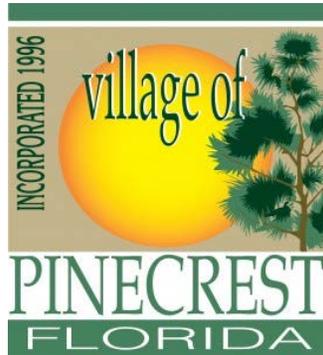


CONTRACT DOCUMENTS
AND
SPECIFICATIONS



VILLAGE OF PINECREST
KENDALL DRIVE IMPROVEMENTS
from
US-1/SO. DIXIE HIGHWAY TO SW 65th COURT

October 2016

TABLE OF CONTENTS

<u>DIVISION 1 – GENERAL REQUIREMENTS</u>	<u>Page No.</u>
Section 01005 - Technical Provisions	01005-1
Section 01010 - Summary of Work	01010-1
Section 01026 - Measurement and Payment	01026-1
Section 01031 - Alteration Project Procedures	01031-1
Section 01045 - Cutting and Patching	01045-1
Section 01050 - Field Engineering	01050-1
Section 01060 - Regulatory Requirements and Permits	01060-1
Section 01200 - Project Meetings	01200-1
Section 01310 - Schedules and Reports	01310-1
Section 01340 - Shop Drawings, Product Data and Samples	01340-1
Section 01380 - Construction Photographs	01380-1
Section 01400 - Quality Requirements	01400-1
Section 01420 – References and Standards	01420-1
Section 01505 - Mobilization	01505-1
Section 01510 - Temporary Utilities	01510-1
Section 01520 - Construction Aids	01520-1
Section 01530 - Protection of Existing Facilities	01530-1
Section 01550 - Site Access and Storage	01550-1
Section 01560 - Temporary Controls	01560-1
Section 01570 - Traffic Regulations	01570-1
Section 01600 – Materials & Equipment	01600-1
Section 01710 - Cleaning	01710-1
Section 01720 - Project Record Documents	01720-1
Section 01740 - Guarantees and Bonds	01740-1
Section 01770 - Closeout Procedures	01770-1
<u>DIVISION 2 – SITEWORK</u>	
Section 02810 –Irrigation System	02810-1
Section 02900 – Landscape Work	02900-1
Section 02931- Temporary Tree and Plant Protection	02931-1
Section 02935 – Sodding	02935-1
<u>DIVISION 3 - CONCRETE</u>	
Section 03360 – Integrally Colored Stamped Concrete	03360-1

The FDOT Standard Specifications for Road and Bridge Construction (July 2016), as amended by Contract Documents shall be treated as though incorporated herein. Should a conflict in the Technical Specifications and FDOT Standard Specifications for Road and Bridge Construction occur, the more stringent, as defined by the Engineer, shall apply.

FDOT Standard Specifications for Road and Bridge Construction
<http://www.dot.state.fl.us/programmanagement>

DIVISION 1
GENERAL REQUIREMENTS

SECTION 01005– TECHNICAL PROVISIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Work under this contract includes furnishing materials, labor, tools equipment, supervision and incidentals necessary to construct infrastructure improvements.
- B. The provisions of this Section shall amplify the "General Conditions", including updates through the bid date of this project, in specific instances and shall have full force and effect as if contained in those documents.
- C. TECHNICAL SPECIFICATIONS consists of this section described as TECHNICAL PROVISIONS, pages 01005-1 to 01005-6, the applicable sections of the latest version of the Florida Department of Transportation (FDOT) Design Standards, FDOT Standard Specifications for Road and Bridge Construction, and the Miami-Dade County Public Works Manual "Design and Construction Standards."
- D. In case of a conflict among the Florida Department of Transportation (FDOT) Design Standards, Miami-Dade County Public Works Manual "Design and Construction Standards", the Project Drawings, these TECHNICAL PROVISIONS and the "General Conditions", the "General Conditions" will govern.
- E. Florida Department of Transportation (FDOT) Design Standards are not attached herein but can be obtained from the Florida Department of Transportation website.
- F. Whenever a reference to number of days is noted, it shall be construed to mean calendar days.

1.3 ITEMS SPECIFIED ON DRAWINGS

- A. Items of material, equipment, machinery and the like may be specified on the Drawings and not in the Technical Specifications. The CONTRACTOR in accordance with the General Notes on the Drawings shall provide such items.

1.4 FIELD LAYOUT OF WORK AND RECORD DRAWINGS

- A. After completion of construction, the CONTRACTOR shall provide six (6) sets of Record Drawings and (3) CD's with all the As-Built information; all locations, dimensions and elevations of the constructed facilities, certified, signed and sealed thereon by a Land Surveyor registered in the State of Florida. All elevations shall refer to N.G.V.D. (National Geodetic Vertical Datum). The cost of such field layout and recording work shall be the responsibility of the CONTRACTOR.

1.5 SALVAGE

- A. Any existing equipment or material, including but not limited to valves, pipes, fittings, couplings, etc., which is removed as a result of construction under this project may be designated as salvage by the VILLAGE, and if so, shall be delivered clean to the VILLAGE at a location directed by the VILLAGE. Any equipment or material not worthy of salvaging shall be disposed of by the CONTRACTOR at a suitable location in accordance with all applicable regulations, ordinances and laws at no additional cost to the VILLAGE.

1.6 WATER SUPPLY

- A. All water and equipment required for testing, flushing, and construction shall be furnished and paid for by the CONTRACTOR with coordination with appropriate utility provider (as applicable).

1.7 MAINTENANCE

- A. The CONTRACTOR shall fully cooperate at all times with the VILLAGE in order to maintain the operation of the existing water and/or sewer system with the least amount of interference and interruption possible. The schedule, plans and work of the CONTRACTOR shall at all times be subject to alteration and revision if necessary for public health and safety considerations. The creation of a public nuisance will not be permitted.
- B. It may be necessary to interrupt the operation of the existing water and/or sewer system. In all cases where the CONTRACTOR must cause an interruption, CONTRACTOR shall prepare and submit to the CONSULTANT four (4) working days prior to commencing the work, a complete description of the proposed procedure and a time schedule, which CONTRACTOR will guarantee. At least forty-eight (48) hours prior to the time proposed for starting the work, the CONSULTANT will notify the CONTRACTOR whether or not the work will be permitted as proposed.
 - 1. The CONSULTANT reserves the right to require the CONTRACTOR to work 24 hours per day in all cases where, in CONSULTANT'S opinion, interference with operation of the system may result in dangerous health hazards or offensive conditions.
 - 2. In no case will the CONTRACTOR be permitted to interfere with the existing system until all materials, supplies, equipment, tools and incidentals necessary to complete the work are on the site. Backup equipment on key equipment items shall be required on work necessitating interference with the existing system.

1.8 SITE RESTORATION

- A. The CONTRACTOR shall remove all excess material and shall clean up and restore the site to its original condition or better. All damage, as a result of work under this Contract, done to existing structures, pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, conduits, drains, catch basins, flagstones, rocked, graveled, or stabilized areas of driveways, and including all obstructions not specifically named herein, shall be repaired, or replaced, as determined by the VILLAGE. Site restoration shall be done in a timely manner as the work progresses.

1.9 SANITARY FACILITIES

- A. The CONTRACTOR shall provide temporary facilities at the site as directed by the VILLAGE.

1.10 STANDARDS

- A. Wherever in these TECHNICAL SPECIFICATIONS or in the drawings name and/or number refer to certain standards or regulations, the applicable publication shall be the latest revision thereof. Reference by abbreviation is made in accordance with the Section 01420, "References and Standards."

1.11 QUALITY OF ITEMS

- A. All material furnished for this project shall be new and unused. Any material, which has become excessively weathered or damaged since manufacture, shall not be considered as new. VILLAGE shall be the sole judge as to what constitutes excessive weathering or damage.

1.12 TESTING

- A. The Miami-Dade County Public Works Manual "Design and Construction Standards" and/or Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction may require during shop drawing review that materials and equipment supplied meet given standards and testing to demonstrate conformance to the standards is a part of those standards. The cost of these tests shall be the obligation of the CONTRACTOR and no extra charge shall be made to the VILLAGE on account of such testing.
- B. The CONTRACTOR will select a recognized, independent, certified testing laboratory to make tests on concrete, reinforcing steel, soils and other materials for the construction phase, which the VILLAGE may decide to test for conformity with the TECHNICAL SPECIFICATIONS. The CONTRACTOR shall supply the necessary samples for this testing without cost to the VILLAGE. The costs for actual testing shall be included within the base bid price for each line item which requires testing.
- C. Construction in areas where installation and restoration must satisfy the additional requirements of a local, state or federal authority may require testing to demonstrate conformance. The CONTRACTOR shall ascertain the extent of testing required by regulatory agencies within these areas. The CONTRACTOR is responsible for coordinating the performance such tests, including but not limited to, tests of compaction, and all costs for these tests shall be the obligation of the CONTRACTOR and no extra charge shall be made to the VILLAGE on account of such testing.

1.13 UTILITY CROSSINGS

- A. It is intended that wherever existing utilities must be crossed that the pipe may be deflected up to 75% of the manufacturers recommended limits, but shall not exceed the allowable limits of the VILLAGE. Adequate cover shall be used to adequately clear the obstruction. However, when in the opinion of the CONSULTANT, this procedure is not feasible CONSULTANT may direct the use of fittings to clear a utility crossing as detailed on the Drawings. The cost of such crossing including joint restraints shall be on the basis of the schedule of pay items applied.

- B. Deflections and adjustments of the proposed pipelines to avoid all other existing utilities shall be verified/determined in the field during construction.

1.14 BASIS OF MEASUREMENT

- A. Where mains are to be paid for on a unit price per linear foot basis, the number of linear feet will be determined by measurement along the centerline of the pipe in place, including fittings.

1.15 RELOCATIONS

- A. The CONTRACTOR shall be responsible for the relocation of structures that are shown on the drawings, including, but not limited to, light poles, signs, fences, piping, conduits and drains that interfere with the proposed positioning of the drainage. The cost of all such relocations shall be included in the prices bid for the appropriate items.

1.16 UTILITIES

- A. Existing utilities are shown on the Drawings insofar as information is reasonably available; however, it will be the responsibility of the CONTRACTOR to preserve all existing utilities whether shown on the Drawings or not. If utility conflicts are encountered by the CONTRACTOR during construction, CONTRACTOR shall give sufficient notice to their owners so that they may make the necessary adjustments. Damage to any utility, which in the opinion of the VILLAGE is caused by carelessness on the part of the CONTRACTOR shall be repaired at the expense of the CONTRACTOR.

1.17 GUARANTEE

- A. The CONTRACTOR shall guarantee the equipment, material and labor performed under the Contract against any and all failures in proper use and operation for a period of one (1) year from date of written acceptance by the VILLAGE.
- B. The CONTRACTOR shall also obtain warranties from manufacturers for each piece of equipment furnished so that the manufacturer's warranty fully covers the equipment for a period of one (1) year from the date of written acceptance by the VILLAGE.

1.18 PERFORMANCE OF WORK

- A. The CONTRACTOR shall provide all personnel and equipment required to complete all work specified herein and on the Drawings. In an emergency situation, if the VILLAGE determines that it must provide staff and/or equipment to assist the CONTRACTOR in the satisfactory performance of the Contract terms and conditions, the CONTRACTOR at the applicable prevailing wage rates shall reimburse the VILLAGE. Any additional cost accrued by inspector overtime work (i.e. weekends and holidays) will be billed at the current hourly overtime rate.
- B. CONTRACTOR shall provide forty-eight (48) hours advance written notice to the VILLAGE for approval of CONTRACTOR'S intention to work overtime on weekdays or to work on the weekends.

1.19 BARRICADING (SAFETY)

- A. The CONTRACTOR shall be responsible for the furnishing and maintaining of all required barricades, either the lighted or the reflector type, to ensure the public's safety during open trench work or for any other potentially unsafe or hazardous construction activities. Barricades shall be located and displayed in conformance with the most stringent regulations required by the governing agencies. All costs for barricading, including any permits, shall be the responsibility of the CONTRACTOR:
- B. All work in public rights-of-way shall be done in strict compliance with these specifications, Florida Department of Transportation (FDOT) Design Standard, and Miami-Dade County Public Works Manual "Design and Construction Standards". Failure to comply will result in cessation of operations and the removal of project related obstructions from the right-of-way until compliance is achieved.

PART 2 – Products (Not Applicable)

PART 3 – Execution (Not Applicable)

END OF SECTION 01005

SECTION 01010 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The Work to be performed under this Contract shall consist of furnishing and installing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the VILLAGE.

1.3 PROJECT INFORMATION

- A. Project Identification: SW 88th Street/Kendall Drive Improvements
 - 1. Project Location: SW 88th Street/Kendall Drive from US-1/S. Dixie Highway to SW 65th Court
- B. Owner: Village of Pinecrest (VILLAGE)
 - 1. Owner's Representative:
Mark Spanioli, PE Public Works Director
Public Works Department
10800 Red Road
Pinecrest, Florida 33156
Phone: (305) 669-6916
- C. Landscape Architect Consultant: O'Leary Richards Design Associates, Inc.
- D. Landscape Architect's Consultant: The Landscape Architect has retained Alvarez Engineers, Inc. who has prepared designated portions of the Contract Documents:

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. The work covered by the Specifications, Plans and other Contract Documents, shall be the furnishing and installation of all materials, equipment, tools and superintendence

necessary for the complete, in-place Project as outlined in the Plans and Specifications as well as FDOT Standards and Specifications as described in the Contract Documents. The work will include but not be limited to site preparation, earthwork, curbing, sidewalks, milling and resurfacing, painting, stamped concrete crosswalks, landscape lighting, electrical work, landscaping and irrigation for SR 88th Street/Kendall Drive within the project limits as indicated in the Contract Documents.

- B. The Contract time required to Substantial Completion for the Project will be one hundred and twenty (120) calendar days from the Notice to Proceed. The Final Completion is required to be completed within fifteen (15) days of Substantial Completion date.

1.5 NOTICE TO BIDDERS

- A. The successful bidder, in order to be considered responsive, must possess the appropriate licenses.
- A. It should also be noted that the successful bidder will, at the time of the pre-work conference, be required to show that each of the CONTRACTOR'S subcontractors must possess the appropriate licenses.

1.6 STANDARD SPECIFICATION

- A. Except as noted, all materials and workmanship shall meet the requirements of the latest editions of the following publications:
 1. Miami-Dade County Public Works Manual "Design and Construction Standards"
 2. The Florida Department of Transportation "Standard Specifications for Road and Bridge Construction", and its supplements (July 2016)
 3. The Florida Department of Transportation "Design Standards" (FY 2016-17)
 4. Village of Pinecrest Public Works Standards.

1.7 TECHNICAL SPECIFICATIONS

- A. The Technical Specifications which govern the materials to be furnished and the Work to be performed under this contract are found in the Technical Specifications portion listed in the Table of Contents at the beginning of this document. The Technical Specifications incorporated in this document shall supplement the FDOT Standard Specifications for Road and Bridge Construction (July 2016) and the more stringent, as defined by the Engineer, shall apply. The Technical Specifications referred to above are supplemented by the FDOT Standard Specifications for Road and Bridge Construction (July 2016), all of which shall be treated as though incorporated herein.

1.8 CONSTRUCTION DRAWINGS OR PLANS

- A. The Construction Drawings or Plans on which the Contract is based consist of those sheets enumerated below. The Construction Drawings or Plans are supplemented by the FDOT Design Standards dated FY 2016-17, <http://www.dot.state.fl.us/rddesign>.

<u>Drawing Title</u>	<u>Drawing No.</u>
Key Sheet	LD-1
Tree Disposition Plan	LD-2 to LD-6
Tree Disposition Chart	LD-7
Landscape Plans	LD-8 to LD-12
Hardscape Plans	LD-13 to LD-14
Landscape Details	LD-15 to LD-16
Irrigation Plans	LI-1 to LI-8
Irrigation Notes & Legend	LI-9
Irrigation Details	LI-10 to LI-11
Schematic Landscape Lighting Plan	LL-1 to LL-5
Typical Section	C-1
General Notes	C-2 to C-3
Summary of Quantities	C-4 to C-5
Roadway Plan	C-6 to C-10
Traffic Control Plan	C-11
Lighting Plan	C-12 to C-16
Lighting Details	C-17
Signing and Pavement Markings Plan	C-18 to C-22
Project Network Control	CTL-1

1.9 SITE INVESTIGATION

The CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and all subcontractors have satisfied themselves to the nature and location of the work, the general and local conditions including, but not restricted to: those bearing upon transportation: disposal, handling and storage of material; access roads to the site; the conformation and conditions of the work area; and the character of the equipment and facilities needed preliminary to and during the performance of the work. Failure on that part of the CONTRACTOR to completely or properly evaluate the site conditions shall not be grounds for additional compensation.

1.10 WORK BY OTHERS

- A. Concurrent Work by Other Contractors. The CONTRACTOR'S attention is directed to the fact that other contractors may conduct work at the site during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause little or no interference with other contractors in order to provide continued safe access to their respective contracts.
- B. Interference with Work on Utilities. The CONTRACTOR shall cooperate fully with all utility forces of the VILLAGE or forces of other public or private agencies engaged in relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, alteration, or other rearranging to facilities.

1.11 WORK SEQUENCE

- A. The CONTRACTOR shall schedule and perform the work in such a manner as to result in the least possible disruption to the public's use of roadways, driveways, and utilities. Utilities shall include but not limited to water, sewerage, drainage structures, ditches and canals, gas, electric, television and telephone. Prior to commencing with the WORK, CONTRACTOR shall perform a location investigation of existing underground utilities and facilities in accordance with

Section 01530 entitles "Protection of Existing Facilities" and shall have obtained all required permit and permissions, CONTRACTOR shall also deliver written notice to the VILLAGE, ENGINEER, and property occupants (private or public) of all planned disruption to roadway, driveways, temporary displacement of fences, mailboxes, street signs and traffic signs, and utilities 72 hours in advance of disruption.

- B. CONTRACTOR shall sequence the work so as to minimize impact on residents. CONTRACTOR shall notify Miami-Dade County Traffic Engineering School Coordinator, Miami-Dade County Sheriff's, Fire Department and United States Post Office 14 days prior to disruption of roadway,
- C. No two adjacent roadways may be under construction at the same time (i.e. construction shall be on alternating roadways, and every other roadway shall remain open for access). CONTRACTOR shall provide VILLAGE and ENGINEER with a work sequence plan which shall be reviewed and approved prior to commencing work.
- D. In addition, the following restrictions shall be maintained
 - 1. The CONTRACTOR shall provide a detailed phasing and Maintenance of Traffic and/or Detour plan for review and approval by the VILLAGE prior to commencement of any construction activities.
 - 2. The CONTRACTOR shall provide access to driveway at the end of the working day.
 - 3. Access for emergency vehicles shall be maintained at all times to all properties. Excavation must be back-filled or covered with steel plating at the end of each work day to prevent hazardous conditions. If a trench, excavation or structure is to be left open, it must be covered with a steel plate and barricaded at end of each day or when work will be suspended for more than (8) hours.
 - 4. The CONTRACTOR shall also make provisions with local bus, school bus, garbage collection, mail delivery and other agencies for continuation of service. A traffic maintenance plan indicates proposed street closings, schedule, and alternate routes which has been approved by the applicable jurisdictional agency, should be submitted to all affected agencies for coordination and routing purposes.
 - 5. Materials and equipment shall not be stores within the right of way during non-working hours without prior approval of the VILLAGE. The CONTRACTOR shall be responsible for identifying a location to store material and equipment.

1.12 WORK SCHEDULE

- A. The Contract time required to Substantial Completion for the Project will be:
 - 1. One hundred and twenty (120) calendar days. The Final Completion is required to be completed within fifteen (15) days of Substantial Completion date.
- B. Time is of the essence in completing this project. Because time is of the essence, the CONTRACTOR shall commit the necessary resources to this project to complete it in a timely manner. Note that a typical workday will be based on hours between 7:00am and 7:00pm Monday through Friday, excluding holidays. Work on Saturdays may be allowed with prior approval from the Village of Pinecrest Public Works Department. No work is permitted on Sundays and/or holidays unless approved by the Village of Pinecrest Public Works Department in the event of emergencies. Lane closure, if required, must be approved by the Village of Pinecrest Public Works Department, Miami-Dade County Public Works, and FDOT (when lane closures affect State Roads including US-1 and Kendall Drive west of US-1). Lane closures are only permitted from 9:00am to 3:30pm and must follow the instructions listed on Item #5 of "Important Notices" on page 2 of the Village of Pinecrest Public Works Permit. If the CONTRACTOR wishes to work longer hours than those specified herein, it shall request so, in writing for review and approval by the VILLAGE. Work completed other than regular working

hours should be easily observable by the VILLAGE staff on the subsequent day. If the CONTRACTOR proposes to complete work that will be “covered up” after normal working hours, it shall reimburse VILLAGE for costs associated with the observation of such work. The Construction progress will be measured with the construction schedule submitted by the CONTRACTOR. All costs incurred to implement measures to complete the WORK in timely manner will be borne by the CONTRACTOR.

C. Schedule

1. CONTRACTOR shall submit scheduling information for the WORK for the review and approval of the VILLAGE. No separate payment shall be made for preparation and/or revision schedule.
2. CONTRACTOR will submit de-watering plan (if necessary) a minimum of 30 days before start-up of construction.
3. CONTRACTOR will submit shop-drawings a minimum of 10 days before start-up of construction.

1.13 COMPUTATION OF CONTRACT TIME

- A. It is the CONTRACTOR’S responsibility to provide clear and convincing documentation to the VILLAGE as to the effect additional work will have with respect to additional contract time extension that may be justified. If additional quantities of work can be carried out concurrent with other existing construction activities without disrupting the critical path of the project then no contract time extension will be granted. The CONTRACTOR is obligated to provide documentation to the VILLAGE if additional elements of work affect the critical path of the project. If work set forth on the original scope of the project is deleted, the contract time may be reduced. This contract is a calendar day contract. While the CONTRACTOR may be granted time to suspend work operations for vacations or holidays, contract time will not be suspended. During suspensions, the CONTRACTOR shall be responsible of all maintenance of traffic and liability without additional compensation from the VILLAGE. Any additional cost accrued by inspector overtime work (i.e. weekends and holidays) will be billed at an overtime hourly rate.

1.14 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations only during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project. The CONTRACTOR will arrange for storage of materials and a copy of an agreement for use of other property shall be furnished to the Owner.

1.15 PRE-CONSTRUCTION CONFERENCE

- A. After the award of Contract, a Pre-Construction Work Conference will be held between the CONTRACTOR, the ENGINEER, the VILLAGE, other interested Agencies, representatives of Utility Companies and others affected by the work. The VILLAGE will set the time and place of this conference. The CONTRACTOR shall bring to the conference a copy of the proposed work schedule for the approval by the VILLAGE of the proposed methods and manner executing the work including sequences of operation and time schedule. The work shall be performed in accordance with such schedule or approved amendments there to.

1.16 UTILITY LOCATIONS

- A. As far as possible, all existing utility lines in the project area have been shown on the plans. However, neither the VILLAGE nor the ENGINEER guarantee that all lines are shown, or that said lines are in their true location. It shall be the CONTRACTOR'S responsibility to identify and locate all underground or overhead utility lines or equipment for the project. No additional payment will be made to the CONTRACTOR because of discrepancies in actual and plan locations of utilities and damages as a result thereof.
- B. The CONTRACTOR shall notify each utility company each utility company involved at least (30) days prior to the start of construction to arrange for positive underground location, relocation or support of its utility where that utility may be in conflict with or endangered by the proposed construction. The CONTRACTOR shall pay for relocation of water mains or other utilities for the convenience of the CONTRACTOR. The CONTRACTOR shall pay for all charges by utility companies for temporary support of its utilities. All costs for permanent utility relocations to avoid conflict shall be the responsibility of the CONTRACTOR and the utility company involved.
- C. The CONTRACTOR shall schedule and coordinate their work in such a manner that they are not delayed by the utility companies relocating or supporting their utilities. No compensation will be paid to the CONTRACTOR for any loss of time or delay.
- D. All overhead, surface, and underground structures and/or utilities encountered are to be carefully protected from damage or displacement. All damage to said structures and/or utilities is to be completely repaired within a reasonable time; needless delay will not be tolerated. The VILLAGE reserved the right to remedy any damage by ordering outside parties to make repairs at the expense of the CONTRACTOR. All repairs made by the CONTRACTOR are to be made to the satisfaction of the utility owner and shall be inspected by a representative of the utility owner and the VILLAGE.
- E. The CONTRACTOR should be aware of the Sunshine State One Call Center, which has a free locating service for CONTRACTORS and excavators. Within forty-eight hours before excavating, dial toll free 811, and a locator will be dispatched to the work location. CONTRACTOR shall reasonably notify utility companies not notified by Sunshine State One Call Center.
- F. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify VILLAGE not less than two days in advance of proposed utility interruptions.
 - 2. Obtain VILLAGE'S written permission before proceeding with utility interruptions.
- G. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify VILLAGE not less than two days in advance of proposed disruptive operations.
 - 2. Obtain VILLAGE'S written permission before proceeding with disruptive operations.
- H. The CONTRACTOR is responsible for compliance with any and all permit conditions.
- I. The CONTRACTOR is responsible for obtaining construction permit, applicable building, and other permits from the VILLAGE including the VILLAGE Public Works Department Permit. CONTRACTOR is also responsible for obtaining all applicable permits for this project.

- J. The CONTRACTOR shall furnish to the VILLAGE copies of all required permits prior to commencement of work requiring permits.

1.17 SITE CONDITIONS

- A. The CONTRACTOR acknowledges that it has investigated prior to bidding and satisfied itself as to the conditions affecting the Work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, tides, water tables or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecuting of the Work. The CONTRACTOR further acknowledges that it has satisfied itself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, or any contiguous site, as well as from information presented by the Drawing and Specifications made a part of this Contract, or any other information made available to its prior to receipt of Bids. Any failure by the CONTRACTOR to acquaint itself with the available information will not relieve it from responsibility for estimating properly the difficulty or cost of successfully performing the Work. The VILLAGE assumes no responsibility for any conclusions or interpretations made by the CONTRACTOR on the basis of the information made available by the VILLAGE.
- B. The CONTRACTOR shall remove and dispose of all unsuitable material encountered such as muck, garbage, debris, etc. and replace with suitable fill as necessary. Disposal of all unsuitable material shall be at a site selected by the CONTRACTOR that is designated as an approved disposal site for the unsuitable material.

1.18 DIMENSIONS OF EXISTING UTILITIES

- A. Where the dimensions and locations of existing improvements are of critical importance in the installation or connection of new work, the CONTRACTOR shall verify such dimensions and locations in the field prior to the fabrication and/or installation of materials or equipment which are dependent on the correctness of such information.

1.19 LINE AND GRADE

- A. The CONTRACTOR shall develop and make all detailed surveys needed for construction and shall establish all working points, lines and elevations necessary to perform the work. A Professional Land Surveyor registered in the State of Florida shall supervise this surveying work.

1.20 PROTECTION AND RESTORATION OF SURVEY MONUMENTS

- A. The CONTRACTOR shall carefully protect from disturbance all survey monuments, stakes and bench marks, whether or not established by CONTRACTOR, and shall not remove or destroy any surveying point until it has been properly witnessed by the VILLAGE. All major survey monuments that have been damaged by the CONTRACTOR such as section corners, ¼ section corners; property corners or block control points shall be replaced at the CONTRACTOR'S expense with markers of a size and type approved by the VILLAGE. The replacement shall be under supervision of a Florida Registered Land Surveyor where directed by the VILLAGE.

