

**SECTION 129300
SITE FURNISHINGS****PART 1 GENERAL****1.01 SUMMARY**

- A. Section Includes
 - 1. Up Lights
 - 2. Cable Trellis

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: For site furnishings. Use same designations indicated on Drawings.

1.03 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For site furnishings to include in maintenance manuals.

PART 2 PRODUCTS**2.01 UPLIGHTS**

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Manufacturer: FX-Luminar
 - 2. Model: MU – LED35WFL- FB
 - 3. Quantity: As shown on plan

2.02 CABLE VINE SYSTEM

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Manufacturer: Jakob Inc.
 - 2. Contact: (561) 330-6502 / www.jakob-usa.com
 - 3. Quantity: As indicated on L101
 - 4. Parts: As indicated on 3/L201

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.

END OF SECTION

SECTION 328400
IRRIGATION**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. It is the intent of the specifications and drawings that the finished system is complete in every respect and shall be ready for operation satisfactory to the Owner.
- B. The work shall include all materials, labor, services, transportation, and equipment necessary to perform the work as indicated on the drawings, in this specification, and as necessary to complete the contract.

1.02 CONSTRUCTION DRAWINGS

- A. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, and architectural features.
- B. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications. When an item is shown on the plans but not shown on the specifications or vice versa, it shall be deemed to be as shown on both. The Landscape Architect shall have final authority for clarification.
- C. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect as soon as detected. In the event this notification is not performed, the Irrigation Contractor shall assume full responsibility for any revision necessary.

1.03 QUALITY ASSURANCE

- A. Provide at least one English speaking person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the manufacturer's recommended methods of installation and who shall direct all work performed under this section.
- B. Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturer of articles used in this contract furnishes directions covering points not shown in the drawings and specifications.
- C. All local, municipal, and state laws, rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and there provisions shall be carried out by the Contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.
- D. All materials supplied for this project shall be new and free from any defects. All defective materials shall be replaced immediately at no additional cost to Owner.
- E. The Contractor shall secure the required licenses and permits including payments of charges and fees, give required notices to public authorities, verify permits secured or arrangements made by others affecting the work of this section.

- F. Submittals
- G. Materials List:
 1. After award of contract and before any irrigation system materials are delivered to the job site, submit to the Owner a complete list of all irrigation systems, materials, or processes proposed to be furnished and installed as part of this contract.
 2. Show manufacturer's name and catalog number for each item, furnish complete catalog cuts and technical data; furnish the manufacturer's recommendations as to the method of installation.
 3. No substitutions will be allowed without prior written acceptance by the Landscape Architect or Owner's authorized representative.
 4. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.
- H. Substitutions:
 1. If the Irrigation Contractor wishes to substitute any equipment or materials for those equipment or materials listed on the irrigation drawings and specifications, he may do so by providing the following information to the Landscape Architect or Owner's authorized representative for approval.
 2. Provide a written statement indicating the reason for making the substitution.
 3. Provide catalog cut sheets, technical data, and performance information for each substitute item.
 4. Provide in writing the difference in installed price if the item is accepted.

1.04 EXISTING CONDITION

- A. The Contractor shall verify and be familiar with the locations, size and detail of points of connection provided as the source of water, and electrical supply.
- B. Irrigation design is based on the available static water pressure shown on the drawings. Contractor shall verify static water on the project prior to the start of construction. Should a discrepancy exist, notify the Landscape Architect and Owner's authorized representative prior to beginning construction.
- C. Prior to cutting into the soil, the Contractor shall locate all cables, conduits, sewer septic tanks, and other utilities as are commonly encountered underground and he shall take proper precautions not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, the Contractor shall promptly notify the Landscape Architect and Owner who will arrange for re-location.
- D. The Contractor will proceed in the same manner if a solid rock obstruction or any other such conditions are encountered.

The Contractor shall protect all existing utilities and features to remain on an adjacent to the project site during construction. Contractor shall repair, at his own cost, all damage resulting from his operations or negligence.
- E. The Irrigation Contractor shall coordinate with the General Contractor for installation of required sleeves as shown on the plans.

1.05 CONSTRUCTION OBSERVATIONS

- A. The Contractor shall permit the Landscape Architect and Owner's authorized representative to visit and review at all times any part of the work and shall provide safe access for such visits.
- B. Where the specifications require work to be tested by the Contractor, it shall not be covered over until accepted by the Landscape Architect, Owner's authorized representative, and/or governing agencies. The Contractor shall be solely responsible for notifying the Landscape Architect, Owner, and governing agencies, a minimum of 48 hours in advance, where and when the work is ready for testing. Should any work be covered without testing or acceptance, it shall be, if so ordered, uncovered at the Contractor's expense.

