ARCADIS

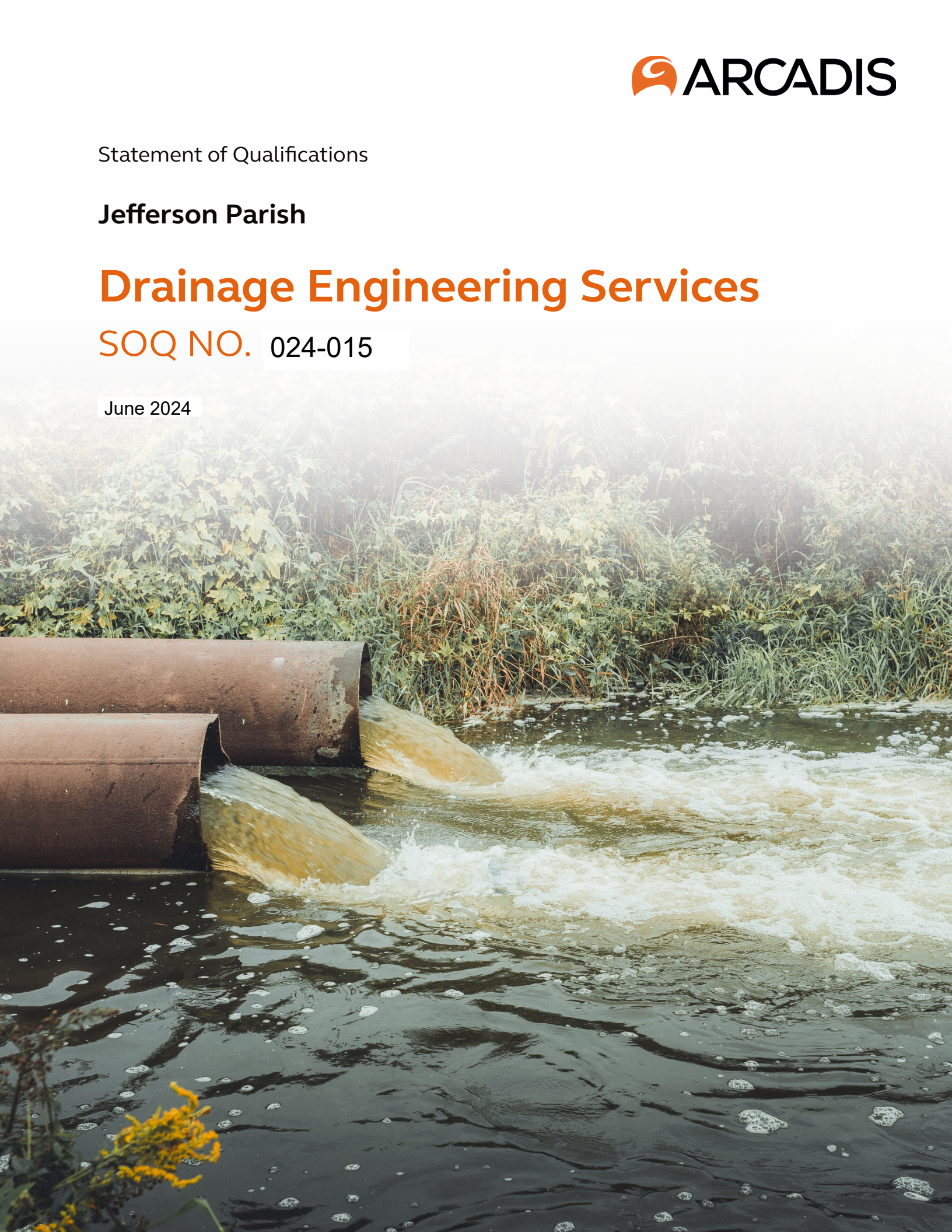
Statement of Qualifications

Jefferson Parish

Drainage Engineering Services

SOQ NO. 024-015

June 2024



Ms. Shanna Folse
Purchasing Specialist
Jefferson Parish Council
200 Derbigny Street
Suite 4400
Gretna, LA 70053

Arcadis U.S., Inc.
3850 N Causeway Boulevard
Suite 990
Metairie, LA 70002
United States
Phone: 504 832 4174
www.arcadis.com

Date: June 21, 2024
Subject: SOQ 24-015 – Routine Engineering Services for Drainage Projects for Jefferson Parish Government

Dear Ms. Folse,

The Arcadis team is pleased to submit to Jefferson Parish our qualifications to support the Parish with engineering, design and needed services with their drainage mission. Arcadis and its Water Division are one of the oldest and most respected engineering firms in the country focusing primarily on drainage, water and wastewater infrastructure projects. The Team will perform this work out of our regional office in Metairie and if required will tap our national organization provide the Parish any additional specialization. With a strong local and U.S. resume and superior international capabilities, we will have the expert technical resources and project delivery tools that will provide quality products to the Parish. As shown in our SOQ, we have a wide range of skills and projects – drainage modeling, collection systems, storm water management, MS4, pump stations, planning, construction management, SCADA, environmental and much more to meet all the needs of the Drainage Department.

The Arcadis Metairie location is a full-service engineering, design and management center that has provided drainage related engineering services for over 20 years to the metro area as well was the primary office that supported $2B in design and construction support to the USACE for Hurricane Protection Projects in the area including the West Closure Complex on the West Bank. Mr. Stephen Cali, PE, our Project Manager, has been working on a wide range of infrastructure projects for over 33 years. This office has a wide range of local expertise in executing drainage projects in the metro area as well as Baton Rouge. We have the ability to respond quickly, after hours, or in any way required by the Parish to support the Drainage Departments needs to maintain services to the residents of Jefferson Parish.

Thank you for your consideration. We look forward to teaming with Jefferson Parish to support the delivery of projects to the Parish.

Sincerely,

Arcadis U.S., Inc.

Stephen Cali, PE
Senior Project Manager

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

SOQ 24-015 – Routine Engineering Services for Drainage Projects

B. Firm Name & Address:

Arcadis U.S., Inc.
3850 North Causeway Blvd.
Suite 990
Metairie, Louisiana 70002 USA

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:

Stephen Cali, PE
Principal-in-Charge
Phone: (504) 832-4174

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.

Stephen Cali, PE
Principal-in-Charge
Phone: (504) 832-4174

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

741 Administrative	40 Estimators	2 Specification Writers
31 Architects (Licensed)	552 Geologists	50 Structural Engineers
69 Chemical Engineers	15 Geotechnical Engineers	0 Graduate Engineers
622 Civil Engineers	2 Interior Designers	504 Project Managers
67 Construction Inspectors	11 Landscape Architects	0 Clerical
60 Ecologists	13 Land Surveyor	15 Grant/Funding Specialist
96 Electrical Engineers	62 Mechanical Engineers	5 Sanitary Engineers
279 Engineer Intern	1152 Environmental Engineers	1203 Others
15 Professional Land Surveyors		

5062 TOTAL

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. None

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:

125

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.

TEC Professional Services Questionnaire

PROFESSIONAL IN CHARGE OF PROJECT:
Name & Title:
Stephen Cali, PE, PE/Principal-in-Charge
Project Assignment:
Principal-in-Charge
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
6
Education: Degree(s)/Year/Specialization:
BS, Civil Engineering, Tulane University, 1981
Active registration: Year first registered/discipline:
Professional Engineer – LA
Other experience and qualifications relevant to the proposed Project:

Mr. Cali is a senior program/project manager with extensive experience in program management, engineering and construction project management, quality control and civil engineering design for multi-element projects. His projects include design project management, program management and construction management of water resources projects for the U.S. Army Corps of Engineers (USACE); Program Management and Design Management of coastal preservation projects for Louisiana Coastal Protection and Restoration Authority (CPRA); interstate and state highway design, project management and program management for the Louisiana Department of Transportation and Development (LDOTD); and permitting issues and procedures at the federal, state and local levels.

- **SELA 76, PS#13 Expansion, Algiers, LA, United States Army Corps of Engineers (USACE), New Orleans, LA.** The USACE has tasked Arcadis with Project Management and design of a 1,800 cubic feet per second (CFS) addition to the existing New Orleans Sewerage and Water Board (S&WB) Pump Station 13 and associated work that will be a part of the Southeast Louisiana, Louisiana (SELA) Project located in Orleans Parish, Louisiana. Mr. Cali is the PM coordinating this work between the client, Sewerage and Water Board of New Orleans and Arcadis' multi discipline team of engineers and subconsultants.

- **Calcasieu Salinity Control Project, Coastal Protection and Restoration Authority, LA.** Acted as Program Manager assisting CPRA with management of the Calcasieu Salinity Control Project. This $150 million-dollar project consists of five features along the Calcasieu Ship Channel in Calcasieu Parish, LA.

These features are purposed to act as a salinity control barrier that will reduce salinity levels in Lake Calcasieu and surrounding coastal marshes. Specific duties include participation in all phases of Project Management including the Project Plan, Schedules, Risk Registers, Permitting, Environmental Coordination and Public Outreach Program. A key service provided on this project the management of a design team consisting of seven AE firms and multiple governmental review agencies.

- **Task Force Guardian – Program, Project and Construction Management Support, USACE, New Orleans, LA.** Task force guardian was established by the USACE in the wake of Hurricane Katrina to repair the Hurricane Protection System damage by June 1, 2006. As part of program management support team contracted directly to the USACE, Mr. Cali provided schedule tracking (via MS Project), project database work (via MS Access), consultant management and preparation of command management briefings (via MS PowerPoint). As part of the program management support team, the task force was responsible for developing and tracking schedules and providing upstream reporting to senior management and assisting with construction progress management and consultant management. Task Force Guardian completed 69 projects valued at $700 million in eight months.

- **Task Force Hope / Hurricane Protection Office Program Management and Construction Management Support USACE, New Orleans, LA.** The hurricane protection office was the successor to task force guardian, which provided emergency response after Katrina. The program's mission was to strengthen the New Orleans Area Hurricane Protection System to the 100-year flood protection levels and repair damage caused by the storm. As part of the USACE functioning as embedded staff on the Program Management Support team, served as senior project manager responsible for developing and tracking project budgets and schedules, functioning as consultant manager, and providing upstream reporting to senior management. As senior project manager and deputy branch chief in the Levees and Floodwalls Branch, responsible for developing the HPO Levee construction program, determining reaches and project limits, developing budgets, project authorization documents, tracking budgets and schedules for 62 contracts valued at over $2 billion. Also responsible for project database work and preparation of management briefings. Served as technical support coordinator for consultant coordination efforts at the request of USACE senior management. In this position, prepared AE scopes of work for design projects, reviewed levels of effort to complete the design efforts, supported negotiations, and monitored progress of the work through completion of plans and specifications. These efforts were instrumental in moving the program toward the mission complete date.

