MEMORANDUM

COPY

DATE: October 22, 2020

TO: ****ORIGINAL****
City Clerk

FROM: Robyn Holder, CPPB
Procurement Management Department

SUBJECT: Record Retention

CONTRACT: #20170132 Amendment #3
CONTRACT TITLE: Design Services for the Westport Wastewater Treatment Plant Expansion

VENDOR NAME: Reiss Engineering
VENDOR ADDRESS: 1016 Spring Villas Pt.
CITY & STATE: Winter Park, FL 342708

APPROVED BY COUNCIL: February 26, 2018
7b)- Design Services for the Westport Wastewater Treatment Plant Expansion – Phase 1 Contract #20170132. Contract Period is 7/1/2019 to 2/5/2020

Amendment #1 Amount: $73,197.55

APPROVED BY COUNCIL: July 27, 2020
7h) – Design Services for the Westport Wastewater Treatment Plant Expansion – Phase 1 – Contract #20170132. Contract period 2/6/2020 to 4/28/2020.

Amendment #2 Amount: $119,772.50

APPROVED BY COUNCIL: N/A

Amendment #3 Amount: ($96,289.50) Contract end date: 3/13/2023

Contract # 20170132 Amendment #3

Contract #20170132 Amendment #3 Date: 10/22/20

Contract Title: Design Services for the Westport Wastewater Treatment Expansion

Contractor's Name: Reiss Engineering

Amendment Start Date: October 12, 2020
Amendment End Date: May 10, 2021
Revised Contract End Date: March 13, 2023
Amendment Total: **($96,289.50)**

The following modifications to the Terms and Conditions contained in Contract#20170132 between Reiss Engineering dated March 5, 2018 and the City of Port St. Lucie are hereby incorporated and made a part of that Contract/Agreement. All other terms and conditions of the original contract and/or Addenda remain in full force and effect.

SECTION I: Scope of Services: The following is a detailed description of the engineering services to be provided.

A. BACKGROUND

The City of Port St. Lucie (City) contracted with Reiss Engineering, Inc. (REI) to perform design and construction services for the Westport Wastewater Treatment Facility (WWTF) Expansion (Contract #20170132 executed on March 5, 2018). The expansion is planned to be performed into 2 parts, Part 1 consisting of improving the existing process to address several operational issues currently being experienced at the facility and Part 2 consisting of the construction of additional process components.

Part 1 is in the process of being completed. The bidding process was underway for Part 2 when new nutrient reduction regulations were implemented impacting the effluent treatment limits for the facility.

The City requested that REI provide additional preliminary design services for the facility to meet the new effluent standards at the current capacity of 5.36 million gallons per day (MGD) at average day flow (ADF)/ permitted capacity of 6.00 MGD three-month rolling (ADF).

The City has also requested REI to provide an alternative evaluation for diverting flows from the Southport wastewater booster pump station (WWBPS) and out-of-specification flows from Westport WWTF to the Glades WWTF. A new force main is proposed between Westport WWTF and Rangeline water and repump station to connect to an existing 24-inch force main that discharges to the Glades WWBS. Opinions of probable construction costs are also included.

B. SCOPE OF SERVICES

The following amendments to the Engineer's Scope of Services will assist the City in the implementation of the Westport WWTF upgrades. Under this authorization the Engineer will assist the City through the following additional services:

TASK 6A. CONSTRUCTION PHASE SERVICES (PART 1) ALLOWANCE

The Engineer will provide services under time and material conditions for the interim period between October 1, 2020 to the completion of the project. An allowance is established to provide services under this task. Examples of work to be performed under this task include providing coordination, submittal review, and RFI responses for the City's Contractor, site visits by the EOR and/or site visits by REI's structural or electrical engineer.

Services are to be provided on a time and material basis in accordance with REI's rate sheet in the original agreement up to the allowance amount, not to exceed $119,727.50 (including $18,000) from Task 7).

TASK 7. RPR SERVICES (PART 1)

Engineer is no longer providing RPR services for Part 1. As such, $18,000 is being relocated to Task 6A as time and material funds.

TASK 8. PROVIDE ADDITIONAL PRELIMINARY ENGINEERING SERVICES (PART 2)

Engineer shall complete a Basis of Design (BOD) for the Westport WWTF to meet the new total nitrogen and total phosphorus limits as described further below.

