

March 31, 2022
ELECTRONIC SUBMISSION

Submitted to Jefferson Parish
Government
Submitted by AECOM

AECOM

SOQ 22-013

Routine Engineering Services for Water Projects

Jefferson Parish Government
Res No. 138809

Delivering a better world



Technical Evaluation Committee (TEC) Questionnaire

Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert “N/A” or “None” if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

Routine Engineering Services for Water Projects - Resolution No. 138811

B. Firm Name & Address:

AECOM

AECOM Technical Services, Inc.
1555 Poydras St. Suite 1200
New Orleans, Louisiana 70112

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Michael Patorno, PE - Vice President
504-338-9789
mike.patorno@aecom.com

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

Clay Loyless, PE - Project Manager
504-512-9688
clay.loyless@aecom.com

E. Please provide the number of employees whose primary function corresponds with each category:

<u>21</u> Administrative	<u>0</u> Estimators	<u>0</u> Specification Writers
<u>2</u> Architects (Licensed)	<u>9</u> Geologists	<u>22</u> Structural Engineers
<u>4</u> Chemical Engineers	<u>0</u> Geotechnical Engineers	<u>0</u> Graduate Engineers
<u>16</u> Civil Engineers	<u>0</u> Interior Designers	<u>26</u> Project Managers
<u>2</u> Construction Inspectors	<u>2</u> Landscape Architects	<u>0</u> Clerical
<u>0</u> Ecologists	<u>0</u> Land Surveyor	<u>2</u> Grant/Funding Specialist
<u>9</u> Electrical Engineers	<u>14</u> Mechanical Engineers	<u>0</u> Sanitary Engineers
<u>0</u> Engineer Intern	<u>6</u> Environmental Engineers	
<u>0</u> Professional Land Surveyors		<u>239</u> TOTAL

**These numbers only represent our staff in Louisiana*

F. Is this submittal by a JOINT-VENTURE? Please check: YES ☐ NO ☒

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.
N/A

2.

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ☐ NO ☐

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. NONE		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Michael Patorno, PE
Vice President, National Water Business Line, Heavy Civil Lead

Project Assignment:

Principal in Charge

Name of Firm with which associated:

AECOM Technical Services, Inc.

Years' experience with this Firm:

28

Education: Degree(s)/Year/Specialization:

BS/1983/Civil Engineering

Active registration: Year first registered/discipline:

Professional Engineer, Civil, LA, 24197, 1991; AL, AR, MS, TX

Other experience and qualifications relevant to the proposed Project:

Mr. Patorno is a professional engineer with experience as a Program and Operations Manager overseeing the programs within Jefferson Parish and the Metro-New Orleans area, including both federal and non-federal programs. Programs and projects include planning, modeling, master plans, FEMA Certifications designs, program and construction management, and permitting. This work includes oversight and management of various departments in transportation, water resources, structural, geotechnical, general civil, mapping and modeling programs, program and construction management, as well as environmental permitting and regulatory. These major programs required managing staff from over a dozen separate AECOM offices while providing coordination with numerous federal, state, and local stakeholder agencies, as well as with non-governmental organizations.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Michael Patorno, PE - Principal in Charge

West Bank Drainage Master Plans, Jefferson Parish, Project Engineer. Mr. Patorno provided modeling and mapping services as well as acted as senior Project Manager for the later updates to the West Bank Master Drainage Plan. Project work included working in various modeling softwares USACE UNET, and SWMM, while evaluating existing conditions and recommended improvements to the Parishes West Bank Drainage System.

East Bank Jefferson Parish DFIRM Maps, FEMA Region – Project Manager. Mr. Patorno coordinated the updates for the FEMA DFIRM Maps with our team working for FEMA while coordinating with our local staff Jefferson Parish for modeling of the Greater Metro New Orleans Area.

Water and Sewer System Evaluations for Sewerage and Water Board, Principal in Charge.

SWBNO operates the water treatment and distribution system. The City lost water pressure on the East Bank in the aftermath of Hurricane Katrina. The water distribution system was highly compromised as a result of the disaster. Two and a half years after the storm the City still had significantly increased unaccounted for water losses. FEMA retained AECOM to evaluate the water distribution system and prepare a plan for restoring it to its pre-disaster function and capacity. Using the pre-storm calibration data, the model predicted that the unaccounted for water in late 2008 was about 90 million gallons per day. This provided an estimate of the extent of the damage the system incurred. Review of Wastewater Pumping Stations and reviewed damages to wastewater pumping stations resulting in the replacement of nine stations and repairs to 50 others; new construction cost in excess of \$14 million. Some of these stations discharged into common force mains.

15 MW Power Generator at Carrollton Water Plant Power Complex, New Orleans, LA. Principal in Charge and Program Manager for this 15MW Generator facility for the USACE New Orleans District at the Sewerage and Water Board of New Orleans Carrollton Water Treatment Complex, including an 15 Megawatt (MW) dual fuel (natural gas and diesel) powered generator. The generator provided supplemental emergency power to 60Hz facilities owned and operated by the Sewerage and Water Board of New Orleans (SWBNO). This critical power unit will provide a much needed power supply to the SWBNO's critical pumping stations during extreme rain events or hurricanes in the event that commercial power fails at those facilities. The design work performed by AECOM included all civil, structural, mechanical, electrical, architectural and instrumentation engineering work, to produce full plans and specifications for the modified design-build project.

Louisiana Avenue Improvements (Constance Street to S. Claiborne Avenue). Mr. Patorno acted as the Principal in charge. As part of the Southeast Louisiana (SELA) Urban Flood Control Project, URS is contracted to the USACE, New Orleans District in coordination with the New Orleans Sewerage and Water Board to design a new box culvert along Louisiana Avenue in New Orleans. The new box culvert extends approximately 1.5 miles between Constance Street and Claiborne Avenue and connects to an existing box culvert at Claiborne Avenue. This included major utility relocations, cofferdam design, and assessment of existing facilities.

Elmwood Pump Station and Fronting Protection Project, Jefferson Parish, LA (USACE, New Orleans District). (Design/CM). Work included: Hydraulic modeling of the intake and discharge basins. Floodwalls and levee modifications. Two- 3,000 horsepower diesel driven horizontal pumps each producing 1,200 cfs of capacity. Access road, water well, drainage, sewerage and side utility modifications. A concrete framed 5,500-sq ft structure with a 40-ft interior height.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Michael Patorno, PE - Principal in Charge

Louisiana Coastal Protection & Restoration Authority Maurepas Swamp Freshwater Diversion Structure, St. John the Baptist Parish, LA. Managed multidisciplinary project involving similar scope of work areas as the proposed project, including planning, project management, modeling, design, detailed GIS, and aerial mapping. Included preparation of an economic and hydraulic feasibility study and contract plans and specifications to install a diversion head works structure and conveyance canal. Project to divert Mississippi River water into the wetlands south of Lake Maurepas through the use of a control structure at the Mississippi River and conveyance channel for eco-system restoration purposes.

Hurricane Protection Office (HPO) LPV 105-111, New Orleans, Louisiana (USACE-Hurricane Protection Office (HPO), Program Manager. In a follow-up contract to the Task Force Guardian program, awarded contract to assist the HPO with providing improvements to the levee system in New Orleans East. Includes design and construction of floodwalls, levees and gates, and requires utility relocation, pump station remediation, and real estate coordination. Managed all aspects of this \$1.3B geotechnical investigations, feasibility reports, Engineering Alternatives Reports (EARs), design and plans, and specifications for approximately 30 miles of Hurricane Flood Protection System. Worked closely with the HPO team to investigate cost-effective and workable solutions to meet the short time frame. Managed team using staff from multiple offices to maintain HPO's schedule.

Program Management, 1998 Road Bond Improvement Program, Jefferson Parish, Louisiana. Principal for Jefferson Parish's Program, which includes 112 roadway and bridge projects throughout the Parish. The project included writing contracts and amendments for engineer's contracts; planning meetings; coordination of consultants Parish departments, Parish's politicians, SELA, LDOTD (when necessary), railroad companies and public and private utilities; approving consultant invoices and construction cost estimates; oversight on design; review of plans and specifications submittals; scheduling; budget analysis; right-of-way acquisition support; construction oversight; review of contractor invoices and claims; and project closeout. As a part of this program numerous intersections and signals were upgraded.

Urban Drainage Design Projects, USACE New Orleans District, Jefferson Parish, Louisiana.

- R.R. Canal improvements from Avenue "B" to the Keyhole Canal. The project included geotechnical, hydraulic, and structural engineering as well as coordination with the local sponsors, utility companies and the railroad.
- Swift/Canal "A." The project included geotechnical, hydraulic, civil, and structural engineering for canal improvements from Canal "A" along the West Bank Expressway to the Patriot Street Canal.
- Elmwood Canal Bridge Crossing at Kawanee Avenue. The project included design reports, design plates/drawings, detailed structural, civil, hydraulic and geotechnical design calculations, cost analysis and estimates, traffic analysis and utility design for improvements to replace an existing bridge and approaches traversing an existing major canal. Eventual construction will include maintenance of traffic, detours, major utility relocations, installation of phased bridge construction and roadway approaches.
- Algiers Canal. The project included geotechnical, hydraulic, civil and structural engineering, levee improvements, flood control structures, ramps and pavement designs for a major levee in Jefferson and Plaquemines Parishes.
- Swift and 4th Street Canals. Used the USACE UNET model for this area in coordination with Jefferson Parish to find solutions to alleviate flooding in the area.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Clay Loyless, PE Sr. Civil Engineer/Sr. Project Manager
Project Assignment:
Project Manager
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
12
Education: Degree(s)/Year/Specialization:
PhD (ABD)/1998/Environmental Engineering MS/1995/Civil Engineering BS/1980/Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer, LA #0028552
Other experience and qualifications relevant to the proposed Project:
Mr. Loyless has 40 years of Civil Engineering experience in design and construction management with emphasis in drainage, water, wastewater and stormwater projects. He has designed wastewater and stormwater pump stations, sewer force mains, and gravity sewer and drainage collection networks. His additional experience includes detailed design of all proposed infrastructure improvements for site design. Mr. Loyless is proficient at hydrologic studies and models and is known for his attention to detail. He has analyzed the hydrology and hydraulics for numerous projects, established Base Flood Elevations, and designed drainage features, including stormwater collection networks and detention ponds. He has performed Hydrologic Modification Impact Analyses on many sites, designed culverts and conveyance channels, and energy dissipation devices. His design methodology has gone from hand calculations, through the use of various software packages over the years from early versions of StormCAD and PondPack to the current HEC-RAS and SWMM programs. Mr. Loyless has also worked on numerous roadway re-construction projects including design of horizontal and vertical geometry, pavement repair, milling and overlaying, etc. His additional experience includes detailed design of all proposed infrastructure improvements for subdivision and site design. Mr. Loyless has also conducted Phase I ESA's, prepared EA's, and secured USACE section 404 wetlands permits.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Clay Loyless, PE - Project Manager

Water Treatment Plant & Distribution System Improvements, St. James Parish, LA. Conducted an analysis of the St. James Parish water treatment facilities, including on-site surveys, operator interviews, tabulation of water production, chemical usage and billings. Forecast the Parish water demand and modeled the water distribution system using WaterCAD. Recommended modifications and operational improvements to both water treatment plants, the distribution system, and water towers.

Water Supply Demand Forecast, St. Bernard Parish, LA. Forecasted the long-term water supply demand projection for St. Bernard Parish and recommended the design capacity for the proposed treatment plant expansion.

New Charlie Drainage Pump Station, City of Dallas, TX. Project Manager for the design of a 225,000 gpm storm-water pumping station to provide flood protection for the City of Dallas. Responsibilities include detailed design of the pumps, piping over the levee, and coordination of the design of all station facilities.

Mississippi River Diversion into Maurepas Swamp, St. John the Baptist Parish, LA (Coastal Restoration Division, Louisiana Department of Natural Resources), PM \ Lead Engineer. PM \ Lead Engineer for design of a gated diversion structure on the Mississippi River and diversion channel to the wetlands surrounding Lake Maurepas. Responsibilities include project management, hydraulic analysis, and Civil Engineering design aspects of the intake structure to be constructed integral with the levee system, the 150-foot wide, 5-mile long diversion channel, and the flow distribution system.

USACE New Orleans District, Permanent Canal Closures & Pump Stations (New Orleans, LA) Technical Reviewer. Reviewer for DQA team in support of the USACE providing oversight of the design of storm-water pump stations at 17th St, Orleans Ave and London Ave canals. With a combined pumping capacity of nearly 10 million gpm, these are some of the largest drainage pumping stations in the world. Responsibilities included providing technical design input on Civil Engineering, ensuring compliance with all USACE guidelines, and conformance to the Joint-Venture Contractor's contractual requirements.

CPRA Mid-Barataria Sediment Diversion (Plaquemines Parish, LA), Civil Engineer. Performed Revetment Study evaluating various types of erosion protection for Basis of Design report. Worked on design of riprap revetment for Intake, Conveyance Channel, and Outfall.

USACE, Hurricane Protection Office, Levee Improvements LPV 109.02a, New Orleans, LA, Civil Engineer. Lead Civil Engineer for the design of 7.5-miles of flood protection levee in New Orleans East. Responsibilities included the detailed design of new levee sections, including the crossing of two major roadways and one railroad, along with the design of two drainage pump stations and four major sluice-gated box culvert drainage crossings. Worked in close coordination with staff geotechnical engineers on design involving the installation of wick drains and deep soil mixing, to greatly accelerate the levee consolidation process. Work included the hydrologic and hydraulic analyses and engineering design of the pump stations and drainage culverts under the levee.

Lower Breton Sound Sediment Diversion, Coastal Protection and Restoration Authority (Plaquemines Parish, LA). Project Engineer on the conceptual design of a sediment diversion to transport sediment from the Mississippi River into the lower Breton Sound Basin in order to build, sustain, and maintain wetlands. Responsibilities included the direction of hydraulic modeling analyses to develop channel configurations that would deliver the requisite flow and entrained sediment. Also conducted a study of applicable revetment options for hydraulic efficiency and protection from scour.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Clay Loyless, PE - Project Manager

Fargo-Moorhead Area Diversion Project, Fargo-Moorhead Diversion Authority, (Fargo, ND \ Moorhead, MN). Sr. Project Engineer. The project consists of a diversion of the Red River of the North through a 25 mile long channel around the cities of Fargo, ND and Moorhead, MN to prevent recurrent flooding. The plan would include 20 highway bridges, 4 railroad bridges, and a control structure on the Red River. The subject role as Drainage Lead was to design all of the drainage facilities required to relocate the road and railroad bridges as well as handle the runoff from the diversion guide levees. The work included H&H analyses, culvert and conveyance channel design, and design of energy dissipation devices. Work currently in abeyance due to on-going discussions within the respective governments.

Wanhua MDI Complex Hydrologic & Hydraulic Analysis, Wanhua Chemical Group – US (St. James Parish, LA)Sr. Project Engineer: Wanhua proposes to build a major chemical plant on the East Bank of the Mississippi River, including the construction of major process equipment, storage tanks, cooling towers, horizontal vessels, buildings, etc. As Project Manager, performed an HMIA, using LiDAR data to delineate watersheds, and determined the 100-yr WSE. Performed detention pond routing to demonstrate no adverse effect due to development. Subsequent analyses were performed using the HEC-RAS Unsteady State modeling software to developed options to lower the requisite site fill. Recommended improving the main discharge ditch by removing existing culverts and re-shaping the ditch into the shape of a trapezoidal channel. Using the model, based on the recommended improvements, demonstrated depth and duration of flooding on adjacent agricultural property. Currently analyzing the effectiveness of adding a supplemental Pump Station to prevent flooding.

CWPPRA Project Development, Jefferson Parish, LA. Developed list of potential projects to mitigate the effects of coastal erosion and the loss of wetlands in Jefferson Parish. Defined thirty-three projects sufficiently to apply for federal CIAP and CWPPRA funding.

LADOTD Rehabilitation Projects, Jefferson Parish, LA. Designed and managed the construction administration for numerous LADOTD state highway rehabilitation projects in Jefferson Parish, including Lapalco Blvd, Veterans Blvd, and Willswood Lane.

Wastewater Infiltration & Inflow Study, Jefferson Parish, LA. Developed portions of the Jefferson Parish Infiltration & Inflow flow monitoring program. Participated in the field surveys; wrote the Flow Monitoring Program Report; developed flow-meter installation, operation and maintenance procedures; evaluated vendor equipment and software; and wrote a confined space entry manual.

Hickory Avenue Extension Drainage Facilities, Jefferson Parish, LA. Designed the drainage facilities for the extension of Hickory Avenue, a LADOTD state highway

St. Charles Parish Railyard (Dow), Port of South Louisiana, St. Charles Parish, Design Engineer. Performed hydrologic and hydraulic analysis of site. Designed drainage collection network and stormwater detention pond. Delineated drainage easement and obtained approval from adjacent property owner. Prepared Hydrologic Modification Impact Analysis (HMIA) and secured permit approval.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Daniel Zell, PE, PMP, CFM, D.WRE, PgMP Associate Vice President, Water
Project Assignment:
Quality Control
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
9
Education: Degree(s)/Year/Specialization:
BA/2003/Economics BSc/1996/Mechanical Engineering
Active registration: Year first registered/discipline:
Professional Engineer (Civil/Water): TX (123073) Certified Floodplain Manager Project & Program Management Professional; Diplomat of Water Resources Eng.
Other experience and qualifications relevant to the proposed Project:
Dan Zell offers 19 years of experience, including 14+ years on FEMA Risk MAP, HMTAP, and Map Mod programs, where he successfully completed 30+ projects for Region IX. He successfully met schedule, cost, reporting and quality requirements as a project manager. Dan completed high-profile studies including Post- Katrina Mississippi Coastal, Post-Katrina New Orleans Field Reconnaissance, and Post-Katrina Evacuee Assistance. Dan led several levee projects and was the primary author of FEMA's Levee Analysis and Mapping Procedures (LAMP). His recent levee experience includes City of Austin, Pope and Conway Counties (Arkansas), and levees in California and Hawaii. His post-disaster work includes 2020 Hurricanes Laura, Delta, Zeta and Tropical Storm Cristobal.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Daniel Zell, PE, PMP, CFM, D.WRE, PgMP

Levee Analysis and Mapping Technical Assistance, Subject Matter Expert, Greater New Orleans Area. Worked with the Parish side by side while under contract by FEMA piloting FEMA's procedures for non-accredited levees, known as Levee Analysis and Mapping Procedures (LAMP) in the Greater New Orleans Area. AECOM identified and supported 5 pilot projects in Lafourche, Plaquemines, St Charles, St. Tammany, and Terrebonne Parishes. AECOM planned and conducted outreach, known as Local Levee Partnership Team meetings and field reconnaissance. The LAMP LLTP outreach effort were welcomed by the Parishes, in comparison to prior procedures, as a more holistic and fair process.

FEMA, Levee/Dam Safety Program, Nationwide. Project Manager for half of United States including Texas. Developed and implemented a customized dam safety training for FEMA staff responding to Hurricane Harvey at Austin JFO. Supported pilot probabilistic flood risk analysis Risk Rating 2.0) levee analysis. Provided real-time data and analysis of impacted dams for Harvey, Irma, and Maria.

FEMA, Manasquan CRS Improvements, New Jersey. Project Manager for working with a small community with a goal of raising their CRS rating. Researched their current CRS points and identified areas for improvement. Provided training on how to use social media immediately prior to Hurricane Sandy where the emergency operations center was destroyed and social media was successfully leveraged. This community went from a CRS level 7 to 5. Interactive maps (story maps) were displayed on FEMA's Geoplatfrom.

FEMA, Letter of Map Change (LOMR/LOMA, Nationwide. Deputy Project Manager for startup of Letter of Map Change program under RiskMAP. Developed and implemented a digital processing system for letters of map amendment. Responsible for reporting (including the MIP) and overall technical credibility.

State of South Carolina, Community Development Block Grants, South Carolina. Led project prioritization efforts for this large effort to analyze flooding and prioritize projects for flood mitigation. Specifically developed recommendations for screening criteria to achieve project goals. Verified that projects were in compliance with HUD goals.

Texas Water Development Board, Base Level Engineering, Austin, TX. Project Director responsible for resource control and allocation for Atascosa and Lower Brazos/Little Brazos watersheds totaling over 5,600 stream miles. Personally, led development and delivery of technical memorandums on project prioritization

FEMA CTP Services, San Antonio River Authority, San Antonio, TX. Project Director responsible for resource control and allocation for Leon Creek. Personally, planned and conducted field reconnaissance of structures. Scope included 56 miles of detailed hydrology, hydraulics, and floodplain mapping including Karst hydrology and regulated flows.

FEMA, FY17 Regional Task Order, TX. Project Manager for three components Incorporation of NOAA Atlas 14 and USACE InFRM Hydrology into the Guadalupe River (HEC-HMS), updated rating curves for dams and floodway modeling (HEC-RAS) 2,000 miles of Base Level Engineering (HEC-RAS) and 11 miles of detailed hydraulics in Middle Brazos Lake Whitney including statistical hydrology (regression calibrated to gauge analysis) Analysis of levees, detailed hydraulics (HEC-RAS), and floodway models for the East Fork Trinity.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Phillip Olivier, PE <i>Civil/Structural Engineer</i>
Project Assignment:
Civil
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
13
Education: Degree(s)/Year/Specialization:
BS, Civil Engineering, 2004
Active registration: Year first registered/discipline:
Professional Engineer, Civil, LA #36348
Other experience and qualifications relevant to the proposed Project:
Mr. Olivier is a civil engineer with 15 years of design experience. His primary experience is related to large civil works projects, civil layouts, bridge inspections, utilities, flood protection, facilities /buildings, levees, dams and commercial real estate development. Mr. Olivier has been involved in all phases of the projects including diligence, conceptual layouts, permitting, final design and engineering during construction. He is known to deliver his projects on time and under budget and has also been involved with many types of construction delivery processes such as the traditional D-B-B, CMAR, and PPP. Most of his experience has been working with USACE on projects such as flood protection around the United States and, bridge/dam inspections for IMCOM (Army Transpiration Infrastructure Program) for several Army Bases. Typically, his role is the lead civil engineer or deputy lead civil engineer who is responsible for plan and specification preparation for construction documents, assist with feasibility studies, site investigations/inspections/ assessments, utility coordination, permits, value engineering and engineering services during construction.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Phillip Olivier, PE - Civil

USACE New Orleans District, Permanent Canal Closures & Pump Stations (PCCP), New Orleans, LA. Supporting USACE providing oversight of the design of stormwater pump stations at 17th St, Orleans Ave and London Ave canals. With a combined pumping capacity of nearly 10 million gpm, these are some of the largest drainage pumping stations in the world.

Mid-Barataria Sediment Diversion (CPRA). Civil engineer the \$1.3 billion sediment diversion project for CPRA. The project is located on the west bank of the Mississippi River south of the Alliance Refinery. The intent of the project is to capture the river sediment and disperse the sediment into the Barataria Bay to create new marsh. The structure will be designed to convey as much as 75,000 cubic feet per second through the gated structure

USACE New Orleans District, Louisiana Avenue Flood Control Improvements, New Orleans, LA. Lead Civil Engineer – Engineer of Record which consisted of horizontal engineering features including new box culvert, drainage pipes, and deep soil mixing. This project was designed to increase drainage capacity for the S&WB. The new box culvert transitions in size from 6'x6' to 12'x10' along its 1.5-mile limit. Managed the progress of all design work, client contacts, and coordination of sub contractor activities, coordination with utility companies and other entities.

Lake Borgne Basin Levee District, St Bernard Parish Pump Stations No. 2 & 3 Seepage Repairs. Lead civil engineer to repair pump station number 2 and 3 by constructing a new concrete T-wall in front of the existing station.

Avenue Improvements (Constance Street to South Claiborne Avenue), Orleans Parish, LA (USACE, New Orleans District). Developed structural plans and specifications for various size box culverts for drainage improvements along Louisiana Avenue.

New Orleans East Hurricane Protection Levee and T-wall Enlargement from CSX Railroad to Michoud Canal Reach LPV 111, New Orleans, LA. Lead Civil Engineer on the levee enlargement. The project consists of an extensive soil mix design to support the additional weight of the larger levees. The existing pump station 15 t-walls are being reconstructed to meet the post Katrina criteria.

New Jersey American Water Raritan Millstone Treatment Plant – Long Term Flood Control, Somerset County, NJ. Lead civil engineer who was responsible for the lead civil design of a flood control system for the largest water treatment plant in the state of New Jersey. Flood control features consisted of levees, T-walls, I-walls, sheet pile combi-wall, and floodgates. Design challenges included working around a very old infrastructure and utilities such as large diameter pipes, high voltage electrical, unknown and undocumented utilities. Also provided Engineering During Construction (EDC) support.

USACE New Orleans District, Carrollton Water Plant Power Complex 15 MW Power Generator Facility, New Orleans, LA Lead Civil Engineer. Lead civil engineer for the design of a 15MW generator facility for the USACE New Orleans District's Hurricane Protection Office (HPO) at the Sewerage and Water Board of New Orleans (SWBNO) Carrollton Water Treatment Complex, including a 15MW dual fuel (natural gas and diesel) powered generator.

Reserve Relief Canal Shoreline Projection, St. John the Baptist Parish, LA. Assisted in the site layout and construction package of the shoreline protection project where the Reserve Relieve canal enters Lake Maurepas. The features consist of a foreshore rock dike with gaps for fish and public access to the lake shoreline.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Greg France, PE Civil Engineer
Project Assignment:
Civil
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
11
Education: Degree(s)/Year/Specialization:
BS/2010/Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer/2016/Civil/LA#0041249
Other experience and qualifications relevant to the proposed Project:
Greg has experience in construction management; levee design, construction and inspection; pump station and floodwall inspection; hydrologic and hydrographic modeling; bridge scour countermeasure design; bridge inspection; and roadway drainage design.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Greg France, PE - Utilities Research

USACE, FPV03 Floodwalls and Levees, Old River North, Old River South and Tide Gate, Freeport, TX. Performed preliminary modeling and design for the Old River North levee and floodwalls.

CPRA, River Reintroduction Into Maurepas Swamp and West Shore Lake Pontchartrain Flood Risk Reduction, St. John the Baptist Parish, LA. Performed utility relocation coordination which includes compiling available utility and pipeline data and coordinating the relocations with the utility and pipeline owners.

CPRA, Mid-Barataria Sediment Diversion, Plaquemines Parish, LA. Led the production of Right-of-Way Plans. Assisted with plan technical reviews. Evaluated, alternative back levee designs and performed a life cycle cost analysis for each alternative. Assisted with the development of a wick drain test plan for the diversion channel guide levees.

