

March 31, 2022
ELECTRONIC SUBMISSION

Submitted to Jefferson Parish
Government
Submitted by AECOM



SOQ 22-011

Routine Engineering Services for Drainage Projects

Jefferson Parish Government
Res No. 138811

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 Drainage 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, 0024197, TX, AL, AR, MS

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.

State of Louisiana LWI Program, Technical Advisor. Mr. Patorno acted as Senior Engineering Technical Advisor for the LWI program which is a statewide drainage master plan including oversight of modeling efforts and standards while working with CPRA, LDOTD, LDEQ, FEMA and the USACE. This also includes evaluations of models from various regions including all Louisiana southern Parishes.

FEMA Lamp Program- Project Principal. Mr. Patorno worked to coordinate local Metairie Personnel with our National FEMA team in the overall evaluation and certification process of levee systems including the evaluation of existing systems and modeling in the greater metropolitan New Orleans Area including Jefferson Parish, City of New Orleans, and St. Tammany Parish

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

- 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.

Drainage Pumping Stations Jefferson Parish- USACE New Orleans District and Jefferson Parish. Mr. Patonro acted as lead technical advisor and project manager for the following pumping stations in Jefferson Parish including- Baratara, Westminster Lincolnshire, Old Estelle, New Estelle, Elmwood and Pumping Station No. 6.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Michael Patorno, PE - Principal in Charge

Drainage Canals and Subsurface Systems, Jefferson Parish. Mr. Patorno was lead engineer for the design of various Jefferson Parish Drainage Canals including: Patriot Street Canal, Elmwood Canal, Kawanee Bridge and Canal, Avenue B, Avenue D, Swift Canal, Railroad Canal and 17th Street Canal.

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.

Reserve Sanitary Sewer Evaluation Study (SSES) and Sewer Repair Design Project, St. John the Baptist Parish, LA (St. John the Baptist Parish). The project involved program management of various consultants doing field investigations, smoke testing, flow monitoring and television inspection of the Parish's sewer system. The result of the study was detailed in reports noting problem areas, proposed solutions, costs and priority lists for repairing, improving and maintaining the system. A final phase of the project for the sewer system involved the designs for the problem areas in a phased approach.

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.

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

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.

St. Charles Parish Railyard (Dow), Port of South Louisiana. St. Charles, La. 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 and secured permit approval.

Lakefront Seawall Erosion Control Paving Project (New Orleans, LA. Project Engineer. Developed Basis of Design Memorandum and performed design engineering services on Phases 1A & 3B; 1C, 2A & 5B; and 2C, 2D & 3C. The project was designed to stabilize the seawall, control erosion, improve drainage, and create a pedestrian walk between the seawall and Lakeshore Drive. A combination of paved area and turf reinforced matting was used to control erosion. To ensure drainage of Lakeshore Dr., a system was designed to transfer runoff from the roadway through the seawall. The plaza area is raised above the road and seawall with a five foot wide crest to assist in deflecting overtopping wave action. Work included design of typical sections, cross-sections, and pavement marking and permanent signage plans.

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

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 Geoplatform.

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:
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 subconsultants 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 HECRAS 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.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sarah McEwen, PE, CFM

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.

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:
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.

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:
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:
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.

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.

Civil/Structural Engineer Expert Witness, Arbitration of FEMA Damages Determination to Diamondhead, MS Water and Sewer District Lift Stations before the U.S. Civilian Board of Contract Appeals (FEMA): Authored report and provided expert testimony on causes of observed damages and estimated costs of replacement and repairs to sewer lift stations and tie-in gravity and force main piping.

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

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.

Elmwood Pumping Station and Fronting Protection, Jefferson Parish, LA (USACE, New Orleans District) : Senior Civil/Structural Engineer provided engineering support during construction of expansion of pumping station to 3,400 cfs capacity.

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 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 which was enhanced by participating in the Basis of Design Report for Permanent Forward Pumps on Lake Okeechobee Project and stormwater pump stations in Hollywood, FL.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sheldon Barnes, PE

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.

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.

Collier County, Wastewater Basin 306 Master Pump Station Design, Naples, Florida. Provided the preliminary design of a wastewater master booster station with the operational flexibility of producing capacities of 4,400 gpm with electric pumps and 11,000 gpm via diesel engine-driven pumps.

City of Hollywood, Stormwater Pump Station Replacement, Hollywood, Florida. Designed a stormwater pump station with a pumping capacity of 3,750 gpm, which included civil and mechanical design and completing surface water and environmental resource permits, and provided construction services.

Miami-Dade County, PMCM of MDWASD Consent Decree with USEPA and FDEP, Miami, Florida. Technical Reviewer on the PMCM Team for the design management of the Wastewater Collection and Transmission System. Provided technical direction, review, analysis and recommendation on the design of over 30 Regional, Booster and Local Pump Stations.

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.

Miami-Dade County, Sanitary Sewer Evaluation Survey and Rehabilitation, Miami-Dade County, Florida. Technical Reviewer and Project Engineer participating in an ongoing sewer rehabilitation analysis to reduce the amount of inflow/infiltration for North Miami and North Miami Beach, Florida, in accordance with a Miami-Dade County ordinance. Prepared I/I reduction plans and annual reports and conducted cost-benefit analyses for submittal to the Miami-Dade Department of Environmental Resources Management. Reviewed pre- and post-lining logs, oversaw smoke testing activities, and reviewed nominal average pump operating time data and other rehabilitation work, such as manhole rehabilitation and pump station upgrades.

City of Boynton Beach, Lakeside Water Main and Storm Drainage Improvements, Boynton Beach, Florida. Conducted preliminary pipeline design of water main replacement as part of the Lakeside area improvement project, which included pipe sizing, identifying pipe route alternatives, and reviewing right-of-way permitting requirements.

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

Naval Construction Battalion Center (NCBC) Gulfport, MS. Involved with Katrina Recap Package 1 (training buildings, storage, and armory), Katrina Recap Package 4 (Security Complex, 22nd NCR, Training Hall), Katrina Recap Package 6 (new Operational Expeditionary Logistics Facility and renovation of the Public Works Department facility), Katrina Recap Package 11 (Gates and Welcome Center), Fitness Center Package 7, Stormwater Master Plan implementation, Katrina Recap Package 4a (Mega Package) incorporating eight different projects into one consolidated RFP procurement document, Utilities Hardening, and PCAS Package 1.

Mechanical Engineer, Base Realignment and Closure (BRAC) III Project, Naval Air Station (NAS) Pensacola, FL. Mechanical engineer involved in all phases of accelerated investigation, design, and construction-phase support for over 15 new and renovated buildings ranging from 1,000 square feet to over 760,000 square feet (over 1.3 million total sq ft) plus complete supporting infrastructure. This \$140-million project involved high-tech labs, administrative/office space, storage, and special-use space for many and varied types of training activities. All tasks were finished within highly compressed schedules, and the project won nine separate commendations from the Navy. Provided field investigation and design for HVAC systems. Also provided mechanical engineering for a corollary facility energy improvements project that entailed field investigation and 35% design documents used by the design/build contractor for converting all remaining buildings at the base from central steam heat to individual boilers or heater units. Involved steam, hot water, potable water, sanitary sewer and natural gas. Provided design of HVAC chilled water systems for new and renovated buildings.

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.

On-Call Mechanical Engineer, Indefinite Quantity Contract, U.S. Army Corps of Engineers (USACE) Jacksonville, FL. Provided mechanical engineering services in conjunction with AECOM's indefinite quantity contract for projects including Florida and Puerto Rico. Work to date has included HVAC and plumbing design for rehabilitation of the community center at Fort Buchanan in Puerto Rico, and field investigation and design for re-routing water and sewer lines in conjunction with the canal and levee flood control system for the town of Arecibo, Puerto Rico.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Ariel Buenano, PE <i>Structural Engineer</i>
Project Assignment:
Pump Station Design
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
19
Education: Degree(s)/Year/Specialization:
MS, Structural Engineering BS, Structural Engineering
Active registration: Year first registered/discipline:
Professional Engineer, CA #76865
Other experience and qualifications relevant to the proposed Project:
<p>Mr. Buenano has 28 years of experience with various structural and mass concrete structures serving in various capacities as Project Manager, Project Engineer, Lead Structural Engineer, and Design Engineer. Mr. Buenano has experience in the design of concrete and steel hydraulic structures, including hydroelectric concrete dams, pumping stations, locks, large gates, cofferdams and flood/sea walls protection. He also has design-build and construction administration experience. Mr. Buenano has worked on all phases of engineering and construction projects: conceptual design, final design, shop drawing review, field inspection and construction management. Mr. Buenano has experience with three-dimensional finite element modeling, non-linear analysis, and seismic dynamic and vibration analysis.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Ariel Buenano, PE

Mississippi River to Maurepas Swamp Diversion Project, St. John Parish, LA, Coastal Restoration Division Louisiana Department of Natural Resources, Structural Project Engineer. The project involves the design of a pumping station with a capacity of 375 cfs and a headworks structure (intake up to 2,000 cfs) of Mississippi River water into the Maurepas Swamp near New Orleans to restore the swamp to a viable ecosystem, providing additional hurricane protection to the area.

Permanent Closure Canal Pumps (PCCP), New Orleans, LA, Structural Reviewer: Assisted in the third party USACE structural review for the joint venture design-build team in charge of design and construction of the new closure canal pump stations, generator buildings, auxiliary buildings and tank farms. The PCCP have a total pumping capacity of 12,600 cfs at 17th St, 2,700 cfs at Orleans Avenue and 9,000 cfs at London Avenue. Structural review consists of load calculations, analysis models, concrete design, structural steel design, steel pipe pile design, and Corps of Engineers Hurricane & Storm Damage Risk Reduction System specific design requirements.

Compartment C Pumping Station, Florida Everglades Restoration, Hendry County, FL (SFWMD). Project Structural Engineer responsible for the structural design of a 2,150 cfs pumping station for the South Florida Water Management District. Design and analysis was performed in accordance with the South Florida Water Management District guidelines as well as Corps of Engineers' criteria. Plans and specifications were developed as part of the effort. Efforts included design and coordinating the structural design efforts as well as coordinating other aspects of the design with another disciplines.

St. Bernard Parish Pump Station No. 2 and 3 repairs, Louisiana. USACE Lead structural engineer for the flood/sea walls, permanent retaining structure (bulkhead) and Temporary cofferdam. Work performed included coordination between the geotechnical engineers and civil engineer, assisting in resolving design construction issues, and development of plan and specifications, as well design calculations.

