



# Memo

To: Clay Pearson, City Manager  
From: Skipper Jones, Assistant Director  
CC: Trent Epperson, Assistant City Manager  
Robert D. Upton, P.E., Director Engineering  
Clarence Wittwer, Director Public Works  
David Van Riper, Assistant Director Public Works  
Date: April 16, 2020  
Re: Surface Water Material Testing Contract

4/16/2020  
To: Mayor and City Council members  
Update on the new surface water treatment plant construction generally, site pictures at the end. Also background on forthcoming materials testing contract that's required and anticipated. Another large, good competitive group of professionals vying to work with the City of Pearland. Clay

## Purpose

This memo provides information about the progress on the Surface Water Treatment Plant project's current status and the forthcoming proposed award of a contract for Construction Material Testing. This contract is scheduled for presentation to Council on the May 4, 2020 meeting agenda.

## Background

The Surface Water Treatment Plant project is proposed to provide up to 10 million gallons per day (MGD) of safe clean drinking water for the citizens of Pearland beginning in January 2023. This facility will supplement ground and other surface water sources currently in operation and reduce the City's dependence on expensive water supplied through an existing take or pay contract with the City of Houston on the far west side of the City. Design of the facility was split into 3 packages and awarded separately with Freese & Nichols managing Package 1 Site Drainage and Raw Water Lift; CDM Smith managing Package 2 Treatment Plant and associated facilities; Stantec managing Package 3, high service pumps and building, ground storage and transmission lines. CDM Smith submitted 90% plans in mid-March and both Freese & Nichols and Stantec will submit 90% by the end of April 2020. Council awarded the Construction Manager At Risk contract to PLW Water Works in April 2019 and awarded the Early Works Package 1 (EWP1), in the amount of \$7,479,256.00 on February 10. Early Works Package 2 (EWP2) was awarded to PLW on April 8 in the amount of \$13,758,502. Plans for both Early Works Packages along with bid packages for both packages have been submitted to Texas Water Development Board (TWDB) for establishing cost reimbursement through the loan.

## Current Status

Selected work items from these packages, unassociated with the actual plant or its final water product, are currently underway on the site. With work beginning on site it is important to record and demonstrate that any material to be installed meets specifications and conforms with the plans and specifications. This is the purview of the Construction Materials Testing consultant who will conduct a full range of material testing and record keeping throughout the project. On January 16, 2020 Staff conducted a mandatory pre-Proposal meeting in Council Chambers to discuss the details of the Request for Qualifications (RFQ) for Construction Materials Testing for the Surface Water Plant. The RFQ package contained information regarding the engineering design firms associated with each package, a description of the project and schedule expectations, information regarding funding sources and budget and a description of the materials testing

procurement process. Copies of the 60% plans from all three design packages were included to provide specific information as to the scope of services that would be required and the type of environment in which the work would be performed. The RFQ specifically asked for the firm's information regarding the following:

- Past experience and performance with similar governmental plant type projects
- Experience and quality of Key personnel that would be assigned to the project
- Requested client references form similar past projects
- General information such as Organizational structure, Management, Safety record and Quality Assurance procedures
- The firm's particular and specific approach to this project and its Q/A- Q/C requirements

On February 6, the City received ten (10) full responses from well-respected local testing firms. The selection committee, consisting of the Staff Project Manager and three members of the Owner's Representative reviewed qualifications and assigned scores to each category then ranked the responses. A score for interviews was included in the table as a potential tie breaker if qualification scores were too close to justify a clear single selection. As it turned out interviews were not necessary. Terracon was selected as most qualified and had recently performed extremely well on the Reflection Bay Water Reclamation Facility (RBWRF) project.

Results of the Selection Committee's review of Qualification Submittals:

