EXHIBIT A

SCOPE OF SERVICES

FOR

FINANCIAL PROJECT ID(S). 440274-2-32-01

DISTRICT ONE

Polk COUNTY
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SCOPE OF SERVICES FOR CONSULTING ENGINEERING SERVICES

HIGHWAY AND BRIDGE/STRUCTURAL DESIGN

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

Financial Project ID: 440274-2-32-01

Federal Aid Project No.: N/A

County Section No.: 16160000

Description: SR 659 (Combee Road) from US 98 (MP 0.000) to N Crystal Lake Drive (MP 0.513), Polk County

Bridge No(s.): N/A

Rail Road Crossing No: 624180-A

Context Classification: C3C & C3R

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: 9924- Miscellaneous Construction

Major work groups include:

- 3.1 Minor Highway Design
- 2.0 PD&E Studies
  - 4.1.1 Miscellaneous Structures
  - 6.1 Traffic Engineering Studies
  - 6.2 Traffic Signal Timing
  - 6.3.1 ITS Analysis & Design
  - 6.3.2 ITS Implementation
  - 6.3.3: Intelligent Transportation Traffic Engineering Systems Communications
  - 7.1 Signing, Pavement Marking & Channelization
  - 7.2 Lighting
  - 7.3 Signalization
  - 8.1 Control Surveying
  - 8.2 Design, Right of Way & Construction Surveying
  - 8.3 Photogrammetric Mapping
  - 8.4 Right of Way Mapping
Known alternative construction 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 Environmental (PD&E) study, the CONSULTANT shall use the approved concepts as a basis for the design unless otherwise directed by the DEPARTMENT.

Complete streets project, add center turn lane, buffered bike lanes, sidewalk, closed drainage system, addition of turn lane at N Crystal Lake Drive, driveway closures & modifications and extending the SB right turn lane on Combee to US 98.

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

Public Involvement: CAP Level TBD, potential public hearing if access changes are made after PD&E’s public hearing

Other Agency Presentations/Meetings: TBD, Refresher with TPO

Joint Project Agreements: N/A

Specification Package Preparation: One

Value Engineering: N/A

Risk Assessment Workshop: N/A

Plan Type: Roadway Plans TBD

Typical Section: Urban three lane section with 13-foot bi-directional left turn lane, curb and gutter, bike lanes, and six-foot wide concrete sidewalks.

Pavement Design: TBD

Pavement Type Selection Report(s): TBD

Cross Slope: TBD by Consultant

Access Management Classification: Six (6)

Transit Route Features: Existing shelters, benches and signage.

Major Intersections/Interchanges: North leg of US 98, Maine Ave, Commerce Point Drive, S Crystal Lake Drive, Skyview Drive & N Crystal Lake Drive

Roadway Alternative Analysis: TBD
Level of TCP Plans: *Three (3)*

Temporary Lighting: *[Provide limits or N/A]*.

Temporary Signals: *[Provide a list of locations]*.

Temporary Drainage: *[Provide description or N/A]*.

Design Variations/Exceptions: *To be determined by the Consultant*

Back of Sidewalk Profiles: *As directed by the DEPARTMENT*

Selective Clearing and Grubbing: N/A

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

System Type: *The anticipated stormwater management system will be accomplished utilizing closed storm sewer system (expected to be changed from an existing rural open conveyance system). Water quality and quantity treatment will be achieved through the construction of stormwater management facilities, which may require the acquisition of additional right-of-way. Floodplain compensation may be anticipated for this proposed roadway widening.*

*The project is divided into two (2) drainage basins. Three alternatives per basin are to be studied.*

*There is one (1) existing cross drains within the project limits.*

*All existing cross drains that are to remain shall be videoed and analyzed for structural sufficiency. Prior to videoing pipes, the CONSULTANT shall coordinate with the local Operation Center to verify if any existing pipe video is available. The CONSULTANT shall be responsible for desilting the cross drains prior to video inspection. The CONSULTANT shall check the condition of all existing cross-drain pipes for possible lining or replacement. The CONSULTANT shall provide an electronic copy of the new pipe video, inspection report, and a kmz file of the pipe video location, to the local Operation Center once it is complete.*

### 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.

**2.4 Environmental Permits, Compliances, and Environmental Clearances (Activity 8)**
Permits are anticipated from the United States Army Corps of Engineers (USACOE), the Southwest Florida Water Management District (SWFWMD).

Mitigation activities shall be coordinated with the District Environmental Permits Coordinator.
2.5 Structures (Activities 9 – 18)

Bridge(s): N/A

Retaining Walls: N/A

Noise Barrier Walls: N/A

Miscellaneous: *An Ancillary Structures Evaluation is anticipated for all existing sign, signal, lighting and ITS support structures within the project per 261.7 of the Florida Design Manual (FDM).*

2.6 Signing and Pavement Markings (Activities 19 & 20)

[List number and location of sign structures (i.e., cantilevers, overhead, etc.) or N/A]

The CONSULTANT shall prepare signing and 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 web address [ftp://ftp.dot.state.fl.us/fdot/d1/traffops](ftp://ftp.dot.state.fl.us/fdot/d1/traffops). This folder also contains additional items useful in designing Signing and Pavement Marking components plans in District One.

2.7 Signalization (Activities 21 & 22)

Intersections: [List all existing and proposed signalized intersections and requirements, (i.e., loop replacement, mast arms, etc.) or N/A].

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

Traffic Studies: [List all studies required and locations or N/A].

Count Stations: [List number of count stations or N/A].

Traffic Monitoring Sites: [List number of Traffic Monitoring Sites on or within one-half mile of project or N/A].

2.8 Lighting (Activities 23 & 24)

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

2.9 Landscape Architecture (Activities 25 & 26)

Include coordination with existing and/or proposed underground utilities including but not limited to FDOT lighting, drainage and ITS. Landscape coordination with ITS shall include
both underground conflicts and above-ground impacts to existing and/or proposed ITS coverage. The CONSULTANT shall closely coordinate with the Department’s ITS units to ensure that all conflicts are identified, addressed and mitigated in the Contract Documents.

**Planting Plans:** Provide planting plans (rural, suburban, urban) and landscape type (buffer, xeric, gateway, native, restoration, mitigation, tree relocation, streetscape, etc.).

**Irrigation Plans:** Provide design for fully operational irrigation system in compliance with applicable local codes and ordinance, system type (spray, subsurface, low volume, etc.), water source (potable, re-use water, well, metering, backflow type), power source (electrical, solar, battery), control options (local, satellite, manual, etc.), and provide for sleeve location coordination.

**Hardscape Plans:** Not Applicable

**Outdoor Advertising:** The CONSULTANT shall determine view zones of legally permitted outdoor advertising signs are within the project limits, the number of sign structures, the number of sign faces (single, double, triple faced), and the number of sign permittees that must be contacted, per applicable state statutes.

### 2.10 Survey (Activity 27)

*Design Survey:* SR 659 (Combee Rd) from US 98 to N Crystal Lake Drive from center of the roadway out to the right of way lines, include 100 feet down each side street.

*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:* US 98 (MP 0.000) to N Crystal Lake Drive (MP 0.513)

*Vegetation Survey:* N/A

### 2.11 Photogrammetry (Activity 28)

*[Provide limits and describe type or N/A]*

### 2.12 Mapping (Activity 29)

*Control Survey Map:* *[Provide limits or N/A]*

*Right of Way Map:* *[Provide limits or N/A]*

*Legal Descriptions:* *[Provide number or N/A]*
Maintenance Map: [Provide limits or N/A].

Miscellaneous Items: [List items or N/A].

2.13 Terrestrial Mobile LiDAR (Activity 30)

[Provide limits and describe type or N/A].

2.14 Architecture (Activity 31) - Not Applicable

2.15 Noise Barriers (Activity 32)- Not Applicable

2.16 Intelligent Transportation Systems (Activities 33 & 34)

There is an existing Advanced Traffic Management System (ATMS) previously constructed by Polk County along SR 659 (Combee Rd) within the limits of this project. The ATMS is operated and maintained by Polk County from the Traffic Management Center (TMC) at 3000 Sheffield Rd, Winter Haven, Florida 33880. The consultant is responsible for avoiding and/or redesigning all ATMS infrastructure that may be impacted by this project.

The Federal Highway Administration issued Rule 940 entitled Intelligent Transportation Systems (ITS) Architecture and Standards to ensure new projects conform to the National ITS Architecture and standards as well as with a regional ITS architecture developed to reflect the local needs, issues, problems, and objectives for implementation.

For all projects with ITS activities, the CONSULTANT shall follow the Rule 940 requirements and use a Systems Engineering approach for determining the requirements for the project. The CONSULTANT shall develop all necessary documents to support the Rule 940 requirements like Concept of Operations (ConOPS), Systems Engineering Management Plan (SEMP), Requirements Traceability Verification Matrix (RTVM) and others as deemed necessary by the Department.

The consultant shall develop a project specific RTVM for completion during construction to verify that all project requirements have been met.

The ITS shall operate from the Polk County TMC located at 3000 Sheffield Rd, Winter Haven, Florida 33830 using the ATMS.NOW software.

Interchanges: N/A

Traffic Data Collection: N/A

Geographical Information System (GIS) Requirements: CONSULTANT shall include in the design the GIS data collection requirements and deliverables for integration with SunGuide software and other Department GIS based asset management applications like ITS FM software.

All design efforts shall be based on deploying “open architecture” subsystems, while remaining fully compatible with previous designs (as applicable) and the FDOT ITS Specifications. All ITS field devices and support systems shall be designed and located outside of the clear zone, or behind protective barrier, within the right of way. This includes
cabinets, poles, and support hardware. Utility conflicts shall be identified and resolved
during the design phase. The location of design elements will be coordinated with the
District Landscape Architect to optimize landscape opportunities. The design shall minimize
theft and vandalism. The CONSULTANT shall include in the design vandal resistant
mechanisms to minimize theft. The CONSULTANT shall provide additional redundant
power and communications systems to minimize system downtime due to vandalism.

The CONSULTANT shall design the project subsystems such that they will be monitored
and controlled from the FDOT’s TMC facilities located at 3000 Sheffield Rd, Winter
Haven, Florida 33880. The CONSULTANT shall ensure that all ITS field devices and
ancillary components comply with the FDOT’s Approved Product List (APL) and are
supported within the SunGuide software or other specified software, unless otherwise
approved by the DEPARTMENT.

The CONSULTANT shall include in the design any required upgrade to the TMC central
hardware, equipment racks, and equipment wiring, as directed by the FDOT project
manager, to make the subsystems fully operations from the TMC facilities.

For projects with existing ITS, the CONSULTANT shall include in the design any required
upgrade to existing ITS equipment to meet the latest FDOT standards, NEC requirements or
as directed by the FDOT project manager and to make the subsystems fully operations from
the TMC facilities.

ITS coordination with Landscape Architecture shall include both underground conflicts and
above-ground impacts to existing and/or proposed Landscaping. The CONSULTANT shall
closely coordinate with the Landscape Architect to ensure that all conflicts are identified,
addressed and mitigated in the Contract Documents.

2.17 Geotechnical (Activity 35)

Geotech work to be performed by the DEPARTMENT

2.18 3D Modeling (Activity 36)

[Describe level of effort or N/A].

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 CURRENT
LETTING PLAN. The current production date is NOT YET DETERMINED. The
schedule shall be accompanied by an anticipated payout and fiscal progress curve. For the
purpose of scheduling, the CONSULTANT shall allow for a FOUR week review time for
each phase submittal and any other submittals as appropriate.

The schedule shall indicate all required submittals.

All fees and price proposals are to be based on the negotiated schedule of 60 months for
final construction contract documents. However, the contract deadline is 60 months from
the Notice to Proceed.

2 PROJECT DESCRIPTION
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

All work shall be prepared with English units in accordance with the latest editions of standards and requirements utilized by the DEPARTMENT which include, but are not limited to, publications such as:

- General
  - 29 C.F.R. 1926.1101 – Asbestos Standard for Construction, OSHA
  - 40 C.F.R. 61, Subpart M - National Emission Standard for Hazardous Air Pollutants (NESHAP), Environmental Protection Agency (EPA)
  - 40 C.F.R. 763, Subpart E – Asbestos-Containing Materials in Schools, EPA
  - 40 C.F.R. 763, Subpart G – Asbestos Worker Protection, EPA
  - Americans with Disabilities Act (ADA) Standards for Accessible Design
  - AASHTO – A Policy on Design Standards Interstate System
  - AASHTO – Roadside Design Guide
  - AASHTO – Roadway Lighting Design Guide
  - AASHTO – A Policy for Geometric Design of Highways and Streets
  - AASHTO – Highway Safety Manual
  - Rule Chapter 5J-17, Florida Administrative Code (F.A.C.), Standards of Practice for Professional Surveyors and Mappers
  - Chapter 469, Florida Statutes (F.S.) – Asbestos Abatement
  - Rule Chapter 62-257, F.A.C., Asbestos Program
  - Rule Chapter 62-302, F.A.C., Surface Water Quality Standards
  - Code of Federal Regulations (C.F.R.)
  - Florida Administrative Codes (F.A.C.)
  - Chapters 20, 120, 215, 455, Florida Statutes (F.S.) – Florida Department of Business & Professional Regulations Rules
  - Florida Department of Environmental Protection Rules
  - FDOT Basis of Estimates Manual
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2. PROJECT DESCRIPTION

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- US Fish and Wildlife Service Endangered Species Programs
- Florida Fish and Wildlife Conservation Commission Protected Wildlife Permits
- Bridge Permit Application Guide, COMDTPUB P16591.3C
- Building Permit

- Drainage
  - FDOT Bridge Hydraulics Handbook
  - FDOT Culvert Handbook
  - FDOT Drainage Manual
  - FDOT Erosion and Sediment Control Manual
  - FDOT Exfiltration Handbook
  - FDOT Hydrology Handbook
  - FDOT Open Channel Handbook
  - FDOT Optional Pipe Materials Handbook
  - FDOT Storm Drain Handbook
  - FDOT Stormwater Management Facility Handbook
  - FDOT Temporary Drainage Handbook
  - FDOT Drainage Connection Permit Handbook
  - FDOT Bridge Scour Manual

