

## **Statement of Work**

### **Contract Number C-460000791, Work Order WO01 Update to the Halfway Creek, Spring Creek, and South Branch of the Estero River Region of the South Lee County Watershed Plan**

#### **A. Introduction/Background**

On February 14, 2008, the Governing Board of the South Florida Water Management District (District) approved permit number 36-03802-P for a project known as "I-75 Collier/Lee County Line North to Corkscrew Road/Segment B." This permit authorized the widening of I-75 from four lanes to six lanes for this segment. As part of this permit, five 60-inch diameter culverts are proposed to be installed adjacent to two existing 9' by 8' box culverts at Station 431+95.18 (1.9 miles south of Corkscrew Road) to convey additional surface water flows from east of I-75 to the west. The additional culverts are proposed to accommodate a component of the South Lee County Watershed Plan (SLCWP). During the review of the permit application several concerns were expressed by adjacent property owners and other stakeholders in regard to the additional culverts proposed under I-75. To alleviate these concerns, Special Condition Number 14 was added to the permit that requires an update to the Halfway Creek, Spring Creek and South Branch of the Estero River region of the SLCWP to verify and validate the findings and material assumptions. The remainder of this section provides background for the SLCWP and particularly the Halfway Creek region.

In 1992 and 1995 a series of large rainfall events led to significant flooding in the Bonita Springs area, resulting in the evacuation and prolonged displacement of hundreds of citizens as well as associated flood damages to homes, businesses and public infrastructure. As a result of flooding within the Imperial and Cocohatchee watersheds during these events, a study (SLCWP) was conducted to identify causes of the flooding, recommend improvements to the region, restore flowways, and prevent future flooding. The SLCWP was completed in July 1999 and identified a number of causes that contributed to the flooding. Most notably was the loss of historical flows within the Estero River and Halfway Creek watersheds.

The SLCWP identified the construction of I-75 as one of the causes of the loss of historical flows. The SLCWP also identified a number of improvements to be completed geared towards restoring natural flowways, removal of constrictions and enhancing conveyance capacities within Estero River, Imperial River, Cocohatchee River, Belle Meade and Camp Keais Strand.

#### **B. Scope of Work**

The objective of this update is to verify and validate the findings and material assumptions of the SLCWP for the Halfway Creek, Spring Creek, and South Branch of the Estero River region. If conditions require revisions to the recommendations in the SLCWP then new recommendations are to be provided. The update should address and include:

- A. The required flow and conveyance capacity to restore flows to Halfway Creek, the South Branch of Estero River and Spring Creek.
- B. Identification of downstream impediments to the required flow.
- C. The model established under Phase I of the SLCWP: The Hydrologic – Hydraulic Model Development shall be reviewed for its accuracy to determine flow rates for “A” above based on changes to land uses and incorporation or implementation of any of the SLCWP elements since its completion. This shall also include validation of the computer models utilized in the SLCWP that would have any impact on “A” above.
- D. The ecological assessment performed under Phase II of the SLCWP shall be reviewed for its accuracy and relevance to current ecological goals, objectives and problems as identified in the latest Southwest Florida Feasibility Study draft work products.
- E. The problem identification and plan formulation developed under Phase III of the SLCWP shall be reviewed and updated to reflect work completed to date and any changes resulting from the review of Phase I and II above.
- F. Amendment No. 1 of the SLCWP shall be updated based on above findings including, but not limited to, verification of or recommended changes to flow distributions to receiving water bodies.
- G. Verification of upstream/inflow and downstream conveyance capacity.
- H. A control elevation, invert elevation, size, and number of culverts under I-75 shall be established based on the results of the above items and to avoid dewatering of upstream wetland systems east of I-75 and to ensure that the culverts do not cause or contribute to the County’s well field hydrological or water resource impacts. In addition, the upstream control elevations shall be based on the wet season water table information established from the County water table monitoring network and other available field identifiers until such time a wetland determination that established aerial extent, rim elevation and Uniform Mitigation Assessment Method (UMAM) scores for the property east of I-75 is completed and indicates otherwise.

