \( 0.10 - 1.0 \text{ in/min} \)
5. Alkalinity, Ca CO\(_3\) equivalents (MSA) \( \leq 2.5\% \)
6. Total Organic Matter, loss on ignition method (ASTM-F1647) \( 4-10\% \) (dry wt.)
7. pH (RCSTP) \( 6.5 - 8.0 \)
8. Soluble Salts (DPTA saturated paste extraction) (RCSTP) \( \leq 6 \text{ mmhos/cm} \)
9. Organic Supplements (compost, peat moss, etc.) \( \leq 2 \text{ mg CO}_2/\text{g TOM/d combined respiration rate (TMECC 05.08, B) }\)
10. Cation exchange capacity (MSA) \( \geq 10 \text{ meq/100g} \)
11. Grain-size distribution of the mineral fraction (ASTM-D422)
   a. Clay fraction (2 micron) \( \leq 2\% \)
   b. Pct. Passing US#200 sieve (i.e., silt fraction) \( \leq 5\% \)
   c. Pct. Passing US#60 sieve \( \leq 10\% \)
   d. Pct. Passing US#18 sieve \( 5 - 50\% \)
   e. Pct. Passing 1/8-inch sieve \( 30 - 80\% \)
   f. Pct. Passing 3/8-inch sieve \( 75 - 100\% \)
12. Total Nitrogen, TKN (MSA) \( 25-100 \text{ ppm} \)
13. Phosphorus, P$_2$O$_5$ (Mehlich III) 20-200 ppm
14. Potassium, K$_2$O (Mehlich III) ≥ 150 ppm
15. Other macro- and micro-nutrients shall be incorporated in the formulation in initial proportions suitable for support the specified planting.

B. Thoroughly blend at a batch facility. Moisten, as required, to prevent separation and excessive ‘dusting’ during installation.

C. Quality control samples shall be collected for each 100 CY provided to the job. These samples shall be sealed in 2 gallon water-tight containers and held by the contractor for inspection by the Owner’s representative.

2.2 PLANTS

A. Sedum Cuttings
   1. Freshly cut Sedum. Harvested Sedum shall not be flowering
   2. Ship so that the cuttings are enclosed for no more than 30 hours.

B. Plugs
   1. 3 in deep, 72-cell plugs, propagated in sterile nursery medium, according to the plant provider’s recommendations.
   2. “Harden off” plugs prior to planting by gradually eliminating irrigation over a period of one week.

2.3 WIND PROTECTION

A. Temporary Wind Scour Protection
   1. Temporary Wind Blanket composed of biodegradable coir.
      a. This product should be used when plants will be established from cuttings or plugs.
      b. This blanket shall be secured using a method approved by the System Provider.
      c. The wind scour blanket shall satisfy the following specification:
         i. Tensile Strength (ASTM D-5035) ≥ 100 lb/ft
         ii. Unit Weight (dry) ≥ 8 oz/sy
   2. Tackifier Emulsion for use when establishing plants from plugs or pots. Consult System Provider for application rate. Typically Tackifier Emulsion must be re-applied as needed during the establishment period in order to secure media surface.

2.4 BOUNDARY UNITS

A. Existing boundary edges are cantilevered type L-shaped.

2.5 PAVING SYSTEM

A. Pavers
   1. Concrete Pavers which require replacement due to breakage to match existing. Contractor is responsible for matching pedestal paver system or pavers on setting bed, including all edging.
PART 3 EXECUTION

3.1 INSTALLATION

A. Install each component of the vegetated cover system in accordance with the System Provider’s published instructions and Contract Documents.

3.2 MAINTAIN PAVER SYSTEM

A. Maintain Pedestal Paver System
   1. Reinstall pedestals on the Moisture Management Mat or Protection Layer as necessary.
   2. Level as necessary.
   3. Replace Concrete Pavers if damaged.
   4. Secure pavers with fastening clamp.

3.3 INSTALL GROWTH MEDIA

A. Replace the Growth Media as required. The Growth Media shall be dispensed at the roof level in a manner that will not suddenly increase the load to the roof. It shall be immediately spread to the thickness needed, plus ten percent to maintain healthy plant growth.

