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TASK ORDER NO. XX-XX-SCS/ENV(C)
LITTLE BAYOU CREEK WATER QUALITY MONITORING
ENVIRONMENTAL SERVICES PROJECTS
CITY PROJECT NO. XXX

This Task Order No. XX-XX-SCS/ENV(C) is made and entered into this _____ day of _____, 2023, pursuant to the ARCHITECT/ENGINEERING AGREEMENT FOR MISCELLANEOUS PROFESSIONAL SERVICES FOR ENVIRONMENTAL SERVICES PROJECTS dated June, 2023 (“Agreement”) between Stantec Consulting Services (“A/E”), and the City of St. Petersburg, Florida (“City”), and upon execution shall become a part of the Agreement.

I. DESCRIPTION OF PROJECT

Little Bayou Creek, located in south St. Petersburg, is an urban creek that empties into a shallow bay known as Little Bayou. The creek is classified as a Class III Freshwater body while the receiving waterbody, Little Bayou, is classified as a Class III Marine water. Little Bayou Creek (WBID 1709D) has been identified as an impaired water body due to dissolved oxygen (DO), *Escherichia coli* bacteria, and nutrient concentrations; while Little Bayou (WBID 1709) is impaired based on *Enterococci* bacteria. Prior studies have shown that both fecal coliform bacteria and *Enterococci* bacteria are not restricted to humans as a source, but can come from dogs, cattle, sea birds, and even decomposing vegetation (i.e., Tomasko et al., 2017; Solo-Gabriele et al., 2000; Ksoll et al. 2007).

Background

Existing water quality data within the basin is limited, with historical data collected from the single fixed sampling station within Little Bayou Creek located near 7th Street S. This sampling location was originally monitored by Florida Department of Environmental Protection (FDEP) from April 2008 through December 2012, then in June 2013 the City incorporated this site into their ongoing monitoring program (Station 51-02). The most recent data collected by the City from this site was collected in December 2022. Additionally, the A/E collected surface water samples in Little Bayou Creek at 7th Street S. (adjacent to the City’s current monitoring station) and 4th Street S. (in the basin east of the road) in early 2021 (see Figure 1) as part of the project to support the City in the development of a 4e Plan. Those samples were analyzed for bacteriological and molecular source tracking (MST) analysis. *Escherichia coli* concentrations ranged from 520 - 4,352 cfu/100 mL and were above the Class III freshwater criteria (i.e., 410 cfu/100mL) at the two locations for both sampling events. Fecal indicator bacteria (FIB) results however, were classified as “difficult to discern”, not requiring immediate action (FDEP 2018). Human-generated bacteria were detected at both locations, though sufficient material to allow for MST quantification was only available at each location during a single sampling event and a preliminary assessment indicated that there may be multiple sources of fecal coliform bacteria within the Little Bayou Creek which include human-based sources.

Water quality data within the receiving waters of Little Bayou is also limited. Little Bayou is

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included in WBID 1709, which also contains the waters of Big Bayou. Historical data for WBID 1709 was from a randomized, stratified sampling design with sample locations that varied each time that data were collected and only consisted of field parameters such as salinity/specific conductance, DO, pH, and water temperature.

The City is trying to better understand the factors that contribute to the impairment of the Little Bayou Creek and the effects to the receiving waters of Little Bayou, in order to help manage and restore the water quality to this area. However, due to limited data, there is insufficient information to base sound engineering, mitigation and restoration measures to this watershed. The work presented in the scope below aims to fill some of the gaps.

Water quality and microbial monitoring of Little Bayou Creek and nearshore areas will be conducted over a period of approximately 12 months, in order to help understand the seasonal and spatial sources and magnitude of inputs into the Creek as well as its receiving waters. The efforts proposed below will allow the City to:

1. Understand what is entering Little Bayou Creek from the surrounding watershed, the quantity and timing of these inputs, and how they affect water quality not only in the Creek but also in Little Bayou near the mouth of the creek; and
2. Help the City work towards developing a restoration plan to enhance hydrologic management and improve water quality into Little Bayou, to demonstrate to FDEP that a TMDL for the basin may not be needed.

II. PHASE I SCOPE OF SERVICES

Task 1 – Work Plan Development

A work plan will first be developed in order to provide a guideline on the types, frequencies and details of the information to collect. This Work Plan will form the basis of implementing this work and determining what data is sufficient to help better understand how Little Bayou Creek (and its contributing watershed) affect the receiving waters of Little Bayou. The work proposed encompasses a full year of sampling to ensure data collections are conducted during both wet and dry seasons.

