

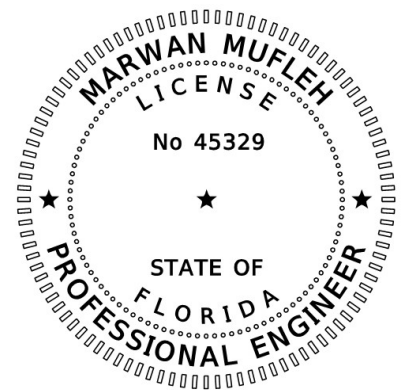
Technical Specifications

Project #: 14-008

City of Delray Beach East Atlantic Avenue (SR 806) Crosswalk Improvements

The official record of this package has been electronically signed and sealed using a Digital Signature as required by 61G15-23 004 F.A.C. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date:	<u>January 10, 2019</u>
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JANUARY 2019
PROJECT NO. 14-008

Kimley»Horn

**EAST ATLANTIC AVANUE (SR 806)
CROSSWALK IMPROVEMENTS
FOR THE CITY OF DELRAY BEACH
PROJECT NO. 14-008**

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SECTION 01010

SUMMARY OF WORK

PART I - GENERAL

1.1 WORK COVERED BY THESE CONTRACT DOCUMENTS

- A. The work covered by these specifications includes, the furnishing of all labor, equipment, materials, and performing all operations to construct stamped asphalt intersections, rework curb ramp pavers, curbing for the City of Delray Beach as described and specified further in the technical Specifications and as shown on the Contract Drawings.
- B. Except as specifically noted, provide, and pay for:
 - 1. Labor, materials, tools, construction equipment, and machinery.
 - 2. Water and utilities required for construction.
 - 3. Other facilities and services necessary for proper execution and completion of the work.
 - 4. Permits
- C. Comply with all codes, ordinances, rules, regulations, orders, and other legal requirements of the City of Delray Beach.

1.2 STORAGE OF MATERIALS

- A. The Contractor shall furnish suitable storage facilities. All materials, supplies and equipment intended for use in the work shall be suitably stored by the Contractor to prevent damage from exposure, admixture with foreign substances, vandalism, or other causes. The Engineer will not accept, or sample for testing, materials, supplies or equipment that have been improperly stored, as determined by the Engineer.
- B. Materials found unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage site. Delivered materials shall be stored in a manner acceptable to the Engineer before any payment for will be made. Materials strung out along the line of construction will not be allowed unless the materials will be installed within one week from the time of unloading and stringing out.

1.3 PRESERVATION OF PROPERTY

- A. Preserve from damage all property along the line of the work, or which is near or

is in any way affected by the work, the removal or destruction of which is not called for by the plans. Wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor at no cost to the Owner.

- B. In case of failure on the part of the Contractor to restore such property, or make good such damage for injury, the Owner may, after 48 hours notice to the Contractor, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due or which may become due the Contractor under this contract.

1.4 CLEAN UP

- A. Keep the construction site free of rubbish and other materials and restore to their original conditions those portions of the site not designated for the alteration by the Contract Documents. Clean up and restoration shall be accomplished on a continuing basis throughout the contract period and in such a manner as to maintain a minimum of nuisance and interference to the public and residents near the work.
- B. Remove all temporary structures and equipment used when no longer needed. It is the intent of this specification that the construction areas and those other areas not designated for alteration by the Contract Documents shall be immediately restored to original condition as upon completion of the project.

1.5 PUBLIC SAFETY AND CONVENIENCE

- A. At all times conduct work as to ensure the least possible obstruction to traffic, or inconvenience to the public and residents near the work. No road or street shall be closed to the public, except with the permission of the Engineer and the jurisdictional governmental authority, if any. Fire hydrants on or adjacent to the work shall be kept accessible. The Contractor shall make provisions to ensure public access to sidewalks, and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches. No open excavation shall be left overnight except during road closing.

1.6 SAFETY AND OSHA COMPLIANCE

- A. Comply in all respects with all Federal, State and Local safety and health regulations. Copies of the Federal regulations may be obtained from the U.S. Department of Labor, Occupation Safety, and Health Administration (OSHA), Washington, DC 20210, or their regional offices.
- B. Comply in all respects with the applicable Workman's Compensation Law.

1.7 CONTRACTOR'S USE OF THE PREMISES

- A. Coordinate use of premises under direction of Engineer.
- B. Assume full responsibility for the protection and safekeeping of equipment and materials stored on the site.
- C. Move any stored products, under Contractor's control, which interfere with operations of the Owner or separate Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01020

ALLOWANCES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Include in the Contract Sum the allowance stated in the Contract Documents.

1.2 RELATED REQUIREMENTS

- A. Conditions of the Contract.

1.3 SITE CONDITIONS

- A. Include in the Contract, lump sum contingency allowances as follows:
 - 1. Landscape Allowance: Allow the lump sum of
 - 2. Professional Video Allowance: Allow the lump sum of
 - 3. Unforeseen Conditions Allowance: Allow the lump sum of

PART 2 – PRODUCT (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL

- A. The Video Allowance is to be used as directed by the Engineer.
- B. The Unforeseen Conditions Allowance shall be used as necessary to pay for unforeseen utility resolutions, utility repair work, or other work not within the original scope of work as bid, such work to be performed only at the direction and with the authorization of the City.
- C. At the closeout of contract, monies remaining in the contingency allowance will be credited to the Owner by Change Order.

END OF SECTION

SECTION 01025

SCHEDULE OF VALUES

PART 1 – GENERAL

1.1 EXPLANATION AND DEFINITIONS

- A. The following explanation of the Measurement and Payment for the bid form items is made for information and guidance. The omission of reference to any item in this description shall not however, alter the intent of the bid form or relieve the Contractor of the necessity of furnishing such as part of the Contract.

1.2 PAYMENT

- A. Payment shall be made for the items listed on the Bid Form based on work performed and completed, such work including but not limited to, and furnishing of all necessary labor, materials, equipment, transportation, clean up, and all other appurtenances to complete the construction and installation of the work to the configuration and extent as shown on the drawings and described in the specifications.
- B. The City does not pay for items ordered and/or stored on site. Payment for pay items are paid once the item is installed, measured in place, completed, and accepted.
- C. It is intended that all mobilization, insurance, permit, bond, license and other miscellaneous administrative costs, and all other costs to the Contractor not specifically identified in the following costs, and all other costs to the Contractor not specifically identified in the following item description be distributed among and included in the unit prices stated. No additional payment shall be made for transportation, communications, office maintenance, project signs, and other incidental work of services, and no further payment shall be made for remobilization unless all the work is suspended by the Engineer for a period more than three months and through no fault to the Contractor.
- D. The CONTRACTOR's attention is called to the fact that the quotations for the various items of work are intended to establish a total price for completing the work in its entirety. No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in Bid Schedule for various appurtenant items of work.
- E. All required manufacturer testing and certification shall be included in the unit prices shown in the Proposal and Contract. Density testing required for compacted backfilling, and concrete strength and materials testing required at the

time of construction shall be arranged for and paid for by the owner.

1.3 MEASUREMENT

- A. The quantities for payment under this Contract shall be determined by actual measurement of the completed items, in place, ready for service and accepted by the City.

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION

3.1 MOBILIZATION – BID ITEM NO.1

- A. Payment for mobilization/demobilization, insurance, bond, license and other miscellaneous administrative costs, and all other costs to the Contractor not specifically identified in the costs of other work under the Contract will be made at the contract lump sum price for the item. No additional payment shall be made for transportation, communications, office maintenance, project signs, and other incidental work, NPDES compliance, inlet cleaning after every storm, linear foot of silt fence, inlet protection at each location (hay bales), or services, and no further payment shall be made for remobilization unless all the work is suspended by the City for a period more than three months and through no fault to the Contractor.
- B. The Contract Unit Price shall include compensation for labor, materials, equipment, and all other incidents required to complete this item. Payment item for mobilization shall not exceed five percent (5%) of the contract price.

3.2 MAINTENANCE OF TRAFFIC – BID ITEM NO.2

- A. The quantity of traffic control to be considered for payment shall be equivalent to the percentage of the project determined by the City to be complete as of the date of the pay request submitted. The percent completion of the project shall be based on the percent of the total project constructed and not on the percent of the contract price completed.
- B. Payment for traffic control shall be made based on a percentage (as determined in 'A' above) of the Lump Sum Price. The contract unit price shall include compensation for required labor, materials, and equipment necessary to provide traffic control in accordance with the specifications.

3.3 AS-BUILT RECORD DRAWINGS – BID ITEM NO.3

- A. Payment for this item shall be made on a Lump Sum Basis. The Contractor's unit

price shall include full compensation for the preparation of As-Built Record Drawings for the Project including finished grades and above ground improvements.

- B. Maintain full size (24"x36") field drawings to reflect the "as-built" items of work as the work progresses. Upon completion of the work, prepare a record set of "as-built" drawings on full size which includes one set of design drawings on reproducible material, and two-sets of signed and sealed black line/blueprints, and an electronic file in AutoCAD 2013 or latest version. No payment will be made for "as-built" drawings until both the reproducible and electronic files are received and accepted by the City. Have As-Built Record Drawings prepared by a surveyor licensed in the State of Florida. As-builts shall show all above ground improvements constructed by the project and the locations, sizes, and inverts of underground piping for drainage, water, and sewer, electrical, and irrigation systems. Finished grades shall be provided relative to the benchmark identified on the survey.

3.4 INDEMNIFICATION – BID ITEM NO.4

- A. Payment under this item is included in accordance with article 6.30 of the General Conditions.

3.5 CLEARING AND GRUBBING – BID ITEM NO.5

- A. Payment for this item shall be made on a Lump Sum basis. The Contractor's unit price shall include full compensation for all Clearing and Grubbing necessary within the Project site and road right of way, and any other required clearing and grubbing, except for any areas designated to be paid for separately or to be specifically included in the costs of other work under the Contract.
- B. Remove and dispose of all bushes, trees, stumps, roots, fill material, debris, and other such protruding objects to a depth of 12 inches, structures, drainage structures, appurtenances, fences, or any other facilities to prepare the area within the Right-of-Way for construction of the proposed improvements. This item shall include the relocation of all mailboxes, removal and reinstallation of all irrigation piping, irrigation heads, walls, signage, fencing, and other such appurtenances that conflict with the proposed improvements or is shown to be relocated.

3.6 1.5" ASPHALT MILLING – BID ITEM NO.6

- A. Payment for this item shall be made at the Contractor's Unit Price per square yard of asphalt milling. The Contract Unit Price shall include compensation for all labor, material, and equipment required including hauling off and stockpiling or disposing of the milled material in accordance with the plans and specifications.

- B. The Contract Unit Price shall include compensation for all labor, material, and equipment required to sawcut joints for crack control at the limits of milling and resurfacing in accordance with the plans and specifications.

3.7 SUPERPAVE ASPHALTIC CONCRETE, TRAFFIC C (2.5") – BID ITEM NO.7

- C. Payment for this item shall be made at the Contractor's Unit Price per of ton superpave asphaltic concrete installed and accepted. The Contract Unit Price shall include compensation for all labor, material, and equipment required including hauling off and stockpiling or disposing of excess material in accordance with the plans and specifications.
- D. The Contract Unit Price shall include compensation for all labor, material, and equipment required to sawcut joints for crack control at the limits of milling and resurfacing in accordance with the plans and specifications.

3.8 FRICTION COURSE FC-12.5 (1.5")(TRAFFIC LEVEL C)(PG 76-22) – BID ITEM NO.8

- A. Payment for this item shall be made at the Contractor's Unit Price per ton of friction course asphaltic concrete installed and accepted. The Contract Unit Price shall include compensation for all labor, material, and equipment required including hauling off and stockpiling or disposing of excess material in accordance with the plans and specifications.
- B. The Contract Unit Price shall include compensation for all labor, material, and equipment required to sawcut joints for crack control at the limits of milling and resurfacing in accordance with the plans and specifications.

3.9 12" STABILIZED SUBGRADE – BID ITEM NO.9

- A. Payment for this item shall be made at the Contractor's Unit Price per square yard of stabilized subgrade installed and accepted. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install the stabilized subgrade in accordance with the plans and specifications.
- B. Payment shall be made for 12" Stabilized Subgrade constructed or replaced by authorization of the City. 12" stabilization shall achieve 75 psi FBV and be compacted to 98% maximum density per AASHTO T-180. Any 12" Stabilized Subgrade that is damaged incidental to constructed or defective shall be replaced at the Contractor's expense

3.10 TYPE F CURB – BID ITEM NO. 10

- A. Payment for this item shall be made at the Contractor's Unit Price per linear foot of curb installed and accepted. The Contractor Unit Price shall include compensation for all labor, material, and equipment required to install curb in accordance with the plans and specifications.
- B. Payment shall be made for Type F Curb constructed by authorization of the City. Any Type F Curb that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.11 ARCHITECTURAL PAVERS– BID ITEM NO.11

- A. Payment for this item shall be made at the Contractor's Unit Price per square yard of brick pavers installed and accepted. No deduction will be made for the areas occupied by manholes, inlets, drainage structures or by public utility appurtenances within the normal areas of the architectural pavers. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install the stabilized subgrade in accordance with the plans and specifications.
- B. Payment shall be made for pavers by authorization of the City. Any pavers that are damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.12 DETECTABLE WARNING – BID ITEM NO.12

- A. Payment for this item shall be made at the Contractor's Unit Price per square yard of detectable warning. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install detectable warnings at curb ramps in accordance with the plans and specifications.
- B. Payment shall be made for Detectable warnings constructed by authorization of the City. Any detectable warning that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.13 STAMPED PATTERN ASPHALT PAVEMENT – BID ITEM NO.13

- A. Payment for this item shall be made at the Contractor's Unit Price per square yard to be installed. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install stamped pattern asphalt in accordance with the plans and specifications.
- B. Payment shall be made by authorization of the City. Any valve or meter that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.14 15" LIMEROCK BASE – BID ITEM NO.14

- A. Payment for this item shall be made at the Contractor's Unit Price per square yard to be installed. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install limerock base under stamped pattern asphalt in accordance with the plans and specifications.
- B. Payment shall be made by authorization of the City.

