

EXHIBIT “A”



SCOPE OF SERVICES

FOR

FINANCIAL PROJECT ID: TO BE DETERMINED

FEDERAL PROJECT NO. TO BE DETERMINED

PRE EVENT EMERGENCY RELIEF PROJECTS

MISCELLANEOUS DESIGN SERVICES - CONTINUING (BDI)

DISTRICT SEVEN

Revised: 03/15/2023
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SCOPE OF SERVICES FOR CONSULTING ENGINEERING SERVICES HIGHWAY AND BRIDGE/STRUCTURAL DESIGN

This Exhibit forms an integral part of the agreement between the State of Florida Department of Transportation (hereinafter referred to as the DEPARTMENT or FDOT) and _____. (hereinafter referred to as the CONSULTANT) relative to the transportation facility described as follows:

Financial Project ID: *To Be Determined*
Federal Aid Project No.: *To Be Determined*
County Section No.: *N/A*
Description: *Pre Event Emergency Relief Projects Misc. Design - Continuing (BDI)*

1 PURPOSE

CONSULTANT services are required for the design of emergency relief (ER) repairs and improvements that will be assigned as individual Task Work Orders as the projects are identified. The purpose of this Exhibit is to describe the scope of work and the responsibilities of the CONSULTANT and the DEPARTMENT in connection with the design and preparation of a complete set of construction contract documents and incidental engineering services, as necessary, *for each specific production project to be assigned to the CONSULTANT under this Agreement [hereinafter called the "project(s)" or the "assigned projects(s)"]*.

Major Work Types include: *3.1*

Minor Work Types include: *4.1.1, 4.1.2, 6.3.1, 7.1, 7.2, 7.3, 8.1, 8.2, 8.4, 14.0 and 15.0.*

Each such assignment shall be made with the issuance of a Task Work Order authorization, which shall identify the assigned project, specify the services to be performed, and state the compensation for the services. No work shall begin on a specific production project until a Task Work Order for that project has been authorized in writing under this Agreement by the DEPARTMENT's Procurement Services Manager. Individual projects may be assigned for a period of sixty (60) months from the date of this Agreement, or until a total accumulated fee of \$1,500,000 is reached.

The general objective is for the CONSULTANT to prepare a set of plans for the *assigned* project to be used by the *construction* contractor to repair or reconstruct highways, to include all elements of the highway within its cross section and roads which have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause, and by the DEPARTMENT to ensure the *assigned* project is built as designed and to specifications. Reconstruction of damaged roadway and bridge facilities must meet adequate standards, including appropriate safety features.

SMART/abbreviated plans will be used on all projects unless otherwise determined by the District. The abbreviated plan must include all essential information necessary to describe the work to be accomplished and to determine the reasonableness of unit prices for contract or force account work. *(Includes: Typical Section Package, Pavement Design (if needed), and Quantities).*

The CONSULTANT shall be aware that as *an assigned* project is developed, a cost/benefit analysis for betterments may be required. This cost/benefit analysis focuses solely on benefits resulting from estimated savings in future recurring repair costs under the FHWA-ER program. The analysis does not include other factors typically included in highway benefit/cost evaluations, such as traffic delays costs, added user costs, motorist safety, economic impacts, etc.

The CONSULTANT shall participate in Disaster Inspection Teams as directed by the District Maintenance Engineer (DME). The purpose of the inspections is to identify the cause of damage and the normal design and construction practice needed to repair the facility.

Task Work Orders may also include revising or updating previously completed construction plans and documents and providing Post-Design Services and Construction Assistance Services.

This Scope of Services establishes which items of work in the FDOT Design Manual and other pertinent manuals are specifically prescribed to accomplish the work included in this contract, and also indicates which items of work will be the responsibility of the CONSULTANT and/or the DEPARTMENT. Each Task Work Order Scope of Services will delineate the respective DEPARTMENT and CONSULTANT responsibilities for the assigned project. Where a type of service is noted therein to be provided by the DEPARTMENT, the CONSULTANT shall communicate to the DEPARTMENT in writing the specific nature of such DEPARTMENT services as are necessary to support the CONSULTANT's responsibilities under that Task Work Order and shall do so by such time as will support the DEPARTMENT's original project schedule or any subsequent DEPARTMENT-approved revisions thereto.

The CONSULTANT shall be aware that as a project is developed, certain modifications and/or improvements to the original concept may be required. The CONSULTANT shall incorporate these refinements into the design and consider such refinements to be an anticipated and integral part of the work. This shall not be a basis for any supplemental fee request(s), ***Task Work Order(s), or Task Work Order Amendment(s).***

The CONSULTANT shall demonstrate good project management practices while working on this project. These include communication with the DEPARTMENT and others as necessary, management of time and resources, and documentation. The CONSULTANT shall set up and maintain throughout the design of the project a contract file in accordance with DEPARTMENT procedures. CONSULTANTS are expected to know the laws and rules governing their professions and are expected to provide services in accordance with current regulations, codes, ordinances, and recognized standards applicable to such professional services. The CONSULTANT shall provide qualified technical and professional personnel to perform to DEPARTMENT standards and procedures, the duties and responsibilities assigned under the terms of this agreement. The CONSULTANT shall minimize to the maximum extent possible the DEPARTMENT need to apply its own resources to assignments authorized by the DEPARTMENT.

The CONSULTANT shall attend meetings and training as directed by the DEPARTMENT for purposes of coordinating with federal, state, or local agencies to assist the Department in its Emergency Response and Recovery Efforts.

The DEPARTMENT will provide contract administration, management services and technical reviews of all work associated with the development and preparation of contract documents, including Construction documents. The DEPARTMENT's technical reviews are for high-level conformance and are not meant to be comprehensive reviews. The CONSULTANT shall be fully responsible for all work performed and work products developed under this Scope of Services. The DEPARTMENT may provide job-specific information and/or functions as outlined in this contract, if favorable.

No services shall be performed on any authorized Task Work Order beyond the expiration date of the Agreement (contract). Before a Task Work Order is authorized, the CONSULTANT shall coordinate with the DEPARTMENT Project Manager to ensure that there will be adequate time between the projected Task Work Order authorization date and the Agreement expiration date within which to complete the services under that Task Work Order, regardless of its nature (this includes Task Work Orders for post-design construction assistance).

2 PROJECT DESCRIPTION

The CONSULTANT shall investigate the status of the project and become familiar with concepts and commitments (typical sections, alignments, etc.) developed from prior studies and/or activities, ***including applicable documents at <http://fdotd7studies.com>.*** If a Preliminary Engineering Report is available from a prior or current Project Development and Environmental (PD&E) study, the CONSULTANT shall use the approved concepts as a basis for the design unless otherwise ***noted within the issued Task Work Order Scope of Services for the assigned project or*** directed by the DEPARTMENT.

Each Task Work Order Scope of Services to be issued will list the initial design considerations for each technical discipline or service applicable to the assigned project. The staff-hour estimates and negotiations for each Task Work Order shall follow the numerical hierarchy found in Sections 3 through 36 herein, or as otherwise utilized in the Task Work Order Scope of Services. The services described below are intended to indicate the major and most expansive possible efforts under this Agreement, but each such service and sub-activity described may be modified as the individual Task Work Orders are assigned. Some services described or referred to herein may never be authorized by a Task Work Order under this Agreement.

At the option of the CONSULTANT with the approval of the DEPARTMENT Project Manager, this project may be designed and delivered using a DEPARTMENT supported Autodesk CADD Platform or Bentley CADD Platform shown at the following link: <https://www.fdot.gov/cadd/main/version/currentversions.shtm> In either case, the project shall be designed, delivered and signed and sealed in compliance with the DEPARTMENT's CADD Manual. The DEPARTMENT provides a "State Kit" for both Autodesk and Bentley products that can be downloaded from <https://www.fdot.gov/cadd/downloads/software/software.shtm>

2.1 Project General and Roadway (Activities 3, 4 and 5)

See the Task Work Order Scope of Services.

2.2 Drainage (Activities 6a and 6b)

See the Task Work Order Scope of Services.

2.3 Utilities Coordination (Activity 7)

For this Agreement, the CONSULTANT may employ more than one individual or utility engineering consultant to provide utility coordination and engineering design expertise. The CONSULTANT shall identify a dedicated person responsible for managing all utility coordination activities under this Agreement. In this scope and in Task Work Order scopes, this person shall be referred to as the Utility Coordination Manager and shall be identified in the CONSULTANT proposal using an approved classification in the FDOT Negotiation Handbook for Professional Services Contracts. The Utility Coordination Manager shall be required to satisfactorily demonstrate to the FDOT District Utilities Administrator that they have the following knowledge, skills, and expertise:

- A minimum of four (4) years of experience performing utility coordination in accordance with FDOT, Federal Highway Administration (FHWA), and American Association of State Highway and Transportation Officials (AASHTO) standards, policies, and procedures.
- A thorough knowledge of the FDOT plans production process and District utility coordination process.
- A thorough knowledge of FDOT agreements, standards, policies, and procedures.

The Utility Coordination Manager shall be responsible for managing all utility coordination provided by a Task Work Order, including the following:

- Assuring that Utility Coordination and accommodation is in accordance with the FDOT, FHWA, and AASHTO standards, policies, procedures, and design criteria.
- Assisting the engineer of record in identifying all existing utilities and coordinating any new installations. Assisting the Engineer of Record with resolving utility conflicts.

- Scheduling and performing utility coordination meetings, keeping and distribution of minutes/action items of all utility meetings, and ensuring expedient follow-up on all unresolved issues.
- Distributing all plans, conflict matrixes and design changes to the affected utility owners, collecting utility work schedules and making sure that this information is properly coordinated ***and documented in Project Suite***.
- Identifying and coordinating the completion of any FDOT or utility owner agreement that is required for reimbursement, or accommodation of the utility facilities associated with the project.
- Review and certify to the District Utilities Administrator that all Utility Work Schedules are correct and in accordance with the Department's standards, policies, and procedures.
- Prepare, review, and process all utility related reimbursable paperwork inclusive of betterment and salvage determination.

The CONSULTANT's utility coordination work shall be performed and directed by the Utility Coordination Manager that was identified and approved by FDOT's Project Manager. Any proposed change of the approved Utility Coordination Manager shall be subject to review and approval by FDOT's Project Manager prior to any change being made in this contract.

See the Task Work Order Scope of Services for project-specific utility coordination services.

2.4 Environmental Permits and Environmental Clearances (Activities 8a and 8b)

See the Task Work Order Scope of Services.

2.5 Structures (Activities 9 – 18)

See the Task Work Order Scope of Services.

2.6 Signing and Pavement Markings (Activities 19 & 20)

See the Task Work Order Scope of Services.

2.7 Signalization (Activities 21 & 22)

See the Task Work Order Scope of Services.

2.8 Lighting (Activities 23 & 24)

See the Task Work Order Scope of Services.

2.9 Landscape (Activities 25 & 26)

See the Task Work Order Scope of Services.

2.10 Survey (Activity 27a except as otherwise noted)

See the Task Work Order Scope of Services.

2.11 Photogrammetry (Activity 28)

2.12 *All such necessary services will be provided by the DEPARTMENT.*
Mapping (Activity 29)

See the Task Work Order Scope of Services.

2.13 **Terrestrial Mobile LiDAR (Activity 30)**

See the Task Work Order Scope of Services.

2.14 **Architecture (Activity 31)**

See the Task Work Order Scope of Services.

2.15 **Noise Barriers (Activity 32) – N/A**

2.16 **Intelligent Transportation Systems (Activities 33 & 34)**

See the Task Work Order Scope of Services.

2.17 **Geotechnical (Activity 35)**

All such necessary services will be provided by the DEPARTMENT.

2.18 **3D Modeling (Activity 36)**

See the Task Work Order Scope of Services.

2.19 **Project Schedule**

Within ten (10) days after *issuance of a Task Work Order for an assigned project*, and prior to the CONSULTANT beginning work, the CONSULTANT shall provide a detailed project activity/event schedule for DEPARTMENT and CONSULTANT scheduled activities required to meet the current DEPARTMENT Production Date. The schedule shall be based upon *the anticipated “Submit Final ROW Requirements” date (if applicable) and the anticipated “Production Date”*. The schedule shall be accompanied by an anticipated payout and fiscal progress curve. For the purpose of scheduling, the CONSULTANT shall allow for a *four*-week review time for each phase submittal and any other submittals as appropriate.

The schedule shall indicate all required submittals.

Periodically, throughout the life of the *project*, the project schedule and payout and fiscal progress curves shall be reviewed, and with the approval of the DEPARTMENT, adjusted as necessary to incorporate changes in the Scope of Services, *project milestones* and progress to date.

The approved schedule and schedule status report, along with progress and payout curves, shall be submitted with the monthly progress report.

The schedule shall be submitted in an FDOT system-compatible format.

The above schedule submittal shall reflect project-specific input from each affected DEPARTMENT discipline, including Permits, Utilities, Right-of-Way, and Modal Planning and Development (noise walls, etc.). The CONSULTANT shall be responsible for ensuring that such input is received and reviewed with the DEPARTMENT Project Manager in advance.

2.20 **Submittals**

The CONSULTANT shall furnish construction contract documents as required by the DEPARTMENT to adequately control, coordinate, and approve the work concepts. The CONSULTANT shall distribute submittals as directed by the DEPARTMENT. The DEPARTMENT will determine the specific number of copies required prior to each submittal.

All plans and specifications deliverables provided for herein shall support a fully electronic advertisement, bidding and letting process for the construction contract in a manner acceptable to the DEPARTMENT, including compliance with Section 131 of the FDOT Design Manual and with the CADD Production Criteria Handbook (C.P.C.H.). In addition to any required hard copies, the CONSULTANT shall provide .pdf files for all plans phase submittals thru Phase III. Beginning with the Phase IV submittal, the CONSULTANT shall provide the electronic CADD files. In addition to any required hard copies, all other documents that require DEPARTMENT review shall be submitted in an electronic medium acceptable to the DEPARTMENT Project Manager, including processing through the Department's Electronic Review and Comment system (ERC).

When required by the Task Work Order, the CONSULTANT shall provide a Constructability and Biddability review of the design with the Phase III or other designated plans submittal. The CONSULTANT's comments and responses developed from this review shall be forwarded to the DEPARTMENT's Construction Services Unit.

All documentation for QA/QC and independent peer review, including check prints, design calculations, etc., shall be submitted in electronic format with each deliverable and kept on file until construction of the project is complete at a minimum.

The DEPARTMENT reserves the right to visit the premises of the CONSULTANT at any time to review the project's status, upon one-hours' notice.

2.21 Provisions for Work

The services performed by the CONSULTANT must comply with all applicable DEPARTMENT's manuals, procedure, policies, and guidelines. Specifically, the CONSULTANT must comply with DEPARTMENT's Project Development and Environmental (PD&E) Manual, FDOT Design Manual (FDM), Structures Manual, and Computer Aided Design and Drafting (CADD) Manual. The DEPARTMENT's manuals and guidelines incorporate, by requirement or reference, all applicable federal and state laws, regulations, and Executive Orders. The CONSULTANT will use the latest editions of the manuals, procedures, and guidelines to perform work for this project.

All work shall be prepared with English units (unless otherwise specified) in accordance with the latest editions of standards and requirements utilized by the DEPARTMENT.

2.22 Services to Be Performed By The DEPARTMENT

When appropriate or available, the DEPARTMENT will provide project data including:

- *All information that may come to the DEPARTMENT pertaining to future improvements*
- *All future information that may come to the DEPARTMENT pertaining to subdivision plans so that the CONSULTANT may take advantage of additional areas that can be utilized as part of the existing right of way*
- *All approved utility relocations*
- *PD&E Documents*
- *All certifications necessary for project letting*
- *Preliminary Horizontal Network Control*
- *Letters of authorization designating the CONSULTANT as an agent of the DEPARTMENT in accordance with F.S. 337.274*

- *Phase reviews of plans and engineering documents*
- *Building Construction Permit Coordination (Turnpike)*
- *Systems traffic for Projected Design Year, with K, D, and T factors*
- *Existing cross-slope data for all RRR projects*
- *Engineering standards review services*
- *Available traffic and planning data*
- *Previously constructed Highway Beautification or Landscape Construction Plans*
- *Project utility certification to the DEPARTMENT's Central Office*
- *All Department agreements with Utility Agency Owner (UAO)*
- *Design Reports*
- *Existing pavement evaluation report for all RRR projects*
- *Existing right of way maps*
- *Access for the CONSULTANT to utilize the DEPARTMENT's Information Technology Resources*
- *All available information in the possession of the DEPARTMENT pertaining to utility companies whose facilities may be affected by the proposed construction*
- *All future information that may come to the DEPARTMENT during the term of the CONSULTANT's Agreement, which in the opinion of the DEPARTMENT is necessary for the prosecution of the work*
- *Numbers for field books*
- *Landscape Opportunity Plan(s)*
- *Any necessary title searches*
- *Regarding Environmental Permitting Services:*
 - *Approved Permit Document when available*
 - *Approval of all contacts with environmental agencies*
 - *General philosophies and guidelines of the DEPARTMENT to be used in the fulfillment of this contract. Objectives, constraints, budgetary limitations, and time constraints will be completely defined by the Project Manager.*
 - *Appropriate signatures on application forms*
 -

3 PROJECT COMMON AND PROJECT GENERAL TASKS

PROJECT COMMON TASKS

Project Common Tasks, as listed below, are work efforts that are applicable to many project activities, 4 (Roadway Analysis) through 36 (3D Modeling). These tasks are to be included in the project scope in each applicable activity when the described work is to be performed by the CONSULTANT.

Cost Estimates: The CONSULTANT shall be responsible for producing a construction cost estimate (*Engineer's Estimate and LRE or AASHTOWare Project Preconstruction estimate*) and reviewing and updating *those* cost estimates *within twenty-one (21) days after issuance of a Task Work Order*, when scope changes occur, at *production* milestones of the project, *for the annual Work Program Update Cycle, and when directed by the DEPARTMENT Project Manager*. Prior to 60% plans or completion of quantities, the DEPARTMENT's Long Range Estimate (L.R.E.) system *shall* be used to produce a conceptual estimate, according to District policy. Once the quantities have been developed (beginning at 60% plans and no later than 90% plans) the CONSULTANT shall be responsible for *completing the Estimated Quantities Report while* inputting the pay items and quantities into AASHTOWare Project Preconstruction *as approved by the DEPARTMENT* through the use of the DEPARTMENT's Designer Interface. *Each Engineer's Estimate and LRE/AASHTOWare submittal shall be accompanied by an equal number of copies of the Preliminary Project Report (PPR) updated by the CONSULTANT in the District standard format, including the updated Record Page.*

At each plans phase submittal and for the annual Work Program Update Cycle, the CONSULTANT shall provide a copy of the plans and the most current Right-of-Way Maps to the District Right-of-Way Cost Estimate Coordinator.

Construction Duration: *The CONSULTANT shall develop an estimate of construction contract duration based on the guidelines set forth in Chapter 1.2 of the DEPARTMENT's Construction Project Administration Manual (CPAM). This estimate shall be based on quantities per TTCP phase and submitted to the Construction Services Unit with the Phase III or other designated submittal package.*

Technical Special Provisions: The CONSULTANT shall provide Technical Special Provisions for all items of work not covered by the Standard Specifications for Road and Bridge Construction and the workbook of implemented modifications.

A Technical Special Provision shall not modify the Standard Specifications and implemented modifications in any way.

The Technical Special Provisions shall provide a description of work, materials, equipment and specific requirements, method of measurement and basis of payment. Proposed Technical Special Provisions will be submitted to the District Specifications Office for initial review at the time of the Phase III plans review submission to the DEPARTMENT's Project Manager. This timing will allow for adequate processing time prior to final submittal. The Technical Special Provisions will be reviewed for suitability in accordance with the Handbook for Preparation of Specification Packages. The District Specifications Office will forward the Technical Special Provisions to the District Legal Office for their review and comment. All comments will be returned to the CONSULTANT for correction and resolution. Final Technical Special Provisions shall be digitally signed and sealed in accordance with applicable Florida Statutes.

The CONSULTANT shall contact the appropriate District Specifications Office for details of the current format to be used before starting preparations of Technical Special Provisions.

Modified Special Provisions: The CONSULTANT shall provide Modified Special Provisions as required by the project. Modified Special Provisions are defined in the Specifications Handbook.

A Modified Special Provision shall not modify the first nine sections of the Standard Specifications and implemented modifications in any way. All modifications to other sections must be justified to the appropriate District and Central Specifications Offices to be included in the project's specifications package.

Field Reviews: The CONSULTANT shall make as many trips to the project site as required to obtain necessary data for all elements of the project.

Technical Meetings: The CONSULTANT shall attend all technical meetings necessary to execute the Scope of Services of this contract. This includes meetings with DEPARTMENT and/or Agency staff, between disciplines and subconsultants, such as access management meetings, pavement design meetings, local governments, railroads, airports, progress review meetings (phase review), and miscellaneous meetings. The CONSULTANT shall prepare, and submit to the DEPARTMENT's Project Manager for review, the meeting minutes for all meetings attended by them. The meeting minutes are due within five (5) working days of attending the meeting.

Quality Assurance/Quality Control: It is the intention of the DEPARTMENT that design CONSULTANTS, including their subconsultant(s), are held responsible for their work, including plans review. The purpose of CONSULTANT plan reviews is to ensure that CONSULTANT plans follow the plan preparation procedures outlined in the FDOT Design Manual, that state and federal design criteria are followed with the DEPARTMENT concept, and that the CONSULTANT submittals are complete. All subconsultant document submittals shall be submitted by the subconsultant directly to the CONSULTANT for their independent Quality Assurance/Quality Control review and subsequent submittal to the DEPARTMENT.

It is the CONSULTANT'S responsibility to independently and continually QC their plans and other deliverables. The CONSULTANT should regularly communicate with the DEPARTMENT's Design Project Manager to discuss and resolve issues or solicit opinions from those within designated areas of expertise.

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of all surveys, designs, drawings, specifications and other services furnished by the CONSULTANT and their subconsultant(s) under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all maps, design drawings, specifications, and other documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan shall be one specifically designed for this project. The CONSULTANT shall submit a Quality Control Plan for approval within twenty (20) business days of **issuance of a Task Work Order** and it shall be signed by the CONSULTANT's Project Manager and the CONSULTANT QC Manager. The Quality Control Plan shall include the names of the CONSULTANT's staff that will perform the quality control reviews. The Quality Control reviewer shall be a Florida Licensed Professional Engineer fully prequalified under F.A.C. 14-75 in the work type being reviewed. A marked up set of prints from a Quality Control Review indicating the reviewers for each component (structures, roadway, drainage, signals, geotechnical, signing and marking, lighting, landscape, surveys, etc.) and a written resolution of comments on a point-by-point basis will be required, if requested by the DEPARTMENT, with each phase submittal. The responsible Professional Engineer, Landscape Architect, or Professional Surveyor & Mapper that performed the Quality Control review will sign a statement certifying that the review was conducted and found to meet required specifications.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in the designs, maps, drawings, specifications and/or other products and services.

Independent Peer Review: When directed by the DEPARTMENT, a subconsultant may perform Independent Peer Reviews.

Independent Peer Review and a Constructability/Bidability Review for design Phase Plans document Fsubmittals are required on this project. These separate reviews shall be completed by someone who has not worked on the plan component that is being reviewed. These could include but are not limited to a separate office under the Prime's umbrella, a subconsultant that is qualified in the work group being reviewed, or a CEI. It does not include persons who have knowledge of the day-to-day design efforts. The Constructability/Bidability Review shall be performed by a person with experience working on Department construction projects (CEI, Contractor, etc.).

The Independent Peer Review for design Phase Plans submittals shall ensure the plans meet the FDM, Standard Plans and FDOT CADD Manual. The Constructability/Bidability Review shall ensure the project can be constructed and paid for as designed. Constructability/Bidability Reviews should be conducted prior to the Phase III and Phase IV submittals, using the Phase Review Checklist (Guidance Document 1-1-A) from the Construction Project Administration Manual (CPAM) as a minimum guideline. The CONSULTANT shall submit this checklist, as well as the "marked-up" set of plans during this review, and review comments and comment responses from any previous Constructability/Bidability reviews. These items will be reviewed by District Design and District Construction.

Supervision: The CONSULTANT shall supervise all technical design activities.

Coordination: The CONSULTANT shall coordinate with all disciplines of the project to produce a final set of construction documents.

The cost estimate mandated above shall include the Engineer's Estimate and LRE or AASTOWare Project Preconstruction Estimate.

In addition to the cost estimate reviews and updates mandated above, the CONSULTANT shall review and update the cost estimates within twenty-one (21) days after issuance of a Task Work Order, for the annual Work Program Update Cycle, and when directed by the DEPARTMENT project manager.

During the same time period the CONSULTANT inputs the pay items into AASHTOWare Project Preconstruction, the CONSULTANT shall also complete the Estimated Quantities Report. Each Engineer's Estimate and LRE/AASHTOWare submittal shall be accompanied by an equal number of copies of the Preliminary Project Report (PPR) updated by the CONSULTANT in the District standard format, including the updated Record Page.

Signing and sealing of the Technical Special Provisions shall be digital.

The CONSULTANT shall coordinate with the DEPARTMENT Project Manager to arrange a Local Government Coordination Meeting for discussion of the plans and solicitation of local government input. The meeting shall coincide with a Plans Phase Submittal or other submittal as directed by the DEPARTMENT's Project Manager. As a minimum, attendees shall include the Project Manager, local government representatives (preferably Director of Public Works/Municipal Engineer level) and the CONSULTANT. The CONSULTANT, via the DEPARTMENT's Project Manager, shall give adequate advance notification to the DEPARTMENT's District Public Information Office of the meeting's time, date, place and participants, so that local elected officials are aware of the meeting. The CONSULTANT shall prepare timely meeting minutes for attendee approval, so that all parties are aware of project expectations and limitations.

Project General Tasks

Project General Tasks, described in Sections 3.1 through 3.7 below, represent work efforts that are applicable to the project as a whole and not to any one or more specific project activity. The work described in these tasks shall be performed by the CONSULTANT when included in the project scope. .

3.1 Public Involvement

Public involvement, *of which Community Awareness is a component*, includes communicating to all interested persons, groups, and government organizations information regarding the development of the project. The CONSULTANT shall provide to the DEPARTMENT drafts of all Public Involvement documents (e.g., newsletters, property owner letters, advertisements, etc.) associated with the following tasks for review and approval at least 5 business days prior to printing and / or distribution.

In accordance with F.S. 335.199, if the project is on the State Highway System and will divide a highway, erect median barriers that modify currently available vehicle turning movements, or have the effect of closing or modifying an existing access to an abutting property owner, then 1) all affected property owners and local governments shall be so notified at least 180 days before the project design is finalized, 2) the applicable local government shall be consulted with regarding the final project design in a manner that allows such government to present alternatives to relieve impacts to commercial business properties, and 3) at least one advertised and recorded public hearing shall be held to determine how the project will affect access to businesses and the potential economic impact of the project on the local business community. All comments from such public hearing shall be taken into consideration in the final design of the project. The CONSULTANT shall support the DEPARTMENT in implementing the above activities.