U.S. Army Corps of Engineers, New Orleans District (USACE-MVN), Morganza to the Gulf Periodic Levee Inspection. Performed a walking inspection of approximately 90 miles of back levee of the Morganza to the Gulf Levee System.

Mississippi Department of Transportation (MDOT), US 61 Over Buffalo River and Sandy Creek, Scour Countermeasures, Wilkinson County, Mississippi. Assisted with the bridge scour countermeasure design for US 61 over Buffalo River and Sandy Creek. Led the production of plans for the preliminary right-of-way submittal.

MDOT, I-20 Eastbound Bridge at I-55 South, Hinds County, Mississippi. Assisted with highway hydraulic design, including hydrology, channel, culverts, energy dissipaters, and storm drainage systems in accordance with the MDOT Roadway Design Manual and other applicable laws. Also assisted with the production of plans and specs.

Plaquemines Parish Government (PPG), WBV-09a, Hero Canal to Oakville Levees, and WBV-12, Hero Canal Reach 1, Plaquemines Parish, Louisiana. Performed construction management duties such as engineering review during construction, revising plans and specs as necessary, reviewing and issuing contract modifications, reviewing contractor submittals, performing site inspections, reviewing testing documentation and performing project closeout duties. Also coordinated with PPG, USACE, and CPRA.

CPRA, Extension of Staff Services to Support CPRA for the New Orleans to Venice Flood Protection Improvements, Plaquemines Parish, Louisiana. Reviewed plans, specs and technical reports during design of levees, floodwalls and pump stations; performed construction site visits; attended construction progress meetings and milestone inspections; reviewed modifications, requests for information, and submittals; reviewed construction as-builts prior to USACE turnover to the local sponsor; and provided additional engineering support as requested by PPG and CPRA.

PPG, NOV-NF-W-05 (La Reussite to Myrtle Grove) and NOV-NF-W-06 (Myrtle Grove to St. Jude) Interior Drainage Canal Relocation, Plaquemines Parish, Louisiana. Assisted with the development of hydrologic and hydraulic models, setting up drawings for plans, and conducted site visits to assess the existing conditions.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Bruce Lelong, PE <i>Civil Manager</i>
Project Assignment:
Structural
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
21
Education: Degree(s)/Year/Specialization:
BS, Civil Engineering BA, History
Active registration: Year first registered/discipline:
Professional Civil Engineer, 2001, Louisiana License #29393
Other experience and qualifications relevant to the proposed Project:
<p>Mr. Lelong has more than 25 years of experience with hydraulic and marine structures, including flood protection structures, pumping stations, drainage structures, navigation locks, dams, and port facilities. Mr. Lelong has managed and been the engineer of record of projects as large as \$400 million. He has designed reinforced concrete, steel, and masonry structures; prepared contract plans, specifications and cost estimates; and has extensive experience providing engineering support services during construction, as well as construction management services.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Bruce Lelong, PE - Structural

Permanent Canal Closures and Pumping Stations Design Build Project (USACE, New Orleans District). Consulting structural engineer for AECOM Design Quality Assurance Team (DQA), assisting the USACE in reviewing the contractor's structural designs for contractual conformance for this fast paced, \$615M design-build project to construct concurrently three new stations: 12,000-cfs; 6,500-cfs, and 2,500 cfs.

Senior Civil/Structural Engineer, Rehabilitation of Municipal Treatment Plant Concrete Clarifiers, Gretna, LA (City of Gretna). Inspected damages and designed repairs to heavily damaged reinforced concrete clarifier tanks and appurtenant piping.

Senior Civil/Structural Engineer, City of Gretna Waterworks, Filter Stairs Emergency Replacement, Gretna, LA, (City of Gretna). Supervised the design/build plans and specifications for the emergency filter stairs replacement due to hydrogen sulfide attack to steel.

Senior Civil/Structural Engineer, 15MW Generator Project, New Orleans, LA (USACE, New Orleans District- Hurricane Protection Office). Supervised the design of a multistory 15MW Generator building for the USACE at the Sewerage and Water Board of New Orleans Carrollton Water Treatment Complex. The building is designed for 156 mph winds and a concrete containment tank for a 250,000-gallon diesel storage tank.

Mount Kennedy Pumping Station, Jefferson Parish, LA (USACE, New Orleans District): Civil/Structural Engineer performed final designs of reinforced concrete suction and discharge basins and station bridge deck for 600 cfs pumping station. Independent Technical Reviewer of Ames fronting protection. Shop drawing and design reviews of contractor-designed cofferdam systems.

Project Engineer, East of Harvey Canal Floodwall, Jefferson Parish, LA, U.S. Army Corps of Engineers. Supervised and performed structural design work for a proposed, mile-and-a-half long, pile supported, reinforced concrete, inverted T-floodwall and 18 steel, swing flood gates and an aluminum stop log gate closure.

Lead Civil/Structural Engineer, St. John's Baptist Parish Sewage Lift Station, Reserve, LA, (St John Parish Department of Public Works). Engineer of Record for the design of 15-foot deep reinforced concrete wet well sewer lift station.

Old Estelle Drainage Pumping Station Expansion, Jefferson Parish, LA, Jefferson Parish Department of Public Works. Supervised the designs of a rehabilitation to a 600-cfs drainage pumping station, which entailed the replacement of four 150-cfs vertical pumps and discharge tubes, and modifications to the structure to accommodate the new pumps.

Dwyer Road Pumping Station, New Orleans, LA (New Orleans Sewerage and Water Board): Senior Civil/Structural Engineer provided engineering support during construction; designed field modifications of new drainage pumping station, New Orleans East, Louisiana.

Whitney/Barataria Pumping Station, Jefferson Parish, LA (USACE, New Orleans District): Civil/Structural Engineer performed shop drawing and contractor submittal reviews and designed field modifications of new pumping station for Jefferson Parish, Louisiana.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Bruce Lelong, PE - Structural

CPRA Mid-Barataria Sediment Diversion (Plaquemines Parish, LA), Senior Project Manager.

Managing the engineering and design of 75,000-cfs sediment diversion on the Mississippi River that ties into the MRL and crosses the NOV-5a.1 non-federal levee. Project includes flood gates, flood walls, earthen embankments, inverted drainage siphon bank, railroad and highway bridges, shoreline protection, and riprap armoring.

PO-29 Mississippi River Reintroduction to Maurepas Swamp, St. John the Baptist Parish, LA (CPRA). Task Manager. Mr. Lelong is currently the AECOM task manager for the permitting and post-95% design phases. During the prior design phases, he supervised the designs of the headworks structures, CN box culverts crossing, KCS bridge, the Airline Hwy box culvert crossing and the 250-cfs drainage pumping station.

Coastal Flood Protection System Designs LPV 105-111, New Orleans East, LA (USACE & SLFPA-E). Mr. Lelong was the project manager and engineer of record for the LPV 111 enlargement, the largest soil mixing project to date in North America, and was the lead structural engineer for the retrofitting of the fronting protection at Pump Station 15, raising the flood walls by 12 feet. Mr. Lelong performed ITRs of the structural designs of the drainage structures and floodwalls in the LPV 109 reach, and was the lead structural engineer for the retrofit of the St Charles Pumping Station within the LPV 105 sub-reach, designing modifications for the addition of vertical roller gates closing the station's discharge culvert into Lake Pontchartrain. Mr. Lelong is supervising the production of the plans, specifications, and cost estimate for the ongoing LPV 109 levee Lift Project for SLFPA-E.

New Jersey American Water, Long Term Flood Protection Project (Raritan, NJ). Senior Structural Engineer. Supervised and directed the designs of the raising of a buttressed, lag-style floodwall, flood gate replacements, and new T-wall and I-walls. Developed technical specifications and provided engineering support during bidding and construction.

Senior Civil/Structural Engineer, 15MW Generator Project, New Orleans, LA (USACE, New Orleans District- Hurricane Protection Office). Supervised the design of a multistory 15MW Generator building for the USACE at the Sewerage and Water Board of New Orleans Carrollton Water Treatment Complex. The building is designed for 156 mph winds and a concrete containment tank for a 250,000-gallon diesel storage tank.

Houma Navigation Canal Dredging Study, Houma, LA (USACE, Vicksburg District). As Senior Civil/Structural Engineer, performed feasibility-level design and cost estimating to determine required bulkhead wall modifications at existing dock facilities along canal needed to allow deeper draft marine vessels to access these facilities.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Ryan Koenig, PE <i>Project Manager, Civil/Structural Engineer</i>
Project Assignment:
Structural
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
18
Education: Degree(s)/Year/Specialization:
BSc/1995/Biology BSc/1999/Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer/2004/Civil/LA/0031036
Other experience and qualifications relevant to the proposed Project:
Mr. Koenig is civil/structural engineer and project manager with more than 20 years of expertise in design and project management, including levees, flood protection structures, concrete and steel hydraulic structures, pump stations, buildings, marine structures and flood walls. He has managed several large USACE projects and brings experience in all phases of engineering and construction projects., including conceptual design, permitting, final design, shop drawing review, field inspection, and project construction management. He also has extensive ECI (CMAR) and Design Build experience.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Ryan Koenig, PE, Structural

Southeast Louisiana Urban Flood Control Project, Louisiana Avenue Improvements (Constance Street to South Claiborne Avenue), Orleans Parish, LA. Served as Project Manager for roadway improvements to Louisiana Avenue, where a new box culvert is being installed to increase drainage capacity for the S&WB. The new box culvert transitions in size from 8'x8 to 12'x10' along its 1.5 miles limit. Responsible for the progress of all design work, client contacts, coordination of sub contractor activities, and coordination with utilities and other entities, including the City of New Orleans Department of Public Works, the Sewerage and Water Board of New Orleans and the Regional Transit Authority. Was responsible for overall project management and oversight of production of plans and specifications, cost estimates, and all other design aspects. Currently performing engineering during construction including submittal reviews, site visits, and RFI responses.

Permanent Canal Closures and Pumping Stations (PCCP) Design Build Project (USACE, New Orleans District). Lead Structural reviewer and Deputy Team lead for AECOM Design Quality Assurance Team (DQA), assisting the USACE in reviewing the contractor's design for contractual conformance for this fast paced, \$615 mil design-build project that includes pumping stations, floodwalls, and levees. Also providing QA/QC services reviewing construction submittals and RFI's.

Mid-Barataria Sediment Diversion, LA CPRA, Belle Chasse, La. Deputy Project Manager and Civil/Structural Engineer for the Mid Barataria Sediment Diversion Project, which will divert 75,000 cfs of sediment-laden Mississippi River water into Barataria Basin for the purpose of building new land within an eight-mile radius of the diversion's outfall over 50 years. The project is currently in the 30%-design phase, and the design is scheduled to be completed and construction to begin in 2021. The project is being executed under a Construction-Manager-at-Risk (CMAR) contract structure, and the E&D is being performed in a collocated office in Baton Rouge to facilitate ongoing collaboration among the AECOM Team, the CMAR, and CPRA.

Task Force Guardian-Hurricane Katrina Levee and Floodwall Repairs (USACE, New Orleans District. Responsible for management and coordination as PDT leader for emergency levee and floodwall repair projects at 3 sites in Orleans Parish, Louisiana, encompassing the following projects: Modifications to Citrus Back Levee, Modifications to Pump Station No. 15 and Modifications to Air Products Site. Work included initial site assessments, civil and structural design repairs to areas of levees and floodwalls and preparation of plans and specifications.

Interim Closure Structures & Pump Stations (London Avenue and Orleans Avenue Canals) New Orleans, LA. AECOM provided design and construction engineering services to the USACE New Orleans District for the construction of two interim closure structures on the London and Orleans Ave. Canals in New Orleans.

Mississippi River Diversion into Maurepas Swamp, St. John the Baptist Parish, La (Coastal Restoration Diversion Louisiana Department of Natural Resources, Structural Engineer. Served as Lead Structural Engineer/Project Manager for the design of three (3) 9' x 9' box culverts crossing that will cross under Airline Highway, the Kansas City Southern (KCS) Rail Line, and the Illinois Central (IC) Rail Line. Responsible for oversight of production of plans and specifications, cost estimates, and all other structural design aspects.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Brent Jones, PE <i>Structural Engineer</i>
Project Assignment:
Drainage Design-Structural
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
8
Education: Degree(s)/Year/Specialization:
MS, Civil Engineering, 2007 BS, Civil Engineering, 2006
Active registration: Year first registered/discipline:
Professional Engineer/Structural/LA/0038935
Other experience and qualifications relevant to the proposed Project:
Brent has over 13 years of structural engineering experience including the analysis and design of new and existing port facilities, marine structures, flood-walls, industrial facilities, parking garages and multi-story commercial buildings. Projects in which he has designed have included gravity and lateral load analyses including hydrostatic, wind, and seismic loads as well as the structural design of reinforced and post-tensioned concrete, steel, masonry and deep and shallow foundations. He is also well versed in a variety of structural engineering software packages including OPTIMOOR, SAP2000, ETABS, SAFE and RAM Structural utilizing three-dimensional, finite element, non-linear and dynamic analyses and has coordinated design drawings using AutoCAD and 3-D BIM technology with Revit Structure.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Brent Jones, Drainage Design-Structural

USACE New Orleans District, Permanent Canal Closures & Pump Stations (New Orleans, LA).

Structural Reviewer. Third-party Design Quality Assurance Team (DQA) structural review for the joint venture design-build project. Assisted with review of design and construction submittals for the new closure canal pump stations, generator buildings, auxiliary buildings and tank farms. Structural review consisted of load calculations, analysis models, concrete design, structural steel design, steel pipe pile design, and U.S. Army Corps of Engineers Hurricane & Storm Damage Risk Reduction System (HSDRRS) design requirements.

SLFPA-East, Orleans Levee District, Replace Blue Light Poles, Lakeshore Drive (New Orleans, LA). Structural and Project Engineer. Responsible for structural design of new light pole foundations to replace existing along Lakeshore Drive and Lake Pontchartrain seawall. Construction phase services include management of subconsultants, on-site field inspectors, material testing agency, review of submittals, RFI's and field issues.

International Boundary and Water Commission (IBWC) Levee Improvements at Edinburg Pump Station (Hidalgo County, TX), Structural Engineer. Analysis, design and preparation of plans and specifications for drilled-pier supported concrete T-wall flood improvements at an existing pump station and levee along the U.S./Mexico border. Designs included concrete drilled piers, reinforced concrete flood walls per USACE criteria and bollard wall and gates at crossings.

Sewerage and Water Board (S&WB) Electrical Modification to Effluent Pump Station at East Bank WWTP, Phase 1 and 2 (New Orleans, LA), Structural and Project Engineer. Provided structural analysis, design and preparation of drawings in support of electrical improvements to the existing East Bank WWTP facility. Coordinated subconsultants for S&WB Disabled Business Enterprise (DBE) requirements as well as internal AECOM electrical engineers. Construction phase services include review of submittals, RFI's and providing support during construction for field issues encountered.

Fort Bend County Levee Improvement District No. 2, Third Pump Station (Fort Bend County, TX). Structural Engineer: Performing analysis and design in support of a new below grade pump station, administration building and ancillary infrastructure. Design and detailing of building structure elements performed with Revit 3D modeling in collaboration with the AECOM team of architects, civil, electrical, mechanical and hydraulic engineers.

International Boundary and Water Commission (IBWC), Channel Maintenance Alternatives at Thurman Arroyos, (Doña Ana County, NM) Structural Engineer of Record: Analysis, design and preparation of plans, specifications and design report for concrete, drilled-pier supported sediment basin flood-walls and weir. Project included two sites at which new sediment retention basins will be constructed for water management of the Arroyo channels to the Rio Grande River.

Structural Engineer, Building 19 Annex, Port of South Louisiana, Reserve, LA. Performed project management and engineering design for a new 77,000 square foot pre-engineered metal building. Specific designs include deep driven pile foundations, concrete structured slab on grade and pile caps and a steel framed storage silo support platform. Additional tasks include preparation of plans and specifications, coordination of sub-consultants and engineering support during construction.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Ananth Bukkapatnam, PE <i>Geotechnical Engineer</i>
Project Assignment:
Geotechnical
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
14
Education: Degree(s)/Year/Specialization:
MBA-Strategic Management MS-Geotechnical Engineering B.S./Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer: LA License #0037634
Other experience and qualifications relevant to the proposed Project:
Mr. Bukkapatnam is proficient in performing site/construction supervision, planning and executing subsurface investigation programs, reviewing/performing laboratory tests adhering to the ASTM/ACI standards, proficient in non-destructive testing of deep foundations/ geo-physical surveys/ thermal conductivity analysis, reviewing construction plans and specifications, survey data, performing feasibility studies on remediation projects. Experience includes managing crews of up to 10 in levee improvements/industrial construction projects, over-water drilling, construction site/landfill inspection. Design experience includes numerical modelling of slope stability and seepage for levees and dams, retaining wall design for runways, MSE wall design for highways, landfill design for industrial facilities and non-destructive foundation testing procedures. Mr. Bukkapatnam has a broad range of experience in both small and large projects including offshore and onshore site investigations, soft soil foundation design, engineering design for flood control systems, design expansion of numerous chemical and petrochemical plants; study of existing and proposed solid and hazardous waste landfill facilities; performing preliminary topographic and hydrological surveys.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Ananth Bukkapatnam, PE - Geotechnical

St. Bernard Pump Stations, New Orleans, LA. Geotechnical Engineer responsible for designing temporary and permanent sheet pile structures, performing heave calculations, slope stability/seepage analyses, settlement analyses for various cross-sections at the Pump Station 2 and Pump Station 3 locations. The project was intended for upgrading the existing pump stations along the Mississippi River Levee System.

Louisiana Coastal Protection & Restoration Authority, Maurepas Swamp Freshwater Diversion Structure, St. John the Baptist Parish, LA. Geotechnical Engineer responsible for drilling oversight and design of a temporary cofferdam structure, inlet structure, sedimentation basin and conveyance channel along the Lake Maurepas Diversion Canal. The analysis included slope stability, seepage analysis, pile foundation design and recommending construction specifications for an inlet structure built for routing the Mississippi river water into nearby marshes for restoration purposes.

Geotechnical Engineer, O'Neal Lane Sewer/Pump-station Upgrades, Department of Public Works, City of Baton Rouge, LA. Geotechnical Engineer responsible for subsurface geotechnical investigation of 16 existing pump-stations in Baton Rouge, LA. The project is implemented to upgrade existing pump stations to be able to withstand additional collection system capacity for wet-weather flow by increasing the size of the sewers. Analyzed laboratory information to perform design checks for bearing capacity, settlement and flotation calculations.

Geotechnical Engineer, Lower Breton Diversion Project, Plaquemines Parish, LA, Geotechnical Engineer. Responsible for the subsurface investigation and preliminary geotechnical design of a diversion channel proposed along the Lower Eastern Banks of Mississippi River. As the Owner's Representative (CPRA), he was tasked with maintaining daily logs, coordinating with the survey crews and drilling crews, requesting permission from oyster landowners for traversing their property as well as coordinating with the soils lab to transport samples back and forth to the laboratory. I was also responsible for performing the Engineering Design which included seepage/stability analysis, uplift studies, excavation modelling, pile capacity and lateral capacity calculations. All the results were presented in the form of a letter report to CPRA along with a Masterplan that was developed for various Coastal Restoration Projects in Louisiana.

Geotechnical Engineer, LPV 109, Geotechnical Observation, USACE, New Orleans, LA. Engineer responsible for subsurface geotechnical investigation of the newly constructed levee which comprising Soil Borings and Cone Penetration Tests at the crest and downstream toe. He coordinated with various drill crews (5) making sure they comply with safety procedures; drilling guidelines and specifications; and check the quality of the samples recovered as per USACE drilling procedures. The sub-surface exploration was performed as a check for the strength-gain used in the design calculations of the levee. The levees were being upgraded to Hurricane Protection Level Post-Katrina and he was involved with the design and construction of various sections of the levees.

Bayou DuPont Marsh Creation and Ridge Restoration, Jefferson Parish, Louisiana, Louisiana Department of Natural Resources, LA. Geotechnical Engineer responsible for supervising the drilling operations for a total of 9 soil borings using an airboat mounted drilling equipment. Engineering analyses involved slope stability, bearing capacity, and settlements using USACE software program: Primary Consolidation, Secondary Compression, and Dessication of Dredged Fill (PSDDF).

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Thomas Cooling, PE <i>Senior Geotechnical Engineer</i>
Project Assignment:
Geotechnical
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
44
Education: Degree(s)/Year/Specialization:
MS, Geotechnical Engineering, 1975 BS, Civil Engineering, 1972
Active registration: Year first registered/discipline:
Professional Engineer: NY, MO, CA (Geotechnical), GA, IL
Other experience and qualifications relevant to the proposed Project:
Mr. Cooling has spent 45 years of his career providing geotechnical engineering services for the design of flood risk management projects, including new or rehabilitated levees, dams, floodwalls, drainage structures, pumping stations, locks, sheetpile temporary and permanent structures, berms, relief wells, cutoff walls, etc. He has provided expertise for over 150 miles of USACE levees and floodwalls totaling over \$500M in construction, including development and oversight of geotechnical investigations according to EM 1110-1-1804, EM 1110-2-1906, and ER 1110-1-1807. He is experienced in design, installation, and interpretation of data for instrumentation such as piezometers and inclinometers. His experience with piles includes: pile capacity curves, settlement bending moments, pile load test monitoring, and interpretation of data obtained from third party pile driver analyzer and static pile load testing.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Thomas Cooling, PE - Geotechnical

USACE Memphis District, Engineering & Design of Levee Enlargement Reach LPV 111, New Orleans, LA. Geotechnical Engineer. Managed a team for the geotechnical design of the \$375M enlargement of this 24 to 28.5 ft. high, 5.2-mile levee. Due to very soft organic clays and a tight time schedule, deep mixing method was selected to improve the foundation and complete the levee raise on-time. The design included deep mix shear panels 60 feet deep, 5.3 ft. wide, 70 ft. long on 15.5 ft. centers along the levee length. This was one of the largest deep mixing projects in the world, involving 1.7 million cubic yards of deep mixed soil. Prepared designs working with USACE and the contractor on an early contractor involvement (ECI) arrangement.

USACE Memphis District, Engineering & Design of Levee Enlargement Reach LPV 109, New Orleans, LA. Geotechnical Engineer. Provided Geotechnical expertise in the design of the \$250M improvements to this 7.5-mile levee. He provided expertise for the ground improvements, more specifically the use of deep mixing method used to strengthen the soft soil foundation for rapid construction under the new drainage structures and under the highway I-10 crossing.

Mid-Barataria Sediment Diversion Senior Consulting Engineer New Orleans, LA. Lead Geotechnical Engineer for the State's first sediment diversion project, which will capture sediment-laden water from the Mississippi River and strategically convey the sediment to the Barataria Basin through a three-component system including a river inlet with gated control structure, conveyance channel, and outfall transition.

Hurricane Protection Office Engineering & Design for Reach LPV 109, New Orleans, LA.

Geotechnical ITR: Various ground improvement methods were evaluated to accelerate construction. Geotechnical ITR for 7.5 miles of levees utilizing wick drains, high-strength geotextiles, and deep mixing methods for ground improvement. LPV 109.02a is a 7.5 mile reach in New Orleans East. The existing levees were raised approximately 4-7 feet with a protected side raise on virgin ground. The new levee construction requires embankment construction in two stages to heights of 18 to 22 feet above existing grades of the tidal marsh. The raises were accomplished by use of stability berms, wick drains and high-strength geotextiles.

Inner Harbor Navigation Canal Locks - New Orleans, Louisiana: Senior geotechnical engineer for preliminary analysis of cofferdam design and slope stability analysis to allow construction in the dry. The original concept for the new lock was to construct it in the wet using float-in technology. Due the challenges of that approach the Corps requested that the firm review the potential to use conventional construction with cofferdams, dewatering, and sloped excavations. Prepared conceptual designs for this method of construction.

Hurricane Katrina – Emergency Levee Repairs, US Army Corps of Engineers, New Orleans District. Lead a team of 5 geotechnical engineers assisting New Orleans District with emergency levee repairs after Hurricane Katrina. The team recommended safe operating levels for London and Orleans Canals, provided geotechnical input and design review of London and Orleans canal closure structures, designed pressure relief well systems at several distressed levees, and evaluated global and local stability for numerous floodwall/levee systems. Provided geotechnical input to URS structural and civil engineers for other floodwall repairs.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Marty Ollinger, PE <i>Electrical Manager</i>
Project Assignment:
Electrical
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
16
Education: Degree(s)/Year/Specialization:
BS/1983/Electrical Engineering
Active registration: Year first registered/discipline:
Professional Engineer, GA, NM, MN, AZ
Other experience and qualifications relevant to the proposed Project:
Marty Ollinger P.E. has over thirty years of experience as a consulting electrical engineer. His experience has been associated with the semi-conductor, municipal, mining, industrial, federal and public sector. Mr. Ollinger has been responsible for the planning, development and design of electrical power distribution and SCADA systems in large pumping facilities, semiconductor clean rooms plants, water and wastewater treatment plants and industrial facilities. Activities included preliminary investigations, scope development, feasibility studies, detailed design drawings, specification development, system coordination, construction estimating, value engineering and recommendations. Additionally, Mr. Ollinger has acted as the Owner's agent in the construction administration phase. This included project administration, shop drawing review, change order processing, change order review, recommendation, arbitration mediation, inspection, punch list and starting and commissioning of systems.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Marty Ollinger, PE

U.S. Army Corps of Engineers New Orleans District, Permanent Canal Closure Pump Stations.

Responsibilities included providing assurance for the electrical and instrumentation design was within compliance of the proposal for a \$750M Design-Build Project. The project included three storm water pumping facilities. 17th Street Pump Station, London Canal Pump Station and Orleans Pump Station. 17th Street Pump Station includes, 5-5000HP pumps and 2-2500HP pumps, 15-2.8MW, paralleling diesel generators in a ring bus configuration; London Canal Pump Station includes, 4-5000HP pumps and 2-2500HP pumps, 11-4.16MW, paralleling diesel generators also in a ring bus configuration, and Orleans Pump Station includes 3-2500HP pumps and 4-2.6MW paralleling diesel generators. All of the pumps are controlled by redundant feeds with medium variable frequency drives (VFD)

U.S. Army Corps of Engineers New Orleans District, Storm Proofing New Orleans Sewerage and Water Board, Orleans Parish, Louisiana Hurricane Protection Office OSP-02(Senior Electrical Project Engineer). Project Responsibilities included: Routing underground 5kV power circuits from the Carrollton WTP to the Drainage Pump Station 5 (DSB-5). The circuit run was approximately 2.5-miles. This project enabled NOCBW to have an alternate power source at DSB-5. Other responsibilities included: Technical memorandum, distribution system study, voltage drop calculations and cost estimating. Development of electrical distribution drawings which included power one-line drawings prepared to ANSI standards, underground distribution site plans and facility power plan drawings; development of the Technical Specifications and final cost construction estimate.