- Survey and Mapping
  - All applicable Florida Statutes and Administrative Codes
  - Applicable Rules, Guidelines Codes and authorities of other Municipal, County, State and Federal Agencies.
  - FDOT Aerial Surveying Standards for Transportation Projects Topic 550-020-002
  - FDOT Right of Way Mapping Handbook
  - FDOT Surveying Procedure Topic 550-030-101
  - Florida Department of Transportation Right of Way Procedures Manual
  - Florida Department of Transportation Surveying Handbook
  - Right of Way Mapping Procedure 550-030-015

- Traffic Engineering and Operations and ITS
  - AASHTO - An Information Guide for Highway Lighting
  - AASHTO - Guide for Development of Bicycle Facilities
  - FHWA Standard Highway Signs Manual
  - FDOT Manual on Uniform Traffic Studies (MUTS)
  - FDOT Median Handbook
  - National Electric Safety Code
  - National Electrical Code

- Florida’s Turnpike Enterprise
  - Florida’s Turnpike Plans Preparation and Practices Handbook (TPPPH)
  - Florida’s Turnpike Lane Closure Policy
  - Florida’s Turnpike Drainage Manual Supplement

2 PROJECT DESCRIPTION

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Rigid Pavement Design Guide for Toll Locations with Electronic Toll Collection
Flexible Pavement Design Guide for Toll Locations with Electronic Toll Collection
Florida’s Turnpike General Tolling Requirements (GTR)
Additional Florida’s Turnpike Enterprise standards, guides, and policies for design and construction can be found on the FTE Design Website: http://design.floridasturnpike.com

Traffic Monitoring
- American Institute of Steel Construction (AISC) Manual of Steel Construction, referred to as “AISC Specifications”
- American National Standards Institute (ANSI) RP-8-00 Recommended Practice for Roadway Lighting
- AASHTO AWS D1.1/ANSI Structural Welding Code – Steel
- AASHTO D1.5/AWS D1.5 Bridge Welding Code
- FHWA Traffic Detector Handbook
- FDOT General Interest Roadway Data Procedure
- FHWA Traffic Monitoring Guide
- FDOT’s Traffic/Polling Equipment Procedures

Structures
- AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications and Interims
- AASHTO LRFD Movable Highway Bridge Design Specifications and Interims
- AASHTO/AWS-D1.5M/D1.5: An American National Standard Bridge Welding Code
- AASHTO Guide Specifications for Structural Design of Sound Barriers
- AASHTO Manual for Condition Evaluation and Load and Resistance Factor Rating (LRFR) of Highway Bridges
- FDOT Bridge Load Rating Manual
- FDOT Structures Manual
- FDOT Structures Design Bulletins (available on FDOT Structures web site only)

Geotechnical
- FHWA Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Specifications
- Manual of Florida Sampling and Testing Methods
- Soils and Foundation Handbook

Landscape Architecture
- Florida Department of Agriculture and Consumer Services Grades and
Standards for Nursery Plants

- **Architectural**
  - Building Codes
  - Florida Building Code:
    - Building
    - Fuel Gas
    - Mechanical
    - Plumbing
    - Existing Building
  - Florida Accessibility Code for Building Construction
  - Rule Chapter 60D, F.A.C., Division of Building Construction
  - Chapter 553, F.S. – Building Construction Standards
  - ANSI A117.1 2003 Accessible and Usable Building and Facilities
  - Titles II and III, Americans With Disabilities Act (ADA), Public Law 101-336; and the ADA Accessibility Guidelines (ADAAG)

- **Architectural – Fire Codes and Rules**
  - National Fire Protection Association (NFPA) - Life Safety Code
  - NFPA 70 - National Electrical Code
  - NFPA 10 - Standard for Portable Fire Extinguishers
  - NFPA 11 - Standard for Low-Expansion Foam Systems
  - NFPA 11A - Standard for High- and Medium-Expansion Foam Systems
  - NFPA 12 - Standard for Carbon Dioxide Extinguishing Systems
  - NFPA 13 - Installation of Sprinkler Systems
  - NFPA 30 - Flammable and Combustible Liquids Code
  - NFPA 54 - National Gas Fuel Code
  - NFPA 58 - LP-Gas Code
  - Florida Fire Prevention Code as adopted by the State Fire Marshal – Consult with the Florida State Fire Marshal’s office for other frequently used codes.

- **Architectural – Extinguishing Systems**
  - NFPA 10 - Fire Extinguishers
  - NFPA 13 - Sprinkler
  - NFPA 14 - Standpipe and Hose System
  - NFPA 17 - Dry Chemical
  - NFPA 20 - Centrifugal Fire Pump
  - NFPA 24 - Private Fire Service Mains
  - NFPA 200 - Standard on Clean Agent Fire Extinguishing Systems

- **Architectural – Detection and Fire Alarm Systems**
  - NFPA 70 - Electrical Code
  - NFPA 72 - Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems

**2 PROJECT DESCRIPTION**

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- NFPA 72E - Automatic Fire Detectors
- NFPA 72G - Installation, Maintenance, and Use of Notification Appliances
- NFPA 72H - Testing Procedures for Remote Station and Proprietary Systems
- NFPA 74 - Household Fire Warning Equipment
- NFPA 75 - Protection of Electronic Computer Equipment

- Architectural – Mechanical Systems
  - NFPA 90A - Air Conditioning and Ventilating Systems
  - NFPA 92A - Smoke Control Systems
  - NFPA 96 - Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment
  - NFPA 204M - Smoke and Heating Venting

- Architectural – Miscellaneous Systems
  - NFPA 45 - Laboratories Using Chemicals
  - NFPA 80 - Fire Doors and Windows
  - NFPA 88A - Parking Structures
  - NFPA 105 - Smoke and Draft-control Door Assemblies
  - NFPA 110 - Emergency and Standby Power Systems
  - NFPA 220 - Types of Building Construction
  - NFPA 241 - Safeguard Construction, Alteration, and Operations
  - Rule Chapter 69A-47, F.A.C., Uniform Fire Safety For Elevators
  - Rule Chapter 69A-51, F.A.C., Boiler Safety

- Architectural – Energy Conservation
  - Rule Chapter 60D-4, F.A.C., Rules For Construction and Leasing of State Buildings To Insure Energy Conservation
  - Section 255.255, F.S., Life-Cycle Costs

- Architectural – Elevators
  - Rule Chapter 61C-5, F.A.C., Florida Elevator Safety Code
  - ASME A-17.1, Safety Code for Elevators and Escalators
  - Architectural – Floodplain Management Criteria
  - Section 255.25, F.S., Approval Required Prior to Construction or Lease of Buildings
  - Rules of the Federal Emergency Management Agency (FEMA)

- Architectural – Other
  - Rule Chapter 64E-6, F.A.C., Standards for On Site Sewage Disposal Systems (Septic Tanks)
  - Rule Chapter 62-600, F.A.C., Domestic Wastewater Facilities
  - Rule Chapter 62-761, F.A.C., Underground Storage Tank Systems
  - American Concrete Institute
  - American Institute of Architects - Architect’s Handbook of Professional Practice
  - American Society for Testing and Materials - ASTM Standards

2 PROJECT DESCRIPTION
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2.22 Services to be Performed by the DEPARTMENT When appropriate and/or available, the DEPARTMENT will provide project data including:

- Numbers for field books.
- Preliminary Horizontal Network Control.
- Access for the CONSULTANT to utilize the DEPARTMENT’s Information Technology Resources.
- All Department agreements with Utility Agency Owner (UAO).
- All certifications necessary for project letting.
- Building Construction Permit Coordination (Turnpike)
- All information that may come to the DEPARTMENT pertaining to future improvements.
- 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.
- All approved utility relocations.
- Project utility certification to the DEPARTMENT’s Central Office.
- Any necessary title searches.
- Engineering standards review services.
- All available information in the possession of the DEPARTMENT pertaining to utility companies whose facilities may be affected by the proposed construction.
- All future information that may come to the DEPARTMENT 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.
- Systems traffic for Projected Design Year, with K, D, and T factors.
- Previously constructed Highway Beautification or Landscape Construction Plans
- Landscape Opportunity Plan(s)
- Existing right of way maps.
- Existing cross slope data for all RRR projects.
- Existing pavement evaluation report for all RRR projects.
- PD&E Documents
- Design Reports
- Letters of authorization designating the CONSULTANT as an agent of the

2. PROJECT DESCRIPTION

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DEPARTMENT in accordance with F.S. 337.274.

- Phase reviews of plans and engineering documents.
- Regarding Environmental Permitting Services:
  - Approved Permit Document when available.
  - Approval of all contacts with environmental agencies.
  - General philosophies and guidelines of the DEPARTMENT to be used in the fulfillment of this contract. Objectives, constraints, budgetary limitations, and time constraints will be completely defined by the Project Manager.
  - Appropriate signatures on application forms.
3  PROJECT COMMON AND PROJECT GENERAL TASKS

Project Common Tasks

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

Cost Estimates: The CONSULTANT 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 60% plans or completion of quantities, the DEPARTMENT’s Long Range Estimate (L.R.E.) system will be used to produce a conceptual estimate, according to District policy. Once the quantities have been developed (beginning at 60% plans and no later than 90% plans) the CONSULTANT shall be responsible for inputting the pay items and quantities into AASHTOWare Project Preconstruction through the use of the DEPARTMENT’s Designer Interface for generating the summary of quantities and the FDOT’s in-house estimates. A Summary of Pay Items sheet shall be prepared with all required Plans submittals as required.

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.

3 PROJECT COMMON AND PROJECT GENERAL TASKS

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

**Supervision:** The CONSULTANT shall supervise all technical design activities.

**Coordination:** The CONSULTANT shall coordinate with all disciplines of the project to produce a final set of construction documents. *The CONSULTANT shall coordinate with other segments within the corridor to establish design consistency within the corridor.*

**Communication:** The default method of communication with the DEPARTMENT for the project is eMail. *The CONSULTANT shall use the phone and/or letters for communication with the DEPARTMENT only for urgent and/or sensitive issues, or issues that cannot be efficiently communicated by eMail.*

All eMails sent by the CONSULTANT to the DEPARTMENT shall conform to the

### 3 PROJECT COMMON AND PROJECT GENERAL TASKS
following subject line format: FPID: 999999-1 // Description // County // Subject.

The CONSULTANT shall provide, within one (1) work day, an eMail response to each eMail request for services and/or information received from the DEPARTMENT, and shall include in that response an acknowledgment of receipt, understanding of the request, and an estimated time for delivery for the services and/or information requested. Whenever possible, the CONSULTANT shall provide a response to the eMail request for services from the DEPARTMENT using the option “Reply with History – To All Copied”.

Project General Tasks

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

3.1 Public Involvement

Public involvement includes communicating to all interested persons, groups, and government organizations information regarding the development of the project. The CONSULTANT shall provide to the DEPARTMENT drafts of all Public Involvement documents (i.e., newsletters, property owner letters, advertisements, etc.) associated with the following tasks for review and approval at least TWENTY (20) business days prior to printing and / or distribution.

3.1.1 Community Awareness Plan

Prepare a Community Awareness Plan (CAP) for review and approval by the DEPARTMENT within 30 calendar days after receiving Notice to Proceed. The objective of the plan is to notify local governments, affected property owners, tenants, and the public of the DEPARTMENT’S proposed construction and the anticipated impact of that construction. The CAP shall address timeframes for each review and shall include tentative dates for each public involvement requirement for the project. The CAP will also document all public involvement activities conducted throughout the project’s duration. In addition to the benefits of advance notification, the process should allow the DEPARTMENT to resolve controversial issues during the design phase. This item shall be reviewed and updated periodically as directed by the DEPARTMENT throughout the life of the project.

3.1.2 Notifications

In addition to public involvement data collection, the CONSULTANT shall assist the DEPARTMENT or prepare notifications, flyers, and/or letters to elected officials and other public officials, private property owners, and tenants at intervals during plans production as identified by the DEPARTMENT. All letters and notices shall be reviewed by the DEPARTMENT to ensure that they are addressed to the correct and current public officials. Property Owner Notification Letters shall be sent via certified mail. The Property Owner Notification letters should be mailed within 10 business days of receiving the Notice to Proceed and mailed at least 10 business days prior to any field work beginning.
3.1.3 Preparing Mailing Lists

At the beginning of the project, The CONSULTANT shall identify all impacted property owners and tenants (within a minimum of 300 feet of the project corridor) The CONSULTANT shall prepare a mailing list of all such entities and shall update the mailing list as needed during the life of the project. The CONSULTANT shall submit a Property Owner Identification Map and corresponding Map Identification List in a format to be provided by or approved by the DEPARTMENT prior to distribution of any property owner notifications.

3.1.4 Median Modification Letters

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

3.1.5 Driveway Modification Letters

The CONSULTANT shall prepare a driveway modification letter to be sent to property owners along the corridor. In addition, the CONSULTANT shall prepare a sketch of each proposed driveway modification for inclusion in the letter. The letters will be sent on DEPARTMENT letterhead. The CONSULTANT shall follow the DEPARTMENT’S two (2) letter approach. The CONSULTANT shall also attend field meetings with the property owners to discuss the modifications.

3.1.6 Newsletters

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

3.1.7 Renderings and Fly-Throughs- Not Applicable

3.1.8 PowerPoint Presentations

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

3.1.9 Public Meeting Preparations

The CONSULTANT shall prepare the necessary materials for use in public meetings. The CONSULTANT will investigate potential meeting sites to advise the DEPARTMENT on their suitability. The CONSULTANT will pay all costs for meeting site rents and insurance. No DEPARTMENT meetings will be held on public school system properties.

3.1.10 Public Meeting Attendance and Follow-up

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

3 PROJECT COMMON AND PROJECT GENERAL TASKS
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responses to those written comments.

The CONSULTANT will attend the meetings with an appropriate number of personnel to assist the DEPARTMENT’S Project Manager.

It is estimated for this project there will be TBD Public meetings during the design.

3.1.11 Other Agency Meetings

In addition to scheduled public meetings the CONSULTANT may be required to participate in meetings with local governing authorities and/or Metropolitan Planning Organization (MPO). The CONSULTANT’s participation may include, but not be limited to, presentations during the meeting, note taking, and summarizing the meeting in a memo to the file. It is estimated for this project there will be TWO meetings with local governing authorities and/or MPOs during the design.

3.1.12 Web Site

The CONSULTANT shall create and/or maintain a web site for the project.

3.2 Joint Project Agreements

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

3.3 Specifications 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 PROJECT COMMON AND PROJECT GENERAL TASKS
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- Not Applicable

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 at a later date as necessary as a contract amendment.