Dallas Pump Station Improvements, Dallas, TX: Structural Project Manager for the entire efforts (35% design phase) on the improvements to drainage pumping stations for the City of Dallas, TX. Mr. Buenano is responsible for the structural design of New Charlie pumping Station (225,000 gpm) and overview the design for the New Hampton a 700,000 gpm station and for Trinity/Portland a new 250,000 gpm station.

Additional Pumps for Interim Closure Structure, Orleans Parish, LA (USACE, New Orleans District-Hurricane Protection Office). Project Engineer for the development of plans and specifications for adding additional pumping capacity to the Interim Closure Structure on the London Avenue Canal. Design included development of pumps and the structures necessary to support the pumps and their generators and the associated electrical requirements.

Task Force Guardian – Hurricane Katrina Storm Repairs to Levee System, New Orleans, LA (USACE, New Orleans District). Project Structural Engineer for the repairs of breaches and damage resulting from Hurricane Katrina were designed and constructed under the direction of the Corps of Engineers' Task Force Guardian. Construction of flood/sea protection including : T-walls, L-walls, canal closure structures, sheet pile walls, and scour protection.. Mr. Buenano was responsible for the preparation of plans and structural design for emergency levee and floodwall repair projects at 8 sites in Orleans Parish, Louisiana.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Marty Ollinger, PE <i>Electrical Manager</i>
Project Assignment:
Pump Station Design
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:
<p>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.</p>

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Marty Ollinger, PE, Pump Station Design - Electrical

U.S. Army Corps of Engineers New Orleans District, Permanent Canal Closure Pump Stations (PCCP), (Design Quality Assurance Team). 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 (NOSWB) 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 NOCWB 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. The project design was completed December 2012 and the construction completed December 2013

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.

NYC Department of Environmental Protection, Port Richmond WWTP City wide Total Residual Chlorine Management Program (Senior Electrical/Instrumentation Project Engineer). Project Responsibilities included; Development of the P&ID Control System Specifications for a new Bulk Sodium Hypochlorite Storage and Distribution Facility; Demolition of existing storage facility. Additional responsibilities included; Electrical System design, project team coordination and equipment specification development.

West Harris County Regional Water Authority (WHCRWA), 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. Project construction estimate cost \$90M- Engineering Design completed March 2020. The Project is currently in the pre-bid phase.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Carlos Turcios, PE, LEED AP BD C <i>Senior Electrical Engineer</i>
Project Assignment:
Pump Station Design-Electrical
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
12
Education: Degree(s)/Year/Specialization:
MBA, Int. Business, 2004 BS, Electrical Engineering, 1998
Active registration: Year first registered/discipline:
Professional Engineer, LA, #44826; NY, FL, PA, KY, CA, MI Leadership in Energy and Environmental Design (LEED), Building Design & Construction (BD+C)
Other experience and qualifications relevant to the proposed Project:
Mr. Turcios is the lead Electrical Engineer with 23 years of experience in all areas of electrical power distribution as well as electrical controls. He is familiar with all phases of project design including estimating, scheduling, inspections, specifying, contract drawings, equipment shop testing, onsite controls functional testing, check-out and startup, and cost tracking. Mr. Turcios has designed and supported medium-voltage and low-voltage power distribution including control schemes for government, commercial, industrial, and bridge facilities; engineered various power systems and distribution networks; formulated and coordinated control schemes for electro/mechanical, HVAC, and SCADA systems; developed designs for interior/exterior lighting including navigational lighting, grounding, lightning protection, fire detection and alarm systems. He is also experienced in data acquisition systems, Programmable Logic Controllers (PLC's), UPS, remote control and telemetry circuitry. He has performed bridge assessment reports, technical studies reports addressing short circuit analysis and protective device coordination utilizing computer modeling of electrical networks.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Carlos Turcios, PE, Pump Station Design - Electrical

Instrumentation & Controls Engineer, Newtown Creek Wastewater Treatment Plant: Provided instrumentation and control design support services which included coordination of procurement activities, for the following systems: Hydraulic Influent Gates, 4160 KV, 1500 HP Main Sewage pumps VFD's, Screening solids removal, Gas detection system, door access security and CCTV security expansion.

Instrumentation & Controls Engineer, Catskill and Delaware Ultraviolet Light Disinfection Facility. New York City. Provided design engineering services for a complete instrumentation and control PLC based SCADA system to monitor and control Ultra Violet equipment to disinfect up to 2 billion gallons of water per day from the Catskill and Delaware water systems, a complete CCTV system, and complete security access control system for security and surveillance of the facilities.

Instrumentation & Controls Engineer, Bowery Bay Wastewater Treatment Plant: Provided instrumentation and control design support services for the following systems: Influent Gates, 4160 KV, 1500 HP Main Sewage pumps VFD's, Screening solids removal, primary settling tanks, aeration tanks, final settling tanks, chlorine contact tanks, grit removal, sludge thickening digester, and Gas detection system and waste disposal coordination.

Long boat Key Bridge – Sarasota, FL. Engineer of record for site inspections and creating bidding documents to replace an existing generator fuel tank, associated fuel pumping system, and power and controls for a temporary hydraulic system for a temporary hydraulic cylinder span drive configuration.

Treasure Island Causeway Bridge – Treasure Island. Provided engineering services for the replacement of 32 existing light poles at 3 bridges. The designed included replacing historical type light poles and fixtures with current LED light fixtures. Photometric analysis for the site were analyzed and coordinated with industry manufacturers that can supply historic poles with fixtures that can match existing. Challenges on this design included maintaining pole heights while researching an LED historic fixture that could provide the required average foot candles at a fixed height and re-using the existing pole foundations for the new poles.

Gordie Howe International Bridge (GHIB) – Windsor, Ontario Canada / Detroit MI FL. Lead electrical engineer for a 1.5 miles international bridge across the Detroit river connection the US and Windsor Canada. The design support includes creating design-built electrical contract documents for the electrical distribution infrastructure to support roadway lighting, pedestrian lighting, maintenance lighting, security lighting, security CCTV, bridge esthetic lighting, security hardware, intelligent traffic system (ITS), navigational lighting including aircraft obstruction lighting, power grounding and lightning protection system. Power distribution included the design of four redundant 500KVA medium voltage transformers (13.2KV/600V), two 300-KVA UPS and distribution infrastructure for fiber optic communications.

Central Florida Rail Corridor (CFRC) Lake Monroe Drawbridge – Sanford, FL Lead Electrical Engineer. As a result of a previous electrical inspection done for the Lake Monroe Drawbridge, AECOM was retained to provide design services to upgrade the existing 240V (High Leg), 3-phase power to a 480/277Y voltage, 3-phase power system including coordination with local utility and to provide a design for a lightning protection system.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Sreeni Bollu, PE, CFM, PMP <i>Roadway Engineer/Project Manager</i>
Project Assignment:
Drainage Design-Civil
Name of Firm with which associated:
AECOM Technical Services, Inc.
Years' experience with this Firm:
1
Education: Degree(s)/Year/Specialization:
MS, Civil Engineering, 2003 BS, Civil Engineering, 2000
Active registration: Year first registered/discipline:
Professional Engineer State of Louisiana No. 34330, 2009; TX Project Management Professional ASFPM Certified Floodplain Manager
Other experience and qualifications relevant to the proposed Project:
Mr. Bollu is Civil Engineer with over 18 years of experience in all phases of project development from conceptual design to construction management. He is in charge of project management and the civil engineering personnel, including schedules, staff, budgets, technical review and account management. He has provided professional consulting services to numerous public and private clients, serving as Project Manager or Project Engineer on numerous roadway improvements, drainage studies, hydraulic models and designs, drainage improvements, levees, flood control projects, site developments, commercial & residential subdivisions, and construction management.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sreenivasulu Bollu, PE, CFM, PMP - Drainage Design-Civil

East Bank Drainage Improvements, St. Charles Parish, LA. Lead Hydraulic Engineer/Project Manager responsible for creating H & H models to evaluate flooding within the existing neighborhood, provide alternate solutions to alleviate flooding and develop a report with recommended solutions with cost estimates for 25yr and 100yr rainfall events.

West Bank Hurricane Protection Levee System (WBHPL), St. Charles Parish, LA. Project Manager responsible for coordination, preparation of plans and specifications, construction administration and resident inspection. This project is approximately a nine (9) mile levee where the alignment extends from the Sunset Levee District on the western flank to the Davis Pond Guide Levee to the east. This project consists of levees, drainage borrow canals, parallel access roads for levee maintenance, pump stations, tidal exchange structures, and concrete floodwalls (T-Walls) at multiple locations.

Upper Barataria Risk Reduction (UBRR), Lafourche Basin Levee District, LA. Project Manager responsible for coordination with the design team and regulatory agencies; design of the segment of the project Segment 1, 2, 4 & 5). The details of the project are: The Upper Barataria Risk Reduction project provides continuous hurricane and storm damage risk reduction from LA Hwy 308 in Lafourche Parish to the Davis Pond Freshwater Diversion West Guide Levee in St. Charles Parish, affording risk reduction benefits for the six parishes in the project area, including Ascension, Assumption, Lafourche, St. Charles, St. James, and St. John the Baptist. The UBRR project includes the construction and enlargement of approximately 33 miles of hurricane risk reduction between LA Hwy 308 on the western end and the Davis Pond Diversion West Guide Levee on the eastern end. The project includes earthen levees, a 270' steel barge swing gate floodgate in Bayou Des Allemonds, a steel rollergate across LA Hwy 306, tidal interchange structures, concrete T-wall floodwalls, and pump station frontal protection.

Railroad crossing H&H Modeling, Jefferson Parish, LA. H&H model to study inadequate drainage crossings under the railroad tracks between the Mississippi river and US 90 in the Waggaman area of Jefferson Parish from Avondale Garden Road to Modern Farms. The project required the collection of topographic survey data and the input of data into an existing conditions hydraulic model. A hydrologic model was then constructed to simulate an actual rainfall event. The model is then calibrated and results are evaluated. Proposed improvements are then entered into the model to evaluate benefits. A report was prepared which recommended an improvement option with preliminary costs estimates. USACE HEC-HMS and HEC-RAS were used for the modeling software.

South Kenner Rd- Avondale Garden Railroad Crossing Drainage Evaluations, Phase, Jefferson Parish, LA. H&H study of a large basin draining to Lake Catouache. Nearly 29 miles of open channel flow over a total of 10,240 acres were modeled, contributing an estimated 13,500 cfs at the outfall. USACE HEC-HMS and HEC-RAS (unsteady flow with storage areas) were used to develop existing and improved state models, determining what combination of flood control projects will yield upstream flooding relief for residents, and open additional vacant property for development.