- C. Reviews will be required for the following at a minimum:
1. Pressure test of irrigation main line (Four hours at 125 PSI or 120% of static water pressure, whichever is greater.)
 2. Coverage test of irrigation system prior to installation of plant material.
 3. Substantial Completion Punch List shall be conducted when Contractor has completed all portions of the work and prior to start of maintenance period. Contractor shall provide progress Record Drawings for review by Landscape Architect.
 4. Substantial Completion Punch List Follow-up shall be conducted within three weeks of initial punch list to confirm 100% completion of work Provide completed Record Drawings.
 5. Post Maintenance Final Acceptance shall be conducted at the end of the Maintenance Period.
 6. Site observations and testing will not commence without the record drawings as prepared by the Irrigation Contractor. Record drawings must complete and up to date for each site visit.
 7. Work which fails testing and is not accepted will be re-tested. Hourly rates and expenses of the Landscape Architect, Owner's authorized representative, and governing agencies for re-observations or re-testing will be paid by the Irrigation Contractor at no additional expense to Owner.

1.06 STORAGE AND HANDLING

- A. Use all means necessary to protect irrigation system materials before, during, and after installation and to protect the installation work and materials of all other trades. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Landscape Architect and Owner and at no additional cost to the Owner.
- B. Exercise care in handling, loading, unloading, and storing plastic pipe and fittings under cover until ready to install. Transport plastic pipe only on a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load

1.07 CLEANUP AND DISPOSAL

- A. Dispose of waste, trash, and debris in accordance with applicable laws and ordinances and as prescribed by authorities having jurisdiction. Bury no such waste material and debris on the site. Burning of trash and debris will not be permitted. The Contractor shall remove and dispose of rubbish and debris generated by his work and workmen at frequent intervals or when ordered to do so by the Owner's authorized representative.
- B. At the time of completion the entire site will be cleared of tools, equipment, rubbish and debris which shall be disposed of off-site in a legal disposal area.

1.08 TURNOVER ITEMS

- A. Record Drawings:
1. Record accurately on one set of contract drawings all changes in the work constituting departures from the original contract drawings.
 2. The changes and dimensions shall be recorded in a legible and workmanlike manner to the satisfaction of the owner. Prior to final observation of work, submit record drawings to the Landscape Architect or Owner's authorized representative.
 3. Dimensions from/to permanent points of reference such as buildings, sidewalks, curbs, etc. shall be shown. Data on record drawings shall be recorded on a day to day basis as the project is being installed. All lettering on drawings shall be minimum 1/8 inch in size.
 4. Show locations and depths of the following items:
 5. Point of connection (including water POC, master control valves, quick couplers, etc.)
 6. Routing of sprinkler pressure lines (dimensions shown at a maximum of 100 feet along routing)
 7. Isolation valves
 8. Automatic remote control valves
 9. Quick coupling valves

10. Routing of control wires
 11. Irrigation controllers
 12. Related equipment (as may be directed)
 13. Maintain record drawings on site at all times. Upon completion of work, transfer all as-built information and dimensions to reproducible mylar prints.
- B. Controller Charts:
1. Record drawings must be approved by Landscape Architect and/or Owner's authorized representative before charts are prepared.
 2. Provide one controller chart for each automatic controller. Chart shall show the area covered by the particular controller.
 3. The chart is to be a reduced copy of the actual "record" drawing. In the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a readable size.
 4. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils in thickness.
- C. Operation and Maintenance Manuals:
1. Two individually bound copies of operation and maintenance manuals shall be delivered to the Landscape Architect or Owner's authorized representative at least 10 calendar days prior to final observations. The manuals shall describe the material installed and the proper operation of the system.
 2. Each complete, bound manual shall include the following information:
 - a. Index sheet stating Contractor's address and telephone number, duration of guarantee period, list of equipment including names and addresses of local manufacturer representatives.
 - b. Operating and maintenance instructions for all equipment.
 - c. Spare parts list and related manufacturer information for all equipment.
- D. Equipment:
1. Supply as a part of this contract the following items:
 2. Two (2) wrenches for disassembly and adjustment of each type of sprinkler head used in the irrigation system.
 3. Three 30-inch sprinkler keys for manual operation of control valves.
 4. Two keys for each automatic controller.
 5. Two quick coupler keys with a 1" bronze hose bib, bent nose type with hand wheel and two coupler lid keys.
 6. One valve box cover key or wrench.
 7. Six extra sprinkler heads of each size and type.
 8. The above equipment shall be turned over to Owner's authorized representative at the final observation.
 9. COMPLETION
- E. At the time of the Substantial Completion Punch List Observation, the Landscape Architect, Owner's authorized representative, and governing agencies will observe the work and prepare a list of items to be completed by the Contractor. If deemed in Substantial Completion the Contractor will be directed to begin the Maintenance Period.
- F. Within three (3) weeks of the Substantial Completion Observation a Follow-up Observation will be made to confirm 100% completion of all Punch List items
- G. At the end of the Maintenance Period the work will be reviewed and if deemed in conformance with the Construction Documents a Final Acceptance will be prepared in writing by the Landscape Architect, Owner's authorized representative, and governing agencies
- H. The Owner's authorized representative shall have final authority on all portions of the work.
- I. After the system has been completed, the Contractor shall instruct Owner's authorized representative in the operation and maintenance of the irrigation system and shall furnish a complete set of operating and maintenance instructions.

- J. Any settling of trenches which may occur during the one-year period following acceptance shall be repaired to the owner's satisfaction by the Contractor without any additional expense to the owner. Repairs shall include the complete restoration of all damage to planting, paving or other improvements of any kind as a result of the work.

