

**Memo**

To: Clay Pearson, City Manager

From: Skipper Jones, Assistant Director Projects & Engineering

CC: Jon Branson, Deputy City Manager
Trent Epperson, Assistant City Manager
Eric Wilson, Public Works Director

Date: September 27, 2016

Re: Barry Rose Wastewater Treatment Plant Expansion

9/29/2016
To: Mayor and City Council members
Upcoming Preliminary Engineering contract for another large water reclamation facility expansion to handle current growth, future growth, and flows from the Longwood Wastewater Basin.
-Trent

This memo provides advanced notice of proposed engineering services contract award for a Preliminary Engineering Report (PER) for the above project and a snapshot of current project status.

Project Background:

An assessment of the Longwood Wastewater Treatment Plant (WWTP), performed by Arcadis/Malcom Pernie in 2010, noted that this plant would need a major rehabilitation and expansion, based on average monthly flows and TCEQ requirements, if the City planned to continue to operate it. The cost of those improvements were estimated to exceed \$50 million dollars due to the condition, capacity and unsustainable location of the current plant. The report noted that the plant's location and proximity to the floodplain made the cost of an expansion prohibitively expensive. At that time, the decision was made to perform a shorter term rehab of the existing facilities and begin planning to incrementally shift flows to the Barry Rose and the SWEC plant with the ultimate goal to eliminate the Longwood plant, reducing the number of plants we maintain and operate.

The 2012 study, "Wastewater Planning for Longwood Service Area", performed by HDR Engineering, laid out a phased long term plan for routing wastewater flows away from the Longwood plant and to Barry Rose and the SWEC plants. A PER is currently underway for the expansion of the SWEC plant. See attached Exhibit B to see existing Wastewater Basins.

Initially, an oversize agreement with the Riverstone Ranch development allowed for the shift of three lift stations in the Green Tee area to the Barry Rose plant. Over that past two years, we have implemented additional phases of this flow diversion plan with the projects "Longwood Service Area, Phase II" this past year and, currently, the "Green Tee to Riverstone" project. In addition, Growth within the Barry Rose sewer basin (specifically Riverstone Ranch, Lakes at Highland Glenn, the Preserve at Highland Glenn and commercial development along Pearland Parkway, have added to the Barry Rose flows. **Over the last three years flows to Barry Rose have increased nearly 30% and currently stand at 60-65% of plant capacity.** While still well ahead of the time frame requiring planning activities, plant flows will continue to increase as

development occurs and more flows are transferred from the Longwood basin. Texas Commission on Environmental Quality (TCEQ) requires that planning begin at 75% capacity for plant expansion due to the time required for design and permitting. For that reason, staff utilizing our Consultant Selection Process selected MWH Americas, Inc. as the most qualified firm to perform a preliminary engineering study and report for the expansion of the Barry Rose plant.

Scope of Preliminary Engineering Report:

The scope of the proposed work is very similar to that done for Reflection Bay and JHEC in that it will include a service area analysis, a conditional assessment of existing facilities and preliminary permitting activities to begin communications with TCEQ for current and future design criteria and permitting requirements.

In addition, this work will include: analyzing and quantifying the flows from the Longwood service area and updating the wastewater model for both plants to quantify capacity requirements for the Barry Rose expansion. Additionally, the work will include calibrating the models with flow meters, including the installation of those meters, development of a flow diversion schedule, development of a 3D model of the existing facility for use in designing the expansion, an evaluation of treatment alternatives, focusing on both Sequential Batch Reactor (SBR) and Membrane treatment technologies and the production of an operational cost analysis to assist in process selection, a review of secondary (nutrient removal) treatment processes that could be added to the plant in the future, if and when those requirements are put into place by the TCEQ, and a coordinated approach to expanding the process facilities within the site and in conjunction with the existing plant with minimal interruption (i.e. preliminary plans for the expansion). All of this information will be provided in a single planning document to serve as the basis of design for final design. Finally, the work includes coordination with both TCEQ for permit application planning and Texas Water Development Board (TWDB) for funding options similar to those employed for the Reflection Bay project.

Schedule:

Staff expect to bring this proposal to Council in early October for consideration and award. The proposal includes a high level "milestone" schedule for each of the six tasks involved. That schedule includes approximately ten months work to complete all of the tasks and finalize the report. Staff would anticipate moving directly into a final design and permitting contract once the PER is complete and accepted. That final design effort would likely require approximately eighteen months to complete prior to permitting. This places bidding and construction activities toward the latter half of 2019. Construction of the expansion is projected to require 20 to 24 months. The timing of the actual construction will be determined based on increased flows and planned flow diversions from the Longwood plant.