Validation of the SLCWP shall include coordination with other regional studies such as the South West Florida Feasibility Study (SWFFS) and the Density Reduction Groundwater Resource (DRGR) Hydrologic/Hydraulic Study including modeling and study results.

The District and Lee County staff will be conducting periodic meetings with stakeholders to update them on the progress of this contract. These meetings may result in additional information that will be forwarded to the contractor. The contractor will be invited to these meetings but is not required to attend.

## **C. Work Breakdown Structure**

### **Task I-A Project Orientation**

Boyle staff will attend a meeting with stakeholders, SFWMD and Lee County staff to identify and become familiar with problems and watershed management goals that initiated the SLCWP and review the background pertaining to this update of the SLCWP.

### **Task I-B Data Collection**

1. Identify, review and compile data relevant to the development of an update to the SLCWP using data sources such as:
  - Previous hydrologic and hydraulic studies, as identified on Attachment A, conducted since the original SLCWP Study was completed in 1999.
  - SFWMD's and Lee County's GIS databases.
  - Information available from outside agencies such as NRCS, NWI, etc.
  - Recent data compiled for the Lee County Density Reduction Groundwater Resource Study.
2. Review the array of subbasin studies for information regarding surface and groundwater flow characteristics of the region, including storm event modeling provided in existing or pending ERP files for projects identified by SFWMD as being located within the study area subbasins.
3. Compile and review historical flow data and flow regime information for Halfway Creek, the South Branch of the Estero River, Spring Creek, and the Imperial River.
4. Verify, through review of asbuilt drawings and permit records, the installed conveyance capacity from the culvert crossing under I-75 at Station 431+95.18 to the tidal waters of Halfway Creek, Spring Creek, and the South Branch of the Estero River.
5. Identify the available format of data – electronic or other forms.
6. Assess the availability of the information in SFWMD and Lee County's GIS database, particularly topography, current land use/cover, soils, and locations of meteorological, surface and groundwater monitoring stations.
7. Identify the prominent data gaps for potential future regeneration of missing records.
8. Provide clear maps showing the location of data reference points with respect to roads and key hydraulic conveyance features.

### **Deliverables for Tasks I-A and I-B**

**Deliverable 1A:** At 50% Progress or 4 weeks after the Notice to Proceed, Boyle will provide an email memorandum of progress on completed subtasks and preliminary findings.

**Deliverable 1B:** A memorandum or letter report on the available hydrologic/hydraulic and ecological information of the Halfway Creek, Spring Creek, South Branch of the Estero River, and Imperial River watershed, including:

- Description of surface water and groundwater hydrology
- Topography
- Existing land use
- Soils
- General geology
- Historical flow patterns
- Ecological Assessment data and goals

Information developed after completion of the SLCWP shall be noted in the memorandum.

The Contractor shall provide ten (10) copies of a draft memorandum within eight (8) weeks of the date of execution of the contract. Maps will be provided in digital format. The District and Lee County will review and request revisions within two (2) weeks of receipt of the deliverable. Twenty (20) copies of the final deliverable which incorporates the revisions requested by the District and Lee County are due within two (2) weeks from the receipt of the comments. An interim memo will document a 50% progress milestone four (4) weeks after the Notice to Proceed date of the Contract.

At this point in the implementation of the contract, scope, the time frames and deliverable payment amounts for the remaining tasks shall be negotiated based on the information collected. The negotiation shall be finalized in the form of a contract amendment. The time frames shall result in all deliverables being finalized on or before May 14, 2009.

### **Task I-C      Model Update**

The Contractor shall incorporate the new data into the existing model used in the SLCWP and calibrate the updated model. Calibration data shall be collected from all watersheds within the study area (including the South Branch of the Estero, Halfway Creek, Spring Creek and Imperial River watershed) to the greatest degree feasible (including Estero River N (DBKEYs 12806 and 12807), Estero River S (DBKEYs 12804 and 12805), Spring Creek (DBKEYs 12808 and 12809) and L-1691, L-1993, L-1994, L-1998, L-2194, L-5747, C-492, FP-1 through FP-12, ST1-ST3, and SF1-7 for periods when water levels were above the ground surface). Calibration plots of flow will be provided in addition to the plots of stage for the Estero River, Spring Creek, and Imperial River. Calibration standards will be defined as part of the calibration document. If the calibration results deem modification of the model is warranted to increase its accuracy, it will be modified accordingly.