1.21 EQUIPMENT

- A. All equipment necessary and required for the proper construction of all facilities shall be on the construction site, in first-class working conditions.

1.22 STORAGE SITES

- A. The CONTRACTOR shall furnish, at CONTRACTOR'S expense, properly zoned areas suitable for the material storage and equipment service and storage. No material may be stored in the public right of way without prior authorization by the agency having jurisdiction. The CONTRACTOR shall keep these areas in a clean and orderly condition so as not to cause a nuisance or sight obstruction to motorists or pedestrians.

1.23 OWNERSHIP OF EXISTING MATERIALS

- A. All materials removed or excavated from the job site shall remain the property of VILLAGE until released by the VILLAGE, at which time it shall become the property of the CONTRACTOR, who shall dispose of it in a manner satisfactory to the VILLAGE.

1.24 EXCESS MATERIAL

- A. Upon direction of the VILLAGE, all vegetation, debris, concrete or other unsuitable materials shall be disposed of in areas provided by the CONTRACTOR and approved by the VILLAGE. Any excess material desired to be retained by the VILLAGE shall be delivered by the CONTRACTOR to a designated area within the VILLAGE limits, at no extra cost to the VILLAGE.

1.25 ADJUSTING EXISTING VALVES, METERS, CATCH BASINS, AND MANHOLES

- A. It shall be the CONTRACTOR'S responsibility to coordinate and have all adjustments made to existing water meters, valves, and structures encountered during construction, to meet all final grades, unless otherwise instructed by the VILLAGE or the respective utility owner. All valves and maintenance access structures shall be accessible during all phases of the WORK for emergency access. Omission of such structures from the Contract Plans does not relieve the CONTRACTOR from making such adjustments as may be deemed necessary. Cost for such work shall be inputted in the Contractor's Base Bid.

1.26 CONFLICT STRUCTURES

- A. The CONTRACTOR shall abide by the following criteria concerning conflicts between new drainage construction and existing utilities.
 1. The CONTRACTOR shall verify the location of all utilities suspected of being potential conflicts prior to ordering drainage structures for these locations and inform the ENGINEER as to CONTRACTOR'S findings.
 2. The ENGINEER shall have full authority to direct the placement of conflict structures, the relocation of structures shown in the plans, and the addition, deletion, or relocation of any pipe or structure shown in the plans in order to facilitate construction, expedite completion and avoid conflicts with existing utilities.

3. Where an existing utility is to pass through a conflict structure, the CONTRACTOR shall protect the utility from damage by whatever means the utility owner and the ENGINEER deem necessary.
4. In no case shall there be less than 6 inches between any two (2) pipe lines within the structure or between pipelines and the structure.

1.27 ENVIRONMENTAL PROTECTION

- A. The CONTRACTOR shall furnish all labor and equipment and perform all work required for the prevention of environmental pollution during and as a result of the work under this contract. For the purpose of this contract, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utility of the environment. Pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants.
- B. The CONTRACTOR shall take all steps necessary to protect water quality in the connected water around the project and shall utilize such additional measures as directed by the ENGINEER. Silt screens adjacent to outfall construction shall not be removed until the turbidity of the affected waters is equal to or lower than the ambient turbidity of undisturbed segments of the waterway. Any discharge into existing drainage facilities shall require the approval of the owner of the system. This may require an engineered plan to be furnished at no additional cost to the VILLAGE.
- C. All protection requirements covered by this subsection shall be in compliance with all applicable jurisdictional agency requirements.
- D. Payment: Compensation for environmental protection shall be included in the lump sum bid price.

1.28 UNFAVORABLE CONSTRUCTION CONDITIONS

- A. During unfavorable weather, wet ground, or other unsuitable construction conditions, the CONTRACTOR shall confine his operation to Work which shall not affect adversely thereby. No portion of the work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the CONTRACTOR to perform the Work in a proper and satisfactory manner.
- B. In the event of inclement weather, or at the ENGINEER'S discretion, the Contractor shall carefully protect the Work, private property affected by the Work, and stored materials against damage or injury from the weather. If, in the opinion of the ENGINEER, any portion of the Work or materials is damaged or injured by reason of failure on the part of the CONTRACTOR to protect the Work, such Work and materials shall be removed and replaced at the CONTRACTOR'S expense.

1.29 REPORTING OF DAMAGE CLAIMS

- A. The CONTRACTOR shall keep the VILLAGE informed of any damage claims made against the CONTRACTOR during the construction period. All claims for automobile damage, property damage and/or bodily injury will be reported to the VILLAGE within 24 hours of receipt of notice. CONTRACTOR will conduct a timely investigation of the claim and determine if they honor

claims and/or report to their insurance carrier and provide periodic updates until final disposition of claims. CONTRACTOR will advise the VILLAGE in writing of its decision/referral to carrier.

1.30 MAINTENANCE AND PROTECTION OF TRAFFIC

- A. The CONTRACTOR shall provide all necessary traffic control devices in order to redirect, protect, warn or maintain existing vehicular and pedestrian traffic during the course of construction.

1. CONSTRUCTION PHASING REQUIREMENTS

Following are general requirements for construction phasing to minimize resident disruption, yet maximize cost effectiveness of the construction scheduling.

- a) The CONTRACTOR shall provide access to driveways at the end of the working day.
- b) Site restoration work shall be complete on private property within fifteen (15) days after being disbursed.
- c) Construction within the right of way of affected roads shall be scheduled so that all improvements are completed efficiently, to minimize disruptions to residents.
- d) All affected residents and property owners shall be notified by the contractor in writing a minimum of two (2) weeks, or earlier if required by the VILLAGE, prior to any disruption to or construction in road right-of-way adjacent to their homes. The notification shall also indicate any special parking or traffic conditions that will affect residents.
- e) All affected residents shall be notified by contractor a minimum of forty-eight (48) hours, or earlier if required by the VILLAGE, prior to a shut off of water supply. Any water supply interruptions shall be rescheduled to be as short as possible and not exceed twelve (12) hours.
- f) Access for emergency vehicles shall be maintained at all times to all homes or businesses. Excavation must be back-filled or barricaded at the end of each workday to prevent hazardous conditions. If a trench, excavation or structure is to be left open, it must be covered with a steel plate and barricaded at the end of each workday or when work will be suspended for more than eight (8) hours.
- g) Transportation provisions for handicapped or disabled residents shall be made by the CONTRACTOR if construction prevents access to homes.
- h) The CONTRACTOR shall also make provisions with local bus, school bus, garbage collection, mail delivery and other agencies for continuation of service. A traffic maintenance plan indicating proposed street closing, schedules, and alternate routes, which have been approved by the VILLAGE and Miami-Dade County Traffic Engineering (as applicable), should be submitted to all affected agencies for coordination and routing purposes.
- i) Materials and equipment shall be stored in a fence or otherwise enclosed area during non-working hours. Pipe and material shall not be strung out along installation routes for longer than one (1) week prior to installation.

B. Traffic Control

1. The CONTRACTOR is required to submit a conceptual Traffic Control Plan at the Pre-Construction Conference. This preliminary plan should identify the phases of construction that the CONTRACTOR plans to proceed with and identify traffic flows during each phase. The VILLAGE will have ten (10) days to notify the CONTRACTOR of any comments. Once the conceptual plan for maintaining traffic has been approved, the CONTRACTOR will be required to submit a detailed plan showing each phase's Maintenance and Protection Plan prior to starting construction of any phase.
2. The "Maintenance of Traffic" plan shall include pedestrian traffic as well as vehicular traffic.

A safe walk route for all schools within the vicinity of the construction zone shall be maintained during the arrival and dismissal of school. CONTRACTOR shall not block bus access to schools during school hours.

In the case that a designated crossing of any portion of the designated walk route cannot be maintained, then the CONTRACTOR shall notify the "School Safety Coordinator" at Miami-Dade County Traffic Engineer Division, a minimum of ten (10) working days prior to ceasing that route so that an alternate route can be established with the School and the Enforcing agency.

It shall be the responsibility of the CONTRACTOR for any necessary Constructions, Pavement Marking and Signage or any Pedestrian Signalizing and/or Signal Modification to accommodate an alternate safe walk route.

Thirty (30) days prior to the beginning of construction the CONTRACTOR shall notify "School Safety Coordinator" at Miami-Dade County Traffic Engineering Division, to set up a pre-work meeting as applicable.

3. The CONTRACTOR, at all times, shall conduct the work in such a manner as to insure the least obstruction to traffic is practical. Convenience of the general public and the residents adjacent to the work shall be provided fire in a satisfactory manner, as determined by the VILLAGE.
4. Sidewalks, gutters, drains, fire hydrants and private drives shall, insofar as practical, be kept in condition for their intended uses. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all time., and no material or obstruction shall be placed within twenty (20) feet of any such hydrant.
5. Construction materials stored upon the public street shall be placed so as to cause as little obstruction to the general public as is reasonably possible.
6. Streets may be closed only as permitted by the approved Maintenance of Traffic Plan, and as directed by the VILLAGE and, whenever the street is not closed, the work must be conducted with the provision for a safe passageway for traffic at all time. The CONTRACTOR shall make all necessary arrangements with the VILLAGE concerning maintenance of traffic and selection of detours required.
7. All existing stop and street name signs will be maintained as long as deemed necessary by the VILLAGE.
8. When permission has been granted to close an existing roadway, the CONTRACTOR shall furnish and erect signs, barricades, lights, flags and other protective devices, which shall conform to the requirements, and be subject to the approval of the VILLAGE. The CONTRACTOR shall furnish and maintain proper protective devices at such locations for the entire time of closure as the VILLAGE may direct. Signage shall be affected one week before closure.
9. The CONTRACTOR shall furnish a sufficient number of protective devices to protect and divert the vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Failure to comply with this requirement will result in the VILLAGE shutting down new work until the CONTRACTOR provides the necessary protection.
10. Any time traffic is diverted for a period of time that will exceed one-work day temporary pavement markings will be required. Existing pavement markings that conflict with new work, zone traffic patterns must be obliterated. Painting over existing pavement markings (black out) is not permitted.

1.31 APPLICATION FOR PAYMENT FOR STORED MATERIALS

- A. Application for payment for stored materials may not be made by the CONTRACTOR.

1.32 SPECIAL CONDITIONS FOR CONSTRUCTION BY OTHER AGENCIES

- A. It will be the CONTRACTOR'S responsibility to coordinate construction schedules with other contractors so as to minimize disruptions, and inconveniences. The project site shall be safe at all times for construction workers and residents of the Project area.

PART 2 – Products (Not Applicable)

PART 3 – Execution (Not Applicable)

END OF SECTION 01010

SECTION 01026 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. Payment for various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, taxes, commissions, transportation and handling, bonds, insurance, overhead and profit and for all labor operations and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the WORK all in accordance with requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Schedule of Prices Bid. Hence, all costs therefore shall be included in the prices named in the Schedules of Prices Bid for the various appurtenance items of the WORK.
- B. Payment for the various items of the Schedule of Prices Bid shall constitute full compensation for all professional and construction services to be provided by the CONTRACTOR as noted in the specifications, drawings, and any other components of this project.
- C. No separate payment for WORK OR MATERIALS will be made unless specifically stated on the plans or directed by the VILLAGE. All bid items include, but are not limited to the following tasks:
 - 1. Mobilization (Refer to Section 01505 entitled, "Mobilization" for detailed information on this work item. Payment for mobilization will be made in equal monthly amounts during the original duration of the contract time.)
 - 2. Maintenance of Traffic (Refer to Section 01570 entitled "Traffic Regulations" and Section 01010 entitled "Summary" for detailed information on Payment for Maintenance of Traffic. Payment for Maintenance of Traffic will be made in equal monthly amounts during the original duration of the contract time.)
 - 3. Roadway Improvements – The WORK for furnishing and installing all proposed / requisite roadway components includes, but not limited to the following items:

FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT (includes applying a tack coat and furnishing, placing and compacting all asphalt surface, complete in place to the cross section and thickness shown on the drawings, placement of temporary pavement markings, adjustment of existing valve boxes, saw-cutting of all pavement, and all cleanup of the area disturbed by this construction)

FURNISH AND PLACE CONCRETE SIDEWALK, CURB AND GUTTER, AND STAMPED CONCRETE CROSSWALKS (includes sidewalk, curb and gutter at the median and along the sidewalk, and colored stamped concrete crosswalks, as shown on the drawings).

MILL EXISTING ASPHALT SURFACE (includes milling and removal the existing asphalt pavement to depth shown on the drawings along with removal of existing reflective pavement markers, adjustment of existing valve box, saw cutting of all pavement, curb milling, and all cleanup of the area disturbed by this construction)

REMOVE AND DISPOSE OF EXISTING PAVEMENT (includes complete removal and disposal of the existing asphalt pavement to depth shown on the drawings along with removal of existing reflective pavement markers, adjustment of existing valve box, saw cutting of all pavement, curb, milling, and all cleanup of the area disturbed by this construction)

COMPACTION/STABILIZATION OF SUBGRADE (includes handling, cleaning, grading, and compaction of subgrade to a LBR 40 along with importing fill material and disposal of excess waste or unsuitable material)

FURNISH AND PLACE LIMEROCK BASE MATERIAL (includes applying prime coat and furnishing all limerock base material, in place to thickness defined in plans along with all transportation, handling, cleaning, grading, and compaction, and disposal of waste or unsuitable material)

RESTORATION OF DRIVEWAYS (includes all earthwork, removal of existing material, construction of the driveway to the same depth and material as the existing one, furnishing and setting for expansion joint material, removal and disposal of existing driveway regardless of thickness, disposal of excess material, and the appurtenant items)

FURNISH AND PLACE PAVEMENT MARKING (includes placement of pavement markings).

FURNISH AND INSTALL REFLECTIVE PAVEMENT MARKERS (includes placement of RPMs).

FURNISH AND INSTALL SIGNAGE (includes furnishing and installing new signage complete with sign post, footing, and all else necessary for a complete and functional installation according to requirement of Miami- Dade Traffic Engineering)

RELOCATE/ADJUST EXISTING SIGN (includes relocation or adjustment of existing signage with sign post, footing, and all else necessary for a complete and functional installation)

ADJUST EXISTING UTILITY STRUCTURES (includes all work necessary to adjust rim elevation of existing utility structures to match proposed grade)

4. Landscape Lighting Improvements – The WORK for furnishing and installing all proposed / requisite lighting components include, but are not limited to the following items:

FURNISH AND INSTALL LANDSCAPE LIGHTING (includes service rack and equipment, meter, conduit, cables and pull boxes, transformers, luminaires and all appurtenances).

5. Landscape Improvements – The WORK for furnishing and installing all proposed / requisite landscaping includes, but is not limited to the following items:

FURNISH AND INSTALL LANDSCAPING (includes proposed trees, shrubs, groundcover, root barrier, necessary excavation, backfill, grading, staking, watering, disposal of unsuitable material and cleanup as shown on the drawings).

RELOCATE EXISTING TREES (includes root pruning, excavation, relocation, staking, backfill and watering as shown on the drawings).

6. Irrigation Improvements – The WORK for furnishing and installing all proposed / requisite irrigation components includes, but is not limited to the following items:

FURNISH AND INSTALL DRIP IRRIGATION SYSTEM (includes water meter and connection, backflow preventer, pipes, sleeves, valves, controller, rain sensor, and all system components as shown on the drawings).

7. Painting Improvements – The WORK for cleaning and painting existing wall, includes, but not limited to the following items:

FURNISH AND PAINT EXISTING WALL (includes pressure cleaning, painting, and furnishing paint and all associated components).

- D. The CONTRACTOR's attention is called to the fact that the quotations provided for the various items on the Schedule of Prices Bid are intended to establish a GRAND TOTAL BASE BID AMOUNT for completing the WORK in its entirety. Should the CONTRACTOR feel that the cost for any item of WORK has not been established by the Schedule of Prices Bid in this Section, it shall include the cost for that Work in some other applicable bid item, so that its proposal for the project does reflect its total price for completing the WORK in its entirety.

1.3 SCHEDULE OF PRICES BID

- A. Lump Sum Base Bid: For the construction of the improvements on SW 88th Street/Kendall Drive between US-1/So. Dixie Highway and SW 65th Court, for the lump sum price noted. This WORK shall include the performance of all site preparation, demolition, and earthwork and the installation of proposed drainage, roadway pavement, pavement markings, signage, crosswalks, landscape lighting, painting, landscaping and irrigation.
- B. Permit Fees: The VILLAGE shall compensate the CONTRACTOR for the actual cost of all permit fees required from the various agencies having jurisdiction for construction of the project, all in accordance with the Contract Documents. The CONTRACTOR shall produce documentation verifying actual cost. Only permit fees substantiated and approved by the VILLAGE will be paid as part of this bid item. The anticipated permits include but are not limited to:
 1. VILLAGE Public Works Department

2. FDEP NPDES Notice of Intent
3. Miami-Dade County Public Works
4. Miami-Dade County Water & Sewer
5. Miami-Dade County Department of Regulatory & Economic Resources
6. Florida Department of Transportation

PRODUCTS (Not Applicable)

EXECUTION (Not Applicable)

END OF SECTION 01026

SECTION 01031– ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. Coordinate work of trades and schedule elements of alterations and renovation work by procedure and methods to expedite completion of the work.
- B. In addition to clearing and grubbing specified in the FDOT Standard Specifications for Road and Bridge Construction and that specifically shown, cut, move or remove items necessary to provide access or to allow alterations and new work to proceed. Include such items as:
 1. Repair or removal of hazardous or unsanitary conditions.
 2. Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit and wiring.
 3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete, shall be removed from the site expeditiously.
 4. Cleaning of surfaces and removal of surface finished as needed to install new work and finishes.
 5. Protection as required for existing trees to remain.
 6. For purposes of all existing underground utilities work, coordinate as required by use of special telephone number shown on engineering drawings.
 7. Site storage for all existing benches, signals, light poles, fire hydrants, manhole covers and grates to be relocated.
 8. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a professional transition to adjacent new items of construction.

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.4 ALTERATIONS, CUTTING AND PROTECTION

- A. Assign the work of moving, removal, cutting, patching and protection to trades qualified to perform the work in a manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.
- B. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work.

1. Cut finish surfaces such as paving, masonry, tile, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division.
- C. Perform cutting and patching as specified in Section 01045.
- D. Protect existing finishes, equipment, and adjacent work which are scheduled to remain, from damage.
 1. Protect existing and new work from weather and extremes of temperature.

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

- A. General Requirements of work to be complete:
 1. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing work.
 - a. Generally, Contract Documents will not define products or standards of working conduct present in existing construction; CONTRACTOR shall determine products in inspection and any necessary testing by use of the existing as a sample of comparison.
 2. Presence of a product, finish, or type of construction, requires that patching, extending or matching shall be performed as necessary to make work complete and consistent to existing identical standards of quality.

PART 3 - EXECUTION

3.1 PERFORMANCE

- A. Patch and extend existing work using skilled mechanics that are capable of matching existing quality. Quality of patched or extended work shall be not less than that specified for new work.

3.2 DAMAGED SURFACES

- A. Patch and replace any portion of an existing finished surface which is found to be damaged, lifted, discolored, or shows other imperfections, with matching material.
 1. Provide adequate support of substrate prior to patching the finish.
 2. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over entire surface.
 3. When existing surface finish cannot be matched, refinish entire surface to nearest intersections.

3.3 TRANSITION FROM EXISTING TO NEW WORK

- A. When new work abuts or is finished flush with existing work, make a smooth transition. Patched work shall match existing adjacent work in texture and appearance so that the patch of transition is invisible at a distance of five feet.
 1. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface.

3.4 CLEANING

- A. Perform periodic and final cleaning as specified in Section 01710, "Cleaning."
 - 1. Clean CONTRACTOR occupied areas daily.
 - 2. Clean spillage, overspray, and heavy collection of dust in CONTRACTOR occupied areas immediately.
 - 3. The CONTRACTOR shall control dust in accordance with all applicable Federal, State and local regulations.
- B. At completion of work of each trade, clean area and make surfaces ready for work of successive trades.
- C. At completion of alterations work in each area, provide final cleaning and return space to a condition suitable for use by VILLAGE.

3.5 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work in this section. Payment for work shall be included in all other work.

END OF SECTION 01031

SECTION 01045 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. CONTRACTOR shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:
 1. Make its several parts fit together properly.
 2. Uncover portions of the work to provide for installation of ill-timed work.
 3. Remove and replace defective work.
 4. Remove and replace work not conforming to requirements of Contract Documents.
 5. Remove samples of installed work as specified for testing.
 6. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.4 SUBMITTALS

- A. Submit a written request to CONSULTANT well in advance of executing any cutting or alteration, which affects:
 1. Work of the VILLAGE or any separate CONTRACTOR.
 2. Structural value or integrity of any element of the project.
 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. Efficiency, operational life, maintenance or safety of operational elements.
 5. Visual qualities of sight-exposed elements.
- B. Request shall include:
 1. Identification of the project.
 2. Description of the affected work.
 3. The necessity for cutting, alteration or excavation.
 4. Effect on work of VILLAGE or any separate CONTRACTOR, or on structural or weatherproof integrity of project.
 5. Description of proposed work:
 - a. Scope of cutting, patching, alteration, or excavation.
 - b. Trades who will execute the work.
 - c. Products proposed to be used.
 - d. Extent of refinishing to be done.

6. Alternatives to cutting and patching.
 7. Cost proposal, when applicable.
 8. Written permission of any separate CONTRACTOR whose work will be affected.
- C. Should conditions of work or the schedule indicate a change of products from original installation, CONTRACTOR shall submit request for substitution.
- D. Should conditions of work or the schedule indicate a change of products from original installation, CONTRACTOR shall submit request for substitution as specified in Section 01600, paragraph 1.9.

PART 2 - PRODUCTS

- 2.1 Comply with specifications and standards for each specific product involved.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering the work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions affecting installation of products, or performance of work.

3.2 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of project from damage.
- C. Provide protection from elements for that portion of the project, which may be exposed by cutting and patching, work, and maintain excavations free from water.

3.3 PERFORMANCE

- A. Execute cutting and demolition by methods, which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
- B. The CONTRACTOR shall control dust in accordance with all applicable Federal, State and local regulations.
- C. Execute excavating and backfilling by methods, which will prevent settlement or damage to other work.

- D. Employ original Installer or Fabricator to perform cutting and patching for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- E. Execute fitting and adjustment of products to provide a finished installation to comply with specified product, functions, tolerances and finishes.
- F. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
- G. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- H. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish entire unit.

3.4 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01045

SECTION 01050 – FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. CONTRACTOR shall comply with all building codes appropriate to the project, including those of CONTRACTOR shall provide and pay for field Engineering and Survey services, including AutoCAD 2016 (or approved equal) capabilities, required for the project except as noted below:
- B. CONSULTANT will identify existing control points and property line corner stakes indicated on the drawings, as required.

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.4 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified Engineer or registered Land Surveyor, acceptable to CONSULTANT and VILLAGE.

1.5 SURVEY REFERENCE POINTS

- A. CONTRACTOR will provide basic horizontal and vertical control points for the construction project including:
 - 1. Permanent coordinate reference points with horizontal and vertical control located and staked as shown on the plans.
- B. Locate and protect control points prior to starting site construction work, and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to VILLAGE's Representative.
 - 2. Report to VILLAGE's Representative when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. CONTRACTOR's surveyor shall replace project control points which may be lost or destroyed at contractor's expense.
 - a. Establish replacements based on original survey control.

1.6 PROJECT SURVEY REQUIREMENTS

- A. CONTRACTOR's surveyor shall establish a minimum of two permanent benchmarks on site, referenced to data established by survey control points.
- B. CONTRACTOR shall establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 - 1. Stakes for grading and fill placement.
 - 2. Controlling lines and levels as required.
- C. From time to time, verify layouts by same methods.
- D. Maintain a complete, accurate log and AutoCAD 2016 (or approved equal) electronic drawing of all control and survey work as it progresses.

On completion of construction work, prepare a certified survey showing all dimensions, locations and elevations of project.

1.7 SUBMITTALS

- A. Submit name and address of Surveyor and Professional Engineer to VILLAGE's Representative at preconstruction conference.
- B. Submit documentation to verify accuracy of field Engineering work on a monthly basis.
- C. Submit certificate signed by Registered Engineer or Surveyor certifying that elevation and locations of work are in conformance, or non-conformance, with Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01050

SECTION 01060 – REGULATORY REQUIREMENTS & PERMITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. CONTRACTOR shall comply with all building codes appropriate to the project, including those of:
 - 1. National Electric Code
 - 2. Unified Building Code
 - 3. Florida Building Code
 - 4. Manual of Uniform Traffic Control Devices (MUTCD)
- B. CONTRACTOR shall comply with these codes, laws, regulations, rules, directives of all agencies, boards, districts, and governmental bodies having jurisdiction.
- C. CONTRACTOR shall obtain and pay the cost of all building permits, fees, tie-in or connection charges associated with the project.
- D. The CONTRACTOR is responsible for compliance with any and all permit conditions. In the event that the VILLAGE must obtain permits in addition to those listed below, the CONTRACTOR shall not have any claim for damages arising from any delay caused by the VILLAGE'S obtaining said additional permits.
- E. The CONTRACTOR shall be responsible for obtaining the following permits as required:
 - 1. VILLAGE Public Works Department
 - 2. FDEP NPDES Notice of Intent
 - 3. Miami-Dade County Public Works
 - 4. Miami-Dade County Water & Sewer
 - 5. Miami-Dade County Department of Regulatory & Economic Resources
 - 6. Florida Department of Transportation

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.4 MEASUREMENT AND PAYMENT

- A. All costs in connection with Regulatory Requirements and Permits shall be included in the lump sum price bid as more specifically discussed and described in Section 01026 for MEASUREMENT AND PAYMENT.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01060

SECTION 01200 – PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS

- A. VILLAGE's Representative shall schedule and administer a preconstruction meeting, progress meetings at a minimum of every two weeks on a day established by the VILLAGE's Representative and specially called meetings throughout progress of the work.
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting five (5) days in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
 - 5. Record the minutes; include significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within three days after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
 - c. Furnish three copies of minutes to VILLAGE's Representative.
- B. Representative of CONTRACTOR, subcontractor and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.4 CONSTRUCTION MEETING

- A. Schedule after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties, designated by VILLAGE's Representative.
- C. Attendance:
 - 1. The CONTRACTOR and its superintendent.
 - 2. CONSULTANT and CONSULTANT'S professional consultants.
 - 3. Resident Project Representative.
 - 4. Representatives of the VILLAGE.
 - 5. Major subcontractors.
 - 6. Major Suppliers.
 - 7. Governmental representatives as appropriate.
 - 8. Others as requested by CONTRACTOR, VILLAGE or CONSULTANT.

- D. Suggested Agenda:
1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected Construction Schedules.
 - c. Shop drawings and other submittals.
 - d. Traffic Maintenance plan.
 - e. Community Public Relations.
 2. Critical work sequencing.
 3. Procurement of major equipment and materials requiring a long lead time.
 4. Project Coordination
 - a. Designation of responsible personnel.
 5. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Applications for Payment.
 6. Adequacy of distribution of Contract Documents.
 7. Procedures for maintaining Record Documents.
 8. Use of premises:
 - a. Office, work and storage areas.
 - b. VILLAGE'S requirements.
 9. Construction facilities, controls and construction aids.
 10. Temporary utilities.
 11. Safety procedures.
 12. Security procedures.
 13. Housekeeping procedures.