Maplewood Area Drainage, Jefferson Parish, LA. Provided project engineering for the development of construction drawings and specifications for the installation of 9,100 linear feet of stormwater culverts, 33 junction boxes, 80 catch basins, and 3,500 square yards of paving.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Sreenivasulu Bollu, PE, CFM, PMP - Drainage Design-Civil

Subsurface Drainage Improvement Program (SDIP, Jefferson Parish, LA. H & H models to evaluate repetitive loss/flooding areas within existing neighborhood subsurface drainage systems. The models were created using a combination of and analyzing GIS, LiDAR, and topographic survey data of pipe sizes and invert elevations. The project then included the creation of an existing condition model, calibration of the model, evaluation of existing conditions to propose alternative solutions and the development of a report with recommended solutions and cost estimates for delivery to Jefferson Parish.

Breaux Ditch Improvements - Jefferson Parish, LA. Project Manager responsible for civil design and preparation of the drawings to replace the existing ditch with 8' wide x 4' deep reinforced concrete flume between East Ames Blvd. and Leo Kerner Pkwy on the West bank of Jefferson Parish to provide improved maintenance and stability. The total project length is approximately 1500 feet.

Airline Park Blvd. Road and Drainage Improvements, Jefferson Parish, LA. Designed removal of 2,500 L.F. existing two-lane, two-way concrete roadway, along with removal and replacement of mainline subsurface drainage. Analyzed area hydrology and performed hydraulic calculations to establish proposed subsurface pipe sizes. Designed roadway vertical geometry and drainage structure placement to AASHTO standards providing pleasing riding characteristics and eliminating localized street flooding.

Plantation Estates Roadway and Drainage Improvements, Jefferson Parish, La. Designed removal and reconstruction of residential streets in a flood prone subdivision. Reconstruction included raising in grade and realignment of the roadway to improve the drainage along with upgrading of the drainage conveyance system to the main trunk line including utility relocation and replacement of drives affected by the roadway replacement. Analyzed area hydrology and performed hydraulic calculations to establish proposed subsurface pipe sizes.

Orleans Village Drainage Improvements, Jefferson Parish, LA. Designed upsizing approx. 2,800 L.F. of subsurface drainage piping up to 72" in diameter in a residential area, including restoration of the roadway, replacement of the driveways and utility relocation.

Stumpf Blvd. Drainage Improvements((Friedrichs St.-West Bank Expressway). Project Engineer responsible for the development of plans and specifications for the installation of a 72-inch drainage pipe in the Stumpf Boulevard Canal. The pipe would provide sufficient capacity to convey storm water while addressing bank erosion.

Stumpf Blvd. Canal Improvements Westbank Expressway to Franklin Street, Gretna, LA. Project Engineer for the design of plans and specifications for closing of the existing canal with a box culvert and placing new turning lanes to provide access to the adjacent property.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Phillip Olivier, PEE <i>Civil/Structural Engineer</i>
Project Assignment:
Drianage Design-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 - Drainage Design-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 for the Louisiana Urban Flood Damage Reduction Project (SELA) 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.

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:
Ryan Koenig, PE <i>Project Manager, Civil/Structural Engineer</i>
Project Assignment:
Drainage Design-Civil
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, Drainage Design-Civil

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:
Mark Gonski, PEE <i>Project Manager</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 BS, Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer, Civil, LA, #26817
Other experience and qualifications relevant to the proposed Project:
Mr. Gonski is a Structural Engineer with a combined 39 years of design and project management experience. He was the Chief of Structures Branch at the New Orleans District, US Army Corps of Engineers (USACE), 2006 – 2014 and oversaw much of the Post Katrina Hurricane Protection structural design effort. Mr. Gonski has design and field experience with the repair and rehabilitation of major navigation and flood control structures. Mr. Gonski has structural design experience for new construction and repairs to existing pump stations. He was also involved in the design of numerous pump station fronting walls built in New Orleans as required to protect stations from hurricane surges. He oversaw the design and construction of the SELA Internal Drainage projects in Orleans and Jefferson Parish including the Pump to the River projects.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Mark Gonski, PE, Drainage Design-Structural

Mid Barataria Diversion Structure, Plaquemines Parish, LA. Mr. Gonski serves as Project Technical Lead; the design is progressing towards 60% P&S with design scheduled for completion in Dec 2021. The diversion capacity is 75,000cfs. The Project includes the design of massive intake structures and tainted gated structures located on the Mississippi River. The work also includes the design of a railroad and highway bridge, levees and floodwalls, major drainage siphon, channel excavation and armoring and interior drainage. The diversion penetrates the Mississippi River Levee as such there has been significant coordination with the USACE as part of the 408 permit process.

PO-29, Mississippi River Reintroduction to Maurepas Swamp, St John the Baptist Parish, LA. While at the USACE, serving as Chief of Structures, Mr. Gonski provide design criteria for the structural elements of the Maurepas Diversion including the gated diversion, excavation plan and pump station. He performed technical reviews on milestone submittals. Later, when employed by AECOM, Mr. Gonski provided the ITR of the revised 95% design.

Technical Manager, Western Closure Complex Pump Station. The 19,100 cfs pump station was part of the hurricane protection system project built by the Corps of Engineers. Developed the structural design criteria. Reviewed the plans and specifications and calculations submitted by the consultant and provided inspections and guidance during construction. The Pump Station included 11 -1800 cfs vertical pumps that used form suction intake and “flower pot” discharge. The station superstructure was designed to resist hurricane force winds.

Structural Lead, SELA Louisiana Avenue Culverts. Mr. Gonski has provided structural reviews of the ongoing construction of the concrete box culverts founded on soil columns. The effort included the redesign of culverts to accommodate differing site conditions, review and redesign of the braced excavations along with making site inspections to assure quality control.

Hurricane & Storm Damage Risk Reduction Reaches LPV 105-110, Orleans Parish, LA, Chief Structures Branch. As Chief of Structures Branch, Mark provided the design criteria for the structural components of the project. He performed technical reviews during Plan development. Mr. Gonski became heavily involved in LPV 109 dealing with post-construction settlement issues at the Hwy 11 floodwall and floodgates. He oversaw the analysis required to assure the pile foundation was not overstressed for the life of the Project.

Engineering & Design of Levee Enlargement Reach LPV 111, Orleans Parish, LA, Chief Structures Branch. As Chief of Structures Branch, Mark provided the design criteria for the structural components of the project. He performed technical reviews during Plan development. Mr. Gonski became heavily involved in the project T-Wall design and the Pump Station 15 retrofit. Post-construction, Mr. Gonski performed several site explorations as was needed to investigate actual conditions with respect to pile corrosion.

Structural Designer, Engineering during Design for Baton Rouge O’Neal Sewer Pump Stations. Reviewed structural submittals and provided design modifications for eight raised pump stations and one generator building.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Leah Read, 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:
15
Education: Degree(s)/Year/Specialization:
BS, Civil Engineering
Active registration: Year first registered/discipline:
Professional Engineer, 2011, Civil, Louisiana License #36810
Other experience and qualifications relevant to the proposed Project:
Ms. Read is a structural engineer whose main focus has been design of hydraulic concrete and steel structures such as floodwalls, flood gates, concrete flood channels, and culverts; other structural designs include superstructure elements, existing structure repairs, retaining walls (sheet pile and concrete), aqueducts, deep foundations, and slabs on grade. She is adept at structural finite element modeling and using geotechnical foundation design software. Previous project involvement includes structural design, design during construction, deputy project manager, specification reviewer, peer reviewer and existing structure condition assessment. She also has a wide variety of inspection experience. After completing bridge inspection training through the National Highway Institute, she has inspected bridges in Illinois, Virginia, Kentucky, Alabama, Mississippi, and Louisiana; conducted inspections on levees and dams in California and Iowa; and has inspected large warehouse facilities.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Leah Read, PE Drainage Design- Structural

Mississippi River Reintroduction into Maurepas Swamp, St. John the Baptist Parish, CPRA. Designed a concrete intake structure that houses (3) 10-ft by 10-ft sluice gates used to control water flow from the Mississippi River. Also designed pile-founded 15-ft to 30-ft tall U-frame channels and pile-founded box culverts that run beneath the Mississippi River Levee and LA Highway 44. Used SAP2000 3D finite element modeling software to design all concrete structures and their foundations. For the associated pump station, calculated wind forces on prefabricated metal building using ASCE-7 and designed concrete substructure using 3D SAP2000.

USACE, Hurricane Protection Office, LPV 105-111, New Orleans, LA. Designed systems to retrofit existing floodwalls to meet the updated USACE hurricane design requirements. Designed additions to existing slabs and walls to increase floodwall height by 9 feet; designed counterfort walls to add additional rigidity and barge impact protection to existing structures. Analyzed existing pile foundation, with the addition of new piles, for updated hurricane loads and unbalanced geotechnical forces. Designed pile foundations, base slabs, stem walls and miscellaneous details for floodwall monoliths. Used the newly introduced Group 7 software for the foundation designs. Also designed retaining walls for the project and designed structures around utilities.

Southeast Louisiana Urban Flood Control Project, Louisiana Avenue Improvements (Constance Street to South Claiborne Avenue), Orleans Parish, LA, USACE, New Orleans District. Structural Engineer. Designed approximately 1.5-miles of concrete box culverts of numerous sizes, the largest of which contains a 16-ft wide by 7.5-ft tall opening. All culverts are supported on a jet-grout soil foundation. Also designed two large siphon vaults to connect new and existing pipes of various materials. 3D and 2D SAP2000 models were used to design concrete members.

Louisiana Avenue Regional Detention Basin, Calcasieu Parish, LA (Calcasieu Parish Police Jury). Structural Design Lead. Designed a 5-barrel box culvert intake structure, a buried 2ft x 4ft x 14ft tall shallow-founded concrete gate well, aluminum CMP outflow structures, security and trash screens, HDPE pipe interceptors for a new detention pond. Culverts were TxDOT standard multi-barrel precast boxes adjusted to meet site conditions. Developed structural drawings and specification package (including TxDOT specifications with addendums).

St. Bernard Parish Pump Stations 2 & 3 Seepage Repairs, St. Bernard Parish, LA. Structural Design Engineer designed numerous T-Wall monoliths. Designed pile foundations, slabs, stem walls and tension connectors.

Algiers Canal and Flood Protection, Algiers, LA. Structural Design Engineer designed pile foundations, base slabs and stem walls for floodgate monoliths.

Pump Station G-508, Hendry County, FL (South Florida Water Management District). Structural Design Engineer performed reinforced concrete designs for fuel storage area, trash handling system and crane rail supports, superstructure walls and columns and roof system support.