In accordance with the Community Awareness Plan provided by the DEPARTMENT in Section 2.1, the CONSULTANT shall prepare and mail notification letters and necessary graphics to abutting property owners along those portions of the project where construction activity is proposed outside of the existing roadway pavement and no right-of-way will be acquired. The letters shall inform the owners about the proposed construction and the DEPARTMENT's intent to utilize the existing right-of-way, including border areas, to the fullest extent possible, notwithstanding any existing amenities, such as parking, landscaping, walls, etc. The letter format shall be reviewed and approved by the DEPARTMENT prior to the mailings.

3.1.1 Community Awareness Plan

Typically, the project's initial Community Awareness Plan will be prepared by the DEPARTMENT and provided in the text of the Task Work Order Scope of Services, although the Plan shall be reviewed and updated periodically by the CONSULTANT throughout the life of the project as directed by the DEPARTMENT. The following Section 3.1 subsections cover implementation of the Community Awareness Plan and other aspects of Public Involvement, including which entity is responsible for each such aspect.

3.1.2 Notifications

In addition to public involvement data collection, the CONSULTANT shall *prepare or assist the DEPARTMENT in preparing* notifications, flyers, and/or letters to elected officials and other public officials, private property owners, and tenants at intervals during plans production as identified by the DEPARTMENT. All letters and notices shall be reviewed by the DEPARTMENT to ensure that they are addressed to the correct and current public officials.

3.1.3 Preparing Mailing Lists

At the beginning of the project, the CONSULTANT shall identify all impacted property owners and tenants (within a minimum of 300 feet of the project corridor). The CONSULTANT shall prepare a mailing list of all such entities and shall update the mailing list as needed during the life of the project.

3.1.4 Median Modification Letters

The CONSULTANT shall prepare a median modification letter to be sent to property owners along the corridor. In addition, the CONSULTANT shall prepare a sketch of each proposed median modification for inclusion in the letter. *Upon approval by the DEPARTMENT*, the letters *shall* be sent on DEPARTMENT letterhead by the *DEPARTMENT or CONSULTANT*.

3.1.5 Driveway Modification Letters

The CONSULTANT shall prepare a driveway modification letter to be sent to property owners along the corridor. In addition, the CONSULTANT shall prepare a sketch of each proposed driveway modification for inclusion in the letter. The letters *shall* be sent *by the CONSULTANT* on DEPARTMENT letterhead *upon approval by the DEPARTMENT*.

3.1.6 Newsletters

The CONSULTANT shall prepare newsletters for distribution to elected officials, public officials, property owners along the corridor and other interested parties. The letters *shall* be sent by the CONSULTANT.

3.1.7 Renderings and Flythroughs

The CONSULTANT shall prepare renderings and fly-throughs for use in public meetings.

3.1.8 PowerPoint Presentations

The CONSULTANT shall prepare PowerPoint presentations for use in public meetings.

3.1.9 Public Meeting Preparations

The CONSULTANT shall prepare the necessary materials for use in public meetings. The CONSULTANT *shall* investigate potential meeting sites *in order* to advise the DEPARTMENT on their suitability. The *Task Work Order Scope of Services will indicate who will* pay all costs for meeting site rents and insurance. No DEPARTMENT meetings *shall* be held on public school system properties.

3.1.10 Public Meeting Attendance and Follow-up

The CONSULTANT shall attend public meeting(s), assist with meeting setup, and take down. The CONSULTANT shall also prepare a summary of the public meeting that includes all copies of all materials shown or provided at the public meeting. The summary shall also include a listing of all written comments made during or after the meeting and responses to those written comments.

The CONSULTANT *shall* attend the meetings with an appropriate number of personnel to assist the DEPARTMENT'S Project Manager.

The estimated number of public meetings during the design will be specified in the Task Work Order Scope of Services.

3.1.11 Other Agency Meetings

In addition to scheduled public meetings the CONSULTANT may be required to participate in meetings with local governing authorities and/or Metropolitan Planning Organization (MPO). The CONSULTANT's participation may include, but not be limited to, presentations during the meeting, note taking, and summarizing the meeting in a memo to the file. *The estimated number of meetings during the design will be specified in the Task Work Order Scope of Services.*

3.1.12 Web Site – N/A

3.2 Joint Project Agreements

When the Joint Project Agreement (JPA) deliverable is not prepared by the CONSULTANT, services may include all coordination, meetings, etc., required to ensure compatibility, include JPA documents in the contract plans package and include the JPA documents in the digital delivery package.

3.3 Specifications & Estimates

3.3.1 Specifications Package Preparation

The CONSULTANT shall prepare and provide a specifications package in accordance with the DEPARTMENT'S Procedure Topic No. 630-010-005 Specifications Package Preparation and the Specifications Handbook. The CONSULTANT shall provide the DEPARTMENT names of at least two team members who have successfully completed the Specifications Package Preparation Training and will be responsible for preparing the Specifications Package for the project. The Specifications Package shall be prepared using the DEPARTMENT's Specs on the Web application. The CONSULTANT shall be able to document that the procedure defined in the Handbook for the Preparation of Specifications Packages is followed, which includes the quality assurance/quality control procedures. The specifications package shall address all items and areas of work and include any Mandatory Specifications, Modified Special Provisions, and Technical Special Provisions.

The specifications package must be submitted for review to the District Specifications Office at least 30 days prior to the contract package to Tallahassee or District due date, or sooner if required by the District Specifications Office. This submittal does not require signing and sealing and shall be coordinated through the District's Project Manager. The CONSULTANT shall coordinate with the DEPARTMENT on the submittal requirements, but at a minimum shall consist of (1) the complete specifications package, (2) a copy of the marked-up workbook used to prepare the package, and (3) a copy of the final project plans.

Final submittal of the specifications package must occur at least 10 working days prior to the contract package to Tallahassee due date. This submittal shall be digitally signed, dated, and sealed in accordance with applicable Florida Statutes.

3.3.2 Estimated Quantities Report Preparation

The CONSULTANT shall prepare an Estimated Quantities (EQ) Report in accordance with FDM 902. Includes loading category information, pay items, and quantities into Designer Interface for AASHTOWare Project Preconstruction (PrP), QA/QC efforts associated with AASHTOWare PrP and the EQ Report.

The CONSULTANT shall prepare an Estimated Quantities (EQ) Report in accordance with FDM 902. Includes loading quantities into Designer Interface for AASHTOWare Project Preconstruction (PrP), QA/QC efforts associated with AASHTOWare PrP and the EQ Report.

3.4 Contract Maintenance and Project Documentation

Contract maintenance includes project management effort for complete setup and maintenance of files, electronic folders, and documents, developing technical monthly progress reports and schedule updates. Project documentation includes the compilation and delivery of final documents, reports or calculations that support the development of the contract plans, including uploading files to Electronic Document Management System (EDMS) or Project Suite Enterprise Edition (PSEE).

3.5 Value Engineering (Multi-Discipline Team) Review

The design for *the* project *may* be subjected to a Value Engineering (VE) review. The VE review will be conducted by a multi-disciplined independent team of DEPARTMENT and CONSULTANT personnel for the purpose of the improving the value of the project.

The CONSULTANT shall develop the design and contract documents using sound value engineering practices to the fullest extent possible, in order to support appropriate design decisions in producing the *construction* contract plans for the most efficient and economical design.

Value Engineering is an event-related activity and should occur at a time when it will provide the greatest opportunity for value improvement, as determined by the DEPARTMENT Project Manager and Value Engineering Coordinator. This opportune time during the design phase of a project will generally fall between completion of Phase I design plans and completion of Phase II design plans but may occur at any time during the development of a project.

Activities required by the CONSULTANT in support of the VE team are:

Providing Materials and Information: The CONSULTANT shall allow ample time for the appropriate knowledgeable members of their staff to present current design documentation and data to the VE team, as deemed necessary, for an effective project review.

The CONSULTANT Project Manager and other key members of the design team shall meet with the VE team to explain the development of design features and how and why they were selected. The information *shall* be provided in the form of a personal verbal presentation and the submittal

of a package containing current plans and other documentation. This presentation *shall* take place at the location of the VE study and may be followed up with additional meetings, written communications and phone inquiries.

Information and data that should be available to the VE Team include, but is not limited to the following:

- One copy of all environmental documents
- One copy of the Preliminary Engineering Report
- Three copies of all plan drawings
- One copy of the Drainage alternatives information
- One copy of Bridge Development Reports
- One copy of Pavement Type Selection Report
- One copy of Pavement Design Package
- One copy of other miscellaneous reports
- Project Cost Estimate

The Project Cost Estimate shall include a tabulation of estimated construction costs for the proposed design. This list shall, at a minimum, contain a breakdown of costs for each major element of the design.

The CONSULTANT shall provide, in the form of a matrix, all criteria and weighted impacts used in arriving at decisions for the selection of specific design features. These criteria must include Safety, Operation, Maintenance and Public Acceptance.

All reports provided by the CONSULTANT will be returned after the VE review has been completed. However, copies of plans and drawings may be kept by the VE team.

3.6 Prime Consultant Project Manager Meetings

Includes only the Prime Consultant Project Manager's time for travel and attendance at Activity Technical Meetings and other meetings listed in the meeting summary for Task 3.6 on tab 3 Project General Task of the staff hour forms. Staff hours for other personnel attending Activity Technical Meetings are included in the meeting task for that specific Activity.

3.7 Plans Update

The effort needed for Plans Update services will vary from project to project, depending on size and complexity of the project, as well as the duration of time spent "on the shelf."

3.8 Post Design Services

Post-Design Services may include, but not limited to, meetings, construction assistance, plans revisions, shop drawing review, survey services, as-built drawings, and load ratings. Specific services will be negotiated as necessary as a contract amendment.

Post-Design Services are not intended for instances of CONSULTANT errors or omissions.

3.9 Digital Delivery

The CONSULTANT shall deliver final contract plans and documents in digital format. The final contract plans and documents shall be digitally signed and sealed files delivered to the DEPARTMENT on acceptable electronic media, as determined by the DEPARTMENT.

3.10 Risk Assessment Workshop – N/A

3.11 Railroad, Transit and/or Airport Coordination

3.11.1 Aeronautical Evaluation

The CONSULTANT shall be responsible for complying with the requirements of Title 14 of the Code of Federal Regulations (CFR) Part 77, if any portion of the project is within *five (5)* nautical miles of the nearest point of the nearest runway of each airport/heliport described in 14 CFR Part 77.9(d). When appropriate the CONSULTANT shall be responsible for determining whether it is necessary to file a notice of construction or alteration, related to the project structures, with the Federal Aviation Administration (FAA), including the utilize of the FAA Notice Criteria Tool. The results of inquiries to the Notice Criteria Tool and copies of any required filings of FAA Form 7460-1 shall be provide to the Department. All filings of 7460-1 shall be done electronically at the FAA website.

When appropriate, the CONSULTANT shall obtain Determinations (aeronautical studies) from the FAA regarding the effect of project structures on the navigable airspace and provide copies to the DEPARTMENT. The DEPARTMENT shall be immediately notified of any Notice of Presumed Hazard which may require modifications to the project plans. The CONSULTANT shall be responsible for designating who will be responsible for compliance with the “conditions” and deadlines of the Determinations.

3.12 Landscape and Existing Vegetation Coordination

Coordinate to ensure preservation and protection of existing vegetation. Relocation of existing vegetation may be necessary in some cases. Space for proposed landscape should be preserved and conflicts with drainage, utilities, ITS, and signage should be minimized. Coordination with the District Landscape Architect may be necessary as defined in 4.12. Additionally, coordination with the Florida Scenic Highways program should be included to ensure any requirements of the FSH program are met.

3.13 Other Project General Tasks

4 ROADWAY ANALYSIS

See the Task Work Order Scope of Services for the following Section 4 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Roadway Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

4.1 Typical Section Package

The CONSULTANT shall prepare a Typical Section Package.

4.2 Pavement Type Selection Report

Pavement Type Selection Reports are required for every project one mile or greater in length where work includes a modification to the base materials. The Pavement Type Selection decision will again be reviewed by FDOT Design at the time the pavement is designed to warrant reconsideration. A letter to the Project Design File documenting the pavement type decision is required, even if no report is *prepared*.

4.3 Pavement Design Package

The CONSULTANT shall prepare a Pavement Design Package.

Prior to the start of pavement design, the Pavement Design Package EOR shall meet with the District Seven Pavement Design Engineer, along with all CONSULTANT personnel directly involved with the pavement design. The meeting may be in person, however, a virtual meeting with screen sharing capabilities is preferred.

4.4 Cross-Slope Correction

The CONSULTANT shall coordinate with the DEPARTMENT to obtain existing cross slope data, determine roadway limits where cross slope is potentially out of tolerance and determine a resolution.

4.5 Horizontal/Vertical Master Design Files

The CONSULTANT shall design the geometrics using the Standard Plans that are most appropriate with proper consideration given to the design traffic volumes, design speed, capacity and levels of service, functional classification, adjacent land use, design consistency and driver expectancy, aesthetics, existing vegetation to be preserved, pedestrian and bicycle concerns, ADA requirements, Safe Mobility For Life Program, access management, PD&E documents, and scope of work. The CONSULTANT shall also develop utility conflict information to be provided to the project Utility Coordinator in the format requested by the DEPARTMENT.

Note: When the project includes a 3D Model deliverable, also include Activity 36 3D Modeling.

4.6 Access Management

The CONSULTANT shall incorporate access management standards for each project in coordination with DEPARTMENT staff. The CONSULTANT shall review adopted access management standards and the existing access conditions (interchange spacing, signalized intersection spacing, median opening spacing, and connection spacing). Median openings that will be closed, relocated, or substantially altered shall be shown on plan sheets and submitted with supporting documentation for review with the first plans submittal.

The DEPARTMENT shall provide access management classification information and information derived from PD&E studies and public hearings to be used by the CONSULTANT.

4.7 Roundabout Evaluation

The CONSULTANT shall analyze and document Roundabout Evaluation Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall perform a Roundabout Screening for assessment of potential site impacts such as utility adjustments or relocations, right-of-way takes, environmental mitigation, and access management.

The CONSULTANT shall perform a **Roundabout Benefit/Cost** (B/C) Evaluation comparing a roundabout with a traditional intersection (stop controlled or signal controlled). The B/C analysis **shall** consider safety benefits associated with reduced crashes, delay, life cycle costs including right-of-way, utilities, construction, operation, and maintenance.

The CONSULTANT shall perform a Geometric and Operation Analysis to establish the roundabout alignment, geometry, and lane requirements. **The** roundabout geometric and operational analysis **shall** be documented in a preliminary report **to include** data collection, conceptual layout, crash analysis, traffic counts, traffic forecast, and future design and opening year analysis.

The CONSULTANT shall perform all efforts required for traffic data collection and required design elements for all the above steps, accordingly, including crash reports, 24-hour machine counts, peak hour turning movement counts, existing geometrics, pedestrian, and bicycle volumes, posted speed limits, delay counts, design vehicle, access management, transit operations and physical and right of way limitations.

4.8 Roundabout Final Design Analysis

The CONSULTANT shall finalize the design of the roundabout in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall perform a final roundabout operational analysis that recommends a functional geometric layout that is cost effective, safe and meets the needs of the community. A final roundabout design *shall* be recommended for implementation, and all geometric and operational analysis *shall* be documented in a final roundabout report.

4.9 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the CADD manual.

If the Cross Sections are prepared using a 3D model, use Task 36.5, *rather than* Task 4.9 for the Cross Section Design Files.

4.10 Temporary Traffic Control (TTCP) Analysis

The CONSULTANT shall design a safe and effective TTCP to move vehicular and pedestrian traffic during all phases of construction. The design shall include construction phasing of roadways ingress and egress to existing property owners and businesses, routing, signing and pavement markings, and detour quantity tabulations, roadway pavement, drainage structures, ditches, front slopes, back slopes, drop offs within clear zone, transit stops, and traffic monitoring sites. Special consideration shall be given to the construction of the drainage system when developing the construction phases. Positive drainage must be maintained at all times. The design shall include construction phasing of roadways to accommodate the construction or relocation of utilities when the contract includes Joint Project Agreements (JPAs).

The CONSULTANT shall investigate the need for temporary traffic signals, temporary highway lighting, detours, diversions, lane shifts, and the use of materials such as sheet piling in the analysis. The Traffic Control Plan shall be prepared by a certified designer who has completed training as required by the DEPARTMENT. Before proceeding with the TTCP, the CONSULTANT shall meet with the appropriate DEPARTMENT personnel. The purpose of this meeting is to provide information to the CONSULTANT that will better coordinate the Preliminary and Final TTCP efforts.

The CONSULTANT shall consider the local impact of any lane closures or alternate routes. When the need to close a road is identified during this analysis, the CONSULTANT shall notify the DEPARTMENT's Project Manager as soon as possible. Proposed road closings must be reviewed and approved by the DEPARTMENT. Diligence shall be used to minimize negative impacts by appropriate specifications, recommendations or plans development. Local impacts to consider will be local events, holidays, peak seasons, detour route deterioration and other eventualities. CONSULTANT shall be responsible to obtain local authorities permission for use of detour routes not on state highways.

The CONSULTANT may need to provide a temporary drainage design.

The design shall also include construction phasing of roadways when the contract includes Utility Work by Highway Contractor (UWHC).

Investigation of the need for temporary traffic signals shall include temporary timings and temporary signal detection.

Every effort shall be made to maintain signal detection throughout the life of the construction. The type of detection and the location shall be included in the TTCP.

Local impacts to consider also shall include emergency vehicle response time and transit agency routes and features.

Affected transit agencies shall be notified in advance about bus route lane closures and detours via the DEPARTMENT. The DEPARTMENT's Construction Services Unit will provide the lane closure calculations to the CONSULTANT.

4.11 Master TTCP Design Files

The CONSULTANT shall develop master TTCP files showing each phase of the TTCP. This includes all work necessary for designing lane configurations, diversions, lane shifts, signing and pavement markings, temporary traffic control devices, and temporary pedestrian ways.

4.12 Selective Clearing and Grubbing

a. Selective Clearing and Grubbing of Existing Vegetation Field Assessment

The CONSULTANT shall review information from the DEPARTMENT and conduct a project field assessment(s) of existing vegetation. At least one field assessment visit is to be attended by the District Landscape Architect. The Result of the Field Assessments(s) will determine the course of action for Selective Clearing and Grubbing and the extent of the Vegetation Survey under Task 2.10.

b. Selective Clearing and Grubbing Site Inventory Analysis of Existing Vegetation and Cross-Discipline Coordination

The CONSULTANT shall coordinate with the District Utility Office, drainage engineers, and traffic engineers to ensure that preservation of existing vegetation is coordinated between all disciplines. Coordinate with the District Landscape Architect.

Based on the field assessment, the CONSULTANT may be required *to conduct* a site inventory analysis of existing vegetation, opportunities for preservation and protection of existing vegetation, relocation options, and selective removal of nuisance and/or non-nuisance vegetation. Coordinate with surveyor to have trees tagged and surveyed *in accordance with Sections 27.28 or 27.29.*

c. Selective Clearing and Grubbing- Existing Vegetation Maintenance Report

The CONSULTANT *shall* include in the plans instructions for the care and maintenance of the plant preservation areas, and selective clearing and grubbing areas throughout the construction period. The CONSULTANT *shall* coordinate with the District Landscape Architect to ensure that the intent of the tree preservation areas is in alignment with future highway landscape plans. The CONSULTANT should be knowledgeable in arboricultural practices to the extent that they are able to deliver detailed and informed Selective Clearing and Grubbing Plans.

4.13 Tree Disposition Plans

The CONSULTANT *shall* prepare a Tree Disposition Plan outlining the requirements for the relocation and protection of trees located within the project boundaries, *and* utilize the information collected from the Vegetation Survey and under *Section* 4.12 for Selective Clearing and Grubbing.

4.14 Design Variations and Exceptions

The CONSULTANT shall prepare the documentation necessary to gain DEPARTMENT approval of all appropriate Design Variation Memorandums, Formal Design Variations and/or Design Exceptions.

A Project Design Variation Memorandum (FDM Form 122-B) shall be prepared to document all non-controlling design elements for a project that do not meet Department criteria. Those elements requiring a more detailed analysis, as per FDM Section 122.2, shall be submitted as Formal Design Variations or Design Exceptions.

4.15 Design Report

The CONSULTANT shall prepare all applicable report(s) as listed in the Project Description section of this scope. Reports are to be delivered as a signed and sealed pdf file.

4.16 Roadway Quantities for EQ Report

The CONSULTANT shall determine roadway pay items and quantities and the supporting documentation.

4.17 TTCP Quantities for EQ Report

The CONSULTANT shall determine temporary traffic control pay items and quantities and the supporting documentation.

4.18 Cost Estimate

4.18 Technical Special Provisions and Modified Special Provisions

4.19 Other Roadway Analyses

All existing driveways shall be analyzed for conformance with FDOT Design Manual Section 214. The findings shall be summarized in a driveway matrix to be submitted to the DEPARTMENT for concurrence.

Multi Line .gen files shall be provided for the following features, for projects with cross sections and earthwork, and no 3D deliverables:

1) Existing Ground

2) Bottom of Proposed Roadway Template

*3) Top of Proposed Subsoil Limits**

*4) Bottom of Proposed Subsoil Limits**

**Substituted for any other measured earthwork lines such as Channel Excavation.*

4.20 Field Reviews

4.21 Monitor Existing Structures

The CONSULTANT shall perform field observations to visually identify existing structures within the project limits which may require settlement, vibration or groundwater monitoring by the contractor during construction in accordance with FDM Chapter 117. The CONSULTANT shall identify the necessary pay items to be included in the bid documents to monitor existing structures.

Optional Services (may be negotiated at a later date if needed): The CONSULTANT shall coordinate with and assist the geotechnical engineer and/or structural engineer to develop mitigation strategies (when applicable).

4.22 Technical Meetings

4.23 Quality Assurance/Quality Control

4.24 Independent Peer Review

4.25 Supervision

4.26 Coordination

5 ROADWAY PLANS

See the Task Work Order Scope of Services for the following Section 5 subsections that apply to the assigned project.

The CONSULTANT shall prepare Roadway, TTCP, Utility Adjustment Sheets, plan sheets, notes, and details. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction.

5.1 Key Sheet

5.2 Typical Section Sheets

5.2.1 Typical Sections

5.2.2 Typical Section Details

5.3 General Notes/Pay Item Notes

5.4 Project Layout (N/A)

5.5 Plan/Profile Sheet (N/A)

5.6 Profile Sheet (N/A)

5.7 Plan Sheet

The CONSULTANT shall depict all lane lines for the entire plan portion of the roadway plans to include all intersections with directional arrows preceding and following the intersection proper. In addition, directional arrows should be indicated at the beginning and end of each sheet to provide ease of reviewing. A note shall be added to the first plan sheet stating that these lane lines and directional arrows are for informational purposes only. All phase submittals shall include this information except for the final contract documents.

5.8 Special Profile

5.9 Back-of-Sidewalk Profile Sheet

- 5.10 Interchange Layout Sheet**
- 5.11 Ramp Terminal Details (Plan View)**
- 5.12 Intersection Layout Details**
- 5.13 Special Details**
- 5.14 Cross-Section Pattern Sheets**
- 5.15 Roadway Soil Survey Sheets**
- 5.16 Cross Sections**
- 5.17 Temporary Traffic Control Plan Sheets**
- 5.18 Temporary Traffic Control Cross Section Sheets**
- 5.19 Temporary Traffic Control Detail Sheets**
- 5.20 Utility Adjustment Sheets**
- 5.21 Selective Clearing and Grubbing Sheets**
- 5.22 Tree Disposition Plan Sheets**
- 5.23 Project Control Sheets**
- 5.24 Environmental Detail Sheets**
- 5.25 Utility Verification Sheets (SUE Data)**
- 5.26 Quality Assurance/Quality Control**
- 5.27 Supervision**

6a DRAINAGE ANALYSIS

See the Task Work Order Scope of Services for the following Section 6a subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Drainage Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall be responsible for designing a drainage and stormwater management system. All design work shall comply with the requirements of the appropriate regulatory agencies and the DEPARTMENT's Drainage Manual.

The CONSULTANT shall coordinate fully with the appropriate permitting agencies and the DEPARTMENT's staff. All activities and submittals should be coordinated through the DEPARTMENT's Project Manager. The work will include the engineering analyses for any or all of the following:

6a.1 Drainage Map Hydrology

Create a (pre and/or post condition) working drainage basin map to be used in defining the system hydrology. This map shall incorporate drainage basin boundaries, existing survey and/or LiDAR and field observations, as necessary, to define the system. Basin delineations shall also include any existing collection systems in a logical manner to aid in the development of the hydraulic

model. Include coordination hours needed to convey drainage hydrologic features onto produced drainage maps.

6a.2 Base Clearance Calculations

Analyze, determine, and document high water elevations per basin which will be used to set roadway profile grade and roadway materials. Determine surface water elevations at cross drains, floodplains, outfalls, and adjacent stormwater ponds. Determine groundwater elevations at intervals between the above-mentioned surface waters. Document findings in a Base Clearance Report.

6a.3 Pond Siting Analysis and Report

Evaluate pond sites using a preliminary hydrologic analysis. Document the results and coordination for all of the project's pond site analyses. The Drainage Manual provides specific documentation requirements.

The Pond Siting Report is formally known and submitted as the "Stormwater Management Facility (SMF) & Floodplain Compensation (FPC) Site Alternatives Report" (hereinafter referred to as the "Report").

The CONSULTANT shall follow the DEPARTMENT's process in developing alternative SMF & FPC sites. The CONSULTANT shall include this work effort and its component activities in the Project Schedule as "Key Milestones."

In coordination with the DEPARTMENT Project Manager, the CONSULTANT shall schedule and conduct two (2) SMF and/or FPC Siting Alternative Meetings with the DEPARTMENT's interdisciplinary multi-functional team (the SMF & FPC Siting Team), hereinafter referred to as the "Team". The first meeting will be the SMF & FPC Siting Long List Meeting and shall be held no earlier than 15 business days after issuance of a Task Work Order and no later than 60 business days after the same. The second meeting will be the SMF & FPC Siting Short List Meeting and shall be held within 120 business days after the NTP.

The Team shall consist of the CONSULTANT and DEPARTMENT representatives from the following sections: Drainage & Environmental Permitting, Right-of-way, Project Management, Maintenance, Landscaping, Legal, Planning and Environmental and the Court Engineer. Depending on other project specific issues, the CONSULTANT and the Project Manager may invite additional DEPARTMENT sections as deemed appropriate.