1.5 PROGRESS MEETINGS

- A. Schedule regular biweekly meetings on a day established by the VILLAGE's Representative as required.
- B. Hold called meetings as required by progress of the work.
- C. Location: A central site, convenient for all parties, designated by VILLAGE's Representative.
- D. Attendance
1. VILLAGE's Representative and VILLAGE's professional consultants as needed.
 2. Subcontractors as active on the site.
 3. Suppliers as appropriate to the agenda.
 4. Governmental representatives as appropriate.
 5. Designation of responsible personnel.
 6. Others, as requested by CONTRACTOR, VILLAGE or CONSULTANT.
- E. Suggested Agenda:
1. Review, approval of minutes of previous meeting.
 2. Review of work progress since previous meeting.
 3. Field observations, problems, and conflicts.
 4. Problems, which impeded Construction Schedule
 5. Review of off-site fabrication, delivery schedules
 6. Corrective measures and procedures to regain projected schedule.
 7. Revisions to Construction Schedule.
 8. Progress, schedule, during succeeding work period.

9. Coordination of schedules.
10. Community Public Relations
11. Review submittal schedules; expedite as required
12. Maintenance of quality standards
13. Pending changes and substitutions
14. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date
 - b. Effect on other contracts of the Project
15. Other business.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this Section; the work required in connection with Schedules and Reports shall be included in the price of all other work.

END OF SECTION 01210

SECTION 01310 – SCHEDULES AND REPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS

- A. The Work under this Contract shall be planned, scheduled, executed, reported and accomplished using the Critical Path Method (hereinafter referred to as CPM), in calendar days, unless otherwise specifically provided in the Contract Documents.
- B. The primary objectives of the CPM scheduling requirements are: (1) to insure adequate planning and execution of the Work by CONTRACTOR; (2) to assist VILLAGE and CONSULTANT in evaluating progress of the Work; (3) to provide for optimum coordination by CONTRACTOR of their trades, Subcontractors and Suppliers, and of their Work with the work or services provided by any separate Contractors; (4) to permit the timely prediction or detection of events or occurrences which may affect the timely prosecution of the Work; and (5) to provide a mechanism or tool for use by the VILLAGE, CONSULTANT and CONTRACTOR in determining and monitoring any actions of the CONTRACTOR which may be required in order to comply with the requirements of the Contract Documents relating to the completion of the various portions of the Work by the Specific Dates specified in the Contract Documents.
- C. CONTRACTOR is responsible for determining the sequence of activities, the time estimates of the detailed construction activities and the means, methods, techniques and procedures to be employed. The construction Schedule shall represent the CONTRACTOR's best judgment of how they will prosecute the Work in compliance with the Contract requirements. CONTRACTOR shall ensure that the Construction Schedule is current and accurate and is properly and timely monitored, updated and revised as Project conditions and the Contract Documents may require.
- D. CONTRACTOR shall consult with their principal Subcontractors and Suppliers relating to the preparation of their construction plan and Construction Schedule. Principal Subcontractors shall receive copies of those portions of CONTRACTOR's Construction Schedule, which relate to their work and shall be continually advised of any updates or revisions to the Construction Schedule as the Work progresses. When CONTRACTOR submits their Construction Schedule to the VILLAGE or makes any proposed updates or revisions to such Schedule, VILLAGE and CONSULTANT that CONTRACTOR has consulted with and has the concurrence of their principal Subcontractors and Suppliers will assume it. CONTRACTOR shall be solely responsible for ensuring that all Subcontractors and Suppliers comply with the requirements of the Construction Schedule for their portions of the Work.
- E. CONTRACTOR will provide the basic data relating to activities, durations and sequences of construction and shall develop and deliver to the VILLAGE and CONSULTANT the draft of the Construction Schedule. This data shall reflect the CONTRACTOR'S actual construction plan for the Project, and shall fully comply with all requirements of the Contract Documents.

- F. When there are separate Contractors working concurrently on the Project whose work must interface or be coordinated with the Work of CONTRACTOR, CONTRACTOR shall coordinate their activities with the activities of the separate Contractors and shall, prior to the submission of their Construction Schedule to the VILLAGE and CONSULTANT, obtain written approval of their Construction Schedule by the separate Contractors. If CONTRACTOR is unable to obtain such written approval by the separate Contractors after their best efforts to do so, or if a conflict occurs that cannot be resolved by mutual agreement between CONTRACTOR and any separate CONTRACTOR, the VILLAGE shall make a determination of the schedule, which shall be binding upon CONTRACTOR and the separate Contractors.
- G. The CONTRACTOR shall be responsible for providing the services required for the basic drafting and computerization of CONTRACTOR's data for CONTRACTOR'S initial Construction Schedule, in accordance with the requirements of this Contract. The CONTRACTOR shall use Primavera computer program for development and maintenance of the schedule.
- H. To carry out the intent of this Section, CONTRACTOR agrees that the orientation session, as described in Subparagraph 1.3-B, shall not be grounds for any claim by CONTRACTOR or any of their Subcontractors or Sub-Subcontractors of alleged interference, lack of cooperation, delay disruption, negligence or hindrance by VILLAGE or CONSULTANT, and CONTRACTOR covenants not to sue therefore.
- I. It is understood and agreed that the Construction Schedule is to represent CONTRACTOR's best plan and estimate for the Work; however, CONTRACTOR acknowledges that the Construction Schedule may have to be revised from time- to-time as progress proceeds. CONTRACTOR further acknowledges and agrees that the VILLAGE does not guarantee that: (1) CONTRACTOR can start work activities on the "early start" or "late start" dates or complete work activities on the "early finish" or "late finish" dates shown in the schedule, or as same may be updated or revised; (2) CONTRACTOR can proceed at all times in the sequence established by the utilization of only the resources and labor they initially plan for the performance of the work; (3) CONTRACTOR's Construction Schedule will not have to be modified in order to obtain the agreement of any separate Contractors to the schedule; or (4) CONTRACTOR's Construction Schedule will not have to be modified or changed by direction of the VILLAGE. Any changes, modifications or adjustments made by CONTRACTOR to the Construction Schedule shall be in full compliance with all requirements of the Contract Documents.
- J. The CONTRACTOR acknowledges and agrees that their Construction Schedule must be flexible in order to accommodate and allow for their coordination with the operations of the VILLAGE and the work of separate contractors relating to the Project. The VILLAGE and CONSULTANT will review the CONTRACTOR's Construction Schedule for compatibility with VILLAGE operations and the work of separate contractors. CONTRACTOR agrees to hold meetings with the VILLAGE, CONSULTANT and separate contractors to resolve any conflicts between CONTRACTOR's Construction Schedule and the operations of the VILLAGE or work of separate contractors. CONTRACTOR agrees to fully cooperate with VILLAGE and separate contractors to resolve such conflicts and to revise their Construction Schedule as reasonable required.
- K. In order to maintain the orderly progress of the work performed on the Project, the VILLAGE shall have the right to determine, in their sole discretion, the priority between the Work performed by CONTRACTOR and the work of any separate contractors or VILLAGE's operations; this decision shall be final and binding upon CONTRACTOR and shall not be a cause for extra compensation or an extension of time, except where an extension of time is granted because of a delay for which CONTRACTOR is otherwise entitled to an extension under the Contract Documents. Provided, however, that this right shall not be exercised

by the VILLAGE unless: (1) the determination is necessary, in the opinion of the VILLAGE, because of Project conditions; and (2) CONTRACTOR and any separate contractors cannot otherwise agree upon such priority of schedule construed as relieving the CONTRACTOR of their obligation to cooperate with any separate contractors on the Project.

- L. If CONTRACTOR'S Construction Schedule indicates that VILLAGE or a separate CONTRACTOR is to complete an activity or perform certain preceding work by a particular date, or within certain duration, VILLAGE or any separate contractor shall not be bound to said date or duration unless VILLAGE expressly and specifically agrees in writing to same. The review and approval or acceptance by VILLAGE of the Construction Schedule or any other schedule or plan of construction of CONTRACTOR, does not constitute an agreement by VILLAGE of any start or finish date in the schedule or specific durations or sequences for activities of the VILLAGE or any separate contractor; provided, however, that nothing herein shall be construed as modifying or changing, or excusing the performance of CONTRACTOR of required portions of the Work by the Specific Dates as set forth in the Contract Documents.
- M. The Specific Dates set forth in the Contract Documents represent only the major items of Work and may include interface dates with the operations of the VILLAGE, the work of separate contractors or others. Specific Dates are Contract requirements and are of the essence to this Contract and to the coordination of the Work by CONTRACTOR. Specific Dates represent the latest allowable start or completion time for those portions of the Work to which each Specific Date relates. The Specific Dates are not intended to be a complete listing of all Work under this Contract or of all interfaces with work performed by other separate contractors, the VILLAGE or others. CONTRACTOR shall determine the time requirements for all such interfaces and shall be responsible for planning, scheduling and coordinating the Work in order to complete in accordance with those requirements.
- N. It is understood and agreed that should the VILLAGE and CONSULTANT provide CONTRACTOR, at CONTRACTOR's request, with any services, advice or counsel relating to the scheduling or coordination of the Work or any other matter that:
 - 1. VILLAGE and CONSULTANT shall not be liable to CONTRACTOR for any errors, omissions, negligence or deficiencies which may in any way occur because of same;
 - 2. such services, advice or counsel are provided solely as aids in the development by CONTRACTOR of a representation of CONTRACTOR's actual construction plan and schedule in accordance with the requirements of the Contract Documents, and VILLAGE and CONSULTANT shall not be liable to CONTRACTOR should CONTRACTOR rely on such services, advice or counsel to their detriment;
 - 3. such services, advice or counsel shall not relieve CONTRACTOR of any responsibility under the Contract for all construction means, methods, techniques, coordinating all portions of the Work; and (4) any services provided by the VILLAGE and CONSULTANT or the lack or alleged untimeliness thereof will not in any way take the place of or relieve the CONTRACTOR of full responsibility for compliance with all requirements of the Contract Documents, including, but not limited to the obligation to complete the Work within the Specific Dates set forth in Contract Documents.
- O. Approval or acceptance by the VILLAGE of the CONTRACTOR's Construction Schedule, or any revisions or updates thereto, is advisory only and shall not relieve the CONTRACTOR of the responsibility for accomplishing each portion of the Work within each and every applicable Specific Date. Omissions and errors in the approved or accepted Construction Schedule, or any revisions or updates shall not excuse performance, which is not in compliance with the Contract. Approval by the VILLAGE in no way makes the VILLAGE an insurer of the reliability, accuracy or feasibility of the Construction Schedule nor liable for time or cost overruns flowing from such omissions or errors. It is understood and agreed that CONTRACTOR cannot rely upon any informal or constructive acquiescence or approval of the Construction Schedule by VILLAGE has any right or power to agree to any schedule

commitment or obligation on the part of VILLAGE except as set forth expressly in the Contract Documents.

- P. Should CONTRACTOR intend or plan to complete the Work, or any portion thereof, earlier than any applicable Specific Date or the Contract Time, CONTRACTOR shall give timely and reasonable notice of this fact to VILLAGE and CONSULTANT. VILLAGE shall have the sole discretion to agree to or reject such early completion plan by CONTRACTOR. VILLAGE shall have no duty or obligation to agree to, or to cooperate with CONTRACTOR regarding any early completion plan or proposal by CONTRACTOR and shall not be liable for any damages of CONTRACTOR because of the rejection by VILLAGE of said plan.
- Q. Unless otherwise specifically provided in the Contract Documents, CONTRACTOR acknowledges that VILLAGE has contemplated in VILLAGE's planning and approval of the schedule, and in VILLAGE's budgeting for professional services, that the Work will be performed on a 5-day work week basis, utilizing a single 8-hour shift per day. VILLAGE shall have the sole discretion of approving or rejecting a variance in the workweek, number of shifts, or shift length. Unless otherwise agreed by VILLAGE, CONTRACTOR shall bear the cost of, and pay the VILLAGE, for additional staff and supervisory personnel, including but not limited to the services of CONSULTANT necessary to support any variance in the contemplated work week, number of shifts or shift length.

1.3 POST AWARD ACTIVITIES

- A. Upon receipt by CONTRACTOR of the Notice to Proceed, and until the Construction Schedule is approved by the VILLAGE, CONTRACTOR shall proceed with CONTRACTOR's Work in accordance with the Provisional Preliminary Network of CONTRACTOR which was included as part of the CONTRACTOR's bid.
- B. Orientation Session: CONTRACTOR shall, upon notification from the VILLAGE, attend an orientation session relating to the Schedules and Reports requirements for this Project. This orientation meeting is designed to assist the CONTRACTOR in planning the Work and in developing the Construction Schedule. This session will normally be held within three (3) days after the date of the Notice to Proceed or the Notice of Award of Contract by VILLAGE (whichever occurs first) and will be conducted by the VILLAGE. CONTRACTOR shall arrange for CONTRACTOR's project manager and Superintendent, major Subcontractors and Suppliers, and any scheduling engineers that CONTRACTOR may employ to attend the orientation session.
- C. Among other things, the VILLAGE and CONSULTANT will review: the objectives of the Schedules and Reports requirements; the procedures and requirements for the preparation of the Construction Schedule and Schedule of Values by CONTRACTOR; how the requirements of the Contract Documents will be monitored and enforced by the VILLAGE; long-lead items and time requirements for work by Subcontractors will be identified. It is understood and agreed that the CONSULTANT has no authority to waive any requirements of the Contract Documents at this orientation meeting, and all requirements of the Contract Documents remain applicable to CONTRACTOR's work whether or not discussed at this session.
- D. Should CONTRACTOR or CONTRACTOR's principal Subcontractors and Suppliers fail or refuse to attend this orientation session, VILLAGE shall have the right to terminate CONTRACTOR for default pursuant to the provisions of the General Contracts.

1.4 DRAFT CONSTRUCTION SCHEDULE

- A. Within fifteen (15) days of the orientation session, (even though CONTRACTOR may not have completed subcontractor negotiations and executed subcontracts) the CONTRACTOR, in consultation with the VILLAGE and CONSULTANT, shall complete a draft of CONTRACTOR's time-scaled network graphic and work schedule.
1. Except for procurement requirements, CONTRACTOR shall differentiate activities of the Schedule so that no single activity shown has a duration longer than fourteen (14) calendar days, unless the VILLAGE, in VILLAGE's sole discretion, shall approve a longer duration for certain activities.
 2. The Construction Schedule shall represent the CONTRACTOR's best judgment and intended plan for completion of the Work in compliance with Specific Dates listed in the Contract Documents and the Contract Time. The Construction Schedule shall take into account all foreseeable activities to be accomplished by any separate contractors, and interface dates with utility VILLAGES, the VILLAGE's operations and others. The Construction Schedule shall anticipate all necessary labor and resources to accomplish the activities within the durations set forth in the Construction Schedule.
- B. VILLAGE shall have (7) days to approve the draft schedule information and shall have the right to require the CONTRACTOR to modify any CONTRACTOR data or any portion of the CONTRACTOR's Construction Schedule, Schedule of Values or Recovery Schedule, as herein required, with CONTRACTOR bearing the expense thereof, which the VILLAGE reasonably determines to be: (1) impracticable; (2) based upon erroneous calculations or estimates; (3) unreasonable; (4) required in order to ensure proper coordination by CONTRACTOR of the work of their Subcontractors and with the work or services being provided by any separate Contractors; (5) necessary to avoid undue interference with the VILLAGE's operations or those of any utility VILLAGES or adjoining property VILLAGES; (6) necessary to ensure completion of the Work by the Specific Dates set forth in the Contract Documents; (7) required in order for CONTRACTOR to comply with the requirements of the Contract Documents or (8) not in accordance with the CONTRACTOR's actual operations.

1.5 The VILLAGE and/or CONSULTANT will be available during normal working hours to consult with the CONTRACTOR should questions arise while the CONTRACTOR assembles the information required for the Construction Schedule. The VILLAGE will pay for the reasonable costs for the CONSULTANT's time for this consultation.

1.6 CONSTRUCTION SCHEDULE

- A. Within ten (10) days after approval of the Construction Schedule draft by the VILLAGE, based on the data submitted by the CONTRACTOR, the CONTRACTOR will provide a final draft time-scaled graphic network of activities and computer listing of all activities included in the Construction Schedule. The graphic representation and computer printouts shall be carefully reviewed by the VILLAGE and CONSULTANT and discussed at a meeting with the CONTRACTOR for the purpose of finalizing the schedule. Any additions and/or deletions to these documents that are desired by the VILLAGE will be brought to the attention of the CONTRACTOR within three (3) days. The CONTRACTOR shall, if consistent with the requirements of the Contract Documents, incorporate the VILLAGE's revisions and shall deliver the completed Construction Schedule and computer reports to the VILLAGE and CONSULTANT for review and acceptance within seven (7) days.

- B. CONTRACTOR shall submit as a part of the data submitted to the VILLAGE and CONSULTANT a narrative report indicating anticipated allocation by CONTRACTOR of the following resources and work shifts for each activity which they propose to be utilized on the Project:
1. Labor resources;
 2. Equipment resources;
 3. Whether CONTRACTOR proposes the Work to be performed on single, double or triple shifts, and whether it is to be done on a 5-, 6- or 7-day workweek basis. If the CONTRACTOR chooses any work schedule other than the 8-hour day, 5-day workweek, and approved by the VILLAGE, any overtime costs shall be borne by the CONTRACTOR.

1.7 SCHEDULE OF VALUES

- A. Within ten (10) days after completion of the Construction Schedule the CONTRACTOR shall submit to the VILLAGE and CONSULTANT a Schedule of Values for review by the VILLAGE and CONSULTANT, allocating a dollar value for the activities on the Construction Schedule. The dollar value for the activity shall be the cost of the work of the activity including labor, materials, and pro rata contribution of General Conditions requirements, overhead and profit. The sum of all activity costs shall equal the total Contract Sum. The CONTRACTOR shall revise the Schedule of Values as necessary to gain the approval of the CONSULTANT and the VILLAGE.
- B. The activity cost for the Schedule of Values shall be coded with a cost code corresponding to the trade, subcontractor or Supplier performing the work so that subtotals for each division of the Work can be prepared.
- C. The Schedule of Values shall, in the best judgment of the CONTRACTOR, represent a fair, reasonable and equitable dollar (cost) allocation for each activity on the Construction Schedule.
- D. The CONTRACTOR will provide, within seven (7) days after approval of the Schedule of Values, a computer listing of all cost-loaded activities for VILLAGE and CONSULTANT's review.

1.8 CONSTRUCTION SCHEDULE CONTENT

- A. The Construction Schedule shall consist of a time-scaled, detailed network graphic representation of all activities that are part of the CONTRACTOR's construction plan and an accompanying computerized mathematical analysis of these activities. The graphic network shall include, but not be limited to, the following information:
1. Project Name
 2. Activities of completed work ready for use by next trade, VILLAGE, etc.
 3. Activities relating to different areas of responsibility, such as subcontracted work, which is distinctly separate from that being done by the CONTRACTOR directly;
 4. Different categories of work as distinguished by craft or crew requirements;
 5. Different categories of work as distinguished by materials;
 6. Different categories of work as distinguished by equipment requirements;
 7. Distinct and identifiable subdivisions of work;
 8. Locations of work within the Project that necessitates different times or crews to perform;
 9. Outage schedules for existing utility services that will be interrupted during the performance of the Work;
 10. Acquisition and installation of equipment and materials, supplies and/or installed by the VILLAGE or separate contractors;
 11. Material to be sorted on site; and
 12. Specific Dates.

- B. For all major equipment and materials to be fabricated or supplied for the Project, the Construction Schedule shall show a sequence of activities including:
 - 1. Preparation of Shop Drawings and sample submissions;
 - 2. A reasonable time for review of Shop Drawings and samples or such time as specified in the Contract Documents;
 - 3. Shop fabrication, delivery, and storage;
 - 4. Erection or installation; and
 - 5. Testing of equipment and materials.
- C. The Construction Schedule shall include late completion dates for the Work that is no later than the required Specific Dates. The time-scaled graphic network shall be drawn based upon the early start dates of activities shown on the graphic.
- D. All activity durations shall be given in calendar days.

1.9 CONTRACTOR APPROVAL AND CERTIFICATION

- A. Approval by CONTRACTOR of the drafting and computerization of the Construction Schedule and the Schedule of Values shall be signified by the CONTRACTOR by signing the following certification: "The undersigned CONTRACTOR certifies that the Construction Schedule which is comprised of the graphic network of activities displayed on the sheets dated and of the computerized mathematical reports dated is CONTRACTOR's Construction Schedule as required by the Contract document; and that said Schedule is a true and accurate representation of CONTRACTOR's plan of construction for the Work and fully complies with the requirements of the contract Documents. The CONTRACTOR further certifies that CONTRACTOR will prosecute the Work in accordance with this Schedule, subject to any change therein which is implemented in accordance with the Contract Documents; and the undersigned acknowledges that this Schedule shall be the instrument by which progress of the Work shall be monitored, and together with the dollar value assigned to each activity, shall be the basis of monthly payments in accordance with the Contract documents; and CONTRACTOR certifies they have fully complied with all of the requirements of the Contract Documents relating to coordination of said Schedule with separate contractors."

1.10 UPDATING OF CONSTRUCTION SCHEDULE/PROGRESS REPORT

- A. Make any corrections or changes in the submittals required by VILLAGE's Representative and resubmit until approved.
- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - 2. Indicate any changes which have been made other than those requested by the VILLAGE's Representative.
 - 3. Samples: Submit new samples as required for initial submittal.

1.11 DISTRIBUTION

- A. On or about the dates specified, CONTRACTOR shall arrange for CONTRACTOR's project manager and superintendent to meet at Project Site with the VILLAGE and CONSULTANT to review CONTRACTOR's report of actual progress prepared by CONTRACTOR. Said report shall set forth up-to-date and accurate progress data, shall be based upon CONTRACTOR's best judgment and shall be prepared by CONTRACTOR in consultation with all principal Subcontractors and suppliers.

- B. The progress report of CONTRACTOR shall show the activities or portions of activities, completed during the reporting period, the actual start and finish dates for these activities, remaining durations and/or estimated completion dates for activities currently in progress.
- C. The CONTRACTOR will produce a computerized update work sheet for approval by the VILLAGE as a part of this process.
- D. CONTRACTOR shall submit a narrative report with the updated progress analysis which shall include, but not be limited to a description of problem areas, current and anticipated delaying factors and their impact, explanations of corrective actions taken or planned, any newly planned activities or changes in sequence, and proposed logic for a Recovery Schedule, if required, as further described herein. The report shall also include:
 - 1. A narrative describing actual work accomplished during the reporting period;
 - 2. A list of major construction equipment used on the Work during the reporting period and any construction equipment idle during the reporting period;
 - 3. The total number of personnel by craft actually engaged in the Work during the reporting period, with such total stated separately as to office, supervisory, and field personnel;
 - 4. A labor and equipment forecast for the succeeding thirty (30) days, stating the total number of personnel by craft, and separately stating such total as to office, supervisory and field personnel;
 - 5. A list of CONTRACTOR supplied materials and equipment, indicating current availability and anticipated job site delivery dates;
 - 6. Changes or additions to CONTRACTOR's supervisory personnel since the preceding progress report.
- E. The CONTRACTOR will provide initial computer reports and monthly reports thereafter, in accordance with the following:
 - 1. Schedule Reports: Initial and subsequent Schedule Reports will contain the following minimum information for each activity:
 - a. Activity number, description and estimated duration in days.
 - b. Early and late finish dates.
 - c. Percentage of each activity completed as of each report.
 - d. Remaining float/days behind schedule.
 - e. Responsibility for activity. Actual start and finish dates shall be indicated for each activity, as appropriate. Dummies and completed activities will be omitted from remaining Float and Late Start Sorts.
 - 2. Cost Reports: Initial and subsequent Cost Reports will include the following information for each activity, sorted by trade activity:
 - a. Activity number and description;
 - b. Percentage of value of Work in place against total value;
 - c. Total cost of each activity;
 - d. Value of Work in place since last report;
 - e. Value of Work in place to date;
 - f. Value of uncompleted Work.
 - 3. As part of the updating process, the CONTRACTOR'S computer will calculate, based upon progress data provided by CONTRACTOR and agreed to by the VILLAGE, the value of work done for each activity based on percentage complete for each activity less the amount previously paid for past percentages completed. Summation of all values of each activity less the appropriate percent of retainage shall be the amount payable to the CONTRACTOR, provided that CONTRACTOR has complied with all requirements of the Contract Documents.
- F. CONTRACTOR shall be solely responsible for expediting the delivery of all materials and equipment to be furnished by CONTRACTOR so that the progress of construction shall be maintained according to the currently approved Construction Schedule for the Work.

CONTRACTOR shall notify the VILLAGE and CONSULTANT in writing, and in a timely and reasonable manner, whenever CONTRACTOR determines or anticipates that the delivery date of any material or equipment to be furnished by CONTRACTOR will be later than the delivery date indicated by the Construction Schedule, or required consistent with the completion requirements of this Contract, subject to schedule updates as herein provided.

- G. CONTRACTOR shall ensure that the critical path runs through on-site activities and that off-site activities do not control the critical path of the Construction Schedule.

1.12 INITIAL PROGRESS PAYMENT

- A. The completed Construction Schedule, including the Schedule of Values, will be required for each Application for Payment. However, one initial provisional progress payment may be payable in the sole discretion of VILLAGE if VILLAGE determines the CONTRACTOR is complying with these Schedules and Reports provisions during the development of the Construction Schedule and Schedule of Values as required herein and represented to be true by the CONSULTANT. However, no more than one Application for Payment will be approved until all of the requirements of these Schedules and Reports provisions have been met.

1.13 RECOVERY SCHEDULE

- A. Should the updated Construction Schedule show at any time during CONTRACTOR's performance, in the sole opinion of the VILLAGE, that the CONTRACTOR is fourteen (14) or more days behind schedule for any Specific Date, or should CONTRACTOR be required to undertake actions under Paragraph 40 of the General Conditions hereof, the CONTRACTOR shall prepare a Recovery Schedule at no additional cost to the VILLAGE (unless the VILLAGE is solely responsible for the event or occurrence which has caused the schedule slippage) explaining and displaying how CONTRACTOR intends to reschedule the Work in order to regain compliance with the Construction Schedule during the immediate subsequent pay period.
- B. If the CONTRACTOR believes that all of the time can be recovered during the subsequent pay period the CONTRACTOR will be permitted to prepare a Recovery Schedule as set forth below. However, if the CONTRACTOR believes it will take more than thirty (30) days to recover all of the lost time, CONTRACTOR shall prepare and submit a request for revision to the Construction Schedule and comply with all of the requirements for a Schedule Revision.
 1. The CONTRACTOR shall prepare and submit to the VILLAGE and CONSULTANT a one-month maximum duration Recovery Schedule, incorporating best available information from Subcontractors and others, which will permit return to Construction Schedule at the earliest possible time. The CONTRACTOR shall prepare a Recovery Schedule to same level of detail as the Construction Schedule for a maximum duration of one month. This Recovery Schedule shall be prepared in coordination with other separate contractors on the Project.
 2. Within two (2) days after submission of Recovery Schedule to the VILLAGE and CONSULTANT, CONTRACTOR shall participate in a conference with the VILLAGE and CONSULTANT to review and evaluate the Recovery Schedule. Within two (2) days of conference, the CONTRACTOR shall submit the revisions necessitated by the review for the VILLAGE and CONSULTANT's review and approval. The CONTRACTOR shall use the approved Recovery Schedule as their plan for returning to the Construction Schedule.
 3. CONTRACTOR shall confer continuously with the VILLAGE and CONSULTANT to assess the effectiveness of the Recovery Schedule. As a result of this conference, the VILLAGE will direct the CONTRACTOR as follows:
 - a. If the VILLAGE determines the CONTRACTOR is still behind the schedule the VILLAGE will direct the CONTRACTOR to prepare a Schedule Revision and

comply with all of the requirements of a Schedule Revision as stated herein and the other requirements of the Contract Documents; provided, however, that nothing herein shall limit in any way the rights and remedies of the VILLAGE as provided elsewhere in the Contract Documents.