1.09 GUARANTEE

- A. The entire sprinkler system, including all work done under this contract, shall be unconditionally guaranteed against all defects and fault of material and workmanship, including settling of backfilled areas below grade, for a period of one (1) year following the filing of the Notice of Completion.
- B. Should any problem with the irrigation system be discovered within the guarantee period, it shall be corrected by the Contractor at no additional expense to owner within ten (10) calendar days of receipt of written notice from Owner. When the nature of the repairs as determined by the Owner constitute an emergency (i.e. broken pressure line) the Owner may proceed to make repairs at the Contractor's expense. Any and all damages to existing improvement resulting either from faulty materials or workmanship, or from the necessary repairs to correct same, shall be repaired to the satisfaction of the owner by the Contractor, all at no additional cost to the Owner.
- C. Guarantee shall be submitted on Contractors own letterhead as follows:

- 1. **GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM**

We hereby guarantee that the sprinkler irrigation system we have furnished and in-stalled is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defective material during the period of one year from date of filing of the Notice of Completion and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the owner. We shall make such repairs or re-placements within 10 calendar days following written notification by the owner. In the event of our failure to make such repairs or replacements within the time specified af-ter receipt of written notice from owner, we authorize the owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT NAME:

PROJECT LOCATION:

CONTRACTOR NAME:

ADDRESS:

TELEPHONE:

SIGNED:

DATE:

PART 2 MATERIALS

2.01 SUMMARY

- A. Use only new materials of the manufacturer, size and type shown on the drawings and specifications. Materials or equipment installed or furnished that do not meet Landscape

Architect's, Owner's, or governing agencies standards will be rejected and shall be removed from the site at no expense to the Owner.

2.02 PIPE

- A. Pressure supply lines 2 inches in diameter and up to 3 inches in diameter downstream of backflow prevention unit shall be Class 315 solvent weld PVC. Piping shall conform to ASTM D2241.
- B. Pressure supply lines 1 1/2 inches in diameter and smaller downstream of the backflow prevention unit shall be Schedule 40 solvent weld PVC conforming to ASTM D1785. Non-pressure lines 3/4 inch in diameter and larger downstream of the remote control valve shall be Class 200 solvent weld PVC conforming to ASTM D2241.
- C.

2.03 PLASTIC PIPE AND FITTINGS

- A. Pipe shall be marked continuously with manufacturer's name, nominal pipe size, schedule or class, PVC type and grade, National Sanitation Foundation approval, Commercial Standards designation, and date of extrusion.
- B. All plastic pipe shall be extruded of an improved PVC virgin pipe compound in accordance with ASTM D2241 or ASTM D1784.
- C. All solvent weld PVC fittings shall be standard weight Schedule 40 and shall be injection molded of an improved virgin PVC fitting compound. Slip PVC fittings shall be the "deep socket" bracketed type. Threaded plastic fittings shall be injection molded. All tees and ells shall be side gated. All fittings shall conform to ASTM D2466.
- D. All threaded nipples shall be standard weight Schedule 80 with molded threads and shall conform to ASTM D1785.
- E. All plastic pipe pressure lines shall be solvent welded with a two-step process, using primer and solvent cement. All non-pressure laterals shall be solvent welded with a one-step integral primer/solvent. Cement shall be of a fluid consistency, not gel-like or ropy. Solvent cementing shall be in conformance with ASTM D2564 and ASTM D2855.
- F. When connection is plastic to metal, female adapters shall be hand tightened, plus one turn with a strap wrench. Joint compound shall be non-lead base Teflon paste, tape, or equal.

2.04 VALVES

- A. Ball Valves:
 - 1. Ball valves shall be of the manufacturer, size, and type indicated on the drawings.
 - 2. Ball valves shall be constructed of a bronze body, stainless steel ball and stem.
 - 3. Ball valves shall have threaded connections.
 - 4. All ball valves shall have a minimum working pressure of not less than 150 PSI and shall conform to AWWA standards.
- B. Quick Coupler Valves:
 - 1. Quick coupler valves shall be of the manufacturer, size, and type indicated on the drawings.
 - 2. Quick coupler valves shall be brass with a wall thickness guaranteed to withstand normal working pressure of 150 psi without leakage. Valves shall have 1" female threads opening at base, with two-piece body. Valves to be operated only with a coupler key, designed for that purpose. Coupler key is inserted into valve and a positive, watertight connection shall be made between the coupler key and valve.
- C. Automatic Control Valves:
 - 1. Automatic control valves shall be of the manufacturer, size, and type indicated on the drawings.
 - 2. Automatic control valves shall be electrically operated.

2.05 VALVE BOXES

- A. Valve boxes shall be fabricated from a durable, weather-resistant plastic material resistant to sunlight and chemical action of soils.
- B. The valve box cover shall be Black in color
- C. The cover and box shall be capable of sustaining a load of 1,500 pounds.
- D. Valve box extensions shall be by the same manufacturer as the valve box.
- E. Automatic control valve boxes shall be 16"x11"x12" rectangular size. Valve box covers shall be marked "RCV" with the valve identification number "heat branded" onto the cover in 2 inch high letters / numbers.
- F. Ball valve and quick coupler valve boxes shall be 10" circular size. Valve box covers shall be marked with either "BV" or "QCV" "heat branded" onto the cover in 2 inch high letters.

