March 01, 20233/1/2023February 21, 2023
Review

EXHIBIT A

SCOPE OF SERVICES

FOR

Financial Project ID: 450875-1-32-02, 447428-1-32-01, 447428-1-32-02, 450879-1-32-01, 450879-1-32-02, 450874-1-32-01, 450874-1-32-02 and 450875-1-32-01

FDOT District 1

***POLK***

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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 [*Consultant Name or leave blank until CONSULTANT is selected*] (hereinafter referred to as the CONSULTANT) relative to the transportation facility described as follows:

Financial Project ID: 450875-1-32-02

Related Financial Project ID(s): ***447428-1-32-01, 447428-1-32-02, 450879-1-32-01, 450879-1-32-02, 450874-1-32-01, 450874-1-32-02 and 450875-1-32-01***

Federal Aid Project No.: N/A

Roadway:

| RoadwayId | Begin milepost | End milepost |
|---|---|---|
| 16030000 | 23.730 | 28.500 |
| 16030000 | 29.069 | 32.824 |
| 16030101 | 0.000 | 0.885 |
| 16020000 | 16.403 | 22.133 |
| 16090000 | 0.000 | 11.823 |

Project Description: Polk County resurfacing various locations

Bridge No(s).:

- ***CB #0022 (MP 1.143 to MP 1.152)***
- ***CB #0083 (MP 26.733 to MP 26.738)***
- ***BR # 0220 (MP 27.290 to MP 27.329)***
- ***160301 (MP 21.240 to MP 21.266)***
- ***BR #0312 (MP 32.041 to MP 32.060)***
- ***CB # 0084 (MP 32.685 to MP 32.690)***

Railroad Crossing No.: ***FPID: 450879-1: RR #627563-M (MP 0.332), FPID: 447428-1: elevated roadway crossing BR #0220, FPID: 450874-1: Yes, vicinity, adjacent r/w (MP 21.551 to MP 22.133)***

Context Classification:

- ***C2-Rural Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.***
- ***C3R-Suburban Residential Mostly residential uses within large blocks and a disconnected or sparse roadway network.***
- ***C2T-Rural Town Small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.***

- ***C3C-Suburban Commercial Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.***
- ***C4-Urban General Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.***

***FPID: 450879-1: C2 (0.000-1.861; 2.214-4.508; 5.971- 11.823), C3R (1.861-2.214), C2T (4.508-5.971)***

***FPID: 447428-1: C3C (23.730-24.954; 25.847-27.260), C2T (24.956-25.847; 0.000-0.885), C3R (24.954-25.956), C4 (27.260-28.500)***

***FPID: 450874-1: C3C (16.403-18.194; 19.896-21.217), C2 (18.194-19.896), C2T (21.217-22.133)***

***FPID: 450875-1: C4 (0.497-29.132; 30.450-30.870), C3C (30.930-31.980; 32.041-32.824)***

## 1 PURPOSE

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 improvements to the transportation facility described herein.

- Major work mix includes:
  - ***0012 - RESURFACING***
- Major work groups include:
  - ***3.1 - Minor Highway Design***
- Minor work groups include:
  - ***4.1.1 - Miscellaneous Structures***
  - ***5.4 - Bridge Load Rating***
  - ***7.1 - Signing, Pavement Marking and Channelization***
  - ***7.2 - Lighting***
  - ***7.3 - Signalization***
  - ***8.1 - Control Surveying***
  - ***8.2 - Design, Right of Way & Construction Surveying***
  - ***8.3 - Photogrammetric Mapping***

Known alternative contracting methods include: ***N/A***

The general objective is for the CONSULTANT to prepare a set of contract documents including plans, specifications, supporting engineering analysis, calculations and other technical documents in accordance with FDOT policy, procedures and requirements. These Contract documents will be used by the contractor to build the project and test the project components. These Contract documents will be used by the DEPARTMENT or its

Construction Engineering Inspection (CEI) representatives for inspection and final acceptance of the project. The CONSULTANT shall follow a systems engineering process to ensure that all required project components are included in the development of the Contract documents and the project can be built as designed and to specifications.

The 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 indicate which items of work will be the responsibility of the CONSULTANT and/or the DEPARTMENT.

The CONSULTANT shall be aware that as a project is developed, certain modifications and/or improvements to the original concepts 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).

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 and 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's need to apply its own resources to assignments authorized by the Department.

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.

## 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. If a Preliminary Engineering Report is available from a prior or current Project Development and Environment (PD&E) study, the CONSULTANT shall use the approved concepts as a basis for the design unless otherwise directed by the DEPARTMENT.

***This is a Resurfacing, Restoration, and Rehabilitation (RRR) project that is intended to extend the service life of the existing roadway. Additional improvements will adhere to the standards set forth in the 01 FDOT Design Manual (FDM).***

***FPID: 450879-1: SR 17 FROM US 27 TO 5TH AVE. This is a RRR project. Mill and resurface existing roadway, turn lanes, shoulders and side streets. Begin the project at US-27 at SR 17 MP 0.000 then proceed north for 11.823 miles to 5th Avenue at MP 11.823. The existing right of way (ROW) for this section of roadway varies from 66-ft min to 80-ft. The existing posted speed ranges 40-55mph. The design speed ranges 40-60 mph.***

***FPID: 447428-1: SR 35 (US 17) FROM WAHNETA CREEK TO S OF CYPRESS GARDEN BLVD. This is a RRR project. Mill and resurface existing roadway mainline, turn lanes, shoulders,driveways, and side streets. The project begins north of Transport Road on SR 555 at MP 23.730 and remains a two-lane divided roadway until the divergence of the northbound and southbound, south of W Crystal Beach Road MP 24.846. Proceed north to MP 25.836 for convergence of the one-way pairs at E Gilbert Street. Proceed north to MP 28.500 for the end of the project limits south of Avenue G SW. There are two exception limits within the corridor. One is located in the northbound direction from MP 27.650 to MP 27.809 and the other is located in the southbound direction from MP 27.713 to MP 27.329.***