- b. If the VILLAGE determines the CONTRACTOR has successfully complied with provisions of the Recovery Schedule, the VILLAGE will direct the CONTRACTOR to return to the use of the approved Construction Schedule.

1.14 SCHEDULE REVISIONS

- A. Should CONTRACTOR desire to or otherwise be required under the Contract Documents to make modifications or changes in CONTRACTOR's method of operation, the sequence of Work or the durations of the activities in the Construction Schedule, CONTRACTOR shall do so in accordance with the requirements of the Contract Documents. The VILLAGE must approve revisions to the approved Construction Schedule in writing.
- B. CONTRACTOR shall submit requests for revisions to the Construction Schedule to the VILLAGE and CONSULTANT, together with written rationale for revisions and description of logic for rescheduling work and maintaining the Specific Dates listed in the Contract Documents. Proposed revisions acceptable to the VILLAGE will be incorporated into next update of Construction Schedule. CONTRACTOR shall pay the VILLAGE for costs incurred by the VILLAGE for the revisions.
- C. If there are separate contractors on the Project, prior to the submission by the CONTRACTOR of their proposed schedule revisions, CONTRACTOR shall meet with and gain written approval of the separate contractors to make the revisions which shall be evidenced by the signatures of said separate contractors on the proposed schedule revisions. If accepted by the VILLAGE the revisions shall be binding upon CONTRACTOR and all separate contractors on the Project.
- D. In submitting any proposed schedule revisions to the VILLAGE and CONSULTANT, CONTRACTOR shall submit therewith the following certification: "The undersigned CONTRACTOR certifies that the proposed schedule revision to the Construction Schedule which comprised of the graphic network of activities displayed on the sheets dated and of the computerized mathematical reports dated is CONTRACTOR's schedule revision to the Construction Schedule as required by the Contract Documents; and that said schedule revision is a true and accurate representation of CONTRACTOR's plan to complete the Work, including all Change Orders that are in the CONTRACTOR's possession as of the foregoing date, and fully complies with the requirements of the Contract Documents. The CONTRACTOR further certifies that CONTRACTOR will prosecute the Work in accordance with this schedule revision, subject to any change therein which is implemented in accordance with the Contract Documents; and CONTRACTOR further certifies that CONTRACTOR has met and coordinated with and obtained the approval of said schedule revision by all separate contractors, as evidenced by CONTRACTOR's signature thereon; and CONTRACTOR further certifies they have fully complied with all of the requirements of the Contract Documents relating to coordination of said Schedule with separate contractors."

1.15 FLOAT TIME

- A. Float or slack time associated with one chain of activities is defined as amount of time between earliest start date and latest start date or between earliest finish date and latest finish date for such activities, as calculated as part of the Construction Schedule. Float or slack time shown on the Construction Schedule is not for exclusive use or benefit of either the VILLAGE, CONSULTANT or the CONTRACTOR and is available for use by either of them

according to whichever first needs the use or benefit of the float to facilitate the effective use of available resources and to minimize the impact of project problems, delays or Changes in the Work which may arise during performance. CONTRACTOR specifically agrees that the VILLAGE or CONSULTANT may use float time in conjunction with their review activities or to resolve for any modification of the Specific Dates or an extension of the Contract Time or a claim for additional compensation as a result of any Project problem.

- B. Float time shown on the Construction Schedule shall not be used arbitrarily by CONTRACTOR in a manner, which, in the opinion of the VILLAGE and CONSULTANT, unnecessarily delays separate contractors from proceeding with their work in a way which is detrimental to the interests of the VILLAGE. Any conflict between contractors, or schedules or available and/or necessary work of Contractors, which may result in a delay on that Contractor performing work on this Project, shall be referred to the VILLAGE for resolution. If CONTRACTOR refuses to perform Work which is available and necessary to be performed in order to not delay any separate contractors and the VILLAGE has provided resolution to any conflicts, the VILLAGE may, regardless of the float shown on the Construction Schedule to be available for the path of activities which encompasses said Work, terminate the CONTRACTOR for default pursuant to the General Conditions of this Contract.

1.16 CONTRACTOR'S ORGANIZATION

- A. CONTRACTOR shall maintain as part of their organization, or hire a subcontractor with, a competent staff of sufficient size who are knowledgeable in the use, application and implementation of CPM as required by the Contract Documents. It shall be the responsibility of this staff to prepare input information for the Construction Schedule, monitor progress, provide input for updating and revising logic diagrams when necessary and otherwise assist the CONTRACTOR in fulfilling their obligations hereunder.

1.17 DEFAULT

Failure of the CONTRACTOR to substantially comply with the requirements of this Section shall constitute a default by CONTRACTOR of CONTRACTOR's obligations under this Contract sufficient for termination of CONTRACTOR under the General Conditions of this Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this Section; the work required in connection with Schedules and Reports shall be included in the price of all other work.

END OF SECTION 01310

SECTION 01340 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Submit Shop Drawings, Product Data and Samples required by the Contract Documents.

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.
- C. Designate in the construction schedule, or in a separate coordinated schedule, the dates for submission and the dates that reviewed Shop Drawings, Product Data and Samples will be needed.

1.4 SHOP DRAWINGS

- A. Drawings shall be presented in a readable and thorough condition.
 - 1. Drawing size shall be in standard sizes 8 ½"x11" through 24"x36" as appropriate for detail.
 - 2. Details shall be identified by reference to VILLAGE Project Number, sheet, detail, specification section, equipment numbers, I.D. numbers and schedule numbers shown on Contract Documents.

1.5 PRODUCT DATA

- A. Preparation
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics and capacities.
 - 3. Show dimensions and clearances required.
 - 4. Show wiring or piping diagrams and controls.
- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams to delete information, which is not applicable to the work.
 - 2. Supplement standard information to provide information specifically applicable to the work.

1.6 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product with integrally related parts and attachment devices.
 - 2. Full range of color, texture and pattern.

1.7 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data and Samples prior to submission.
- B. Determine and verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar data.
 - 4. Conformance with specifications.
- C. Coordinate each submittal with requirements of the work and of the Contract Documents.
- D. Notify the VILLAGE's Representative in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.
- E. Begin no fabrication or work, which requires submittals until return of submittals with VILLAGE's Representative or CONSULTANT's approval.

1.8 SUBMISSION REQUIREMENTS

- A. CONTRACTOR shall furnish to the CONSULTANT for review, (6) copies of each shop drawing submittal. The term "Shop Drawing" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items.
- B. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the CONSULTANT. In any case, every separate item submitted for shop drawing approval will be uniquely numbered, between the submittal and transmittal for proper tracking.
- C. Except as may otherwise be indicated herein, the CONSULTANT will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within ten (10) calendar days following their receipt by the CONSULTANT. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the CONSULTANT by the second submission of a submittal item. The VILLAGE reserves the right to withhold monies due the contractor to cover additional costs of the CONSULTANT's review beyond the second submittal. The CONSULTANT's maximum review period for each submittal, including all resubmittals, will be 10 days per submittal. In other words, for a submittal that required two resubmittals before it is complete, the maximum review period for that submittal could be 30 days.

- D. If a copy of a submittal is returned to the CONTRACTOR marked "APPROVED", formal revision and resubmission of said submittal will not be required.
- E. If a submittal is returned to the CONTRACTOR marked "REVISE AND RESUBMIT", the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the CONSULTANT.
- F. If a submittal is returned to the CONTRACTOR marked "NOT APPROVED", the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the CONSULTANT.
- G. Fabrication of an item shall be commenced only after the CONSULTANT has reviewed the pertinent submittals and returned copies to the CONTRACTOR marked either "APPROVED" or "APPROVED AS NOTED". Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the contract requirements.
- H. All CONTRACTOR shop drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the CONSULTANT. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the CONSULTANT of any CONTRACTOR submittals will be made for any items, which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the CONSULTANT, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.
- I. The CONSULTANT'S review of CONTRACTOR shop drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.
- J. Shop Drawing Distribution: Shop drawings shall be reviewed by the CONSULTANT and marked either as "APPROVED", "APPROVED AS NOTED", "REVISE AND RESUBMIT", or "NOT APPROVED". The distribution of processed shop drawings shall be as follows:
 - 1. Shop drawings marked "APPROVED" or "APPROVED AS NOTED".
 - 2 copy returned to CONTRACTOR
 - 2 copies transmitted to VILLAGE
 - 2 copies to remain with CONSULTANT
 - 2. Shop drawings marked "REVISE AND RESUBMIT" or "NOT APPROVED"
 - 2 copies returned to CONTRACTOR
 - 2 copies remain with CONSULTANT
 - 1 copy transmitted to VILLAGE
- K. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The Project title and Project number.
 - 3. Contract identification.
 - 4. The names of:
 - a. CONTRACTOR
 - b. Supplier
 - c. Manufacturer
 - 5. Identification of the product, with the specification section number.
 - 6. Field dimensions, clearly identified as such.
 - 7. Relation to adjacent or critical features of the work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on resubmittals.
11. An 8"x3" blank space for CONTRACTOR and VILLAGE's Representative CONSULTANT's stamps.
12. CONTRACTOR'S stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of Contract Documents.

1.9 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by VILLAGE's Representative and resubmit until approved.
- B. Shop Drawings and Product Data:
 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 2. Indicate any changes which have been made other than those requested by the VILLAGE's Representative.
 3. Samples: Submit new samples as required for initial submittal.

1.10 DISTRIBUTION

- A. Distribute reproduction of Shop Drawings and copies of Product Data, which carry the VILLAGE's Representative or CONSULTANT's stamp of approval to:
 1. Job site file.
 2. Record Documents file.
 3. Other affected CONTRACTOR'S.
 4. Subcontractor's
 5. Supplier or Fabricator.
- B. Distribute samples which carry the VILLAGE'S Representative or CONSULTANT'S stamp of approval as directed by the VILLAGE'S Representative or CONSULTANT.

1.11 VILLAGE'S REPRESENTATIVE OR CONSULTANT DUTIES

- A. Review submittals with reasonable promptness and in accord with schedule.
- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or approval of submittal.
- C. Return submittals to CONTRACTOR for distribution, or for resubmission.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; the work shall be included in the price of all other work.

END OF SECTION 01340

SECTION 01380 – CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.1 GENERAL

- A. Employ competent photographer to take construction record photographs before construction, periodically, monthly at a minimum, during course of the work.

1.2 PHOTOGRAPHY REQUIRED

- A. Provide Pre-Construction photographs of project including each driveway.
- B. Provide photographs taken on cutoff date for each scheduled application for Payment.
- C. Provide photographs taken at each major stage of construction.
- D. Provide photographs taken of change order work.
- E. Provide five prints of each view.

1.3 COSTS OF PHOTOGRAPHY

- A. CONTRACTOR shall pay costs for specified photography.

1.4 DIGITAL PHOTOGRAPHY

- A. Digital photography may be used for all construction photographs.

PART 2 - PRODUCTS

2.1 PRINTS

- A. Identify each print listing:
 - 1. Name of Project.
 - 2. Specific location.
 - 3. Date and time of exposure.
 - 4. Photographer's numbered identification of exposure.

PART 3 - EXECUTION

3.1 TECHNIQUE

- A. Factual presentation.

- B. Correct exposure and focus.
 - 1. High resolution and sharpness.
 - 2. Maximum depth-of-field.
 - 3. Minimum distortion.

- C. Report unsatisfactory or questionable conditions affecting installation of products, or performance of work.

3.2 VIEWS REQUIRED

- A. Photograph from locations to adequately illustrate condition of construction and state of progress.

3.3 DELIVERY OF PRINTS

- A. Deliver digital copy of photographs to the CONSULTANT to accompany each Application for Payment.

- B. Distribution of photographs as soon as processed is anticipated to be as follows:
 - 1. VILLAGE (one set)
 - 2. CONSULTANT (two sets)
 - 3. Project Record File (one set to be stored by CONTRACTOR)
 - 4. CONTRACTOR (one set).

3.4 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01380

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1.3 DEFINITION

- A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.4 INSPECTION AT PLACE OF MANUFACTURER

- A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the CONSULTANT at the place of manufacture.
- B. The presence of the CONSULTANT at the place of manufacturer, however, shall not relieve the CONTRACTOR of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided by any act or omission on the part of the CONSULTANT.

1.5 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the VILLAGE reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the CONSULTANT will insure the VILLAGE that the quality of the work is in full accord with the Contract Documents.
- B. Any waiver by the VILLAGE of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to

assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.

- C. Notwithstanding the existence of such waiver, the CONSULTANT reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the CONSULTANT to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

1.6 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
 1. VILLAGE will approve of an independent firm to perform inspection and testing or will perform inspection and testing itself.
 2. The VILLAGE or independent firm will perform inspections, testings, and other services specified in individual specification sections and as required by the CONSULTANT.
 3. Reports will be submitted to the CONSULTANT in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.
 4. The CONTRACTOR shall cooperate with the VILLAGE or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 5. The CONTRACTOR shall notify CONSULTANT 48 hours prior to the expected time for operations requiring inspection and laboratory testing services.
 6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the CONSULTANT. The CONTRACTOR shall bear all costs from such retesting at no additional cost to the VILLAGE.
 7. For samples and tests required for CONTRACTOR'S use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use shall be included in the Contract Price.
 8. CONTRACTOR shall bear all costs should materials for testing are not ready for testing at time specified by CONTRACTOR for test.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspection: The CONTRACTOR shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.
- B. Measurements: The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.
- C. Manufacturer's Instructions: Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

3.2 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to CONSULTANT.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for CONSULTANT's reference during normal working hours.

3.3 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01045 "Cutting and Patching."
- B. Protect construction exposed by or for quality control activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION 01400

SECTION 01420 – REFERENCES AND STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- D. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience only, and do not form a part of the Specifications.
- E. Applicable Publications: Wherever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply, except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- F. Specialists, Assignments: In certain instances, specification in certain instances, specification text requirements (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

1.4 Reference Specifications, Codes, and Standards

- A. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.
- B. The latest edition of the codes as approved by the Municipal code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- C. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the CONSULTANT for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.
- D. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.
- E. Applicable Standard Specifications: References in the Contract Documents to SSPWC shall mean the Standard Specifications for Public Works Construction, 2012 Edition.

- F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- H. References to "Minimum Standards" shall mean Florida Department of Transportation (FDOT) Design Standards and Standard Specifications for Road and Bridge Construction, Miami-Dade County Public Works Manual Design and Construction Standards, and Village of Pinecrest Public Works Standards.

1.5 REGULATIONS RELATED TO HAZARDOUS MATERIALS

- A. The CONTRACTOR is responsible that all work included in the Contract Documents, regardless if shown or not, shall comply with all EPA, OSHA, RCRA, NEPA, and any other Federal, State, and Local Regulations governing the storage and conveyance of hazardous materials, including petroleum products.
- B. Where no specific regulations exist, all chemical, hazardous, and petroleum product piping and storage in underground locations must be installed with double containment piping and tanks, or in separate concrete trenches and vaults, or with an approved lining which cannot be penetrated by the chemicals, unless waived in writing by the VILLAGE.

1.6 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers

ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
MDDRER	Miami-Dade County Department of Regulatory and Economic Resources
MDCHD	Miami-Dade County Health Department
MDCTED	Miami-Dade County Traffic Engineering Division
MDCWASD	Miami-Dade County Water and Sewer Department
BHMA	Builders Hardware Manufacturer's Association
BWWS	Miami-Dade County Bureau of Water and Wastewater Services
CBM	Certified Ballast Manufacturers
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DIPRA	Ductile Iron Pipe Research Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FM	Factory Mutual System
FPL	Florida Power & Light
FS	Federal Specifications
HI	Hydronics Institute
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MPTA	Mechanical Power Transmission Association
MSS	Manufacturers Standardization Society
MTI	Marine Testing Institute
MUTCD	Manual of Uniform Traffic Control Devices
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code

NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NLGI	National Lubricating Grease Institute
NMA	National Microfilm Association
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PPI	Plastics Pipe Institute
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SB	Southern Bell
SFWM	South Florida Water Management District
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPI	Society of the Plastics Industry, Inc.
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WEF	Water Environment Federation
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

PRODUCTS (Not Used)

EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01505 - MOBILIZATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY.

- A. Mobilization shall include the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, temporary buildings, safety equipment, obtaining of all permits, safety equipment and first aid supplies, and sanitary and other facilities, as required for the proper performance and completion of the WORK. Mobilization shall include, but not be limited to, the following principal items:
 - 1. Moving on to the site of all CONTRACTOR's equipment required for first month operations.
 - 2. Installing temporary construction power, wiring, and lighting facilities.
 - 3. Developing construction water supply.
 - 4. Providing all on-site communication facilities, including telephones and radio pagers.
 - 5. Arranging for and erection of CONTRACTOR's work, site access, and storage.
 - 6. Obtaining all required permits including:
 - a. VILLAGE Public Works Department Permit
 - b. FDEP NPDES Notice of Intent
 - c. Miami-Dade County Public Works
 - d. Miami-Dade County Water & Sewer
 - e. Miami-Dade County Department of Regulatory & Economic Resources
 - f. Florida Department of Transportation
 - 7. Having all OSHA required notices and establishment of safety programs.
 - 8. Having the CONTRACTOR's superintendent at the job site full time.
 - 9. Submitting initial submittals.
 - 10. Project identification and signs.
 - 11. Temporary sanitary facilities as described in Section 01510.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the lump sum price for Mobilization. The CONTRACTOR's attention is directed to the condition that no payment for mobilization, or any part thereof will be approved for payment under the Contract until all mobilization items listed above have been completed as specified.

END OF SECTION 01505

SECTION 01510 - TEMPORARY UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Requirements:
 - 1. Types: The types of utility services required for general temporary use at the project site include the following.
 - a. Water service (potable for certain uses)
 - b. Storm sewer
 - c. Sanitary sewer
 - d. Electric power service
 - e. Telephone service
 - f. Gas service
 - 2. It shall be the CONTRACTOR's responsibility to provide equipment that is adequate for the performance of the WORK under this Contract within the time specified. All equipment shall be kept in satisfactory operating condition, shall be capable of safety and efficiently performing the required WORK, and shall be subject to inspection and approval by the VILLAGE's representative at any time within the duration of the Contract. All work hereunder shall conform to the applicable requirements of the OSHA Standards for Construction.

1.3 JOB CONDITIONS

- A. Scheduled Uses: The CONTRACTOR shall, in conjunction with establishment of job progress schedule, establish a schedule for implementation and termination of service for each temporary utility or facility; at earliest feasible time, and when acceptable to VILLAGE and CONSULTANT change over from use of temporary utility service to permanent service.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 INSTALLATION OF POWER DISTRIBUTION SYSTEM

- A. Power: The CONTRACTOR shall provide all necessary power required for its operations under the Contract, and shall provide and maintain all temporary power lines required to perform the WORK in a safe and satisfactory manner.

3.2 INSTALLATION OF LIGHTING

- A. Construction Lighting: All WORK conducted at night or under conditions of deficient daylight shall be suitable lighted to insure proper WORK and to afford adequate facilities for inspection and safe working conditions.

3.3 WATER SUPPLY

- A. General: The VILLAGE will furnish reasonable quantities of water required by the CONTRACTOR in performance of the WORK under the Contract; however, the CONTRACTOR shall provide all facilities necessary to convey the water from the VILLAGE-designated source to the points of use in accordance with the requirements of the Contract Document. The CONTRACTOR shall pay all permit and water charges.
- B. Potable Water: All drinking water on the site during construction shall be furnished by the CONTRACTOR and shall be bottled water or water furnished in acceptable metal dispensers. Notices shall be posted conspicuously throughout the site warning the CONTRACTOR's personnel that piped water may be contaminated.
- C. Water Connections: The CONTRACTOR shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the CONTRACTOR shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the said authority, of a size and type acceptable to said authority and agency. The CONTRACTOR shall pay all permit and water charges.
- D. Removal of Water Connections: Before final acceptance of the WORK on the project, all temporary connections and piping installed by the CONTRACTOR shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of the CONSULTANT and to the agency owning the affected utility.

3.4 INSTALLATION OF SANITARY FACILITIES

- A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities

provided by the CONTRACTOR or organic material wasted from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the CONSULTANT and in accordance with all laws and regulations pertaining thereto.

3.5 INSTALLATION OF FIRE PROTECTION

- A. Fire Protection: The construction of the WORK shall be connected with the CONTRACTOR's water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the WORK, and responsible persons shall be designated and instructed in the operation such fire apparatus so as to prevent or minimize the hazard of fire. The CONTRACTOR's fire protection program shall conform to the requirements of Subpart F of the OSHA Standards for Construction.

3.6 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the lump sum price for Mobilization.

END OF SECTION 01510

SECTION 01520 – CONSTRUCTION AIDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for furnishing, installing and maintaining construction aids, remove upon completion of work.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications
 - 2. Conditions of the Contract

PART 2 - PRODUCTS

2.1 Materials, General

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.2 Construction Aids

- A. Provide construction aids and equipment required by personnel and to facilitate execution of the work; scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes and other such facilities and equipment.
 - 1. Refer to respective sections for particular requirements for each trade.
 - 2. Provide protective coverings for finished surfaces.
- B. Maintain facilities and equipment in first-class condition.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Consult with VILLAGE'S Representative, review site conditions and factors which affect construction procedures and construction aids including adjacent properties and public facilities which may be affected by execution of the work.

3.2 GENERAL

- A. Comply with all applicable requirements of the Specifications.
- B. Relocate construction aids as required by progress of construction, by storage or work requirements, and to accommodate legitimate requirements of VILLAGE and other Contractors employer at the site.

3.3 REMOVAL

- A. Completely remove temporary materials, equipment and services:
 - 1. When construction needs can be met by use of permanent construction.
 - 2. At completion of project.
- B. Clean, repair damage caused by installation or by use of temporary facilities.
 - 1. Remove foundations and underground installations for construction aids.
 - 2. Grade areas of site affected by temporary installations to required elevations and slopes, and clean the area.
- C. Restore permanent facilities used for temporary purposes to specified condition.

3.4 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement and payment for the work under this section, it shall be included in the lump sum price of all other work.

END OF SECTION 01520

SECTION 01530 – PROTECTION OF EXISTING FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for providing and maintaining methods, equipment, and temporary construction, as necessary, to protect existing facilities.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications.
 - 2. Conditions of the Contract.
- C. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents. Any utility damaged during construction will be replaced with a material approved by the CONSULTANT and the VILLAGE.
- D. The CONTRACTOR shall verify the exact locations and depths of all utilities shown and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's work. When such exploratory excavations show the utility location as shown to be in error, the CONTRACTOR shall so notify the CONSULTANT.
- E. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.3 RIGHTS-OF-WAY

- A. The CONTRACTOR shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the CONSULTANT that the VILLAGE has secured authority therefore from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the VILLAGE shall determine the sequence and order of the WORK. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the VILLAGE to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at

the times permitted. No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in the General Conditions of the Contract.

1.4 PROTECTION OF STREET OR ROADWAY MARKERS

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey markers or points disturbed by the CONTRACTOR shall be accurately restored after all street or roadway resurfacing has been completed.

1.5 RESTORATION OF PAVEMENT

- A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the VILLAGE. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.
- B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
- C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- D. Restoration of Sidewalks or Private Properties: Wherever sidewalks or private properties and driveways have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or driveways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or driveways until the final restoration thereof has been made. The CONTRACTOR shall restore all private properties within thirty (30) days after a complaint is received by the VILLAGE.

1.6 EXISTING UTILITIES AND IMPROVEMENTS

- A. General: The CONTRACTOR shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that

such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary. The CONTRACTOR shall be required to TV the existing sewer lines both before and after work is done in the area to ensure that existing utilities are not damaged by construction.

- B. Utilities to be moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the VILLAGE to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the CONSULTANT a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- C. Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the CONSULTANT and the VILLAGE of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.
- D. VILLAGE's Right of Access: The right is reserved to the VILLAGE and to the VILLAGE's public utilities and franchises to enter at any time upon any public street, alley, right- of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.
- E. Underground Utilities Indicated: Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the CONTRACTOR with material approved by the CONSULTANT and the VILLAGE.
- F. Underground Utilities Not Indicated: In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the CONSULTANT. If directed by the CONSULTANT, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in the General Conditions.
- G. All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the work which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of the General Conditions.
- H. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement VILLAGE and the CONSULTANT before being concealed by backfill or other work.
- I. Maintaining in Service: All oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the

Contract, unless other arrangements satisfactory to the CONSULTANT are made with the VILLAGE of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

- J. Existing Water Services: CONTRACTOR shall protect and provide temporary support for existing water services. Any water service damaged by the CONTRACTOR, shall be replaced at the CONTRACTOR's expense, with a new water service complete with new water main tap.

1.7 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General: The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or VILLAGE. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the VILLAGE. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.
- B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch in accordance with ANSI A300 Standards. Spikes shall not be used for climbing live trees.
- C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the VILLAGE if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the VILLAGE, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at CONTRACTOR's own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the CONTRACTOR shall pay to the VILLAGE of said tree a compensatory payment acceptable to the tree VILLAGE, subject to the approval of the jurisdictional agency or VILLAGE.

1.8 NOTIFICATION BY THE CONTRACTOR

Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all street lighting facilities; and all roadway and state highway rights-of-way the CONTRACTOR shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire. The CONTRACTOR shall also notify the Sunshine State One Call Center 811 at least 2 days, but no more than 14 days, prior to such excavation. The CONTRACTOR will also be required to notify MDCTED and any utility companies of any conflict located within the project limits within 30 days.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.2 FENCING

- A. Materials to CONTRACTOR's option, minimum fence height to be 6 feet.

2.3 BARRIERS

- A. Materials to CONTRACTOR's option, as appropriate to serve required purpose.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.
- B. Consult with VILLAGE's Representative and remove agreed-on roots and branches which interfere with work.
 - 1. Employ ISA certified Arborist to remove branches and to treat cuts.
- C. Protect root zones of trees.
 - 1. Do not allow vehicular traffic and parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
- D. Carefully supervise all work to prevent damage.
- E. Replace trees and plants which are damaged or destroyed due to work operations under this contract.

3.2 REMOVAL

- A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by VILLAGE's Representative.
- B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

3.3 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION 01530

SECTION 01550 – SITE ACCESS AND STORAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for providing and maintaining methods, equipment, and temporary construction, as necessary, to provide site access and storage.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications.
 - 2. Conditions of the Contract.