- **Inner Harbor Navigation Canal Surge Barrier, USACE, New Orleans, LA.** Served as program manager and technical review lead, provided program design and construction management team oversight for the IHNC surge barrier project - the largest single civil works design- build project ever undertaken by the USACE. The facility, built at a cost of $1.3 billion, is a system of barriers (floodwalls, navigable gates and levees) located at the confluence of the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet. Functioned as the right-hand assistant of USACE personnel overseeing the program. Anticipated problems worked collaboratively to troubleshoot issues, and continuously focused on managing the program schedule, which was a matter of urgent public safety and national pride. Provided technical reviews for the design-build contractor, The Shaw Group, throughout the phases of project design development and through final construction and commissioning, including the system's first fully functional test by a hurricane in 2012. Conducted reviews to evaluate the design documents for their general scope and direction, as well as application of appropriate agency design guidance and conformance to industry standards and state-of-the-art developments.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
David Escude, PE
Project Assignment:
Quality Manager
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
29
Education: Degree(s)/Year/Specialization:
BS Civil Engineering, Louisiana State University, 1983
Active registration: Year first registered/discipline:
Professional Engineer – LA, MS, AL, NY
Other experience and qualifications relevant to the proposed Project:

Mr. Escude has more than 37 years of experience in the engineering field serving in a variety of technical and managerial roles. Having served as project manager or engineering task manager for more than 100 major design projects, he has demonstrated expertise in the various aspects of both civil and environmental design. Mr. Escudé specializes in budgeting and schedule control on large projects, and is a recognized expert in the civil/environmental design field for which he frequently provides internal quality assurance reviews on design projects. In addition, Mr. Escudé has assembled and implemented quality control teams and plans to ensure the proper independent technical review is performed on complex design projects.

- **Hurricane Protection Study and Design of Alternatives for the IHNC, GIWW and MRGO, USACE, New Orleans District; New Orleans, LA.** Independent technical reviewer for a concept-level alternative study to provide additional hurricane protection for the population centers along the Inner Harbor Navigation Canal (IHNC) and Gulf Intracoastal Waterway (GIWW), which include portions of Orleans Parish West, New Orleans East, the Lower Ninth Ward, and St. Bernard Parishes. The purpose of this study is to determine the most effective alternative to provide protection above the existing hurricane protection system of levees and floodwalls surrounding these areas.
- **Spillway Slab Assessments – Missouri River Basin Dams, U.S. Army Corps of Engineers, Omaha District. North & South Dakota.** Civil Engineering Quality Control Manager. Inspections of the spillways and stilling basins for five dams along the Missouri River subsequent to the 2011 Missouri River Floods during which the USACE doubled the record release of water in the river's five North and South Dakota

dams. The dams included in these inspections were Garrison Dam (Riverdale, ND), Oahe Dam (Pierre, SD), Big Bend Dam (Fort Thompson, SD), Ft. Randall Dam (Pickstown, SD), and Gavins Point Dam (Yankton, SD).

- **Levee / Floodwall Assessment USACE, New Orleans District; New Orleans, LA.** Independent technical reviewer for a multi-disciplined team assembled to inspect 85 miles of levee and floodwall in three separate drainage basins – New Orleans East, St. Bernard, and Plaquemines Parish. The assessment included a profile survey of the levees and floodwalls, walking visual inspections to document any distressed areas, and slope stability analysis. Maps, plan/profile sheets, and a comprehensive report were developed as part of the scope of work. The assessments were categorized into three levels; acceptable, marginal and unsatisfactory based on design grade deficiencies, inspection findings, and stability analyses. The project was mandated to be completed, including USACE review and revisions, in 35 days.
- **Ft. Randall Dam – Embankment Abutment Toe Drains Replacement, U.S. Army Corps of Engineers, Omaha District. Pickstown, SD.** Civil Engineering Quality Control Manager. Design of the replacement of the earthen embankment toe drains, manholes, and the installation of flow meters to monitor seepage.
- **Ft. Randall Dam – Embankment Retaining Wall and Glacial Drain System Rehabilitation, U.S. Army Corps of Engineers, Omaha District. Pickstown, SD.** Civil Engineering Quality Control Manager. Design of the rehabilitation of the glacial drain system behind the upper and lower retaining walls for the penstock surge tank terrace.
- **Innovative Dredging Initiative, Coastal Protection and Restoration Authority (CPRA); Louisiana Coast, LA.** Quality Control Manager for the Innovative Dredging Study that was a feasibility report/guidance document which satisfied the CPRA's Innovative Dredging Initiative. CPRA researched historical projects and bid data and discovered the cost associated with hydraulic dredging for restoration projects includes a significant premium. The primary purpose of their Innovative Dredging Initiative was to pursue new contracting techniques and bidding methods that could reduce the costs as well as investigate ways to streamline design. The intent of this study was to build upon the research already conducted by the CPRA in addition to conducting more extensive investigations and facilitating communication with dredging experts throughout the industry. CPRA's primary purpose for this study was to potentially pursue new contracting techniques, new bidding methods, and to improve the methods to streamline design in an effort to reduce the overall cost of restoration projects by hydraulic dredging.
- **Violet Freshwater Diversion, Coastal Protection and Restoration Authority (CPRA); Louisiana Coast, LA.** Program manager responsible for coordination of team members, budgets, and scheduling. Project involves preparation of an engineering design study to determine the cost-effectiveness and environmental acceptability of diverting Mississippi River water into the Biloxi Marshes and Mississippi Sound. Peak freshwater diversion may be in the range of 5,000 cfs to 20,000 cfs. The project is a major feature in the state's master plan for hurricane protection and in the USACE Louisiana Coastal Protection and Restoration Program. The Violet diversion will create favorable salinity conditions, reduce the loss of marshes and wooded swamps, and increase fish and wildlife productivity in the impacted area.
- **Lower Barataria Diversion, Coastal Protection and Restoration Authority (CPRA); Louisiana Coast, LA.** Project Manager for the Lower Barataria Diversion project which is envisioned to have a design capacity of 50,000 cfs and create between 9,000 and 12,000 acres of wetlands over a 50-year period. The Lower Mississippi River Sediment Diversions are part of a critical system of diversions to restore wetlands and marshes that have been lost to natural erosive forces and to man's intervention in the ecosystem. ARCADIS is currently performing the 10% design analysis, which is intended to examine and report on findings of the five prospective locations from a civil, geotechnical, structural and hydraulic engineering standpoint. The goal of this effort is to rank the locations based on their characteristics from most favorable to least favorable. Further engineering analysis will be performed to select the ultimate location.
- **Cut Off Pointe-Aux-Chenes Levee Design, Coastal Protection and Restoration Authority (CPRA); Louisiana Coast, LA.** Project Manager for the Cut Off to Pointe Aux Chenes Levee Project that consisted of Reaches K and L of the Morganza to the Gulf Hurricane Protection System authorized in the Water Resources Development Act (WRDA) of 2007. The purpose of the project was to evaluate elevating two sections of existing earthen levee between Cut Off and Pointe-Aux-Chenes (Reaches K and L) and develop preliminary designs and cost estimates for both reaches in order to assist CPRA, Lafourche Parish, South

Lafourche Levee District, and Terrebonne Levee and Conservation District (local stakeholders) in project prioritization based on available funding. From this analysis, CPRA and the local stakeholders decided to move forward with the final design and construction for Reach L with the available CDBG funding. Final plans and specifications are near complete and this project is scheduled to go to construction in the spring of 2014. The estimated construction value of this contract is $7,500,000.

- **Brady Canal Hydrologic Restoration Project, Coastal Protection and Restoration Authority (CPRA); Terrebonne Parish, LA.** Project Manager for Preparation of plans, specifications, and quantity estimates for the restoration of the earthen levee and armoring of weir structures around the rim of Jug Lake forming a portion of the southern boundary of the 7,653 acre vegetated marsh in coastal Louisiana aimed at halting saltwater intrusion and reintroducing freshwater into the project area.
- **Pump Station Post-Storm Inspections, USACE, New Orleans District; New Orleans, LA.** Project manager for a multi-disciplined team assembled to inspect 13 pump station structures for structural, electrical, and mechanical damage due to Hurricanes Katrina and Rita. Two multi-disciplined teams were assembled to conduct detailed post storm inspections of all visible features above the water level. Close coordination was required with St. Mary Parish Drainage District personnel and district officials to complete the inspection and report process. Draft and final reports including cost estimates and photo documentation were required to be complete within one month.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Ryan Stoddard, PE/Civil Engineer
Project Assignment:
Design/ HEC-RAS
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
18
Education: Degree(s)/Year/Specialization:
MS Civil Engineering University of Florida 2010 BS Civil Engineering, University of Florida 2004 Cum Laude
Active registration: Year first registered/discipline:
2009/Professional Engineer
Other experience and qualifications relevant to the proposed Project:
Mr. Stoddard has more than nine years of experience in a broad variety of fields, including roadway design, pavement design, residential development, commercial and industrial site development, retaining walls, hydrology, stormwater management facilities, floodwalls and flood protection, pile foundations, channels, levees and drainage structures. His responsibilities have included survey coordination, geotechnical coordination, site investigation, soils and hydrologic analysis, stormwater hydraulics and computer modeling, sanitary sewer layout and design, site planning, roadway geometric design, digital terrain models, flood modeling and mapping, earthwork, landfill caps, site engineering and permitting as well as serving in the role of construction technical advisor and inspector. He has used and is proficient in stormwater modeling software, MicroStation, Geopak, Inroads and has trained junior staff in civil engineering principles and plans production. • **Jefferson Parish Drainage Department: Metairie Road Bioswale and Green Infrastructure Demonstration Project/Metairie, Louisiana**. Lead civil engineer this first of its kind project for Jefferson Parish for the conceptual design, SWMM modeling9ing, retention/detention capacity, drainage enhancements, landscaping and infrastructure improvements to a 1-acre site located at Metairie and Labarre Roads. This project will improve the drainage in the area by using water management best practices to increase the efficiency that shed water from the street intersection, use retention/detention techniques to manage the water into the existing drainage system such that these improvements do not overwhelm the existing system and utilize green infrastructure elements to reintroduce surface water into the groundwater environment. The project will also utilize low impact development techniques to maintain the visual elements of the area. The project includes a conceptual design, engineering and the preparation of bid documents and construction oversite for this $800,000 project.

- **Port Authority New York/New Jersey, Drainage Improvements Associated with Flood Protection for West End Substation, New York.** Project engineer responsible for the modeling and drainage capacity determination for a 10-acre site that was being protected by floodwalls. The project had to model a 100-year event and provided independent conveyance and a 50-cfs pump station. Mr. Stoddard was the lead engineer for the SWMM model and pump station design.
- **USACE New Orleans District: Task Order 9 – St. Charles Floodwall and Structures Phase II, Cross Bayou Drainage Structure/St. Charles Parish, Louisiana.** Assisted with the preparation of an Engineering Alternatives Report and 65% plans and specifications for a drainage structure in St. Charles Parish, Louisiana. Tasks included creation of digital terrain model, profile generation, structural analysis of T-Wall systems including stem and footing and pile design using MathCAD, Group 7 and CPGeorgia Pile analysis, pile layout, plans preparation and quantities calculation. Coordinated daily with project managers and other disciplines and attended meetings and trained other staff in the use of MicroStation, Inroads, MathCAD and basic structural analysis.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Vince Decapio, PE
Project Assignment:
Hydraulic Modeling
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
7
Education: Degree(s)/Year/Specialization:
MS Civil Engineering Cornell University 2006 BS Civil Engineering West Virginia University 2004 (Summa Cum Laude w/ Honors)
Active registration: Year first registered/discipline:
1998 Civil Engineer, New York
Other experience and qualifications relevant to the proposed Project:

Mr. DeCapio has 14 years of experience analyzing and designing coastal and urban stormwater environments. His asset is in providing clients market leading technical support on the hydrodynamicecological interactions at tidal shorelines and in restoring more natural hydrologic function in watersheds. His specific areas of support include living shorelines, green infrastructure, storm surge and tsunami flood protection with integrated ecological function and shellfish/fisheries management.