***FPID: 450874-1: SR 600 (US-92/US-17) FROM W OF RAMONA AVE TO 3RD ST SR 600 (US-92/US-17) from west of Ramona Avenue (MP 16.403) proceeding east for 5.730 miles to 3rd Street at MP 22.133. It is a Resurfacing, Restoration, and Rehabilitation (RRR) project that is intended to extend the service life of the existing roadway. This project was identified because of deficient pavement conditions noted in the 2021 Pavement Condition Survey. The project consists of mill and resurface existing roadway mainline, turn lanes, shoulders, driveways, and side streets. Construct 4-ft paved inside shoulders. The existing right of way (ROW) for this section of roadway varies with 84-ft min to 141-ft min. The existing posted speed ranges from 30-60 mph. The design speed ranges from 45-70 mph.***

***FPID: 450875-1: SR 555 FROM S OF AVENUE A SW TO S OF SR 600 (US 17/92)This is a RRR project. Mill and resurface existing roadway mainline, turn lanes, shoulders, driveways, and side street connections. The project begins south of Avenue A SW at SR 555 MP 29.069 then proceed north for 3.755 miles to MP 32.824, south of SR 600 (US 17/92). The existing right of way (ROW) for this section of roadway has variable widths from 61-ft to 117- ft, then from 72-ft to 160-ft, and to end at 77-ft to 160-ft. The existing posted speed ranges from 40 mph (MP 29.069), 50 mph (MP 31.884) to 55 mph (MP 32.130). The design speed ranges from 45-55 mph.***

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

Public Involvement: ***N/A***

Joint Project Agreements: ***N/A***

Specifications Package Preparation:
[*List any significant effort*]

Estimated Quantities Report Preparation:
[*List any significant effort*]

Value Engineering: ***N/A***

Risk Assessment Workshop: ***N/A***

Plan Type:
***as directed***

Typical Section:
Number of Typical Sections: ***FPID:450879-1: 3 typical section, FPID: 447428-1: 7 typical Section and 1 Bridge typical section, FPID: 450874-1: 4 typical section, FPID: 450875-1: 6 typical Section and 1 Bridge typical section.***
***To be updated upon receipt of Final Typical Section.***

Pavement Designs:
Number of Pavement Designs: ***28***

Pavement Type Selection Report(s): ***N/A***

Cross-Slope Correction: ***N/A***

Access Management Classification:
- ***Access Class 7***
- ***Access Class 5***
- ***Access Class 3***
- ***Access Class 4***
- ***Access Class 6***

***FPID:450879-1: Access Class 4 (MP 0.000 to MP 4.202; MP 6.007 to MP 11.150); Access Class 6 (MP 4.202 to MP 6.007; MP 11.150 to MP 11.823)***

***FPID:447428-1: Access Class 3 (MP 23.730 to MP 24.954), Access Class 5 (24.954 to 27.760; 0.000 to 0.885), Access Class 7 (27.760 to 28.500)***

***FPID: 450874-1: Access Class 3 (MP 16.857 to MP 21.214); Access Class 5 (MP 16.403 to MP 16.857; MP 21.214 to MP 22.133)***

***FPID: 450875-1: Access Class 5 (MP 31.825 to MP 32.824); Access Class 7 (MP 0.434 to MP 0.497; MP 29.132 to MP 31.825)***

Transit Route Features: ***N/A***

Major Intersections and Interchanges: ***1 Interchange located at SR 25 (US 27) and SR 600 (US 92)***

Roadway Alternative Analysis: ***N/A***

Level of Temporary Traffic Control Plan (TTCP): ***1***

***FPID: 450879-1: Level 1***

***FPID: 447428-1: Level 1***
***FPID: 450874-1: Level 1***

***FPID: 450875-1: Level 2***

Temporary Lighting: ***N/A***

Temporary Signals: ***N/A***

Temporary Drainage: ***N/A***

Design Variations:

- ***Others***

Others: ***FPID:450879-1: Design variations for Travel lanes less than 12 ft in design speed 50 mph or greater.***

***FPID: 447428-1: A design variation for bike lanes and keyholes. A design variation for lane widths. A design variation for lateral offset***

***FPID: 450874-1: A design variation for bike lanes and keyholes. A design variation is for lateral offset.***

***FPID: 450875-1: A design variation for Type F C&G in median with no inside shoulder. A design variation for no bike lanes and no keyholes. A design variation for lane widths. A design variation for lateral offset***

Design Exceptions: ***N/A***
Back of Sidewalk Profiles: ***N/A***

Selective Clearing and Grubbing: ***N/A***

**2.2 Drainage (Activities 6a and 6b)**

Drainage System Type:
***FPID:450879-1: The existing drainage consists of an open system with ditch conveyance of roadway runoff from MP 0.00 to MP 4.23 where it transitions to curb and gutter. It remains curb and gutter through the town of Frostproof until MP 6.28 where it returns to an open system.***

***FPID:447428-1: The existing drainage from the beginning of the project to one way split consists of an open system with ditch conveyance of roadway runoff. Here the SB at MP 24.95 (Crystal Beach Road) changes to curb and gutter. The NB remains open until MP 25.10 (E Laurel Ave) where is converts to curb and gutter for the remainder of the corridor.***

***FPID: 450874-1: The existing drainage consists of an open system with ditch conveyance of roadway runoff with minor curb and gutter at some intersections. At MP 21.65 the drainage is a closed system to the end of the project. The project generally consists of milling and resurfacing and adding keyholes at RTLs.***

***FPID:450875-1: The existing drainage consists of a closed system with curb and gutter conveyance of roadway runoff. Inlets needing replacement are being replaced under***

***FPID 440339-1-52.01. The BOS inlets on the project need to be revisited to ensure flow is still getting to the inlet.***

Number of stormwater management facility sites: N/A
Number of cross drains: N/A

The CONSULTANT shall visually inspect each cross drain that are scheduled to remain to help identify any concerns such as patches on the road above or excessive siltation. The CONSULTANT shall also coordinate with the local Operations Center to ascertain any known cross drain issues and obtain any existing pipe videos which are available.