Louisiana Department Natural Resources, Mississippi River Reintroduction into Maurepas Swamp, (Senior Electrical / Instrumentation Project Engineer). Senior electrical and instrumentation engineer for a New Construction Project which included development of the Electrical Distribution System, coordination with Entergy Electric. Coordination with the U.S. Army Corp of Engineers. Responsibilities included flow control automation with PID control loops for flow motorized sluice gate to control water introduction to the Mississippi River Basin.

West Harris County Regional Water Authority (WHCWA), Houston, Texas – Central Pump Station. Supervised the design of the Electrical and Instrumentation systems for a new 205 MGD water pre-treatment and high service pump station. The design included a redundant-sourced 15 kVA, 34.5 kV substation; six 4.16 kV, 1500 hp pumps; four 15 MG ground storage tanks; a chemical feed facility; and an operations building. The plant monitoring and control system (PMCS) consisted of individual pump control PLC's, pump optimization hardware/software, vibration monitoring systems, a redundant fiber optic network, and a SCADA system/network complete with operator interface terminals, human-machine interface software, historians, intranet and internet connections.

White House Utility District, Water Distribution System SCADA System – White House, TN , Project and Senior Electrical/Instrumentation Engineer SCADA system. The project included designing and specifying a system to monitor and control 17 water tanks and 13 booster pump stations. The SCADA system is fully radio and computer controlled. The System was fully automated with computer control graphics. Development of a 900MHZ radio communication for 28 remote facilities. The project incorporated developing all of the pumping and tank level controls for the entire Utility District. Facilities included pumping facilities, water storage tanks and data host control room. Other responsibilities included contract negotiations with the owner and installation contractor, equipment submittal review, and installation inspection full specification development, system logic programming, bidding services, construction administration, system testing and start-up, GIS and CAD.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
John Hangen, PE <i>Electrical Engineer</i>
Project Assignment:
Electrical
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
10
Education: Degree(s)/Year/Specialization:
BSEE, Electrical Engineering, 2009
Active registration: Year first registered/discipline:
Professional Engineer, Electrical, LA, 40653, 2016; AL, MS, FL
Other experience and qualifications relevant to the proposed Project:
Mr. Hangen has over 12 years of experience in the field of electrical and systems engineering at industrial and government facilities, including power distribution, lighting, and controls. He has provided professional 2D and 3D design using AutoCAD R14/2007/2015/LT/ ELEC and MicroStation. He is the Health, Safety, & Environmental as well as the Quality Assurance/Control representative. His areas of Expertise include: P&ID Drawings, Systems Engineering, Electrical Engineering/Design, Piping & Piping Isometrics, Lighting Systems, and Arc Flash Studies.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

John Hangen, PE - Electrical Engineer

Green Bay Packaging, Wastewater Clarifier Trash Rake, Morrilton, Arkansas (Electrical Engineer). Developed and constructed field power distribution methods and enclosures, designed ladder diagrams for field control, verified luminary schedule and design. Verified and augmented grounding. Supervised and participated in start-up and check-out.

Boise White Paper Raw Water Clarifier, Jackson, Alabama. (Electrical Engineer) Developed loop drawings, power control schematics, power and systems plans with cable schedules. Designed lighting system for exterior areas.

BP America, Oily Water Drain Line Pipe Replacement, Pascagoula, Mississippi (Electrical Engineer) Developed piping isometrics for replacement of existing drain line. Coordinated with survey and GPR contractor. Developed construction documents including estimates, scopes of work for various stages of the project, and drawings.

Johnson Controls, IA/IT Connectivity Survey, Fort Polk, Louisiana (Electrical Engineer) Surveyed HVAC installations. Recorded data about each connected device in a database. Coordinated with on-site personnel to schedule building visits and escorts

VA, Combined Heat and Power Plant and New Steam Generation Plant, Dublin, Georgia (Electrical Engineer) Developed diagrams and schematics to relocate existing and install new medium voltage electrical equipment. Developed single line diagrams, location plans and cable schedules for paralleling on-site electrical power generation equipment with utility power. Developed systems diagram displaying network connectivity.

TVA, Coal Wash Plant Deconstruction, Paradise, Tennessee (Electrical Engineer) Modified existing drawings to depict selective deconstruction of facility process equipment. Developed solution to repower key features of the facility. Developed drawings to install unit substation.

VA, Combined Heat and Power Plant & Utility Upgrades, Augusta, Georgia (Electrical Engineer) Developed single line diagrams, location plans, and cable schedules for paralleling on-site electrical power generation equipment with utility power. Developed systems diagram displaying network connectivity.

VA, Upgrade Building 77/204 Switchgear and Transformers, Mountain Home, Tennessee (Electrical Engineer) Developed block diagrams, single line diagrams, wiring diagrams, and control schematics for replacing main switchgear and power transformers. Designed cable tray route. Designed new lighting system for electrical equipment room.

Taminco, TMA Column Replacement, Pace, Florida (Electrical Engineer) Engineering team member in support of operating industrial manufacturer, reporting to Project and Engineering Manager. Performed project work and managed time and schedule of drafts persons. Interfaced with client's on-site maintenance, operations, and craft personnel pertaining to process and equipment installation & design.

New Jersey American Water, Long Term Flood Protection, Bridgewater, New Jersey (Electrical Engineer). Developed plans indicating installation locations and details of underground electrical power distribution. Developed single lines, duct bank schedules, and installation details. Produced specifications.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Shelby Eckols PE <i>Senior Vice President and Regional Quality Manager</i>
Project Assignment:
Water Distribution and Pumping
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
37
Education: Degree(s)/Year/Specialization:
BS, Civil Engineering, 1970
Active registration: Year first registered/discipline:
Professional Engineer, TX 41485, 1977; FL 31226, 19981
Other experience and qualifications relevant to the proposed Project:
<p>Shelby is responsible for the management and quality assurance of water projects in AECOM's Austin office. Shelby has been involved in the design and construction of numerous treatment systems and other water system infrastructure. His extensive engineering experience enables Shelby to provide a unique perspective and thorough understanding of both the design and construction aspects of treatment systems. Shelby's expertise includes conceptual, preliminary, final design, and construction phase services associated with utility, pipeline, tunnel, drainage, and hydraulic projects. He oversees the management of individual projects as well as the supervision of project managers on other projects.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Shelby Eckols PE- Wastewater Collection and Pumping

Water Treatment Plant No. 4 Project, City of Austin, Austin, Texas. As a subconsultant, served as Project Manager for the Preliminary Engineering, Final Design and Construction Phase Services for the raw water supply system, the water plant storm water facilities, and the finished water pumping facilities for Water Treatment Plant No. 4. The Raw Water System consists of a lake tap and 9-foot diameter tunnel with a capacity of 300 mgd, a Raw Water Pump Station with an initial capacity of 50 mgd (ultimate 300 mgd), a Raw Water Transmission Main Tunnel with a capacity of 150 mgd (ultimate 300 mgd), water plant storm water facilities to accommodate ultimate plant capacity of 300 mgd, and a Finished Water Pump Station with an initial capacity of 50 mgd (ultimate 300 mgd). The Final Design was performed to prepare multiple engineering packages that can be combined into the desired construction packages. Construction phase services were performed and the project is complete and in service

Davis Water Treatment Plant Process Improvements, City of Austin, Austin, Texas. Project Manager of preliminary engineering for the evaluation of process, hydraulic, and mechanical areas of the plant. Project included the evaluation of the raw water supply pipeline, rapid mix basins, distribution channels, sedimentation basins, sludge pumping, recarbonation basins, and various other process and mechanical improvements. Upon completion of preliminary engineering, performed final design, bid and construction phase services for various plant areas that were rehabilitated/replaced, for a total construction value of approximately \$10 million.

West Travis County Regional Water Treatment Plant Rehabilitation and Expansion, Lower Colorado River Authority, Austin, Texas. Project Principal for the phased expansion of the existing 8 mgd plant. The initial phase consisted of a 2 mgd expansion to meet urgent demands and a following expansion to 20 mgd to meet future demands. The project consisted of raw water pump modifications, addition of clarifier units, filter modifications and electrical modifications.

BCRUA Raw Water Intake, Brushy Creek Regional Utility Authority, Cedar Park, Texas. As a subconsultant, serve as Project Manager for the Preliminary Engineering for a raw water intake located within Lake Travis near the village of Volente, Texas. The raw water intake consists of multiple intake elevations, each with a capacity of 150 mgd. After evaluation of multiple alternatives, the selected alternative consists of two lake taps with each lake tap supporting two water withdrawal levels. Each lake tap consists of an 8-foot diameter riser pipe embedded in the lake bottom and connected to an 8-foot diameter tunnel to the pump station. The pump station utilizes submersible pumps and discharges to a raw water transmission main tunnel conveying water to a point of connection to an existing water pipeline. In addition to the raw water intake, AECOM provided QA on the tunnels.

Shawnee Water Treatment Plant, Shawnee, Oklahoma . As a subconsultant to Guernsey, served as the Project Principal for AECOM for the design of rehabilitation of rapid mix, clarifiers and the filters. AECOM provided process and mechanical support to Guernsey for this rehabilitation and performed QA/QC on work performed. Project is currently in the preliminary engineering phase.

Ullrich Water Treatment Plant OSHGS, City of Austin, Austin, Texas. As a subconsultant, serve as Project Principal for the Preliminary Engineering Phase services for the design of a conversion of the gaseous ammonia system to a Liquid Ammonia System. The project also included the relocation of the SHMP feed system to provide adequate space for the new ammonia system.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Shelby Eckols, PE - Water Distribution and Pumping

Direct Potable Reuse Feasibility Study, Alliance Regional Water Authority, San Marcos, Texas.

Served as Project Principal for a study to evaluate the feasibility of reuse of the wastewater effluent from the cities of San Marcos, Kyle and Buda. This study evaluated the combined characteristics of wastewater effluent from the three separate plants and defined treatment process necessary to produce potable water. Additionally, the study identified various site alternatives, evaluated each alternative and recommended the preferred site for a 5 MGD Direct Potable Reuse plant.

Wildhorse (Northeast Interim) Wastewater Treatment Plant Expansion, City of Austin, Austin, Texas.

As a subconsultant to Carollo Engineers, served as Project Principal/Project Manager for the expansion of the plant from 0.75 MGD to 2.25 MGD with AECOM responsible for the headworks, final clarifiers, RAS/WAS pump stations, overall plant hydraulics and on-site and off-site facilities. Preliminary Engineering is complete and the project is moving into Final Design..

Walnut Creek Wastewater Treatment Plant Facility Plan, City of Austin, Austin, Texas. Served as Project Principal of the engineering team preparing the Facility Plan. The project consists of evaluation and definition of rehabilitation requirements for the existing 75 MGD plant and definition of future expansion requirements of the plant to achieve 150 MGD of capacity. Additionally, the project includes evaluation of the need for an off-site wastewater treatment plant to pre-treat a concentrated industrial plant flow, prior to the flow reaching the Walnut Creek plant.

Sacramento Regional WWTP EchoWater Wastewater Treatment Project, Elk Grove, CA. As a subconsultant to Carollo, served as Project Principal for AECOM role in the engineering and design of nitrifying sidestream treatment facilities, tertiary treatment facilities and the heavy equipment maintenance Building relocation.

South Austin Regional Wastewater Treatment Plant Filter Rehabilitation Project, City of Austin, Austin, Texas. Project Manager for the preliminary engineering and Project Principal for the final design and construction phase services for the evaluation of the existing filters and rehabilitation/replacement of the filters. The preliminary engineering phase determined cloth media disk filters were appropriate for installation. Final design implemented this recommendation and construction is complete.

Buda Wastewater Treatment Plant Expansion, City of Buda, Buda, Texas. Project Principal for the preliminary engineering, final design and construction phase services for the expansion of the existing 1.5 mgd plant to a capacity of 3.0 mgd. The project also includes a re-rating study of the existing plant facilities to evaluate the ability to increase its capacity and an additional plant effluent discharge location and associated 20,000 LF pipeline.

Shawnee Wastewater Treatment Plants, Shawnee, Oklahoma. As a subconsultant to Guernsey, served as Project Principal for AECOM for the design of a 3 MGD South Wastewater Treatment Plant to replace the existing plant and provided process and mechanical support to Guernsey for rehabilitation of the 3 MGD North Wastewater Treatment Plant. Project is currently in the preliminary engineering phase.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Ioan Chilarescu, Phd, PE <i>Senior Project Manager</i>
Project Assignment:
Water Distribution and Pumping
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
22
Education: Degree(s)/Year/Specialization:
PhD, Technical Science: Water Supply, Sewerage and Water Treatment, 1998 MS, Civil Engineering, 1998 BS, Civil Engineering , 1987
Active registration: Year first registered/discipline:
Professional Engineer, Civil, Texas, 89173
Other experience and qualifications relevant to the proposed Project:
Mr. Chilarescu has 30 years of experience in the planning and designing of pump stations, lift stations, water and wastewater treatment facilities, as well as distribution networks and sewerage systems. Ioan is experienced in conceptual, preliminary, final design and construction phase services associated with water and wastewater treatment systems, pump stations and pipelines. Ioan is proficient in treatment plant process/mechanical design as well as evaluations, troubleshooting, rehabilitation and upgrades of existing facilities. Ioan is experienced in hydraulic modeling and has experience in water distribution systems steady state and transient modeling.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Ioan Chilarescu, Phd, PE - Water Distribution and Pumping

Water Treatment Plant No. 4, Backwash Water Pump Station, City of Austin, TX. Project Manager. Preliminary engineering, final design and construction phase services for WTP4 filter backwash and medium service pump station. Two 38 MGD pumps are being used for either filter backwash or to send the water to the distribution network. The design accommodates both gravity flow and pumping depending of the level in the clearwells and distribution network storage tanks.

Davis and Ullrich WTP Raw Water Hydraulic and Energy Efficiency Improvements, City of Austin, TX. Project Manager. Preliminary engineering for evaluation of energy improvements at Ullrich WTP (167 MGD) and Davis WTP (120 MGD). Evaluation included hydraulic modeling of Ullrich WTP Low Service, Medium Service and High Service Pump Stations, physical modeling of Davis WTP Low Service Pump Station and Computer Fluids Dynamic (CFD) analysis for Rapid Mix Basins at Davis WTP. Final design for Ullrich and Davis LSPS improvements. Final design and construction services for Davis Rapid Mix Basins improvements.

A.R. Davis Water Treatment Plant Process Improvements, City of Austin, TX. Project Manager. Preliminary engineering, final design and construction phase services for the rehabilitation of the 120 MGD Davis WTP. Project included rehabilitation of the raw water header, rapid mix basins, distribution channel gates, sedimentation basins drives, lime sludge system, fluoride system, SHMP system, recarbonation system, and other miscellaneous improvements.

West Travis County Regional Water Treatment Plant Expansion, Lower Colorado River Authority, Austin, Texas. Served as project engineer for the expansion from 9.8 MGD to 20 MGD of the West Travis County Regional Water Treatment Plant. The project consisted of a new 11 MGD raw water intake, a new 11 MGD raw water pump station, a 30-inch diameter raw water transmission main improvements, two new 5 MGD water treatment facilities, one up-rated 3 MGD water treatment unit, a new 20 MGD transfer pump station, a new 0.86 MG disinfection tank, an extended 20 MGD finish water pump station.

Houston East Water Purification Plant Sludge Handling System Improvements, City of Houston, TX. Project involved improvements to the sludge handling systems of Plants 1 and 2 and expansion of the dewatering facilities at the Plant 3 site. Served as project engineer for the hydraulic design of the sludge handling system, including sludge feed loops to centrifuges, sludge transfer lines, supernatant discharge lines, and polymer feed loops.

Water Treatment Plant No. 4, Raw Water System, City of Austin, TX. Project Manager. Preliminary engineering, final design and construction phase services for the WTP4 raw water system. Project included the design of a 300 MGD raw water intake, 300 MGD intake tunnel, 50 MGD raw water pump station and 150 MGD raw water transmission main. Responsible for the design of the 50 MGD raw water pump station. Coordinated physical modeling effort for the 50 MGD PS and future 150 MGD PS.

Integrated Pipeline Program (IPL), Tarrant Regional Water District (TRWD), Fort Worth, TX. Technical Director. TRWD and the City of Dallas Water Utilities are building a new IPL raw water system with a total capacity of 350 MGD. The IPL system consists of approximately 150 miles of 84" to 120" pipelines, six pump stations with capacities from 150 MGD to 350 MGD and several balancing reservoirs. Steady state and transient hydraulic modeling were completed in order to confirm the preliminary design and to support the final design effort. Responsible for technical support and managing of the hydraulic modeling effort for the IPL system and assisting with the startup of 350 MGD JB3 pump station.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
John Buser, PE <i>Senior Project Manager</i>
Project Assignment:
Water Distribution and Pumping
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
21
Education: Degree(s)/Year/Specialization:
MS, Environmental/Environmental Health Engineering BA, Environmental Science
Active registration: Year first registered/discipline:
Professional Engineer, Civil, TX #90881
Other experience and qualifications relevant to the proposed Project:
John is a senior project manager responsible for the design of water and wastewater treatment facilities, water transmission mains, and wastewater and stormwater collection systems. His experience includes the design and construction of large water and wastewater capital improvements projects, including treatment plants, pump stations, storage tanks, and pipelines; the design of urban stormwater collections systems and drainage plans; local, state, and federal permitting for projects; and the development of construction contracts including bid and construction phase support.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

John Buser, PE - Water Distribution Pumping

Water Treatment Plant No. 4 (WTP4) – Preliminary Engineering, Final Design, Bid and Construction Phase Services, City of Austin, Austin. Served as the Project Manager/Engineer for the preliminary engineering, final design, bid, and construction phases associated with the 300MGD raw water intake; the 300MGD, 9ft diameter raw water tunnel; the 150MGD, 7ft diameter raw water transmission main; and the 50MGD raw water pump station. Preliminary design included process design and hydraulic analysis of the intake structure, raw water tunnel and pump stations; and preparation of a preliminary engineering report. Final design services included final design of the stormwater mitigation system at the treatment plant site; supervision of the final process design and hydraulic analysis of the intake, the tunnels, and the pump station; constructability review of each facility; coordination of various subconsultants; development of project specific specifications and details; permit-ting for the WTP4 project, including city, county, state and USACE; scheduling and conducting meetings with City staff and the design team; monitoring of project budget and schedule; development of additional fee proposals; and the preparation of construction bid documents and estimates of probable construction cost. Bid phase services include answering bidders' questions; responding to City comments; evaluation of submitted bids; and recommendation of contract award. Construction phase services include the supervision of engineers and oversight of the selected contractor to ensure compliance with the construction contract.

Water Supply Feasibility Study, Brownsville Public Utilities Board, Brownsville Texas. Served as the Project Engineer for the conceptual planning phase feasibility evaluations for a proposed Reclaimed Water Pipeline (RWP) and Industrial Wastewater Pipeline (IWWP) including pumping, storage, and treatment facilities. As project engineer, performed preliminary design of each pipeline, evaluating size, length, cost, and material; and determined the preliminary route of both pipelines to avoid easement acquisition, development within congested city infrastructure, and avoid environmental and archeological sites. The project was fast tracked to meet the deadlines of the BPUB's schedule.

Bellaire Pump Station, North Fort Bend Water Authority, Houston. Served as independent quality control reviewer for the new Bellaire Pump Station. The Bellaire booster pump station delivers surface water from the City of Houston to various MUDs within North Fort Bend Water authority. The pump station includes six, 8-MGD VFD pumps with air cooled motors, six, 5-MGD ground storage tanks, a control building, chemical addition facilities, cathodic protection, supporting mechanical systems, and miscellaneous site improvements. Services included independent review of the pump station, associated piping, valves, electrical and instrumentation components, and civil improvements; and coordination of the station I&C control system and integration with the NFBWA SCADA system.

Leander Water Treatment Plant Project, Lower Colorado River Authority, Leander. Served as Project Engineer for the preliminary and final design of a new water treatment plant. The LCRA committed to provide the City of Leander drinking water through a new raw water intake and treatment plant. The treatment plant had an initial treatment capacity of 4-MGD, expandable to 12-MGD. Developed a preliminary engineering report for the Authority outlining the proposed improvements for the water treatment plant. Performed final design, including calculations and the preparation of construction drawings, specifications, and contract document, of the water treatment filtration units, backwash piping system, polymer feed system, ammonia feed system, raw water head tank, finished water tank, water quality pond, on-site sewage treatment facility, chemical building potable water supply, and influent static mixer.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Xiaonhong He, PhD, PE <i>Project Manager</i>
Project Assignment:
Water Treatment Process Design
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
18
Education: Degree(s)/Year/Specialization:
PhD, Environmental Engineering MS, Environmental Engineering BS, Environmental Engineering
Active registration: Year first registered/discipline:
Professional Engineer, TX, Environmental, 96775
Other experience and qualifications relevant to the proposed Project:
<p>Xiaohong is an experienced engineer and manager specialized in municipal water and wastewater projects. He is well versed in performing study, modeling, design and construction management for mid to large scale water and wastewater infrastructures, including pump stations, treatment processes and facilities, and large diameter pipelines. His work has been presented in more than 20 journal publications and conferences.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Xiaohong He, PhD, PE - Water Treatment Process Design

CoA, Water Treatment Plant 4 (WTP4), Austin, TX. Prepared several EAs in accordance with the CoA's LDC and ECM for three different proposed WTP4 sites over a 6-year period. Prepared technical memoranda, EAs and facilitated coordination with the USFWS, USEPA, USACE, TCEQ, TPWD, BCCP, and LCRA to identify issues of concern and applicable permits. Major issues of concern included endangered species, water quality/Edwards Aquifer, and archaeological issues. He also performed on-call karst monitoring services during construction activities in certain areas of the WTP4 facility in accordance with BCCP guidelines and USFWS protocols.

CoA, Davis Water Treatment Plant Process Improvements, Austin, TX. Prepared an EA in accordance with the CoA LDC to identify issues that may potentially affect the feasibility or design of the proposed Davis WTP Treated Water Discharge System and Davis WTP Power Distribution Upgrades improvements including a hydrogeologic assessment of the site describing the topography, soils, and geology/hydrogeology. The EA also evaluated and discuss the typical vegetation located within the project limits, and the survey conducted for CEFs.

City of Austin Reclaimed Water System Surge Analysis, Preliminary Design, Austin, Texas. Served as Project Manager, major scope of work included: reviewing reclaimed water usage records, performing site visits to major customers and develop demands, reviewing and updating existing reclaimed water distribution network, developing scenarios for steady state and transient analysis, proposing recommended surge protection measures, and preparing preliminary engineering report.

City of Brownsville, Water & Wastewater 2015 Masterplan, Brownsville, Texas. Served as Project Engineer, performed hydraulic modeling for the wastewater collection system for the entire city using Bentley SewerGEMS. The system consists of approximately 95 miles of force mains, 526 miles of gravity mains and 194 lift stations and two wastewater treatment plants. The model simulated the existing (2015), 2020 and 2030 planning years, identified overflow locations and other upgrade needs, and produced list of capital improvements projects for each planning year.

City of Shawnee Water Treatment Plants Improvements, Preliminary Design, Shawnee, OK. Served as technical lead, reviewed the existing process facilities, proposed and performed modifications to the existing conventional filters, evaluated multiple options for plant disinfection and recommendations for modifications to the existing disinfection contact basins.

LCRA Environmental Assessment, Leander Water Line, Williamson and Travis Counties, TX. Prepared an EA in accordance with the TWDB environmental rules for a water treatment plant and water line from Lake Travis to the City of Leander. Issues of concern included karst geology, Section 404 permitting, and endangered species.

City of Buda, Wastewater Treatment Plant Phase III Expansion Preliminary and Final Design, Buda, Texas. The scope of the project consists of conducting a re-rate study (from 1.5 MGD, to 1.75 MGD) and expansion of the plant capacity from 1.75 MGD to 3.5 MGD. Served as Deputy Project Manager, performed preliminary and final design for the new treatment train, reviewed the design of the effluent and reuse pump station, and conducted hydraulic analysis of the entire plant, including the water reuse system.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:	
Name & Title:	
Marty Rumbaugh, PE Senior Project Manager	
Project Assignment:	
Water Treatment Process Design	
Name of Firm with which associated:	
AECOM Technical Services, Inc.	
Years' experience with this Firm:	
20	
Education: Degree(s)/Year/Specialization:	
MS, Environmental/Water Resources, 1998 BS, Civil Engineering, 1993	
Active registration: Year first registered/discipline:	
Professional Engineer, Civil, TX #	
Other experience and qualifications relevant to the proposed Project:	
<p>Martin has extensive experience in the planning, design, and construction of water and wastewater treatment plants; wastewater gravity sewers, lift stations, and force mains; and potable water pumping stations, transmission lines, and distribution systems. He is proficient in treatment plant process/mechanical design as well as evaluations, troubleshooting, upgrades, and re-rating of existing facilities. Martin's background includes experience in process and regulatory engineering, instrumentation and control systems, wastewater facility odor control systems, biological nutrient removal, and reclaimed water reuse projects. As a project manager, Martin has been responsible for technical leadership and for quality assurance/quality control aspects of numerous water and wastewater projects. He has managed complex water and wastewater engineering projects with construction costs of several million dollars. In 2000, he received the City of Austin Distinguished Service Award for successfully completing fast-track design and construction of water and wastewater utilities in an environmentally sensitive area.</p>	

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Marty Rumbaugh, PE - Water Treatment Process Design

Water Treatment Plant No. 4, Austin Water Utility, Austin, Texas. During the planning phase, performed QA/QC of transmission main routing and intake design concepts. During the final design phase, designed site piping for the Medium Service /Filter Backwash Pump Station of the new 50-mgd WTP. The pump station yard piping included 84-inch diameter welded steel discharge headers; 84-inch diameter welded steel gravity bypass line; 36-inch backwash water and plant water piping systems; and plant water and storm drain piping systems. Performed design of valve vaults for 24-inch through 84-inch motor operated valves and 42-inch flow meter, sized and located the pump station, electrical buildings, transformer pads, and instrument room; and performed site grading and site civil design.

