

TASK ORDER No. 25

Dated the _____ day of _____ 2013

CITY PROJECT No. 11883

CITY OF FORT LAUDERDALE NE 20th AVENUE AT VICTORIA PARK NEIGHBORHOOD DRAINAGE IMPROVEMENT PROJECT PRELIMINARY DESIGN REPORT STUDY

On May 3, 2011 the City Commission authorized a Continuing Services Agreement with CDM Smith Inc. (Consultant) for the General Wastewater Consulting Professional Architectural - Engineering Services (RFQ No. 606-10482) associated with the City's wastewater and stormwater systems ("Master Agreement") as amended and approved by City Commission on May 1, 2012. This Task Order is being performed under the terms and conditions of the Amended Master Agreement.

BACKGROUND

The City manages a stormwater infrastructure service area that covers approximately 23,000 acres. The Victoria Park neighborhood is located in Fort Lauderdale and is bounded to the west by Federal Highway, to the east by the Middle River, to the north by Sunrise Boulevard and to the south by Broward Boulevard. The study area for this project is the northeastern portion of Victoria Park which has been experiencing repetitive flooding, specifically the lowest lying area bounded by NE 19th Avenue to the west, to the east by the Middle River, to the north Sunrise Boulevard and to the south by the Karen Canal as shown in **Figure 1** attached. The Project Area is located in the Federal Emergency Management Agency (FEMA) identified 100 year floodplain as shown on flood insurance rate map number 12011C0217F.

The purpose of this task order is to investigate and propose solutions for mitigation of flooding in the study area. The Consultant shall build upon the 2010 City of Fort Lauderdale Stormwater Master Plan (SWMP) to update and refine data for the project area stormwater system improvement analysis. The amount of flood reduction will largely depend on the tidal backflow control and the discharge rates of potential recharge wells and exfiltration systems. Due to the variability of the soils and geotechnical data across the study area, it was recommended in the SWMP that additional geotechnical data be developed to refine the design and further quantify the flood reduction benefits.

SCOPE OF SERVICES

Task 1 –Data Evaluations

The Consultant shall review and analyze available digitally published information and available record drawings and studies on the existing stormwater infrastructure, flooding complaints, geotechnical and hydrogeological subsurface conditions in the project area from the City of Fort Lauderdale, Broward County EPGMD, USGS, SFWMD, and FDEP to define known geotechnical data to be used in the stormwater modeling simulations.

Task 2 –Stormwater Model Refinement

The Consultant shall base the stormwater model for the proposed solution(s) in the project area on the Victoria Park neighborhood analysis identified in Section 7.7 of the 2009 CDM Stormwater Master Plan. The Consultant shall refine the existing SWMP US EPA Storm Water Management Model (SWMM) with the refined geotechnical, infrastructure, and survey data. These model changes shall consist of further detailing the northeastern area of the basin to allow for an analysis of the flooding in the project area. The refinement shall include the creation of six (6) additional subbasins, creating the existing stormwater management system in the study area consisting of overland flow connections to the existing basins to the west as well as between the new subbasins which includes the existing outfalls and associated seawall overflows if applicable, and the existing collection and conveyance system in the study area for a total of up to thirty-five (35) new conduits, and up to fourteen (14) new model nodes. This model refinement is necessary in order to provide the hydraulic detail necessary to run the alternatives analyses in Task 3.

Task 3 –Stormwater System Alternatives Analysis

The Consultant shall use the refined existing conditions model to simulate the 2-, 5-, and 10-year 24-hour design storms, as well as the 25-year 72-hour design storm. It should be noted that the 100-year design storm is not being simulated as FEMA flood map 12011C0217F shows the entire area inundated.

Based on the history of the area with respect to tidally induced flooding, the Consultant shall run the aforementioned simulations with two downstream boundary conditions, one representative of normal tidal conditions, and one representative of historical, elevated tidal conditions, as provided by the City.

The Consultant shall produce summary tables of peak stages and flows for the system under existing conditions for the four design storms under two boundary conditions (for a total of 8 simulations) to be used as a baseline against which potential improvements shall be measured.

Two stormwater management alternatives shall be developed by the Consultant for the project area along with a corresponding conceptual infrastructure layout and planning-level estimate of capital costs for each alternative using the refined model.

