WORK ASSIGNMENT NO. 2020-07ENG PURSUANT TO SEPTEMBER 13, 2016, AGREEMENT BETWEEN THE CITY OF VENICE, FLORIDA, AND TAYLOR ENGINEERING, INC.

WHEREAS, on September 13, 2016, the City of Venice, Florida ("OWNER") and ***Taylor Engineering, Inc.*** ("CONSULTANT"), entered into an Agreement whereby the CONSULTANT would perform professional services for the OWNER pursuant to an executed Work Assignment; and

WHEREAS, the OWNER and CONSULTANT agreed to extend the Agreement for an additional year on September 9, 2019; and

WHEREAS, the OWNER wishes to authorize the CONSULTANT to perform professional services concerning ***Venice Beach Stormwater Outfall Monitoring, Prioritization and Reporting*** as more particularly described in the Scope of Services herein; and

WHEREAS, the CONSULTANT wishes to perform such professional services,

NOW THEREFORE, in consideration of the premises and mutual covenants contained in the September 13, 2016, Agreement and this Work Assignment, the parties agree as follows:

1. General description of project. CONSULTANT will provide Stormwater Outfall Monitoring, Prioritization and Reporting services for five (5) priority outfalls within the City. The monitoring includes event-based flowmeters and flow weighted sampling for a period of six (6 months). The monitoring data results will be evaluated to prioritize outfalls and used to provide a basis for subsequent alternatives analysis modeling. The monitoring data results will be used under this scope of work to update/calibrate the previously assumed values for runoff coefficient and event mean concentration values. These data will also provide a basis for the alternative's analysis modeling. CONSULTANT will identify the most effective alternatives for achieving the OWNER's goals and develop conceptual designs for priority outfall projects. CONSULTANT will prepare a final report summarizing the results, benefit/cost analysis, and an outline of recommendations for future work. This scope of work is part of a large overall project that will be funded in combination with City funds and grant funds through the Southwest Florida Water Management District and the Florida Department of Environmental Protection (FDEP). Work

performed under this work assignment will be funded through a combination of City and SWFWMD funds.

2. Scope of Services. CONSULTANT shall perform the services described in the Scope of Services attached hereto as Attachment "A." This Scope of Services can only be completed if 2020-08ENG is authorized within 1 month of the execution of this contract as the work shall occur concurrently.
3. Compensation to be paid. OWNER shall pay the CONSULTANT the sum of ***one hundred and sixty-five thousand, four hundred and forty-six dollars and zero cents ($165,446.00)*** for performance of the professional services specified in this Work Assignment.
4. Time for completion. CONSULTANT shall complete the professional services specified in this Work Assignment by twelve (12) months after CONSULTANT's receipt of a fully-executed Work Assignment.
5. The terms and conditions of the September 13, 2016, Agreement shall remain in full force and effect until the completion of this Work Assignment.

IN WITNESS WHEREOF, the parties have executed this Work Assignment on the ____ day of _____, 2020.

CONSULTANT

Taylor Engineering, Inc.

ATTEST:

City Clerk

CITY OF VENICE, FLORIDA

Mayor Ron Feinsod

ATTACHMENT A
Scope of Services

WA NO. 2020-07ENG – STORMWATER OUTFALL MONITORING & REPORTING

INTRODUCTION: Taylor Engineering (CONSULTANT) was selected by City of Venice (OWNER) pursuant to Request for Qualifications #3033-17 which OWNER advertised pursuant to Section 287.055, Florida Statutes (F.S.) and the applicable procedures of the OWNER. OWNER desires that CONSULTANT perform certain on-going and necessary services as described in the following Work Assignment. CONSULTANT agrees to perform the following tasks through a combination of in-house and subcontracted labor.

