PROJECT MANUAL

DEMOLITION
OF
CENTRAL BOOKING FACILITY

PREPARED FOR

Issued for Bid

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PREPARED BY:

MOTT
MACDONALD

220 West Garden Street, Suite 700
Pensacola, FL 32502

PROJECT MANUAL

TECHNICAL SPECIFICATIONS

DEMOLITION OF THE CENTRAL BOOKING FACILITY

Escambia County Florida

DIVISION 1 - GENERAL REQUIREMENTS

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01010 Summary of Work

01200 Progress Documentation & Procedures

01500 Temporary Facilities and Controls

01524 Demolition Waste Management

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(From Escambia County Public Works General Paving and Drainage Technical Specifications)

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Appendix A Existing Hazardous Material Abatement
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SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of the demolition of the Escambia County Central Booking Facility.

1. Project Location: Pensacola, Florida.
2. Owner: Escambia County, Florida.

B. Identification: The Contract Documents, dated as indicated on the Title Sheet of the drawings and cover of the Project Manual, were prepared for the Project by Mott MacDonald Florida, L.L.C., 220 W Garden Street, Suite 700, Pensacola, Florida 32502. Tel: 850.484.6011. Project Manager: Lowry J. Denty, PE.

C. The bidding documents include various existing architectural and structural drawings of the building, as well as photographs of the site and building. The drawings do not reflect the damage inflicted to the facility and site by the explosion. Some of the damage is visible in the photographs identified in the Condition Assessment Report found in Volume II of the Project Manual. The building has been unoccupied and exposed to the elements since April 2014. Mold and animal waste is present. Entrance into the building shall be limited to the route shown on the drawings for removing the two vending machines from the first floor. Appropriate Personal Protective Equipment (PPE) shall be worn in and around the building at all times. Entrance into any other areas of the building shall be prohibited. Salvage value of many items has been substantially decreased.

D. The Work consists of the demolition of the existing four story building, adjacent one story annex buildings, site utilities, and hardscape as shown in the Contract Documents. The Work includes, but is not limited to:

1. Complete removal and legal disposal of the structure, interior/exterior finishes, mechanical systems, electrical systems, and furnishings as to not damage any adjacent facilities. A sequencing plan is provided and shall be followed to remove as many inmate personal belongings as possible in a safe manner. Removal of inmate belongings or any other items the contractor deems salvageable shall be by mechanical means from outside the building. Entrance into the building is limited to the removal of two vending machines only through the route indicated on the drawings. No other areas of the building shall be entered.

2. Site work, which includes water, gas, telephone, power, and sewer utility work, smaller paved areas with a drainage system, and landscaping. Domestic water service with meter and reduced pressure backflow preventer brought to the building from a potable water main. Sanitary waste discharged through a building drain and connected to a sanitary sewer main. Power is brought to the facility through underground service to two transformers mounted on an upper deck.

1.3 CONTRACT

A. Project will be executed under Escambia County's Standard Construction Contract.

1.4 USE OF PREMISES

A. General: Contractor shall have full use of premises for demolition operations, within the designated "CONTRACT LIMITS", during the demolition period. The existing site security fencing shall remain. The contractor may remove portions as required for demolition, but shall maintain a secure site at all times (24hrs/7days per week) to prevent entrance to the site and building by the public.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01010

SECTION 01200 - PROGRESS DOCUMENTATION AND PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Progress documentation requirements:
      a. Contractor's demolition schedule.
      b. Progress reports and photographs.
   2. Progress procedures:
      a. Progress meetings.

B. Contract time is indicated elsewhere.

1.2 SUBMITTALS

A. Contractor's Construction Schedule.
   1. Submit within fifteen (10 days) after notice to proceed.
   2. Submit revised schedule with each Application for Payment.

B. Progress Reports and photographs: Submit weekly.

C. Minutes of Progress Meetings.

1.3 FORM OF SUBMITTALS

A. Schedules - General:
   1. Provide legend of symbols and abbreviations for each schedule.
   2. Use the same terminology as that used in the contract documents.
   3. Coordinate each element on the schedule with other demolition activities.
   4. Show activities in proper sequence.
   5. Show percentage of completion of each activity.
   6. Use vertical lines to mark the time scale at not more than one week intervals.
   3. Use sheets of sufficient number and width to show the full schedule clearly.

B. Reports - General:
   1. Submit in PDF format.

1.4 COORDINATION

B. In preparation of schedules, take into account the time allowed or required for the County Engineer's administrative procedures.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

B. Prepare and submit a construction schedule.

C. Provide construction schedule in the form:
   1. Where related activities must be performed in sequence, show relationship graphically.
   2. Indicate activities separately

3. Show dates of:
    a. Each activity that influences the construction time.
    b. Pre-construction meeting.
    c. All submittals required.
    d. Substantial and final completion
4. In developing the schedule take into account:
    a. Site limitations.
    b. Weather, including seasonal changes.

E. Make and distribute copies of schedule to the County Engineer, to the County Facilities Manager, to subcontractors, and to other entities whose work will be influenced by schedule dates.
2. Hang a copy of the schedule up in each field office or meeting room.

D. Update the schedule whenever changes occur or are made, or when new information is received, but not less often than at the same intervals at which applications for payment are made.
2. Indicate changes made since last issue; show actual dates for activities completed.
3. Submit updated schedule with application for payment.
4. Issue updated schedule with report of meeting at which revisions are made.
5. Issue updated schedule in same manner as original schedule.
6. Narrative summary of all changes in the network.

3.2 PROGRESS REPORTS

A. Progress Reports: Prepare a daily, written narrative report describing the general state of completion of the work and describing in detail the following:
1. Actual and anticipated delays, their impact on the schedule, and corrective actions taken or proposed.
2. Actual and potential problems.
3. Status of change order work.
4. Effect of delays, problems, and changes on the schedules of other prime contractors.
5. Outstanding change proposal requests.
6. Status of corrective work ordered by the County Engineer.
7. Other data, such as subcontractors and workers on site, time, weather. Refer to County's standard contract.

B. Progress Photographs:
1. Take photos of site before start of construction.
2. Take photos not more than one (1) week prior to submittal of Application For Payment.
3. Take photos from positions chosen to show the current status of completion and progress since previous photos were taken.

3.3 PROGRESS MEETINGS

A. Schedule and conduct periodic progress meetings during construction period.
1. Have meetings once a week with one meeting scheduled during the day just prior to submission of Application For Payment.
2. Notify the Engineer and the County Facilities Manager at least one week in advance of date of meeting; the Engineer and the County Facilities Manager may attend.

B. The following are required to attend:
1. Project Superintendent.
2. Major subcontractors and suppliers.
3. Others who have an interest in the agenda.

C. Prepare and distribute agenda prior to meetings; cover the following topics when applicable:

1. Review minutes of previous meeting.
2. Status of submittals and impending submittals.
3. Actual progress of activities in relation to the schedule.
4. Actual and anticipated delays, their impact on the schedule, and corrective actions taken or proposed.
5. Actual and potential problems.
6. Status of change order work.
7. Effect of proposed changes on schedule and coordination.
8. Progress expected to be made during the next period.

D. Record minutes and distribute copies within five (5) days to the Engineer, to the County Facilities Manager, to all participants, and to all entities affected by decisions made.

END OF SECTION 01200

SECTION 01524 - DEMOLITION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Recycling nonhazardous demolition waste.
2. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

A. Construction Waste: Site improvement materials and other solid waste resulting from construction or repair operations. Construction waste includes packaging.

B. Demolition Waste: Non-Hazardous & Non-Regulated Building and site improvement materials resulting from demolition operations.

C. Hazardous & Regulated Materials: No known hazardous and regulated materials exist. Refer to Appendix A of project manual for pre and post construction hazardous and regulated materials report from the 1999 conversion of the building from a hospital to detention facility.

D. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill acceptable to authorities having jurisdiction. This includes metal waste that can be reclaimed during demolition and sold by the Contractor for the economic benefit of the Contractor or Subcontractors.

1.4 PERFORMANCE GOALS

A. Salvage/Recycle Goals: Owner's goal is for demolition contractor to salvage and recycle as much nonhazardous demolition waste as possible.

1.5 SUBMITTALS

A. Waste Management Plan: Submit three (3) copies of plan within thirty (15) days of date established for commencement of the Work

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include report for demolition waste. with the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons.
4. Quantity of metal waste (excluding copper) recovered, both estimated and actual in tons.
5. Quantity of copper metal waste (including cable wire) recovered, both estimated and actual in pounds.

C. Landfill Disposal Records: Indicate receipt and acceptance of waste by landfills licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

D. Qualification Data: refrigerant recovery technician.

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed

according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/benefit analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan. Indicate controls to minimize dust, dirt and noise and to protect the environment.

