

HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT

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1. LETTER OF INTEREST

June 14, 2018

City of Boynton Beach | Procurement Services P.O. Box 310, Boynton Beach, FL 33425-0310

Subject | RFQ for Hydrogeological Consulting Services, RFQ #023-2821-18/IT Legal Name | Jacobs Engineering Group Inc.
Address | 550 W. Cypress Creek Road Suite 400, Fort Lauderdale, FL 33309 Phone | 954.351.9256
Federal I.D. Number | 95-4081636

Dear Members of the Evaluation Committee:

Jacobs Engineering Group Inc. (Jacobs) is pleased to submit our Statement of Qualifications to provide Hydrogeological Consulting Services for the City of Boynton Beach (City). With our recent acquisition of CH2M, we will build upon our solid foundation of working collaboratively with the City over the last 30 years providing professional services related to aquifer storage and recovery (ASR) wells, deep injection wells, landfill and groundwater monitoring, and we are sincerely looking forward to continuing our partnership.

Our success assisting the City with hydrogeological services is predicated on several factors, including:

- A dedicated core team familiar with the City's ASR wells 1 and 2, Class I injection well system, and post-closure groundwater monitoring, closure system improvements and landfill gas monitoring at the City's landfill;
- A demonstrated ability to work with City Department managers and staff in developing concise, scaled proposals and workplans providing the technical support the City needs;
- Strong professional relationships with the regulatory agencies responsible for ASR and Class I injection well permitting and compliance and landfills—specifically, the Florida Department of Environmental Protection Underground Injection Control division and the Palm Beach County Health Department Air and Waste Section;
- In-house technical resources with expertise in ASR systems, Class I injection wells, groundwater monitoring and geochemical studies and landfill-related services.

Jacobs staff have performed numerous projects for the City similar to those which may be requested under the proposed agreement:

- Selected Class V ASR well and FDEP UIC Class I injection well services for the City of Boynton Beach
- 1990, Preliminary aquifer storage and recovery (ASR) feasibility study; 1991/92: Professional services, designed, permitted and certified construction of the Class Linjection well system;
- 1992: Professional services, Phase I, design, permitting, construction, and cycle testing of a 16-inch diameter ASR well (ASR 1):
- 2001: Professional services, relining of the Class I injection well;
- 2004: Professional services, Class I Injection Well Interim Mechanical Integrity Testing (MIT): Both a packer pressure test and an internal Radioactive Tracer Survey (RTS).
- 2005-07: Professional Services, ASR-2 was permitted, designed and constructed;

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- 2010 and 2015/16: Professional services, Operation Permit Renewal, Class I Injection Well;
- 2011: Professional services, ASR Construction and Testing Permit Renewal;
- 2007, 2012 and 2017: Professional services, 5-Year MIT, Class I Injection Well;
- Selected Groundwater Monitoring and Landfill Post-Closure Monitoring services for the City of Boynton Beach
- 2010-15: April and October Semi-Annual Reporting for the Boynton Landfill, Palm Beach County Health Department
- 2012: City of Boynton Beach Landfill 2.5-Year Report, Palm Beach County Health Department;
- 2012: The Links at Boynton Beach Site Characterization Work Plan;
- 2013-18: Landfill Post Closure Groundwater (Arsenic) Investigation;
- 2016: Landfill Closure System Repairs Design and Construction Oversight;
- 2017 to present: Landfill Gas Monitoring and Mitigation.

Our knowledge of the City's systems, and commitment to the City to provide the identified hydrogeological scope of services is unparalleled. Our local team, led by Gerrit Bulman, Mark Lucas, Bo Bruner and Daniel Dietch, are excited about the opportunity to continue working with the City to deliver professional services requiring ASR and Class I deep injection well, landfill and groundwater monitoring expertise.

Sincerely,

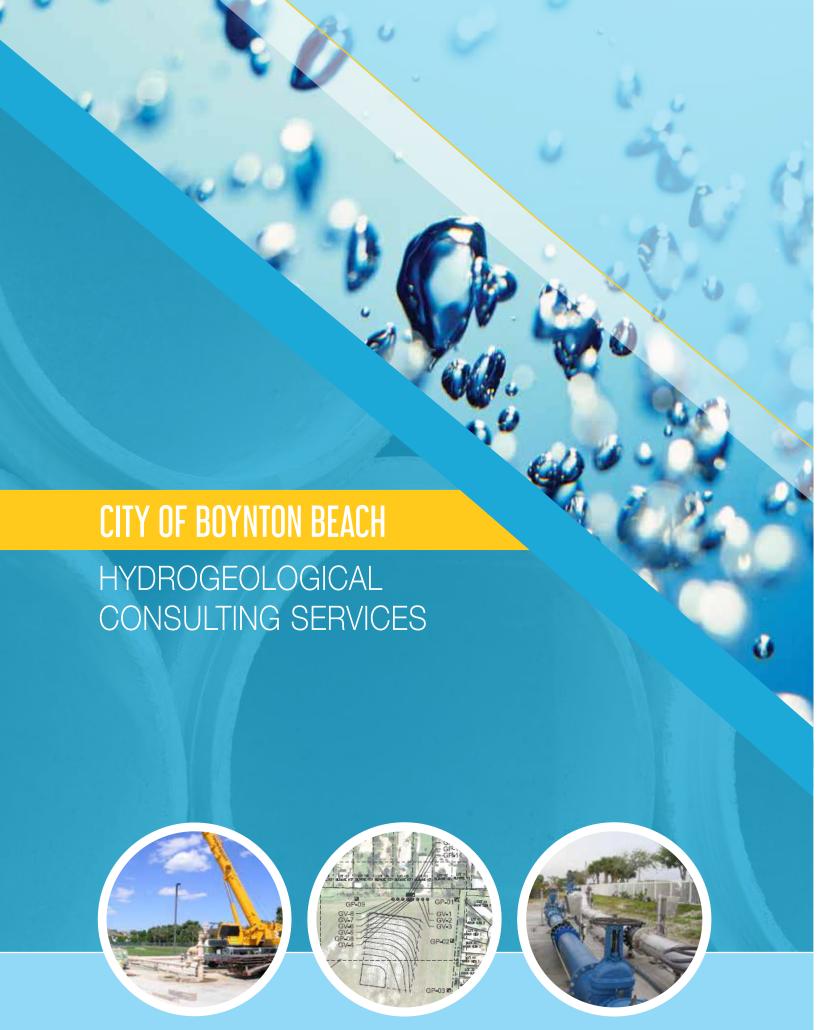
Jacobs Engineering Group Inc.

Thomas J. Meinhart, PE

Vice President

Gerrit R. Buiman, PG

Project Manager





PROPOSER'S QUALIFICATION STATEMENT

Check One

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter:

SUBMITTED TO: City of Boynton Beach

Procurement Services

100 E. Boynton Beach Boulevard Boynton Beach, Florida 33425

Submitted By:		Corporation	Х
Name: <u>Jacobs</u>	Engineering Group Inc.	Partnership	
Address: _550 \	N. Cypress Creek Road, Suite 400	Individual	
CITY, State, Zip	: Fort Lauderdale, FL 33309	Other	
Telephone No.:	954.351.9256		
Fax No.: 954.7	72.2621		
	true, exact, correct and complete name of the part der which you do business and the address of the		rade or
	correct name of the Proposer is: obs Engineering Group Inc.		-
The a 199	address of the principal place of business is: 9 Bryan Street, Suite 1200		_
_Dall	as, Texas 75201		-
2. If Propos	er is a corporation, answer the following:		
a. D	ate of Incorporation:1/8/1987		_
b. S	tata at la composition. Delaware		
c. P	resident's name: Robert Pragada		_
			_
e. S	ecretary's name: Michael Tyler		
	reserved name. Michael Carlin		_
g. N	ame and address of Resident Agent: NA		_
	THE DAGE MUST BE SUBMITTED AT SME WITH D	5000N05 N 00050	

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fictitious

a.	Date of organization: NA
b.	Name, address and ownership units of all partners: NA
C.	State whether general or limited partnership: NA
	oposer is other than an individual, corporation or partnership, describe the organization and the name and address of principals:
NA	
	oposer is operating under a fictitious name, submit evidence of compliance with the Florida ious Name Statute.
How _71	many years has your organization been in business under its present business name?
	er what other former names has your organization operated? obs Civil Inc.
India	ate registration, license numbers or certificate numbers for the businesses or professions, hare the subject of this Bid. Please attach certificate of competency and/or state registration.
whic	ons Engineering Group Inc. State of Florida Department of State - P1321/
whic Jac	obs Engineering Group Inc. State of Florida Department of State - P13217 obs Engineering Group Inc. State of Florida Board of Architecture & Interior Design - AAC00
whice Jac Jac	obs Engineering Group Inc. State of Florida Department of State - P13217 obs Engineering Group Inc. State of Florida Board of Architecture & Interior Design - AAC00 cobs Engineering Group Inc. Florida Board of Professional Engineers - 2822
whice Jace Jace Jace	obs Engineering Group Inc. State of Florida Board of Architecture & Interior Design - AAC00 cobs Engineering Group Inc. Florida Board of Professional Engineers - 2822

sheet, if necessary) Our project team is comprised of individuals who are familiar with and knowledgeable
of City of Boynton Beach operations and practices from their work on previous City projects.
Please see Section 3, Qualifications of Projects Team, of our proposal for a description of the ex
of key individuals for this project team. Detailed resumes for key individuals are also provided. State the name of the individual who will have personal supervision of the work: Gerrit Bulman, PG
State the name and address of attorney, if any, for the business of the Proposer:
Mike Tyler, SVP General Counsel
600 Wilshire Blvd., Suite 1000, Los Angeles, CA 90017
State the names and addresses of all businesses and/or individuals who own an interest of more than five percent (5%) of the Proposer's business and indicate the percentage owned of each such business and/or individual: See our Ownership statement attached.
(Supplemental Information)
State the names, addresses, and the type of business of all firms that are partially or wholly owned by Proposer:
See our Affiliates, Partner Corporations, and Subsidiaries listing attached.
(Supplemental Information)
State the name of Surety Company which will be providing the bond (if applicable), and name and address of agent:

16. Annual Average Revenue of the Proposer for the last three years as follows:

		Revenue Index Number
a.	Government Related Work	10
b.	Non-Governmental Related Work	10
	Total Work (a +b):	10

See attached Financial Statements. (Supplemental Information)

Telephone

Revenue Index Number

Address

	1.0.1.0.1.0.0.1.1.0.0.1.1.0.0.1.1.0.0.1.1.0.0.1.1.0.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.1.0.1.0.1.1.0.1.0.1.1.0
1.	Less than \$100,000
2.	\$100,000 to less than \$250,000
3.	\$250,000 to less than \$500,000
4.	\$500,000 to less than \$1 million
5.	\$1 million to less than \$2 million
6.	\$2 million to less than \$5 million
7.	\$5 million to less than \$10 million
8.	\$10 million to less than \$25 million
9.	\$25 million to less than \$50 million
10.	\$50 million or greater

17. Bank References:

Bank

See our Bank Reference/Credit Information Letter attached.	
(Supplemental Information)	
Provide description of policies and methods for project monitoring and budgeting control as as adherence to project schedule (continue on insert sheet, if necessary).	we
See descriptions of Project Monitoring and Budgeting Control attached.	
(Supplemental Information)	
Provide descriptions of quality assurance/quality control management methods (continuinsert sheet, if necessary):	€ 0
See descriptions of Quality Assurance/Quality Control Management methods attached.	
Supplemental Information)	

	amed on page one?
Y	ES X NO
	not, explain the relationship and financial responsibility of the organization whose financial tatement is provided (e.g., parent-subsidiary).
_	NA
	What will be your turnaround time for written responses to City inquires?
	epending on the nature of the inquiry, we anticipate responses to be provided to e City within one to two days.
а	ist and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by gainst the Proposer, its parent or subsidiaries or predecessor organizations during the past f 5) years. Include in the description, the disposition of each such petition.
_	None
F C	ist all claims, arbitrations, administrative hearings and lawsuits brought by or against Proposer or its predecessor organization(s) during the last five (5) years. The list shall include ase names, case arbitration or hearing identification numbers, the name of the project which ispute arose, and a description of the subject matter of the dispute.
	See our claims, arbitrations, hearings and lawsuits statement attached.
_	(Supplemental Information)
_	
	ist and describe all criminal proceedings or hearings concerning business related offenses which the Proposer, its principals or officers or predecessors' organization(s) were defendants

27

26.	Has the Proposer, its principals, officers or predecessors' organization(s) been Convicted of a Public Entity Crime, debarred or suspended from bidding by any government during the last five (5) years? If so, provide details. No.
	The Proposer acknowledges and understands that the information contained in response to this Qualification Statement shall be relied upon by owner in awarding the contract and such information is warranted by Proposer to be true. The discovery of any omission or misstatement that materially affects the Proposer's qualifications to perform under the contract shall cause the owner to reject the proposal, and if after the award, to cancel and terminate the award and/or contract.
	(Signed)
	(Title)_Thomas Meinhart, Vice President
	ribed and sworn to before me day of the, 2018
	Notary Public (Signature)
	My Commission Expires: Mach 11, 2022
	NA STANDARY OF THE PROPERTY OF
	ribed and sworn to before me day of June, 2018 Notary Fublic (Signature)

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2. FIRM QUALIFICATIONS

2.1 OUR FIRM HISTORY

On December 15, 2017, CH2M Hill Companies Ltd. (CH2M) became part of Jacobs Engineering Group Inc. (Jacobs). CH2M is now a wholly owned direct subsidiary of Jacobs. CH2M presently remains a separate legal entity and will continue to operate and conduct business.

Jacobs leads the global professional services sector delivering solutions for a more connected, sustainable world. Jacobs provides a full spectrum of services including scientific, technical, professional, and construction- and program management for business, industrial, commercial, government and infrastructure sectors.

Leveraging CH2M's world-renowned technical expertise in water across Jacobs' global operating and delivery platform, the combined company is now unmatched in the global water business with the scale and experience needed to serve growing urban and industrial water needs.

Tounded by Dr. Joseph J. Jacobs

Employees

Employees

Billion 2017 Revenues

400+
Countries

Our global resources serve client needs from project engineering and development to program management, construction, operations and maintenance, and financing. We serve municipal, provincial, and national governments, as well as private-sector clients. Our local Fort Lauderdale office provides a bridge to bring these resources to serve City of Boynton Beach.

2017 ENR RANKINGS

1

Design Firm
Water Treatment Plants
Sewer & Waste
Marine & Ports
Pipelines
Transmission Lines & Aqueducts

[‡]2

Water Supply
Water Treatment
Construction Management
Compliance
Site Assessment
Transportation

Now that our two great companies are together under Jacobs, we can provide unparalleled depth and breadth of technical resources to assist City of Boynton Beach with all your project needs. You will be working with the same local team you already know, but they are backed by the deepest and brightest bench of resources in the industry.

▶ 2.2 OUR SUBCONSULTANT PARTNERS

Advanced Environmental Laboratories, Inc. (AEL) will provide analytical laboratory services for any groundwater, surface water or soil analyses required under this contract.

Nutting Environmental of Florida (NEF), a Boynton Beach based business, offers a range of services. For the anticipated work under this contract, however, NEF will primarily provide direct push (e.g., Geoprobe) and monitoring well installation services.

FIRM RESPONSIBLE	SERVICE				
Jacobs	Aquifer Storage and Recovery (ASR) Wells Deep Injection Well Landfill Groundwater Monitoring				
AEL	NELAP				
NEF	Drilling				



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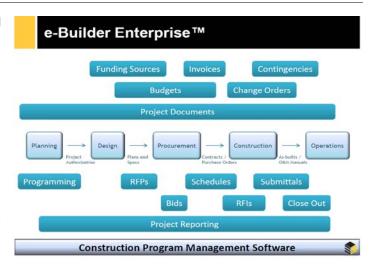
2.3 WE ARE LOCAL

The City's projects will be delivered and managed from Jacobs Fort Lauderdale office. We understand the importance of providing fast, complete responses to the City's needs. For this reason, nearly all our team members, including our Client Service Manager, Project Manager and Project Professionals—Daniel Dietch, Gerrit Bulman, and Mark Lucas—are located in our full-service South Florida offices in Fort Lauderdale and Miami. Our proximity provides you the benefit of immediate responsiveness and increased accessibility, as well as local presence, commitment, and familiarity. It also ensures full access to the facilities, equipment, and resources to cost-effectively complete project tasks, including fast-track critical path projects, while ensuring the highest levels of quality and safety. This on-the-spot service, whether it be for emergency response projects or for long-term projects requiring multiple disciplines and tasks, offers the flexibility, depth, mix of technical skills, and resources to meet a variety of needs.

2.4 SPECIALIZED EXPERIENCE IN ALL OF THE CITY'S REQUIRED SCOPE ITEMS

Jacobs will provide the City with a full range of engineering services for any project assigned under this contract. We bring to the City the proven ability to provide appropriate technical solutions and to tailor our approach and staff to meet the unique requirements of each project required by the City- however large or small.

In addition to conventional engineering, design, permitting and operational-related services, Jacobs is well versed in the use of e-Builder software. E-Builder has been a leading Capital Program Management Software for Owners for 20 years. It is 100% Owner Focused for Infrastructure (Water/ Wastewater, and Transportation). Jacobs has in-house staff who are providing e-Builder services to numerous clients, such as the Dallas, TX Water Utilities (water treatment



plants, residuals handling facilities, pump stations and reservoirs); Fairfax County, VA Utilities; New York City Department of Environmental Protection; Washington, DC Suburban Sanitary Commission; Philadelphia International Airport; Illinois Tollway, and Chicago Transit.

▶ 2.5 OUR EXPERIENCE WORKING TOGETHER

Jacobs (legacy CH2M) began our relationship with the City of Boynton Beach in 1988, and we have completed more than 100 major engineering, environmental, and architectural projects for the City. As part of our services, we designed and constructed the first aquifer storage and recovery (ASR) well in South Florida. Under the current Hydrogeologic Services Contract, Jacobs has delivered multiple projects in collaboration with the City's Utilities and Public Works Departments, including injection well operation permit renewals, ASR permit renewals, mechanical integrity tests (MITs), and several groundwater studies at the City's closed municipal landfill. We pride ourselves on having a lasting and cooperative relationship with the City.



"To be involved with such a great company has been my pleasure. I can't say enough about everyone I have worked with over the past years and currently. This team certainly has the best interest of the City at heart. This is a great reflection of you as well for hiring such dedicated employees. Thank you for providing a great team, they represent your company well!"