2.06 AUTOMATIC CONTROLLER

- A. Automatic controller shall be of the manufacturer, size, and type indicated on the drawings.

2.07 ELECTRICAL

- A. All electrical equipment shall be NEMA Type 3, waterproofed for exterior installations.
- B. All electrical work shall conform to local codes and ordinances.

2.08 LOW VOLTAGE CONTROL WIRING

- A. Remote control wire shall be direct-burial AWG-UF type, size as indicated on the drawings, and in no case smaller than 14 gauge.
- B. Connections shall be either epoxy-sealed packet type or Penn-Tite connectors.
- C. Ground wires shall be white in color. Control wires shall be red (where two or more controllers are used, the control wires shall be a different color for each controller. These colors shall be noted on the "Record Drawings" plans located on controller door).

2.09 IRRIGATION HEADS AND DRIP TUBING

- A. Irrigation heads and drip tubing shall be of the manufacturer, size, type, with radius of throw, operating pressure, and discharge rate indicated on the drawings.
- B. Irrigation heads and drip tubing shall be used as indicated on the drawings.
- C. Drip tubing connections to PVC lateral lines shall be made using "spin-loc" connections. All connections between drip tubing shall be made using "spin-loc" tees, ells and couplings.

2.10 MISCELLANEOUS EQUIPMENT

- A. Equipment such as rain sensors, flush valves, air relief valves and master valves shall be of the manufacturer, size and type indicated on the drawings.

PART 3 EXECUTION**3.01 SITE CONDITIONS**

- A. Observations:
 1. Prior to all work of this section, carefully observe/review the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that irrigation that irrigation system may be installed in strict accordance with all pertinent codes and regulations, the original design, the referenced standards and manufacturer's recommendations.

- B. Discrepancies:
1. In the event of discrepancy, immediately notify the Landscape Architect or Owner's authorized representative.
 2. Do not proceed with installation in areas of discrepancy until all discrepancies have been resolved.
- C. Grades:
1. Before starting work, carefully check all grades to determine that work may safely proceed, keeping within the specified material depths with respect to finish grade.
 2. Final grades shall be accepted by the Engineer before work on this section will be allowed to begin.
- D. Field Measurements:
1. Make all necessary measurements in the field to ensure precise fit of items in accordance with the original design. Contractor shall coordinate the installation of all irrigation materials with all other work.
 2. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions prior to proceeding with work under this section.
 3. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect.
- E. Diagrammatic Intent:
1. The drawings are essentially diagrammatic. The size and location of equipment and fixtures are drawn to scale where possible. Provide offsets in piping and changes in equipment locations as necessary to conform with structures and to avoid obstructions or conflicts with other work at no additional expense to Owner.
- F. Layout:
1. Prior to installation, the Contractor shall stake out all pressure supply lines, routing and location of sprinkler heads, valves, backflow preventer, and automatic controller.
 2. Layout irrigation system and make minor adjustments required due to differences between site and drawings. Where piping is shown on drawings under paved areas, but running parallel and adjacent to planted areas, install the piping in the planted areas.
- G. Water Supply:
1. Connections to, or the installation of, the water supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no additional expense to Owner.
- H. Electrical Service:
1. Connections to the electrical supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no additional expense to Owner.
 2. Contractor shall make electrical connections to the irrigation controller. Electrical power source to controller locations shall be provided by others.

3.02 TRENCHING

- A. Excavations shall be straight with vertical sides, even grade, and support pipe continuously on bottom of trench. Trenching excavation shall follow layout indicated on drawings to the depths below finished grade and as noted. Where lines occur under paved area, these dimensions shall be considered below sub grade.
- B. Provide minimum cover of 18 inches on pressure supply lines 2 ½ inches and smaller.
- C. Provide minimum cover of 18 inches for control wires.
- D. Provide minimum cover of 12 inches for non-pressure lines.
- E. Pipes installed in a common trench shall have a 4 inch minimum space between pipes.

3.03 BACKFILLING

- A. Backfill material on all lines shall be the same as adjacent soil free of debris, litter, and rocks over 1/2 inches in diameter.
- B. Backfill shall be tamped in 4-inch layers under the pipe and uniformly on both sides for the full width of the trench and the full length of the pipe. Backfill materials shall be sufficiently damp to permit thorough compaction, free of voids. Backfill shall be compacted to dry density equal to adjacent undisturbed soil and shall conform to adjacent grades.
- C. Flooding in lieu of tamping is not allowed.
- D. Under no circumstances shall truck wheels be used to compact backfill.
- E. Provide sand backfill a minimum of 6 inches over and under all piping under paved areas.

3.04 SLEEVING ON STRUCTURE

- A. Irrigation pipe shall be placed on drainage mat where drainage mat is used.
- B. Irrigation pipe that is placed with no drainage mat shall have pressure treated 2x4 lumber spacers under piped. Attach pipe to PT lumber by galvanized pipe clamps and screwed with all-weather screws.