Post Design Services are not intended for instances of CONSULTANT errors and/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- Not Applicable

3.11 Railroad, Transit and/or Airport Coordination

[Provide project-specific information or N/A]

3.11.1 Aeronautical Evaluation- Not Applicable

3.12 Landscape and Existing Vegetation Coordination- Not Applicable

3 PROJECT COMMON AND PROJECT GENERAL TASKS

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3.13 Other Project General Tasks - Not Applicable
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.

4.1 Typical Section Package

The CONSULTANT shall provide an approved Typical Section Package prior to the first plans submittal.

4.2 Pavement Type Selection Report

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

4.3 Pavement Design Package

The CONSULTANT shall provide an approved Pavement Design Package prior to the Phase II plans submittal date.

4.4 Cross-Slope Correction

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

4.5 Horizontal/Vertical Master Design Files

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

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 in the Intersection Analysis Report as described below. The DEPARTMENT shall provide access management classification information and information derived from PD&E studies and public hearings to be used by the CONSULTANT.

The CONSULTANT shall use the 8-hour turning movement counts obtained during the PD&E study. Turning movement counts would have been conducted at all un-signalized median openings, side streets, commercial and/or any large traffic generating driveways such as sub-division entrances (excluding single family residences). If turning movement counts are not available or are not up to date as determined by Department staff, then updated 8 hour turning movement counts shall be obtained by the Consultant for this project.

The Consultant shall review existing and design year traffic conditions to determine if the proposed median plan can adequately accommodate existing and design year traffic needs. Additionally, median openings shall be recommended at locations that will improve safety and operational characteristics of the State roadway.

The Consultant shall make recommendations for right turn lanes within the project limits based upon the warranting volumes and conditions outlined in the Department’s Driveway Information Handbook.

The Consultant shall make recommendations for left turn lane storage lengths at intersections including queue, braking distance, and taper length. The queue length shall be identified separate from the total storage length. Left turn lanes at unsignalized intersections may be recommended using HCS or Synchro software. A 100 foot minimum queue in urban/suburban areas or 50 foot queue in rural areas should be used.

The Consultant shall review truck traffic data and existing land uses along the project corridor to determine if additional pavement (bulb out) areas are needed to accommodate u-turns. Auto turn analysis shall be provided.

The turning movement counts, traffic analysis, and recommendations for the Access Management plan shall be provided to the Department in an Intersection Analysis Report. The Intersection Analysis Report shall be provided to the Access Management, Signals, and Intermodal Systems Development Departments for review in paper form. An electronic copy of the Intersection Analysis Report shall be provided to the Design Project Manager in order for it to be loaded into the ERC.

Prior to completion of the Intersection Analysis Report an Access Management Kick-Off meeting shall be held to discuss the proposed recommendations.

4.7 Roundabout Evaluation- Not Applicable if ICE performed

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

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

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

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

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

4.8 **Roundabout Final Design Analysis Not Applicable if ICE performed**

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

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

4.9 **Cross Section Design Files**

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

Note: If the Cross Sections are prepared using a 3D model, use Task 36.5 instead of Task 4.9 for the Cross Section Design Files.

4.10 **Traffic Control Analysis**

The CONSULTANT shall design a safe and effective Traffic Control Plan 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, 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 lighting, alternate detour roads, 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 Traffic Control Plan, 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 Traffic Control Plan 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.

4.11 Master TCP Design Files

The CONSULTANT shall develop master Traffic Control Plan (TCP) files (for Level II and Level III only) showing each phase of the Traffic Control Plan.

4.12 Selective Clearing and Grubbing - Not Applicable

4.13 Tree Disposition Plans – Not Applicable

4.14 Design Variations and Exceptions

If available, the DEPARTMENT shall furnish the Variation/Exception Report. The CONSULTANT shall prepare the documentation necessary to gain DEPARTMENT approval of all appropriate Design Variations and/or Design Exceptions before the first submittal.

4.15 Design Report

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

4.16 Quantities

The CONSULTANT shall develop accurate quantities and the supporting documentation, including construction days when required.

4.17 Cost Estimate


4 ROADWAY ANALYSIS
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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 307. 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, Traffic Control, 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 Summary of Pay Items Including Quantity Input

5.3 Typical Section Sheets
   5.3.1 Typical Sections
   5.3.2 Typical Section Details

5.4 General Notes/Pay Item Notes

5.5 Summary of Quantities Sheets

5.6 Project Layout

5.7 Plan/Profile Sheet

5.8 Profile Sheet

5.9 Plan Sheet

5.10 Special Profile

5.11 Back-of-Sidewalk Profile Sheet

5.12 Interchange Layout Sheet - Not Applicable

5.13 Ramp Terminal Details (Plan View) - Not Applicable

5.14 Intersection Layout Details

5.15 Special Details

5.16 Cross-Section Pattern Sheet(s)

5.17 Roadway Soil Survey Sheet(s)

5.18 Cross Sections

5.19 Temporary Traffic Control Plan Sheets
5.20 Temporary Traffic Control Cross Section Sheets

5.21 Temporary Traffic Control Detail Sheets

5.22 Utility Adjustment Sheets

5.23 Selective Clearing and Grubbing Sheet(s) *Not Applicable*
   5.23.1 Selective Clearing and Grubbing
   5.23.2 Selective Clearing and Grubbing Details

5.24 Tree Disposition Plan Sheet(s) *Not Applicable*
   5.24.1 Tree Disposition Plan Sheet(s)
   5.24.2 Tree Disposition Plan Tables and Schedules

5.25 Project Network Control Sheet(s)

5.26 Environmental Detail Sheets
   Preparation of detail sheets for potential environmental issues such as, underground fuel tanks and monitoring wells, septic tanks within the proposed right of way. All piping and pumps in association with the above referenced issues shall also be located and identified by the survey. The CONSULTANT shall relay to the DEPARTMENT any findings of contaminated soil, monitoring wells, or any features (particularly springs or sinks) relating to contamination or hazardous material.
   Coordination with Permits/Environmental staff and preparing Dredge & Fill Detail sheets where applicable.

5.27 Utility Verification Sheet(s) (SUE Data)

5.28 Quality Assurance/Quality Control

5.29 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

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

6a.3  Pond Siting Analysis and Report

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

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.)

6  DRAINAGE ANALYSIS

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

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

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

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

6a.8 Design of Floodplain Compensation

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

6a.9 Design of Storm Drains

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

6a.10 Optional Culvert Material

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

6a.11 French Drain Systems

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

6a.11a Existing French Drain Systems

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

6a.12 Drainage Wells

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

6 DRAINAGE ANALYSIS
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

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

6a.16 Cost Estimate

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


6a.18 Hydroplaning Analysis

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

6a.19 Existing Permit Analysis

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

6a.20 Other Drainage Analysis

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

6a.21 Field Reviews

6a.22 Technical Meetings

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

6a.23 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.24 Quality Assurance/Quality Control

6a.25 Independent Peer Review

6a.26 Supervision

6a.27 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 Summary of Drainage Structures
6b.4 Optional Pipe/Culvert Material
6b.5 Drainage Structure Sheet(s) (Per Structure)
6b.6 Miscellaneous Drainage Detail Sheets
6b.7 Lateral Ditch Plan/Profile
6b.8 Lateral Ditch Cross Sections
6b.9 Retention/Detention Pond Detail Sheet(s)
6b.10 Retention Pond Cross Sections
6b.11 Erosion Control Plan Sheet(s)
6b.12 SWPPP Sheet(s)
6b.13 Quality Assurance/Quality Control
6b.14 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.

7.2 Identify Existing Utility Agency Owner(s)

The Consultant shall identify all utilities within and adjacent to the project limits that may be impacted by the project.

7.3 Make Utility Contacts

Preliminary Concept Report: Notify each utility owner of the upcoming project. Send appropriate letters, straight line diagrams and scope of work to each utility identified within the Design Ticket (and other known utility owners within limits of project). Request utility involvement and contact person for each utility located within project limits.

First Contact (Phase I): 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. Includes contact by phone for meeting coordination. Request type, size, location, easements, and cost for relocation if reimbursement is claimed. Request the voltage level for power lines in the project area. Send UAO requests for reimbursement to FDOT for a legal opinion. Include the meeting schedule (if applicable) and the design schedule. Include typical meeting agenda. If scheduling a meeting, give 6 weeks advance notice.

Second Contact (Revised Phase II): 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 the utility conflict information (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.

**Third Contact (Revised Phase III):** 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), the utility conflict Information 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.

**Final Contact (Phase IV):** 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 Utility Exception. The CONSULTANT shall identify and communicate to the UAO any facilities in conflict with their location or project schedule. The CONSULTANT shall assist with the processing of design exceptions involving Utilities with the UAO and the DEPARTMENT. 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) 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 UTILITIES*

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

The CONSULTANT shall review utility marked plans and data individually as they are received for content. Ensure information from the UAO (utility type, material and size) is sent to the designer for inclusion in the plans. Forward all requests for utility 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, maintenance of traffic (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 maintenance of traffic 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 4.9 (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 known conflicts. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees. This task can be applied to all phases of the project.

7.12 Utility Constructability Review

The CONSULTANT shall review utility schedules against construction contract time, and phasing for compatibility. Coordinate with and obtain written concurrence from the construction office. See Task 4.9 (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 bidability review, review pay items, cost estimates and Technical Special Provisions (TSP) or Modified Special Provision (MSP) prepared by the UAO. This does not include utility 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)

If requested by the District, the CONSULTANT shall transmit the contract plans as processed for letting to the UAO(s). Transmittals to UAO(s) may be by certified mail, return receipt requested.

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.

7 UTILITIES

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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, Compliance, 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

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

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

8.2 Field Work

8.2.1 Pond Site Alternatives:
The CONSULTANT shall review alternative pond sites as directed by the DEPARTMENT and information shall be included in the Pond Siting Report.

8.2.2 Establish Wetland Jurisdictional Lines and Assessments:
The CONSULTANT shall be responsible for, but not limited to, the following activities:

- Determine landward extent of wetlands and other surface waters as defined in Rule Chapter 62-340, F.A.C., as ratified in Section 373.4211, F.S.
- 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
- 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 United States Army Corps of Engineers (USACE) “Wetland Determination Data Form – Atlantic and Gulf Coastal Plain Region”; the USACE “Approved Jurisdictional Determination Form”; Uniform Mitigation Assessment Method forms and/or project specific data forms.

8.2.3 Species Surveys- *Not applicable*

8.3 Agency Verification of Wetland Data

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

8.4 Complete and Submit All Required Permit Applications

The CONSULTANT shall collect all of the data and information necessary to prepare the permit applications and obtain the environmental permits required to construct the project as identified in the Project Description and as described in 8.4.1, 8.4.2, and 8.12 (Other 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.

8.4.1 Complete and Submit all Required Wetland Permit Applications:

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

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

8.5 Coordinate and Review Dredge and Fill Sketches

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

8.6 Prepare USCG Permit Application

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

8.8 Prepare Coastal Construction Control Line (CCCL) Permit Application

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

8.9 Prepare Tree Permit Information

8.10 Compensatory Mitigation Plan

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

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

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

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

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

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

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

8.11 Mitigation Coordination and Meetings

The CONSULTANT shall coordinate with DEPARTMENT personnel prior to approaching any environmental permitting or 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 Other Environmental Permits

ENVIRONMENTAL CLEARANCES, RE-EVALUATIONS, AND TECHNICAL SUPPORT

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 and/or mitigation sites identified, land use or environmental changes, and significant 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 Features: The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to
all cultural and historical resources due to changes in the project in accordance with Part 2, Chapter 8 of the PD&E Manual.

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

**8.13.4 Essential Fish Habitat Impact Analysis**: The CONSULTANT shall provide necessary technical information to the District’s Project Manager to analyze the impacts to essential fish habitat in accordance Part 2, Chapter 17 of the PD&E Manual due to changes in the project.

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

**8.14 Preparation of Environmental Clearances and Re-evaluations (use when CONSULTANT prepares all documents associated with a re-evaluation)**

The CONSULTANT shall prepare reports and clearances for all the changes to the project that occurred after the PD&E study was approved. These changes could include but are not limited to pond and/or mitigation sites identified, land use or environmental changes, and significant design changes.

**8.14.1 NEPA or SEIR Re-evaluation**: During the development of the final design plans, the CONSULTANT shall be responsible for collecting the data and preparing a re-evaluation in accordance with Part 1, Chapter 13 of the PD&E Manual.

**8.14.2 Archaeological and Historical Features**: The CONSULTANT shall collect data necessary to completely analyze the impacts, due to changes in the project or project area, to all cultural and historic resources, and prepare a Cultural Resource Assessment Report, in accordance with Part 2, Chapter 8 of the PD&E Manual.

**8.14.3 Wetland Impact Analysis**: The CONSULTANT shall analyze the impacts to wetlands due to changes to the project and complete the wetlands section of a Natural Resources Report, in accordance with Part 2, Chapter 9 of the PD&E Manual.

**8.14.4 Essential Fish Habitat Impact Analysis**: The CONSULTANT shall analyze the impacts to essential fish habitat due to changes to the project and complete the Essential Fish Habitat section of a Natural Resources Report, in accordance with Part 2, Chapter 17 of the PD&E Manual.

**8.14.5 Protected Species and Habitat Impact Analysis**: The CONSULTANT shall collect data necessary to prepare the protected species and habitat section of the Natural Resources Report, and analyze the impacts to protected species and habitat by the changes to the project, in accordance with Part 2, Chapter 16 of the PD&E Manual. The CONSULTANT shall perform the necessary analysis to complete agency consultation in accordance with Section 7 or Section 10 of the Endangered Species Act.
8.15 Contamination Impact Analysis

The CONSULTANT shall prepare Contamination Screening Evaluation for the project limits including stormwater ponds and floodplain compensation sites as described in Part 2, Chapter 20, of the PD&E Manual. The appropriate level of analysis and deliverable type will be approved by the DEPARTMENT’s Project Manager and District Contamination Impact Coordinator. The draft Level I Contamination Screening Evaluation document shall be submitted to the DEPARTMENT’s Project Manager and District Contamination Impact Coordinator for review and final approval. The CONSULTANT shall include an evaluation of any new contamination impacts due to changes to the project from the PD&E design concept, if applicable, and any new discharges or new potential contamination impacts not evaluated in any previously completed Contamination Screening Evaluation. The project impacts, conclusions and recommendations, figures, tables and appendices will be provided in a Level I Contamination Screening Evaluation Report.