***The CONSULTANT shall notify the DEPARTMENT's Drainage Office of any existing cross drains and storm sewer within the project limits which are scheduled to remain and have been identified to potentially have issues. The DEPARTMENT will determine whether to perform desilting and pipe video inspection. The CONSULTANT shall review pipe video inspections provided by the DEPARTMENT and incorporate any required culvert remediations into the CONSULTANT'S construction plans subject to approval by the DEPARTMENT.***

## 2.3 Utilities Coordination (Activity 7)

The CONSULTANT is responsible to certify that all necessary arrangements for utility work on this project have been made and will not conflict with the physical construction schedule. The CONSULTANT should coordinate with DEPARTMENT personnel to coordinate transmittals to Utility Companies and meet production schedules.

The CONSULTANT shall ensure FDOT standards, policies, procedures, practices, and design criteria are followed concerning utility coordination.

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. This person shall be contractually referred to as the Utility Coordination Manager and shall be identified in the CONSULTANT proposal. 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 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, including the following:

- Assuring that Utility Coordination and accommodation is in accordance to 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 changes to affected utility owners and making sure this information is properly coordinated and documented.
- 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.

Expected Utilities:

- ***FPID: 450879-1: 9 Utilities: CenturyLink – Fiber, Telephone; City of Frostproof – Sewer, Water; Comcast – CATV; Duke Energy – Electric; FLA Gas Transit – Gas; Frontier – CATV, Communication Lines; Polk County – Sewer, Water; MCI – Communication Lines, Fiber; Teco – Gas***
- ***FPID: 447428-1: 2 Utilities: CenturyLink – Fiber; Charter Communications – Cable; City of Bartow – Sewer, Electric, Water; City of Winter haven – Sewer, Water, Fiber; Crown Castle – Fiber; FLAGas Trans-Lakeland – Gas; Florida Public Utilities – Gas; Frontier – CATV, Communication Lines; MCI – Communication lines, Fiber; Tampa Electric Company – electric; Uniti Fiber – fiber; Zayo Group – fiber;***
- ***FPID: 450874-1: 13 Utilities: CenturyLink – Fiber; Charter Communications – Cable; City of Haines City – Sewer, Streets, Water; City of Lake Alfred – Force Main, Sewer, Cable; City of Winter Haven – Fiber; Duke Energy – Electric; Florida Public Utilities – Gas; Frontier – CATV, Communication Lines; Kinder Morgan – Fuel Oil Pipeline; MCI – Fiber, Communication lines; Tampa Electric – Electric; Uniti – Fiber; Zayo Group – Fiber;***
- ***FPID: 450875-1: 11 Utilities: ATT – Communication Lines, Fiber; Centurlink – Fiber; Charter Communications – Cable; City of Lake Alfred – Sewer, Force Main, Water; City of Winter Haven – Sewer, Water, Fiber; Crown Castle – Fiber; Florida Public Utilities – Gas; Frontier – CATV, Communication; Tampa Electric Company – Electric; Uniti – Fiber; Zayo Group – Fiber;***

## 2.4 Environmental Permits and Environmental Clearances (Activity 8)

Expected Permits:

- *Permits may be required*

The DEPARTMENT will provide compensatory wetland mitigation in accordance with Section 373.4137, Florida Statutes.

## 2.5 Structures (Activities 9 - 18)

Bridge:

| No. | Bridge Number | Length | Description |
|---|---|---|---|
| 1 | CB #0022 (MP 1.143 to MP 1.152) | [*Length*] | [*Description*] |
| 2 | CB #0083 (MP 26.733 to MP 26.738) | [*Length*] | [*Description*] |
| 3 | BR # 0220 (MP 27.290 to MP 27.329) | [*Length*] | [*Description*] |
| 4 | 160301 (MP 21.240 to MP 21.266) | [*Length*] | [*Description*] |
| 5 | BR #0312 (MP 32.041 to MP 32.060) | [*Length*] | [*Description*] |
| 6 | CB # 0084 (MP 32.685 to MP 32.690) | [*Length*] | [*Description*] |

Type of Bridge Structure Work

- BDR (Activity 10): ***N/A***
- Temporary Bridge (Activity 11): ***N/A***
- Short Span Concrete (Activity 12): ***N/A***
- Medium Span Concrete (Activity 13): ***N/A***
- Structural Steel (Activity 14): ***N/A***
- Segmental Concrete (Activity 15): ***N/A***
- Movable Span (Activity 16): ***N/A***

Retaining Walls: ***N/A***
Miscellaneous Structures:

- ***Ancillary Structures***
- ***Box Culverts***

***FPID: 450879-1: Ancillary Structures Report and Per FDM 260.9, an engineering analysis and report is required to evaluate the structural and functional adequacy of the existing bridge.***

***FPID:447428-1: Ancillary Structures Report and Per FDM 260.9, an engineering analysis and report is required to evaluate the structural and functional adequacy of the existing bridge.***

***FPID:450874-1: Ancillary Structures Report and Per FDM 260.9, an engineering analysis and report is required to evaluate the structural and functional adequacy of the existing bridge.***

***FPID:450875-1: Ancillary Structures Report and Per FDM 260.9, an engineering analysis and report is required to evaluate the structural and functional adequacy of the existing bridge.***