Candidate Testing Firms			Qualification Scores									
Comparative Evaluation Criteria	Scoring Method	Braun Intertec	Construction Science LLC / Raba Kistner	All-Terra Engineering	PSI Inc	Terracon	Tolunay Wong	Earth Engineering	ECS Southwest	Geoscience Engineering & Testing / HVJ	HVJ Assoc teamed w? Geoscience Engr	
Pass / Fail	Pass/ Fail											
Responsive		F	P	F	F	P	F	F	F	F	F	
Licensing and registration		P	P	P	P	P	P	P	P	P	P	
Experience Threshold - 3 projects in last 5 years		F	P	F	F	P	F	F	F	P	P	
Safety record - EMR < 0.8		F	P	????	P	P	P	F	P	F	F	
Point Score basis	Points											
Qualifications (Maximum Points)	85	57	67	54	57	70	58	56	61	66	65	
Experience	25	16	20	16	16	25	16.7	17	17.8	22	22	
Key Personnel	20	16	19	16	16	18	17	16	17.2	18	18	
Client References	10											
Organization, management & safety	10	8	9	7	8	9	8	8	9	8	8	
Project approach & ability to meet schedule	20	17	19	15	17	18	16.3	15	17	18	17	
Interview, if required (Maximum Points)	15											
<b>TOTAL</b>	<b>100</b>	<b>57</b>	<b>67</b>	<b>54</b>	<b>57</b>	<b>70</b>	<b>58</b>	<b>56</b>	<b>61</b>	<b>66</b>	<b>65</b>	
<b>RANK</b>		<b>7</b>	<b>2</b>	<b>10</b>	<b>7</b>	<b>1</b>	<b>6</b>	<b>9</b>	<b>5</b>	<b>3</b>	<b>4</b>	

Based on this selection, Terracon was contacted and requested to put together the list of testing used during the RBWRF project and to run that through their assessment of the requirements for the Surface Water plant. Categories for testing include Earthwork, Auger Cast Pile foundations, Drilled and Under-reamed foundations, Shallow Footing type foundations, Cast-In-Place (structural) Concrete, Structural Steel welds and bolted connections, Masonry, Site Concrete (flatwork) and Asphalt Pavement. Fees are based on technician time and materials based on On-Site hours, plus vehicle and testing equipment. Laboratory Fees are based on the numbers of specific tests at a specified rate per test. This covers soil densities and physical definition as well as destructive testing of concrete cylinders, asphalt cubes and grout compressive strengths. Additionally, there are hours to project management and engineering support. The proposal is broken into On-Site work and Off-Site Transmission Line testing which will consist mostly of technician hours for backfill compaction and the occasional concrete cylinder sample and testing. As manhours and numbers of tests

cannot be accurately estimated from the available data the fee proposal is considered a BUDGET ESTIMATE. The estimated Budget for Testing Services is \$462,860.00. This includes:

For On-Site services

- 3200-man hours of technician regular time plus 480 overtime hours
- A second technician 160 hours to meet construction schedule requirements
- 240-man hours of certified welding inspector
- 105 hours of auger cast pile testing plus 10 days equipment time
- 87 hours of coating inspection plus 10 days equipment time
- All laboratory testing, including 1120 concrete cylinder tests, soil testing, lime determinations, etc.
  - 320-man hours of Project Manager, 160 Clerical Hours and 100 Project Engineer hours

For Off-Site Services

- 720-man hours of technician time plus 240 overtime hours
- All Laboratory testing for the transmission lines
- 48-man hours for Project Management, 48 hours of Clerical and 12 hours of Project Engineer

If testing requirements, manhours or numbers of tests, change the total value of the contract could change. However, manhours have been calculated including straight time and overtime and the numbers of tests have been calculated to prevent overrunning the estimate under normal circumstances.

**Next Steps**

With construction beginning, it is important to get the testing lab on board to follow any field developments and begin their record keeping. Work included in EWP1 will require removal of existing unsuitable soils and replacement with a general fill material that will need to be tested for meeting specifications and then density tested as it is put in place. Upon TWDB's approval, EWP2 will contain structural concrete as well as several different types of foundations. Soil densities and concrete testing will become mandatory for quality control and project records. For those reasons it is critical to put this contract in place at this time so that material testing records follow every aspect of the CMAR's work.

The Current schedule has the CMAR beginning to put together the final GMP for the balance of the project. All three design Packages will attain the 90% completion criteria to allow the CMAR to begin that work in earnest by the end of April. Delivery of the final GMP is scheduled for August this year. During this time the final plans from all three Packages will be sealed for review and submitted to City Permit final review, TWDB/ TCEQ for final reviews in May. Comments will be addressed, and final submissions sent back as final project documents shortly thereafter. Once the CMAR has submitted the final GMP and all details resolved, Staff will bring the final GMP to Council for a final authorization for construction of the remaining.