Davis Water Treatment Plant Treated Water Distribution System Project, City of Austin, Austin, Texas. During the Preliminary Engineering phase, served as QC reviewer and was responsible for preparation of Technical Memoranda for the design of a new Medium Service Pump Station, modifications of the existing High Service Pump Station inspection and assessment of the existing Clearwells, and routing of associated site piping and duct banks.

Davis and Ullrich WTPs Raw Water Hydraulics and Energy Efficiency Improvements Project, City of Austin, Austin, Texas. During Preliminary Engineering, served as Deputy Project Manager for the Davis WTP components responsible for Technical Memoranda for the replacement / rehabilitation of an existing 48-inch raw water transmission main; evaluation and recommendations to address vibration issues at the existing Low Service Pump Station; and evaluation and recommendations for modifications of the existing Rapid Mix Basins to address mixing issues at anticipated future reduced WTP flow rates.

Ullrich WTP Replace Obsolete and Failed Equipment Project, City of Austin, Austin, Texas. Served as Project Manager and Lead Design Engineer for non-destructive testing, evaluation, and fast-track replacement/repair of corroded sections of the Low Service Pump Station discharge header. The LSPS capacity is 160 mgd and the header pressure is approximately 150 psi. The project was performed on an accelerated schedule using alternative-delivery procurement in order to achieve full capacity in time for peak summer demands, while keeping the LSPS in service to meet raw water demands during construction.

Davis Water Treatment Plant Process Improvements and Equipment Rehabilitation, Austin Water Utility, Austin, Texas. Marty evaluated the remaining service life and O&M issues of existing equipment, developed and evaluated alternatives, estimated capital and O&M costs, and recommended the proposed improvements for several process areas including the clarifier sludge collector mechanisms, distribution channel gates and actuators, return lime sludge system, emergency caustic scrubber system and sodium hexametaphosphate system. During the final design phase, he designed and prepared plans and specifications for retrofitting new clarifier drives and rehabilitating corner sweep systems in 18 existing 80-foot sedimentation basins with a total capacity of 120 mgd, as well as three existing 80-foot diameter backwash recycle basins.

West Travis County Water Treatment Plant Expansion, Lower Colorado River Authority, Austin, Texas. Evaluated existing upflow-clarifier potable water treatment process facilities, developed alternatives, and provided recommendations for upgrading and for expansion. Performed preliminary engineering phase design for Phase 1 priority improvements. Designed a full-scale HDT/SOR pilot study protocol for testing to re-rate an existing treatment process from 1.8 MGD to 3.0 MGD capacity, and coordinated with TCEQ for approval of the re-rating study. The existing facilities were successfully modified and re-rated to meet peak summer demands during design and construction of the 16 mgd capacity expansion.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Simon Breese, P.Eng <i>Technical Director of Water Treatment</i>
Project Assignment:
Water Treatment Process Design
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
20
Education: Degree(s)/Year/Specialization:
MASc, Chemical Engineering, 1987 BASc, Chemical Engineering, 1985
Active registration: Year first registered/discipline:
Professional Engineer, Ontario
Other experience and qualifications relevant to the proposed Project:
<p>Simon is AECOM's Technical Director for Water Treatment in the Americas, providing guidance on drinking water issues to AECOM offices all over the world. He is a chemical engineer with over 36 years of experience in the troubleshooting, optimization and design of municipal and industrial water treatment systems and has significant experience in all types of water treatment technologies, both established and emerging, in use for drinking water treatment today. Simon has extensive experience in the full range of water treatment processes used for municipal and industrial water treatment, with particular experience in UV disinfection, DAF clarification, granular media filtration, biological filtration, taste and odor control, and seawater desalination. In his global role leading AECOM's drinking water practice technically, he is routinely involved in AECOM's largest and most significant water treatment projects around the world.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Simon Breese, PEng - Water Treatment Process Design

Ulrich WTP, City of Austin, Texas – Centrifuge Replacement Project. Replacement centrifuge equipment for lime sludge dewatering at the 167 MGD plant. The dewatering system is sized to handle 430 tons dry solids per day to a target 60% cake dryness.

San Francisco Public Utilities Commission, Sunol Water Filtration Plant, Sunol, CA. Assistant Project Manager/Lead Process Mechanical Designer. Detailed design of a US \$55 million upgrade to the 160-mgd (1000 ML/d) water treatment plant, which included new flow distribution and flash mix facilities, retrofit of plate settlers and new sludge scrapers to the existing sedimentation basins, construction of new washwater recovery basins, significant seismic upgrading, new chemical feed facilities and a major expansion of the operations building.

City of Evansville, Water Treatment Plant Master Planning, Evansville, IN. Technical Lead. Master planning for upgrades to an existing 230 ML/d aging water treatment plant. The study will assess whether to renovate and upgrade the existing plant, or to build a new plant to replace the existing plant. A key aspect of the project will be to consider alternatives to protect the plant from spills in the Ohio River impacting the plant.

City of Winnipeg, Water Treatment Plant, Winnipeg, MB. Lead Process Engineer. Preliminary and detailed design for a new 400 ML/d water treatment plant, which includes dissolved air flotation clarification, ozone, deep bed biological filtration for organics removal and DBP control, ultraviolet disinfection for Giardia and Cryptosporidium inactivation, on-site generation of sodium hypochlorite and a full residuals handling facility, including gravity thickening and freeze-thaw sludge lagoons.

Greater Vancouver Water District, Seymour Filtration Plant, Vancouver, BC. Project Engineer. Pilot testing and preliminary design of a new 1,000 ML/d direct filtration plant. Pilot testing included design, construction, and 2-year operation of a permanent pilot plant including dissolved air flotation (DAF) clarification, high rate sedimentation, ozone, biological filtration, and residuals handling processes. The base design included direct filtration but allowed for future retrofit of DAF and ozone.

City of Cornwall, Treatment Plant Upgrade/Filter Rehabilitation, Cornwall, ON. Project Manager/Process Lead. Major upgrade to the 100 ML/d conventional treatment plant, including filter rehabilitation (new media and underdrains) and optimization of their UV disinfection/advanced oxidation system.

Hong Kong Water Supplies Department, Sha Tin Waterworks, Hong Kong. Process Lead. Pilot testing and design of a complete replacement of the 550 ML/d South Works portion of this 1,200 ML/d plant. Upgrade will include high rate sedimentation, ozonation, single-stage or two-stage biological filtration for organics and ammonia removal, and ultraviolet disinfection for Cryptosporidium inactivation.

Burloak Water Treatment Plant, Region of Halton, Ontario. Technical advisor for conceptual design and a class environmental assessment for expansion of the 15 mgd plant in stages to an ultimate capacity of 165 mgd, incorporating ultrafiltration, ozone, and ultraviolet disinfection for treatment of Lake Ontario source water.

City of Toronto. Toronto Island Water Treatment Plant Upgrades, Toronto, Ontario. Process engineer for major upgrades to the 120 mgd to include UV disinfection and residuals management.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Sarah McEwen, PE, CFM Water Resources Manager
Project Assignment:
Hydraulic & Hydrologic Modeling
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
4.5
Education: Degree(s)/Year/Specialization:
BS/2013/Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer, Civil, LA #0042539; TX, MS Certified Floodplain Manager, 2014 2014- License # US-14-07857, Certified Bridge Inspector
Other experience and qualifications relevant to the proposed Project:
Sarah McEwen, PE, CFM is the Water Resource Manager of the Jackson, Mississippi AECOM Office. She has extensive experience with managing DOT related projects with respect to Bridge Hydraulics, Scour Evaluations, Internal Technical Reviews, and Roadway Hydraulics. She is also experienced with hydrologic modification impact analysis as part of site design and erosion control measures. She has a background in floodplain mapping and is a certified floodplain manager. Sarah has experience in HEC-HMS, GeoRAS, HEC-RAS, HEC-DSS, HEC-SSP, PCSWMM, HY-8, Hydraulic Toolbox, XPSWMM, ESRI ArcGIS, AutoCAD, SRH2D, MicroStation and GeoPak.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sarah McEwen, PE, CFM

Louisiana Watershed Initiative, LOCD, Project Manager. The Louisiana Office of Community Development retained consulting firms to project management, design guidance review, and overall facilitation and quality control of the Louisiana Watershed Initiative. Mrs. McEwen serves as the Project Manager for Task 1 which includes leading a team to review current guidance/policies, summarize and present current data, develop a technical approach and guidance document for the Pilot Amite River model use and internal staff modifications. In addition, she serves as the Project Manager for Task Order 12 which includes project management of data and modeling activities. In this role she facilitates meeting between agency, consulting, and university stakeholders to support the development of technical guidance, oversees the HUC 8 regional models, and decision support tools. Her technical background allows her to advise and assist OCD on program decisions and support moving the multi-year schedule forward.

Drainage Impact Analysis, Lake Charles, LA for Sasol Chemicals, Project Manager and Hydraulic Engineer (USA) LLC. Served as project engineer that updated the HEC-HMS, HEC-RAS model, and report with as-built information. Also analyzed the results of preconstruction to post construction hydrologic and hydraulic impacts on FEMA and other regulations. Ongoing work to update report with design conditions and constructed as-builts for purposed of submitting a LOMR to the parish for inclusion in the FEMA map revision.

CPRA Mid-Barataria Sediment Diversion, Project Engineer. In charge of coordination with sub-consultants on weekly progress reports for submission to CPRA. Tasks include management and processing of data received from subconsultants. Other roles include reviewer of BODR report for technical approach and clarity. In addition, she led the scour evaluation of the bridge at a site with both riverine and coastal design factors evaluated for impact on the proposed structure including complex piers in a cohesive soil environment. Piers were evaluated using both HEC-18 and FLDOT methods due to the complex pier and cohesive soil conditions. A practical application of the scour methodology was used to replicate the most realistic scour conditions anticipated at the site.

CPRA Maurepas Swamp Engineering and Support Services, Project Engineer. Served as a project engineer in charge of reviewing existing XPSWMM subsurface modeling of local drainage in St. Johns Parish into Maurepas Swamp. The existing modeling was reviewed and converted into a PCSWMM model and updated with publicly available data for use in an evaluation of a diversion. Task include opening the existing model which was created in a version that is no longer recognized by current software, use and convert the available existing data in a new model, review for any land use or development changes, and develop a plan for necessary field data to be collected to finalize the updated existing conditions model. Current tasks include evaluating the hydrologic routing around the proposed diversion, updating the HEC-RAS modeling to incorporate new design changes, converting steady HEC-RAS into Unsteady 1D/2D model, and designing hydraulic structures to ensure capacity throughout system to swamp.

WR Grace Lake Charles Plant, Site Hydrology, Sulphur, LA, Project Engineer. Performed a hydrologic analysis for the refining facility using ArcGIS software and HEC-HMS. Analysis included various storm events along with considerations of changes to site water treatment, storage, and discharge. As project engineer, she also helped the client evaluate the hydraulic design submitted by another consultant for effectiveness with the site conditions. Additionally, she became the Deputy Project Manager for a supplemental agreement to evaluate the subsurface and surface drainage systems and develop construction plans of a conveyance channel.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sarah McEwen, PE, CFM

Hydraulic Modification Impact Analysis, Romeville, LA for Wanhua Chemical Group. Served as project engineer that generate predevelopment and post development hydrology for site including detailed land use and soil group investigation, developed drainage area hydrographs, an unsteady HEC-RAS model to evaluate hydraulic routing through the proposed detention ponds, and hydraulic report with results of the pre-development and post-development analysis. Include iterative design on the outlet control structures of two ponds.

FEMA Hydrologic and Hydraulic Support Services. General contract for support and served as the engineer in charge of review of engineering designs submitted for consideration of funding. Included review of geological, hydrologic, hydraulic, and groundwater design components for a site in New Orleans.

Lakefront Airport 2D Subsurface Modeling. General review and assistance on drainage design for the airport. As the project engineer work included using hydraulic software such as PCSWMM, to create hydraulic analysis of the pre- and post- conditions of site to drainage regulations.

Water Infrastructure, St. Charles Parish Railyard. General review and assistance on drainage design for the railyard site. Included hydraulic software such as HY-8 and Hydraulic Toolbox, and hydrologic analysis of the pre- and post- conditions of site to meet regulations.

FEMA Hydrologic and Hydraulic Support Services. General contract for support, review, and flood mapping services. The specific project was a request for review of incorporation of new survey data into an existing hydraulic model. Project engineer roles included review of existing FEMA model, updates to model to incorporate new survey and flowline data. The site experienced a flowline change and multiple openings within the floodplain. In order to evaluate the lateral overtopping a 2-dimensional model was developed to calibrate the updated 1-dimensional model. Other roles include the development of a community presentation and report of proposed changes for submission to Region 3. This project was the first use of 2-dimensional modeling in this FEMA region

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:	
Name & Title:	
Jeff Irvin, PE Principal Engineer	
Project Assignment:	
Hydraulic and Hydrologic Modeling	
Name of Firm with which associated:	
AECOM Technical Services, Inc.	
Years' experience with this Firm:	
36	
Education: Degree(s)/Year/Specialization:	
BSc/1972 MSc/1981/Water Resources	
Active registration: Year first registered/discipline:	
Professional Engineer, Civil, TX, 85329	
Other experience and qualifications relevant to the proposed Project:	
<p>Mr. Irvin has 37 years of experience and is a senior project manager and has directed the full gamut of studies and designs associated with flooding. He has led H&H for FEMA FIRMs in the Gulf Coast. He has performed numerous flood control channel hydraulic designs and/or evaluations involving modifications of FEMA models and has applied various fluvial geomorphic methods (e.g., Rosgen, USDOT HEC20) in identification of flow regime for evaluation of natural and designed channel stability. He is certified by the Department of Transportation for performance of hydrology, complex hydraulics, and bridge scour analyses.</p>	

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Jeff Irvin, PE - Watershed Planning

Prairie Conservation Reservoir (PCR) Supplemental Watershed Plan, Lower Colorado River Authority (LCRA), Project Manager. Directed development of Supplemental Watershed Plan for construction of a new irrigation water supply regulating reservoir in Colorado County. The Plan was developed under a successful LCRA grant application under the NRCS Regional Conservation Partnership Program.

Texas State Flood Protection Plan, TWDB, Principal Engineer. Wrote portion of plan addressing state (Texas Soil and Water Conservation Board -TSSWCB) and federal NRCS programs for subsidizing the upgrade of NRCS-designed flood control dams built under Public Law (PL) 534 or 566. The task included meetings with both agencies and text review to obtain approval both for description of risks and funding programs.

NRCS Supplemental Watershed Plans and EAs for 11 flood control dams in Texas. Principal overseeing the plans. These plans included concept designs and cost estimates to upgrade existing dams to meet both Texas (TCEQ dam safety) and NRCS (TR60) design criteria, plus assessment of impacts per NEPA requirements (including coordination with USACE, USFWS, THC). Plans for 7 dams have been approved by the NRCS National Watershed Management Center, with plans for 4 dams currently underway.

Holistic Watershed Master Plan for Wilson, Karnes, and Goliad Counties (2014-2016) for San Antonio River Authority. RFPP for two counties (Karnes and Goliad). Plan also addressed these issues in all three counties: water quality, opportunities for low impact development, conservation easements, stream restoration, nature-based parks, and analysis of available funding.

El Paso County Storm Water Management Plan. RFPP for unincorporated county (2010, 2020-21 update). Project included risk assessment for widely varying hydrologic conditions (mountains, mesa, dense urban area with wide range of income/ types of residential structures, irrigated riverine flood terrace), a wide range of concept designs and cost estimates (detention/retention structures, channel improvements, storm water pump stations, road crossing upgrades), and leadership of several public meetings.

City of El Paso Storm Water Management Plan. RFPP for City of El Paso (2009, 2020-2021 update). Project included risk assessment for widely varying hydrologic conditions (mountains, mesa, dense urban area with wide range of income/ types of residential structures, irrigated riverine flood terrace), a wide range of concept designs and cost estimates (detention/retention structures, channel improvements, storm water pump stations, road crossing upgrades), and leadership of several public meetings.

Upper Brushy Creek Flood Protection Plan. RFPP developed for Upper Brushy Creek WCID for portions of 5 cities in southern Williamson County (including Austin, Round Rock, Cedar Park, Hutto, Leander) and portions of unincorporated county. Project included risk assessment for dense urban area, a wide range of concept designs and cost estimates (detention/retention structures, channel improvements). Follow-on work included final and/or concept design for several projects in the RFPP (new dams 101 and 102, modifications to existing dams 8 and 11); and studies relevant to detention storage fee assessments.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Lakhbir Chauhan, PE <i>Senior Mechanical Engineer</i>
Project Assignment:
Mechanical
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
13
Education: Degree(s)/Year/Specialization:
MS, Rotodynamic Machines, 1970 BS, Mechanical Engineering, 1966
Active registration: Year first registered/discipline:
Professional Engineer, LA, 0016530, 1977; FL
Other experience and qualifications relevant to the proposed Project:
<p>Lakhbir is a seasoned principal mechanical engineer who spent his entire career developing mechanical engineering design solutions specifically for coastal storm risk management measures, including pump stations within a levee/flood risk reduction system and mechanical and hydraulic systems associated with floodgates and sector gates. His portfolio includes 14 years in manufacturing for axial, mixed flow, hydraulically driven, and submersible electric pumps for coastal systems as a chief mechanical engineer, where he gained hands-on experience with the equipment he uses in designs today. He spent 10 years as a consulting mechanical engineer specializing in pumping applications for drainage systems, flood risk reduction systems, and pump design applications. Lakhbir's experience is vast and his aptitude in mechanical engineering is diversified, which garners exceptional client service, quality results, and enduring value across the organization.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Lakhbir Chauhan, PE - Mechanical

Permanent Canal Closures and Pumps, New Orleans, LA (USACE, New Orleans District: Design Review and Construction Management for Hurricane Protection Project for the Outfall Canals at 17th Street, Orleans Avenue, and London Avenue, Orleans Parish. Design Review and Construction Management for Hurricane Protection Project for the Outfall Canals at 17th Street, Orleans Avenue, and London Avenue, Orleans Parish. Pump Sizes: #10- 1,800 CFS, 142", 5,000 HP Gear-Motors Drives #7-900 CFS, 100", 2,500 HP Gear-Motors.

Fairmont Pump Station Rehabilitation Witness Factory Performance Test at Patterson Pump facility, Toccoa, GA, City of Cleveland - Department of Public Utilities: Type of Pumps: Horizontal Split-case Bottom Section Centrifugal Pumps No of Pumps: 7 Type of Tests: Performance, NPSHR, Hydrostatic and Vibration Design Condition: 20 MGD @ 420 ft TDH -1750 HP Motor.

City of Cleveland - Department of Public Utilities, Fairmont Pump Station Rehab. Witness Factory Performance Test at Patterson Pump facility, Toccoa, GA. Pump Engineer. Type of Pumps: Horizontal Split-case Bottom Section Centrifugal Pumps No of Pumps: 7 Type of Tests: Performance, NPSHR, Hydrostatic and Vibration Design Condition: 20 MGD @ 420 ft TDH -1750 HP Motor.

Hurricane Protection Office (HPO) LPV 105-111, New Orleans, LA (USACE-Hurricane Protection Office (HPO) Pump Engineer. Due to the raising of the levees, three pumping station required replacement pumping equipment that will enable them to contend with increased head conditions. The projects included selection of new equipment, specifications and drawings, cost estimates and follow up on the reviews and engineering support.

Task Force Guardian – Hurricane Katrina Storm Repairs to Levee System, New Orleans, LA. Pump Engineer. Due to the raising of the levees, three pumping station required replacement pumping equipment that will enable them to contend with increased head conditions. The projects included selection of new equipment, specifications and drawings, cost estimates and follow up on the reviews and engineering support.

Dallas Drainage Pump Station Improvements, Dallas, TX (City of Dallas Public Works and Transportation): Pump Engineer. AECOM was selected to design flood control pump stations for the City of Dallas utilizing Concrete Volute Pumps (CVP). The City called for AECOM to design the stations to operate for the 100-year frequency storm event. The stations consisted of three new and two refurbished stations. The task consisted of head calculations, pump selection, budget pricing and independent technical reviews of the 35% design.

The Contra Costa Water District (CCWD) Oakland, CA, Pump Engineer: CCWD proposes to raise the current Los Vaqueros Reservoir (LVR) level by 35-ft to a new peak elevation of 507-ft. The CCWD retained URS Corporation to evaluate pumping options relating to the existing pumping station for filling the reservoir to the new elevation while maintaining the current average weekly pumping rate of 200-cubic feet per second (cfs). The new pumping system must be capable of operating under the varying head conditions that it could experience during its life cycle. The task consists of providing new design conditions, selection and evaluation of existing and new equipment, cost analysis and prepare plans and specification for replacement of existing equipment.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Sheldon Barnes, PE <i>Mechanical Engineer</i>
Project Assignment:
Pump Station Design
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
20
Education: Degree(s)/Year/Specialization:
BS/2002/Mechanical Engineering
Active registration: Year first registered/discipline:
Professional Engineer/Florida/#71360
Other experience and qualifications relevant to the proposed Project:
Mr. Barnes is an engineer with experience in water and wastewater design and improvement as well as soil and groundwater assessment and remediation at sites contaminated with petroleum hydrocarbons and chlorinated solvents.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sheldon Barnes, PE

South Florida Water Management District, Design Report for Water Forward Pump Stations on Lake Okeechobee, Various Locations, Florida. Provided project engineering services for a feasibility study and subsequent basis of design report for water forward pumping stations at seven sites around Lake Okeechobee; flow rates measure from 135 cubic feet per second to 1,267 cfs (80 mgd to 760 mgd). Identified and evaluated several alternatives for each pumping station and developed mechanical design criteria for each site. Prepared the Phase I feasibility study report and the Phase II basis of design report.

Town of Davie, Water and Wastewater System Expansion Design-Build, Phase I Design, Davie, Florida. Task Manager and Project Engineer for the planning and preliminary design of the \$101 million water treatment and water reclamation system expansion for the Town of Davie, Florida. Facilities included a 6-mgd low-pressure reverse osmosis water treatment plant and 3.5-mgd MBR water reclamation facility. Responsible for preparing Planning and Conceptual Design Reports, which included developing population projections, calculating water and wastewater demands, and identifying and evaluating wastewater alternatives, performing influent wastewater quality analysis, and selecting process equipment for the wastewater treatment plant.

City of Hollywood, West Hollywood Pumping and Storage, Hollywood, Florida. Project Engineer for the design of a booster pumping station with a capacity of 5,100 gpm and two 2.5 MG ground storage tanks. Completed mechanical design of pumps and process piping, and prepared technical specifications.

Miami-Dade County, Hialeah Water Treatment Plant / Miami Springs Wellfield Rehabilitation, Hialeah, Florida. Project Engineer with responsibilities that include the process mechanical and civil design of 23 raw water wells with pump houses as part of the wellfield improvements.

Miami-Dade County, 48-inch Water Main Interconnect, Miami, Florida. Conducted analysis and design of tunneling required for crossings of Biscayne Blvd and two FEC railway tracks, as part of the improvements of the water transmission and distribution system in the Central East Area north of Downtown Miami.

City of North Miami Beach, Pump Station Evaluations and Renovation, North Miami Beach, Florida. Project Engineer responsible for providing the civil and mechanical design of three wastewater lift stations, which included converting one of the stations from dry pit/wet well to submersible.

South Florida Water Management District, STA 1W Expansion #2 – Stormwater Treatment Area, Palm Beach County, Florida. Project Engineer responsible for the mechanical design of three stormwater pumping stations with capacities ranging from 500 cfs to 625 cfs (300 mgd to 404 mgd) and 11 water control structures. Two of the pump stations each include the installation of two (2) vertical wet pit axial flow pumps driven by 350 HP motors, and two (2) of the same type pumps driven by diesel engines. The third pump station includes two (2) vertical wet pit axial flow pumps driven by 400 HP motors, and three (3) of the same type pumps driven by diesel engines.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
John Rector, PE Senior Mechanical Engineer
Project Assignment:
Pump Station Design
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
28
Education: Degree(s)/Year/Specialization:
BS/1992/Mechanical Engineering
Active registration: Year first registered/discipline:
Professional Engineer, Mechanical, FL, MA LEED Accredited Professional
Other experience and qualifications relevant to the proposed Project:
John is skilled in design of complete mechanical systems for commercial, institutional, and industrial facilities. His expertise extends to heating, ventilating, air conditioning, piping, energy management/control systems, steam plants, life cycle cost analyses, and energy conservation evaluations. John's experience also includes construction administration and inspection for installation of mechanical systems.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

John Rector, PE
Senior Mechanical Engineer

Mechanical Engineer, Key Colony Beach Wastewater Treatment Plant Analysis and Design, Key Colony Beach, FL. The City had an existing 220,000 gallon per day activated sludge secondary wastewater treatment plant. AECOM provided study and design services to expand and upgrade the plant. The expanded plant produces an effluent quality of 5 mg/l BOD and suspended solids, 3 mg/l total nitrogen and 1 mg/l phosphorus. AECOM's plant evaluation report examined process alternatives, detailed recommended plant components and the cost of the enlarged plant, and recommended financing alternatives. Additional aeration capacity was designed using the Zeno Gem System. This is the first plant in Florida utilizing this technology which eliminates clarifiers by using membrane filtration.

Mechanical Engineer, Lake Apopka Water Quality Improvements, Orange County, FL. This St. John's River Water Management District (SJRWMD) project consists of improvements to the water quality in Lake Apopka through the use of a levee system covering several square miles. Surface water is pumped from the lake into an intake canal that feeds basins that are enclosed by newly constructed levees. The AECOM team was retained to perform post-construction inspections of the completed levee system, including pipes, control structures, special earthwork construction, and geotechnical investigations.

Mechanical Engineer, GTE Florida, St. Petersburg Main Building, FL. Prepared complete construction documents and specifications for removing two existing chillers and replacing them with a 250-ton screw chiller and a 350-ton centrifugal chiller. Work included energy analysis, chilled and condenser water piping design, pump selection, and sequence of operation.

Mechanical Engineer, GTE Florida, Sarasota Main Building, FL. Prepared complete construction documents and specifications for installing 15-, 20- and 30-ton air handler units. Work included chilled water piping design and connection to the existing chilled water system, pump selection, and sequence of operation.