The two alternatives shall include the most effective combinations of the following measures:

- Street and ROW re-grading and inlet adjustments

- Exfiltration trenches where topographically feasible (invert of pipe must be at or above seasonal high groundwater table)
- Stormwater recharge wells based on empirical transmissivity data of existing similar wells or data provided by the City
- Tidal backflow prevention devices
- Potential seawall height modifications
- Potential pumped outfall (within permitting requirements)

The Consultant shall group the components into two alternatives for evaluation. Due to the cost and availability of land acquisition in the area, the consultant shall not analyze the potential of developing traditional retention and detention stormwater management facilities, however, a total equivalent storage volume requirement shall be calculated and provided for comparative purposes.

The Consultant shall quantify the amount of flow into the study area from the west, and investigate the potential for up-gradient interception and management of floodwaters for the most effective combination of improvements. The Consultant shall use the alternative condition SWMMs to simulate the 2-, 5-, and 10-year 24-hour design storms, as well as the 25-year 72-hour design storm. Consultant shall run the aforementioned simulations with two downstream boundary conditions, one representative of normal tidal conditions (mean high tide elevation per regulatory requirements) , and one representative of elevated astronomical seasonal high-tidal conditions experienced in the fall (both non-storm surge induced).

The Consultant shall produce figures of the layouts showing the conceptual design for two alternatives and develop summary tables of peak stages and peak outfall flows for the system under the two alternative scenarios for the four (4) design storms under two (2) boundary conditions (for a total of 16 simulations) to summarize the potential flood control benefits. The Consultant shall estimate conceptual capital costs and implementation schedule for the two alternatives for comparison with peak flood stage reduction.

A 60% progress update summary will be generated and provided electronically to the City following the initial modeling efforts describing the interim progress, preliminary findings, issues, concerns, action items, and work remaining.

Task 4 – Preliminary Design Report

The Consultant shall develop a preliminary design report summarizing the investigations and analyses performed in Task 1 through 3. The report will contain the data and alternatives analyzed the conceptual infrastructure requirements needed to mitigate flooding in the NE 20th Avenue study area, along with conceptual capital costs and schedules for design and implementation of the recommended alternative. This information shall be supported with appropriate tables and figures as necessary.

Task 5 – Meetings and Presentation

The Consultant shall attend two (2) meetings for the project. This shall include one kickoff meeting and one meeting to present the findings of the alternatives analysis. The Consultant shall produce summary meeting notes from the meetings.

Task 6 - Project Management and Quality Control

The Consultant shall provide Project Management and Quality Management which will run concurrent to the project execution.

DATA OR ASSISTANCE TO BE PROVIDED BY THE CITY

- a. Available survey, geotechnical data, and easements within the Victoria Park Neighborhood. Additional required survey spot elevations shall be performed by the City during the project as necessary.
- b. Seawall elevations in project area.
- c. Updated flooding map complaint data from October 2011 storm.
- d. City inspectors' documentation and pictures of different rain events, high tides events, and consequent flooding for past years in the study area.
- e. Meeting attendance.
- f. Existing record drawings for water, wastewater, and stormwater facilities in the project area, as well as atlas, zoning, roadway, and special right-of-way information, parcel information as needed in GIS or CAD format.
- g. Assistance with field verification of existing structures as requested and escort of the Consultant or sub-consultants within project site and on private property as required.
- h. Timely reviews of submittals.

DELIVERABLES

The deliverables for this Task Order shall be the electronic transmittal in pdf format of: the kickoff and final meeting minutes, the 60% progress summary, and the draft and final Preliminary Design Report containing the data, alternatives analyses, figures of the conceptual design for each alternative, conceptual capital cost estimates, and schedules for design and construction of the preferred flood control alternatives.

TIME OF COMPLETION

Scope of Services shall be completed within 14 weeks from the notice to proceed and signed purchase order and receipt of required data and assuming timely reviews.

PAYMENT AND COMPENSATION

Invoicing for the services shall be monthly based on services performed and cost incurred. A status report shall accompany each progress invoicing. A breakdown of the labor estimate is provided in **Attachment 1**.

CITY CONTACTS

Requests for payments should be directed to City of Fort Lauderdale Accounts Payable via e-mail to AcctsPayble@FortLauderdale.gov. All other correspondence and submittals should be directed to the attention of Elkin Diaz, P.E. at the address shown below.