B. Waste Identification: Indicate anticipated types and quantities of building demolition and site-clearing waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be recycled, or disposed of in landfill. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Recycled Materials: Include list of type of recycled materials.
2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill facility.
3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Engineer. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three (3) days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be recycled.
2. Comply with Waste Management Plan for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING DEMOLITION WASTE, GENERAL

A. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Truck processed materials for disposal directly to landfill, or stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from demolition area.
4. Store components off the ground and protect from the weather.
5. Recyclable waste shall be removed off Owner's property and transported to landfill at earliest possible time available.

3.3 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility, if available. Otherwise transport to landfill.

B. Concrete: Contractors option to remove reinforcement and other metals from concrete and sort with other metals, unless required by hazardous and regulated materials abatement procedures.

1. No concrete crushing allowed on site.

C. Masonry: Contractors option to remove metal reinforcement, anchors, and ties from masonry and sort with other metals, unless required by hazardous and regulated materials abatement procedures.

1. No concrete crushing allowed on site.

D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

E. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

F. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

G. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.

H. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler, if available.

I. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs.

J. Plumbing Fixtures: Separate by type and size.

K. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

L. Lighting Fixtures: Separate lamps by type and protect from breakage.

M. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

N. Conduit: Reduce conduit to straight lengths and store by type and size.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be recycled remove waste materials from Project site and legally dispose of them in a landfill acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01524

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, seismic monitoring, and security/protection facilities.

B. Temporary utilities include, but are not limited to, the following:

1. Water service and distribution.
2. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
3. Electric power service.
4. Telephone service.

C. Support facilities include, but are not limited to, the following:

1. Project identification and temporary signs.
2. Waste disposal facilities.
3. Field offices.

D. Security and protection facilities include, but are not limited to, the following:

1. Stormwater control as set forth in the Storm Water Pollution Prevention Plan (SWPPP) as prepared by the Contractor and submitted to Engineer for review and approval.
2. Site enclosure fence maintenance. This includes maintaining and modifying, as required, the existing security fencing.
3. Providing the services of a firm to perform seismic monitoring, including establishing a base line for vibration.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Escambia County personnel, such as the County Engineer.
2. Sherriff Office personnel.
3. Testing agencies.
4. Personnel of authorities having jurisdiction.

B. Sewer Service: Pay sewer service use charges for sewer usage, by all parties engaged in construction, at Project site.

C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in demolition and construction activities at Project site, except for seawater.

D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

1.4 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Seismic Monitoring: As part of the Work, Contractor shall engage and pay for the services of a firm to perform ongoing seismic monitoring of the Work during periods of actual building wrecking and other operations that will produce vibration that might be construed, by building owners of properties adjacent to the site, that the resulting vibration caused damage to their building. Seismic Monitoring shall be functional throughout the duration of the project.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials suitable for use intended.

B. The Owner has erected fencing and gates to control access to the site. If the Contractor requires additional security, Contractor shall provide chain-link fencing as part of the Contractors Base Bid. This fencing shall be a minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails, with concrete bases for supporting posts.

C. Water: Potable.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Field Offices: Mobile units with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

F. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, County, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

B. Water Service: Install water service and distribution piping in sizes and pressures adequate for demolition.

1. Provide rubber hoses as necessary to serve Project site.
2. As soon as water is required, extend service to form a temporary water- and fire-protection standpipe. Provide distribution piping. Space outlets so water can be reached with a 50-foot hose. Provide one hose at each outlet.
3. Provide potable drinking water service for site workers and others by other means. Maintain potable drinking water on site at all times.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Install self-contained toilet units. Provide separate facilities for male and female personnel.
3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.

D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

1. Install electric power service underground, unless overhead service must be used.
2. Install power distribution wiring overhead and rise vertically where least exposed to damage.

E. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

F. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities. Install separate telephone line for each field office and first-aid station.

1. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Maintain support facilities until near Substantial Completion. Remove after Substantial Completion as directed by County Engineer.

B. Project Identification and Temporary Signs: Prepare and install project identification and other signs in sizes indicated. In addition, the Contractor shall provide and install signs to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

1. Engage an experienced sign painter to apply graphics for Project identification signs.
2. Construct signs of APA rated A-B grade – exterior plywood in sizes and thicknesses indicated on drawings. Support on posts or framing of preservative-treated wood or steel.
3. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.

C. Common-Use Field Office: Provide an insulated, weathertight, air-conditioned field office for use as a common facility by all personnel engaged in demolition activities; of sufficient size to accommodate required office personnel and meetings of ten (10) persons at Project site. Keep office clean and orderly.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Stormwater Control: Provide barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains as required in the project Storm Water Pollution Prevention Plan (SWPPP) noted above.

B. Site Enclosure Fence: Owner has installed a chain-link enclosure fence with lockable entrance gates. Contractor shall provide its own locks for all gates and keep site secure at all times (24hrs / 7 days per week) for the duration of demolition.
1. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide County with one set of keys.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Prevent water-filled piping from freezing. Maintain markers as required for underground lines. Protect from damage during excavation operations.

C. Temporary Facility Changeover: Do not remove temporary facilities until Substantial Completion or no longer needed.

D. Termination and Removal: Except for security fencing installed by Owner, remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Except for fencing, materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period.

END OF SECTION 01500

SECTION 02221 - DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of buildings and pavement.
   2. Removing below-grade construction.
   3. Disconnecting, capping or sealing, of site utilities.

1.3 DEFINITIONS

A. Demolish: Completely remove and legally dispose of off-site.

B. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.

C. Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner's storage facility for reuse. Include fasteners or brackets needed for reattachment elsewhere – NOT APPLICABLE. There are no items to be salvaged.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 SUBMITTALS

A. Before start of Work, submit the following to the Engineer for review. Do not start work until these submittals are returned with the County Engineer's action stamp indicating that the submittal is returned for unrestricted use.

B. Evidence of required training for workers in accordance with all applicable OSHA/EPA regulations.

C. A copy of the Demolition Notification Form submitted to the FDEP.

D. Qualification Data: For refrigerant recovery technician.

E. Proposed Protection Measures: Submit informational report, including drawings, that indicates the measures proposed for protecting individuals and property for environmental protection, for dust control and for noise control. Indicate proposed locations and construction of barriers.
   1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain.

F. Schedule of Building Demolition Activities: Indicate the following:
   1. Detailed sequence of demolition work, with starting and ending dates for each activity.
   2. Temporary interruption of utility services.
   3. Shutoff and capping of utility services.

G. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

H. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by building demolition operations. Comply with Division 1 Section "Photographic Documentation." Submit before the Work begins.

I. Landfill Facility: Indicate licensed landfill facility proposed for this project.

J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE.

A. All demolition work is to be done in a neat manner, consistent with the best acceptable industry practices and with a full protection of adjacent construction or areas during the entire period of demolition.

B. Demolition work is to include the removal of permanent construction materials which are existing, and includes but is not limited to concrete, paving materials, metal, masonry, wood, piping, furniture, fixtures, equipment, or other materials as shown on the drawings or noted herein.

C. Demolition work is to include the removal of existing materials that may interfere with the proper construction of new work regardless of whether noted on the drawings, or specified. Demolition work is to also include the reinstallation of any items or work, which may have to be removed on a temporary basis (remove & salvage), prior to demolition operations, in order to allow for the proper construction of new work.

D. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

E. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

F. Standards: Comply with ANSI A10.6 and NFPA 241.

G. Predemolition Conference: Conduct conference at Project site. Review methods and procedures related to building demolition including, but not limited to, the following:
1. Inspect and discuss condition of construction to be demolished.
2. Review limitations of access into existing structure.
3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise control and dust control.
6. Review procedures for protection of adjacent buildings.
7. Review items to be salvaged and returned to Owner.

1.7 PROJECT CONDITIONS

A. Building to be demolished has been vacated and its use discontinued due to devastation from a recent event. Demolition work shall be completed from a safe distance and from inside equipment. The Contractor is not authorized access in or on the structure except as indicated on the drawings.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.
1. Contractor shall not interfere with operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
    a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from County.

C. Hazardous Materials: The building has been abated of Hazardous materials in accordance with the Aztec Environmental, Inc.'s report in Appendix A.

D. On-site storage or sale of removed items or materials is not permitted.

1.8 COORDINATION

A. The Contractor shall submit a schedule of proposed dates for demolition and/or removal work to the Engineer for review prior to the start of the work. The method of demolition and/or removal is to be such as not to damage any adjacent facilities or structures. Included in this schedule is to be the coordination for shut-off, capping and the discontinuation or continuation of utility services.