- **Coler Goldwater Hospital Flood Mitigation, New York City Health and Hospitals Corporation, New York, New York.** Led analysis and reporting of coastal flood risk at critical hospital assets along the East River at Randall's Island in Manhattan, New York. Developed flood wall and levee elevation and geometry requirements to mitigate current-day flood risk and future flood risk including sea level rise over the life of the project. Analysis informed drainage requirements interior to the wall or levee due to accumulation of sanitary, stormwater and wave overtopping during a storm tide event when tide gates at gravity outfalls are submerged.
- **Jamaica Bay Reformulation Study, USACE New York, New York.** Quality control and reporting of coastal flood risk determination and mitigation strategies for a combination of flood walls and berms for all community's perimeter to Jamaica Bay. Risk determination and mitigation of storm tide, sea level rise, waves and interior drainage.
- **Flood Gates and Automatic Control Elements for the Harrison Car Maintenance Facility, Port Authority, Harrison, New Jersey.** Developed a drainage model of 63 acres of right-of-way for the rail tracks, yard and maintenance facility. Used as-built drawings of the pipe network and site-survey to develop a detailed model that linked the subsurface pipe network to the surface drainage facilities. Drainage model

results used to inform design requirements to manage rainfall runoff and wave overtopping interior to a 2-mile coastal levee.

- **Rebuild by Design: BIG U, BridgeQport Resilient and the Blue Dunes Research, Connecticut Department of Housing, Bridgeport, Connecticut.** Analysis of rainfall-runoff and conveyance using simple or complex methods to match the needs of each site. Used the rational method, Manning's equation, EPA SWMM, HEC-HMS and/or HEC-RAS to estimate volumes, flowrates, velocities and water surface elevations through complex stormwater systems that included street drainage, basins, infiltration, open channels, ditches, culverts, inlets and catch basins.
- **Coney Island Hospital NCSS A-E Services, New York City Health and Hospitals Corporation, New York, New York.** Led analysis and reporting of coastal flood risk at critical hospital assets in Brooklyn, New York. Developed flood wall elevation and geometry requirements to mitigate current-day flood risk and future flood risk including sea level rise over the life of the flood wall. Analysis informed drainage requirements interior to the wall due to accumulation of sanitary, stormwater and wave overtopping during a storm tide event when tide gates at outfalls are submerged.
- **Coastal Protection Study, Gulf Coast Community Protection and Recovery District, Metairie, Louisiana.** Provided technical advisory and quality control services for the development of a regional flood risk mitigation facility for Texas's coastal communities. He assured that the flood risk mitigation met or exceeded FEMA's flood risk mitigation standards. He advised and performed quality control for hydrologic and hydraulic analysis and modeling interior to the regional flood risk mitigation facility for Clear Creek and Galveston Bay watersheds. Quality assurance and quality control of the wave overtopping analysis used to identify elevation requirements for the levee/wall system from Brazoria to Orange counties. Elevation requirements managed storm tide, sea level rise and wave exposure considering stability and interior drainage.
- **Evadale Storm Water Modeling, Rock Tennessee, Evadale, Texas.** Developed a detailed stormwater model for the drainage network at a >500-acre facility/watershed. The work included review of detailed survey, LiDAR and rain gage data to develop the detailed model of watershed runoff and channel conveyance using the EPA SWMM model. Results were verified against flood elevation and flow measurements captured at the site during historical rainfall events.
- **Riverine Flood Risk Analysis Studies, Georgetown County, Federal Emergency Management Agency, South Carolina and Putnam County, Florida.** Hydrologic and hydraulic modeling of the flood risk at more than 100 miles of stream and more than 6 million acres of watershed. Drainage model development required scoping, reviewing and implementing detailed survey of culverts and bridges. Also required the review and application of LiDAR data and aerial imagery to inform watershed rainfall runoff. Drainage model results verified against high water marks and USGS regression equations.
- **Rutherford/East Rutherford Drainage System Flood Mitigation Project, New Jersey.** Meadowlands Commission., Rutherford, New Jersey Analysis and modeling of open channels, ditches and sediments to inform design of erosion control strategies. Leveraged information on flow velocities to develop designs and specs to mitigate erosion at culvert outfalls and streambanks.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
David Fulks, PE / Senior Civil Engineer
Project Assignment:
Civil & Roadway
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
14
Education: Degree(s)/Year/Specialization:
BS Civil Engineering Portland State University 1997
Active registration: Year first registered/discipline:
2002/Professional Engineer
Other experience and qualifications relevant to the proposed Project:

Mr. Fulks has more than 19 years of experience in the design of levees, roadways, land developments and airports. His experience encompasses analysis and design of site hydrology and hydraulics; geometric and pavement design of levees, highways, streets, parking lots, runways, taxiways and aprons; traffic impact analysis; and geotechnical and structural design and analysis of foundations and structures for electrical substations. His responsibilities have included: preparing engineering designs, reports, plans and specifications; preparing and managing project schedules and cost estimates; preparing grant applications and providing construction administration.

- **City of New Orleans DPW: Streets Rehabilitation Engineering/Orleans Parish, Louisiana.** Provided roadway design. Arcadis was responsible for the scoping, assignment, preliminary design report, final design, preparation of bid documents and the construction oversight of the St. Anthony Quadrant II neighborhood Streets Rehabilitation project. The project consists of the evaluation of all FEMA PW designated repairs for accuracy and completeness modifying those approved repairs to reflect field conditions. Also identify and justify, providing supporting documentation, additional repairs not identified in the initial PW for consideration by FEMA.
- **City of New York DPW: East Side Coastal Resiliency/New York, New York.** Provided drainage design and roadway design as it pertained to the development of z $1B program to provide flood protection for lower Manhattan, New York. Lead engineer for the development of the drainage plans for approximately 4,000-acre drainage basin and the approach for the management of a 100-year storm event and approximately 30,000-cfs of storm runoff.

- **USACE, New Orleans District: West Roosevelt Street Sewer Force Main Relocation/New Orleans, Louisiana.** Project Engineer for bid document preparation for the relocation of a 36-inch-diameter ductile iron sewer force main. Close coordination was required with City-Parish DPW and CN Railroad, because the project was located directly adjacent to railroad right-of-way. The relocation involved designing a permanent bypass offset horizontally and vertically to avoid conflict with a proposed box culvert being constructed by DPW. Minimal down time during construction was a major consideration in the design of the proposed relocation.
- **USACE, New Orleans District: Hurricane Protection Office Engineering Design Support | New Orleans, Louisiana.** Project Civil Engineer providing design support to the USACE Levee Section. Assignment involves working as contract personnel within the Section, providing civil engineering design support. Also providing support to the Cost Engineering Section.
- **USACE, New Orleans District: Concrete Levee and Floodgate Conceptual Design Report | New Orleans, Louisiana**. Project Civil Engineer providing conceptual design of precast concrete navigation floodgate and modular levee sections, as well as construction durations and cost estimates. This phase of the work was to produce a conceptual design report for several height, draft and beam configurations. The estimated construction costs ranged from $50million to $300 million.
- **USACE, New Orleans District: St. Bernard Parish Hurricane Protection System | St. Bernard Parish, Louisiana.** Senior Civil Engineer overseeing the design of pile supported concrete floodwalls and a concrete girder span bridge and associated approaches. This phase of the work was to produce an engineering alternative report presenting the engineering design, calculations, construction schedules and cost estimates for several alternatives. The estimated construction costs for these portions of the work ranged from $100-$175 million.
- **USACE, New Orleans District: Periodic Inspections of Locks and Control Structures | New Orleans, Louisiana.** Civil Engineer and Team Leader conducting periodic inspection of Schooner Bayou Control Structure, Bayou Boeuf Lock and Bayou Sorrel Lock. Schooner Bayou consists of two 75-foot gateways with sector gates, earthen dikes and closure dam. Bayou Boeuf Lock consist of two concrete sector gate structures connected by 600 feet of earth chamber and timber guide walls. Bayou Sorrel Lock consist of two concrete sector gate structures separated by 1,117 feet of earth chamber and timber guide walls. Prioritized recommendations and assigned an estimated cost. Coordinated report production and client communication.
- **USACE New Orleans District: Cross Bayou Access Road and Bridge/St. Charles Parish, Louisiana.** Preparation of plans and specifications for new access road and bridge in St. Charles Parish. Design of two-lane bridge and road to provide access to the Cross-Bayou Drainage Structure project. Improvement layout, quantity calculations in support of cost estimates and determination of real estate needs. Also provided engineering support during construction including site visit and engineering observation reports.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Garret Keller, PE / Senior Civil Engineer
Project Assignment:
Civil & Roadway
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
13
Education: Degree(s)/Year/Specialization:
BS Civil Engineering Louisiana State University 2012
Active registration: Year first registered/discipline:
2012/Engineering Intern
Other experience and qualifications relevant to the proposed Project:

During college, Mr. Keller began working with Arcadis as a technical intern in Arcadis' Metairie and Baton Rouge offices, gaining experience in civil and structural detailing and design. Immediately after graduating, he began working as a Water Resources Designer in their Metairie office. His responsibilities have included structural detailing, structural design, civil design, geometrics and hydraulic analysis.

- **Gardenia Street Drainage Improvement, Department of Public Works, City of New Orleans.** The Gardenia project is a $6-million 1.2-mile drainage improvement project that includes the replacement of the entire drainage infrastructure – catch basins, manholes, laterals and main drainage piping up to the current 10-year storm criteria. The project included the SWMM modeling of the entire impact area to determine catch basin size, quantity and spacing and the sizing of drainage piping. The project is replacing the outdated dual line system with single 48-inch arch pipe that will tie into a 12-foot-by-12-foot box culvert. As part of the project the entire street is be rehabilitated to include street replacement, replacement of sewer and water infrastructure and other utility replacement. The project included modeling of the area, development of the preliminary design report, preparation of 30%, 60%, 90% and bid documents, construction cost estimates and the contract administration and resident inspection of the project. Arcadis completed the design 50 days ahead-of-schedule.
- **NDR Ohio Creek Watershed Project, City of Norfolk, Virginia.** Lead Civil Engineer for the design of a new flood mitigation and stormwater management system within the Chesterfield Heights community of Norfolk, Virginia. The project scope consists of designing earthen berms, reinforced concrete floodwalls and internal stormwater pump stations, as well as, upgraded existing transportation infrastructure to provide a perimeter line of protection while allowing reliable egress of residents during storm events. These features

include elevated roadways, upgraded culverts with stormwater control structures and various green infrastructure treatments for stormwater management. Responsibilities on the project include roadway geometrics, civil site design, pavement design, quantity takeoffs calculations, stormwater design and utility coordination.