B. Thoroughly soak with water using a sprinkler or hand sprayer.

3.4 PLANTING VEGETATION

A. Cuttings
   1. The planting mixture should include species that will generate a continuous ground cover. Maximum mature plant heights shall be less than 24 inches. Large drifts of single species should be avoided.
   2. All extensive planting schemes in temperate climates must incorporate non-deciduous or semi-deciduous Sedum species. These should be established from fresh Cuttings. The plant mixture should include a minimum of four species of Sedum in approximately equal quantities. Cuttings should be distributed over the surface of the Media at a minimum rate of 40 lbs/1000 square feet. Planting using Sedum cuttings can be undertaken in most temperate climates from April 1 through May 1 and from September 15 through October 30. When installed outside this window, regular watering may be required until the plants are established. System Provider must approve specific planting dates relative to local weather conditions.
   3. Use cuttings as infill in small spots where plant material has died back or needs replacement due to being weak.
   4. If more than 24 hours has elapsed since installing and soaking the Growth Media, thoroughly re-soak Growth Media prior to commencing the distribution of Cuttings.
   5. Immediately cover with a Temporary Wind Blanket. Secure Temporary Wind Blanket with Nylon Tie Anchors.
   6. Install Hydro-Mulch according to manufacturer’s recommendations. Re-apply as needed during the establishment period to prevent erosion of Growth Media.

GREEN ROOF MAINTENANCE 32 95 00 - 4
7. Depending on the season that plants are established and plants included, periodic watering may be required during the first growing season.

B. Plugs
1. Plant installation may occur April-October.
2. Plants should be established from 72-cell 3-inch deep plugs (unless indicated in the drawings) propagated in sterile nursery medium, according to the plant provider’s recommendations. The recommended minimum planting rate is two plants per square foot.
3. Thoroughly soak the Growth Media prior to commencing planting.
5. Install Plugs. Plugs should be set into the Growth Media to their full depth and the Growth Media pressed firmly around the installed Plug. At the end of each day, soak those areas that have been newly planted.
6. Do not mulch.

3.5 MAINTENANCE SERVICE

A. The maintenance service will include:
1. Hand weeding and/or chemical weeding and fertilization, as required to maintain the health and vigor of the plants.
2. Plant replacement as needed to achieve the required 80% coverage rate.
3. Temporary spray irrigation or watering as required during the first growing season.

END OF SECTION
PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Plants: Section 32 93 01.

1.02 REFERENCES

A. Plant Nomenclature: “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature.

1.03 QUALITY ASSURANCE

A. Provide an expert plantsman present during all planting operations to direct the Work.

B. Planting Season: Obtain approval for time of digging, storing, and transplanting from the Landscape Architect or follow the periods below.
   1. Deciduous Woody Plants: Transplant generally between October 1 and May 15 whenever temperature is above 32 degrees F and the soil is in workable condition.
   2. Evergreens: Unless otherwise specified, transplant between August 15 and September 15 or in April or May before start of new growth.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver commercial fertilizer in standard size bags showing weight, analysis and the name of the manufacturer. Store as approved by FIT Facility.

B. Store topsoil and plants (that cannot be planted immediately) where directed by the Landscape Architect. Completely cover all plant balls that will be stored above ground longer than 48 hours with a minimum of 6 inches of wood chips. Water and use other protective measures as required or directed to insure plant viability. If planting is to occur later than 48 hours, plants must be heeled into soil offsite until planting time is agreeable.

1.05 PROJECT CONDITIONS

A. Notify the Landscape Architect 48 hours in advance prior to digging and transplanting plant material, to coordinate effort with FIT Facilities Department.

B. Watering: Unless otherwise indicated, water will be furnished by FIT from existing facilities. Furnish all hoses and connections to adequately water plants.
PART 2    PRODUCTS

2.01    PLANTING SOIL

A. Mix the following soil amendments into every 4 cu yds of topsoil backfill.
   1. Peat Moss: 7-1/2 cu ft bale or 15 bushels (loose measure).
   2. Fertilizer: 5 lb.

Place the above soil amendments over the topsoil piles and turn over the combined elements a minimum of 3 times until thoroughly mixed to the satisfaction of the College’s Representative.

B. Provide topsoil for planting soil from topsoil furnished from outside sources.

2.02    FERTILIZER

A. Bonemeal: Commercial, steamed finely ground material with a minimum of 2.0 percent nitrogen and a minimum of 20 percent phosphoric acid.

B. Commercial Fertilizer (10-6-4): Containing not less than 10 percent nitrogen, 6 percent available phosphoric acid and 4 percent water soluble potash.

2.03    MULCH

A. Black Shredded Bark Mulch: Hardwood or softwood chips produced by a standard wood chipping machine, free of leaves, young green growth, wood shavings, sawdust, or any foreign material. Chips shall not exceed 3 inches in greatest dimension.