Mechanical Engineer, Training and Simulator Facility, Marine Corps Air Station (MCAS) Beaufort, SC. Responsible for mechanical systems design for a new \$33.5 million, 101,350-square-foot facility to provide pilot training for the additional new F-35 aircraft for experienced Marine Corps fighter aircraft pilots and foreign military personnel from allied countries. The facility is LEED Gold certified and houses flight simulators, technical support facilities to maintain and program the simulators, classrooms, student learning centers, instructor offices, security and administrative offices. Energy performance optimization was enhanced by using energy-efficient building materials (energy and sound insulation ICF walls, insulated roof deck with standing seam metal "Cool Roof" above, solar shades), high-efficiency HVAC system, energy recovery ventilators, a domestic solar water heating system, and photovoltaic roof panels. The central cooling plant three 400-ton high-efficiency air-cooled chillers with a variable flow primary pumping system. The heating plant consists of a 4,000 MBH condensing boiler with a primary variable flow pumping system. Energy-saving measures incorporated into the HVAC design included the use of high-efficiency chillers, variable frequency drives for fan motors and pump motors, energy recovery ventilation, and energy-efficient control strategies such as demand ventilation based on carbon dioxide monitoring and VAV air handling unit static pressure reset based on demand. Energy-saving measures incorporated into the plumbing design included a solar hot water system. A 35 percent water use reduction was achieved by the use of low-flow plumbing fixtures.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Chris Accardo, PE <i>Senior Consulting Engineer</i>
Project Assignment:
Permit Specialist
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
4
Education: Degree(s)/Year/Specialization:
BS Civil Engineering, 1980 MS Engineering Management, 2001
Active registration: Year first registered/discipline:
Professional Engineer, Civil, LA #21574, 1983
Other experience and qualifications relevant to the proposed Project:
<p>Mr. Accardo is a Civil Engineer with 34 years of experience. Most of this time (32 years) was spent working with the U.S. Army Corps of Engineers, New Orleans District (MVN). At MVN Mr. Accardo held various positions such as Chief, Operations Division; Chief, Physical Support Branch; Deputy District Engineer; Operations Manager; Project Manager; and Civil Engineer. During this time, Mr. Accardo was always engaged with permitting within MVN. During his last 9 years with MVN as Chief, Operations Division, Mr. Accardo was responsible for the MVN Regulatory Branch which processed all MVN permits. The day-to-day activities of the Regulatory Branch were handled by MVN Regulatory staff, but Mr. Accardo was often actively engaged in high profile permits that were important to MVN, the applicants and the public.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Chris Accardo, PE- Permit Specialist

Independent Engineering Consultant

- As an Independent Engineering Consultant, works with clients to obtain permits from the U.S. Army Corps of Engineers for refineries located in Louisiana along the Mississippi and Atchafalaya Rivers.
- Testifies as a permitting expert in court cases.
- Works with clients on dredging and/or marsh creation projects.

Supervisory Civil Engineer / Chief, Operations Division GS-15

- Oversaw the District's Regulatory program and was actively engaged with all major permits such as permits relating to the BP oil spill; major DOTD road improvements; and major proposed developments along the Mississippi River.
- Acted as primary technical authority and consultant on the operations and maintenance (O&M) of the District's civil works projects.
- Navigation Accomplishments - Oversaw the O&M on two deep draft channels (Mississippi River and Calcasieu River), several shallow draft channels, 12 locks and 6 control structures.
- Flood Risk Reduction Accomplishments - Oversaw the daily maintenance on 7 hurricane structures (IHNC Surge Barrier, West Closure Complex, Seabrook Control Structure, Harvey Sector Gates, London Ave. Canal Pump Station, 17th St. Canal Pump Station and Orleans Ave. Canal Pump Station). Was responsible for over 900 miles of Mississippi River levees and floodwalls and over 300 miles of hurricane protection levees and floodwalls.
- During hurricane events, made recommendations to higher authorities on the operation of the 7 hurricane structures mentioned above. Coordinated the operation of these structures with the navigation industry, state agencies and local levee authorities.
- Oversaw the New Orleans District's dredging program which is the largest Corps District dredging program in the United States.
- Worked under the general supervision of the District Commander, and was a key member of the District Commander's Technical Staff.
- Worked through subordinate Branch Chiefs, supervisors and managers and directed the activities of a multi-disciplined workforce consisting of 450-475 professional, technical, administrative, clerical and blue collar employees engaged in the O&M of District projects.
- Managed approximately \$200 million annually.
- Acted as a liaison with state and local government officials, other federal agencies, the media, navigation interests, levee districts and business groups.
- During emergencies such as flood-fights, hurricanes and oil spills, served as a key advisor to the Commander in the coordination and direction of District response and recovery.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Mervin Tassin, PE <i>Inspector</i>
Project Assignment:
Inspection
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
37
Education: Degree(s)/Year/Specialization:
Structural Steel, Basic & Advanced Piping and Geological Drafting
Active registration: Year first registered/discipline:
LDOTD Certification – Structural Concrete Inspector/Technician
Other experience and qualifications relevant to the proposed Project:
Mr. Tassin is the Chief Resident Project Representative for various civil projects. In each of the projects the tasks included daily coordination with the contractor and the Construction Manager assuring that the project was being constructed in conformity with the Plans and Specifications; verifying daily quantities; initial review of the contractor's pay request and resolving any discrepancy; coordination of the testing laboratory scheduling; verification of shop drawings and submittal items. Project experience includes: asphalt and concrete roadways, drainage, sewer, slope paving, box culverts, levee repairs and trench drain.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Mervin Tassin, Inspection

Program Management Road Bond Improvement Program, Jefferson Parish, LA (Jefferson Parish Department of Public Works). Construction Inspector for the review of plans and specifications and project quantities. Mr. Tassin reviewed the submittals and pay requests.

Avenue B Drainage Basin Improvement, Jefferson Parish, LA (Jefferson Parish Department of Drainage). Construction Inspector of the installation of new RCP drainlines, building of conflict boxes, junction boxes and drainlines and new asphalt roadway pavement.

Avenue D Drainage Basin Improvements, Jefferson Parish, LA (Jefferson Parish Department of Drainage). Construction Inspector of the installation of new RCP drainlines, building of conflict boxes, junction boxes, drain inlets and new asphalt roadway pavement.

Gretna Waste Water Treatment Plant Rehabilitation, Jefferson Parish, LA (City of Gretna), (Clarifier Rehabilitation). Construction Inspector. Rehabilitation of clarifiers, travelling bridge, sludge collection piping, weirs, gates, concrete rehabilitation, pumps and trickling filters.

Dwyer Road Pump Station, New Orleans, LA. Construction Inspector. Construction of major pump station and box culvert.

Orleans Levee District, Lakeshore Drive Improvements, Reach 2B: Stamped and colored concrete monoliths driving piles, electrical for new lighting.

Estelle Pump Station addition, Marrero, LA. Construction Inspector. Installation of new drainage pumps.

West Jefferson V-Line Levee Repair (Emergency due to Hurricane Juan), Marrero, LA. Construction Inspector. Repair to breaks in levees.

Lake Pontchartrain Floodwall, New Orleans, LA. Construction Inspector. Levee and roadway improvements. Installation of new floodwall.

Task Force Guardian – Hurricane Katrina Storm Repairs to Levee System, New Orleans, LA (USACE, New Orleans District. Construction Inspector. Inspection of levee repairs, new pump stations and gates associated with damage from Hurricane Katrina.

Hurricane Protection Office (HPO) LPV 105-111, New Orleans, LA (USACE, Hurricane Protection Office). Construction Inspector of placing and compaction of clay levee materials, building of drainage structures (outlet structures, sluice gate structures and inlet structures). Laying of large RCP drainlines, building floodgate structures at Highway 90 and Highway 11. Rehabilitation of existing pump stations and asphalt roadways.

Earhart Boulevard Construction Engineering and Inspection Services (Pine Street to State Street) Segment II, Orleans Parish, LA (City of New Orleans. Construction Inspector. Concrete roadway, drainage, sewer, water and electrical ductbank improvements.

Earhart Boulevard Construction Engineering and Inspection Services (State Street to S. Dupre Street) Segment III, New Orleans, LA (City of New Orleans. Construction Inspector. Concrete bridge and roadway, drainage, sewer, water and electrical ductbank improvements.

Earhart Boulevard Segments IV and V, New Orleans, LA. Construction Inspector. Concrete roadway, drainage, sewer, water, and electrical ductbank improvements.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
AI Naomi, PE <i>Business Development Director</i>
Project Assignment:
Construction Administration
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
13
Education: Degree(s)/Year/Specialization:
MS, Civil Engineering BS, Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer, Civil, Louisiana License #015264 Certified Project Manager
Other experience and qualifications relevant to the proposed Project:
Mr. Naomi is a manager in the AECOM New Orleans office. He has managed a 40-person team to provide planning, designs, and project and construction management for the USACE \$14 billion Hurricane Storm Damage Risk Reduction System. Mr. Naomi has extensive experience in the management, design, and construction of major projects. He has provided construction manager, project engineers, and inspectors for numerous contraction projects. He has coordinated with numerous Federal, State and local agencies including US Fish and wildlife, FEMA, EPA, NOAA, CPRA, DOTD, Sewerage and Water Board, St. Charles Parish, Jefferson Parish Government, Pontchartrain Levee District, and many others. He has made numerous presentations to technical groups and to the public.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Al Namoi, PE - Construction Administration

Permanent Pump Stations, Lakefront Orleans Parish, US Army Corps of Engineer. Provided Construction Management services and managed a high-level technical team of AECOM experts to provide compliance reviews of \$650 million design build contract for 3 major drainage pump stations. Developing design documentation reports and reviewing all construction documentation.

Hurricane Storm Damage and Risk Reduction System, US Army Corps of Engineer, Project/Construction Manager. Mr. Naomi managed a \$95 million IDIQ contract for project management, design, planning, and construction management services for the New Orleans Metro area. This included management an AECOM multidisciplinary team, 15 subcontractors, and 160 task orders for the planning, design and construction management of complex improvements for the 100-year risk reduction system. He has managed 60 construction inspection and management task orders with a total construction value of \$8 Billion. He has managed 40 AECOM employees and 60 contract employees. These include project managers, cost estimators, schedulers, 85 construction inspectors, 10 project engineers, and 5 construction managers. This work included:

- **LPV-109, Orleans Parish, LA.** Project/Construction Manager The design and construction management of over 7-miles of major hurricane protection levee. This includes a major relocation of I-10 in east New Orleans, placement of wick drains and significant instrumentation to monitor consolidation.
- **LPV-111, Orleans Parish, LA.** Project/Construction Manager design and construction management of over 5-miles of major hurricane protection levee. This includes the largest deep soil mixing project in history, the construction of pump station protection and major floodwall construction.

Southeast Louisiana Urban Flood Control, Louisiana Ave, New Orleans, LA. Project manager for the replacement of existing subsurface drainage culverts with new cast-in-place concrete boxes of varying sizes supported on timber or steel H-pile foundations. Four culvert types were designed: an 8-foot by 6-foot culvert 2,350-feet in length (split into 50-foot monoliths), a 10-foot by 8-foot culvert 2,550-feet in length (split into 50-foot monoliths), a 12-foot by 10-foot culvert 2,348-feet in length (split into 50-foot monoliths) and a 16-foot by 7-foot 6-inch culvert 40 feet in length.

East Bank Levee, St. Charles Parish, LA. Managed the planning, design and construction of over 10-miles of levees and floodwalls on the East Bank of St. Charles Parish. This included 4 gravity drainage structures, and numerous floodgates.

East Bank Levee, Jefferson Parish, LA. Managed the planning, design and construction of over 12-miles of levees and floodwalls on the East Bank of Jefferson Parish. This included numerous floodgates, and extensive coordination with public officials and local residents during construction.

Pump Station #6 on the 17th Street Outfall Canal, Orleans Parish, LA. Pump station work included the management of the design and construction of fronting protection at Pump Station #6 on 17th Street. Outfall Canal. This included reinforced concrete walls in front of the pump station.

Pump Stations #1 and #4, Jefferson Parish Lakefront, LA. Managed the construction of breakwaters in Lake Pontchartrain to protect the pump stations from storm induced wave action.

Pump Station # 4 on London Ave Canal, Orleans Parish, LA. Pump station work included the management of the design and construction of fronting protection at Pump Station #4 on London Ave. Outfall Canal. This included reinforced concrete walls in front of the pump station.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Eric Walter CADD Designer
Project Assignment:
CADD/Data Gathering
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
27
Education: Degree(s)/Year/Specialization:
AD, Civil Engineering, Delgado Comm College, 1985
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Mr. Walter has more than 35 years of experience in the Engineering Field as a Drafter/Designer. His experience includes troubleshooting structural related problems between engineering design and construction. Type of work includes structural/steel, reinforced concrete, paving and drainage. Field work included inspection of utility locations, measurements and photographic documentation in preparation for drafting facility plan layouts and structural details. Mr. Walter is proficient in AutoCad R-13 through R-18, and is skilled at using Civil 3-D, AutoCAD Map 3-D, Microstation, and Raster CAD, Corpscon, WP, Excel, Power Point and Microsoft Word.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Eric Walter, CADD/Data Gathering

New Orleans East Hurricane Protection Levee and T-wall Enlargement from CSX Railroad to Michoud Canal Reach LPV 111, New Orleans, LA. Lead Designer on the levee enlargement. The project consists of an extensive soil mix design to support the additional weight of the larger levees. The existing pump station 15 t-walls are being reconstructed to meet the post Katrina criteria.

USACE Hurricane Protection Office (HPO) - New Orleans East- LPV 110 CXS Railroad Gate Flood Protection, New Orleans, LA. Project designer for upgrade of the flood protection at the LPV 110 Reach. LPV 110 is approximately 400-ft long. The project includes the design of the concrete I-walls, T-walls, a railroad gate and earthen levee tie-ins.

Mississippi River Diversion to Maurepas Swamp, St. John the Baptist Parish, LA. Lead structural designer responsible for development of the construction plans, sections and details for the pump station building in this project. The project involves 2000 cfs freshwater diversion from Mississippi River into the swamps south of lake Maurepas. The project involved control structures at the river, 5 miles of channel crossing 2 major rail roads, 3 major highways including Interstate 10 and 250 cfs drainage pumping station.

Louisiana Avenue Improvements (Constance Street to S. Claiborne Avenue), New Orleans, LA. Design team member for the reconstruction of the Louisiana Avenue roadway, intersections, subsurface drainage and box culvert installation. Civil designer whose responsibilities included generating alignments, profiles, cross sections, striping and signing, maintenance of traffic, inlet selection and placement, grading plans, and intersection layouts. This project was located in a dense urban area and involved difficult phased construction and utility coordination with multiple government organizations.

Lake Borgne Basin Levee District, St Bernard Parish Pump Stations No. 2 & 3 Seepage Repairs. Lead civil designer to repair pump station number 2 and 3 by constructing a new concrete T-wall in front of the existing station.

Lake Pontchartrain and Vicinity Remediation to Raise the Maximum Operating Level for the 17th Street Canal OFC-05. Lead Designer to reinforce the 17th Street Canal floodwalls. The project consists of soil mixing the existing levee. The approximate length of the project is 1.75 miles of soil mixing. Raritan Millstone Water Treatment Plant Long Term Flood Protection Project, Bridgewater, New Jersey (Ongoing). Lead civil/Structural designer on the demolition, plan and profiles, sections, utility and right of way plans for the hurricane protection system in Somerset County, New Jersey. The existing plant required and a new flood protect system involving a combination of T-wall and Combi-walls designed to sustain the new hurricane protection requirements.

New Orleans East Hurricane Protection Levee and T-wall Enlargement from CSX Railroad to Michoud Canal Reach LPV 111, New Orleans, LA. Lead Designer on the levee enlargement. The project consists of an extensive soil mix design to support the additional weight of the larger levees. The existing pump station 15 t-walls are being reconstructed to meet the post Katrina criteria.

Lake Lery Marsh Creation, St. Bernard Parish, LA. Civil designer whose task is to develop the site layout and construction plans for the marsh creation site along the western bank of Bayou Terre Aux Boeufs using dredged material and borrow material from Lake Lery. The project is approximately 5 miles long by 350feet wide for a total acreage of 212 acres.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Brian Merceron Civil Technician
Project Assignment:
CADD/Data Gathering
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
38
Education: Degree(s)/Year/Specialization:
General studies / AutoCad / Micro Station
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
<p>Mr. Merceron will serve as our CADD operator. Mr. Merceron has 38 years of experience as an engineering Technician, Designer and CADD Technician. Mr. Merceron has additionally worked as a field technician with inventorying structures as well monitoring construction and environmental sampling for air quality. Mr. Merceron has also performed detailed quantity take-offs, traffic studies and surveying work. Mr. Merceron's CADD capabilities should also not go unnoticed. Mr. Merceron is intimately familiar with AutoCAD as well as Bentley Systems drafting programs. He has also performed computer modeling work and mapping projects during his tenor.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Brian Merceron, CADD/Data Gathering

Task Force Guardian – Hurricane Katrina Storm Repairs to Levee System New Orleans, LA (USACE, New Orleans District), CADD Technician. Mr. Merceron worked on all levee and pump stations included in the Task Force Guardian Task. This work included: civil site work, structural detailing, structural take-offs and cross sections.

Houma Navigation Canal Lock and Floodgate, Terrebonne Parish, LA (USACE, Vicksburg District LA, DACW29-97-0036), CADD Technician. Mr. Merceron worked on the lock structure, civil site work and steel detailing and concrete structure details.

Elmwood Pumping Station and Fronting Protection, Jefferson Parish, LA (USACE, New Orleans District), CADD Technician/Designer. Mr. Merceron worked on drawings and planning layout of plans, sections and details. Task also included Structural\Civil takeoffs. Plans and details included gantry crane lifting system, 5,500-sq. ft. 40' interior structure, floodwall and screen cleaning system. Layout included site plan and levee modifications. Mechanical included 3,000 H.P. diesel driven horizontal pump and fuel storage system.

Pump Station No. 6 Fronting Protection, New Orleans, LA (USACE, New Orleans District), CADD Technician/Designer. Task included drawings and planning layout of plans, sections and details. Also Structural\Civil takeoffs. Plans and details included structural sluice gate and control structures civil site plan layout and mechanical pump drawings.

Westwego to Harvey Canal Reach 3 Structures Jefferson Parish, LA (USACE, New Orleans District), CADD Technician/Designer. Task included drawings and planning layout of plans, sections and details. Also Structural\Civil takeoffs. Plans and details included structural T-wall foundation plan, special T-wall monolith, 30' swing gate monoliths plans, elevation and details. Also plan and profile, rights-of-way and cross section drawings.

Avenue D Drainage Improvements. 10th Street to US Highway 90B Box Culverts, Jefferson Parish, Louisiana.

Elmwood Pumping Station, Jefferson Parish, LA. Detailing, calculations, drafting supervision.

Dwyer Road Pumping Station, Jefferson Parish, LA. Detailing, calculations, drafting supervision.

Pumping Station No. 3, Jefferson Parish, LA. Detailing, calculations, drafting supervision.

New Estelle Drainage Pump Station, Jefferson Parish, LA. Detailing, calculations, drafting supervision.

Avenue D Drainage Improvements, Jefferson Parish, LA. 10th Street to US Highway 90B 12' x 7' concrete box culverts.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Rusty Rex, GISP, CFM <i>GIS Supervisor</i>
Project Assignment:
CADD/Data Gathering
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
1
Education: Degree(s)/Year/Specialization:
BS/Geography/2006
Active registration: Year first registered/discipline:
Certified GIS Professional (GISP) Certified Floodplain Manager (CFM), TX FAA Part 107 Remote Pilot
Other experience and qualifications relevant to the proposed Project:
Mr. Rex has over 14 years experience in GIS and data management. This includes many private sector clients as well as HCFCF, USACE, FEMA and TX GLO. He has extensive experience with GIS related to water resources. This includes land cover classifications, terrain development and floodplain mapping. He also has experience with disaster response, development planning, and data analytics and scripting. He has technical expertise in python, SQL, spatial analysis, FGDC metadata, accuracy assessment, horizontal and vertical datums, and technical reviews. He is a technical expert with ArcGIS Desktop.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Rusty Rex, GISP, CFM - CADD/Data Gathering

MAAPnext Watershed Flood Study (Multiple), Harris County Flood Control District, Lead GIS Analyst, Texas. Mr. Rex serves as the Lead GIS Analyst for the terrain development, floodplain mapping, and database management tasks. He also supports hydrology tasks through spatial analysis and scripting. His responsibilities include terrain data fusion, bathymetry interpolations, database management, floodplain processing, map production, and preparing FEMA-compliant flood risk product submittals.

FEMA Risk MAP PTS Contract/Nationwide. Mr. Rex served as a task manager and cartographic lead for 5+ studies related to FIRM & FIS updates. This include map production, database management including geometric topology work, terrain development, FGDC compliant metadata, TSDN Submittals, and detail check and independent technical reviews.

Deepwater Horizon Disaster Response, BP, GIS Specialist, Louisiana. Mr. Rex served as an emergency response GIS Specialist for environmental services and shoreline protection. Worked with local officials, state and federal agencies, and the U.S. Coast Guard under the Incident Command System. Provided ad-hoc mapping and analysis, imagery interpretation, and automated processes to track cleanup progress.

Tier 1&2 Resource Development Plans, OXY, Facility Surface Planner, Texas and New Mexico. Mr. Rex served as the Facility Surface Planner for several master planned unconventional resource developments. This included stakeholder engagement and spatial analysis for facility siting and optimized routing. This also included navigating complex regulatory environments as well as project execution and management of various data and surveyor workflows.

Land Cover, Pervious/Impervious, and Change Detection, Harris County Flood Control District, GIS Specialist, Harris County, Texas. Mr. Rex served as technical lead for land cover classifications using satellite imagery and lidar. Analysis included modern imagery tasking as wells as USGS and USDA historical aerial photography from the 1980's to detect change over time and to calibrate hydrology models. Performed NDVI, unsupervised and fuzzy classifications, neighborhood filters, ancillary data fusion and NSSDA accuracy assessments.

Lead GIS, Project 3, Texas Coastal Resiliency Master Plan - Texas GLO. Mr. Rex created visualizations to convey CRMP projects to decision makers and the public. Mr. Rex has provided ongoing visualization and web mapping support for both internal and external viewing. This included managed (SDE) and hosted geodatabases. Mr. Rex has applied his cartographic knowledge to make sure the maps are intuitive and aesthetically pleasing while also presenting the correct message. Also did quality control checks on terrain and bathymetry datasets created by partner organizations.

Lead GIS, West Region, Flood Studies for Combined River Basins - Texas GLO. The West region includes almost all of the Guadalupe Basin. Mr. Rex led the data collection plan which researched and evaluated all potential geospatial datasets to support flood studies. Evaluation included quality, completeness, and accessibility. Also met with stakeholders about specifications for future inclusion into the Texas Disaster Information System. Mr. Rex participated in initial data collection to locate risk hotspots using NFIP claims, historic losses, and individual assistance claims fused with building footprints and topography. Also categorized actions pulled from hazard mitigation plans within the watershed.

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>New Orleans Sewerage and Water Board Water Plant Program <i>New Orleans, LA</i></p> <p>Sewerage and Water Board of New Orleans 625 St. Joseph Street - Room 305 New Orleans, LA 70165 Mr. Joe Becker (504) 585-2202</p> <div>   </div>	<p>AECOM has been providing services to the New Orleans Sewerage and Water Board starting in 2000 with follow on projects until 2013. These projects included various engineering services for a modernization program to improve the reliability of the drinking water system for the City of New Orleans as well as providing power back up to the station, modeling and repairs to the plant's distribution system, hurricane hardening for the Oak Street Raw Water Intake and Pump Station, Power Plant Hardening and Retrofit, Emergency Fuel Storage, CM Services, and CA Services.</p> <p>The scope of work included the installation of chemical additives facilities for intake stations. WE provided process design, conceptual and detailed design, preparation of equipment and construction bid packages, bid evaluations and construction management. A study was prepared that analyzed the water treatment scheme prior to final design and construction including:</p> <ul style="list-style-type: none"> • coagulation • lime softening • disinfection • filtration • corrosion control <p>AECOM also designed a 15MW Generator Facility while coordinating with the USACE New Orleans District's Hurricane Protection Office (HPO) also at the Sewerage and Water Board of New Orleans Carrollton Water Treatment Complex, including a 15 Megawatt (MW) dual fuel (natural gas and diesel) powered generator. The generator provided supplemental emergency power to 60Hz facilities owned and operated by the Sewerage and Water Board of New Orleans (SWBNO). This critical power unit provides a much needed power supply to the SWBNO's critical pumping stations during extreme rain events or hurricanes in the event that commercial power fails at those facilities.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2013	\$576,000	\$576,000

PROJECT NO. 1 *continued*

Nature of Firm's Responsibility:

The design work performed by AECOM included all process, civil, structural, mechanical, electrical, and instrumentation engineering work, to produce full plans and specifications for the project. Integration with the existing SWBNO facility was a key component as many of the existing facilities and operational units are over 50 years old. AECOM coordinated with SWBNO employees to allow for integration of the new generator with the existing SWBNO infrastructure.

Other specific design features of the project included an elevated building with a hardened design for 156 mph winds and a concrete containment tank for a 250,000 gallon diesel storage tank. The containment tank consisted of a pile supported foundation with 8-foot high concrete walls to provide supplemental containment protection for the large diesel fuel tank. The entire site was regarded to provide proper drainage around the facility, and was paved with asphalt paving.


Also included were all associated electrical, mechanical, and instrumentation work. In addition, the structural engineers worked in close association with the project architect to provide an architectural treatment that would fit with the adjacent historical structures.

Also included were all associated electrical, mechanical, and instrumentation work. In addition, the structural engineers worked in close association with the project architect to provide an architectural treatment that would fit with the adjacent historical structures.

AECOM also worked with the Sewerage and Water Board of New Orleans (SWBNO) on their distribution system and water plant repairs after Hurricane Katrina. The water system consists of 1,700-miles of pressure mains varying in diameter from eight to fifty inches, about 89 percent of which (1,500 miles) is located on the East Bank of the Mississippi River. The City had a population of approximately 480,000 prior to Hurricane Katrina in August 2005 with over 400,000 people residing on the East Bank. The water lines are antiquated with over 30 percent aged 100 years or more and another 30 percent ranging in age from 40 to 100 years. Prior to the storm the City's distribution system had unaccounted for losses approximating 60 million gallons per day at a pressure of approximately 70 psi leaving the water treatment plant. This was from a total production averaging about 113 million gallons per day.

The City lost water pressure on the East Bank in the aftermath of Katrina. Much of the East Bank was flooded for nearly 30 days with peak flooding depths exceeding 30-feet. Although the water plant was operational within a few days, the water distribution system was highly compromised as a result of the disaster. With the City mostly evacuated and only relief workers and some stranded residents left, the water plant was producing 140 million gallons per day at pressures less than 60 psi.