Contract Fees:

The Fee Schedule is broken down by task and each task by discipline manhours and rates. All of the rates are typical and match City standards for engineering professional services. The Basic Services work of the PER is broken up into the following tasks:

Task	Description	Man Hours	Total
Task 1	Project Management & QA/QC	590	\$96,000
Task 2	Service Area Analysis	475	\$69,320
Task 3	Preliminary Engineering Report	2195	\$331,760
Task 4	Condition Assessment	447	\$70,080
Task 5	Geotechnical Investigation use existing for study		Not used
Task 6	Survey and S.U.E.	62	\$8,660
Task 7	Permitting	86	\$13,080
		Sub-Total	\$588,900

Additional Services

Surveying

Sub-Contract Survey Services plus 10% \$41,337.60

Allowance for "as authorized" services, including:

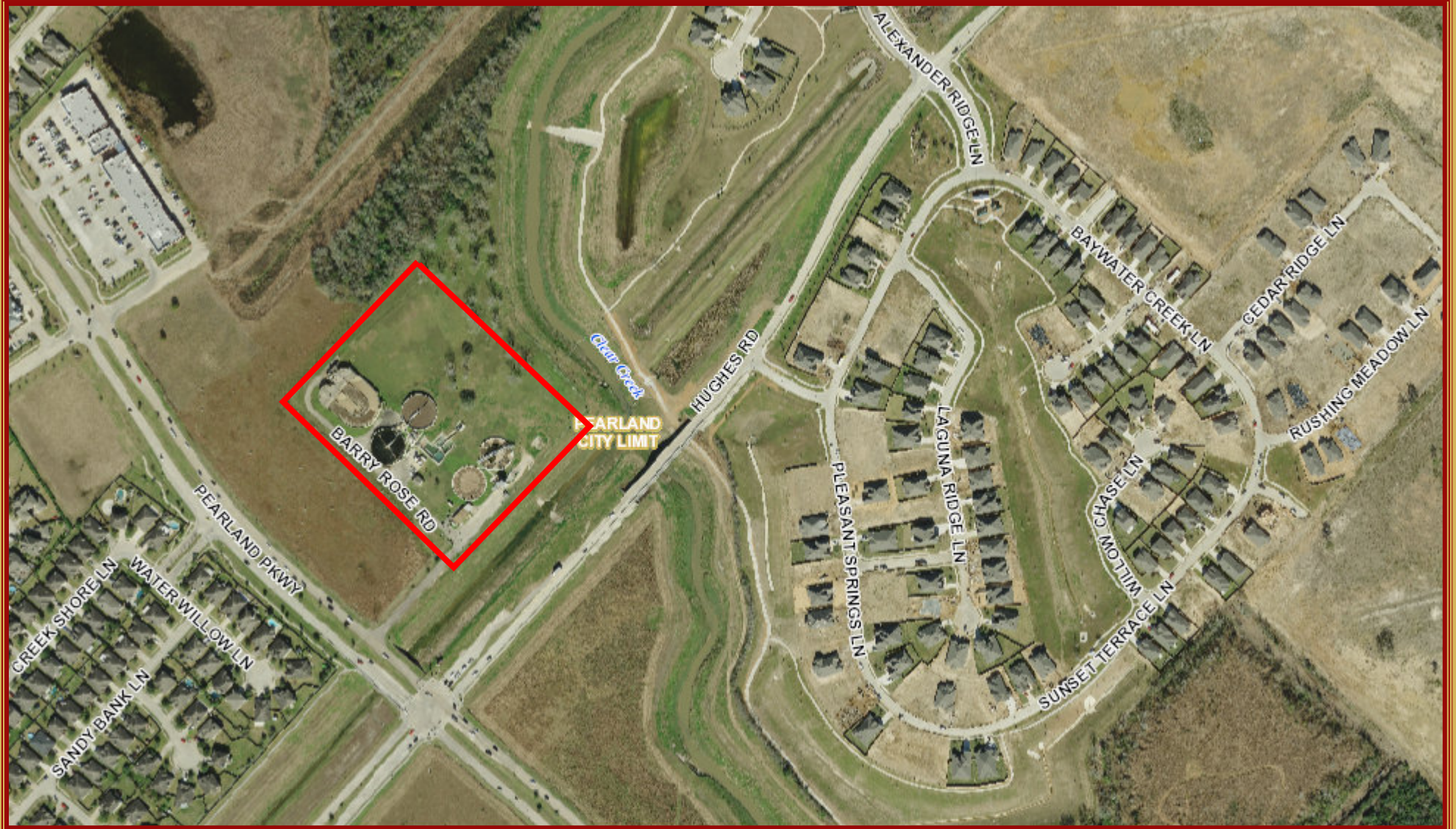
TWDB Funding Assistance, National Environmental Policy Act (NEPA)