**2.6 Signing and Pavement Markings (Activities 19 & 20)**

***The CONSULTANT shall prepare signing and pavement marking plans in accordance with Department criteria.***

***Design should reflect FDOT - District One Signing & Pavement Marking Policies and Procedures as indicated in the latest Signing and Marking Updates folder located at website address*** https://ftp.fdot.gov/file/d/FTP/FDOT/d1/traffops/Signing%20and%20Marking/***.***

**2.7 Signalization (Activities 21 & 22)**

Intersections:
***The CONSULTANT shall prepare signal plans in accordance with Department criteria.***

***Design should reflect FDOT - District One & Maintaining Agency Special Signal Requirements as indicated in the latest Signal Design Updates folder located at website address*** https://ftp.fdot.gov/file/d/FTP/FDOT/d1/traffops/Signal%20Design%20Updates/***.***

Traffic Data Collection:
[*List all locations that will require data collection. Describe data to be collected at each location*]

Traffic Studies:
[*List all studies required and locations*]

Count Stations:
[*List number of count stations*]

Traffic Monitoring Sites:
[*List number of Traffic Monitoring Sites on or within one-half mile of project*]

**2.8 Lighting (Activities 23 & 24)**

Limits and Proposed Type of Lighting:

| Type | Limit |
|---|---|
| FPID: 450875-1: Lighting Retrofit | Intersection location 1: SR 555 / US 17 (6th St. SW) at Ave. A SW MP: 29.132 Sig ID: 628 Intersection location 2: SR 555 / US 17 (6th St. NW) at Central Ave. MP: 29.193 Sig ID: 629 Intersection location 3: SR 555 / US 17 (6th St. NW) at Pope Ave. / Ave. B NW MP: 29.311 Sig ID: 630 Intersection location 4: SR 555 / US 17 (6th St. NW) at CR 542 / Ave. D NW MP: 29.438 Sig ID: 631 Intersection location 5: SR 555 / US 17 (6th St. NW) at Ave. I NW MP: 29.769 Sig ID: 632 Existing lighting features: Intersection location 6: SR 555 / US 17 (6th St. NW) at Ave. L NW MP: 29.939 Sig ID: 633 Intersection location 7: SR 555 / US 17 (6th St. NW) at Ave. M NW / Shopping Center MP: 30.044 Sig ID: 634 Intersection location 8: SR 555 / US 17 (6th St. NW) at Mirror Terrace MP: 30.100 Sig ID: 635 Intersection location 9: SR 555 / US 17 (8th St. NW) at SR 544 / (Havendale Blvd. / MLK Blvd.) MP: 30.703 Sig ID: 636 |
| [*Type*] | [*Limits*] |

***The CONSULTANT will conduct a Lighting Justification Report (LJR) and determine if highway lighting is justified. Highway lighting component plans will be an optional service.***

***If the LJR justifies the need for lighting, the CONSULTANT shall prepare lighting plans in accordance with Department criteria.***

***FPID:450875-1: Within the vicinity of the intersection, retrofit existing corridor high pressure sodium (HPS) luminaires with LED luminaires.***

**2.9 Landscape (Activities 25 & 26) (N/A)**

**2.10 Survey (Activity 27)**

Design Survey:
***FPID: 450879-1: SR 17 FROM US 27 TO 5TH AVE (MP 0.000 to MP 11.823)***

***FPID: 447428-1: SR 35 (US 17) FROM WAHNETA CREEK TO S OF CYPRESS GARDEN BLVD (MP 23.730 to MP 28.500 & MP 0.000 to MP 0.885) (Exceptions located MP 27.650 to MP 27.809 & MP 27.713 to MP 27.329)***

***FPID: 450874-1: SR 600 (US-92/US-17) FROM W OF RAMONA AVE TO 3RD ST (MP 16.403 to MP 22.133)***

***FPID:450875-1: SR 555 FROM S OF AVENUE A SW TO S OF SR 600 (US 17/92) (MP 0.434 (16030201) to MP 32.824 (16030000))***

Subsurface Utility Exploration:

***Subsurface Utility Exploration: SUE all locations that include new underground infrastructure or earthwork excavation (i.e., drilled shafts, bridge piles, strain poles, mast arms, miscellaneous foundations, drainage structures, pipe culverts, new ditches, etc.) in areas that work will be performed. (SUE locations will be negotiated by the DUA or their Designee) (See D1 SUE Policy Direction)***

Right of Way Survey: ***N/A***

Vegetation Survey: ***N/A***

**2.11 Photogrammetry (Activity 28) (N/A)**

**2.12 Mapping (Activity 29) (N/A)**

**2.13 Terrestrial Mobile LiDAR (Activity 30) (N/A)**

**2.14 Architecture (Activity 31) (N/A)**

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

**2.16 Intelligent Transportation Systems (Activities 33 & 34) (N/A)**

**2.17 Geotechnical (Activity 35) (N/A)**

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

[*Describe level of effort*]

**2.19 Project Schedule**

Within ten (10) days after the Notice-To-Proceed, 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 [*District Schedule Information*]. The current production date is [*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 [*Number*] week review time for each phase submittal and any other submittals as appropriate.

The schedule shall indicate all required submittals.

All fees and price proposals are to be based on the negotiated schedule of [*Number*] months for final construction contract documents. However, the contract deadline is [*Number*] months from the Notice to Proceed.

Periodically, throughout the life of the contract, 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 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.