At the first meeting and based on preliminary data collection, field reviews and Environmental Look Arounds (ELA-regional stormwater approach), the CONSULTANT shall discuss sites which appear to be appropriate for a SMF and/or FPC facilities. Furthermore, the CONSULTANT shall include maintenance access, if not on FDOT right-of-way. This meeting requires the CONSULTANT to prepare roll plots containing R/W and property lines, and an aerial background.

The DEPARTMENT may also identify additional sites for consideration. Any alternative PD&E SMF and/or FPC sites shall also be considered, and if not utilized, shall be documented as to why it has been superseded by a different site or location. Sites differing from the approved PD&E preferred alternatives may require a PD&E Reevaluation and shall be coordinated with the DEPARTMENT's Project Manager. All the sites discussed, including those deemed not viable, shall be documented in the Report, with narratives and exhibits showing why the sites are not viable.

As a result of the first meeting, the CONSULTANT shall review all of the alternatives discussed and develop three (3) recommended SMF and/or FPC sites per basin or combination of basins and conduct the second meeting.

At the second meeting, the CONSULTANT shall present the three (3) recommended alternatives per basin or combination of basins utilizing the same presentation requirements as for the first meeting. At the conclusion of the meeting, the Team shall provide the CONSULTANT with the final three (3) alternatives per basin or combination of basins to be fully analyzed.

The CONSULTANT shall fully analyze the final three (3) alternatives for the following factors. The CONSULTANT shall develop and include these factors in a checklist with accompanying comments as applicable. The checklist shall be submitted with the first draft Report.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Safety • Right-of-way costs, including easements • Long-term corridor • Environmental factors • Available FDOT right-of-way • Number of parcels impacted • Partial or whole parcel take • Wetlands • Archaeological/historical sites • Threatened and endangered species • Water supply wells • Septic Systems • Utility locations <ul style="list-style-type: none"> ▪ Existing to remain ▪ Relocations • Conveyance impacts to existing utilities • Access impact to other parcels • Constructability • Geotechnical factors (SHWL, permeability, seepage, etc.) | <ul style="list-style-type: none"> • Roadway low edge of pavement • Floodplain impacts/mitigation • Existing land use • Water quality requirements • Existing permits • Public opinion • Aesthetics • Landscaping • Hazardous/contaminated materials • Long-term maintenance costs • Construction costs • Ground topography • Section 4(f) properties • Federally owned properties • Cemeteries • Highly complex sites (atypical properties) • Railroads and airports • Sidewalks and trails • Other project-specific issues |
|---|---|

The CONSULTANT shall submit the first draft Report concurrently with the Phase I plans submittal. It shall be a standalone document with its own ERC Submittal Distribution Form identified under Item 18 (Other “SMF & FPC, Site Alternatives Report”). The ERC distribution shall consist of the Team for review and comment. Without prior approval from the District Drainage Engineer, a Phase I plans submittal without a concurrent first draft Report submittal shall be deemed incomplete and will be rejected by the DEPARTMENT without being reviewed. At the discretion of the DEPARTMENT, no extensions of the project’s subsequent schedule milestones will be granted to accommodate such an unapproved delay and any plans revisions resulting therefrom shall be prepared by the CONSULTANT without additional compensation.

The CONSULTANT shall address all of the DEPARTMENT’s first draft review comments and upon acceptance of the comment responses shall incorporate the applicable comments into the development of the second draft Report. The second draft of the Report shall be submitted within 60 business days after the Phase I plans submittal date utilizing ERC and following the same submittal process as for the first draft submittal. Furthermore, the CONSULTANT shall, at a minimum, include the same reviewers who provided comments on the first draft.

The CONSULTANT shall respond to the second draft ERC review comments and incorporate the accepted responses, as applicable, into the final draft Report. The CONSULTANT shall submit the final draft Report utilizing ERC and following the same submittal process as for the previous submittals. The final draft Report shall include an itemized and detailed listing of the changes from the second draft, particularly right-of-way changes.

Upon the DEPARTMENT's acceptance of the final draft Report, the CONSULTANT shall submit a signed and sealed PDF of the accepted Report for documentation, along with an itemized and detailed listing of the changes from the second and final drafts, particularly right-of-way changes. The submittal shall include one (1) electronic file in PDF format. The CONSULTANT shall then proceed with the Phase II drainage design based on the preferred SMF and/or FPC sites.

The Report is not considered completed or finalized and is subject to change until all right-of-way has been acquired for the Stormwater Management Facility and/or Floodplain Compensation Site. Any addendums or revisions beyond the signed and sealed report shall be approved by the DEPARTMENT.

6a.4 Design of Cross Drains

Analyze the hydraulic design and performance of cross drains. Check existing cross drains to determine if they are structurally sound and can be extended. Document the design as required. Determine and provide flood data as required.

6a.5 Design of Ditches

Design roadway conveyance and outfall ditches. This task includes capacity calculations, longitudinal grade adjustments, flow changes, additional adjustments for ditch convergences, selection of suitable channel lining, design of side drainpipes, and documentation. (Design of linear stormwater management facilities in separate task.)

6a.6 Design of Stormwater Management Facility (Offsite or Infield Pond)

Design stormwater management facilities to **comply with** requirements for stormwater quality treatment, attenuation, and aesthetics. Develop proposed pond layout (contributing drainage basin, shape, contours, slopes, volumes, tie-ins, aesthetics, etc.), perform routing, pollutant/nutrient loading calculations, recovery calculations, and design the outlet control structure and buoyancy calculations for pond liners when necessary.

6a.7 Design of Stormwater Management Facility (Roadside Treatment Swales and Linear Ponds)

Design stormwater management facilities to **comply with** requirements for stormwater quality treatment, attenuation, and aesthetics. Develop proposed pond layout (contributing drainage basin, shape, contours, slopes, volumes, tie-ins, etc.), perform routing, pollutant loading, and recovery calculations, and design the outlet control structure.

6a.8 Design of Floodplain Compensation

Determine floodplain encroachments, coordinate with regulatory agencies, and develop proposed compensation area layout (shape, contours, slopes, volumes, etc.). Document the design following the requirements of the regulatory agency.

6a.9 Design of Storm Drains

Delineate contributing drainage areas, determine runoff, inlet locations, and spread. Calculate hydraulic losses (friction, utility conflict and, if necessary, minor losses). Determine design tailwater and, if necessary, outlet scour protection.

6a.10 Optional Culvert Material

Determine acceptable options for pipe materials using *the* Culvert Service Life Estimator.

6a.11 French Drain Systems

Design French Drain Systems to provide stormwater treatment and attenuation. Identify location for percolation tests and review these, determine the size and length of French Drains, design the control structure/weir, and model the system of inlets, conveyances, French Drains, and other outfalls using a routing program.

6a.11a Existing French Drain Systems

Include this task if French Drains are proposed and the existing systems must be analyzed for a pre- versus post comparison of the peak stages and/or discharges.

6a.12 Drainage Wells

Design the discharge into deep wells to comply with regulatory requirements. Identify the location of the well, design the control structure/weir, and model the system using a routing program.

6a.13 Drainage Design Documentation Report

Compile drainage design documentation into report format. Include documentation for all the drainage design tasks and associated meetings and decisions, except for stand-alone reports, such as the Pond Siting Analysis Report and Bridge Hydraulics Report. *The report shall include in an appendix, a copy of the project scope, negotiated staff-hours and the Long-Range Estimate (LRE).*

6a.14 Bridge Hydraulic Report

Calculate hydrology, hydraulics, deck drainage, scour, and appropriate counter measures. Prepare *the* report and the information for the Bridge Hydraulics Recommendation Sheet.

6a.15 Temporary Drainage Analysis

Evaluate and address drainage to adequately drain the road and maintain existing offsite drainage during all construction phases. Provide documentation.

6a.16 Drainage Quantities for EQ Report

The CONSULTANT shall determine drainage pay items and quantities and the supporting documentation.

6a.17 Cost Estimate

Prepare cost estimates for the drainage components, except bridges and earthwork for stormwater management and flood compensation sites.

6a.18 Technical Special Provisions / Modified Special Provisions

6a.19 Hydroplaning Analysis

Perform a hydroplaning analysis to assist in the determination of the appropriate roadway geometry for all necessary locations (both typical sections and critical cross sections) as needed. See the FDOT Hydroplaning Guidance and FDOT *Design Manual* Chapters 210 and 211 for more information.

6a.20 Existing Permit Analysis

Data gathering including desktop analysis of local, state, and federal Drainage permits.

6a.21 Other Drainage Analysis

6a.22 Noise Barrier Evaluation

6a.23 Erosion Control Plan

Includes analysis and design of the Erosion Control Plan. Includes creating the design file.

6a.24 Field Reviews

6a.25 Technical Meetings

Meetings with Department staff, regulatory agencies, local governments such as meetings with District Drainage Engineer, the Water Management District, FDEP, etc.

6a.26 Environmental Look-Around Meetings

Convene a meeting with Department staff, regulatory agencies, local governments and other stakeholders to explore watershed wide stormwater needs and alternative permitting approaches.

6a.27 Quality Assurance/Quality Control

6a.28 Independent Peer Review

6a.29 Supervision

6a.30 Coordination

6b DRAINAGE PLANS

See the Task Work Order Scope of Services for the following Section 6b subsections that apply to the assigned project.

The CONSULTANT shall prepare Drainage plan sheets, notes, and details. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction.

6b.1 Drainage Map (Including Interchanges)

6b.2 Bridge Hydraulics Recommendation Sheets

6b.3 Drainage Structures

6b.4 Lateral Ditch Plan/Profile & Cross Sections

6b.5 Retention/Detention/Floodplain Compensation Pond Details & Cross Sections

6b.6 Erosion Control Plan Sheet(s)

If applicable, the scope and staff-hours for this activity shall be covered under Section 8.4.

6b.7 SWPPP Sheet(s)

If applicable, the scope and staff-hours for this activity shall be covered under Section 8.4.

6b.8 Quality Assurance/Quality Control

6b.9 Supervision

7 UTILITIES

See the Task Work Order Scope of Services for the following Section 7 subsections that apply to the assigned project.

The CONSULTANT shall identify utility facilities and secure agreements, utility work schedules, and plans from the Utility Agency Owners (UAO) ensuring all conflicts that exist between utility facilities and the DEPARTMENT's construction project are addressed. The CONSULTANT shall certify all utility negotiations have been completed and that arrangements have been made for utility work to be undertaken.

7.1 Utility Kickoff Meeting

Before any contact with the UAO(s), the CONSULTANT shall meet with the District Utility Office (DUO) to receive guidance, as may be required, to assure that all necessary coordination will be accomplished in accordance with DEPARTMENT procedures. CONSULTANT shall bring a copy of the design project work schedule reflecting utility activities. The Consultant shall be prepared to discuss the projects applied utility schedule logic and current UAO contact information.

7.2 Identify Existing Utility Agency Owner(s)

The Consultant shall identify all Utility Agency Owners (UAOs) in the corridor and within and adjacent to the project limits that may be impacted by the project. Identification shall include the updates UAO contact information. The Consultant shall contact Sunshine 811, perform a field visit, and review prior FDOT utility permits, reports, existing plans, and surveys provided.

7.3 Make Utility Contacts

First Contact: The CONSULTANT shall send letters and plans to each Utility Agency Owner (UAO), one set for the utility office, and one set to the DEPARTMENT Offices as required by the District. Includes contact by phone for meeting coordination. Request type, size, location, easements, and cost for relocation if reimbursement is claimed. Request the voltage level for power lines in the project area. Send UAO requests for reimbursement to FDOT for a legal opinion. Include the meeting schedule (if applicable) and the design schedule. Include typical meeting agenda. If scheduling a meeting, give a 4-week notice.

Second Contact: At a minimum of 4 weeks prior to the meeting, the CONSULTANT shall transmit Phase II plans and the utility conflict information (when applicable and in the format requested by the DEPARTMENT) to each UAO having facilities located within the project limits, and one set to the DEPARTMENT Offices as required by the District.

Third Contact: Identify agreements and assemble packages. The CONSULTANT shall send agreements, letters, the utility conflict information (when applicable and in the format requested by the DEPARTMENT) and plans to the UAO(s) including all component sets, one set for the utility office, one set to construction and maintenance if required. Include the design schedule.

Not all projects will have all contacts as described above.

For each negotiated phase contact mentioned above, the CONSULTANT shall send a statutory contact letter and a complete set of plans for each component electronically (both pdf and cadd files), to each utility.

Additionally, during the Second and Third Contacts mentioned above, the CONSULTANT Engineer of Record shall provide a list of plan changes (if any) since the previous utility contact and a Utility Conflict Matrix.

An 11 x 17 hard copy of all phase plans shall be transmitted to a utility upon their request.

7.4 Exception Processing

The CONSULTANT shall be responsible for transmitting/coordinating the appropriate design reports including, but not limited to, the Resurfacing, Restoration and Rehabilitation (RRR) report, Preliminary Engineering Report, Project Scope and/or the Concept Report (if applicable) to each UAO to identify any condition that may require a Utility Exception. The CONSULTANT shall identify and communicate to the UAO any facilities in conflict with their location or project schedule. The CONSULTANT shall assist with the processing of design exceptions involving Utilities with the UAO and the DEPARTMENT in accordance with the UAM.

7.5 Preliminary Utility Meeting

The CONSULTANT shall schedule (time and place), notify participants about, and conduct a preliminary utility meeting with all UAO(s) having facilities located within the project limits for the purpose of presenting the project, reviewing the current design schedule, evaluating the utility information collected, providing follow-up information on compensable property rights from the DEPARTMENT's Legal Office, discussing the utility work by highway contractor option with each utility, and discussing any future design issues that may impact utilities. This meeting is also an opportunity for the UAO(s) to present proposed facilities. The CONSULTANT shall keep accurate minutes and distribute a copy to all attendees.

7.6 Individual/Field Meetings

The CONSULTANT shall meet with each UAO as necessary, separately or together, throughout the project design duration to provide guidance in the interpretation of plans, review changes to the plans and schedules, standard or selective clearing and grubbing work, and assist in the development of the UAO(s) marked/RGB plans and work schedules. The CONSULTANT is responsible for motivating the UAO to complete and return the necessary documents after each Utility Contact or Meeting.

This includes any negotiated phase review office and field meetings.

7.7 Collect and Review Plans and Data from UAO(s)

The CONSULTANT shall review UAO marked plans and data individually as they are received for content, accuracy, utility type, material, and size. Provide to the EOR (designer) for inclusion in the plans. Forward all requests for UAO reimbursement and supporting documentation to the DUO.

The above review shall ensure compliance with the information requested.

7.8 Subordination of Easements Coordination

The CONSULTANT, if requested by the DEPARTMENT, shall transmit to and secure from the UAO the executed subordination agreements prepared by the appropriate DEPARTMENT office. The CONSULTANT shall coordinate with the DUO the programming of the necessary work program funds to compensate the UAO.

7.9 Utility Design Meeting

The CONSULTANT shall schedule (time and place), notify participants, and conduct a Utility meeting with all affected UAO(s). The CONSULTANT shall be prepared to discuss impacts to existing trees/vegetation and proposed landscape, drainage, traffic signalization, temporary traffic control plans (TTCP) (construction phasing), review the current design schedule and letting date, evaluate the utility information collected, provide follow-up information on compensable property rights from FDOT Legal Office, discuss with each UAO the utility work by highway contractor option, discuss any future design issues that may impact utilities, etc., to the extent that they may have an effect on existing or proposed utility facilities with particular emphasis on drainage and TTCP with each UAO. The intent of this meeting shall be to assist the UAOs in identifying and resolving conflicts between utilities and proposed construction before completion of the plans, including utility adjustment details. Also, to work with the UAOs to recommend potential resolution between known utility conflicts with proposed construction plans as may be deemed practical by the UAO. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees within 3 days. See Task 4.5 (Horizontal/Vertical Master Design File) and Task 4.8 (Cross Section Design Files) for utility conflict location identification and adjustments.

The CONSULTANT shall be prepared to discuss all findings from Utility Designating and Locating efforts, and the possible need for additional verification.

7.10 Review Utility Markups & Work Schedules and Processing of Schedules & Agreements

The CONSULTANT shall review utility marked up plans and work schedules as they are received for content and coordinate review with the designer. Send color markups and schedules to the appropriate DEPARTMENT office(s) such as survey, geotechnical, drainage, structures, lighting, roadway, signals, utilities, landscape architecture, municipalities, maintaining agency, and District Traffic Operations for review and comment if required by the District. Coordinate with the District for execution. Distribute Executed Final Documents. Prepare Work Order for UAO(s). The CONSULTANT shall coordinate with the DUO the programming of necessary Work Program funds.

7.11 Utility Coordination/Follow-up

The CONSULTANT shall provide utility coordination and follow up. This includes follow-up, interpreting plans, and assisting the UAOs with completion of their work schedules and agreements. Includes phone calls, face-to-face meetings, etc. to motivate and ensure the UAO(s) complete and return the required documents in accordance with the project schedule. The CONSULTANT shall ensure the resolution of all known conflicts. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees. This task can be applied to all phases of the project.

7.12 Utility Constructability Review

The CONSULTANT shall review utility schedules against construction contract time, and phasing for compatibility. Coordinate with and obtain written concurrence from the construction office. See Task 4.5 (Horizontal/Vertical Master Design File) and Task 4.8 (Cross Section Design Files) for utility conflict identification and adjustments.

7.13 Additional Utility Services

The CONSULTANT shall provide additional utility services.

7.14 Processing Utility Work by Highway Contractor (UWHC)

This includes coordination of utility design effort between the DEPARTMENT and the UAO(s). The CONSULTANT shall conduct additional coordination meetings, prepare and process the agreements, review tabulation of quantities, perform UWHC constructability and bidability review, review pay items, cost estimates and Technical Special Provisions (TSP) or Modified Special Provision (MSP) prepared by the UAO.

7.15 Contract Plans to UAO(s)

If requested by the District, the CONSULTANT shall transmit the contract plans as processed for letting to the UAO(s). Transmittals to UAO(s) via electronic delivery or another agreeable format.

7.16 Certification/Close-Out

This includes hours for transmitting utility files to the DUO and preparation of the Utility Certification Letter. The CONSULTANT shall certify to the appropriate DEPARTMENT representative the following:

All utility negotiations (Full execution of each agreement, approved Utility Work Schedules, Technical Special Provisions or Modified Special Provisions written, etc.) have been completed with arrangements made for utility work to be undertaken and completed as required for proper coordination with the physical construction schedule.

OR

An on-site inspection was made and no utility work will be involved.

OR

Plans were sent to the Utility Companies/Agencies and no utility work is required.

7.17 Other Utilities

The CONSULTANT shall provide other utility services. This includes all efforts for a utility task not covered by an existing defined task. Required work will be defined in the scope and negotiated on a case-by-case basis.

8 ENVIRONMENTAL PERMITS AND ENVIRONMENTAL CLEARANCES

See the Task Work Order Scope of Services for the following Section 8 subsections that apply to the assigned project.

The CONSULTANT shall notify the DEPARTMENT Project Manager, Environmental Permit Coordinator, and other appropriate DEPARTMENT personnel in advance of all scheduled meetings with the regulatory agencies to allow a DEPARTMENT representative to attend. The CONSULTANT shall copy in the Project Manager and the Environmental Permit Coordinator on all permit-related correspondence and meetings. The CONSULTANT shall use current regulatory guidelines and policies for all permits required as identified in Section 2.4.

8.1 Preliminary Project Research

The CONSULTANT shall perform preliminary project research and shall be responsible for regulatory agency coordination to assure that design efforts are properly directed toward permit requirements. The research shall include but not be limited to a review of the project's PD&E documents, including but not limited to the Environmental Document, Natural Resources Evaluation and Cultural Resources Assessment Survey Report.

The CONSULTANT shall research any existing easements or other restrictions that may exist both within or adjacent to the proposed project boundary. Project research may include, but should not be limited to, review of available federal, state, and local permit files and databases, and local government information, including county and property appraiser data. The CONSULTANT shall determine if any Sovereign Submerged Lands easements need to be modified or acquired. Any applicable information shall be shown on the plans as appropriate.

8.2 Field Work

8.2.1 Pond Site Alternatives

The CONSULTANT shall review alternative pond sites as directed by the DEPARTMENT and include information in the Pond Siting Report.

8.2.2 Establish Wetland Jurisdictional Lines and Assessments

The CONSULTANT shall be responsible for, but not limited to, the following activities:

- Determine landward extent of wetlands and other surface waters as defined in Rule Chapter 62-340, F.A.C. as ratified in Section 373.4211, F.S.; United States Army Corps of Engineers (USACE) Wetland Delineation Manual (Technical Report Y-87-1); Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (ERD/EL TR-10-20).
- Collect all data and information necessary to determine the jurisdictional boundaries of wetlands and other surface waters as defined by the rules or regulations of each permitting agency processing a DEPARTMENT permit application for the project.
- Set seasonal high-water levels in adjacent wetlands with biological indicators
- Obtain a jurisdictional determination as defined by rules or regulations of each permitting agency processing a DEPARTMENT permit application for the project.
- Prepare aerial maps showing the jurisdictional boundaries of wetlands and other surface waters. Aerial maps shall be reproducible, of a scale no greater than 1" = 400' or more detailed and be recent photography. The maps shall show the jurisdictional boundaries of each agency. Photocopies of aeriels are not acceptable. When necessary, a wetland-specific survey *shall* be prepared by a registered surveyor and mapper. All surveyed jurisdictional boundaries shall be tied to the project's baseline of survey.
- Prepare a written assessment of the current condition and functional value of the wetlands and other surface waters. Prepare data in tabular form, which includes the ID number for each wetland (and other surface water, if necessary) impacted, size of wetland to be impacted, type of impact and identification of any wetland (by ID number and size) within the project limits that will not be impacted by the project.
- Prepare appropriate agency forms to obtain required permits. Forms may include, but are not limited to, the USACE "Wetland Determination Data Form – Atlantic and Gulf Coastal Plain Region"; the USACE "Approved Jurisdictional Determination Form"; the Uniform Mitigation Assessment Method forms; and/or project specific data forms.

The CONSULTANT shall provide the following at the time of the first plans submittal:

- ***Surveyed and approved jurisdictional boundaries on plan sheets.***

- *Detailed estimate of wetland impacts, including, but not limited to, the acreage and type of impact. This shall be provided in writing to the District Environmental Permit Coordinator based on the approved jurisdictional boundaries.*
- *For projects with one or more acres of wetland impact, WRAP or UMAM assessments (whichever is appropriate based on coordination with the agencies) shall be provided to District Environmental Permit Coordinator for submittal to SWFWMD.*

8.2.3 Species Surveys

The CONSULTANT shall conduct wildlife surveys as defined by rules or regulations of any permitting agency, or commenting agency that is processing a DEPARTMENT permit.

8.3 Agency Verification of Wetland Data

The CONSULTANT shall be responsible for verification of wetland and other surface water data identified in Section 8.2 and coordinating regulatory agency field reviews, including finalization of wetland assessments and jurisdictional determinations with applicable agencies.

8.4 Complete and Submit All Required Permit Applications

The CONSULTANT shall collect all of the data and information necessary to prepare the permit applications and obtain the environmental permits required to construct the project as identified in the Project Description and as described in 8.4.1, 8.4.2, and 8.12 (Other Environmental Permits). The CONSULTANT shall prepare each permit application in accordance with the rules and/or regulations of the regulatory agency responsible for issuing a specific permit and/or authorization to perform work. The permit application packages must be approved by the DEPARTMENT prior to submittal to regulatory agencies.

The CONSULTANT shall submit all permit applications, as directed by the DEPARTMENT, and be responsible for payment of all permit and public noticing fees.

The CONSULTANT shall be responsible for the payment of all fees for permit applications and legal notices.

Local Permits: *See Task Work Order scope of services.*

8.4.1 Complete and Submit all Required Wetland Permit Applications:

The CONSULTANT shall prepare, complete, and submit required wetland permit (i.e., ERP, Section 404) application packages to the appropriate regulatory agencies. This includes, but is not limited to, applications submitted to WMDs and/or DEP, and USACE. The application package may include but is not limited to attachments (i.e., project location map, aerials, affidavit of ownership, pictures, additional technical analysis, etc.), a cover letter with project description as well as completion of applicable agency forms. The CONSULTANT shall prepare and respond to agency Requests for Additional Information (RAIs), including necessary revisions to the application package. All responses and completed application packages must be approved by the District Permit Coordinator prior to submittal to the regulatory agencies. Geotechnical permitting should also be prepared, submitted, and obtained.

8.4.2 Prepare Species Permit Applications

The CONSULTANT shall prepare, complete, and submit required species permit applications to the appropriate agencies. This includes federal and state protected species permit application packages as required. The work includes completion of application package (i.e., project location map, aerials, affidavit of ownership, pictures, additional

technical analysis, etc.), and cover letter with project description as well as completion of applicable forms. The CONSULTANT shall respond to agency RAIs, including necessary revisions to the application package. All responses and completed applications must be approved by the District Permit Coordinator prior to submittal to the regulatory agency.

Evaluate the need for using a Special Provision when the project includes an Outstanding Florida Water (OFW), Surface Water, or listed species.

8.4.3 *The CONSULTANT shall evaluate the project to determine if a “Storm Water Discharges Associated with Industrial Activity Permit” is required as defined in 40 CFR Part 122.26(b)(14)(x) and/or Chapter 62-621.300(4)(a) FAC. If no permit is required, this determination shall be documented to the Project Manager and the Environmental Permit Coordinator in writing.*

8.4.4 *Storm Water Pollution Prevention Plan (SWPPP)*

If a permit is required, the CONSULTANT shall prepare a Storm Water Pollution Prevention Plan (SWPPP) for each project(s) application package.

8.4.5 *Prepare Wetland Protection Plan*

If a permit is required, the CONSULTANT shall prepare a Wetland/OSW Protection Plan (WPP) for each project(s) application package.

8.4.6 *The CONSULTANT shall determine the pay items and quantities for erosion control devices. The Storm Water Pollution Prevention and “Plan/Work Sheets” shall be developed to a level to provide the erosion control pay items and quantities to be included in the Plans/Construction Documents and Engineers Estimate(s); however, Erosion Control “Plan/Work Sheets” do not need to be submitted with phase submittals or final plans.*

8.5 Coordinate and Review Dredge and Fill Sketches

The CONSULTANT shall review Dredge and Fill Detail sheets to ensure information on the sketch(es) meet the requirements of the regulatory agencies and are appropriate for environmental permit application submittal and acquisition. The CONSULTANT shall also provide environmental data/information as needed to support the preparation of the Dredge and Fill sketches.

8.6 Complete and Submit Documentation for Coordination and/or USCG Bridge Permit Application

8.7 Prepare Water Management District or Local Water Control District Right-of-Way Occupancy Permit Application

The CONSULTANT shall be responsible for the preparation of the ROW Occupancy permit application in accordance with the regulatory agency requirements. The CONSULTANT shall be responsible for acquiring the ROW Occupancy permit.