Christine Roberts, (Retired) Assistant Public Works Director



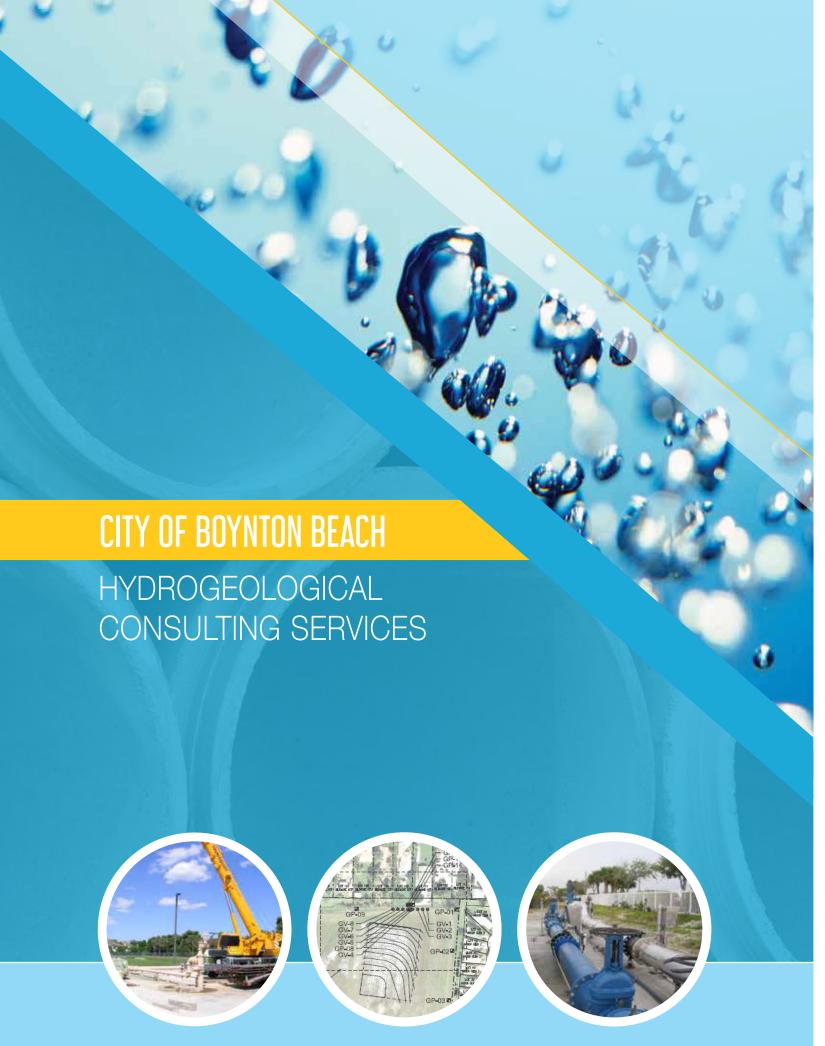
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The following table highlights projects for other clients in the same technical areas as those requested by this RFQ.

PROJECT	ASR (GEOPHYSICAL LOGS, MONITORING DATA, PERMITTING)	DEEP INJECTION WELL (GEOPHYSICAL, MONITORING DATA, TEMPERATURE AND VIDEO LOGGING, MIT, REPORTING, PERMITTING)	LANDFILL SERVICES (GROUNDWATER MONITORING, LANDFILL GAS, REPAIR, STATISTICAL ANALYSES, ETC.)	GROUNDWATER MONITORING (SAMPLING, SPECIAL STUDIES)
FKAA Cudjoe Key Class V Deep Injection Well		~		
City of North Miami Biscayne Landing Groundwater Remediation System		~	~	~
City of Deerfield Beach Injection Well Services		~		
City of Fort Lauderdale Deep Injection Well Repermitting (5 Wells)		~		
United Water Delaware's (UWDE) St. George's Crossing ASR Facility	~			~
City of Palmetto Wastewater Treatment Facility, ASR System	~			
Hampton Roads Sanitation District	✓			~
Alachua County Southwest Landfill			~	
Landfill Gas Utilization Procurement Services; Orange County Solid Waste Management Department			~	
Seacoast Utility Authority Hood Road WTP Injection Well System		~		
Monroe Municipal Utilities Authority Wells 11 and 14 ASR operations (NJ)	~			~
Dow Magnolia — Landfill Permit-related Monitoring (AR)			~	
Dow Possumtown Landfill, Post Closure Monitoring (NJ)			~	
Stock Island Landfill, City of Key West, FL			~	~
Reichhold Chemical, Memphis, TN			~	~
Jacksonville Incinerator Ash Investigation, Jacksonville, FL				~





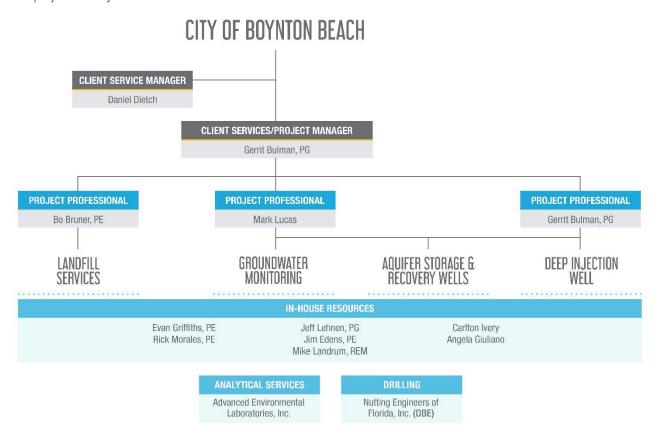




3. QUALIFICATIONS OF PROJECT TEAM

▶ 3.1 ORGANIZATIONAL CHART

Our team, as illustrated below, is organized to provide the City with a team of experts who you have been working with on the current contract, and collectively bring a depth of expertise and technical insights that are unmatched on any other team. Our project team features a core group of professionals whose skills mirror the City's needs and objectives, providing effective and efficient project delivery.



Our team is organized to provide the City with a single source of accountability for our performance and industry leaders in hydrogeological consulting services.

▶ 3.1.2 KEY PERSONNEL

Our key personnel have been selected for both their technical expertise and ability to be committed to the project until it is completed. Their experience providing similar services to those required for your project will promote effective and efficient project coordination and delivery. Brief biographies for our key personnel are included below, followed by full resumes for all project team members.



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Daniel Dietch | Client Service Manager

Daniel has been serving the City of Boynton Beach since 2016, he was engaged the closure of the Consent Order at the Boynton Beach Landfill and resulting landfill gas monitoring program. With more than 20 years of experience in South Florida, he leverages his academic, professional experience in environmental management to provide clients with strategic consulting services, including solid waste and recycling planning, landfill gas project development, operations monitoring, procurements, litigation support, rate structure/alternative financing analyses, ordinance development and contract negotiations. His responsibilities include program coordination, planning, execution, and client liaison. Work products include master/strategic plans, landfill closure plans, operations reports, technology reports, rate models and reports, contracts, ordinances, benefit/cost analyses, customized data management systems, and procurement documents. Daniel is also active in the community serving as Mayor of the Town of Surfside, Board Member of The CLEO Institute and appointee to the Resilient Greater Miami & the Beaches' Living with Water — Innovative Infrastructure Work Group for the 100 Resilient Cities Program. He is available to leverage special project or resource needs and will ensure that all resources and support needed to fulfill all commitments are provided.

Gerrit Bulman, PG | Client Service Manager/Project Manager/Project Professional – ASR and Deep Injection Wells

Gerrit serves as the injection well lead for South Florida, where Class V drainage wells and Class I municipal and industrial deep injection wells have been installed and operated by municipalities for decades. Since 2005, he has managed deep injection well, ASR well, RO supply well, monitoring well and stormwater drainage well permitting, bidding, construction and testing projects. He is experienced with groundwater modeling, aquifer testing, sampling and analyses, and obtaining water use and well construction permits. Gerrit is a senior project manager with extensive injection and monitoring well planning, design, permitting, bidding and construction management experience, working with Florida Department of Environmental Protection (FDEP), South Florida Water Management District (SFWMD), the Florida Department of Health and other local and state agencies in Florida. Gerrit has more than 12 years of project experience with the City of Boynton Beach and has managed numerous FDEP projects, including City of Boynton Beach ASR-2 well projects, several mechanical integrity tests (MITs) and permit renewals for the City of Boynton Beach West Plant deep injection well system, numerous groundwater tasks for the City of Boynton Beach Landfill and the compliance evaluation and work planning for the Links Golf Course.

Mark Lucas | Project Professional – ASR Wells and Groundwater Monitoring

Mark serves as a senior technologist working on geochemical investigations, aquifer storage and recovery (ASR), groundwater production, contaminant fate and transport, and groundwater monitoring projects. Since 1988, Mark has served as a geochemist supporting water supply and groundwater contamination projects at more than 100 sites across the U.S. Many involved characterizing naturally occurring contaminants like arsenic and radionuclides at sites where contamination was initially attributed to anthropogenic activities. In handling complex geochemical assignments, he is experienced with thermodynamic equilibrium models like PHREEQC, MINTEQA2, RTW, and the Geochemist's Workbench. These programs support simulating complex geochemical problems and developing solutions for water supply, ASR, reuse, and treatment projects. Mark has functioned as a hydrogeologist, project manager, or senior technology lead on more than 40 ASR projects across the U.S., Canada, and Europe, and helped develop 23 operating ASR facilities in the New Jersey Coastal Plain, more than all other competitors or private developers combined. He has also published more than 25 professional papers on geochemical topics (iron, manganese, arsenic, radionuclides, and clay mineralogy) ASR operations (geochemistry, well clogging, turbidity, etc.), and related groundwater topics.

Bo Bruner, PE | Project Professional – Landfill Services

Bo has extensive experience with delivering solid waste projects, both in his capacity as design engineer and project manager and from the projects he supervised for the U.S. Environmental Protection Agency (EPA). He is expert in conducting landfill design and permitting projects, landfill gas mitigation, hazardous waste site investigations, groundwater monitoring programs, contamination assessments, and remedial investigation/feasibility studies. Bo has served as a moderator for a course in leachate and gas management for the Center for Training Research and Education in Environmental Occupations (TREEO), and has been an instructor for Leachate Liner and Collection System training course for Solid Waste Association of North America (SWANA). He has successfully completed more than 50 landfill projects in Florida, including design, expansion, permitting and closure.



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▶ 3.2 RESUMES

Resumes for key project members have been provided on the following pages.



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GERRIT BULMAN, PG | CLIENT SERVICE MANAGER/PROJECT MANAGER/PROJECT PROFESSIONAL

EDUCATION

MS, Geological Sciences, University of Alabama BS, Geological Sciences, Brown University

PROFESSIONAL REGISTRATIONS

Professional Geologist: Florida (2697)

DISTINGUISHED QUALIFICATIONS

- More than 12 years of project experience with the City of Boynton Beach
- Broad record of geologic and hydrogeologic investigations
- Knowledge of County, FDEP, and SFWMD regulations
- Extensive FDEP Underground Injection Control project experience
- 40-Hour OSHA Hazardous Waste Operations and Emergency Response
- Well design, permitting, bidding, and construction management experience

RELEVANT EXPERIENCE

Gerrit serves as the injection well lead for South Florida, where Class V drainage wells and Class I municipal and industrial deep injection wells have been installed and operated by municipalities for decades. He is a senior project manager with extensive injection and monitoring well planning, design, permitting, bidding and construction management experience. As well as, groundwater flow modeling (MODFLOW), pumping test analysis, GIS (ArcGIS), and water use permitting experience. He has managed deep injection well, ASR well, RO supply well, monitoring well and stormwater drainage well permitting, bidding, construction and testing projects. He has extensive knowledge of FDEP, SFWMD, and other local and state regulations in Florida. He has managed numerous Florida Department of Environmental Protection (FDEP) projects, including the City of Boynton Beach ASR-2 well project, several mechanical integrity tests (MITs) for the City of Boynton Beach West Plant deep injection well system, City of Boynton Beach permit renewals, and groundwater monitoring reports for the City of Boynton Beach Landfill.

REPRESENTATIVE PROJECTS

Hydrogeologist and Project Manager; Deep Injection Well System Mechanical Integrity Testing; City of Boynton Beach, FL. Wrote and certified an FDEP approved plan for the 5-year FDEP/EPA mandated mechanical integrity testing; managed water well contractor and field staff supervision during pressure testing, geophysical logging, and video surveying. Prepared a certified report for FDEP, which includes testing results and an evaluation of monitoring well water quality.

Hydrogeologist and Project Manager; Deep Injection Well System Permit Renewal; City of Boynton Beach, FL. Prepared and submitted on behalf of the City the 5-year FDEP UIC Class I permit renewal application. Reviewed draft, intent-to-issue and final permits.

Hydrogeologist and Project Manager; ASR Well and East Plant Expansion Test Wells; City of Boynton Beach, FL. Project manager and technical lead for the construction and

testing of a Class V ASR well and two Floridan Aquifer monitor wells to assist the City meet their alternative water supply demand.

Hydrogeologist and Project Manager; 2.5 Year Landfill Post-Closure Groundwater Monitoring Report; City of Boynton Beach, FL. Fulfilled groundwater monitoring data analysis and reporting requirements of Florida Administrative Code (FAC) Rule 62-701.510(9)(b) in support of a post-closure permit extension. Included a review and evaluation of water quality and groundwater flow.

Hydrogeologist and Project Manager; Semi-annual Groundwater Reporting for the City of Boynton Beach Landfill; City of Boynton Beach; FL. Prepared monitoring reports for sampling events conducted in April and October in each year. The certified reports included an assessment of water quality exceedances, groundwater laboratory data, Electronic Data Deliverables (EDD), water levels, groundwater contours.

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Hydrogeologist and Project Manager; Injection Well Program Management; Miami Dade County Water and Sewer Department, FL. Management and technical lead for unprecedented scale injection well implementation project planning and program management. Over the next decade the program will be responsible for installing 20-30 new large (24-inch) diameter injection wells to depths of 2,500 to 3,000 feet to accommodate over 1 billion gallons per day wastewater.



Hydrogeologist and Project Manager; Deep Injection Well System; Biscayne Landing; City of North Miami, FL. Project Manager as well as technical, construction and operations lead for an experimental design-build \$15MM remediation project, which uses a 3,200 ft deep injection well for the disposal of ammonia contaminated groundwater at a closed landfill site. Responsible for FDEP permitting, subcontracting, hydrogeologic analyses and reporting. Developed a groundwater model to simulate the contaminated groundwater extraction system.



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DANIEL DIETCH | CLIENT SERVICE MANAGER

▶ EDUCATION

Certificate, Good Government Initiative, University of Miami, 2011
MBA, Management, University of Miami, School of Business Administration
MPS, Environmental Management, Cornell University, College of Agriculture and Life Sciences
BA, Geology, Skidmore College

PROFESSIONAL REGISTRATIONS

Certified Construction Documents Technologist (Construction Specifications Institute) Six Sigma Yellow Belt (University of Miami) Climate Reality Leadership Corps (The Climate Reality Project)

DISTINGUISHING QUALIFICATIONS

- More than 20 years of experience in solid waste master planning
- · Widely published in solid waste planning
- 19 years as judge for the Solid Waste Association of North America's Integrated Solid Waste Management Excellence Award
- 9 years as Board member of Recycle Florida Today
- Member, Resilient Greater Miami & the Beaches' Living with Water – Innovative Infrastructure Work Group for the 100 Resilient Cities Program
- Board Member, The CLEO Institute
- Board Member (Vice-Chair), Clean Energy Coastal Corridor
- Mayor, Town of Surfside, Florida

RELEVANT EXPERIENCE

Daniel has more than 20 years of academic and professional experience in solid waste management. He uses this experience to provide clients with strategic solid waste consulting, including solid waste and recycling planning, landfill gas project development, operations monitoring, procurements, litigation support, rate structure/alternative financing analyses, ordinance development, and contract negotiations. His responsibilities include program coordination, planning, execution, and client liaison. Work products include master/strategic plans, landfill closure plans, operations reports, technology reports, rate models and reports, contracts, ordinances, benefit/cost analyses, customized data management systems, and procurement documents.

▶ REPRESENTATIVE PROJECTS

Project Manager; Landfill Post-Closure Assistance; City of Boynton Beach, FL. Managed repairs to sections of final cover damaged by erosion during the long-term care period of the City's Landfill consistent with Consent Order SW-15-08 with the Florida Department of Health Palm Beach County. Activities included preparing a written corrective action plan (CAP) required by the FDEP including preparation of grading plan, design criteria package, an opinion of probable construction cost based upon estimated quantities, bid review and provided services during construction. Subsequent activities included the design and construction services related to the installation of perimeter landfill gas probes and vents, public engagement, engagement with the Florida Department of Health Palm Beach

County and Florida Department of Environmental Protection and ongoing landfill gas monitoring.

Senior Technical Advisor; Deep Injection Well System; Biscayne Landing; City of North Miami, FL. Senior Technical Advisor for an experimental design-build \$15MM remediation project, with a 3,200 ft deep injection well for the disposal of ammonia contaminated groundwater at a closed landfill site. Responsibilities included serving as a liaison between the design/build team and the client and advising on technical landfill-related analysis and services.



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Project Manager; Landfill Gas to Energy Project Identification and Screening Services; Lockhart Power Company; Lockhart, SC. Identify landfill gas-to-energy project development opportunities. Activities included landfill screening, site visits, regulatory assessment, landfill gas generation estimates, and project development strategy.

Task Manager; Landfill Gas Utilization Procurement Services; Orange County Solid Waste Management Department; Orlando, FL. Development of a beneficial use landfill gas project. Activities included preparation of a basis of design report, identification of different development opportunities, preparation of detailed construction/operations cost estimates, and financial modeling and due diligence in support of contract negotiations.

Project Manager; Solid Waste Facilities Master Plan; Collier County Solid Waste Management Department; Naples, FL. Prepared master plan consistent with integrated solid waste management strategy to guide the development of needed solid waste management infrastructure for 50 years and beyond. Performed solid waste facilities needs assessment, including existing/planned facilities/infrastructure, trend analysis, and contractual constraints. The master plan included a siting analysis and economic analysis, as well as phased development approach consistent with the County's Integrated Solid Waste Management Strategy.

Task Manager; ICI Waste Infrastructure and Programs, Waste Characterization, and Waste Diversion Policy Options; The City of Calgary, AB. Completed analysis/managed completion of three technical memoranda relating to ICI wastes generated in Calgary. The first described existing waste management system for ICI waste, including collection, processing, and disposal systems, and highlighted some of the waste diversion programs available to ICI clients. The second provided a review of the composition and characterization of the ICI waste stream. The third presented an overview of ICI waste diversion policy options adopted in other jurisdictions and described how they might apply to the city going forward.



Technical Expert; Theater Energy and Efficiency Master Plan: U.S. Army Central Command. Provided subject matter expert guidance for the solid waste elements of the Theater Energy and Efficiency Master Plan. The Plan builds on Environmental Component Plan for the 20-country Central Command Area of Responsibility, which was submitted to the U.S. Army Central Command. Goals include decreasing lifecycle costs for solid waste management, reducing environmental footprint and environmental impacts and creating host nation goodwill through cooperative management of their waste resources. The Plan identified specific solid waste management technologies and solutions that can be efficiently/effectively implemented in Afghanistan and other contingency environments to support U.S. military operations. Targeted solutions relate to recycling, organics management. and waste-to-energy.

Task Manager; Solid Waste Code Development – MASDAR Development Program Management; Abu Dhabi, United Arab Emirates. Managed development of solid waste codes for world's first carbon-neutral and zero-waste sustainable city, consistent with MASDAR Master Plan. Activities included developing vision statement/project goals/objectives; "best of class" code benchmarking; gap analysis development; and preparation of draft/final development code related to solid waste resource management. Responsibilities included coordination, plan of action development/coordination, and coordination of completion/achievement of deliverables and milestones and assured sustainability compliance.

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MARK LUCAS | PROJECT PROFESSIONAL

▶ EDUCATION

MS, Geology, Rutgers University BS, Geology, Rutgers University

PROFESSIONAL REGISTRATIONS

Professional Geologist: Arkansas, Indiana, Delaware, Tennessee, Wyoming, Pennsylvania, American Institute of Professional Geologists, Florida in progress.