The DEPARTMENT will provide Level II assessment services. If contamination is identified within the limits of construction, the CONSULTANT shall coordinate with the District Contamination Impact Coordinator to properly mark identified contamination areas in the plans and develop specifications as appropriate.

8.16 Asbestos Survey - Not applicable

8.17 Technical Meetings

8.18 Quality Assurance/Quality Control

8.19 Supervision

8.20 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 Assemble Plan Summary Boxes and Quantities
9.9 Cost Estimate
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 - Not Applicable

10.1 Bridge Geometry - Not Applicable
10.2 Ship Impact Data Collection - Not Applicable
10.3 Ship Impact Criteria - Not Applicable
10.4 Short-Span Concrete - Not Applicable
10.5 Medium-Span Concrete - Not Applicable
10.6 Long Span Concrete - Not Applicable
10.7 Structural Steel - Not Applicable
10.8 Pier/Bent - Not Applicable
10.9 Shallow Foundations / GRS Abutments - Not Applicable
10.10 Deep Foundations - Not Applicable
10.11 Data Collection and Design Criteria - Not Applicable
10.12 Movable Span Geometrics and Clearances - Not Applicable
10.13 Deck System Evaluation - Not Applicable
10.14 Framing Plan Development - Not Applicable
10.15 Main Girder Preliminary Design - Not Applicable
10.16 Conceptual Span Balance/Counterweight - Not Applicable
10.17 Support System Development - Not Applicable
10.18 Drive Power Calculations - Not Applicable
10.19 Drive System Development - Not Applicable
10.20 Power and Control Development - Not Applicable
10.21 Conceptual Pier Design - Not Applicable
10.22 Foundation Analysis (FL PIER) - Not Applicable
10.23 Tender Visibility Study - Not Applicable
10.24 Aesthetics- *Not Applicable*

10.25 TCP/Staged Construction Requirements- *Not Applicable*

10.26 Constructability Requirements- *Not Applicable*

10.27 Load Rating for Damaged/Widened Structures- *Not Applicable*

10.28 Quantity and Cost Estimates- *Not Applicable*

10.29 Quantity and Cost Estimates - Movable Span- *Not Applicable*

10.30 Wall Type Justification- *Not Applicable*

10.31 Exhibits- *Not Applicable*

10.32 Exhibits - Movable Span- *Not Applicable*

10.33 Report Preparation- *Not Applicable*

10.34 Report Preparation - Movable Span- *Not Applicable*

10.35 BDR Submittal Package- *Not Applicable*
11  STRUCTURES - TEMPORARY BRIDGE - Not Applicable

11.1 Overall Bridge Final Geometry - Not Applicable

11.2 General Plan and Elevation - Not Applicable

11.3 Miscellaneous Details - Not Applicable

11.4 End Bent Structural Design - Not Applicable

11.5 End Bent Details - Not Applicable

11.6 Intermediate Bent Structural Design - Not Applicable

11.7 Intermediate Bent Details - Not Applicable

11.8 Foundation Layout - Not Applicable
12 STRUCTURES - SHORT SPAN CONCRETE BRIDGE - Not Applicable

12.1 Overall Bridge Final Geometry - Not Applicable

12.2 Expansion/Contraction Analysis - Not Applicable

12.3 General Plan and Elevation - Not Applicable

12.4 Construction Staging - Not Applicable

12.5 Approach Slab Plan and Details - Not Applicable

12.6 Miscellaneous Details - Not Applicable

12.7 End Bent Geometry - Not Applicable

12.8 End Bent Structural Design - Not Applicable

12.9 End Bent Plan and Elevation - Not Applicable

12.10 End Bent Details - Not Applicable

12.11 Bent Geometry - Not Applicable

12.12 Bent Stability Analysis - Not Applicable

12.13 Bent Structural Design - Not Applicable

12.14 Bent Plan and Elevation - Not Applicable

12.15 Bent Details - Not Applicable

12.16 Foundation Layout - Not Applicable

12.17 Finish Grade Elevation Calculation - Not Applicable

12.18 Finish Grade Elevations - Not Applicable

12.19 Bridge Deck Design - Not Applicable

12.20 Superstructure Plan - Not Applicable

12.21 Superstructure Sections and Details - Not Applicable

12.22 Prestressed Slab Unit Design - Not Applicable

12.23 Prestressed Slab Unit Layout - Not Applicable
12.24 Prestressed Slab Unit Details and Schedule - Not Applicable

12.25 Deck Topping Reinforcing Layout - Not Applicable

12.26 Superstructure Sections and Details - Not Applicable

12.27 Preparation of Reinforcing Bar List - Not Applicable

12.28 Load Rating - Not Applicable
13 **STRUCTURES - MEDIUM SPAN CONCRETE BRIDGE** - *Not Applicable*

13.1 Overall Bridge Final Geometry - *Not Applicable*

13.2 Expansion/Contraction Analysis - *Not Applicable*

13.3 General Plan and Elevation - *Not Applicable*

13.4 Construction Staging - *Not Applicable*

13.5 Approach Slab Plan and Details - *Not Applicable*

13.6 Miscellaneous Details - *Not Applicable*

13.7 End Bent Geometry - *Not Applicable*

13.8 Wingwall Design and Geometry - *Not Applicable*

13.9 End Bent Structural Design - *Not Applicable*

13.10 End Bent Plan and Elevation - *Not Applicable*

13.11 End Bent Details - *Not Applicable*

13.12 Bent Geometry - *Not Applicable*

13.13 Bent Stability Analysis - *Not Applicable*

13.14 Bent Structural Design - *Not Applicable*

13.15 Bent Plan and Elevation - *Not Applicable*

13.16 Bent Details - *Not Applicable*

13.17 Pier Geometry - *Not Applicable*

13.18 Pier Stability Analysis - *Not Applicable*

13.19 Pier Structural Design - *Not Applicable*

13.20 Pier Plan and Elevation - *Not Applicable*

13.21 Pier Details - *Not Applicable*

13.22 Foundation Layout - *Not Applicable*

13.23 Finish Grade Elevation (FGE) Calculation
13.24 Finish Grade Elevations- Not Applicable
13.25 Bridge Deck Design- Not Applicable
13.26 Bridge Deck Reinforcing and Concrete Quantities- Not Applicable
13.27 Diaphragm Design- Not Applicable
13.28 Superstructure Plan- Not Applicable
13.29 Superstructure Section- Not Applicable
13.30 Miscellaneous Superstructure Details- Not Applicable
13.31 Preparation of Reinforcing Bar List- Not Applicable
13.32 Section Properties- Not Applicable
13.33 Material Properties- Not Applicable
13.34 Construction Sequence- Not Applicable
13.35 Tendon Layouts- Not Applicable
13.36 Live Load Analysis- Not Applicable
13.37 Temperature Gradient- Not Applicable
13.38 Time Dependent Analysis- Not Applicable
13.39 Stress Summary- Not Applicable
13.40 Ultimate Moments- Not Applicable
13.41 Ultimate Shear- Not Applicable
13.42 Construction Loading- Not Applicable
13.43 Framing Plan- Not Applicable
13.44 Girder Elevation, including Grouting Plan and Vent Locations- Not Applicable
13.45 Girder Details- Not Applicable
13.46 Erection Sequence- Not Applicable
13.47 Splice Details- Not Applicable
13.48 Girder Deflections and Camber- Not Applicable

13 STRUCTURES – MEDIUM SPAN CONCRETE BRIDGE
13.49 Prestressed Beam- Not Applicable

13.50 Prestressed Beam Schedules- Not Applicable

13.51 Framing Plan- Not Applicable

13.52 Beam/Girder Stability- Not Applicable

13.53 Bearing Pad and Bearing Plate Design- Not Applicable

13.54 Bearing Pad and Bearing Plate Details- Not Applicable

13.55 Load Ratings- Not Applicable
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<td>Approach Slab Plan and Details</td>
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14.25 Bridge Deck Design - Not Applicable
14.26 Bridge Deck Reinforcing and Concrete Quantities - Not Applicable
14.27 Superstructure Plan - Not Applicable
14.28 Superstructure Section - Not Applicable
14.29 Miscellaneous Bridge Deck Details - Not Applicable
14.30 Preparation of Reinforcing Bar List - Not Applicable
14.31 Unit Modeling - Not Applicable
14.32 Section Design - Not Applicable
14.33 Stiffener Design and Locations - Not Applicable
14.34 Cross-frame Design - Not Applicable
14.35 Connections - Not Applicable
14.36 Bearing Assembly Design and Detailing (With Jacking Analysis) - Not Applicable
14.37 Splice Design - Not Applicable
14.38 Shear Stud Connectors - Not Applicable
14.39 Deflection Analysis - Not Applicable
14.40 Framing Plan - Not Applicable
14.41 Girder Elevation - Not Applicable
14.42 Structural Steel Details - Not Applicable
14.43 Splice Details - Not Applicable
14.44 Girder Deflections and Camber - Not Applicable
14.45 Unit Modeling - Not Applicable
14.46 Section Design - Not Applicable
14.47 Stiffener Design and Locations - Not Applicable
14.48 Interior Cross-Frame Design - Not Applicable
14.49 Exterior Cross-Frame Design - Not Applicable
14.50 Connections - Not Applicable
14.51 Bearing Assembly Design and Detailing (with Jacking Analysis) - Not Applicable
14.52 Splice Design - Not Applicable
14.53 Shear Stud Connectors - Not Applicable
14.54 Deflection Analysis - Not Applicable
14.55 Framing Plan - Not Applicable
14.56 Girder Elevation - Not Applicable
14.57 Structural Steel Details - Not Applicable
14.58 Splice Details - Not Applicable
14.59 Girder Deflections and Camber - Not Applicable
14.60 Erection Scheme Analysis - Not Applicable
14.61 Erection Scheme - Not Applicable
14.62 Load Rating - Not Applicable
15 STRUCTURES - SEGMENTAL CONCRETE BRIDGE - Not Applicable