B. Shredded Wood: Wood fiber produced from either hardwood or softwood trees, free of tannic acid, leaves, young green growth, wood shavings, sawdust or other objectionable foreign material.

2.04    MISCELLANEOUS PLANTING MATERIALS

A. Stakes, Deadman and Guy Stakes: Sound, durable White or Red Cedar, or other approved wood, free of insect or fungus infestation.

B. Guy Wire or Cables: No. 12 galvanized iron wire, or cable when indicated.

C. Tree Wrapping: 4 inch wide strips of jute burlap or waterproof paper 30-30-30 krinklecraft.

D. Protective Hose: 2-ply garden hose cut to required lengths to protect tree trunk’s from damage by wires.

E. Anti-desiccants: Wilt-Prof or other similar spray type produced by a recognized manufacturer.
PART 3  EXECUTION

3.01  EXCAVATION OF PLANT MATERIAL

A. Preparation: Before digging any plant material, Architect to tag all plants in their existing location from which it will be moved.

B. Excavate and ball all trees and shrubs, as specified. Separate and store topsoil removed from excavation. Dispose of the balance of excavated material off the property unless otherwise directed by the Architect.

C. Ball Sizes: Conform to dimensions listed for “Collected Plant Material”, American Standard for Nursery Stock. Dig all plants by hand unless approved moving equipment is employed.

D. Transit Protection: For all material not planted within 48 hours, protect balls from damage during handling and transit. Burlap all balls and drum lace when diameter exceeds 30 inches. Transport balls 48 inches or larger on a platform of sufficient size and strength to support weight. Tie limbs to protect from transit damage.

3.02  TRANSPLANTING

A. Transplant plant material to a new location as indicated or directed by Landscape Architect

B. Transplant plant material back to the original location when construction Work is completed or where directed.

C. Planting Layout: Provide stakes and stake out all tree locations and planting areas. Obtain layout approval from the Architect prior to excavations of plant pits.

D. Pit Sizes:
   1. Balls less than 3’-0” in diameter: 2 times width of ball and 9 inches deeper than ball.
   2. Balls over 3’-0” in diameter: The width of the ball plus 36” and at least 9 inches deeper than ball.

E. Plant Pit Preparation: Remove all debris, stones, etc., from pits. Place planting soil in pit and thoroughly firm to a level upon which plant will rest at proper elevation.

F. Setting Plants: Set plants plumb and at a level so that after settlement they bear the same ground level relationship as before they were dug. Backfill pits to 1/3 depth of ball, compacting in layers not exceeding 4 inches. Remove burlap and adjust to avoid air pockets. Complete backfill and settle with water.

G. Wrapping: Wrap all deciduous trees within 4 days after transplanting from the ground line to the height of the second branches or as directed. Wrap in a single
layer wound spirally starting from base and overlapping 1-1/2 inches. Secure wrapping in place by use of approved staples or other approved methods and materials.

H. Staking: Set tree stakes into solid ground below bottom of plant before backfilling. Place stakes at the outer edge of the roots or ball in line with the prevailing wind at a 10 degree angle from the tree trunk.

I. Anti-Desiccant: Apply an anti-desiccant spray to all broadleaved ericaceous plants planted in the fall season, as directed by the Director’s Representative.

J. Surface Finish: Form a saucer as indicated on drawings or as directed. Grade soil to form a basin on lower side of slope plantings, which will catch and retain water. Top dress all basins with commercial fertilizer (10-6-4) spread evenly at the rate of 1-1/2 pounds per square yard of plant pit surface. Break basins before ground freezes.

K. Mulching: Spread mulch over finished surface of each plant, plant bed or hedge trench in the following amounts - water plants thoroughly after mulching.
   1. Wood chips - 3 inches.
   2. Shredded Black Bark Mulch – 2 inches

L. Pruning: Prune immediately after planting using sharp tools. Remove approximately 1/3 of the wood of deciduous plants, maintaining the natural habit of the plant. Cut no leaders. Paint all pruning cuts 3/4 inch in diameter or over with antiseptic, waterproof, adhesive and elastic tree wound paint containing no kerosene, coat tar, creosote or other material harmful to cambium or living tissue.

M. Guying: Guy all deciduous trees 4 inches and over in caliber; all trees over 6 feet high with 3 or more stems; and all evergreens 6 feet or over in height, with 3 guys immediately after planting. Attach guys to stakes and trees as indicated or as directed by the Architect. Connect multi-stem trees with protected connecting wires maintaining each stems relationship to one another. Maintain all guys until end of guarantee.