**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.

**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 DEPARMENT'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:

- ***PD&E Documents***
- ***Phase reviews of plans and engineering documents***
- ***Building Construction Permit Coordination (Turnpike)***
- ***Project utility certification to the DEPARTMENT's Central Office***
- ***Systems traffic for Projected Design Year, with K, D, and T factors***
- ***All information that may come to the DEPARTMENT pertaining to future improvements***
- ***Letters of authorization designating the CONSULTANT as an agent of the DEPARTMENT in accordance with F.S. 337.274***

- ***Any necessary title searches***
- ***Preliminary Horizontal Network Control***
- ***Regarding Environmental Permitting Services:***
- ***All available information in the possession of the DEPARTMENT pertaining to utility companies whose facilities may be affected by the proposed construction***
- ***All Department agreements with Utility Agency Owner (UAO)***
- ***Engineering standards review services***
- ***All approved utility relocations***
- ***Existing pavement evaluation report for all RRR projects***
- ***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***
- ***Available traffic and planning data***
- ***Design Reports***
- ***Numbers for field books***
- ***Previously constructed Highway Beautification or Landscape Construction Plans***
- ***Existing right of way maps***
- ***Access for the CONSULTANT to utilize the DEPARTMENT's Information Technology Resources***
- ***All certifications necessary for project letting***
- ***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***
- ***Landscape Opportunity Plan(s)***
    - ***Appropriate signatures on application forms***
    - ***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.***
    - ***Approved Permit Document when available***
    - ***Approval of all contacts with environmental agencies***

## 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 is responsible for producing a construction cost estimate and reviewing and updating the cost estimate when scope changes occur and/or at milestones of the project. Prior to Phase II plans or completion of quantities, the DEPARTMENT's Long-Range Estimate (LRE) system will be used to produce a conceptual estimate, according to

District policy. Once the quantities have been developed (beginning at Phase II plans and no later than Phase III plans) the CONSULTANT shall be responsible for inputting the category information, pay items and quantities into AASHTOWare Project Preconstruction through the use of the DEPARTMENT's Designer Interface.

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 the written Notice to Proceed 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 submittals 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.

***For urgent communication issues, the CONSULTANT shall also provide to the DEPARTMENT, the capability for cell phone communications with the CONSULTANT Project Manager and the CONSULTANT Deputy Project Manager during normal working hours. Cell phone communications shall be for voice communication and email communications only. Text messages are prohibited by the DEPARTMENT.***

***Within 10 days after the Notice to Proceed, the CONSULTANT Project Manager, Deputy Project Manager and designated CONSULTANT staff shall obtain a FDOT Userid by completing the "FDOT Computer Security Access Request". The CONSULTANT Project Manager, Deputy Project Manager and designated CONSULTANT staff shall maintain their Userid and password for the FDOT FTA and FTP systems and all other required FDOT computer systems.***

***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 Project, and a Deputy Project Manager who shall be the representative in the absence of the Project Manager. 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.***

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 (N/A)**

**3.2 Joint Project Agreements (N/A)**

## 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.

## 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; includes uploading files to Electronic Document Management System (EDMS) or Project Suite Enterprise Edition (PSEE).

## 3.5 Value Engineering (Multi-Discipline Team) Review (N/A)

## 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".

Specific services will be negotiated as necessary as a contract amendment.

### 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

[*Provide project-specific information*]

#### 3.11.1 Aeronautical Evaluation

The Consultant shall be responsible for complying with the requirements of Title 14 of the Code of Federal Regulations Part 77 (14 CFR Part 77), and for determining whether it is necessary to file any Notice of Proposed Construction or Alteration (FAA Form 7460-1) with the Federal Aviation Administration (FAA), utilizing the FAA Notice Criteria Tool. Place a copy of all pertinent documentation in the Project Documentation folder structure; e.g., Notice Criteria Tool inquiries and responses; FAA Form 7460-1 filed with the FAA; Letters of Determination (along with the records demonstrating compliance with the conditions and deadlines). Report any Letters of Determination, designated other than "Does Not Exceed", to the Central Office (Aviation Office, Airspace and Land Use Manager).

### 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

[*Describe other project general tasks*]

## 4 ROADWAY ANALYSIS

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

***Context Zone***

***The CONSULTANT shall identify the existing roadway context and establish the project Context Zone, consistent with the existing and future land use of both the natural and built environment.***

***Design Speed***

***The CONSULTANT shall determine the project Design Speed, upon completion of the Context Zone determination. The CONSULTANT shall provide an analysis and comparison of the proposed Design Speed, Posted Speed, Operating Speed, and Target Speed to the Department. The results of the analysis will inform the decision on Design Speed, focused on efforts to have the Target Speed be established as the governing Design Speed.***

***The CONSULTANT shall coordinate the proposed Design Speed with the District Design Engineer, District Traffic Operations Engineer, and District Intermodal Systems Development Manager.***

***The CONSULTANT shall verify that the Design Speed and Context Zone are consistent with Local Government policy and vision and shall coordinate this effort with the District Planning Studio.***

***Safety Performance Evaluation***

***The CONSULTANT shall evaluate the corridor within the project limits for crash considerations, prior to development of a Typical Section Package.***

***The CONSULTANT shall obtain 3 to 5 years of certified site-specific crash data from FDOT's Crash Analysis Reporting System (CARS) and Signal Four.***

***The CONSULTANT shall create a collision summary and collision diagram.***

***The CONSULTANT shall review the crash data for crash trends including cluster of crashes at a specific location, time, and crash type.***

***The CONSULTANT shall conduct a field review to verify existing conditions, observe driver behavior, traffic signal functionality, traffic flow, pedestrian and/or bicycle activity, and other potential risk factors.***

***The CONSULTANT shall employ AASHTO Highway Safety Manual analysis methodology to the greatest extent possible. The Empirical Bayes method using site-specific crash data to calculate expected crashes is preferred. The Crash Modification Factors Clearinghouse will be used to select the countermeasure or countermeasures best suited for each situation. Where possible, use Florida-specific CMF's with a three-star rating or higher to calculate the Benefit-Cost Ratio associated with the proposed improvement. Should Florida-specific CMF's not be available, select the most appropriate three-star or higher CMF. Select best practices based on the District's guidelines, with attention to substantive safety techniques and Speed Management.***