15.1 Final Bridge Geometry - Not Applicable

15.2 Casting Geometry Calculation - Not Applicable

15.3 Finish Grade Geometry Calculation - Not Applicable

15.4 Finish Grade Elevations - Not Applicable

15.5 Construction Schedule - Not Applicable

15.6 General Plan and Elevation - Not Applicable

15.7 Approach Slab Plan and Details - Not Applicable

15.8 Miscellaneous Details - Not Applicable

15.9 Existing Bridge Plans - Not Applicable

15.10 End Bent Geometry - Not Applicable

15.11 Wingwall Geometry and Design - Not Applicable

15.12 End Bent Structural Design - Not Applicable

15.13 End Bent Plan and Elevation - Not Applicable

15.14 End Bent Details - Not Applicable

15.15 Pier Geometry - Not Applicable

15.16 Pier Stability Analysis - Not Applicable

15.17 Pier Construction Loads - Not Applicable

15.18 Pier Structural Design - Not Applicable

15.19 Pier Plan and Elevation - Not Applicable

15.20 Pier Details - Not Applicable

15.21 Foundation Layout - Not Applicable

15.22 Section Properties - Not Applicable

15.23 Material Properties - Not Applicable
15.24 Superimposed Dead Loads- Not Applicable
15.25 Construction Sequence- Not Applicable
15.26 Tendon Layouts- Not Applicable
15.27 Live Load Analysis- Not Applicable
15.28 Temperature Gradient- Not Applicable
15.29 Time Dependent Analysis- Not Applicable
15.30 Stress Summary- Not Applicable
15.31 Ultimate Moments- Not Applicable
15.32 Ultimate Shear- Not Applicable
15.33 Construction Loading- Not Applicable
15.34 Time Dependent Analysis- Not Applicable
15.35 Live Load Analysis- Not Applicable
15.36 Temperature Gradient- Not Applicable
15.37 Stress Summary- Not Applicable
15.38 Ultimate Moments- Not Applicable
15.39 Construction Loading- Not Applicable
15.40 Typical Segment- Not Applicable
15.41 Pier Segment- Not Applicable
15.42 Expansion Joint Segment- Not Applicable
15.43 Blister Details- Not Applicable
15.44 Deviator Blocks- Not Applicable
15.45 Bearings- Not Applicable
15.46 Expansion Joints- Not Applicable
15.47 Special Analysis- Not Applicable
15.48 Typical Sections- Not Applicable
15.49 Finish Grade Elevations- *Not Applicable*
15.50 Segment Layout / Designations- *Not Applicable*
15.51 Typical Segments- *Not Applicable*
15.52 Variable Depth Segments- *Not Applicable*
15.53 Pier Segments- *Not Applicable*
15.54 Expansion Joint Segments- *Not Applicable*
15.55 CIP Closure Joint Details- *Not Applicable*
15.56 Casting Geometry- *Not Applicable*
15.57 Integrated 3-D Drawings- *Not Applicable*
15.58 Bulkhead Details- *Not Applicable*
15.59 Transverse Tendon Layout- *Not Applicable*
15.60 Longitudinal Tendon Layout- *Not Applicable*
15.61 Temporary Post-Tensioning- *Not Applicable*
15.62 Quantities and Stressing Schedule- *Not Applicable*
15.63 Future Post-Tensioning- *Not Applicable*
15.64 Anchorage Blisters- *Not Applicable*
15.65 Deviation Blocks- *Not Applicable*
15.66 PT Grouting Plan Details- *Not Applicable*
15.67 Erection Sequence and Details- *Not Applicable*
15.68 Access Opening Details- *Not Applicable*
15.69 Bearings- *Not Applicable*
15.70 Expansion Joints- *Not Applicable*
15.71 Vermin Screen Details- *Not Applicable*
15.72 Railing Details- *Not Applicable*
15.73 Lighting and Luminaries- *Not Applicable*
15.74 Architectural Details - Not Applicable
15.75 Special Systems - Not Applicable
15.76 Preparation of Reinforcing Bar Lists - Not Applicable
15.77 Load Rating (LRFR) - Not Applicable
16  STRUCTURES - MOVABLE SPAN  Not Applicable
16.1 Pier Deck  Not Applicable
16.2 Leaf/Pier Clearance Diagrams  Not Applicable
16.3 Load Shoe Columns  Not Applicable
16.4 Trunnion Columns  Not Applicable
16.5 Foundations  Not Applicable
16.6 Footing  Not Applicable
16.7 Seal  Not Applicable
16.8 Back Wall (Approach Span Bearings) Closed Piers only  Not Applicable
16.9 Bascule Pier Deck Elevations  Not Applicable
16.10 Pier Plan Views  Not Applicable
16.11 Pier Elevations Views  Not Applicable
16.12 Pier Sections  Not Applicable
16.13 Pier Reinforcing  Not Applicable
16.14 Pier Barrier Details  Not Applicable
16.15 Stair Details  Not Applicable
16.16 Handrail Details  Not Applicable
16.17 Ladder and Hatch Details  Not Applicable
16.18 Pier Equipment  Not Applicable
16.19 Bascule Pier Notes and Summary of Quantities  Not Applicable
16.20 Miscellaneous Details  Not Applicable
16.21 Deck Design  Not Applicable
16.22 Sidewalk Design  Not Applicable
16.23 Stringer Design  Not Applicable
16.24 Typical Floorbeam Design- *Not Applicable*
16.25 End Floorbeam Design- *Not Applicable*
16.26 Deep Floorbeam Design- *Not Applicable*
16.27 Sidewalk Bracket Design- *Not Applicable*
16.28 Roadway Bracket Design- *Not Applicable*
16.29 Main Girder Influence Lines- *Not Applicable*
16.30 Main Girder Design- *Not Applicable*
16.31 Trunnion Girder Design- *Not Applicable*
16.32 Main Girder Camber Data- *Not Applicable*
16.33 Leaf Lateral Bracing Design- *Not Applicable*
16.34 Counterweight Design- *Not Applicable*
16.35 Live Load Shoe Design- *Not Applicable*
16.36 Barrier Design- *Not Applicable*
16.37 Deck Elevations- *Not Applicable*
16.38 Balance Calculations- *Not Applicable*
16.39 Bascule GP&E- *Not Applicable*
16.40 Bascule Leaf Notes- *Not Applicable*
16.41 Framing Plan- *Not Applicable*
16.42 Flooring Plan and Details- *Not Applicable*
16.43 Typical Section and Finish Grade Elevations- *Not Applicable*
16.44 Girder Elevation- *Not Applicable*
16.45 Girder Details- *Not Applicable*
16.46 Camber Layout- *Not Applicable*
16.47 Floor Beams- *Not Applicable*
16.48 Counterweight Girder/Box- *Not Applicable*
16.49 Trunnion Girder- Not Applicable
16.50 Cylinder Girder- Not Applicable
16.51 Lateral Bracing Details- Not Applicable
16.52 Counterweight Bracing Details- Not Applicable
16.53 Joint Details- Not Applicable
16.54 Traffic Barrier Details- Not Applicable
16.55 Pedestrian Rail and Support Details- Not Applicable
16.56 Curb and Sidewalk Details- Not Applicable
16.57 Barrier and Sidewalk Bracket Details- Not Applicable
16.58 Counterweight Details- Not Applicable
16.59 Stress Table or Influence Lines- Not Applicable
16.60 Final Power Requirements- Not Applicable
16.61 Trunnion Assembly- Not Applicable
16.62 Span Locks- Not Applicable
16.63 Sump Pumps- Not Applicable
16.64 Drive Shafts, Couplings, Keys, Bearings and Supports- Not Applicable
16.65 Rack and Pinion, Bearings and Supports- Not Applicable
16.66 Drive Train- Not Applicable
16.67 Motor Brakes and Machinery Brakes- Not Applicable
16.68 Hydraulic Drive- Not Applicable
16.69 Machinery Layout- Not Applicable
16.70 Machinery Elevation- Not Applicable
16.71 Machinery Section- Not Applicable
16.72 Trunnion Assembly- Not Applicable
16.73 Drive Details- Not Applicable
16.74 Span Locks- Not Applicable
16.75 Load Analysis- Not Applicable
16.76 Power Distribution- Not Applicable
16.77 Drive Equipment- Not Applicable
16.78 Bridge Controls- Not Applicable
16.79 Grounding- Not Applicable
16.80 Lightning and Surge Suppression- Not Applicable
16.81 Pier Lighting- Not Applicable
16.82 Electrical Plan and Elevation- Not Applicable
16.83 Electrical Symbols and Abbreviations- Not Applicable
16.84 Single/Three Line Diagram- Not Applicable
16.85 Panel Board and Light Fixture Schedules- Not Applicable
16.86 Wire and Conduit Schedules and Diagrams- Not Applicable
16.87 Control Desk/Panel Layout- Not Applicable
16.88 Control Schematics- Not Applicable
16.89 PLC Logic- Not Applicable
16.90 Communication System- Not Applicable
16.91 Navigation Lighting Details- Not Applicable
16.92 Pedestrian Gate, Traffic Gate, and Barrier Details- Not Applicable
16.93 Submarine Cable- Not Applicable
16.94 Miscellaneous Details- Not Applicable
16.95 Architectural Design- Not Applicable
16.96 Architectural Details- Not Applicable
16.97 Structural Design- Not Applicable
16.98 Structural Details- Not Applicable
16.99 HVAC/Plumbing Design - *Not Applicable*

16.100 HVAC/Plumbing/Electrical Cables - *Not Applicable*

16.101 Preparation of Reinforcing Bar List - *Not Applicable*

16.102 Load Rating - *Not Applicable*
17 STRUCTURES - RETAINING WALLS - Not Applicable

17.1 Key Sheet - Not Applicable

17.2 Horizontal Wall Geometry - Not Applicable

17.3 Vertical Wall Geometry - Not Applicable

17.4 Semi-Standard Drawings - Not Applicable

17.5 Wall Plan and Elevations (Control Drawings) - Not Applicable

17.6 Details - Not Applicable

17.7 Vertical Wall Geometry - Not Applicable

17.8 Semi-Standard Drawings - Not Applicable

17.9 Wall Plan and Elevations (Control Drawings) - Not Applicable

17.10 Details - Not Applicable

17.11 Design - Not Applicable

17.12 Vertical Wall Geometry - Not Applicable

17.13 General Notes - Not Applicable

17.14 Wall Plan and Elevations (Control Drawings) - Not Applicable

17.15 Sections and Details - Not Applicable

17.16 Reinforcing Bar List - Not Applicable

17.17 Design - Not Applicable

17.18 Vertical Wall Geometry - Not Applicable

17.19 General Notes, Tables and Miscellaneous Details - Not Applicable

17.20 Wall Plan and Elevations - Not Applicable

17.21 Details - Not Applicable
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) - Not Applicable

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 - Not Applicable

19.3 Reference and Master Design File

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

19.4 Multi-Post Sign Support Calculations

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

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 Quantities

19.8 Cost Estimate


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 – *Not Applicable*

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

20.2 Summary of Pay Items Including Quantity Input

20.3 Tabulation of Quantities

20.4 General Notes/Pay Item Notes

20.5 Project Layout

20.6 Plan Sheet

20.7 Typical Details

20.8 Guide Sign Work Sheet(s)

20.9 Traffic Monitoring Site

20.10 Cross Sections

20.11 Special Service Point Details

20.12 Special Details

20.13 Interim Standards

20.14 Quality Assurance/Quality Control

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

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and 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.

20.15 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.

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 Quantities

21.11 Cost Estimate

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

21 SIGNALIZATION ANALYSIS

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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:

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/login. This folder also contains additional items useful in designing Traffic Signal component plans in District One.

22.1 Key Sheet
22.2 Summary of Pay Items Including Designer Interface Quantity Input
22.3 Tabulation of Quantities
22.4 General Notes/Pay Item Notes
22.5 Plan Sheet
22.6 Interconnect Plans
22.7 Traffic Monitoring Site
22.8 Guide Sign Worksheet
22.9 Special Details
22.10 Special Service Point Details
22.11 Mast Arm/Monotube Tabulation Sheet
22.12 Strain Pole Schedule
22.13 TCP Signal (Temporary)
22.14 Temporary Detection Sheet
22.15 Utility Conflict Sheet
22.16 Interim Standards
22.17 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.

22.18 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.

23.1 Lighting Justification Report - Not Applicable

23.2 Lighting Design Analysis Report

The CONSULTANT shall prepare a Preliminary Lighting Design Analysis Report. The report shall be submitted under a separate cover with the Phase II plans submittal. The report shall provide analyses for each signalized intersection lighting. Each lighting calculation shall be properly identified as to the area that it covers.

The report shall include the Lighting Design Criteria that will be used. For projects with corridor lighting, the report shall include the evaluation of at least three lighting design alternatives. The report shall provide a recommendation on the alternative to use. Each alternative shall be properly described; the alternatives shall consider different pole heights, lamp wattage, and arm lengths. Each alternative shall be provided with a cost estimate that includes initial cost in addition to operations and maintenance cost for one year.

The report shall also include the lighting calculations for each lighted sign.

After approval of the preliminary report, the CONSULTANT shall submit a revised report for each submittal. The Lighting Design Analysis Report shall include:

Voltage drop calculations

Load analysis calculations for each branch circuit

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 - Not Applicable

23.5 Reference and Master Design Files

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

23.6 Temporary Lighting - Not Applicable
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 Quantities

23.9 Cost Estimate

23.10 Technical Special Provisions and Modified Special Provisions - Not Applicable

23.11 Other Lighting Analysis - Not Applicable

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.

24.1 Key Sheet

24.2 Summary of Pay Item Sheet Including Designer Interface Quantity Input

24.3 Tabulation of Quantities

24.4 General Notes/Pay Item Notes

24.5 Pole Data, Legend & Criteria

24.6 Service Point Details - Not Applicable

24.7 Project Layout - Not Applicable

24.8 Plan Sheet

24.9 Special Details

24.10 Temporary Lighting Data and Details - Not Applicable

24.11 Traffic Control Plan Sheets - Not Applicable

24.12 Interim Standards - Not Applicable

24.13 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.

24.14 Supervision
25 LANDSCAPE ARCHITECTURE ANALYSIS

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

25.1 Data Collection

All research required to collect data necessary to complete the initial design analysis. Includes identifying local ordinances and collection of other project data.

25.2 Site Inventory and Analysis for Proposed Landscape

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

25.3 Planting Design

Conceptual Design: Includes delineation of all proposed planting types, scheme development and preliminary costs and reports. The design shall be submitted with the Phase I plans.

Final Design: Includes identifying the species/type, size, location, spacing, and quality of all plants.

25.4 Irrigation Design

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

Conceptual Design: Typically not done in master design file. Includes determination of water and power sources. Phase I design level.

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

25.5 Hardscape Design

Conceptual design - scheme development and preliminary costs: Typically not done in master design file. Delineation of areas and elements to be included in design. Select cut sheets, prepare image boards. Includes report, if required.

Final Design: Includes all work in master design files. Hardscape Design includes, but is not limited to, sidewalks, plazas, Steps, Fountains, Walls, Pedestrian bridges, non-regulatory signs or project graphics, roadway aesthetics, site furnishings.

25.6 Plan Summary Boxes
25.7 Cost Estimates


25.9 Other Landscape Architecture

25.10 Outdoor Advertising

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

25.11 Field Reviews

25.12 Technical Meetings / Public Meetings

25.13 Quality Assurance/Quality Control

25.14 Independent Peer Review

25.15 Supervision

25.16 Project Coordination

25.17 Interdisciplinary Coordination
26 LANDSCAPE ARCHITECTURE PLANS

The CONSULTANT shall prepare a set of Landscape Plans which includes the following.

26.1 Key Sheet
26.2 Tabulation of Quantities
26.3 General Notes
26.4 Tree and Vegetation Inventory, Protection and Relocation Plans
26.5 Planting Plans for Linear Roadway Projects
26.6 Planting Plans (Interchanges and Toll Plazas)
26.7 Planting Details and Notes
26.8 Irrigation Plans for Linear Roadway Project
26.9 Irrigation Plans for Interchange and Toll Plazas
26.10 Irrigation Details and Notes
26.11 Hardscape Plans
26.12 Hardscape Details and Notes
26.13 Landscape Maintenance Plan

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

26.14 Cost Estimate
26.15 Quality Assurance/Quality Control
26.16 Supervision
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 or Global Positioning System (GPS) Procedures.

27.1 Horizontal Project Control (HPC)

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

27.2 Vertical Project Control (VPC)

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

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

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

27.4 Aerial Targets

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

27.5 Reference Points

Reference Horizontal Project Network Control (HPNC) points, project alignment, vertical
control points, section, 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**

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.

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. 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 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.

27.29 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.

27.30 Document Research

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

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

27.32 Technical Meetings

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

27.33 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.

27.34 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.

27.35 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

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

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

28.1 Flight Preparation

Review record data, create target diagrams, and plan the mission.

28.2 Control Point Coordination

Determine photo identifiable control points, and mark contact prints.

28.3 Mobilization

Perform pre- and post flight aircraft inspection; prepare the aircraft and camera for the mission.

28.4 Flight Operations

Operate the aircraft, aerial camera, and other instruments to obtain aerial photography.

28.5 Film Processing

Process, check, and annotate the aerial film.

28.6 Photo Products

Prepare contact prints, contact diapositives, and photo enlargements.

28.7 Scanning

Scan photographic images.

28.8 LiDAR

Includes data acquisition, post processing of LiDAR data to XYZ coordinates for "bare earth" classification.

28.9 Aerial Triangulation

Measure and adjust control within aerial images.

28.10 Surfaces
Includes collection of break lines and spot elevations.

28.11 Ortho Generation
Includes creation of final images.

28.12 Rectified Digital Imagery (Georeferenced)
Create the rectified digital image.

28.13 Mosaicking
Create the mosaic.

28.14 Sheet Clipping
Create plot files for sheets from the database.

28.15 Topographies (3D)
Prepare topographic maps including surface and planimetrics. (Photogrammetrist will not propose hours for Surfaces and Topographies.)

28.16 Planimetrics (2D)
Prepare 2D planimetric map.

28.17 Drainage Basin
Includes preparing drainage basin maps in clipped "sheet" format.

28.18 CADD Edit
Perform final edit of graphics for delivery of required Microstation .dgn, CADD, and Geopak files.

28.19 Data Merging
Merge photogrammetric files, field survey files, and data from other sources.

28.20 Miscellaneous
Other tasks not specifically addressed in this document.

28.21 Field Review
Perform on site review of maps.

28.22 Technical Meetings
Attend meetings as required.
28.23 Quality Assurance/Quality Control

Establish and implement a QA/QC plan.