1.3 HIGHWAY LIMITATIONS

- A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

1.4 TEMPORARY CROSSINGS

- A. General: Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 300 feet shall be provided. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time.
- B. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the CONTRACTOR shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the CONSULTANT prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.

- C. Street Use: Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. No street shall be closed to the public without first obtaining permission of the CONSULTANT and proper governmental authority. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the CONSULTANT or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- D. Traffic Control: For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of Miami-Dade County and the "Manual on Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1). The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of the Florida Department of Transportation. The CONTRACTOR shall submit 3 copies of a traffic control plan to the CONSULTANT for approval a minimum of 2 weeks prior to construction. The CONSULTANT reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense. The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.
- E. Temporary Driveway Closure: The CONTRACTOR shall notify the VILLAGE or occupant (if not VILLAGE-occupied) of the closure of the driveways to be closed more than one eight-hour work day at least 3 working days prior to the closure. The CONTRACTOR shall minimize the inconvenience and minimize the time period that the driveways will be closed. The CONTRACTOR shall fully explain to the VILLAGE/occupant how long the work will take and when closure is to start. Total closure time shall not exceed 5 days.

1.5 CONTRACTOR'S WORK AND STORAGE AREA

- A. The CONTRACTOR shall designate and arrange for the use of a portion of the property, adjacent to the WORK for its exclusive use during the term of the Contract as storage and shop area for its construction operations relative to this Contract.
- B. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK.
- C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.
 - 1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, flammable, Corrosive, Reactive, or Explosive. In addition, whether

or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.

2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
3. The CONTRACTOR shall develop and submit to the CONSULTANT a plan for storing and disposing of the materials above.
4. The CONTRACTOR shall obtain and submit to the CONSULTANT a single EPA number for wastes generated at the site.
5. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of Mobilization and of all other work.

END OF SECTION 01550

SECTION 01560 - TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for providing and maintaining methods, equipment, and temporary construction, as necessary, to provide controls over environmental conditions at the construction site and related area under CONTRACTOR's control; remove physical evidence of temporary facilities at completion of work.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications.
 - 2. Conditions of the Contract.

1.3 NOISE CONTROL

- A. Provide all necessary requirements for noise control during the construction period.
 - 1. Noise procedures shall conform to all applicable OSHA requirements and local ordinances having jurisdiction on the work.
 - 2. Noise levels during nighttime hours shall not exceed 55 db measured at the property line of a residence.

1.4 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent airborne dust from dispersing into the atmosphere.

1.5 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the project, the site, or adjoining properties.
 - 1. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff.
- B. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

1.6 PEST CONTROL

- A. Provide pest control as necessary to prevent infestation of construction or storage area.
 - 1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
 - 2. Should the use of pesticides be considered necessary, submit an informational copy of the proposed program to VILLAGE with a copy to CONSULTANT. Clearly indicate:
 - a. The area or areas to be treated.
 - b. The pesticide to be used, with a copy of the manufacturer's printed instructions.
 - c. The pollution preventative measures to be employed.
- B. The use of any pesticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

1.7 RODENT CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction or storage area.
 - 1. Employ methods and use materials, which will not adversely affect conditions at the site or on adjoining properties.
 - 2. Should the use of rodenticide be considered necessary, submit an informational copy of the proposed program to VILLAGE with a copy to VILLAGE's Representative. Clearly indicate:
 - a. The area or areas to be treated.
 - b. The rodenticide to be used, with a copy of the manufacturer's printed instructions.
 - c. The pollution preventative measures to be employed.
- B. The use of any rodenticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

1.8 DEBRIS CONTROL

- A. Maintain all areas under CONTRACTOR's control free of extraneous debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking area, or along access roads and haul routes.
 - 1. Provide containers for deposit of debris as specified in Section 01710 - Cleaning.
 - 2. Prohibit overloading of trucks to prevent spillage on access and haul routes.
 - a. Provide periodic inspection of traffic areas to enforce requirements.
- C. Schedule periodic collections and disposal of debris as specified in Section 01710 – Cleaning.
 - 1. Provide additional collections and disposal of debris whenever the periodic schedule is inadequate to prevent accumulation.

1.9 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillage, and to remove contaminated soils or liquids.

1. Excavate and dispose of any contaminated earth off-site and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
 1. Prevent toxic concentrations of chemicals.
 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.10 EROSION CONTROL

- A. Plan and execute construction and earthwork, by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas to prevent erosion and sedimentation.
 1. Hold the areas of bare soil exposed at one time to a minimum.
 2. Provide temporary control measures such as berms, dikes and drains.
 3. Provide silt screens as required preventing surface water contamination.
- B. Construct fills and waste areas by selective placement to eliminate surface silts or clays, which will erode.
- C. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.
- D. All erosion control procedures must comply with the National Pollutant Discharge Elimination System (NPDES). The CONTRACTOR shall develop and implement a Stormwater Pollution Prevention Plan as outlined by NPDES.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01560

SECTION 01570 – TRAFFIC REGULATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. All applicable sections of the Specifications.
- C. Conditions of the Contract.

1.2 REQUIREMENTS

- A. Provide, operate and maintain equipment, services and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow on haul routes, at site entrances, on-site access roads, and parking areas.
- B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or specified conditions.

1.3 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals or signs required to direct and maintain an orderly flow of traffic in all areas under CONTRACTOR's control, or affected by CONTRACTOR's operations.

1.4 FLAGPERSON

- A. Provide qualified and suitably equipped flag person when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.5 FLARES AND LIGHTS

- A. Provide flares and lights during periods of low visibility.
 - 1. To clearly delineate traffic lanes and to guide traffic.
 - 2. For use of flag person in directing traffic.
- B. Provide illumination of critical traffic and parking areas.
 - 1. Maintain free vehicular access to and through parking areas.
 - 2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.6 HAUL ROUTES

- A. Consult with VILLAGE and governing authorities, establish public thoroughfares which will be used as haul routes and site access.

- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to expedite traffic flow, to minimize interference with normal public traffic.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this Section; it shall be included in the lump sum price bid for Maintenance of Traffic.

END OF SECTION 01570

SECTION 01600 – MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of materials and equipment for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications
 - 2. Conditions of the Contract

1.3 REQUIREMENTS INCLUDED

- A. Material and equipment incorporated into the work:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type and quality specified, or as specifically approved in writing by the VILLAGE's Representative.
 - 3. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing
- B. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.4 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to VILLAGE's Representative. Maintain one set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with VILLAGE's Representative for further instructions.
 2. Do not proceed with work without clear instructions.
- C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site. Products shall be delivered to the job site on an "as needed" basis.
1. Deliver products in undamaged condition, in manufacturers' original containers or packaging, with identifying labels intact with legible markings.
 2. Immediately upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
 3. Pipe and materials shall not be strung out along installation routes for longer than two (2) weeks prior to installation.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.
- C. Coordinate deliveries to avoid conflict with Work and conditions at site:
1. Work of other contractors, or VILLAGE.
 2. Limitations of storage space.
 3. Availability of equipment and personnel for handling products.
 4. VILLAGE's use of premises.
- D. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.
- E. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.
- F. Immediately on delivery, inspect shipment to assure:
1. Product complies with requirements of Contract Documents and reviewed submittals.
 2. Quantities are correct.
 3. Containers and packages are intact, labels are legible.
 4. Products are properly protected and undamaged.
- G. Provide equipment and personnel necessary to handle products, including those provided by VILLAGE, by methods to prevent soiling or damage to products or packaging.
- H. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- I. Handle products by methods to prevent bending or overstressing.
- J. Lift heavy components only at designated lifting points

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units with seals and labels intact and legible.
 - 2. Store materials in a manner that will not endanger Project.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 5. Provide substantial platforms, blocking or skids to support fabricating products above ground, prevent soiling or staining.
 - a. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
 - 6. Store loose granular materials on solid surface such as paved areas, or provide plywood or sheet materials to prevent mixing with foreign matter.
 - a. Provide surface drainage to prevent flow or ponding of rainwater.
 - b. Prevent mixing of refuse or chemically injurious materials or liquids.

1.7 MAINTENANCE OF STORAGE

- A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:
 - 1. State of storage facilities is adequate to provide required conditions.
 - 2. Required environmental conditions are maintained on continuing basis.
 - 3. Surfaces of products exposed to elements are not adversely affected.
 - a. Any weathering of products, coatings and finishes is not acceptable under requirements of Contract Documents.
- B. Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.

1.8 PROTECTION AFTER INSTALLATION

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.
- C. Provide coverings to protect finished surfaces from damage.
 - 1. Cover projections, wall corners, and jambs, sills and soffits of openings, in areas used for traffic and for passage of products in subsequent work.
- D. Protect finished floors from dirt and damage.
 - a. For movement of heavy products, lay planking or similar materials in place.
 - b. Cover wall and floor surfaces in the vicinity of construction personnel activities and all finished surfaces used by construction personnel.
- E. Waterproofed surfaces
 - 1. Prohibit use of surfaces for traffic of any kind, and for storage of any products.
 - 2. When some activity must take place in order to carry out the Contract, obtain recommendations of installer for protection of surface.
 - a. Install recommended protection; remove on completion of that activity.
 - b. Restrict use of adjacent unprotected areas.
- F. Lawns and Landscaping
 - 1. Prohibit traffic of any kind across planted lawn and landscaped areas.
- G. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

1.9 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Limitations on Substitutions.
 - 1. During bidding period, Instructions to Bidders govern times for submitting requests for substitutions under requirements specified in this section.
 - 2. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request, when requested directly by Subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.
 - 3. Substitute products shall not be ordered or installed without written acceptance.
 - 4. Wherever material or equipment is submitted as being equal to that specified, the submittal shall include sufficient information and data to demonstrate that the material or equipment is an equal and conforms to the Contract requirements. The decision as to whether or not such material or equipment is equal to that specified shall be made by the ENGINEER.
 - 5. Neither the approval by the ENGINEER of alternate material or equipment as being equivalent to that specified, nor the furnishing of the material or equipment specified, shall in any way relieve the CONTRACTOR of responsibility for failure of the material or equipment, due to faulty design, material, or workmanship, to perform the functions required of them by the Contract Documents.
 - 6. Only one (1) request for substitution for each product will be considered. When substitution is not accepted, provide specified product.

B. Products List

1. Within 15 days after Contract Date submit to ENGINEER a complete list of major products proposed to be used, with the name of the manufacturer and the installing Subcontractor.

C. Contractors Options

1. For products specified only by reference standard, select any product meeting that standard.
2. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named or approved equal, which complies with the Specifications.
3. For products specified by naming one or more products or manufacturers and "or approved equal," CONTRACTOR must submit a request as for substitutions for any product or manufacturer not specifically named.

D. Substitutions

1. For a period of 15 days after Contract Date, ENGINEER will consider written request from CONTRACTOR for substitution of products.
2. Identify product by specification Section and Article Numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers as appropriate.
3. List similar projects using product, dates of installation, and names of ENGINEER and VILLAGE.
4. List availability of maintenance services and replacement materials.
5. Submit a separate request for each product, supported with complete data, with drawings and samples as appropriate, including:
 - a. Comparison of the qualities and performance of the proposed substitution with that specified.
 - b. Changes required in other elements of the work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed substitution with the product specified.
 - e. Any required license fees or royalties.
 - f. Availability of maintenance services, and source of replacement materials.
6. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.
7. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.
8. The ENGINEER may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute.
9. The VILLAGE may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
10. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
11. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR work, the work of its Subcontractors and of other Contractors, and shall effect such changes without cost to the VILLAGE.

E. Contractors Representation:

1. A request for a substitution constitutes a representation that CONTRACTOR:
 - a. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
 - b. Will provide the same guarantees or bonds for the substitution as for the product specified.

- c. Will coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.
- d. Waives all claims for additional costs, under CONTRACTOR'S responsibility, which may subsequently become apparent.

F. Submittal Procedures

- 1. Submit three (3) copies of request for substitution.
- 2. ENGINEER will review requests for substitutions with reasonable promptness, and notify CONTRACTOR, in writing, of the decision to accept or reject the requested substitution.
- 3. During the bidding period, ENGINEER will record acceptable substitutions in Addenda.
- 4. After award of Contract, ENGINEER will notify CONTRACTOR, in writing, of decision to accept or reject requested substitutions in Addenda.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (applicable)

END OF SECTION 01600

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. Execute cleaning, during progress of the Work, and at completion of the Work, as required by the General Conditions.

1.3 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.4 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulation of waste material, rubbish and windblown debris, resulting from Construction Work.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.

- C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.
- D. The VILLAGE'S Representative reserves the right to direct the CONTRACTOR to remove waste materials.
- E. Mechanical Sweeping: CONTRACTOR shall maintain on site a mechanical sweeping device for removing debris from existing, temporary and permanent pavement.

3.2 DUST CONTROL

- A. Perform operations so that dust and other contaminants resulting from Construction Work operations will not cause any damages or maintenance problems to adjacent properties.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.
- C. The CONTRACTOR shall control dust in accordance with all applicable Federal, State and local regulations.

3.3 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Polish glossy surfaces to a clear shine.
- D. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- E. Prior to final completion, or VILLAGE occupancy, CONTRACTOR shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify the entire work is clean.
- F. All storage and staging areas shall be cleaned and returned to prior conditions or better as per requirements of this section.

3.4 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01710

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
 - 5. Addenda.
 - 6. Change Orders and other modifications to the Contract.
 - 7. Approved Shop Drawings, Product Data and Samples.
 - 8. Field Test Records.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications.
 - 2. Conditions of the Contract.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit three sets of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and one of file prints.
 - 3) Submit record digital data files and one set(s) of plots.
 - 4) CONSULTANT will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit three paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and three set(s) of prints.
 - 3) Print each drawing, whether or not changes and additional information were recorded.

- c. Final Submittal:
 - 1) Submit three paper-copy set(s) of marked-up record prints.
 - 2) Submit record digital data files and three set(s) of record digital data file plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy and annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report monthly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Locations and depths of underground utilities.
 - d. Revisions to routing of piping and conduits.
 - e. Revisions to electrical circuitry.
 - f. Actual equipment locations.

- g. Changes made by Change Order or Construction Work Change Directive.
 - h. Changes made following CONSULTANT's written orders.
 - i. Details not on the original Contract Drawings.
 - j. Field records for variable and concealed conditions.
 - k. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with CONSULTANT. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 2. Format: DWG Version Autocad 2016, Windows operating system.
 3. Format: Annotated PDF electronic file.
 4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty to CONSULTANT for resolution.
 6. CONSULTANT will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where CONSULTANT determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult CONSULTANT for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."

- d. Name of CONSULTANT.
- e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 - 5. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file.
 - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for CONSULTANT's reference during normal working hours.

END OF SECTION 01720

SECTION 01740 – GUARANTEES AND BONDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. All applicable sections of the Specifications.
- C. Conditions of the Contract.

1.2 REQUIREMENTS INCLUDED

- A. Compile specified guarantees and bonds.
- B. Compile specified services and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to VILLAGE'S Representative for review and transmittal to VILLAGE.

1.3 SUBMITTAL REQUIREMENTS

- A. Assemble guarantees, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and Subcontractors.
- B. Number of original signed copies required: Three each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service and maintenance contract.
 - 6. Provide information for VILLAGE'S personnel:
 - a. Proper procedure in case of failure.
 - b. Instances, which might affect the validity of warranty or bond.
 - 7. CONTRACTOR, name of responsible principal, address and telephone number.

1.4 FORM OF SUBMITTALS

- A. Prepare in triplicate packets.
- B. Format:

1. Size 8-1/2 in. x 11 in., punch sheets for standard 3-ring binder. Fold larger sheets to fit into binders.
2. Cover: Identify each packet with typed or printed title "GUARANTEES AND BONDS".
List:
 - a. Title of Project.
 - b. Name of CONTRACTOR.

C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.5 TIME OF SUBMITTALS

- A. Make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of guarantee period

1.6 SUBMITTALS REQUIRED

- A. Submit guarantees, bonds, and service and maintenance contracts for periods other than one year as specified in respective specific sections of the Specifications, (if applicable).
- B. The General CONTRACTOR shall submit on the entire Project the one-year guarantee as per AIA, Document A-201 General Conditions, (except for certain portions of the work, where longer periods of time are specified in the specific applicable sections of the Specifications).

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01740

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. All applicable sections of the Specifications.
 - 2. Conditions of the Contract.

1.3 SUBSTANTIAL COMPLETION

- A. When CONTRACTOR considers the work is substantially complete, CONTRACTOR shall submit to VILLAGE's Representative:
 - 1. A written notice that the work or designated portion thereof is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, VILLAGE's Representative and CONSULTANT will make an inspection to determine the status of completion.
- C. Should VILLAGE's Representative determine that the work is not substantially complete:
 - 1. VILLAGE's Representative will promptly notify the CONTRACTOR in writing, giving the reasons therefore.
 - 2. CONTRACTOR shall remedy the deficiencies in the work, and send a second written notice of substantial completion to the VILLAGE's Representative.
 - 3. VILLAGE's Representative and CONSULTANT will re-inspect the work.
- D. When VILLAGE's Representative and CONSULTANT concur that the work is substantially complete, VILLAGE's Representative will:
 - 1. Prepare a Letter of Substantial Completion accompanied by CONTRACTOR's list of items to be completed or corrected, as verified and amended by the VILLAGE's Representative.

1.4 FINAL INSPECTION

- A. When CONTRACTOR considers the work is complete, CONTRACTOR shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of the VILLAGE's Representative and are operational.
 - 5. Work is completed and ready for final inspection.
- B. VILLAGE's Representative and CONSULTANT will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should VILLAGE's Representative and CONSULTANT consider that the work is incomplete and defective:
 - 1. VILLAGE's Representative will promptly notify the CONTRACTOR, in writing, listing the incomplete or defective work.
 - 2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies, and send a second written certification to VILLAGE's Representative that the work is complete.
 - 3. VILLAGE's Representative and CONSULTANT will re-inspect the work.
- D. When the VILLAGE's Representative finds that the work is acceptable under the Contract Documents, VILLAGE's Representative shall request the CONTRACTOR to make closeout submittals.

1.5 REINSPECTION FEES

- A. Should VILLAGE's Representative perform re-inspections due to failure of the work to comply with the claims of status of completion made by the CONTRACTOR:
 - 1. VILLAGE will compensate VILLAGE's Representative and CONSULTANT for such additional services.
 - 2. VILLAGE will deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.6 CONTRACTOR'S CLOSEOUT SUBMITTALS TO VILLAGE'S REPRESENTATIVE

- A. Evidence of compliance with requirements of governing authorities.
 - 1. Certificates of Inspection.
 - a. Electrical
 - b. Plumbing
 - c. Other, as may be required.
- B. Project Record Documents: To requirements of Section 01720.
- C. Guarantees and Bonds: To requirements of Section 01740.
- D. Evidence of Payment and Release of Liens: To requirement of General and Supplementary General Conditions.
- E. Certificate of Insurance for Products and Completed Operations.

1.7 Adjustment of Accounts

- A. Submit a final application for payment of accounting to VILLAGE's Representative.
- B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected work.
 - e. Penalties and Bonuses.
 - f. Deductions for liquidated damages.
 - g. Deductions for re-inspection payments.
 - h. Other adjustments.
 - 3. Total Contract Sum, as required.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. VILLAGE'S Representative will prepare a final Change Order, reflecting approved adjustments to the Contract Sum, which were not previously made by Change Orders.

1.8 FINAL APPLICATION FOR PAYMENT

- A. CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract. At minimum, final payment will be contingent upon the CONTRACTOR producing the following:
 - 1. As-Built Record Drawings,
 - 2. Consent of Surety, and
 - 3. Release of Liens from CONTRACTOR, subcontractors and material suppliers.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of CONSULTANT for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit VILLAGE'S rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of CONTRACTOR.
 - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling

navigation to each item. Provide bookmarked table of contents at beginning of document.

- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01770

TECHNICAL SPECIFICATIONS

SECTION 02810 – IRRIGATION SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SCOPE

- A. Contractor shall provide all labor, materials, equipment, supervision, and related work necessary to complete the irrigation work in accordance with the Irrigation Plans, schedules and these specifications. The extent of work is shown on the drawings which are a part of this document.

1.3 WORK INCLUDED

- A. Provide labor, materials, equipment, and services to install the irrigation system as indicated on the drawings, as specified herein or both.
- B. The completed and proper construction of the irrigation system including, but not limited to:
 - 1. All piping including mains, laterals, fittings, sleeves, connections to existing piping, tees, risers, and swing joints.
 - 2. All control, gate, globe, ball, pressure reducing, air relief, quick coupling and other valves including valve boxes, markers, connections, operators and other accessories.
 - 3. Complete automatic control system as shown on plans including water conservation equipment, control wiring connections, and grounding.
 - 4. Complete electrical connection of the controller to service panel location.
 - 5. All spray sprinklers and bubblers including proper nozzles as called for herein and shown on the plans and all other appurtenances and accessories for proper operation.
 - 6. All excavation, site work, relocation or replacement of utilities, backfill and restoration of all disturbed areas.
 - 7. Providing a complete and operable system for the irrigation of all landscaping on the project site. These specifications are to include all items obviously necessary and requisite for the proper irrigation of the site. This in no way relieves the CONTRACTOR of his responsibility to furnish any additional labor, materials and equipment required for a proper system as part of this scope of work.
 - 8. Restoring to good working order all existing irrigation which shall be utilized.
 - 9. Adjusting head location, type and size, and any other system components to comply with the requirements of landscaping as actually installed, and to minimize overthrow onto pavement.
 - 10. Supplying, delivering, storing and protecting all equipment and materials including pipe and fittings, sprinkler heads, valves, controllers, wire, and other component parts necessary for the installation of a fully automatic irrigation system as indicated in the plans and specifications.
 - 11. Complete sod and planting restoration in all areas that are trenched or damaged during system installation and upon completion of the project.

1.4 EXISTING UTILITIES

- A. Before starting site operations, the CONTRACTOR shall arrange for the disconnection of all utility services designated to be removed in accordance with the Demolition specifications and plans.
- B. The CONTRACTOR shall locate all existing active utility lines traversing the site and determine and develop implementation plan for their protection throughout the project duration. Note that all active utilities adjacent to or traversing the site and/or designated to remain shall remain in continuous, uninterrupted service throughout the duration of Work, unless specifically scheduled for a shutdown.
- C. The CONTRACTOR shall furnish all temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered during the progress of the work, whether or not shown on the drawings. Such Work shall be considered incidental to the scope of the project and no separate compensation will be provided for such.
- D. Where the grade or alignment of proposed piping is obstructed by existing utility structures, such as conduits, ducts, pipe branch connections to main sewers and the like, whether or not shown on the drawings, the obstruction shall be permanently supported, relocated, removed, and/or reconstructed by the utility VILLAGE, pending proper coordination by the CONTRACTOR, at no additional cost to the VILLAGE. Such Work shall be considered incidental to the scope of the project and no additional compensation will be provided for such work. In addition, all such work shall be full compliance with utility VILLAGE requirements.
- E. It shall be the responsibility of the CONTRACTOR to notify the VILLAGEs of existing utilities in the area of construction a minimum of 48 hours prior to any excavation adjacent of such utilities, so that field locations of said utilities may be established.
- F. The CONTRACTOR shall remove, plug and/or cap inactive or abandoned utilities encountered in excavation.
- G. No deviation shall be made from the required line or grade except as directed by the CONSULTANT.

1.5 DESCRIPTION OF SYSTEM

- A. This system has been designed as a typical block valve type using Toro and Rainbird (or approved equal) components including, but not limited to dripline, rain sensor, valves, controller, etc.
- B. The water source for this system shall be a 2" City water meter.

1.6 QUALITY ASSURANCE

- A. All applicable ANSI, AWWA, and ASTM Standards and Specifications, and all applicable building codes and other public agencies having jurisdiction upon the work.
- B. The CONTRACTOR shall be responsible for constructing the system in complete accordance with all local codes, ordinances and laws. The CONTRACTOR shall install all sprinkler heads according to the manufacturer's specifications with regard to installation, depth and distance

between heads. Any modification made to conform to said codes, laws, ordinances and specifications shall be completed at the Contractor's expense with no additional compensation allowed

- C. Protection of Existing Site Conditions and Materials: The CONTRACTOR shall take all necessary precautions to protect site conditions and materials to remain. Should damages occur, CONTRACTOR shall repair the damage to its original condition or better at his own expense.
 - 1. The CONTRACTOR shall avoid where possible trenching through the roots of any existing trees, and shall alert the CONSULTANT before conducting any such activity that may damage large or primary root systems.
- D. Permits and Fees: CONTRACTOR shall be responsible for obtaining all permits and pay required fees to any governmental agency having jurisdiction over the work. Inspection required by local ordinances during the course of construction shall be arranged as required. Upon completion of the work, satisfactory evidence shall be furnished to the VILLAGE to show that all work has been installed in accordance with the ordinances and code requirements.
- E. CONTRACTOR shall insure full, 100% coverage in all areas to receive irrigation, and shall be responsible for adding additional dripline, zones, and components as required to achieve such coverage.
- F. Workmanship: All work shall be installed by skilled personnel, proficient in the trades required, in a neat, orderly, and responsible manner with recognized standards or workmanship. The CONTRACTOR should have installed at least five projects of similar magnitude and demonstrated ability in the installation of sprinkler irrigation systems of this type.

1.7 SUBMITTALS

- A. Before starting fabrication, the CONTRACTOR shall submit detailed working drawings for review and acceptance by the CONSULTANT. Such drawings shall show all irrigation system equipment, indicating all details required for the proper construction including, but not limited to: controllers, valves, flow meters, gate valves, piping, fittings, materials, vacuum breaker, connectors, etc. Where appropriate, and when approved by VILLAGE, manufacturer's product data for the proposed components may be substituted for shop drawings.

1.8 SUBSTITUTIONS

- A. A written request for approval to substitute a material's type, grade, quality, etc. due to the non-availability of the material specified may be submitted to the CONSULTANT. Approval of the substitution must be given by the CONSULTANT before the material is ordered, delivered, or installed on the project.

1.9 CHANGES AND ADDITIONAL WORK

- A. The CONTRACTOR shall not start any changes or additional work in the project until the VILLAGE and the CONTRACTOR have executed a written agreement setting forth the adjusted contract amount. Any work performed on any changes or additional work prior to the execution of a written agreement may not be compensated by the VILLAGE.

- B. The VILLAGE reserves the right to adjust the number and location of sprinkler heads and other equipment in order to provide for any modifications which might become necessary.

1.10 GUARANTEE

- A. CONTRACTOR shall warranty the entire irrigation system against defects, poor workmanship, discrepancies, deficiencies, and malfunction for a minimum of one (1) calendar year from the time of final acceptance. Warranty shall include, but not be limited to, all parts and components included in the system and its installation, and all labor-related items regarding the procurement, assembly, installation, and operation of the system including any and all of its components.

1.11 QUALITY AND GRADE OF REPLACEMENT

- A. All replacement material shall be equal to or better in regards to size, quality, quantity, and grade, as that of the material to be replaced, unless directed otherwise by the CONSULTANT.
- B. Replacement components and labor shall be guaranteed for a period equal to the originally specified guarantee of one year. The guarantee period shall begin at time of acceptance of the replacement material and/or workmanship.
- C. Final payment to the CONTRACTOR shall not relieve guarantee obligations.