B. Arrange demolition schedule so as not to interfere with operations of adjacent occupied buildings.

C. No demolition and/or removal work is to be undertaken until the Engineer has approved the schedule.

D. Demolition operations shall be confined to the contract limits.

E. The building and miscellaneous areas to be demolished shall be demolished in place.

F. Adjacent buildings shall be left in a safe condition and shall not be defaced, marred, or jeopardized in any way and any damage done to them shall be repaired or restored to the satisfaction of the Engineer at no cost to the Owner.

G. Only methods of demolition which ensure that all demolition tasks are confined within the limits of the demolition area and without hazard to adjacent properties or to the public will be permitted. Under no circumstances shall any structure be set afire.

H. Demolition of the building shall be restricted to horizontal operations, one level of the structure to be demolished at a time. The demolition of the structure shall be progressive from top to bottom, one level at a time. However, bay- or sectional-type or other demolition techniques may be considered, provided a detailed plan, including the structural framework of the building, is submitted and approved by the Engineer prior to start of operations. Each shall be removed in such a manner that the integrity and support of adjacent bays or sections is maintained.

I. All materials demolished, removed, and/or discarded are to become the property of the Contractor and are to be removed from the project site to an approved landfill, unless otherwise directed by the County.

J. The Contractor is to provide shoring, bracing, or support as required to prevent undesirable or unintended movement, settlement or collapse of construction and/or work to be removed and adjacent facilities to remain that may cause any damage to property or injury to persons.

K. The Contractor shall clean all adjacent structures and improvements of dust, dirt and debris caused by the Contractor's demolition operations.

L. The Contractor is not to store, or permit debris to accumulate on the site, except as noted on the drawings. If the Contractor fails to remove excess debris after more than forty-eight (48) hours and after written notification by the Engineer to the Contractor for said removal, the Owner reserves the right to cause such debris to be removed at the Contractor's expense. Costs incurred by the Owner are to be deducted from the payments to be made to the Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WORKING PROTECTION

A. Before beginning any demolition activities, provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

B. All demolition work shall be done from a safe distance and from inside equipement.

3.2 DEMOLITION

A. Ensure that the area where demolition is taking place has been adequately barricaded with warning signs posted to prevent entry by unauthorized persons.

B. The Contractor shall be responsible for making arrangements for a water supply system capable of providing sufficient water to maintain dust control.

3.3 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Documents of existing construction provided in Contract Documents.

C. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

3.4 PREPARATION

A. Refrigerant: Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting demolition.

B. Existing Utilities: Do not start demolition work until utility disconnecting and sealing have been completed and verified.

C. Temporary Shoring: Provide and maintain shoring, bracing, or structural support as required to preserve stability and prevent unexpected movement or collapse of structure being demolished.

3.5 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.
   1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by County Engineer.
   2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Division 1 Section "Temporary Facilities and Controls."
   1. Protect adjacent buildings and facilities from damage due to demolition activities.
   2. Protect existing site improvements, and appurtenances to remain.
   3. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain. Every excavation or area of demolition on the site, except at the waterfront edges, shall be surrounded with a barrier not less than 6-feet high, at locations shown on the drawings, to prevent the entry of unauthorized persons. All barriers shall be of adequate strength to resist wind pressure as specified in the Florida Building Code, 5th Edition.
   4. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
   5. Wherever portions of the building are being demolished by a wrecking ball or other wrecking device, a watchman shall be employed to warn the general public when intermittent hazardous operations are conducted near any building to remain, sidewalk, walkway, or roadway. This requirement does not apply to building areas or sections that are located more than 100 feet from areas accessible by the public or more than 100 feet from an existing structure.
   6. Barricades, steady burning lights, flashing warning lights, warning signs and KEEP OUT signs shall be furnished, erected and maintained at places and locations where the placing of protective devices are warranted.
   7. During demolition of the building, the Contractor shall provide at least one portable multipurpose, dry chemical type, 10 pound capacity fire extinguisher with a minimum 4-A:60-B:C UL rating at each exit on all floor levels where combustible materials have accumulated. A matching portable fire extinguisher with a minimum 4-A:60-B:C UL rating shall also be provided in every storage and construction shed. Additionally, at least one matching portable fire extinguisher shall be provided where special hazards, such as flammable or combustible liquid storage, exist. Additional standard fire suppression equipment shall be available as required by the County.

8. Erect and maintain any dustproof partitions or temporary enclosures that the Contractor feels necessary to limit dust and dirt migration to portions of nearby buildings and vehicles, in the event that, in Contractor' s opinion, the application of water will not be sufficient to serve as a means of control.

D. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.6 DEMOLITION, GENERAL

A. General: Demolish indicated existing building completely as shown on demolition plans. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least twenty-four (24) hours after flame cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from County Engineer. Provide alternate routes around closed or obstructed traffic ways if required by County Engineer.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as flooding, and pollution.

C. Prior to the demolition of the building, arrangements shall be made for the disconnection and termination of all water, sewer, gas, electric, telephone, cable television and other utilities connected to the building, in conformance with the requirements of the utilities owning or controlling them.

D. The utility companies concerned shall be notified, in writing, when such disconnections and terminations are required, and the work shall be performed in accordance with their standard practices and requirements and under their supervision, or arrangements shall be made for the work to be performed with their forces.

E. Explosives: Use of explosives is not permitted.

3.7 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation

C. Salvage: Items to be salvaged are noted on the drawings.

D. Below-Grade Construction: Demolish foundation walls and other below-grade construction.
1. Remove below-grade construction; including basement type constructions, foundation walls, and footings, completely.
2.

E. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures, as shown on drawings.

3.8 STORAGE OF MATERIALS AND EQUIPMENT

A. The term “equipment” shall mean the machinery, tools, derricks, hoists, scaffold, platforms, runways, ladders and all material-handling equipment, safeguards and protective devices used in demolition operations. The term “runway” shall mean an aisle or walkway constructed or maintained as a temporary passageway for pedestrians or vehicles. All materials and equipment required for the permitted demolition shall be stored and placed so as not to endanger the public, the workers or adjoining property

B. Materials and equipment stored within the building, or on sidewalks, shall be placed so as not to overload any part of the structure beyond the design capacity, not interfere with the safe prosecution of the work.

C. Materials and equipment shall not be stored on the street.

D. Materials and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police alarm boxes, utility boxes, catch basins or manholes, nor shall such material and equipment be located within fifty (50) feet of a street intersection, or placed so as to obstruct normal observations of traffic signals or to hinder the use of public transit loading platforms.

3.9 SITE RESTORATION

A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to the drawings and specifications herein.

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.10 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.11 DISPOSAL OF DEMOLISHED MATERIALS

A. Materials and debris accumulated by site clearing, demolition of the building and other items shall be removed and disposed of at solid waste disposal facilities, reclamation facilities or scrap yards.

B. Written permission shall be obtained from the land fill operator or other property owner on whose property the materials are to be placed. A copy of the agreement shall be furnished to the Engineer.

C. Remove demolition waste materials from Project site and legally dispose of them in an appropriately permitted landfill.
   1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

D. Do not burn demolished materials.

3.12 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition specified and shown on the drawings.

END OF SECTION 02221

PUBLIC WORKS DEPARTMENT
Engineering Division

Escambia County
Technical Specifications

GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specifications for Road and Bridge Construction, Latest Edition, Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred herein or otherwise listed in this document.

The Construction Details and Materials divisions (Division II and III) of the 2013 Edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction are revised as follows:

I hereby certify that this specifications package has been properly prepared by me, or under my responsible charge, in accordance with procedures adopted by the Florida Department of Transportation.

County Engineer
Joy D. Blackmon, P.E.

Effective Date: October 01, 2014
Revision 7

SECTION 02230 - CLEARING & GRUBBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions shall apply to this Section.

B. Florida Department of Transportation*, Standard Specifications for Road and Bridge Construction* (FDOT Specs*), Section 110, Latest Edition*. Work shall comply with requirements of FDOT Specs as modified herein.

C. Emerald Coast Utility Authority (ECUA) *Engineering Manual*, *Latest Edition.*

D. GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specifications for Road and Bridge Construction, Latest Edition, Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred herein or otherwise listed in this document.

1.2 SUMMARY

A. This Section includes, but is not limited to, the following:

1. Protection of existing trees indicated to remain.
2. Removal of trees and other vegetation.
3. Clearing and grubbing.
4. Removing above-grade improvements.
5. Removing below-grade improvements.

B. Extent of clearing & grubbing shall remain in County right-of-way, easements (temporary or permanent), or approved written work agreement areas, unless otherwise noted or instructed.

1.3 PROJECT CONDITIONS

Provide protection for all public land corners and monuments within the limits of construction. Any Monuments disturbed while performing the work will be replaced at the contractor’s expense.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SITE CLEARING

A. General: Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots.

Carefully and cleanly cut minor roots and branches of trees indicated to remain in a manner where such roots and branches obstruct installation of new construction.

B. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except for those indicated to remain.