DISTINGUISHED QUALIFICATIONS

Mark serves as a Senior Technologist working on geochemical investigations, aquifer storage and recovery (ASR), groundwater production, contaminant fate and transport, and groundwater monitoring projects. Since 1988, he has served as a geochemist supporting water supply and groundwater contamination projects at over 100 sites across the United States. Many of the projects involved characterizing naturally-occurring contaminants like arsenic and radionuclides at sites where contamination was initially attributed to anthropogenic activities. In handling complex geochemical assignments, Mark is experienced with thermodynamic equilibrium models like PHREEQC, MINTEQA2, RTW, and the Geochemist's Workbench. These programs support simulating complex geochemical problems and developing solutions for water supply, ASR, reuse, and treatment projects.

▶ REPRESENTATIVE PROJECTS

Geochemical and Groundwater Monitoring Investigations. City of Boynton Beach, FL. Reviewed analytical results from the City of Boynton Landfill (LF), comprising 7 years of quarterly sampling, and 2012 investigation at adjacent Links Golf Course (LGC). The geochemical signature in groundwater samples from both facilities exhibited similar characteristics including elevated concentrations of arsenic, iron, and ammonia. The geochemical study revealed arsenic in groundwater at the LF and golf course resulted from reductive dissolution of iron, leading to the release of adsorbed arsenic. This geochemical process occurs naturally, and represents a major, natural source of elevated arsenic in groundwater, internationally (West Bengal, Bangladesh, Cambodia, etc.). Results were presented to officials from the FDEP, who endorsed a geochemical investigation designed to identify the source of arsenic. Demonstrating that arsenic occurs naturally in groundwater beneath the LF and LGC will preclude addressing the issue through remediation, saving the City significant capital and operation and maintenance costs, while avoiding remediating a naturally occurring process.

Confidential Industrial Client, Waterloo, NY. Served as lead geochemist, where arsenic concentrations in groundwater exceeded 25 mg/L. Determined spills of caustic products increased the pH of groundwater to greater than 10, and resulted in changing surface charge of iron oxide minerals,

common in soils from positive to negative. The negatively charged surfaces repelled naturally-occurring arsenic adsorbed to soil particles, increasing concentrations in groundwater. Development of this model helped in preparing a remediation plan based on spill prevention, and natural attenuation. The remediation scheme resulted in significant capital and O&M savings compared with more conventional remedial activities.

Public Service Electric and Gas (PSE&G), NJ. Managed implementation of a groundwater monitoring network that protected shallow municipal and domestic wells from saltwater intrusion. Monitoring wells were installed around parcels undergoing conversion from freshwater to salt water wetlands. Creation of saltwater environments offset fish kills adjacent to cooling towers at Salem, NJ power plant. Monitoring wells were sampled yearly for 10 years to assess water quality changes promoted by the flooding of wetland areas. Evaluated the water quality data by applying deterministic statistical, and nonlinear regression techniques. The program saved PSE&G from rebuilding their cooling towers to prevent fish kills at an expense approaching ten billion dollars.



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EXPERIENCE WITH GROUNDWATER AND ASR PROJECTS

ASR project for City of Wichita, KS. Project geochemist where treated surface water was stored in portions of Equus Beds Aquifer that displayed arsenic concentrations exceeding 25 ug/L. To prevent recovering these elevated concentrations of arsenic, developed a pre-treatment process that involved adding low concentrations of ferric iron (Fe III) to the recharge water over a single ASR cycle. Fe III in the recharge water precipitated hydrous ferric oxide (HFO) on the aquifer framework grains. HFO was intended to adsorb arsenic and other metals migrating in the aquifer environment. As a result, arsenic concentrations remained below MDL's until greater 200 percent of recharge water was recovered over several annual cycles. Based on success, the City moved forward with constructing a wellfield consisting of over 30 ASR wells.

ASR project for New Jersey American Water, NJ. Senior Technologist for storing surface water in an aquifer where native groundwater featured an acidic pH (5.0), elevated iron (6 mg/L), and elevated arsenic (12 ug/L). To recover drinking quality water, developed a pre-treatment scheme that entailed increasing pH of recharge water to 8.4, along with buffering agent to maintain pH during storage. The ASR facility recovered drinking quality water with iron and arsenic concentrations less than the Federal Maximum Contaminant Limits (MCL) of 0.3 and 0.01 mg/L, respectively. Based successful results, NJAW moved forward with a program to convert older, inactive production wells to ASR.

United Water Delaware's (UWDE) St. George's Crossing ASR Facility. Managed design, installation, construction, permitting, and testing. Facility stores 85 million gallons to meet late summer/early fall demands in northern Delaware at recovery rates exceeding 1.5 MGD. Designed facility to accommodate addition of two more ASR wells ultimately elevating recovery capacity to 4.5 MGD.

UWDE and Jacobs shared an engineering award from Delaware Valley Water Resources Association in 2009.

Mark served as project manager/lead geochemist for an investigation of rapidly increasing iron and manganese in the City of Newark, Delaware's production wells. He developed an integrated model and explanation for elevated iron and manganese concentrations and wellfield management plan to preclude recurrence.

Mark has conducted over 200 successful ASR test cycles focusing on recharge water treatment, recovered water quality and ASR well performance. Cycles were performed in aquifers displaying a wide diversity of native water quality issues including brackish/saline water, water exhibiting highly elevated concentrations of iron, manganese, and arsenic, elevated radionuclide activities, and unstable clay minerals.



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BO BRUNER, PE | PROJECT PROFESSIONAL

► EDUCATION

MSCE, Sanitary Engineering, University of Kentucky BS, Civil Engineering, University of Kentucky

PROFESSIONAL REGISTRATION

Professional Engineer: Florida (35951)

► RELEVANT QUALIFICATIONS

Bo has more than four decades of solid waste management and regulatory experience including permitting, design, and construction of solid waste transfer stations and associated ancillary facilities including scalehouses and scales, employee quarters and office buildings, maintenance facilities, citizen drop-off centers, household hazardous waste facilities, access road networks, and site utilities. In addition to his transfer station experience, his experience includes landfill liner systems, leachate control systems, landfill gas management and utilization systems, composting and biosolids facilities, and material recovery facilities. Bo has served as project manager and/or project engineer for more than 20 solid waste construction projects involving design, permitting, services during construction, and Certification of Construction Completion under Chapter 62.701, Florida Administrative Code (FAC).

► REPRESENTATIVE PROJECT EXPERIENCE

Design Manager; Landfill Post-Closure Assistance; City of Boynton Beach, FL. Managed design/oversaw repairs to sections of final cover damaged by erosion during the long-term care period of the City's Landfill consistent with Consent Order SW-15-08 with the Florida Department of Health Palm Beach County. Activities included preparing written corrective action plan (CAP) required by FDEP including preparation of grading plan, design criteria package, an opinion of probable construction cost based upon estimated quantities, bid review and provided services during construction. Subsequent activities included te design/construction services related to installation of perimeter landfill gas probes/vents, public engagement, engagement with Florida Department of Health Palm Beach County and FDEP and ongoing landfill gas monitoring.

Project Manager, Solid Waste Transfer Stations,
Hillsborough County, Tampa, FL. As a subconsultant,
responsible for structural, architectural, electrical,
instrumentation and control, heating, ventilation and air
conditioning, plumbing and fire protection aspects of the
project. Responsible for development of design contract
documents and services during construction for transfer station
buildings, scalehouses and scales, and maintenance facilities
for the Northwest and South County Transfer Station (NWTS &
SCTS). The SCTS was awarded the Solid Waste Association of

North America (SWANA) 2011 Transfer Station Gold Excellence Award. The NWTS was awarded an Engineering Excellence Grand Award in the Florida Institute of Consulting Engineers 2016 Engineering Excellence Award competition, a National Recognition Award in the American Council of Engineering Companies 2016 Engineering Excellence Award competition, and a SWANA 2015 Transfer Station Silver Excellence Award.

Project Manager, West Pasco County Resource Recovery Facility and Landfill, Spring Hill, FL, and East Pasco County Transfer Station, Dade City, FL. Project construction of new scalehouses with inbound and outbound scales, new citizens' drop-off areas with roofed bunkers, spotter's sheds, storage areas for all-terrain vehicles, road improvements, and stormwater management facilities. The East Pasco site include the installation of a new underground storage tank for leachate from the transfer station. Engineering services included preparation bid documents, opinion of probable construction costs, preparation of FDEP Permit Application and County Building Permit Application, and engineering services during construction.



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Project Manager, Key West Solid Waste Transfer Station, City of Key West, FL. Prepared a design criteria package and request for proposals for procurement of a design-build contractor for design and construction of the transfer station. Facilities included in the design criteria package were the transfer station building, scalehouse and scales, and a combined office/maintenance building. Also, assisted with procurement of a facility permit for construction and served as the City's representative for service during design and construction.

Project Manager, Solid Waste Transfer Station, Citrus County, Lecanto, FL. Permitting/design services for development of design contract documents for a transfer station building, scalehouse and scales, household hazardous waste management facility, dry storage building, and citizen's service area (CSA). As subconsultant, responsible for structural, architectural, electrical, instrumentation and control, HVAC, plumbing and fire protection aspects of the project.

Project Manager; Southwest Landfill; Alachua County, FL. Oversaw the planning/preliminary design, design, permitting, and construction phase services for the above activities. The clay cover systems for the sludge and bulky waste disposal area and the Class I disposal areas consisted of a 6-inch-thick clay cap and 18-inch drainage sand layer. The liner system for Class I disposal area consisted of reinforced geotextile, 12-inch-thick clay layer, 60-mil high-density polyethylene liner, and 24-inch drainage sand layer. Closure design plan prepared as part of final closure permit application for Class I and Class III disposal areas specified the use of linear low-density polyethylene geomembrane. Closure design plan also included provision for expansion of landfill gas and odor control system and stormwater management system. The County received National Association of Counties' Achievement Award for community service for remediation and improvement program at the Southwest Landfill.



Project Manager; Key West Solid Waste Transfer Station; City of Key West, FL. Prepared design criteria package and RFP for procurement of a design-build contractor for construction of transfer station. Facilities included were transfer station building, scalehouse and scales, and a combined office/maintenance building. In addition, assisted the City with procurement of a solid waste processing facility permit for construction of the transfer station, and provided service during design and construction by the design-build contractor.

Project Manager; Solid Waste Transfer Station; Hillsborough County; Tampa, FL. Permitting, design, and construction of two solid waste transfer subconsultant to King Engineering, responsible for structural, architectural, electrical, instrumentation and control, heating, ventilation and air conditioning (HVAC), and plumbing. In addition, provided solid waste and transfer station technical expertise. The project included the development of design contract documents for transfer station buildings, scalehouses and scales, and maintenance facilities for the Northwest Transfer Station (NWTS) and South County Transfer Station (SCTS).



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▶ 3.3 SUBCONSULTANTS

To supplement our in-house expertise, we have elected to add to our team the services of the three subconsultants listed below. Each offering unique talents that augment those of our team, and that will enhance our overall ability to cost-effectively meet the City's needs. A brief profile for each subcontractor is provided below.

Advanced Environmental Laboratories, Inc.

Advanced Environmental Laboratories, Inc. (AEL) will provide analytical laboratory services for any groundwater, surface water or soil analyses required under this contract. Jacobs has previously worked with AEL on the groundwater sampling and analysis for the Boynton Beach Landfill arsenic investigation. AEL proved to be a cooperative, responsive and cost-effective partner for a demanding analytical suite not offered by other local laboratories. AEL Client Services Manager, Tiffany Mackie, will lead the AEL team, and will work closely with geochemist Mark Lucas, as they have on past sampling events for the City.

AEL is a NELAP certified, full-service laboratory firm, headquartered in Jacksonville, Florida, with additional operations in Altamonte Springs, Ft. Myers, Gainesville, Miami, Tallahassee, and Tampa. We specialize in providing quality data, personalized service, and quick turnaround times for our clients.

Their project experience includes RCRA, CERCLA, Landfill, UST, drinking water, wastewater, property transfer, remediation, and 0&M sites. They test surface water, drinking water, groundwater, soil, sediment, chemicals, industrial waste, and hazardous waste for chemical makeup and physical properties.



AEL was the very first lab in the nation to be selected and to undergo the Army Corp of Engineers audit/approval/review process to perform work on the Everglades Restoration Program.

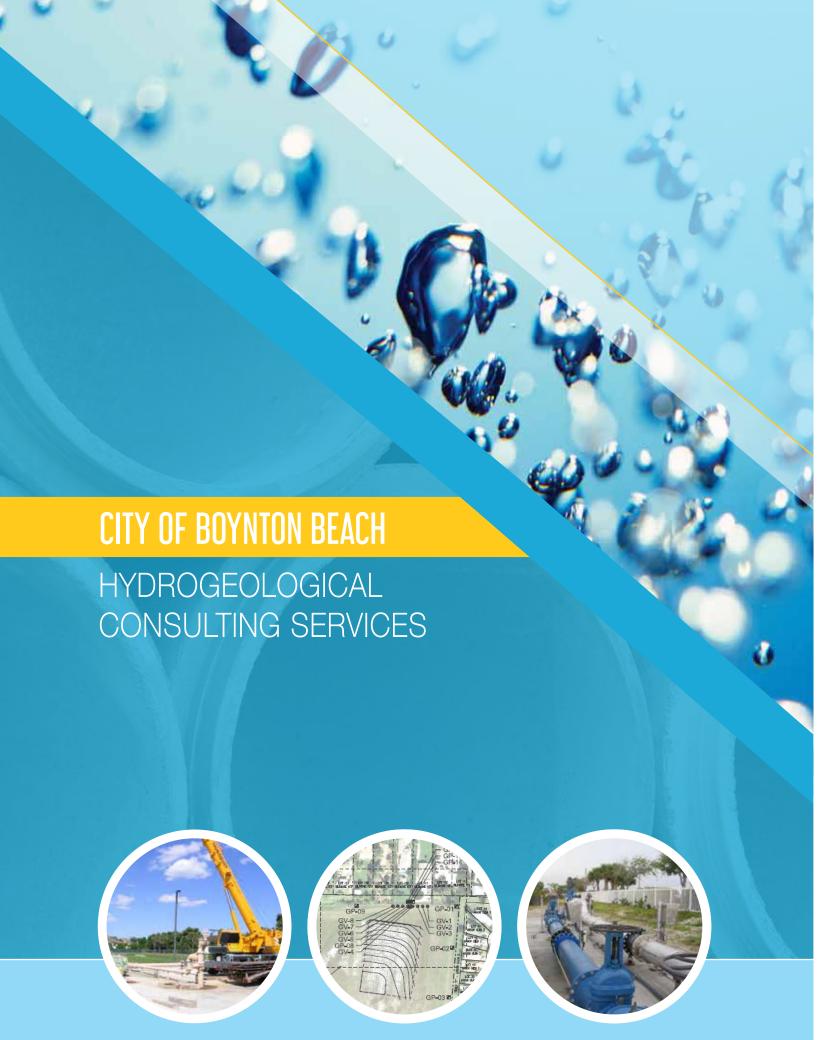
Nutting Environmental of Florida (NEF) – Drilling

Nutting Environmental of Florida (NEF), a Boynton Beach based business, offers a range of services. For the anticipated work under this contract, however, NEF will primarily provide direct push (e.g., Geoprobe) and monitoring well installation services. NEF, like AEL, previously worked with the City and Jacobs on the Boynton Beach Landfill, providing local, responsive and cost-effective service. The NEF team will be led by Division Manager, Scott Ersland, with whom the Jacobs team has an existing working relationship.

NEF is a full-service environmental firm that has been offering quality professional environmental services since 1987, initiated as a sister company to Nutting Engineers of Florida, Inc. which has been serving Florida since 1967. The services NEF can provide to the project include, but are not limited to performing environmental audits, contamination assessments, installation monitoring wells, remediation of contaminated sites, sampling and analysis of soil, water, petroleum, arsenic, sludge and any other environmental impact concerns, preparation of site safety plans and monitoring of construction activities in contaminated areas.

Regarding the direct push services anticipated, NEF intends to utilize JAEE Environmental Services, a State of Florida-licensed water well contractor based out of Broward County with a mobilization point in West Palm Beach. JAEE maintains a fleet of 10 Geoprobe direct push machines and have been providing services since 1991, performing services in all seven Water Management Districts.





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4. WORKLOAD OF PROPOSER

Our key personnel have been selected for both their technical expertise and ability to be committed to the project until it is completed. Key personnel current work and labor commitments and projected workload and availability are detailed below as requested.

KEY PERSONNEL	CURRENT WORK/ LABOR COMMITMENTS	CURRENT WORKLOAD: AVAILABILITY	TYPICAL NUMBER OF PROJECTS AT ONE TIME	PROJECTED WORKLOAD: AVAILABILITY	DATE AVAILABLE FOR THIS PROJECT
Daniel Dietch	 Boynton Beach Landfill Services Solid Waste Authority of Palm Beach County Trust Indenture Collier County Biosolids Management Facility Procurement Wagner Creek/Seybold Canal Restoration Project 	20%	5 to 10	50%	Immediately
Gerrit Bulman, PG	 Miami-Dade County Ocean Outfall Legislation Program Deep Injection Wells City of Deerfield Beach Injection Well Permitting City of Boynton Beach ASR Permitting 	20%	6 to 10	30%	Immediately
Mark Lucas	 New Jersey American Water Aberdeen ASR facility Brick Township MUA ASR Well 15A DOW Waterloo –arsenic contamination site 	20%	5 to 10	60%	Immediately
Bo Bruner, PE	 Orange County Cell 11 Orange County McLeod Transfer Station, Orange County Electrical and Mechanical 	30%	5 to 10	60%	Immediately

Note: No subconsultant firms working with Jacobs on this project are expected to be assigned more than 5% of the work.

We are intimately familiar with the scope and level of effort the City may require under this contract, and we will make the resources available to deliver the work to the City on an as-needed basis.



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5. DEMONSTRATED KNOWLEDGE

We have enjoyed a long relationship providing injection well, ASR and landfill groundwater professional services for the City. Our knowledge of the City's systems, and commitment to the City to provide the identified hydrogeological scope of services is unparalleled.

We have performed numerous projects for the City similar to those which may be requested under the proposed agreement, including:

- FDEP UIC Class V ASR well services for the City of Boynton Beach
- Biscayne Landing Groundwater Remediation Project: Landfill Groundwater Remediation System and Class I Deep Injection Well (Engineer, Permit, Procure, Construct)

On the following pages we have included project descriptions for our work performed for each of these projects, along with sample deliverables. Gerrit Bulman was the project manager for both the Biscayne Landing project and for the completion of the City of Boynton Beach's ASR-2 project.

AQUIFER STORAGE RECOVERY SYSTEM (ASR)

Bounton Beach Aquifer Storage and Recovery System

Client | City of Boynton Beach Utilities Department

Location | Boynton Beach, Florida

Project Type | Preliminary Feasibility Study, Permitting, Testing, Design and Construction

Key Staff | Gerrit Bulman, PG | Mark Lucas

550 West Cypress Creek Road | Suite 400 | Fort Lauderdale, FL 33309 | 954.351.9256

Final Cost | \$7,560

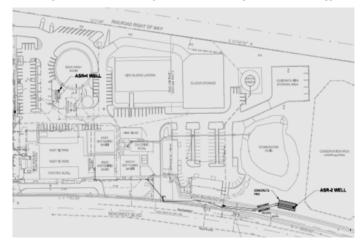
This project example provides a history of our involvement with the very facilities at the City that we're currently involved with—for the very services requested in this RFQ. We look forward to continuing to assist the City with interpreting cycle testing data and with negotiating an Operation Permit with FDEP. As highlighted in the ASR project description below, we have a proven history of working on a cost-effective as-needed basis with the City for hydrogeological services. In addition to the broader state and firm-wide resources offered by Jacobs, Gerrit Bulman is joined locally in South Florida by Mark Lucas, Regional Technology

Lead, who brings decades of ASR and geochemical experience.