Tijuana River Flood Control, Rehabilitation of the North and South Levee, San Diego County, CA (International Boundary and Water Commission (USIBWC)). Structural Engineer: Design of structural retrofits to drainage features built in 1977 and 2000: addition of vertical slide gates up to 12ft wide x 4ft tall to culverts and pipes, addition of access platforms to existing structures, analysis of existing structures for new load conditions, designing these items to work with security fence at the USA/Mexico border and other conflicts.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Greg France, PE Civil Engineer
Project Assignment:
Utilities Relocation
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:
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, PEE <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.

Hurricane Protection Office LPV 103; 105-108; 110, New Orleans, LA. Geotechnical Engineer responsible for the engineering and design for approximately 5.7 miles of the levee alignment. Engineering analyses involved slope stability using USACE software program: Method of Planes (MOP) and Geostudios software program: Slope W, seepage using USACE software program: DIVR seepage analysis, CWALSHT Analysis, settlement and bearing capacity calculations

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 ontime. 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 highstrength 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:
Al 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:
Mervin Tassin <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:
Eric Walter <i>CADD Designer</i>
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, Twalls, 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 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.

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>Avenue D Area Drainage Improvements <i>Jefferson Parish, La</i></p> <p>Jefferson Parish Department of Drainage Mr. Mitch Theriot 1221 Elmwood Park Blvd. Jefferson, La 70123 504.736.6833</p> 	<p>The areas tributary to the Avenue D Area Drainage system has 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 Fourth to Sixth Streets including the area in and around Immaculate Conception School.</p> <p>This project included installation of 1,500-linear feet of drainage pipes ranging in size from 36 inch circular pipes to 54 inch by 88 inch concrete arch pipes, major dual box culverts.</p> <p>AECOM provided construction management services and resident inspection on this project. The project is in a residential area and involves the added issue of insuring access to the school during the construction period duration. Critical during construction of the project is monitoring of all the residences and allowing them ingress and regress during a necessitated short construction period.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2010	\$192,000	\$192,000

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. 2

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Avenue B Drainage Basin Improvements <i>Jefferson Parish, La</i></p> <p>Jefferson Parish Department of Drainage Mr. Mitch Theriot 1221 Elmwood Park Blvd. Jefferson, La 70123 504.736.6833</p> 	<p>The work on Avenue B consisted of replacing an existing major subsurface drainage system with new concrete pipe varying in size from 15 to 54 inches in diameter and box culverts. 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. 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. Also, critical during construction of the project was monitoring of all the residences and allowing them ingress and egress during a necessitated short construction duration. Designs included civil, structural, hydraulic and geotechnical engineering as well as surveying services. Responsibilities included preliminary and final design, bidding, construction management, resident inspection and as-built services.</p> <p>The construction phase was complicated by the relocation of the main drainage line from the center of the roadway to one side at the request of the state highway department after award of the contract. This change occurred even though the department had approved the plans before bidding. Changes in manhole inverts, utility relocations and alignments were required as the project progressed. This necessitated rigorous coordination between the contractor and engineer throughout the construction phase.</p> <p>As a result AECOM had to provide resident inspection and CMS services in excess of those normally required for this type of job. An additional complication required the connection of this drainage system to another drainage improvement project being constructed on a cross street by a different contractor. Though the contractor's original bid was substantially less than the second low bidder, the final construction price was less than the original award amount after adjustment of all pay quantities.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2010	\$189,000	\$189,000

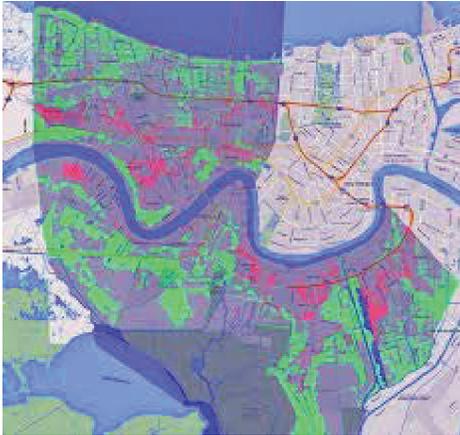
L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 3

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Westbank Master Drainage Plan and Update <i>Jefferson Parish, LA</i> Mr. Mitch Theriot 1221 Elmwood Park Blvd. Jefferson, LA 70123 504.736.6833</p>  <p><i>AECOM led the 1st Jefferson Parish West Bank Master Drainage Plan</i></p>	<p>This project involved a complete hydrologic and hydraulic study of approximately 36,000 acres of the West Bank of Jefferson Parish. The work included detailed topographic mapping of the entire study area, review of past studies, and assimilation of data on existing drainage facilities in the area. Hydrologic and hydraulic analyses of the eight major drainage basins included determination of applicable rainfall and run-off criteria and values, storm modeling of existing and improved drainage and pumping facilities in the area. This work was performed utilizing the EPA developed Storm Water Management Model (SWMM) computer program and the U.S. Army Corps of Engineer's HEC-2 computer program. AECOM produced fully electronic flood maps indicating flow line and elevations for each node of the model. These maps along with the model were subsequently updated for the Parish for existing conditions, a 100-year frequency event and a 500-year frequency storm event and the Parish in-turn provided these maps to FEMA</p> <p>Individual Modeling Tasks for the project included:d:</p> <ul style="list-style-type: none"> • Input of topographic data, cross sections and elevations using contour maps and survey data • Determination of basin limits • Configuration of pumping routines and operations • Configuration of storage areas • Weir configuration input • Network configuration • Storm hyetograph input • System modeling 	
<p>Completion Date (Actual or estimated):</p>	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2009	\$1.8M	\$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. 4

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>East Bank Drainage Master Plan (Basis of FEMA Effective Study) <i>Jefferson Parish, LA</i> Mr. Mitch Theriot 1221 Elmwood Park Blvd. Jefferson, La 70123 504.736.6833</p>  <p>AECOM led the Jefferson Parish DFIRM Effort</p>	<p>AECOM provided modeling services to identify the current floodplain limits within portions of the Parish inside the hurricane levees. The hydrologic and hydraulic modeling for the 115 square-mile area hurricane protection system (HPS) included pump station and canal system improvements, and allowed FEMA digital flood insurance rate maps (DFIRM) to be created.</p> <p>Property that is outside the new floodplain designation would no longer be required to carry flood insurance or would pay substantially reduced rates for coverage.</p> <p>Hydraulic Model Selection Phase. The first phase of the DFIRM project consisted of selecting the hydrologic and hydraulic models to be used. The hydrologic model used to develop the Jefferson Parish DFIRMs was selected based on the characteristics of the watershed, the existence of previous models, and the acceptability under FEMA requirements. It was determined that the hydrologic model for the project must include the following capabilities:</p> <ul style="list-style-type: none"> • Model single event based storms, • Compute runoff hydrographs that could be linked to the hydraulic model, • Model multiple hydrologic methods, and • Link with GIS data layers. <p>Based on the interconnected canals and pump stations within the watersheds, it was determined that a one-dimensional, unsteady flow hydraulic model would adequately model the dynamic flow conditions of Jefferson Parish. The HEC-RAS software was selected as the ideal model for developing the Jefferson Parish DFIRMs. There were many advantages to using the HEC-RAS model for Jefferson Parish. A First, the model was accepted by FEMA, and supported by HEC. In addition, HEC agreed to adopt Jefferson Parish as a test case for the development and testing of the HEC-RAS 4.0 beta software product. The HEC-RAS beta was intended to include advanced pump system and closed conduit routines that would aid in the modeling of Jefferson Parish's urban network.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2006	\$1M	\$209K

Nature of Firm's Responsibility:

Hydraulic Modeling Phase. The hydrologic and hydraulic models cover a total area of 115 sq-mi and are divided into six (6) basins based on the HPS, thus resulting in six separate pairs of hydrologic and hydraulic models. The basins include urbanized and low-lying marsh areas, though certain basins are almost entirely urbanized. In total, the models include 27 major pump stations and a network of approximately 220 miles of open and closed canals with nearly 775 bridges, culverts and pipe crossings.

The Jefferson Parish FEMA FIS began in 2001, and by 2005 all data had been collected and the models had been developed. During this period, existing models were converted to HEC-HMS and HEC-RAS, additional surveys of canals were performed and site visits were conducted to identify bridge and culvert structures. While some modeling had begun by 2005, the bulk of the modeling had not yet been performed. On August 29, 2005, Hurricane Katrina made landfall, resulting in a compromise of New Orleans' HPS. As a result, the USACE formed the Interagency Performance Evaluation Taskforce (IPET) to determine the behavior and causes of damage to the HPS.

AECOM joined the IPET in January 2006 as a member of the Interior Drainage and Analysis Team, led by the USACE HEC, and temporarily suspended work on the FEMA FIS modeling. AECOM updated and improved the existing Jefferson Parish DFIRM models in order to reproduce Jefferson Parish's interior flooding from Hurricane Katrina. Following the public release of the draft PET report in June 2006, AECOM resumed work on the FEMA FIS modeling. In order to provide the Parish with the most reliable, accurate and up to date models, the pre-Katrina DFIRM models were superseded by the updated PET models. The models were then run for the FIS historic calibration and verification events. Once calibration and verification was complete, FIS events were modeled and output was provided to the Parish and its GIS consultant.