- **East Side Coastal Resiliency, New York City, New York.** Senior Project Engineer for conceptual design of flood mitigation features in lower Manhattan between Montgomery Street and 23rd Street encompassing East River Park, Con-Edison Pier and Stuyvesant Cove Park. Technical duties included civil design and layout of the flood protection berms, floodwalls and the numerous proposed floodgates, as well as, the geometric design of the East River Park pathways, analysis of the existing stormwater conditions and determining beneficial options for utility conflicts. Designs were closely coordinated with city agencies, FEMA, Con-Edison and other utility providers, community groups, adjacent projects and other stakeholders to achieve project goals of enhanced community connectivity and access to the waterfront while simultaneously achieving resiliency goals.
- **City of New Orleans DPW, Gardena Street Rehabilitation and Drainage improvements/ New Orleans, Louisiana.** Civil Designer for drainage improvements and the complete street rehabilitation for Gardena Street from St. Bernard Avenue to Paris Avenue (2,500 feet) that includes drainage calculations and design for the surround area (approximately 20 acres). Design includes runoff, catch basin, inceptors and conveyance to main truck drainage in area. The will be a managed drainage approach as to not to overwhelm the existing main collection system in the area. Surface drainage design, roadway geometry design, utilities coordination, traffic planning, water and sewer design and relocation, resident inspection.
- **Coastal Protection and Restoration Authority: Reach L Levee Rehabilitation Project (TE 78)/Cut-Off, Louisiana.** Civil Designer for preparation of plans for improvement of an existing levee to meet federal standards and increase its level of protection. Civil designs of earthen levee, sheet pile floodwalls, borrow pits, access ramps and utility crossings. Improvements to an existing bulkhead and pump station discharge pipes. Quantity calculations in support of cost estimates.
- **USACE Memphis District: Grand Prairie Pumping Station Superstructure and Installation of Equipment/Prairie, AR.** Civil Designer for site design of a partially constructed pump station on the White River to meet current standards and a new superstructure design. Civil site design included pump station yard grading, access road design, finger levee design, inlet channel dredging and coordination of the discharge piping, which included plans and specification preparation and quantity calculations in support of cost estimates.
- **USACE New Orleans District: Bayou Dupre Control Structure/St. Bernard Parish, Louisiana.** Structural drafting for this project. The Bayou Dupre Sector Gate is on a which bayou flows into the Mississippi River Gulf Outlet and the control structure serves as an essential component of the New Orleans Hurricane Protection System (HPS) in St. Bernard Parish. The project provides the 100-year flood protection by using a steel sector gate structure, T-wall tie-ins to the flood control levees that flank the existing structure, scour protection for the transition zones, mechanical control system for the operation of the sector gates and a generator power supply system to operate gates and light the facility. The project also includes an optional pontoon bridge structure to allow vehicular access to the Lake Pontchartrain and Vicinity (LPV) Reach 145 of the HPS.
- **Louisiana DOTD: Chef Menteur Bridge and Approaches (EA), Route US-90/Orleans Parish, Louisiana.** Responsible for geometry and roadway design for a high-priority bridge replacement. Movable and fixedspan designs are under consideration. Key issues included minimizing impacts to Bayou Sauvage National Wildlife Refuge, avoiding Fort McComb, avoiding the existing bridge that is eligible for the NRHP and providing alternatives that would comply with the Complete Streets Policy.
- **Louisiana DOTD: Louisiana-143 – US-165 Connector and Ouachita River Bridge/Ouachita Parish, Louisiana.** Roadway Designer responsible for roadway design support on a project that provides needed transportation system linkage in the north Monroe region. Project connects Louisiana 143 go US 165, which both serve as main north-south arterials for Ouachita, Union and Morehouse parishes.

- **Louisiana DOTD: Garrett Road Connector Interchange Improvements and KCS Railroad Overpass Environmental Assessment/Monroe, Louisiana.** Roadway Designer for an environmental assessment to provide a new KCS Railroad overpass and connector between Kansas Lane and Garrett Road, a major access point to Pecanland Mall in Monroe, Louisiana. Responsible for alternatives development, coordination of safety and I-20 interchange modification analysis, relocation and stakeholder involvement. Four additional concepts were developed including tunnel alternatives. Life-cycle costs safety and construction phasing/funding were key issues.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Craig Raymond, PE / Senior Civil Engineer
Project Assignment:
Civil & Roadway
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
10
Education: Degree(s)/Year/Specialization:
BS Civil Engineering Louisiana State University 2013
Active registration: Year first registered/discipline:
2018, Professional Engineer - LA
Other experience and qualifications relevant to the proposed Project:

Mr. Raymond began working with Arcadis as a technical intern in Arcadis' Baton Rouge office, gaining experience in civil and structural detailing and design. Immediately after graduating, he began working as a Civil Engineer in their Metairie office. His responsibilities have included civil design, geometrics, roundabout design and cost estimation.

- **Bayou Metairie Road Management Demonstration Project, Department of Public Works, Jefferson Parish, Louisiana.** This first of its kind project for Jefferson Parish is intended to manage stormwater runoff in such a manner that it retains the first hour of a typical storms volume to reduce the impact on the localized drainage infrastructure. The green infrastructure nature of the project was such that is was designed with sustainable perspective utilizing low impact materials, indigenous landscape, pours pavement, LED lighting. The project was design for a one block stretch of Metairie Road between Labarre Road and Metairie Lawn Drive utilizing an existing Pariah owned space. The project will divert the first hour volume into the basin where it will be retained until a time it can be released back into the Parish system. The project will provide some ground water recharge to the area. The basin utilized a number of pipes placed at control elevations and check valve such that the operation is low impact while providing water level control of the basin. The project is estimated to cost $750,000.
- **USACE New Orleans District: Bayou Dupre Control Structure/ St. Bernard Parish, Louisiana.** Structural drafting for this project. The Bayou Dupre Sector Gate is on a which bayou flows into the Mississippi River Gulf Outlet and the control structure serves as an essential component of the New Orleans Hurricane Protection System (HPS) in St. Bernard Parish. The project provides the 100-year flood protection by using a steel sector gate structure, T-wall tie-ins to the flood control levees that flank the existing structure, scour protection for the transition zones, mechanical control system for the operation of

the sector gates and a generator power supply system to operate gates and light the facility. The project also includes an optional pontoon bridge structure to allow vehicular access to the Lake Pontchartrain and Vicinity (LPV) Reach 145 of the HPS.

- **US-11 Norfolk Southern Railroad, Louisiana DOTD, St. Tammany Parish, Louisiana.** Roadway/Bridge design for an Environmental Assessment for replacement of the US 11 Bridge, which includes widening of US-11 from two lanes to four lanes from US-190 North to I-12. Provided alternative development and plan preparation for two alternatives.
- **Kansas Lane – Garrett Road Connector and I-20 Improvements, Louisiana DOTD, Ouachita Parish, Louisiana.** Roadway Engineer for roadway design for an Environmental Assessment for the improvement of 5 different interchanges along Garrett Rd. The project includes design for incorporating modern roundabouts to the 5 interchanges.
- **Jefferson Parish Drainage Department: Yenni Building Parking Lot Drainage Improvement Study/Jefferson, Louisiana.** Civil Engineer responsible for engineering support for the feasibility study and conceptual design for the development of alternatives to improve the drainage, drainage enhancements, utilizing green infrastructure elements and low impact design approach.
- **Jefferson Parish Drainage Department: Metairie Road Bioswale and Green Infrastructure Demonstration Project/Metairie, Louisiana.** Civil engineer manager responsible for SWMM, retention/detention capacity, drainage enhancements, landscaping and infrastructure improvements to a 1-acre site located at Metairie and Labarre Roads. This project will improve the drainage in the area by using water management best practices to increase the efficiency that shed water from the street intersection, use retention/detention techniques to manage the water into the existing drainage system such that these improvements do not overwhelm the existing system and utilize green infrastructure elements to reintroduce surface water into the groundwater environment. The project will also utilize low impact development techniques to maintain the visual elements of the area. The project includes a conceptual design, engineering and the preparation of bid documents and construction oversite for this $800,000 project.
- **City of New Orleans DPW, Gardena Street Rehabilitation and Drainage improvements/ New Orleans, Louisiana.** Civil Designer for drainage improvements and the complete street rehabilitation for Gardena Street from St. Bernard Avenue to Paris Avenue (2,500 feet) that includes drainage calculations and design for the surround area (approximately 20 acres). Design includes runoff, catch basin, inceptors and conveyance to main truck drainage in area. The will be a managed drainage approach as to not to overwhelm the existing main collection system in the area. Surface drainage design, roadway geometry design, utilities coordination, traffic planning, water and sewer design and relocation, resident inspection.
- **Louisiana 44 & Loosemore Road Roundabout Feasibility Study, Louisiana DOTD, Ascension Parish, Louisiana.** Roadway Engineer responsible for roadway design for the improvement of existing roadway infrastructure at the intersection of Louisiana 44 & Loosemoore Road. The project includes design for incorporating modern roundabouts to the interchanges to enhance mobility and safety, collection of data from all existing utilities and cost estimates.
- **Louisiana 3235 Stage 0 Safety Study, Louisiana DOTD, Lafourche Parish, Louisiana.** Roadway Engineer responsible for gathering information about a 16-mile corridor in Lafourche Parish with the objective to preserve and enhance safety/mobility of the corridor. Drafted the plans of the project. The project includes improvement considerations such as median opening channelization, turn lane storage, closure, among others.
- **Cut-Off/Point-Aux-Chenes Levee Rehabilitation Project, Louisiana DOTD, Coastal Protection and Restoration Authority, Lafourche Parish, Louisiana.** Preparation of Plans for improvement of an existing levee to meet federal standards and increase its level of protection. Geotechnical analysis of soils.
- **South Central Hydrologic Modeling, Coastal Protection and Restoration Authority, Iberia Parish, Louisiana; St. Mary Parish, Louisiana; St. Martin Parish, Louisiana.** Provided volume calculations of the proposed levees for hurricane protection and coastal restoration in the three parishes.

