



HOLTZ CONSULTING ENGINEERS, INC

October 2, 2020

Mr. Jonathan Batista
Assistant Executive Director
City of Riviera Beach Utility Special District
600 West Blue Heron Boulevard
Riviera Beach, FL 33404

Subject: **City of Riviera Beach
Wellfield Condition Assessment Project**

Dear Mr. Batista,

We are pleased to offer the following proposal for condition assessment of Riviera Beach Utility Special District's (RBUSD) water supply wells. This work authorization includes performing a comprehensive wellfield condition assessment including field testing of individual in-service wells for water quality, specific capacity, and evaluation of the current status and condition of each well, including the pump, wellhead and visible piping systems, control panels and electrical equipment, field instruments and telemetry, and the well site, fencing, etc.. Holtz Consulting Engineers, Inc. (HCE) will provide a summary of the results of this testing and condition assessment in a Technical Memorandum (TM) summarizing our observations, findings, and recommendations. The TM will also prioritize immediate and future improvements and provide budget-level cost estimates for the future improvements that can be implemented in a phased approach. The Scope of Services will consist of the following tasks:

Task 1 - Wellfield Historical Review, Condition Assessment & Testing (23 Wells in Service)

1.1 Historical Data Review

Based on information provided by RBUSD, of the 28 wells in the RBUSD service area, 23 wells are currently in service and available for operation. HCE will collect and review historical wellfield data for the 23 in-service wells, as available, including well and pump performance data, historical water quality data, water treatment plant (WTP) SCADA data, and historical well construction reports and other reports as available that assess status or performance of the wells. Historical data and water quality trends will be included in a summary matrix in the TM, where applicable.

1.2 Condition Assessment

HCE will coordinate with RBUSD staff to schedule visits and testing for the 23 in-service wells. This task will include one (1) site visit with RBUSD operations staff to each well to review any additional well data and visit the well locations to perform a visual assessment of the well including the civil and mechanical components (wellhead, piping, fencing, etc.) and electrical components (electrical power service, telemetry, control panels, etc.). HCE will also verify what



recommendations from the 2016 consent order report prepared by US Water Services Corporation have been completed.

1.3 Wellfield Testing

Wellfield testing shall include the following: SCADA system data evaluated and compared to manual water levels obtained during testing, pumping water levels, water quality (including sand Rossum testing, specific conductance, salinity, pH, field hydrogen sulfide, field total and soluble iron, field dissolved oxygen, field turbidity, field temperature, chloride, and color), specific capacity, and well condition. Upon completion of testing, HCE will analyze and summarize the testing data in table form and identify well performance issues, such as undesirable water quality or underperformance including low yield.

Task 2 - Wellfield Condition Assessment Report (23 Wells in Service)

HCE will prepare a TM summarizing the current status and condition of the 23 wells documenting available wellfield construction data, historical operational performance data, available water quality data, and the results of the wellfield hydrogeological evaluation and civil, mechanical, and electrical condition assessment. HCE will identify underperforming wells in terms of water quality and/or water production and provide a draft priority ranking for rehabilitation, replacement and major maintenance activities or if no action is required or if the well should be abandoned. The memo will summarize the observations, recommendations for maintenance and rehabilitation, and prioritizations for future improvements and replacement, and will also provide a summary table with all available well data for future use. The TM will also include a recommended interim well operating strategy for the wells that are in service. Budget-level cost estimates will be prepared for work recommended for each well and will be included in the TM. This task includes one project team meeting to review the technical memorandum with RBUSD staff.

Task 2 Deliverables:

1. Two (2) hard copies on one electronic PDF copy of Technical Memorandum.

Task 3 – Well Contractor Assistance

Under this Task, HCE will work with RBUSD staff and RBUSD's on-call well contractor to coordinate and prioritize immediate repairs and improvements required to put the remaining five wells back into service. Immediate repairs recommended for the 23 wells currently in service will also be discussed and prioritized. This task does not include any construction services and all physical work will be done by RBUSD's well contractor under RBUSD staff supervision. Once the wells are back in-service, HCE will proceed with Task 4 and Task 5 below.



Task 4 - Wellfield Historical Review, Condition Assessment & Testing (5 Wells Currently Out of Service)

4.1 Historical Data Review

HCE will collect and review historical wellfield data for the five remaining wells, as available, including well and pump performance data, historical water quality data, WTP SCADA data, and historical well construction reports. Historical data collected will be included in the summary matrix, where applicable.