3.15 SEDIMENT BARRIER (SILT FENCE) – BID ITEM NO.15

- A. Payment for this item shall be made at the Contractor's Unit Price per linear foot to be installed. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install temporary silt fence in accordance with the plans and specifications.
- B. Payment shall be made by authorization of the City.

3.16 6" White/ Red RPMS – BID ITEM NO.16

- A. Payment for this item shall be made at the Contractor's Unit Price per unit of white rpms installed and accepted. The Contract Unit Price shall include compensation for all labor, material, and equipment required to install the rpms in accordance with the plans and specifications.
- B. Payment shall be made for RPMS by authorization of the City. Any RPMS that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.17 PAINTED PAVEMENT MARKINGS, STANDARD 6" WHITE - BID ITEM NO.17

- A. Payment for this item shall be made at the Contractor's Unit Price per linear foot of 6" White pavement marking installed and accepted. The Contractor Unit Price shall include compensation for all labor, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.
- B. Payment shall be made for pavement marking by authorization of the City. Any existing pavement marking that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.18 PAINTED PAVEMENT MARKINGS, STANDARD 6" DOUBLE YELLOW - BID ITEM NO.18

- A. Payment for this item shall be made at the Contractor's Unit Price per linear foot of 6" Double yellow pavement marking installed and accepted. The Contractor Unit Price shall include compensation for all labor, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.
- B. Payment shall be made for pavement marking by authorization of the City. Any existing pavement marking that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.19 12" THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" - BID ITEM NO.19

- A. Payment for this item shall be made at the Contractor's Unit Price per linear foot of thermoplastic installed and accepted including the unmarked gaps for skip lines. The Contractor Unit Price shall include compensation for all labor, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.
- B. Payment shall be made for thermoplastic by authorization of the City. Any thermoplastic that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.20 24" THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" - BID ITEM NO.20

- A. Payment for this item shall be made at the Contractor's Unit Price per linear foot of thermoplastic installed and accepted including the unmarked gaps for skip lines. The Contractor Unit Price shall include compensation for all labor, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.
- B. Payment shall be made for thermoplastic by authorization of the City. Any thermoplastic that is damaged incidental to construction or defective shall be replaced at the Contractor's expense.

3.21 LANDSCAPE ALLOWANCE – BID ITEM NO.21

- A. Payment for this item shall be made based on time and materials.

3.22 PROFESSIONAL VIDEO ALLOWANCE – BID ITEM NO. 22

- A. Payment under this item shall be made as stipulated in Specifications Section 01020-Allowances.

3.23 UNFORESEEN CONDITIONS ALLOWANCE – BID ITEM NO.23

- A. Payment under this item shall be made as stipulated in Specifications Section 01020-Allowances.

END OF SECTION

SECTION 01041

PROJECT COORDINATION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Engineer will coordinate the work between Prime Contractors as required.
- B. Each Prime Contractor shall:
 - 1. Coordinate work of his own employees and subcontractors.
 - 2. Expedite his work to assure compliance with schedules.
 - 3. Coordinate his work with that of other Prime Contractors and work by Owner.
 - 4. Comply with orders and instructions of Engineer.

1.2 RELATED REQUIREMENTS

- A. Section 01025 – Schedule of Values.
- B. Section 01200 – Project Meetings.
- C. Section 01310 – Construction Schedules.
- D. Section 01340 – Shop Drawings, Product Data, and Samples.
- E. Section 01500 – Construction Facilities and Temporary Controls.
- F. Section 01700 – Contract Closeout.

1.3 CONSTRUCTION ORGANIZATION AND START-UP

- A. Engineer shall establish on-site lines of authority and communications:
 - 1. Schedule and conduct pre-construction meeting and progress meetings as specified in Section.
 - 2. Establish procedures for intra-project communications:
 - a. Submittals

- b. Reports and records
 - c. Recommendations
 - d. Coordination of drawings
 - e. Schedules
 - f. Resolution of conflicts
- 3. Interpret Contract Documents:
 - a. Transmit written interpretations to Prime Contractors, and to other concerned parties.
- 4. Assist in obtaining permits and approvals:
 - a. Verify that contractors and subcontractors have obtained inspections for Work and for temporary facilities.
- 5. Control the use of Site:
 - a. Allocate space for each Prime Contractor's use for field offices, sheds, and work and storage areas.
- 6. Inspection and Testing:
 - a. Inspect work to assure performance in accord with requirements of Contract Documents.
 - b. Administer special testing and inspections of suspect work.
 - c. Reject Work which does not comply with requirements of Contract Documents.

1.4 CONTRACTOR'S DUTIES

- A. Construction Schedules:
 - 1. Prepare a detailed schedule of basic operations.
 - 2. Monitor schedules as work progresses:
 - a. Identify potential variances between scheduled and probable

completion dates or each phase.

- b. Recommend to Owner adjustments in schedule to meet required completion dates.
- c. Document changes in schedule; submit to Owner, Engineer, and involved subcontractors.

3. Observe work of each subcontractor to monitor compliance with schedule.

- a. Verify that labor and equipment are adequate for the work and the schedule.
- b. Verify that product procurement schedules are adequate.
- c. Verify that product deliveries are adequate to maintain schedule.
- d. Report noncompliance to Engineer, with recommendation for changes.

B. Process Shop Drawings, Product Data, and Samples:

- 1. Prior to submittal to Engineer, review for compliance with Contract Documents:
 - a. Field dimensions and clearance dimensions.
 - b. Relation to available space.
 - c. Effect of any changes on the work of any subcontractor.

C. Maintain Reports and Records at Job Site, available to Engineer and Owner.

- 1. Daily log of progress of work.
- 2. Records
 - a. Contracts
 - b. Purchase orders
 - c. Materials and equipment records
 - d. Applicable handbooks, codes, and standards

3. Maintain file of record documents.

1.5 CONTRACTOR'S CLOSE-OUT DUTIES

- A. At completion of Work, conduct an inspection to assure that:
 1. Specified cleaning has been accomplished.
 2. Temporary facilities have been removed from site.
- B. Substantial Completion:
 1. Conduct an inspection to develop a list of Work to be completed or corrected.
 2. Assist Engineer in inspection.
 3. Supervise correction and completion of work of subcontractors.

1.6 ENGINEER'S CLOSE-OUT DUTIES

- A. Final Completion:
 1. When each Contractor determines that Work is finally complete, conduct an inspection to verify completion of Work.
- B. Administration of Contract closeout:
 1. Receive and review contractor's final submittals.
 2. Transmit to Owner with recommendations for action.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Contractor shall provide and pay for field engineering and surveying services required for the project.
 - 1. Survey work required in execution of Project.
 - 2. Civil, structural, or other professional engineering services specified, or required to execute Contractor's construction methods.
- B. Owner's representative will identify existing control points, as required.

1.2 RELATED REQUIREMENTS:

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01010 - Summary of Work
- C. Section 01700 – Contract Closeout

1.3 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified Professional Engineer (PE) or Professional Land Surveyor (PLS) registered in the State of Florida.

1.4 SURVEY REFERENCE POINTS

- A. Existing horizontal and vertical control points for the project are those designated on the drawings.
- B. Contractor shall locate and protect survey control and reference points. Contractor shall provide additional benchmarks as required to construct the Project.
- C. Control datum for survey is that indicated on Drawings.
- D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- E. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.5 PROJECT SURVEY REQUIREMENTS

- A. Establish lines, grades, and elevations by instrumentation or similar appropriate means utilizing recognized engineering survey practices.
- B. Horizontal alignment for the proposed construction will be controlled by property lines, easement boundaries, and existing structures. The Contractor shall be responsible to establish reference lines and necessary offsets to establish piping alignment, and equipment and structure location.
- C. Vertical alignment for the proposed construction will be based on the existing grades and benchmark identified on the drawings. The Contractor shall be responsible to establish proposed grades. The Contractor shall provide the grade stakes.
- D. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- E. Reestablish permanent control points.

1.6 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.7 SUBMITTALS

- A. Submit name and address of registered Surveyor and Professional Engineer to Owner.
- B. On request, submit copies of field notes and documentation verifying the accuracy of the field engineering work.

1.8 EXAMINATION

- A. Contractor is responsible for verifying survey control points prior to initiation of work.
- B. Contractor shall promptly notify Engineer of any discrepancies discovered.

1.9 QUALITY CONTROL

- A. Quality control of the Work shall be the Contractor's responsibility and Contractor shall make every effort to produce the best quality work, as specified on the drawings and specifications.
- B. Forty-eight (48) hour notification to the Engineer by the Contractor shall be required for all specified field investigations unless otherwise noted.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED) END OF SECTION

SECTION 01091

REFERENCE STANDARDS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Abbreviations and acronyms used in Contract Documents to identify reference standards.

1.2 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.
- B. Publication Date: The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.
- C. Conform to reference standard by date of issue current on bid date.
- D. Obtain copies of standards when required by the Contract Documents.
- E. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- F. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- G. Neither the contractual relationship, duties, nor responsibilities of the parties in Contract nor those of the Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

1.3 ABBREVIATIONS, NAMES, AND ADDRESSES OR ORGANIZATIONS

- A. Obtain copies of reference standards direct from publication source, when needed for proper performance of work, or when required for submittal by Contract Documents.
- B. The following, as appropriate to project, is a list of referenced standards and their mailing addresses for requesting copies of standards:

AA	Aluminum Association 818 Connecticut Avenue, NW Washington, D.C. 20006
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AABC	Associated Air Balance Council 1000 Vermont Avenue, N.W. Washington, DC 20005
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AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, NW Washington, D.C. 20001
ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
ADC	Air Diffusion Council 435 North Michigan Avenue Chicago, IL 60611
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16th Street, NW Washington, D.C., 20036
AMCA	Air Movement and Control Association 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASPA	American Sod Producers' Association Association Building Ninth and Minnesota Hastings, NE 68901
ASSE	American Society of Sanitary Engineers 960 Illuminating Building Cleveland, OH 44113
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWPA	American Wood-Preservers Association 7735 Old Georgetown Road

	Bethesda, MD 20014
AWS	American Welding Society 2501 NW 7th Street Miami, FL 33125
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
CDA	Copper Development Association 57th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10017
City	City of Delray Beach Engineering Standards 434 S. Swinton Avenue Delray Beach, FL 33444
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue Washington, D.C. 20036
County	Palm Beach County Engineering and Public Works 2300 N. Jog Road West Palm Beach, FL 33411
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FDOT	Florida Department of Transportation Haydon Burns Building 605 Suwannee Street Tallahassee, FL 32301
FM	Factory Mutual System 1151 Boston-Providence Turnpike Norwood, MA 02062
FS	Federal Specifications General Services Administration Specifications and Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, D.C. 20407
NEMA	National Electrical Manufacturers Association 2101 L Street, NW Washington, D.C. 20037
NFPA	National Fire Protection Association 470 Atlantic Avenue

Boston, MA 02210

NFPA	National Forest Products Association 1619 Massachusetts Avenue, NW Washington, D.C. 20036
NSF	National Sanitation Foundation NSF Building 3475 Plymouth Road Ann Arbor, MI 48106
NSWMA	National Solid Waste Management Association 1120 Connecticut Avenue, NW Washington, D.C. 20036
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
PS	Product Standard U.S. Department of Commerce Washington, D.C. 20203
TCA	Technical Aid Series Construction Specifications Institute 1150 Seventeenth Street, NW Washington, D.C. 20036
UL	Underwriters Laboratories, Inc. 333 Pfingsten Road Northbrook, IL 60062

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01100

SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 OBSTRUCTIONS

- A. The attention of the Contractor is drawn to the fact that during digging at the Project site, the possibility exists of the Contractor encountering various water, sewer, petroleum, gas, telephone, electrical or other lines not shown on the drawings. The Contractor is responsible for obtaining utility locations from the utility owners or utility locate company. Exercise extreme care before and during digging to locate and flag these lines to avoid damage to the existing lines. Should damage occur to an existing line, repair the line at no cost to the Owner.

1.2 PROVISIONS FOR THE CONTROL OF DUST

- A. Sufficient precautions shall be taken during construction to minimize the amount of dust created. Wetting down the site may be required or as directed by the Engineer to prevent dust as a result of vehicular traffic.

1.3 SALVAGE

- A. Any existing equipment or material, including but not limited to, valves, pipes, fittings, couplings, etc., which is removed or replaced as a result of construction under this project may be designated as salvage by the Engineer or Owner and if so shall be excavated, if necessary, and delivered to the Owner by a location directed by the Owner, shall be disposed of by the Contractor at a suitable location.

1.4 MAINTENANCE OF EXISTING WATER AND WASTEWATER FACILITIES OPERATION

- A. Take notice that existing water and wastewater collections and transmission lines are operated in the construction area. It is the responsibility of the Contractor to contact the Owner's utility operator and ascertain the extent of any specific service area.
- B. Cooperate with the Owner to maintain the operation of the existing facilities with the least amount of interference and interruption possible. Continuous service, public health and safety considerations shall exceed all others and the Contractor's schedule, plans and work shall at all times be subject to alteration and revision if necessary for above considerations.
- C. The Engineer and Owner reserve the right to require the Contractor to work 24 hours per day in all cases where, in their opinion, interference with operation of the system may result.
- D. 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 interfering portion of the work are on the site. All existing utilities shall be potholed located prior to construction of conflicting piping.

1.5 RELOCATIONS

- A. The Contractor is responsible for the relocation of structures, including but not limited to light poles, signs, sign poles, fences, piping, irrigation conduits and drains that interfere with the positioning of the work as set out on the Drawings. The cost of all such relocations shall be included in the bid for the project and shall not result in any additional cost to the Owner.