TEC Professional Services Questionnaire

- **Lower Barataria Sediment Diversion, Coastal Protection and Restoration Authority of Louisiana, Plaquemines Parish, Louisiana.** Preparation of Plans for a design of sediment diversion channels intended to carry sediment-rich river water from the Mississippi River to the marshes of the Barataria Bay for the purpose of rebuilding marshlands that have been eroded away by storms and coastal weather. Assisted in the proposed site model, with a focus on cofferdam design.
- **Bayou Grand Chenier Marsh and Ridge Restoration, Plaquemines Parish Government, Plaquemines Parish, Louisiana.** Preparation of Plans for a design intended to transport material from the bottom of the Mississippi River to restore the marsh and ridge. Developed site model and provided volume calculations needed for the design.
- **St. Anthony Quadrant 1 Neighborhood, City of New Orleans, Department of Public Works, Orleans Parish, Louisiana.** Engineer responsible for review of damages identified in the FEMA Project Worksheet and also review of areas of additional event related damages in the St. Anthony Quadrant I neighborhood. Organized a quantity spreadsheet and plans for street, sidewalk, waterline and other repairs.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Anwer Ahmed, PE, DWRE, ENV SP, Stormwater & Watersheds Practice Technical Leader
Project Assignment:
Green Infrastructure
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
22
Education: Degree(s)/Year/Specialization:
MS Water Resources Iowa State University 1987 BS Civil Engineering Iowa State University 1984
Active registration: Year first registered/discipline:
1998 Civil Engineer, Georgia
Other experience and qualifications relevant to the proposed Project:
Mr. Ahmed serves as the Arcadis Watersheds and Stormwater Practice Technical Leader. He has more than 28 years of professional experience in multi-objective watershed planning and urban stormwater management. His experience includes watershed modeling, watershed protection, stormwater management, ordinances, floodplain and floodway studies, watershed restoration, green infrastructure and urban stormwater best management practices. His experience includes economic and financial analyses for water resources projects. • **City of Chattanooga: "Resource Rain" Green Infrastructure Design Competition/Chattanooga, Tennessee.** Provided overall technical review and assistance for this grand prize-winning entry, in which the team re-imagined Cherokee Boulevard, an underused thoroughfare transecting neighborhood are in need of a solution to reduce flooding and foster further economic development. The Arcadis team produced an effective and winning conceptual design, which is currently being reviewed as a future project, as well as a solution for communities with similar stormwater issues. • **City of Chattanooga: Runoff Reduction Standards and Green Infrastructure Manual/Chattanooga, Tennessee.** Project Manager for the Arcadis Team to develop runoff reduction and volume control standards and development of site design standards for new development and redevelopment projects to manage the first inch of rainfall with no discharge to surface waters. This project is part of a larger effort by the City to restore the vitality of Chattanooga's neighborhoods and establish a new philosophy for development and redevelopment. The outcome was a comprehensive web-based stormwater management manual that provides developers and design professionals with site specific tools and techniques to meet stormwater ordinance provisions and implement green infrastructure (GI) and Low-Impact Development (LID), new stormwater ordinance, incentives for GI, amended city codes and policies and technology-based practical and user-friendly tools for the development community and City staff.

- **U.S. Postal Service: Preparation of Water Manuals and Nationwide NPDES Stormwater Services/Nationwide and Southeast Facilities Office.** Project Manager for preparation of two comprehensive Water Manuals. One manual was for the managers of USPS facilities and the other for the environmental supervisors and managers. These manuals were to assist the facilities and the environmental coordinators with identifying and maintaining appropriate water-related permits nationwide. Project manager for permitting of USPS facilities nationwide that required coverage under the NPDES Stormwater regulations for industrial facilities. More than 200 facilities were included in the project in the U.S. and its territories.
- **Georgia DOT Stormwater MS4 Permit Program Development and Implementation/Statewide, Georgia.** Program Manager to assist Georgia DOT in negotiating an MS4 permit with Georgia EPD, developing a stormwater management program and preparing a comprehensive stormwater management plan to comply with all aspects of the MS4 permit. Services include preparation and implementation of all MS4 Permit mandated plans and managing the workflows to maintain compliance with the permit. Comprehensive compliance tracking and reporting tools will be developed as part of this program.
- **City of Atlanta: Watershed Improvement Plan/Atlanta, Georgia.** Project Manager for preparation of a Watershed Improvement Plan for South River Watershed for portions within the city limits. A comprehensive plan was prepared by employing GIS and remote sensing techniques and a watershed model. Various structural and non-structural BMPs were evaluated control sediment and pathogen loads into the South River. A total of 55 onsite BMP project sites, 109 stream stabilization sites and 149 stream buffer restoration sites were identified. In addition, many non-structural and programmatic management practices utilizing green infrastructure/LID strategies to benefit reduction in rates and volumes of stormwater runoff as well as biology and water quality were analyzed. These included green roofs, rain harvesting, street sweeping, pervious pavements, ordinance revisions, among others.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Avery Love / CADD Drafter
Project Assignment:
CADD
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
10
Education: Degree(s)/Year/Specialization:
AS Drafting and Design/Louisiana Technical College
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:

Mr. Love is experienced in providing advanced levels of CADD support for water resource design projects and many others. His computer skills encompass MicroStation V8, V8i, Bentley Inroads, AutoCAD, Land Desktop, Architectural Desktop, Civil 3D and many others.

- **Gardenia Street Drainage Improvement, Department of Public Works, City of New Orleans.** The Gardenia project is a $6-million, 1.2-mile drainage improvement project that includes the replacement of the entire drainage infrastructure – catch basins, manholes, laterals and main drainage piping up to the current 10-year storm criteria. The project included the SWMM modeling of the entire impact area to determine catch basin size, quantity and spacing and the sizing of drainage piping. The project is replacing the outdated dual line system with single 48-inch arch pipe that will tie into a 12-foot-by-12-foot foot box culvert. As part of the project the entire street is be rehabilitated to include street replacement, replacement of sewer and water infrastructure and other utility replacement. The project includes modeling of the area, development of the preliminary design report, preparation of 30%, 60%, 90% and bid documents, construction cost estimates and the contract administration and resident inspection of the project. Arcadis complete the design 50 days ahead-of-schedule.
- **City of Dallas: Dallas Flood Protection System Upgrade of the Trinity River Levee System/Dallas, Texas.** Co-led the technical portion of the civil and structural design effort to upgrade the Trinity River Levee system to meet 100-year Flood Protection standards for the City of Dallas.
- **National Park Service: Cane River Lake Embankment Restabilization/Natchitoches, Louisiana.** Led the technical portion of the civil design effort for the restabilization of Cane River Lake's embankment for the National Park Service in Natchitoches.

- **National Park Service: Salt River Hotel Demolition/Christiansted, U.S. Virgin Islands.** Led the technical portion of the civil design effort to coordinate the demolition, selective removal of materials for recycle, stabilization of haul roads and regradation and revegetation of the Salt River Bay peninsula to restore the coastal environment for the National Park Service.
- **USACE New Orleans District: I-310 Hurricane Flood Protection System/St. Rose, Louisiana.** Led the technical portion of the civil and structural design effort to construct a floodwall system that meet 100-year hurricane flood protection standards beneath the St. Charles Parish interstate interchange in St. Rose.
- **USACE New Orleans District: Plaquemines Parish Non-Federal Hurricane Flood Protection System/Oakville, St. Jude, Louisiana.** Led the technical portion of the civil design effort to upgrade 32 miles of levees to meet 100-year Hurricane Flood Protection standards from Oakville to St. Jude.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Sothon Men / CADD Designer
Project Assignment:
CADD
Name of Firm with which associated:
Arcadis U.S., Inc.
Years' experience with this Firm:
23
Education: Degree(s)/Year/Specialization:
AS Drafting Southeastern Technical College 2000
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:

Mr. Men has more than 16 years of experience in computer-aided drafting and design (CADD) in all aspects of civil, structural and electrical projects. He has prepared CADD drawings and plans for more than 200 telecommunication projects and more than 25 civil/environmental projects.

- **City of New Orleans DPW: Streets Rehabilitation Engineering/Orleans Parish, Louisiana.** Provided CADD services. Arcadis was responsible for the scoping, assignment, preliminary design report, final design, preparation of bid documents and the construction oversight of the St. Anthony Quadrant II neighborhood Streets Rehabilitation project. The project consists of the evaluation of all FEMA PW designated repairs for accuracy and completeness modifying those approved repairs to reflect field conditions. Also identify and justify, providing supporting documentation, additional repairs not identified in the initial PW for consideration by FEMA.
- **Texas DOT/Louisiana DOTD: US-84 Sabine River Improvements/Logansport, Louisiana.** Engineering Technician for the preparation of all structural drawings include general plan layout, plan and profile, girder layout and all substructure details.
- **US-90/WBV 73 – Western Tie-In Crossing Lake Cataouatche Area (Bridge/Roadway Approach/TWalls)/Jefferson Parish and St. Charles Parish, Louisiana.** Engineering Technician provided design support. The work is located in Jefferson Parish and St. Charles Parish between the River Birch Landfill in Jefferson Parish near South Kenner Road on the east; the Davis Pond Diversion Project's Main East Channel Levee in St. Charles Parish on the west; the southern boundaries of the towns of Ama and South Kenner on the north and the Davis Pond Diversion Project's East Guide Levee and the Salvador State Wildlife Management Area in the south and is part of the Lake Cataouatche Area, Hurricane

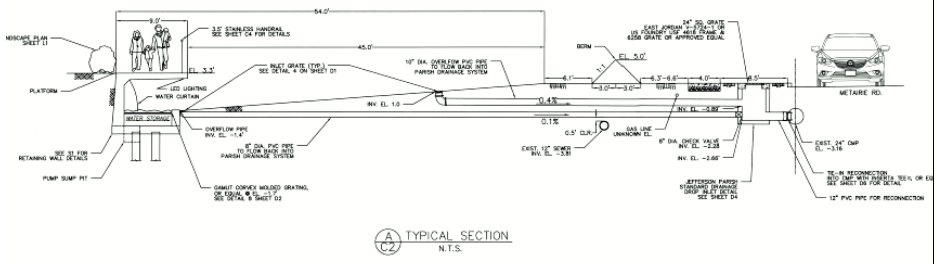
Protection Project, Western Tie-In.

- **USACE New Orleans District: IDIQ Hurricane Protection Study of Alternatives for the IHNC, GIWW and MRGO/New Orleans, Louisiana.** Engineering Technician for the preparation of drawings for alternative study to provide additional hurricane protection for the population centers along the Inner Harbor Navigation Canal (IHNC) and Gulf Intracoastal Waterway (GIWW), which include portions of Orleans Parish West, New Orleans East, the Lower Ninth Ward and St. Bernard Parishes. Duties included generating plan and profile, sheet layouts, aerial photography edits and volume calculation using MicroStation and Autodesk Civil 3D software package.
- **USACE New Orleans District: St. Bernard Parish Hurricane Protection System/St. Bernard Parish, Louisiana.** CADD designer for the preparation of drawings for Bayou Dupre Sector Gate and Seabrook Sector Gate Complex. Duties included CADD Management, generating plan and profile, sheet layouts for all structural drawings, aerial photography edits, scripting to USACE CAD Standards, structural details and 3D Renderings.

TEC Professional Services Questionnaire

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:
Bayou Metairie Road Management Demonstration Project Department of Public Works Jefferson Parish, Louisiana	This first of its kind project for Jefferson Parish is intended to manage stormwater runoff in such a manner that it retains the first hour of a typical storms volume to reduce the impact on the localized drainage infrastructure. The green infrastructure nature of the project was such that is was designed with sustainable perspective utilizing low impact materials, indigenous landscape, pours pavement, LED lighting. The project was design for a one block stretch of Metairie Road between Labarre Road and Metairie Lawn Drive utilizing an existing Pariah owned space. The project will divert the first hour volume into the basin where it will be retained until a time it can be released back into the Parish system. The project will provide some ground water recharge to the area. The basin utilized a number of pipes placed at control elevations and check valve such that the operation is low impact while providing water level control of the basin, the project is estimated to cost $750,000. 

Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2018	$700,000	$125,000

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 2</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility:</th></tr>
<tr><td>25th Street Canal Drainage Improvement Project
City of Gretna
  </td><td colspan="2">The $15-million 25th Street Canal area of Gretna is a mature developed area of Gretna, LA that has the highest FEMA flood-related repetitive loss rate in the US. This is an area that has been affected by poor drainage and several events that in many cases impacted the effectiveness of the drainage in the area and is some cases has put the home slab elevations below that of the street. Arcadis performed the alternative analysis, preliminary design and 60% documents and is to complete the final bid documents. The project was first modeled using SWMM and HEC-RAS to better understand the factors that were impacting the area and causing the flooding. Several alternatives were modeled and evaluated such that a most efficient and cost-effective approach could be applied to the project. The project was designed to improve the existing cross section in a very limiting space through the construction of a concrete U-flume that would increase the capacity and efficiency of the canal. The existing canal was gravity feed into a much larger canal that during heavy rain events. Not only did this condition have a sever impede on the ability of the 25th Street canal to discharge but the larger canal would back up into the 25th Street Canal making the flooding much worse. Arcadis deigned a gravity control system and 300-cfs pump station that would allow water to drain from 25th by gravity during typical events but during larger events would not allow the larger canal to back up into 25th Street and would utilize the pumps to manage the
drainage in the basin.</td></tr>
<tr><th rowspan="2">Completion Date (Actual or estimated):</th><th colspan="2">Estimated Cost:</th></tr>
<tr><th>Entire Project:</th><th>Work for which Firm was Responsible:</th></tr>
<tr><td>2018</td><td>$14 million</td><td>$750,000</td></tr>
</table>

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 3</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility</th></tr>
<tr><td>Gardena Street Drainage Improvement and Street Rehabilitation
New Orleans, Louisiana

City of New Orleans
Department of Public Works
1300 Perdido Street #6W03
New Orleans, Louisiana 70112</td><td colspan="2">Arcadis is responsible for drainage improvements and the complete street rehabilitation for Gardena Street from St. Bernard Avenue to Paris Avenue (2,500 feet) that includes:
• Drainage calculations and design for the surround area (approximately 20 acres). Design includes runoff, catch basin, inceptors and conveyance to main truck drainage in area. The will be a managed drainage approach as to not to overwhelm the existing main collection system in the area.
• Surface drainage design
• Roadway geometry design
• Utilities coordination
• Traffic Planning
• Water and sewer design and relocation
• Resident Inspection
  </td></tr>
<tr><th rowspan="2">Completion Date (Actual or estimated)</th><th colspan="2">Estimated Cost:</th></tr>
<tr><th>Entire Project:</th><th>Work for which Firm was Responsible:</th></tr>
<tr><td>2024</td><td>$4 million</td><td>$300,000</td></tr>
</table>

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 4</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility:</th></tr>
<tr><td>City of Atlanta Architectural-Engineering Annual Contract
Atlanta, Georgia

City of Atlanta
55 Trinity Avenue, Suite 2500
Atlanta, Georgia 30303</td><td colspan="2">Associates with Arcadis are serving as the managing partner to perform services for the Annual Contract for Architectural-Engineering (A-E) Services for the Departments of Public Works; Watershed Management, Planning and Community Development and Parks; Recreation and Community Development and the Office of General Services. The JV was awarded the annual contract May 2004 to provide technical, professional and other services for various City projects on an as-needed basis. Services include design of high-priority bicycle lanes, parking studies, design of treatment facilities, conveyance systems, sewer systems, stormwater control, structures, customary sanitary and civil, mechanical, electrical, architectural and control instrumentation; structural engineering; easement and real estate acquisition services; contract administration, prequalification and bidding; and construction observation services. Arcadis was awarded the third consecutive A/E annual services contract in May of 2015. Some recent projects from these three contracts include:
• Adams Drive Culvert Study, City of Atlanta Department of Public Works
• ATMS Modernization and Development Master Plan, City of Atlanta Department of Public Works
• Cheshire Bridge Streetscapes, City of Atlanta Department of Public Works
• Hemphill Finished Water Pump Station, City of Atlanta Department of Watershed Management
• Peachtree Street Water Main Repair, City of Atlanta Department of Watershed Management
• Proctor Creek and Sandy Creek Sewer Rehabilitation and Replacement, City of Atlanta Department of Watershed Management
• Virginia Highlands Water Main Replacement, City of Atlanta Department of Watershed Management
• Project Greenspace, City of Atlanta Department of Parks, Recreation and Cultural Affairs; and Department of Public Works
• Atlanta Quality of Life Project Concepts, City of Atlanta Department of Public Works</td></tr>
<tr><th rowspan="2">Completion Date (Actual or estimated):</th><th colspan="2">Estimated Cost:</th></tr>
<tr><th>Entire Project:</th><th>Work for which Firm was Responsible:</th></tr>
<tr><td>Ongoing</td><td>$2 billion</td><td>$5.7 million to-date</td></tr>
</table>

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Replacement and Rehabilitation of Facilities New Orleans, Louisiana Sewerage and Water Board of New Orleans 625 St. Joseph Street New Orleans, Louisiana 70165	As part of a 10-year capital improvement plan for the water, sewerage and drainage systems of the S&WB, Arcadis is currently providing assessment of existing facilities, alternatives and recommendations, design, maintenance of plant operations (MOPO) plan development, construction management and program management. Services include: • Regulatory Compliance Assessment • Alternative Development to Meet Future Conditions • Detailed Design • Plans, Specifications and Contract Documents • Agency Coordination • Bid Services • Construction Management, Inspection and Administration • Program Management and Scheduling	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Ongoing	$750,000	$75,000

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 6</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility:</th></tr>
<tr><td>Nicholson Drive/Brightside Lane Multiple Pump Stations
Baton Rouge, Louisiana

East Baton Rouge Parish Department of Public Works
100 St. Ferdinand Street
Room 208
Baton Rouge, Louisiana 70802</td><td colspan="2">The SFL-C-0001 (Multiple Pump Stations – Nicholson Drive – Brightside Lane) project includes the replacement of Pump Station (PS) 236, PS 336, PS 311, PS 107, Booster Pump Station 505 and the construction of two new combination wet weather/dry weather pump stations, PS 505A and PS 236A. The new pump stations will work in conjunction with force main upgrades (designed by others) and pump stations in other South Force Main Lower Basin projects to convey future peak wet weather flows.

This project will increase the capacity of five existing pump stations and add one new pump station in the South Basin, preventing sanitary sewer overflows (SSOs) at and near these stations. The upgrades will allow the pump stations to handle future peak wet weather flows.

The new pump stations are submersible type stations and have the following pumping capacities:
• PS 505 – 2127 gpm
• PS 505A – 720 gpm
• PS 236 – 700 gpm
• PS 236A – 1454 gpm
• PS 107 – 483 gpm
• PS 311 – 2113 gpm
• PS 336 – 974 gpm.</td></tr>
<tr><th rowspan="2">Completion Date (Actual or estimated):</th><th colspan="2">Estimated Cost:</th></tr>
<tr><th>Entire Project:</th><th>Work for which Firm was Responsible:</th></tr>
<tr><td>2012</td><td>$1.5 million</td><td>$149,000</td></tr>
</table>

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 7</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility:</th></tr>
<tr><td>Green Stormwater Management Practices Toolbox
Knoxville, Tennessee

City of Knoxville, Knox County
City County Building
400 Main Street
Knoxville, Tennessee 37902</td><td colspan="2">The City of Knoxville selected Arcadis to develop a new set of low-impact development practices to augment their existing toolbox of stormwater management practices. The toolbox of new practices provided practical and cost-effective means of mitigating stormwater pollution and reducing stormwater runoff volume.

The new practices were designed to fit into the City's engineering and planning processes and provide LID or green technologies for planners, developers and landowners to consider and use in the planning and design of new and redevelopment projects. The new LID practices included specifications and information for suitable applications, design approaches, detail and specifications, technical considerations and specifications, maintenance requirements and cost considerations.

Arcadis also developed an implementation strategy and a programmatic approach to accomplishing the LID practices. The strategy included adopting or revising regulatory and performance criteria, development incentives and promoting or alternatively eliminating barriers to LID practices by modifying criteria and standards in documents such as:
• Zoning ordinances
• Subdivision codes
• Covenant requirements
• Street standards
• Fire codes and standards
• Parking requirements
• Building regulations/standards
• Stormwater management ordinances
• Buffer or floodplain regulations</td></tr>
<tr><th rowspan="2">Completion Date (Actual or estimated):</th><th colspan="2">Estimated Cost:</th></tr>
<tr><th>Entire Project:</th><th>Work for which Firm was Responsible:</th></tr>
<tr><td>2010</td><td>$20,000</td><td>$20,000</td></tr>
</table>

TEC Professional Services Questionnaire

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Kettle Pond Outfall Improvements and James River Shoreline Stabilization Newport News, Virginia City of Newport News 2400 Washington Avenue Newport News, Virginia 23607	At the City's request, Arcadis designed improvements to the existing non-functional outfall structure within Kettle Pond to eliminate overtopping of Museum Drive due to flooding of Kettle Pond during rainfall events, including the 100-year storm event. The property for the Pond and shoreline is wholly owned by the Mariners' Museum and required careful coordination with Museum land use plans and requirements. Portions of the project area have experienced significant erosion over the past decades to the degree that Museum Drive, a City maintained roadway, is in need of protection. The drainage basin and sub basins were delineated and field verified as part of a comprehensive analysis of the watershed. A Pondpack model of the system using TR-55 methodology was developed and populated with surveyed values for major culverts and weirs to increase the accuracy of the model. Arcadis recommended the design and construction of a new outlet structure and 36-inch-diameter RCP outfall that discharges to the James River. The proposed outfall structure was designed with a number of low flow orifices to establish additional water quality volume within the Pond while maintaining the existing normal pool elevation. Provisions for traffic control and Contractor haul routes and laydown areas were coordinated with the Museum and included in the plans. The design was carefully coordinated with the design of a constructed Island within the Pond by the Newport News Public Arts Foundation. During the study phase of the project Arcadis promoted the use of a living shoreline as an alternative to a rip rap revetment in order to enhance the natural environment, save costs associated with hardened facilities and as compensatory mitigation for the proposed impact associated with the outfall improvements. Final design documents for the overall project were completed to the satisfaction of the City and the Museum and made use of HRPDC specifications, City standards and Arcadis standard technical specifications. In addition to development of an Erosion and Sediment Control Plan (ESCP) and Stormwater Pollution Prevention Plan (SWPPP), Arcadis provided environmental permitting services for both the project, as well as the constructed Island through development of a Joint Permit Application.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2016	$2.3 million	$184,000