4.2 Condition Assessment

HCE will coordinate with RBUSD staff to determine the appropriate schedule of visiting and testing the remaining five wells once they are in-service. This task will include one (1) site visit with RBUSD operations staff to review any additional well data and visit the well locations to perform a visual assessment of the well including the civil and mechanical components (wellhead, fencing, etc.) and electrical components (electrical power service, telemetry, control panels, etc.). HCE will also verify what recommendations from the 2016 consent order report prepared by US Water Services Corporation have been completed at the five wells.

4.3 Wellfield Testing

Wellfield testing for the remaining five wells will include the following after they have been repaired and placed into operation: SCADA system data evaluated and compared to manual water levels obtained during testing, pumping water levels, water quality (including sand Rossum testing, specific conductance, salinity, pH, field hydrogen sulfide, field total and soluble iron, field dissolved oxygen, field turbidity, field temperature, chloride, and color), specific capacity, and well condition. Upon completion of testing, HCE will analyze and summarize the testing data in table form and identify well performance issues, such as undesirable water quality or underperformance.

Task 5 - Well Condition Assessment Report (5 Wells Currently Out of Service)

HCE will update the TM prepared in Task 2 to include the five wells, documenting available wellfield construction data, historical operational performance data, available water quality data, and the results of the wellfield hydrogeological evaluation and civil, mechanical, and electrical condition assessment. HCE will identify underperforming wells in terms of water quality and/or performance and provide a draft priority ranking for rehabilitation, replacement, abandonment, or no action required. The revised TM will summarize the observations, recommendations for maintenance and rehabilitation or abandonment, and prioritizations for future improvements, and will also provide a summary table with all available well data for future use. The revised TM will also include a recommended well operation strategy. This task includes one project team meeting to review the updated TM with RBUSD staff.



Task 5 Deliverables:

1. Two (2) hard copies on one electronic PDF copy of Technical Memorandum provided under Task 2 above, revised to include the results of Task 4 and Task 5.

Task 6 – Wellfield Maintenance Plan and Procedures

Under this task, HCE will develop recommended standard operation procedures (SOP) for maintenance of each well system including the well's mechanical and electrical assets. These maintenance procedures will include a recommended schedule and will be tailored to each individual well and HCE will provide hard copies and electronic copies of the SOPs. HCE will also hold a workshop with RBUSD staff to review the SOPs and edit them as requested by RBUSD.

Task 6 Deliverables:

1. Two (2) hard copies and one electronic PDF copy of the draft SOP for well maintenance.
2. Meeting minutes from the workshop.
3. Two (2) hard copies and one electronic PDF copy of the final SOP for well maintenance.

Task 7 – Wellfield Rehabilitation Prioritization and Capital Improvement Plan

7.1 Develop Prioritization Matrix for RBUSD Wells

HCE will utilize the findings and recommendations from the previous tasks to develop specific projects for rehabilitation and replacement or abandonment of the wells. HCE, along with RBUSD staff input, will prioritize these projects based on criticality and well performance.

7.2 Develop Budget Level Cost Estimates for 5-Year Well Rehabilitation / Replacement Plan

Under this task, HCE will prepare budget-level cost estimates for the projects identified in Task 7.1. These cost estimates will be suitable for RBUSD to develop a 5-year Well Rehabilitation and Replacement Capital Improvement Plan (CIP). This task will also include preparing a cost estimate for two additional surficial production wells and one saline intrusion monitoring well. A preliminary well design will be provided and will include a saline intrusion monitor well.

7.3 Develop 5-Year CIP Schedule

HCE will develop a schedule for implementing the 5-year Well Rehabilitation and Replacement CIP projects and project costs outlining the timeframe for funding the planning, design, and construction of the projects.



Task 8 – Laboratory Allowance

This allowance is for third-party laboratory testing of raw water. Laboratory tests will be for raw water quality parameters recommended by HCE or requested by RBUSD and all tests will be authorized by RBUSD prior to testing.