8.8 Prepare Coastal Construction Control Line (CCCL) Permit Application

The CONSULTANT shall be responsible for the preparation of the CCCL permit application and acquire the final “Notice to Proceed” authorization for the Florida Department of Environmental Protection (FDEP). Legal advertisements shall be published one time in a newspaper that meets the notification requirements of the FDEP.

8.9 Prepare USACE Section 408 Application to Alter a Civil Works Project

The CONSULTANT shall be responsible for the preparation of the Section 408 (33 USC 408) application and obtaining Section 408 permission.

8.10 Compensatory Mitigation Plan

If wetland impacts cannot be avoided, the CONSULTANT shall prepare a mitigation plan to be included as a part of the applications.

Prior to the development of mitigation alternatives, the CONSULTANT shall meet with the Project Manager and Environmental Permit Coordinator to determine the DEPARTMENT's policies in proposing mitigation. The CONSULTANT shall develop a mitigation plan based upon the general guidelines provided by the DEPARTMENT.

The CONSULTANT will be directed by the DEPARTMENT to investigate the mitigation options that ***comply with*** federal and state requirements in accordance with section 373.4137, F.S. Below are mitigation options:

- Purchase of mitigation credits from a mitigation bank
- Payment to DEP/WMD for mitigation services
- Monetary participation in offsite regional mitigation plans
- Creation/restoration of wetlands

In the event that physical creation or restoration is the only feasible alternative to offset wetland impacts, the CONSULTANT shall collect all of the data and information necessary to prepare alternative mitigation plans acceptable to all permitting agencies and commenting agencies who are processing or reviewing a permit application for a DEPARTMENT project.

Prior to selection of a final creation/restoration mitigation site, the CONSULTANT ***shall*** provide the following services in the development of a mitigation plan:

- Preliminary jurisdictional determination for each proposed site
- Selection of alternative sites
- Coordination of alternative sites with the DEPARTMENT/all environmental agencies
- Written narrative listing potential sites with justifications for both recommended and non-recommended sites.

8.11 Mitigation Coordination and Meetings

The CONSULTANT shall coordinate with DEPARTMENT personnel prior to approaching any environmental permitting or reviewing agencies. Once a mitigation plan has been reviewed and approved by the DEPARTMENT, the CONSULTANT ***shall*** be responsible for coordinating the proposed mitigation plan with the environmental agencies. The CONSULTANT shall provide mitigation information needed to update the FDOT Environmental Impact Inventory.

The CONSULTANT shall provide complete and timely responses to the DEPARTMENT's semi-annual requests for updated information for the project regarding whether or not it will have, or potentially have impacts to be mitigated for using the Seventh District Wetland Impact Inventory (F.S. 373.4137). The CONSULTANT shall inform the DEPARTMENT immediately of wetland impact changes that could affect the project's status on the mitigation inventory between formal update requests. The CONSULTANT shall communicate to the DEPARTMENT any design or jurisdictional review issues that may impact their wetland impact estimates as the project progresses through design.

8.12 Other Environmental Permits

Environmental Clearances, Reevaluations and Technical Support

8.13 Technical Support to The Department for Environmental Clearances and Re-evaluations

The CONSULTANT shall provide engineering and environmental support for the DEPARTMENT to obtain clearances for all changes to the project after the PD&E Study was completed. These changes include, but are not limited to, pond and/or mitigation sites identified, land use or environmental changes, and major design changes.

8.13.1 NEPA or SEIR Reevaluation: During the development of the final design plans, the CONSULTANT shall be responsible for coordinating with the District Project Manager to provide necessary engineering information required in the preparation of the re-evaluation by the DEPARTMENT. The preparation of all environmental re-evaluations includes those listed in Part 1, Chapter 13 of the DEPARTMENT's PD&E Manual: Right of Way, Design Change, and Construction Advertisement.

Re-evaluations *shall* be completed in accordance with Part 1, Chapter 13, of the PD&E Manual. The CONSULTANT shall provide information to update the Project Commitment Record for incorporation into the re-evaluation.

It is the responsibility of the CONSULTANT to provide the District Project Manager with engineering information on major design changes, including changes in typical section, roadway alignment, pond site selection, right-of-way requirements, bridge to box culvert, drainage, and traffic volumes that may affect noise models.

8.13.2 Archaeological and Historical Resources:

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to all cultural and historical resources due to changes in the project in accordance with Part 2, Chapter 8 of the PD&E Manual.

8.13.3 Wetland Impact Analysis:

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to wetlands and other surface waters in accordance with Part 2, Chapter 9 of the PD&E Manual due to changes in the project.

8.13.4 Essential Fish Habitat Impact Analysis:

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to essential fish habitat in accordance Part 2, Chapter 17 of the PD&E Manual due to changes in the project.

8.13.5 Protected Species and Habitat Impact Analysis:

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to all protected species and habitat in accordance with Part 2, Chapter 16 of the PD&E Manual due to changes in the project. The CONSULTANT shall perform the necessary analysis to complete agency consultation in accordance with Section 7 or Section 10 of the Endangered Species Act.

8.14 Preparation of Environmental Clearances and Re-evaluations

The DEPARTMENT will provide all such necessary services.

8.15 Contamination Impact Analysis

The DEPARTMENT will provide all such necessary services.

8.16 Asbestos Survey

The DEPARTMENT will provide all such necessary services.

8.17 Technical Meetings

8.18 Quality Assurance/Quality Control

8.19 Supervision

8.20 Coordination

9 STRUCTURES – SUMMARY AND MISCELLANEOUS TASKS AND DRAWINGS

See the Task Work Order Scope of Services for the following Section 9 subsections that apply to the assigned project.

The CONSULTANT shall analyze, design, and develop contract documents for all structures in accordance with applicable provisions as defined in Section 2.21, Provisions for Work. Individual tasks identified in Sections 9 through 18 are defined in the Staff Hour Estimation Handbook and within the provision defined in Section 2.21, Provisions for Work. Contract documents shall display economical solutions for the given conditions *and be of such quality that they may be reproduced and used by the DEPARTMENT as bid documents for construction.*

The CONSULTANT shall provide Design Documentation to the DEPARTMENT with each submittal consisting of structural design calculations and other supporting documentation developed during the development of the plans. The design calculations submitted shall adequately address the complete design of all structural elements. These calculations shall be neatly and logically presented on digital media or, at the DEPARTMENT's request, on 8 ½"x11" paper and all sheets shall be numbered. The final design calculations shall be signed and sealed by a Florida-licensed professional engineer. A cover sheet indexing the contents of the calculations shall be included and the engineer shall sign and seal that sheet. All computer programs and parameters used in the design calculations shall include sufficient backup information to facilitate the review task.

9.1 Key Sheet and Index of Drawings

9.2 Project Layout

9.3 General Notes and Bid Item Notes

9.4 Miscellaneous Common Details

9.5 Incorporate Report of Core Borings

9.6 Standard Plans - Bridges

9.7 Existing Bridge Plans

9.8 Structures Quantities for EQ Report

9.9 Cost Estimate

9.10 Technical Special Provisions and Modified Special Provisions

- 9.11 Field Reviews
- 9.12 Technical Meetings
- 9.13 Quality Assurance/Quality Control
- 9.14 Independent Peer Review
- 9.15 Supervision
- 9.16 Coordination

10 STRUCTURES – BRIDGE DEVELOPMENT REPORT

See the Task Work Order Scope of Services for the following Section 10 subsections that apply to the assigned project.

General Requirements

- 10.1 Bridge Geometry
- 10.2 Ship Impact Data Collection
- 10.3 Ship Impact Criteria

Superstructure Alternatives

- 10.4 Short Span Concrete
- 10.5 Medium-Span Concrete
- 10.6 Long Span Concrete
- 10.7 Structural Steel

Foundation and Substructure Alternatives

- 10.8 Pier/Bent
- 10.9 Shallow Foundations/GRS Abutments
- 10.10 Deep Foundations

Movable Span

- 10.11 Data Collection and Design Criteria
- 10.12 Movable Span Geometrics and Clearances
- 10.13 Deck System Evaluation
- 10.14 Framing Plan Development
- 10.15 Main Girder Preliminary Design
- 10.16 Conceptual Span Balance/Counterweight

- 10.17 Support System Development
- 10.18 Drive Power Calculations
- 10.19 Drive System Development
- 10.20 Power and Control Development
- 10.21 Conceptual Pier Design
- 10.22 Foundation Analysis (FL PIER)
- 10.23 Tender Visibility Study

Other BDR Issues

- 10.24 Aesthetics
- 10.25 TTCP/Staged Construction Requirements
- 10.26 Constructability Requirements
- 10.27 Load Rating For Damaged/Widened Structures
- 10.28 Quantity and Cost Estimates
- 10.29 Quantity and Cost Estimates – Movable Span
- 10.30 Wall Type Justification

Report Preparation

- 10.31 Exhibits
- 10.32 Exhibits – Movable Span
- 10.33 Report Preparation
- 10.34 Report Preparation – Movable Span
- 10.35 BDR Submittal Package

Preliminary Plans

When ONLY Phase I plans are final deliverable, use Task Nos. as shown for applicable bridge types for project Activities 12 thru 16. Staff hours *shall* be negotiated and scaled appropriately.

11 STRUCTURES – TEMPORARY BRIDGE

See the Task Work Order Scope of Services for the following Section 11 subsections that apply to the assigned project.

General Layout Design and Plans

- 11.1 Overall Bridge Final Geometry

11.2 General Plan and Elevation

11.3 Miscellaneous Details

End Bent Design and Plans

11.4 End Bent Structural Design

11.5 End Bent Details

Intermediate Bent Design and Plans

11.6 Intermediate Bent Structural Design

11.7 Intermediate Bent Details

Miscellaneous Substructure Design and Plans

11.8 Foundation Layout

12 STRUCTURES – SHORT SPAN CONCRETE BRIDGE

See the Task Work Order Scope of Services for the following Section 12 subsections that apply to the assigned project.

General Layout Design and Plans

12.1 Overall Bridge Final Geometry

12.2 Expansion/Contraction Analysis

12.3 General Plan and Elevation

12.4 Construction Staging

12.5 Approach Slab Plan and Details

12.6 Miscellaneous Details

End Bent Design and Plans

12.7 End Bent Geometry

12.8 End Bent Structural Design

12.9 End Bent Plan and Elevation

12.10 End Bent Details

Intermediate Bent Design and Plans

12.11 Bent Geometry

12.12 Bent Stability Analysis

12.13 Bent Structural Design

12.14 Bent Plan and Elevation

12.15 Bent Details

Miscellaneous Substructure Design and Plans

12.16 Foundation Layout

Superstructure Design and Plans

12.17 Finish Grade Elevation Calculation

12.18 Finish Grade Elevations

Cast-In-Place Slab Bridges

12.19 Bridge Deck Design

12.20 Superstructure Plan

12.21 Superstructure Sections and Details

Prestressed Slab Unit Bridges

12.22 Prestressed Slab Unit Design

12.23 Prestressed Slab Unit Layout

12.24 Prestressed Slab Unit Details and Schedule

12.25 Deck Topping Reinforcing Layout

12.26 Superstructure Sections and Details

Reinforcing Bar Lists

12.27 Preparation of Reinforcing Bar List

Load Rating

12.28 Load Rating

13 STRUCTURES – MEDIUM SPAN CONCRETE BRIDGE

See the Task Work Order Scope of Services for the following Section 13 subsections that apply to the assigned project.

General Layout Design and Plans

13.1 Overall Bridge Final Geometry

13.2 Expansion/Contraction Analysis

13.3 General Plan and Elevation

13.4 Construction Staging

13.5 Approach Slab Plan and Details

13.6 Miscellaneous Details

End Bent Design and Plans

13.7 End Bent Geometry

13.8 Wingwall Design and Geometry

13.9 End Bent Structural Design

13.10 End Bent Plan and Elevation

13.11 End Bent Details

Intermediate Bent Design and Plans

13.12 Bent Geometry

13.13 Bent Stability Analysis

13.14 Bent Structural Design

13.15 Bent Plan and Elevation

13.16 Bent Details

Pier Design and Plans

13.17 Pier Geometry

13.18 Pier Stability Analysis

13.19 Pier Structural Design

13.20 Pier Plan and Elevation

13.21 Pier Details

Miscellaneous Substructure Design and Plans

13.22 Foundation Layout

Superstructure Deck Design and Plans

13.23 Finish Grade Elevation (FGE) Calculation

13.24 Finish Grade Elevations

13.25 Bridge Deck Design

13.26 Bridge Deck Reinforcing and Concrete Quantities

13.27 Diaphragm Design

- 13.28 Superstructure Plan**
- 13.29 Superstructure Section**
- 13.30 Miscellaneous Superstructure Details**

Reinforcing Bar Lists

- 13.31 Preparation of Reinforcing Bar List**

Continuous Concrete Girder Design

- 13.32 Section Properties**
- 13.33 Material Properties**
- 13.34 Construction Sequence**
- 13.35 Tendon Layouts**
- 13.36 Live Load Analysis**
- 13.37 Temperature Gradient**
- 13.38 Time Dependent Analysis**
- 13.39 Stress Summary**
- 13.40 Ultimate Moments**
- 13.41 Ultimate Shear**
- 13.42 Construction Loading**
- 13.43 Framing Plan**
- 13.44 Girder Elevation, Including Grouting Plan and Vent Locations**
- 13.45 Girder Details**
- 13.46 Erection Sequence**
- 13.47 Splice Details**
- 13.48 Girder Deflections and Camber**

Simple Span Concrete Design

- 13.49 Prestressed Beam**
- 13.50 Prestressed Beam Schedules**
- 13.51 Framing Plan**

Beam Stability

13.52 Beam/Girder Stability

Bearing

13.53 Bearing Pad and Bearing Plate Design

13.54 Bearing Pad and Bearing Plate Details

Load Rating

13.55 Load Ratings

14 STRUCTURES – STRUCTURAL STEEL BRIDGE

See the Task Work Order Scope of Services for the following Section 14 subsections that apply to the assigned project.

General Layout Design and Plans

14.1 Overall Bridge Final Geometry

14.2 Expansion/Contraction Analysis

14.3 General Plan and Elevation

14.4 Construction Staging

14.5 Approach Slab Plan and Details

14.6 Miscellaneous Details

End Bent Design and Plans

14.7 End Bent Geometry

14.8 Wingwall Design and Geometry

14.9 End Bent Structural Design

14.10 End Bent Plan and Elevation

14.11 End Bent Details

Intermediate Bent Design and Plans

14.12 Bent Geometry

14.13 Bent Stability Analysis

14.14 Bent Structural Design

14.15 Bent Plan and Elevation

14.16 Bent Details

Pier Design and Plans

- 14.17 Pier Geometry**
- 14.18 Pier Stability Analysis**
- 14.19 Pier Structural Design**
- 14.20 Pier Plan and Elevation**
- 14.21 Pier Details**

Miscellaneous Substructure Design and Plans

- 14.22 Foundation Layout**

Superstructure Deck Design and Plans

- 14.23 Finish Grade Elevation (FGE) Calculation**
- 14.24 Finish Grade Elevations**
- 14.25 Bridge Deck Design**
- 14.26 Bridge Deck Reinforcing and Concrete Quantities**
- 14.27 Superstructure Plan**
- 14.28 Superstructure Section**
- 14.29 Miscellaneous Bridge Deck Details**

Reinforcing Bar Lists

- 14.30 Preparation of Reinforcing Bar List**

Structural Steel Plate Girder Design

- 14.31 Unit Modeling**
- 14.32 Section Design**
- 14.33 Stiffener Design and Locations**
- 14.34 Cross-frame Design**
- 14.35 Connections**
- 14.36 Bearing Assembly Design and Detailing (With Jacking Analysis)**
- 14.37 Splice Design**
- 14.38 Shear Stud Connectors**
- 14.39 Deflection Analysis**
- 14.40 Framing Plan**

- 14.41 Girder Elevation
- 14.42 Structural Steel Details
- 14.43 Splice Details
- 14.44 Girder Deflections and Camber

Structural Steel Box Girder Design

- 14.45 Unit Modeling
- 14.46 Section Design
- 14.47 Stiffener Design and Locations
- 14.48 Interior Cross-Frame Design
- 14.49 Exterior Cross-Frame Design
- 14.50 Connections
- 14.51 Bearing Assembly Design and Detailing (with Jacking Analysis)
- 14.52 Splice Design
- 14.53 Shear Stud Connectors
- 14.54 Deflection Analysis
- 14.55 Framing Plan
- 14.56 Girder Elevation
- 14.57 Structural Steel Details
- 14.58 Splice Details
- 14.59 Girder Deflections and Camber

Erection Scheme

- 14.60 Erection Scheme Analysis
- 14.61 Erection Scheme

Load Rating

- 14.62 Load Rating

- 15 STRUCTURES – SEGMENTAL CONCRETE BRIDGE – N/A
- 16 STRUCTURES – MOVABLE SPAN – N/A
- 17 STRUCTURES – RETAINING WALLS

See the Task Work Order Scope of Services for the following Section 17 subsections that apply to the assigned project.

General Requirements

17.1 Key Sheet

17.2 Horizontal Wall Geometry

Permanent Proprietary Walls

17.3 Vertical Wall Geometry

17.4 Semi-Standard Drawings

17.5 Wall Plan and Elevations (Control Drawings)

17.6 Details

Temporary Proprietary Walls

17.7 Vertical Wall Geometry

17.8 Semi-Standard Drawings

17.9 Wall Plan and Elevations (Control Drawings)

17.10 Details

Cast-In-Place Retaining Walls

17.11 Design

17.12 Vertical Wall Geometry

17.13 General Notes

17.14 Wall Plan and Elevations (Control Drawings)

17.15 Sections and Details

17.16 Reinforcing Bar List

Other Retaining Walls and Bulkheads

17.17 Design

17.18 Vertical Wall Geometry

17.19 General Notes, Tables and Miscellaneous Details

17.20 Wall Plan and Elevations

17.21 Details

18 STRUCTURES – MISCELLANEOUS

See the Task Work Order Scope of Services for the following Section 18 subsections that apply to the assigned project.

Concrete Box Culverts

- 18.1 Concrete Box Culverts**
- 18.2 Concrete Box Culverts Extensions**
- 18.3 Concrete Box Culvert Data Table Plan Sheets**
- 18.4 Concrete Box Culvert Special Details Plan Sheets**

Strain Poles

- 18.5 Steel Strain Poles**
- 18.6 Concrete Strain Poles**
- 18.7 Strain Pole Data Table Plan Sheets**
- 18.8 Strain Pole Special Details Plan Sheets**

Mast Arms

- 18.9 Mast Arms**
- 18.10 Mast Arms Data Table Plan Sheets**
- 18.11 Mast Arms Special Details Plan Sheets**

Overhead/Cantilever Sign Structure

- 18.12 Cantilever Sign Structures**
- 18.13 Overhead Span Sign Structures**
- 18.14 Special (Long Span) Overhead Sign Structures**
- 18.15 Monotube Overhead Sign Structure**
- 18.16 Bridge Mounted Signs (Attached to Superstructure)**
- 18.17 Overhead/Cantilever Sign Structures Data Table Plan Sheets**
- 18.18 Overhead/Cantilever Sign Structures Special Details Plan Sheets**

High Mast Lighting

- 18.19 Non-Standard High Mast Lighting Structures**
- 18.20 High Mast Lighting Special Details Plan Sheets**

Noise Barrier Walls (Ground Mount)

- 18.21 Horizontal Wall Geometry**

- 18.22 Vertical Wall Geometry
- 18.23 Summary of Quantities – Aesthetic Requirements
- 18.24 Control Drawings
- 18.25 Design of Noise Barrier Walls Covered by Standards
- 18.26 Design of Noise Barrier Walls Not Covered by Standards
- 18.27 Aesthetic Details

Special Structures

- 18.28 Fender System
- 18.29 Fender System Access
- 18.30 Special Structures
- 18.31 Other Structures

Ancillary Structures Report

- 18.32 Condition Evaluation of Signal and Sign Structures, and High Mast Light Poles
- 18.33 Condition Evaluation of Signal and Sign Structures, and High Mast Light Poles (No As-Built or Design Plans Available)
- 18.34 Analytical Evaluation of Signal and Sign Structures, and High Mast Light Poles
- 18.35 Ancillary Structures Report

19 SIGNING AND PAVEMENT MARKING ANALYSIS

See the Task Work Order Scope of Services for the following Section 19 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Signing and Pavement Markings Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

19.1 Traffic Data Analysis

The CONSULTANT shall review the approved preliminary engineering report, typical section package, traffic technical memorandum and proposed geometric design alignment to identify proposed sign placements and roadway markings. Perform queue analysis.

19.2 No Passing Zone Study

The CONSULTANT shall perform all effort required for field data collection, and investigation in accordance with the DEPARTMENT's Manual on Uniform Traffic Studies.

The CONSULTANT shall submit the signed and sealed report to the DEPARTMENT for review and approval *prior to commencing the production of plans.*

19.3 Reference and Master Design File

The CONSULTANT shall prepare the Signing & Marking Design file to include all necessary design elements and all associated reference files.

19.4 Multi-Post Sign Support Calculations

The CONSULTANT shall determine the appropriate column size from the DEPARTMENT's Multi-Post Sign Program(s).

Multi-post Sign Support Calculations are required for advanced street name signs approaching the signalized intersections. The CONSULTANT shall provide the sign support calculations using the DEPARTMENT's software and the actual cross section of the proposed sign location.

19.5 Sign Panel Design Analysis

Establish sign layout, letter size and series for non-standard signs.

19.6 Sign Lighting/Electrical Calculations

The CONSULTANT shall analyze and document Lighting/Electrical Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall prepare a photometric analysis to be submitted as part of the Lighting Design Analysis Report. An analysis shall be provided for each new and/or modified sign panel which requires lighting.

The Consultant shall submit voltage drop calculations and load analysis for each new and/or modified sign panel which requires lighting.

19.7 S&PM Quantities for EQ Report

The CONSULTANT shall determine signing and pavement marking pay items and quantities and the supporting documentation.

19.8 Cost Estimate

The CONSULTANT shall be responsible for producing an accurate engineer's construction cost estimate for the signing and pavement marking component at phases III, IV and final.

19.9 Technical Special Provisions and Modified Special Provisions

19.10 Other Signing and Pavement Marking Analysis

19.11 Field Reviews

The CONSULTANT shall conduct field reviews of the project. This includes all trips required to obtain necessary data for all elements of the project.

19.12 Technical Meetings

The CONSULTANT shall attend phase review meetings for the plan submittal phases of the project with a representative from the District Traffic Design Engineer's office to resolve technical issues during the design process.

19.13 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by CONSULTANT under the contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications, and other documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation, or it may be one specifically designed for this project. The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings. The responsible Professional Engineer that performed the Quality Control review shall sign a statement certifying that the review was conducted.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in the designs, maps, drawings, specifications and/or other services.

19.14 Independent Peer Review

19.15 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities including the work of the subconsultants.

19.16 Coordination

The CONSULTANT shall provide all efforts to coordinate with all disciplines of the project to produce a final set of construction documents and to ensure high degree of accuracy for the design plans is achieved.

20 SIGNING AND PAVEMENT MARKING PLANS

See the Task Work Order Scope of Services for the following Section 20 subsections that apply to the assigned project.

The CONSULTANT shall prepare a set of Signing and Pavement Marking Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums that include the following:

20.1 Key Sheet & Signature Sheet

The CONSULTANT shall prepare the key sheet in accordance with the latest format depicted in the FDOT Design Manual.

20.2 General Notes/Pay Item Notes

The CONSULTANT shall include all pertinent general notes and pay item notes as deemed fit and as established by the District Traffic Design Engineer's office.

20.3 Project Layout

20.4 Plan Sheet

20.5 Special Details

20.6 Service Point Details

20.7 Guide Sign Data

20.8 Cross Sections (Sign Installations)

20.9 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project.

The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings in addition to the QC effort described in the analysis section.

20.10 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities including the work of the sub-consultants.

21 SIGNALIZATION ANALYSIS

See the Task Work Order Scope of Services for the following Section 21 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Signalization Analysis Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

21.1 Traffic Data Collection

The CONSULTANT shall perform all effort required for traffic data collection, including crash reports, 24-hour machine counts, 8 hour turning movement counts, 7-day machine counts, and speed & delay studies.

21.2 Traffic Data Analysis

The CONSULTANT shall determine signal operation plan, intersection geometry, local signal timings, pre-emption phasing & timings, forecasting traffic, and intersection analysis run.

21.3 Signal Warrant Study

21.4 Systems Timings

The CONSULTANT shall determine proper coordination timing plans including splits, force offs, offsets, and preparation of Time Space Diagram.

21.5 Reference and Master Signalization Design File

The CONSULTANT shall prepare the Signalization Design file to include all necessary design elements and all associated reference files.

21.6 Reference and Master Interconnect Communication Design File

The CONSULTANT shall prepare the Interconnect Communication Design file to include all necessary design elements and all associated reference files.

21.7 Overhead Street Name Sign Design

The CONSULTANT shall design Signal Mounted Overhead Street Name signs.

21.8 Pole Elevation Analysis

21.9 Traffic Signal Operation Report

21.10 Signalization Quantities for EQ Report

The CONSULTANT shall determine signalization pay items and quantities and the supporting documentation.

The CONSULTANT shall determine pay items and quantities and the supporting documentation for the project at phases III, IV and final for the signalization component of the entire project.

21.11 Cost Estimate

The CONSULTANT shall be responsible for producing an accurate engineer's construction cost estimate for the signalization component at phase III, IV and final.

21.12 Technical Special Provisions and Modified Special Provisions

The CONSULTANT shall prepare Technical Special Provisions as necessary for any pay items that are not covered by the Florida Department of Transportation Standard Specifications for Road and Bridge Construction or by Special Provisions. Technical Special Provisions will be required for the fiber optic cable, conduit, innerduct cell, and the fiber optic pull box. The DEPARTMENT will provide the TSP to the CONSULTANT for review and use in this contract.

21.13 Other Signalization Analysis

21.14 Field Reviews

The CONSULTANT shall collect information from the maintaining agencies and conduct a field review. The review should include, but is not limited to, the following:

- Existing Signal and Pedestrian Phasing
- Controller Make, Model, Capabilities and Condition/Age
- Condition of Signal Structure(s)
- Type of Detection as Compared with Current District Standards
- Interconnect Media
- Controller Timing Data

21.15 Technical Meetings

The CONSULTANT shall attend phase review meetings for the plan submittal phases of the project with a representative from the District Traffic Design Engineer's office to resolve technical issues during the design process.

21.16 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project.

The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings. The responsible Professional Engineer that performed the Quality Control review shall sign a statement certifying that the review was conducted.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in the designs, maps, drawings, specifications and/or other services.

21.17 Independent Peer Review

21.18 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities.