1.6 HURRICANE PREPAREDNESS PLAN

- A. The Contractor's attention is drawn to the possibility of hurricane or severe storm conditions occurring at the site of work during Contract Work.
- B. Within fourteen (14) days of the date of the Notice to Proceed, submit to the Engineer and Owner a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the Owner in case of a hurricane or severe weather warning.
- C. In the event of inclement weather, or whenever the Owner shall direct, the Contractor will cause Subcontractors to carefully protect the Work and materials against damage or injury. Work and materials damaged due to inclement weather shall be removed and replaced at the expense of the Contractor.
 - 1. Hurricane Watch: Upon designation of a hurricane watch, the Contractor is responsible for storing all loose supplies and equipment on the job site that may pose a danger. In addition, the Contractor will remove all bulkheads and plugs in pipelines that would impede drainage in the event of flooding. Structures that may be in danger of floatation shall be flooded. The Contractor will cooperate with the Owner in protecting any other structures at the site.
 - 2. Hurricane Warning: No mobile "temporary facility" under the control of or on the property of the Owner shall be staffed during a hurricane warning. Contractor facilities meeting these criteria shall be evacuated. Reasonable steps shall be taken to protect all such facilities and their contents from damage and to avoid the facility causing damage to the surroundings. Reasonable steps shall be taken to protect existing improvements from damage and to avoid damage to the surroundings caused by staged materials, equipment, or other facilities related to the project.
- D. The Contractor may be required to backfill excavation depending on the severity of the approaching storm or the expected amount of rainfall. Additionally, erosion protection and inlet protection may also be required by the Owner depending on the site conditions at the time of the Hurricane Watch.

1.7 ADJACENT PROPERTY OWNER NOTIFICATION

- A. Prepare a written notice to property owners adjacent to the project work site notifying them of the schedule of work affecting them and anticipated inconveniences they may expect. The notice shall meet the approval of the Engineer and be delivered to property owners at least 72 hours prior to construction adjacent to their property. This notice shall indicate the work to be

Special Project Procedures

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performed, the time it will take to perform the work, and the time when the water service to the property owner will be disrupted.

1.8 RIGHTS-OF-WAY

- A. Do not perform 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 Engineer that the Owner has secured authority therefore from the proper party. After authority has been obtained, 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 Owner 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 Owner 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 Article 16 of the General conditions of the Contract.

1.9 PROTECTION OF STREET OR ROADWAY MARKERS

- A. Do 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 point that will be disturbed by the construction operations have been properly referenced for easy and accurate restoration. It shall be the Contractor's responsibility to notify the proper representatives of the owner of the time and location that work will be done. Such notification shall be sufficiently in advance of construction so that there will be no delay due to waiting for survey points to be satisfactorily referenced for restoration. All survey markers or points disturbed by the contractor without proper authorization by the Engineer, will be accurately restored by the Owner at the Contractor's expense after all construction has been completed.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01153

CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Promptly implement Change Order Procedures
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and- material/force account basis.
 - 3. Provide full documentation to Engineer on request.
- B. Designate in writing the member of Contractor's organization:
 - 1. Who is authorized to accept changes in the Work?
 - 2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the Work.
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

1.2 RELATED REQUIREMENTS

- A. Agreement: The amounts of established unit prices.
- B. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- C. Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and materials basis.
 - 2. Contractor's claims for additional costs.
- D. Section 01020: Allowance.
- E. Section 01300: Submittals and Progress Schedules.
- F. Section 01310: Construction Schedules.
- G. Section 01025: Schedule of Values.
- H. Section 01630: Substitutions and Product Options.
- I. Section 01700: Contract Closeout.

J. Section 01720: Project Record Documents.

1.3 DEFINITIONS

- A. Change Order: See General Conditions and Supplementary Conditions.
- B. Construction Change Authorization: A written order to the Contractor, signed by Owner and Engineer, which amends the Contract Documents as described, and authorizes Contractor to proceed with a change which affects the Contract Sum or the Contract Time, for inclusion in a subsequent Change Order.
- C. Field Order: A written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.

1.4 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate changes by submitting a proposal Request to Contractor. Request will include the following:
 - 1. Detailed description of the Change, Products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time span for making the change, and a specific statement as to whether overtime work is, or is not, authorized.
 - 4. A specific period during which the requested price will be considered valid.
 - 5. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress.
- B. Contractor may initiate changes by submitting a written notice to Engineer, containing:
 - 1. Description of the proposed changes
 - 2. Statement of the reason for making the changes.
 - 3. Statement of the effect on the Contract Sum and the Contract Time.
 - 4. Statement of the effect on the work of separate contractors.
 - 5. Documentation supporting any changes in Contract Sum or Contract Time, as appropriate.

1.5 CONSTRUCTION CHANGE AUTHORIZATION

- A. In lieu of Proposal Request, Engineer may issue a "Construction Change " (CCD) for Contractor to proceed with a change for subsequent inclusion in a Change Order.
- B. Authorization will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- C. Owner and Engineer will sign and date the CCD as authorization for the to proceed with the Changes.

1.6 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow Engineer to evaluate the quotation.
- B. On request, provide additional data to support time and cost computation including the following:
 - 1. Labor required.
 - 2. Equipment required.
 - 3. Products required:
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 - 4. Taxes, insurance bonds.
 - 5. Credit for work deleted from Contract, similarly documented.
 - 6. Overhead and profit.
 - 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and for work done on a time- and-material / force account basis, with documentation as required for a lump sum proposal, plus the following additional information:
 - 1. Name of the Owner's authorization agent who ordered the work, and date of the order.
 - 2. Dates and time work performed, and by whom.
 - 3. Time record, summary of hours worked, and hourly rates paid.
 - 4. Receipts and invoices for:

- a. Equipment used, listing dates and times of use.
 - b. Products used, listing quantities.
 - c. Subcontracts.
- D. Document requests for substitutions for Products as specified in Section 01600.

1.7 PREPARATION OF CHANGE ORDERS

- A. Engineer will prepare each Change Order.
- B. Form: Change Order format provided in the Contract Documents.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.8 LUMP SUM / FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 - 1. Engineer's Proposal Request and Contractor's responsible Proposal as mutually agreed upon between Owner and Contractor.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for the contractor to proceed with the changes.
- C. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

1.9 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 - 1. Engineer definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
 - 3. Survey of completed work
- B. The amount of the unit prices shall be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between Owner and Contractor.

- C. When quantities of each of the items affected by the Change Order can be
- Change Order Procedures
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determined prior to start of the work:

1. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
2. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

D. When quantities of the items cannot be determined prior to start of the work:

1. Engineer or Owner will issue a Change Order directing Contractor to proceed with the change based on unit prices, and will cite the applicable unit prices.
2. At completion of the change, Engineer will determine the cost of such work based on the unit prices and quantities used.
 - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
3. Engineer will sign and date a second Change Order to establish the change in Contract Sum and in Contract Time.
4. Owner and Contractor will sign and date the second Change Order to indicate their agreement with the terms therein.

1.10 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/ CONSTRUCTION CHANGE AUTHORIZATION

- A. Engineer and Owner will issue a Construction Change Authorization directing Contractor to proceed with the changes.
- B. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of the Section.
- C. Engineer will determine the allowable cost for such work, as provided in General Conditions and Supplementary Conditions.
- D. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E. Owner and Contractor will sign and date the Change Order to indicate their agreement therewith.

1.11 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Contractor shall periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.
- B. Contractor shall periodically revise the Construction Schedule to reflect each Change Order Procedures

change in Contract Time.

1. Revise sub-schedules to show changes for other items of work affected by the changes.

- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Owner shall schedule and administer preconstruction meetings, public involvement meetings/communications, and specially called meetings throughout the progress of the work. Owner shall:
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting four days in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
 - 5. Record the minutes, include all significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within three days after each meeting:
 - a. To all participants in the meeting.
 - b. To all parties affected by decisions made at the meeting.
- B. Representatives of contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01010 - Summary of Work.
- C. Section 01340 – Shop Drawings, Product Data, and Samples.
- D. Section 01700 – Contract Closeout.

1.3 PRE-CONSTRUCTION MEETING

- A. Schedule within 20 days after effective date of the agreement.
- B. Location: A central site, convenient for all parties, designated by the Owner.
- C. Attendance:

1. Owner's Representative.
2. Engineer and professional consultants.
3. Resident Project Representative.
4. Contractor's Superintendent.
5. Major Subcontractors
6. Others as appropriate and approved by the Owner.

D. Suggested Agenda:

1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected Construction Schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
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 for distribution of Contract Documents.
7. Procedures for maintaining Record Documents.
8. Use of premises.
 - a. Office, work, and storage areas.
 - b. Owner's requirements.
9. Construction facilities, controls, and construction aids.

10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.
14. Miscellaneous.

1.4 PROGRESS MEETINGS

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the Work.
- C. Location of the meetings: Project field office of the Contractor or site directed by the Engineer.
- D. Attendance:
 1. Engineer, and his professional consultants as needed.
 2. Subcontractors as appropriate to the agenda.
 3. Suppliers as appropriate to the agenda.
 4. Others.
- E. Suggested Agenda:
 1. Review, approval of minutes of previous meeting.
 2. Review of Work progress since previous meeting.
 3. Field observations, problems, conflicts.
 4. Problems which impede 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. Review of submittal schedules; expedite as required.

11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date.
 - b. Effect on other contracts relating to the project.
14. Review of record drawings.
15. Other business.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01320

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 — GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Promptly after award of the Contract, prepare and submit to Engineer estimated construction progress schedules for the Work, with sub- schedules of related activities which are essential to its progress.
- B. Submit revised progress schedules to maintain proposed schedule within 30 days of work in place.

1.2 RELATED REQUIREMENTS

- A. Conditions of the Contract.
- B. Section 01010: Summary of Work.
- C. Section 01020: Allowances.
- D. Section 01041: Project Coordination.
- E. Section 01200: Project Meetings.
- F. Section 01340: Shop Drawings, Product Data, and Samples.

1.3 FORM OF SCHEDULES

- A. Prepare schedules in the form of:
 - 1. Horizontal Bar Chart.
 - 2. Network Analysis System.
 - 3. Other Method Accepted by Owner.
- B. Format of listings: The chronological order of the start of each item of work.

1.4 CONTENT OF SCHEDULES

- A. Construction Progress Schedule:
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning and completion of each major element of construction; specifically, list:
 - a. Site clearing.

- b. Site utilities.
 - c. Subcontractor work.
 - d. Equipment installations.
 - e. Delivery of O & M Manuals.
 - f. Finishings.
 - g. Start-up
- 3. Show projected percentage of completion for each item, as of the first day of each month.
- B. Submittals, Schedule for Shop Drawings, Product Date, and Samples. Show:
 - 1. The dates for Contractor's submittals.
 - 2. The dates revised submittals will be required from the Engineer.
- C. Provide sub-schedules to define critical portions of prime schedules.

1.5 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other prime contractors.

1.6 SUBMISSIONS

- A. Submit initial schedules within 10 days after award of the Agreement.
 - 1. Engineer will review schedules and return review copy within 10 days after receipt.

2. If required, resubmit within seven days after return of review copy.
- B. With each application for payment, submit progress schedule if revised since last payment request.
- C. Submit one reproducible transparency which will be returned to the Contractor, plus two copies which will be retained by the Engineer.

1.7 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 1. Job site file.
 2. Subcontractors.
 3. Other concerned parties.
- B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 — PRODUCTS (NOT USED)

PART 3 — EXECUTION (NOT USED)

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 — GENERAL

1.1 REQUIREMENTS INCLUDED

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

1.2 RELATED REQUIREMENTS

- A. Definitions and Additional Responsibilities of Parties: Conditions of the Contract.
- B. Section 01700: Contract Closeout.

1.3 SHOP DRAWINGS

- A. Drawings shall be presented in a clear and thorough manner.
 - 1. Details shall be identified by reference of sheet and detail or schedule.
- B. Minimum sheet size: 8 1/2 x 11 inches.

1.4 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 by deleting information which is not applicable to the work.
 - 2. Supplement standard information to provide information specifically applicable to the work.

1.5 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 Engineer 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 approved submittals until return of submittals by Engineer.

1.6 SUBMISSION REQUIREMENTS

- A. Make submittals in such sequence as to cause no delay in the work.
- B. Number of submittals required:
1. Shop Drawings and Product Data: Submit seven (7) copies.
 2. Samples: Submit the quantity stated in each specification section.
- C. Submittals shall contain:
1. The date of submission and the dates of any previous submissions.
 2. The Project title and 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. Identifications of deviations from Contract Documents.

10. Identification of revisions on resubmittals.
11. An 8-inch X 3.5-inch blank space for Contractor and Engineer 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.

1.7 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals noted by the Engineer and resubmit unless otherwise noted.
- 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 suggested by the Engineer.
- C. Samples: Submit new samples as required for initial submittal.

1.8 ENGINEER'S DUTIES

- A. Review submittals within 30 days or in accord with schedule.
- B. Affix stamp and initials or signature, and indicate status of submittal.
- C. Return submittals to Contractor for distribution, or resubmission.
- D. Review initial submittals and one resubmittal. Resubmittals that cannot be approved will be returned. The Engineer will review additional resubmittals. The Contractor will be charged time and materials for the Engineer's review of resubmittals.

PART 2 — PRODUCTS (NOT USED)

PART 3 — EXECUTION (NOT USED)

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 — GENERAL

1.1 REQUIREMENTS INCLUDED

- A. The Owner will employ services of an independent testing laboratory to perform specified testing.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
- B. Inspection, Sampling, and Testing is required for:
 - 1. Densities and Proctors (for soil compaction)
 - 2. Bacteriological Clearance
 - 3. Concrete Strength
 - 4. Any water quality monitoring as required by the project permits
 - 5. Other operations specified in these specifications or as required by the Engineer or Owner.

1.2 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Contractor.

1.3 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and/or Engineer, provide access to Work or manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Furnish copies of Products test reports as required.
- E. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.
 2. To obtain and handle samples at the Project site or at the source of the product to be tested.
 3. To facilitate inspections and test.
 4. For storage and curing of test samples.
- F. Notify the Engineer sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- G. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.
- H. Decide with the Engineer and the laboratory and pay for additional samples and tests required for Contractor's convenience.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1 PAYMENT

- A. An independent testing laboratory (appointed and paid for by the Owner) will test materials and products. Testing will be performed to least encumber the performance of Work.
- B. The Owner will authorize the cost of one (1) series of tests only, on the are or item being evaluated. The Contractor shall pay for costs of additional testing as required due to improper performance of Work.
- C. When work of this contract or portions of work are completed, notify the Engineer so that arrangements can be made with the laboratory to perform or witness the tests. Do not proceed with additional portions of Work until results have been verified.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Furnish, install, and maintain temporary utilities required for construction; remove on completion of entire project.