Task 8.1 – Basis of Design Criteria and Workshop

The Engineer will prepare a draft BOD to modify the existing Westport WWTF to comply with the new effluent treatment standards established by FDEP for public access reuse (PAR) in the January 2020, St. Lucie River and Estuary Basin Management Actin Plan (BMAP). The BMAP established PAR effluent treatment standards for total nitrogen of 10 mg/L, and total phosphorus of 6.0 mg/l.

The Engineer will perform an evaluation of the biological treatment system, including BioWin (process) modeling, to determine the required aeration basin sizing to meet the new nitrogen limit. The nitrogen removal process will be evaluated based on varying internal recycle pumping capacities at 2Q, 3Q, and 4Q based on a Q of 5.36 and 6.00 MGD. All influent data and plant process data previously collected and analyzed will be used to run the updated process model. One new aeration basin is anticipated to be required to provide sufficient treatment for nitrogen removal. The Engineer shall also perform an assessment to identify a potential reduction of the new aeration basin footprint, assuming water levels can reasonability be raised within the three existing aeration basins.

The Engineer will not evaluate biological treatment processes for phosphorus removal to comply with the 6.0 mg/l effluent phosphorus standard. The Engineer will model and estimate the phosphorus removed through the waste activated sludge, to support an understanding of removal rates through the existing treatment processes. Any additional phosphorus removal necessary to comply with the 6.0 mg/l effluent phosphorus

standard will be achieved through chemical precipitation. The Engineer shall establish BOD design criteria for a chemical phosphorous removal system based on the process modeling results and influent sampling data provided by the city.

The existing surface aerators will be replaced with a fine bubble aeration system. Air to the fine bubble diffusers will be supplied by new aeration blowers, housed in a sound attenuated building. The Engineer shall perform an evaluation of diffusers and blowers and establish the appropriate and recommended design criteria for the new diffused aeration system.

The Engineer will evaluate the capacity of the three existing clarifiers, based on Ten State Standards and Class I Reliability, and identify if the existing clarifiers are adequately sized for the current design flows. The need/benefit of adding an equalization basin to meet clarifier and/or other process design standards will be evaluated. If an equalization basin is not needed/required to retain the current rated capacity, provisions will be provided in the BOD to consider the addition of a new equalization basin in the future. The Engineer will evaluate historical diurnal flow patterns to establish an appropriate sizing for a future equalization basin.

The City wishes to retain the current headworks and grit removal system at the Westport WWTF. In the event the improvements contemplated above drive the need for a new or modified headworks, BOD criteria will be developed for a new or modified headworks facility in the future.

The Engineer will evaluate and address the hydraulics of the WWTF with the addition of the improvements contemplated above. The BOD criteria will establish the associated hydraulic grade line for the new processes and will identify internal recycle and pipe sizing criteria required for the WWTF improvements.

The Engineer will evaluate the necessary electrical and I&C improvements to support the proposed process improvements and new equipment. BOD criteria for the additions and/or modifications recommended for the existing electrical and I&C system will be established and discussed.

The Engineer will coordinate with, and meet with, FDEP to establish how FDEP will implement the new BMAP nutrient limits in the future, and to determine if flow equalization will be required under existing and future WWTF conditions. The Engineer will identify and present all required permitting requirements for the new improvements, and for future improvements to meet the new BMAP nutrient limits.

The Engineer will prepare a preliminary opinion of probable construction costs for the new improvements and potential future equalization basin, if required.

Following the completion of the assessments noted above, the Engineer will prepare a PowerPoint presentation summarizing the draft BOD criteria for the WWTF improvements. A BOD workshop will be held via a video teleconference call with the City. The results of the workshop will be used for development of the BOD document.

Task 8.2 – Basis of Design Report

The Engineer will develop a BOD report for the plant upgrades. The BOD document will be based on a permitted capacity 5.36 MGD annual average day flow and will establish the biological loadings, effluent water quality standards and system reliability requirements that will be used to size unit process modifications. The BOD document will represent the City-approved design concept coming out of the BOD Workshop. A draft and final BOD report will be provided to the City with a review meeting with City staff after the draft document is submitted to the City.

TASK 13. RPR SERVICES

This task has been deleted from the Scope of Services in its entirety.