21.19 Coordination

The CONSULTANT shall provide all efforts to coordinate with all disciplines of the project to produce a final set of construction documents and to ensure a high degree of accuracy for the design plans is achieved.

22 SIGNALIZATION PLANS

See the Task Work Order Scope of Services for the following Section 22 subsections that apply to the assigned project.

The CONSULTANT shall prepare a set of Signalization Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums, which include the following:

22.1 Key Sheet & Signature Sheet

The CONSULTANT shall prepare the key sheet in accordance with the latest format depicted in the FDOT Design Manual.

22.2 General Notes/Pay Item Notes

The CONSULTANT shall include all pertinent general notes and pay item notes as deemed fit and as established by the District Traffic Design Engineer's office.

- 22.3 Signalization Plan Sheets**
- 22.4 Interconnect Plans (N/A)**
- 22.5 Traffic Monitoring Site**
- 22.6 Guide Sign Data**
- 22.7 Special Details (N/A)**
- 22.8 Service Point Details (N/A)**
- 22.9 Mast Arm/Monotube Tabulation Sheet (N/A)**
- 22.10 Strain Pole Schedule (N/A)**
- 22.11 TTCP Signal (N/A)**
- 22.12 Temporary Detection Sheet (N/A)**
- 22.13 Quality Assurance/Quality Control**

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project.

The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings in addition to the QC effort described in the analysis section.

22.14 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities including the work of the subconsultants.

23 LIGHTING ANALYSIS

See the Task Work Order Scope of Services for the following Section 23 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Lighting Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

23.1 Lighting Justification Report

The CONSULTANT shall prepare a Lighting Justification Report. The report shall be submitted under a separate cover with the Phase I plans submittal, titled Lighting Justification Report. The report shall provide analyses for mainlines, interchanges, and arterial roads and shall include all back-up data such that the report stands on its own. Back up data shall include current ADT's, general crash data average cost from the Florida Highway Safety Improvement Manual, crash details data from the last three years, and preliminary lighting calculations.

The report shall address warrants to determine if lighting warrants are met and shall include a benefit-cost analysis to determine if lighting is justified. The report shall include calculations for the night-to-day crash ratio as well as a table summarizing the daytime and the night-time crashes. The report shall follow the procedures outlined in the FDOT Manual on Uniform Traffic Studies (MUTS) manual which utilize ADT, Three Year Crash Data, night/day crash ratio, percentage of night ADT, etc.

The CONSULTANT shall coordinate with the DEPARTMENT Project Manager to confirm that the local government with jurisdiction will commit to maintaining or funding the maintenance of the additional highway lighting provided by a project, and to confirm the required number of load centers in advance of initiating plans preparation. Such confirmation must come directly from the local government, not from a private power company. If the CONSULTANT fails to perform this coordination in a timely manner, any necessary re-design and plans revisions resulting therefrom shall be prepared by the CONSULTANT without additional compensation or extensions of schedule milestones.

23.2 Lighting Design Analysis Report (LDAR)

The CONSULTANT shall prepare a Preliminary Lighting Design Analysis Report in accordance with the requirements of the FDOT Design Manual. The report shall be submitted under a separate cover with the Phase II plans submittal. After approval of the preliminary report, the CONSULTANT shall submit a revised report for each submittal.

23.3 Voltage Drop Calculations

The CONSULTANT shall submit voltage drop calculations showing the equation or equations used along with the number of luminaries per circuit, the length of each circuit, the size conductor or conductors used and their ohm resistance values. The voltage drop incurred on each circuit (total volts and percentage of drop) shall be calculated, and all work necessary to calculate the voltage drop values for each circuit should be presented in such a manner as to be duplicated by the District.

The Voltage Drop Calculations shall be submitted as part of the Lighting Design Analysis Report.

All electrical calculations for sizing the conductors, conduit, load centers, main breaker, branch circuit breakers shall be signed and sealed by an electrical engineer licensed by examination by the State of Florida with expertise in electrical engineering.

23.4 FDEP Coordination and Report

23.5 Reference and Master Design Files

The CONSULTANT shall prepare the Lighting Design file to include all necessary design elements and all associated reference files.

23.6 Temporary Lighting

The CONSULTANT shall develop a Temporary Highway Lighting design and, when required, a Temporary Highway Lighting design file. The Temporary Highway Lighting design must account for all phases of the TTCP and includes the analysis, calculations, and placement of luminaires, supports, conductors, conduits, pull boxes, and electrical power service.

23.7 Design Documentation

The CONSULTANT shall submit a Design Documentation with each plans submittal under a separate cover and not part of the roadway documentation book. At a minimum, the design documentation shall include:

- Phase submittal checklist.
- Structural calculations for special conventional pole concrete foundations.
- Correspondence with the power company concerning new electrical service.

23.8 Lighting Quantities for EQ Report

The CONSULTANT shall determine lighting pay items and quantities and the supporting documentation.

23.9 Cost Estimate

The CONSULTANT shall be responsible for producing an accurate engineer's construction cost estimate for the lighting component at phases III, IV and final.

23.10 Technical Special Provisions and Modified Special Provisions

23.11 Other Lighting Analysis

23.12 Field Reviews

The CONSULTANT shall collect information from the maintaining agencies and conduct a field review. The review should include, but is not limited to, the following:

- Existing Lighting Equipment
- Load Center, Capabilities and Condition/Age
- Condition of Lighting Structure(s)
- Verification of horizontal clearances
- Verification of breakaway requirements

23.13 Technical Meetings

The CONSULTANT shall attend phase review meetings for the plan submittal phases of the project with a representative from the District Traffic Design Engineer's office to resolve technical issues during the design process.

23.14 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operations, or it may be one specifically designed for this project. The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings. The responsible Professional Engineer that performed the Quality Control review shall sign a statement certifying that the review was conducted.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in the design, maps, drawings, specifications and/or other services.

23.15 Independent Peer Review

23.16 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities.

23.17 Coordination

The CONSULTANT shall provide all efforts to coordinate with all disciplines of the project to produce a final set of construction documents, and to ensure a high degree of accuracy for the design plans is achieved.

24 LIGHTING PLANS

See the Task Work Order Scope of Services for the following Section 24 subsections that apply to the assigned project.

The CONSULTANT shall prepare a set of Lighting Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

24.1 Key Sheet & Signature Sheet

The CONSULTANT shall prepare the key sheet in accordance with the latest format depicted in the FDOT Design Manual.

24.2 General Notes/Pay Item Notes

The CONSULTANT shall include all pertinent general notes and pay item notes as deemed fit and as established by the District Traffic Design Engineer's Office.

24.3 Pole Data, Legend & Criteria

The CONSULTANT shall complete the Pole Data and Legend Criteria sheets in the standard format as necessary to provide a complete lighting design.

24.4 Project Layout

24.5 Plan Sheet

The CONSULTANT shall prepare the Roadway Lighting plan sheets utilizing the Design file to include all necessary information related to the project design elements and all associated reference files. The roadway lighting plan sheet scale shall be 1"=40'.

24.6 Special Details

24.7 Service Point Details

The CONSULTANT shall prepare any service point details necessary to provide a complete lighting design. The CONSULTANT shall identify the power source after coordination with the local power company and provide the necessary details from the power source to the load center.

24.8 Temporary Lighting Data and Details

24.9 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project.

The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings in addition to the QC effort described in the analysis section.

24.10 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities including the work of the subconsultants.

25 LANDSCAPE ANALYSIS

See the Task Work Order Scope of Services for the following Section 25 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Landscape Architecture Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall coordinate with existing and/or proposed underground utilities, including, but not limited to, FDOT lighting, **signalization**, drainage and ITS. Landscape coordination with **these disciplines** shall include both underground conflicts and above-ground impacts to **their** existing and/or proposed **features**. The CONSULTANT shall closely coordinate with **these** DEPARTMENT units to ensure that all conflicts are identified, addressed and mitigated in the Contract Documents.

25.1 Data Collection

All research required to collect data necessary to complete the initial design analysis. Includes identifying local ordinances, **DEPARTMENT policies, commitments within the environmental document** and collection of other project data.

25.2 Site Inventory and Analysis for Proposed Landscape

Includes identification of opportunities and constraints for the proposed landscape project based on existing site conditions. Identify available planting areas for nursery landscape material. Summary of analysis, if required, is included in conceptual design. Roll plots may be required.

25.2a Selective Clearing and Grubbing Site Inventory

25.2b Inventory and Analysis

25.2c1 Vegetation Disposition Plan- Mainline

25.2c2 Vegetation Disposition Plan- Interchange

25.3 Planting Design

25.3a Conceptual Planting Design

Includes delineation of all proposed planting types *by location*, scheme development, preliminary *per square foot costs with extensions*, and reports. *Includes revisions necessary for DEPARTMENT approval.* The design shall be submitted with the Phase I plans.

25.3a1 Report Preparation

25.3a2 Mainline

25.3a3 Interchanges, Intersections and Rest Areas

25.3a4 Toll Plazas

25.3b Final Planting Design

Includes identifying the *genus*-species/type, size, location, spacing, and quality of all plants.

25.3b1 Master Design File Creation

25.3b2 Mainline

25.3b3 Interchanges, Intersections and Rest Areas

25.3b4 Toll Plazas

25.4 Irrigation Design

25.4a Conceptual Irrigation Design

Conceptual Design: Typically not done in master design file. Includes determination of water and power sources. *Provide general location and description of pumps, pump stations, meters, mainlines, lateral line irrigation heads, valves, filters, backflow preventers, sensors, and controllers.* Phase I design level.

25.4a1 Feasibility Report: Includes analysis of methods, materials and operation costs associated with proposed irrigation system design.

25.4a2 Mainline

25.4a3 Interchanges, Intersections and Rest Areas

25.4a4 Toll Plazas

25.4b Final Irrigation Design

Includes all work in master design files. Irrigation Design includes, but is not limited to, the locations and sizes of pumps, pump stations, mainlines, lateral lines, irrigation heads, valves, backflow and control devices.

25.4b1 Mainline

25.4b2 Interchanges, Intersections and Rest Areas

25.4b3 Toll Plazas

25.5 Hardscape Design

25.5a Conceptual Hardscape Design

Includes all work in master design files. Hardscape Design includes, but is not limited to, sidewalks, plazas, steps, fountains, walls, pedestrian bridges, non-regulatory signs or project graphics, roadway aesthetics, and site furnishings.

25.5b Final Hardscape Design

Includes all work in master design files. Hardscape Design includes, but is not limited to, sidewalks, plazas, steps, fountains, walls, pedestrian bridges, non-regulatory signs or project graphics, roadway aesthetics, and site furnishings.

25.6 Roll Plots

25.7 Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation.

25.8 Cost Estimates

25.9 Technical Special Provisions and Modified Special Provisions

25.10 Inspection Services

Services may include: on-site inspection, construction, observation, monitoring, supervision, and any reporting requirement.

25.11 Other Landscape Services

25.12 Outdoor Advertising

Includes all work required to determine locations of all outdoor advertising permitted within the roadway project limits. Includes all work required to determine the proposed view zones and the supporting documentation.

25.13 Field Reviews

25.14 Technical Meetings/Public Meetings

25.15 Quality Assurance/Quality Control

25.16 Independent Peer Review

25.17 Supervision

25.18 Project Coordination

25.19 Interdisciplinary Coordination

26 LANDSCAPE PLANS

See the Task Work Order Scope of Services for the following Section 26 subsections that apply to the assigned project.

The CONSULTANT shall prepare a set of Landscape Plans *in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums*, which include the following:

26.1 Key Sheet

26.2 Plant Schedule

26.3 General Notes

26.4 Tree and Vegetation Protection and Relocation Plans and Tree Disposition Plans

26.5 Planting Plans for Linear Roadway Projects

26.6 Planting Plans (Interchanges and Toll Plazas)

26.7 Planting Details and Notes

26.8 Irrigation Plans for Linear Roadway Project

26.9 Irrigation Plans for Interchange and Toll Plazas

26.10 Irrigation Details and Notes

26.11 Hardscape Plans

26.12 Hardscape Details and Notes

26.13 Landscape Maintenance Plan

The CONSULTANT shall include a written plan for care and maintenance of the plants and beds, hardscape, and irrigation system after the warranty period. This maintenance plan *shall* be developed in performance-based language in coordination with the local government entity *that* assumes the maintenance obligation.

26.14 Quality Assurance/Quality Control

26.15 Supervision

27 SURVEY

See the Task Work Order Scope of Services for the following Section 27 subsections that apply to the assigned project.

The CONSULTANT shall perform survey tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

The CONSULTANT shall submit all survey notes and computations to document the surveys. All field survey work shall be recorded in approved media and submitted to the DEPARTMENT. Field books submitted to the DEPARTMENT must be of an approved type. The field books shall be certified by the surveyor in responsible charge of the work being performed before the final product is submitted.

The survey notes shall include documentation of decisions reached from meetings, telephone conversations or site visits. All like work (such as bench lines, reference points, etc.) shall be recorded contiguously. The DEPARTMENT may not accept field survey radial locations of section corners, platted subdivision lot and

block corners, alignment control points, alignment control reference points and certified section corner references. The DEPARTMENT may instead require that these points be surveyed by true line, traverse or parallel offset.

27.1 Horizontal Project Control (HPC)

Establish or recover HPC, for the purpose of establishing horizontal control on the Florida State Plane Coordinate System or datum approved by the District Surveyor (DS) or District Location Surveyor (DLS); may include primary or secondary control points. Includes analysis and processing of all field collected data, and preparation of forms.

27.2 Vertical Project Control (VPC)

Establish or recover VPC, for the purpose of establishing vertical control on datum approved by the District Surveyor (DS) or the District Location Surveyor (DLS).; may include primary or secondary vertical control points. Includes analysis and processing of all field collected data, and preparation of forms.

27.3 Alignment and/or Existing Right-of-Way (R/W) Lines

Establish, recover or re-establish project alignment. Also includes analysis and processing of all field collected data, existing maps, and/or reports for identifying mainline, ramp, offset, or secondary alignments. Depict alignment and/or existing R/W lines (in required format) per DEPARTMENT R/W Maps, platted or dedicated rights of way.

27.4 Aerial Targets

Place, locate, and maintain required aerial targets and/or photo identifiable points. Includes analysis and processing of all field collected data, existing maps, and/or reports. Placement of the targets will be at the discretion of the aerial firm.

27.5 Reference Points

Reference Horizontal Project Network Control (HPNC) points, project alignment, vertical control points, section, 1/4 section, center of section corners and General Land Office (G.L.O.) corners as required.

27.6 Topography/Digital Terrain Model (DTM) (3D)

Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of creating a DTM with sufficient density. Shoot all break lines; high and low points. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.7 Planimetric (2D)

Locate all above ground features and improvements. Deliver in appropriate electronic format. Effort includes field edits, analysis and processing of all field-collected data, existing maps, and/or reports.

27.8 Roadway Cross Sections/Profiles

Perform cross sections or profiles. May include analysis and processing of all field-collected data for comparison with DTM.

27.9 Side Street Surveys

Refer to tasks of this document as applicable.

27.10 Underground Utilities

Designation includes two-dimensional collection of existing utilities and selected three-dimensional verification as needed for designation. Location includes non-destructive excavation to determine size, type, and location of existing utility, as necessary for final three-dimensional verification. Survey includes collection of data on points as needed for designates and locates. Includes analysis and processing of all field-collected data, and delivery of all appropriate electronic files.

Soil removed for obtaining locates on utility lines shall be placed back in the excavation in a way that does not disturb or damage the utility. Locates through asphalt pavement shall be finished with cold pack asphalt to at least the same thickness as the base and asphalt that was removed. Locates through concrete pavement, sidewalks, etc. shall be finished using a high strength concrete mix to the same depth as what was removed. The cuts made in asphalt and concrete for locates shall be made in a manner that provides a patch with regular sides that will be level with no protruding or jagged edges.

27.11 Outfall Survey

Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of a DTM Survey with sufficient density of shots. Shoot all break lines, high and low points. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.12 Drainage Survey

Locate underground data (XYZ, pipe size, type, condition, and flow line) that relates to above ground data. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.13 Bridge Survey (Minor/Major)

Locate required above ground features and improvements for the limits of the bridge. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.14 Channel Survey

Locate all topographic features and improvements for the limits of the project by collecting the required data. Includes field edits, analysis and processing of all field collected data, maps, and/or reports.

27.15 Pond Site Survey

Refer to tasks of this document as applicable.

27.16 Mitigation Survey

Refer to tasks of this document as applicable.

27.17 Jurisdiction Line Survey

Perform field location (two-dimensional) of jurisdiction limits as defined by respective authorities. Also includes field edits, analysis and processing of all field collected data, and preparation of reports.

27.18 Geotechnical Support

Perform three-dimensional (X, Y, Z) field location, or stakeout, of boring sites established by the geotechnical engineer. Includes field edits, analysis and processing of all field collected data and/or reports.

27.19 Sectional/Grant Survey

Perform field location/placement of section corners, 1/4 section corners, and fractional corners where pertinent. Includes analysis and processing of all field-collected data and/or reports.

27.20 Subdivision Location

Survey all existing recorded subdivision/condominium boundaries, tracts, units, phases blocks, street R/W lines and common areas. Includes analysis and processing of all field collected data and/or reports. If an unrecorded subdivision is on file in the public records of the subject county, tie the existing monumentation of the beginning and end of unrecorded subdivision.

27.21 Maintained R/W

Perform field location (two-dimensional) of maintained R/W limits as defined by respective authorities, if needed. Also includes field edits, analysis and processing of all field-collected data, and preparation of reports.

27.22 Boundary Survey

Perform boundary survey as defined by DEPARTMENT standards. Includes analysis and processing of all field-collected data and preparation of reports.

27.23 Water Boundary Survey

Perform Mean High Water, Ordinary High Water and Safe Upland Line surveys as required by DEPARTMENT standards.

27.24 Right-of-Way Staking, Parcel / Right of Way Line

Perform field staking and calculations of existing/proposed R/W lines for on-site review purposes.

27.25 Right-of-Way Monumentation

Set R/W monumentation as depicted on final R/W maps for corridor and water retention areas.

27.26 Line Cutting

Perform all efforts required to clear vegetation from the line of sight.

27.27 Work Zone Safety

Provide work zone as required by DEPARTMENT standards.

27.28 Vegetation Survey

Locate vegetation within the project limits.

27.29 Tree Survey

Locate individual trees or palms within the project limits.

27.30 Miscellaneous Surveys

27.31 Supplemental Surveys

27.32 Document Research

Perform research of documentation to support field and office efforts involving surveying and mapping.

27.33 Field Review

Perform verification of the field conditions as related to the collected survey data.

27.34 Technical Meetings

Attend meetings as required and negotiated by the Surveying and Mapping Department.

27.35 Quality Assurance/Quality Control (QA/QC)

Establish and implement a QA/QC plan. Also includes subconsultant review, response to comments, any resolution meetings if required, and preparation of submittals for review, etc.

27.36 Supervision

Perform all activities required to supervise and coordinate project. These activities must be performed by the project supervisor, a Florida P.S.M. or their delegate as approved by the District Surveying Office.

27.37 Coordination

Coordinate survey activities with other disciplines. These activities must be performed by the project supervisor, a Florida P.S.M. or their delegate as approved by the District Surveying Office.

The CONSULTANT shall coordinate their work with any and all adjacent and integral consultants so as to produce a final and complete survey product for the project(s) described herein.

28 PHOTOGRAMMETRY

All such necessary services will be provided by the DEPARTMENT.

29 MAPPING

See the Task Work Order Scope of Services for the following Section 29 subsections that apply to the assigned project.

The CONSULTANT will be responsible for the preparation of control survey maps, right-of-way maps, maintenance maps, sketches, other miscellaneous survey maps, and legal descriptions as required for this

project in accordance with all applicable DEPARTMENT Manuals, Procedures, Handbooks, District-specific requirements, and Florida Statutes. All maps, surveys and legal descriptions *shall* be prepared under the direction of a Florida Professional Surveyor and Mapper (PSM) to DEPARTMENT size and format requirements utilizing DEPARTMENT approved software and will be designed to provide a high degree of uniformity and maximum readability. The CONSULTANT will submit maps, legal descriptions, quality assurance check prints, checklists, electronic media files and any other documents as required for this project to the DEPARTMENT for review at stages of completion as negotiated.

Master CADD File

29.1 Alignment

29.2 Section and 1/4 Section Lines

29.3 Subdivisions / Property Lines

29.4 Existing Right-of-Way

29.5 Topography

29.6 Parent Tract Properties and Existing Easements

29.7 Proposed Right-of-Way Requirements

The ENGINEER OF RECORD (EOR) will provide the proposed requirements. The PSM is responsible for calculating the final geometry. Notification of Final Right-of-Way Requirements along with the purpose and duration of all easements will be specified in writing.

29.8 Limits of Construction

The limits of construction DGN file as provided by the EOR will be imported or referenced to the master CADD file. Additional labeling will be added as required. The PSM is required to advise the EOR of any noted discrepancies between the limits of construction line and the existing/proposed right-of-way lines, and for adjusting as needed when a resolution is determined.

29.9 Jurisdictional/Agency Lines

These lines may include, but are not limited to, jurisdictional, wetland, water boundaries, and city/county limit lines.

Sheet Files

29.10 Control Survey Cover Sheet

29.11 Control Survey Key Sheet

29.12 Control Survey Detail Sheet

29.13 Right-of-Way Map Cover Sheet

29.14 Right-of-Way Map Key Sheet

29.15 Right-of-Way Map Detail Sheet

29.16 Maintenance Map Cover Sheet

29.17 Maintenance Map Key Sheet

29.18 Maintenance Map Detail Sheet

29.19 Reference Point Sheet

This sheet(s) will be included with the Control Survey Map, Right-of-Way Map and Maintenance Map.

29.20 Project Control Sheet

This sheet depicts the baseline, the benchmarks, the primary and secondary control points, and their reference points, including the type of material used for each point, their XYZ coordinates, scale factors and convergence angles. This sheet(s) may be included with the Control Survey Map, Right-of-Way Map and Maintenance Map.

29.21 Table of Ownerships Sheet

Miscellaneous Surveys and Sketches

29.22 Parcel Sketches

29.23 TIITF Sketches

29.24 Other Specific Purpose Survey(s) – N/A

29.25 Boundary Survey(s) Map

29.26 Right-of-Way Monumentation Map

29.27 Title Search Map

29.28 Title Search Report

29.29 Legal Descriptions

29.30 Final Map/Plans Comparison

The PSM will perform a comparison of the final right-of-way maps with the available construction plans to review the correctness of the type of parcel to be acquired and the stations/offsets to the required right-of-way. The PSM will coordinate with the EOR to resolve any conflicts or discrepancies and provide documentation of the review.

29.31 Field Reviews

29.32 Technical Meetings

29.33 Quality Assurance/Quality Control

29.34 Supervision

29.35 Coordination

The CONSULTANT shall coordinate their work with any and all adjacent and integral consultants so as to produce a final and complete mapping product for the project(s) described herein.

29.36 Supplemental Mapping

30 TERRESTRIAL MOBILE LiDAR

See the Task Work Order Scope of Services for the following Section 30 subsections that apply to the assigned project.

The CONSULTANT shall perform Terrestrial Mobile LiDAR tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

In addition to the maps and LiDAR products, the CONSULTANT shall submit all computations and reports to support the mapping. This will include documentation of all decisions reached from meetings, telephone conversations, and site visits.

30.1 Terrestrial Mobile LiDAR Mission Planning

Research and prepare materials necessary for the successful execution of the Mobile LiDAR Mission. This includes but is not limited to route and safety planning, GPS /data acquisition scheduling, weather reports, and site terrain research.

30.2 Project Control Point Coordination

All efforts necessary to coordinate the proper placement of project ground control i.e., base stations, transformation control points, and validation points, supporting the Mobile LiDAR survey.

30.3 Terrestrial Mobile LiDAR Mobilization

Prepare the LiDAR sensor and vehicle for project data collection and get specialized personnel and equipment on site.

30.4 Terrestrial Mobile LiDAR Mission

Perform site calibrations of LiDAR sensor and collect laser survey data, including any simultaneous base station GPS occupations and operation of any necessary safety equipment.

30.5 Terrestrial Mobile LiDAR Processing

Download and post process collected measurement data from Mobile LiDAR vehicle sensors, and any base stations occupied during mission. Analyze Mobile LiDAR measurement points and scan route overlaps. Separate any large point cloud data sets into manageable file sizes with corresponding indexes.

30.6 Terrestrial Mobile Photography Processing

Process, reference, and name digital photographic imagery files collected during Mobile LiDAR mission.

30.7 Transformation / Adjustment

Adjust LiDAR point cloud data to Project Control points. Create point cloud data file(s) in approved digital format. Prepare required reports of precision and accuracy achieved. If this task is performed by separate firm, or is the final product to be delivered, include effort for Survey Report.

30.8 Classification / Editing

Identify and attribute (classify) point cloud data into requested groups. Classify or remove erroneous points.

30.9 Specific Surface Reporting

Prepare reports, data and/or graphics of specific surface details such as, but not limited to pavement rutting, bridge structure clearance to roadway surface.

30.10 Topographic (3D) Mapping

Produce three dimensional (3D) topographic survey map(s) from collected Mobile LiDAR data. This includes final preparation of Construction Information Management (CIM) deliverable, if applicable.

30.11 Topographic (2D) Planimetric Mapping

Produce two dimensional (2D) planimetric map(s) from collected Mobile LiDAR data.

30.12 CADD Edits

Perform final edit of graphics for delivery of required CADD files. This includes final presentation of CIM deliverable, if applicable.

30.13 Data Merging

Merge Mobile LiDAR survey and mapping files, with other field survey files, and data from other sources.

30.14 Miscellaneous

Other tasks not specifically addressed in this document.

30.15 Field Reviews

Perform on site review of maps.

30.16 Technical Meetings

Attend meetings as required.

30.17 Quality Assurance/ Quality Control

Establish and implement a QA/QC plan.

30.18 Supervision

Supervise all Terrestrial Mobile LiDAR activities. This task must be performed by the project supervisor, a Florida P.S.M.

30.19 Coordination

Coordinate with all elements of the project to produce a final product.

31 ARCHITECTURE DEVELOPMENT

See the Task Work Order Scope of Services for the following Section 31 subsections that apply to the assigned project.

PHASE I - 30% SCHEMATIC DESIGN DOCUMENTS SUBMITTAL

After receipt of written authorization to proceed from the DEPARTMENT and based on the approvals and any authorized adjustments to the Project Scope, Project Schedule or Budget, the Design Professional shall prepare, submit and present for approval by the DEPARTMENT, Phase I (30%) documents, comprised of, but not limited, to the following:

Documents

- Architectural and Civil site plan(s) showing, in addition to site survey requirements, landscaping, drainage, water retention ponds, sewage disposal and water supply system, chilled water supply and return piping and such physical features that may adversely affect or enhance the safety, health, welfare, visual environment, or comfort of the occupants.
- A statement on the site plan signed and dated by the Design Professional or his designated subconsultant, including identifying the number of existing trees, the number and size of required trees, and the number of proposed trees to be planted, and other relevant features.
- Soil testing results including a copy of the Geotechnical Engineer's report on the site, and proposed method of treatment when unusual soil conditions or special foundation problems are indicated.
- Review of anticipated GBRS points and certification level; adjust attempted points as needed to meet target certification level. Provide updated GBRS credit scorecard or checklist.