1. Completely remove all stumps within the roadway. Remove roots and other debris to a depth of 12” below the ground surface or finished grade, whichever is lower.

2. Use only hand methods for grubbing inside drip line of trees Indicated to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated in accordance with Section 2300.

C. Removal of Improvements: Remove existing above grade and below grade improvements as indicated and as necessary to facilitate new construction, and other work as indicated.

3.2 DISPOSAL OF WASTE MATERIALS

A. Burning: Burning is not permitted on County property. Requests to burn will be considered on a case by case basis. If approved, Contractor is to acquire permits and provide copies to the Engineer and County/CEI.

B. Removal from County Property: Remove waste materials and unsuitable or excess topsoil from County property, and dispose of off site in a legal manner.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

A. Lump Sum Payment: When direct payment is provided in the Contract for the quantity to be paid for as the lump sum quantity cleared and grubbed, no additional measurements will be made.

B. Payment By The Acre/Square Yard: For areas of Clearing and Grubbing that are designated to be paid for separately by the acre or square yard, the quantity to be paid for will be determined by measurement of the areas shown on the plans or authorized by the Engineer and/or County/CEI to be cleared and grubbed, and acceptably completed.

4.2 BASIS OF PAYMENT

A. General: Price and payment will be full compensation for all Clearing and Grubbing required for the roadway right-of-way and for lateral ditches, channel changes, or other outfall areas, and any other Clearing and Grubbing indicated, or required for the construction of the entire project, except for any areas designated to be paid for separately or to be specifically included in the costs of other work under the contract. Price and payment, either lump sum or by the acre/square yard will be full compensation for all the work specified in this Section, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc., as specified herein.

B. Lump Sum Payment: Payment shall be made at the lump sum contract price for Clearing and Grubbing, lump sum.

C. Payment Per Acre/Square Yard: Payment shall be made at the per unit contract price for Clearing and Grubbing, per acre/square yard.

END OF SECTION 02230

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

B. Florida Department of Transportation*, Standard Specifications for Road and Bridge Construction* (FDOT Specs*), Section 120*, *Latest Edition*. Work shall comply with requirements of FDOT Specs as modified herein.

C. GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specifications for Road and Bridge Construction, Latest Edition, Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred herein, or otherwise listed in this document.

1.2 SUMMARY

A. This Section includes preparing and grading for pavement, curb, subgrades, drainage features, and general site work.

B. Related Sections: The following Sections contain requirements that relate to this Section.

1. Section 2230 "Clearing & Grubbing" for clearing, grubbing, and tree protection.

2. Section 2600 “Stormwater System” for installation of stormwater systems.

1.3 DEFINITIONS

A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.

B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, base, drainage fill, or topsoil materials.

C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from on-site excavations.

D. Subbase Course: The layer placed between the subgrade and base course in a paving system.

E. Base Course: The layer placed immediately beneath the surface pavement in a paving system.

F. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Engineer and County CEI. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.

H. Utilities include on-site above ground utilities, overhead utilities and underground utilities including: pipes, conduits, ducts, and cables, as well as related appurtenances and underground services within building lines.

I. Unsuitable Material: Any material such as muck, wood, rock, peat, garbage, non-compactable soils in dry condition, and any other material that is considered unsuitable by the County Project Coordinator/CEI shall be considered unsuitable.

J. Topsoil: Topsoil is defined as the surface layer of soil found normally to a depth of at least 4 to 8 inches that typically contains organic materials. Satisfactory topsoil is reasonably free of roots, clay lumps, stones, other objects over 2 inches in diameter, and any other objectionable or deleterious material.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Section 1300, "Submittals."

B. Product Data and Samples of the following:

1. 1-lb representative samples of each proposed fill and backfill soil material from borrow sources as selected by the Engineer and/or County.

2. 12-by-12-inch sample of filter fabric.

3. Representative samples of the proposed base and sub-base materials.

C. Test Reports: In addition to test reports required under field quality control, submit the original directly to the County/CEI from the testing services, with a copy to the Contractor and County:

1. Laboratory analysis as specified in 1.1 (Related Documents) of each soil material proposed for fill and backfill from borrow sources.

2. One optimum moisture-maximum density curve for each soil material.

3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.

1.5 QUALITY CONTROL / QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork complying with all requirements of authorities having jurisdiction. All material and construction methods shall be in accordance with the *Standard Specifications for Road and Bridge Construction, State of Florida, Department of Transportation*, Latest Edition.

B. Testing and Inspection Service: A qualified independent geotechnical engineering testing agency, under the direction of a Professional Engineer, licensed in the State of Florida to classify, perform soil tests, and provide inspection services for quality control. All proposed borrow soils will require the testing agency to verify that soils comply with specified requirements and to perform required field and laboratory testing. Contractor shall replace materials removed for testing purposes. Should any work or materials fail to meet the requirements set forth in the plans and specifications, contractor shall reimburse for additional and re-testing.

1.6 PROJECT CONDITIONS

A. Site Information: Data in the subsurface investigation Report, if available, is used for the basis of the design and is available to the contractor for information only. Conditions are not intended as representations or Warranties of accuracy or continuity between soil borings. The Engineer and/or County/CEI will not be responsible for interpretations or conclusions drawn from this data by the Contractor.

B. Existing Utilities: After location of utilities by the appropriate utility company, it is the Contractor's responsibility to protect all such utility lines, including service lines and appurtenances, and to replace at his own expense any that may be damaged by the Contractor's equipment or forces during construction of the Project.

1. Provide a minimum of 48-hours notice to the Engineer and County/CEI and receive written notice to proceed before interrupting any utility.
2. The contractor is responsible for contacting all utility companies to verify locations of all existing utilities, utility-related obstructions, or

utility relocations that he may encounter during construction.

3. Adequate provision shall be made for the flow of existing sewers, drains, and water courses encountered during construction, and structures which may be disturbed shall be satisfactorily restored by the Contractor at his expense.

C. Should uncharted, or incorrectly charted, piping or other utilities be encountered during the course of the work, consult Engineer and/or County immediately for directions. Cooperate with the County and utility companies in keeping respective services and facilities in operation.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Soils used as fill shall be clean sands, similar to existing site soil, with less than 5% passing the number 200 sieve when existing subgrade conditions are considered wet as per the Engineer and the County/CEI. Soils as described above with less than 15% passing the number 200 sieve and meeting the requirements of Section 902-6 of the FDOT Specifications may be used when existing subgrade conditions are considered dry as per the Engineer and the County/CEI. The sand shall have a maximum dry density of at least 100 pounds per cubic foot, according to the Standard Proctor compaction test, AASHTO T-99, ASTM D698. Provide approved borrow soil materials from off-site when sufficient satisfactory soil materials are not available from on-site excavations.

If the Contractor elects to import any materials, then he will do so only with the approval of the Engineer and the County/CEI and at his own expense, unless separate payments for such items are called for in these specifications. Provide laboratory certification that soils meet requirements of specifications.

B. Sub-Base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, or sand. The material shall be stabilized in accordance with FDOT Standard Specification Section 160-5.4. ASTM D 2940, with at least 95 percent passing a 1-1/2-inch sieve, and not more than 8 percent passing a No. 200 sieve.

PART 3 - EXECUTION

3.1 DEWATERING

A. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on sub-grades in work areas, and from flooding project site and surrounding area.

B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

C. The Contractor shall prevent the accumulation of water in excavated areas, and shall remove, by pumping or other means, any water that accumulates in the excavation. The Contractor shall prevent the accumulation of water in both structural and trench excavations and shall remove, by well point system or by other means, water which accumulates. The Contractor shall provide, install and operate a suitable and satisfactory dewatering system, when needed to dry sub-grades or other work areas.

D. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collection or runoff areas. Do not use trench excavations as temporary drainage ditches. Discharged water shall be clean, not silt or sediment laden, prior to discharge to untreated system and/or waters of the State.

3.2 EXCAVATION

A. Explosives: Not permitted.

B. Strip topsoil and significant root systems to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root systems.

3.3 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

B. All excavation work shall conform to all applicable OSHA Publications, Latest Editions. The Contractor's method of providing protective support to prevent cave-ins shall conform to OSHA requirements. Slope excavations, shoring, and trench box usage in the field must be based on tabulated data and designed by the Contractor. The contractor is solely responsible for job site safety and shall not be compensated for required safety equipment/devices.

3.4 EXCAVATION FOR STRUCTURES

Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, maintaining a safe

slope, installing services and other construction, and for inspections.

A. Footings and Foundations: Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

B. Pile Foundations: After piles have been installed, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.

C. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Appurtenances: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot.

3.5 EXCAVATION FOR WALKS AND PAVEMENTS

Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades. Consider Dewatering and other sections as applicable.

3.6 EXCAVATION FOR STORMWATER SYSTEMS

Excavate and compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of Section 2600. Consider Dewatering and other sections as applicable.