## **Deliverables for Task I-C**

A technical report shall be submitted describing the simulation algorithms and input data processing, calibration of the model, sensitivity analyses of simulation, problems encountered, and trouble shooting process during the calibration and verification process. Provide analytical and graphical summary of calibration results.

Ten (10) copies of a draft of the deliverable is due within TBD weeks of execution of the contract. The District and Lee County will review and request revisions within two (2) weeks of receipt of the deliverables, Twenty (20) copies of the final deliverable including revisions requested by the District and Lee County is due within two weeks from the receipt of the comments, An interim memo shall document a 50% progress milestone TBD weeks after the date of execution of the Contract.

## **Task II      Ecologic Assessment Update**

The SLCWP ecological assessment shall be reviewed for its accuracy and relevance to current ecological goals, objectives and problems as identified in the latest Southwest Florida Feasibility Study draft work products. The assessment will consider normal wet season and dry season conditions. The ecological assessment will be used to evaluate the updated upstream hydrological-hydraulic model results and the potential conveyance improvements' effect on wetlands and well fields to the east of I-75 and the formulation of recommendations as to the justification, appropriate location, and design of such improvements.

## **Deliverables for Task II**

The deliverable for Task II will be a written report describing the available hydrologic and ecological information of the Southwest Florida Feasibility Study draft work products, including descriptions of hydrology, general ecology, and historic hydrologic patterns and their interrelationships as they relate to habitat values. Differences between the SLCWP Ecologic Assessment and the Southwest Florida Feasibility Study shall be noted in the report.

The Contractor shall provide ten (10) printed copies of a draft report within TBD weeks of the date of execution of the contract. District and Lee County staff will review and request revisions within two (2) weeks of receipt of the deliverable. The Contractor will provide twenty (20) printed copies and one (1) electronic copy of the final deliverable with revisions requested within two (2) weeks from the receipt of the comments. An interim memo shall document a 50% progress milestone TBD weeks after the date of execution of the Contract.

## **Task III      Problem Identification and Plan Formulation Update**

The problem identification and plan formulation portion of the SLCWP shall be reviewed and updated to reflect work completed to date and any changes resulting from the previous deliverables.

## **Deliverables for Task III**

The deliverables for Task III will include a detailed description of the findings on hydrologic-hydraulic performance of the existing water management facilities in the region. The hydrologic summary should describe the rainfall-runoff characteristics of each sub basin. Elaborate on the unique features of each sub basin such as the effect of basin storage, topography, land use, water tables, tailwater conditions, etc. on the overall rainfall-runoff process. Provide tabular and graphical summary of runoff hydrographs of the 5, 10, 25 and 100 year recurrence interval peak flows. The hydraulic summary should describe the performance of existing waterways and water control systems, stage-storage-discharge characteristics, and water surface profiles under the 5, 10, 25 and 100 year recurrence interval peak flow conditions. Differences in the problem identification and plan formulation of the SLCWP and the Task III deliverable shall be identified.

Ten (10) printed copies of a draft of Deliverable III are due within TBD weeks of execution of the contract. The District and Lee County will review and request revisions within three (3) weeks of receipt of the deliverable. Twenty (20) printed copies of the final deliverable including revisions requested are due within two (2) weeks from the receipt of the comments. An interim memo will document a 50% progress milestone TBD weeks after the date of execution of the Contract.

#### **Task IV      Update to Amendment 1 and 2 of the SLCWP**

Amendment 1 and Amendment 2 of the SLCWP shall be updated based on the findings of the previous tasks including: verification of or recommended changes to flow distributions to receiving water bodies; the required flow and conveyance capacity to restore flows to Halfway Creek, the South Branch of Estero River and Spring Creek; identification of downstream impediments to recommended flows; verification of upstream/inflow (1055 cfs which was permitted by the District for the Brooks development) and downstream conveyance capacity; and A control elevation for the culverts under I-75 shall be established to avoid dewatering of upstream wetland systems east of I-75 and to ensure that the culverts do not cause or contribute to the County's well field hydrological or water resource impacts. In addition, the upstream control elevations shall be based on the wet season water table information established from the County water table monitoring network and other available field identifiers until such time a wetland determination that established aerial extent, rim elevation and Uniform Mitigation Assessment Method (UMAM) scores for the property east of I-75 is completed and indicates otherwise. A stakeholder meeting will be conducted to convey these results.