1.2 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Materials may be new or used, but must be adequate in capacity for the required usage. They **MUST NOT** create unsafe conditions, and **MUST NOT** violate requirements of applicable codes and standards.

2.2 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company, provide service required for power and lighting, and pay all costs for service and for power used.
- B. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout the construction using construction-type power cords.
- C. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

2.3 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finished from damage due to temperature or humidity.
- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases.

- C. Portable heaters shall be standard approved units complete with controls.
- D. Pay all costs of installation, maintenance, operation, and removal, and for fuel consumed.

2.4 TEMPORARY WATER

- A. Provide water for construction and potable purposes; pay all costs for installation, maintenance, and removal.
- B. Make conservative use of water. Any negligence or wastefulness will be reason for waiving the provisions for free water.
- C. All connections to hydrants to be made by Owner's personnel.
- D. Non-potable water for general construction purposes shall be clean, non- turbid, and non-saline; and acceptable to the Engineer.
- E. Water utilization for concrete plaster and mortar shall meet the respective requirements and standards set forth for water utilized in these construction materials.
- F. The Owner will make water available at designated hydrants on the Owner's water system for use by the Contractor.

2.5 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.
- C. Existing plumbing facilities shall not be used by construction personnel.

2.6 TEMPORARY PARKING

- A. On-Site Roads and Parking Areas:
 - 1. Locate roads, drives, walks and parking facilities to provide uninterrupted access to construction offices, mobilization, work, storage areas, and other areas required for execution of the contract.
 - 2. Submit proposed location for Engineer's approval.
 - 3. Provide access for emergency vehicles.
 - a. Maintain driveways a minimum of 15 feet wide, between and around combustible materials in storage and mobilization areas.
 - 4. Maintain traffic areas free as possible of excavated materials, construction equipment, products, and debris.

5. Keep fire hydrants and water control valves free from obstruction and accessible for use.
6. Provide traffic control devices as required by governing authorities along established public thoroughfares which will be used as haul routes to site access.

2.7 TEMPORARY CONTROLS

A. Noise Control:

1. Not used.

B. Dust Control:

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

C. Water Control:

1. Provide methods to control surface water to prevent damage to the Project, the site, or adjoining properties.
 - a. 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.
2. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface water.
3. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

D. Pest Control:

1. Not used.

E. Rodent Control:

1. Provide rodent control as necessary to prevent infestation of construction or storage area.
 - a. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
 - b. Should the use of rodenticides be considered necessary, submit an informational copy of the proposed program to Owner with a copy to Engineer. Clearly indicate:
 - (1) The area or areas to be treated.

(2) The rodenticides to be used, with a copy of the manufacturer's printed instructions.

(3) The pollution preventative measures to be employed.

2. The use of any rodenticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

F. Debris Control:

1. Maintain all areas under Contractor's control free of extraneous debris.

2. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage, and parking areas, or along access roads and haul routes.

a. Provide acceptable containers for deposit of debris

b. Prohibit overloading of trucks to prevent spillages on access and haul routes.

(1) Provide periodic inspection of traffic areas to enforce requirements.

3. Schedule periodic collection and disposal of debris.

a. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.

G. Pollution Control:

1. Provide methods, means and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.

2. Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.

a. Excavate and dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.

3. Take special measure to prevent harmful substances from entering public waters.

a. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.

4. Provide systems for control of atmospheric pollutants.

a. Prevent toxic concentrations of chemicals.

b. Prevent harmful dispersal of pollutants; into the atmosphere.

H. Erosion Control:

1. 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.
 - a. Hold the areas of bare soil exposed at one time to a minimum.
 - b. Provide temporary control measures such as berms, dikes, and drains.
2. Construct fills land waste areas by selective placement to eliminate surface silts or clays which will erode.
3. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.

PART 3 - EXECUTION

3.1 GENERAL

- A. Maintain and operate systems to ensure continuous service.

3.2 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore existing facilities used for temporary services to specified, or to original, condition.

END OF SECTION

SECTION 01505

CONSTRUCTION CONSIDERATIONS

PART 1 - GENERAL

1.1 RELOCATIONS

- A. The Contractor shall be responsible for the relocation of structures, including but not limited to, light poles, sign poles, fences, piping, conduits and drains that interfere with the positioning of the Work as set out on the Drawings. The cost of all such relocations shall be included in the bid for the project and shall not result in any additional cost to the Owner.

1.2 SUBSURFACE INVESTIGATIONS

- A. The Contractor shall be responsible for having determined to his satisfaction, prior to his bid, the nature and location of the work, the conformation of the ground, the character and quality of the substrata, the types and quantity of materials to be encountered, the nature of the groundwater condition, the character of equipment and facilities required preliminary to and during the performance of the work, the general and local conditions and all other matters which can in any way affect the work under this Contract. The prices established for the work to be done shall reflect all costs pertaining to the work. Any claims for extras based on the substrata or groundwater table conditions will be disallowed.

1.3 OBSTRUCTIONS

- A. All water pipes, storm drains, sanitary sewers, force mains, gas, or other pipe, telephone or power cables or conduits and all other obstructions, whether or not shown, shall be temporarily supported across utility line excavations. The Contractor shall be responsible for any damage to any such pipes, conduits, or structures. Approximate locations of known water, sanitary, raw water, drainage, power, and telephone installations along route of sanitary sewer, storm, and water main pipeline or in the vicinity of new work is shown, but must be verified in the field by the Contractor before beginning any excavation. The Contractor shall uncover these pipes, ducts, cables, etc., carefully, by hand if necessary, prior to installing new pipeline. Any discrepancies or differences found shall be brought to the attention of the Engineer in order that necessary changes may be made to permit installation of new work. These conditions are supplemental to general requirements elsewhere in the Contract Documents.

1.4 SITE CONDITIONS

- A. The Contractor acknowledges that he has investigated prior to bidding and satisfied himself 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, canal 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 prosecution of the work. The Contractor further acknowledges that he has satisfied himself as to the character, quality of

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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 Drawings and Specifications made a part of this Contract, or any other information made available to him prior to receipt of Bids. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Owner.

1.5 PROTECTION OF PROPERTY

- A. The Contractor shall protect all property that may be affected by his work or operations. The location and extent of underground and covered facilities are not guaranteed and the Contractor is cautioned to proceed with care to prevent the undermining or damage to existing structures, piping, or facilities.
- B. When City water is being used, the supply source shall be protected against contamination in accordance with existing codes and regulations.
- C. In the event, any of the Contractor's activities were to disrupt or endanger any facilities, he shall at his own expense make all necessary repairs or replacements necessary to correct the situation to the satisfaction of the Engineer. Such work shall be performed continuously until completion. The Contractor shall be responsible for the services of repair crews on call 24 hours per day for emergencies that arise involving work under this Contract.

1.6 WORK ADJACENT TO FLORIDA POWER AND LIGHT CORPORATION (FP&L) FACILITIES

- A. The attention of the Contractor is drawn to existing FP&L overhead and underground facilities are in the construction area. The Contractor shall protect all existing power transmission and distribution facilities throughout the period of construction and shall contact the offices of FP&L at least 72 hours prior to the start of any construction.
- B. It is full and complete responsibility of the Contractor to determine the exact location of all overhead and underground power transmission and distribution facilities in the area of work whether or not they are indicated on the Drawings.

1.7 WORK ADJACENT TO BELLSOUTH TELEPHONE COMPANY OR AT&T TELECOMMUNICATIONS FACILITIES

- A. Existing overhead and underground telecommunications facilities are in the construction area. The Contractor shall protect all existing telecommunications facilities throughout the construction of the project and shall contact the appropriate telecommunications offices at least 72 hours prior to the start of construction.
- B. It is full and complete responsibility of the Contractor to determine the exact

location of all overhead and underground telecommunications facilities in the area of work whether or not they are indicated on the Drawings.

1.8 WORK ADJACENT TO FLORIDA PUBLIC UTILITIES COMPANY FACILITIES

- A. The attention of the Contractor is drawn to the existing underground natural gas lines are in the construction area. The Contractor shall protect all existing natural gas pipelines throughout the construction of the project and shall contact the appropriate natural gas offices at least 72 hours prior to the start of construction.
- B. It is full and complete responsibility of the Contractor to determine the exact location of all underground natural gas lines in the area of work whether or not they are indicated on the Drawings.

1.9 WORK ADJACENT TO CABLE TV (CATV) FACILITIES

- A. The attention of the Contractor is drawn to the existing overhead and buried CATV lines are located in the construction area. The Contractor shall protect all existing overhead and buried CATV throughout the construction of the project and shall contact the appropriate cable TV offices at least 72 hours prior to the start of construction.
- B. It is full and complete responsibility of the Contractor to determine the exact location of all overhead and underground CATV in the area of work whether or not they are indicated on the Drawings.

1.10 RESIDENT NOTIFICATIONS

The Contractor will be responsible for preparation and distribution of informational flyers to affected residents on a periodic basis. The flyers shall include notification of construction schedules with regards to road closures or detours, utility service interruptions, etc.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01506

CONTROL OF WORK

PART 1 - GENERAL

1.1 QUALITY OF WORK

- A. The Contractor shall furnish personnel and equipment which will be efficient, appropriate and a quantity large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Proposal. If at any time such personnel appear to the Consultant to be inefficient, inappropriate, or insufficient for securing the quality of work required or for producing the rate of progress previously mentioned, he may order the Contractor to increase the efficiency, change the character or increase the personnel and equipment, and the Contractor shall conform to such order. Failure of the Consultant to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

1.2 PRIVATE LAND

- A. The Contractor shall not enter or occupy private land outside of easements, except by written permission of the Owner.
- B. Temporary restoration shall be completed within five days of pipe installation. Temporary restoration shall include all driveways, sidewalks, and roadways. They shall be swept clean and be maintained free of dirt and dust. All areas disturbed by the construction activities shall be restored to proper grade, cleaned up, including the removal of debris, trash, and deleterious materials. All construction materials, supplies, or equipment, including piles of debris shall be removed from the area. The Contractor shall maintain all temporarily restored areas. These areas shall be kept clean and neat, free of dust and dirt, until final restoration operations are completed. The Contractor is responsible to utilize dust abatement operations in the temporarily restored areas as required, to the satisfaction of the Consultant.

Wherever sidewalks or private roads have been removed for purposes of construction, the Contractor shall place suitable temporary sidewalks or roadways 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 roadways until the final restoration thereof has been made.

- C. Final restoration shall be completed within thirty days of pipe acceptance. Final restoration shall include the completion of all required pavement replacement of roadways, driveways, curbs, gutters, sidewalks and other existing improvements disturbed by the construction; final grading, placement of sod, pavement marking, etc., all complete and finished, acceptable to the Consultant.

To obtain a satisfactory junction with adjacent surfaces, the Contractor shall saw cut back and trim the edge 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 the adjacent undisturbed pavement

- D. The Contractor shall test an installed section of pipeline within five calendar days from completion of the pipeline. A section of pipe is defined as a pipe section which can be isolated by valves for appurtenances is satisfactorily completed, the Contractor shall provide the Consultant with a "Schedule of Existing Facilities Restoration" which will be reviewed and be acceptable to the Consultant. The schedule shall show the existing facilities to be restored and schedule of beginning and completion dates for each item of restoration. The work for completing the final restoration of existing facilities for a tested section of work shall be completed within 30 days of acceptance of the pipeline testing.

1.3 PIPE LOCATIONS

- A. Pipeline shall be located substantially as indicated on the Drawings, but the Consultant reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons.

1.4 OBSTRUCTIONS

- A. The attention of the Contractor is drawn to the fact that during digging at the Project site, the possibility exists of the Contractor encountering various water, sewer, petroleum, gas, telephone, electrical, or other lines not shown on the Drawings. The Contractor shall exercise extreme care before and during digging to locate and flag these lines to avoid damage to the existing lines. Should damage occur to an existing line, The Contractor shall repair the line at no cost to the owner.
- B. 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.
- C. 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.
- D. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. Test pits shall be dug at the Contractor's expense, as directed.
- E. 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.

- F. 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 Owner 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.
- G. 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 owner 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.
- H. 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 at the Contractor's expense. Sewer laterals are included.
- I. All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.
- J. 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 owner 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.

1.5 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights, and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. The Contractor shall confine the limits of open trench as prescribed by the Consultant. If the excavation

becomes a hazard, or if it excessively restricts traffic at any point, the Consultant may require special construction procedures such as limiting the length of open trench, prohibiting stacking excavated material in the street, and requiring that the trench shall not remain open overnight.

- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be well lighted at night.

1.6 TEST PITS

- A. Test pits for locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor at his cost at the direction of the Consultant. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Consultants.

1.7 SITE CLEANLINESS

- A. Dust Abatement - The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The Contractor shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Consultant.
- B. Rubbish Control - During the progress of the work, the Contractor shall keep the site of the work and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the work site, and shall establish regular intervals of collection and disposal of such materials and waste. The Contractor shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.
- C. Sanitation
 - 1. Toilet Facilities - Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.
 - 2. 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 wastes 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.

1.8 UTILITY CROSSINGS

- A. It is intended that wherever existing utilities such as service lines must be crossed, deflection of the pipe within recommended limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated on the Drawings. However, when in the opinion of the City or Consultant this procedure is not feasible he may direct the use of fittings.

1.9 RELOCATIONS

- A. The Contractor shall be responsible for the relocation of structures, including but not limited to light poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Drawings. The cost of all such relocations shall be included in the bid for the project and shall not result in any additional cost to the owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 COOPERATION WITHIN THIS CONTRACT

- A. All firms or persons authorized to perform any work under this Contract shall cooperate with the General Contractor and his subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having authority, unless otherwise indicated herein or directed by the Consultant.