3.05 PIPING

- A. Piping under existing pavement may be installed by jacking, boring, or hydraulic driving. No hydraulic driving is permitted under asphalt pavement.
- B. Cutting or breaking of existing pavement is not permitted.
- C. Carefully observe all pipe and fittings before installation, removing dirt, scale, burrs and reaming. Install pipe with all markings up for visual observation and verification.
- D. Remove all dented and damaged pipe sections.
- E. All lines shall have a minimum clearance of 6 inches from each other and 12 inches from lines of other trades.
- F. Parallel lines shall not be installed directly over each other.
- G. In solvent welding, use only the specified primer and solvent cement and make all joints in strict accordance with the manufacturer's recommended methods including wiping all excess solvent from each weld. Allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling.
- H. PVC pipe shall be installed in a manner which will provide for expansion and contraction as recommended by the pipe manufacturer.
- I. Center load all plastic pipe prior to pressure testing.
- J. All threaded plastic-to-plastic connections shall be assembled using Teflon tape or Teflon paste.
- K. For plastic-to-metal connections, work the metal connections first. Use a non-hardening pipe dope on all threaded plastic-to-metal connections, except where noted otherwise. All plastic-to-metal connections shall be made with plastic female adapters.

3.06 CONTROLLER

- A. The exact location of the controller shall be approved by the Landscape Architect or Owner's authorized representative before installation. The electrical service shall be coordinated with this location.
- B. The Irrigation Contractor shall be responsible for the final electrical hook up to the irrigation controller.

- C. The irrigation system shall be programmed to operate during the periods of minimal use of the design area.

3.07 CONTROL WIRING

- A. Low voltage control wiring shall occupy the same trench and shall be installed along the same route as the pressure supply lines whenever possible.
- B. Where more than one wire is placed in a trench, the wiring shall be taped together in a bundle at intervals of 10 feet. Bundle shall be secured to the mainline with tape at intervals of 20 feet.
- C. All connections shall be of an approved type and shall occur in a valve box. Provide an 18 inch service loop at each connection.
- D. An expansion loop of 12 inches shall be provided at each wire connection and/or directional change, and one of 24 inches shall be provided at each remote control valve.
- E. A continuous run of wire shall be used between a controller and each remote control valve. Under no circumstances shall splices be used without prior approval.

3.08 VALVES

- A. Automatic control valves, quick coupler, and gate valves are to be installed in the approximate locations indicated on the drawings.
- B. Valve shall be installed in shrub areas whenever possible.
- C. Install all valves as indicated in the detail drawings.
- D. Valves to be installed in valve boxes shall be installed one valve per box.

3.09 VALVE BOXES

- A. Valve boxes shall be installed in shrub areas whenever possible.
- B. Each valve box shall be installed on a foundation of 3/4 inch gravel backfill, 6" deep extending 6" beyond the perimeter of the box, minimum. Valve boxes shall be installed with their tops 1/2 inch above the surface of surrounding finish grade in lawn areas and 2 inches above finish grade in ground cover areas.

3.10 IRRIGATION HEADS AND DRIP TUBING

- A. Irrigation heads and drip tubing shall be installed as indicated on the drawings.
- B. Spacing of heads and drip tubing shall not exceed maximum indicated on the drawings.
- C. Riser nipples shall be of the same size as the riser opening in the sprinkler body.

3.11 MISCELLANEOUS EQUIPMENT

- A. Install all assemblies specified herein according to the respective detail drawings or specifications, using best standard practices.
- B. Quick coupler valves shall be set approximately 12 inches from walks, curbs, header boards, or paved areas where applicable.
- C. Install devices such as rain sensors, freeze sensors, flush valves, air relief valves and master valves as indicated on the drawings and as recommended by the manufacturer.

3.12 FLUSHING THE SYSTEM

- A. Prior to installation of irrigation heads, the valves shall be opened and a full head of water used to flush out the lines and risers.
- B. Irrigation heads shall be installed after flushing the system has been completed.

3.13 ADJUSTING THE SYSTEM

- A. Contractor shall adjust valves, align heads, and check the coverage of each system prior to coverage test.
- B. If it is determined by the Landscape Architect or Owner's authorized representative that additional adjustments or nozzle changes will be required to provide proper coverage, all necessary changes or adjustments shall be made prior to any planting.
- C. The entire system shall be operating properly before any planting operations commence.
- D. Automatic control valves are to be adjusted so that the irrigation heads and drip tubing operate at the pressure recommended by the manufacturer.

3.14 TESTING AND OBSERVATION

- A. Do not allow or cause any of the work of this section to be covered up or enclosed until it has been observed, tested and accepted by the Landscape Architect, Owner, and governing agencies.
- B. The Contractor shall be solely responsible for notifying the Landscape Architect, Owner, and governing agencies, a minimum of 48 hours in advance, where and when the work is ready for testing.
- C. When the sprinkler system is completed, the Contractor shall perform a coverage test of each system in its entirety to determine if the water coverage for the planted areas is complete and adequate in the presence of the Landscape Architect. Coverage test must be made prior to the installation of plant material.
- D. The Contractor shall furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from the plans, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the Landscape Architect. This test shall be accepted by the Landscape Architect and accomplished before starting any planting.
- E. Substantial Completion Observation will not commence without progress Record Drawings as prepared by the Irrigation Contractor.
- F. Substantial Completion Follow-up shall not commence without completed Record Drawings as prepared by the Irrigation Contractor.