#### **Deliverables for Task IV**

The deliverable for Task IV will be a written report describing the portions of Amendment 1 of the SLCWP that have been verified, any recommended changes and the reasoning supporting the recommendations, and any additional information required under Task IV. Prior to finalizing the report the Contractor shall present the updated Amendment 1 at a stakeholder meeting to be arranged and advertised by the Contractor in coordination with the District and Lee County. The Contractor shall document public comment and summarize the meeting.

The Contractor shall provide ten (10) printed copies of a draft report within TBD weeks of the date of execution of the contract. District and Lee County staff will review and

request revisions within three (3) weeks of receipt of the deliverable. The Contractor shall conduct a stakeholder meeting to present the updated Amendment 1 based on the draft report and comments from the District and Lee County. Documentation of the public comments and a summary of the meeting shall be submitted within one (1) week of the meeting.

The Contractor shall provide ten (10) printed copies of a revised draft report, if necessary based on the stakeholder meeting within TBD weeks of the meeting. District and Lee County staff will review and request revisions within two (2) weeks of receipt of the deliverable. The Contractor will provide twenty (20) printed copies and one (1) electronic copy of the final deliverable with revisions requested within two (2) weeks from the receipt of the comments. An interim memo shall document a 50% progress milestone TBD weeks after the date of execution of the Contract.

## D. Summary Schedule of Tasks and Deliverables

<b>Task</b>	<b>Deliverable</b>	<b>Description</b>	<b>Due Date from NTP</b>	<b>Amount (\$)</b>
Task I	Deliverable IA & IB	Project Orientation and Data Collection	50% Progress -4 wks Draft - 8 wks Final - 12 wks	\$30,000
Task I	Deliverable IC	Model Update	50% Progress - TBD wks Draft – TBD wks Final – TBD wks	TBD
Task II	Deliverable II	Ecologic Assessment Update	50% Progress - TBD wks Draft – TBD wks Final – TBD wks	TBD
Task III	Deliverable III	Problem Identification & Plan Formulation Update	50% Progress - TBD wks Draft – TBD wks Final – TBD wks	TBD
Task IV	Deliverable IV	Update to Amendment 1 of the SLCWP	50% Progress - TBD wks Draft – TBD wks Stakeholder Mtg – TBD wks Revised Draft – TBD wks Final – TBD wks	TBD
<b>Total Not-to-Exceed</b>				TBD

Note: After completion of Deliverable IA and IB, the time frames and deliverable payment amounts for the remaining tasks shall be negotiated based on the information collected. The negotiation shall be finalized in the form of a contract amendment. The time frames shall result in all deliverables being finalized on or before May 14, 2009.

## Attachment A

### List of Documents to be Provided to Consultant For Validation of South Lee County Watershed Plan

1. Link to South Lee County Watershed Plan on Lee County's Web site **(provided)**
2. Copy of staff report with addendum for Permit No. 36-03802-P (I-75 Collier/Lee County Line North to Corkscrew Road/Segment B) issued February 14, 2008 **(provided)**
3. Map of project region with SFWMD permit boundaries and permit numbers and pending permit application numbers **(District)**
4. Copy of cost share agreement between District and Lee County for this contract **(District)**
5. Information supporting the Southwest Florida Feasibility Study **(District)**
6. Pursue electronic copy of SLCWP model **(District)**
7. Pursue electronic copy of any stormwater management system models of projects west of I-75 **(District)**
8. Scope of Work for DRGR Hydrologic/Hydraulic Study **(Lee County)**
9. Topographic information to be used in the DRGR Study **(Lee County)**
10. Any other data compiled for DRGR Study **(Lee County)**
11. Access to Lee County's water table monitoring network data **(Lee County)**