BACKGROUND The OWNER has multiple stormwater outfalls which discharge untreated storm water directly into the Gulf of Mexico, Roberts Bay and the Intracoastal Waterway. These outfalls are located on the island of Venice and are connected to an urban stormwater system that was installed in the 1920's. The persistent red tide off the southwest coast of Florida has generated increased scrutiny of the quality of runoff from these outfalls. The OWNER has embarked on an aggressive effort to monitor their outfalls, identify pollutant loads, prioritize outfalls, and develop best management practices (BMPs) to reduce loading from these priority outfalls. Under the initial Work Assignment, CONSULTANT performed modeling effort using the Southwest Florida Water Management District (District) ICPR model to define the drainage basins and sub-basins for major outfalls. These model results were compared to event-based sampling and monitoring results for sixteen (16) City-determined priority outfalls.

This scope of work is part of a larger City-wide outfall monitoring project being funded in part by both the Southwest Florida Water Management District (SWFWMD) and the Florida Department of Environmental Protection (FDEP) to identify up to five (5) priority outfalls for additional monitoring using flowmeters and flow-weighted composite water quality sampling, evaluation and prioritization of outfalls based on pollutant loading, and final reporting which describes the data collection, methodology, BMP alternatives evaluated, and recommendations for subsequent design project(s). A portion of the overall project outlined herein this scope of work shall be funded through a SWFWMD grant with 50% matching City funds. Similarly, a portion of the overall project will be funded through FDEP grant funds under a separate work assignment (WA No. 2020-08ENG). Authorization of both work assignments will occur concurrently, and all work progress and billing shall be tracked separately.

Task 1: Project Kickoff Meeting and Site Selection

The CONSULTANT and SUBCONSULTANT will attend a project kick-off meeting with the OWNER at the potential monitoring sites. The meeting will allow the details of the proposed work effort to be discussed, including: schedule, contact information, contract management, and site access and security. The site meeting with the OWNER will also discuss the proposed field activities and identify the specific monitoring station locations. The station locations have generally been estimated based upon the site conditions, access, monitoring needs and functionality of the proposed equipment. The CONSULTANT and SUBCONSULTANT shall review the final site conditions to determine the final location of the station platforms to be installed, the water quality sample withdrawal location, and the velocity meter site for each of the five stations. The station locations will be recorded on a GPS enabled Arc Pad with an aerial photograph as a base map. Outfalls 2, 5, 8, 10, 14 and 17 will be considered for monitoring.

Deliverables: None.

Task 2: Monitoring Equipment Acquisition and Installation

The monitoring program is proposed to begin in immediately upon execution of the agreement herein, presumably March 2020 and continued through August 30th, 2020 following installation of equipment. The installation of the onsite monitoring system equipment will occur during March 2020 (upon contract authorization). Additional monitoring beyond August 30th may be necessary depending on the number of rain events in the spring and early summer months. Sampling results through August 30th will be included in the draft report and any subsequent samples collected after August 30th within the work assignment obtain prior to completion of the final report will be incorporated as available. A listing of the proposed equipment is provided in Exhibit A. This list may be revised depending upon the results of the final site survey.

Shelter - Wooden platforms will be pre-constructed and delivered to the site and anchored adjacent to the bank, culvert or control structure. Aluminum/fiberglass shelters will be bolted to the platform to house and secure the sampling equipment.

Stage/velocity Equipment - The velocity at all five stations will be measured with integrated area velocity or flow meters installed within the culvert, channel or adjacent to the control structures. Preliminary siting would include monitoring one of the two culverts for Outfall 2. Outfalls 5 and 8 would be monitored along the overflow channel and Outfall 10 would be monitored at the control structure. Outfalls 14 and 17 would be monitored in the culvert adjacent to the roadway at an inlet. At most locations floor mounts or scissor mounts will be used to properly position the flow sensors. The velocity meters are directly wired into the ISCO automatic samplers or dataloggers described below.

Rainfall - Rainfall data will be collected by tipping bucket rain gauges installed at each site and integrated into the ISCO automatic samplers or dataloggers. The project site data shall be compared to that of a nearby weather station.