Bi-monthly sampling at 7 locations are proposed to be sampled for a year, over the wet and dry seasons to capture the seasonality of the inputs into the creek and state of impairment of the waterway, but the final locations and frequencies/parameters in this Work Plan may be adjusted based on the City's input. The 7 proposed sampling sites are set up to quantitatively identify the amount of nutrients and microbial concentrations within Little Bayou Creek from various locations along the creek, as well as sites within the receiving waters of Little Bayou (see Figure 2). For this phase of work, MST samples will be collected from each site, frozen and stored for future processed based on subsequent City approval. Further details on the handling of MST samples is presented below.

For this first phase of work, in order to develop a robust understanding of the inputs into the Creek and Bayou, this detailed sampling plan will identify the following:

- **Sampling locations**—it is proposed that samples will be collected from upstream and midstream locations within Little Bayou Creek, as well as sites within the tidal portion of

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the creek and receiving waters of Little Bayou. Seven (7) sites are currently proposed. Two sites are proposed in the upstream area to quantify inputs from the park and lakes that are the open headwaters of Little Bayou Creek. Two non-tidal (midstream) sites are proposed, one along the 7th Street S. bridge and another at the 4th Street S. bridge, that will measure the inputs along the creek and the water entering the adjacent lagoon located east of 4th Street S. Additionally, one (1) tidal mangrove site two (2) sites within Little Bayou are proposed—one (1) north and one (1) south of the mouth of the creek, to obtain data from the receiving waters (see Figure 2).

- **Monitoring parameters**—in addition to field parameters (salinity, temperature, DO, turbidity, and pH), a full suite of nutrient (ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total nitrogen, ortho-phosphorus, total phosphorus) and FIB (*Escherichia coli*, *Enterococcus*, fecal coliform) microbial concentrations will be collected for each site during each sampling event. Additionally, samples will also be collected, field-filtered and frozen for possible future MST analysis to possibly determine if the DNA origin is human or from animal associated markers (i.e., dogs or birds). It is proposed that samples from all sites will be collected and filtered for possible MST analysis. These samples will be held frozen pending the results of the FIB concentrations as part of Task 2 presented below. Based on those results, up to four (4) sites may be selected for MST analysis from two (2) separate sampling events if bacterial “hot spots” are identified. Processing of MST samples for DNA analysis will require subsequent City approval as described below.
- **Sampling frequency**—a bi-monthly (i.e., every other month) sampling frequency is proposed to track the variability in the monitoring parameters. Additionally, two (2) “first flush” sampling events are proposed to capture initial inputs from storm event runoff. First flush samples will be collected from up to four (4) of the sites proposed above and will be in addition to the ongoing/bi-monthly sampling.
- **Flow Monitoring**—in addition to the water quality sampling, in-situ water flows will be recorded at two (2) sites during at total of eight (8) sampling events (i.e., six [6] bi-monthly events and two [2] first flush events). To support flow calculations, channel cross section dimensions will be measured at each site where flow is being measured.
- **Sampling protocols**—this effort will follow the appropriate FDEP SOPs (FDEP QA Rule, Chapter 62-160, F.A.C.) for collection, handling, and analyses of samples, while the analytical procedures will follow Standard Methods and/or EPA methods.
- **QA/QC processes**—this work plan will be conducted in accordance with FDEP’s field protocols and SOPs and adhere to best management practices outlined within that guidance. The laboratory analyses will be conducted by a NELAP-certified laboratory that adheres to the requisite QC protocols on sampling blanks, duplicates, and sample spikes.
- **Reporting and analyses**—~~it is anticipated that~~ a final report will be provided to the City that addresses the data gaps and provides guidance for the next steps in this restoration process. Multivariate and spatially explicit statistical analyses will be used to examine the data collected as appropriate to make inferences and help identify potential future projects.

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Data collection and monitoring to establish a more robust assessment of baseline conditions for the impairments of concern (i.e., nutrients, DO, and bacteria) should address the water quality monitoring component required of a 4e Plan. As mentioned, the development and implementation of the additional MST sample analysis would be considered above and beyond the baseline condition analysis but supports the Evidence of Watershed Approach under the 4e Plan. This water quality information, if combined with available water level/flow monitoring and other environmental data as needed, will support proposed future restoration projects.

Once the A/E and City agree on the details of the work scope, a Work Plan will be developed and provided to the City for approval prior to fieldwork.

Task 2 – Field Sampling and Coordination

The fieldwork will be implemented by qualified A/E staff according to the final Work Plan. Alternatively, field staff from the laboratory contracted to process the samples may be utilized to collect the samples as well. As described above, the general approach will be to sample approximately seven (7) sites every other month for one year plus two (2) additional first flush storm events sampled at up to four (4) sites. The water quality laboratory samples for nutrients and microbial concentrations will be submitted to the selected laboratory for analyses per FDEP or EPA methods. Samples will also be filtered and frozen for future MST analysis as described above. A/E staff will coordinate with the laboratory for sampling kits, bottle receipt, and shipments to the lab after sampling.