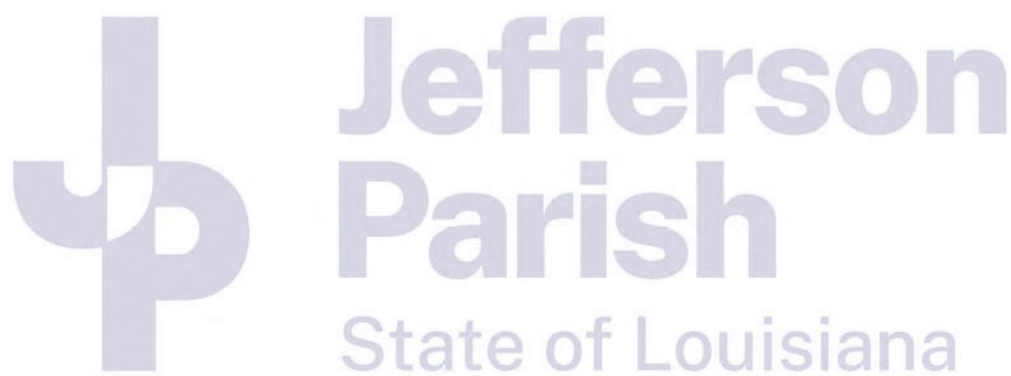
L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 2		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Water Treatment Plant No. 4 Filter Backwash Pump Station Austin, TX</p> <p>City of Austin William Stauber, PE 625 East 10th Street, Austin, TX 78701 512.972.0290</p> 	<p>As a subconsultant, AECOM performed conceptual design, preliminary design, detailed design and construction phase services for the new WTP facilities, placed in operation by 2015. AECOM was responsible for the following project components: deep water intake, raw water tunnel conveyance to the pump station and then to the plant, raw water pump station, general site civil work and storm water quality control facilities at the plant site, and finished water pumping to the off-site distribution system.</p> <p>Facilities were designed to accommodate an initial plant capacity of 50 mgd with an ultimate capacity of 300 mgd. AECOM evaluated multiple alternatives to deliver raw water from Lake Travis to the treatment plant site and from the treatment plant to off-site distribution system. For the raw water facility, AECOM developed designs for (1) a deep submerged water intake facility with three separate intake screens at different elevations along the lake bottom; (2) a 9-foot diameter tunnel 4300 LF from the intake to the raw water pump station, approximately 400 feet below the surface; (3) two expandable 150 mgd raw water pump stations using vertical turbine pumps; and (4) two 7-foot diameter tunnels 3700 LF from the pump station to the water treatment plant site.</p> <p>In addition, AECOM performed preliminary site assessments, environmental reviews, and associated general site civil and storm water systems designs for both the raw water facility and water treatment plant sites for obtaining various stringent site development permits for the proposed work. AECOM also performed the construction phase services on advanced site preparation and forming contracts to make the site ready for the major construction activities.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2015	\$80M	\$6M


Nature of Firm's Responsibility:

The finished water pump station and conveyance system is designed to deliver water to two separate pressure planes. Initial capacity will match the initial plant capacity of 50 mgd, with provisions to expand to an ultimate capacity of 300 mgd. The finished water conveyance system consists of four separate pipeline components — tunnels of 84-inch, 60-inch, and 48-inch diameter, and one 36-inch diameter transmission main — serving the treated water needs of northwest Austin. During the detailed design phase, the City of Austin decided to let out the major construction work through Construction Management-at-Risk (CMAR) alternative project delivery method. AECOM worked closely with the City of Austin, the lead consultant, and CMAR contractor during the design and construction phase of the project.

Work performed by Project Professional: Served as Project Engineer. Conducted detailed design of the yard piping system related to the Filter Backwash Pump Station within the treatment plant site, which includes an 84-inch steel gravity pipe for bypassing the pumping system and the transmission main piping system that consists of pipelines of various sizes (36-inch, 42-inch, 78-inch and 84-inch). Also performed construction phase services such as review of shop drawings and RFIs.



L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Southeast Water Purification Plant Houston, TX City of Houston Mr. Ravi Kaleyatodi 611 Walker Houston, TX 832-395-2500</p> 	<p>The Southeast Water Purification Plant is currently a 200 mgd facility, constructed in two phases, operated by the City of Houston but owned by more than ten co-participants. Phase 1 was initially constructed as an 80 mgd plant, but was then rerated to 120 mgd by AECOM. As part of Phase 1, AECOM performed complete engineering services for the development, design, and construction including a site selection study; treatability analyses and bench-scale studies; process evaluation and design; preliminary engineering, final design, plans, specifications, cost estimating, and construction management; and development of an operation and maintenance manual that included process control descriptions.</p> <p>AECOM also provided start-up and operations assistance to the City of Houston. Recently the plant was expanded to 200 mgd, which AECOM oversaw as Construction Manager. The total cost for the expansion is over \$170M.</p> <p>Technical Components: a) initial capacity of 80 MGD with ultimate capacity of 720 MGD b) multi-phased design and construction c) treatment plant for surface water construction phase services, d) O&M assistance, e) Master Planning, f) Flocculation and sedimentation g) trimedia gravity filters h) chemical feed, i) solids handling, j) multiple stakeholders and collaboration</p> <p>Quality: The original Phase 1 Plant designed by AECOM operated for 22 years without the need for major rehabilitation work. Today, it produces some of the City's most cost-effective finished water.</p> <p>Cost: Through full-scale operational testing, AECOM team rerated the Plant to obtain an additional 40 MGD of capacity with no capital expenditures, saving the COH an estimated \$50 million dollars.</p> <p>Schedule: At the City's direction, the AECOM team to perform a major design change, reducing the capacity from 160 MGD to 80 MGD from changes in the City's master plan, in less than four months. The rapid design change allowed the City to meet an accelerated schedule.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2012	\$350M	\$35M

PROJECT NO. 3 *continued*

Nature of Firm's Responsibility:

O&M: The SEWPP's compact design and configuration allows easier monitoring and operation. The chemical storage and feed facilities are in the same building as the Operator room minimizing distances. Operators also appreciate the elevated control room that allows them to observe plant conditions.


Public & Aesthetics: AECOM met on a regular basis with the City and the co-participants to advise them of the status of the project and to provide information to the co-participants that could be provided to their constituents.

Risk: AECOM served as construction manager during the 80 MGD expansion and even more recent improvements. During the expansion, AECOM was able to manage the City's risk, keeping the total cost of change orders to less than 2% of the total contract cost.

Safety: Under AECOM's watch as Construction Manager, the plant was able to be expanded from 120 MGD to 200 MGD while in service with no major safety incidents.

Accountability: AECOM brought the project in under budget resulting in savings for the City and for the co-participants.

Collaboration: AECOM and the City worked together to earn a 1st Place Engineering Excellence Award from ACEC for their collaboration on the SEWPP re-rating study.

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.		
PROJECT NO. 4		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>T.L. Amiss Water Treatment Plant Improvements <i>Shreveport, LA</i></p> <p>City of Shreveport Qiana Maple, Superintendent Department of Water and Sewer 3205 Blanchard Road Shreveport, LA 318-673-7657</p> 	<p>Plant No. 1 Project The Plant has a rated capacity of 30 mgd and consists of rapid mix basins, 4 flocculation basins, 6 water clarification/ sedimentation basins (approximately 785 thousand gallons each) and associated influent/ effluent troughs. The Plant No. 1 Renovation Project included:</p> <ul style="list-style-type: none"> • Clarifiers - Removal of all sludge collector equipment and replacement with new equipment. • Flocculators - Removal and replacement or rehabilitation of all flocculation equipment was provided, including new spray water system. • Settling Basin Sludge Valves – New electric operators were installed on the settling basin sludge valves. • Settling Basin Overflow Weirs – Removal of concrete columns, weirs, channels and walls and replacement with new concrete columns, weirs, channels and walls. • Structural rehabilitation of basins – Based on non-destructive testing study conducted in 2004, numerous repairs were conducted throughout the flocculation and settling basins. Repairs conducted included removal and replacement of cracked basin wall and floor concrete, epoxy injection crack repair, drilling/grouting voids under floor slab, expansion joint repair, spalled concrete repair. • Decant system removal - Removal of decant pumps, piping, and valves, • Coatings - Application of heavy duty coatings on concrete walls, floors, equipment, and steel. • Other – installation of new aluminum handrails, new electrical and instrumentation equipment, perimeter basin lighting replacement/ upgrades, new pH and turbidity meters, and installation of new piping. • Programming – Integration of new equipment to SCADA and reconfiguration of SCADA screens and programming, including coordination with plant operators. <p>Plant No. 2 Project Plant No. 2 was originally designed to treat water at a flow rate of 25 MGD. After 1986 modifications were completed to construct the third treatment train (Plant No. 2E), Plant No. 2 was de-rated to approximately 16 MGD.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2013	\$3M	\$3M

PROJECT NO. 4 *continued*

Nature of Firm's Responsibility:

Plant 2 consists of rapid mix basin, 3 flocculation basins, 3 water clarification/ sedimentation basins (approximately 700 thousand gallons each) and associated influent/effluent troughs. Lime Clarification Upgrades – similar to upgrades to Plant #1 described above. Administration Building and Laboratory Upgrade – Demolition followed by facility upgrades including civil, electrical, and plumbing amenities as well as specialty equipment for laboratory use.

Sludge Lift Station - Modifications to the Sludge Lift Station, including the removal of the weirs and conversion of existing 4,000-gallon storage tank in the existing Belt Press Building to a sodium bisulfite chemical feed system with two new metering pumps.

The contractor's work schedule was critical on both projects because of the City of Shreveport's need to produce water during the high demand season. Project constraints were developed to limit Contractor work to off-peak months and coordinated closely with the Contractor and plant operations to expedite the project with minimal disruptions. AECOM provided both construction phase engineering services and on-site construction inspection services to help coordinate these projects.

Plant No. 2E, Lime Building No 1 & 2, and Caustic Soda Building Improvements

Plant No. 2E was originally constructed in 1986 and is a conventional type treatment train that includes two Rapid Mix Basins, two Flocculation Basins, two Settling Basins (approximately 2.5 million gallons each), and associated influent/effluent troughs. After the settling basins the settled water combines with the settled water from Plant No.2 where they flow together to Post-ozone Contact Basin No. 2 and Rapid Filter Nos. 17-24. The Plant was originally designed for a flow rate of 34 MGD. However, the plant personnel have successfully processed 40 MGD through the plant with no deterioration in process treatment. The Plant No. 2E Improvements Project includes:


- Settling Basins – Construction of new walkway platforms with water cannons for settling basin washdown, including water pressure booster pump station. Modification of basin drain systems, including new sludge pump station and discharge force main to discharge basin draindown flows to Sludge Pump Station on far end of plant.
- Flocculators - Removal and replacement or rehabilitation of all flocculation equipment, including new spray water system.
- Settling Basin Sludge Valves – New valves with electric operators on the settling basin sludge valves.
- Structural rehabilitation of basins – Based on non-destructive testing study conducted in 2004, numerous repairs are to be conducted throughout the flocculation and settling basins. Repairs include removal and replacement of cracked basin wall and floor concrete, epoxy injection crack repair, drilling/grouting voids under floor slab, expansion joint repair, spalled concrete repair.
- Decant system removal - Removal of decant pumps, piping, and valves,
- Coatings - Application of heavy duty coatings on concrete walls, floors, equipment, and steel.
- Other – Installation of new aluminum handrails, new electrical and instrumentation equipment, perimeter basin lighting replacement/upgrades, new pH and turbidity meters, and installation of new piping.
- Plant and Distribution System Piping - Replacement of leaking dual 24" discharge yard pipes, valves, and connections. Design of new sampling station structures and sample quill connections. Demolition of pumps/piping and modification of header in High/Low Pump Station.
- Caustic Soda Improvements – Demolition of existing lime silos and feed equipment and installation of caustic soda equipment with additional 18,000 - 20,000 gallons caustic soda storage.
- Backwash Retention Pumps - Replacement of backwash retention pumps in High/Low Pump Station. Conversion to different type of pump to improve basin drawdown.
- Plant 1 Sedimentation Basin Capacity Increase - Addition of new concrete troughs in Plant 1 Sedimentation Basins to provide higher re-rated flow.
- Hydraulic Improvements – Modification of weir/baffle in Post-Ozone Basin and modification of filter piping to improve water quality and system hydraulics.
- Plant roadway improvements – Modification and repaving of Plant access roadways.
- Programming – Integration of new equipment to SCADA and reconfiguration of SCADA screens and programming, including coordination with plant operators

Nature of Firm's Responsibility:

Raw Water Piping Modifications Project

Currently, the Amiss WTP obtains raw water from Cross Lake through one 48-inch discharge pipe from the Low Service Pump Station. The lack of a second supply of raw water was identified as a potential reliability issue and weak link in water production. The existing Low Service Pumping Station pumps water through a 48-inch pipe that crosses in a tunnel under the Kansas City Southern railroad to the Pre-Ozone Basins at the head of the water treatment plant. The 48-inch line, Low Service Pump Station, and Cross Lake intake were all constructed in 1969 and have been in service for almost 42 years. The City of Shreveport determined that a secondary source of raw water would provide the desired redundancy in the event of an emergency. However, the railroad was unwilling to allow a new second discharge line to be constructed across the railroad. A second 48-inch raw water supply line had been constructed in 1980 from the 12-Mile Bayou secondary source to the Raw Water Pump Station to provide water to the station as a backup. A plan was developed to utilize a segment of this supply line (also a force main) to cross back under the railroad if the 42-year old line should fail. AECOM provided design and survey services for this evaluation and development of plans and specifications for the second raw water discharge line, including modifications to the existing pipe and construction of a new 60-inch raw water line with bypass. The 60-Inch Raw Water Piping Modifications Project Includes:

- Raw Water Supply Line – 60-inch force main, including bypass piping connection to downstream gravity piping and modifications to existing 48-inch pipeline, as well as associated chemical piping and yard valves.
- Raw Water Flowmeters – Replacement of existing 30-inch, 42-inch, and 60-inch venturi flowmeters with new magnetic meters.
- Low Service Civil Modifications – Driveway extension and modifications, retaining wall construction, and sheet piling to allow alternate access to discharge vault after construction of new discharge connections.
- Low Service Pump Station Discharge Header Replacement – Replacement of 48-inch fabricated steel piping header in discharge vault, including yard piping connections.
- Low Service Security Upgrades – Various security upgrades, including security fencing, fiber optic video feeds to the Plant control room across the railroad, and other controls are planned.
- High Service Pump Station 2 Discharge Header Replacement – Replacement of 36-inch fabricated steel piping header in discharge vault, including surge relief system and yard piping connections.

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.		
PROJECT NO. 5		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>David WTP Process Improvements and Equipment Replacement/Rehabilitation <i>Austin, TX</i></p> <p>City of Austin James King 3500 West 15th Street, Austin, Texas, 78703 512.657.4053</p>  <p><i>AECOM has designed at least 15 projects for the City of Austin - tribute to the City of Austin's trust that AECOM knows how to upgrade large WTPs and keep them operational.</i></p>	<p>AECOM was tasked by the Austin Water Utility to provide preliminary, final design and construction phase services for miscellaneous process improvements to the 120 MGD Davis WTP. The preliminary engineering phase was completed with the submission of nine Technical Memoranda addressing various areas of the plant ranging from the Raw Water Vault to the Recarbonation Basins. The final design and the construction projects were staged in two phases by prioritizing the proposed improvements to most effectively utilize the available budget. During the preliminary engineering phase, AECOM performed condition assessment of the existing equipment. Life cycle cost analysis was conducted in order to determine proposed rehabilitation or replacement of the existing equipment. Following completion of the preliminary engineering phase, AECOM conducted cost prioritization to maximize the use of available budget to fund the project through phasing of major project components.</p> <p>As with Walnut Creek, the project was replacing old equipment in a City of Austin working plant in order to improve the treatment process and plant reliability and to ease the operation and maintenance activities. Davis, like Walnut Creek, is a space restricted plant, with underground utilities filling most of the space between treatment facilities, making any improvements difficult to construct.</p> <p>The project included improvements for the raw water piping, replacements of three 48" flow meters, replacement/rehabilitation of 42 sluice gates in the distribution channels, modification to the sludge recycle system, modifications to the chemical feed systems, modifications to the recarbonation basins to improve hydraulic conditions, rehabilitation of the carbon dioxide storage and feed system including cleaning and recertification of a 100-ton storage tank, modifications to eighteen sedimentation basins and three recycle basins to replace existing clarifier drives along with new walkways and operating platforms, and replacement of corner sweep mechanisms.</p> <p>The replacement of the equipment and the rehabilitation of the treatment facilities was done while maintaining operation of the plant with no impact to the quality of the treated water. The completed project was technically correct, on schedule and within budget.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2017	\$15.5M	\$1.6M

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>FEMA Assistance to the Sewerage and Water Board of New Orleans <i>New Orleans, LA</i></p> <p>FEMA Eddie Williams 337-281-5711</p>	<p>The Sewerage and Water Board of New Orleans (SWBNO) operates the water treatment and distribution system for the City of New Orleans, LA. The water system consists of 1,700-miles of pressure mains varying in diameter from eight to fifty inches, about 89 percent of which (1,500 miles) is located on the East Bank of the Mississippi River. The City had a population of approximately 480,000 prior to Hurricane Katrina in August 2005 with over 400,000 people residing on the East Bank.</p> <p>The water lines are antiquated with over 30 percent aged 100 years or more and another 30 percent ranging in age from 40 to 100 years. Prior to the storm the City's distribution system had unaccounted for losses approximating 60 million gallons per day at a pressure of approximately 70 psi leaving the water treatment plant. This was from a total production averaging about 113 million gallons per day. The City lost water pressure on the East Bank in the aftermath of Katrina. Much of the East Bank was flooded for nearly 30 days with peak flooding depths exceeding 30-feet. Although the water plant was operational within a few days, the water distribution system was highly compromised as a result of the disaster. AECOM collected water meter readings from commercial and residential accounts and obtained treatment plant production records for several months prior to and after Katrina.</p> <p>AECOM was able to calibrate and verify the model to pre-storm conditions for the first half of 2005. The model predicted flows within 2 percent of actual recorded values for the calibration run and within 0.3 percent for the verification run.</p> <p>Other services provided on this contract include:</p> <ul style="list-style-type: none"> • Inspections for Design and Installation of over 10 miles of water system pipe lines. • Review of Wastewater Pumping Stations • Water Treatment Plant Improvements • Cathodic Protections System 	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2013	\$1.3M	\$1.3M

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>East Water Purification Plant Houston, Texas</p> <p>City of Houston Mr. Ravi Kaleyatodi 611 Walker Houston, Texas 77002 832.395.2500</p>  <p><i>For more than 60 years, AECOM has served as consulting engineer for the East Water Purification Plant</i></p>	<p>The EWPP is Houston's largest surface WTP. It is currently rated to provide an average daily demand of 360-mgd, with a distribution pumping capacity of 450-mgd. AECOM and the City of Houston have been partners at the EWPP for 60 years. The EWPP has expanded and upgraded by AECOM many times during this 75-year period to meet increasing water demand caused by population growth, continued efforts to decrease reliance on groundwater, and more stringent water quality regulations. The EWPP is comprised of three different plants located within the same property. This project was focused on upgrades at all three plants in the complex.</p> <p>This project provided improvements to the low lift pump stations, flocculation basins, sedimentation basins, surge basins, thickeners, high service pump stations, transfer pump stations and stormwater pump station. Improvements include:</p> <ul style="list-style-type: none"> • installation of new pumps and rehabilitation of • replacement or refurbishment of drive mechanisms, replacement/refurbishment of rakes, cages, and corner sweeps, • and structural repairs throughout the basins. Basin sizes ranged up to 120-feet in diameter. • Refurbish monitoring and control system • Upgrade plant security <p>The sedimentation basin sizes ranged up to 120-feet in diameter. The project required an innovative construction phasing plan to proceed with work while maintaining an acceptable level of treatment capacity and potable water output by the plants. AECOM developed innovative construction phasing strategies that utilized 48 -72 inches line stops allowing the critical 350-mgd facility to remain in operation at full capacity throughout construction.</p> <p>The upgrade program extended the WTP's life by 30 years as well as meeting the latest EPA regulations, and more importantly continue serving over two million Huston residents.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2022	\$56M	\$6M

PROJECT NO. 7 *continued*

Nature of Firm's Responsibility:


AECOM is currently working with the City on conducting an asset management project for Plant 1 and 2 to evaluate if the plant should be further upgraded or consolidated with Plant 3 in one facility

Uniform Visual Condition Assessment of EWPP Plants 1 and 2


Plants 1 and 2, develop a plant asset inventory has been completed using the hierarchy, asset numbering and nomenclature defined in the current Plant Infor CMMS and supplement the current Plant Infor CMMS information to reflect current assets. All assets at Plants 1 and 2 with an estimated replacement costs exceeding \$25,000 were assessed for condition and criticality. In addition, regardless of replacement costs, defined critical assets were assessed. The assets inventoried includes buildings, structures, piping, rotating equipment, powered valves, electrical primary switchgear and secondary distribution equipment, and instrumentation and control systems.


Additional projects AECOM performed for the East Water Purification Plant

- Clarifier and Flocculator Rehabilitation Project
- Plant 3 High Service Pump Station Capacity Expansion
- Improvements to Plants 1 & 2 Bar Screens LLPS2
- Plant 3 Vertical Flocculators, Energy Optimization Tool at Plant 3 Transfer Pump Station and Other Improvements

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.		
PROJECT NO. 8		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Ullrich WTP Raw Water Hydraulics and Energy Efficiency Improvements Austin, TX</p> <p>City of Austin James King 3500 West 15th Street, Austin, Texas, 78703 512.657.4053</p>  <p><i>This project demonstrates AECOM's expertise in hydraulic modeling and calculations, as well as our ability to design complicated improvements within operational facilities.</i></p>	<p>AECOM responsibilities included providing technical guidance for pump tests; preparing technical memorandums, construction drawings and specification; developing cost estimates, coordination with City of Austin staff, project team, subconsultants and contractor, setting deadlines; assigning responsibilities; monitoring project progress; reviewing and responding to RFIs, submittals, change order requests, etc.</p> <p>AECOM conducted a comprehensive investigation of the hydraulic and energy efficiency for the plant's low service pump station (LSPS), medium service pump station (MSPS) and high service pump station (HSPS). The investigation consisted of field hydraulic and mechanical tests for each pump and desktop analysis. In addition a surge analysis was conducted for the LSPS. A technical memorandum (TM) was published for each pump station following the investigation. The TMs described the evaluation methodology, summarized the analysis results, evaluated various alternatives to improve the hydraulic and energy efficiency and provided recommendations for each pump station.</p> <p>Final design and construction included the following:</p> <ul style="list-style-type: none"> • Rehabilitation of two existing low service pumps (40 MGD and 30 MGD, respectively) to restore pump performance; • Rehabilitation of multiple pump control valves and replacement of actuators in LSPS. • Installation of surge protection devices for the LSPS, including three new surge tanks with a combined capacity of 32,000 gallons, various air valves and associated accessories). • Replacement of flow gates and screens in the wet wells of the LSPS. • Installation of new motor control centers in the LSPS. • Miscellaneous improvements to the electrical/instrumentation/control system in the HSPS <p>The construction was phased in two stages (LSPS and HSPS) in order to effectively utilize the client's budget. The final design of LSPS improvements has been completed and the construction is currently under way; the HSPS improvements are currently in final design. The replacement/rehabilitation of the existing equipment and construction of the new facilities will be done while maintaining operation of the plant with no impact to the quality of the finished water.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2017	\$8M	\$1M

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Water Master Plan <i>St. John the Baptist Parish, LA</i> Mr. Charles Savoie, PE St. John the Baptist Parish 1601 W. Airline Highway LaPlace, LA 70068 504.652-9569</p> 	<p>This project developed a master plan and designs for the Parish's water system. This included a detailed study of the water treatment and distribution systems, placing an emphasis on future demands and needed system improvements. Specifically, the tasks were as follows:</p> <p>Task 1 of the project was the model of the water distribution system. This phase further identified problems with the transport system and necessary capacity increases and distribution improvements, based upon potential locations of new treatment facilities. The model also identified residential areas within the Parish that experience low water pressures during periods of high demand.</p> <p>Task 2 of the project was a detailed planning study of various alternatives to address the treatment, demand, and pressure deficiencies in the Parish's water system. The existing treatment facilities that were studied consist of two surface water treatment plants and a well system. These existing facilities were studied in conjunction with potential new facilities as alternatives were prepared and analyzed. Cost estimates were prepared for each alternative to assist in the determination of the selected one. The selected alternative utilized the existing facilities as much as practical while planning new facilities for future demand, storage, and fire-fighting needs. Other factors that were considered in the study were future regulatory requirements, environmental concerns such as salt-water encroachment in the groundwater, and reliability of existing facilities.</p> <p>Task 3 of the project for the water system is on-going and involves the program management of the system improvements as prioritized by previous phases of the project.</p> <p>It is noted that the planning study was separated into two study areas, the East Bank and the West Bank of the Mississippi River. One surface water plant and the well system serve the East Bank, while the other surface water plant serves the West Bank.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2003	\$300,000	\$300,000

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.		
PROJECT NO. 10		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>West Travis County Regional WTP Expansion Austin, TX</p> <p>Lower Colorado River Authority 3700 Lake Austin Blvd. Austin, TX John McLeod, PE 512-473-3200</p> 	<p>AECOM was retained by Lower Colorado River Authority (LCRA) to perform preliminary engineering, final design, bid and construction phase services for the proposed expansion of the existing 9.8 MGD plant to an ultimate capacity of 22 MGD. The project consists of a raw water intake, raw water pump station, water treatment facilities, transfer and backwash water pump station, chemical dosing and storage facilities, and high-service pump station.</p> <p>AECOM conducted an engineering assessment and identified interim and long-term improvements for the plant expansion. Interim improvements included modifications to the raw water intake, clarifiers and raw water and finished water pumping facilities to meet the immediate demand of 11 MGD, and the ultimate plant improvements included addition of a new treatment train and other miscellaneous improvements.</p> <p>Major work included the following:</p> <ul style="list-style-type: none"> • Expansion of the raw water intake facilities from 9.8 MGD to 22 MGD • Addition of stainless steel inclined settler plates in the existing upflow clarifier to increase its capacity from 1.8 MGD to 3.65 MGD for interim improvement • Construction of two upflow clarifiers and four conventional filters for an added capacity of 10 MGD • Addition of chemical feed and storage facilities (chlorine, potassium permanganate, liquid ammonium sulfate, fluoride, alum and polymer, etc.) • Construction of Pre-Stressed Concrete Clear Well (1.5 million gallons) and Chlorine Contact Tank (0.87 million gallons) • Addition of raw, transfer, and treated water pumps • Expansion of related solids handling facilities • Electrical and I&C improvements 	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2010	\$20M	\$2M

TEC Professional Services Questionnaire

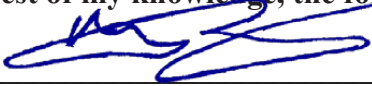
M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	Defendant:	
1. None		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

Please see attached for Section N.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature:  Print Name: Michael Patorno
 Title: Vice President Date: 3/31/2022

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Minimum Qualifications

1. Principal who is a licensed, registered professional engineer in Louisiana

Mr. Michael Patorno, PE, PMP is our Principal for this program. Mr. Patorno has more than 38 years of engineering experience specific to Jefferson Parish and has been a licensed Louisiana Civil and Environmental Engineer (#0024197).