3.7 STORAGE OF SOIL MATERIALS

Stockpile excavated materials acceptable for backfill, fill soil, and topsoil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Stockpiles shall be placed, graded, and shaped to drain surface water and prevent erosion. Cover to prevent wind-blown dust and/or erosion. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 BACKFILL

A. Backfill excavations promptly, but not before completing the following:

1. Acceptance of construction below finish grade including, where applicable, filter fabric installation and gravel bedding.

2. Surveying locations of underground utilities for record documents.

3. Testing, inspecting, and approval of underground utilities.

4. Removal of trash and debris from excavation.

5. Removal of temporary shoring, bracing, and sheeting unless

specified to remain.

B. No backfill material shall be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rain, backfill operations shall not be resumed until the moisture content of the fill is as previously specified to achieve proper compaction.

3.9 FILL

A. Preparation: Remove vegetation, topsoil, debris, wet and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placing fills. Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface. In order to insure proper bond and prevent slipping between the original ground and fill, the surface of the original ground shall be scarified to a depth of at least three inches. Each layer of fill material shall be compacted until the required density is achieved, and the density achieved should be verified in accordance with specifications using in-place density testing.

B. When subgrade or existing ground surface is to receive fill and has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture condition or aerate soil and re-compact to required density.

C. Place fill material in layers to required elevations for each location listed below.

1. Under grass, subbase or base material, use satisfactory excavated or borrow soil material.

2. Under walks and pavements, curbs, steps, ramps, building slabs, footings and foundations use subbase and/or base material.

3.10 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

B. Do not place backfill or fill material on surfaces that contain excessive moisture.

C. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density. Stockpile or spread and dry removed wet satisfactory soil material.

3.11 COMPACTION

A. Place backfill and fill materials in layers or lifts not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 8 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.

C. Percentage of Maximum Dry Density Requirements: Compact soil to not less than the following percentages of maximum dry density according to ASTM Modified Proctor):

1. Under structures, building slabs, steps, and pavements, compact each layer of backfill or fill material at a minimum of 98% Modified Proctor of the material's maximum dry density.

2. Under lawn or unpaved areas, compact each layer of backfill or fill material at 95% Modified Proctor maximum dry density.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between existing adjacent grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.

2. Walks: Plus or minus 0.10 foot.

3. Pavements: Plus or minus ½ inch.

3.13 STABILIZED SUBGRADE

A. For stabilized subgrade the type of materials, commercial or local, is at the Contractor's option and no separate payment for stabilizing materials

will be made (other than as may be paid for as borrow).

B. When stabilizing is designated as Type B, compliance with the bearing value requirements will be determined by the Limerock Bearing Ratio Method. Minimum LBR shall be 40.

C. It is the Contractor's responsibility that the finished roadbed section meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added. Also, full payment will be made for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select high-bearing materials from other sources, within the limits of the stabilizing.

D. After the roadbed grading operations have been substantially completed, the Contractor shall make his own determination as to the quantity (if any) of stabilizing material, of the type selected by him, necessary for compliance with the bearing value requirements. The contractor shall notify the Engineer of the approximate quantity to be added, and the spreading and mixing-in of such quantity of materials shall meet the approval of the Engineer and/or County/CEI as to uniformity and effectiveness.

3.14 FIELD QUALITY CONTROL

A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.

1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), ASTM D 293 (drive cylinder method), or ASTM D 2922 (nuclear method), as applicable.

a. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the speedy moisture meter according to ASTM D 3017.

b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and speedy moisture meter at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

2. Paved Areas: Make at least one field density test of subgrade,

base, and each compacted fill layer for every 300 linear feet of roadway or equivalent area, but in no case less than two tests. Tests shall be staggered to ensure representative sampling.

3. Unpaved Areas: Make at least one field density test of each compacted fill layer or subgrade for every 1000 square yards of area, but in no case less than two tests.

4. Other tests may be required at Engineer's and/or County/CEI's discretion.

B. If, in the opinion of the Engineer and/or County/CEI, based on testing service reports and inspection or the Engineer's observations, subgrades, fills, or backfills are below specified density, scarify and moisten or aerate as needed, or remove and replace soil to the depth required, re-compact, and re-test until required density is obtained at no additional expense.

3.15 REPAIR & CORRECTIONS

A. Protecting Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace material to depth directed by the Engineer; reshape and re-compact at optimum moisture content to the required density.

B. Settling: Where settling occurs during the warranty period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

C. When traffic must cross open trenches, the contractor shall provide suitable bridge of graded aggregate base or temporary asphalt paving as directed by Engineer and/or County/CEI at no additional expense. (See Section 4060 for additional requirements.)

D. Erosion Control: The Contractor shall be responsible for the prevention of erosion from the site and for maintaining filled and graded surfaces for the duration of the project. This includes, but is not limited to, the erection of a silt fence and hay bale barricade as per Florida Stormwater Erosion and Sedimentation Control Inspector's Manual and/or as shown in the construction plans. The Contractor shall take whatever steps necessary to prevent erosion and sedimentation, and will be responsible for any damages which might occur to down-land properties as a result of run-off from the site during sitework construction at no additional cost. Provide erosion control measures to prevent erosion or displacement of soils and

discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

Surplus excavated material becomes the property of the Contractor unless otherwise noted. Waste materials, including unsatisfactory soils, trash and debris shall be removed and legally disposed of, off the Owner's property.

3.17 CLEAN-UP AND FINAL INSPECTION

Before final inspection and acceptance the Contractor shall clean ditches, shape shoulders and restore all disturbed areas, including street crossings, grass plots, re-grassing if necessary, to as good a condition as existed before work started.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

A. Excavation: When payment for excavation is on a volumetric basis, the quantity to be paid for will be the volume, in cubic yards, calculated by the method of average end areas according to the survey and plans. If actual quantities vary in field, contractor shall communicate with Engineer and/or County to request additional payment. The measurement will include the net volume of material between the original ground surface and the surface of completed earthwork according to the survey and plans. If actual quantities vary in field, contractor shall communicate with Engineer and/or County to request additional payment. Excavation for swales and channels will be included in the total quantity for Excavation. Subsoil Excavation will be measured to the lines and grades indicated on the plans or as approved by the Engineer and/or County/CEI. Backfill material shall either include normal excavation material from within project limits or borrow material supplied by the Contractor.

B. Embankment: Quantities for Embankment will be calculated by the method of average end or square yard areas, and will include material placed above the original ground line, within the lines and grades indicated on the plans or as directed by the Engineer and/or County/CEI.

C. Calcium Chloride for Dust Control: The quantity to be paid for will be the weight, in tons, of calcium chloride authorized and acceptably spread on the road, within the limits specified by the County Engineer and/or Designee. The quantity will be determined from scales, certified freight bills, or other sources, the accuracy of which can be authenticated.

4.2 BASIS OF PAYMENT

A. General: Prices and payments for the various work items included in this section will be full compensation for all work described herein, including excavating, dewatering, dredging, hauling, placing, and compacting. Separate pay items will be provided for all devices required to maintain control of erosion according to plans and NPDES permit. Additional devices shall be no additional cost.

B. Excavation: Unit prices will be established for required cubic yard volumes of Regular Excavation, Subsoil Excavation, and Borrow Excavation as necessary. When subsoil excavation is required to a depth greater than plans and specifications require, and additional excavation is not due to unsuitable, a change order will be required to establish a new quantity utilizing the current unit price.

C. Embankment: Payment shall be made at the unit contract price for Embankment, cubic yard or square yard, in place, according to plans.

D. Calcium Chloride for Dust Control: Price and payment will be full compensation for all work and materials specified for this item, including specifically all required shaping and maintenance of the treated area and all water furnished and applied to the area.

E. Dewatering: The contractor shall include the cost of dewatering in the unit price bid for the stormwater pipe if there is not a specific line item used in the contract.

END OF SECTION 02300

SECTION 02600 - STORMWATER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Specification Sections, specifically 2300, 3300, and *Design Standard Indexes*, apply to this Section.

B. Florida Department of Transportation, *Standard Specifications for Road and Bridge Construction, Sections 425, 430 and 530*, *Latest Edition*. Work shall comply with requirements of FDOT Specs as modified herein.

C. GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specifications for Road and Bridge Construction, Latest Edition*, *Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred here in, or otherwise listed in this document

1.2 SUMMARY

This Section includes stormwater system piping and appurtenances. All labor, material, equipment, appurtenances, services, and other work or costs necessary to construct the facilities and place them into operation shall be furnished by the Contractor.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract.

B. Shop drawings for drainage pipe, pre-cast concrete storm drainage manholes and catch basins, including frames, covers, and grates.

C. Shop drawings for cast-in-place concrete or field-erected masonry storm drainage manholes and catch basins, including frames and covers.