1.12 AS-BUILT (RECORD) DRAWINGS

- A. After final acceptance of project, CONTRACTOR shall furnish complete as-built reproducible drawings that show the following: scaled drawings that show the locations of all valves and piping (with dimensions where required or necessary), horizontal or vertical dimensions measured from permanent/fixed objects (buildings, sidewalks, etc.) including, but not limited to the mainline pipe, controller location, remote control/ball/quick coupler valves, wiring/conduit, and sprinkler heads. The drawings shall also indicate and show any and all approved substitutions including size, material, and manufacturer's name and catalog number. All piping shall be labeled to show diameter sizes. Remote control valves and isolation valves shall have two (2) measurements from separate fixed objects so that a triangulation of an exact coordinate for the valves may be calculated.

PART 2 - PRODUCTS

2.1 PVC PIPE

- A. PVC pipe shall be virgin, high impact, polyvinyl chloride pipe which shall be continuously and permanently marked with the manufacturer's name, material, size, and schedule or type. Pipe shall conform to U.S. Department of Commerce Commercial Standard CS 207-60 or latest revision. Material shall conform to all requirements of Commercial Standard (CS,256-63) or latest revision.
- B. Main line and sleeves shall be SCH 40 PVC conforming to ASTM D, 1785. Laterals sized 1" and larger shall be SDR 26, Class 160. Laterals sized ¾" shall be SDR 21, Class 200.

- C. PVC SLEEVES: Pipes routed under pavement and sidewalks shall be sleeved in Polyvinyl Chloride (PVC) Schedule 40, conforming to ASTM D, 1785, pipe unless noted otherwise on the Plans or in these Specifications. All pipes shall be new and free from defects and shall be continuously marked indicating size, schedule type and Department of Commerce Standard Reference. Pipe shall be furnished in standard length of twenty (20) feet.

2.2 GALVANIZED PIPE

- A. GALVANIZED PIPE: Pipe installed above grade at the backflow shall be galvanized painted steel conforming to ASTM A.120 Schedule 40.

2.3 FITTINGS

- A. All PVC fittings shall be white PVC solvent weld SCH 40, Type 1 fittings, which are new and free of defects and must be of domestic manufacturer. The primer and solvent glue shall be compatible with the pipe and fittings. Where adapters are used between threaded and slipped pipes or valves, they shall be only female PVC threaded to socket coupling adapters. No male threaded PVC fittings are to be used, with the exception of street ells and riser adapter. Fittings shall be identified according to pressure rating or schedule.
- B. Galvanized fittings shall be malleable iron screwed fittings conformed to ANSI B 16.3.
- C. All sprinkler heads shall be connected to the supply line as shown on the drawings.
- D. All sprinkler heads shall be connected to the supply line with PVC swing joints, unless indicated otherwise in the Plans and Specifications.

2.4 PRIMER

- A. Shall be a PVC High Etch Primer. This primer shall have a color tint to aid in visual inspection.

2.5 SOLVENT GLUE

- A. Shall be slow drying, heavy-duty gray PVC solvent/glue.

2.6 DRIP IRRIGATION

- A. Drip irrigation equipment including flexible UV resistant dripline with anti-siphon emitters that deliver 0.9 GPH, filters, emitters, pressure regulators, flush valves, air vacuum valves, soil staples and accessories shall be manufactures by Techline or approved equal. The manufacturer shall guarantee all dripline and components for not less than one year from installation, warranty against all defects in normal material and workmanship.

2.7 ELECTRICAL VALVES

- A. Series and Manufacturer
 - 1. Rain Bird Manufacturer

2. PEB Series Diaphragm Valves

- B. Electrically activated remote control valves shall be of plastic construction with stainless steel trim, normally closed with manual bleed plug and manual control (cross handle on 1-1/2" and 2" models; screwdriver adjustment on 1" model). Solenoid shall be 3.5 watt, 24 volt A.C. with waterproof molded coil and removable from valve without running coil and twisting wire. Diaphragm shall be of rubber material. Tir-Act solenoid porting shall prevent a continuous flow of water through the ports during operation. Inlet port to solenoid shall be filtered with self-flushing stainless steel screen, removable from outside of valve body for maintenance. All parts shall be serviceable without removing valve from the line. Valve shall have no external plumbing or tubing and may be installed at any angle without affecting valve operation. Valves shall be as sized on the plan.

2.8 VALVE BOXES

- A. Valve boxes for electric and manual valves shall be Ametek plastic type or approved equal, designed for installation with irrigation systems. Each valve box shall be large enough to provide at least two inches of clearance around all valve parts. The word "irrigation" shall be imprinted in the valve box cover. Covers for valve boxes shall have an anti-theft locking mechanism.
- B. Top of valve boxes shall be installed flush with the finished grade as detailed on the drawings.
- C. Bottom of all valve boxes will be on a 6" bed of pea gravel for drainage.

2.9 AUTOMATIC CONTROLLER

- A. Series and manufacturer
 - 1. Rain Bird Manufacturer
 - 2. ESP Series
- B. The sprinkler controller shall provide for complete automatic operation of the sprinkler system. The controller shall be wall mounted type, painted forest green or approved equal. Controller shall have a station capacity as noted. Each station shall have an independent time control with a 1 minute to 4 hour timing (in one minute increments). Minor timing adjustments shall be made from the face of the controller with no disassembly necessary. The controller shall provide for rapid advance between stations. Stations may be programmed to be omitted. The controller shall provide for manual operation when particular stations require special irrigation. The controller shall provide variable day cycles for every day, every other day, every third day, etc.
- C. All station wiring shall be color-coded with a section indicator key printed and visible at the connection point.
- D. There shall be fused circuit protection to prevent damage due to excessive voltage surges. A pump start circuit which can also be used to control a master valve shall be included in each unit. Each controller shall have U.L. approval.
- E. The controller shall be encased in a securable, wall mounted, waterproof stainless steel enclosure unless specified otherwise. The controller case shall include a cooling fan that will automatically turn on whenever the interior temperature rises above 105 degrees F, and shall automatically turn off when the interior temperature reaches 96 degrees F. CONTRACTOR

shall supply the appropriate control keyboard, which shall be mounted securely, but for easy removal, inside the enclosure door. A complete, easily legible, laminated wiring diagram of equipment inside the enclosure shall be affixed to the inside of the enclosure door. Wiring diagram shall list zones with types of heads and their numbers for each. Operation instructions shall be printed on the inside door of each controller for easy access when programming. Section location chart shall also be placed inside cabinet door.

- F. Irrigation field wires shall not be brought directly into the controller enclosure. A “tray cable” UL® listed for Direct Burial and Sunlight Resistant shall be connected to the controller output terminals and placed inside a valve box just outside the enclosure. These wires shall each be a #16 AWG, THWN, stranded. Each wire shall be printed on its full length with a number, and color-coded. Field wires shall be connected to these wires inside the splice box utilizing approved waterproof connectors.
- G. Unit shall be grounded as per the manufacturer’s specifications.
- H. The entire controller assembly consisting of the controller, enclosure, and any other related equipment, shall be listed under UL 508A as an “Enclosed Industrial Control Panel”. This listing shall be provided by the supplier, and shall include the supplier’s name and the product serial number on a decal affixed to a visible area inside of the control enclosure.
- I. Accessories:
 - 1. Weather Sensor Device: The weather sensor device shall be manufactured by Rainbird or approved equal. The weather sensor shall be properly connected to the system controller to provide its intended purpose. Weather sensor shall be securely mounted to a tangible structure, out of human reach, and clear of any overhead obstructions that may negatively impact performance.
 - 2. Back-up Power Supplies: Each field unit shall have a lithium coin cell battery backup system in case of power loss or failure.
 - 3. Training and Manuals: CONTRACTOR to coordinate a training session on the operation and programming of the new system for VILLAGE. Time and exact location to be coordinated directly VILLAGE. In addition, CONTRACTOR shall supply the original factory copy of controller operation/VILLAGE’s manual. CONTRACTOR shall register product with manufacturer and provide a copy of completed warranty card/sheet information to VILLAGE.

2.10 CONTROL WIRE

- A. Electrical control and ground wire shall be irrigation control cable. Wiring to be used for connecting automatic remote control valves to each automatic controller shall be Type THHN, 600 volt, solid copper, single conductor wire with PVC insulation and bear U.L. approval for in conduit installations.
- B. Wires shall be installed in SCH 40 PVC conduit sized so the wires occupy less than forty per cent of the cross sectional area of the conduit. Wires shall be spliced using 3MDBR/Y direct bury splice kits.
- C. Verification of wire types and installation procedures shall be checked with and made to conform to local codes. Wires shall be color coded to facilitate troubleshooting.

2.11 WIRE CONNECTORS

- A. All splices in irrigation control wire shall be accomplished using Rainbird ST_03 Snap Tite connectors and PT_S5 sealer or 3M DBY Direct Bury Splice Kit.

2.12 ISOLATION VALVES

- A. Gate valves shall be 150 lb. brass, and shall be manufactured by Nibco or approved equal. Valves shall be to line size.

2.13 PAINT

- A. Exterior alkyd enamel, flat black or approved equal shall be used on designated irrigation equipment. CONTRACTOR shall provide paint sample to Landscape Architect for approval prior to execution of painting.

2.14 RAIN SENSOR

- A. Each rain sensor shall be a Rain Bird RSD-BEx or approved equal.

2.15 BACKFILL SOIL

- A. Backfill material shall be clean fill, and completely free from any rock or other material which, if it came into contact with, could damage the pipe. If material from excavation is not acceptable, then clean sand must be used. No rock will be permitted in contact with the PVC pipe.

PART 3 - EXECUTION

3.1 GRADES

- A. It shall be the responsibility of the CONTRACTOR to provide the final grading so the final level conforms to surrounding grades and is at the proper elevation with relation to walks, paving, drainage structures and other site conditions, and as identified in the general notes and specifications section of the planting plan or as directed by the VILLAGE's Project Manager. Depth of irrigation system components shall be measured from the FINAL grade.

3.2 PREPARATION

- A. Layout of Mains and Laterals: Layout sprinkler main lines and perform line adjustments and site modification to lateral lines prior to excavation. Any conflicts shall be brought to the immediate attention of the CONSULTANT or the VILLAGE for coordination of solution.
- B. Valve Location: Locate valves to assure ease of access for maintenance and that no physical interference with other elements of the project exists. Align valves parallel to each other in manifold systems.
- C. Furnish temporary support/adequate protection and maintenance from all underground and surface utilities, structures, drains, sewers, and other obstructions encountered in the progress of the utilities work.

- D. Where the grade or alignment of proposed pipe is obstructed by existing utility structures such as conduit, ducts, pipe branch connections to sewer mains, main drains, water services, electrical lines, or other utilities, the CONTRACTOR shall notify the CONSULTANT or the VILLAGE immediately to coordinate a solution.

3.3 PIPE INSTALLATION

- A. The CONTRACTOR shall stake out the location of each run of pipe/valves prior to trenching.
- B. Excavation shall include all materials encountered in the excavation of trenches for pipe installation. The trench shall be sufficient width and depth for installation of the pipe as indicated herein. The CONTRACTOR shall cause minimum disturbance to all existing conditions.
- C. Any pavement cut must have the prior consent of the VILLAGE. All irrigation lines and wire routed under pavement and sidewalks shall be sleeved inside polyvinyl chloride (PVC) Schedule 40 pipe unless noted otherwise on the plans or in these specifications. Size of all the sleeves shall be able to accommodate proposed irrigation line AND any necessary electrical conduit with at least 1/2" excess free space.
- D. CONTRACTOR shall abandon any old irrigation components found below grade during the installation of the new irrigation system except those that are to remain in operation or as directed by the CONSULTANT or VILLAGE. The CONTRACTOR shall remove and dispose of old irrigation components. CONTRACTOR shall properly cap any old irrigation system mains and branch mains as encountered, except those scheduled for use with the new system.
- E. Trenches shall be made wide enough to allow a minimum of 6 inches between parallel pipe lines. No lines shall be installed directly over another. Trenches for pipelines shall be made of sufficient depths to provide the minimum cover from the finish grade. All mainline pipes shall have a minimum cover of 18 inches from the finish grade.
- F. The pipe and fittings shall be carefully inspected before backfilling of the trench. All rocks over 1 inch diameter and unsuitable bearing materials shall be removed from trench in strict accordance with the manufacturer's recommendations.
 - 1. Solvent welded joints shall be made only on clean, dry, square cut, smooth pipe sections. Fittings shall be "dry" tested for proper size before solvent is applied. The assembly shall proceed in strict accordance with recommended procedures furnished by the manufacturer.
 - 2. Solvent welded pipe sections shall be "snaked" from side to side in the trench to prevent joint rupture due to thermal expansion and contraction.
 - 3. Pipe openings shall be temporarily plugged during construction to prevent entrance of foreign materials.
- G. Backfill shall be carefully placed to avoid pipe dislocation. Backfill material shall be free of rocks, stumps, roots and other unsuitable material. Backfill shall be placed in 6" lifts and shall be thoroughly compacted. Any backfill under pavement or sidewalks shall be compacted to 98% of maximum AASHTO T 180 density. The soil surface of backfilled trenches shall be manually settled so it is even with the surrounding soil surface grade.

3.4 DRIP IRRIGATION

- A. Drip irrigation equipment shall be installed at locations as indicated on drawings and installation details, and in strict in accordance with manufacturer recommendations.
- B. Drip pipe shall be installed a maximum of 24" between rows and to match planting patterns.
- C. Thoroughly flush PVC lateral piping, supply headers, and dripline tubing immediately upon installation.

3.5 CONTROL SYSTEM

- A. NOTE – ALL WIRE SHALL BE INSTALLED IN UL APPROVED GRAY PVC CONDUIT, except under the following conditions.
 - 1. When the conduit is directly exposed to ultra violet light, such as from the sun, then that exposed portion shall be rigid, threaded, heavy walled galvanized pipe (see Section 2.14- Paint).
 - 2. When the use of PVC conduit is restricted by local, state or federal code, then the wire shall be installed in the type of conduit required by code. NO DIRECT BURIAL WIRE INSTALLATIONS SHALL BE ALLOWED. ALL SPLICES SHALL BE TWISTED AND INSULATED FROM MOISTIRE, SHALL ONLY OCCUR IN VALVE BOXES, AND ARE TO ULTIMATELY BE RECORDED IN THE AS-BUILT DRAWINGS.
- B. CONTRACTOR to install Control System and all associated components, in strict accordance with the Manufacturer's Specifications and Instructions, and the Specifications contained herein.
- C. Accessories:
 - 1. Weather Sensor Device: The Weather Sensor shall be installed in a location that is free from overhead obstructions that may cause improper performance of the unit. It shall be installed in a location that is out of range of the sprinklers and away from trees or overhead objects, which might affect accumulation of rain in the rain cup. Install as recommended by the manufacturers' specifications. Furthermore, where possible, Weather Sensor shall be in an inconspicuous location, away from direct visibility or passerby, and out of reach of the general public. Coordinate exact location and installation of the rain switch with CONSULTANT or VILLAGE for approval.
 - 2. Backup Power Supplies: The backup power for the Controller shall be installed at the same location as the Controller itself. Install as per manufacturer's specifications and specifications.
- D. Training and Manuals: The CONTRACTOR, through the manufacturer, shall:
 - 1. Provide proper training to the VILLAGE maintenance staff on the use, operation, and maintenance of the Control System.
 - 2. Provide technical and general information sheets and Operation Manuals for all equipment.
 - 3. All manuals, technical information sheets and general information sheets shall be in duplicate and separately bound.
- E. The CONTRACTOR shall pay any start-up fees for factory technicians.

3.6 CONTROL WIRE INSTALLATION

- A. Install control wire in UL approved PVC conduit at least 18" below finish grade and lay to the side of the main line. Provide a minimum 24 in. of looped wire slack at valves.
- B. All underground splices shall be made at electric valves in valve boxes. Splices shall utilize Rainbird ST-03 UL Snap-Tite connectors and PT-S5 Sealer or 3M DBY direct burial splice kit. Splices should be designed into the system and minimize additional splices in the field. Show all splice locations on the as-built drawings.

3.7 AUTOMATIC VALVES

- A. All automatic valves shall be installed in a rectangular box and shall be arranged for easy adjustment and removal. A union shall be installed on the downstream side. The flow adjustment feature of each valve shall be utilized to balance operating pressures throughout the system.
- B. Master Control Valves shall be located downstream from the vacuum breaker in a valve box. The exact location is to be approved by the VILLAGE.
- C. A valve actuator shall be installed in each valve. Follow manufacturer's recommendations for installation instructions.

3.8 GATE VALVES

- A. Gate valves shall be installed at locations as shown on drawings, in accordance with local codes, and arranged in valve box for easy adjustment and operation.

3.9 VACUUM BREAKER/BACKFLOW PREVENTER

- A. CONTRACTOR to install as per plans and field-adjust as necessary, per CONSULTANT or VILLAGE's approval. All vacuum breaker locations are to be approved by CMB Parks and Recreation before installation or any part thereof. All pipes installed above grade to be Schedule 40 galvanized steel and painted dark green (see this Section 2.14-Paint).

3.10 VALVE BOXES

- A. Valve boxes shall be installed so that the top is flush with surrounding final grade and shall be set on a minimum of six inches of pea gravel. CONTRACTOR shall insure proper percolation of water to subsurface.

3.11 TESTING AND INSPECTION

- A. The CONTRACTOR shall notify the VILLAGE a minimum of 72 hours in advance of testing, and shall coordinate as required.
- B. Cleaning and pressure testing: Flush irrigation system with water to clean lines of foreign materials after system assembly is complete and prior to installation of control valves. Cap and/or plug outlets and fill lines with water. Upon completion of the irrigation main and prior to

the installation of the control valves, test the entire main or portion(s) of the main for proper operation. After completion of the flushing operation, test the main lines with 125 psi hydrostatic pressure for a minimum of 3 hours. No pressure loss shall be allowed over the duration of the test. Remove and/or replace any item or component of the system, which does not comply with the test and test the entire system again until satisfactory test results are obtained. All joint, tees, elbows, caps and connections shall be left exposed during the test. Main line sections of solid unbroken pipe should be buried at intervals adequate to secure stabilization of pipe runs when pressurized, if necessary, repair any leak and retest entire assembly until achieving satisfactory result. Install sprinkler heads only after approval of test results by the VILLAGE.

- C. Final inspection shall be made when the complete system is in place, operable, and all repairs, additions, adjustments, and other work is complete. At such time, the CONTRACTOR shall adequately demonstrate the proper operation of the system, shall show the system's complete conformance with the specifications, and demonstrate that the irrigation system gives proper and adequate coverage of all landscaped areas. Final test should include two-minute timed intervals of water flow per zone, allowing a one- minute down time between each zone test. Acceptance by the project Landscape Architect and/or the VILLAGE in no way removes the CONTRACTOR of his responsibility to make further repairs, corrections and adjustments to eliminate any deficiencies which later may be discovered. Moreover, the CONTRACTOR shall fully honor the one-year warranty outlined herein.

3.12 RESTORATION OF EXISTING CONDITIONS

- A. CONTRACTOR shall coordinate irrigation system installation, and any components thereof, with other project work to avoid disturbance of new work such as turf, planting beds, paved areas, etc. CONTRACTOR shall be responsible for and shall bear all costs of any replacement, repair, of restoration to existing conditions, new or otherwise, as a result of irrigation system installation before Final Acceptance. This shall include any and all irrigation work, initial or as a result of reinstallation of unacceptable components, done prior to Final Acceptance of the system. Repairs shall include like materials and conditions, equal to those being replaced or repaired, and to the satisfaction of the VILLAGE.

3.13 ACCEPTANCE AND OPERATION BY VILLAGE

- A. Upon completion of the work and acceptance by the VILLAGE, the Contractor shall be responsible for the training of the VILLAGE's Representative(s) in the operation of the system (provide minimum 48 hours written notice in advance of test). The Contractor shall furnish, in addition to the record drawings, as-built and operation manuals, copies of all available specification sheets and catalog sheets to the VILLAGE's personnel responsible for the operation of the irrigation system. The Contractor shall guarantee all parts and labor for a minimum period of one (1) year from date of final acceptance.
- B. Conditions for acceptability of work for start of maintenance by VILLAGE issued by VILLAGE or VILLAGE's Representatives shall include but not be limited to:
 - 1. Punch list items complete and approved by VILLAGE or VILLAGE's Representative.
 - 2. Landscape Irrigation system complete and in place.
 - 3. Record drawings and as-built complete.
 - 4. Maintain installation and watering schedules until all conditions noted above have been completed.

3.14 CLEAN UP

- A. Upon completion of all installation work. Contractor shall remove all leftover materials and equipment from the site in a safe and legal manner.
- B. Contractor shall remove all debris resulting from work of this Section.
- C. Contractor shall re-grade, lightly compact, and replace around sprinkler heads where necessary to maintain proper vertical positioning in relation to established grade.
- D. Contractor shall fill all depressions and eroded channels with sufficient soil mix to adjust grade to ensure proper drainage. Compact lightly, and replant filled areas in accordance with Drawings requirements.

END OF SECTION 02810

SECTION 02900 - LANDSCAPE WORK

PART 1 - GENERAL

1.1 SCOPE

- A. The work included in this section consists of furnishing all necessary labor, materials, necessary equipment, services to complete the installation of all landscaping as shown on the Plans, including the installation of sod as shown, as well as all other related responsibilities as specified herein.
- B. All plant materials included shall be of the specific size and quality indicated on the plans and in these specifications and shall be installed in strict accordance with sound nursery practices, and shall include maintenance and watering for all work outlined on the plans and specifications until final acceptance.
- C. The CONSULTANT reserves the right to adjust the numbers and locations of the designated types and species to be used at any locations shown in order to provide for any modifications that may become necessary.
- D. Investigation of Subsurface Conditions: The CONTRACTOR shall be responsible for making site subsurface investigations and examinations as he or she chooses in order to become familiar with the character of the existing material and the construction conditions under which he or she will be working. These subsurface investigations and examinations shall be included in the bid. The CONTRACTOR shall not receive separate, additional compensation for such investigation.
- E. Excavation Related to Inadequate Drainage: Some or all work areas may contain existing materials such as but not limited to, limerock, and it may even be compacted. This material and any compacted material may interfere with adequate vertical drainage and/or proper plant survival and growth. Removal of this material, in order to have adequate vertical drainage, is part of the scope of work for the project. Therefore, the sub surface investigations and examinations are necessary in order to determine the extent of removal and excavation required above and beyond the minimum requirements indicated in these Specifications, under the heading of "Excavation of Plant Holes", which is PART 3. Compensation for any excavation and removal required, above and beyond the minimum requirements indicated, including any additional planting soil needed to fill the larger excavated area, shall be included in the bid. The CONTRACTOR shall not receive separate, additional compensation for this.
- F. No separate, additional compensation will be granted because of any unusual difficulties which may be encountered in the execution of any portion of the work.
- G. The Plans are not complete unless accompanied by these Specifications.

1.2 QUALITY ASSURANCE

- A. The CONTRACTOR'S Superintendent shall be well versed in Florida plant material, planting operations, blue print reading, and coordination with other performing contracts or services in the job area. All CONTRACTOR employees shall be competent and highly skilled in their particular job in order to properly perform the work assigned to them. The CONTRACTOR shall

be responsible for maintaining the quality of plant material on the job throughout the duration of his responsibility.

- B. Acceptance of any proposed individual, company, or corporation shall not relieve the CONTRACTOR of his responsibility to supervise the work and to coordinate the activities of his sub-contractor with work of all other trades.
1. Sub-Contractor Qualification – No individual company or corporation will be permitted to perform any work under this Section by Contract or Sub-Contract unless such individual, company or corporation, is fully qualified to perform the work. The CONTRACTOR, if requested shall provide the following evidence that he or any of his proposed contractors or sub-contractors is qualified.
 - a. State or local license, where license is required by law.
 - b. Membership in trade or professional organizations:
 - 1) Associated Landscape Contractors of America;
 - 2) American Association of Nurserymen, or
 - 3) Florida Nursery, Growers and Landscape Association.
 - c. List of (3) similar projects which the individual, company or corporations performed under contract or subcontract to a general contractor or VILLAGE.
 - d. Personnel Certifications: Installer's field supervisor shall have certification in the following from the Professional Landcare Network:
 - 1) FNGLA Certified Landscape Technician (FCLT)
- C. In the event that it becomes apparent that any nursery supplying plants for this work has knowingly and consistently represented the grade of plants as being higher than their actual grades as determined under these provisions, all plants already delivered from such sources shall be removed from the job at the CONTRACTOR's expense and no further plants will be accepted from such nursery until written evidence is submitted and confirmed that all material for delivery has been inspected and approved by inspectors of the State Plant Board as being of the grade as represented.
- D. All plant material shall conform to the names given in Hortus Third, 1976 edition. Names of varieties not included therein conform generally with the names accepted in nursery trade.
- E. Correct Grade of Plants: Any supplier of materials misrepresenting the grade or quality of their materials (i.e. a higher grade than they are), as determined by the CONSULTANT through the application of the Plans and Specifications, shall not be allowed to supply any material for this projet. All material already supplied and received from such a supplier, which is below specified grade, shall be removed and replaced at no additional cost to the VILLAGE. This requirement for removal and replacement shall also include any installed materials. No further materials will be accepted from such supplier until written evidence is submitted and confirmed that all material for delivery is of the grade and quality represented.
1. Grade and Quality:
 - a. All plant material shall be nursery grown, and comply with all required inspections. Grading and quality standards and plant regulations as set forth in the Florida Department of Agriculture's "Grades and Standards for Nursery Plants, 2015 Edition", or with any superseding specifications that may be called for on Plans or in the Specifications and as established by the Turfgrass Producers Association of

Florida, Inc. ALL PLANTS NOT LISTED IN THE GRADES AND STANDARDS FOR NURSERY PLANTS, shall conform to a Florida No.1 as to: (1) health and vitality, (2) condition of foliage, (3) root system, (4) freedom from pest or mechanical damage and (5) heavily branched and densely foliated according to the accepted normal shape of the species or spot.

- b. Exception to "Grades and Standards": Any section of Florida Department of Agriculture's "Grades and Standards" which allow nails and spikes in the trunks of trees and palms shall be EXCLUDED from these Specifications. THESE SPECIFICATIONS PROHIBIT NAILS AND SPIKES IN TRUNKS.

2. Requirements for Various Plant Designations:

a. Balled and Burlapped (B & B) Plants:

- 1) Burlap and other wrapping materials made of natural, biodegradable materials shall be used.

- b. Growing site inspections shall be requested in writing with 48 hours advance notice by the CONTRACTOR.
- c. The fact that the CONSULTANT has not made an early inspection and discovery of faulty work or of work omitted, or of work performed which is not in accordance with the contract requirements, shall not bar the Landscape Architect from subsequently rejecting such work.
- d. The Landscape Architect's on site inspections shall be for the purpose of verifying that the Plans and Specifications are being implemented properly only. The Landscape Architect's on-site inspections are not for safety on or off the job site. The job site safety is the sole responsibility of the CONTRACTOR.