Task 3 – Reports

A brief letter Progress Report will be provided on the findings to date after three (3) bi-monthly sampling events, (approximately 6 months after the initiation of sampling) in order to provide feedback on the initial findings and progress to date. This progress report will be provided to the City within 30 days of receiving the results of the third sampling event. Any issues/challenges encountered during the sampling will also be documented within this brief report.

A Draft Project Report will be provided within 60 days of receipt and review of the final sampling data. This report will summarize the observations from the year's sampling and derive conclusions from both the water quality, microbial and flow data as well as provide recommendations for future next steps (e.g., whether further evaluation by conducting analyses for MST is warranted).

III. Options, Exclusions, and Assumptions

- The collection, field-filtering and storage of frozen MST samples will be completed in this project phase (as described above). However, the laboratory processing of up to eight (8) MST samples is included in this scope as an Allowance and will only be conducted if the City and A/E determine there is reason to analyze them (i.e., hot spots). The City will provide written authorization to use the Allowance to process these samples.

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- Bi-monthly sampling is intended to capture water quality conditions in both the wet and dry seasons. A/E may adjust the frequency of sample collections at the City's request based on seasonal weather occurrence; however, the total number of samples will remain as described above.
- No sediment quality sampling or hydrodynamic modeling are included in this Scope of Services.

IV. SCHEDULE

The A/E will begin work under this Task Order, including initial project coordination, no later than 15 business days from written Notice to Proceed. Task 2 of the Scope of Services will be dependent the timeline of Task 1 completion; therefore, the schedule presented below is an estimate based on A/E's past experience and best professional judgement.

Task	Item	Number of days from NTP
1	Work Plan Development and kick-off meeting	45
2	Field sampling and Coordination	Ongoing (12 months)
3	Reporting	
3a	Progress Report	30 days after receipt of 3 rd sampling dataset
3b	Draft/Final Report	45 days after receipt of final sampling dataset

V. A/E'S RESPONSIBILITIES

The A/E shall provide services outlined in Section II, Phase I Scope of Services.

VI. CITY'S RESPONSIBILITIES

- City staff will attend all coordination meetings/conference in the scope above.
- City will provide GIS-based data and exhibits from any relevant surveys or studies of the area including stormwater, sewer, reclaimed water service and other relevant City owned/operated infrastructure or operations within the basin which could contribute nutrient or bacterial concentrations to the creek.
- City will provide A/E access to City owned rights-of-way along Little Bayou Creek and Little Bayou Preserve and will inform Parks staff (and other City staff) of A/E presence and use of areas/sampling needs.
- City staff will be responsible for providing feedback to draft deliverables within two (2) weeks of receipt of documentation.

VII. DELIVERABLES

Task 1 – The proposed meetings and Work Plan scheduled are:

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- A total of three (3) meetings (Kick-off meeting, one (1) planning discussion, draft Work Plan finalization).
- Draft Work Plan submitted for City comment.
- Final Work Plan submitted within two weeks after City staff feedback of the draft Work Plan.

Task 2 – the following meetings, project management/coordination efforts and data deliverables are proposed:

- A total of four (4) quarterly meetings to discuss progress and updates/modifications in sampling with the City.
- Copies of all lab reports will be delivered to the City for each sampling event.

Task 3 – The following submittals will be provided as part of this task:

- Progress Report submitted to City following the third bi-monthly sampling event.
- Draft Report submitted to City for review, with comments expected back within two (2) weeks.
- Final Report that incorporates the City's comments, submitted two (2) weeks after receipt of draft report comments.

VIII. A/E'S COMPENSATION

For Tasks 1 through 3, the City shall compensate the A/E the lump sum amount of \$88,347 per the terms and conditions of the Agreement.

This Task Order establishes an allowance in the amount of \$10,000 for additional services, including processing of MST samples as described above, as well as services not identified in Section II Phase I Scope of Services. Additional services may be performed only upon receipt of prior written authorization from the City and such authorization shall set forth the additional services to be provided by the A/E. The cost for any additional services shall not exceed the amount of the allowance set forth in this Task Order.

The total Task Order amount is \$98,347 per Appendix A.

IX. PROJECT TEAM

Stantec Consulting Services Inc.

X. MISCELLANEOUS

In the event of a conflict between this Task Order and the Agreement, the Agreement shall prevail.

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IN WITNESS WHEREOF the Parties have caused this Task Order to be executed by their duly authorized representatives on the day and date first above written.