Drawing(s) to include as a minimum, the following deliverables:

- Floor plan drawn at an architectural scale that will allow the entire facility to be shown on one sheet, without breaklines, and which indicates project phasing as applicable to the Scope.
- Floor plans drawn at 3/32 inch or larger scale showing typical occupied spaces or special rooms with dimensions, sanitary facilities, stairs, elevators, identification of accessible areas for the disabled and other program requirements.
- Floor plans drawn at 3/32 inch or larger scale showing typical spaces or special rooms with dimensions, indicating door and window layouts and other relevant features.
- For alterations or additions to an existing facility: Indicate the connections and tie ins to the existing facilities, including all existing spaces, exits, plumbing fixtures and locations and any proposed changes thereto. Distinguish between new and existing areas for renovation, remodeling, or an addition and show demolition plans of areas to be removed.
- Furniture and Equipment plans drawn at 1/8 inch or larger scale showing typical spaces or special rooms with dimensions, equipment and furnishing layouts and other relevant features.
- Reflected ceiling plans drawn at 3/32 inch or larger scale showing typical spaces or special rooms with dimensions, major lighting equipment and ceiling panel layouts.
- Roof and miscellaneous plans to be drawn at 3/32 inch or larger scale showing dimensioned features penetrations, equipment and other relevant features.
- Provide design narrative and plumbing fixture locations.
- All exterior building elevations to illustrate and indicate the scale, finish, size and fenestration of the facility.
- Sufficient building and wall sections to show dimensions, proposed construction material, and relationship of finished floor to finished grades.
- Preliminary Structural Drawings to include plans and sections indicating systems, connections and foundations.
- Mechanical Drawings to include ceiling plans, location of grease trap(s), LP gas tank location, natural gas piping connection to existing utilities. Provide narrative description to include a description of proposed HVAC system equipment including the chiller, pumps, AHUs, cooling tower, electric duct heaters and other relevant features.
- Electrical Drawings include plans with lighting layouts for outdoors and major interior spaces. Show location of electrical rooms, transformers, emergency generator.

- Equipment and Furnishing Schedules to indicate major equipment that will be provided by the Contractor and those that will be provided by the DEPARTMENT or others.

Life Safety plans to show exit strategy, rated doors, emergency wall openings, range and fume hoods, eye wash, emergency showers, ramps, vertical lifts, and other relevant features.

- By symbol, indicate fire extinguishers, fire alarm equipment, smoke vents, master valves and emergency disconnects, emergency lighting, emergency power equipment, fire sprinklers, exit signs, smoke and fire dampers, and other life safety equipment relevant to the facility.
- By symbol, indicate connections and tie ins to existing equipment.

For existing facilities where remodeled or renovated spaces are required and where an ADA and code conforming ramp cannot be utilized, document proposed vertical platform lifts or inclined wheelchair lifts and provide the following documents as part of or in addition to the required life safety plans:

- Floor plans of proposed vertical platform lifts including layout drawings showing corridor widths and exiting from the affected facility.
- Sketches of proposed inclined wheelchair lift to include layout drawings showing clear and affected areas of the following conditions stairway width in the folded and unfolded position, the upper and lower platform storage locations, and the means of egress from the affected areas of the facility.

Outline Specifications (Edited Table of Contents)

- Organized to conform to the formats for outline specifications as established by the Construction Specifications Institute's current edition of Master Format on the date of execution of the Contract.
- Provide only those sections relevant to the project scope.
- Complete for Divisions 2 through 48 for finishes, material, and systems including structural, HVAC, electrical, plumbing and specialty items, including fire sprinklers, alarm systems, electronic controls and computer networking components.
- They Shall incorporate all GBRS requirements dictated by the credits being pursued for the project.

Other Requirements

- Provide a Life Cycle Cost Analysis (LCCA) for review and approval. LCCA shall be by a commercially available life cycle cost analysis program and as required by the State of Florida and the DEPARTMENT.
- Design to meet or exceed Florida Energy Efficiency Code for Building Construction (FEEC). Submit preliminary (input and output) FEEC forms.
- The Design Professional shall advise the DEPARTMENT of any adjustments to the budget and shall submit a fully detailed Phase I estimate of probable construction cost, projected to the expected time of bid and containing sufficient detail to provide information necessary to evaluate compliance with the Construction Budget set for this project. Format estimate and provide detail matching the organization and content of the project's Outline Specifications complete for Divisions 2 through 48.
- Provide an updated Project Development Schedule reflecting development and anticipated schedules for all subsequent project activities.
- Preliminary selection of materials and finishes in digital format to establish design intent. Provide two schemes for selection and approval by the DEPARTMENT. Provide documentation demonstrating compliance with GBRS requirements.

Staff from each of the Design Professional's major technical disciplines, and subconsultants shall attend coordination, review, and presentation meetings with the Owner to explain the design concept and technical resolution of their respective building or site systems.

If requested, the Design Professional shall submit five (5) sets of all documents required under this phase without additional charge, for approval by the Owner. The Design Professional shall not proceed with the next phase until the completion of all required presentations and reports are provided digitally and the Consultant receives written Authorization to Proceed with the next phase.

PHASE II - 60% DESIGN DOCUMENTS SUBMITAL:

After written Authorization to Proceed from DEPARTMENT and based on the approved Phase I documents, and any adjustments in the scope or quality of the project or in the Fixed Limit of Construction Cost authorized by DEPARTMENT, the Design Professional shall prepare for approval by DEPARTMENT, Phase II (60% Construction) Documents setting forth in detail the requirements for the construction of the Project. The Design Professional is responsible for the full compliance of the design with all applicable codes. Phase II documents comprised of, but not limited to, the following:

Documents

- Updated Florida Energy Efficiency Code for Building Construction (FEEC) (input and output) compliance forms, including calculations for mechanical systems, documenting energy efficiency ratio rating of HVAC equipment, electrical systems, insulation, and building envelope to be submitted to the DEPARTMENT for review and approval.
- Calculations: Provide preliminary calculations for structural, mechanical and electrical systems.
- Review of anticipated GBRS points and certification level; adjust attempted points as needed to meet target certification level. Provide updated GBRS credit scorecard or checklist.

Drawings

Site Plan(s) and detailing which, in addition to the Phase I requirements, indicate the following:

- Spot elevations, based on the civil grading plan, for the perimeter of the new construction, sidewalk, or any other areas pertinent to the drainage of rainwater.
- Location of storm water service for new construction roof drainage.
- Parking lot lighting poles, location, and type.
- Final location for manholes, handholds, and pull boxes.
- Layout of underground distribution systems (normal power emergency power, fire alarm, master clock, intercommunication, television, telephone, security, control and spares).
- Locations of all site improvements, playground and equipment, street furniture, planters and other features.
- Details of all curbing, typical parking spaces (regular and handicap accessible), handicap ramps, directional signage, site lighting, flagpole and fence foundations, and any other site conditions pertinent to the scope of work.

A plan to delineate staging areas, site barriers, and other area designations to control the public from construction activities and traffic.

Landscape plans and details including, a plant list clearly noted and cross-referenced, details for shrub and tree plantings, identification of plants and trees to remain, to be removed or relocated, and other necessary documentation.

Irrigation plans and details delineating the entire area of the project, and addressing necessary connections, alteration, repair or replacement of any existing irrigation.

Floor plans to include the following:

- All dimensions and any cross references explaining the extent of work, wall types, or other component, assembly or direction regarding the Construction.
- Wall chases, floor drains and rainwater leaders.
- Show structural tie columns and coordinate with the floor plan.
- Cross referenced interior elevations.
- Delineate and note all built in cabinetry or equipment.
- Identify room and door numbers with all doors having individual numbers.

Demolition Plans

Indicate required demolition activities.

- Provide separate demolition plan(s) and other drawings (elevations, sections, etc.) if the scope of work includes demolition which is too excessive to indicate in drawings depicting new construction.

- Indicate notes on the extent of the demolition: address dimensions at locations where partial walls are being removed or altered, existing room names and numbers, existing partitions, equipment, plumbing, HVAC or electrical elements,
- Include notes dealing with protection of existing areas as a result of demolition.
- Delineate any modifications to existing buildings involving structural elements within the structural documents rather than on the architectural.

Building elevations developed further than at Phase II and including delineation of building joints (including dimensionally located stucco control joints), material locations, elevation height, and other building features.

Building and wall sections to establish vertical controls and construction types. Include clear graphic, and notes on construction assemblies and systems to be used, dimensions, heights. Provide, associated detailing to delineate solutions for difficult connections.

Reflected ceiling plans to indicate ceiling types, heights, ceiling grid layout, light fixture types, mechanical diffuser and return location, and sprinkler heads if area is sprinklered. Delineate and detail any dropped soffits or joint conditions between different materials. Coordinate with architectural, electrical, mechanical, and plumbing disciplines.

Roof Plans

- Indicate all roof penetrations, including drains, scuppers, exhaust fans, and any other equipment on the roof. Show direction of roof slopes with elevations at the high and low points, type of roofing system to be used, expansion joints, typical parapet, and flashing details.
- Provide dimensions to locate all penetrations and cross-reference details.

Large scale building details as appropriate to this level of document development and as required to establish vertical controls for the Project. Include clear graphics and notes on construction assemblies and systems to be used, and dimensions and heights. Provide associated detailing to delineate solutions for difficult connections.

Interior elevations of all rooms including cross references of cabinetry details, dimensions and heights, notes indicating type of equipment (and whether equipment is in or out of contract), wall materials, finishes, and classroom equipment, and accessories.

Details of casework as necessary to appropriately delineate custom or premanufactured casework. Provide appropriate schedules referencing manufacturer's numbers or catalogs, finishes, hardware, and other construction characteristics.

Details of the following:

- Door jamb, head and sill conditions.
- Wall and partition types.
- Window head, sill and jamb conditions, and anchorage methods shown, in lieu of referencing to manufacturer's standards.
- Interior signage to include classroom and building identification, emergency exiting and equipment signs, and any other items pertinent to the identification of the project. Coordinate with electrical discipline.
- Interior and exterior expansion control connections.
- Any other specialized items necessary to clearly express the intent of the project design.

Room finishes and door schedules coordinated with the floor plans, developed to 60% completion.

Structural foundation and framing plans, with associated diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.

Mechanical Drawings

- Provide double line ductwork layout and HVAC equipment layout drawings with related diagrams and schematic diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.

- Provide dimensioned 1/2-inch scale plans, elevations and sections of the mechanical rooms showing service, clearance, room openings, nominal equipment size, ceiling height, duct clearance between bottom of joist and top of ceiling and any ceiling mounted lighting fixtures, electrical equipment or other building assembly or component, etc.

Electrical

Provide drawings for the following systems:

- Electrical Drawings include plans with lighting layouts for outdoors and major interior spaces and electrical outlets for all major spaces. Show locations of electrical rooms, transformers, emergency generator. Also show locations of mechanical equipment such as chillers, compressors, and air handler units and their respective electrical connections and other relevant features.
- Lighting including, circuiting and luminaire identification and switching. Also provide illuminance computer printout for all indoor typical indoor spaces and parking lots.
- Convenience outlets and circuiting, special outlets and circuiting, and power systems and equipment. Provide riser diagrams for all electrical systems including master clock, intercom, fire alarm, ITV, computer networking/telephone. Also, provide for emergency and normal power distribution. Provide light fixture schedule.
- Provide riser diagrams for all electrical systems including master clock, intercom, fire alarm, ITV, computer networking/telephone and emergency and normal power distribution. Provide light fixture schedule.
- Panel schedule may be in preliminary form but circuitry must be included.
- Applicable installation details.
- General legend and list of abbreviations.
- Voltage drop computations for all main feeders.
- Short circuit analysis
- Provide 1/2" scale floor plan and wall elevations for all electrical rooms.
- Indicate surge protector for main switchboard and electrical panels.

Plumbing

Provide drawings for the following systems:

- Provide fixture unit calculations, isometrics, one line diagram and riser details, schedule of common fixtures, and other relevant features.
- Provide plumbing equipment and fixture drawings with related diagrams, schedules, notes, detailing, and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.

Specifications

- Provide preliminary Project Manual including front-end documents. Completion of fill in items in Bidding documents and other "Division 0" documents is not required.
- Provide a preliminary Division 1 based upon the standard documents provided by the Owner and edited by the Design Professional after consultation with the Owner to establish project specific requirements.
- Include progress set of all other Sections in Divisions 2 through 48 with each section developed to demonstrate to the Owner an understanding of the project and an appropriate level of developmental progress comparable to that of the drawings.
- Specification sections shall be organized to follow the Construction Specification Institute's (CSI) current edition of Master Format with each section developed to include CSI's standard 3-part section and page formats with full paragraph numbering. They shall incorporate all GBRS requirements dictated by the credits being pursued for the project.

An updated Project Development Schedule, formatted as a preliminary construction schedule reflecting continued Project development and illustrating anticipated schedules for all subsequent project activities including permitting and submittal coordination with all agencies having jurisdiction on the Project, project

phasing, site, mobilization, temporary facilities, general construction sequencing, anticipated substantial completion dates, DEPARTMENT occupancy, and all other significant Project events.

Color boards illustrating color selections, finishes, textures and aesthetic qualities for all finish materials for final review and approval by the DEPARTMENT, and to establish a final palette of material selections for development of subsequent specifications, schedules and other requirements for incorporation into the Contract Documents. This may be submitted digitally if approved by the DEPARTMENT. Provide documentation demonstrating compliance with GBRS requirements.

A letter from the Design Professional and each of the major technical disciplines and any necessary subconsultants or explaining how each previous comment concerning the project has been addressed or corrected.

Staff from each of the Design Professional's major technical disciplines, and subconsultants shall attend coordination, review and presentation meetings with the Owner to explain the design concept and technical resolution of their respective building or site systems.

If requested, the Design Professional shall submit five (5) sets of all documents required under this phase without additional charge, for approval by the Owner. The Design Professional shall not proceed with the next phase until the completion of all required presentations and reports are provided digitally and the Consultant receives a written Authorization to Proceed with the next phase.

PHASE III - 100% CONSTRUCTION DOCUMENTS SUBMITTAL

After written Authorization to Proceed from DEPARTMENT and based on the approved Phase II documents and any adjustments in the scope or quality of the project or in the Fixed Limit of Construction Cost authorized by DEPARTMENT, the Design Professional shall prepare for approval by DEPARTMENT, Phase III (100% Construction) Documents setting forth in detail the requirements for the construction of the Project. The Design Professional is responsible for the full compliance of the design with all applicable codes. Phase III documents are to be comprised of, but not limited to, the following:

General Requirements - Digital submittals are acceptable upon the approval of the DEPARTMENT.

- Updated Florida Energy Efficiency Code for Building Construction (FEEC) (input and output) compliance forms. Submit five (5) copies signed and sealed by a State of Florida registered design professional.
- Signed and Sealed/Statements of Compliance: Only complete documents, properly signed and sealed by the Project Consultant and respective subconsultants, will be accepted for review; in addition, these documents shall contain a statement of compliance by the architect or engineer of record as follows: "To the best of my knowledge and belief these drawings, and the project manual are complete, and comply with the Department of Transportation Requirements".
- Submit engineering calculations for mechanical, electrical, and structural systems in a separately bound manual.
- Review of anticipated GBRS points and certification level; adjust attempted points as needed to meet target certification level. Provide updated GBRS credit scorecard or checklist.

Drawings

The drawings shall include all previous phase review requirements, and the Phase III 100% document requirements specified above, along with the following:

- Site plans including, but not limited to, area location map, legal description of property, demolition, excavation, utilities, finish grading, landscaping, mechanical, electrical, civil/structural, and architectural site plans:
- Drawings include at a minimum, the following:
 - Key sheets including a table of contents and statement of compliance by the design professional. Each discipline shall have a list of abbreviations, schedule of material indications, and schedule of notations and symbols at the beginning of their section of the plans.
 - Architectural drawings including floor plans, door, window and finish schedules, roof plans, elevations, sections, and details.

- Civil/Structural drawings including paving, traffic loops, service drives, parking; drainage; foundation plans; floor plans; roof plans; structural plans; sections; details; and, pipe, culvert, beam and column schedules.
- Mechanical drawings including floor plans; sections; details; riser diagrams; kitchen exhaust hoods; and, equipment, fan, and fixture schedules.
- Electrical drawings including floor plans; sections; details; riser diagrams, and fixture and panel schedules.
- The drawings should indicate that the approved mechanical/electrical systems, from the previous phases FEEC/LCCA analysis, have been incorporated into the documents.

Specifications

- Provide a complete Project Manual including front-end documents. Completion of fill in items in Bidding documents and other "Division 0" documents is not required.
- Provide a complete Division 1 based upon the standard documents provided by the Owner and edited by the Design Professional after consultation with the Owner to establish project specific requirements.
- Provide a complete set of all other Sections in Divisions 2 through 48 with each section developed to demonstrate to the Owner an understanding of the project and an appropriate level of developmental progress comparable to that of the drawings.
- Specification sections shall be organized to follow the Construction Specification Institute's (CSI) current edition of Master Format with each section developed to include CSI's standards 3-part section and page formats with full paragraph numbering. They shall incorporate all GBRs requirements dictated by the credits being pursued for the project.

Staff from each of the Design Professional's major technical disciplines, and subconsultants shall attend coordination, review and presentation meetings with the Owner to explain the design concept and technical resolution of their respective building or site systems.

If requested, the Design Professional shall submit five (5) sets of all documents required under this phase without additional charge, for approval by the Owner. The Design Professional shall not proceed with the next phase until the completion of all required presentations and reports are provided digitally and the Consultant receives a written Authorization to Proceed with the next phase.

PHASE IV FINAL BID DOCUMENTS SUBMITTAL:

After written Authorization to Proceed from DEPARTMENT and based on the approved Phase III documents and any adjustments in the scope or quality of the project or in the Fixed Limit of Construction Cost authorized by DEPARTMENT, the Design Professional shall prepare for approval by DEPARTMENT, Phase IV (Release for Construction, or RFC) Documents setting forth in detail the requirements for the construction of the Project: The Design Professional is responsible for the full compliance of the design with all applicable codes. Phase IV documents are to be comprised of, but not limited to, the following:

General Requirements - Digital submittals are acceptable upon approval of the DEPARTMENT.

- This submittal is the official record set and shall be the bid documents.
- Signed and Sealed/Statements of Compliance: Only complete documents, properly signed and sealed by the Project Consultant and respective subconsultants, will be accepted for review; in addition, these documents shall contain a statement of compliance by the architect or engineer of record as follows: "To the best of my knowledge and belief these drawings, and the project manual are complete, and comply with the DEPARTMENT of Transportation Requirements".
- Submit engineering calculations for mechanical, electrical, and structural systems in a separately bound manual.
- Update anticipated GBRs points and certification level; adjust attempted points as needed to meet target certification level. Provide updated GBRs credit scorecard or checklist.

Drawings

The drawings shall include all previous phase review requirements, and the Phase IV final document requirements specified above, along with the following:

- Site plans including, but not limited to, area location map, legal description of property, demolition, excavation, utilities, finish grading, landscaping, mechanical, electrical, civil/structural, and architectural site plans:
- Drawings include at a minimum, the following:
 - Key sheets including a table of contents and statement of compliance by the design professional. Each discipline shall have a list of abbreviations, schedule of material indications, and schedule of notations and symbols at the beginning of their section of the plans.
 - Architectural drawings including floor plans, door, window and finish schedules, roof plans, elevations, sections, and details.
 - Structural drawings including foundation plans; floor plans; roof plans; structural plans; sections; details; and beam and column schedules.
 - Mechanical drawings including floor plans; sections; details; riser diagrams; kitchen exhaust hoods; and equipment, fan, and fixture schedules.
 - Electrical drawings including floor plans; sections; details; riser diagrams, and fixture and panel schedules.
 - The drawings should indicate that the approved mechanical/electrical systems, from the previous phases FEEC/LCCA analysis, have been incorporated into the documents.

Specifications

- Provide a final Project Manual including front-end documents. Completion of fill in items in Bidding documents and other "Division 0" documents is not required.
- Provide a final Division 1 based upon the standard documents provided by the Owner and edited by the Design Professional after consultation with the Owner to establish project specific requirements.
- Provide a final set of all other Sections in Divisions 2 through 48 with each section developed to demonstrate to the Owner an understanding of the project and an appropriate level of developmental progress comparable to that of the drawings.
- Specification sections shall be organized to follow the Construction Specification Institute's (CSI) current edition of Master Format with each section developed to include CSI's standards 3-part section and page formats with full paragraph numbering. They shall incorporate all GBRS requirements dictated by the credits being pursued for the project.

Upon completion of the Final Bid Documents, the Design Professional shall submit to the Owner five (5) copies of the Drawings, Specifications, reports, programs, a final updated Project Development Schedule, a final updated Statement of Probable Construction Cost and such other documents as reasonably required by Owner.

All documents for this phase shall be provided in both hard copy and in electronic media. The DEPARTMENT will approve Phase IV documents for submission to the DEPARTMENT for review and approval.

Architectural Plans

31.1 Architectural Program Review/Verification

31.2 Key Sheet and Index of Sheets

31.3 General Notes, Abbreviations, Symbols, and Legend

31.4 Life Safety Plans

31.5 Site Plans

31.6 Floor Plans (small scale)

31.7 Floor Plans (large scale)

- 31.8 Exterior Elevations**
- 31.9 Roof Plans**
- 31.10 Roof Details**
- 31.11 Interior Elevations**
- 31.12 Rest Room Plans (Enlarged)**
- 31.13 Rest Room Elevations**
- 31.14 Building Sections**
- 31.15 Stair Section, Enlarged Stair Plan and Details**
- 31.16 Reflective Ceiling Plans**
- 31.17 Room Finish Schedule or Finish Plan**
- 31.18 Door and Window Finish Schedule**
- 31.19 Door Jamb Details and Window Details**
- 31.20 Exterior Wall Sections**
- 31.21 Interior Wall Sections**
- 31.22 Overhead Door Details**
- 31.23 Curtain Wall Details**
- 31.24 Fascia, Soffit and Parapet Details**
- 31.25 Signage Details**
- 31.26 Miscellaneous Details**
- 31.27 Repetitive Sheets**
- 31.28 Design Narrative Reports**
- 31.29 Permitting**
- 31.30 Other Pertinent Project Documentation**
- 31.31 Cost Estimate**
- 31.32 Technical Special Provisions and Modified Special Provisions Packages**
- 31.33 Field Reviews**
- 31.34 Technical Meetings**
 - 31.34.1 FDOT**
 - 31.34.2 Local Governments (cities)**
 - 31.34.3 Local Governments (counties)**
 - 31.34.4 Other Meetings**

31.34.5 Progress Meetings

31.34.6 Phase Review Meetings

31.35 Quality Assurance/Quality Control

31.36 Meeting with Independent Peer Review

31.37 Supervision

Structural Plans

31.38 General Notes, Abbreviations, Symbols, and Legend

31.39 Foundation Plans (Small Scale)

31.40 Foundation Plans (Large Scale)

31.41 Slab Plans (Small Scale)

31.42 Slab Plans (Large Scale)

31.43 Slab Placement Plans

31.44 Slab Placement Details

31.45 Foundation Sections

31.46 Foundation Details

31.47 Slab Sections

31.48 Slab Details

31.49 Roof Framing Plans (Small Scale)

31.50 Roof Framing Plans (Large Scale)

31.51 Roof Loading Plans and Details

31.52 Roof Sections

31.53 Roof Details

31.54 Bearing Wall Sections

31.55 Bearing Wall Details

31.56 Column Sections

31.57 Column Details

31.58 Miscellaneous Sections

31.59 Repetitive Sheets

31.60 Other Pertinent Project Documentation

31.61 Cost Estimate

31.62 Technical Special Provisions and Modified Special Provisions Packages

31.63 Field Reviews

31.64 Technical Meetings

31.64.1 FDOT

31.64.2 Local Governments (cities)

31.64.3 Local Governments (counties)

31.64.4 Other Meetings

31.64.5 Progress Meetings

31.64.6 Phase Review Meetings

31.65 Quality Assurance/Quality Control

31.66 Independent Peer Review

31.67 Supervision

Mechanical Plans

31.68 General Notes, Abbreviations, Symbols, Legend, and Code Issues

31.69 Plans (Small Scale)

31.70 Plans (Large Scale)

31.71 Details

31.72 Sections

31.73 Piping Schematics

31.74 Control Plans

31.75 Schedules

31.76 HVAC Calculations

31.77 Life Cycle Cost Analysis

31.78 Repetitive Sheets

31.79 Other Pertinent Project Documentation

31.80 Cost Estimate

31.81 Technical Special Provisions and Modified Special Provisions Packages

31.82 Field Reviews

31.83 Technical Meetings

31.83.1 FDOT

31.83.2 Local Governments (cities)

31.83.3 Local Governments (counties)

31.83.4 Other Meetings

31.83.5 Progress Meetings

31.83.6 Phase Review Meetings

31.84 Quality Assurance/Quality Control

31.85 Independent Peer Review

31.86 Supervision

Plumbing Plans

31.87 General Notes, Abbreviations, Symbols, Legend, and Code Issues

31.88 Plans (Small Scale)

31.89 Plans (Large Scale)

31.90 Isometrics (Large Scale)

31.91 Riser Diagrams

31.92 Details

31.93 Repetitive Sheets

31.94 Other Pertinent Project Documentation

31.95 Cost Estimate

31.96 Technical Special Provisions and Modified Special Provisions Packages

31.97 Field Reviews

31.98 Technical Meetings

31.98.1 FDOT

31.98.2 Local Governments (cities)

31.98.3 Local Governments (counties)

31.98.4 Other Meetings

31.98.5 Progress Meetings

31.98.6 Phase Review Meetings

31.99 Quality Assurance/Quality Control

31.100 Independent Peer Review

31.101 Supervision

Fire Protection Plan

31.102 General Notes, Abbreviations, Symbols, Legend, and Code Issues

31.103 Fire Protection Plan

- 31.104 Riser Diagram, Details, and Partial Plans**
- 31.105 Hydraulic Calculation**
- 31.106 Repetitive Sheets**
- 31.107 Other Pertinent Project Documentation**
- 31.108 Cost Estimate**
- 31.109 Technical Special Provisions and Modified Special Provisions Packages**
- 31.110 Field Reviews**
- 31.111 Technical Meetings**
 - 31.111.1 FDOT**
 - 31.111.2 Local Governments (cities)**
 - 31.111.3 Local Governments (counties)**
 - 31.111.4 Other Meetings**
 - 31.111.5 Progress Meetings**
 - 31.111.6 Phase Review Meetings**
- 31.112 Quality Assurance/Quality Control**
- 31.113 Independent Peer Review**
- 31.114 Supervision**
- Electrical Plans
 - 31.115 General Notes, Abbreviations, Symbols, Legend, and Code Issues**
 - 31.116 Electrical Site Plan**
 - 31.117 Lighting Plans**
 - 31.118 Lighting Fixtures Schedules**
 - 31.119 Lighting Fixtures Details**
 - 31.120 Lightning Protection Plans**
 - 31.121 Lightning Protection Details**
 - 31.122 Power Plans**
 - 31.123 Power Distribution Riser Diagrams**
 - 31.124 Panel Board Schedules**
 - 31.125 Data Plans**
 - 31.126 Data Details**
 - 31.127 Communication Plans**

31.128 Communication Details

31.129 Security Alarm System Plans

31.130 Miscellaneous Details

31.131 Repetitive Sheets

31.132 Energy Analysis

31.133 Other Pertinent Project Documentation

31.134 Cost Estimate

31.135 Technical Special Provisions and Modified Special Provisions Packages

31.136 Field Reviews

31.137 Technical Meetings

31.137.1 FDOT

31.137.2 Local Governments (cities)

31.137.3 Local Governments (counties)

31.137.4 Other Meetings

31.137.5 Progress Meetings

31.137.6 Phase Review Meetings

31.138 Quality Assurance/Quality Control

31.139 Independent Peer Review

31.140 Supervision

31.141 GBRS Certification

31.141.1 GBRS Coordination Meetings

31.141.2 GBRS Commissioning

31.141.3 GBRS Green Credit

31.142 Coordination

31.143 Building Information Modeling (BIM)

32 NOISE BARRIERS IMPACT DESIGN ASSESSMENT IN THE DESIGN PHASE – N/A

33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS

See the Task Work Order Scope of Services for the following Section 33 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Intelligent Transportation System (ITS) Analysis Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, existing ITS standard operating procedures, ITS master and strategic plans, Florida's SEMP guidelines, National, statewide and/or regional ITS architectures, and current design bulletins.