City of Fort Lauderdale
City Hall, 4th Floor – Engineering
100 North Andrews Avenue
Fort Lauderdale, FL 33301

CONSULTANT CONTACTS

Stewart Magenheimer, P.G.
CDM Smith Inc.
6365 NW 6th Way # 200
Fort Lauderdale, FL 33309
954 776-1731

CONSULTANT SERVICES

<u>Labor Category (Hourly Rate)</u>	<u>Hours</u>
Officer (\$190)	0
Senior Quality Officer (\$225)	0
Senior Quality Manager (\$205)	21
Principal/Associate (\$170)	85
Senior Professional (\$150)	150
Professional II (\$125)	138
Professional I (\$100)	96
Senior Support Services (\$115)	46
Staff Support Services (\$75)	44
<u>Project Administration (\$65)</u>	<u>6</u>
Total Estimated Hours	586
*Total Estimated Labor Cost (Not To Exceed) \$	77,085

CONSULTANT:

Witnesses:

CDM Smith Inc.

Signature

By: _____
Title: Associate

Printed Name

ATTEST:

Signature

By: _____
Title: Assistant Secretary

Printed Name

STATE OF FLORIDA:
COUNTY OF BROWARD:

BEFORE ME, an officer duly authorized by law to administer oaths and take acknowledgments, on the _____ day of _____, 20__ personally appeared Jonathan Z. Goldman P.E., BCEE as Associate, and Mario Marcaccio, as Assistant Secretary of CDM Smith, a Massachusetts corporation, authorized to do business in the State of Florida, and acknowledged they executed the foregoing Agreement as the proper officials of CDM Smith Inc. , for the use and purposes mentioned in it and they affixed the official seal of the legal entity, and that the instrument is the act and deed of that entity.

(SEAL)

Notary Public, State of Florida
(Signature of Notary taking Acknowledgment)

Maria C. Monroe
Name of Notary Typed, Printed or Stamped
My Commission Expires: February 18, 2013
Commission Number: DD0862647

IN WITNESS OF THE FOREGOING, the parties have set their hands and seals the day and year first above written.

CITY OF FORT LAUDERDALE, a municipal corporation of the State of Florida:

By _____
LEE R. FELDMAN, City Manager

(CORPORATE SEAL)

ATTEST:

JONDA K. JOSEPH, City Clerk

Approved as to form:

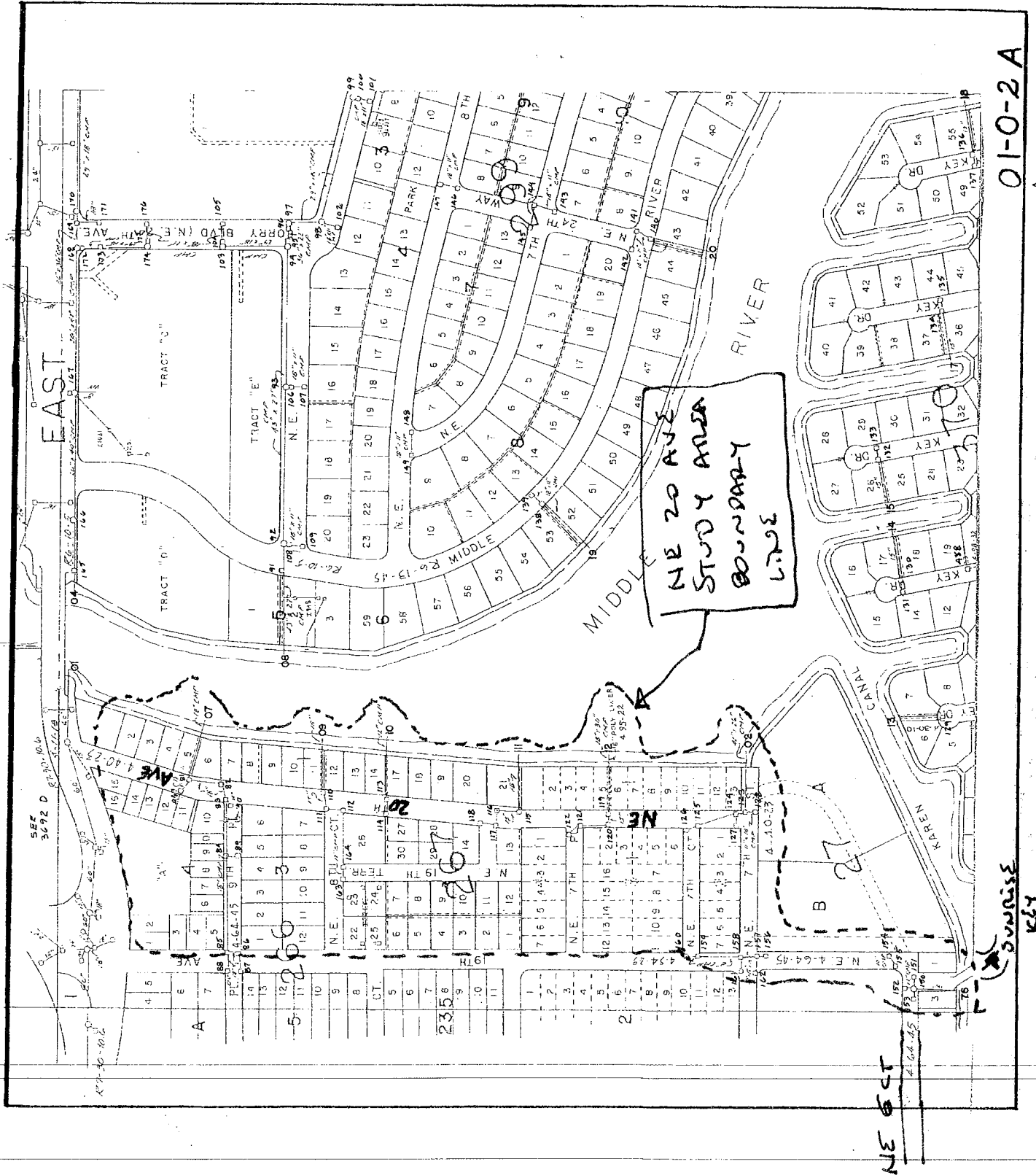
CARRIE L. SARVER
Assistant City Attorney

