



**US Army Corps
of Engineers**
Mobile District

REVIEW PLAN

East Jackson County
Consolidated Water Reclamation
Facility Project
Jackson County Utility Authority
Jackson County, Mississippi
P2# 466435

July 28, 2023

PREPARED BY:

U.S. Army Corps of Engineers
Mobile District
South Atlantic Division

Review Plan for East Jackson County Consolidated Water Reclamation Facility, Jackson County Utility Authority, Jackson County, Mississippi Implementation Documents

Refer to ER 1165-3-217, *Civil Works Review Policy*, May 2021, regarding the requirements for executing this plan.

1. Date: July 28, 2023
2. Review plan revision date, if applicable: N/A
3. Project name: East Jackson County Consolidated Water Reclamation Facility (EJCCWRF)
4. Project location: Jackson County Utility Authority, Jackson County, Mississippi
5. Review Management Organization (RMO): South Atlantic Division
6. Review plan POCs:
 - a. District: Engineering Technical Lead
 - b. SAD: Implementation Quality Manager, 404-562-5210
7. Expected in-kind contributions/services of \$90,000.00 to be provided by the non-Federal sponsor are as follows:
 - a. 65% Design Review (O&M/system compatibility focused)
 - b. 100% Design Review (O&M focused)
 - c. Stakeholder Coordination (Meeting host/facilitating)
8. Target construction contract award date(s): TBD. The project is only funded for completion of Preconstruction Engineering and Design (PED), and the agreement only covers design assistance. The Non-Federal Sponsor (NFS) will seek to secure funds to advertise, award, and administer a construction contract.
9. Estimated construction contract value(s) (range): \$400M - \$425M
10. Project description: The project will reclaim wastewater effluent from three existing JCUA managed wastewater treatment plants (the Pascagoula/Moss Point, Escatawpa, and Gautier Water Reclamation Facilities – three combined waste streams) that currently discharge their treated wastewater effluent into the Escatawpa River (Escatawpa plant) and Pascagoula River (Pascagoula/Moss Point and Gautier plants). The reclaimed treated effluent will be used to supplement existing industrial process water supply quantity requirements currently being met by withdrawals from the Pascagoula River. Arcadis Inc, under contract to SAM, previously completed a 35% design, and will be contracted to complete PED, including the design of all water reclamation treatment system components, wastewater pumping station designs, large force

main piping designs, retaining wall design, piping and instrumentation diagram (P&ID), paving and grading designs, electrical, structural, geotechnical, and architectural designs, regulator work, and environmental work.

11. Designer of Record: Arcadis U.S., Inc.

12. Documents to be reviewed: Construction plans and specifications, and Design Document Report (DDR).

13. Required reviews:

- a. District Quality Assurance (DQA) Review
- b. Agency Technical Review (ATR)
- c. Safety Assurance Review (SAR) – N/A
- d. Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review

14. Site visits by review teams: Not Required

15. Justification to waive ATR, if applicable: N/A

16. ATR team disciplines and qualifications:

ATR Team Member Discipline	Expertise Required
ATR Team Lead	Must be external to SAD and must have led or participated in previous ATRs. May be combined with another team member.
Geotechnical Engineer	Must be a registered professional engineer with at least 7 years of experience in geotechnical analyses, preferably including expertise in geotechnical engineering analysis, design, and construction associated with commercial building foundations, wastewater treatment component foundations, retaining wall design, and dewatering.
Civil Engineer (Site Work, Paving, Grading, Etc.)	Must be a registered professional engineer with at least 7 years of civil/site design experience, preferably including the design of earthworks, pavements, stormwater management systems, civil engineering design and review of site/civil layout, grading, and drainage.
Structural Engineer	Must be a registered professional engineer with at least 7 years of structural engineering experience, preferably including expertise in structural engineering analysis, design and construction associated with commercial structures, to include foundations, pre-engineered metal buildings, retaining walls, and wastewater treatment system component foundations and structures.
Environmental/Civil Engineer (Process/Utilities/Water/Wastewater)	Must be a registered professional engineer with at least 15 years of expertise in large wastewater treatment plant and utility system designs and reviews and shall have a thorough understanding of the design and construction of wastewater treatment plants that treat wastewater to reuse standards, including piping and instrumentation diagram (P&ID) development, large lift station designs, large force main designs,

	relocations/rerouting, and reverse flow, odor control evaluation and design, and hydraulic modeling in force main network analysis and the setting of the hydraulic grade line throughout the wastewater treatment plant system from the headworks to the treated reuse effluent point of discharge. NOTE: If this ATR discipline is unavailable outside of Mobile District, then someone from USACE Mobile District's Water & Wastewater TCX can be utilized. Must have expertise in the numerical modeling utilized in the design process – see paragraph 19 for a list of numerical modeling software to be utilized in the design process.
Electrical Engineer	Must be a registered professional engineer with at least 7 years of electrical engineering experience, preferably including experience in electrical engineering analysis, design and construction associated with commercial/industrial facilities, electrical design related to large wastewater treatment plants and lift stations, electrical control support in P&ID design schematics and SCADA systems, and communication system design and review.
Mechanical Engineer	Must be a registered professional engineer with at least 7 years of mechanical engineering experience, preferably including expertise in mechanical engineering analysis, design and construction associated with commercial/industrial facilities, mechanical design related to large wastewater treatment plants, mechanical support in P&ID design schematics, and wastewater treatment plant process engineering.
Architect	Must be a registered professional architect with at least 7 years of architectural engineering experience with expertise in architectural engineering analysis, design and construction associated with commercial/industrial facilities, and architectural design within the wastewater treatment plant structure area.