33.1 ITS Analysis

The CONSULTANT shall review the previously prepared and approved preliminary engineering report(s), typical section package, traffic technical memorandum, adjacent projects programmed by the DEPARTMENT and other local highway agencies, and proposed geometric design alignment to identify impacts to existing ITS components (if applicable) and proposed ITS field device placements. The CONSULTANT shall review the project intelligence files provided by the District's asset maintenance agent(s) related to all previously constructed ITS projects and maintenance documentation for the project corridor to ensure all cited ITS elements are included in this project for replacement and/or restoration.

Systems Engineering Analysis

The CONSULTANT shall perform a systems engineering analysis including a Concept of Operations (ConOps), Project Systems Engineering Management Plan (PSEMP), Requirements Traceability Verification Matrix (RTVM), and other documents as necessary based on project complexity and risk as required by Florida Department of Transportation Systems Engineering and Intelligent Transportation Systems (ITS) Architecture Procedure (Procedure Number 750-040-003).

Design Guidelines

The CONSULTANT shall use applicable DEPARTMENT requirements and guidelines, including, but not limited to, the FDM, Standard Plans, and Standard Specifications for Road and Bridge Construction in the design of ITS. The CONSULTANT design is expected to include the following attributes, facilities, infrastructure, ITS devices, systems, and associated work *listed in the Task Work Order Scope of Services*.

The CONSULTANT shall review the existing TMC Operations and develop additional incident management service requirements as necessary to support during the Construction Phase of the Project. The CONSULTANT shall coordinate with District's TSM&O Office for additional information regarding existing Incident Management and TMC Operational Procedures (If desired by the District).

All ITS devices shall be compatible with the latest version of the National Transportation Communications for ITS Protocol (NTCIP) and compatible with SunGuide software platform.

The CONSULTANT shall design the project such that all ITS field devices and ancillary components comply with FDOT's Approved Product List (APL) or, when applicable and approved by the DEPARTMENT, FDOT's Innovative Product List (IPL) and are supported within the SunGuide software or other software approved by the DEPARTMENT.

Closed Circuit Television (CCTV) Subsystem

CCTV devices shall be spaced and located as required to meet the Project requirements, Standard Specifications, FDM Section 233.10, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT. The CONSULTANT shall be responsible for the design and exact field locations for the camera assemblies. The camera subsystem shall provide overlapping coverage to overcome visual blockage and to monitor DMS messages, and toll-amount DMS, as directed by the DEPARTMENT.

The CONSULTANT shall select CCTV technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT. CCTV assemblies may include a camera lowering device (CLD), as directed by the DEPARTMENT.

Per FDM 233.6 and FDM 233.10, the position, height, and design of each camera pole shall be finalized during the design phase of the project. The maximum distance of this type of camera from the DMS sign is specified in FDM. The minimum distance from the DMS sign shall be determined by the CONSULTANT to provide full viewing of the DMS legends based on the analysis performed and approved by the District ITS office. Such analysis includes viewing angle, horizontal and vertical control determination based on the CCTV camera manufacturers that are on APL.

If required by the DEPARTMENT, the CONSULTANT shall determine the camera location by performing a videography study at each proposed camera site. The study shall include video at the proposed camera location and elevation with respect to the roadway elevation. The CONSULTANT shall identify the final number and locations of the camera assemblies based on the videography study.

The camera system design shall ensure that the video quality is not degraded due to wind or vibration. The CONSULTANT shall be responsible for the design of the poles and foundations to minimize the potential for vibration. The CONSULTANT shall prepare cross section plan sheets showing details of horizontal and vertical clearances of the proposed equipment with identified utilities.

Vehicle Detection Subsystem

Vehicle detection devices shall be spaced as required to meet the Project requirements (speed, volume, and occupancy detection), Standard Specifications, FDM Section 233.9, District specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select vehicle detection technology to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT. Detection technologies include induction loops, video imaging, microwave, thermal imaging, wireless magnetometer, and vehicle probe detection systems. In the case of the arterial management systems with a systemwide signal controlled intersections, the CONSULTANT shall select vehicle detection technology type that is currently being used by the local maintaining agencies, if applicable.

The CONSULTANT shall be responsible for the design of a non-intrusive vehicle detection subsystem for the limited access roadway facilities, arterials and sub-arterials with signalized intersections as required by the DEPARTMENT and by local maintaining agencies and specified in the scope of services. The detectors shall be positioned near other ITS field device infrastructure including the fiber-optic splice vaults when feasible to reduce cost. Final detection station locations shall be based on the number of location variables identified during the design phase.

Automatic Vehicle Identification (AVI) Subsystem

AVI detection devices shall be spaced as required to meet the Project requirements, Standard Specifications, FDM 233.9.5, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select AVI technology to meet the Project needs, Standard Specifications, FDM, District-specific requirements, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall coordinate all design efforts for use of SunPass AVI transponders with the Florida's Turnpike Enterprise (FTE) Tolls technical personnel.

Dynamic Message Sign (DMS) Subsystem

The CONSULTANT shall be responsible for the design of the DMS subsystem for the roadway facilities. Both expressway and arterial dynamic message signs (DMS) shall be located to meet the Project requirements, Standard Specifications, FDM 233.11, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT. All FDOT FDM requirements shall be met for DMS

locations. DMS locations shall be designed in conjunction with the Project's master signing design. The position of each DMS shall be finalized during the design phase of the project.

The CONSULTANT shall select DMS technology, type, and display to meet the Project requirements and ConOps requirements.

The CONSULTANT shall locate the DMS to satisfy the required sign functionality and to provide the required visibility of the signs. The project communications system shall enable full control of the DMS from the TMC facilities. All DMS hardware, software and related infrastructure components shall be fully compatible with SunGuide software. All DMS shall include a dedicated confirmation CCTV camera that allows for visual verification of the messages posted on the DMS by a TMC Operator (if desired by the District).

The CONSULTANT shall design support structures to accommodate the specified DMS to meet the design functional, operational, and maintenance requirements.

Arterial Dynamic Message Sign (ADMS) Subsystems (Front Access)

ADMS shall be spaced as required to meet the Project requirements, Standard Specifications, FDM Section 233.11, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select ADMS technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The ADMS shall be placed for the purpose of Traffic Incident Management (TIM), Integrated Corridor Management (ICM), Active Arterial Management (AAM), and other applications as directed by the DEPARTMENT. ADMS on arterial roadways are to be placed at a distance from the on-ramps of the limited access facilities determined by traffic analysis of the arterial back of queue and to allow time for the motorists to read the sign messages. Communication with ADMS shall be designed so that they can be managed and maintained by the District TMC. All FDOT FDM requirements shall be met for ADMS locations. ADMS locations shall be designed in conjunction with the Project's master signing design on major widening projects. All ADMS shall include a dedicated confirmation CCTV camera that allows for visual verification of the messages posted on the DMS by a TMC Operator (if desired by the District).

Embedded Dynamic Message Signs

Embedded DMS shall be spaced as required to meet the Project requirements, Standard Specifications, FDM Section 233.11, District-specific requirements, express lanes requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select Embedded DMS technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT design shall include Embedded DMS signs when the project is part of a toll facility, part of an express lanes facility, part of a truck parking availability system, or other usage described in the ConOps, as required by the DEPARTMENT. The Embedded DMS signs are comprised of DMS panels embedded in a static sign panel. The Embedded DMS may have one or more line of text depending upon the application. Embedded DMS are to be located on the main line, express lanes, ramps, and on the crossroads as required to meet the project needs.

All Embedded DMS shall include a dedicated confirmation CCTV camera that allows for visual verification of the messages posted on the Embedded DMS by a TMC Operator (if desired by the District).

Dynamic Trailblazing Sign Subsystems (DTBS)

DTBS shall be spaced as required to meet the Project requirements, Standard Specifications, FDM, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT to support evacuation, incident management, detour management, special event traffic management, active arterial management and/or integrated corridor. If directed by the DEPARTMENT, the CONSULTANT shall develop the well-defined active traffic management detour plan.

The CONSULTANT shall select DTBS technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall design the DTBS to recommend directions of travel to motorists. The active DTBS Embedded DMS and/or blank-out signs shall be sized based on the proposed legends or cardinal directions used for the active traffic management detour plans. The DTBS shall be connected to the fiber optic network to be operated and managed at the TMC. The DTBS will be mounted on new support structure or if mounted on existing structure, the required structural analysis shall be performed for the existing structure. The size and types of dynamic and active portion of the signs shall be coordinated with the District ITS office prior to design.

Roadway Weather Information Systems (RWIS)

RWIS shall be spaced as required to meet the Project requirements, Standard Specifications, FDM 233.12.1, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select RWIS technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall develop or modify Technical Special Provisions or Modified Special Provisions for RWIS based upon the unique needs of the project. The CONSULTANT shall ensure that, each RWIS site consists of a remote processing unit (RPU), communication hardware, and determine the site-specific components from below, as required by the DEPARTMENT:

- Fog/Smoke Detection sensor;
- Classifying Precipitation;
- Precipitation Occurrence Sensor;
- Water Film Height Sensor;
- Air Temperature/Relative Humidity Sensor;
- Wind Speed and Direction Sensor;
- RWIS Tower/Pole Structure, foundation, base, and cabinet with electrical service, and lightning protection & grounding assembly; and,
- Communication hardware.

When required by the DEPARTMENT, the Water Film Height Sensor shall be included in the RWIS design for hydroplaning detection and to activate advance warning signs with flashing beacons. The RWIS Water Film Height Sensor shall be a fully autonomous Non-Invasive Road Weather Intelligent Sensor (NIRS) with optical principles mounted above the roadway that can measure the water film depths and temperature for the purpose of determining hydroplaning conditions and warning the motoring public. In addition, it shall communicate via 120 volts active current (VAC) Web Relay Controller with one (1) or more Flashing Beacon Warning Signs, and Fiber Optic-Based Communications to the TMC. It shall include all ancillary components required for a complete and acceptable operational system. This ITS subsystem shall be connected to the existing Department ITS and fiber optic network via a proposed new Managed Field Ethernet Switch (MFES) inside a proposed local hub. This ITS subsystem shall provide real time data and analog outputs for roadway water film height and ice detection layer thickness and values.

Traffic Signal Data Subsystem

The Traffic Signal Data Subsystem shall be provided at locations as required to meet the Project requirements, Standard Specifications, FDM, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select Traffic Signal Data Subsystem technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall design the Traffic Signal Data Subsystem to include, as a minimum, Advance Transportation/Traffic Controllers (ATC) provided at the signalized intersections. The ATC shall include an open architecture hardware and software platform to interface with the latest network-wide supervisory Advanced Traffic Management System (ATMS) software currently being used by the local highway agencies supporting a wide variety of Intelligent Transportation Systems (ITS) applications. This includes traffic management, safety, and security.

The CONSULTANT shall design other data-related applications for the Traffic Signal Data Subsystem, as directed by the DEPARTMENT, such as for basic Connected and Automated Vehicles (CAV) elements, ramp signaling, reliable data collection and analytics using Automated Traffic Signal Performance Measures (ATSPM), and edge computing capabilities.

Connected and Automated Vehicles (CAV) Subsystems

The CAV Subsystem shall be provided at locations as required to meet the Project requirements, Standard Specifications, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select CAV Subsystem technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall develop or update CAV Subsystem Technical Special Provisions or Modified Special Provisions (MSP/TSP) for Roadside Units (RSU) and other CAV Subsystem features based upon the unique needs of the project. The CONSULTANT shall ensure that each RSU site consists of a remote processing unit (RPU), communication hardware, mounting hardware, cabling, power supply, and other site-specific components as required. The CONSULTANT shall develop RSU requirements for communication between connected vehicles and roadside equipment such as ATC, detection systems, and warning beacons that are compatible with both Cellular Vehicle to Everything (C-V2X) communication and Dedicated Short Range Communication (DSRC) national standards and protocols. The CONSULTANT shall also coordinate FCC licensing requirements for two-way real-time CV2X communication and DSRC, depending on national standards and policies, with the DEPARTMENT's Statewide TSM&O program office. The MSP/TSP shall address integration with the DEPARTMENT's Security Management Credential System (SCMS) requirements.

The MSP/TSP shall require RSU field equipment to be on the FDOT APL, the FDOT IPL or, as a minimum, tested at the Traffic Engineering Research Laboratory (TERL) prior to approval for use on the project. The MPS/TSP shall require RSU field equipment to be supported by the central system in the TMC and to be capable of transmitting required messages and data to and from the roadway and users via vehicle on-board units (OBU) and other mobile devices over the applicable communication schema in compliance with industry standards.

When used inside a traffic signal cabinet, the CONSULTANT shall ensure the cabinet is equipped with ATC and the RSU is connected to the signal controller, Ethernet switch, and the above ground radio, and GPS antennas.

When used on the interstate, the CONSULTANT shall develop the TSP/MSP to ensure the RSU is housed inside a corrosion-resistant enclosure that is NEMA 4X with IP66 rating, and meets the system requirements broken into the following categories:

- Power
- Environmental

- Physical
- Functional
- Performance
- Interface

Wrong-way Vehicle Detection Systems (WWVDS)

The WWVDS shall be provided at locations as required to meet the Project requirements, Standard Specifications, FDM, Traffic Engineering and Operations Bulletin 19-03, District specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select WWVDS technologies to meet the Project needs, ConOps requirements, Traffic Engineering and Operations Bulletin 19-03, and as approved by the DEPARTMENT.

The CONSULTANT shall select the WWVDS technology for compatibility with the District SunGuide™ software version and to meet the project needs. The WWVDS shall collect and process data locally prior to sending a notification to the TMC. The CONSULTANT shall design the WWVDS for remote configuration, calibration, monitoring, and diagnostic of real time traffic activities from the TMC using the SunGuide™ software and software provided by the detection system vendor. The WWVDS shall perform to meet the project requirements under all environmental and traffic conditions expected for the corridor. The WWVDS shall detect wrong way drivers within the specified accuracy. Vibration and shocks shall not affect the performance of the system. The WWVDS and highlighted signs shall be hardwired for power and communications to the main controller. Design shall be in accordance with Traffic Engineering and Operations Bulletin 19-03.

Structural Health Monitoring System (SHMS) Connectivity Subsystem

The SHMS connectivity shall be provided at locations as required to meet the Project requirements, Standard Specifications, FDM, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select SHMS connectivity technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall design the SHMS connectivity subsystem which includes a fully operational ITS cabinet containing the data acquisition logger, MFES, UPS, RPMU, and all necessary surge protection devices to receive the data from various optical sensors or non-optical sensors connected to the local data acquisition enclosures installed inside the bridge arches, attached inside the girders, and the stayed cables supporting the main spans. The CONSULTANT shall coordinate with the structural and SHMS disciplines to provide for a collapsed ring topology of the communication scheme and provide for connectivity to the fiber optic network. The SHMS data shall be transmitted via the existing and proposed 10 Gigabits per second fiber optic cable plant to the designated remote operation center for monitoring by the District Bridge Operations and Maintenance.

The CONSULTANT is not responsible for the design and location of the SHMS sensors, sensor types, electrical, and data acquisition enclosures and hardware.

Ramp Signaling Subsystem (RSS)

The RSS shall be provided at locations as required to meet the Project requirements, Standard Specifications, FDM 233.12.2, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select RSS technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

The CONSULTANT shall design the Ramp Signaling Subsystem at the locations determined by the Department as part of previous traffic studies that justified the installation. The RSS shall provide the TMC the ability to remotely control the RSS via current controlling software supported by the SunGuide™. The RSS shall include the following components:

- Cabinet equipment including: controller, modem, display panel, detector amplifiers, output/power distribution assembly, load switches, current monitor, flasher for warning sign beacon, ability to support continuous operation for a minimum 2 hours in the event of power loss, and report power management unit.
- Supporting infrastructure including: conduits; RSS monitoring CCTV; two-head (red and green) LED signal display; and, LED flashing beacons.
- Detection including: mainline (upstream and downstream), RSS demand and passage, and ramp queue detectors.
- Signing including: Ramp Signaled When Flashing (W3-4); One Vehicle per Green (R10-13); Two Vehicle per Green (Modified R10-13), if needed; All Vehicles Stop on Red; One car per Green Each Lane (R89-1); Right Lane Ends (W4-2R); Merging Traffic (W4-1)
- Pavement markings including: 12-inch-wide stop bar running from edge line to edge line and 6-inch-wide solid white centerline for a minimum distance of 250 feet upstream of the stop bar and terminated at the stop bar on two-lane metered ramps.

Truck Parking Availability System (TPAS)

The TPAS shall be designed at locations as required to meet the Project requirements, Standard Specifications, FDM, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall select TSPA Subsystem technologies to meet the Project needs, ConOps requirements, and as approved by the DEPARTMENT.

ITS Software Subsystem

The ITS Software Subsystem shall be provided as required to meet the Project requirements, Standard Specifications, FDM, District-specific requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

The CONSULTANT shall develop ITS Software Subsystem requirements to meet Project needs, the ConOps, and as approved by the DEPARTMENT.

Referring to the camera subsystem paragraph above, a stand-alone DMS confirmation camera shall be designed and installed to support TMC operations to verify and confirm the posted DMS messages (if desired by the DEPARTMENT).

33.2 Communications Subsystem Analysis

See FDM 233.4, 233.5, and 233.8 for communication systems design requirements. The CONSULTANT shall review the existing communication files in GIS or PDF format provided by the DEPARTMENT and or the local highway agencies and create an overall communication map to summarize mapping data associated with the fiber optic conduits and cables connectivity. This provides a communication location-based intelligence for the project and will be used in the communication design. In addition, the CONSULTANT shall include high level overview of how the project corridor(s) are connected to the TMC communication network including the existing and proposed master communication hubs.

The CONSULTANT shall develop a communications plan to determine the optimal communications medium for the project corridor. The plan shall be developed prior to submittal of Phase I plans. The plan shall identify communications media alternatives and provide a cost estimate that includes initial, operations and maintenance cost for the life cycle of the communications network. The plan shall ensure that video, voice, and data will be communicated in real-time between center to-field and center-to-center

(C2C) nodes as applicable. The communications system design must utilize non-proprietary, open architecture, standards-based, robust, scalable, and proven technology. The communication plan analysis shall address communication and connections between field devices, communications and connections between field devices and the TMC, center-to-center communications between TMCs, and any other communication links or connections required to meet project goals and ConOps guidance. The plan must include bandwidth analysis and recommendations, needs assessment, and provide recommendations regarding minimum requirements, media, network devices, protocols, network topology, communication redundancy, future needs, spare capacity, and any communications or data sharing with other agencies.

The plan must include loss budget analysis and calculations for the optical cable lengths and bandwidth. The CONSULTANT shall provide the calculations confirming the loss budgets are in conformance with allowable values established in the standard specifications. The CONSULTANT shall calculate the loss budgets based on distance, anticipated fusion splices, and connectors to ensure the cabling will work with the links intended to be used. After installation, the loss budget for the cabling is compared to the actual test results during final acceptance to ensure the cable plant is installed properly.

For major widening projects where the existing underground fiber optic communication cables and ITS sites are impacted, the CONSULTANT shall review the roadway, drainage, and TTCP plans to analyze and identify the magnitude of impact to the existing ITS infrastructure. The CONSULTANT shall prepare the Maintenance of Communication (MOC) concept that supports the final design in efforts to maintain and sustain center-to-field device connectivity and operability to the existing ITS field devices previously deployed along the project corridor. The MOC analysis shall consider and mitigate the impacts of the project's various construction phases so as to sustain center-to-field devices connectivity and operability in order to maintain operational quality as a minimum at the level provided prior to construction start and minimizing down time of the critical devices.

After approval of the plan, the CONSULTANT shall submit a revised plan including a detailed design analysis for each submittal. The CONSULTANT's communications design shall include multiple redundant paths for each location, which allows for automatic switching of communications path onto a secondary path, if the primary path is impacted (if desired by the District).

33.3 Grounding, Surge Suppression, and Lightning Protection Analysis

The CONSULTANT shall be responsible for a complete and reliable grounding, surge suppression, and lightning protection design to provide personnel and equipment protection against faults, surge currents and lightning transients. When Standards Plans depicting air terminal device heights above poles or equipment are not available, the height of the air terminal above poles or equipment shall be determined using applicable standards. See FDM 233.3.8 for additional design requirements.

33.4 Power Subsystem

See FDM Section 233.3 for ITS Power Design Requirements. The CONSULTANT shall be responsible for an electrical design in accordance with all NEC requirements. No solar power should be utilized as a power solution for the Project unless otherwise approved by the DEPARTMENT. To enhance power reliability, the CONSULTANT shall design a power distribution and backup system consisting of, at a minimum, underground power conduits and conductors, transformers, diesel fuel generators, automatic transfer switches (ATS), uninterruptable power supply (UPS), electrical distribution panel, equipment framing, reinforced concrete pad for the generator, site drainage, site security fencing and security camera (as directed by the DEPARTMENT), power command and control, Ethernet-based Modbus, and ITS Cabinet with Remote Power Management Unit (RPMU), and all associated equipment. The power backup system shall supply electrical power in event of commercial power supply failure for all system components. Power equipment shall be installed in areas to avoid wet locations. All connections and equipment shall be protected from moisture and water intrusion. The CONSULTANT shall ensure that vandal resistant mechanisms for all electrical infrastructure shall be included as part of the Design.

The CONSULTANT shall submit the power system design and voltage drop calculations for the power distribution system as part of phase II, III, and IV design submittals. The CONSULTANT shall conduct a short circuit and protection coordination study for the designed power system and document the study as part of the power system design report.

33.5 Voltage Drop Calculations

See FDM Section 233.3.6 for voltage drop design requirements. The electrical design shall address allowable voltage drops per the NEC. The CONSULTANT shall submit voltage drop calculations for any electrical circuit providing power to the ITS field devices beyond the electric utility service point. The calculations shall document the length of each circuit, its load, the size of the conductor or conductors and their ohm resistance values and the required voltages from the service point to the respective ITS devices to maintain voltage drops within allowable limits. The voltage drop incurred on each circuit (total volts and percentage of drop) shall be calculated, and all work necessary to calculate the voltage drop values for each circuit should be presented in such a manner as to be duplicated by the District. Load analysis calculations shall be submitted covering electrical path from all power sources to each ITS site connected to each power source. All voltage drop calculations shall allow for future expansion of ITS infrastructure, if identified in the Project ConOps.

33.6 Design Documentation

The CONSULTANT shall submit a Design Documentation Book with each plan submittal under separate cover and not part of the roadway documentation book. At a minimum, the design documentation book shall include:

- Quantities and engineers estimate for all applicable items on plans.
- Phase submittal checklist.
- Three-way quantity check list
- Structural calculations for all structures
- Power Design Analysis, voltage drop calculations, and load analysis calculations
- Correspondences including utility design meeting and conflict resolutions
- Electrical Power Service Letter of Confirmation
- Subsurface Utility Exploration tables for each ITS support structure

33.7 Existing ITS

The CONSULTANT shall research any required legacy system or system components that may be impacted by new work, such as: existing communications; existing types, numbers, locations, models, manufacturers, and age of ITS devices; as-built plans; existing operating software; existing center-to-field devices; and C2C communications and capabilities.

The project intelligence files provided by the DEPARTMENT and researched by the CONSULTANT may include the following documents:

- Existing ITS field devices compared to the latest FDOT Standards and District requirements: device type, model, manufacturer, capabilities, condition, date installed, and historical maintenance logs. The DEPARTMENT will provide the ITS FM data, when available, to the CONSULTANT upon request.
- Condition of support structure(s), and associated mechanical brackets, and vertical hangers.
- Electrical power related to the existing demand loads, sizes of the main and branch circuit breakers for the service disconnect, underground or overhead service feeder sizes from the power company transformer to the meter base.
- Existing fiber optic allocation as a graphical display of the existing buffer tube for the ITS devices at the Managed Field Ethernet Switch points, the buffer allocated for the existing local communication hubs, given number of connections within a corridor while maintaining the maximum number of physical connection on a specific Local Area Network (LAN), and local hubs to existing master communication hubs.
- A KMZ file of the existing fiber optic pull and splice boxes, ITS devices, local hubs, power service poles with latitudes and longitudes data.

- Underground infrastructure.
- Proximity to utilities.
- Other field reconnaissance as necessary to develop a complete ITS design package.

33.8 Queue Analysis

The CONSULTANT shall perform a queue analysis at high volume interchanges and high frequency conflict / crash locations to determine optimal placement of DMS using project forecasted traffic volumes. This analysis shall be performed prior to submittal of the Phase I plans. The Consultant shall perform other traffic engineering analysis as necessary to ensure that the DMS locations are selected based on optimum message delivery to the motorists.