3.2 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at his own expense.
- B. Further, the Contractor shall take all necessary precaution to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the Owner.

END OF SECTION

SECTION 01510
TEMPORARY UTILITIES

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Furnish, install, and maintain temporary utilities required for construction, remove on completion of work.

1.2 RELATED SECTIONS

- A. Section 01010: Summary of Work

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with Federal, State and Local codes and regulations and with utility company requirements.
- C. Comply with County Health Department and Environmental Regulations.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.2 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company, provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing and trial operation prior to final acceptance of the work by the Owner.
- B. Install circuit and branch wiring, with the area distribution boxes located so that power and lighting is available throughout the construction using construction type power cords.
- C. Provide adequate artificial lighting for all areas of work when natural light is not adequate to work, and all areas accessible to the public.

2.3 TEMPORARY WATER

- A. Arrange with the Owner, as described in the Supplemental Conditions to provide water for construction purposes.
- B. Install branch piping with taps located so that water is available throughout construction using hoses.

- C. Install at every connection to the Owner water supply a backflow preventer meeting the requirements of AWWA CS 11-89, latest revision. Contractor shall be required to meter and pay for all water used.

2.4 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.

PART 3 – EXECUTION

3.1 GENERAL

- A. Comply with applicable requirements specified in Division 16 - Electrical.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.

3.2 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore permanent facilities used for temporary services to specified condition.

END OF SECTION

SECTION 01525

PROTECTION OF EXISTING FACILITIES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. 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.
- B. 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.
- C. 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.
- D. When such exploratory excavations show the utility location as shown to be in error, the Contractor shall so notify the Engineer.
- E. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.2 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 Engineer that the Owner has secured authority therefor from the proper party.
- B. 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.
- C. 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 Owner shall determine the sequence and order of the Work.
- D. When the limits of one Contract are 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 Owner to the Contractor so desiring, to the extent, amount, in the manner, and at the times permitted.
- E. 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.

1.3 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.
- B. 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.
- C. All survey markers or points disturbed by the Contractor shall be accurately replaced after all street or roadway re-surfacing has been completed.

1.4 RESTORATION OF PAVEMENT

A. General:

- 1. All paved areas including asphaltic concrete cut or damaged during construction shall be placed with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific re-surfacing 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 affected pavement owner.

- 2. All pavements subject to partial removal shall be neatly saw-cut in straight lines.

B. Temporary Re-surfacing:

- 1. Wherever required by the public authorities having authority, the Contractor shall place temporary surfacing promptly after backfilling. The Contractor shall maintain temporary surfacing until the public authority permits final restoration.

C. Permanent Re-surfacing:

- 1. To obtain a satisfactory junction with adjacent surfaces, the Contractor shall saw cut back and trim the edge to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement.
- 2. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines.
- 3. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.

D. Restoration of Sidewalks or Private Driveways:

1. Wherever sidewalks or private roads have been removed for purposes of construction, the Contractor shall place suitable temporary sidewalks or roadways 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 time is so fixed, the Contractor shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

1.5 EXISTING UTILITIES AND IMPROVEMENTS

A. General:

1. The Contractor shall protect all underground utilities and other improvements that may be impaired during construction operations.
2. 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.
3. 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 deemed necessary.

B. Utilities to be Moved:

1. 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 Owner to move such property within a specified reasonable time.
2. When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the Engineer a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

C. Temporary Removal and/or Relocation:

1. Where the proper completion of the Work requires the temporary 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 Engineer and the owner of the facility.
2. In all cases of such temporary removal or relocation, restoration to the 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. The right is reserved to the Owner and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for making changes in their property made necessary by the Work of this Contract.
- E. 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.
- F. Underground Utilities Not Indicated:
 - 1. 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 Engineer.
 - 2. The Contractor shall make repairs per the provisions for changes and extra work contained in the General Conditions if directed by the Engineer.
- 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 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 for changes and extra work contained in the General Conditions.
- H. All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill.
- I. Maintaining Service:
 - 1. All oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas mains, water mains, irrigation lines, sewer lines, storm drainage, 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 Engineer are made with the owner(s) of said pipelines, ducts, main, irrigation lines, sewers, storm drains, poles, wires or cables.
 - 2. 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.
 - 3. Contractor shall replace all damaged irrigation piping, heads, and control lines in kind. Zones to be capped off at construction line. If this results in discontinuance of service on private property, the contractor shall provide

for irrigation service to this area(s).

1.6 TREES WITHIN ROAD RIGHTS-OF-WAY AND PROJECT LIMITS

A. General:

1. 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 Owner.
2. 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 Owner.

B. Trimming:

1. 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.
2. Spikes shall not be used for climbing live trees.
3. All cuts over 1-1/2" in diameter shall be coated with an asphaltic emulsion material.

C. Replacement:

1. The Contractor shall immediately notify the jurisdictional agency and/or the Owner if any trees are damaged by the Contractor's operations.
2. If, in the opinion of said agency or the Owner, the damage is such that replacement is necessary, the Contractor shall replace the tree at its own expense.
3. 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 owner of said tree a compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or Owner. The trees shall have a minimum diameter of 1-inch and minimum height of 6'.

1.7 NOTIFICATION BY THE CONTRACTOR

- A. 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 traffic signal and 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 three days nor more than seven days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01530

BARRIERS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain suitable barriers as required to prevent public entry, and to protect the Work, existing facilities, trees, and plants from construction operations; remove when no longer needed, or at completion of Work.

1.2 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work.
- B. Section 01500: Construction Facilities and Temporary Controls.

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 FENCING

- A. Minimum fence height six feet.
- B. Open-Mesh Fence:
 - 1. No 11 gauge, two-inch mesh, 72 inches high galvanized chain link fabric, with extension arms and three strands of galvanized barbed wire.
 - 2. Galvanized steel posts; 1-1/2-inch line posts and two-inch corner posts.

2.3 BARRIERS

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

PART 3 - EXECUTION

3.1 GENERAL

- A. Install facilities of a neat and reasonably uniform appearance, structurally adequate for the required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by the progress of construction.

3.2 FENCES

- A. Provide and maintain fences necessary to assure security of the site during construction to keep unauthorized people and animals from the site when construction is not in progress.
- B. Gates shall have locks; and keys shall be furnished to the Owner.
- C. Provide additional security measures as deemed necessary and approved by the Engineer.

3.3 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.
- B. Consult with the Engineer, and remove agreed-on roots and branches which interfere with construction.
 - 1. Employ qualified tree surgeon to remove branches and treat cuts.
- C. Provide temporary barriers to a height of six feet, around each, or around each group, of trees and plants.
- D. Protect root zones of trees and plants:
 - 1. Do not allow vehicular traffic or 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.
- E. Carefully supervise excavating, grading and filling, and other construction operations, to prevent damage.
- F. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.4 REMOVAL

- A. Completely remove barricades, omit, when construction has progressed to the point that they are no longer needed and when approved by Engineer.
- B. Repair damage caused by construction. Fill and grade areas of the site to the required evaluations, and clean up the area.

End of section

SECTION 01550

SITE ACCESS AND STORAGE

PART I – GENERAL

1.1 HIGHWAY LIMITATIONS

- A. The Contractor shall make his own investigation of the condition of available public and private roads, and other limitations affecting transportation and ingress and egress to the site of the work.

1.2 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 authority 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 he shall so conduct his 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. The Contractor shall make temporary provisions to ensure the use of sidewalks and 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 the "Manual of 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 OSHA and Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.

The Contractor shall remove traffic control devices when no longer needed, shall repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.

- E. Temporary Street Closure: If closure of any street is required during construction, the Contractor shall apply in writing to the Building Department other jurisdictional agency at least 30 days in advance of the required closure. A Detour and Traffic Control Plan shall accompany the application.
- F. Temporary Driveway Closure: The Contractor shall notify the owner or occupant (if not owner-occupied) of the closure of the driveways to be closed more than one (1) eight-hour work day at least three (3) working days prior to the closure. The Contractor shall minimize the period that the driveways will be closed. The Contractor shall fully explain to the owner/occupant how long the work will take and when closure is to start.

1.3 CONTRACTOR'S WORK AND STORAGE AREA

- A. The Contractor shall make his own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the work.

PART II – PRODUCTS (NOT USED)

PART III – EXECUTION (NOT USED)

END OF SECTION

SECTION 01570

TRAFFIC CONTROL

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Provide, operate, and maintain equipment, services, and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow around the construction area.
- B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.

1.2 REFERENCES

- A. Traffic regulation shall be in accordance with F.D.O.T. Roadway and Traffic Design Standards Series 600, latest Edition, Manual on Uniform Traffic Control Devices, latest Ed., and FDOT Standard Specifications, latest Ed.

1.3 TRAFFIC CONTROL PLAN

- A. The Contractor is to prepare a traffic control plan and/or policy statement for each phase of construction. This plan is to be presented to the City Engineer at or before the pre-construction meeting.
- B. All proposed traffic control plans and policy statements shall be complete and in compliance with Section 1.02.

1.4 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control, or affected by Contractor's operations.
- B. Provide traffic control and direction signs, post mounted, at all areas required by Section 1.02.
- C. Traffic Signals - Construction requiring traffic signal modification shall be reported to the City Engineer at least 72 hours prior to the commencement of such activities. All excavation work within 30 feet of any traffic signal shall be reported to the City Engineer at least 72 hours prior to its commencement.
- D. All existing traffic signs shall remain visible throughout construction activities unless superseded by required construction signing.

1.5 ELECTRONIC VARIABLE MESSAGE BOARDS (VMB)

- A. Provide a minimum of two (2) VMB's for work along SE 2nd Avenue and for work along

1.6 FI. AGMEN

- A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic (See Section 1.02).

1.7 FLARES AND LIGHTS

- A. Provide lights as required by Section 1.02.
 - 1. To clearly delineate traffic lanes and to guide traffic as required in Section
 - 2. For use by flagmen in directing traffic.
- B. Provide illumination of critical traffic and parking areas as required in Section 1.02.

1.8 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. Monitor parking of construction personnel's private vehicles.
- C. Maintain free vehicular access to and through parking areas and driveways.
- D. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.9 CONSTRUCTION VEHICLES

- A. All slow-moving construction vehicles shall have a slow-moving sign visible from the rear of the vehicle.
- B. All vehicles used for construction activities shall have audible back-up warning devices.

1.10 ROAD CLOSURES

- A. No road shall be closed prior to receiving approval from the City Engineer.
- B. At least seven days prior to a proposed road closure, the contractor shall submit to the City Engineer a complete traffic control plan. This plan shall include the following minimum information:
 - 1. Sketch of work site and all area roads, streets, and mark driveways.
 - 2. Proposed detour route.
 - 3. All necessary traffic control devices to be used.
 - 4. Emergency contractor contact person name and phone to be available 24 hours a day.

5. Estimated times/dates of road closure.

C. The City Engineer shall have the authority to approve an emergency road closure.

PART2 - PRODUCTS

2.1 All traffic control devices shall meet or exceed FDOT certification standards and the Manual of Uniform Traffic Control Devices.

2.2 All traffic signs shall have high intensity face material.

PART 3 - EXECUTION

3.1 Upon notification by the owner either verbally or in writing, the contractor shall correct any noted deficiencies within one hour.

3.2 Inspection of all traffic control items shall be accomplished at least twice per day. One of these inspections shall be at the end of the work day or at night.

END OF SECTION

SECTION 01580

PROJECT IDENTIFICATION SIGN

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDE

- A. Furnish, install, and maintain one project identification sign.
- B. Remove sign upon completion of construction.
- C. Allow no other signs to be displayed without approval of Engineer.

1.2 PROJECT IDENTIFICATION SIGN

- A. One painted sign of size, design, lettering, and construction as shown on page three of this section.
 - 1. Locate as directed by Engineer.
 - 2. Color as indicated.

1.3 QUALITY ASSURANCE

- A. Sign Painter: Professional Experience in type of work required.
- B. Finishes, Painting: Adequate to resist weathering and fading for scheduled construction period.

PART 2 - PRODUCTS

2.1 SIGN MATERIALS

- A. Structure and Framing: May be new or used, wood or metal, in sound condition structurally adequate to work and suitable for specified finish.
- B. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints.
- C. Rough Hardware: Galvanized
- D. Paint: Exterior quality.
 - 1. Use Bulletin colors for graphics.
 - 2. Colors for structure, framing, sign surfaces and graphics: As indicated.

PART 3 - EXECUTION

3.1 PROJECT IDENTIFICATION SIGN

- A. Paint exposed surfaces of supports, framing and surface material; one coat of Project Identification Sign

primer and one coat of exterior paint.

B. Paint graphics in styles, sizes and colors selected.

1. Lettering shall be as noted.
2. City Logo shall be yellow and blue.
3. Background shall be white.

3.2 SIGN LOCATION

A. Sign shall be located within the City right of way in an area approved by the Engineer.

3.3 MAINTENANCE

- A. Maintain sign and supports in a neat, clean condition; repair damages to structure, framing or sign.
- B. Relocate informational sign as required by progress of the work.

3.4 REMOVAL

A. Remove sign, framing, supports and foundations at completion of project or at direction of Engineer.

END OF SECTION

SECTION 01600
MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Products.
- B. Workmanship.
- C. Manufacturer's Instructions.
- D. Transportation and Handling.
- E. Storage and Protection
- F. Substitutions and Product Options.

1.2 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work.
- B. Section 01020: Allowance.
- C. Section 01091: Reference Standards.
- D. Section 01340: Shop Drawings, Product Data, and Samples.
- E. Section 01630: Substitutions and Product Options.
- F. Section 01700: Contract Closeout.

1.3 PRODUCTS

- A. Products include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.

1.4 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances of specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship for specified quality.

- C. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.5 MANUFACTURER'S INSTRUCTIONS

- A. When work is specified to comply with manufacturer's instructions, submit copies as specified in Section 01340, and distribute copies to persons involved, and maintain one set in field office.
- B. Perform work in accordance with details of instructions and specified requirements. Should a conflict exist between Specifications and instructions, consult with the Engineer.

