11/21/2023
To: Mayor and City Council
Update on the JHEC rehab and expansion, which has been a challenge to maintain compliance throughout construction due to the existing plant condition and sequencing the new construction. The contractor has been helpful and flexible. Additional time needed but the additional costs are expected to be within the existing contract.
-Trent

JHEC Water Reclamation Facility Expansion (JHWRF)

Is it in Budget?		Is it on Schedule for the Current Phase per the Contract?		Community Benefit
■ Yes	☐ No	☐Yes	■ No	*This project will provide Citizens of Pearland with an expanded facility (from a 4MGD to a 6MGD) to accommodate continued population and economic growth*
		Project Phase?		
		Construction		

Project Update:

The project is now approximately one-hundred-twenty days behind the original substantial completion schedule. Failures of the existing equipment and other operational issues have extended the projected substantial completion date to February 2024. The project team has worked to re-sequence some of the work items to mitigate the impact of these unforeseen operational issues, but the ongoing failures and unforeseen site conditions will have a substantial impact on the schedule. The operational failures began in September 2022 and have continued. Since June of this year, the contractor has assisted operations with the removal of wall pumps at Sequence Batch Reactor (SBR) #1 and #2 and maintained bypass pumps on Lift Station (ILS) #1. Since August, the contractor has been de-ragging, fueling and maintaining the rental of two chopper pumps at Lift Station #1, and renting and maintaining hoses at Aerated Sludge Holding Tanks #1 and #2. The rental of these pieces of equipment and the labor to maintain the operations of the equipment are recent examples of plant assistance being provided by the contractor that are having a major impact on the schedule and the project budget. The project has absorbed some of the cost associated with the assistance, but before project close-out, the additional expenses will need to be added to the contractor's P.O. for work that is out of scope and for labor necessary to assist operations in repairs, installations and maintenance of equipment and processes. A Change Order will be created in December to extend the schedule.

Construction Highlights:

Headworks and yard piping:

- Process mechanical pipe installation is complete.
- Corrosion treatment in the basins is complete.
- Angles and beams to support the checker plates is complete.
- Electrical conduits and panel installation is complete.
- All ancillary work has been completed and the headworks system is fully complete and is ready for start-up.

Sludge Building:

- Process mechanical piping is approximately 95% complete.
- The electrical and lighting is approximately 100% complete.

- The Motor Control Center (MCC)2 was delivered in October and final terminations are anticipated by the end of November.
- The system should be ready for commissioning by early December 2023.

Duct Bank

- Approximately 90% of the duct bank has been installed.
- The anticipated completion date, including tying into new manholes, is December 22, 2023.

Tertiary Filters (T-Filters)

- The concrete structure is complete.
- Leak testing is complete.
- Roof extension/steel structures will be constructed after the existing power poles have been removed and permanent power is fully installed.
- Back wash pumps and electrical work is ongoing.
- The electrical work will be completed after SBR 5 and 6, ILS 2 and the Headworks goes online.

Sequence Batch Reactors (SBR)

- SBR 5 and 6 work is complete, but final commissioning is on hold for several weeks pending the successful seeding.
- Attempts to begin seeding failed three times because the existing plant conditions did not allow it to be performed without interrupting the normal operations.
    - Seeding was started on October 10, 2023.
    - The mixed liquor suspended solids (MLSS) test have been slowly improving for the past two weeks.
- SBR 5 and 6 were commissioned on October 27, 2023.
- The rehabilitation of SBR 4 should begin by the end of November and the work is anticipated to be complete in five weeks.

Aerated Sludge Holding Tanks (ASHT)

- Demolished existing pipe, Scrum pumps and equipment on ASHT #1 and #3.
- Installed Air Pipe Header on ASHT #3 and #5.
- Connected piping on ASHT #5
- Structural work is to begin on ASHT #1 and #2 at the end of November and should take approximately six weeks to complete.
- Process mechanical work will begin in December on ASHT #1 and #2 and should be complete in six weeks.

Operations Building

- Interior finishes are complete.
    - The contractor has issued the punch list to the subcontractors.
- The contractor will request a Temporary Certificate of Occupancy when the permanent power is established.

Non-Potable Water System

- Rough-in of the new booster pump station began in October.
- Rough-in of the new transfer pump station to begin in early December.
- The rehabilitation of the system should be complete by December 28, 2023.