TASK 15. HYDRAULIC EVALUATION AND COST ESTIMATION

Task 15.1 – Model Construction

REI will construct a limited independent hydraulic model using the InfoWater software. The model will use steady state simulation. The independent model will be limited to the facilities of interest and will consist the following structure:

1. Southport WWBPS
    a. Pump station and pump curves will be built based on information provided by the City.
2. Existing 24-inch force main from Southport WWBPS to Westport WWTF
3. Westport WWTP reject discharge
    a. The discharge point will be represented by junctions to obtain system curves. No pumps will be constructed.
4. A new force main from Westport WTF to the Rangeline Water Storage and Repump station.
    a. There are two (2) pipe routes and tie-in locations provided by the City. These two (2) routes will be evaluated.
    b. The 24-in will be evaluated in the model. An alternative pipe diameter (30-in or 36-in) will be determined by the City for evaluation after the evaluation after the 24-in is completed.
5. Existing 24-inch force main from Rangeline to the Glades WWBPS
    a. Pump station and pump curves will be built based on information provided by the City
    b. Flow entering the wetwell from east will be provided by the City
6. The Glades WWBPS
    a. Pump station and pump curves will be built based on information provided by the City
    b. Flow entering the wet well from east will be provided by the City
7. The 24-inch force main from Glades WWBPS to Glades WWTF
    a. Junctions representing future flows from Copper Creek and Verano will be included based on data from City

Task 15.2 – Scenarios

A base route will be selected by the City for the start of model simulation. The four (4) pipe routes provided by the City will be simulated with 100% Copper Creek and Verano future flows. Table 1. shows the scenarios will be constructed and evaluated in the model.

Table 1. Model Scenarios

Scenario #	Pipe Routing	Pumps on at SPWWBPS	Pumps on at GWWBPS	New Force Main Size (inches)	Reject flow at WWTF	Future flows from Copper Creek and Verano
1	Base	N-1	N-1	24	0	0%
2	Base	N-1	N-1	24	0	25%
3	Base	N-1	N-1	24	0	50%
4	Base	N-1	N-1	24	0	100%
4a	Route 1	N-1	N-1	24	0	100%
4b	Route 2	N-1	N-1	24	0	100%
5	Base	0	N-1	24	Generate system curve	0%
6	Base	0	N-1	24	Generate system curve	25%
7	Base	0	N-1	24	Generate system curve	50%
8	Base	0	N-1	24	Generate system curve	100%
8a	Route 1	0	N-1	24	Generate system curve	100%
8b	Route 2	0	N-1	24	Generate system curve	100%
9	Base	N-1	N-1	30 or 36	0	0%
10	Base	N-1	N-1	30 or 36	0	25%
11	Base	N-1	N-1	30 or 36	0	50%
12	Base	N-1	N-1	30 or 36	0	100%
12a	Route 1	N-1	N-1	30 or 36	0	100%
12b	Route 2	N-1	N-1	30 or 36	0	100%
13	Base	0	N-1	30 or 36	Generate system curve	0%
14	Base	0	N-1	30 or 36	Generate system curve	25%
15	Base	0	N-1	30 or 36	Generate system curve	50%
16	Base	0	N-1	30 or 36	Generate system curve	100%
16a	Route 1	0	N-1	30 or 36	Generate system curve	100%
16b	Route 2	0	N-1	30 or 36	Generate system curve	100%

Task 15.3 – Hydraulic Evaluation

The hydraulic evaluation aims to understand the system hydraulic performance in the event of future flow diversion, which is represented by the 32 aforementioned scenarios. The hydraulic evaluation will be focused on the following:

1. The pumping capacities at the Southport WWBPS and Glades WWBPS. REI will compare the firm (N-1) capacities to the inflow provided by the City
2. The velocities in the pipelines included in the system. REI will compare the velocities to the

maximum allowed force main velocity (assumed to be 4 fps)

3. The system curves at Westport WWTF reject flow discharge location, Southport WWBPS, and Glades WWBPS

Based on the results, REI will evaluate up to two (2) alternatives to address the potential issues predicted in the model if needed. The alternatives will consider upsizing pipes and/or upgrading pumps at appropriate locations to optimize the hydraulic performance of the system. REI will discuss with the City and gain City's approval for the alternatives before performing the alternative analysis. Based on the results, the City will select one (1) pipe size for cost estimate.

Task 15.4 – Technical Memorandum

REI will document the method and findings of the hydraulic analysis in a brief technical memorandum. A GIS map will be provided to demonstrate the model constructed. A brief description will be provided to document the evaluation performed. Tables and graphs will be provided to report the results of the hydraulic evaluation. REI will provide the draft technical memorandum (PDF) to the City for review and comments. REI will incorporate City's comments and issue a final technical memorandum (PDF) to the City after the review.