1.4 QUALITY ASSURANCE

A. Environmental Compliance: Comply with applicable portions of local, state, and federal environmental agency regulations pertaining to stormwater systems impacts.

B. Utility Compliance: Comply with local utility regulations and standards pertaining to relocation, clearances, etc related to installation of stormwater systems.

C. Quality control to adhere to QA/QL Plan.

1.5 PROJECT CONDITIONS

Site Information: Perform site inspection, research public utility records, and verify existing utility locations. Verify that stormwater system piping may be installed in compliance with design plans and referenced standards. Locate existing stormwater system piping and structures that are to be abandoned and closed as per 3.8 this section.

1.6 SEQUENCING AND SCHEDULING

A. Notify the County Inspector assigned to the subdivision or project coordinator assigned to project prior to pouring backfilling or form work.

B. Coordinate connection to existing private and public drainage system with Owner and/or County.

C. Coordinate with adjacent utilities work.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 PIPE

Meet the following requirements of *FDOT Specifications*, *Latest Edition*:

Reinforced Concrete Pipe	Section 449
Round Rubber Gaskets	Section 942
Corrugated Steel Pipe & Pipe Arch	Section 943
Corrugated Aluminum Pipe & Pipe Arch	Section 945
Corrugated Polyethylene Pipe	Section 948
Polyvinyl Chloride (PVC)	Section 948

2.1.2 MANHOLES

A. Precast Concrete Manholes: Per FDOT Standard Specification 425-5 and ASTM C 478, precast reinforced concrete, of depth indicated with provision for rubber gasket joints.

B. Cast-in-Place Manholes: Per FDOT Standard Specification 425 Cast reinforced concrete of dimensions and with appurtenances indicated.

C. Manhole Frames and Covers: Construct Per FDOT Standard Specification 425-3.2 and Standard Indexes. All units shall bear the lettering "STORM SEWER" cast into cover. All proposed substitutes must have equal or greater opening sizes and weights.

2.1.3 INLETS

A. Precast Concrete Catch Basins Inlets: Construct per FDOT Standard Specification 425-5.

B. Cast-in-Place Inlets: Construct per FDOT Standard Specification 425 to dimensions and with appurtenances indicated.

1. Bottom, Walls, and Top: Reinforced concrete.
2. Channel and Bench: Concrete.

C. Inlet Frames and Grates: Per FDOT Standard Specification 425-3.2 & Standard Indexes. All units shall bear the lettering "STORM SEWER" cast into cover.

2.1.4 END TREATMENT

General: Head wall, apron, and mitered ends, per FDOT Standard Specification 430-4.6.

2.2 CONCRETE AND REINFORCEMENT

A. Concrete: Portland cement mix, 3,000 psi; shall be in accordance with Section 03300.

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Reinforcement: Steel conforming to the following:

1. Fabric: ASTM A 185, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615, Grade 60, deformed.

C. Forms:

1. Form Materials: Plywood, metal, metal-framed plywood, or other acceptable panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces without distortion or defects. Material shall be of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal.

2. Form Release Agent: Provide commercial formulation form-release agent with a maximum of 350 mg/l volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments

of concrete surfaces. Release agent to be within allowable volatile limits according to applicable local, state and federal codes.

2.3 MASONRY

Materials for accessories shall be per FDOT Standard Specification 949. Mortar shall be one part Portland cement and three parts masonry sand to which shall be added lime putty in the amount of 50% of the volume of cement. Special commercial mortar mixes may be used if approved by the Engineer. All masonry materials shall conform to the latest applicable ASTM specifications. Set all masonry units in full beds of mortar, with full joints and strike all joints flush. Masonry reinforcements shall be galvanized Dur-O-Wal, or approved equal, and shall be installed at every other bed joint. Hollow block shall be poured solid with re-bar as designed.

2.4 CURING MATERIALS

Conform to FDOT Standard Specification 520-8.

2.5 BEDDING STONE

Subbase or base materials meeting requirements of FDOT Standard Specification 530-2.3.

PART 3 - EXECUTION

3.1 EXCAVATIONS FOR MANHOLES, INLETS, AND PIPE

Excavation shall be sufficient enough to leave at least 12 inches in the clear between their outer surfaces and the embankment. Excavation for all structures shall be made to the dimensions and elevations indicated on the drawings. Where the excavation is made below the indicated elevations, the excavation shall be restored to the proper elevation with compacted suitable material without extra compensation.

3.2 PREPARATION OF FOUNDATION FOR BURIED STORMWATER SYSTEMS

A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.

B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill with bedding stone per FDOT Standard Specification 530-2.3 to indicated level.

C. Shape bottom of trench to fit bottom of pipe. Fill unevenness with tamped sand backfill. Dig bell holes at each pipe joint to relieve the bells of all loads and to ensure continuous bearing of the pipe barrel on the foundation.

3.3 PIPE INSTALLATION

A. Drawings (plans and details) indicate the general location and arrangement of the underground stormwater system piping. Location and arrangement of piping layout takes into account many design considerations. Install the piping as indicated, to the extent practical. Deviations shall be at the approval of the Engineer and/or County/CEI.

B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert, unless approved otherwise by the Engineer and/or County/CEI. Place bell ends of piping facing upstream. When installing gaskets, seals, sleeves, and couplings, follow manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

The pipe shall be carefully examined for defects and the inside cleaned. After placing pipe in the ditch, the ends shall be wiped free from all dirt, sand and foreign material. All pipe and joints shall be made, handled, and installed in strict accordance with the manufacturer's recommendations and instructions. Install pipe in accordance with FDOT Standard Specification 430.

C. Install piping pitched down in direction of flow, at minimum slope per plans and in accordance with manufacturer’s recommendations, specifications, and design plans.

D. Boring: Install pipe under streets or other obstructions that cannot be disturbed, by boring, jacking, or a combination of both. These methods of installation are not allowed for newly paved roadways under the 2-year warranty period. Utility conduit should be installed prior to paving.

E. All RCP joints shall be sock/filter wrapped prior to backfilling unless a manufacturer recommended coupling is used.

F. Field repairs of pipeline shall be in strict accordance with manufacturer’s recommendations and specifications.

G. Only conventional concrete pipe shall be allowed under dedicated County roads.

H. Pipe Cover: Shall be 1’ (including) bell, or as specified by Engineer and/or County/CEI.

I. Pipe Size: Minimum Pipe size shall be 18” diameter or equivalent or as specified by County.

3.4 MANHOLES

A. General: Install manholes complete with accessories as indicated. Form continuous concrete or split pipe section channel and benches between inlets and outlet. Set tops of frames and covers flush with finish surface where manholes occur in pavements. Elsewhere, set tops 3 inches above finished grade, unless otherwise indicated.

B. Place precast concrete manhole sections as indicated, and install in accordance with ASTM C 891.

C. Construct cast-in-place manholes as indicated.

D. Provide rubber joint gasket complying with ASTM C 443 at joints of sections; or apply bituminous mastic coating at joints of sections.

3.5 INLETS

A. Construct inlets to sizes and shapes indicated per FDOT Standard Specification 425-6, or County detail.

B. Set frames and grates to elevations indicated.

3.6 OUTFALL STRUCTURES

A. Pipe systems shall be utilized for primary outfall of retention/detention areas.

B. Weirs and flumes will not be acceptable for use as primary pond outfall structures or to primarily route stormwater to retention/detention areas at the end of down-gradient roadways.

3.7 END TREATMENT

Construct End Treatment per FDOT Standard Specification 430-4.6.

3.8 STORMWATER SYSTEM BACKFILL

Place and compact backfill material in accordance with Section 02300 and FDOT specification 125-8.

3.9 CLOSING ABANDONED STORMWATER SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping that is indicated to remain in place. Provide sufficiently strong closures to withstand hydrostatic or earth pressure that may result after ends of abandoned utilities have been closed and grout filled with non-shrink grout.

1. Close open ends of concrete pipe or structures with not less than 8-inch-thick brick masonry bulkheads and grout fill.

2. Close open ends of other piping with plastic plugs, or other acceptable methods suitable for size and type of material being closed. Wood plugs are not acceptable.

B. Abandoned Structures: Remove structure and close open ends of the remaining piping or remove top of structure down to not less than 3 feet below final grade; fill structure with stone, rubble, gravel, compacted dirt, or flowable fill to within 1 foot of top of structure remaining, and fill with concrete.

3.10 FIELD QUALITY CONTROL

A. Refer to Section 03300 for Concrete Testing and 02300 for Earthwork Testing.

B. Cleaning: Interior of piping and structures shall be cleared of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.

2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.

3. Flush piping between manholes, to remove collected debris.

C. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.

1. Make inspections after pipe between manholes has been installed, cleaned and approximately 2 feet of backfill is in place, and again at completion of project. Each section of pipe between structures is to show from either end on examination, a full circle of light. Each appurtenance to the system shall be of the specified size and form, to be neatly and substantially constructed, with the top set permanently to exact position and grade.