1.6 TRANSPORTATION AND HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by Owner, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.

1.7 STORAGE AND PROTECTION

- A. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight enclosures and maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated Products, place on supports above ground. Cover Products subject to deterioration with impervious sheet covering; and provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure Products are undamaged, and are maintained under required conditions.
- E. After installation, provide coverings to protect Products from damage from traffic and construction operations. Remove when no longer needed.
- F. During such periods of time that are designated by the United States Weather Bureau as being a hurricane warning or alert, construction materials or equipment shall be secured against displacement by wind forces.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01630

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Furnish and install Products specified, under options and conditions for substitutions stated in this Section.

1.2 RELATED REQUIREMENTS

- A. Information for Bidders and General Conditions.
- B. Section 01020: Allowances.
- C. Section 01340: Shop Drawings, Product Data, and Samples.
- D. Section 01700: Contract Closeout.

1.3 PRODUCTS LIST

- A. Within 30 days after award of Contract, submit to Engineer five copies of complete list of major Products which are proposed for installation.
- B. Tabulate Products by specification section number and title.
- C. For products specified only by reference standards, list for each such Product:
 - 1. Name and address of manufacturer.
 - 2. Trade Name.
 - 3. Model or catalog designation.
 - 4. Manufacturer's data:
 - a. Reference standards.
 - b. Performance test data.

1.4 CONTRACTOR'S OPTIONS

- A. For Products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one or those products and manufacturers names which complies with Specifications.
- C. For products specified by naming only one or more products or manufacturers and

stating "or equal", submit a request as for substitutions, for any product or manufacturer which is not specifically named.

1.5 SUBSTITUTIONS

- A. Within a period of 30 days after award of Contract, Engineer will consider formal requests from the Contractor for substitution of products in place of those specified:
 - 1. After the end of that period, the request will be considered only in case of product unavailability or other conditions beyond the control of the Contractor.
- B. Submit a separate request for each substitution. Support each request with:
 - 1. Complete data substantiating compliance of the proposed substitution with requirements stated in the Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 1) Product description.
 - 2) Reference standards.
 - 3) Performance and test data.
 - c. Samples, as applicable.
 - d. Name and address of similar projects on which product has been used, and the date of each installation
 - 2. Itemized comparison of the proposed substitution with product specified; List significant variations.
 - 3. Data relating to changes in the construction schedule.
 - 4. Any effect of the substitution on separate contracts.
 - 5. List of changes required in other work or products.
 - 6. Accurate cost data comparing proposed substitution with product specified.
 - 7. Designation of required license fees or royalties.
 - 8. Designation of availability of maintenance services, and sources of replacement materials.
- C. Substitutions will not be considered for acceptance when:

1. They are indicated or implied on Shop Drawings or product data submittals without a formal request from Contractor.
 2. They are requested directly by a subcontractor or supplier.
 3. No Data relating to changes in construction schedule.
 4. Any effect of substitution on separate contracts.
 5. List of changes required in other work or products.
 6. Accurate cost data comparing proposed substitution with product specified.
 7. Designation of required license fees or royalties.
 8. Designation of availability of maintenance services, sources of replacement materials.
 9. Acceptance will require substantial revision of Contract Documents.
- D. Substitute products shall not be ordered or installed without written acceptance of Engineer.
- E. Engineer will determine the acceptability of proposed substitutions.

1.6 CONTRACTOR'S REPRESENTATION

- A. In making formal request for substitution Contractor represents that:
1. He has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
 2. He will provide the same warranties or bonds for substitution as for product specified.
 3. He will coordinate installation of accepted substitution into the Work, and will make such changes as may be required for the Work to be complete in all respects.
 4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
 5. Cost data is complete and includes related costs under his Contract, but not:
 - a. Costs under separate contracts.
 - b. Engineer's costs of redesign or revision of Contract Documents.

1.7 ENGINEER DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Notify Contractor, in writing, of decision to accept or reject requested substitution.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01700
CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Substantial Completion
- B. Final inspection after completion
- C. Final cleaning
- D. Contractor's closeout submittals
- E. Final adjustment of accounts

1.2 SUBSTANTIAL COMPLETION

- A. When CONTRACTOR considers work has reached substantial completion, he shall submit to the ENGINEER the following:
 - 1. Written notice that the work is substantially complete in accordance with Contract Documents.
 - 2. A list of items yet to be completed or corrected and explanations thereof.
- B. Within a reasonable time upon receipt of such notice, the ENGINEER will inspect, if necessary, to determine the status of completion.
- C. Should the ENGINEER determine that the work is not substantially complete:
 - 1. The ENGINEER will promptly notify the CONTRACTOR in writing, giving the reasons thereof.
 - 2. CONTRACTOR shall remedy the deficiencies in the work and send a second written notice of Substantial Completion to the ENGINEER.
 - 3. Upon receipt of the second notice, the ENGINEER will respect the Work.
- D. When the ENGINEER finds that the Work is substantially complete he will issue a Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final inspection.

1.3 FINAL INSPECTION AFTER COMPLETION

- A. When CONTRACTOR considers the Work is complete with all minor deficiencies completed or corrected, he shall submit written certification that:
 - 1. Contract Document requirements have been met.

2. Work has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. All minor deficiencies have been corrected or completed and the Work is ready for final inspection.
 5. Project record documents are complete and submitted.
- B. Within a reasonable time upon receipt of such certification, the ENGINEER will inspect to verify the status of completion.
- C. Should the ENGINEER determine that the work is incomplete or defective:
1. The ENGINEER will promptly notify the CONTRACTOR in writing, listing the incomplete or defective work.
 2. CONTRACTOR shall remedy the deficiencies in the work and send a second written certification to the ENGINEER that the Work is complete.
 3. Upon receipt of the second certification, the ENGINEER will respect the Work.
- D. When the ENGINEER determines that the work is acceptable, under the Contract Documents, he shall request the CONTRACTOR to make closeout submittals.

1.4 FTNAL CLEANING

- A. Execute prior to final inspection.
- B. Clean site; sweep paved areas, rake clean other surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site.

1.5 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Project Record Documents
 1. At Contract closeout, submit documents with transmittal letter containing date, Project title, CONTRACTOR'S name and address, list of documents, and signature of CONTRACTOR.
 2. Drawings: Legibly marked to record actual construction:
 - a. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - b. Drawings shall be signed and sealed by a surveyor registered in the State of Florida.
 3. Specifications and Addenda: Legibly mark each Section to record.

- 4. Changes made by Field Order or by Change Order.
- B. Evidence of payment and Release of Liens.

1.6 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Engineer.
- 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 or written amendment.
 - b. Allowances
 - c. Unit prices
 - d. Deductions for uncorrected work.
 - e. Penalties and bonuses
 - f. Deductions for liquidated damages
 - g. Other adjustments
 - 3. Total Contract Sum as adjusted
 - 4. Previous payments
 - 5. Sum remaining due

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Maintain at the site of the OWNER a record copy of:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications to the Contract.
 - 5. Approved Shop Drawings, Product Data, and Samples.
 - 6. Field Test Records.

1.2 RELATED REQUIREMENTS

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

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available always for inspection by OWNER's Representative.

1.4 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by OWNER's Representative.

1.5 RECORDING

- A. Label each document, "PROJECT RECORD" in neat large printed letters, or by rubber stamp.
- B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction (hard copy):
 - 1. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structures.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Field Order or by Change Order.
 - 5. Details not on original Contract Drawings.
- D. Specifications and Addenda; legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each produce and item of equipment installed.
 - 2. Changes made by Field Order or by Change Order.

1.6 AS-BUILT PLANS (RECORD DRAWINGS)

- A. The CONTRACTOR shall maintain full size (22"x34") field drawings to reflect the "as-built" items of work as the work progresses. Upon completion of the work, the CONTRACTOR shall prepare a record set of "as-built" drawings on full-size, reproducible material and an electronic file in ACAD 2000 Format or Latest Version. One set of full size design drawings on reproducible material will be furnished to the CONTRACTOR by the design ENGINEER at the current square foot price. An electronic file of the design drawings on a compact disk will be furnished to the CONTRACTOR by the design ENGINEER at no additional cost. No additional payment will be made for those "as-built" drawings.

- B. The cost of maintaining record changes, and preparation of the Record Drawings shall be included in the unit prices bid for the affected items. Upon completion of the work the CONTRACTOR shall furnish the ENGINEER the reproducible "as-built "

Drawings and the electronic files. The completed Record drawings shall be delivered to the Engineer at least 48 hours prior to final inspection of the work. The Final inspection will not be conducted unless the Record Drawings are in the possession of the ENGINEER.

- C. The completed (or final) record drawings shall be certified by a Professional Land surveyor registered in the State of Florida. This certification shall consist of the

Project Record Documents

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surveyor's embossed seal bearing his registration number, the surveyor's signature, and date on each sheet of the drawing set. In addition, the key sheet, cover sheet or first sheet of the plans set shall list the business address and telephone number of the surveyor.

- D. Representative items of work that should be shown on the record drawings as verified, changed, or added are shown below:

1. Plans:

- a. Structure types, location with grade of rim and flow-line elevations.
- b. Sewer type, length, size, and elevations.
- c. Utility type, length, size, and elevation in conflict structures.
- d. All maintenance access structures, valves, and hydrants within right- of way.
- e. Spot (critical) elevations at plateaued intersections, P.C., P.T., midpoint of all intersections.
- f. Sewer laterals shall be stationed between maintenance access structures.

2. Pavement Marking and Signing Plans: Sign location where installed if different from plans.

3. Water and Sewer Plans: Location (horizontal and vertical) of all pipe lines, structures, fittings, valves and appurtenances and water /sanitary sewer pipe crossings.

- E. The CONTRACTOR shall submit three sets of progress record drawings with each application for payment. These drawings shall accurately depict the work completed and for which payment is being requested.

- F. As-built drawings shall include the following criteria at a minimum.

1. As-builts of water lines shall include the following information:

- a. Top of pipe elevations and horizontal location every 100 lf.
- b. Locations and elevations of all fittings including bends, tees, gate valves, double detector check valves, fire hydrant, etc.
- c. All tie-ins to existing lines shall be as-built.
- d. The ends of all water services at the buildings or homes shall be as- built or where the water service terminates.

2. As-builts of all gravity sanitary sewer lines include the following

information:

- a. Rims, inverts and length of piping between structures as well as slopes.
- b. The stub ends of all sewer laterals shall be located and if there are any cleanouts installed on the sewer laterals then the invert elevation of these cleanouts need to be obtained.
- c. Lift station as-builts shall consist of top of wet well elevation, invert elevation of the incoming line, bottom of the wet well and as-builts of the compound area.
3. Force main as-builts shall be prepared the same as the water line as-builts.
4. As-builts of all drainage lines shall include the following information:
 - a. Rims, inverts, and length of piping between structures and weir elevations if applicable.
 - b. The survey crew shall verify the size of the piping at the time of as-built.
5. All as-builts for parking lot, roadways and swales areas shall consist of the following:
 - a. Elevations at all high and low points, and at enough intermediate points to confirm slope consistency and every 50' for roadways.
 - b. As-builts shall be taken at all locations where there is a finish grade elevation shown on the design plans.
 - c. All catch basin and manhole rim elevations shall be shown.
 - d. Elevations around island areas will also be required.
 - e. As-builts shall be taken on all paved and unpaved swales prior to placement of asphalt and/or topsoil /sod, at enough intermediate points to confirm slope consistency and conformance to the plan details.
6. If a change is made via field order or deviation to any structure, pipeline, etc., a new location shall be noted on the as-builts. The ENGINEER may request additional as-built information to verify horizontal or vertical locations.

1.7 SUBMITTAL

- A. At Contract closeout, deliver Record Documents to OWNER's Representative, or presentation to the OWNER.
- B. A complete set of "As-Built "Drawings shall be prepared and delivered to the OWNER's Representative for the OWNER. Work shall be performed by a
Project Record Documents

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Registered Professional Land Surveyor and shall include, but not be limited to the following:

1. Valve boxes, splice boxes, pull boxes, al underground utilities-waterlines, electrical runs, irrigation system, storm drainage pipe and structures, finished necessary grades, benches, curbs, fences walls signs, light fixtures, and other items as necessary.
- C. Accompany submittal with transmittal letter in duplicate, containing: I.
Date.
2. Project title and number.
 3. CONTRACTOR's name and address.
 4. Title and number of each Record Document.
 5. Signature of CONTRACTOR or his authorized representative.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Compile warranties and bonds as specified in the Contract Documents.
- B. Co-execute submittals when so specified.
- C. Review submittals to verify compliance with Contract Documents.
- D. Submit to the Engineer for review and transmittal to Owner.

1.2 RELATED SECTIONS

- A. Section 00100 - Instructions to Bidders
- B. Standard General Conditions of the Construction Contract for The City of Delray Beach, Florida
- C. Section 01030 - Special Project Procedures
- D. Section 01700 - Contract Closeout
- E. Other Sections as applicable.

1.3 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bond, service, and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: two (2) 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 of Warranty, bond or service and maintenance contract
 - 5. Duration of warranty, bond or service maintenance contract
 - 6. Provide information for Owner'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 duplicate packets

B. Format:

1. Size 8 1/2 inches x 11 inches, punch sheets for standard 3-post binder

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:

a. Title of Project

b. Name of Contractor

C. Binders: Commercial quality, three-post (3) binder, with durable and cleanable plastic covers and maximum post width of 2 inches.

1.5 WARRANTY SUBMITTAL REQUIREMENTS

A. For all major pieces of equipment, submit a one-year warranty from the equipment manufacturer, unless otherwise specified. The manufacturer's warranty period shall be concurrent with the Contractor's for one year commencing at the time of acceptance by the Owner.

B. The Contractor shall be responsible for obtaining certificates for equipment warranty for all major equipment and which has a 1 HP motor or which lists for more than \$1,000. The Engineer reserves the right to request warranties for equipment not classified as major. The Contractor shall still warrant equipment not considered to be "major" in the Contractor's one-year warranty period even though certificates of warranty may not be required.