**Budget Info**

Funding Sources	Series	To Date	Future	Total Budget
W/S Revenue Bonds	2017B	6,012,500		6,012,500
Impact Fee - Debt	2017B	6,012,500		6,012,500
W/S Revenue Bonds	2018A	4,325,000		4,325,000
Impact Fee - Debt	2018A	4,325,000		4,325,000

W/S Revenue Bonds	2019A	10,500,000		10,500,000
Impact Fee - Debt	2019A	10,500,000		10,500,000
W/S Revenue Bonds	Future		68,362,500	68,362,500
Impact Fee - Debt	Future		68,362,500	68,362,500
Cash				-
Other Funding Sources				-
<b>Total Funding Sources</b>		<b>41,675,000</b>	<b>136,725,000</b>	<b>178,400,000</b>

<b>Expenditures</b>	<b>To Date</b>	<b>Future</b>	<b>Total</b>
PER	9,376,810		9,376,810
Land	14,000	1,900,000	1,914,000
Design	12,399,981		12,399,981
Construction (Pre-Construction)	1,093,320		1,093,320
Construction (Early Work Package 1)	7,479,256		7,479,256
Construction (Early Work Package 2)	13,758,502		13,758,502
Construction		114,750,000	114,750,000
Construction Management/Inspection		2,000,000	2,000,000
Construction Materials Testing		462,860	462,860
FF&E		1,000,000	1,000,000
<b>Total Expenditures</b>	<b>44,121,868</b>	<b>120,112,860</b>	<b>164,234,728</b>

<b>Project Balance/Contingency</b>	<b>14,165,272</b>
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### Schedule Info

At this time, the project is on schedule; design packages are meeting delivery schedules and will all attain the 90% milestone the end of April. The CMAR's efforts are on track with scheduled plans for beginning work in the field. Bid packages for EWP1 and EWP2 are both at TWDB going through approvals and should be finalized well before the end of April.

	<b>Base Line</b>	<b>Current</b>
<b>Design Start - Package 1</b>	August-19	September-19
<b>Design Start - Package 2</b>	February-19	March-19
<b>Design Start - Package 3</b>	August-19	September-19
<b>Bid Start *</b>	March-20	January-19
<b>Construction Start</b>	May- 20	Apr-20
<b>Proposed Construction Completion</b>	December-22	

Rain Days: N/A

\*This project was procured through the Construction Manager at Risk (CMAR) process. The original base line schedule was projected using the design-bid-build process. In January 2019 the City advertised for a CMAR contractor.