2. If inspection indicates poor alignment, debris, displaced pipe, infiltration, or other defects, correct such defects and re-inspect. All repairs shown necessary by the inspections are to be made, broken, cracked, or punctured pipe replaced, all deposits removed and the pipe left true to line and grade as herein specified, or shown on the plans, entirely clean and free from abnormalities and

ready for use at no additional expense to the County.

3. All storm pipes will be subject to video camera inspection by County staff.

D. Trench Backfill Around and Above Pipe:

1. In each compacted backfill layer, perform density test as specified in Section 02300.

2. Other tests may be required at Engineer's and/or County/CEI's discretion.

E. Clean Up: Before final inspection and acceptance, the Contractor shall clean ditches, shape shoulders and restore all disturbed areas, including street crossings, grass plots, to as good as condition as existed before work started. All trenches shall be leveled and loose material removed from pavement gutters, sidewalks, pipelines, and inlet sediment traps, employing hand labor, if necessary.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

The quantities to be paid for will be (1) the number of inlets, manholes, end walls, mitered end sections, flared end sections, junction boxes, and yard drains, including fittings and appurtenances, completed and accepted; (2) length of pipe to the nearest foot of type specified; and (3) the number of structures of these types (including also valve boxes and monument boxes) satisfactorily adjusted.

4.2 BASIS OF PAYMENT

Price and payment will be full compensation for finishing all materials and completing all work described herein or shown in the plans, including all clearing and grubbing outside the limits of clearing and grubbing as shown in the plans, all excavation except the volume included in the measurement designated to be paid for under the items for the grading work on the project, all backfilling around the structures, the disposal of surplus material, and the furnishing and placing of all the gratings, frames, covers, and any other necessary fittings.

END OF SECTION 02600

SECTION 02800 - FENCING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

B. Florida Department of Transportation, *Standard Specifications for Road and Bridge Construction* (FDOT Specs), *Section 550*, *Latest Edition, and Design Standard Index 802* (Chain Link.) Work shall comply with requirements of FDOT Specs as modified herein.

C. GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specifications for Road and Bridge Construction,* Latest Edition, *Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred herein or otherwise listed in this document.

1.2 SUMMARY

A. This Section includes, but is not limited to, the following:

1. Chain link fence

2. Farm Fence

3. Wood privacy fence

B. Where existing fences are to be relocated, but existing materials are deteriorated or damaged, fencing shall be replaced in kind or as specified by the Engineer and/or County/CEI.

1.3 PROJECT CONDITIONS

A. Traffic: Conduct fencing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities and to minimize disturbance of the activities of adjacent property owners. Do not close or obstruct streets, walks, or other occupied or used facilities without prior approval.

B. Security: Do not leave any fence unfinished or incomplete which might allow the escape of livestock or household pets, access to a private/public pool or pond, etc without temporary measures in place during construction.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver material in manufacturer's original packaging with all tags and labels intact and legible.

B. Handle and store material in such a manner as to avoid damage.

PART 2 - PRODUCTS

2.1 CHAIN LINK FENCING:

Chain link fence shall meet the requirements of FDOT Standard Index 802.

2.2 GATES

A. Swing Gates: Per FDOT Standard Index 802 as modified herein, construct of 1.625" o.d. steel pipe galvanized in accord with ASTM A-53 and weighing 2.27 pounds per lineal foot. Provide gates more than 8 feet wide with either intermediate members or diagonal truss rods. Provide gates less than 8 feet wide with truss rods or intermediate braces. Arrange latches for padlocking to provide accessibility from both sides of the gate. Where a double swing gate is called out, Construct Concrete Anchor rod Base 8” in diameter and 4” deep flush with top of ground. Opening in base for rod shall accommodate standard size in accordance with manufacturer and shall be PVC or galvanized steel pipe.

B. Slide Gates: shall be constructed per FDOT Index 803.

2.3 ACCESSORIES

Post Tops: pressed steel, or malleable iron. Where top rail is used, provide post tops to permit passage of top rail.

2.4 FARM FENCING:

Farm Fencing shall meet the requirements of FDOT Index 801.

2.5 WOOD PRIVACY FENCE:

A. Where existing fences are to be relocated, but existing materials are deteriorated or damaged, fencing shall be replaced in kind or as specified by the Engineer and/or County/CEI.

B. Shall be constructed as per industry standard with proper clearance below fence so as not to impede stormwater flow.

PART 3 - EXECUTION

3.1 CHAIN LINK FENCING:

Chain link fence shall meet the requirements of FDOT Standard Index 802.

A. Drill holes for post footings in firm, undisturbed or compacted soil.

B. Place concrete around posts in a continuous pour, tamp for consolidation. Check each post for vertical and top alignment.

C. Set Keepers, stops, sleeves and other accessories into concrete as required.

D. Topping of the fence with barbed wire shall not be included unless specifically shown on the plans.

3.2 INSTALLATION:

A. Brace Assemblies: install braces so posts are plumb when diagonal rod is under proper tension.

B. Tension Wire: install tension wires before stretching fabric and tie to each post with ties or clips.

C. Fabric: pull fabric taut 2 inches above grade level and tie to posts, rails, and tension wires. Attach fabric to terminal or gateposts by a stretcher bar and clip to other framework so that fabric remains in tension after pulling force is released.

D. Hinge gates to swing through 180 degrees from closed to open.

3.3 FARM FENCING:

A. General installation shall be in accordance with FDOT Index 801 as modified herein.

B. Fence shall be installed with wire side to the private property side.

C. Topping of the fence with barbed wire shall not be included unless existing farm fence includes barbed wire topping.

3.4 WOOD PRIVACY FENCING:

Shall be constructed as per industry standard with proper clearance below fence so as not to impede stormwater flow.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

A. GENERAL

The quantities to be paid for will be either the number of gates, the length of each type of fence, the number of corner post assemblies, constructed and accepted or the length of each type of fence with all other items necessary for construction as incidental. In addition, extra payment will be made, for additional lengths of post approved by the Engineer and/or County/CEI.

B. MEASUREMENT OF FENCE LENGTH

The length of fence to be paid for will be measured along the bottom of the fabric, out-to-out of end posts, in the completed and accepted fence. Measurement for Resetting Fence will be the actual length of existing fence reset, including gates when applicable.

C. CORNER POST ASSEMBLIES, PULL, AND END POST ASSEMBLIES

The number of corner post assemblies and of pull and end post assemblies to be paid for will be the number of such post assemblies constructed and accepted.

4.2 BASIS OF PAYMENT

A. BASIC ITEMS OF FENCING

The contract unit price will be full compensation for all work and materials necessary for the complete installation, including line posts, but not including the corner, end, and pull posts and the assemblies thereof.

B. ITEMS OF POST ASSEMBLIES

The Contract unit prices for the items of Corner Post Assemblies and Pull and End Post Assemblies will include the posts and the complete assemblies therewith for each such item. Approach posts and brace posts will be considered as part of the assembly of the corner, end, or pull post serves as a brace in more than one horizontal line.

C. PAYMENT RATES FOR EXTRA-LENGTH POSTS

For any length of posts in excess of the standard length for each particular type of post, approved by the Engineer as provided above, payment will be made for each foot in excess of the standard length at the percentage of the Contract unit price per foot for the item of Fencing, as shown in the

following schedule.

Additional Payment for Each Foot of Post in Excess of the Standard Length (in percent of Contract Unit Price for Fencing):

Total Post Length	Steel and Aluminum Posts	Recycled Plastic & Timber Posts
Standard up to 14 ft.	50%	60%
Over 14 ft., up to 20 feet	60%	80%
Over 20 ft.*	*	*

*When the length of post exceeds 20 feet, the work of finishing and installing such posts and the costs incidental thereto will be paid for as unforeseeable through a change order.

The standard length of steel, recycled plastic and aluminum posts will be the required length as indicated in the plans for each type and case. The above provisions for extra length payment will apply to end, corner and pull posts.

The payment for additional length of post will include the cost of additional concrete to extend concrete bases, as applicable.

D. GATE PAYMENT

The quantities to be paid for will be full compensation for all labor, materials, posts and associated hardware for the complete installation of the type gate specified in the plans, and accepted by the Engineer and/or County/CEI.

END OF SECTION 02800

SECTION 02900 - GRASSING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Specifications Sections apply to this Section.

B. FDOT Section 570 and Section 981

C. GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specification for Road and Bridge Construction, Latest Edition*, *Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred herein or otherwise listed in this document.

1.2 SUMMARY

Extent of grassing work is as specified or shown on the construction plans. Sodded areas disturbed during construction shall be re-sodded to match existing. Areas disturbed beyond specified construction area shall be sodded, at no additional expense, either to match existing or as per Engineer and/or County/CEI direction.