Automatic Sampler - An ISCO Avalanche or Glacier Composite Sampler shall be installed at each of the five stations for the collection of storm-event water quality composite samples. These refrigerated units will be installed on the wooden platforms inside the shelter. Each sampler will be linked to a deep cycle battery(s) with a solar panel to keep it in a constant state of charge. The solar panel will be affixed to the top of a pole adjacent to each shelter. The refrigeration is designed to activate upon initiation of sample collection and will keep the samples chilled at or below EPA recommended 4 degrees Celsius until the CONSULTANT arrives to retrieve the sample. The vinyl suction sample tubing will be placed within a protective pipe originating from the shelter to allow for sample collection near the bottom of the water within the channel or culvert. The automatic samplers will be integrated with the velocity meters in order to be activated and regulated by the area discharge relationship for collection of a flow-weighted composite sample. The CONSULTANT will program and calibrate the automated samplers prior to the initial sampling event. At least two of the automatic samplers will send a text message out to the CONSULTANT when the samplers are activated.

Deliverables: None.

Task 3: Storm-Event and Baseflow Monitoring

The monitoring program involves those activities necessary to measure discharge, calibrate and maintain sampling equipment, record rainfall, and perform storm event sampling from completion of mobilization until the end of the study. Note that this scope f work

Stage/Velocity - In order to accurately program the automatic samplers to collect a flow-weighted composite sample, it is critical to have accurate area discharge relationships set for each of the five sites. To define the flow area based upon stage the cross-section area of the outfall channels at Outfalls 5 and 8 will be surveyed. The ISCOs are pre-program with this information for culverts and it can easily be calculated for box culverts.

The velocity meters will be set to record stage and discharge at 15-minute increments. The stage/velocity data shall be uploaded during each site visit and reviewed to look for potential problems and corrective measures required. They will be inspected at least monthly, cleaned of any debris, recalibrated and maintained as necessary to keep them properly functioning. To address the potential influence of the tides, the velocity meter used will be capable of detecting flow direction and speed.

The CONSULTANT team will equip each site with the tipping bucket rain gauge. The rain gauge will serve to activate the site for sampling after 0.2 inches of rainfall. The ISCO automatic sampler will be set to only sample on positive (outgoing) flows, on a flow weighted basis. This design will prevent sampling of the tidal waters but will capture the water discharging from the outfall.

Data Downloads and Maintenance - The stations will be visited regularly to download the rainfall and discharge data. Maintenance shall occur at least once a month and involve cleaning the velocity meters and rain gages, recalibrating and reprogramming the ISCO, changing out batteries, and replacing the sample tubing as necessary.

Automatic Samplers - The automatic samplers shall be used to collect 6 to 10 storm event samples from March 2020 through August 30, 2020. The storm events will focus on discrete rainfall events greater than 0.2 inches. The automatic samplers will be programmed to collect flow proportionate samples based upon calculated discharge from the velocity meters. As noted above, an accurate stage discharge relationship is critical to the proper programming of the automatic samplers. The initial sampler programming will be based upon the water quality model for each basin.

A two-stage process is proposed to trigger the automatic samplers. First, the rain gauge shall need to record at least 0.2 inches of rainfall. This will then notify the automatic sampler to sample based upon a specified positive discharge volume. Sampling will not occur during negative discharge conditions at that station.

The storm flow discharge and area discharge relationships at each station will be reviewed in order to derive the sampling program for each composite sampler. The composite storm event sample may consist of equal sub samples collected at variable frequency, based upon flow or variably sized sub samples will be collected at a consistent time interval. The sub samples will be composited into a 10-liter (2.6 gallon) glass jar. The initiation of the sampling event will activate the refrigeration system to properly chill the sample until collection. Also, upon activation of sampling, the automated samplers will notify the CONSULTANT that a sample is being collected through its alarm call-out procedure.