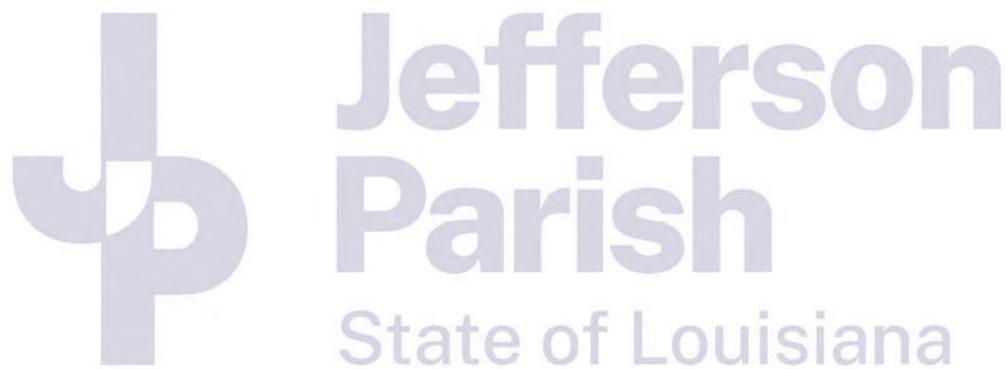
L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 5

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Mid-Barataria Sediment Diversion Project Area Wide Drainage Model <i>Plaquemines Parish, LA</i> Coastal Protection and Restoration Authority Brad Barth, PE - Operations Assist Administrator Phone: 225.342.4553</p>    <p>AECOM is leading North America's largest Construction Management at Risk (CMAR) project</p>	<p>AECOM is engineering and designing for LA CPRA the Mid-Barataria Sediment Diversion Project (MBSD) in Plaquemines Parish near Myrtle Grove. The diversion will reconnect the Mississippi River to the Barataria Basin, but in so doing, will sever the West Bank of Plaquemines Parish. The existing network of drainage ditches collect and convey surface stormwater runoff from north to south and across the diversion's conveyance channel alignment to the Wilkinson Pumping Station, which discharges the stormwater runoff into Barataria Basin. The water surface elevation of the diverted river flow, however, will be higher than the surrounding grade, so the diversion's conveyance channel will be confined by guide levees and prevent the conveyance of stormwater runoff across the diversion's footprint. An engineered solution looking at area-wide drainage impacts was needed.</p> <p>During an engineering alternatives analysis phase, AECOM investigated two potential modifications to the drainage network to handle the stormwater runoff on the diversion's north side. They were a new drainage pumping station sited north of the diversion and an inverted siphon pipe bank to convey stormwater across the diversion. AECOM first constructed an area-wide non-steady-state HEC-RAS model and calibrated it to historic gage readings at the pumping station for certain storm events. Topographical survey data consisted primarily of existing LiDAR data, supplemented by ground shots AECOM took. AECOM confirmed the accuracy of the LiDAR data by comparing it to ground spot elevations. AECOM then separately inserted the proposed infrastructure into the model as well as the USACE's proposed New Orleans to Venice Levee and its drainage modifications and determined the required flow capacity was approximately 750 cfs. AECOM next developed feasibility-level designs and life cycle cost estimates of the pumping station and inverted siphon. Based on these cost estimates, AECOM recommended the inverted siphon bank, which CPRA accepted</p>	
<p>Completion Date (Actual or estimated):</p>	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2023	\$1.2B	\$42M

Nature of Firm's Responsibility:

AECOM then developed a detailed design of the siphon bank. Stream gages were installed at three locations to more accurately calibrate and validate the area-wide drainage model. The model was further developed by adding valves at the siphon pipes inlet structures in order to develop an operations procedure for the siphon pipes to incrementally flow at a sufficient cleaning velocity without causing unacceptable upstream ponding. A new gate structure was also added to the USACE's proposed New Orleans-to-Venice non-federal levee reach for draining stormwater that would be impounded by the construction of the proposed levee reach and the diversion's north guide levee. The siphon pipes and the drainage structure culvert size were adjusted again so that the proposed drainage system modifications did not raise the stormwater surface elevations more than 0.1 feet. Geotechnical, civil/site and structural designs of the siphon bank components currently are at a 60%-level of completion, with final engineering scheduled for completion in summer, 2022. The proposed drainage modifications will be reviewed by the parish, CPRA, and the USACE as part of the CUP/Section 404/Section 10 Joint Permit Application.



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.

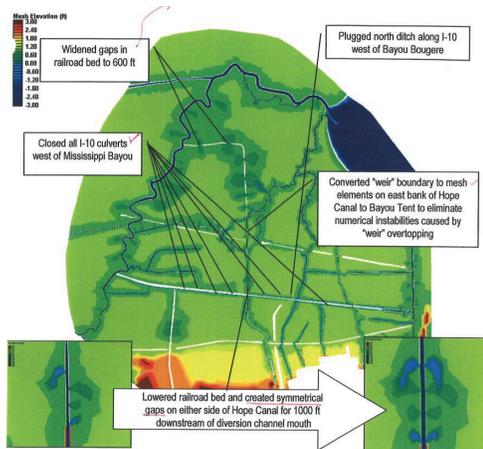
PROJECT NO. 6

Project Name, Location and Owner's contact information:

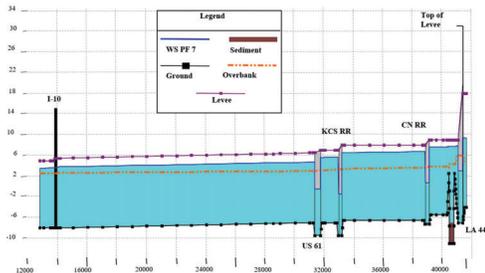
Nature of Firm's Responsibility:

Maurepas Freshwater Diversion Structure
St. John the Baptist Parish, La

Coastal Protection and Restoration Authority
 Brad Miller or Russ Joffrion
 225.342.4122



AECOM has modeled the flow distribution in ADCIRC and Delft3D. The model adjusted various Outfall Management Features; such adjustments will be required in using the Jefferson Parish SWMM5 model.



AECOM's HEC-RAS model of the Maurepas conveyance channel demonstrates our ability to understand the USACE models created on the EBWB of Jefferson Parish.

This Project is a major Civil Works effort to provide eco-restoration and save 220 square miles (160,000 acres) of Cypress-Tupelo forested swamp. Federal and state restoration initiatives, especially the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA), identified the north section of the Maurepas Swamp as an area where wetlands vegetation is stressed and dying.

The project will divert 2,000 cfs of Mississippi River water into the Maurepas Swamp through the use of a hydraulic control structure built into the Mississippi River Levee (MRL) and a five mile long conveyance channel for flow routing into the swamp. The main hydraulic elements include the gated headworks, culvert crossings under two major roadways and two railroads, and flow control elements in the swamp, including weirs to prevent short-circuiting of the flow, embankment cuts to enable full dispersion of the flow, and check valves to prevent backflow.

AECOM was contracted to undertake a hydraulic feasibility study, conduct preliminary and final engineering, prepare plans and specifications, and submit Section 10/404 and Section 408 permits to the USACE NOD. AECOM performed the feasibility study to determine the maximum capacity of the conveyance channel and any backwater effects on the surrounding local drainage. This phase utilized SWMM, HEC-HMS, HEC-RAS, UNET and SMS TABs (RMA-2, RMA-4) for 10/20 hydrodynamic/water quality modeling and ADCIRC for the Hydrodynamic Model. A SWMM model of the drainage system throughout St. John the Baptist Parish was created for sizing a drainage pumping station to pump water out of the Parish basin and into the project conveyance channel, thus preventing backwater effects on the public drainage network.

AECOM personnel included one of the developers of the ADCIRC model who was instrumental in modifying this new Hydrodynamic Model for application to the subject project. In the early 2000's this was one of the most sophisticated and best 3D models utilized by both CPRA and the USACE. In 2019 the newer Delft3D hydrodynamic model was applied to the determine the dispersion of water and nutrients into the swamp. The results closely mimicked the predicted water distribution from the ADCIRC model, thus validating the original modeling, and adding the nutrient dispersion component.

Estimated Cost:

Completion Date (Actual or estimated):

Entire Project:

Work for which Firm was Responsible:

2021

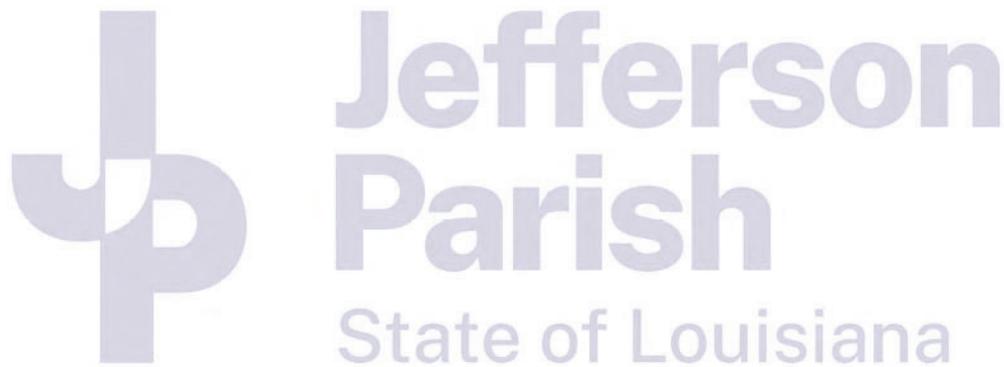
\$185M

\$2M

Nature of Firm's Responsibility:

The USACE West Shore Lake Pontchartrain flood protection system will share the Maurepas Diversion corridor from the MRL to Airline Highway, the last roadway crossed by the conveyance system. The flood protection levees and walls will act as a dam to prevent the eastward movement of water throughout a significant portion of the area. HEC-HMS was used to model the hydrology and stormwater runoff that must be conveyed northward into the swamp on the west side of the conveyance channel. A HEC-RAS 1D model was built to size the requisite drainage ditches and the drainage culverts with sufficient capacity to prevent flooding of adjacent properties. The outfall of the Marathon Petroleum hydrocarbon storage facility would also be blocked by the reconfiguration. A HEC-RAS 2D model is currently being constructed to model the facility's discharge into the swamp.

AECOM also completed data collection, including surveys and geotechnical borings as well as analysis of these data for use in the design of the plans and specifications currently at 95% working with CPRA with reviews by the USACE NOD. The project includes an intake structure comprised of three automated sluice gates each sized 10-ft x 10-ft, connecting to box culverts that travel underneath the Mississippi River levee and adjacent state highway (LA 44 River Road) and then through a settling basin to allow large sediment to settle out and then enter the conveyance system. The trapezoidal channel is 200-ft by 60-ft bound by earthen levees on each side.