2. A professional in charge of the Project who is a licensed, registered professional engineer in Louisiana with a minimum of five years' experience

In addition to Mr. Patorno, our Principal, Mr. Clay Loyless is a registered Louisiana PE (#0028552), with more than 40 years of experience. In addition to Mr. Loyless, we have also included a variety of other engineers with the skillsets required for this program with Louisiana PE's that have more than the five (5) years required minimum experience including our staff engineers. Please reference the resume section for additional information on experience.

3. The persons or firms under consideration shall have one (1) employee who is a licensed, registered professional engineer in the State of Louisiana. A subcontractor may meet this requirement only if the advertised Project involves more than one discipline

AECOM has several individuals that are licensed and registered as professional engineers in the State of Louisiana. Please to refer to our organizational chart and resumes for additional staff that meet this criteria.

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Introduction

AECOM has modelled, designed, managed, and provided quality oversight on numerous water, drainage, , seven major pumping station projects and hundreds of miles of drainage systems throughout the entirety of Jefferson Parish and the Metro Area.

AECOM has resided and worked in and with Jefferson Parish on a variety of water related projects as demonstrated herein, since 1965. AECOM is a global professional services firm providing integrated design, planning, engineering, environmental, program management, and construction management services to a broad range of markets. AECOM's presence now spans more than 100 countries with the skills of more than 50,000 specialized professionals, including more than 350 employees who work in our Louisiana offices. AECOM currently has over 100 staff that live and support their families within Jefferson Parish. Many of these same staff will be those working on routine water projects as per this request for qualifications. We blend global knowledge, local experience, technical excellence, innovation and creativity to offer our clients unparalleled resources and expertise. During our 50-plus years in the Jefferson Parish and Greater New Orleans area, we have worked extensively with and in Jefferson Parish on numerous water, drainage, canal, pumping station, bridge, roadway repair, floodwall, levee, and building projects.

With our unparalleled global resources to back up our strong local presence, AECOM has the ability to provide Jefferson Parish with the necessary expertise and experience no matter what situations arise. AECOM is ranked as one of the top Engineering Firms in the United States. In addition, AECOM holds the #2 ranking in Water. These rankings are the best "top down" evidence we can provide of satisfied clients. We'll continue this successful track record working for Jefferson Parish.

Our local staff to be assigned to any Jefferson Parish project, have extensive water system

design experience in Jefferson Parish and throughout the Gulf Coast area. AECOM has highly qualified and experienced staff to deliver the planning, modeling, design, and construction on any required drainage projects. AECOM will perform any project(s) from our downtown office located on Poydras Street.

Our proposed professional team is the most qualified water and drainage team in Louisiana. AECOM's strength is in our professional experience in evaluating, modeling, designing, and supporting the construction and commissioning of water and pumping systems. AECOM's local expertise in hydraulic and subsurface modeling and storm water pumping systems is supported by AECOM's national expertise. AECOM's local offices can call upon a wealth of national experience to assist with the project as needed. Various senior and specialty staff members of the AECOM organization are available to work with our local team in project planning and evaluation, quality consultation, specialized design elements, and design & construction quality assurance/quality control.

AECOM has completed dozens of previous projects successfully – including modeling and design of water treatment plants and pumping systems, hundreds of miles of subsurface drainage systems, box culverts and open drainage systems in the Jefferson Parish and the Metro New Orleans Area. We have also performed major gate systems designs for tying in major culverts to pumping stations including analyses such as the sluice gates at Pumping Station No. 6, Seven (7) Major Drainage Pumping Stations (Westminster Lincolnshire, New Estelle, Old Estelle, Elmwood, Mt. Kennedy, Ames, Whitney Barataria), design and management of major roadway reconstruction for major drainage improvements such as the West Napoleon Roadway Corridor, management of the Jefferson Parish Road Bond Program which included many water and drainage related projects, as well as hundreds of miles of drainage systems in the Greater New Orleans metropolitan area.

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Evaluation Criteria

1. Professional Training and Experience

The AECOM Team will provide a management team that works cost effectively and efficiently to guide and manage our overall team to accomplish required project tasks. A brief paragraph of experience is provided below for each key individual identified in the Organization Chart, and the following Table 1 clearly demonstrates how our AECOM Team far exceeds the Jefferson Parish requirements for this project.

Michael Patorno, PE – Principal in Charge

Mr. Patorno has experience as a Program, Operations and Location/Office Manager overseeing programs and projects within the AECOM Gulf Coast Water Business Unit. Mr. Patorno has more than 35 years of experience as a professional engineer in Louisiana and has worked in and managed the Jefferson Parish office for more than 24 years. Programs and projects accomplished in Jefferson Parish include planning, designs, program and construction management of water, drainage, and flood protection programs as well as alternative delivery programs and permitting up to \$2 billion in project size.

Clay Loyless, PE – Project Manager

Mr. Loyless will serve as Project Manager and oversee wastewater collection engineering, Mr. Loyless has 42 years of civil engineering experience with design and construction management emphasis water, wastewater and storm water projects. He has designed wastewater and storm water pump stations, sewer force mains, and gravity sewer and drainage collection networks.

Daniel Zell, PE, CFM, PMP, D.WRE, PgMP – Quality Control

Mr. Zell is a civil engineer with 20 years of design experience for civil works and utility transportation projects. Her primary experience is related to civil layout and design of flood protection features, roadway, and subsurface/urban drainage systems.

Phillip Olivier, PE –Civil

Mr. Olivier is a civil engineer with over 18 years of design experience. His primary experience is related to large civil works projects, civil layouts, bridge inspections, utilities, flood protection, facilities /buildings, levees, dams and commercial real estate development. Mr. Olivier has been involved in all phases of the projects including diligence, conceptual layouts, permitting, final design and engineering during construction.

Greg France, PE – Civil

Greg has experience in construction management; levee design, construction and inspection; pump station and floodwall inspection; hydrologic and hydrographic modeling; bridge scour countermeasure design; bridge inspection; and roadway drainage design.

Bruce Lelong, PE –Structural

Mr. Lelong's experience encompasses drainage structures, flood protection structures, pumping stations, inland marine structures, navigation locks, port facilities, and industrial structures. He has managed and been the engineer of record of projects as large as \$400 million. He has designed reinforced concrete, steel, and masonry structures; prepared contract plans, specifications and cost estimates; and has extensive experience providing engineering support services during construction, construction management services. Mr. Lelong also is experienced inspecting structures and bridges.

Ryan Koenig, PE–Structural

Mr. Koenig has 19 years of experience in project management, permitting, design, and construction administration experience with building structures, port structures and hydraulic concrete and steel structures for flood and navigation projects. Mr. Koenig has worked on all phases of engineering and construction projects: conceptual design, permitting, final design, shop drawing review, field inspection and project and construction management. Mr. Koenig has experience with three-dimensional and finite element modeling and analysis using SAP2000 and STAADPro for both concrete and steel structures.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Brent Jones, PE–Structural

Mr. Jones has 14 years of civil and structural engineering experience in the analysis and design of new and existing water treatment and environmental structures, port and marine facilities, floodwalls, industrial facilities and multi-story commercial buildings. Projects in which he has designed have included gravity and lateral load analyses including hydrostatic, wind, and seismic loads as well as the structural design of reinforced and post-tensioned concrete, steel, masonry and deep and shallow foundations. Additionally, Mr. Jones has performed condition assessment surveys, peer reviews, and renovations of existing structures and has experience in preparing construction drawings and specifications, coordinating with State and Local permitting agencies and providing engineering support during construction and construction administration of projects.

Ananth Bukkapatnam, PE – Geotechnical

Mr. Bukkapatnam has 17 years of field/office experience in geotechnical/civil engineering: performing site supervision, laboratory tests, CPT data analysis, shallow and deep foundation design and analysis, settlement analyses, slope and bank stability analysis, non-destructive testing of foundations, geophysical surveys, thermal conductivity analysis, reviewing topographical surveys, construction oversight and has been an integral part of some diverse projects for AECOM.

Tom Cooling, PE – Geotechnical

Mr. Cooling has spent 45 years of his career providing geotechnical engineering services for the design of flood risk management and hurricane and storm damage risk reduction projects, including design and construction of new or rehabilitated levees, floodwalls, drainage structures, pumping stations, locks, sheetpile temporary and permanent structures, berms, relief wells, cutoff walls, etc. He is experienced in design, installation, and interpretation of data for instrumentation such as piezometers and inclinometers. His experience with piles includes: pile capacity curves, settlement bending moments, pile load test monitoring, and interpretation of data obtained from third party pile driver analyzer and static pile load testing.

Marty Ollinger, PE*–Electrical

Mr. Ollinger has over 40 years of experience as a consulting electrical engineer. Mr. Ollinger has been responsible for the planning, development and design of electrical power, instrumentation and SCADA systems in large pumping facilities, water and wastewater treatment plants and industrial facilities. Additionally, Mr. Ollinger has been involved with the designs of power and control systems presently utilized in large pumping facilities, semi-conductor, municipal, mining and industrial plants. His design approach is to coordinate with key process operational personnel and develop the process and instrumentation diagrams (P&ID) drawings.

John Hangen, PE - Electrical

Mr. Hangen has over 12 years of experience in the field of electrical and systems engineering at industrial and government facilities, including power distribution, lighting, and controls. He has provided professional 2D and 3D design using AutoCAD R14/2007/2015/LT/ ELEC and MicroStation.

Ioan Chilarescu, PhD, PE – Water Distribution and Pumping

Mr. Chilarescu has 30 years of experience in the planning and designing of pump stations, lift stations, water and wastewater treatment facilities, as well as distribution networks and sewerage systems. Ioan is experienced in conceptual, preliminary, final design and construction phase services associated with water and wastewater treatment systems, pump stations and pipelines. Ioan is proficient in treatment plant process/mechanical design as well as evaluations, troubleshooting, rehabilitation and upgrades of existing facilities. Ioan is experienced in hydraulic modeling and has experience in water distribution systems steady state and transient modeling.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Shelby Eckols, PE – Water Distribution and Pumping

Shelby is responsible for the management and quality assurance of water projects. Shelby has been involved in the design and construction of numerous treatment systems and other water system infrastructure. His extensive engineering experience enables Shelby to provide a unique perspective and thorough understanding of both the design and construction aspects of treatment systems. Shelby's expertise includes conceptual, preliminary, final design, and construction phase services associated with utility, pipeline, tunnel, drainage, and hydraulic projects.

John Buser, PE – Water Distribution and Pumping

Mr. Buser is responsible for the design of water and wastewater treatment facilities, the design of water transmission mains, and wastewater and storm water collection systems. His experience includes the design and construction of large water and wastewater capital improvements projects, including treatment plants, pump stations, storage tanks, and pipelines; the design of urban storm water collections systems and drainage plans; local, state, and federal permitting for projects; and the development of construction contracts including bid and construction phase support.

Xiaonhong He, PhD, PE – Water Treatment Process Design

Xiaohong He is an experienced engineer and manager specialized in municipal water and wastewater projects. He is well versed in performing study, modeling, design and construction management for mid to large scale water and wastewater infrastructures, including pump stations, treatment processes and facilities, and large diameter pipelines. His work has been presented in more than 20 journal publications and conferences.

Marty Rumbaugh, PE – Water Treatment Process Design

Marty Rumbaugh has 25 years of experience in water and wastewater engineering. Marty is licensed in both civil and environmental engineering and is proficient in system planning and feasibility studies; detailed process and mechanical design of treatment facilities; and evaluations, troubleshooting, upgrades, and re-rating of existing facilities. His experience includes process and regulatory engineering, biological nutrient removal, odor control systems, and reclaimed water reuse projects. Marty has managed and been responsible for technical leadership of many complex projects.

Simon Breese, P.Eng - Water Treatment Process Design

Mr. Breese is a Vice President, and is AECOM's Global Technical Director for Water Treatment, providing guidance on drinking water issues to AECOM offices throughout the world. He is a chemical engineer with more than 30 years of experience in the troubleshooting, optimization, and design of municipal and industrial water treatment systems. He has extensive experience in the full range of water treatment processes used for municipal and industrial water treatment, with particular experience in DAF clarification, granular media filtration, lime softening, biological filtration, taste and odor control, and seawater desalination.

Sarah McEwen, PE –Modeling

Sarah McEwen, PE, CFM is the Water Resource Manager of the Jackson, Mississippi AECOM Office. She has extensive experience with managing DOT related projects with respect to Bridge Hydraulics, Scour Evaluations, Internal Technical Reviews, and Roadway Hydraulics. She is also experienced with hydrologic modification impact analysis as part of site design and erosion control measures. She has a background in floodplain mapping and is a certified floodplain manager. Sarah has experience in HEC-HMS, GeoRAS, HEC-RAS, HEC-DSS, HEC-SSP, PCSWMM, HY-8, Hydraulic Toolbox, XPSWMM, ESRI ArcGIS, AutoCAD, SRH2D, MicroStation and GeoPak.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Jeff Irvin, PE –Modeling

Mr. Irvin has 37 years of experience and is a senior project manager and has directed the full gamut of studies and designs associated with flooding. He has performed numerous flood control channel hydraulic designs and/or evaluations involving modifications of FEMA models and has applied various fluvial geomorphic methods (e.g., Rosgen, USDOT HEC20) in identification of flow regime for evaluation of natural and designed channel stability. He is certified by the Texas Department of Transportation for performance of hydrology, complex hydraulics, and bridge scour analyses.

Lakhbir Chauhan, PE – Mechanical

Mr. Chauhan has over 16 years of experience as a Consulting Mechanical Engineer in pumping applications, project development, and implementation for Flood Protection and Water Resources projects. Prior to that, Mr. Chauhan worked for 14 years in design, manufacturing, and sales of axial flow, mixed flow, hydraulic, and submersible-electric pumps as a Chief Mechanical Engineer/ Director of Engineering. He started out as Mechanical Engineer with Louisiana Department of Transportation and Development in major flood control, water, and wastewater infrastructure pumping projects and worked with the TOTD for 12 years.

Sheldon Barnes, PE – Mechanical

Mr. Barnes is a water/wastewater engineer with experience in the design and construction of water and wastewater treatment facilities, pumping stations and rehabilitation of various facilities. He brings extensive experience in evaluating existing conditions, site planning, and designing upgrades and conversions of existing, aging facilities.

John Rector, PE: -Mechanical

Mr. Rector will serve as our Senior Mechanical Engineer. Mr. Rector is skilled in design of complete mechanical systems for commercial, institutional, and industrial facilities. His expertise extends to heating, ventilating, air conditioning piping, and energy management/control systems. His experience also includes construction administration and inspection for installation of mechanical systems.

Chris Accardo, PE Permit Specialist

Mr. Accardo is a Civil Engineer with 34 years of experience. Most of this time (32 years) was spent working with the U.S. Army Corps of Engineers, New Orleans District (MVN). At MVN Mr. Accardo was always engaged with permitting within MVN. During his last 9 years with MVN as Chief, Operations Division, Mr. Accardo was responsible for the MVN Regulatory Branch which processed all MVN permits. The day-to-day activities of the Regulatory Branch were handled by MVN Regulatory staff, but Mr. Accardo was often actively engaged in high profile permits that were important to MVN, the applicants and the public

Mervin Tassin–Inspection

Mr. Tassin will conduct inspections. Mr. Tassin is the chief resident project representative for various civil projects of the AECOM New Orleans office conferring directly with the owner, representatives and the contractors.

Al Naomi, PE–Construction Administration

Mr. Naomi will serve as our construction administrator. Mr. Naomi is a civil engineer with 46 years of experience and has served as program and project manager of major flood control, navigation, and coastal restoration projects. He provided construction management services and personnel for the Harahan Pump to the River project, and for SELA projects in Uptown New Orleans. He provided over 40 construction inspections to the USACE for over \$5 billion in construction contracts post-Katrina. Mr. Naomi was the AECOM program manager for over \$2 billion in design work for the USACE contracts. While employed by the USACE he worked closely with Jefferson Parish officials and representatives of East Jefferson Levee District on significant drainage and flood protection projects.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Eric Walter–CADD

Mr. Walter will serve as our CADD designer. Mr. Walter has 32 years of experience in the Engineering Field as a Drafter/Designer. His experience includes troubleshooting structural related problems between engineering design and construction. Mr. Walter was involved in field work including inspection of utilities, measurements and photographic documentation for drafting facility plan layouts and structural details. Mr. Walter is proficient in AutoCAD R-13 through R-2011, and is capable of using Civil 3-D, AutoCAD Map 3-D, MicroStation, and Raster CAD, Corpscon, WP, Excel, Power Point and Microsoft Word.

Brian Merceron–CADD

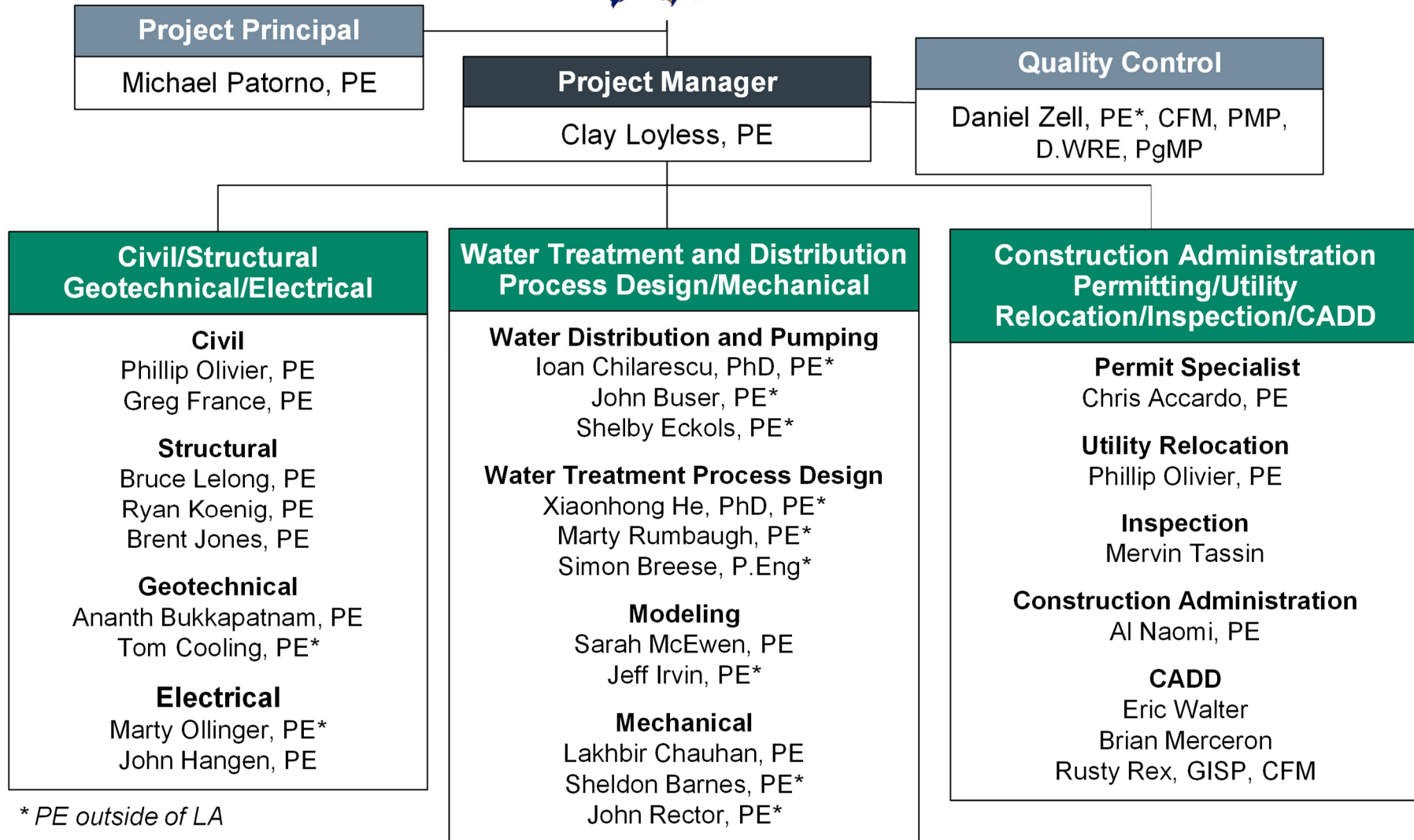
Mr. Merceron has over 38 years of experience as an engineering Technician, Designer and CADD Technician. Mr. Merceron has additionally worked as a field technician with inventorying structures as well monitoring construction and environmental sampling for air quality. Mr. Merceron has also performed detailed quantity take-offs, traffic studies and surveying work. Mr. Merceron is intimately familiar with AutoCAD as well as Bentley Systems drafting programs. He has also performed computer modeling work and mapping projects during his tenor.

Rusty Rex, GISP, CFM – CADD

Mr. Rex has over 14 years' experience in GIS and data management. This includes many private sector clients as well as HCFCD, USACE, FEMA and TX GLO. He has extensive experience with GIS related to water resources. This includes land cover classifications, terrain development and floodplain mapping. He also has experience with disaster response, development planning, and data analytics and scripting. He has technical expertise in python, SQL, spatial analysis, FGDC metadata, accuracy assessment, horizontal and vertical datums, and technical reviews. He is a technical expert with ArcGIS Desktop.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project



TEC Professional Services Questionnaire

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Table 1. below identifies each key individual listed above on an Organization Chart, while Table 1 provides a summary of the qualifications of each team member relative to the minimum Jefferson Parish RFQ requirements for experience.

Table 1 - Key Personnel Qualifications and Experience Based on Jefferson Parish Criteria

Name of Individual	Role in Project	PE License Status	Min. 5 Yrs. LA PE in Discipline	Min. 5 Yrs. PE Expertise	Total Years of Experience	Education
Michael Patorno	Principal-In-Charge	PE (LA) 24197	●	●	40	BSCE
Clay Loyless	Project Manager	PE (LA) 28552		●	42	BSCE; MS Envr Engr
Daniel Zell	QA/QC	PE (TX) 123073		●	20	MA, Economics; BS, Mechanical Engineering
Phillip Olivier	Civil	PE (LA) 36348	●	●	18	BSCE
Greg France	Civil	PE (LA) 41249	●	●	11	BSCE
Bruce Lelong	Structural	PE (LA) 29393	●	●	26	BSCE – Structural
Ryan Koenig	Structural	PE (LA) 31036	●	●	23	BSCE
Brent Jones	Structural	PE (LA) 38935	●	●	14	BSCE; MSCE
Ananth Bukkapatnam	Geotechnical	PE (LA) 37634	●	●	17	MSCE; BSCE
Tom Cooling	Geotechnical	PE (CA, MO, IL, GA, TN, NY)	●	●	48	MSCE, BSCE
Marty Ollinger	Electrical	PE (GA) 31748		●	40	BSEE
John Hangen	Electrical	PE (LA) 40653	●	●	12	BSEE
Ioan Chilarescu	Water Distribution and Pumping	PE (TX) 89173		●	32	PhD, Water Supply, Sewerage and Water Treatment; MSCE, BSCE
John Buser	Water Distribution and Pumping	PE (TX) 90881		●	27	MS, Enviro, Eng; BA, Environmental Science
Shelby Eckols	Water Distribution and Pumping	PE (TX) 41485; FL		●	37	BSCE
Xiaohong He	Water Treatment Process Design	PE (TX) 96775		●	28	PHD, Enviro Eng.; MS, Enviro. Eng.
Marty Rumbaugh	Water Treatment Process Design	PE (TX) 83388		●	20	MS, Enviro/Water Resources; BSCE
Simon Breese	Water Treatment Process Design	PEng (BC)		●	36	MS, Chemical Eng.; BS. Chemical Eng.
Sarah McEwen	Hydraulic & Hydrologic Modeling	PE (LA) 42539	●	●	9	BSCE
Jeff Irvin	Hydraulic & Hydrologic Modeling	PE (TX) 85329	●	●	37	MS, Water Resources BS, Water Resources
Lakhibr Chauhan	Mechanical	PE (LA) 16530	●	●	39	MS, Rotodynamic Machines; BS, Mechanical Eng.
Sheldon Barnes	Pump Station Design	PE (FL) 71369	●	●	20	BS, Mechanical Engineering
John Rector	Electrical	PE (FL) 53292		●	29	BS, Mechanical Engineering
Chris Accardo	Permit Specialist	PE (LA) 21574	●	●	32	MS, Engineering Mgmt, BSCE
Al Naomi	Construction Administration	PE (LA) 15264	●	●	46	BSCE; MSCE
Mervin Tassin	Inspector			●	37	DOTD CERTS
Eric Walter	CADD/ Data Gathering				32	AS
Brian Merceron	CADD/ Data Gathering				38	AS
Rusty Rex	CADD/Data Gathering				14	BS, Geography

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

2. Capacity for Timely Completion of Newly Assigned Work

Currently, our staff has the capacity to engage with new projects in all engineering fields set forth in our TEC Questionnaire. Our project performance tools allow for ongoing evaluations of team member workload assignments. This keeps tabs on our available resources and permits AECOM to manage schedules and budgets with high efficiency to meet the goals of our clients.

The key staff members in the organizational chart were selected based on their expertise first, then their availability, in conjunction with their schedule, to be able to dedicate their strengths to this project at critical phases. Should scope changes occur, or a need to accelerate the schedule, AECOM has deep "bench strength" and will provide additional resources and expertise as necessary to maintain schedule, quality and a successful project."

AECOM has the personnel, communication systems, and equipment to perform the work in accordance with the Parish's schedule.