***The CONSULTANT shall use the findings of the safety evaluation to inform the selection of the Design Speed.***

***Determination of Facility Users***

***The CONSULTANT shall evaluate the corridor and provide determination of the impacted typical users of the facility. Use Complete Streets methodology to establish the appropriate design approach prior to development of the Typical Section Package. Design specifically for the expected users of the facility in question.***

**4.1 Typical Section Package**

***The DEPARTMENT shall provide the Typical Section Package.***

**4.2 Pavement Type Selection Report (N/A)**

**4.3 Pavement Design Package**

The CONSULTANT shall prepare a Pavement Design Package.

**4.4 Cross-Slope Correction (N/A)**

**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 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 Final Design Analysis (N/A)**

**4.8 Cross Section Design Files**

**4.9 Temporary Traffic Control Plan (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.

**4.10 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.

**4.11 Selective Clearing and Grubbing (N/A)**

**4.12 Tree Disposition Plans (N/A)**

**4.13 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.

**4.14 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.

**4.15 Roadway Quantities for EQ Report**

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

**4.16 TTCP Quantities for EQ Report**

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

**4.17 Cost Estimate**

**4.18 Technical Special Provisions and Modified Special Provisions (N/A)**

**4.19 Other Roadway Analyses**

**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

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**

**5.8 Special Profile (N/A)**

**5.9 Back-of-Sidewalk Profile Sheet (N/A)**

**5.10 Interchange Layout Sheet (N/A)**

**5.11 Ramp Terminal Details (Plan View) (N/A)**

**5.12 Intersection Layout Details**

**5.13 Special Details**

**5.14 Cross-Section Pattern Sheets (N/A)**

**5.15 Roadway Soil Survey Sheets**

**5.16 Cross Sections (N/A)**

**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 (N/A)**

**5.22 Tree Disposition Plan Sheets (N/A)**

**5.23 Project Control Sheets**

**5.24 Environmental Detail Sheets (N/A)**

**5.25 Utility Verification Sheets (SUE Data)**

**5.26 Quality Assurance/Quality Control**

**5.27 Supervision**

## 6a DRAINAGE ANALYSIS

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 (N/A)**

**6a.3 Pond Siting Analysis and Report (N/A)**

**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 drain pipes, and documentation. (Design of linear stormwater management facilities in separate task.)

**6a.6 Design of Stormwater Management Facility (Offsite or Infield Pond) (N/A)**

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

**6a.8 Design of Floodplain Compensation (N/A)**

**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 (N/A)**

**6a.12 Drainage Wells (N/A)**

**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.

**6a.14 Bridge Hydraulic Report**

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

**6a.15 Temporary Drainage Analysis (N/A)**

**6a.16 Drainage Quantities for EQ Report**

**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 (N/A)**

**6a.19 Hydroplaning Analysis (N/A)**

**6a.20 Existing Permit Analysis**

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

**6a.21 Other Drainage Analysis**

Includes all efforts for a drainage task not covered by an existing defined task.

**6a.22 Noise Barrier Evaluation (N/A)**

**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 (N/A)**

**6a.28 Independent Peer Review**

**6a.29 Supervision**

**6a.30 Coordination**

## 6b DRAINAGE PLANS

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 (N/A)**

**6b.6 Erosion Control Plan (N/A)**

**6b.7 SWPPP**

**6b.8 Quality Assurance/Quality Control**

**6b.9 Supervision**

## 7 UTILITIES

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

***<u>First Contact (Green Lines):</u> The CONSULTANT shall prepare and transmit an initial statutory contact package to all utility companies/agencies that may have existing facilities within the project limits. This package shall include two sets of plans (hard copy, disk or electronic files) with the statutory letter. An established time frame should be allowed for the utility companies to respond back with marked plans showing the type, size and location of existing facilities, or written confirmation that they have no facilities in the project area, copies of "as built" plans, claims for reimbursement***

***<u>Second Contact (Revised Phase II):</u> The CONSULTANT shall transmit the second Statutory contact letter with the necessary agreements, and documents to each utility company/agency as required. Two complete sets of plans (hard copy, disk or electronic files) and a Conflict Matrix (if necessary) shall be furnished to each involved utility company/agency. One plan set will be color coded by the utility company showing proposed relocation and returned to the CONSULTANT with the utility work schedules and agreements as appropriate to be transmitted to the DUA or designee.***

***<u>N/A Third Contact (Revised Phase III):</u> The CONSULTANT shall transmit the third Statutory contact letter to each utility company/agency as required. Two complete sets of plans (hard copy, disk or electronic files), a Conflict Matrix and List of Plan Changes shall be furnished to each involved utility company/agency. Revised plans will be marked by the utility company and returned to the CONSULTANT with revised utility work schedules to be transmitted to the District Utility Administrator or designee.***

***<u>Final Contact (Phase IV):</u> Send one set of Phase IV plans (hard copy, disk or electronic files) to each of the involved UAO(s).***

Not all projects will have all contacts as described above.

**7.4 Exception Processing**

The CONSULTANT shall coordinate the processing of design exceptions involving utilities with the UAO and the Department. Coordinate and process per the UAM.

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 Design Alternative. 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 alternative involving Utilities with the UAO and the DEPARTMENT. Assist with processing per the UAM.

**7.5 Preliminary Utility Meeting**

The CONSULTANT shall schedule (time and place), notify participants, and conduct a preliminary utility meeting with all UAO(s) having facilities located within the project limits for the purpose of presenting the project, review the current design schedule, evaluate the utility information collected, provide follow-up information on compensable property rights from the FDOT Legal Office, discuss the utility work by highway contractor option with each utility, and discuss any future design issues that may impact utilities. This 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.