The CONSULTANT shall perform field observation of the existing traffic patterns during the normal peak hours to determine the optimal placement of DMS, ADMS, CCTV cameras, and detection sites.

The CONSULTANT shall perform lane closure analysis and determine the time periods where construction activities can be performed. The lane closure analysis shall be performed using the available traffic data.

In cases when traffic technical memorandums have been performed by others and are available through the DEPARTMENT, or available from TMC CCTV camera surveillance sites, the CONSULTANT shall use these reports and information in lieu of performing traffic engineering and safety analysis.

The CONSULTANT shall coordinate with District's TSM&O Office for additional information regarding existing Incident Management and TMC Operational Procedures to address maintenance of ITS and post construction requirements.

33.9 Reference and Master ITS Design File

The CONSULTANT shall prepare the ITS design file to include all necessary design elements and the reference files for topo, R/W roadway, utilities files, etc. This effort includes the design and layout of all proposed ITS devices and electrical service points, conduits, pull boxes, conductor sizing, generators, and transformers. All existing ITS infrastructure shall be referenced to the new ITS plan sheets (if applicable).

33.10 Reference and Master Communications Design File

The CONSULTANT shall prepare the communication design file to include all necessary design elements and all associated reference files as well as reference files of topo, R/W, roadway, utilities files, existing ITS communications infrastructure, etc. This effort includes design and layout of proposed communications conduit, cabinet, pull boxes, splice boxes, standard route markers, communications plan overview, fiber optic sizing, fiber optic splicing, connections, communications hubs, etc.

33.11 ITS Poles and Overhead Structures Elevation Analysis

See FDM Section 233.6 for ITS Poles and Structures design requirements. The CONSULTANT shall evaluate pole elevation requirements and design pole heights to meet the Project requirements including field of view; elimination of occlusion; site access for maintenance vehicles and personnel; access to pole mounted equipment, such as CCTV cameras, traffic detectors, and cabinets; and probability of lightning strike.

The CONSULTANT shall coordinate with roadway, structures, and drainage disciplines to confirm that the elevations are updated during various design phases, and the ITS poles and overhead structure details are revised and designed with the correct heights, lengths, foundation depths and sizes.

33.12 DMS Sign Panel Design Analysis

The CONSULTANT shall design all ITS signing in conjunction with the Roadway Master Signing. This includes any static sign panel that includes changeable message elements. Expressway and arterial full size DMS shall not be co-located with other static signs. [If desired by the District].

The DMS sign panel analysis applies to walk-in DMS, front access ADMS, and embedded Toll Amount and Status DMS and Dynamic Trail Blazing Signs. The CONSULTANT shall provide the following design information for the DMS sign design basis and fabrication:

- Pixel Pitch
- Number of display messages
- Character height
- Number of characters per line
- Character spacing
- Mechanical properties of the sign such as weight, height, width, depth, and not including the vertical hanger size and weight.

33.13 ITS Quantities for EQ Report

The CONSULTANT shall determine ITS pay items and quantities and the supporting documentation.

33.14 Cost Estimate

The CONSULTANT shall prepare an engineer's cost estimate for the project using historical data from the FDOT or from other Industry sources. The CONSULTANT shall also load the category information, pay items, and quantities into AASHTOWare Project Preconstruction.

33.15 Technical Special Provisions and Modified Special Provisions

The CONSULTANT shall develop Technical Special Provisions (TSP) and Modified Special Provisions (MSP) for the specific items or conditions of the project that are not addressed in the FDOT's Standard Specifications, Supplemental Specifications and Special Provisions.

33.16 Other ITS Analyses

[Add detailed project needs for any other ITS-related analyses]

33.17 Field Reviews

The CONSULTANT shall conduct a field review for the required phase submittals. The review shall identify necessary data for all elements of the project including, but not limited to, the following:

- Existing ITS Field Devices as compared with the latest FDOT standards and District requirements
- Device Make, Model, Capabilities, Condition / Age, Existence of SunGuide Software Driver
- Condition of Structure(s), cabinets, and other above-ground infrastructure and devices
- Type of Detection as Compared with Current District Standards and preferences.
- Underground Infrastructure
- Proximity of other utilities
- Any other field reconnaissance as necessary to develop a complete ITS design package

33.18 Technical Meetings

The CONSULTANT shall attend meetings as necessary to support the project.

33.19 Quality Assurance / Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of designs, drawings, specifications, and other services and work furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications, and other documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or may be one specifically designed for this project. The CONSULTANT shall utilize the District's quality control checklist. The responsible Professional Engineer that performed the Quality Control review shall sign a statement certifying that the review was conducted.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in their works.

33.20 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities.

33.21 Coordination

The CONSULTANT shall coordinate with Survey, Geotech, Drainage, Structures, Lighting, Roadway Design, Utilities, municipalities, maintaining agencies and Traffic Operations to produce a final set of construction contract documents and to ensure that a high degree of accuracy for the design plans is achieved. The CONSULTANT shall coordinate with the roadway Utility Adjustment Plan to incorporate all ITS support structural foundations symbols drawn to scale in the Utility Adjustment Plans and attend the utility design meetings conveying the information to all utility owners to preserve the location of the proposed foundations and avoid any conflicts.

34 INTELLIGENT TRANSPORTATION SYSTEMS PLANS

See the Task Work Order Scope of Services for the following Section 34 subsections that apply to the assigned project.

The CONSULTANT shall prepare a set of ITS Plans in accordance with the FDOT Design Manual that includes the following:

34.1 Key Sheet

The CONSULTANT shall prepare the key sheet in accordance with the latest format depicted in the FDM.

MUTCD

Standard Specifications, Developmental Specifications

Standard Plans

34.2 General Notes / Pay Item Notes

The CONSULTANT shall include all pertinent general notes and pay item notes as deemed fit and as established by the District.

34.3 Project Layout

The CONSULTANT shall prepare plan sheet(s) with an overview of the entire project that include stations and offsets, project limits, intersection locations, devices, device identification using SunGuide nomenclature, and plan sheet coverage.

34.4 Typical and Special Details

The CONSULTANT shall prepare typical and/or special details for conditions in the project not addressed by the DEPARTMENT's Standard Plans for Design, Construction, Maintenance, and Utility Operations on the State Highway System. The CONSULTANT shall prepare special details not addressed by FDOT Standard Plans, including block diagrams, hub cabinets, wiring diagrams, solar power service, and special mounting details, horizontal directional drilling at critical crossings, wireless ethernet equipment for local and broadband communication, Ethernet based Blue Toad, Ramp Signaling System, RSU block diagrams, Power station site plan, Field Equipment Shelters for master hubs, electrical and communication conduit, equipment inside box girders.

34.5 Plan Sheet

The CONSULTANT shall prepare the ITS plan sheets utilizing the Design file to include all necessary information related to the project design elements and all associated reference files. The plan sheets shall include general and pay item notes and pay items. The plans shall depict the location of ITS devices and cabinets, pull boxes, splice boxes, conduit runs, electrical service points, conduit, pull boxes, and conductors, and underground and overhead utilities, if applicable. Devices shall be located by station and offset as well as setback from the travel way. The CONSULTANT shall ensure the ITS sites and ground mounted cabinets locations are not in wetlands or wet drainage channels, do not interfere with protected species, meet the OSHA circle of safety from the overhead energized lines, and do not conflict with underground utilities.

34.6 ITS Communications Plans

The CONSULTANT shall prepare plans for the communications network. These plans shall consist of block diagrams, splicing diagrams, port assignments, wiring diagrams, and all other information necessary to convey the design concept to the contractor. These plans shall be included in the ITS plan set and be prepared in a manner consistent with immediately adjacent ITS project installations (planned or installed).

The communication system shall be an open-architecture, non-proprietary, real-time, multimedia communications network. The communication system design must be compatible and completely interoperable with the existing systems.

See the Task Work Order Scope of Services for any temporary communication connectivity options.

The CONSULTANT's design shall include protecting and maintaining the existing ITS infrastructure. For locations where existing ITS infrastructure is impacted, the CONSULTANT's design shall include mitigation to minimize the downtime of existing system ***in accordance with*** the District's requirements and prepare the Maintenance of Communication (MOC) plans. The CONSULTANT shall develop the MOC sheets for the project, providing temporary communications as necessary, notes, details, and direction applicable to the ITS elements and associated communications for inclusion in the MOC plans. The MOC plans shall include the notes, plan sheets, cross sections showing existing and proposed grades with the tables defining the stations limits for the conduit depths below existing and proposed grades for various construction phases.

If applicable, the CONSULTANT shall review the roadway TTCP, drainage, structures, and landscaping plans and prepare the MOC plans for each construction phase. The MOC plans shall include construction phasing notes, half cross sections depicting existing and proposed grades, roadway templates, drainage ponds, flood mitigation zones, provide tables depicting the station range, location and depth of the proposed fiber optic trunk line below existing and proposed grades. The MOC plans shall optimize the reliable field-to-center (F2C) connectivity and operability of the ITS field devices previously deployed along the project corridor. The MOC design effort shall mitigate the impacts of the project's various construction phases so as to sustain center-to-field devices connectivity and operability, maintaining operational quality as a minimum at the level provided prior to construction start and minimizing down time as much as possible.

In cases, where major alteration to the existing roadway begins in the areas where the existing ITS devices and underground communication will be impacted at the initial construction phase, the CONSULTANT shall include the permanent ITS and communication and electrical power work to be constructed in the early phase and stage of the construction to activate the devices. The notes referencing the MOC plan details shall be included in the TTCP plans alerting the CONTRACTOR and emphasizing the importance of keeping the ITS devices operational. Subsequently, the CONSULTANT shall attend the utility design and pre-construction meeting conveying the importance of the MOC and operability of the overall system. The CONSULTANT shall include the MOC plan sheets in the beginning of the ITS plans.

The CONSULTANT is responsible for the design of the communication infrastructure and its integration with the DEPARTMENT's communication system. Additionally, the CONSULTANT shall determine the most cost effective, best performing, communication connectivity option. The communication system must allow command and control as well as data and video transmission between the field devices and the TMC(s) at ***11201 North McKinley Drive, Tampa, Florida***, and when applicable master communication hub(s) at ***a location specified in the individual Task Work Order Scope of Services***.

Conduit paths shall be selected to provide a continuous duct system on one side of the road unless otherwise requested by the DEPARTMENT. The various components of ITS sites will be located on both sides of the freeway and therefore under pavement bore and lateral conduits will be necessary to access equipment locations. The CONSULTANT is responsible to locate the ITS sites so they are accessible by maintenance vans.

34.7 Fiber Optic Splice Diagrams

The CONSULTANT shall produce fiber optic cable splicing diagrams to show the connectivity of the fiber optic cable from its termini at field devices to the TMC. The diagrams shall denote new and existing fiber routes, splices, and terminations involved in the work. The diagrams shall identify cables by size, tube color / number and stand colors / numbers. All cables shall be identified either by numbering system identified either by numbering system ***shown*** on the plans or by bounding devices. The diagrams shall denote the types of connectors in the patch panels. The CONSULTANT shall determine physical connection points and methods between the existing project limits to make the desired physical connection. The CONSULTANT shall determine and identify the Buffer Tube/Fiber and Ring allocation to maintain acceptable maximum number of the local intersection per ring before redundant ringing to a master communication hub and manage the transmission bandwidth. The CONSULTANT shall analyze existing and proposed fiber optic communication infrastructure for physical and logical connectivity into existing infrastructure.

34.8 Grounding and Lightning Protection Plans

The CONSULTANT shall include efforts to design a complete and reliable lightning protection design for each pole and associated devices, ITS device installation, as well as device cabinets and communications hubs, etc. if not already addressed in the FDOT's Standard Plans for Design, Construction, Maintenance and Utility Operations on the State Highway System. Where the ITS

site is located on viaducts and bridges, the CONSULTANT shall provide the grounding and lightning protection details in the plans and show the work that is integral to the elevated superstructure and substructure.

34.9 Cross Sections

The CONSULTANT shall prepare cross sections for all ITS devices and support structures including the ground mounted cabinets or local hubs. The cross section shall include the underground and overhead utilities with utility relocation provisions.

34.10 Guide Sign Work Sheet(s)

The CONSULTANT shall prepare the guide sign work sheets to include all necessary information related to the design of the static and DMS, Embedded DMS, and DTBS in the project corridor.

34.11 Special Service Point Details

The CONSULTANT shall design any special service point and electrical distribution system beyond the electric utility company's service point. The plan shall depict with pay items, general and plan notes the locations of transformers, switches, disconnects, conduits, pull boxes and power conductors. The plans shall identify the location of underground and overhead service points with identifying pole and transformer numbers. The CONSULTANT shall prepare the plan sheets depicting the electrical riser diagram and the line diagram for each location.

34.12 Strain Pole Schedule

The CONSULTANT shall incorporate the schedule detail chart for concrete or steel strain poles in the plan set. The strain pole schedule details shall include stations, offsets, the ground elevations, proposed elevations, top of foundation elevation, all attachment tie-in heights, pole length, and embedment length.

34.13 Overhead / Cantilever Sign Structure

The CONSULTANT shall be responsible for preparing the civil and structural plans of the overhead/cantilever structures, for proper installation of the DMS on the horizontal truss, viewing angle and decision site distance *in accordance with* Chapter 2e - Guide Signs-Freeways and Expressways in the Manual on Uniform Traffic Control Devices (MUTCD) and Florida Department of Transportation FDOT Design Manual (FDM) and all other applicable manuals and guidelines *in accordance with* governing regulations.

The details shall include stations, offsets, the existing ground elevations, proposed elevations, top of drilled shaft foundation elevation, all attachment tie-in heights, upright length, and drilled shaft embedment length. The CONSULTANT shall coordinate the design with the roadway, structural, and MSE wall disciplines and cross reference the critical information on the respective plans for installation, routing of conduits for electrical power and communication inside the substructure and superstructure, and parapets and pilasters. In segments where concrete median barrier walls are proposed, The CONSULTANT shall coordinate the design with the roadway, drainage, and structural disciplines to design the drilled shafts integral to the barrier walls and minimizing the shoulder width reduction.

34.14 Other Overhead Sign Structures (Long Span, Monotube, etc.)

The CONSULTANT shall be responsible for preparing the civil and structural plans when determining the requirements for other type of structures (long span, monotube, etc.) used as part of the project for proper installation of the DMS, viewing angle and decision sight distance requirement as per AASHTO Green Book, Chapter 2e - Guide Signs-Freeways and Expressways

in the Manual on Uniform Traffic Control Devices (MUTCD) and Florida Department of Transportation FDOT Design Manual (FDM) and all other applicable manuals and guidelines as per governing regulations.

The details shall include stations, offsets, the existing ground elevations, proposed elevations, top of drilled shaft foundation elevation, all attachment tie-in heights, upright length, and drilled shaft diameter and embedment length. The CONSULTANT shall coordinate the design with the roadway, drainage, structural, and MSE wall disciplines and cross reference the critical information in the respective plans for installation, routing of conduits for electrical power and communication inside the substructure and superstructure, bridge deck, and parapets with pilasters.

34.15 Temporary Traffic Control Plans

The CONSULTANT shall prepare Temporary Traffic Control Plans (TTCP) to minimize impact to traffic during the construction of ITS field devices and associated communications infrastructure that will be deployed along the project corridor.

The TTCP shall strive to maintain and sustain center-to-field device connectivity and operability to the ITS field devices previously deployed along the project corridor. The TTCP effort shall consider and mitigate the impacts of the project's various construction phases so as to sustain center-to-field devices connectivity and operability, maintaining operational quality as a minimum at the level provided prior to construction start and minimizing down time as much as possible. The CONSULTANT shall develop the TTCP sheets for the project, providing temporary communications as necessary, notes, details, and direction applicable to the ITS elements and associated communications for inclusion in the TTCP.

The CONSULTANT shall review the existing TMC Operations and develop additional incident management service requirements as necessary to support during the Construction Phase of the Project. The CONSULTANT shall coordinate with District's Traffic Operations ITS Office for additional information regarding existing Incident Management and TMC Operational Procedures.

34.16 Interim Standards

The CONSULTANT shall adhere to all Department's Interim Standards for ITS applications.

34.17 GIS Data and Asset Management Requirements

The CONSULTANT is responsible for providing Geographic Information System (GIS), spatial data, for the ITS components design. This information is required to integrate ITS components to the SunGuide software. A coordinate point compatible with the Florida State Plane System or FDOT's current coordinate plane system shall be collected for all ITS components part of the Project design. All GIS information provided shall be compatible with the FDOT's ITS FM asset management software.

The information shall be transferred to the as-built plans and submitted to the District in electronic format along with the as-built plans.

The Global Positioning System (GPS) unit shall be provided by the CONSULTANT and used to collect data with a minimum accuracy of three (3) meters when differentially corrected. The CONSULTANT shall collect spatial data points and physical address location for:

- DMS, Embedded DMS, ADMS, DTBS location (mainline and arterial)
- Vehicle detection pole location
- CCTV camera pole location
- WWVDS sites

- Ramp Signal system sites
- RWIS locations
- RSU sites
- Ground mounted cabinets
- Fiber optic cable path (fiber backbone)
- Communications hubs
- Standard route markers
- Lateral fiber optic cable connections
- Lateral power cable connections
- Pull boxes (power and fiber)
- Splice boxes
- Power drops (service point and cable path)
- Power station site equipment (Generator, Power Distribution, ITS Cabinet, Pad Mounted Transformers, power service pole)

34.18 Quality Assurance / Quality Control

The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings in addition to the QC effort described in section three.

34.19 Supervision

The CONSULTANT shall supervise all technical design activities.

35 GEOTECHNICAL

All such necessary services will be provided by the DEPARTMENT.

36 3D MODELING

See the Task Work Order Scope of Services for the following Section 36 subsections that apply to the assigned project.

The CONSULTANT shall analyze and document Roadway Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall deliver all master design files, 3D surface design models, and all supporting digital files for the development of plans as required in the FDOT CADD Manual.

The CONSULTANT shall prepare a 3D model using the latest FDOT software in accordance with the FDOT CADD Manual. Includes all efforts required for developing files for 3D deliverables supporting automated machine guidance for design models. This includes importing survey data and creation of existing 3D surface features and models, and developing proposed corridor models with necessary detail of features to depict the proposed project in 3D to comply with the FDOT CADD Manual.

The CONSULTANT shall add detail to the corridor and design model for 3D design. Includes many elements that contribute to this including but not limited to slope transitions, typical section transitions, changes in pavement depth, berms, swales/ditches, and other feature transitions. Extra corridor structure leads to extra assemblies, extra targeting, etc.

The CONSULTANT shall create an accurate roadway design model which includes modeling the intersections.

The CONSULTANT shall submit .dgn files associated with the 3D Model and their respective components.

36.1 Phase I 3D Design Model

The CONSULTANT shall prepare, submit and present for review by the DEPARTMENT, Phase I 3D interactive model, comprised of, but not limited to: Existing features (pavement, shoulders, sidewalk, curb/gutter, utilities-if required per scope, drainage - if required per scope) and proposed corridor(s).

36.2 Phase II 3D Design Model

The CONSULTANT shall prepare, submit and present for review by the DEPARTMENT, Phase II 3D model, comprised of, but not limited to: Modification of the Phase I model to update the model to comply with changes based on the Phase I review comments and to include the addition of ponds, floodplain compensation sites, retaining walls, barrier walls, guardrail terminals, cross overs, gore areas, side street connections, roundabouts, and driveways.

[List optional services to be included, e.g. 3D deliverables files for review, Curb Ramps, Closed Drainage Network, Bridge Modeling, Bridge Abutment, Overhead sign post/structures with foundation, Toll gantry and overhead DMS structures with foundation, proposed utilities (pressure pipe/gravity), etc.].

36.3 Phase III 3D Design Model

The CONSULTANT shall prepare, submit and present for review by the DEPARTMENT, Phase III 3D model and 3D deliverables files for review, comprised of, but not limited to: Modification of the Phase II model to update the model to comply with changes based on the Phase II review comments and to further refine areas of transition between templates, detailed grading areas, bridge approaches and end bents, median noses, shoulder transition areas, retaining walls, barrier walls and guardrail.

36.4 Final 3D Model Design

The CONSULTANT shall prepare for review by DEPARTMENT, the Phase IV 3D model and deliverables, comprised of, but not limited to: Modification of the Phase III model to update the model to comply with changes based on the phase III review comments and to accurately generate, export and otherwise prepare the final 3D deliverable files as described in the FDOT CADD Manual.

36.5 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the FDOT CADD manual and FDOT Design Manual. Includes all work required to establish and utilize intelligent/automated methods for creating cross sections including determining the locations for which all cross sections will be shown, existing and proposed features, cross section refinement, placement of utilities and drainage, soil boxes, R/W lines, earthwork calculations, and other required labeling.

36.6 Template and Assembly Development (Optional)

The CONSULTANT shall prepare for approval by DEPARTMENT, project specific templates/assemblies needed to develop the features required to deliver the 3D model.

36.7 Quality Assurance/Quality Control

36.8 Supervision

36.9 Coordination

37 PROJECT REQUIREMENTS

37.1 Liaison Office

The DEPARTMENT and the CONSULTANT will designate a Liaison Office and a Project Manager who shall be the representative of their respective organizations for the ***contract, and each assigned Task Work Order***. While it is expected the CONSULTANT shall seek and receive advice from various state, regional, and local agencies, the final direction on all matters of this project remain with the DEPARTMENT Project Manager.

37.2 Key Personnel

The CONSULTANT's work shall be performed and directed by the key personnel identified in the proposal presentations by the CONSULTANT. Any changes in the indicated personnel shall be subject to review and approval by the DEPARTMENT.

37.3 Progress Reporting

The CONSULTANT shall meet with the DEPARTMENT as required and shall provide a written monthly progress report with approved schedule, schedule status, and payout curve or by using the earned value method that describe the work performed on each task. The report will include assessing project risk through monthly documentation of identifying and updating the risk category and approach for monitoring those tasks. Invoices shall be submitted after the DEPARTMENT approves the monthly progress report and the payout curve or with earned value analysis. The Project Manager will make judgment on whether work of sufficient quality and quantity has been accomplished by comparing the reported percent complete against actual work accomplished.

37.4 Correspondence

Copies of all written correspondence between the CONSULTANT and any party pertaining specifically to this contract shall be provided to the DEPARTMENT for their records within one (1) week of the receipt or mailing of said correspondence.

37.5 Professional Endorsement

The CONSULTANT shall have a Licensed Professional Engineer in the State of Florida sign and seal all reports, documents, Technical Special Provisions, Modified Special Provisions and plans as required by DEPARTMENT standards.

37.6 Computer Automation

The project will be developed utilizing Computer Aided Drafting and Design (CADD) systems. The DEPARTMENT makes available software to help assure quality and conformance with policy and procedures regarding CADD. It is the responsibility of the CONSULTANT to meet the requirements in the FDOT CADD Manual. The CONSULTANT shall submit final documents and files as described therein.

It is also the responsibility of the CONSULTANT to meet the requirements in the DEPARTMENT's CADD Production Criteria Handbook (including the minimum 95% compliance threshold for all design files).

37.7 Coordination With Other Consultants

The CONSULTANT ***firm*** shall coordinate ***its*** work with any and all adjacent and integral consultants so as to effect complete and homogenous plans and specifications for the project(s) described herein.

38 INVOICING LIMITS

Payment for the work accomplished shall be in accordance with the Method of Compensation of this contract. Invoices shall be submitted to the DEPARTMENT in a format prescribed by the DEPARTMENT. The DEPARTMENT Project Manager and the CONSULTANT shall monitor the cumulative invoiced billings to ensure the reasonableness of the billings compared to the project schedule and the work accomplished and accepted by the DEPARTMENT.

The CONSULTANT shall provide a list of key events and the associated total percentage of work considered to be complete at each event. This list will be used to control invoicing. Payments will not be made that exceed the percentage of work for any event until those events have actually occurred and the results are acceptable to the DEPARTMENT.

Each invoice shall be accompanied by a certification by the CONSULTANT's Project Manager, Engineer-of-Record or Project Principal that the invoicing is consistent with the project's progress and Prima Vera schedule.

For Task Work Orders with lump sum invoicing for Basic Services, a 100% complete payout will not be approved before the "Plans Package In Tallahassee" or "Plans To District Contracts" schedule milestone is achieved, and the DEPARTMENT's Central Office or District Contracts Office has approved that package.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
PROFESSIONAL SERVICES UNIT
INTERVIEW CONSULTANT EVALUATION

Name of Project: Pre-Event Emergency Relief Projects Miscellaneous Design – Continuing (BDI)
Financial Project No(s): TBD Ad No. 24737
Name of Consultant: _____

Instructions: This Interview Evaluation form shall be completed for each firm. Each firm's scores shall be totaled and the Technical Review Committee member name and date entered. This form will be used to summarize each reviewer's scores onto the Professional Services Selection Package 375-030-2A form prepared by Professional Services for the Technical Review Committee.

SCORE

1. UNDERSTANDING THE SCOPE (0-25)

- The Consultant firm shall demonstrate their understanding of the scope of services including any unique issues involved in the project.
- Assumptions (if any) should be clearly stated

2. PROJECT APPROACH (0-35)

The Consultant firm shall:

- Present their approach to the project.
- Discuss unique concepts and cost saving suggestions.
- Discuss the proposed schedule based on available personnel.
- Discuss their proposed method for distributing work and maintaining coordination between their own staff and sub-consultants.
- Discuss coordination with the Department, government and non-government agencies.
- Discuss methodology for obtaining Department concurrence on all project issues including meeting format, turnaround time, impacts to schedule and budget and design and design changes.

3. PROPOSED PROJECT STAFFING (0-30)

The Consultant firm shall:

- Provide the name of the Project Manager, and names and roles of key personnel.
- Explain the organization of its team and functional responsibility of each sub-consultant.
- Discuss the staffing quality and availability, experience on similar projects.

4. PROPOSED PROJECT REVIEW (0-10)

The Consultant firm shall:

- Present their project review and QA/QC approach. Include discussion on types of documents to be reviewed, frequency of reviews, official and unofficial reviews.
- Discuss Project QA/QC responsibilities.

Total Score:

The following space should be used to summarize any major comments which the Technical Review Committee member considers relevant to the firm's overall score.

Prepared by: _____ Date: _____

Attachment D – Required Certifications

Note: A majority of the forms are available in Word format at the following web site: <http://www.fdot.gov/procurement/formmenu.shtm>

Form numbers:

[375-030-83 Professional Services Commitment Form](#)

[375-030-60, Vendor Certification Regarding Scrutinized Companies Lists](#)

[375-030-30 Truth in Negotiations Certificate](#)

[375-030-32 Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion for Federal Aid Contracts](#)

[375-030-33 Certification for Disclosure of Lobbying Activities on Federal Aid Contracts](#)

[375-030-34 Disclosure of Lobbying Activities](#)

[375-031-06, E-Verify Form](#)

[050-020-26, Exempt Documents Form](#)