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Stormwater Management System at the Irene Road Facility Pump Station Renovation Baton Rouge, Louisiana East Baton Rouge Parish Department of Public Works 100 St. Ferdinand Street Room 208 Baton Rouge, Louisiana 70802	In July 2004, the Parish entered into a purchase agreement for the acquisition of approximately 617 acres of land immediately adjacent to the East Baton Rouge Parish North Landfill. This land includes two surface impoundments referred to as Red Mud Lakes and a settling lake, often referred to as the Clear Lake. Stormwater generated from the two surface impoundments and the settling lake is discharged to the Mississippi River by the Irene Road Pump Station Facility. The pump station was previously used to convey slurry water back to the plant site approximately 8 miles away. This required 400-hp pumps that were powered by 4,160-volt power. With the flow now being conveyed a shorter distance to the river the large pumps are over-sized for the current use. Also, the Parish maintenance personnel are not comfortable working on such high-voltage power. In the design of the new pumping system, the platform will be completely cleared and new pumps and piping will be installed up to the HDPE piping connection for the river outfall. The new facility will be a duplex pump system with siphoning capabilities and an anticipated flow capacity of 5 mgd. The power source for the pump station will be changed to 480-v power.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2011	$47.8 million	$69,000

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 10</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility:</th></tr>
<tr><td>Georgia DOT Statewide Stormwater Assessment
Statewide, Georgia

Georgia DOT
1 Georgia Center
600 West Peachtree NW
Atlanta, Georgia 30308</td><td colspan="2">Arcadis gathered, reviewed and analyzed available statewide drainage system improvement information for the Georgia Department of Transportation (GDOT). GDOT has thousands of storm structures under existing roadways that vary in type, size and condition. GDOT found that after millions of dollars were spent on road improvements, such as widening or resurfacing, that storm systems would eventually fail. As a result, GDOT would have to not only repair or replace storm structures but would also have to destroy the recently improved roadways above these structures.

We developed a program to assist in the categorization, location identification and condition of these structures in order to properly plan resurfacing and road improvement projects in conjunction with storm drainage improvements. We will develop and implement this program for GDOT statewide as part of a three-year contract to inventory, inspect and evaluate numerous storm drainage system structures within the GDOT system. Our completion of these tasks will determine condition and functionality. We will then make recommendations for replacement, repair and/or maintenance.

The Arcadis team brought proven expertise in the development and management of stormwater inventory, evaluation and analysis programs to GDOT for their Statewide Stormwater Assessment program. We merged our engineering experience in storm and sewer system design and condition analysis with our expertise in data collection, data management, mapping and geographic information systems (GIS) to develop an innovative technique and strategy for GDOT to implement the program. We organized the program into a two-phase process with different technical teams to complete Phase I and Phase 2 services, including:
• Phase 1 – Information Collection and Review
• Phase 2 – Inspection and Evaluation
GDOT maintenance and management personnel used information gathered from both phases to properly perform programming maintenance and improvements to their stormwater system, statewide.</td></tr>
<tr><td rowspan="2">Completion Date (Actual or estimated):</td><td colspan="2">Estimated Cost:</td></tr>
<tr><td>Entire Project:</td><td>Work for which Firm was Responsible:</td></tr>
<tr><td>2009</td><td>$6 million</td><td>$2.2 million</td></tr>
</table>

TEC Professional Services Questionnaire

<table>
<tr><th colspan="3">PROJECT NO. 11</th></tr>
<tr><th>Project Name, Location and Owner's contact information:</th><th colspan="2">Nature of Firm's Responsibility:</th></tr>
<tr><td>Georgia DOT MS4 Permit Compliance Program and Statewide Manuals
Statewide, Georgia

Georgia DOT
1 Georgia Center
600 West Peachtree NW
Atlanta, Georgia 30308</td><td colspan="2">GDOT is mandated by Georgia Environmental Protection Division (EPD) under the National Pollutant Discharge Elimination System (NPDES) General Permit (No. Georgia R041000), to develop, implement and enforce a Storm Water Management Program (SWMP).

Arcadis developed the required Notice of Intent (NOI) and served as GDOT's liaison for negotiating the MS4 Permit and gaining EPD's approval of the NOI. The Arcadis team is assisting GDOT with developing and implementing the overall MS4 program. Preparation of the following MS4 area-wide manuals is included under this contract:
• Statewide Facilities Stormwater Pollution Prevention Plan for all of GDOT's linear and non-linear facilities within the MS4 designated area.
• Stormwater Manual (Drainage Design Manual Update) that includes design standards consistent with the MNGWPD's Georgia Stormwater Management Manual (Blue Book). This includes post-construction BMPs for stormwater runoff from GDOT's linear and non-linear facilities.
• Inspection and Maintenance (I&M) Manual for the long-term operation and maintenance of all post-construction and stormwater drainage structures.
• Illicit Discharge Detection and Elimination Manual.
• Monitoring and Implementation Plan (MIP) for streams with TMDLs
The MS4 program assistance includes monitoring implementation and compliance over the course of this 5-year contract.</td></tr>
<tr><th rowspan="2">Completion Date (Actual or estimated):</th><th colspan="2">Estimated Cost:</th></tr>
<tr><th>Entire Project:</th><th>Work for which Firm was Responsible:</th></tr>
<tr><td>Ongoing</td><td>Ongoing</td><td>Ongoing</td></tr>
</table>

TEC Professional Services Questionnaire

PROJECT NO. 12		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
First Creek Stormwater Master Plan Knox County, Tennessee City of Knoxville, Knox County City County Building 400 Main Street Knoxville, Tennessee 3790	Arcadis was selected by the City of Knoxville and Knox County to evaluate the First Creek Watershed and provide a stormwater master plan. Our team is responsible for addressing inter-jurisdictional drainage concerns related to flood mitigation and prevention, compliance with federal water quality regulations, capital improvements planning and programming and cooperative city-county basin management strategies. **Ordinance Review** To date, the team has completed an ordinance review and reconciliation of the City's and County's ordinances. Technical interpretation of the ordinances' provisions was conducted within the context of compliance with NPDES Phase I and II Stormwater Program requirements and included: Stormwater volume and peak flows Stormwater quality Erosion prevention and sediment controls (EPSC) Construction specifications and standards Monitoring and enforcement We made recommendations based on this review for revisions to Knox County's Draft Stormwater Design Manual to make its requirements as strict as the City's. **Hydrologic Model Selection** In addition to ordinance review, the Arcadis team selected a hydrologic model for the City's and County's use in developing optimal capital improvements. Our hydrologic and hydraulic modeling experts reviewed previous modeling evaluations of the First Creek Watershed and applied their experience with hydrology and hydraulics, watershed, receiving water bodies, linked systems and groundwater models to select the most appropriate hydrologic model for linking with the hydraulic and water quality models and the BMP assessment tools that will be used to evaluate impacts of management practices on hydrology and water quality in the First Creek Watershed.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2009	$500,000	$500,000

TEC Professional Services Questionnaire

PROJECT NO. 13		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
"Resource Rain" Low-Impact Development Green Infrastructure Design Competition Chattanooga, Tennessee City of Chattanooga 1250 Market Street Chattanooga, Tennessee 374021	In late spring of 2014, Arcadis in collaboration with its subsidiary company, RTKL teamed up with students from Chattanooga State Community College and University of Tennessee-Chattanooga, to participate in Chattanooga's "Resource Rain Design Competition," intended to solicit the best and brightest ideas of how to implement low-impact development of green infrastructure in the city. In its grand-prize-winning entry, the Arcadis/RTKL team re-imagined Cherokee Boulevard, an underused thoroughfare and transecting neighborhoods that needed something to reduce flooding and foster further economic development. The Arcadis team produced an effective and winning conceptual design. The conceptual design included lifelike artist's renderings and "beforeand-after" comparisons highlighting improvements such as pedestrian- and bike-friendly travel lanes, stormwater-friendly trees, planters, rain barrels and permeable surfaces to manage stormwater runoff and other traveler-friendly features like additional bus stops. The design exceeded the requirements for rainfall collection and management by a factor of 5. A total of approximately .5 million gallons of water is capture by the various green infrastructure practices. The green improvements allow the Boulevard to act more like a meadow than a traditional paved street, while improving mobility, safety and providing a foundation for neighborhood and commercial redevelopment. In addition, the Arcadis/RTKL team presented a method of project funding including financing through tax increment financing (TIF) and the sale of "stay-on-volume" (SOV) credits. This would enable the City to recoup the costs, while enhancing the community with this groundbreaking design. Arcadis is currently in discussion with the City and surrounding adjacent communities about bringing this design to reality.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Ongoing	$7.4 million	$2.5 million

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.

Introduction to Arcadis

Arcadis has more than a century-long history of consulting with a concentration on water and the environment. We are devoted exclusively to water and wastewater engineering and management consulting to enhance the performance of public and private organizations in meeting their environmental responsibilities.

Arcadis is an international leader in the fields of infrastructure, environment and buildings. The firm's multidisciplinary staff provides consulting, design, engineering and management services across the U.S. and around the world to enhance mobility, sustainability and quality of life.

Comprehensive Drainage Engineering

Arcadis' multidisciplinary staff includes top stormwater and drainage experts — engineers, biologists, environmental scientists, hydrologists and computer modelers — who have helped state and local clients solve a wide range of drainage and stormwater issues. Managing stormwater and drainage is about both quantity and quality. Municipalities want to control the quantity of stormwater to minimize its impact on communities and ecosystems and manage the cost of meeting the water quality demands imposed by environmental regulations.

Arcadis takes a more expansive view of stormwater management that emphasizes quality through the use of stormwater as an asset. Sustainable stormwater management solutions must be cost-effective and watershed-based. Arcadis offers a comprehensive approach tailored to specific watershed characteristics and integrating all related activities within the watershed including combined sewer overflows, sanitary sewer overflows, agriculture and wellheads. Our approach involves capitalizing on available stormwater for beneficial use and coordinating stormwater management with the management of ground and surface water. We offer a sustainable approach to stormwater management solutions and full range of hydrologic/hydraulic

modeling and design engineering services. We work together with communities to develop comprehensive yet environmentally-friendly stormwater management plans to deal with drainage needs and pollution abatement, including municipal separate storm sewer system (MS4) regulations. With increasing emphasis on water quality and reduction of runoff, we deliver solutions that incorporate stormwater best management practices and green infrastructure.

- Flood Protection
- Development of stormwater utilities and policies
- Low-impact development
- Open space management
- Ordinance and technical procedures
- Illicit discharge detection and elimination
- Partnerships with rural communities
- Comprehensive land use planning and land cover input
- Asset and revenue management
- Modeling: hydrology, hydraulics and pollutant fate and transport
- Eco-restoration: streams, wetlands, shoreline
- In-stream biological impact assessment coordinated with conventional water quality assessment
- BMP evaluation, planning and design
- Floodplain management
- Emergency response planning and disaster preparedness
- Geotechnical services for dams, dikes and levees
- Drainage and flood insurance mapping
- Stakeholder involvement and public education
- Green Infrastructure

Drainage Capacity
The primary guiding element of the project will be the determination of what drainage capacity improvements can be made to both enhance and improve the transition of water from the street surface to the subsurface while providing an approach that will not overwhelm the near region system such that other drainage issues may be introduced to the area. The Arcadis Team will use SWMM to model the drainage improvements as well as analysis to any related impacts to the area. The model and design approach will be to implement low impact design approach and green infrastructure elements to improve the water management characteristics in the area. SWMM is used throughout the world for planning, analysis and design related to stormwater runoff and other drainage systems in urban areas.