All storm event and base-flow samples shall be collected within 24 hours of sampling completion. Each sample will be preserved as required by FDEP Standard Operating procedures and placed in a cooler with ice. Field filtering of the samples is not proposed and will be conducted by the laboratory. Generally, the cooler with the samples shall be delivered promptly to the laboratory, with appropriate chain of custody forms completed

The CONSULTANT team shall have each storm-flow event sample analyzed for ammonia nitrogen, nitrite and nitrate nitrogen, TKN, total nitrogen, orthophosphorus, total phosphorus, total suspended solids, turbidity, enterococci and fecal coliform bacteria. Sampling for bacteria shall be by grab sample if standing water is present at the station. If standing water is absent, then the bacteria will be sampled from the composite sample (note that bacteria analysis of the composite sample may not lead to consistent results). The laboratory shall enter the analysis results into an Excel spreadsheet and provide it

with a lab report to the CONSULTANT's QA/QC officer. The QA/QC officer will review the data results, chain of custody form, sample hold times, and laboratory precision and accuracy data to assure the validity of the data. Field and equipment blanks as well as duplicate samples shall be collected pursuant to the Florida Department Of Environmental Protection's Standard Operating Procedures (SOPs).

In addition to the above parameters, a YSI or comparable data sonde shall also be used to measure the pH, specific conductivity, salinity, water temperature and dissolved oxygen levels at each station concurrent with sample collection. The data sonde measurements will be conducted in the composite sample jar if no standing water is present at the station. Field readings will be recorded on field data sheets and general field observations will be noted.

The automatic samplers shall be inspected and cleaned after sample collection. The samplers will be designed to purge one to two volumes of sample through the tube prior to collection of the sample. The end of the sample tubing shall be inspected and cleaned as necessary to remove any debris or buildup. The sample tubing and jar shall be thoroughly rinsed with DI water following the collection of each storm event sample if a Propac bag is not used. The sample tubing and sample collection jar shall be returned to the laboratory for a thorough cleaning as indicated by the equipment blank. At least one week will elapse between successive storm event monitoring samples or until the preceding storm event has completely discharged from the system.

Deliverables: None.

Task 4: Storm Event Monitoring Analysis, Model Update for Outfall Prioritization and Report

Following completion of monitoring period, CONSULTANT team will analyze the data and create a composite of parameters and measurements. As a result of the analysis, CONSULTANT will refine (calibrate) the previously assumed values for runoff coefficient (C) and event mean concentration (EMC) used in the SIMPLE-Seasonal pollutant load modeling to be consistent with the site-specific flow and water quality data collected in Task 3 of this scope.

The results of the monitoring program and updated current-conditions pollutant loading analysis will be summarized and evaluated in a final report. An electronic copy of the draft final report will be provided to the OWNER for review and comment within 75 days of the completion of field monitoring. The draft final report shall include: an executive summary; description of site equipment; data collection methodology; a description of the data and all methods of data collection for flow, *in-situ* parameters, rainfall, and storm event water quality data; a summary of all flow monitoring and field sampling conducted; description of hydrologic and hydraulic conditions; methodology used to update/calibrate C and EMC values in the refined pollutant loading analysis, and updated pollutant load modeling results. In addition, appendices containing the laboratory QAP, field data and data sheets, sample data and flow data shall be included.

The OWNER's comments on the draft final report will be incorporated into a final report and four copies will be submitted within thirty days from receipt of OWNER comments. Copies of all collected data will be provided in electronic format on CD.

Deliverables: Draft and Final Report submitted digitally in PDF.

Task 5: Stormwater Improvement Alternatives Analysis

CONSULTANT will conduct an alternatives analysis of potential water quality improvements aimed at reducing pollutant concentrations in stormwater discharges from the Island of Venice. From an initial array of potential alternatives, CONSULTANT will develop a prioritized list of recommended alternatives. This task consists of several subtasks described below:

5.1 Identify Potential BMP Alternatives

CONSULTANT will identify an initial array of alternatives (up to 15) on the Island of Venice for initial screening-level analysis. The list of potential alternatives will be developed based on the results of the current conditions pollutant loading analysis previously conducted, and the results of the initial water quality sampling, and input from OWNER staff.

5.2 Field Reconnaissance and Meeting with OWNER Staff

CONSULTANT will conduct field reconnaissance of potential BMP sites and will meet with OWNER staff to discuss and finalize the array of initial alternatives for screening-level analysis.

5.3 Modeling/Screening of Initial Alternatives

Using the current-conditions pollutant loading model previously developed by CONSULTANT and updated under Task 1 of Addendum 1, screening-level estimates of pollutant load reductions will be prepared for the initial array of potential alternatives.