N. Establishment of Planting: Maintain all planting immediately following transplanting operations and continue throughout the guarantee period. Establishment of planting shall consist of keeping plants in healthy, growing conditions by water, weeding, cultivating, pruning, spraying, tightening of guys, remulching and by any other necessary operations of establishment. Water all plants at least once a week between April 1 and October 31 with approximately 5 gallons per square yard (1 inch layer of water) per watering unless otherwise specified. Provide additional watering during periods of dry weather when required or when directed. Treat all plants with good horticultural preventative or remedial measures to control insects, diseases or rodents.
3.03 INSPECTIONS AND REPLACEMENTS

A. The following inspections apply only to this Section:

1. Physical Completion Inspection: Notify the Architect in writing at least ten days prior to requested date of physical completion inspection. Remove and replace all dead, unhealthy or badly impaired plants with healthy plants to match existing plants, under the direction of the Landscape Architect. Replace plants during the next planting season if this inspection is not within a planting season.

2. End of Warranty Inspection: Remove all stakes, guy wires and tree wrapping at the conclusion of the 1 year warranty period unless otherwise indicated. Remove and replace all dead, unhealthy or badly impaired plants with healthy plants to match existing plants, if so directed by the Architect. Replace plantings during the next planting season if conclusion of warranty period is not within a planting season.

END OF SECTION
Notes to Bidders:

a. Bidders shall complete, sign and date in all spaces indicated.

b. Provide and furnish all labor, materials, tools and equipment to perform CAMPUS-WIDE LANDSCAPE MAINTENANCE as per specifications and drawings listed below.

**BID BREAKDOWN (must equal Total Base Bid Price)**

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<tr>
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<th>A. Total Labor Cost</th>
<th>B. Total Materials, Tools &amp; Equip’t.</th>
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<td>FALL CLEAN-UP</td>
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<td>CONSTRUCTION WASTE MANAGEMENT</td>
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<td>LANDSCAPE MAINTENANCE: To include all necessary planting materials, watering, cultivation, dead heading, weeding, pruning, wound dressing, disease and insect pest control, protective spraying, straightening of plants which lean or sag, adjustment of plants which settle or are planted too low, and any other procedure consistent with good horticultural practice necessary to ensure normal, vigorous and healthy growth of all plant material as noted in the Landscape Plan. Weekly maintenance required.</td>
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<td>SOIL TESTING – each area once per year</td>
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<td>FERTILIZING – as needed</td>
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<td>MULCHING – to maintain mulch beds</td>
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<td>FILLING SINKHOLES – as needed</td>
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</tbody>
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The undersigned, having carefully examined all Contract Documents, consisting of General Scope of Work, Technical Specifications, FIT EHS Plan, FIT Terms and Conditions, and all drawings and having examined the existing conditions by on-site visit(s), hereby submits the following bid, covering all labor, materials, equipment, tools, machinery, licensing, insurance, taxes, and fees required to perform the specified work at the above-referenced site, in accordance with the Contract Documents.

Company Name and Address of Bidder:
Signature of Bidder _______________________________    Date_________________

Printed Name and Title of Representative:____________________________________

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TECHNICAL SPECIFICATION SECTIONS
01 10 00 Summary of Work
01 74 19 Construction Waste Management
02 10 00 General Sitework
02 21 00 Maintenance of Trees, Shrubs and Groundcovers
02 22 00 Spring and Fall Clean Up
32 00 00 Preservation of Trees and Other Vegetation
32 93 01 Planting
32 94 01 Perennials, Annuals, Bulbs
32 95 00 Green Roof Maintenance
32 96 00 Transplanting

DRAWINGS LIST
Cover Sheet
G-001 Index, Abbreviations, Notes & Symbols
L-100 Large Scale Site Construction and Planting Plan
LD-100 Landscape Demolition Plan
L-101 Enlarged Construction Plan
L-102 Enlarged Construction Plan
L-103 Enlarged Construction Plan
PL-101 Enlarged Planting Plan
PL-102 Enlarged Planting Plan
L-400 Details

IMPORTANT: This bid analysis page is the only pricing format acceptable. Bidders must submit pricing using this form. FIT will not accept bid responses on any other form.

NOTE: FIT will not sign any vendor contract, agreement or scope of work. FIT Bid and Terms and Conditions apply. Vendor requirement for FIT to sign any document will be grounds for rejection. Vendor inclusion of any clarifications, exceptions or changes which are not in compliance with FIT Bid and Terms and Conditions will be grounds for rejection.

- End of Bid Form –