Project Overview and Background for ASR-1 and ASR-2 |

We prepared a preliminary aquifer storage and recovery (ASR) feasibility study to help the City of Boynton Beach meet the rising water demands on its potable water supply system. At that time, water supply and treatment capacity equaled the actual demands on the system.

To address the City's needs, we reviewed historical water demands and water treatment practices to identify the optimum application of ASR and identified three potential ASR applications: canal water storage, raw and treated water storage in existing wells, and seasonal storage of drinking-quality water in the Upper Floridan Aquifer System.



Boynton Beach ASR Well Layout



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Following evaluation of these alternatives, we recommended treated water storage in the Upper Floridan Aquifer System as the most cost-effective alternative that could be quickly implemented to offset the City's peak demands in both the short-term, and with subsequent expansion, in the long term. In 1992, Jacobs completed Phase I, comprising design, permitting, construction, and cycle testing of a 16-inch diameter ASR well (ASR-1) that recovers up to 2 million gallons per day (mgd), providing additional capacity to meet peak demands during the past 15 years. ASR-1 typically stores around 90 million gallons annually.

As a result of the success of this ASR well, we were selected to assist the City with Phase II, constructing a second ASR well at the East Water Treatment Plant in 2002. On behalf of the City, we applied for and was awarded a grant for \$200,000 by the South Florida Water Management District for alternative water supply systems.

In June 2007, we completed the design, permitting, bidding, construction and hydrogeologic testing of the second well (ASR-2) with an improved 24-inch diameter fiberglass casing design.

ASR-2 uses the same storage zone as ASR-1. Results of aquifer performance testing demonstrate the utility of operating both wells together.



ASR2 Site

Recent Work Supported by Jacobs

A conference paper describing the testing and unique storage zone ASR was co-authored by the City of Boynton Beach and Jacobs (formerly CH2M). Hydrostratigraphic, geophysical logging and water quality data were interpreted and summarized by Jacobs. The paper was presented at the 2009 annual meeting of the Florida Section of the American Water Works Association in Orlando, Florida.

We assisted the City with a construction and testing permit renewal application for the City's second ASR well (ASR-2) at the East WTP submitted in October 2009 and then responded to a subsequent FDEP Request for Information (RFI) in March 2011.

In 2012, we subsequently reviewed the draft permit issued by FDEP, provided numerous revisions to permit language and supported the City at the public meeting preceding the Notice of Intent to Issue. Proposed key project members Gerrit Bulman and Mark Lucas were in attendance.

In 2015, we supported the City with a review of the operating data and water quality for both ASR-1 and ASR-2. Currently, in 2018, we are assisting the City with an Operation Permit application, a FDEP permitting process of converting from the testing permit to an operation permit, which is expected to be concluded later this year.

Cost-Effective Delivery

We have endeavored to provide the City with a flexible delivery approach, providing services and technical guidance as-needed, without insisting on unnecessary services or in an all-or-nothing approach. The City Utilities Department has strong technical capabilities and has historically self-performed a majority of the technical and regulatory work in support of its permits. Our local hydrogeological staff were available to meet with the City frequently to discuss technical issues, work planning and regulatory strategy without incurring costs for work completed internally by the City. This type of cooperative delivery makes efficient use of the technical services offered by Jacobs, while minimizing cost to the City.



G. Maliva, Ph.D., P.G., and Thomas M. Missimer, Ph.D., P.G., Schlumberger Water Services USA

Thirty Years of Alternative Water Supplies: Lessons
Learned in the City of Cape Coral; Gordon P. Kennedy
and Gert-Jan Schers, MWH Americas, and Charles
Pavlos and Shawn Kopko, City of Cape Coral

State of Aquifer Storage and Recovery in Florida; Robert



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DEEP INJECTION WELL

Biscaune Landing Groundwater Remediation Project

Client | City of North Miami
Location | Miami, Florida

Project Type | Design Build Groundwater Remediation

Key Staff | Gerrit Bulman, PG | Daniel Dietch | Jeff Lehnen, PG | Carlton Ivery

550 W. Cypress Creek Road | Suite 400 | Fort Lauderdale, FL 33309 | 954.351.9256

Final Cost | \$14,027,009

This project exemplifies our innovation and delivery capabilities in two areas directly relevant to this RFQ: deep injection wells and landfill groundwater. The design, construction, testing, operation and permitting of a Class I injection well system are common to both the Biscayne Landing project and the City's injection well IW-1 at the West Plant. In fact, both are Class I industrial injection wells with associated dual-zone Upper Floridan aquifer monitoring wells. And both were designed and permitted by Jacobs (legacy CH2M).

Jacobs was the design-builder for this project, responsible the engineering, design, permitting, procurement, construction and operation and maintenance of the system. This latter experience, the operation and maintenance of the system, is exceptional among most consulting firms and uniquely qualifies this team to assist the City with operational, monitoring and reporting issues.

This project required collaboration with the Florida Department of Environmental Protection (FDEP), particularly the Aquifer Protection Program (APP), Solid Waste, and Waste Cleanup Divisions. In addition to those key staff identified above, this project leveraged other local, state-wide and national experts, such

Project Overview | Design and construct the groundwater remediation system to manage ammonia-contaminated groundwater at the former Munisport Landfill (also known as Biscayne Landing). The site includes an inactive municipal landfill located on a 291acre parcel within the City limits of North Miami, Florida. The site is bordered to the east by Biscayne Bay and protected wetlands, to the south by a mobile home community, to the west by commercial developments, and to the north by the Florida International University Biscayne Bay (North) campus. The site received an estimated six million cubic vards of various waste that was placed in unlined cells. This condition is believed to be the source of elevated levels of ammonia in the underlying groundwater.

Multiple firms were engaged to develop groundwater remediation solutions,



Biscayne Landing I Welding the Final Injection Well Casing

including pump and treat, funnel and gate then pump and treat, and in situ. Each of these approaches were either not implementable or unpermittable. Our approach was a conventional groundwater extraction system utilizing vertical groundwater recovery wells and a Class I injection well to dispose of the groundwater into the boulder zone (approximately 3,200 feet below

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ground). This approach provided the required level of protection, used proven technology previously approved by the County, reduced capital and operation and maintenance (O&M) costs, and provided much greater flexibility than other systems.

The groundwater remediation system is comprised of vertical recovery wells installed along the eastern and southern property boundaries (approximately 8,000 feet total) that create a hydraulic barrier to off-site migration of the ammonia contaminated freshwater lens below the landfill. Extensive groundwater modeling was conducted to simulate the extraction system and to determine appropriate well spacing and flow rates. The total flow rate capacity for the extraction system is 1.2 mgd. The extracted groundwater is conveyed to the injection system pump station through a common header pipe. The extracted groundwater is non-hazardous and is directly injected into the Boulder Zone via the Class I injection well. With this approach, groundwater treatment is not required, thus eliminating the challenges of operating a biological treatment system and maintaining effluent quality and providing operational flexibility and preventing system upsets.

The injection well has a design capacity of 5 mgd and was constructed using multiple casings to isolate and protect the aquifers penetrated during drilling and testing. The injection zone was completed as a nominal 16-inch diameter open-hole from an approximate depth of 2,500 feet to 3,200 feet. The injection well steel casings were installed and fully cemented to the ground surface. A monitoring annulus for leak detection was provided by installing an 11.75-inch Fiberglass Reinforced Plastic (FRP) pipe with packer inside of the final 16-inch diameter seamless steel casing.

A dual-zone monitor well was also constructed for continuous measurement of the potentiometric surface and for obtaining water samples from two zones within the Floridan aquifer. Drilling and testing was comparable to the injection well, but focused on identification of two specific monitoring zones. Both monitor zones are equipped with water sampling and transfer pumps and pressure transducers measured and recorded the elevation of the water surface in the two monitor zones. Purge water produced during monthly sampling of the two monitor zones is disposed of in the injection well.

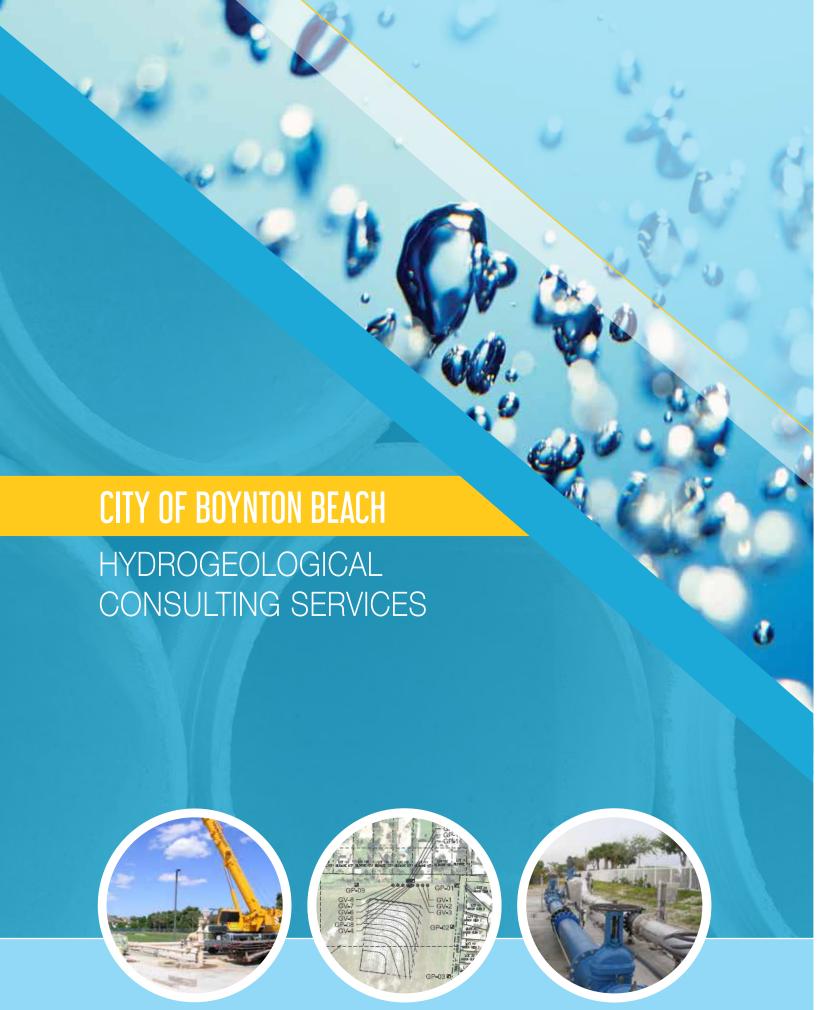


Biscayne Landing | Completed Class | Injection Well and Pump Station

Value Added/Lessons Learned

The groundwater remediation system was funded by a Miami-Dade County grant as a component of landfill closure. In addition to the technical limitations of previously proposed remediation approaches, only our approach could meet the funding constraints. The integration of the conventional extraction system with Class I industrial deep injection well disposal provided an innovative, cost-effective solution that leveraged our four decades of technical leadership in deep injection well technology in Florida.





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6. APPROACH TO SCOPE OF WORK

As described in the request for qualifications RFQ #023-2821-18/IT, hydrogeological consulting services under this contract will consist of, but are not limited to the following activities:

- Support the City in evaluating geophysical logs, hydrological data, and water quality monitoring data associated with aquifer storage and recovery (ASR) wells ASR-1 and ASR-2. Apply to the Florida Department of Environmental Protection's (FDEP) Underground Injection Control (UIC) division to obtain an operating permit for ASR-2.
- 2. Assist the City in evaluating geophysical logs (including temperature), hydrologic data, video logs, and monitoring water quality associated with operating the Deep Injection Well (DIW). Perform the 5-year mechanical integrity tests (MIT) at DIW and prepare reports for submission to FDEP's UIC. Provide expertise in external radioactive tracer surveys in implementing the MIT's.
- 3. Evaluate monitoring data for groundwater and gas to support the City in negotiating the final closure of its landfill, and the post-closure monitoring.
- 4. Develop a scope of work for evaluating results of semi-annual sampling in 2018 and 2019, if required, meeting with FDOH and FDEP to discuss closing Permit No. 0124522 -002-SF, and delineating arsenic in groundwater around monitoring well MW-12.

As a general work approach, our team offers distinct advantages. Gerrit Bulman and Mark Lucas will lead and deliver projects from the local Fort Lauderdale office. Additionally, they and their colleagues—including Daniel Dietch, Jim Edens, Bo Bruner and Rick Morales, for example—have developed trusting and cooperative relationships with the Florida Department of Environmental Protection (FDEP), particularly the Aquifer Protection Program (APP), Solid Waste, and Waste Cleanup Division, as well as the Florida Department of Health (FDOH) Palm Beach County.

Specific technical approaches to the scope of work are outlined briefly below.

▶ 6.1 AQUIFER STORAGE AND RECOVERY (ASR) WELLS

The City of Boynton Beach ASR system at the East Water Treatment Plant has been the envy of many municipalities operating ASR systems throughout Florida, both as a result of its exceptional efficiency and as a consequence of the apparent absence of elevated arsenic levels during recovery.

We are currently assisting the City apply for an operation permit for ASR-2. The renewed Construction and Testing Permit expires August 13, 2018; however, the City has applied for a one-year extension during which time the operation permit will be obtained. The current permit and the permit application proposal provides a well-considered monitoring plan, including the use of ASR-1 as a de facto in-zone monitoring point for ASR-2, rather than adding an expensive monitoring well.

▶ 6.2 DEEP INJECTION WELL

The City's recently renewed Florida Department of Environmental Protection (FDEP) Class I Injection Well Operation Permit for injection well IW-1 at the West Water Treatment Plant expires May 16, 2021. An application for renewal to the current permit, therefore, must be submitted before March 16, 2021.

The most recent data and video following brushing of the casing in 2017 indicate that the injection well tubing is in good condition, and no problems are anticipated during the next 5-year MIT, which is due February 15, 2022. We will submit a testing plan, as required by the FDEP UIC Operation Permit, at least 30 days prior to the due date—before January 15, 2022. And the final report will be submitted within three months of the completion date, pursuant to the Operation Permit. Interim MIT's are no longer required for the City's injection well.

In the meantime, we are continually available on an as-needed basis to assist the City when questions arise regarding the collection and reporting of operation and monitoring parameters. This may include evaluation of injection well injectivity or collaboration to understand higher than expected monitoring zone pressures prior to the next repermitting cycle.





HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT

▶ 6.3 LANDFILL

Landfill Post-Closure Monitoring | Groundwater

We are presently working with the City to negotiate final closure of Landfill Permit No. 0214522-002-SF with FDOH and FDEP. Anticipated activities will include meetings to persuade FDOH and FDEP to close the permit based on the findings of the arsenic investigation. As a result of the negotiations, FDOH and FDEP may require a small investigation to delineate arsenic in groundwater surrounding a single monitoring well (MW-12). Planning for the field investigation comprises using direct push technology (DPT) to collect groundwater samples from temporary wells. Employing DPT borings instead of more monitoring wells will conserve funds and expedite the study schedule. We will recommend analyzing groundwater samples for a comprehensive list of analytes that investigate the origin of arsenic in groundwater, and should confirm the results of the arsenic investigation conducted in 2016 and 2017.

Landfill Post-Closure | Liner Repairs and Gas Monitoring

We have similarly assisted the City of Boynton Beach with landfill liner repairs and gas monitoring. Liner repairs were engineered and completed in 2016 under a Consent Order with the Florida Department of Health Palm Beach County. During this work, landfill gas was detected. The City, with the help of Jacob's local and national experts, addressed the issue promptly and proactively—working cooperatively with the FDEP and Department of Health to mitigate and monitor exceedances. As a result of the City's response and continued monitoring, the Department of Health has agreed to a condition whereby the City will continue monitoring all gas probes quarterly until no combustible gases are detected above the lower explosive limit at or beyond the landfill property boundary for a period of one year. After this period landfill gas monitoring will be discontinued. We propose to continue to support the City, both technically and strategically to close the landfill permit. In general, project approaches will include the following elements:

- Requested projects will be managed by Gerrit Bulman, PG, who has more than 12 years of project experience with the City of Boynton Beach, and who will be assisted by the project technical lead Mark Lucas, who has served as a lead geochemist on numerous sites involving groundwater contaminated with naturally occurring arsenic, or arsenic originating from anthropogenic sources.
- Carlton Ivery, an environmental engineer and field technician who lives in Boynton Beach, will lead field sampling activities. He is also a HAZWOPER certified site safety coordinator.
- Daniel Dietch, an environment scientist, with experience in landfill issues will continue monitoring activities in 2018. Daniel
 completed a successful repair and gas monitoring effort at the Landfill in 2016 and 2017 after the discovery of damage to the
 Landfill's liner.
- We proposed analytical laboratory subconsultant, Advanced Environmental Laboratories, Inc. is a large National Environmental Laboratory Accreditation Program (NELAP) certified laboratory with the resources and quality control measures to meet the project turnaround times and analytical demands.
- Nutting Environmental of Florida is a business located in Boynton Beach, which has the resources, local knowledge and environmental experience to meet the FDEP requirements and schedule for this project.



7 | References - Past Performance

HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT



7. REFERENCES—PAST PERFORMANCE

Below we have provided a list of three governmental agencies references for similar Hydrogeological Consulting contracts which we have completed or has in progress within the past three years.

City of Fort Lauderdale

100 N. Andrews Ave. Fort Lauderdale, FL 33301 Jorge Holguin I Senior Project Manager 954. 828.5675 (office) 954. 756.1712 (mobile)

12174 Task Order #1 CH2M Hill Engineers - GTL WWTP Deep Injection Wells Operation Permit Renewal

City of Deerfield Beach

200 Goolsby Blvd. Deerfield Beach, FL 33442 Allen Fathi I Utilities Manager 954.420.5521 (office) 954.298.0407 (mobile)

WA-01, West Water Treatment Plant Injection Well FDEP UIC Permit Renewal

Florida Keys Aqueduct Authority (FKAA)

1100 Kennedy Drive Key West, Florida 33040 Jolynn Reynolds I Engineering Director 305.295.2141 (office)

CH 10-12, Engineering Services for Services During Construction, Testing and Operation Permitting for the Cudjoe WWTP Class V, Group 3 Injection Well System and Pump Station





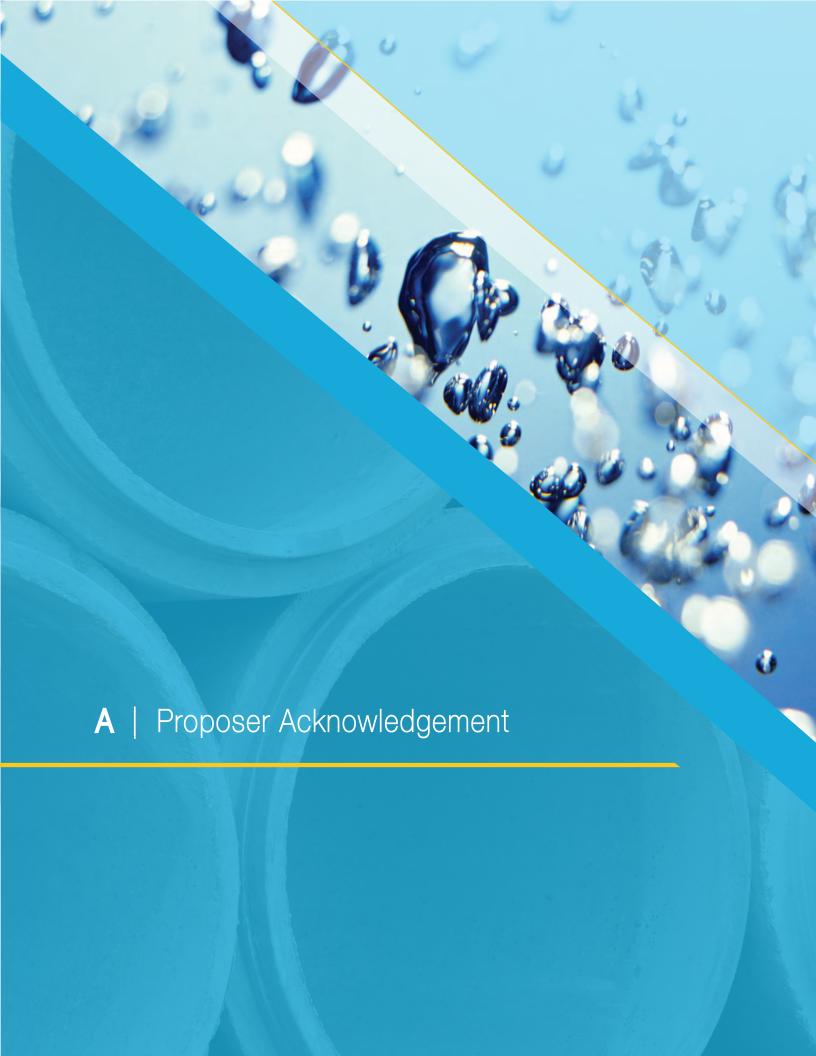


8. GENERAL INFORMATION/PROCUREMENT FORMS

We have provided the forms listed below on the following pages.