- F. All plant material shall be nursery grown except where specified as collected material, and shall comply with all required inspections, grading standards and plant regulations as set forth by the Florida Department of Agriculture's "Grades and Standards for Nursery Plants" latest edition, or with any superseding specifications that may be called for on the Plans or in the Specifications. ALL PLANTS NOT LISTED IN THE GRADES AND STANDARDS FOR NURSERY PLANTS, shall conform to a Florida No. 1 as to: (1) Health and Vitality, (2) Condition of Foliage, (3) Root System, (4) Freedom from Pest or Mechanical Damage, (5) Heavily Branched and Densely Foliated according to the accepted normal shape of species, or spot, (6) Form and branching habit.
- G. Balled and Burlapped (B&B) and Wire Balled and Burlapped (WB&B) plants shall be properly protected until they are planted. These plants shall be handled only by the earth ball and not the plant itself.
- H. Any (B&B) or (WB&B) plant which shows evidence of having handled by method other than the method outlined above, and resulting in a cracked or broken ball or of the roots being loosened within the ball shall be rejected.
- I. For plants grown in soil of loose texture, which does not readily adhere to the root system, (especially in the case of large plant material), WB&B plants may be specified. For WB&B plants, before plant is removed from the hole, sound hog wire shall be placed around the burlapped ball and looped and tensioned until the burlapped ball is substantially packaged by the tightened wire netting, such as to prevent disturbing of the loose soil around the roots during handling. Any wire, synthetic material or chemically treated material will be removed from the root-ball at planting time; all ties shall be removed from the root-ball and around the trunk at planting.

- J. Any Container Grown (CG) plants, which have become "pot bound" or for which the top system is out of proportion (larger) to the size of the container, will not be acceptable.
- K. With metal containers, unless the root-ball system slips easily and unbroken from the can, a nursery can-cutter shall be used to slit the can in such a way that the can may be opened fully.
- L. CG plants shall not be removed from the can until immediately before planting, and with all due care to prevent damage to the root system.
- M. Submit to the CONSULTANT the names and locations of nurseries proposed as sources of acceptable plant material. The CONSULTANT reserves the right to visit the nursery to inspect and/or select any and all specified material.
- N. The CONSULTANT shall have the right, during any phase of the work operations, to reject any and all work and materials which do not meet the requirements of the Plans and Specifications. Rejected work and materials shall be immediately removed from the project area and replaced with acceptable work and materials within seven (7) calendar days or as approved by the VILLAGE's Representative.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Movement of nursery stock shall comply with all Federal, State, and local laws and regulations. Therefore, required inspection certificates shall accompany each shipment, and shall be filed with the VILLAGE's Representative. Unless otherwise authorized by the VILLAGE, CONTRACTOR shall notify the VILLAGE at least two working days in advance of the anticipated delivery date of any plant material. Wire wrap burlap if root ball is not sufficiently compacted. Palms will not require burlap wrapping if the following requirements are met:
 - 1. Dug from marl or heavy soil that adheres to roots and retains shape without shattering.
 - 2. Moistened material used to cover ball and roots not exposed to wind and sun.
 - 3. Transport material on vehicles large enough to allow plants not to be crowded. Plants shall be covered to prevent wind damage during transit and shall be kept moist, fresh and protected at all times. Such protection shall encompass the entire period that the plants are in transit, being handled, or are in temporary storage. Closed vehicles shall be adequately ventilated to prevent overheating of the plants.
 - 4. Plants shall not be dug at the nursery or approved source until the CONTRACTOR is ready to transport them from their original locations to the site of the work or acceptable storage location.
 - 5. Root-pruning of field-grown or collected plants shall be performed at least 6 weeks prior to digging, as determined by industry standards for that species.
 - 6. Plants shall be kept moist, fresh, and protected at all times. Such protection shall encompass the entire period during which the plants are in transit, being handled, or are in temporary storage.
- B. All plant material shall not remain on the work site longer than (2) days prior to being installed.

1.4 SUBMITTALS

- A. Written requests for approval, to substitute a materials plant designation (B&B, WB&B, and CG, etc.), type. Grade, quality, size, quantity, etc., due to the non-availability of the material specified, shall be submitted within 14 calendar days after the preconstruction conference. Approval shall be given by the CONSULTANT before the material is delivered and installed on

the project.

- B. Any request for the approval of an equal shall be in writing. Requests shall be submitted within 14 calendar days after the preconstruction conference. Approval shall be given by the CONSULTANT before the material is delivered and installed on the project.
- C. Submit prints of shop drawings for any special conditions not covered in the details indicated. This shall be for approval by the CONSULTANT before they are installed on the project.
- D. If requested by the CONSULTANT, submit a written schedule of sources or suppliers of all materials for inspection and approval by the CONSULTANT before they are delivered and installed on the project. Two color photographs of each different item requested by the CONSULTANT, showing different side views of the item shall be submitted with the schedule. Additional color photographs shall be submitted, if requested.
- E. If requested by the CONSULTANT, submit a letter indicating the sources or suppliers of all sod and the grade to be supplied for approval by the CONSULTANT before it is delivered and installed on the project.
- F. Submit a sample and analysis of all planting soil for approval by the CONSULTANT before the material is delivered and installed on the project.
- G. Submit a sample and analysis of mulch for approval by the CONSULTANT before the material is delivered and installed on the project.
- H. If requested by the CONSULTANT, submit copies of the manufacturer's specifications or analysis for all fertilizer including data substantiating that proposed materials comply with specified requirements. This shall be for approval by the CONSULTANT before the material is delivered and installed on the project.
- I. The CONSULTANT must review and approve shop drawings of all staking and guying methods, before they are implemented on this project.
- J. Submit, on an as needed basis, a schedule for spraying and dusting of materials to be used to control pests and disease infestation, the reason for their use and the method to be used to apply the materials and the method of application before it is delivered and used on the project. Also, if requested by VILLAGE, furnish documentation that the implementation of these control measures for pests and disease infestation is in strict compliance with all federal and local regulations.

1.5 SUBSTITUTIONS

- A. Substitutions of plant types or change in the size of plant material will only be permitted upon submission of documented proof that the particular plant type and size specified is not obtainable.
- B. Where B&B or WB&B plants are specified, CG plants of same species, etc., will not be accepted. Where B&B or WB&B is not specified on a particular plant material, B&B, WB&B or CG plants may be used provided they meet all specifications.

1.6 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. American National Standards Institute, Inc. (ANSI)
Z60.1 American Standard for Nursery Stock (Sponsor: American Association of Nurserymen, Inc.)
 - 2. American Society for Testing Materials (ASTM):
C136 Sieve Analysis of Fine and Course Aggregates.
E 11 Wire-Cloth Sieves for Testing Purposes.
 - 3. "Hortus Third", A Concise Dictionary of Plants Cultivated in the United States and Canada, Cornell University, L.H. Bailey Hortorium, MacMillan Publishing Company, New York, New York.
 - 4. State of Florida Department of Agriculture and Consumer Services (FDACS),
Grades and Standards for Nursery plants, 2ND Edition, 2015.

1.7 GUARANTEE

- A. All trees and palms shall be guaranteed for a minimum of one (1) calendar year from the time of final acceptance of the project. All shrubs and groundcover and sod shall be guaranteed for a minimum of 180 calendar days from the time of final acceptance.
- B. CONTRACTOR shall make as many inspections as necessary during the guarantee period, at no additional cost to the VILLAGE, to evaluate the condition of all plant material. CONTRACTOR shall submit a written report of each inspection to the VILLAGE and the CONSULTANT outlining corrective measures required in order to keep the guarantee valid.
- C. At the end of the guarantee period plants shall be healthy, vigorous, and free of pests, diseases, nutritional deficiencies, dieback, stress, or decline.
- D. CONTRACTOR shall make all necessary repairs to surrounding areas caused by plant replacement activities. Such repairs shall be done to the satisfaction of and at no cost to the VILLAGE.
- E. The CONTRACTOR shall remove staking and guying materials according to the following schedule:
 - 1. Palms, nine months after installation or after hurricane season of the corresponding year whichever occurs later.
 - 2. Trees, six months after installation or after hurricane season of the corresponding year whichever occurs later.
- F. Trees that have been staked or braced must maintain proper verticality and remain plumb until the end of the guarantee period.

1.8 REPLACEMENT

- A. The guaranteeing of plant material shall be construed to mean the complete and immediate replacement of plant material if it is:
 - 1. Not in a healthy condition.

2. There is a question to its survival ability at the end of the guarantee period.
3. Structural failures including plantings failing or blowing over.
4. Faulty performance of tree stabilization.
5. It is dead.

1.9 SIZE, QUALITY AND GRADE OF REPLACEMENT

- A. Replacement plant material shall be of the same species, quality and grade as that of the plant to be replaced. The size of the replacement shall not necessarily be the same size as the original specified plant at its initial planting but shall closely match specimens of the same species. Replacements shall be guaranteed for a period equal to the originally specified guarantee. This guarantee period shall begin at time of plant replacement.

1.10 GUARANTEE NULL AND VOID

- A. Guarantee shall be null and void for plant material which is damaged or dies as a result of "Act of God" limited to hail, freeze, lightning, winds which exceed hurricane force and lethal yellowing, providing the plant was in healthy growing condition prior to these "Acts of God".
- B. Defects resulting from abuse, lack of adequate maintenance, or neglect by VILLAGE, or incident's beyond the CONTRACTOR's control.

PART 2 - MATERIALS

2.1 PLANT MATERIAL

- A. Except as otherwise specified, all plant material shall conform to FDACS Grades and Standards for Nursery Plants, latest edition. ALL PLANTS NOT LISTED IN THE GRADES AND STANDARDS FOR NURSERY PLANTS SHALL CONFORM TO A FLORIDA NO. 1 as to: (1) Health and Vitality, (2) Condition of Foliage, (3) Root System, (4) Freedom from Pest or Mechanical Damage, (5) Heavily branched and densely foliated according to the normal shape of the species and (6) Form and branching habit at the time of installation and final acceptance.
- B. Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, and other features indicated in Plant List shown on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
 1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than $\frac{3}{4}$ inch in diameter; or with stem girdling roots will be rejected.
 2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- C. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.

- D. Labeling: Label at least one plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on the Drawings.
- E. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.
- F. Containerized material shall be well established with at least one (1) full growing season in its container. Field grown material shall be well established with at least two (2) full growing seasons in its existing location.
- G. Habit of Growth: All plant material shall have a habit of growth that is normal for the species and shall be sound, healthy, vigorous and free from insects, plant disease and injuries.
- H. Measurement of Trees, Palms, Shrubs and Ground Cover:
 - 1. Trees, Shrubs and Ground Cover:
 - a. Rootball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
 - b. Height: The height of plant material shall be measured from the finish grade and continue up to where the main mass of the plant uniformly ends. The height shall not include any singular or isolated parts of the plant, such as leaves, shoots, branches, limbs or fronds, which extend out beyond the mass of the plant.
 - c. Width: The width of plant material shall be measured from one side of where the main mass uniformly ends and continue to the other side of where the main mass of the plant uniformly ends. The width shall not include any singular or isolated parts of the plant, such as leaves, shoots, branches, limbs or fronds, which extend out beyond the main mass of the plant.
 - d. Caliper: The caliper of tree trunks shall be measured 3' above the ground unless:
 - 1) The landscape regulations, ordinances and code requirements from the appropriate local jurisdiction the project is located in indicate another method of measurement.
 - 2) Another method of measurement is indicated otherwise on the Plans.
 - 2. Palms: Requirement for the measurement of clear trunk, clear wood, graywood, rootball diameter and depth shall comply with the requirements as set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants".
- I. All sizes shown for plant material on the Plans are to be CONSIDERED AS MINIMUMS. All plant material must meet or exceed these minimum requirements for height spread, etc., as indicated on the Plans. When plant sizes are specified as a range of size, installed material shall average the mean of the range specified. Plant material which exceed the minimum dimensions shall not constitute a means for additional compensation to the CONTRACTOR or dispensation from other portions of the work.
- J. Die-Back and Leaf-Drop: Plant material showing signs of die-back or leaf-drop will not be accepted and must be removed from the project immediately, if so directed by the Landscape Architect. Therefore, any plant material with tendencies toward leaf-drop or die-back must be root pruned early enough to provide a sound network of hair roots prior to relocation.

- K. Mechanical Destruction of Foliage: Mechanical destruction of foliage resulting from root pruning shall not affect more than 10% of the total foliage prior to planting on the project. Loss of foliage caused by seasonal change will be accepted.
- L. Palms:
 - 1. Before transporting: See "Delivery and Handling" for requirements related to wrapping of rootballs.
 - 2. Remove a minimum of fronds from the crown of the palms to facilitate transporting and handling.
 - 3. Palms with burn marks and frond boots on trunk will not be accepted.
 - 4. Using biodegradable material, such as a burlap strip or untreated cotton twine, tie Sabal Palmetto bud and leave in-place until palm is established. If by this time the bud has not opened naturally, then the CONTRACTOR shall remove the tie, including any bracing, even if the project has been completed, final acceptance has been given and the CONTRACTOR has left the job. There shall be no separate, additional compensation for this task. Tying shall be set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants". Tying of other palms shall be at the option of the CONTRACTOR.
 - 5. To reduce head volume, palms fronds may be taper trimmed by not more than one-third.
 - 6. Palms showing cable or chain marks and equipment scars shall be rejected. Chlorosis: The allowable of Chlorosis in foliage shall be set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants".
- M. Plant material shall not be accepted when the ball of earth surrounding its roots has been cracked, broken or otherwise damaged.
- N. Root pruning of plant material, when necessary, shall be done a minimum of eight (8) weeks for a period as determined by the Landscape Architect, prior to planting at the project. Prior to root pruning, the CONTRACTOR shall give 48 hours advance notice to the CONSULTANT advising of the date to root prune a
- O. Incorporate the specified quantity of soil moisturizer, in the landscape soil mix and backfill around the plant. Soil mix shall be worked carefully, and thoroughly watered in to fill voids and wash out air pockets.

2.2 PLANTING SOIL for TREES, PALMS, SHRUBS & GROUND COVER

- A. Planting soil shall be natural, friable, and free from rocks larger than ½" diameter, weeds, stumps, plant tissue, litter, toxic substances, or any other deleterious materials per plans. The Planting Soil shall be delivered in a loose friable condition.
- B. Proof of soil characteristics shall be the CONTRACTOR's responsibility and shall be supplied by independent and certified testing laboratories, independently mailed to the VILLAGE/VILLAGE's Representative prior to the delivery and/or use of the soil.
- C. General Type: All plant material shall be planted with a backfill material comprised of 60% fresh water sand and 40% Everglades muck by volume. Add 2 pounds of fertilizer, as specified, to each cubic yard of soil and thoroughly mix. Planting soil shall have a pH of between 5.5 and 6.4 after mixing and fertilizer amendment.
 - 1. Sand shall be free of silt and sludge.
 - 2. Sand shall be well washed consisting of fresh water medium to coarse silica sand.

3. Cyclone sand is not acceptable.
4. Use unmixed sand for top dressing.
5. Muck shall be peat material removed from areas marked "Florida Everglades Peat" on soil Conservation Service Soil Maps.
6. Muck shall be capable of sustaining vigorous plant growth and specifically pulverized for agricultural use.
7. Muck shall be sterilized to be free of viable nut grasses and other undesirable weeds.

D. Submit soil analysis and sample at no additional cost to the CONSULTANT.

2.3 WATER

- A. The Landscape CONTRACTOR is responsible to ascertain the location and accessibility of a potable water source. The Landscape CONTRACTOR is responsible FOR DISTRIBUTION OF WATER TO THE AREAS OF PLANTING. If there is no source of potable water available at the job site approved for use, then the Landscape Contractor shall be responsible for bringing in a water truck or tank for hand watering. If water volume accessibility and distribution are not satisfactory to the CONTRACTOR, it is his responsibility to negotiate acceptable terms with the VILLAGE prior to signing of a contract, if during the planting, water availability previously agreed to, is curtailed. The CONTRACTOR shall notify, in writing within 24 hours, the VILLAGE's Representative of the condition and, if the Landscape Contractor deems necessary, his intent to cease work until water is restored. For plants already installed prior to cut-off of water availability, the Landscape Contractor shall continue to be responsible for providing water as required by specifications.

2.4 MULCH

- A. Mulch shall be processed entirely from the Melaleuca tree and shall be Grade 'A', uniformly shredded and free from foreign matter, large pieces of bark, tree stump material, burrowing nematodes and ants.

2.5 COMMERCIAL FERTILIZER

- A. Submit copies of the manufacturer's specifications or analysis of all fertilizer for approval.
- B. Trees and Palms (Container): Fertilize per VILLAGE's requirements during Maintenance Period. Shall be an "8-4-12" 'Palm Special' formulation, with a minimum of 50% nitrogen in the slow-release (preferably sulfur-coated) and a complete line of micro-nutrients, or approved equal.
- C. Shrubs and Ground Cover: Fertilize per VILLAGE's requirements during Maintenance Period. Shall be an "8-4-12" 'Palm Special' formulation, with a minimum of 50% nitrogen in the slow-release (preferably sulfur-coated) and a complete line of micro-nutrients, or approved equal.
- D. Fertilizer for sod shall be a granular fertilizer having an analysis of 12-6-8, to be approved by the VILLAGE.
- E. Rates of Application: Sod – 12 lbs per 1,000 sq ft, or as recommended by the VILLAGE's Representative.
- F. Submit manufacturer's specification sheet(s) for approval of product. Submit tags from bags of

fertilizer used on site to the VILLAGE.

- G. Composition and Quality: All fertilizer shall be uniform in composition and dry. Granular fertilizer shall be free flowing and delivered in unopened bags. Tabletized fertilizer shall be delivered in unopened containers or boxes. All bags, containers or boxes shall be fully labeled with the manufacturer's analysis.

2.6 SOIL MOISTURIZER

- A. Soil Moisturizer: Soil moisturizer shall be equal to "Terrasorb" soil moisturizer, manufactured by Industrial Services International, Bradenton, FL.
 - 1. Proportions: Planting soil shall be amended by the addition of soil moisturizer in the following amounts:
 - a. For trees and palms up to 36 in. dia. root ball: Use one 3 oz. packet.
 - b. For trees and palms with root ball larger than 36 in. dia.: Use two 3 oz. packets.
 - c. For bedding areas: Use one 3 oz. packet for every 20 sq. ft. of planting area with packets placed at 3 ft. depth, or as deep as practicable.

2.7 ROOT BARRIER

- A. Deep Root root barrier or approved equal. Install per manufacturer's instructions.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Prior to the work, carefully inspect the installed work of other trades and the site conditions and verify that all such work and site conditions are complete to the point where this installation may properly commence.
- B. Start of work shall imply acceptance of site conditions.
- C. Utilities (Overhead and Underground)
 - 1. The work area may have existing utilities, such as, but not limited to, fuel, phone, electrical and storm sewer. The locations of some of these existing utilities have been indicated on the Plans. However, no guarantee is implied that the Plans are accurate or complete. It shall be the responsibility of the Landscape CONTRACTOR to verify the location of all such utilities, structures, etc., by hand excavation or other appropriate measures before performing any work that could result in damage or injury to persons, utilities, structures or property. The Landscape Contractor shall make a thorough search of the site for utilities, structures, etc., before work is commenced in any particular location.
 - 2. The CONTRACTOR shall take immediate steps to repair, replace, or restore all services to any utilities or other facilities, which are disrupted due to his or her operations. Further, the Landscape Contractor shall engage any additional outside repairs on a continuous "around the clock" basis until services are restored. He or she shall also provide and operate any supplemental temporary services to maintain uninterrupted use of the

facilities. All costs involved in the repairs and restoring of disrupted service resulting from negligence on the part of the Landscape Contractor shall be borne by the Landscape Contractor and he or she shall be fully responsible for any and all claims resulting from the damage.

3. Should utilities, structures, etc., be encountered which interfere with the work the CONSULTANT shall be consulted immediately in order for a decision to be made on the relocation of the work so it will clear the obstruction, if the obstruction cannot be relocated.
4. The Contractor shall not purposefully disrupt or disconnect any type of utility whatsoever without first obtaining the written permission of the VILLAGE. Requests for disconnection must be in writing and received by the VILLAGE at least 72 hours prior to the time of the requested interruption.

3.2 DRAINAGE OF SOILS

- A. The CONTRACTOR shall notify the CONSULTANT, in writing, of all soil or drainage conditions that he/she considers detrimental to growth of plant material.
- B. Subsurface Conditions: Some or all work areas may be compacted and/or contain existing material such as lime rock which may interfere with adequate vertical drainage and/or proper plant survival and growth and therefore removal of this material is part of the scope of work for the project. The Landscape Contractor shall be responsible for insuring adequate drainage in these areas and shall remove this existing material, as required, by such means as auguring, drilling or roto-tilling. THEREFORE, THE CONTRACTOR MAY BE REQUIRED TO PERFORM ADDITIONAL EXCAVATION ON THE HOLES FOR ALL PALMS AND TREES. This additional excavation shall be to a depth beyond the required excavation depth indicated below for the holes, in order to insure proper vertical drainage necessary for plant survival and growth.

3.3 GRADES

- A. Rough Grades: Grading for drainage, swales, etc. shall be provided by CONTRACTOR.
- B. It shall be the responsibility of the CONTRACTOR to provide the final grading so the final level for planting areas conforms to surrounding grades and is at the proper elevation with relation to walks, paving, drain structures and other site conditions, unless indicated otherwise on the Plans.
- C. Plant Areas Next to Pavement: All planting areas next to pavement areas such as, but not limited to, curbs, roads, drives, walks, terraces, decks and slabs shall be set so that the TOP OF THE MULCH IS (one) 1" BELOW THE TOP OF THE PAVEMENT AREA or as indicated otherwise on the Plans, and the top of sod is level with the top of pavement area, measured from the top of grass blades after mowing.

3.4 HERBICIDE TREATMENT

- A. In all areas infected with weed and/or grass growth, a herbicide as approved by the CONSULTANT shall be applied per manufacturer's rates. When it has been established where work will be done, the herbicide shall be applied in accordance with manufacturer's labeling to kill all noxious growth. Landscape Contractor shall schedule his work to allow more than one application to obtain at least 95% kill of undesirable growth. Landscape Contractor shall exercise extreme care to prevent damage to desirable existing growth. If necessary,

Landscape Contractor shall conduct a test to establish suitability of product and applicator to be used on this project prior to execution of the full application.

3.5 PREPARATION

- A. All areas proposed for planting not covered by more than 12" of new fill shall be scarified by an approved means to a depth of not less than 36", and shall be treated with two separate applications of appropriate herbicide as recommended by the manufacturer and approved by the VILLAGE's Representative.
- B. Staking Plant Locations: Stake or mark plant material locations prior to plant hole excavation, based on information from the Plans.
- C. Spacing of Ground Cover and Shrubs: The location of planting beds (shrubs or groundcover) next to another bed, walkway or structure, etc., shall have the plants along the perimeter spaced so that the plants can mature properly without growing into the other bed, walkway, structure, etc.
- D. The rootballs of B&B plants which cannot be planted immediately shall be covered with moist soil or mulch to ensure protection from the drying winds and sun. All plants shall be maintained as necessary until planting. Refer to the section entitled "DELIVERY, HANDLING AND STORAGE" for additional requirements.
- E. Subsurface Conditions: Some or all work areas may be compacted and/or contain existing material such as limerock which may interfere with adequate vertical drainage and/or proper plant survival growth and therefore removal of this material is part of the scope of work for the project. The Contractor shall be responsible for ensuring adequate drainage in these areas and shall remove this existing material, as required by such means as augering, drilling or roto-tilling.
- F. The Contractor shall remove all existing concrete, asphaltic concrete and rocks, above and below grade, from areas to be landscaped unless indicated otherwise on the Plans.
- G. Excavation of Plant Holes:
 - 1. General:
 - a. Excavation of plant holes shall be roughly cylindrical in shape with the sides approximately vertical. The CONSULTANT reserves the right to adjust the size and shape of the plant hole and the location of the plant in the hole to compensate for unanticipated structures or unanticipated factors which are a conflict.
 - b. The excavated material from the plant holes shall not be used to backfill around the plant material. Such material shall be disposed off the site.
 - 2. Trees and Palms:
 - a. Depth of hole shall be equal to the rootball depth plus 6 inches, unless further depth is required to provide adequate drainage as per 3.02 B.
 - b. Diameter of hole shall be at least two times as wide as rootball.
 - 3. Shrubs:
 - a. Single Plants:

- 1) Depth of hole shall be equal to the rootball depth plus 4 inches.
- 2) Diameter of hole shall be 50% greater than the rootball width.

b. Mass Planting (2 or more together) Planted 24 inches on Center or Less:

- 1) Depth shall be equal to the rootball depth plus 4 inches.
- 2) Diameter: Shrub material in mass shall not be planted in individual holes but rather in one continuous hole or excavation for the entire mass.
- 3) Groundcover Beds:

a) Container Material:

- (1) Depth shall be equal to the rootball depth plus 4 inches.
- (2) Diameter: Groundcover material in mass shall not be planted in individual holes but rather in one continuous hole or excavation for the entire mass, all at a depth of 4 inches more than the depth of the rootball.

3.6 INSTALLATION

A. Container Plant Material: After container grown plant material is removed from its container, the sides of the root ball shall be given six (6) vertical cuts full length. These cuts shall be about ¼ inch deep. The bottom of the root ball shall also receive an "X" shaped cut that is ¼ inch deep.

B. Setting of Plants:

1. PLANT MATERIAL SHALL BE PLANTED AT THEIR NATURAL AND ORIGINAL PLANTING LEVEL PRIOR TO THEIR REPLACEMENT ON THIS PROJECT. WHEN LOWERED INTO THE HOLE, THE PLANTS SHALL REST ON THE PREPARED HOLE BOTTOM SUCH THAT THE SURFACE ROOTS AT THE TOP OF THE ROOTBALL ARE LEVEL OR SLIGHTLY ABOVE THE LEVEL OF THE SURROUNDING FINAL GRADE AFTER SETTLEMENT (I.E. THE FINAL LEVEL OF THE TOP OF THE PLANT'S ROOTBALL SHALL BE THE SAME AS THE SURROUNDING FINAL GRADE). THE PRACTICE OF PLUNGING, BURYING OR PLANTING ANY PLANT MATERIAL SUCH THAT THE SURFACE ROOTS AT THE TOP OF THE ROOTBALL ARE BELOW THE LEVEL OF THE SURROUNDING FINAL GRADE, WILL NOT BE PERMITTED UNLESS IT IS INDICATED OTHERWISE IN THESE SPECIFICATIONS OR IT IS APPROVED IN WRITING BY THE CONSULTANT PRIOR TO SUCH ACTION BEING TAKEN. The plants shall be set straight or plumb or normal to the relationship of their growth prior to transplanting. The CONSULTANT reserves the right to realign any plant material after it has been set.
2. Sabal palmetto and Cocos. Sp. may be set deeper than the depth of their original growing condition in order to lessen the necessity for support or bracing. For such deeper planting, however, it will be required that the underlying soil be friable. The clear truck requirements set forth in the plant list shall be maintained from the finished grade and NOT from the previous grade of the palm tree before it was planted.
3. Plant material of the shrub category and smaller must be handled by the ball only. Plant material too large for handling by hand, if moved by winch or crane, must be thoroughly protected from chain, rope or cable marks, girding, bark slippage, limb breakage and any other damage that might occur by improper handling or negligence.
4. All trees and palms shall be handled by both the trunk and rootball at the same time and not by the trunk only. Trunks shall be thoroughly protected.
5. Container grown plant material shall be carefully removed from the container so as not to

disturb the root system.