28.24 Supervision

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

28.25 Coordination

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

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

Master CADD File

29.1 Alignment

29.2 Section and 1/4 Section Lines

29.3 Subdivisions / Property Lines

29.4 Existing Right of Way

29.5 Topography

29.6 Parent Tract Properties and Existing Easements

29.7 Proposed Right of Way Requirements

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

29.8 Limits of Construction

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

29.9 Jurisdictional/Agency Lines

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

29.10 Control Survey Cover Sheet
29.11 Control Survey Key Sheet
29.12 Control Survey Detail Sheet
29.13 Right of Way Map Cover Sheet
29.14 Right of Way Map Key Sheet
29.15 Right of Way Map Detail Sheet
29.16 Maintenance Map Cover Sheet
29.17 Maintenance Map Key Sheet
29.18 Maintenance Map Detail Sheet
29.19 Reference Point Sheet

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

29.20 Project Network Control Sheet

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

29.21 Table of Ownerships Sheet

Miscellaneous Surveys and Sketches

29.22 Parcel Sketches
29.23 TIITF Sketches
29.24 Other Specific Purpose Survey(s)
29.25 Boundary Survey(s) Map
29.26 Right of Way Monumentation Map
29.27 Title Search Map
29.28 Title Search Report
29.29 Legal Descriptions

29.30 Final Map/Plans Comparison

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

29.31 Field Reviews

29.32 Technical Meetings

29.33 Quality Assurance/Quality Control

29.34 Supervision

29.35 Coordination

29.36 Supplemental Mapping

This task is to cover efforts resulting from major design and/or development changes after 60% map development that affect the right of way requirements/parent tract property lines and may include any number of tasks. Request and approval to utilize the Supplemental Mapping hours will be in writing and approved by the District Right of Way Surveyor prior to any work being done under this task.
30 TERRESTRIAL MOBILE LiDAR

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

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

30.1 Terrestrial Mobile LiDAR Mission Planning

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

30.2 Project Control Point Coordination

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

30.3 Terrestrial Mobile LiDAR Mobilization

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

30.4 Terrestrial Mobile LiDAR Mission

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

30.5 Terrestrial Mobile LiDAR Processing

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

30.6 Terrestrial Mobile Photography Processing

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

30.7 Transformation / Adjustment

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

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

30.9 Specific Surface Reporting

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

30.10 Topographic (3D) Mapping

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

30.11 Topographic (2D) Planimetric Mapping

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

30.12 CADD Edits

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

30.13 Data Merging

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

30.14 Miscellaneous

Other tasks not specifically addressed in this document.

30.15 Field Reviews

Perform on site review of maps.

30.16 Technical Meetings

Attend meetings as required.

30.17 Quality Assurance/ Quality Control

Establish and implement a QA/QC plan.

30.18 Supervision

Supervise all Terrestrial Mobile LiDAR activities. This task must be performed by the
30.19 Coordination

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

PHASE I - 30% DESIGN DEVELOPMENT

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

Documents

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

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

- Floor plan drawn at an architectural scale that will allow the entire facility to be shown on one sheet, without breaklines, and which indicates project phasing as applicable to the Scope.
- Floor plans drawn at 3/32 inch or larger scale showing typical occupied spaces or special rooms with dimensions, sanitary facilities, stairs, elevators, identification of accessible areas for the disabled and other program requirements.
- Floor plans drawn at 3/32 inch or larger scale showing typical spaces or special rooms with dimensions, indicating door and window layouts and other relevant features.
- For alterations or additions to an existing facility: Indicate the connections and tie-ins to the existing facilities, including all existing spaces, exits, plumbing fixtures and locations and any proposed changes thereto. Distinguish between new and existing areas for renovation, remodeling, or an addition and show demolition plans of areas to be removed.
- Furniture and Equipment plans drawn at 1/8 inch or larger scale showing typical spaces or special rooms with dimensions, equipment and furnishing layouts and other relevant features.
- Reflected ceiling plans drawn at 3/32 inch or larger scale showing typical spaces or special rooms with dimensions, major lighting equipment and ceiling panel layouts.
Roof and miscellaneous plans to be drawn at 3/32 inch or larger scale showing dimensioned features penetrations, equipment and other relevant features.

Plumbing fixture locations and fixture unit calculations, isometrics, one line diagram and riser details, schedule of common fixtures and other relevant features.

All exterior building elevations to illustrate and indicate the scale, finish, size and fenestration of the facility.

Sufficient building and wall sections to show dimensions, proposed construction material, and relationship of finished floor to finished grades.

Preliminary Structural Drawings to include plans and sections indicating systems, connections and foundations.

Mechanical Drawings to include ceiling plans with a single line duct layout, location of grease trap(s), LP gas tank location, natural gas piping to existing utilities. Provide narrative description to include a description of proposed HVAC system equipment including the chiller, pumps, AHUs, cooling tower, electric duct heaters and other relevant features.

Electrical Drawings include plans with lighting layouts for outdoors and major interior spaces and electrical outlets for all major spaces. Show location of electrical rooms, transformers, emergency generator. Also show locations of mechanical equipment such as chillers, compressors and air handler units and their respective electrical connections and other relevant features.

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

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

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

By symbol, indicate connections and tie-ins to existing equipment.

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

Floor plans of proposed vertical platform lifts including layout drawings showing corridor widths and exiting from the affected facility.

Sketches of proposed inclined wheel chair lift to include layout drawings showing clear and affected areas of the following conditions stairway width in the folded and unfolded position, the upper and lower platform storage locations, and the means of egress from the affected areas of the facility.

Outline Specifications

Organized to conform to the formats for outline specifications as established by the Construction Specifications Institute’s current edition of Master Format on the date of
execution of the Contract.

- Complete for Divisions 2 through 16 for finishes, material, and systems including structural, HVAC, electrical, plumbing and specialty items, including fire sprinklers, alarm systems, electronic controls and computer networking components.

Other Requirements

- Provide a Life-Cycle Cost Analysis (LCCA) for review and approval. LCCA shall be by a commercially available life-cycle cost analysis program and as required by the State of Florida and the DEPARTMENT.
- Design to meet or exceed Florida Energy Efficiency Code for Building Construction (FEEC). Submit completed FEEC forms, including calculations for mechanical systems, documenting energy efficiency ratio rating of HVAC equipment, electrical systems, insulation, and building envelope shall be submitted to the DEPARTMENT for review and approval.
- The Design Professional shall advise the DEPARTMENT of any adjustments to the budget and shall submit a fully detailed Phase I estimate of probable construction cost, projected to the expected time of bid and containing sufficient detail to provide information necessary to evaluate compliance with the Construction Budget set for this project. Format estimate and provide detail matching the organization and content of the project's Outline Specifications complete for Divisions 2 through 16.
- Provide an updated Project Development Schedule reflecting development and anticipated schedules for all subsequent project activities.
- Preliminary color boards to review two color selection schemes.

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

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

**PHASE II - 60% DOCUMENTS:**

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

Documents

- Updated Florida Energy Efficiency Code for Building Construction (FEEC) compliance forms.
Calculations: Provide preliminary calculations for structural, mechanical and electrical systems.

Review of anticipated LEED points and certification level; adjust attempted points as needed to meet target certification level.

Drawings

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

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

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

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

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

Floor plans to include the following:

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

Demolition Plans

Indicate required demolition activities.

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

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

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

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

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

Roof Plans

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

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

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

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

Details of the following:

- Door jamb, head and sill conditions.
- Wall and partition types.
- Window head, sill and jamb conditions, and anchorage methods shown, in lieu of
referencing to manufacturer's standards.

- Interior signage to include classroom and building identification, emergency exiting and equipment signs, and any other items pertinent to the identification of the project. Coordinate with electrical discipline.
- Interior and exterior expansion control connections.
- Any other specialized items necessary to clearly express the intent of the project design.

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

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

**Mechanical Drawings**

- Provide double line ductwork layout and HVAC equipment layout drawings with related diagrams and schematic diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.
- Provide plumbing equipment, and fixture drawings with related diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.
- Provide dimensioned 1/2 inch scale plans, elevations and sections of the mechanical rooms showing service, clearance, room openings, nominal equipment size, ceiling height, duct clearance between bottom of joist and top of ceiling and any ceiling mounted lighting fixtures, electrical equipment or other building assembly or component, etc.

**Electrical**

Provide drawings for the following systems:

- Lighting including, circuiting and luminaire identification and switching. Also provide illuminance computer print out for all indoor typical indoor spaces and parking lots.
- Convenience outlets and circuiting, special outlets and circuiting, and power systems and equipment. Provide riser diagrams for all electrical systems including master clock, intercom, fire alarm, ITV, computer networking/telephone. Also, provide for emergency and normal power distribution. Provide light fixture schedule.
- Panel schedule may be in preliminary form but circuitry must be included.
- Applicable installation details.
- General legend and list of abbreviations.
- Voltage drop computations for all main feeders.
- Short circuit analysis
- Provide 1/2" scale floor plan and wall elevations for all electrical rooms.
- Indicate surge protector for main switchboard and electrical panels.
Specifications

- Provide preliminary Project Manual including front-end documents. Completion of fill-in items in Bidding documents and other "Division 0" documents is not required.
- Provide a preliminary Division 1 based upon the standard documents provided by the Owner and edited by the Design Professional after consultation with the Owner to establish project specific requirements.
- Include progress set of all other Sections in Divisions 2-16 with each section developed to demonstrate to the Owner an understanding of the project and an appropriate level of developmental progress comparable to that of the drawings.
- Specification sections shall be organized to follow the Construction Specification Institute's (CSI) current edition of Master Format with each section developed to include CSIs standard 3-part section and page formats with full paragraph numbering.

An updated Project Development Schedule, formatted as a preliminary construction schedule reflecting continued Project development and illustrating anticipated schedules for all subsequent project activities including permitting and submittal coordination with all agencies having jurisdiction on the Project, project phasing, site, mobilization, temporary facilities, general construction sequencing, anticipated substantial completion dates, DEPARTMENT occupancy, and all other significant Project events.

Colorboards illustrating color selections, finishes, textures and aesthetic qualities for all finish materials for final review and approval by the DEPARTMENT, and to establish a final palette of material selections for development of subsequent specifications, schedules and other requirements for incorporation into the Contract Documents.

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

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

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

**Phase III - 100% Construction Documents Submittal**

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

**31 Architecture Development**

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General Requirements

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

Drawings

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

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

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

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

**PHASE IV FINAL CONSTRUCTION DOCUMENTS SUBMITTAL:**

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

**General Requirements**

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

**Drawings**

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

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

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

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

Architectural Plans

31.1 Architectural Program Review/Verification
31.2 Key Sheet and Index of Sheets
31.3 General Notes, Abbreviations, Symbols, and Legend
31.4 Life Safety Plan(s)
31.5 Site Plan(s)
31.6 Floor Plan(s) (small scale)
31.7 Floor Plan(s) (large scale)
31.8 Exterior Elevation(s)
31.9 Roof Plan(s)
31.10 Roof Details
31.11 Interior Elevation(s)
31.12 Rest Room Plan(s) (Enlarged)
31.13 Rest Room Elevation(s)
31.14 Building Section(s)
31.15 Stair Section, Enlarged Stair Plan and Details
31.16 Reflective Ceiling Plan(s)
31.17 Room Finish Schedule or Finish Plan
31.18 Door and Window Finish Schedule
31.19 Door Jamb Detail(s) and Window Details
31.20 Exterior Wall Section(s)
31.21 Interior Wall Section(s)
31.22 Overhead Door Detail(s)
31.23 Curtain Wall Detail(s)
31.24 Fascia, Soffit and Parapet Details
31.25 Signage Detail(s)
31.26 Miscellaneous Detail(s)
31.27 Repetitive Sheets
31.28 Design Narrative Reports
31.29 Permitting
31.30 Other Pertinent Project Documentation
31.31 Cost Estimate
31.32 Technical Special Provisions and Modified Special Provisions Packages
31.33 Field Reviews
31.34 Technical Meetings
   31.34.1 FDOT
   31.34.2 Local Governments (cities)
   31.34.3 Local Governments (counties)
   31.34.4 Other Meetings
   31.34.5 Progress Meetings
   31.34.6 Phase Review Meetings
31.35 Quality Assurance/Quality Control
31.36 Meeting with Independent Peer Review
31.37 Supervision
Structural Plans

31.38 General Notes, Abbreviations, Symbols, and Legend

31.39 Foundation Plan(s) (Small Scale)

31.40 Foundation Plan(s) (Large Scale)

31.41 Slab Plan(s) (Small Scale)

31.42 Slab Plan(s) (Large Scale)

31.43 Slab Placement Plan(s)

31.44 Slab Placement Detail(s)

31.45 Foundation Section(s)

31.46 Foundation Detail(s)

31.47 Slab Section(s)

31.48 Slab Detail(s)

31.49 Roof Framing Plan(s) (Small Scale)

31.50 Roof Framing Plan(s) (Large Scale)

31.51 Roof Loading Plan(s) and Detail(s)

31.52 Roof Section(s)

31.53 Roof Detail(s)

31.54 Bearing Wall Section(s)

31.55 Bearing Wall Detail(s)

31.56 Column Section(s)

31.57 Column Detail(s)

31.58 Miscellaneous Sections

31.59 Repetitive Sheets

31.60 Other Pertinent Project Documentation

31.61 Cost Estimate
31.62 Technical Special Provisions and Modified Special Provisions Packages

31.63 Field Reviews

31.64 Technical Meetings
   31.64.1 FDOT
   31.64.2 Local Governments (cities)
   31.64.3 Local Governments (counties)
   31.64.4 Other Meetings
   31.64.5 Progress Meetings
   31.64.6 Phase Review Meetings

31.65 Quality Assurance/Quality Control

31.66 Independent Peer Review

31.67 Supervision

Mechanical Plans

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

31.69 Plan(s) (Small Scale)

31.70 Plan(s) (Large Scale)

31.71 Detail(s)

31.72 Section(s)

31.73 Piping Schematic(s)

31.74 Control Plan(s)

31.75 Schedule(s)

31.76 HVAC Calculations

31.77 Life Cycle Cost Analysis

31.78 Repetitive Sheets

31.79 Other Pertinent Project Documentation
31.80 Cost Estimate

31.81 Technical Special Provisions and Modified Special Provisions Packages

31.82 Field Reviews

31.83 Technical Meetings
   31.83.1 FDOT
   31.83.2 Local Governments (cities)
   31.83.3 Local Governments (counties)
   31.83.4 Other Meetings
   31.83.5 Progress Meetings
   31.83.6 Phase Review Meetings