SCHEDULE

The above tasks will be completed according to following schedule:

Task 1 - Wellfield Condition Assessment, Historical Review & Testing (23 Wells)	60 days from Notice to Proceed (NTP)
Task 2 – Wellfield Condition Assessment Report	30 days from completion of Task 1
Task 3 – Well Contractor Assistance	15 days from completion of Task 2
Task 4 – Wellfield Condition Assessment, Historical Review & Testing (5 Wells)	15 days from completion of Task 3 or when all wells are back in service
Task 5 – Wellfield Condition Assessment Report	15 days from completion of Task 4
Task 6 - Wellfield Maintenance Plan and Procedures	15 days from completion of Task 5
Task 7 - Wellfield Rehabilitation Prioritization and Capital Improvement Plan	15 days from completion of Task 6
Task 8 – Laboratory Allowance	As-needed throughout Tasks 1 through 5

COMPENSATION

Compensation will be in accordance with the attached budget summary (Attachment A) for a lump sum amount of \$89,055. Monthly progress payments will be authorized based on percent complete as determined by HCE and approved by the City.

Sincerely,

HOLTZ CONSULTING ENGINEERS, INC.

Stephen Fowler, P.E.
Senior Project Manager

Attachment A: City of Riviera Beach Utility Special District Wellfield Condition Assessment

Task	Item	Principal	Senior Project Manager	Engineer	Senior Designer	Construction Specialist	Clerical	Subconsultant	Item Cost (Note Subconsultant fee is marked up 10%)	Task Cost	
		\$190	\$170	\$105	\$110	\$90	\$55	--			
		Hours						Fees			
1. Wellfield Condition Assessment, Historical Review, and Testing (23 Operational Wells)	Conduct Kickoff Meeting with Agenda and Minutes	2	2	2					\$930.00	\$39,265.00	
	Civil/Mechanical Assessment		48	48					\$13,200.00		
	Electrical Condition Assessment (C&W Engineering)						2	\$4,930.00	\$5,533.00		
	Hydrogeological Assessment/Wellfield Testing (JLA Geosciences)						2	\$17,720.00	\$19,602.00		
2. Wellfield Condition Assessment Report (23 Operational Wells)	Civil/Mechanical Assessment Report and Review Meeting	2	12	25					\$5,045.00	\$14,796.50	
	Electrical Condition Assessment Report and Review Meeting (C&W Engineering)						2	\$3,285.00	\$3,723.50		
	Hydrogeological Assessment Report and Review Meeting (JLA Geosciences)						2	\$5,380.00	\$6,028.00		
3. Well Contractor Assistance	Assist RBUSD with Procurement and Repairs to Five Out-of-service Wells	1	10	10					\$2,940.00	\$2,940.00	
4. Wellfield Condition Assessment Testing (5 Currently Non-operating Wells)	Civil/Mechanical Assessment		11	11					\$3,025.00	\$9,020.00	
	Electrical Condition Assessment (C&W Engineering)						2	\$1,070.00	\$1,287.00		
	Hydrogeological Assessment/Wellfield Testing (JLA Geosciences)						2	\$4,180.00	\$4,708.00		
5. Wellfield Condition Assessment Report (5 Currently Non-operating Wells)	Civil/Mechanical Assessment Report and Review Meeting	1	4	8					\$1,710.00	\$5,708.50	
	Electrical Condition Assessment Report and Review Meeting (C&W Engineering)						2	\$715.00	\$896.50		
	Hydrogeological Assessment Report and Review Meeting (JLA Geosciences)						2	\$2,720.00	\$3,102.00		
6. Wellfield Maintenance Plan and Procedures	Develop Maintenance Plan and Procedures	1	4	8			2		\$1,820.00	\$3,215.00	
	Workshop with RBUSD staff	3	3	3					\$1,395.00		
7. Wellfield Rehabilitation Prioritization and Capital Improvement	Develop Prioritization matrix for RBUSD wells	2	4	10					\$2,110.00	\$10,810.00	
	Develop Budget Level Cost Estimates for 5-Year Well Rehab/Replacement Plan	2	2	12				\$4,500.00	\$6,930.00		
	Develop 5-Year CIP Schedule	2	2	10					\$1,770.00		
8. Laboratory Allowance								\$3,000.00	\$3,300.00	\$3,300.00	
		16	102	147	0	0	18	Sub \$47,500.00 HCE \$41,555	Total Engineering Fee	\$89,055.00	