- a. Proposer Acknowledgement
- b. Addenda Acknowledgement (if applicable)
- c. Anti-Kickback Affidavit
- d. Non-collusion Affidavit of Respondent
- e. Confirmation of Minority Owned Business
- f. Confirmation of Drug Free Workplace
- g. Palm Beach Inspector General Acknowledgement
- h. Local Business Certification Form
- i. Statement of Non-Submittal (if applicable)
- j. Schedule of Sub-Consultant/Minority Business Enterprise Participation
- k. Vendor Certification Regarding Scrutinized Companies List
- I. Licenses
- m. Proof of Professional Liability Insurance
- n. Supplemental information







PROPOSER ACKNOWLEDGEMENT

Submit RFQ's To:

PROCUREMENT SERVICES

100 E. Boynton Beach Boulevard

P.O. Box 310

Boynton Beach, Florida 33425-0310

Telephone: (561) 742-6323

RFQ Title:

HYDROGEOLOGICAL CONSULTING SERVICES

RFQ Number:

023-2821-18/IT

RFQ Received By:

JUNE 14, 2018, NO LATER THAN 2:30 P.M. (LOCAL TIME)

RFQ's will be publicly opened and recorded for acknowledgement of receipt in Procurement Services, unless specified otherwise, on: <u>JUNE 14, 2018, no later than 2:30 P.M. (LOCAL TIME)</u> and may not be withdrawn within ninety (90) days after such date and time.

Name of Vendor: Jacobs Engineering Group Inc.

Federal I.D. Number: 95-4081636

A Corporation of the State of: Delaware

Area Code: 954 Telephone Number: 351.9256

Area Code: 954 FAX Number: 772.2621

Mailing Address: 550 W. Cypress Creek Road, Suite 400

CITY/State/Zip: Fort Lauderdale, FL 33309

Vendor Mailing Date: 6/14/2018

Authorized Signature

Thomas Meinhart, Vice President

Name Typed

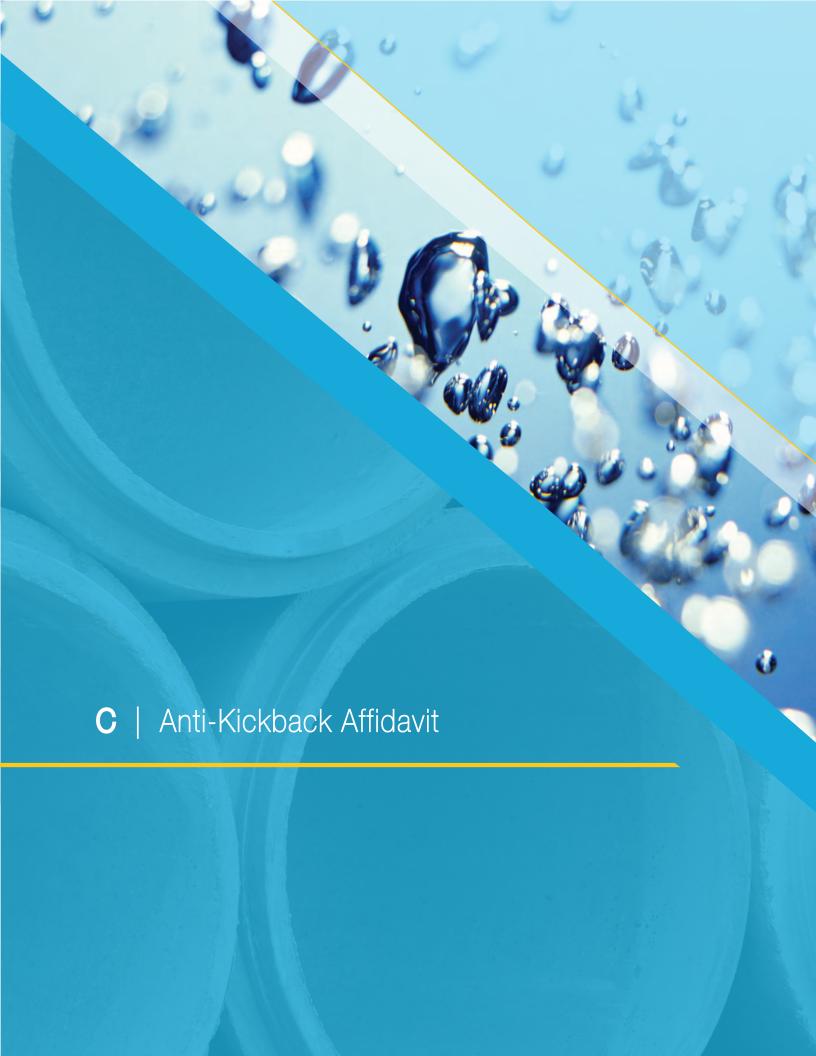




A D D E N D A

CITY OF BOYNTON BEACH FLORIDA

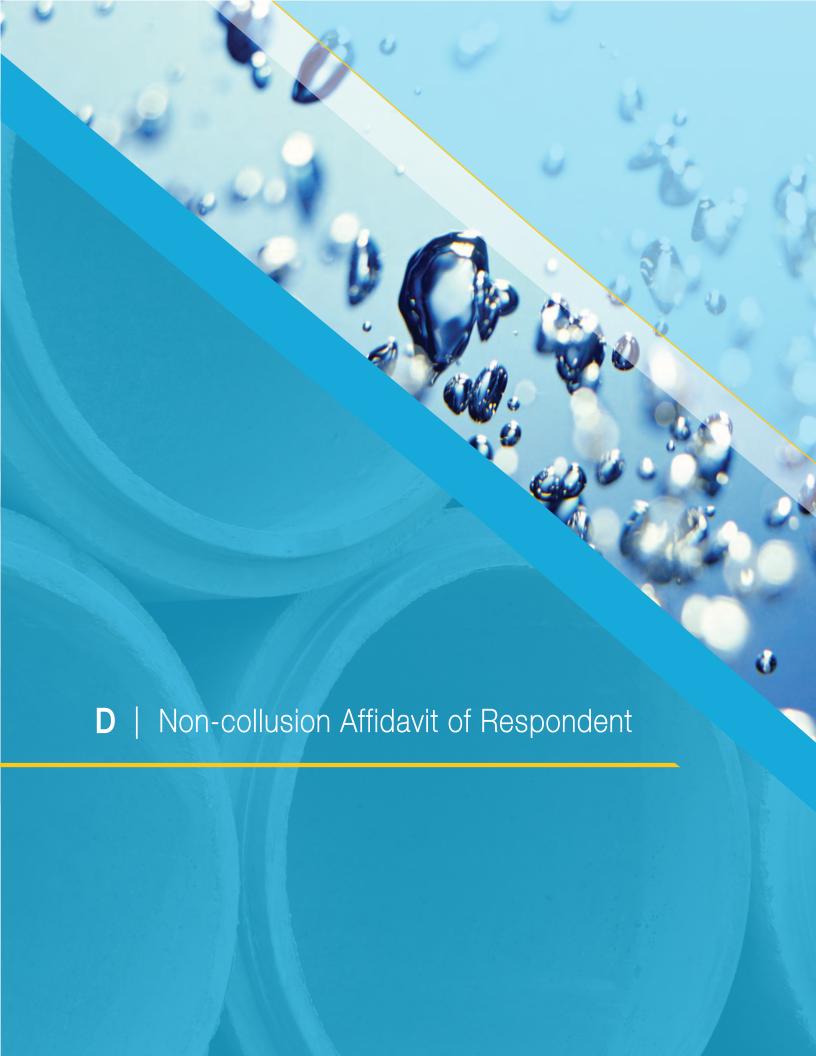
RFQ TITLE: HYDROGEOLOGICAL C	CONSULTING SERVICES	
PROPOSER:	Group Inc.	
DATE SUBMITTED: June 14, 2018		
We propose and agree, if this submitta in the Contract Form, to furnish all mat transportation, construction, coordinat the work specified by the Contract doc	erial, equipment, machinery, tools, tion, labor and services necessary	apparatus, means of
Having studied the documents prepare	ed by:	
CITY	OF BOYNTON BEACH	
ADDENDUM NO. DATE	ADDENDUM No.	<u>DATE</u>
	RECEIVED IN CONNECTION WITH	H THIS BID





ANTI-KICKBACK AFFIDAVIT

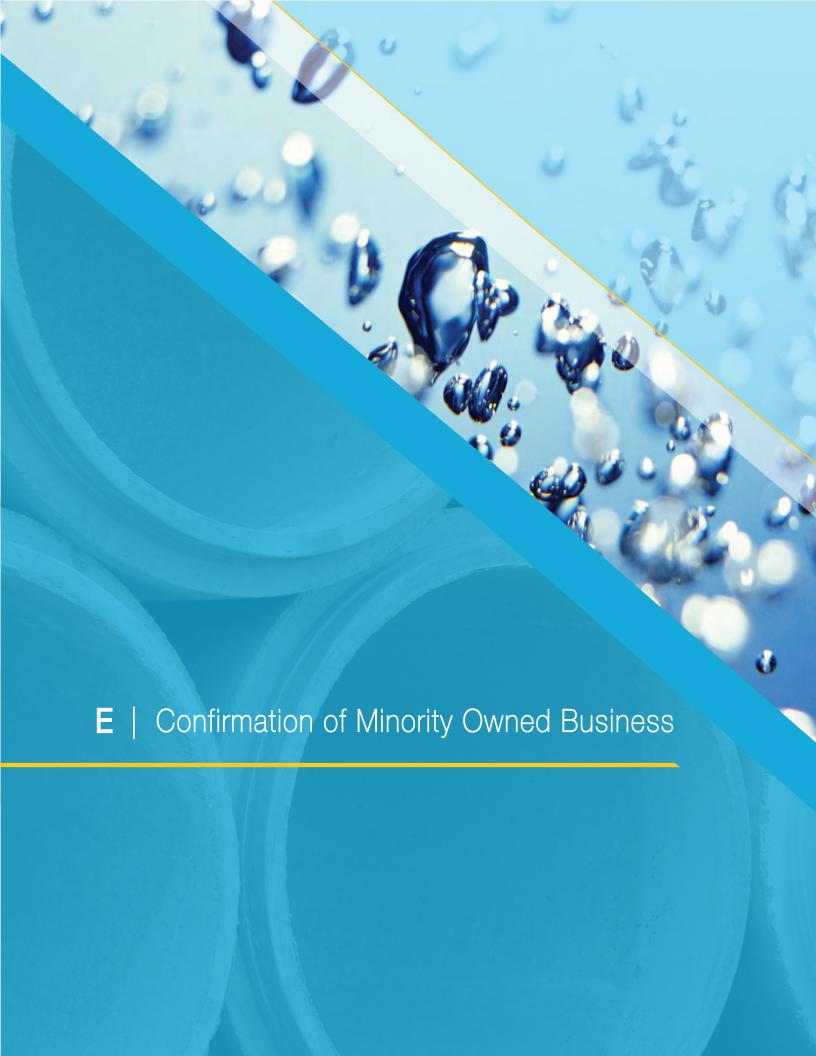
STATE OF FLORIDA) : SS
COUNTY OF PALM BEACH)
	and say that no portion of the sum herein submitted will aton Beach as a commission, kickback, reward of gift, by integrator or by an officer of the corporation.
	By: NAME - SIGNATURE Thomas Meinhart, Vice President
Sworn and subscribed before me this _S#\ day of	_ , 2018
NOTARY PUBLIC, State of Florida at Large	Printed Information: Jant H Womach NAME Excuture Manualkaron TITLE Jacobs Engruence. COMPANY
"OFFICIAL NOTICE AS SEAL STAMP	





NON COLLUSION AFFIDAVIT OF PROPOSER

Sta	te of Teorgia)
Cou	unty of Gwinnett
T	homas Meinhart, being first duly sworn, deposes and says that:
	, somig mot tally onem, deposed and days that
1)	He is Vice President of Jacobs Engineering Group Inc. , the proposer that
	(Title) (Name of Corporation or Integrator) has submitted the attached RFQ:
2)	He is fully informed respecting the preparation and contents of the attached submittal and of all pertinent circumstances respecting such submittal;
3)	Said RFQ is genuine and is not a collusive or sham RFQ;
4)	Further, the said proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other proposer, integrator or person to submit a collusive or sham RFQ in connection with the Contract for which the attached RFQ has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communications or conference with any other proposer, integrator or person to fix the price or prices in the attached RFQ or of any other proposer, or to fix any overhead, profit or cost element of the RFQ price or the RFQ price of any other proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the <u>City of Boynton Beach</u> or any person interested in the proposed Contract; and
5)	The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.
	(Signed)
	(Title) Thomas Meinhart, Vice President
Sub	escribed and sworn to before me
This	Notary Public (Signature) My Commission Expires MARCHINAL MARCHINAL Notary Public (Signature) My Commission Expires

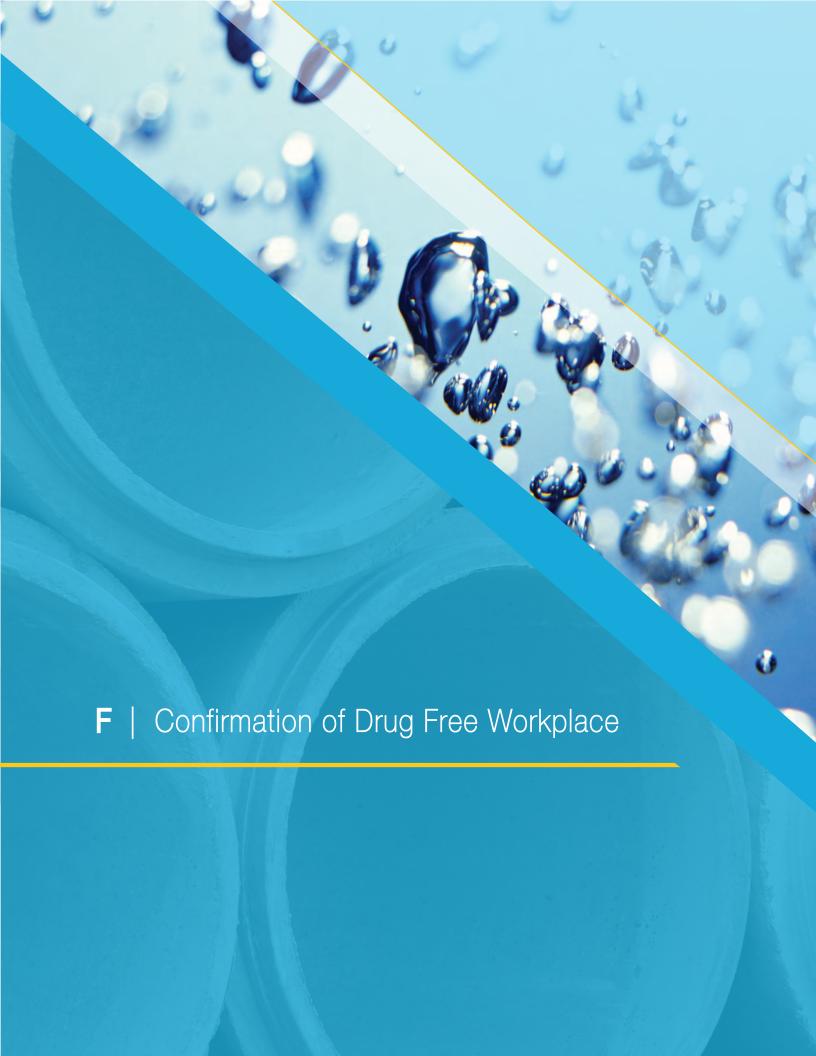




CONFIRMATION OF MINORITY OWNED BUSINESS

A requested form to be made a part of our files for future use and information. Please fill out and indicate in the appropriate spaces provided which category best describes your company. Return this form to make it an official part of with your RFQ responses.

Is your company a Minority Owned Business?	No	
	Yes	No
If Yes, please indicate by an "X" in the appropr	iate box:	
() AMERICAN INDIAN		
() ASIAN		
() BLACK		
() HISPANIC		
() WOMEN		
() OTHER	(an a sifu)	
() NOT APPLICABLE	(specify)	
Do you possess a Certification qualifying your	business as a Minor	rity Owned Business?
	YES	NO X
If YES, Name the Organization from which this	certification was ob	tained and date:
Issuing Organization for Certification		
Date of Certification		



CONFIRMATION OF DRUG-FREE WORKPLACE

IDENTICAL TIE SUBMITTALS

Preference shall be given to businesses with drug-free workplace programs. Whenever two or more submittals which are equal with respect to price, quality, and service are received by the City of Boynton Beach or by any political subdivision for the procurement of commodities or contractual services, a submittal received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie submittals will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

Give each employee engaged in providing the commodities or contractual services that are under submittal a copy of the statement specified in subsection (1).

In the statement specified in subsection (1), notify the employee that, as a condition of working on the commodities or contractual services that are under submittal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or- plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than 5 days after such conviction.

Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community by, any employee who is so convicted.

Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Vendor's Signature:

Thomas Meinhart, Vice President



	Document No:	Page:
Global Policy Supplement	GPS05-303	1 of 9
Drug, Alcohol and Contraband	Revision & Effective Date:	
Policy	Rev. 0, 21-Jun-10	
Issuing Department:	Previous Revision & Effective Date:	
Corporate Human Resources	n/a	ı

1.0	PURPOSE OF PROCEDURE
2.0	PROCESS OBJECTIVE
3.0	SCOPE OF APPLICATION
	PROCESS REQUIREMENTS
4.1	Illicit Drug Use
4.2	Alcohol Use and Misuse
4.3	Use of Prescription Medications
4.4	Contraband
5.0	Searches
	Federal Drug-Free Workplace Act of 1988
7.0	Employee Assistance
	Education
9.0	Drug & Alcohol Testing
9.1	Job Applicants
9.2	Current Employees
9.	2.1 Reasonable Suspicion Testing
9.	2.2 Post-Incident Testing
9.	2.3 Unannounced Testing
9.	2.4 Follow-Up Testing
9.	2.5 Pre-Access/Pre-Assignment Testing
9.	2.6 Consequences of a "Positive" Test
9.	2.7 Refusing a Test
10.0	Procedures for Drug and Alcohol Testing
10.1	Consent
10.2	Collection and Chain-of-Custody
10.3	Testing Methods
10.4	Notification
10.5	compliance with all applicable laws
	Attachments
RET	URN TO WORK AGREEMENT
	ISENT
EMP	PLOYEE CERTIFICATION

1.0 PURPOSE OF PROCEDURE

Jacobs Engineering Group Inc., its subsidiaries and affiliated companies (hereinafter, "the Company"), recognizes its responsibility to employ all necessary measures to ensure a safe and healthful working environment for employees, to protect and preserve our property and that of others, and to cooperate with our clients in our mutual efforts to provide safe and efficient operations while maintaining conditions conducive to attaining the highest possible work standards.

This responsibility, in a potentially dangerous industry, which demands comprehensive safety measures, extends not only to the protection and well being of our employees and job sites, but to our customers, the community, and general public as well. Our commitment to the protection of our employees, property and the public is evidenced by the implementation of programs and procedures, which ensure compliance with appropriate safety measures and all applicable laws and regulations.

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The applicable version of this document resides in the Business Practices section of http://JNet.jacobs.com. All copies are considered to be uncontrolled.

File Name: Drug Alcohol Contraband.doc

PROCESS OBJECTIVE 2.0

This Drug, Alcohol, & Contraband Policy sets out the Company's policy and procedures regarding: (i) the illegal use, sale, possession, transfer, or other misconduct involving drugs; (ii) the use and misuse of legal drugs; (iii) alcohol use and misuse; and (iv) the possession of illegal or contraband items, such as weapons and drug paraphernalia, prohibited by law or by Company policy.

SCOPE OF APPLICATION 3.0

This policy applies, without exception, to all employees, job applicants, and subcontractors working at a Company job site or at a customer's job site. Employees who are subject to federal drug and/or alcohol testing requirements (for example, U.S. Department of Defense, Energy, or Transportation drug- and alcohol-testing regulations) will be so notified and must comply with this policy and with the applicable policy implementing those regulations. Employees who are covered by a collective bargaining agreement may be subject to different terms and will be notified of any modifications to this policy.

4.0 PROCESS REQUIREMENTS

The Company strictly prohibits the unlawful use, sale, attempted sale, manufacture, possession, conveyance, purchase, attempted purchase, distribution, cultivation, transfer, or dispensing of any illicit substance, at any time and in any manner. This prohibition includes the use or possession of prescription medications for which the employee does not have a valid prescription.

4.1 **ILLICIT DRUG USE**

"Illicit substance" includes all drugs, narcotics, inhalants and intoxicants for which possession or misuse is made illegal under federal, state, or local law, and includes prescription medication for which the individual does not have a valid prescription. Prescription medication and over-the-counter drugs used in a manner inconsistent with prescription or dosing directions also are considered illicit drugs, as may be other chemical intoxicants used in a manner inconsistent with their intended purpose. Alcohol also is a drug subject to abuse, although its use and misuse is treated separately under this policy.

4.2 ALCOHOL USE AND MISUSE

The use or abuse of alcohol while on the job or in a Company vehicle is strictly prohibited. Management for such functions as dinners, conferences, award ceremonies and celebrations may authorize alcohol purchase or consumption. However, the use or abuse of alcohol off the job, which impairs performance on the job, is prohibited. Employees are prohibited from reporting to work with alcohol in their systems and from bringing any alcoholic beverage to the work location. A confirmed test result between 0.020 and 0.039 percent alcohol may result in a suspension of 24 hours. Prior to returning to work, a negative alcohol test must be obtained. A confirmed positive test showing the presence of 0.04 percent or more alcohol in an employee's system is a violation of this policy.

4.3 **USE OF PRESCRIPTION MEDICATIONS**

Employees who use prescription and/or over-the-counter medication, which could impair their ability to perform safely, are responsible for notifying their immediate supervisor or the Health Services Department so that steps can be taken to minimize the safety risks posed by such use. Any information about an employee's use of medication will be treated as confidential and shared with Company personnel on a need-to-know basis. It is each employee's responsibility to consult with his or her health-care provider and/or to review relevant dosing instructions to determine whether the use of that medication could lead to impairment. No medication containing alcohol should be used during or immediately before an individual's scheduled shift, unless by prescription. The Company reserves the rights to transfer, reassign, or, if necessary, place an employee on leave of absence if the employee may pose a safety risk while using medication.

4.4 **CONTRABAND**

The Company also prohibits the use, possession, distribution, or sale of any drug paraphernalia, "look-alike" drugs, firearms, weapons, unauthorized explosives, stolen property, or other contraband

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File Name: Drug Alcohol Contraband.doc

JACOBS

while on Company business and/or at any job site or premises. "Contraband" is any item the use or possession of which is prohibited by law, Company policy, or work rules. Job sites and premises include all Company property, including Company-owned motor vehicles, Company quarters, Company parking lots, and any other location at which Company employees may work, including client job sites and premises.

5.0 SEARCHES

If the Company suspects that an employee or on-site contractor is in possession of illegal drugs, alcohol, or contraband in violation of this Policy, the Company may request the individual to submit to a search of his or her person, personal effects, vehicles, lockers, baggage, and Company quarters. In addition, the Company may periodically conduct searches of individuals entering or leaving work sites at random. By entering into or being present at a job site, while on Company time, or representing the Company in any way, an individual is deemed to have consented to such searches. If an individual is asked to submit to a search, and refuses, that individual will be considered insubordinate and will be escorted off the job site and disciplined, as appropriate.

Searches will be conducted by management personnel and may or may not be conducted in the presence of the person whose property or work area is searched. Any suspected contraband will be confiscated, and may be turned over to law enforcement as appropriate. The Company representative conducting the search will give any person whose property is confiscated a receipt for that property.

6.0 FEDERAL DRUG-FREE WORKPLACE ACT OF 1988

To fulfill its obligations under the Federal Drug-Free Workplace Act of 1988, the Company requires any employee working directly or indirectly on a Federal Government project who is convicted of any drug-related crime occurring in the workplace to notify the Company within five (5) days of the conviction. The Company is required to notify the government agencies with which it contracts within ten (10) days of any employee's conviction on such charges. Education regarding the dangers of illegal drug use and alcohol abuse will be provided as detailed in Section V, below. The Company will impose discipline for employees convicted of any offense involving illegal drugs, up to and including dismissal from employment.

7.0 EMPLOYEE ASSISTANCE

The Company encourages employees who believe they have a problem with alcohol or drugs, legal or illegal, to seek assistance. The Company offers employees access to its Employee Assistance Program (EAP), which can offer referral to appropriate services and rehabilitation programs that emphasize education, prevention, counseling, and treatment. Moreover, employees may be eligible for a leave of absence to participate in such a program. Employees may ask for an appointment with the EAP Coordinator assigned to your location, in writing or in person, by contacting the appropriate Human Resources representative or the Health Services Department. Each request for assistance will be treated as confidential, and only those persons with a "need to know" will be informed of an employee's request.

Although requests for assistance are confidential, entering such a program cannot absolve nor protect employees from the consequences of substandard work performance or policy violations. Therefore, it is the responsibility of each employee to seek assistance *before* the employee's alcohol- or drug-abuse problems lead to a violation of this or another Company policy justifying disciplinary action.

An employee's decision to seek help voluntarily will not be used as a basis for disciplinary action against the employee, although the employee may be transferred, given work restrictions, or placed on leave, as the Company deems appropriate, while the employee seeks assistance and/or until the employee is drug- and alcohol-free. An employee's decision to seek assistance under this policy will be considered voluntary *only* if the employee seeks assistance *prior* to being found in violation of this policy or being asked to take a drug and/or alcohol test.

Regardless of how an employee determines to seek assistance, a failure to successfully complete a recommended course of treatment to the Company's satisfaction will be grounds for termination.

JACOBS

All employees returning to employment following rehabilitation will be required to sign a Return-to-Work Agreement, which will include:

- An agreement that the employee will continue to participate in any follow-up treatment and/or counseling recommended by the treatment provider, to the provider and the Company's satisfaction:
- A requirement that the employee submit to unannounced follow-up testing, for a period of up
 to two (2) years as recommended by the employee's rehabilitation provider, to encourage and
 insure the employee remains drug and/or alcohol free;
- An agreement that a refusal to submit or a positive drug and/or alcohol test during this period shall be grounds for immediate dismissal; and
- An agreement that the employee understands that s/he must maintain an acceptable attendance and performance record, and must comply with all other Company policies at all times.

8.0 EDUCATION

As part of the Company's efforts to encourage employees to become or remain drug-free, information and training will be provided on an on-going basis, as the Company deems appropriate, regarding the effects of drug and alcohol abuse. The local Personnel Department will assist with employee and supervisory education and training regarding the dangers of drug and alcohol use in the workplace. Materials on drug and alcohol use will be made available to both employees and supervision. The Company will also provide periodic supervisory training to assist in identifying the behavioural and physiological signs of alcohol and drug use.

9.0 DRUG & ALCOHOL TESTING

In furtherance of its goal of ensuring a substance abuse free workplace, the Company has established the following drug and alcohol testing procedures for its employees and applicants for employment.

The Company may require employees and job applicants to submit urine, saliva, hair, blood, sweat, and/or breath samples for the purpose of checking for the presence of illicit drugs or alcohol, for both job applicants and employees, as defined in sections 9.1 and 9.2.

9.1 JOB APPLICANTS

All job applicants must take and pass a mandatory drug test as soon as practical following their acceptance of a conditional offer of employment, and prior to the actual time they commence employment with the Company. Applicants who apply to safety-sensitive positions at client projects may also be asked to agree to comply with the client's substance-abuse prevention rules, and will be notified of any such requirements at the time of the conditional offer of employment.

Job applicants who test positive for illicit drug use will not be hired.

Any applicant who tests positive for drugs may not re-apply for a position with the Company for at least six months.

A job applicant's refusal to submit to drug testing, or attempt to tamper with, substitute for, adulterate, dilute, or otherwise falsify a test sample will result in denial of employment.

9.2 CURRENT EMPLOYEES

9.2.1 Reasonable Suspicion Testing

The Company may require employees to submit to drug and/or alcohol testing whenever Company management has information about an employee's conduct that would cause a reasonable person to believe that the employee is demonstrating signs of impairment due to alcohol or drugs, appears unfit for duty, or is otherwise in violation of this Policy.



9.2.2 Post-Incident Testing

The Company may ask employees who are involved in a workplace incident which results, or could have resulted in an injury to any person requiring medical attention (other than first aid), and/or property damage, to submit to post-incident tests for drugs and/or alcohol as part of the investigation of any such incident.

9.2.3 Unannounced Testing

Employees are subject to unannounced drug testing and those who work in safety-sensitive positions will be subject to unannounced alcohol testing, depending upon the nature of their assignment and responsibilities, as well as upon the drug- and alcohol-testing requirements of the Company's customers if the employees are to work on a customer's job site or project. Employees who are subject to this requirement will be so notified at the time they are conditionally offered employment with the Company or are offered a transfer to a position subject to such testing. Employees subject to testing may be selected at random or by other means, such as by job classification or work site.

9.2.4 Follow-Up Testing

Unannounced follow-up testing may be required as a condition of continued employment during and after an employee has participated in a treatment program for drug or alcohol abuse, as recommended by the employee's substance-abuse treatment provider and approved by the Company, for a period not to exceed two years.

9.2.5 Pre-Access/Pre-Assignment Testing

If an employee accepts a safety sensitive position or is transferred from one position or job site to another safety sensitive position or job site with different testing requirements, that employee may be required to take and pass a drug and/or alcohol screen before being allowed access to the job site.

9.2.6 Consequences of a "Positive" Test

An employee whose alcohol or drug test is positive, regardless of the reason for the test, is considered to be in violation of Company policy and will be subject to adverse employment action, up to and including termination. Termination will be the standard disciplinary action unless there is a collective bargaining agreement, statutory requirement or other legal prohibition to termination. Anyone terminated for violation of this policy may not re-apply for a position with the Company for a minimum of six months.

9.2.7 Refusing a Test

An employee or job applicant's refusal to submit to drug and/or alcohol testing will be considered insubordination and grounds for disciplinary action, up to and including termination. Attempts to tamper with, substitute, adulterate, dilute, or otherwise falsify a test sample are grounds for termination, and furthermore are punishable under criminal statutes in several states.

10.0 PROCEDURES FOR DRUG AND ALCOHOL TESTING

10.1 CONSENT

No alcohol test will be administered, sample collected, or drug test conducted on any sample without the written consent of the person to be tested. A person's refusal to submit to a proper test will be viewed as insubordination and will subject the employee to disciplinary action, up to and including termination. The Company will pay the costs of all drug and/or alcohol tests it requires of job applicants and employees.

10.2 COLLECTION AND CHAIN-OF-CUSTODY

Persons being tested will be asked to provide a test sample by the collection site person. Procedures for collection of urine specimens will allow for reasonable individual privacy, unless there is a reason to believe the individual may alter or substitute the specimen to be provided. Urine samples will be tested for temperature, and may be tested for adulterants or subject to other validation procedures, as appropriate. The collection site person and the person being tested will

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File Name: Drug Alcohol Contraband.doc



maintain chain-of-custody procedures at all times, and will follow the specimen collection procedures endorsed by the U.S. Department of Transportation for federally mandated testing.

10.3 TESTING METHODS

All urine samples will be screened using an immunoassay technique and all presumptive positive tests will be confirmed using gas chromatography/mass spectrometry (GC/MS) or other equally sensitive methodology. A certified laboratory will perform all confirmatory tests. The Company currently tests for cannabinoids (marijuana), cocaine metabolites, amphetamines (including methamphetamines), opiates, phencyclidine (PCP), and alcohol, and may test for other illicit drugs at its discretion or as required by a client or by federal regulations, in which case, employees will be advised of the substances for which the Company or the client may test. Typically, breath and/or saliva tests will be used to detect the presence of alcohol, and positive tests will be confirmed with a second breath test. An alcohol test will be considered positive if it shows the presence of 0.04 percent or more blood-alcohol content. Tests will seek information about the presence of drugs and alcohol in an individual's system, and will *not* test for any other medical condition.

10.4 NOTIFICATION

Any individual who tests positive for illicit drug use will be so notified by an independent Medical Review Officer ("MRO") (typically, a medical doctor with an expertise in toxicology), and given an opportunity to provide the MRO with any legitimate reasons he or she may have that would explain the positive alcohol or drug test.

If the individual provides an explanation acceptable to the MRO that the positive drug-test result is due to factors other than the consumption of alcohol or illicit drugs, the MRO will order the laboratory to disregard the positive test and will report the test as negative to the Company.

Individuals may request a copy of their own positive test result. In addition, an individual who tests positive for drugs may request that his or her positive urine sample be sent to an independent laboratory for a second confirmatory test, at the individual's expense, although the Company may suspend, transfer, or take other appropriate action against the individual pending the results of any such re-test.

All test results will be treated as confidential, and disseminated within the Company only on a need-to-know basis. Test results will not be released outside the Company without the written consent of the tested individual, except when necessary to defend an action in an administrative proceeding or court of law or otherwise required by a court of law.

10.5 COMPLIANCE WITH ALL APPLICABLE LAWS

The Company will implement this policy, including its drug and alcohol testing policy, in a manner that complies with relevant federal, state, and local law.

11.0 ATTACHMENTS

Return to Work Agreement

Consent

Employee Notification



RETURN TO WORK AGREEMENT

DRUG, ALCOHOL AND CONTRABAND POLICY POST REHABILITATION/TREATMENT/COUNSELING

As consideration for the Company granting the request for continued employment or re-employment, the following conditions shall prevail:

- The Employee shall submit to the Company proof of his or her enrolment in an alcohol and/or abuse follow-up treatment, counselling or rehabilitation program. Proof of Employee's attendance at all required sessions must be submitted to the Company on a weekly basis. Attendance will be monitored closely.
- 2. For a period of two (2) years, the Employee agrees to voluntarily submit to testing for alcohol and/or illegal drugs on a random basis as requested by the Company. The Employee's failure of such test during this period or the Employee's refusal to submit to such testing shall be grounds for immediate termination.
- 3. The Employee must maintain an acceptable attendance and performance record and comply with all other Company policies upon his or her return to work. For a period of two (2) years, any absence by the Employee will require a written doctor's certificate detailing the reason for such absence. If such absence(s) is the result of alcohol and/or illegal drug use, the Employee will be terminated.
- 4. The costs of rehabilitation not covered by the group medical insurance plan of the Company shall be borne by the Employee.
- 5. Nothing in this Agreement alters your status with the Company. The Company desires your employment relationship with it to be successful.
- 6. Failure of the Employee to comply with all of the above conditions will result in the Employee's immediate termination.

I voluntarily agree to all of the above conditions and I sign this Agreement on my own free will, without duress.

Date	Applicant/Employee Signature
Witness Signature	Applicant/Employee Printed Name
Witness Printed Name	Applicant/Employee Social Security No.



CONSENT

To Submit to Drug and/or Alcohol Testing
As a Condition of Employment with
Jacobs Engineering Group Inc.,
(its subsidiaries and affiliated companies hereinafter, "the Company")

	e that I	deration for employment and/or co	tent and agree to drug and/or alcohol testing as a continued employment by the Company. I further greed to comply with the Company's Drug, Alcohol 8
			est results may be used as grounds for adverse or termination of my employment with the Company.
I fur	ther un	derstand and acknowledge that:	
	1.	The Company will pay the cost of a	Il required drug and/or alcohol tests;
	2.		the Company and may be used by the Company in ent action that may be taken against me,
	3.	have an opportunity to discuss and Officer; and to request a second	and/or alcohol test indicate a "positive" result, I will rebut that result by consulting with a Medical Review confirmatory drug test on that sample, at my own Review Officer will determine whether there is a iny "positive" drug test and;
	4.	refusal to submit to, or to coopera	nit to such testing; understanding, however, that my te with such testing shall be considered a refusal to of employment or termination in accordance with the band Policy.
		at the Company has made no repre- but the testing, and that I consent to b	esentations, inducements, or statements, other than be tested.
	Policy;	that I have read and do understand t	s provided me with a copy of its Drug, Alcohol & hat Policy; and that I agree to abide by the terms and
Date			Applicant/Employee Signature
Witness Sigr	nature		Applicant/Employee Printed Name
Witness Prin	ited Na	me	Applicant/Employee Social Security No.



EMPLOYEE CERTIFICATION

Jacobs Engineering Group Inc., (Its subsidiaries and affiliated companies hereinafter, "the Company")

I hereby certify that the Company has provided me with a copy of its Drug, Alcohol & Contraband Policy; that I have read and understand the Policy; and that I agree to abide by the terms and conditions of the Policy. I do understand that nothing in this policy is intended to create a contract, and I agree that no such contract is created by this Policy.

Date	Employee Signature
Witness Signature	Employee Printed Name
Witness Printed Name	Employee Social Security No.