3.15 MAINTENANCE

- A. During the maintenance period the Contractor shall adjust and maintain the irrigation system in a fully operational condition providing complete irrigation coverage to all intended plantings.

3.16 COMPLETION CLEANING

- A. Clean-up shall be made as each portion of the work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be broomed, and any damage sustained on the work of others shall be repaired to original conditions.

END OF SECTION

**SECTION 329300
PLANTING****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. This Section includes the following: Furnishing trees, shrubs, perennials and ground covers. Preparing on-structure and on-grade vault planters and on-grade planting areas including soil, filter fabric, and drainage rock. Planting trees, shrubs, perennials and groundcovers including fertilizing, mulching, trimming, guying, and wrapping. Maintaining trees, shrubs, perennials and groundcovers.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
- C. Final Acceptance will be acknowledged by the Owner when all landscape work is complete and acceptable. All landscape work shall be complete, healthy, clean, and acceptable to the Owner before Final Acceptance will be acknowledged

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section
- B. The following Sections contain requirements that relate to this Section:
 - 1. 129300 Site Furnishings
 - 2. 323224 Basalt Rubble
 - 3. 328400 Irrigation

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
 - 1. 1/4 cubic foot, topsoil with composition analysis.
 - 2. 1 square foot of soil barrier.
 - 3. Mulch in labeled plastic bag.
 - 4. Compost in labeled plastic bag.
 - 5. 1 small bag of Pro-Grow Semi-Intense soil.
 - 6. 1 small bag of Pro-Grow Intensive soil.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements.
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Analysis for other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
 - 3. Label data substantiating that plants, trees, shrubs, and planting materials comply with specified requirements.
- C. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.
 - 1. Analysis of imported topsoil.
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of architects and owners, and other information specified.
- E. Planting schedule indicating anticipated dates and locations for each type of planting.
- F. Maintenance instructions recommending procedures to be established by Owner for maintenance of landscaping during an entire year. Submit before expiration of required maintenance periods.

1.4 QUALITY ASSURANCE

- A. General: Comply with applicable federal, state, county, and local regulations governing landscape materials and work.
- B. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that landscaping is in progress.
- C. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Landscape Architect's satisfaction, based on evaluation of agency - submitted Criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.
- D. Provide quality, size, genus, species, and variety of trees and shrubs indicated, complying with applicable requirements of ANSI Z60.1 "American Standard for Nursery Stock."
 - 1. Selection of trees and shrubs purchased under allowances will be made by Landscape Architect, who will tag stock at their place of growth before they are prepared for transplanting.
- E. Topsoil (stockpiled, Imported, Pro Grow Semi Intense, Water Quality Soil) Soil Mixture Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of sandy loam.
 - 1. Report suitability of imported topsoil mixture for growth of applicable planting material. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce satisfactory topsoil.
- F. Measurements: Measure trees and shrubs according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches (150 mm) above ground for trees up to 4-inch (100-mm) caliper size, and 12 inches (300 mm) above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.
- G. Pre-installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. Trees, Shrubs, Perennials and Groundcovers: Deliver freshly dug trees and shrubs. Do not prune before delivery, except as approved by Architect. Protect bark, branches, and root systems from sunscald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy natural shape. Provide protective covering during delivery. Do not drop trees and shrubs during delivery. Provide perennials and groundcovers that are well rooted within their containers, do not provide perennials and groundcovers that have recently been upsized to a larger container.
- C. Handle balled and burlapped stock by the root ball.
- D. Deliver trees, shrubs, ground covers, and plants after preparations for planting have been completed and install immediately. If planting is delayed more than 6 hours after delivery, set planting materials in shade, protect from weather and mechanical damage, and keep roots moist.
 - 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.

2. Do not remove container-grown stock from containers before time of planting.
3. Water root systems of trees and shrubs stored on site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.6 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform work in a manner, which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Architect before planting.

1.7 COORDINATION AND SCHEDULING

- A. Coordinate installation of planting materials during normal planting seasons for each type of plant material required.
- B. Provide 48 hour written notice to Landscape Architect prior to delivery of plant material for approval.
- C. Provide 48 hour written notice to Landscape Architect for placement of plant material prior to plant pit excavation.

1.8 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Warrant the following living planting materials for a period of one year after date of Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner, abnormal weather conditions unusual for warranty period, or incidents that are beyond Contractor's control.
 1. Trees.
 2. Shrubs.
 3. Perennials.
 4. Ground covers.
- C. Remove and replace dead planting materials immediately unless required to plant in the succeeding planting season.
- D. Replace planting materials that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
- E. A limit of one replacement of each plant material will be required, except for losses or replacements due to failure to comply with requirements.
- F. One year from the Substantial Completion date, the landscape architect will perform a walk thru and determine final acceptance of the project.

1.9 TREE AND SHRUB MAINTENANCE

- A. Maintain trees and shrubs by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees and shrubs free of insects and disease. Restore or replace damaged tree wrappings. Maintain trees and shrubs for the following period:
 1. Maintenance Period: 90 days following Substantial Completion.