City of Fort Lauderdale
 Northeast 20 Avenue Stormwater System Improvements Preliminary Design Report
 Project Budget Estimate

8-Jan-13

Task Description	OFFICER	SENIOR QUALITY MGR	PRINCIPAL/ ASSOCIATE	SENIOR PROF	PROF II	PROF I	SENIOR SUPPORT	STAFF SUPPORT	PROJECT ADMIN	Total Hours	Labor Costs
1. Data Investigations	0	0	8	16	8	0	2	4	0	38	\$5,290
2. Stormwater Model Refinement	0	0	16	20	40	20	4	4	0	104	\$13,480
3. Stormwater System Alternatives Analysis	0	0	2	8	24	8	2	0	0	44	\$5,570
- SWMM Modeling	0	0	2	10	4	8	0	0	0	24	\$3,140
- Hydraulics	0	0	8	2	0	2	2	0	0	14	\$2,090
- Hydrogeology	0	0	2	12	4	8	2	2	0	30	\$3,820
- Engineering Analysis	0	0	2	16	4	10	14	2	0	48	\$6,000
- Design	0	0	8	24	8	16	4	4	0	64	\$8,320
- Conceptual Cost Estimates	0	0	16	16	40	18	16	16	0	122	\$14,960
4. Preliminary Design Report	0	0	2	2	2	2	0	1	0	9	\$1,165
5. Meetings and Presentation	0	0	2	2	4	4	0	1	0	13	\$1,615
- Kickoff Meeting	0	0	0	0	0	0	0	0	0	0	0
- Final Presentation Meeting	0	0	0	20	0	0	0	2	6	28	\$3,540
6. Project Management and Quality Control	0	0	1	0	0	0	0	2	0	7	\$1,140
- Project Management / Contract Administration	0	0	16	2	0	0	0	6	0	41	\$6,955
- Quality Management / Quality Control	0	17	85	150	138	96	46	44	6	586	\$ 77,085
- Technical Reviews	0	21	85	150	138	96	46	44	6	586	\$ 77,085
Labor Hours	0	21	85	150	138	96	46	44	6	586	\$ 77,085
Percentage Labor Hours	0%	4%	15%	26%	24%	16%	8%	8%	1%		
Labor Rate	\$190	\$205	\$170	\$150	\$125	\$100	\$115	\$75	\$65		
Labor Cost	\$0	\$4,305	\$14,450	\$22,500	\$17,250	\$9,600	\$5,290	\$3,300	\$390		

For Fee Estimation Purposes Only - Not To Be Used for Invoicing. Actual hours may vary per category depending on tasks assigned. Other labor categories and hours may be applicable to the services as allowable in the Master Agreement.



01-0-2A

Survey
KBY