Consistent Focus on Value to the Client
Our clients tell us that they want a consulting relationship that offers several key advantages:

- Specialized knowledge of issues that affect the client's particular organization, not generalized, broad-brush consulting or a narrow project focus
- Project staff who pay attention to the client's unique needs, can adapt to local situations and promote trust and confidence
- Consistent effort to develop a relationship with the client and act in the client's best interests

Arcadis places the utmost priority on meeting these requirements to build strong partnerships with our clients across our entire wide range of service offerings.

We take a "total systems" approach to the array of challenges that our client faces. We begin by assembling the right team from the staff of our national practice, supplemented as needed with the specialized expertise of our many associate individuals and firms. We maintain a strong focus on implementation throughout the team selection process so that individuals with the appropriate expertise are involved from the start. The project team considers all aspects of the client's organization from management to infrastructure, processes, operations and

maintenance. Participation of the appropriate experts facilitates the smooth progress of the project from initial assessment through implementation of the optimal solutions.

Past Performance on Similar Projects
To the best of our knowledge, Arcadis has not been removed from a contract or failed to complete a contract as assigned, due to time delays, cost overruns and/or design inadequacies in prior projects for which Arcadis was to be held at fault.

A challenging economy means now, more than ever, we must focus on delivering excellence from day one of every assignment. Tight budgets mean limited resources to change directions or correct mistakes. We understand that it isn't just what we deliver – how we get there matters, too. That is why we will continue to clearly define your expectations for every project and then work efficiently to exceed them. We prefer to develop a complete scope of work, plan the work carefully, price the scope appropriately and then manage the project to meet the schedule and budget. We do not like to request change orders. We focus instead on delivering excellence on every project and doing so with great efficiency.

Information/Data Management System
Arcadis understands that consultant-client communication is of utmost importance to our clients. We have successfully tracked the status of countless projects, while delivering exceptional results to our clients. The Information/Data Management System (IDMS) tool, a web-based project status reporting and information sharing tool, allows Arcadis to post updates to task assignments and share documents with clients in real time.

In addition, the IDMS serves as a digital liaison among all parties in work authorization contracts involving multiple assignments for project managers. The capabilities of the IDMS allow user settings to be customized based upon the level of the staff member and, in turn, provides for consistent data input. Anyone assigned viewing permission by the IDMS administrator will be also assigned a tier of user authority. By assigning these tiers, we protect site security and integrity. Tier authorizations vary from read-only to data uploading/downloading and commenting.

These functions centralize data stewardship while maximizing data accuracy, staff communication and work efficiency.

Document Tracking and Control
Arcadis uses Primavera Expedition® software for document control of City projects. Document control is critical on assignments and this software offers exceptional capabilities for filing, document control, document tracking and reporting.

The Arcadis Team
Your local office. The Metairie, LA office will perform any services requested by the Parish of Jefferson, LA.

Arcadis U.S., Inc.
3850 North Causeway Boulevard
Suite 990
Metairie, Louisiana 70002
Phone: 504 648 3601
Fax: 504 832 2145
www.arcadis.com
Manager: Steve Cali, PE

National Resources/Size of Firm

With more than 150 offices and 5,000 employees nationwide, Arcadis has the depth of resources from which to complement the local Metairie, LA office as-needed. The Arcadis Team has a water focused practice both locally and nationally that has a full breadth of wastewater and sewer utility engineers, designers and operations professionals. The Metairie office is a full service engineering & design office located in the heart off Jefferson parish. This office, in addition to being an industry provider of water resources engineering projects, managed and delivered $2 billion of engineering and design for the USACE for the Hurricane Protection Office for levees, floodwalls and flood control structures in St. Bernard, Plaquemines, Orleans and Jefferson Parishes.

In addition to the Metairie location, the Arcadis Team has office in New Orleans and Baton Rouge that can support the Metairie location as-needed.

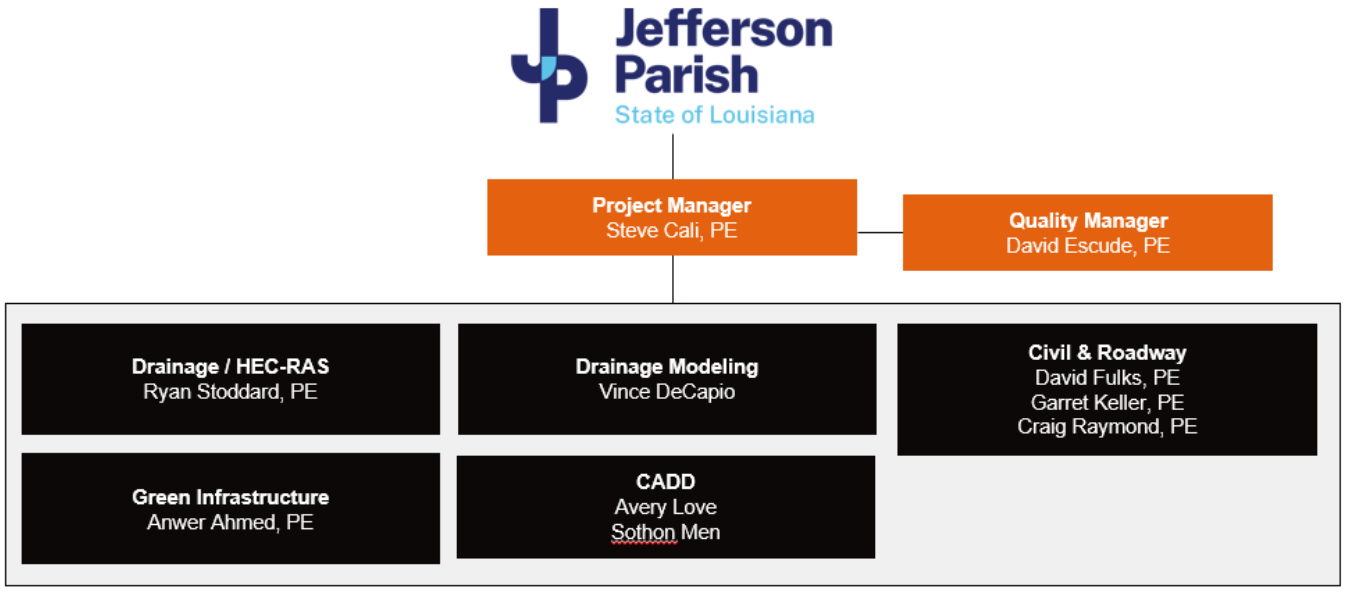
Scheduling and Capacity

Arcadis team members consistently and effectively complete multiple work orders simultaneously on-time. With a large pool of professionals both locally and nationally to pull from, we have the ability to perform your project efficiently and effectively no matter the circumstance. Throughout the region, the Arcadis Team has a number of water resources professionals that have specific expertise to support Jefferson Parish in all of the areas required to run a world-class wastewater and sewer utility. Critical to any project's success is the ability to meet deadlines and schedules, with the appropriate staff availability. Arcadis has a proven project management protocol to track work authorization progress at every level. As a result, we enjoy a reputation that matches or exceeds that of any firm in the industry for completing work authorizations on schedule. This is the approach that delivered more than $2 billion in projects for the USACE over the past 7 years.

Arcadis uses Primavera® Project Planner (P6), SureTrak® Project Manager and Microsoft Project®, as appropriate, for planning and scheduling projects. We will select the application that is most appropriate for the task, leading to a consistent level of success and deadlines. Arcadis establishes scheduling measures as part of every project to provide a consistent level of success. Our project planning process involves dividing the scope of services into smaller, well-defined and more manageable elements. Through the use of a Work Breakdown Structure (WBS), these services can be illustrated and used in a manner that promotes organization and effective communication in order to succeed in a project.

Organization Chart

The proposed organizational chart for the team is shown below.



TEC Professional Services Questionnaire

Quality Assurance / Quality Control
Whether performing design work under a task order or serving Jefferson Parish as an owner's representative, QA/QC is a critical aspect of our work under this contract. QA/QC is the ultimate responsibility of the local project manager on each project under this contract. It will be the Arcadis management team's responsibility to make certain that the proper people are conducting quality reviews.

QA/QC reviews can take several forms, including:
- Quality Assurance Reviews
- Quality Control Reviews
- Executive Project Reviews

The extent and type of project reviews will be defined in the Project Plan for each task order according to the nature, size and complexity of the project.

Quality Assurance Reviews
Quality Assurance Reviews are performed by the Quality Consultants to assist the team in producing the deliverable. These Reviews should be performed early in the project or their impact is lost. Reviews performed early also minimize cost to the project as input at this stage can provide direction without significant re-work.

Quality Control Reviews
Quality Control Reviews are the responsibility of every person involved on a project. At a minimum, every product or deliverable must be reviewed by the Project Officer and/or Project Manager before submittal.

Executive Project Reviews
Executive Project Reviews are project reviews where technical and business representatives audit a project to help improve team performance. These reviews help us identify good performance and needed improvements in the firm's processes and systems

Health & Safety
Arcadis has developed and currently implements a comprehensive health and safety (H&S) program and management system, focused on proactive project planning and identification and assessment of job hazards early in the planning and design stage. Appropriate controls are then determined and implemented to prevent and eliminate said hazards. Once a task or activity starts, the project team has the tools and processes necessary to address changing situations to stay ahead of hazards and prevent adverse impacts. Arcadis project teams have successfully applied these tools to maintain a high degree of operational safety in a variety of environments including terminals and refineries.

In addition to maintaining a strong internal safety program, Arcadis also addresses the H&S needs of our clients by offering on-site health and safety oversight. Whether it be on-site construction or remediation sites, or the development of an H&S management system, our staff can effectively handle a wide range of H&S needs. Our H&S staff has oil and gas industry experience and includes Certified Industrial Hygienists (CIH) and Certified Safety Professionals (CSP).

Arcadis teaches and uses the TRACK method to reduce or eliminate Health & Safety incidences. Think through the task, Recognize the hazards, Assess the risks, Control the hazards, Keep health and safety first in all things.

TEC Professional Services Questionnaire

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

Signature: Stephen P. Cali **Print Name:** Stephen Cali, PE

Title: Project Manager **Date:** June 21, 2024

About Arcadis

Arcadis is the leading global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 29,000 people, active in over 70 countries that generate $4.2 billion in revenues. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world.

www.arcadis.com

Supporting our clients in their quest to become Fit-for-Future.

Utilities must plan for unprecedented scenarios while navigating a changing workforce, but where should leaders focus?

Use the QR code below to explore the five fundamentals of becoming a fit-for-future water utility and the common thread that unites them.

Arcadis. Improving quality of life