- C. Application Rates of Fertilizer: Shall be as recommended by the fertilizer manufacturer, or as otherwise approved by the VILLAGE.
- D. Incorporate the specified quantity of soil moisturizer, in the landscape soil mix and backfill around the plant. Soil mix shall be worked carefully, and thoroughly watered in to fill voids and wash out air pockets.
- E. Mulch: Within 24 hours after planting. Planted areas must be mulched uniformly to a depth of approximately two inches, or as indicated on the Plans. Keep mulch approximately an inch away from trunks, stems or growing points of ground covers.
- F. Staking and Guying:
 - 1. Staking and guying shall not be attached to the plant material with nails. Staking and guying shall be installed as indicated in the details or approved shop drawings. Refer to the heading "Setting of Plants", which is in PART 3 of these Specifications, for additional information.
 - 2. Staking and guying shall be in accordance with all applicable regulations, ordinances and code requirements in effect at the time of award of the contract.
 - 3. The decision of whether to stake or guy shall be left to the discretion of the CONTRACTOR
- G. Watering:
 - 1. Initially, water the plant material to develop uniform coverage and deep-water penetration of at least six inches. Avoid erosion, puddling, and washing soil away from plant roots.
 - 2. Provide continuous watering of plant material and sod after planting in order to achieve optimum growth conditions to establish plants. Water shall be applied as necessary and the amount of water and frequency of watering shall be based on the specific needs of each plant type, the time of year, amount of rainfall and other environmental conditions present at the time. This watering shall begin after the plant is planted, and continue until final acceptance or for a minimum of sixty (60) consecutive calendar days, whichever is greater in time. ALL TREES AND PALMS SHALL BE HAND WATERED, ONLY. DURING THIS PERIOD, DO NOT RELY ON THE IRRIGATION SYSTEM, IF THERE IS ONE, TO ACHIEVE THIS TASK. It cannot deliver the volume of water required, without flooding areas beyond where water is needed and/or over watering other landscape material. Shrubs and ground cover may be watered by using the irrigation system, if available, otherwise hand water during this period.
 - 3. If there is no source for water available at the project, such as a hose bib(s) or fire hydrant(s) if approved for use, then the Landscape Contractor shall be responsible for supplying water for hand watering by means of a truck or tank.
 - 4. Canopy watering of transplanted existing trees, using misting heads on PVC risers to cover entire canopy, may be required at the discretion of the Certified Arborist. Operate by hand or on a time clock to spray as required to keep soil at root ball from getting too wet.
- H. Pruning and Thinning:
 - 1. The amount of general pruning and thinning shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transplanting operations. Pruning and thinning shall be done in such a manner as not to change the natural form or shape of a plant in accordance with ANSI A300

standards. The CONSULTANT shall be contacted prior to performing any major pruning or thinning and may elect to be present during any pruning and thinning.

2. All broken or damaged branches or roots shall be cut off smoothly.
3. Pruning shall be done with sharp, clean tools. Bypass clippers are preferred over anvil-type.
4. Cuts shall be made at appropriate nodes or laterals, leaving no stubs. No pruning paint shall be used.

I. Weeding:

1. If weeds become prevalent to such an extent that they threaten the health of plant material, then they shall be removed. This condition shall apply during the construction, maintenance and guarantee periods if the weeds were introduced by the CONTRACTOR through the plant material, planting soil, sand or mulch used.
2. If necessary, plant material, mulch, sand and/or planting soil shall be replaced as needed to eliminate weeds or undesirable vegetation at the expense of the CONTRACTOR.

J. Removal of Plant Material: All plant material to be removed, shall be removed completely, including the rootball or as directed by the Landscape Architect, from the job site. The remaining hole shall be filled with suitable material or planting soil.

3.7 CLEANUP

- A. Disposal of Waste: All waste and other objectionable material created through planting operations and landscape construction shall be removed completely, on a daily basis, from the job site or as directed by the Landscape Architect. Any paved area, including curbs and sidewalks which contain soil, sod waste fertilizer or other waste shall be thoroughly swept. The VILLAGE is not required to supply areas or facilities for storage or removal of waste on-site.
- B. Excess fill: All excess fill which results from the installation of the project shall remain the property of the VILLAGE and remain on the project at the option of the VILLAGE. All excess fill which the VILLAGE does not want shall be removed and disposed of from the project at no additional cost to the VILLAGE. No excess fill shall be removed or disposed of from the site until approved by the VILLAGE's Representative. Excess fill shall be removed or disposed of as directed.
- C. CONTRACTOR shall fill all pits and depressions in holding area and rough grade to meet surrounding elevations. Remove any debris resulting from the planting process.
- D. CONTRACTOR shall sweep and wash all paved surfaces.

3.8 PROTECTION

- A. Responsibility for Protection and Restoration of Property: The CONTRACTOR shall be responsible for all damage or injury to person or property.
- B. Protection Against Mechanical Damage: The CONTRACTOR's responsibility for protection against mechanical damage shall include providing protection from vehicles and providing warning signs and barricades as might be necessary and he or she shall repair, restore and replace all property which becomes damaged as a result of any negligence of the CONTRACTOR or his or her employees in complying with these requirements. Coordination shall be with THE VILLAGE'S REPRESENTATIVE and the Landscape Architect.

3.9 COMPLETION AND FINAL ACCEPTANCE

- A. Upon written notice from the CONTRACTOR of the presumptive completion, as defined below, of the entire project, the Landscape Architect, along with other appropriate parties, will make an inspection within 48 hours after written notice. If all construction provided for and contemplated by the Plans and Specifications, is found to be completed in accordance with the Plans and Specifications, such inspection shall constitute the final inspection. The CONTRACTOR shall be notified in writing of final acceptance as of the date of the final inspection.
- B. If, however, the inspection mentioned in Paragraph A, above discloses any work, in whole or in part, as being unsatisfactory, final acceptance shall not be given the CONTRACTOR. THE VILLAGE'S REPRESENTATIVE will give to the CONTRACTOR the necessary instructions or "punch lists" for correction of same, and the CONTRACTOR shall have up to 20 calendar days from the date such instructions or "punch lists" to correct the work are received. If the instructions or "punch lists" to correct the work are not complete within the 20 calendar days, then THE VILLAGE'S REPRESENTATIVE may correct the work and back-charge the CONTRACTOR for materials, labor and equipment.
- C. Upon correction of work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, THE VILLAGE'S REPRESENTATIVE shall make the final acceptance and notify the CONTRACTOR in writing of this final acceptance as of the date of this final inspection.
- D. Completion of the work shall mean the full and exact compliance and conformity with the provisions expressed or implied in the Plans and Specifications including any and all "punch lists" which may be issued outlining certain items of work which were found unsatisfactory or require completion or corrective action.
- E. Final acceptance shall not be given until all construction provided for and indicated in the Plans and Specifications is inspected by THE VILLAGE'S REPRESENTATIVE and found to be completed in accordance with the Plans and Specifications.
- F. Final acceptance shall not be official until acknowledged in writing by THE VILLAGE'S REPRESENTATIVE.

3.10 RESPONSIBILITY PRIOR TO FINAL ACCEPTANCE

- A. Certain responsibilities prior to final acceptance: The following is a partial list of certain responsibilities. It is not a complete list, but only a summary of certain responsibilities. There are other responsibilities indicated elsewhere in the Plans and Specifications. The lack of listing a responsibility on the following list does not relieve the CONTRACTOR of that responsibility if it is indicated elsewhere in the Plans and Specifications. Also, the listing of a responsibility on the following list does not necessarily make it any more important than one which is not listed:
 - 1. The CONTRACTOR is responsible for the entire project prior to final acceptance.
 - 2. The CONTRACTOR is responsible for safety on and off the job site.
- B. Maintenance Prior to Final Acceptance:
 - 1. Maintenance shall begin immediately after each plant is planted and continue until final acceptance except for the watering indicated in the paragraph below. This watering shall begin as indicated and shall continue until completed, even if the indicated period goes beyond the time of final acceptance.

2. Plant maintenance shall include watering, pruning, weeding, cultivating, repair of erosion, mulching, tightening of guys, stakes, braces, etc., replacement of sick or dead plants, resetting plants to proper grades or upright position, maintenance of the watering saucer, litter removal, and all other care needed for proper growth of the plants. Mowing and edging shall be done at least every fourteen (14) days and report and repairs required to responsible CONTRACTOR.
 3. Immediately after planting, each plant shall be watered and the watering period shall continue until final acceptance or for a minimum of 42 consecutive calendar days, whichever is greater in time. Refer to the section entitled "Watering" for additional requirements.
 4. All plant material shall be weeded once a week. In the event that weeds or other undesirable vegetation becomes prevalent to such an extent that they threaten plant material, the weeds shall be removed as directed by the Landscape Architect or VILLAGE Representative. If necessary, the plant material, mulch, sand and/or planting soil shall be replaced as needed to eliminate weeds or undesirable vegetation at the expense of the CONTRACTOR.
 5. Insecticides:
 - a. CONTRACTOR shall apply all insecticides as needed, for complete control of pests and diseases. The materials and methods shall be in accordance with highest standard horticultural practices and as recommended by the County Agent, and approved by the VILLAGE, prior to implementation.
 - b. When a chemical is being applied, the person using it shall have in their possession all labeling associated with the chemical. Also the chemical shall be applied as indicated on the said labeling.
 - c. The spraying of insecticides and other such chemicals are to be confined to the individual plant. Spraying techniques which may introduce the material being sprayed beyond the immediate area of the individual plant, is strictly prohibited.
 - d. The implementation of control measures for pests and disease infestations shall be in strict compliance with all federal and local regulations. Upon request, the CONTRACTOR shall furnish documentation of such compliance.
 - e. All insecticides shall be applied by a licensed/certified operator only. The operator shall have the license/certification in their possession when insecticides are being applied.
 6. Protection: Planted trees and plants shall be protected against trespassing and damage. If any plants become damaged or injured, they shall be treated or replaced as directed and in compliance with the Specifications at no additional cost to VILLAGE. No work shall be done within or over planting areas or adjacent to plants without proper safeguards and protection.
 7. Keep sidewalks, curbs and gutters, drainage structures, driveways, parking areas, streets, terraces, decks and pavers free of plant cuttings, debris and stains.
 8. Material rejected during the course of construction shall be removed within ten (10) working days and replaced before an inspection for completion will be scheduled.
 9. If the CONTRACTOR fails to perform maintenance consistent with these specifications, as determined by THE VILLAGE'S REPRESENTATIVE, then the VILLAGE may perform any necessary maintenance and back charge the CONTRACTOR for labor and materials.
- C. Survival and Conditions: The CONTRACTOR shall be responsible for the proper maintenance and the survival and condition of all landscape items from the time a landscape item is installed until final acceptance.
- D. Replacement: Replacement of plant material shall be the responsibility of the CONTRACTOR including the possible replacement of plant material resulting from removal by theft or vandalism

or acts of negligence on the part of others. All plant material shall be alive and in good growing condition for each specific kind of plant at the time of final acceptance.

- E. Rating: The rating of plant material according to Florida Grades and Standards shall be equal to or better than that called for on the Plans and in these Specifications at the time of final acceptance.

END OF SECTION 02900

SECTION 02931 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENT

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape at 6 inches above the ground for trees up to, and including, 4-inch size; and 12 inches above the ground for trees larger than 4-inch size.
- B. DBH (Diameter at Breast Height): The diameter at breast height of a tree's trunk measured at a height four and one-half (4 ½) feet above grade. In the case of multiple trunk trees, the DBH shall mean the sum of each trunk's diameter measured at a height of four and one-half (4 ½) feet above grade.
- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction..
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated on the Drawings.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
 - 1. Species and size of tree.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.
 - 4. Description of pruning to be performed.
 - 5. Description of maintenance following pruning.
- C. Qualification Data: For qualified arborist and tree service firm.

- D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- E. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- F. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - 1. Use sufficiently detailed photographs or videotape.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

1.5 QUALITY ASSURANCE

- A. Arborist Qualifications: Certified Arborist as certified by ISA.
- B. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.

1.6 PROJECT CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil: 80 percent sand and 20 percent muck thoroughly mixed with a commercial shredder/blender or equivalent. Material shall be proportioned by volume rather than weight and site mixing is not allowed. Mixture shall be free from rocks greater than ½" in size, limbs, roots, and other deleterious matter. The Landscape Architect reserves the right to reject topsoil, at any time, used during the execution of the work not meeting specifications.

- B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:
 - 1. Type: Shredded Melaleuca, Grade A.
 - 2. Color: Natural.
- C. Protection-Zone Fencing: Fencing fixed in position as indicated on the Drawings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated with flagging tape.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated.
 - 1. Apply 3-inch average thickness of organic mulch. Do not place mulch within 6 inches of tree trunks.

3.2 TREE- AND PLANT-PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin.
- B. Maintain protection zones free of weeds and trash.
- C. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.
- D. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.3 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to specifications.

- B. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.4 ROOT PRUNING

- A. Prune roots that are affected by temporary and permanent construction. Prune as follows:
 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 2. Cut Ends: Do not paint cut root ends.
 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 4. Cover exposed roots with burlap and water regularly.
 5. Backfill as soon as possible in accordance with specifications.
- B. Root Pruning at Edge of Protection Zone: Prune 6 inches outside of the protection zone, by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.5 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as follows:
 1. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
 2. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
- B. Chip removed branches and dispose of off-site.

3.6 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.7 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02931

SECTION 02935 - SODDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Sodding.
- B. Related Sections:
 - 1. All applicable sections of the Specifications.
 - 2. Division 02900 Section "Landscape Work".

1.3 DEFINITIONS

- A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- E. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- F. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.
- H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

- I. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to this Project.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.
- C. Qualification Data: For qualified landscape Installer.
- D. Product Certificates: For soil amendments and fertilizers, from manufacturer.
- E. Material Test Reports: For imported or manufactured topsoil.
- F. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required initial maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
 - 1. Professional Membership: Installer shall be a member in good standing of the Florida Nursery Growers and Landscape Association.
 - 2. Experience: Five years' experience in turf installation in addition to requirements in Division 01 Section "Quality Requirements."
 - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 4. Personnel Certifications: Installer's field supervisor shall have certification in the following from the Professional Landcare Network:
 - a. FNGLA Certified Landscape Technician (FCLT)
 - 5. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
 - 6. Pesticide Applicator: State licensed, commercial.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

- C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of the soil.
 - 1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
 - 2. The soil-testing laboratory shall oversee soil sampling, with depth, location, and number of samples to be taken per instructions from Architect. A minimum of two representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
 - 3. Report suitability of tested soil for turf growth.
 - a. Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
 - b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

- D. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.

- B. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1.8 MAINTENANCE SERVICE

- A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:
 - 1. Sodded Turf: 30 days from date of Substantial Completion.

1.9 WARRANTY

- A. Warranty sod for a period of three months after date of Final Acceptance.
- B. Replacement sod under this warranty shall be guaranteed for an additional three months from the date of installation.
- C. Repair any damage caused by sod replacement at no cost to the Owner.

1.10 QUALITY WARRANTY

- A. Sod shall be uniform in color, leaf texture, leaf and root density, and free from weeds, diseases, and other visible imperfections at acceptance.
- B. Guarantee does not cover damage as a result of fertilizers, pesticides, or other applications not supervised by the Contractor as a result of acts of God or vandalism.

PART 2 - PRODUCTS

2.1 TURFGRASS SOD

- A. Turfgrass Sod: Certified complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.
- B. Sod shall be nursery grown on cultivated mineral agricultural soils. Sod shall have been mowed regularly and carefully and otherwise maintained until harvest.
- C. Grass Species: St. Augustine "Floritam"
- D. Thickness of cut: Sod shall be machine cut at a uniform soil thickness of 5/8 in. Measurement of thickness shall exclude top growth and thatch.
- E. Strip Size: Sod shall be cut to the suppliers' standard width and length. Maximum allowable deviation from standard widths and lengths shall be plus or minus 1/2 in. on width and 5% on length. Broken strips and torn or uneven ends will not be accepted.
- F. Strength of Sod Strips: Sod strips shall be strong enough to support their own weight and retain their size and shape if suspended vertically when grasped in the upper 10% of the section.

- G. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively wet or dry) may adversely affect its survival.
- H. Time Limitations: Sod shall be harvested, delivered, and transplanted within a 30 hour period unless a suitable preservation method is approved by the CONSULTANT prior to delivery. Sod not transplanted within this period shall be inspected and approved by the CONSULTANT prior to its installation.
- I. Thatch: Sod shall be relatively free of thatch. A maximum of 1/2 in. (uncompressed) thatch will be permitted.
- J. Diseases, Nematodes, and Insects: Sod shall be free of disease, nematodes and soil borne insects. State Nursery and Plant Laws require that all sod be inspected and approved for sale. The inspection and approval must be made by the State Agriculture Department, Office of the State Entomologist.
- K. Weeds: Sod shall be free of grassy and broadleaf weeds.

2.2 FERTILIZERS

- A. Commercial Fertilizer: 16-4-8 standard mix.

2.3 TOPSOIL MIXTURE

- A. Topsoil Mixture (By Volume): 80 percent sand and 20 percent muck thoroughly mixed with a commercial shredder/blender or equivalent.
 - 1. Material shall be proportioned by volume rather than weight.
 - 2. Site mixing is not allowed.
 - 3. Mixture shall be free of rocks greater than 1/2" in size, limbs, and other deleterious matter.
 - 4. The Architect reserves the right to reject topsoil, at any time, used during the execution of the work not meeting specs.
 - 5. Depth of topsoil as specified on plans.
- B. Sand:
 - 1. Sand shall be free of silt and sludge.
 - 2. Sand shall be well washed consisting of fresh water medium to coarse silica sand.
 - 3. Cyclone sand is not acceptable.
 - 4. Use unmixed sand for top dressing.
- C. Muck
 - 1. Muck shall be peat material removed from areas marked "Florida Everglades Peat" on Soil Conservation Service Soils Map.
 - 2. Muck shall be capable of sustaining vigorous plant growth and specifically pulverized for agricultural use.
 - 3. Muck shall be sterilized to be free of viable nut grasses and other undesirable weeds.
- D. Peat:

1. Free of deleterious materials that would be harmful to plant growth and free of nematodes.
 2. Uniform in quality.
 3. Peat shall have a pH between 5.5 and 6.5 as determined by ASTM E70.
- E. Top Dressing for Sodded Areas: Clean sand, mined from fresh water. Sand mined from salt water shall not be used.

2.4 PESTICIDES

- A. 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.
- B. 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.
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 1. Protect grade stakes set by others until directed to remove them.

- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. Limit turf subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Apply fertilizer directly to subgrade before loosening.
 - 2. Thoroughly blend planting soil off-site before spreading.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
 - b. Mix lime with dry soil before mixing fertilizer.
 - 3. Spread planting soil to a depth of 2 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately 1/2 the thickness of planting soil over loosened subgrade. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil.
 - b. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
- D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 SODDING

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across angle of slopes exceeding 1:3.
 - 2. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.

- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.5 TURF MAINTENANCE

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 - 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
 - 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 - 1. Mow St. Augustine grass to a height of 2-1/2 inches or less.
- D. Turf Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft to turf area.

3.6 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
 - 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.7 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

3.8 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- C. Remove non-degradable erosion-control measures after grass establishment period.

END OF SECTION 02935

SECTION 03360 – INTEGRALLY COLORED STAMPED CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes the following:
 - 1. Integrally colored concrete crosswalks.
 - 2. Colored hardened concrete surface.
 - 3. Stamped using L.M. Scofield Pavecraft New Herringbone Stamp or approved equal.
 - 4. Curing of integrally colored and imprinted concrete.
- B. Related Sections:
 - 1. All applicable sections of the Specifications.
 - 2. FDOT Standard Specifications for Road and Bridge Construction (FY 2016-17).

1.3 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 301 "Specification for Structural Concrete for Buildings."
 - 2. ACI 302 IR "Recommended Practice for Concrete Floor and Slab Construction."
 - 3. ACI 303.1 "Standard Specification for Cast-In-Place Architectural Concrete."
 - 4. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete."
 - 5. ACI 305R "Recommended Practice for Hot Weather Concreting."
 - 6. ACI 306R "Recommended Practice for Cold Weather Concreting."
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C309 "Liquid Membrane-Forming Compounds for Curing Concrete."
 - 2. ASTM C494 "Standard Specification for Chemical Admixtures for Concrete."
 - 3. ASTM C979 "Standard Specification for Pigments for Integrally Colored Concrete."
- C. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO M194 "Chemical Admixtures."
 - 2. CONTRACTOR shall remedy the deficiencies in the work, and send a second written notice of substantial completion to the VILLAGE's Representative.
 - 3. VILLAGE's Representative and CONSULTANT will re-inspect the work.
- D. When VILLAGE's Representative and CONSULTANT concur that the work is substantially complete, VILLAGE's Representative will:
 - 1. Prepare a Letter of Substantial Completion accompanied by CONTRACTOR's list of items to be completed or corrected, as verified and amended by the VILLAGE's Representative.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's complete technical data sheets for the following:
 - 1. Chromix Colored admixture.
 - 2. Lithochrome Color Hardener
 - 3. Lithochrome Powder antiquing release agent.
 - 4. Pavecraft Imprinting/Texturing tools.
 - 5. Cureseal-S Curing & Sealing compound.
- B. Design Mixes: For each type of integrally colored concrete.
- C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.
- D. Qualification Data: For firms indicated in "Quality Assurance" Article, including list of completed projects.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with 15 years' experience in production of specified products.
- B. Installer Qualifications: An installer with a Minimum of 10 years' experience with work of similar scope and quality.
- C. Comply with the requirements of ACI 301.
- D. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.
- E. Notification of manufacturer's authorized representative shall be given at least 1-week before start of Work.
- F. Integrally Colored Concrete Mockups:
 - 1. Provide under provisions of Division 1 Section "Quality Requirements."
 - 2. At location on Project selected by Contractor, place and finish a 10 feet by 10 feet maximum Mock Up area for every color and finish being provided on the project.
 - 3. For accurate color, the quantity of concrete mixed to produce the sample should not be less than 3 cubic yards (or not less than 1/3 the capacity of the mixing drum on the ready-mix truck) and should always be in full cubic yard increments. Excess material shall be discarded according to local regulations.
 - 4. Construct Mockups using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in sample panels. Mockups shall be produced by the individual workers who will perform the work for the Project.
 - 5. Retain samples of cements, sands, aggregates and color additives used in mockup for comparison with materials used in remaining work.
 - 6. Accepted mockup provides visual standard for work of Section.
 - 7. Mockup shall remain through completion of the work for use as a quality standard for finished work.
 - 8. Remove mockup when directed at the end of the project.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Colored Admixture: Comply with manufacturer's instructions. Deliver colored admixtures in original factory unopened, undamaged packaging bearing identification of product, manufacturer, batch number, and expiration date as applicable.
- B. Store products in a location protected from damage, construction activity, precipitation, and adverse environmental conditions in strict accordance with manufacturer's current recommendations. Products must be stored in dry conditions.
 - 1. Imprinting tools must be stored flat, textured face up, with no objects resting on top.
- C. Handle products according to manufacturer's printed instructions.

1.7 PROJECT CONDITIONS

- A. Integrally Colored Concrete Environmental Requirements:
 - 1. Schedule placement to minimize exposure to wind and hot sun before curing materials are applied.
 - 2. Avoid placing concrete if rain, snow, or frost is forecast within 24-hours. Protect fresh concrete from moisture and freezing conditions.
 - 3. Comply with professional practices described in ACI 305R and ACI 306R.
- B. Schedule delivery of concrete to provide consistent mix times from batching until discharge. Mix times shall meet manufacturer's written recommendations.

1.8 PRE-INSTALLATION CONFERENCE

- A. One week prior to placement of integrally colored concrete, a meeting shall be held to discuss the Project requirements, including application methods. Attendees to include CONSULTANT, General Contractor, Subcontractor and a Manufacturer's Representative be present.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis of Design: Provide products specified herein manufactured by L.M. SCOFIELD COMPANY, or approved equal.
Douglasville, Georgia and Los Angeles, California (800) 800-9900 or the appropriate local contact: Bill Collester (727) 515-1849, bill.collester@scofield .com

2.2 MATERIALS

- A. Colored Admixture for Integrally Colored Concrete: CHROMIX P® Admixture and CHROMIX ML®; L.M. SCOFIELD COMPANY.
 - 1. Admixture shall be a colored, water-reducing, admixture containing no calcium chloride with coloring agents that are lime proof and UV resistant.
 - 2. Colored admixture shall conform to the requirements of ACI 303.1, ASTM C979, ASTM C494, and AASHTO M194.

- B. Dry-shake Colored Hardener: LITHOCHROME[®] Color Hardener; L.M. SCOFIELD COMPANY, factory proportioned, mixed, and packaged, ready-to-use surface hardener.
- C. Stamping/Imprinting Tools and Materials: LITHOTEX[®] Pavecrafters[®] imprinting tools; L.M. SCOFIELD COMPANY.
- D. Powder Antiquing Release Agent: LITHOCHROME[®] Antiquing Release; L.M. SCOFIELD COMPANY.
 - 1. Powder antiquing release agent shall be recommended by pattern tool manufacturer and compatible with integral color additives.
- E. Curing and Sealing Compound: Cureseal-S[™] Gloss; L.M. SCOFIELD COMPANY. Curing and sealing compound shall comply with ASTM C309 and be of same manufacturer as colored admixture, for use with integrally colored concrete.

2.3 COLORS AND PATTERNS

- A. Concrete Color:
 - 1. Cement: Color shall be Gray.
 - 2. Sand: Color shall be locally available natural sand.
 - 3. Aggregate: Concrete producer's standard aggregate complying with specifications.
 - 4. Colored Admixture: L.M. Scofield Crosswalk Red
 - 5. Color Hardener Product: L.M. Scofield A-26 Brick Red.
 - 6. Stamp/Imprinting Pattern: As indicated in Drawings from Scofield LITHOTEX[®] Pavecrafters[®] pattern sheets.
 - 7. Powder Antiquing Release Agent: As indicated in Drawings from manufacturer's standard colors.

2.4 CONCRETE MIX DESIGN

- A. Minimum Cement Content: 5 sacks per cubic yard of concrete.
- B. Slump of concrete shall be consistent throughout Project at 4-inches or less. At no time shall slump exceed 5-inches. If super plasticizers are allowed, slump shall not exceed 8-inches.
- C. Do not add calcium chloride to mix as it causes mottling and surface discoloration.
- D. Supplemental admixtures shall not be used unless approved by manufacturer.
- E. Do not add water to the mix in the field.
- F. Add colored admixture to the mix according to manufacturer's written instructions in premeasured bags, not by weight of cement content.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install concrete according to requirements of FDOT Standards Specifications for Road and Bridge Construction (FY 2016-17).

- B. Do not add water to the mix in the field.
- C. Surfaces shall be finished uniformly with the following finish:
 - 1. Stamped/Imprinted: Apply pattern according to tool manufacturer's instructions. Touch-up pattern and finish edges with hand tools as necessary.

3.2 CURING

- A. Integrally Colored Concrete: Apply Curing and Sealing compound for integrally colored concrete according to manufacturer's instructions using manufacturer's recommended application techniques. Apply Curing and Sealing compound at consistent time for each pour to maintain close color consistency.
- B. Precautions shall be taken in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in CIP 5 *Plastic Shrinkage Cracking* published by the National Ready Mixed Concrete Association.
- C. Do not cover concrete with plastic sheeting.

3.3 TOLERANCES

- A. Minor variations in appearance of colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable.

END OF SECTION 03360