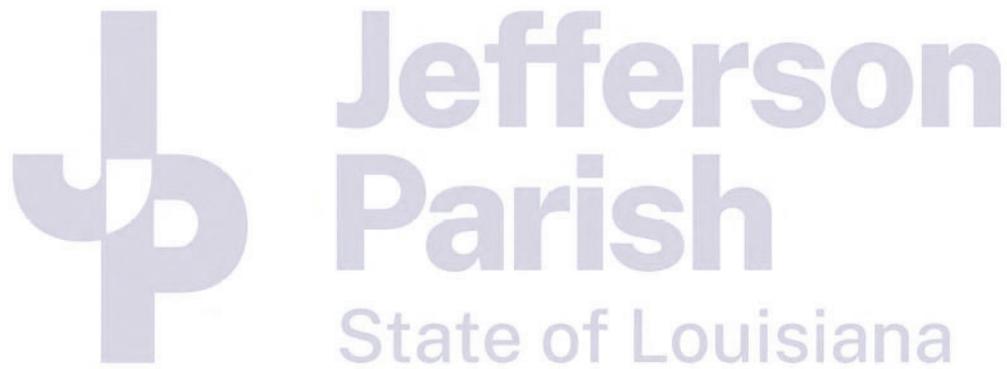
L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 7

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Louisiana Avenue Improvements (Constance Street to South Claiborne Avenue) <i>New Orleans, LA</i></p> <p>USACE New Orleans Mr. Larry Mickal 7400 Leake Avenue New Orleans, LA 70118 Larry.E.Mickal@usace.army.mil 504.862.2711</p>  <p><i>Dual Box Culvert down middle of Louisiana Ave</i></p>	<p>As part of the Southeast Louisiana (SELA) Urban Flood Control Project, AECOM was contracted to the USACE, New Orleans District to design a new box culvert along Louisiana Avenue in New Orleans and provide Engineering During Construction (EDC) services. 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. The new box culvert transitions in size beginning with an 8'x 8' structure to 10' x 8', and finally a 12' x 10' box culvert. AECOM performed all structural design of the box culvert, as well as geotechnical engineering for foundation support and construction.</p> <p>In addition, AECOM also provided civil and roadway design. This includes utility relocations and traffic maintenance throughout the construction phase. AECOM prepared plans and specifications for bidding, assisted USACE during the bid phase process, and is currently providing EDC services. Civil and structural drawings include:</p> <ul style="list-style-type: none"> • Roadway plan/profile sheets. • Drainage connection at cross streets; roadway typical sections. • Side road grading plans. • Geometric intersection details. • Utility layouts / relocations. • Maintenance of Traffic and construction and signing sequencing (6 phases). • Permanent signing and striping plans. • Plan/profile of box culvert. • Box culvert cross-sections with reinforcing details. • Foundation details. • Ground improvement design/box support foundation (jet grouting). 	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2017	\$80M	\$3.6M

Nature of Firm's Responsibility:

The project is complex due to the nature of the project site. Louisiana Avenue is an urban, 4-lane street with on-street parking, a narrow median and many historic structures and other features such as street tiles and slate curbing. The box culvert will also have to cross under the St. Charles Avenue streetcar tracks. In addition, the avenue is lined with live oak trees that must be protected during the construction phasing. Therefore, close coordination has been necessary with the City of New Orleans Public Works, Traffic/Streets Department, New Orleans Regional Transit Authority (RTA), Parks and Parkways, and the individual utility companies with facilities along the route. Utility relocations include: 8" waterline, gate valves, fire hydrants, minor drainage structures, as well as sewer and gas lines.



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>South Claiborne Avenue II Covered Canal <i>New Orleans, LA</i></p> <p>Ron Spooner 625 St. Joseph Street, Room 305, New Orleans, LA 70165 504.585.2202</p>  <p><i>Typical section down Claiborne Ave. down middle of the roadway.</i></p>	<p>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 USACE to relieve flood prone areas in Orleans, Jefferson and St. Tammany parishes in Louisiana. The Sewerage and Water Board of New Orleans is the local sponsor. This project is one of many that the S&WB has approved for design and construction to relieve flooding in the Uptown area of New Orleans. The Sewerage and Water Board of New Orleans is the local sponsor.</p> <p>The South Claiborne Avenue II Covered Canal consists of a single 9"-high by 18' wide by 4,100' 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. With the addition of the new box culvert, the dual box configuration will essentially serve as a manifold canal that convey's runoff from the "heart" of Uptown New Orleans to Monticello Avenue Canal, which lies at the western limits of the City. AECOM was responsible for all civil, structural, transportation and geotechnical engineering services, as well as surveying services and construction management.</p>	
<p>Completion Date (Actual or estimated):</p>	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
<p>2004</p>	<p>\$18M (Const.)</p>	<p>\$1.8M</p>

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>Jefferson Parish Program Management Support, Road Bond Programs <i>Jefferson Parish, La</i></p> <p>Jefferson Parish Engineering Dept. Neil Schneider, Capital Projects Director Joseph S. Yenni Building 1221 Elmwood Park Blvd., Suite 906; Jefferson, LA 70123 (504) 736-6833</p>  <p><i>AECOM provided coordination with the water, sewer, drainage, streets and parkways departments of Jefferson Parish in resolving design and construction issues and conflicts.</i></p>	<p>AECOM was selected to provide program management support services including on-site staff for both the 2017 and 1998 Road Bond Improvement Programs for Jefferson Parish. The selection was based on our expertise in program management, project management, construction management, familiarity with local conditions, our multi-disciplinary staff and experience with road, bridge and utility design. Jefferson Parish addressed serious transportation needs via the 2017 and 1998 Road Bond Improvement Programs. The 2017 Road Bond Program includes 34 projects with a value of nearly \$150M in proposed improvements. AECOM is currently working with Jefferson Parish to leverage Federal, State and Grant funds to expand the program. The 1998 Road Improvement Program, originally bonded for \$113 million, was expanded to \$210 million as the program progressed. As part of that expansion, additional projects and additional outside funding (such as Federal Aid Urban Systems Funding, TEA-21 Demonstration Projects and local agency funding) were added increasing the program to a total of 114 projects worth over \$275 million in proposed improvements. As part of our services, AECOM helped Jefferson Parish leverage \$81.5 million worth of funding from Federal, State and other local funding sources. AECOM worked diligently with the Parish Administration to fully define the scope of work for each project. AECOM also assisted the parish in public information meetings to inform the public about upcoming projects. During the design phase, AECOM was responsible for design reviews of all plans to assure that Jefferson Parish and LaDOTD Standards were being followed.</p> <p>AECOM provided coordination with the water, sewer, drainage, streets and parkways departments of Jefferson Parish in resolving design and construction issues and conflicts. AECOM as Program Manager acted as the Parish's agent in resolving numerous conflicts with utility relocations and oversaw the resolution of utility conflicts during construction. During construction, AECOM represented the Parish in monthly meetings, plan change development, change order negotiations and conflict resolutions. With AECOM's involvement, claims were held to a minimum and both schedules and budgets were met.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2025 (estimated)	\$110M	\$N/A

PROJECT NO. 9 *continued*

Nature of Firm's Responsibility:

AECOM tracked both schedule and budget throughout the project and provided quarterly reports on the status. AECOM handled construction of several Federal Aid/Urban System projects for the Parish during this program.

AECOM also provided project data management and monitoring, reviewed invoices, processed plan changes, resolved claims, participated in field reviews and the final inspections, and received and processed the final close-out documentation. AECOM also oversaw design of several other projects scheduled to be included in the urban systems program and oversaw the construction of other projects requiring LaDOTD coordination of the projects constructed, over twenty of them involved drainage structures on the major drainage canals in Jefferson Parish. This includes projects on Cousins, Whitney, West Esplanade, Veterans, Airline, West Metairie and West Napoleon Canals. AECOM worked with engineers and contractors to implement innovative techniques for box culvert construction such as ConSpan and slide rail shoring systems.

Representative projects of the 199 Road Bond Program:

- **Clearview Parkway/Veterans Boulevard Intersection Improvements.** Included a precast box culvert under the intersection using expedited construction methods.
- **Veterans Boulevard/Severn Avenue Intersection Improvements.** Included the installation of a ConSpan structure using slide rail shoring.
- **Wilker Neal Street Bridge Replacement.** The existing bridge over the Airline Canal was replaced by a cast-in-place box culvert.
- **Cousins Boulevard Improvements (Paxton to Woodmere).** Replaced the Woodmere Boulevard Bridge with a 700-foot ConSpan structure.
- **West Esplanade Avenue/Page Drive Intersection Improvements.** Included a new box culvert with U-turns to the East of the intersection.
- **West Metairie Avenue U-Turn near Mason Street.** Involved adding a new U-Turn across the W Metairie Canal using a cast-in-place box culvert.

Representative projects in the 201 Road Bond Program

- **Holmes Blvd. Rehabilitation (Terry Parkway to Browning Lane).** Remove/replace existing 2-lane concrete roadway. Add a 6-foot continuous bike lane protected by a 2-foot mountable curb on either side of roadway. Upgrade handicap ramps to meet ADA standards. Provide beautification including trees & shrubs along route.
- **Oakwood Smart Growth - Hector Ave. Improvements (Whitney Ave. to Terry Pkwy).** Provide a 12-foot shared pedestrian/bike path on north side of Hector Ave from Whitney to Terry Pkwy. Includes a bridge across the Wright Ave Canal. Provide parking bays along north side of Whitney Ave & a 5-foot sidewalk along the southside.
- **Lapalco Blvd. Overpass over Bayou Segnette Rehabilitation.** Construct bridge repairs including, but not limited to, lead based paint removal, new paint system application, curtain wall reconstruction & repairs, span support framing system, bearing pad replacements, anchor bolt replacements, concrete repairs, soil stabilizations, fill, bridge deck joint system replacement, permanent pavement markings, bridge drainage system rehabilitation, and graffiti remediation.
- **Pritchard Road Extension (Leo Kerner Pkwy to Sprig St).** Replace existing 20-foot concrete roadway & widen to 26 feet. Extend roadway from the existing dead end to Sprig Street. Relocate existing ditch south of roadway to provide for roadway widening. Improve drainage entering the ditch.
- **Ames Boulevard Resurfacing. (Westbank Expwy. to Happy Street).** Mill/overlay existing asphalt pavement over existing concrete roadway. If needed, replace damaged concrete panels, repair existing base & replace concrete curbs. Upgrade handicap ramps where needed to meet ADA standards.

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>Permanent Canal Closures and Pump Station <i>New Orleans, LA</i> USACE New Orleans District Chris Dunn 7400 Leake Ave New Orleans, LA 70118 christopher.l.dunn@usace.army.mil 504.862.1799</p> 	<p>AECOM performed design reviews for the USACE New Orleans District on the Permanent Canal Closures and Pumping Stations (PCCP) design-build project. The purpose of the project was to construct three pumping stations on outfall canals to protect the canals from tropical storm or hurricane surge while continuing to permit pumping of stormwater due to rain. The three stations are located on the 17th St. Canal, the Orleans Ave. Canal, and the London Ave. Canal and they replace the Interim Closure Structures and Pumping Stations. During Hurricane Katrina walls along the 17th St. and London Ave. Canals failed, leading to much of the flooding that took place. The PCCPs prevent storm surge from entering the canals but the canals also act to remove pumped stormwater from the city and therefore the PCCPs must also be able to pump water from the canal into Lake Pontchartrain. The pumping capacities for the PCCPs are 12,500 cfs for the 17th St. station, 2,700 cfs for the Orleans Ave. station, and 9,000 cfs for the London Ave. station.</p> <p>The design-builder (DB) was the PCCP Joint Venture (consisting of one design firm and three construction companies). AECOM was responsible for performing conformance review of the design performed by the DB and its subcontractors. To facilitate review and coordination, AECOM was collocated with the PCCP JV and USACE enabling team members to remain engaged with the design as it progressed. The PCCP JV established several task forces based on discipline and there were regular meetings of each task force to provide general review and updates on the design. A task force also met as needed to perform over-the-shoulder reviews of specific design packages being developed. AECOM participated in the task force meetings and over-the-shoulder reviews providing input on design issues associated with whether the design proposed was in conformance with the contract documents and applicable technical criteria. The design-builder (DB) was the PCCP Joint Venture (consisting of one design firm and three construction companies).</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2018	\$615M	\$8.5M

Nature of Firm's Responsibility:

AECOM was responsible for performing conformance review of the design performed by the DB and its subcontractors. To facilitate review and coordination, AECOM was collocated with the PCCP JV and USACE enabling team members to remain engaged with the design as it progressed. The PCCP JV established several task forces based on discipline and there were regular meetings of each task force to provide general review and updates on the design. A task force also met as needed to perform over-the-shoulder reviews of specific design packages being developed. AECOM participated in the task force meetings and over-the-shoulder reviews providing input on design issues associated with whether the design proposed was in conformance with the contract documents and applicable technical criteria. The design-builder (DB) was the PCCP Joint Venture (consisting of one design firm and three construction companies). AECOM was responsible for performing conformance review of the design performed by the DB and its subcontractors. To facilitate review and coordination, AECOM was collocated with the PCCP JV and USACE enabling team members to remain engaged with the design as it progressed. The PCCP JV established several task forces based on discipline and there were regular meetings of each task force to provide general review and updates on the design. A task force also met as needed to perform over-the-shoulder reviews of specific design packages being developed. AECOM participated in the task force meetings and over-the-shoulder reviews providing input on design issues associated with whether the design proposed was in conformance with the contract documents and applicable technical criteria.