1.10 PERENNIAL AND GROUND COVER MAINTENANCE

- A. Maintain perennial and ground cover plants by watering, weeding, fertilizing, and other operations as required to establish health, viable plantings for the following period:
 - 1. Maintenance Period: 90 days following Substantial Completion.

PART 2 PRODUCTS**2.1 TREE AND SHRUB MATERIAL**

- A. General: Furnish nursery-grown trees and shrubs conforming to ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of sizes and grades conforming to ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.
- C. Label at least 1 tree and 1 shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.2 SHADE TREES

- A. Provide trees of height and caliper indicated.
- B. Shade Trees: Multi-stem trees well-balanced crown, and intact leader, of height and caliper indicated.
 - 1. Branching Height: 1/2 of tree height.
- C. Provide balled and burlapped trees.
 - 1. Container-grown trees will be acceptable in lieu of balled and burlapped trees subject to meeting ANSI Z60.1 limitations for container stock.

2.3 DECIDUOUS SHRUBS

- A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.
- B. Provide balled and burlapped deciduous shrubs.
- C. Container-grown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs subject to meeting ANSI Z60.1 limitations for container stock.

2.4 BROADLEAF EVERGREENS

- A. Form and Size: Normal-quality, well-balanced, broadleaf evergreens, of type, height, spread, and shape required, conforming to ANSI Z60.1.
- B. Provide balled and burlapped broadleaf evergreens.
 - 1. Container-grown broadleaf evergreens will be acceptable in lieu of balled and burlapped broadleaf evergreens subject to meeting ANSI Z60.1 limitations for container stock.

2.5 PERENNIALS AND GROUND COVERS

- A. Provide perennials and ground covers and plants established and well rooted in removable containers or integral peat pots and with not less than the minimum number and length of runners required by ANSI Z60.1 from the pot size indicated.

2.6 TOPSOIL FOR ON-GRADE PLANTINGS

- A. Topsoil (Stockpiled and Imported): ASTM D 5268, pH range of 5.5 to 7, 4 percent organic material minimum, free of stones 1 inch (25 mm) or larger in any dimension, and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on the site. Verify suitability of surface soil to produce topsoil-meeting requirements and amend when necessary. Supplement with imported topsoil when quantities are insufficient. Clean imported topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.7 SOIL AMENDMENTS

- A. Limestone: Add percentages of carbonates, calcium, and magnesium when required.
- B. Lime: ASTM C 602, Class T, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent, with a minimum 99 percent passing a No. 8 (2.36 mm) sieve and a minimum 75 percent passing a No. 60 (250 micrometer) sieve.
 1. Provide lime in the form of dolomitic limestone.
- C. Aluminum Sulfate: Commercial grade, unadulterated.
- D. Loam:Sandy/Silty native river loam free of rock, clay, cloddy debris, roots, weeds, and other extraneous material.
- E. Vermiculite: Horticultural vermiculite, soil amendment grade.
- F. Peat Humus: For acid-tolerant trees and shrubs, provide moss peat, with a pH range of 3.2 to 4.5, coarse fibrous texture, medium-divided sphagnum moss peat or reed-sedge peat.
- G. Organic Soil Amendment: Well-rotted compost used as a growing medium for commercially grown mushrooms; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.
- H. Herbicides: EPA registered and approved, of type recommended by manufacturer.
- I. Water: Potable.

2.8 FERTILIZER

- A. Bonemeal: Commercial, raw, finely ground; minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; minimum of 20 percent available phosphoric acid.
- C. Slow-Release Fertilizer: Osmacote or approved equal.
 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.9 SOIL FOR ALL ON-STRUCTURE PLANTINGS (POTS AND PLANTERS)

- A. Pro-Grow – Semi Intensive
- B. Plant Container Soils
 1. ProGrow – Intensive Roof Top Media

2.10 MULCHES

- B. Organic Compost Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
 2. Hemlock Bark – 2" depth
 - a. Type: Fine Compo-Stuff
 - b. Size: 5/8" dust
 - c. Color: black

2.11 PESTICIDES

- B. General: Pesticide registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- C. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- D. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

2.12 TREE STABILIZATION MATERIALS

- B. Stakes and Guys:
 - 2. Upright and Guy Stakes: Rough-sawn, sound, new softwood with specified without wood pressure-preservative treatment, free of knots, holes, cross grain, and other defects, **2-by-2-inch nominal** by length indicated, pointed at one end.
 - 3. Guys and Tie Wires: ASTM A 641/A 641M, Class 1, galvanized-steel wire, two-strand, twisted, **0.106 inch** in diameter.
 - 4. "VIT Cinch Tie" or Equivalent

2.13 MISCELLANEOUS PRODUCTS

- B. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
- C. Burlap: Non-synthetic, biodegradable.
- D. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per **lb (0.45 kg)** of vesicular-arbuscular mycorrhizal fungi and 95 million spores per **lb (0.45 kg)** of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.

PART 3 EXECUTION**3.1 EXAMINATION**

- A. Examine areas to receive landscaping for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Verify that waterproof membrane at each planter locator over building structure has been hydrostatic tested and is acceptable to Contracting Officer prior to placing landscape products in this Specification section.
- C. Planting shall occur only in areas where an irrigation system has been installed and functioning. Provide supplanted and manual water as needed where irrigation system is not to be provided.