C. In the event that the equipment manufacturer or supplier is unwilling to provide a one-year warranty commencing at the time of Owner acceptance, the Contractor shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two-year (2) warranty from the manufacturer shall not relieve the Contractor of the one-year warranty starting at the time of Owner acceptance of the equipment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

DIVISION 2- SITE WORK

02110	CLEARING AND GRUBBING
02200	EARTHWORK
02210	GRADING
02230	BASE COURSES
02270	SLOPE PROTECTION AND EROSION CONTROL
02276	SURFACE RESTORATION
02500	CONCRETE CURBS AND HEADERS
02511	SIGNING AND PAVEMENT MARKING
02513	ASPHALT CONCRETE PAVING
02514	MILLING ASPHALT PAVEMENT
02515	ARCHITECTURAL PAVERS
02580	DETECTABLE WARNING

SECTION 02110

CLEARING AND GRUBBING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing surface debris, paving, curbs, and existing brick pavers.
 - 2. Existing curb ramps.

1.2 SUBMITTALS

- A. Erosion Control Plan
- B. Product data. Submit data for herbicide.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with City of Delray Beach Environmental Services Department.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 PREPARATION

- A. Call Sunshine One Call at 811 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.

3.2 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench mark and existing structures from damage or displacement.

3.3 CLEARING

- A. Remove existing brick pavers including subgrade and stabilization.

3.4 ROUGH GRADING

- A. Identify required lines, levels, contours, and datum.
- B. Identify known underground, above ground, and aerial utilities. Stake and flag

locations.

- C. Notify Sunshine One Call to mark utilities.
- D. Excavate topsoil and subsoil from area under existing brick pavers.
- E. Stockpile any topsoil and subsoil to be reused in area designated by FDOT District Construction Environmental Coordinator. Contractor shall coordinate selection of staging area with Environmental Coordinator at 954-777-4665
- F. Remove excess topsoil and subsoil not being reused, from site.

3.5 CLEAN UP

- A. Remove debris and extracted plant life from site.
- B. Remove excess dirt from the road daily.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1- GENERAL

1.1 SCOPE

- A. This item consists of the excavating, removing and satisfactory disposition of all materials required to construct the project and the placement and shaping of required swales to be done in accordance with these specifications and in conformity with the dimensions and typical sections, lines, and grades, shown on the plans.
- B. All suitable material taken from excavation shall be used in the formation of embankment, subgrade and for backfilling as indicated on the Plans or hauled off-site, or as directed by the ENGINEER. When the volume of excavation is not sufficient for construction of the fill to the grades indicated, the Contractor shall supply the deficiency.

1.2 REFERENCES

- A. Standards applicable to these specifications shall be:
 - 1. Americans Association of State Highway and Transportation Officials (AASHTO).
 - 2. Florida Department of Transportation (F.D.O.T.) Section 120 "Excavation and Embankment".

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION OF WORK

3.1 EXCAVATION

- A. The rough excavation shall be carried to the necessary depth to obtain the specified depth of subgrade compaction shown on the Plans. Likewise, on embankments, the depth of subgrade compaction shall be as shown on the Plans.
- B. Should the CONTRACTOR, through negligence or other fault, excavate below the designated lines, he shall replace the excavation with approved materials, in an approved manner and condition, at own expense. The ENGINEER shall have complete control over the interpretation of the Plans and Specifications concerning the excavation, moving, placing and disposal of all material and shall determine the suitability of material to be placed in embankments. All material determined unsuitable shall be disposed of in waste areas or as directed. Topsoil shall not be used in fill or in subgrades but shall be handled and placed as directed.
- C. The CONTRACTOR will inform and satisfy himself as to the character, quantity, and distribution of all material to be excavated. No payment will be made for any excavated material which is used for purposes other than those designated. All

spoil areas shall be leveled to a uniform line and section and shall present a neat appearance before project acceptance.

- D. Those areas outside of the pavement areas in which the top layer of soil material becomes compacted, due to hauling or to any other activity of the CONTRACTOR, shall be scarified to a depth of 4-inches, as directed, to loosen and pulverize the soil.
- E. If it is necessary to interrupt existing irrigation systems, sewers or under drainage conduits, utilities or similar underground structures, or parts thereof, the CONTRACTOR is responsible for and shall take all necessary precautions to protect and preserve or provide temporary services. When such facilities are encountered, the CONTRACTOR will, at his own expense, satisfactorily repair all damage to such facilities or structures which may result from any of his operations during the period of the contract.

END OF SECTION

SECTION 02210

GRADING

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Provide all labor, materials, necessary equipment, or services to complete the Fine Grading work, as indicated on the drawings, as specified herein or both.

1.2 RELATED WORK

- A. Section 02930 — Sodding

1.3 SITE INSPECTION

- A. The Contractor will visit the site and observe all existing conditions. The Contractor is responsible for subsurface investigations, as necessary, to satisfy requirements of this Section. All subsurface investigations shall be performed only under time schedules and arrangements approved in advance by the City.

1.4 EXISTING CONTOURS

- A. The existing grades shown on the drawings are approximate only (within + 2 inches) and the contractor is responsible for grading to meet or restore existing grades as required.
- B. The contours and grades established under contract will be the finished grades shown. The Contractor will perform the work for construction using the finished grades previously established and make whatever corrections and/or repairs to grades to make them consistent with the requirements of the drawings and specifications.
- C. Established finished grades shall be approved by the City for all project areas prior to initiating landscape planting.

1.5 UTILITIES

- A. Locate all existing, active utility lines traversing the site and determine the requirements for their protection. Preserve in operating condition all active utilities adjacent to or traversing the site that are designated to remain.
- B. Observe rules and regulations governing respective utilities in working under requirements of this section. Adequately protect utilities from damage, remove or relocate as indicated, specified, or required. Remove, plug or cap inactive or abandoned utilities encountered in excavation. Record location of active utilities.

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION

3.1 EXCAVATION

- A. Excavate where necessary to obtain subgrades, percolation and surface drainage as required.
- B. Materials to be excavated are unclassified.
- C. Remove entirely any existing obstructions after approval by the City.
- D. Remove from site and dispose of debris and excavated material not required.

3.2 GRADING

- A. Establish finished grades as shown on the Plans, and as directed by the City, including areas where other work has disturbed the existing grade.
- B. Finished grading shall be smooth, aesthetically pleasing, drain well and ready to receive sod and other plant material to full satisfaction of City and Owner's Representative.

3.3 COMPACTION

- A. Compact each layer of fill in designated areas with approved equipment to achieve a maximum density at optimum moisture, AASHTO T 180 - latest edition at time of bid.
 - 1. Under landscaped area, compaction shall not exceed 85% of maximum density.
- B. No backfill shall be placed against any masonry or other exposed building surface until permission has been given by the Owner's Representative, and in no case until the masonry has been in place seven days.
- C. Compaction in limited areas shall be obtained using mechanical tampers or approved hand tampers. When hand tampers are used, the materials shall be deposited in layers not more than four inches thick. The hand tampers used shall be suitable for this purpose and shall have a face area of not more than 100 square inches. Special precautions shall be taken to prevent any wedging action against masonry, or other exposed building surfaces.

3.4 CORRECTION OF GRADE

- A. Bring to required grade levels areas where settlement, erosion or other grade changes occur. Adjust grades as required to carry drainage away from buildings and to prevent ponding around the buildings and on pavements.
- B. Remove all rock or objectionable material larger than 2 inch any direction to commencing landscaping.
- C. Contractor is responsible for stabilizing grades by approved methods prior to landscaping, and for correction of grades as mentioned above, and cleanup of any wash outs or erosion.

END OF SECTION

SECTION 02230

BASE COURSES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The work in this section should meet the requirements specified in the FDOT Standard Specifications section 285 and the Contract documents.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials should meet the requirements specified in the FDOT Standard Specifications section 230 (for installation of 15" limerock base), Section 911 (for 12" stabilized subgrade) and the Contract documents.

PART 3 – EXECUTION

- 3.1 Install materials to meet the requirements specified in the FDOT Standard Specifications section 230 (for installation of 15" limerock base), Section 200 (for 12" stabilized subgrade) and the Contract documents.

END OF SECTION

SECTION 02270

SLOPE PROTECTION AND EROSION CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Design, provide, maintain, and remove temporary erosion and sedimentation controls as necessary. Contractor should sequence fill, grading and erosion control mat installation to complete each required area within the same day. This will reduce the need for temporary erosion control.
- B. Temporary erosion controls may include, but are not limited to, mulching, netting, sediment containment systems, inlet protection systems, and watering on-site surfaces
- C. Temporary sedimentation controls include turbidity barriers such as silt fences, floating barriers, and bales shown on the Drawings, which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the Owner and as shown in the Drawings.
- D. Provide effective temporary erosion and sediment control measures during construction or until final controls become effective.

1.2 SUBMITTALS

- A. Submit schedule for temporary erosion and sedimentation control.

PART 2 – PRODUCTS

2.0 EROSION CONTROL

- A. Netting: Fabricated of material acceptable to the Owner or Consultant.

2.1 SEDIMENTATION CONTROL

- A. Silt Fences: Fabricated of material acceptable to Owner or Consultant; Minimum 3- feet high polypropylene.
- B. Inlet Protection: Per FDOT Standard Specifications Section 104 and the FDOT Erosion and Sediment Control Manual.

PART 3 – EXECUTION

3.1 EROSION CONTROL

- A. Mulching shall be in accordance with Section 02950 of these Specifications.
- B. Minimum procedures for mulching and netting are:
 - 1. Apply mulch loosely to a thickness of between 0.75 inches and 1.5 inches.

- 2. Apply netting over mulched areas on sloped surfaces.
- C. Installation of Coir Mat may be substituted for mulching and netting, with approval from the Consultant and the Owner.

3.2 SEDIMENTATION CONTROL

- A. Install and maintain silt fences as specified in the Contract Documents. Barrier shall be installed prior to construction, to trap and collect all fugitive silt. Make all necessary adjustments to prevent any silt from entering waters beyond the barrier.

3.3 PERFORMANCE

- A. Should any of the temporary erosion and sediment control measures employed fail to produce results which comply with the requirements of the Owner, immediately take whatever steps are necessary to correct the deficiency at own expense.

END OF SECTION

SECTION 02276

SURFACE RESTORATION

PART 1 – GENERAL

1.1 REQUIREMENT

- A. The Contractor shall repair landscaped and grassed areas that may be damaged by Contractor activities.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02110: Clearing and Grubbing

1.3 SUBMITTALS

- A. The Contractor shall submit submittals for review in accordance with the Section 01340 entitled “Shop Drawings, Product Data, and Samples”.

1.4 DEFINITIONS

- A. The phrase “DOT Specifications” shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. The DOT Specifications are referred to herein and are hereby made a part of this Contract to the extent of such references and shall be as binding upon the Contract as though reproduced herein in their entirety.

1.5 PROTECTION OF EXISTING IMPROVEMENTS

- A. The Contractor shall be responsible for the protection of all pavements and other improvements within the work area. All damage to such improvements because of the Contractor's operations, beyond the limits of the work of pavement replacement, shall be repaired by the Contractor at its own expense.

1.6 GUARANTEE

- A. The Contractor shall guarantee all trees, ground cover, or shrubs planted or replanted under this Contract for a period of one (1) year beyond acceptance of the project. If any new tree, plant, or shrub dies within the guarantee period, the Contractor shall be responsible for replacement in kind. If a transplanted (reused) tree dies within the guarantee period, the Contractor shall be responsible for replacement in kind, except that the maximum height of any new tree shall be eight (8) feet as measured from the ground surface, once planted, to the top of the tree.

PART 2 - PRODUCTS

2.1 SOD

- A. All sod shall be replaced with the same as was removed or damaged.

2.2 REPLACEMENT TREES, GROUND COVER AND SHRUBS

- A. Replacement trees, ground cover, and shrubs shall be of the same type and size and sound, healthy and vigorous, well branched, and densely foliated when in leaf. They shall have healthy, well developed root systems and shall be free of disease and insect pests, eggs, or larvae.

2.3 MULCH

- A. Mulch shall be shredded cypress and shall be clean, fresh, and free of branches and other foreign matter. Mulch shall be used around all shrubs, ground covers, and tree trunks and placed to a minimum depth of three (3) inches extending from the tree trunk outward to the extent of the root ball or a minimum of two (2) feet.

PART 3 -EXECUTION

- A. Pruning: All broken or damaged roots shall be cut off smoothly, and the tops of all trees shall be pruned in a manner complying with standard horticultural practice. At the time pruning is completed, all remaining wood shall be alive.
- B. Maintenance: Maintenance shall begin immediately after each plant is planted and shall continue until all Work under this Contract has been completed and accepted by the Owner. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated, and otherwise maintained and protected. Settled plants shall be reset to proper grade position, planting saucer restored and dead material removed. Guys shall be tightened and repaired.
- C. Defective work shall be corrected as soon as possible after it becomes apparent. Upon completion of planting, the Contractor shall remove excess soil and debris, and repair any damage to structures, etc., resulting from planting operations.

END OF SECTION

SECTION 02500

CONCRETE CURBS AND HEADERS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The work in this section should meet the requirements specified in the FDOT Standard Specifications section 520 and the Contract documents.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials should meet the requirements specified in the FDOT Standard Specifications section 520 and the Contract documents.

PART 3 – EXECUTION

- 3.1 Install materials to meet the requirements specified in the FDOT Standard Specifications section 520 and the Contract documents.

END OF SECTION

SECTION 02511

SIGNING AND PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SCOPE

- A. The Contractor will supply all labor, equipment, materials, and incidentals necessary to signing and applying pavement markings in accordance with the plans and the following specifications. Work shall adhere to all City of Delray Beach and FDOT Standards.