Task 15.5 – Engineers Opinion of Probable Construction Costs

Based on the pipe size the City selects, REI will prepare opinions of probable construction costs for up to four (4) pipe routes for the new force main from Westport WWTF to Rangeline. An estimate of this type is normally expected to be accurate within plus 30 percent to minus 15 percent of the estimated cost. No cost estimate will be performed for any modifications of treatment facility or pump station.

C. TIME OF PERFORMANCE

Engineer shall perform additional services as follows:

Task (Part 2 Revised)	Commencing	Days
Task 8 – Additional Preliminary Engineering Services (Part 2)	From Date of Amendment 3 NTP by the City	120
Task 15 – Hydraulic Evaluation and Cost Estimates	From Date of Amendment 3 NTP by the City	90

D. COMPENSATION

For the professional services set forth in this amendment to the Specific Authorization, the City shall pay the Engineer an additional lump sum fee on a percent complete basis for Tasks 8, 9A,10, and 15 as outlined below.

Task (Part 1 and 2)	Original Fee Plus Amendment 1&2 Fee	Additional Fee	Total Amended Fee
Task 1 – Project Administration (Part 1 and 2)	$186,600.00	0	$186,600.00
Task (Part 1 – Process Improvements)	**Original Fee Plus Amendment 1&2 Fee**	**Additional Fee**	**Total Amended Fee**
Task 2 – Preliminary Engineering Services (Part 1)	$39,560.00	$0	$39,560.00
Surveying	$21,700.00	$0	$21,700.00
Geotech	$7,285.00	$0	$7,285.00
SUE	$1,500.00	$0	$1,500.00
Task 3 – Permitting (Part 1)	$14,530.00	$0	$14,530.00
Permit Fees	$800.00	$0	$800.00
Task 4 – Final Design (Part 1)	$180,850.00	$0	$180,850.00
Task 5 – Bidding Services (Part 1)	$19,235.00	$0	$19,235.00
Task 6 – Construction Phase Services (Part 1)	$254,067.25	$33,000	$287,067.25
Task 7 – RPR Services (Part 1) (LESS REI CONTRIBUTION)	$187,484.00	-$18,000	$169,484.00
Fee Total (Tasks 2 – 7)	**$727,011.25**	**$15,000**	**$742,011.25**

Task (Part 2 – Facility Expansion)	Original Fee Plus Amendment 1&2 Fee	Additional Fee	Total Amended Fee
Task 8 – Preliminary Engineering Services	$395,724.00	$0	$395,724.00
Geotech	$32,440.00	$0	$32,440
SUE	$4,000.00	$0	$4,000
Survey for FPL easement	$0	$1,800	$1,800
Additional Preliminary Engineering Services	$0	$198,321.00	$198,321.00
Task 9 – Permitting	$40,689.00	$0	$40,689.00
Permit Fees	$5,300.00	$0	$5,300.00
Task 9A – Operating Permit Renewal Assistance	$0	$7,852.50	$7,852.50
Task 10 – Final Design	$1,385,029.00	$9,800	$1,394,829.00
Task 11 – Bidding Services	$46,272.00	$0	$46,272.00
Task 12 – Construction Phase Services	$838,960.00	$0	$838,960.00
Task 13 – RPR Services	$387,520.00	$-387,520.00	$0
Task 14 – Post-Construction Optimization	$21,000.00	$0	$21,000.00
Task 15 – Hydraulic Evaluation and Cost Estimates	$0	$58,457.00	$58,457.00
Total Fee (Tasks 8 – 14)	**$3,156,934.00**	**-$111,289.50**	**$3,045,644.50**
Grand Total Fee (Tasks 1 – 14)	**$4,070,545.25**	**-$96,289.50**	**$3,974,255.75**

IN WITNESS WHEREOF, the parties have executed this contract, the day and year first above written.

CITY OF PORT ST. LUCIE FLORIDA

By: _____
City Purchasing Agent

REISS ENGINEERING, INC.

By: _____
Authorized Representative

Printed Name: C. Robert Reiss

State of: Florida County of: Seminole

Before me personally appeared: C. Robert Reiss
(Please print)

Please check one:

Personally known ✓
Produced Identification: _____
(Type of identification)

and known to me to be the person described in and who executed the foregoing instrument and acknowledged to and before me that he executed said instrument for the purposes therein expressed.
(s/he)

WITNESS my hand and official seal, this 16th day of October, 2020.

Kimberly Jones
Notary Signature

Kimberly Jones
NOTARY PUBLIC
STATE OF FLORIDA
Comm# GG136890
Expires 9/25/2021

Notary Public State of Florida at Large.

My Commission Expires 9/25/2024.

(seal)