AECOM has historically performed on schedule, within budget, and produced quality technical projects for Jefferson Parish, the City of New Orleans, USACE New Orleans District, and other local clients. AECOM's large size allows the firm to provide virtually unlimited resources to any project we are selected to perform if needed but providing local engineers with the knowledge of the area as the leads in each discipline. Our local workload currently in storm water drainage engineering and construction is moderate - so many of our key personnel resources are available to immediately engage in new projects and have this capacity to complete any projects in a timely manner.

This team is available currently to Jefferson Parish to begin working on the project upon notice to proceed and will not be substituted without permission of Jefferson Parish officials.

Communications Systems



AECOM offices and personnel have the resources for instant communications with clients utilizing our extensive local and national networks through our telephone systems, e-mail, video configuration for sites, and/or courier. The rapid transfer of data, text, and graphic information from office to office and to our clients is easily achieved, effective, and critically important to the production of quality work within stringent time and budgetary constraints.

Computer Equipment and CADD Systems

The project at heart is a detailed design project, requiring delivery of drawings and technical specifications as key client deliverables. To perform design at state-of-the-art levels, AECOM maintains multiple in-house computer systems which support a variety of applications. Our CADD applications include MicroStation and AutoCAD. AECOM supports the following CADD formats: SIF, ISIF, IGES, IGDS and GeoMedia. AECOM also uses various add-on CADD applications including Inroads, InXpress, Softdesk software, and Eaglepoint software and is well versed in the use of TIN data, LIDAR generated contour maps and Oracle software.

AECOM manages internal IT resources with a Wide Area Network (WAN) linking AECOM offices globally and to individual Local Area Networks (LAN) in each office serviced by Windows 7 operating systems. Our office has multiple links to the internet with appropriate firewalls, anti-spam filters, and web filtering for security, that allow direct access to the internet for research from the desktops of each of our engineering staff. We also have a corporate wide Microsoft Outlook E-Mail system with a gateway to the internet. These systems operate and are contained in our Louisiana Offices and in other Gulf Coast Offices and can be accessed for the project as required.

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AECOM also houses an Oracle database server designed to handle multiple requests from the local CADD/GIS support staff as well as the Web community (including availability for clients and subconsultants to directly access ongoing project works) working on projects concurrently with AECOM.

In addition to AutoCAD and MicroStation CADD software and all of the standard Microsoft desktop software AECOM maintains in-house, AECOM also maintains the following GIS capability:

- ESRI ArcView
- ESRI Adriano
- ESRI ArcView
- ESRI ArcIMS
- ESRI ArcSDE
- ESRI ArcPad
- ESRI ArcGIS Spatial Analyst
- ESRI ArcGIS E-D Analyst
- Oracle *I Database
- GeoMedia Pro
- GeoMedia WebMap

With broad web connectivity available as summarized above, AECOM can assuredly perform projects from a local project office located near to the client offices, which are proposed herein.

3. Location of Principal Office

The location of the principal office for these services will be our New Orleans office located at 1555 Poydras St., Suite 1200, New Orleans, LA 70112

4. Adversarial Legal Proceedings

AECOM is not involved in any litigation against Jefferson Parish.

5. Prior Successful Project Completion

AECOM has a proven track record for completing such projects on schedule, within budget, and with excellent technical quality. We offer client references (see section 3, projects) who may attest to the value and service offered by AECOM over a wide range of engineering design and construction projects with over 50 years of service to the local communities.

Primary projects which represent similar and/or relevant experience selected for presentation in this SOQ, with references who can be contacted for verification, include those in the TEC Questionnaire, as well as those in the figure below.

Client References

AECOM has completed numerous hydraulic modeling and studies, drainage pipes, culvert, and structure projects, pumping stations, flood protection, roadway & transportation, and other major projects throughout Jefferson Parish, the Metro area and within Louisiana.

Prior successful completed projects selected for presentation in this SOQ, with references who can be contacted for verification are included in **Section 3, Projects**.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Examples of Team Members Successful Experience in Sewer, Water and Drainage Projects in Jefferson Parish by the AECOM Team



- Jefferson Parish Emergency Generator at East Bank WWTP
- West Bank Sewerage Facility Plan, I/I Analysis and Sanitary Sewer Evaluation Study
- Zone II (Marrero) Lift Station Facilities
- Zone V (Council District 5) Lift Station Facilities
- Bridge City Sewer Mini-Systems
- Jefferson Parish West Bank Treatment Plant Upgrade
- Drainage Master Plan West Bank Jefferson Parish
- Avondale Wastewater Treatment Plant
- East Bank River Ridge / Harahan Mini Systems Improvements
- West Bank Zone II Marrero Mini Systems Improvements
- City of Kenner WWTP Nos. 1 and 2 Improvements
- Jean Lafitte Wastewater Treatment Plant
- City of Gretna Wastewater Treatment Plant Rehabilitation
- New Estelle Drainage Pump Station
- Westminster/Lincolnshire Drainage Pump Station
- Old Estelle Pumping Station
- Elmwood Pump Station
- Whitney/Barataria Pump Station
- Swift / Canal "A" Drainage Improvements
- Swift Canal Phases I and II Drainage Improvements
- Avenue D Drainage Basin Improvements Phases I, II, III and IV
- Avenue B Drainage Basin Improvements
- Elmwood Canal Bridge Crossing at Kawanee Avenue

Other Examples of Our Success on Louisiana and Gulf Coast Public Works Contracts



- City of Gretna Water Plant Improvements
- City of New Orleans Water Plant Upgrades
- City of New Orleans Water Distribution System Repairs
- City of New Orleans Water System Model
- St. John Parish Water Plant System Improvements
- St. John Parish Water Plan Model
- St. James Parish Water Plant Upgrades
- Baton Rouge Metro, Sewerage/Drainage Tunnel Program
- City of Baton Rouge Water Pumping Station
- St. John Parish Regional Wastewater Treatment Plant
- St. John Parish Wastewater Master Planning
- Town of Reserve Sewer Collection System Repairs
- City of Kenner WWTP Sludge Pumping Station
- City of Kenner Lift Station Programs
- City of New Orleans Lift Station Upgrades System Wide
- City of New Orleans Water Treatment Plant Upgrades
- City of New Orleans 15 MW Generator Backup Water Plant
- City of New Orleans Wastewater Treatment Plant Upgrades
- Interim Pump Stations for London Avenue and Orleans Avenue following Hurricane Katrina
- Dwyer Road Drainage Pumping Station
- Pumping Station No. 6 (17th Street Canal) Fronting Protection
- Algiers Canal Levee and Floodgates

TEC Professional Services Questionnaire

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QUALITY ASSURANCE



Quality Assurance and Safety



AECOM offers Jefferson Parish name a proven Quality Management System (QMS) that is certified to the internationally renowned ISO 9001:2015 standard yet is sufficiently flexible to address

the specific requirements of this project. Quality management is central to our project management approach, and our project team includes individuals assigned to specific quality roles under our system. The general components of AECOM's approach to project quality management, and the parties responsible for them, are depicted below.

Initiating Quality. Quality begins with AECOM's understanding of your project goals and objectives, emphasizing communication with Jefferson Parish and a thorough review of project inputs. Assigning technically qualified and experienced personnel to produce and review the work is an important next step. Our initial planning and scheduling activities, including defining the various project work tasks and associated quality activities, are foundational to a successful project.

Producing Quality. AECOM requires a project plan on all projects to define key parameters and guide the work of the team. The plan is discussed at the project team kickoff meeting and updated as needed to inform the team of new developments. As work proceeds, a number of critical technical activities are undertaken, including:

- Proper application of codes, standards and design criteria
- Ongoing oversight and supervision for accuracy and completeness as work proceeds
- Distribution of in-progress documents at defined intervals for quality review
- Coordination among disciplines

- Verification of compatibility and consistency among document types, such as drawings and specifications
- Resolution and closure of in-progress review comments

Confirming Quality. While it is important to build quality into the work as it is performed, formal checking and review are critical QMS activities. Quality checking activities, which are all documented with two-level approvals, include

- *Checking calculations* to verify correctness and completeness of mathematics, methodology, selection of software, application of standards and codes, and general approach.
- *Checking drawings* within each discipline to confirm design layout, dimensions and details. Potential interferences, conflicts and interface issues are resolved through interdisciplinary reviews.
- *Checking specifications* for content and application, as well as compliance with the prescribed format, and for consistency throughout the specifications.
- *Checking studies/reports* for content, logic, clarity and soundness of recommendations, as well as grammar, punctuation and format.

Delivering Quality. All deliverables undergo a final verification check before they are submitted. A lead verifier evaluates the deliverable for completeness and consistency, adherence to quality requirements, and resolution of comments. The lead verifier then signs a Technical Quality Review Record and transmits it to our project manager, who is then responsible for the final overlook, approval and submittal. This final independent evaluation assesses the submittal's state of readiness, without diminishing the project manager's accountability for the quality of the work being released. As a check-and-balance activity, this review pairing helps AECOM consistently deliver quality and value to our clients.

TEC Professional Services Questionnaire

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Improving Quality. A key component of AECOM's quality program and ISO 9001 is continuous improvement. We learn from our experiences and apply those lessons to future work through a formal, iterative process. The true focus of this process is to generate client satisfaction, one of AECOM's core values.

What does this mean to Jefferson Parish?

AECOM will bring a world-class QMS which sets forth the policies and procedures in maintaining quality while identifying areas of continual improvement. It means that AECOM consistently applies a set of quality and safety practices throughout the company, regardless of where work is performed or managed.

The AECOM team's QMS is a powerful yet very friendly union of the industry's best QA/QC planning, control, and documentation practices. Planning and controlling standards for quality are fundamental in not only the Construction Phase of a project but in the Planning and Design Phases as well. Quality is not naturally inherent in all projects; it is the result of good planning, a team effort, and an understanding by all the team members as to how quality is achieved.

6. Size of Firm - Professional and Support Personnel

AECOM has local Louisiana staff of over 200 engineers, planners and support staff. Nationally, AECOM has staff of over 50,000 from which to draw unequalled expertise and experience in water systems, hydraulic modelling, drainage systems, and pumping systems. The local AECOM office has the staff available for all proposed aspects of work, including project evaluation and design, drafting of technical plans, development of technical specifications, and construction administration.

7. Past Performance on Parish Contracts



AECOM has an extensive list of previous water systems projects likely similar in size, scope, and scale to with that would be performed under this contract, including those listed in Section 3 – Projects of the TEC Questionnaire. We also have a long history and hundreds of projects conducted for Jefferson Parish government and for private sector and other government clients located in Jefferson Parish and the Metro area, over a period of more than 50 years. The prior projects were completed successfully and on time and within budget. AECOM's current Jefferson Parish projects are now on schedule and within budget as well.

AECOM has more than adequate staff to provide this project with experienced water planners, process, chemical, civil, geotechnical, sanitary, mechanical, hydrologic, hydraulic, electrical, and structural engineers with expertise in all aspects of lift stations and wastewater, conveyance design and construction.

Specialized Experience

AECOM has successfully completed many projects that demonstrate the AECOM Team's specialized water systems, distribution, water treatment, modeling, utility relocation, roadway reconstruction, traffic controls and construction phasing services expertise in South Louisiana and the team's expertise in the soft soil conditions and the design and construction of major water systems.

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N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Water Systems/Treatment/Distribution

AECOM is a trusted partner to our clients, we draw together teams of engineers, planners, construction managers, architects, landscape architects, environmental specialists, economists, scientists, and program managers dedicated to finding the most innovative and appropriate solutions to enhance and sustain the world's built, natural, and social environments.

Whether it's potable or raw water, wastewater, recycled water, or stormwater, our professionals offer a complete set of skills to implement water projects ranging in size and scope.

Our passion is to develop sustainable water projects that help our clients create a better world – and in this case, a better Jefferson Parish both now, and for the next generation. Some examples of these projects include:

Water Master Plan, St. John the Baptist Parish, LA



AECOM developed master plans and designs for the Parish's water system. This included a detailed study of the water treatment and distribution systems, placing an emphasis on future demands and needed system improvements.

Tempered Potable Water Feasibility Study and Distribution System Modeling, Marathon Petroleum Company, Garyville, LA

AECOM was tasked Tempered Water Upgrade study to identify and evaluate technically feasible alternatives for the upgrading of the facility's potable water system to provide tempered water to multiple locations. It also included the development of a hydraulic and water quality model of the existing portable water system to predict temperatures and water quality throughout the system. The system model was used to further evaluate the tempered water options, as well as aid in refining operation and maintenance procedures.

Alternative Industrial (Gray Water) Water Supply in the Greater Baton Rouge Area - Phase I Feasibility Study

AECOM performed study to identify the potential for additional use of one of the largest potential reclaimed water supply sources in the Baton Rouge area - treated municipal sewage effluent. The primary goal of this study was to evaluate the technical feasibility of the use of City of Baton Rouge/Parish of East Baton Rouge (City Parish), wastewater treatment plant (WWTP) effluent as a source of reclaimed water to replace or supplement existing industrial groundwater uses, and/or to provide an alternative water supply source for new industry.

Southeast Water Purification Plant Houston, TX

AECOM performed complete engineering services for the development, design, and construction including a site selection study; treatability analyses and bench-scale studies; process evaluation and design; preliminary engineering, final design, plans, specifications, cost estimating, and construction management; and development of an operation and maintenance manual that included process control descriptions. AECOM also provided start-up and operations assistance to the City of Houston. Recently the plant was expanded to 200 mgd, which AECOM oversaw as Construction Manager.

Water Treatment Plant No. 4, City of Austin



AECOM performed conceptual design, preliminary design, detailed design and construction phase services for the new WTP facilities, placed in operation by 2015. AECOM was responsible for the following project components, deep water intake, raw water tunnel conveyance to the pump station and then to the plant, raw water pump station, general site civil work and storm water quality control facilities at

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the plant site, and finished water pumping to the off-site distribution system.

T.L. Amiss Water Treatment Plant Improvements, Shreveport, LA

AECOM provided evaluation, design and construction services to upgrade and renovate the three separate water treatment trains. The Amiss WTP obtains source water via pipeline from nearby Cross Lake located northwest of the City of Shreveport. This plant will have a total capacity to treat 50 mgd.

Davis and Ullrich WTP Improvements

AECOM has designed at least 15 projects at these two large WTPs over the last 20 years – a tribute to the City of Austin's trust that AECOM knows how to upgrade large WTPs and keep them operational. AECOM provided preliminary, final design and construction phase services for process improvements and equipment replacement/rehabilitation.

East Water Purification, City of Houston



For more than 50 years, AECOM has served as consulting engineer for the 350 mgd East Water Purification Plant (EWPP) in Houston, Texas, providing program management, design, and construction phase services through numerous expansions and upgrades. Work began in 1946 with the design of the original phase of Plant 1, which was started up in 1954. Today, we continue to be a dedicated partner to the City and have been continually involved for over two decades in maximizing the EWPP's reliability and capacity.

West Travis County Regional WTP Expansion

AECOM was retained by Lower Colorado River Authority (LCRA) to perform preliminary engineering, final design, bid and construction phase services for the proposed expansion of the existing 9.8 MGD plant to an ultimate capacity of 22 MGD. The project consists of a raw water intake, raw water pump station, water treatment facilities, transfer and backwash water pump

station, chemical dosing and storage facilities, and high-service pump station.

Storm & Subsurface Drainage System Design Experience

AECOM has for decades served Jefferson Parish and the surrounding Metro area in designs for major box culvert, large pipeline and major canal systems. That experience has included not only the hydrology and hydraulics, but feeding these systems to pumping stations, geotechnical designs for foundations, roadways directly above the systems and cofferdam systems and phasing for very highly urbanized areas. Some examples of these projects include:

South Avondale Homes Subdivision Drainage Evaluation and Pump Station Design.

This is an evaluation phase involving review of previous drainage studies, collection of additional survey, and update the SWMM5 model to reflect specific conditions in the project area. Based on the updated model, AECOM determined the system deficiencies that impact drainage for the subject subdivision, improvement alternatives, including upgrades to the collection and conveyance network as well as the construction of additional pumping capacity were developed. The Jefferson Parish has accepted AECOM's recommended improvements and has awarded the design phase.

Avenue B Drainage Basin Jefferson Parish, Louisiana



The work on Avenue B consisted of replacing existing major subsurface drainage system with new concrete pipe varying in size from 15 to 54 inches in diameter. The limited space along the corridor required major utility relocations, complete roadway removal and replacement and detailed excavation plans to protect adjacent residences within 20-feet on either side of the

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excavation section. One major project challenge was to remove and replace all water lines, hydrants and service lines while providing temporary water service to all residents along the 1,500-feet of the project corridor. Designs included civil, structural, hydraulic and geotechnical engineering as well as surveying services.

Avenue D Area Drainage Improvements Jefferson Parish, Louisiana



The areas tributary to the Avenue D Area Drainage system had experienced repeated flooding caused by both backwater conditions and inadequate interior subsurface drainage systems. This project primarily addresses drainage problems in areas tributary to and along the Avenue D Canal from Patriot Street north to the Expressway and in the Avenue D area north of the West Bank Expressway between Avenue D and Gaudet Drive, including the area in and around Immaculate Conception Church and School. Improvements also included new bridges and box culverts along the entire canal route. This project (in conjunction with other area projects) will result in lower water surface elevations and increased system conveyance for the design storm, allowing water to flow into the subsurface system faster and flow away faster.

West Napoleon Avenue Drainage Improvements (David Drive to Kent Avenue).

AECOM provided preliminary and final engineering design of 1.53-miles of four-lane urban systems roadway along West Napoleon Avenue, between David Drive and Kent Avenue. Key design elements included **box culvert design within the West Napoleon Canal**, hydraulic design traffic signal and timing design for the David Drive intersection, asphaltic pavement design, vertical and horizontal alignment, intersection geometrics, and civil layout.

Louisiana Avenue Improvements, Southeast Louisiana Urban Flood Control Project.



The main scope of this project consists of new cast-in-place concrete boxes of varying sizes supported on a jet grouted foundation. Four culvert types were designed: an 8-foot by 6-foot culvert 2,350-feet in length (split into 50-foot monoliths), a 10-foot by 8-foot culvert 2,550-feet in length (split into 50-foot monoliths), a 12-foot by 10-foot culvert 2,348-feet in length (split into 50-foot monoliths). Additional culverts were also designed as transitions between the four culvert types.

South Claiborne Avenue II Covered Canal New Orleans, Louisiana.

The South Claiborne Avenue II Covered Canal is part of the South Louisiana Flood Control Program authorized by U.S. Congress and administered by the U.S. Army Corps of Engineers. The South Claiborne Avenue II Covered Canal consists of a single 9'-high by 18' wide by 4100' steel reinforced concrete box culvert extending from Lowerline Street to Leonidas Street. The South Claiborne Avenue project is located in Uptown New Orleans along a major thoroughfare, also known as LA Highway 90. An existing 9.5'-high by 17.5'-wide concrete box culvert is presently located in the median of South Claiborne Avenue. The proposed box will be constructed adjacent to the existing. Due to minimum clearance in the median, the new box will be partially under the roadway.

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R. R. Canal Improvements from Avenue "B" to the Keyhole Canal-Jefferson Parish.

Project included geotechnical, hydraulic and structural engineering as well as coordination with the local sponsors, utility companies and the railroad. The channels included a variety of sections – "U" channels from 10' to 14' in wide, triple 72" jack and bore pipes and sheet pile braced flumes, all adjacent and parallel to an active railroad line specific interest within the project were the massive loadings and design criteria needed to address these specific loadings. In many cases, because of the industry located along the canal, cranes (with loads) utilizing the gates and ramps exceeds 750 kips. In one instance loadings over the vamp exceeded 3,000 kips.

Swift/Canal "A" - Drainage Improvements. Jefferson Parish.



Project included geotechnical, hydraulic, civil and structural engineering for canal improvements from Canal "A" along the West Bank Expressway to the Patriot Street Canal.

Hydrology and Hydraulics

Over the past 10 years, AECOM has performed dozens of civil works water resources planning projects for Jefferson Parish and other parishes and agencies in the Metro New Orleans area and nationally for every District in the USACE. These have included plan formulation in support of reconnaissance, feasibility and watershed studies.

With this experience, the team and staff proposed for this contract has an in-depth understanding of Jefferson Parish and the USACE's plan formulation process as described in the SELA Program as well as all of the engineering manuals. Some of our more important civil works, modeling, flood control and environmental restoration planning projects for Jefferson Parish

have been subject to the USACE's criteria and/or for other local municipalities while coordinating with the USACE. These studies have included the following fluvial, lacustrine, estuarine, coastal and urban models, noted in parenthesis in the examples below:

- East Bank of Jefferson Parish Remodeling and mapping 2005-2007-Jefferson Parish (Urban)
- USACE Planning study for various areas adjacent to and including areas of Harahan and Elmwood for inclusion in the new Pump to the River SELA program. Jefferson Parish (Urban)
- West Bank Jefferson Parish Master Drainage Plan-Jefferson Parish (Urban)
- University Medical Center for the State of Louisiana, Site Development and Design – Louisiana State Facility Plan (Urban)
 - AECOM analyzed both the existing and proposed site conditions to determine peak runoff flow rates.
 - Design the proposed site and new drainage layout to improve drainage in the area.
- Conoco Philips Belle Chasse Facility-Plaquemines Parish (Industrial)
 - Storm drainage system design
- St. John the Baptist Parish Drainage Master Plan- (Urban)
- City of New Orleans Permanent Pumping Stations Evaluation (Urban)
- Earhart Corridor –New Orleans (Urban)
- West Napoleon Corridor Study- Jefferson Parish (Urban)
- Westshore Lake Pontchartrain Levee Model Study – New Orleans District (lacustrine / urban)
- Grand Isle Shoreline Protection – New Orleans District (coastal)
- Carencro Flood Study – New Orleans District (fluvial / urban)

In addition to the above, AECOM has performed numerous preliminary studies and modeling and has coordinated physical modeling for the pumping stations, locks, control structures and major canals inclusive of those in Jefferson Parish.

Our proposed hydraulic/hydrologic engineering and modeling staff have completed assignments involving:

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

- More than 200 complete watershed studies using HEC-1 or HEC-HMS
- More than 1,000-miles of subsurface drainage and river hydraulics and 1,600-miles of stream hydraulics using HEC-2 and more recently HEC-RAS, UNET and SWMM
- More than 3,700 river flood control studies
- More than 750 coastal engineering studies
- 2,200 surveying, mapping, GPS and GIS projects
- More than 50 Interior Drainage evaluations using HEC-IFH
- More than 12 sediment studies applying the use of HEC-6/6T
- Flumes for both sub-critical and super-critical flow
- Local protection works integrating the use of levees, floodwalls, and closure structures
- Associated interior drainage facilities

Roadway and Utility Experience

AECOM has successfully designed and managed dozens of drainage projects requiring roadway design, reconstruction, and utility relocations and upgrades throughout Jefferson Parish and the Metro area, a key element required after most drainage projects. Our Team has the knowledge and experience to provide roadway design for major concrete or asphalt roadways and repairs or replacement after drainage construction, and to minimize utility disruptions and outages by carefully coordinating with utility owners during the design and construction phases, including the following projects:

2017 Road Bond Program.



AECOM was selected as the West Bank Program Manager for this program, which has projects on both the east and west banks of Jefferson Parish. As West Bank Program Manager, AECOM is responsible for the management of 37 projects whose construction value is estimated at over \$110 million including Federal Aid projects and a design only project of a new double leaf bascule bridge over the Harvey Canal. AECOM

negotiates contracts, reviews plans and specifications, approves invoices and plan changes, and oversees construction. AECOM also provides Environmental Assessment services when needed.

Construction Sequencing and Phasing

AECOM has extensive experience in the installation of water, drainage lines, and culverts in urban areas, requiring careful planning and attention to phasing and sequencing of construction to minimize disruptions to traffic and inconvenience to the surrounding businesses and resident. Examples of projects in which sequencing of construction was carefully addressed include:

Avenue B Drainage Basin

The limited space along the corridor required major utility relocations, complete roadway removal and replacement and detailed excavation plans to protect adjacent residences within 20-feet on either side of the excavation section. Construction phasing and sequencing was a key component of a successful project.

Louisiana Avenue Improvements Drainage (Box) Culvert

Traffic control and construction sequencing was coordinated with LADOTD, the City of New Orleans DPW, and all major utility companies to successfully perform this project, including the St. Charles Ave. streetcar crossing.

South Claiborne Avenue II Covered Canal

Included coordination with SWBNO, New Orleans DPW, and other agencies for construction phasing and traffic control.

TEC Professional Services Questionnaire

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project

Geotechnical Design



The AECOM Team has unparalleled experience and expertise performing geotechnical design and investigations for the Jefferson Parish, other local municipalities, and the US Army Corps of Engineers, in particular the New Orleans District. In the last ten years the members of our team have performed over 100 geotechnical investigations in Jefferson Parish and adjacent parishes for both reports and the development of plans and specifications. Below are some of our areas of expertise highlighted.

- **Development of pile capacity curves & bearing capacities for foundations.** Have successfully designed both pile supported, and soil supported concrete box culverts throughout the Metro Area, including Jefferson Parish.
- **Stability Analyses.** Have performed dozens of analyses related to stability of cofferdams, structures, and other features
- **Seepage and Dewatering.** Detailed seepage and dewatering designs and analyses
- **Cofferdams.** Have designed both temporary and stay in place cofferdam systems
- **Innovative Methods such as jet grouting or deep soil mixing** have used jet grouted foundations for soil supported box culverts

Summary

AECOM has successfully executed a variety of engineering assignments for our clients whether they are State or local government, Federal Government, or private sector. Our professional staff has the technical capability and experience to conduct the required services that would be required by Jefferson Parish for routine drainage projects. We have the manpower, resources, geographic proximity to the facilities and desire to do the work. AECOM looks forward to working with Jefferson Parish on any water projects in the near future.

About AECOM

AECOM is the world's trusted infrastructure consulting firm, delivering professional services throughout the project lifecycle – from planning, design and engineering to program and construction management. On projects spanning transportation, buildings, water, new energy and the environment, our public- and private-sector clients trust us to solve their most complex challenges. Our teams are driven by a common purpose to deliver a better world through our unrivaled technical expertise and innovation, a culture of equity, diversity and inclusion, and a commitment to environmental, social and governance priorities. AECOM is a *Fortune 500* firm and its Professional Services business had revenue of \$13.3 billion in fiscal year 2021. See how we are delivering sustainable legacies for generations to come at aecom.com and [@AECOM](https://twitter.com/AECOM).