The project design was divided into over 300 packages that were submitted for a conformance review. The package was submitted by the PCCP JV, and then AECOM performed a review of the package to determine if the design was in conformance with the contract documents and other USACE and industry criteria. Comments were submitted through the USACE's DrChecks system and a design package could not be released for construction until the comments were adequately addressed. Because it was a design-build project, the reviews were performed in an expedited manner that often only allowed reviewers a few days to complete their review. AECOM consistently performed its reviews within the time constraints given and was not the cause of any delays to the project schedule.

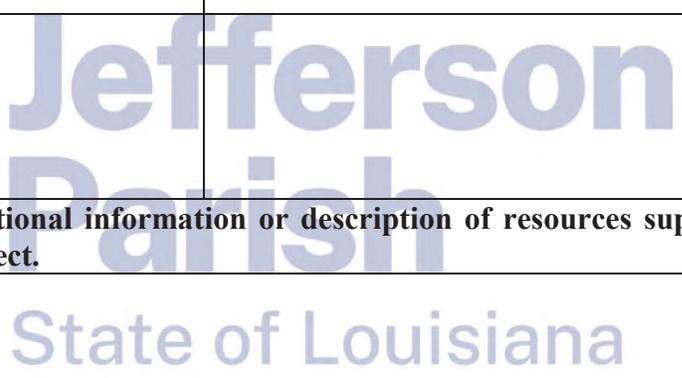
TEC Professional Services Questionnaire

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 drainage and canal projects, 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 drainage-related projects as demonstrated herein, since 1950. 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 80 countries with the skills of more than 55,000 specialized professionals, including more than 200 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 drainage 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 70-plus years in the Jefferson Parish and Greater New Orleans area, we have worked extensively with and in Jefferson Parish on numerous 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 3 Engineering Firms in the United States, as well as a top firm in the world. 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.

The AECOM Team proposes to execute primary project tasks from our Metro-New Orleans location. The address our office is listed below:

- 1555 Poydras Avenue, Suite 1200, New Orleans, Louisiana (primary metro office).

One of the most qualified, experienced, and well-respected stormwater design teams in Louisiana and the Gulf Coast Region.

AECOM's strength is in our professional experience in evaluating, modeling, designing, and supporting the construction and commissioning of storm water drainage and pumping systems. AECOM's local expertise in hydraulic and subsurface drainage 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 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 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 oversee drainage design engineering, Mr. Loyless has 42 years of civil engineering experience with design and construction management emphasis in water and storm water projects. He has designed wastewater and storm water pump stations, and drainage collection networks.

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

Ms. Duhe will serve as our lead QA/QC. Ms. Duhe 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.

Sarah McEwen, PE – Hydraulic & Hydrologic 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.

Jeff Irvin, PE – Hydraulic & Hydrologic 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.

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

Mr. Rector will serve as our Senior Mechanical Engineer. Mr. Rector is skilled in design of complete mechanical systems for commercial,

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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
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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.

Ariel Buenano, PE – Pump Station Design

Mr. Buenano has experience in the design of concrete and steel hydraulic structures, including, floodgates, inlet and outlet control structures, hydroelectric concrete dams, pumping stations, locks and flood protection walls. He has experience with three-dimensional finite element modeling, non-linear analysis, and seismic dynamic and vibration analysis. Mr. Buenano has experience in drainage structures and design of pumping stations, including several in the Metro Area. He has extensive experience in both the structural aspects as well as the interface of the mechanical systems of pumping stations, including the pumps, FSI's, and other components.

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.

Carlos Turcios – Pump Station Design – Electrical

Mr. Turcios is the lead Electrical Engineer with 23 years of experience in all areas of electrical power distribution as well as electrical controls. He has designed and supported medium-voltage and low-voltage power distribution including control schemes for government, commercial, industrial, and bridge facilities; engineered various power systems and distribution networks; formulated and coordinated control schemes for electro/mechanical, HVAC, and SCADA systems;

developed designs for interior/exterior lighting including navigational lighting, grounding, lightning protection, fire detection and alarm systems. He is also experienced in data acquisition systems, Programmable Logic Controllers (PLC's), UPS, remote control and telemetry circuitry.

Sreeni Bollu, PE

Mr. Bollu is Civil Engineer with over 18 years of experience in all phases of project development from conceptual design to construction management. He has provided professional consulting services to numerous public and private clients, serving as Project Manager or Project Engineer on numerous roadway improvements, drainage studies, hydraulic models and designs, drainage improvements, levees, flood control projects, site developments, commercial & residential subdivisions, and construction management.

Phillip Olivier, PE – Drainage Design-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.

Ryan Koenig, PE– Drainage Design-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.

Mark Gonski, PE – Drainage Design – Structural

Mr. Gonski will serve as our senior structural engineer. Mr. Gonski has over 35 years of experience in the design of concrete and steel

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
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hydraulic structures. Gonski is the former Chief Structural Engineer for the USACE New Orleans District and was responsible for the structural engineering and design of numerous SELA program drainage projects including the original Harahan Pump to the River project.

Bruce Lelong, PE – Drainage Design-Structural Engineer

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.

Leah Read – Drainage Design – Structural

Ms. Read is a Structural Engineer who has worked on a wide variety of projects over the course of her tenure at AECOM. Her main focus has been reinforced concrete design in the form of floodwalls, concrete flood channels, culverts, superstructure elements and slabs on grade. She is very adept at utilizing structural finite element modeling (steel & concrete construction) and geotechnical foundation design software. One of Leah's recent drainage structure designs is the approximately 1.5 miles of concrete culvert currently being constructed on Louisiana Avenue in uptown New Orleans. Leah also has a wide variety of inspection experience including bridge inspections at numerous army bases, residential Storm Damage Estimations for FEMA, levee, and dam inspections.

Brent Jones, PE– Drainage Design - 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 Bukkapatum, 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

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.

Greg France, PE

Mr. France 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.

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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

AI 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.

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.

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

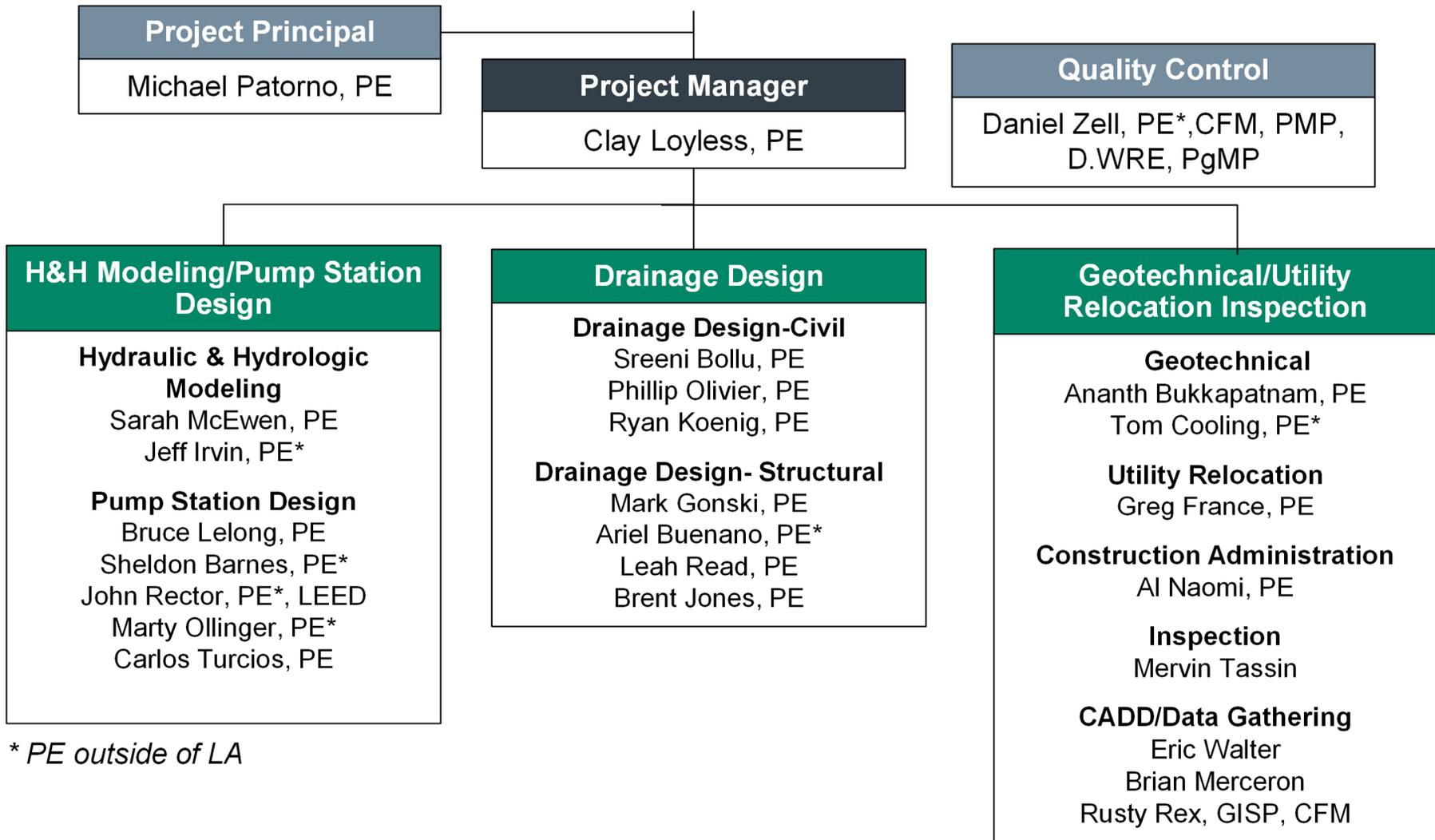
intimately familiar with AutoCAD as well as Bentley Systems drafting programs. He has also performed computer modeling work and mapping projects during his tenor.