31.84 Quality Assurance/Quality Control

31.85 Independent Peer Review

31.86 Supervision

Plumbing Plans

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

31.88 Plan(s) (Small Scale)

31.89 Plan(s) (Large Scale)

31.90 Isometric(s) (Large Scale)

31.91 Riser Diagram(s)

31.92 Detail(s)

31.93 Repetitive Sheets

31.94 Other Pertinent Project Documentation

31.95 Cost Estimate

31.96 Technical Special Provisions and Modified Special Provisions Packages

31.97 Field Reviews
31.98 Technical Meetings

31.98.1 FDOT

31.98.2 Local Governments (cities)

31.98.3 Local Governments (counties)

31.98.4 Other Meetings

31.98.5 Progress Meetings

31.98.6 Phase Review Meetings

31.99 Quality Assurance/Quality Control

31.100 Independent Peer Review

31.101 Supervision

Fire Protection Plans

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

31.103 Fire Protection Plan

31.104 Riser Diagram, Details, and Partial Plans

31.105 Hydraulic Calculation

31.106 Repetitive Sheets

31.107 Other Pertinent Project Documentation

31.108 Cost Estimate

31.109 Technical Special Provisions and Modified Special Provisions Packages

31.110 Field Reviews

31.111 Technical Meetings

31.111.1 FDOT

31.111.2 Local Governments (cities)

31.111.3 Local Governments (counties)

31.111.4 Other Meetings

31.111.5 Progress Meetings

31 ARCHITECTURE DEVELOPMENT
3.111.6 Phase Review Meetings

3.112 Quality Assurance/Quality Control

3.113 Independent Peer Review

3.114 Supervision

Electrical Plans

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

3.116 Electrical Site Plan

3.117 Lighting Plan(s)

3.118 Lighting Fixtures Schedule(s)

3.119 Lighting Fixtures Detail(s)

3.120 Lightning Protection Plan(s)

3.121 Lightning Protection Details

3.122 Power Plan(s)

3.123 Power Distribution Riser Diagram(s)

3.124 Panel Board Schedule(s)

3.125 Data Plan(s)

3.126 Data Detail(s)

3.127 Communication Plan(s)

3.128 Communication Detail(s)

3.129 Security Alarm System Plan(s)

3.130 Miscellaneous Detail(s)

3.131 Repetitive Sheets

3.132 Energy Analysis

3.133 Other Pertinent Project Documentation

3.134 Cost Estimate

31 ARCHITECTURE DEVELOPMENT
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31.135 Technical Special Provisions and Modified Special Provisions Packages

31.136 Field Reviews

31.137 Technical Meetings

  31.137.1 FDOT
  31.137.2 Local Governments (cities)
  31.137.3 Local Governments (counties)
  31.137.4 Other Meetings
  31.137.5 Progress Meetings
  31.137.6 Phase Review Meetings

31.138 Quality Assurance/Quality Control

31.139 Independent Peer Review

31.140 Supervision

31.141 LEED Certification

31.142 Coordination

31.143 Building Information Modeling (BIM)
32 NOISE BARRIERS IMPACT DESIGN ASSESSMENT IN THE DESIGN PHASE

The CONSULTANT shall fulfill the commitments resulting from the traffic noise analysis and noise barrier evaluation performed during the Project Development and Environment (PD&E) Phase, as directed and clarified by the DEPARTMENT.

The noise analysis shall be performed in accordance with the FDOT’s Noise Policy (Part 2, Chapter 17 of the FDOT’s PD&E Manual) and the FDOT’s Traffic Noise Modeling and Analysis Guidelines. The noise analysis and noise abatement evaluation shall be performed by or supervised/reviewed by a person(s) who has attended the Department’s Traffic Noise Analysis training course or has attended and successfully completed the National Highway Institute’s Highway Traffic Noise Course (FHWA-NHI-142051). The Federal Highway Administration (FHWA) approved noise model, the Traffic Noise Model (TNM) Version 2.5 (or most current version) shall be used for the noise analysis, unless otherwise directed by the DEPARTMENT.

32.1 Noise Analysis

The CONSULTANT shall review the preferred PD&E alternative to identify any design changes that would require a reanalysis of traffic noise. Coordination will be held with the District Environmental Management Office, prior to initiating any reanalysis, to discuss possible effects of design changes on the validity of the noise study performed during PD&E.

The CONSULTANT shall perform a land use review to identify noise sensitive sites that may have received a building permit subsequent to the PD&E noise study but prior to the Date of Public Knowledge (DPK), or to identify areas where the land use may have changed or is subject to change. New noise sensitive sites meeting DPK requirements that were not considered during the PD&E phase will be subject to a traffic noise analysis to be performed by the CONSULTANT. Additionally, noise sensitive sites analyzed in the PD&E phase may have to be re-analyzed if affected by design changes.

The CONSULTANT shall review any commitments made during the PD&E phase regarding possible traffic noise impacts to special use locations. Analysis of special use locations shall be performed using the DEPARTMENT’s “A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations” document and shall be coordinated with the District Environmental Management Office.

The CONSULTANT shall review the commitments made during the PD&E phase regarding noise barrier concepts determined to be potentially feasible and reasonable. The CONSULTANT will update the analysis of feasibility and reasonableness for noise barriers recommended for further consideration during the design phase and for any additional noise barriers required, using design information (e.g., profile data, horizontal alignment data, etc.) and incorporate into the analysis any new conditions or additional costs related to noise barrier construction that have been identified during design. A design phase noise analysis will be performed at any additional locations required (based on DPK requirements or roadway design changes). Additional survey may also be required at proposed barrier locations.
Changes to, or fulfillment of, the original noise abatement commitments made during PD&E shall be documented in a Noise Study Report (NSR) Addendum to be prepared by the CONSULTANT in coordination with the District Environmental Management Office. A copy of the final NSR Addendum shall be provided to the District Environmental Management Office.

Traffic Data: The CONSULTANT shall review the traffic data obtained during the PD&E phase to determine if the data remains valid for design phase reanalysis. If the traffic data is no longer valid, the CONSULTANT shall provide to the noise analyst the following data for each road segment (i.e. intersection to intersection) for the design year with the proposed improvements to the road:

- Level of Service C (LOS C) directional volumes
- Demand peak hour volumes (peak and off-peak directions)
- Posted speed
- Percentage of heavy trucks (HT) in the design hour
- Percentage of medium trucks (MT) in the design hour
- Percentage of buses in the design hour
- Percentage of motorcycles (MC) in the design hour

With the exception of LOS C volumes, the data above shall also be provided for all interchange/highway ramps. The District Noise Specialist may also identify cross streets for which the same data is necessary. (e.g., a cross street for which noise sensitive sites are in close proximity to the project). The CONSULTANT shall contact the District Noise Specialist for direction on the format to be used for providing the traffic data and any requirements regarding approval of the data prior to its use for noise analysis. The traffic data to be used in the noise analysis must be generated by a qualified traffic engineer/planner who works for the DEPARTMENT or is a DEPARTMENT consultant.

32.2 Noise Barrier Evaluation

The CONSULTANT will present the data along with recommendations to the DEPARTMENT for selection of the noise barrier’s locations, barriers heights and lengths to be incorporated into the design plans. These recommendations shall consider the noise barrier feasibility and reasonableness.

An evaluation of proposed noise barriers will be performed to identify any engineering conflicts or constraints. The CONSULTANT will be responsible for documenting any resolutions to engineering conflicts or issues that require modification to or preclude construction of a noise barrier. At a minimum, the engineering review will consider the following:

- Right of way needs including access rights (air, light, view, ingress/egress, outdoor advertising conflicts)
- Limited access issues
- Necessary construction and maintenance easements
- Safety issues (e.g., line of sight)
- Maintenance issues
- Structural and vegetative restrictions within easement
- Utility conflicts
- Drainage issues

32 NOISE BARRIERS IMPACT DESIGN ASSESSMENT IN THE DESIGN PHASE

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Environmental issues
Other criteria as applicable

The CONSULTANT shall re-analyze noise barrier(s) for feasibility and reasonableness and re-establish barrier height and length if design constraints require alteration in a barrier’s location or dimensions.

After reestablishing the recommended height and length of the barrier(s), the CONSULTANT shall coordinate with design engineers and the District Planning and Environmental Office to include the barrier(s) on the design plans. In addition, the CONSULTANT will present a memo to the DEPARTMENT Project Manager containing a recommendation for selection of the barrier height and length to be carried forward for public input. This recommendation shall consider amount of noise reduction provided, engineering constraints and cost (reasonableness). In addition, the CONSULTANT will also consider the overall visual appearance in relation to the existing and proposed site conditions. This includes smoothing the profile along the top of a noise barrier to the extent possible while minimizing any loss in the amount of noise reduction provided and extending the ends of a noise barrier to cover additional receivers. Extending the ends of a noise barrier will not exceed the cost criteria and will only be performed when it is appropriate and in the public interest.

32.3 Public Involvement

If noise barriers are determined to be feasible and cost reasonable, the CONSULTANT shall carry out the public involvement and surveys necessary to report to the DEPARTMENT whether or not the majority of the impacted and/or benefited receptors desire the construction of a noise barrier. Input shall also be obtained from the public regarding barrier aesthetics (color and texture) on one or both sides of the barrier. The CONSULTANT shall be responsible for coordinating with local government officials.

As a minimum, the following tasks shall be completed by the CONSULTANT for public involvement purposes:
Identification of impacted and/or benefited property owners
Identification of renters and non-residing property owners (for a property that may be rented)
Preparation of a mailing list (property owners, renters and non-residing property owners)
Preparation of a summary package (including an information letter, aerial showing the noise barrier location and a survey form to document the recipients position to be sent to property owners, and occupants/non-residing property owners informing them of the proposed noise barrier
If necessary, preparation of additional mailings and/or door-to-door/telephone surveys until a majority decision is obtained or until directed by the District Noise Specialist
Tallying of survey results
Noise barrier aesthetics coordination
Public meetings coordination (including arranging the meeting location, advertisements, displays, etc.)
Responding to public inquiries on an individual basis in coordination with the DEPARTMENT.

The CONSULTANT shall bring to the attention of the DEPARTMENT unforeseen conditions and issues which are relevant to the project decision. Other than noise barrier length, height and location, the CONSULTANT shall abstain from indicating preferences for any of the barrier options prior to or during contact with the property owners unless specifically requested to do so by the DEPARTMENT. Following the public involvement process, the CONSULTANT shall produce a final noise barrier recommendation that identifies the starting and ending points for all noise barriers, the top elevation(s), and the aesthetic elements to be provided (e.g. – color, texture, graphics).

32.4 Outdoor Advertising Identification

The CONSULTANT shall identify potential noise barriers that may block the view of an existing lawfully erected sign that is governed by and conforms to state and federal requirements for land use, size, height and spacing consistent with the requirements of Florida Statute (FS) 479.25 and the FDOT Noise Policy (Part 2, Chapter 17 of the PD&E Manual). The CONSULTANT shall notify the Department’s Project Manager of a potential noise barrier(s) that may affect the visibility of a legally permitted outdoor advertising sign. Resolution of the potential conflict shall be documented in the NSR and included in the environmental document.

32.5 Noise Study Report (NSR) Addendum

The results of noise barrier evaluations performed by the CONSULTANT shall be documented in the NSR Addendum (in accordance with Chapter 264 of the FDOT Design Manual (FDM)) and shall include the results of the computer modeling (electronically), public involvement activities and final noise abatement commitments.

32.6 Technical Meetings

Prior to proceeding with the noise barrier analysis, the CONSULTANT shall discuss and coordinate with the appropriate District Project Manager and the District Environmental
Management Office staff. The purpose of this discussion will be for the DEPARTMENT to provide the CONSULTANT with all pertinent project information and to confirm the methodologies to be used to conduct the noise analysis. This meeting is mandatory and should occur after the Notice to Proceed is given to the CONSULTANT. It is the responsibility of the CONSULTANT to undertake the necessary action (i.e. phone calls, meetings, correspondence, etc. to ensure that District Project Manager and the District Environmental Management Office staff is kept informed of the noise analysis efforts so that these tasks are accomplished in a manner that will enhance the overall success of the project.

32.7 Quality Assurance/Quality Control

QA/QC reviews will be performed for all NSR Addendums submitted to the DEPARTMENT. Documentation of the QA/QC will be provided to the District Project Manager.

The CONSULTANT shall ensure that the noise barrier(s) location(s), length, height and aesthetics as shown on the final design plans are consistent with the results of the noise barrier evaluation and recommendation documented in the original NSR and/or the NSR Addendum.

32.8 Supervision

32.9 Coordination
33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS

The CONSULTANT shall analyze and document Intelligent Transportations System (ITS) Analysis Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, existing ITS standard operating procedures, strategic plans, Florida’s SEMP guidelines, National and regional ITS architectures, and current design memoranda.

ITS work includes the application of sensor, computer, electronics and communication technologies and management strategies, in an integrated manner, to improve the safety and efficiency of the surface transportation system. ITS includes, but is not limited to, Advanced Traffic Management Systems (ATMS), Advanced Traveler Information Systems (ATIS), Advanced Rural Transportation Systems (ARTS), Advanced Public Transportation Systems (APTS), Advanced Highway Systems (AHS), Commercial Vehicle Operation (CVO) and Electronic Toll Collection (ETC) Systems.

In instances where the CONSULTANT performs analysis or prepares the design packages for the deployment of ITS, the CONSULTANT will not be allowed to compete as a proposing firm, or participate as a subconsultant to a proposing firm during subsequent advertisements involving work performed under this contract.