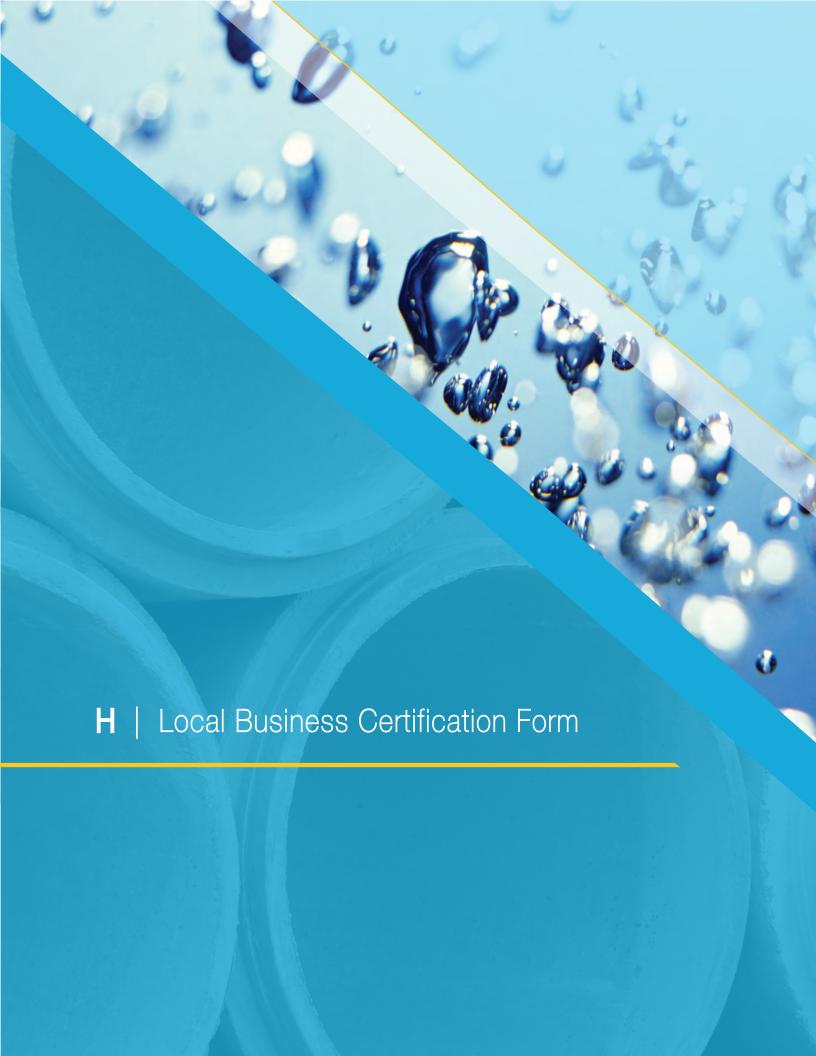
PALM BEACH COUNTY INSPECTOR GENERAL ACKNOWLEDGMENT

RFQ NO.: 023-2821-18/IT HYDROGEOLOGICAL CONSULTNG SERVICES

The Consultant is aware that the Inspector General of Palm Beach County has the authority to investigate and audit matters relating to the negotiation and performance of this Consultant Agreement, and in furtherance thereof may demand and obtain records and testimony from the Consultant and its subcontractors and lower tier subcontractors.

The Consultant understands and agrees that in addition to all other remedies and consequences provided by law, the failure of the Consultant or its subcontractors or lower tier subcontractors to fully cooperate with the Inspector General when requested may be deemed by the municipality to be a material breach of this contract justifying its termination.

Jac	obs Engineering Group Inc.
FIRM	NAME
Ву_	The sec-
Th	nomas Meinhart
Title:	Vice President
Title.	
	101
Date:	6/8/18



CITY OF BOYNTON BEACH LOCAL BUSINESS STATUS CERTIFICATION

Name of officer of company) Jacobs Engineering Group Inc. Name of Corporation/Company) (Title of officer of company) 550 W. Cypress Creek Road Eort Lauderdale, FL 33309 (Business Address)	0 11 100
	, Suite 400
ertify that I am an authorized representative of the business and, on behalf of	f the
Business, request that it be deemed to be a local business for purposes of the	City of
oynton Beach Local Preference Program. Answering yes to Question 1 and	Question 2
elow will qualify the business as a local business. In support of this request,	I certify the
ollowing to be true and correct:	
NAME OF BUSINESS: Jacobs Engineering Group Inc.	
Is the business located within the City limits of YES NO	Number of
Boynton Beach, Florida?	Years:
Does the business have a business tax receipt issued in the current year?	Business License
X	Number:
. Is the business registered with the Florida YES NO	
Division of Corporations?	

THIS PAGE MUST BE SUBMITTED ALONG WITH RESPONSE IN ORDER FOR PACKAGE TO BE CONSIDERED COMPLETE AND ACCEPTABLE

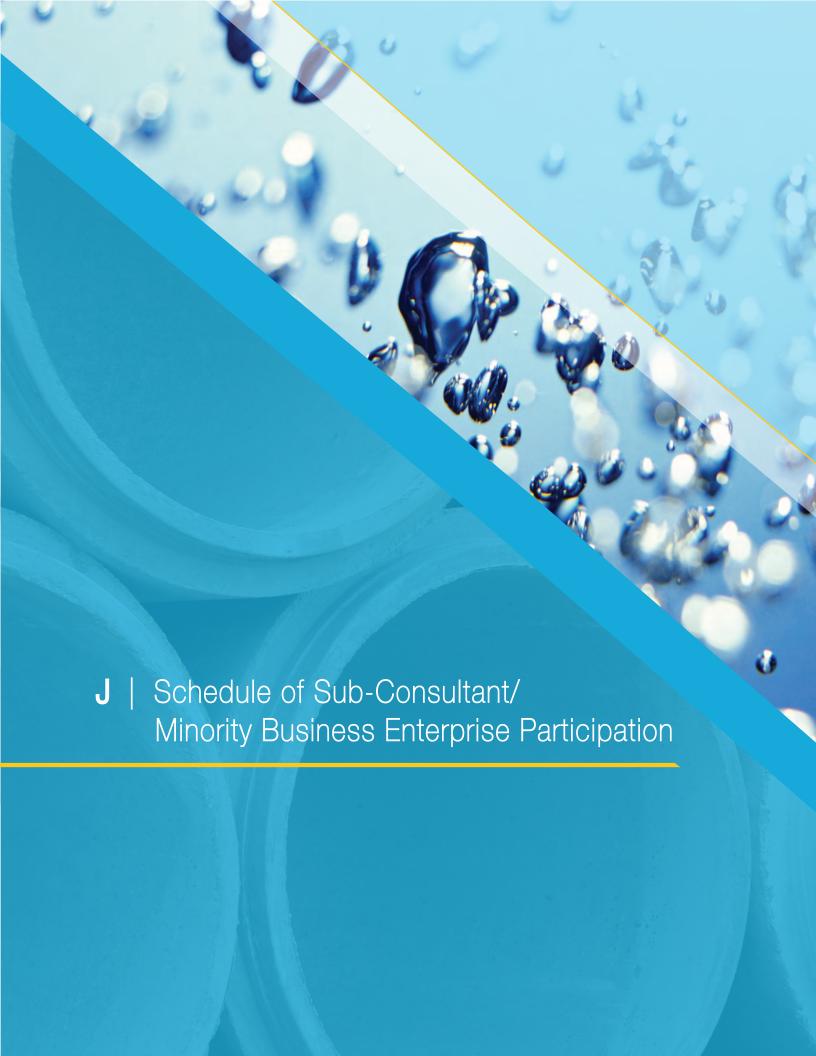


HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT



STATEMENT OF NONSUBMITTAL

NA





RFQ No. 023-2821-18/IT HYDROGEOLOGICAL CONSULTING SERVICES

SCHEDULE OF SUB-CONSULTANTS

The Undersigned Bidder proposes the following major subcontractors for the major areas of work for the Project. The Bidder is further notified that all sub-contractors shall be properly licensed, bondable and shall be required to furnish the City with a Certificate of Insurance in accordance with the contract general conditions. This page may be reproduced for listing additional sub-contractors, if required.

Name and Address of Sub-Contractor	Scope of Work	<u>License No.:</u>	Contract Amount	Percentage (%) of Contract
Nutting Engineers of Florida, Inc. 1310 Neptune Drive, Boynton Beach, FL 33426	Drilling	J73810	TBD	TBD

Signature:	Date: 6/8/18

Title/Company: Thomas Meinhart, Vice President, Jacobs Engineering Group Inc.

Owner reserves the right to reject any sub-contractor who has previously failed in the proper performance of an award, or failed to deliver on time contracts in a similar nature, or who is not responsible(financial capability, lack of resources, etc.) to perform under this award. Owner reserves the right to inspect all facilities of any sub-contractor in order to make a determination as to the foregoing.

THIS PAGE MUST BE SUBMITTED ALONG WITH RESPONSE IN ORDER FOR PACKAGE TO BE CONSIDERED COMPLETE AND ACCEPTABLE



Office of Small Business Assistance

50 South Military Trail, Suite 202 West Palm Beach, FL 33415 (561) 616-6840 Fax: (561) 616-6850

Fax: (561) 616-6850 www.pbcgov.com/osba



Palm Beach County Board of County Commissioners

Paulette Burdick, Mayor

Melissa McKinlay, Vice Mayor

Hal R. Valeche

Dave Kerner

Steven L. Abrams

Mary Lou Berger

Mack Bernard

County Administrator

Verdenia C. Baker

"An Equal Opportunity
Affirmative Action Employer"

September 27, 2017

Richard Wohlfarth Nutting Environmental of Florida, Inc. 1310 Neptune Drive Boynton Beach, FL 33425

Dear Mr. Wohlfarth:

The Palm Beach County Office of Small Business Assistance has completed its review of the documents you submitted for recertification and is pleased to announce that your firm has been recertified for 92630 Contaminated Soil Services; 9267838 Mold Assessment Services (Not Consulting); 9261540 Monitoring Services, Air Quality; 9267876 Remediation Services, Groundwater; 92683 Site Assessment, Environmental; 92693 Testing and Monitoring Services for Air, Gas and Water and 96296 Well Services (Including Oil, Gas, and Water): Drilling, Plugging, Consulting, Maintenance, Repair, Etc. as a Small Business Enterprise (SBE) for three (3) years, expiring September 28, 2020. You will not receive SBE consideration if you bid in another area. Enclosed is your certificate.

Your firm shall be subject to the provisions of the Palm Beach County Purchasing Ordinance and all State and Federal laws relating to the transaction of business.

This certification entitles you to participate in contracting opportunities when the products and services offered by your firm are being considered for bid. As an additional service to your firm, you will be included in the Palm Beach County Directory of certified SBE firms. If you wish to have your firm's listing changed, please contact our office at (561) 616-6840 for an application to amend your certification.

Your company's certification is subject to periodic review to verify your continued eligibility. Any changes you report to any County Department/Division must also be reported to OSBA. Your company name and vendor code must be the same in both Purchasing and OSBA. Failure to report changes in the status of your firm may result in your firm being decertified. Remember, whenever you respond to a County bid you must do so under the name of: **Nutting Environmental of Florida, Inc.** with vendor code: **VC0000106490.**

Sincerely,

Angela Smith,

Small Business Development Specialist II Office of Small Business Assistance

Palm Beach County Office of Small Business Assistance

Certifies That

Nutting Environmental of Florida, Inc.

Vendor # VC0000106490

is a Small Business Enterprise as prescribed by section 2-80.21 – 2-80.35 of the Palm Beach County Code for a three year period from September 29, 2017 to September 28, 2020

The following Services and/or Products are covered under this certification:

Contaminated Soil Services

Mold Assessment Services (Not Consulting)

Monitoring Services, Air Quality

Remediation Services, Groundwater

Site Assessment, Environmental

Testing and Monitoring Services for Air, Gas and Water

Well Services (Including Oil, Gas, and Water): Drilling, Plugging, Consulting, Maintenance, Repair, Etc.

Allen F. Gray, Manager

9/27/17



Palm Beach County Board of County Commissioners

Paulette Burdick, Mayor
Melissa McKinlay, Vice Mayor
Hal Valeche
Dave Kerner
Steven L. Abrams
Mary Lou Berger
Mack Bernard

County Administrator

Verdenia C. Baker





VENDOR CERTIFICATION REGARDING SCRUTINIZED COMPANIES LISTS

Vendor FEIN: 95-4081636	
Vendor's Authorized Representative Name and Title: _Th	omas Meinhart, Vice President
City: Fort Lauderdale State: FL	Zip: <u>33309</u>
Phone Number: 404.751.2135	
Email Address: tom.meinhart@jacobs.com	
Section 287.135, Florida Statutes, prohibits agencies from goods or services of \$1 million or more, that are on either Activities in Sudan List or the Scrutinized Companies with Energy Sector List. Both lists are created pursuant to sec requirement is not applicable to federally funded contracts	the Scrutinized Companies with Activities in the Iran Petroleum tion 215.473, Florida Statutes. This

As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above in the section entitled "Respondent Vendor Name" is not listed on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List. I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject company to civil penalties, attorney's fees, and/or costs.

Certified By:	,
who is authorized to sign on behalf of the above referenced company.	
Authorized Signature Print Name and Title: _Thomas Meinhart, Vice PReside	nt.
	4



State of Florida Department of State

I certify from the records of this office that JACOBS ENGINEERING GROUP INC. is a Delaware corporation authorized to transact business in the State of Florida, qualified on February 12, 1987.

The document number of this corporation is P13217.

I further certify that said corporation has paid all fees due this office through December 31, 2018, that its most recent annual report/uniform business report was filed on April 8, 2018, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Eighth day of April, 2018

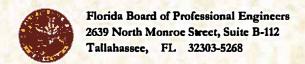


Ken Diffren Secretary of State

Tracking Number: CC7135491533

To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication



Jacobs Engineering Group Inc. 600 WILSHIRE BOULEVARD SUITE 1000 -LEGAL LOS ANGELES, CA 90017

Each licensee is solely responsible for notifying the Florida Board of Professional Engineers in writing the licensee's current address.

Name changes require legal documentation showing name change. An original, a certified copy, or a duplicate of an original or certified copy of a document which shows the legal name change will be accepted unless there is a question about the authenticity of the document raised on its face, or because the genuineness of the document is uncertain, or because of another matter related to the application.

At least 90 days prior to the expiration date shown on this license, a notice of renewal will be sent to your last known address. If you have not yet received your notice 60 days prior to the expiration date, please call (850) 521-0500, or write, Florida Board of Professional Engineers, 2639 North Monroe Street, Suite B-112, Tallahassee, FL 32303-5268 or e-mail: board@fbpe.org. Our website address is http://www.fbpe.org.

State of Florida

Board of Professional Engineers

Attests that

Jacobs Emphasering Group Inc.



Is authorized under the provisions of Section 17 120 Porton Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed statutes.

Expiration: 2/28/2019

Audit No: 228201902917 R CA Lic. No:

2822



STATE OF FLORIDA DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

BOARD OF ARCHITECTURE & INTERIOR DESIGN 2601 BLAIR STONE ROAD TALLAHASSEE FL 32399-0783 (850) 487-1395

JACOBS ENGINEERING GROUP INC 200 S. ORANGE AVENUE SUITE 900 ORLANDO FL 32801

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!



DETACH HERE

RICK SCOTT, GOVERNOR

MATILDE MILLER, INTERIM SECRETARY

STATE OF FLORIDA DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION BOARD OF ARCHITECTURE & INTERIOR DESIGN

LICENSE NUMBER

AAC001790

The ARCHITECT CORPORATION Named below IS CERTIFIED Under the provisions of Chapter 481 FS. Expiration date: FEB 28, 2019

> JACOBS ENGINEERING GROUP INC 200 S. ORANGE AVENUE SUITE 900 ORLANDO FL 32801

MATERIAL PROPERTY.





1:25:51 PM 6/11/2018

Licensee Details

Licensee Information

Name: JACOBS ENGINEEERING GROUP INC (Primary Name)

Main Address: 600 WILSHIRE BLVD SUITE 1000

LEGAL

LOS ANGELES California 90017

County: OUT OF STATE

License Mailing:

LicenseLocation: 1999 BRYAN STREET #1200

DALLAS TX 75201

County: OUT OF STATE

License Information

License Type: Geology Business

Rank: GB

License Number: GB815
Status: Current

Licensure Date: **02/02/2018** Expires: **07/31/2018**

Special Qualifications Qualification Effective

Alternate Names

View Related License Information View License Complaint

2601 Blair Stone Road, Tallahassee FL 32399 :: Email: Customer Contact Center :: Customer Contact Center: 850.487.1395

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Under Florida law, email addresses are public records. If you do not want your email address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact the office by phone or by traditional mail. If you have any questions, please contact 850.487.1395. *Pursuant to Section 455.275(1), Florida Statutes, effective October 1, 2012, licensees licensed under Chapter 455, F.S. must provide the Department with an email address if they have one. The emails provided may be used for official communication with the licensee. However email addresses are public record. If you do not wish to supply a personal address, please provide the Department with an email address which can be made available to the public.



ANNE M. GANNON CONSTITUTIONAL TAX COLLECTOR Serving Palm Beach County

Serving you.

P.O. Box 3353, West Palm Beach, FL 33402-3353 www.pbctax.com Tel: (561) 355-2264

i3

3300 PGA BLVD #780 PALM BEACH GARDENS, FL 33410 -2811

TYPE OF BUSINESS	OWNER	CERTIFICATION#	RECEIPT #/DATE PAID	AMT PAID	BILL#
56-0016 ENGINEER BUSINESS	JACOBS ENGINEERING GROUP INC	2822	U17.732068 - 09/27/17	\$33.00	840151561

This document is valid only when receipted by the Tax Collector's Office.

B2 - 1843

JACOBS ENGINEERING GROUP INC JACOBS ENGINEERING GROUP INC 3300 PGA BLVD STE 780 PALM BEACH GARDENS, FL 33410 STATE OF FLORIDA
PALM BEACH COUNTY
2017/2018 LOCAL BUSINESS TAX RECEIPT

"LOCATED AT"

LBTR Number: 201145803 EXPIRES: SEPTEMBER 30, 2018

This receipt grants the privilege of engaging in or managing any business profession or occupation within its jurisdiction and MUST be conspicuously displayed at the place of business and in such a manner as to be open to the view of the public.