1.3 SUBMITTALS

See paragraph 1.9 A *Quality Control/Quality Assurance Submittals*, Section 1300.

1.4 DELIVERY AND STORAGE

A. General: Seed, fertilizer, sod and other grassing materials shall be stored under cover and protected from damaged which would make them unacceptable for use.

B. Seed: All seed shall be labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitation for bids. All seed shall be furnished in sealed standard containers, unless exception is granted in writing. Seed, which has become wet, moldy, or otherwise damaged in transit or in storage, shall not be used.

C. Fertilizer: Fertilizer shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer, which becomes caked or otherwise damaged, making it unsuitable for use, shall not be used.

D. Sod: Do not use sod which has been cut (stripped) for more than 48 hours. Stack all sod that is not planted 24 hours after cutting and maintain proper moist condition.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Lime: Lime shall be ground limestone (Dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such a fineness that 50-percent will pass a 100-mesh sieve and 90-percent will pass a 20-mesh sieve.

B. Fertilizer: Apply fertilizer at the following rates:
10-10-10 1000 lbs/acre=0.2 lbs/sq yd
13-13-13 770 lbs/acre=0.16 lbs/sq yd

C. Seed: Apply seed at the rate as specified:

GRASS SEEDING RATES (Lbs/Ac)

TYPE OF SEED	ZONE I				ZONE II			
	COASTAL*		INLAND		COASTAL*		INLAND	
	Mar.-Nov.	Nov.-Mar.	Mar.-Nov.	Nov.-Mar.	Mar.-Nov.	Nov.-Mar	Mar.-Nov.	Nov.-Mar.
PERMANENT GRASSES								
Unhulled Bermuda**		90		20		90		20
Hulled Bermuda**	60		15		60		15	
Bahia (Argentine or Pensacola)			180	180			180	180
QUICK GROWING GRASS								
Annual Rye Grass		90		90		90		90
TOTAL POUNDS PER ACRE	60	180	195	290	60	180	195	290

* Locations where salt sensitive plants may be adversely affected by high concentrations of salt in soils, water, or air. This may include seaside locations, low-lying areas subjected to periodic saltwater inundation from storms or high tides, or where salt intrusion into groundwater supply has occurred.

** Bermuda shall not be used in areas adjacent to existing or proposed landscaping.

NOTE: All seeding shall be performed meeting the requirements of Section 570 of the Standard Specifications

Activities such as clearing, grading, and excavating that will disturb one or more acres of land require coverage under the Generic Permit for Stormwater Discharge from Large and Small Construction Activities from the Florida Department of Environmental Protection, and implementation of appropriate pollution prevention measures to minimize erosion and sedimentation. Please refer to the National Pollutant Discharge Elimination System (NPDES) Permit.

D. Mulch: The mulch material shall be dry straw or hay, consisting of oat, rye, or wheat straw, or of pangola, peanut, coastal Bermuda or Bahia grass, hay or compost; and shall be free from noxious weeds and plants. Any plant officially listed, as being noxious or undesirable by any Federal Agency, any agency of the State of Florida or any local jurisdiction in which the project is being constructed shall not be used. Furnish to the engineer, prior to incorporation onto the project, a certification from the Florida Department of Agriculture and Consumer Services, Division of Plant Industry, stating that the Mulch materials are free of noxious weeds. Any such noxious plant or plant part found to be delivered shall be removed by the Contractor at his expense. Only undeteriorated mulch, which can readily be cut into the soil, shall be used. The “air-dry” weight (as defined by the Technical Association of the Pulp and Paper Industry, for wood cellulose) shall be marked on each package by the producer. Apply at the following rate:

Mulch: 2 ton/acre= 1.0 lbs/sq yds

E. Sod: All sod shall be healthy Centipede Sod unless otherwise required. Sod shall be strongly rooted, free of weeds and undesirable grasses and capable of providing vigorous growth and development when planted. Sod shall match existing species where restoration is required as a result of the Contractor's work.

PART 3 - EXECUTION

3.1 REQUIREMENTS

All areas disturbed by the Contractor's operations, shall be grassed, unless otherwise noted.

3.2 PLANTING SEED Shall be in accordance with FDOT Section 570-3.2 and 981-2

A. Grading: Areas to be grassed shall be graded to remove depressions, undulations, and irregularities in the surface before grassing. Adhere to grades as shown on plans.

B. Tillage: The area to be grassed shall be thoroughly tilled to a depth of four inches using a plow and disc harrow or rotary tilling machinery until a

suitable bed has been prepared and no clods or clumps remain larger than 1½ inches in diameter. Remove sticks, roots, and rubbish.

C. Applying Lime: The pH of the soil shall be determined. If the pH is below 5.0, sufficient lime shall be added to provide a pH between 5.5 and 6.5. The lime shall be thoroughly incorporated into the top three to four inches of the soil. Lime and fertilizer may be applied in one operation.

D. Applying Fertilizer: Fertilizer shall be applied in accordance with the rates specified in Part 2, and shall be thoroughly incorporated into the top three to four inches of soil before sod is installed. FDOT Section 982.

E. Seed and Mulch: Apply in accordance with the rates specified in Part 2.

F. Maintenance: Maintenance shall begin immediately following the last operation of grassing and continue until final acceptance. Maintenance shall include watering, mowing, replanting, and all other work necessary to produce a uniform stand of grass, all at the contractor's expense.

3.3 PLANTING SOD: Shall be in accordance with FDOT Section 570-3.3 and 981-3.1

A. Use Centipede sod (Eremochloa ophiuroides) unless otherwise required. The sod shall have a thick mat of roots (minimum 2") with enough adhering soil to assure growth. Apply sod within 48 hours of stripping. Protect sod against drying and breaking of rolled strips.

B. Placement: Prepare the ground by loosening the soil. Place sod on the prepared soil to form a solid mass with tightly fitted joints. Ensure the butt ends and sides of sod strips do not overlap. Stagger strips to avoid a continuous downhill seam. Tamp or roll lightly to ensure contact with subgrade. Tamp the outer edges of the sodded area to produce a smooth contour. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass. Water sod thoroughly with a fine spray immediately after planting.

C. Watering: Keep sod continuously moist to a depth below the root zone for three weeks after placement. If there is no water available to the site, the Contractor shall provide the water,. Do not water in excess of 1" (one inch) per square yard per week for establishment.

D. Clean-Up: All excess soil, excess grass materials, stones, pallets and other waste shall be removed from the site daily and not allowed to accumulate. All paved areas shall be kept clean at all times.

E. Maintenance: Maintain sod by watering, fertilizing, weeding, mowing, trimming and other operations such as rolling, re-grading, and re-planting as required to establish a lawn free of eroded or bare areas and

acceptable to the Engineer and/or County/CEI. Where inspected work and materials do not comply with requirements, replace rejected work and continue maintenance until re-inspected by Engineer and/or County/CEI and found to be acceptable. Remove rejected materials promptly from the project site. FDOT Section 570-4.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

The quantities to be paid for will be for the following items, completed and accepted: square yards of seeding, square yards of seeding and mulching, , and square yards of sodding.

4.2 BASIS OF PAYMENT

Prices and payments will be full compensation for all work and materials specified in this Section.

END OF SECTION 02900

SECTION 16020 - CODES AND STANDARDS

1.0 GENERAL

1.1 All work under Division 16 shall be demolished in accordance with the codes and standards listed herein. While it is not the responsibility of the Contractor to verify that all work called for complies with these codes and standards, he shall be responsible for calling to the County Engineer's attention any items on the Drawings and/or Specifications that are not in conformance with these or other codes and standards. Current issue of code applies unless specifically noted otherwise.

1.2 Comply with regulations and codes of suppliers of utilities.

1.3 Where no specific method or form of demolition is called for in the Contract Documents, the Demolition Contractor shall comply with code requirements when carrying out such work.

1.4 Where code conflict exists, the most stringent requirement shall apply.

1.5 Codes or standards applying to a specific portion of the Work may be included in that section.

2.0 CODES AND STANDARDS

2.1 CODES:

a. Florida Building Code, 5th Edition
b. National Electrical Code (NFPA 70), Latest Edition
c. National Electrical Safety Code (NESC)

2.2 STANDARDS: All electrical demolition and electrical items left in place shall meet the requirements of the following standards, including the latest addenda and amendments:

a. American National Standard Institutes (ANSI)
b. Illuminating Engineering Society (IES).
c. Institute of Electrical and Electronics Engineers (IEEE).
d. National Electrical Manufacturer's Associations (NEMA).
e. National Fire Protection Association (NFPA).
f. Occupational Safety and Health Act (OSHA).
g. Underwriter's Laboratories, Inc. (UL).

3.0 EXECUTION (NOT USED)

END OF SECTION 16020