ATTEST

CITY OF ST. PETERSBURG, FLORIDA

By: _____
Chandrahasa Srinivasa
City Clerk

By: _____
Brejesh Prayman, P.E., ENV SP, Director
Engineering & Capital Improvements

(SEAL)

APPROVED AS TO FORM FOR CONSISTENCY
WITH THE STANDARD TASK ORDER.
NO OPINION OR APPROVAL OF THE SCOPE
OF SERVICES IS BEING RENDERED BY
THE CITY ATTORNEY'S OFFICE

By: _____
City Attorney (Designee)

Stantec Consulting Services Inc.
(Company Name)

WITNESSES:

By: _____
DRAFT
(Authorized Signatory)

By: _____
(Signature)

Brandon S. Johnson, Environmental Services
(Printed Name and Title)

Sharon Ewe, Principal
(Printed Name)

Date: _____

By: _____
(Signature)

Raymond Dennis III, Principal
(Printed Name)

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Figures

Figure 1. Prior sampling location and initial bacterial sampling sites.

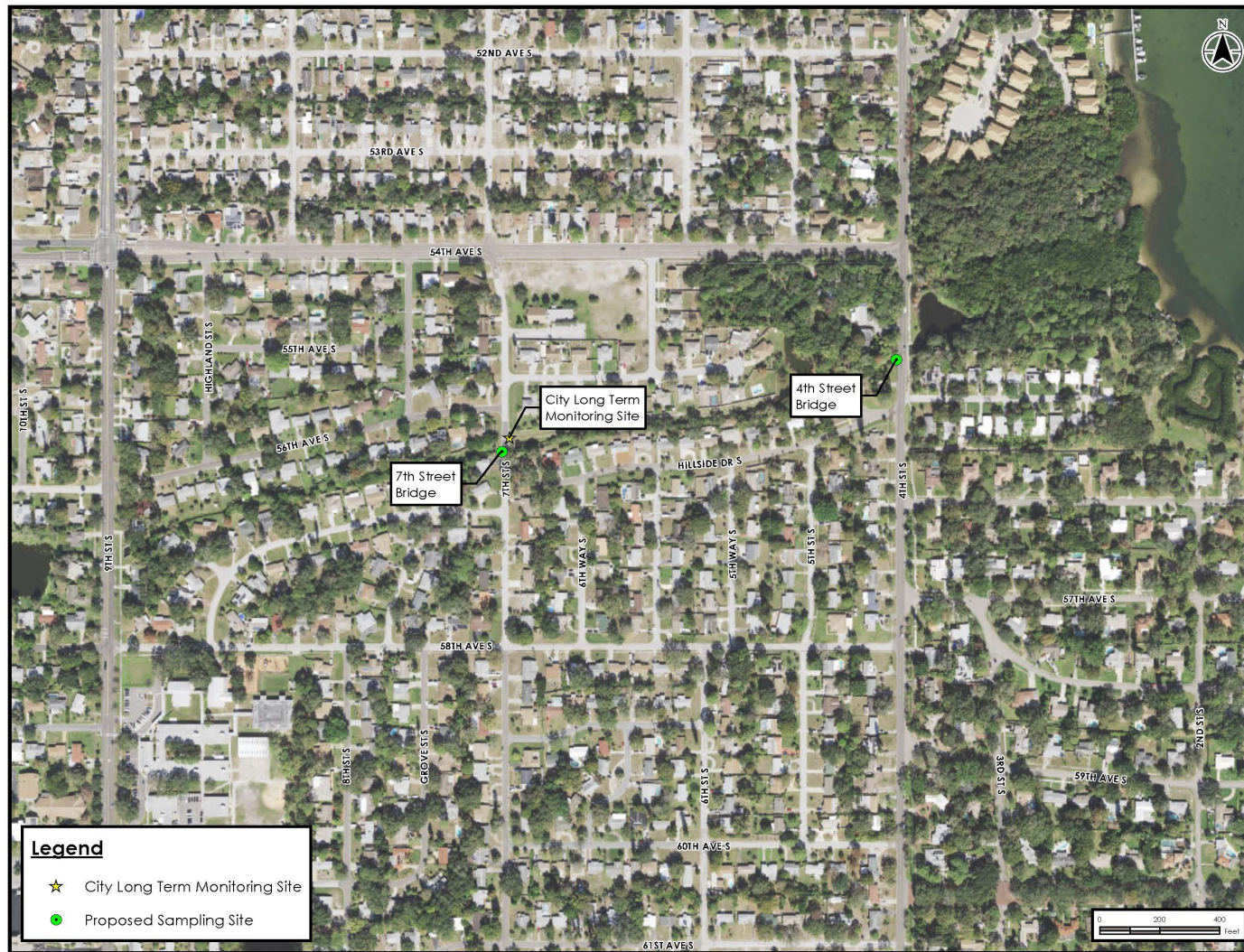


Figure 2. Proposed Water Quality Sampling Stations