Rusty Rex, GISP, CFM – CADD/Data Gathering

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



* PE outside of LA

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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

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
Daniel Zell	QA/QC	PE (TX) 123073		●	20	MA, Economics; BS, Mechanical Engineering
Clay Loyless	Project Manager	PE (LA) 28552	●	●	42	BSCE; MS Envr Engr
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
Bruce Lelong	Drainage Design-Structural	PE (LA) 29393	●	●	26	BSCE – Structural
Sheldon Barnes	Pump Station Design	PE (FL) 71369		●	20	BS, Mechanical Engineering
John Rector	Pump Station Design	PE (FL) 53292		●	29	BS, Mechanical Engineering
Marty Ollinger	Pump Station Design – Electrical	PE (GA) 31748		●	40	BSEE
Carlos Turcios	Pump Station Design – Electrical	PE (LA) 44826	●	●	24	BSEE
Sreeni Bollu	Drainage Design-Civil	PE (LA) 34330	●	●	18	MSCE BSCE
Phillip Olivier	Drainage Design-Civil	PE (LA) 36348	●	●	18	BSCE
Ryan Koenig	Drainage Design-Civil	PE (LA) 31036	●	●	23	BSCE
Mark Gonski	Drainage Design-Structural	PE (LA) 26817	●	●	39	BSCE, MSCE
Ariel Buenano	Pump Station Design	PE (CA) 76865	●	●	31	MS, Structural Engineering BSCE
Leah Read	Drainage Design-Structural	PE (LA) 36810	●	●	16	BSCE
Brent Jones	Drainage Design-Structural	PE (LA) 38935	●	●	14	BSCE; MSCE
Ananth Bukkapatnam	Geotechnical Engineer	PE (LA) 37634	●	●	17	MSCE; BSCE
Tom Cooling	Geotechnical Engineer	PE (CA, MO, IL, GA, TN, NY)		●	48	MSCE, BSCE
Greg France	Utility Relocation	PE (LA) 41249	●	●	11	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.

Many of the personnel selected for this team are the same team members who have allowed AECOM as an organization has successfully

complete hundreds of miles of subsurface systems throughout the metro areas and major drainage pumping stations and intake structures of which includes 7 major stations just within Jefferson Parish, and have managed the permanent pumping stations quality oversight program with a total capacity of some 15,000 cfs for the USACE and NOSWB, which also includes coordination with Jefferson Parish Public works staff, on the new 17th St Canal Station.

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 10 operating systems. Our office has multiple links

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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.

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.

AECOM also has high speed computers on the desks of each staff member with the appropriate software, RAM and Disk Space required. For specific advanced modeling projects and drafting, AECOM maintains in-house high-end computers able to handle the most sophisticated software.

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

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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.

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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 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 drainage projects likely similar in size, scope, and scale to those that would be performed under this contract, including those listed in **Section 03 – 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 experience "across the board" with every aspect of storm water drainage systems. The following discussion summarizes some of the major aspects of projects that are within AECOM's broad experience **which are primarily local** but include experience across the USA and internationally. In the last 15 years, AECOM has designed and managed the designs of 18 major drainage basins and pumping stations totaling more than 50,000 cfs of capacity in South Louisiana.

Specialized Experience

AECOM has successfully completed many projects that demonstrate the AECOM Team's specialized storm water drainage, collection, and conveyance systems, pump station including gate and intake designs, 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

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major storm water systems. Relevant noteworthy projects are briefly summarized here.

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

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 addressed 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) resulted 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.

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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.

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:

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- 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:

- 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 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.

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1998 Road Bond Program.

Jefferson Parish addressed serious transportation needs via the 1998 Road Bond Improvement Programs. The Road Improvement Program (1998), originally bonded for \$113 million, was expanded to include additional projects and additional funding (such as Federal Aid Urban Systems Funding, TEA-21 Demonstration Projects and local agency funding) to include a total of 114 projects worth over \$275 million in proposed improvements.

Earhart Boulevard Improvements (Hamilton Street to Magnolia Street)

Through this project, the City of New Orleans reconstructed Earhart Boulevard from downtown to the Jefferson Parish Line. This project consisted of five individual segments involving the reconstruction and widening of 3.2 miles of roadway using concrete pavement. It included replacing a major waterline, upgrading of the S&WB's electrical feeder system, and extensive drainage work. Included in the services were construction management and inspection for four of the five segments. Also provided were right-of-way acquisition and environmental clearance services.

West Napoleon 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 traffic signal and timing design for the David Drive intersection, asphaltic pavement design, box culvert design within the West Napoleon Canal, hydraulic design, vertical and horizontal alignment, intersection geometrics and civil layout. AECOM was able to complete all design phases within the contract time period.

Green Infrastructure



Jefferson Parish has developed a Green Infrastructure Plan as authorized by the Parish Council in 2019. The plan has resulted in new policy, proposed code changes, and a list of capital improvements using nature-based-solutions.

Utilizing green infrastructure (GI) to solve different types of problems in the urban environment is becoming commonplace. The AECOM GI Practice Team has significant experience in planning, modeling, designing, installing, and quantifying the benefits of both small- and large-scale GI efforts.

AECOM staff have worked on Green Infrastructure designs in New Orleans and throughout the United States. Local applications include FEMA-funded Peer Review of the Gentilly Resilience District GI projects, and incorporation of GI features along corridors in Uptown New Orleans, Baton Rouge, Lafayette, and elsewhere.

AECOM delivers some of the largest projects in the world with context-sensitive, sustainable solutions based on public and stakeholder input. The same expert who has overseen the design of GI features at the Pentagon, has overseen the design for our projects in Baton Rouge Parish. AECOM worked with the Pennsylvania DOT on reconstruction of I-95 including 87 acres of new green space with roughly 70 GI features. The project won an ACEC/PA Diamond Award for Engineering Excellence for the stormwater management on I-95.

Traffic Control Experience

The AECOM Team is experienced in providing traffic control plans for many drainage improvement projects in urban areas requiring signage, detours, and phasing and sequencing to minimize disruptions to traffic as well as nearby

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business and residents, including the following projects:

Advanced Traffic Management and Emergency Operations.

AECOM was part of the team selected by the City of Baton Rouge to provide planning, and design services for the Advanced Traffic Management and Emergency Operations Center (ATM-EOC), for the Baton Rouge TMA. The ATM-EOC will be the center of operations and communications for Emergency Management and the Baton Rouge Advanced Traffic Management System.

Regional Traffic and Congestion Management Plan

AECOM was tasked to provide consultant services to the Regional Planning Commission (RPC) for the New Orleans region to assist in development of a region-wide Traffic and Congestion Management Study consistent with FHWA and FTA guidelines. The master transportation study area included Orleans Parish, Jefferson Parish and the urbanized areas of St. Bernard and Plaquemines Parishes. The project involved traffic data collection, system evaluation, identification of existing and projected transportation deficiencies involving congestion and delay, and development of performance measures to evaluate system performance and prioritize candidate projects.

Construction Sequencing and Phasing

AECOM has extensive experience in the installation of 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.

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

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Drainage Pumping Stations

Our Team has decades of experience designing pumping stations in Jefferson Parish and the nearby vicinity. Our experience with pumping stations includes horizontal pumps, vertical pumps, gate structures, and intake structures, providing both full design and quality assurance services.

In addition, AECOM's experience on pumping stations includes:

Jefferson Parish Pump Station #3 SELA Project (Elmwood)

Designed an expansion and pumping capacity increase to one of Jefferson Parish's largest pumping stations, with the addition of two 3,000 horsepower diesel driven 1,200 cfs (132-inches) horizontal pumps for a total 2,400 cfs increase.

Old Estelle Pump Station Upgrades (Jefferson Parish)

This project consisted of the addition of four 42" and 48" diameter 100 cfs pumps and discharge tubes at an existing station.

New Estelle Pump Station (Jefferson Parish)

This project consisted of constructing a 1200 cfs drainage pumping station, its connecting levees, inlet and discharge basins.

Mt Kennedy Pump Station (Jefferson Parish)

AECOM was responsible for the engineering and design of a 600 cfs drainage pump station. The new Mt. Kennedy Pump Station, which consists of 3-167 cfs (48" diameter) vertical pumps and motors, replaced the existing 300 cfs station. The project also included civil, structural, mechanical and geotechnical designs for fronting protection (flood protection) at two adjacent existing pumping stations.

Whitney Barataria Pump Station, Jefferson Parish, LA.

AECOM engineered and designed a 3,600 cfs drainage pump station. The project included the installation of three (3) 1,200 cfs, 11 feet diameter horizontal pumps and hurricane protection structures for Jefferson Parish at the Whitney / Barataria Pumping Station located on the West Bank of Jefferson Parish.

Dwyer Road Pump Station (Orleans Parish)

Project involved replacement of an existing 250 cfs vertical station with a state of the art 1,050 cfs facility. Key components included three 350 cfs

vertical pumps with 1,150 horsepower electrical motors, backup generator, and approximately 5,000-sq ft building.

Permanent Canal Closures and Pumping Stations (PCCP) (Orleans Parish)

AECOM is currently performing full QA/QC oversight services for the \$615 M PCCP project for the USACE New Orleans District.

Gate System Designs

AECOM has designed and installed multiple sluice gates to control intake or discharge flows on box culverts and Pumping Station intakes and discharges for many projects, including the following examples:

Jefferson Parish Pump Station #6 Sluice Gates.

Provided design of sluice gates and expansion of this major pump station on the Jefferson Parish/ Orleans Parish line.

LPV 105 St Charles Pump Station Sluice Gate

Project entailed installing a new cut off sluice gate at the mouth of Lake Pontchartrain for the discharge drainage culvert of the St. Charles Pumping Station in New Orleans, LA.

Maurepas Freshwater Diversion Sluice Gates

Currently under design (95% submitted) including design of sluice gates for intake at the Mississippi River.

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 drainage 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](https://www.aecom.com) and [@AECOM](https://twitter.com/AECOM).