5.5 Identify Subset of Preferred Alternatives for Detailed Evaluation

Based on the outcome of the initial modeling analysis, feasibility, and consideration of other OWNER objectives (i.e., reducing the number of beach outfalls, and reducing the frequency of beach closures), the CONSULTANT will identify a sub-set of 6 most effective alternatives for achieving the OWNER's goals of reducing discharges of fecal coliform, enterococci bacteria, nutrients, and suspended solids, reducing the number of beach outfalls, and reducing the frequency of beach closures.

5.6 Conceptual Design and Modeling Refinements

Conceptual schematic design drawings will be prepared by the CONSULTANT for the 6 alternatives selected for detailed evaluation. The treatment capacities and removal efficiencies will be refined based on an evaluation of site constraints including available land/right-of-way, maintenance access, soils, etc., as well as input from OWNER staff. The pollutant loading model will be updated to include the conceptual design of the 6 selected alternatives.

5.7 Engineer's Opinion of Cost

CONSULTANT will prepare conceptual-level opinions of probable construction cost based on the conceptual designs of the 6 selected alternatives. Annual maintenance costs will also be estimated using SWFWMD's guidelines for cooperative funding applications.

5.8 Cost/Benefit Analysis and BMP Rankings

CONSULTANT prepare an analysis of costs per pound of pollutants removed for each of the 6 selected alternatives. The analysis will generally follow SWFWMD guidelines for cooperative funding applications. This task will provide technical information adequate to support an application

for cooperative funding to SWFWMD; assistance in preparing the application itself is not included herein but can be provided under an additional authorization if desired by OWNER.

5.9 Summary Alternatives Analysis Technical Memorandum

The stormwater improvements alternatives analysis and results will be described in a draft technical memorandum for the OWNERs review. This task includes a meeting with OWNER staff to present the results of the draft memorandum. Upon receipt of OWNER's review comments on the draft memorandum, CONSULTANT will prepare a final Technical Memorandum.

Deliverables: Draft and Final Technical memorandum submitted electronically to the OWNER.

Task 6: Project Coordination and Grant Reporting Assistance

CONSULTANT will coordination monthly sampling events and provide monthly updates to OWNER throughout the 6-month monitoring period via phone conference. CONSULTANT will assist the OWNER with grant required reporting and deliverables as needed. CONSULTANT will also provide monthly updates to OWNER regarding modeling and alternatives analysis. We will assist the OWNER will grant required reporting and deliverables as needed and prepare monthly summary memos for a period of 6 months during outfall monitoring and sampling and for the duration of the modeling analysis

Contingency Task: Additional Monitoring (per Month)

Should the City desire to extend the monitoring program beyond the initial six months (January through June 30th), Taylor Engineering will prepare a separate proposal to perform additional monitoring on a month to month basis as required.

FEES

CONSULTANT will initiate the work immediately upon execution of the Notice to Proceed. We will prepare invoices on the basis of percent complete for each task. The total number of units for storm event monitoring mobilization, equipment rental and data reports are based upon 5 sites and 6 months of monitoring for the large overall project (as referenced in the Background portion of this scope). The total overall project storm event sample collection is based upon 10 events at 5 sites. Data download/maintenance events numbers are based upon monthly maintenance for six months at five sites. The data download number reflects weekly downloads for six months (26 events) at 5 sites, less the 30 monthly data download/maintenance events. The fees associated with conducing the overall project are divided among the work assignment herein and WA 2020-08. The fees outlined below include 3 months of monitoring (half the duration for the entire project) and a portion of the fee necessary to conduct the modeling updates, outfall alternatives and prioritization analysis, and reporting (tasks 4 through 6).