**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.

**7.8 Subordination of Easements Coordination**

The District Right-of-Way Office will handle processing of all subordinations of easements. The Consultant shall refer all UAOs to the DUO to address subordinations of easements when they arise.

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.

**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. Ensure the resolution of all identified 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. Additional services will be determined when the services are required and requested. This item is not usually included in the scope at the time of negotiation. It is normally added as a supplemental agreement when the need is identified.

**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 biddability review, review pay items, cost estimates and Technical Special Provisions (TSP) or Modified Special Provision (MSP) prepared by the UAO. This does not include the utility design effort. This item is not usually included in the scope at the time of negotiation. It is normally added as a supplemental agreement when the need is identified. Effort for the EOR is not included in this task, see Roadway Analysis Task Group 4.

**7.15 Contract Plans to UAO(s) N/A**

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

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 (N/A)

### 8.2 Field Work

#### 8.2.1 Pond Site Alternatives: (N/A)

#### 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 detailed 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 the 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 of 1"=400'or more detailed and be recent photography. The maps shall show the jurisdictional boundaries of each agency. Photo copies of aerials are not acceptable. When necessary, a wetland specific survey will be prepared by a registered surveyor and mapper. All surveyed jurisdictional boundaries are to 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 identify 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 "Request for Corps Jurisdictional Determination"; Uniform Mitigation Assessment Method forms and/or project specific data forms.

#### 8.2.3 Species Surveys: (N/A)

### 8.3 Agency Verification of Wetland Data (N/A)

### 8.4 Complete and Submit All Required Permit Applications

The CONSULTANT shall collect 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 8.15 (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 will submit all permit applications, as directed by the DEPARTMENT, and be responsible for payment of all permit and public noticing fees, unless directed otherwise by the DEPARTMENT.

#### 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 (e.g. 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 Complete and Submit all Required 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 (e.g. 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.

**8.5 Coordinate and Review Dredge and Fill Sketches (N/A)**

**8.6 Complete and Submit Documentation for Coordination and/or USCG Bridge Permit Application (N/A)**

**8.7 Prepare Water Management District or Local Water Control District Right of Way Occupancy Permit Application (N/A)**

**8.8 Prepare Coastal Construction Control Line (CCCL) Permit Application (N/A)**

**8.9 Prepare USACE Section 408 Application to Alter a Civil Works Project (N/A)**

**8.10 Compensatory Mitigation Plan (N/A)**

**8.11 Mitigation Coordination and Meetings**

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

**8.12 Regulatory Agency Support**

The CONSULTANT shall provide regulatory agency support which may include but is not limited to preparing: a Statement of Findings or Memorandum for the Record; Public Notice; Findings of Fact; and Biological Opinion.

**8.13 Technical Support to the DEPARTMENT for Environmental Clearances and Re-evaluations (use when CONSULTANT provides technical support only)**

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

**8.13.1 NEPA or SEIR Re-evaluation**

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 environmental re-evaluations includes those as listed in Part 1, Chapter 13 of the DEPARTMENT's PD&E Manual: Right of Way, Design Change, and Construction Advertisement.

Re-evaluations will 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 (N/A)**

**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 (use when CONSULTANT prepares all documents associated with a re-evaluation) (N/A)**

**8.15 Other Environmental Permits**

**8.16 Contamination Impact Analysis (N/A)**

**8.17 Asbestos Survey (N/A)**

**8.18 Technical Meetings**

**8.19 Quality Assurance/Quality Control**

**8.20 Supervision**

**8.21 Coordination**

## 9 STRUCTURES - SUMMARY AND MISCELLANEOUS TASKS AND DRAWINGS

The CONSULTANT shall analyze, design, and develop contract documents for all structures in accordance with applicable provisions as defined in Section 2.19, 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. 20, Provisions for Work. Contract documents shall display economical solutions for the given conditions.

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 (N/A)

***N/A***

## 11 STRUCTURES - TEMPORARY BRIDGE (N/A)

***N/A***

## 12 STRUCTURES - SHORT SPAN CONCRETE BRIDGE (N/A)

***N/A***

## 13 STRUCTURES - MEDIUM SPAN CONCRETE BRIDGE (N/A)

***N/A***

## 14 STRUCTURES - STRUCTURAL STEEL BRIDGE (N/A)

***N/A***

## 15 STRUCTURES - SEGMENTAL CONCRETE BRIDGE (N/A)

***N/A***

## 16 STRUCTURES - MOVABLE SPAN (N/A)

***N/A***

## 17 STRUCTURES - RETAINING WALLS (N/A)

***N/A***

## 18 STRUCTURES - MISCELLANEOUS

The CONSULTANT shall prepare plans for Miscellaneous Structure(s) as specified in Section 2.5.

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**

**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

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.

**19.3 Signing and Pavement Marking 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).

### 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

### 19.9 Technical Special Provisions and Modified Special Provisions (N/A)

### 19.10 Other Signing and Pavement Marking Analysis

### 19.11 Field Reviews

### 19.12 Technical Meetings

### 19.13 Quality Assurance/Quality Control

### 19.14 Independent Peer Review

### 19.15 Supervision

### 19.16 Coordination

## 20 SIGNING AND PAVEMENT MARKING PLANS

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 includes the following.