1.2 REFERENCED SPECIFICATIONS, CODES, AND STANDARDS

- A. Manual of Uniform Control Devices, current version.
- B. FDOT Design Standards, current version
- C. FDOT Standard Specifications for Road and Bridge Construction (Signing – Section 700, Paint – Section 710, and Thermoplastic – Section 711), current version.
- D. Palm Beach County Typical for Pavement Markings, Signing and Geometrics, Current Drawing No. T-P-13
- E. City of Delray Beach Standards and Details, current version.
- F. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Signs - General:
 - 1. The design and construction of traffic signs shall be in accordance with the following standards:
 - a. FDOT Standard Specifications for Road & Bridge Construction, current version.
 - b. FDOT Design Standards, current version.
 - c. City of Delray Beach Standards
 - 2. All "STOP", "YIELD", and other required signs and street name signs shall be fabricated entirely with High Intensity reflective sheeting. Other signs shall be fabricated using engineering grade materials. Post-mounted signs shall be mounted on single or double steel U-Channel posts. Tubular posts

Signing and Pavement Markings

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shall not be used.

3. Shop drawings for special designs for ground sign structures shall be submitted to the City for approval.

B. Pavement Markings – General:

1. The construction of pavement markings shall be in accordance with the following standards:
 - a. FDOT Standard Specifications for Road & Bridge Construction, current version.
 - b. FDOT Design Standards, current version.
 - c. City of Delray Beach Standards
2. RPMs
 - a. Install RPMs in accordance with Design Standards, Index Nos. 17345 and 17352.
 - b. Apply RPMs to the bonding surface using bituminous adhesives only. The Engineer will conduct field testing in accordance with FM 5-566. Correct RPMs not applied in accordance with these requirements at no cost to the Department.
3. Thermoplastic
 - a. Stop bars within the right-of-way to be Alkyd thermoplastic only.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Relocate signage as instructed by Contract documents and place in accordance with FDOT and Delray Beach Standards.
- B. The thermoplastic stop bar shall not be installed on roadway until existing stop bar is removed.
- C. If existing marking material is not compatible with Alkyd thermoplastic, it shall be removed prior to installation of new markings.
- D. Install thermoplastic stop bar 4 feet behind crosswalk or crossing location in accordance with the City of Delray Beach Standards RT 3.2.

END OF SECTION

SECTION 02513

ASPHALTIC CONCRETE PAVING

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Furnish all labor, materials, equipment, and incidentals required and place asphaltic concrete pavement in accordance with the Drawings and as specified herein.

1.2 RELATED WORK

- A. Section 02110: Clearing and Grubbing

1.3 SUBMITTALS

- A. Submit mix design for concurrence.

PART 2-PRODUCTS

2.1 MATERIALS

- A. The limerock base shall consist of grade No. 2 Miami Oolite limerock as specified by the Florida Department of Transportation.
- B. The material used for the prime coat shall conform to the Florida Department of Transportation Specifications for primer to be used on Miami Oolite limerock base.
- C. Bituminous material for tack coat shall meet the standard specifications of the Florida Department of Transportation for the grade used and may be any suitable grade of R.C. (rapid curing cut back liquid asphalt)
- D. The materials of the asphaltic concrete surface shall conform with applicable sections of Florida Department of Transportation Specifications for Asphaltic Concrete Surface Course with the following EXCEPTION: Recycled asphalt may not be used.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. The subgrade preparation shall comply with the requirements of Section 160 of the Florida Department of Transportation Specifications. All soft and yielding material and other portions of the subgrade which will not compact readily shall be removed and replaced with suitable material and the whole subgrade brought to line and grade and to a foundation of uniform compaction and supporting power. The cost of removing and replacing unsuitable material shall be included in the bid for the paving.
- B. The top 8 inches of the subgrade, in both cut and fill sections, shall be compacted

to a density of not less than 98 percent of the maximum density as determined by the AASHTO Method T-180. If shown on the Drawings, compact subgrade to a Florida Bearing Value of 75 psi. Unless the subgrade material at the time of compacting contains sufficient moisture to permit proper compaction it shall be moistened as necessary and then compacted. Subgrade material containing excess moisture shall be permitted to dry to the proper consistency before being compacted. The subgrade shall be shaped prior to making the density tests. The required density shall be maintained until the base or pavement has been laid or until the aggregate materials for the base or pavement course have been spread in place.

- C. The minimum compacted thickness of the limerock base shall be 12 inches applied in three layers of equal depth unless otherwise shown on the Drawings. The width of the limerock base shall be 3 feet wider than the pavement, 1-1/2 ft. on each side.
- D. Before the prime coat is applied, all loose material, dust, dirt, or other foreign material which might prevent bond with existing surface shall be moved to the shoulders to the full width of the base by means of revolving brooms, mechanical sweepers, blowers, supplemented by hand sweeping or other approved methods. The glazed finish shall have been removed from the base. The prime coat shall be applied by a pressure distributor so that approximately 0.1 gallons per square yard is applied uniformly and thoroughly to a clean surface.
- E. Prior to the application of the surface course, all loose material, dust, dirt, and all foreign material which might prevent proper bond with the existing surface shall be removed to the full width of the repair by means of approved mechanical sweepers and supplemented by hand sweeping if required.
- F. Apply bituminous tack coat at a rate between 0.02 and 0.10 gallons per square yard. Bituminous material shall be heated as per manufacturers' recommendations.
- G. All manhole castings, valve boxes or other utility castings within the area to be surfaced shall be adjusted to the proposed surface elevation by the Contractor. The work shall be accomplished in such a manner as to leave the casting fixed permanently in its correct position.
- H. Provide a milled surface with a reasonably uniform texture, within 1/4 inch of a true profile grade, and with no deviation in excess of 1/4 inch from a straightedge applied to the pavement perpendicular to the centerline. Ensure the variation of the longitudinal joint between multiple cut areas does not exceed 1/4 inch. The Engineer may accept areas varying from a true surface in excess of the above stated tolerance without correction if the Engineer determines they were caused by a pre-existing condition which could not have reasonably been corrected by the milling operations. Correct any unsuitable texture or profile, as determined by the Engineer, at no cost to the Department. The Engineer may require remilling of any area where a surface lamination causes a nonuniform texture to occur.

3.2 PAVEMENT REPAIR

- A. All damage to pavement as a result of the work (construction or maintenance)
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under this contract shall be repaired per the plans and specifications at the Contractor's cost. Pavement shall be repaired to match the original surface material and original grade; however, the asphalt concrete thickness shall not be less than 1 inch. The repair shall include the preparation of the subgrade, the placing and compacting of the limerock base, the preparation and priming of the base, the placing and maintaining of the surface treatment, all as specified herein and as shown on the Drawings.

- B. The width of all repairs shall extend at least 12 inches beyond the limit of the damage or as shown on the Drawings. The edge of the pavement to be left in place shall be saw cut to a true edge and should provide a clean edge to abut the repair. The line of the repair shall be reasonably uniform with no unnecessary irregularities.

3.3 TESTING

- A. The Contractor shall have and pay for density, soil bearing, materials and such other tests performed as it may deem necessary. The Contractor shall fully cooperate with the testing agency. Should any test indicate that any portion of the materials or workmanship does not comply with these Specifications; a retest shall be performed at the Contractors expense. If the retest confirms the first test, that portion of the work shall be removed and replaced or reworked at no additional cost to the Owner until satisfactory compliance is attained.

END OF SECTION

SECTION 02514

MILLING OF EXISTING ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Work Included: The work specified in this Section consists of removing existing asphaltic concrete pavement by milling to improve the surface of the finished pavement, to lower the finished grade adjacent to existing or proposed curb prior to resurfacing, or to completely remove existing pavement.
- B. The finish grade, after resurfacing, will be specified in the plans.
- C. Unless otherwise specified, the milled material becomes the property of the Contractor.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

PART 2 - EQUIPMENT

2.01 DESCRIPTION

- A. The milling machine shall be capable of maintaining a depth of cut and cross slope that will achieve the results specified in the plans and specifications. The minimum cutting width shall be six feet.
- B. The milling machine shall be equipped with a built-in automatic grade control system that can control the transverse slope and the longitudinal profile to produce the specified results.
- C. Any commercially manufactured milling machine meeting the above requirements will be approved to start the project. If it becomes evident after milling has started that the milling machine cannot consistently produce the specified results, the milling machine will be rejected for further use.
- D. When milling to lower the grade adjacent to existing curb or other areas where it is impractical to use the above described equipment, the use of a smaller milling machine will be permitted.
- E. The milling machine shall be equipped with means to effectively limit the amount of dust escaping the removal operation.
- F. For complete pavement removal, the use of alternate removal and crushing equipment, in lieu of the equipment specified above, may be approved by the Engineer.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. When milling to improve the evenness on asphalt that has not been disturbed by construction activities, the existing pavement shall be removed to the average depth specified in the plans. In the event the existing asphalt is found to be less than 1-1/2-inch thick, the contractor shall coordinate with the City for the required mill/overlay depth.

All asphalt trench repairs shall be repaired with no less than the minimum asphalt thickness shown on the plans. Unless an even temporary asphalt surface course is required by the City, the trench repair asphalt elevation may be installed up to 3/4-inch lower than the adjacent undisturbed roadway elevation as a temporary condition. When milling over a repaired trench, the mill depth shall be such that no less than 3/4-inch of repaired asphalt remains.

All milling and resurfacing on the project shall be performed in a manner that will restore the pavement surface to a uniform cross section and longitudinal profile. The Contractor may make use of a stringline to ensure maintaining the proper alignment.

- B. The longitudinal profile of the milled surface shall be established on the side of the cut nearest the centerline of the road. The cross slope of the milled surface shall be established by a second sensing device near the outside edge of the cut or by an automatic cross slope control mechanism. The plans may waive the requirement for automatic grade or cross slope controls where the situation warrants such action.
- C. The Contractor may elect to make multiple cuts to achieve the required pavement configuration or depth of cut.
- D. The milling machine shall be operated to effectively minimize the amount of dust being emitted from the machine. Prewetting of the pavement will be required.
- E. If traffic is to be maintained on the milled surface prior to the placement of the new asphaltic concrete, the pattern of striations shall be such as to produce an acceptable riding surface. The Contractor will control the traveling speed of the milling machine to produce a texture that will provide an acceptable riding surface.
- F. Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a power broom or other approved equipment to remove to the greatest extent practicable, fine material which will dust under traffic. This operation shall be conducted in a manner so as to minimize the potential for creation of a traffic hazard and to minimize air pollution. Temporary traffic markings will be placed in order to maintain safe traffic control.
- G. Sweeping of the milled surface with a power broom will be required prior to placing asphaltic concrete.
- H. In urban and other sensitive areas where dust would cause a serious problem, the Contractor shall use a street sweeper (using water) or other equipment capable of

removing and controlling dust. Approval of the use of such equipment is contingent upon its demonstrated ability to do the work.

- I. The Contractor is to prevent the infiltration of milled material into the storm sewer system when the milling operation is within the limits of, and adjacent to a municipal curb and gutter or a closed drainage system, the sweeping operation shall be performed immediately after the milling operations.
- J. This operation shall also include the thorough removal of all milled material from the gutter in such a manner as to protect the curb from damage and to prevent the material being swept into the inlet openings or inlet grates.

3.02 FINAL SURFACE CONDITIONS

- A. The milled surface shall have a reasonably uniform texture and shall be within $\frac{1}{4}$ inch of a true profile grade and shall have no deviation in excess of $\frac{1}{4}$ inch from a straightedge applied to the pavement perpendicular to the centerline. The variation of the longitudinal joint between multiple cut areas shall not exceed $\frac{1}{4}$ inch. Areas varying from a true surface in excess of the above stated tolerance may be accepted without correction if the Engineer determines that they were caused by a pre-existing condition which could not have reasonably been corrected by the milling operation. Any unsuitable texture or profile, as determined by the Engineer, shall be corrected by the Contractor at no additional compensation.
- B. The Engineer may require remilling of any area where a surface lamination causes a non-uniform texture to occur.

END OF SECTION

SECTION 02515

ARCHITECTURAL PAVERS

PART 1 – GENERAL

1.1 SUMMARY

1.2 SYSTEM DESCRIPTION

A. Paving and Setting Bed: To accommodate pedestrian traffic.

- A. Section Includes:
1. Brick pavers.
 2. Sand setting bed.
 3. Sand joints.
 4. Accessories.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate layout of pavers, curbs, control joints, expansion joints, elevations, and affected adjacent construction.
- B. Product Data: Reuse existing (undamaged) brick paver removed from curb ramps.
- C. Samples: Submit five sample pavers units illustrating color, surface finish, and texture.
- D. Manufacturer's Installation Instructions: Submit substrate requirements, installation methods, and finishing requirements.

1.4 SUSTAINABLE DESIGN SUBMITTALS

- A. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with City of Delray Beach Engineering Standards.

PART 2 – PRODUCTS

BRICK PAVERS

- A. Furnish materials in accordance with City of Delray Beach Engineering Standards.
- b. Pavers: ASTM C902, Weather Class SX, Traffic Type I, Application PS, to the following characteristics:

1. Size: Match existing.
2. Color: Match existing.
3. Exposed Surface Texture: Match existing.

2.2 SAND BED AND JOINT MATERIALS

- A. Sand for Setting Bed: 1-1/2" sand bedding
- B. 4" dense-graded asphalt mix
- C. 6" Limerock base compacted to 98% per AASHTO T-180
- D. 12" compacted subgrade compacted to 98% per AASHTO T-180

2.3 ACCESSORIES

- A. Border: 8" soldier coarse.
- B. Curbs: Type F curb and gutter.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify substrate is level or to correct gradient, smooth, capable of supporting pavers and imposed loads, and ready to receive Work of this section.

3.2 PREPARATION

- A. Treat soil with herbicide to retard plant growth.

3.3 INSTALLATION - SAND SETTING BED

- A. Install Work in accordance with City of Delray Beach Engineering Standards.

END OF SECTION

SECTION 02580

DETECTABLE WARNING

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The work in this section should meet the requirements specified in the FDOT Standard Specifications section 527 and the Contract documents.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials should meet the requirements specified in the FDOT Standard Specifications section 527 and the Contract documents.

PART 3 – EXECUTION

- 3.1 Install materials to meet the requirements specified in the FDOT Standard Specifications section 527 and the Contract documents.

END OF SECTION