Blower Buildings

- The renovation of the buildings is substantially complete.

Chemical Building

- All work is complete.
  - The contractor has issued the punch list to the subcontractors.
  - Punch items should be complete by the end of November.

Lift Station #1

- Lift Station #1 has been isolated.
  - The demolitions should begin November 21, 2023.
  - The rehabilitation should be complete by December 21, 2023

Lift Station #2

- All work on Lift Station #2 is complete.

Ongoing work includes:

- Bypass pumping operations.
- Concrete paving.
- Continued coordination between the electrical, data, fire alarm, and security subcontractors at the Operations Building.
- SCADA integration.
- Continued work on the Non-Potable Water (NPW) pump station.
- Pipe coatings on the Aeriated Holding Tank basin.
- Seeding operations on the next SBRs that will be brought online.

Budget Info:

Funding Sources	Series	To Date	Future	Total Budget
General Revenue - Cash				-
W/S Revenue Bonds				-
W/S Revenue Bonds				-
W/S Revenue Bonds	2021A	37,500,000		37,500,000
W/S Certificates of Obligation	2022C	2,565,500		2,565,500
System Revenue - Cash				-
Impact Fee - Debt	2021A	37,500,000		37,500,000
Impact Fee - Debt	2022C	2,565,500		2,565,500

Impact Fee - Cash			-
Other Funding Sources	462,236		462,236
Total Funding Sources	**80,593,236**	**-**	**80,593,236**

Expenditures	**To Date**	**Future**	**Total**
PER	462,235		462,235
Land	100		100
Design	5,717,000		5,717,000
Construction	70,627,372		70,627,372
Construction Management/Inspection	1,670,000		1,670,000
Construction Materials Testing	558,317		558,317
FF&E		500,000	500,000
Total Expenditures	**79,035,025**	**500,000**	**79,535,025**

Project Contingency	**1%**	**630,900**
Project Balance		**427,312**

Schedule Info:

	Base Line	***Current***
Design Start	March-19	April-19
Bid Start	November-20	September-19
Construction Start	January-21	July-21
Construction Completion	December-23	March-24

Upcoming Work Items:

- Complete pipe installation for the Aerated Holding Sludge Tanks (AHST).
- Demolition of existing Headworks.
- Renovation work on Lift Station 1.
- Renovation work has begun on SBR 3 and 4.
- Continued coordination between staff and the contractor in the performance of the operational program.
    - Operational challenges have occurred on equipment that was not scheduled to be replaced or rehabilitated in the project. Staff and the contractor have been working collaboratively to resolve the problems.
    - Staff will meet with the contractor and the electrical sub-contractor to ensure the continuation of operations during the rehabilitation of the existing basins.
    - Staff is providing data and reports to the contractor pertaining to integration concerns during the rehabilitation.
- Complete installation of the electrical duct banks.
- Complete yard pipe installation.
- Complete SCADA integrations with the UV system and Tertiary Filters.
- Begin site finishes, including landscaping and fencing.

Project Manager: Jennifer Lee

Construction Manager: Ardurra Group

Contractor: PLW Waterworks

Scope: This project consists of a 2 MGD expansion to the existing 4 MGD Sequential Batch Reactor (SBR) water reclamation facility that will increase the treatment capacity to 6 MGD (plus peak) at the John Hargrove Water Reclamation Facility (JHEC WRF) and includes critical infrastructure to be sized for the ultimate capacity of 8 MGD. The expansion project uses the CMAR project delivery method. The project will include new headworks, refurbished and new pumps for the influent lift station, 2-1 MGD basins, blowers, and tertiary treatment along with SCADA upgrades.

Justification: This 2 MGD expansion is based on growth projections for the JHEC WRF service area and additional flows to be diverted to the JHEC WRF from the Longwood Service Area and the future development in the south. In 2016, flows exceeded the TCEQ requirement of 75% which required the start of design and staff requesting TWDB funding. In 2019, several months exceeded the 90% threshold which predicted the need to finalize the design and begin construction.