3.2 WORK AT PLANTER VAULTS LOCATED ON PT SLAB

- A. Take all precautions while executing work in planters necessary to prevent damage to waterproof membrane and protection board. Repair any resulting damage to satisfaction of Contracting Officer.
- B. Place drainage gravel to uniform minimum depth of 2".
- C. Place soil barrier over drainage gravel where contact with soil occurs. Lap joints 18" minimum, and lap 12" minimum vertical wall surface.
- D. Placement of Topsoil (Pro-Grow Mixture)
 - 1. Place prepared soil mix carefully over the soil barrier in 6" maximum lifts.

2. Settle each lift individually by mist watering and light rolling. Water jetting shall not be permitted.
 3. Method of placement will be at the option of the Contractor. Review method with Contracting Officer prior to proceeding with placement.
 4. Placement shall be accomplished in a manner as to prevent the separation of soil mix ingredients.
- E. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.
- F. Fill excavations with water and allow to percolate out, before placing setting layer and positioning trees and shrubs.

3.3 ON-GRADE PLANT BED PREPARATION

- A. Loosen subgrade of planting bed areas to a minimum depth of 12 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous materials.
- B. Spread planting soil mixture to depth required to meet thickness, grades, and elevations shown, after light rolling and natural settlement. Place approximately 1/2 the thickness of planting soil mixture required. Work into top of loosened sub grade to create a transition layer and then place remainder of planting soil mixture.
- C. Till soil in beds to a minimum depth of 8 inches and mix with specified soil amendments and fertilizers.

3.4 PLANTING TREES AND SHRUBS (ON PT SLAB AND ON-GRADE)

- A. Set balled and burlapped stock plumb and in center of pit or trench with top of ball raised above adjacent finish grades as indicated.
1. Place stock on setting layer of compacted planting soil.
 2. Remove burlap and wire baskets from tops of balls and partially from sides, but do not remove from under balls. Remove pallets, if any, before setting. Do not use planting stock if ball is cracked or broken before or during planting operation.
 3. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. When pit is approximately 1/2 backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing and tamping final layer of backfill.
- B. Set container-grown stock plumb and in center of pit or trench with top of ball raised above adjacent finish grades as indicated.
1. Carefully remove containers so as not to damage root balls.
 2. Place stock on setting layer of compacted planting soil.
 3. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. When pit is approximately 1/2 backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing and tamping final layer of backfill.
- C. Dish and tamp top of backfill to form a 3-inch-high mound around the rim of the pit. Do not cover top of root ball with backfill.
- D. Wrap trees of 2-in caliper and larger with trunk-wrap tape. Start at base of trunk and spiral cover trunk to height of first branches. Overlap wrap, exposing half the width, and securely attach without causing girdling. Inspect tree trunks for injury, improper pruning, and insect infestation and take corrective measures required before wrapping.
- E. Prior to planting Bamboo, identify where Bamboo barrier will need to be placed with the project Landscape Architect. Barrier within planters and on-grade situations shall be a minimum of 2 feet in depth and 3 feet where possible.

3.5 TREE AND SHRUB PRUNING

- A. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Architect, do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character. Shrub sizes indicated are size after pruning.

3.6 TREE AND SHRUB STAKING

- A. Upright Staking and Tying: Stake trees of 2- through 5-inch caliper. Set stakes pursuant to detail shown on drawings. Set vertical stakes and space to avoid penetrating balls or root masses. Support trees with 2 strands of tie wire encased in hose sections at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.

3.7 MULCHING

- A. Organic Mulch: Apply 2 inches, average thickness, of organic mulch and finish level with adjacent finish grades. Do not place mulch against trunks or stems.

3.8 INSTALLATION OF MISCELLANEOUS MATERIALS

- A. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage.
- B. When deciduous trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again 2 weeks after planting.

3.9 CLEANUP AND PROTECTION

- A. During landscaping, keep pavements clean and work area in an orderly condition.
- B. Protect landscaping from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

3.11 PLANTING SOIL AMENDMENTS SCHEDULE

- A. Tree Pits or Trenches: Provide soil amendments in not less than the following quantities:
 - 1. Ratio of loose peat humus to topsoil by volume: per soils report
 - 2. Weight of lime per cu. ft. of backfill: per soils report
 - 3. Weight of bone meal per cu. ft.: per soils report
 - 4. Weight of super phosphate per cu. ft.: per soils report
 - 5. Weight of potash per cu. ft.: per soils report
 - 6. Weight of commercial fertilizer per cu. ft.: per soils report
- B. Ground Cover Beds: Provide soil amendments in not less than the following quantities:
 - 1. Ratio of loose peat humus to topsoil by volume: per soils report
 - 2. Weight of lime per 1000 sq. ft.: per soils report
 - 3. Weight of bone meal per 1000 sq. ft.: per soils report
 - 4. Weight of super phosphate per 1000 sq. ft.: per soils report
 - 5. Weight of potash per 1000 sq. ft.: per soils report
 - 6. Weight of commercial fertilizer per 1000 sq. ft.: per soils report

END OF SECTION