Compliance \$29,880

Reimbursables \$23,556

Total Contract value \$683,713.60

EXHIBIT A PROJECT LOCATION MAP



Barry Rose Water Reclamation Facility

1:4,800

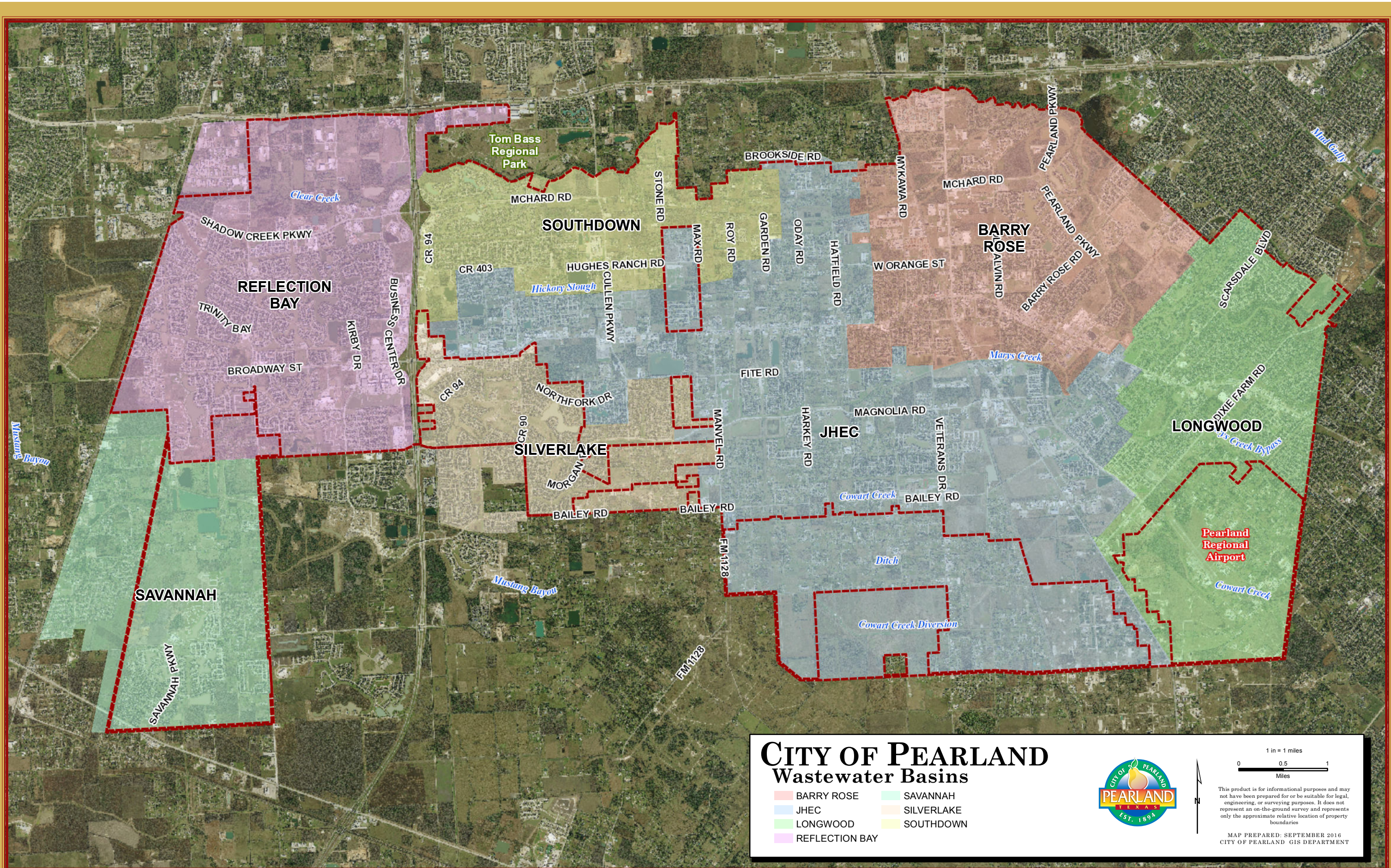
1 inch = 400 feet



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MAP PREPARED: SEPTEMBER 15, 2016
GIS DEPARTMENT

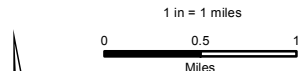




CITY OF PEARLAND

Wastewater Basins

- BARRY ROSE
- JHEC
- LONGWOOD
- REFLECTION BAY
- SAVANNAH
- SILVERLAKE
- SOUTHDOWN



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MAP PREPARED: SEPTEMBER 2016
CITY OF PEARLAND GIS DEPARTMENT