17. Considerations regarding the need for a SAR.

- a. If the project will impound water, could project failure result in flooding-related loss of human life? N/A – this is not a water impoundment project.
- b. If the project will impound water, will the design of water impoundment features deviate from USACE guidance or be based on uncommon analytical methods? N/A – this is not a water impoundment project.
- c. If modifying an existing project that impounds water, could the probability of project failure be temporarily increased during construction? N/A – this is not a water impoundment project.

18. Determination regarding the need for a SAR: Based on the responses to the questions above, the District Chief of Engineering has determined that a SAR is not warranted.

19. Numerical modeling software that could be utilized:

Software Name	Description	Version
OpenFlows SewerCAD	Sewage pump station, force main, and sewer modeling and design software. It uses steady-state analysis and has extended period simulations to create unlimited scenarios.	version 10.04.00.158

EnviroSim BioWin	Wastewater treatment process simulator that has biological, chemical, and physical processes. Provides energy consumption and operating costs.	version 6.2
OpenFlows HAMMER	Transient analysis and modeling software that focuses on identifying, managing, and mitigating risks associated with transients.	version 10.02.02.06
Autodesk InfoWater Pro	Hydraulic modeling software that performs a wide range of analyses for simulated scenarios. Uses ArcGIS for geographic information.	version 2023.3
EPANet	Hydraulic modeling software that includes designing new and old water infrastructure, water quality, and resilience to emergencies.	version 2.2.0
OpenFlows SewerGEMS	Sewage pump station, force main, and sewer modeling software that can be used to design and analyze sanitary and combined sewer networks. It can simulate the hydraulic behavior of gravity and pressure sewer systems.	version 10.03.03.44
Hydromantis GPS-X	Treatment process modeling software that simulates and optimizes various treatment processes. It can be used to improve the performance and reduce the costs of treatment plants.	version 8.0
AFT Impulse	Models and simulates transient flow in liquid piping systems. It helps analyze the effects of water hammer on the system and design safe and reliable piping systems.	version 9
Visual Water Designer by Innovative Hydraulics	Visual Water Designer is an all-purpose water software tool providing users with many of the calculations encountered in water and wastewater design and analysis.	version 5.1
Autodesk InfoWorks ICM	An advanced integrated catchment modeling software for modeling complex hydraulic and hydrologic network elements quickly,	2023 version

	accurately, and collaboratively for water and wastewater.	
Visual Hydraulics by Innovative Hydraulics	A state of the art flexible modeling tool that's used primarily for modeling the hydraulic characteristics of water and wastewater treatment plants, and capable of analyzing entire hydraulic profiles.	version 5.1
Hydroflow	Built-in routine within Autodesk Civil 3D for storm water modeling	version 2023
Storm/Sanitary Analysis (SSA)	Built-in routine within Autodesk Civil 3D for storm water modeling	version 2023

20. Schedule and cost of reviews:

Review	Month/Year	Cost
DQA: 65% Submittal	May/2025	\$230,000.00
ATR	June/2025	\$75,000.00
DQA:100% Unreviewed Submittal (with ATR comments incorporated)	May/2026	\$150,000.00
DQA: Final Submittal (all comments incorporated, backchecked, and closed)	February/2027	\$60,000.00
BCOES Review	April/2027	\$10,000.00



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION
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ATLANTA, GA 30303-8801

CESAD-RBT (1165)

20 November 2023

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers
Mobile District, P.O. Box 2288, Mobile, Alabama 36628-0001

SUBJECT: Approval of the Review Plan for the East Jackson County Consolidated Water Reclamation Facility Project, Jackson County Utility Authority, Jackson County, Mississippi

1. References:

a. Memorandum, CESAM-EN-QC, 11 October 2023, subject as above.

b. Engineering Regulation (ER) 1165-2-217, Civil Works Review Policy, 1 May 2021.

2. The updated Review Plan (RP) for the East Jackson County Water Reclamation Facility, submitted via reference 1.a, has been reviewed by the South Atlantic Division (SAD). The RP is hereby approved in accordance with reference 1.b.

3. SAD shall be the Review Management Organization (RMO) for this project.

4. Significant changes to this RP will require new written approval from this office.

5. The SAD point of contact is Michael Wolz, CESAD-RBT, (404) 562-5120.

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Encl

LARRY D. MCCALLISTER, PhD, PE, SES
Director of Programs