Previous Memos: 02.21.19, 05.02.19, 10.17.19, 11.14.19, 01.16.20, 07.16.20, 10.01.20, 01.14.21, 02.11.21, 05.13.21, 06.17.21, 10.28.21, 03.31.22, 06.02.22, 09.01.22, 12.01.22, 04.27.23

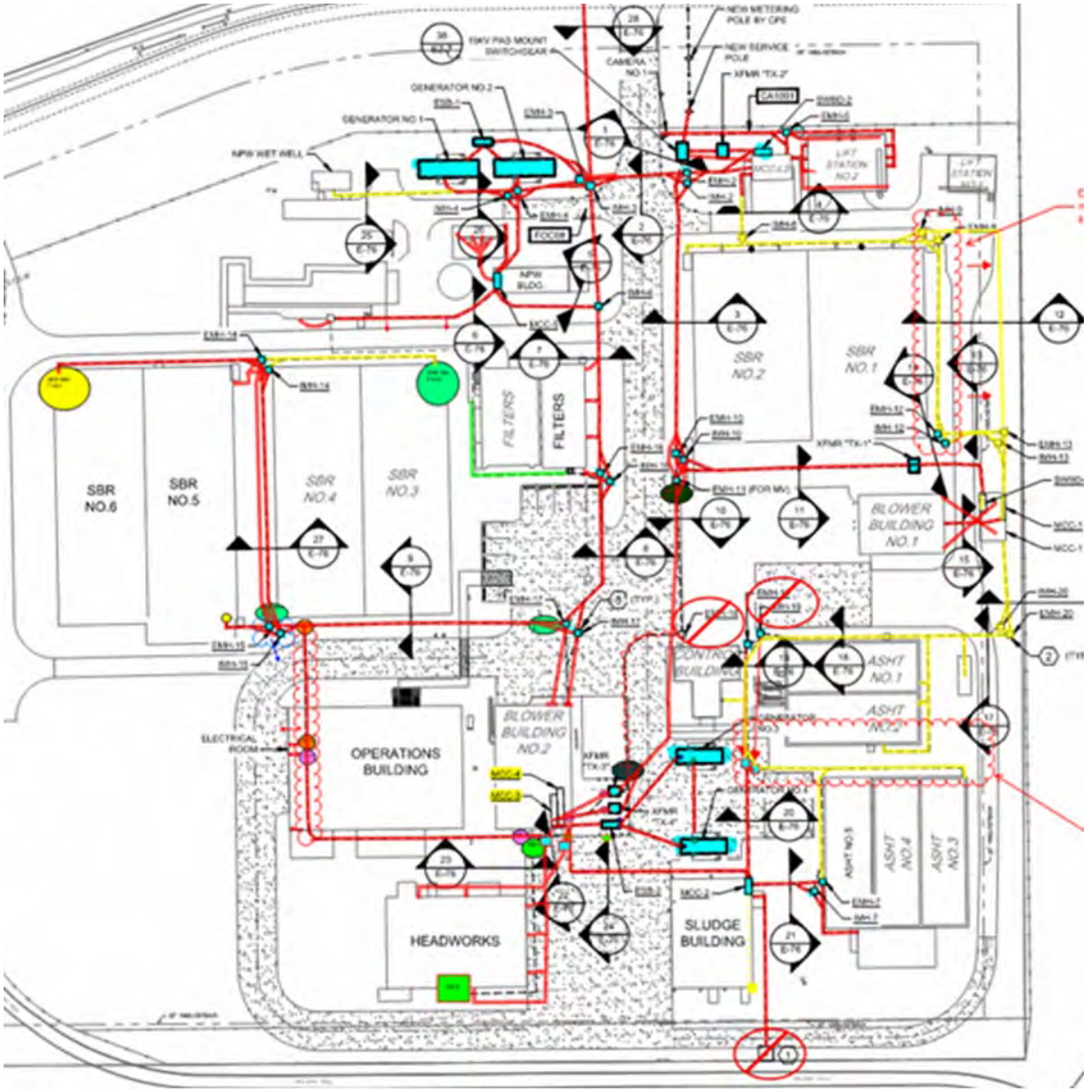
Project Location Map:

JOHN HARGROVE WATER RECLAMATION FACILITY

Project Photos:

New Headworks

Substantially complete Sludge Building



Duct Bank progress-Completed duct bank shown in red

SBR 5

The Operations Building-exterior ready for site finishes

Aeriated Sludge Holding Tank (ASHT)

Lift Station #2