### 20.1 Key Sheet & Signature Sheet

**20.2 General Notes/Pay Item Notes**

**20.3 Project Layout (N/A)**

**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.

**20.10 Supervision**

## 21 SIGNALIZATION ANALYSIS

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

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**21.1 Traffic Data Collection**

The CONSULTANT shall perform all effort required for traffic data collection, including crash reports, 24 hr. machine counts, 8 hr. 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**

[*As defined by the District*]

**21.10 Signalization Quantities for EQ Report**

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

**21.11 Cost Estimate**

**21.12 Technical Special Provisions and Modified Special Provisions**

**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**

**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.

**21.17 Independent Peer Review**

**21.18 Supervision**

**21.19 Coordination**

## 22 SIGNALIZATION PLANS

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

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**22.1 Key Sheet & Signature Sheet**

**22.2 General Notes/Pay Item Notes**

**22.3 Signalization Plan Sheets**

**22.4 Interconnect Plans**

**22.5 Traffic Monitoring Site**

**22.6 Guide Sign Data**

**22.7 Special Details**

**22.8 Service Point Details**

**22.9 Mast Arm/Monotube Tabulation Sheet**

**22.10 Strain Pole Schedule**

**22.11 TTCP Signal (N/A)**

**22.12 Temporary Detection Sheet**

**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.

**22.14 Supervision**

## 23 LIGHTING ANALYSIS

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

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**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 day-time 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.

**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.

***FPID:447428-1, 450874-1, 450875-1 & 450879-1***

**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.

**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 Highway Lighting (N/A)**

**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**

**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**

**23.14 Quality Assurance/Quality Control**

**23.15 Independent Peer Review**

**23.16 Supervision**

**23.17 Coordination**

## 24 LIGHTING PLANS

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

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**24.1 Key Sheet & Signature Sheet**

**24.2 General Notes/Pay Item Notes**

**24.3 Pole Data, Legend & Criteria**

**24.4 Project Layout**

**24.5 Plan Sheets**

**24.6 Special Details**

**24.7 Service Point Details**

**24.8 Temporary Highway Lighting Plan Sheets**

**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.

**24.10 Supervision**

## 25 LANDSCAPE ANALYSIS (N/A)

***N/A***

## 26 LANDSCAPE PLANS (N/A)

***N/A***

## 27 SURVEY

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 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 Control (HPC) points, project alignment, vertical control points, section, ¼ 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 2-dimensional collection of existing utilities and selected 3-dimensional verification as needed for designation. Location includes non-destructive excavation to determine size, type and location of existing utility, as necessary for final 3-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.

***The CONSULTANT shall SUE all locations that include new underground infrastructure or earthwork excavation (i.e. drilled shafts, bridge piles, strain poles, mast arms, miscellaneous foundations, drainage structures, pipe culverts, new ditches, etc.). The expectation is for the CONSULTANT to know exactly where all existing underground utilities and infrastructure are located in areas that work will be performed to properly design for any new underground infrastructure or earthwork excavation that will be constructed on the project.***

***A Professional Land Surveyor, registered in the State of Florida, shall sign and seal the data provided and included in the FDOT Verified Utility Locate Plan Sheets. All information shall be provided in the format requested by the DEPARTMENT.***

**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 (2-dimensional) of jurisdiction limits as defined by respective authorities, also includes field edits, analysis and processing of all field collected data, preparation of reports.

**27.18 Geotechnical Support**

Perform 3-dimensional (X,Y,Z) field location, or stakeout, of boring sites established by 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, common areas. Includes analysis and processing of all field collected data and/or reports. If unrecorded subdivision is on file in the public records of the subject county, tie existing monumentation of the beginning and end of unrecorded subdivision.

**27.21 Maintained R/W**

Perform field location (2-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, preparation of reports.

**27.22 Boundary Survey**

Perform boundary survey as defined by DEPARTMENT standards. Includes analysis and processing of all field-collected data, 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 (N/A)**

**27.29 Tree Survey**

Locate individual trees or palms within the project limits.

**27.30 Miscellaneous Surveys**

Refer to tasks of this document, as applicable, to perform surveys not described herein. The percent for Supplemental will be determined at negotiations. This item can only be used if authorized in writing by the District Surveyor (DS), District Location Surveyor (DLS) or their representative.

### 27.31 Supplemental Surveys

Supplemental survey days and hours are to be approved in advance by DS or DLS. Refer to tasks of this document, as applicable, to perform surveys not described herein.

### 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 and any resolution meetings if required, 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.

## 28 PHOTOGRAMMETRY (N/A)

***N/A***

## 29 MAPPING (N/A)

***N/A***

## 30 TERRESTRIAL MOBILE LiDAR (N/A)

***N/A***

## 31 ARCHITECTURE DEVELOPMENT (N/A)

***N/A***

## 32 NOISE BARRIERS IMPACT DESIGN ASSESSMENT IN THE DESIGN PHASE (N/A)

***N/A***

## 33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS (N/A)

***N/A***

## 34 INTELLIGENT TRANSPORTATION SYSTEMS PLANS (N/A)

***N/A***

## 35 GEOTECHNICAL (N/A)

***N/A***

## 36 3D MODELING

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 Project. 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 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 and 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.

### 37.7 Coordination with Other Consultants

The CONSULTANT is to coordinate his 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.

### 37.8 Optional Services

At the DEPARTMENT's option, the CONSULTANT may be requested to provide optional services. The fee for these services shall be negotiated in accordance with the terms detailed in Exhibit B, Method of Compensation, for a fair, competitive and reasonable cost, considering the scope and complexity of the project(s). Additional services may be authorized by Letter of Authorization or supplemental amendment in accordance with paragraph 2.00 of the Standard Consultant Agreement. The additional services may include Construction Assistance, Review of Shop Drawings, Final Bridge Load Rating, update (Category II) bridge plans electronically (CADD) for the Final "As-Built" conditions, based on documents provided by the DEPARTMENT (CADD Services Only) or other Services as required.

## 38 INVOICING LIMITS

Payment for the work accomplished shall be in accordance with 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 shall 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.