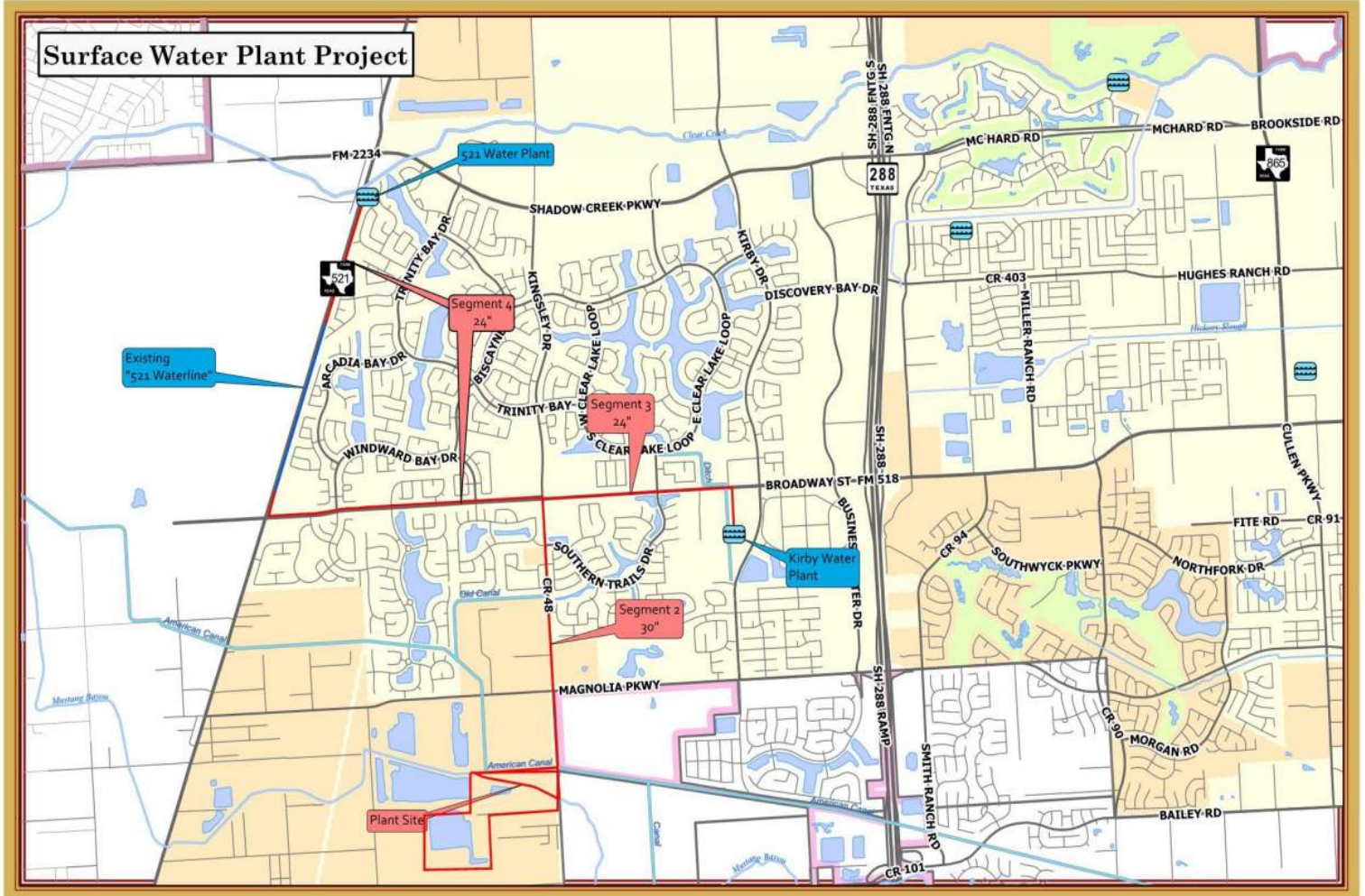
### Recommendation

On April 27<sup>th</sup> Staff will recommend that Council approve the Materials testing contract with Terracon in the amount of \$462,860.00

## Previous Memos

6/10/16, 2/2/17, 3/9/17, 4/13/17, 3/29/18, 01/10/19, 08/01/19, 08/08/19, 12/05/19, 1/23/20, 3/05/20

## Map



## City of Pearland – COVID 19 Evaluation Matrix for Capital Project Investments

	<b>Early Work Package No. 2 – Surface Water Treatment Plant</b>	<b>Construction Material Testing – Surface Water Plant</b>
<b>Importance/ Urgency/ Benefit of Investment</b>	<ul style="list-style-type: none"> <li>• Early Work Package No. 1 – Phase 1 of construction (site work, drainage, detention, select fill, etc) already approved and underway</li> <li>• Construction of 2 million gallon ground storage tank, deep foundations for substantial facilities, early equipment purchases, valves and piping for plant.</li> <li>• Critical path element in sequence to fulfill project timeline committed to with TWDB, part of CIP, and necessary for continued finished water supply. Early work elements isolates and secures best pricing for specific elements outside of ultimate general contract.</li> <li>• Orders long lead time equipment, securing today's prices, that will be installed in the forthcoming Work Package No. 3</li> </ul>	<ul style="list-style-type: none"> <li>• Early Work Package No. 1 and No. 2 – Phases of construction authorized</li> <li>• Construction Material Testing (CMT) ensures materials and construction methods meet the bid specifications to protect our investment</li> <li>• Critical path element in sequence to fulfill project timeline committed to with TWDB, part of CIP, and necessary for continued finished water supply.</li> </ul>
<b>Financing/ Construction considerations</b>	<ul style="list-style-type: none"> <li>• <b>\$41.7 million of \$178.4 million project issued and “in the bank.”</b></li> <li>• <b>\$30.3 million expended already to date</b>, not including Early Work Package No. 2</li> <li>• Good pricing continuing from Early Works Package No 1 expected with final negotiation through Construction Manager At Risk Process</li> </ul>	<ul style="list-style-type: none"> <li>• <b>\$41.7 million of \$178.4 million project issued and “in the bank.”</b></li> <li>• <b>\$44.1 million encumbered to date</b></li> </ul>
<b>Impact and Cost of Delay/ Deferment</b>	<ul style="list-style-type: none"> <li>• Extremely complex and highly regulated project to provide new finished water</li> <li>• <b>Water not projected to be online and available even with current schedule until early 2023</b></li> <li>• TCEQ requirements for meeting supply and water quality in play; financing obligated with Texas Water Development Board for project continuation</li> </ul>	<ul style="list-style-type: none"> <li>• Will not be able to hold the Construction Manager at Risk (CMAR) accountable for meeting the project and material specifications</li> <li>• Eliminates our ability control the quality of the project through the testing and Quality Control/Quality Assurance required in our construction contracts.</li> <li>• TWDB and City investment paid for by our customers must be protected via CMT</li> </ul>