TAYLOR ENGINEERING, INC.
COST SUMMARY BY TASK
STORMWATER OUTFALL EVENT BASED MONITORING & REPORTING

TASK 1: Project Kickoff Meeting and Site Selection

Labor	Hours	Cost ($)	Task Totals
Principal	3.0	663.00	
Project Professional	8.0	1,064.00	
Total Man-Hours	11.0		
Labor Cost			1,727.00
Non-Labor	Units	Cost ($)	
VHB	1.0	5,575.00	
Total Non-Labor Cost			5,575.00
Total Task 1			$ 7,302.00

TASK 2: Monitoring Equipment and Acquisition

Labor	Hours	Cost ($)	Task Totals
Principal	2.0	442.00	
Project Professional	8.0	1,064.00	
Staff Professional	4.0	412.00	
Total Man-Hours	14.0		
Labor Cost			1,918.00
Non-Labor	Units	Cost ($)	
VHB Monitoring Equipment Mob/Demob (5 sites)	2.5	13,750.00	
VHB - Monitoring Rental Equipment (5 sites, 6 months)	600.0	18,000.00	
Total Non-Labor Cost			31,750.00
Total Task 2			$ 33,668.00

TASK 3: Storm Event and Baseflow Monitoring

Labor	Hours	Cost ($)	Task Totals
Principal	6.0	1,326.00	
Project Professional	24.0	3,192.00	
Total Man-Hours	30.0		
Labor Cost			4,518.00
Non-Labor	Units	Cost ($)	
VHB - Storm Event Data Downloads (5 sites, weekly downloads for 6 months)	225.0	22,500.00	
VHB - Storm Event Data Downloads w/Maintenance (monthly maintain, 6 mo, 5 sites)	367.5	11,025.00	
VHB - Storm Event Monitoring Sample Collection (10 events @ 5 sites)	25.0	22,500.00	
VHB - Storm Event Monitoring Data Reports (Monthly)	1,562.5	9,375.00	
Total Non-Labor Cost			65,400.00
Total Task 3			$ 69,918.00

TASK 4: Monitoring Analysis, Model Update for Outfall Prioritization, and Report

Labor	Hours	Cost ($)	Task Totals
Principal	14.0	3,094.00	
Project Professional	23.0	3,059.00	
Staff Professional	42.0	4,326.00	
Total Man-Hours	79.0		
Labor Cost			10,479.00
Non-Labor	Units	Cost ($)	
VHB - Storm Event Monitoring Draft and Final Reports	1.0	10,500.00	
Total Non-Labor Cost			10,500.00
Total Task 4			$ 20,979.00

TASK 5: Stormwater Improvement Alternatives Analysis

Labor	Hours	Cost ($)	Task Totals
Principal	38.0	8,398.00	
Project Professional	73.0	9,709.00	
Staff Professional	96.0	9,888.00	
Editor	8.0	928.00	
Administrative	2.0	122.00	
Total Man-Hours	217.0		
Labor Cost			29,045.00
Total Task 5			$ 29,045.00

TASK 6: Project Management and Coordination

Labor	Hours	Cost ($)	Task Totals
Project Professional	24.0	3,192.00	
Administrative	22.0	1,342.00	
Total Man-Hours	46.0		
Labor Cost			4,534.00
Total Task 6			$ 4,534.00

Project Total	**$165,446.00**

EXHIBIT A

Summary of Proposed Monitoring Equipment

Data Type	Site(s)	Equipment
Velocity	All	750 Module and Standard Area Velocity Sensor, 2150 module or Sontek IQ
Automatic Water Sampling	All	ISCO Avalanche/Glacier Composite Sampler with 10 liter (2.6 gallon) glass bottle
Rain Gauge	All	674 Rain Gauge (tipping Bucket)
Modem	Sites 14/17 and 10	6712ci modem module

ATTACHMENT B
CONSULTANT'S HOURLY RATES
TAYLOR ENGINEERING, INC.

Labor Category	Hourly Rate ($)
President	$320
Principal	221
Senior Advisor	231
Director	196
Senior Professional	182
Project Professional	133
Staff Professional	103
Editor	116
Sr. Technical Support	156
Technical Support	100
Administrative	61

Rates are effective from September 13, 2019 to September 12, 2020. Hourly Rates are inclusive of overhead and profit. Special Consultants and Direct Project Expenses will be billed at actual cost with no markup.