33.1 ITS Analysis

The CONSULTANT shall review the approved preliminary engineering report, typical section package, traffic technical memorandum and proposed geometric design alignment to identify impacts to existing ITS components (if applicable) and proposed ITS field device placements. The CONSULTANT shall review all related District ITS plans and documentation for the project corridor to ensure all cited ITS elements are included in this project, and develop a Concept of Operations (ConOps), Project Systems Engineering Management Plan (PSEMP), RTVM, and other documents as necessary for conformance with Federal Highway Administration (FHWA) requirements. The CONSULTANT shall use applicable DEPARTMENT requirements and guidelines, including, but not limited to, the FDM, Standard Plans, and Standard Specifications for Road and Bridge Construction in the design of ITS. The CONSULTANT design is expected to include the following attributes, facilities, infrastructure, ITS devices, systems, and associated work:

- **Add CCTV Cameras**

- **Existing CCTV at US 98 and Skyview**

CCTV camera system shall provide 100 percent coverage of all mainline lanes, entrance and exit ramps, interchanges (includes view of crossing arterials), blind spots (such as those caused due to existing and proposed bridges, existing and proposed signage, vegetation, and horizontal and vertical curvatures). Cameras shall be spaced to meet the Project requirements, guidance from the ConOps, and as approved by the DEPARTMENT.

Vehicle detection devices shall be spaced as required to meet the Project requirements (speed, volume, and occupancy detection), guidance from the ConOps and as approved by
Both expressway and arterial dynamic message signs (DMS) shall be located to meet the Project requirements, guidance from the ConOps, and as approved by the DEPARTMENT. All FDOT FDM requirements shall be met for DMS locations. DMS locations shall be designed in conjunction with the Project’s master signing design.

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

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

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

Closed Circuit Television (CCTV) Camera Assembly

The CONSULTANT shall be responsible for the design and exact field locations for the camera assemblies. The camera subsystem shall provide overlapping coverage to overcome visual blockage.

The position, height, and design of each camera pole shall be finalized during the design phase of the project. Each site shall be designed for overall monitoring capability, as well as designed to provide safe and effective maintenance conditions.

The camera assembly deployment shall be designed to provide fields of view that give the required corridor coverage. The CONSULTANT shall determine the camera location by performing a videography study at each proposed camera site. The study shall include video at the proposed camera location and elevation with respect to the roadway elevation. The CONSULTANT shall identify the final number and locations of the camera assemblies based on the videography study.

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

The CONSULTANT shall be responsible for the design of the grounding and lightning protection system based on FDOT criteria.

The CCTV camera assembly shall comply with the latest version of FDOT Standard Specifications for Road and Bridge Construction, Supplemental Specification 682.

33.2 Communications
The communications infrastructure is owned by the City of Lakeland. Coordination should be made with the owner to plan for limited network down time.

The communications system components shall be in accordance with Sections 630, 633, and 635 of the latest FDOT Standard Specifications for Road and Bridge Construction (online edition).

33.3 Grounding and Lightning Protection

The CONSULTANT shall be responsible for a complete and reliable grounding and lightning protection design to provide personnel and equipment protection against faults, surge currents and lightning transients.

The grounding and lightning protection system shall be designed in accordance with the latest version of the FDOT Standard Specifications for Road and Bridge Construction, Specification 620.

33.4 Power Subsystem - Not Applicable

33.5 Voltage Drop Calculations - Not Applicable

33.6 Design Documentation

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

- Computation books for all applicable items on plans.
- Phase submittal checklist.
- Three-way quantity check list
- Structural calculations for all structures
- Voltage drop calculations.
- Load analysis calculations.

33.7 Existing ITS

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

33.8 Queue Analysis - Not Applicable

33.9 Reference and Master ITS Design File

The CONSULTANT shall prepare the ITS design file to include all necessary design elements and the reference files for topo, R/W roadway, utilities files, etc. This effort includes the design and layout of proposed ITS devices, including but not limited to: CCTV / Detection poles, DMS, detection devices, advanced traffic controllers, conduit, cabinet-related pull boxes, service points, fiber optic sizing, and communications hubs. All existing ITS infrastructure shall be referenced to the new ITS plan sheets (if applicable).
33.10 Reference and Master Communications Design File

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

33.11 Pole Elevation Analysis

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

33.12 Sign Panel Design Analysis - Not Applicable

33.13 Quantities

The CONSULTANT shall include all work required to determine the quantities for all items, including ITS structures and devices, interconnect, and infrastructure (such as conduits, pull boxes, splice boxes, fusion splices, splice enclosures, etc.). This work effort shall include generating accurate quantities for computing the engineer’s estimate as required by the District. Use digital submittal of plans as required by the DEPARTMENT.

33.14 Cost Estimate

The CONSULTANT shall prepare an engineer’s cost estimate for the project using historical data from the FDOT or from other Industry sources. The CONSULTANT shall also load the pay items and quantities into AASHTOWare Project Preconstruction for generating the Summary of Pay Items and the FDOT’s in-house estimates.


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

33.16 Other ITS Analyses - Not Applicable

33.17 Field Reviews

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

- Existing ITS Field Devices as compared with the latest FDOT standards and District requirements
- Device Make, Model, Capabilities, Condition / Age, Existence of SunGuide

33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS
Software Driver
- Condition of Structure(s), cabinets, and other above-ground infrastructure and devices
- Type of Detection as Compared With Current District Standards
- Underground Infrastructure
- Proximity of other utilities
- Traffic Operations
- Any other field reconnaissance as necessary to develop a complete ITS design package

33.18 Technical Meetings

The CONSULTANT shall attend meetings as necessary support the project.

33.19 Quality Assurance / Quality Control

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

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

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

33.20 Supervision

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

33.21 Coordination

The CONSULTANT shall coordinate with Survey, Geotech, Drainage, Structures, Lighting, Roadway Design, Utilities, municipalities, maintaining agencies and Traffic Operations to produce a final set of construction contract documents and to ensure that a high degree of accuracy for the design plans is achieved.
34 INTELLIGENT TRANSPORTATION SYSTEMS PLANS

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

34.1 Key Sheet

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

MUTCD

Standard Specs

Standard Plans

34.2 Summary of Pay Items Including Designer Interface Quantity Input

The CONSULTANT shall include quantity input into Designer Interface and create the CADD generated sheet.

34.3 Tabulation of Quantities

The CONSULTANT shall place pay item numbers, descriptions, quantities and grand totals on the tabulation sheet(s) and provide updating of the tabulation of quantities sheets during the design period.

34.4 General Notes / Pay Item Notes

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

34.5 Project Layout

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

34.6 Typical and Special Details

The CONSULTANT shall prepare typical and / or special details for conditions in the project not addressed by the DEPARTMENT’s Standard Plans for Design, Construction, Maintenance, and Utility Operations on the State Highway System. The CONSULTANT shall prepare special details not addressed by FDOT Standard Plans, including block diagrams, hub cabinets, wiring diagrams, solar power service, and special mounting details.

34.7 Plan Sheet

The CONSULTANT shall prepare the ITS plan sheets utilizing the Design file to include all necessary information related to the project design elements and all associated reference files. The plan sheets shall include general and pay item notes and pay items. The plans shall
34.8 ITS Communications Plans

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

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

The CONSULTANT’s design shall include protecting and maintaining the existing ITS infrastructure. For locations where existing ITS infrastructure is impacted, the CONSULTANT’s design shall include mitigation to minimize the downtime of existing system as per the District’s requirements.

The CONSULTANT is responsible for the design of the communication infrastructure and its integration with the DEPARTMENT’s communication system. Additionally, the CONSULTANT shall determine the most cost effective, best performing, communication connectivity option. The communication system must allow command and control as well as data and video transmission between the field devices and the TMCs at 3000 Sheffield Rd, Winter Haven, Florida 33880.

Conduit paths shall be selected to provide a continuous duct system on one side of the road unless otherwise requested by the FDOT. The various components of ITS deployment will be located on both sides of the freeway and therefore under pavement bore and lateral conduits will be necessary to access equipment locations.

The CONSULTANT shall produce fiber optic cable splicing diagrams to show the connectivity of the fiber optic cable from its termini at field devices to the TMC. The diagrams shall denote new and existing fiber routes, splices, and terminations involved in the work. The diagrams shall identify cables by size, tube color / number and stand colors / numbers. All cables shall be identified either by numbering system identified either by numbering system identified on the plans or by bounding devices. The diagrams shall denote the types of connectors in the patch panels.

34.10 Grounding and Lightning Protection Plans

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

34.11 Cross Sections- Not Applicable

34.12 Guide Sign Work Sheet(s) - Not Applicable

34 INTELLIGENT TRANSPORTATION SYSTEM PLANS

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34.13 Special Service Point Details - Not Applicable

34.14 Strain Pole Schedule - Not Applicable

34.15 Overhead / Cantilever Sign Structure - Not Applicable

34.16 Other Overhead Sign Structures (Long Span, Monotube, etc.) - Not Applicable

34.17 Traffic Control Plans

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

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

34.18 Interim Standards

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

34.19 GIS Data and Asset Management Requirements

The CONSULTANT is responsible for providing direction through plan development for gathering Geographic Information System (GIS), spatial data, for the ITS components design. This information is required to integrate ITS components as-built deliverables. A coordinate point compatible with the Florida State Plane System or FDOT’s current coordinate plane system shall be collected as part of the contractor’s as-built deliverable for all ITS components part of the Project design. All GIS information provided shall be compatible with the FDOT’s ITS FM asset management software.

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

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

- CCTV camera pole location
- Ground mounted cabinets
- Lateral fiber optic cable connections
- Lateral power cable connections

34 INTELLIGENT TRANSPORTATION SYSTEM PLANS
- Pull boxes (power and fiber)
- Power drops (service point and cable path)

34.20 Quality Assurance / Quality Control

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

34.21 Supervision

The CONSULTANT shall supervise all technical design activities.
35.1 Document Collection and Review - Not Applicable
35.2 Develop Detailed Boring Location Plan - Not Applicable
35.3 Stake Borings/Utility Clearance - Not Applicable
35.4 Muck Probing - Not Applicable
35.5 Coordinate and Develop MOT Plans for Field Investigation - Not Applicable
35.6 Drilling Access Permits - Not Applicable
35.7 Property Clearances - Not Applicable
35.8 Groundwater Monitoring - Not Applicable
35.9 LBR / Resilient Modulus Sampling - Not Applicable
35.10 Coordination of Field Work - Not Applicable
35.11 Soil and Rock Classification – Roadway - Not Applicable
35.12 Design LBR - Not Applicable
35.13 Laboratory Data - Not Applicable
35.14 Seasonal High Water Table - Not Applicable
35.15 Parameters for Water Retention Areas - Not Applicable
35.16 Delineate Limits of Unsuitable Material - Not Applicable
35.17 Electronic Files for Cross-Sections - Not Applicable
35.18 Embankment Settlement and Stability - Not Applicable
35.19 Monitor Existing Structures - Not Applicable
35.20 Stormwater Volume Recovery and/or Background Seepage Analysis - Not Applicable
35.21 Geotechnical Recommendations - Not Applicable
35.22 Pavement Condition Survey and Pavement Evaluation Report - Not Applicable
35.23 Preliminary Roadway Report - Not Applicable
| 35.24 | Final Report - *Not Applicable* |
| 35.25 | Auger Boring Drafting - *Not Applicable* |
| 35.26 | SPT Boring Drafting - *Not Applicable* |
| 35.27 | Develop Detailed Boring Location Plan - *Not Applicable* |
| 35.28 | Stake Borings/Utility Clearance - *Not Applicable* |
| 35.29 | Coordinate and Develop MOT Plans for Field Investigation - *Not Applicable* |
| 35.30 | Drilling Access Permits - *Not Applicable* |
| 35.31 | Property Clearances - *Not Applicable* |
| 35.32 | Collection of Corrosion Samples - *Not Applicable* |
| 35.33 | Coordination of Field Work - *Not Applicable* |
| 35.34 | Soil and Rock Classification – Structures - *Not Applicable* |
| 35.35 | Tabulation of Laboratory Data - *Not Applicable* |
| 35.36 | Estimate Design Groundwater Level for Structures - *Not Applicable* |
| 35.37 | Selection of Foundation Alternatives (BDR) - *Not Applicable* |
| 35.38 | Detailed Analysis of Selected Foundation Alternate(s) - *Not Applicable* |
| 35.39 | Bridge Construction and Testing Recommendations - *Not Applicable* |
| 35.40 | Lateral Load Analysis (Optional) - *Not Applicable* |
| 35.41 | Walls - *Not Applicable* |
| 35.42 | Sheet Pile Wall Analysis (Optional) - *Not Applicable* |
| 35.43 | Design Soil Parameters for Signs, Signals, High Mast Lights, and Strain Poles and Geotechnical Recommendations - *Not Applicable* |
| 35.44 | Box Culvert Analysis - *Not Applicable* |
| 35.45 | Preliminary Report – BDR - *Not Applicable* |
| 35.46 | Final Report - Bridge and Associated Walls - *Not Applicable* |
| 35.47 | Final Reports - Signs, Signals, Box Culvert, Walls, and High Mast Lights - *Not Applicable* |

**35 GEOTECHNICAL**

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35.48 SPT Boring Drafting - Not Applicable
35.49 Other Geotechnical - Not Applicable
35.50 Technical Special Provisions and Modified Special Provisions - Not Applicable
35.51 Field Reviews - Not Applicable
35.52 Technical Meetings - Not Applicable
35.53 Quality Assurance/Quality Control - Not Applicable
35.54 Supervision - Not Applicable
35.55 Coordination - Not Applicable
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 DEPARTMENT’s 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 DEPARTMENT 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. Dynamic relationships must be maintained. Frequency must be increase to achieve a useable model.

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

The CONSULTANT shall provide sufficient detail in the 3D model to account for driveways, Guardrail Terminal Locations, etc. and other graded areas where surface triangles are delivered as break lines.

36.1 Phase I 3D Design Model (30% Plans)

The CONSULTANT shall prepare, submit and present for approval by the DEPARTMENT, 30% complete 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 (60% Plans)

The CONSULTANT shall prepare, submit and present for approval by the DEPARTMENT, 60% complete 3D model, comprised of, but not limited to: Modification of 30% model to update the model to comply with changes based on 30% 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, i.e. 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 (90% Plans)

The CONSULTANT shall prepare, submit and present for approval by the DEPARTMENT, 90% complete 3D model, comprised of, but not limited to: Modification of 60% model to update the model to comply with changes based on 60% 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 (100% Plans)

The CONSULTANT shall prepare for approval by DEPARTMENT, 100% complete 3D model, comprised of, but not limited to: Modification of 90% model to update the model to comply with changes based on 90% review comments and to accurately generate, export and otherwise prepare the final 3D deliverable files as described in the DEPARTMENT’s CADD Manual.

36.5 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the DEPARTMENT’s 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, specialty templates or 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 DEPARTMENT’s 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.

36 PROJECT REQUIREMENTS
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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.