9:25:53 AM 6/6/2018

Licensee Details

Licensee Information

Name: BULMAN, GERRIT RIJK (Primary Name)

Main Address: 1611 MAYO ST

HOLLYWOOD Florida 33020

County: BROWARD

License Mailing:

LicenseLocation:

License Information

License Type: Professional Geologist

Rank: PG

License Number: PG2697

Status: Current,Active
Licensure Date: 06/01/2011
Expires: 07/31/2018

Special Qualifications Qualification Effective

Alternate Names

<u>View Related License Information</u> <u>View License Complaint</u>

2601 Blair Stone Road, Tallahassee FL 32399 :: Email: Customer Contact Center :: Customer Contact Center: 850.487.1395

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9:34:35 AM 6/6/2018

Licensee Details

Licensee Information

Name: BRUNER, RUFUS J III (Primary Name)

Main Address: 2511 NW 27TH PL

GAINESVILLE Florida 32605

County: ALACHUA

License Mailing:

LicenseLocation:

License Information

License Type: Professional Engineer

Rank: **Prof Engineer**

License Number: 35951

Status: Current,Active
Licensure Date: 07/10/1985
Expires: 02/28/2019

Special Qualifications Qualification Effective

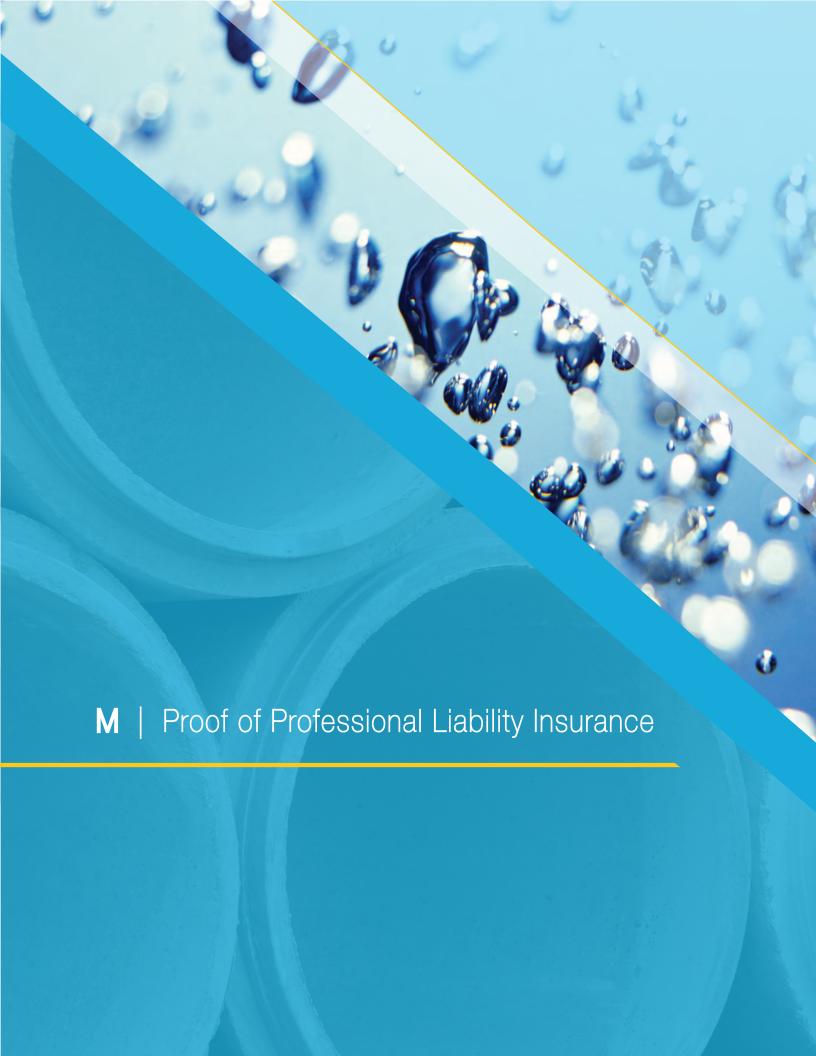
Alternate Names

<u>View Related License Information</u> <u>View License Complaint</u>

2601 Blair Stone Road, Tallahassee FL 32399 :: Email: Customer Contact Center :: Customer Contact Center: 850.487.1395

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 05/22/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

tills certificate does not comer rights to t	ile certificate fiolicer ill fied of st	ucii elluoi seillei	ιι(ə <i>)</i> .		
PRODUCER LIC #0437153	1-212-948-1306	CONTACT NAME:			
Marsh Risk & Insurance Services		PHONE (A/C No Fue)		FAX (A/C, No): 1-212	-948-1306
CIRTS_Support@jacobs.com		(A/C, No, Ext): E-MAIL		(A/C, NO)	
777 S. Figueroa Street		ADDRESS:			
			INSURER(S) AFFORDING COVERAGE		NAIC#
Los Angeles, CA 90017-5822		INSURER A : ACE	AMER INS CO		22667
INSURED		INSURER B :			
Jacobs Engineering Group Inc.		INSURER C:			
C/O Global Risk Management		INSURER D:			
600 Wilshire Blvd., Suite 1000		INSURER E :			
Los Angeles, CA 90017		INSURER F:		·	

COVERAGES CERTIFICATE NUMBER: 52872790 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR	TOLC	JSIONS AND CONDITIONS OF SUCH	ADDL SUBR		POLICY EFF	POLICY EXP		
LTR			INSD WVD		(MM/DD/YYYY)	(MM/DD/YYYY)	LIMIT	S
A	Х	COMMERCIAL GENERAL LIABILITY		HDO G27865069	07/01/17	07/01/18	EACH OCCURRENCE	\$ 1,000,000
		CLAIMS-MADE X OCCUR					DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 250,000
	х	CONTRACTUAL LIABILITY					MED EXP (Any one person)	\$ 5,000
							PERSONAL & ADV INJURY	\$ 1,000,000
	GEN	I'L AGGRE <u>GAT</u> E LIMIT AP <u>PLIE</u> S PER:					GENERAL AGGREGATE	\$ 1,000,000
		POLICY PRO- JECT LOC					PRODUCTS - COMP/OP AGG	\$ 1,000,000
		OTHER:						\$
A	AUT	OMOBILE LIABILITY		ISA H09055964	07/01/17	07/01/18	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
	х	ANY AUTO					BODILY INJURY (Per person)	\$
		OWNED SCHEDULED AUTOS ONLY					BODILY INJURY (Per accident)	\$
		HIRED NON-OWNED AUTOS ONLY AUTOS ONLY					PROPERTY DAMAGE (Per accident)	\$
								\$
		UMBRELLA LIAB OCCUR					EACH OCCURRENCE	\$
		EXCESS LIAB CLAIMS-MADE					AGGREGATE	\$
		DED RETENTION\$						\$
A		KKERS COMPENSATION EMPLOYERS' LIABILITY		WLR C49115581 (AOS)	07/01/17	07/01/18	X PER OTH- STATUTE ER	
A	ANYI	PROPRIETOR/PARTNER/EXECUTIVE CER/MEMBER EXCLUDED?	N/A	SCF C49115623 (WI)	07/01/17	07/01/18	E.L. EACH ACCIDENT	\$ 1,000,000
A	(Man	idatory in NH)		WCU C49115611 (LA, OH, T	X 07 /01/17	07/01/18	E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
		s, describe under CRIPTION OF OPERATIONS below					E.L. DISEASE - POLICY LIMIT	\$ 1,000,000
A	PRO	FESSIONAL LIABILITY		EON G21655065 008	07/01/17	07/01/18	PER CLAIM/PER AGG	1,000,000
	"CI	LAIMS MADE"					AGGREGATE	
							DEFENSE INCLUDED	

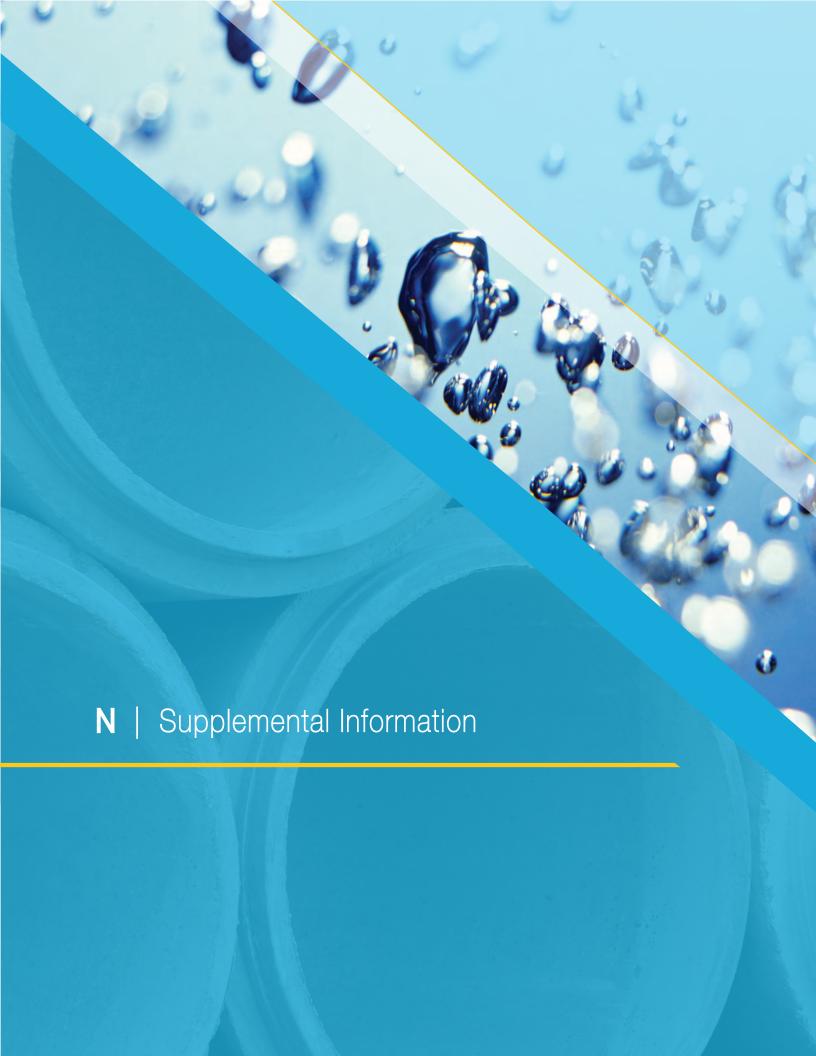
DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: The City of Boynton Beach requires the services from a qualified Consulting Firm with certified Hydrogeologists for support in the following areas: Aquifer Storage and Recovery (ASR) Wells, Deep Injection Well, Landfill and Ground water monitoring. CONTRACT NUMBER: RFQ No. 023-2821-18/IT. CONTRACT END DATE: 12/31/2020. SECTOR: Public. *\$2,250,000 SIR FOR STATES OF: LA, OH, TX. City of Boynton Beach is added as an additional insured for general liability as respects the negligence of the insured in the performance of insured's services to cert holder under contract for captioned work Waiver of subrogation is hereby granted in favor of City of Boynton Beach for WC. *THIS IS A SAMPLE CERTIFICATE ONLY*. THE ACTUAL CERTIFICATE FOR THE PROPOSED PROJECT WILL COMPLY WITH THE TERMS AND CONDITIONS NEGOTIATED IN THE FINAL

CERTIFICATE HOLDER	CANCELLATION
City of Boynton Beach	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
100 E. Boynton Beach Blvd.	AUTHORIZED REPRESENTATIVE
Boynton Beach, FL 33309 USA	Shirt State of the

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DATE SUPPLEMENT TO CERTIFICATE OF INSURANCE 05/22/2018 NAME OF INSURED: Jacobs Engineering Group Inc. CONTRACT, CONSISTENT WITH POLICY TERMS AND CONDITIONS.



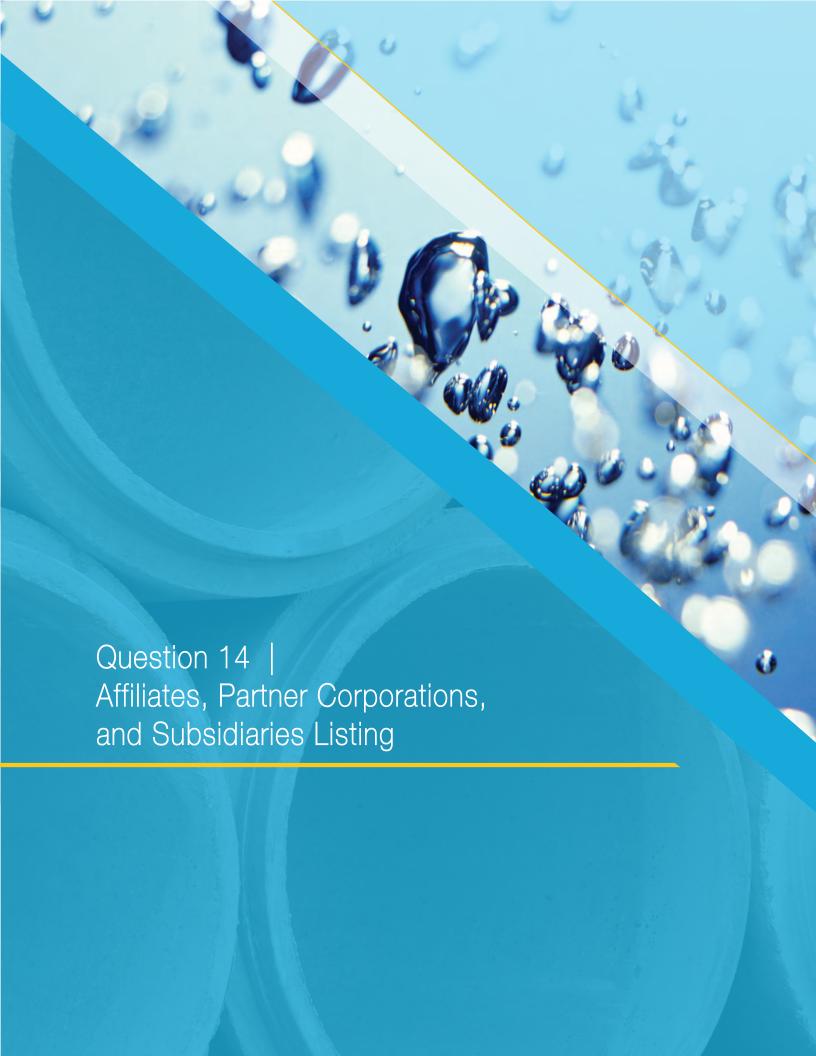


HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT



13. STATE THE NAMES AND ADDRESSES OF ALL BUSINESSES AND/OR INDIVIDUALS WHO OWN AN INTEREST OF MORE THAN FIVE PERCENT (5%) OF THE PROPOSER'S BUSINESS AND INDICATE THE PERCENTAGE OWNED OF EACH SUCH BUSINESS AND/OR INDIVIDUAL:

Jacobs Engineering Group Inc. ("JEG") is New York Stock Exchange listed company, with common stock registered with the U.S. Securities and Exchange Commission (the "SEC"). To JEG's knowledge, based solely on the most recent Schedule 13G filings made with the SEC, only the following persons and their respective affiliates own more than 5% of JEG common stock: State Street Corporation indicated in its Schedule 13G that it beneficially owned 9.64% of JEG common stock; State Street Global Advisors Trust Company indicated in its Schedule 13G that it beneficially owned 8.29% of JEG common stock; The Vanguard Group Inc. indicated in its Schedule 13G/A that it beneficially owned 10.12% of JEG common stock; BlackRock, Inc. indicated in its Schedule 13G/A that it beneficially owned 6.8% of JEG common stock; and PRIMECAP Management Company indicated in its Schedule 13G/A that it beneficially owned 6.8% of JEG common stock.



HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT





14. STATE THE NAMES, ADDRESSES, AND THE TYPE OF BUSINESS OF ALL FIRMS THAT ARE PARTIALLY OR WHOLLY OWNED BY PROPOSER:

AFFILIATES, PARTNER CORPORATIONS, AND SUBSIDIARIES

The following table sets forth all subsidiaries of the Company other than subsidiaries that, when considered in the aggregate, would not constitute a significant subsidiary, including the percentage of issued and outstanding voting securities beneficially owned by the Company.

Jacobs Engineering Group Inc. Subsidiaries of the Registrant

Aerospace Testing Alliance

Aker Process GmbH Anglian H&G Limited

Aquenta Consulting Pty Ltd Aspinwall & Company Limited Aspinwall & Company Limited

Automotive Testing Operations, LLC

AWE Management Limited AWF Pension Trustees Limited

AWE PLC

Babtie Asia Pte Limited Babtie China Limited Babtie Fichtner Limited

Babtie Shaw & Morton Limited Basketball Merger Sub Inc. BC FED GROUP, LLC

Bear Scotland Limited

Beaumont Services Company, LLC

Bechtel Jacobs Company LLC

Bechtel National, Inc. Blue Canopy Group, LLC

Boardroom Ltd. **Bovis Lend Lease**

Bovis Lend lease Singapore Cabinet Holdings Limited

CES Investment and Management Consultants Private Limited

CH2M Hill Companies, LTD.

Chemetics Inc.

Code International Assurance LTD Colin Buchanan & Partners Ltd

Consulting Engineering Services (India) Private Limited

Consulting Engineering Services LLC

Convention Plaza Redevelopment Corporation

Davis LLC

Delta Catalytic Limited

DM Petroleum Operations Company

DSI Constructors Inc.

Edwards and Kelcey Architectural and Design Services

Edwards and Kelcey Caribe, Inc.

Edwards and Kelcey Design Services, Inc. Edwards and Kelcey Puerto Rico LLP

EK Design Services, Inc.

Ennstone Facilities Management Ltd

Enviros Consulting Limited Enviros Group Limited

Enviros Limited

Enviros Management Services Limited

Federal Network Systems LLC Fichtner Consulting Engineers Ltd

Forclum OY Fortum OY

HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT

Gibb Holdings Ltd.

Goddard Nominees (Jersey) Limited

Goddard Trustees (Jersey) Limited

Grady Service company, LLC

Growing Concern Scotland Limited

H&GC Employees (Group 1) Welfare Trust

H&GC Employees (Group II) Welfare Trust

H. E. Wiese

Harris & Sutherland (Philippines) Limited

HGC Investments Private Limited

HGC Constructors Private Limited

HGC Foundation Private LTD

Iffland Kavanagh Waterbury P.C.

Iffland Kavanagh Waterbury, P.L.L.C.

Innovative Test Asset Solutions LLC

JACOBS (NZ) HOLDINGS LIMITED

Jacobs Advanced Manufacturing B.V.

Jacobs Advisers, Inc.

Jacobs Architects/Engineers, Inc.

Jacobs Architecture (Australia) Pty Ltd

Jacobs Architecture Canada Inc.

Jacobs Australia Holdings Company Pty Ltd

Jacobs Australia Pty. Ltd.

Jacobs Belgie NV

Jacobs Brazil Limited Inc.

Jacobs Canada Inc.

Jacobs Chile S.A.

Jacobs China Limited

Jacobs Civil Consultants, Inc.

Jacobs Colombia SAS

Jacobs Construction Engineering Design Consulting (Shanghai)

CO., Ltd.

Jacobs Constructors Singapore Pte.Ltd.

Jacobs Consultancy Canada Inc

Jacobs Consultancy Inc.

Jacobs Consultancy Limited

Jacobs Consultancy spol. s.r.o.

Jacobs Consultants, Inc.

Jacobs DCSA Saudi Arabia Ltd

Jacobs E&C Australia PTY Ltd

Jacobs F&C International Limited

Jacobs E&C Limited

Jacobs Eagleton LLC

Jacobs Engineering & Construction (Thailand) Limited

Jacobs Engineering (Suzhou) Co., Ltd.

Jacobs Engineering Company

Jacobs Engineering de Mexico, S.A. de C.V.

Jacobs Engineering Deutschland GmbH

Jacobs Engineering Espana, S.L.

Jacobs Engineering Foundation

Jacobs Engineering Group Inc.

Jacobs Engineering Group Malaysia Sdn. Bhd.

Jacobs Engineering Inc.

Jacobs Engineering India Private Limited

Jacobs Engineering Ireland Limited

JACOBS ENGINEERING LLC

Jacobs Engineering Malaysia Sdn. Bhd.

Jacobs Engineering New York Inc.

Jacobs Engineering SA

Jacobs Engineering Services Sdn. Bhd.

Jacobs Engineering Singapore Pte. Ltd.

Jacobs Engineering UK Limited

Jacobs Europe Holdco Limited

Jacobs European Holdings Limited

Jacobs Field Services Americas Inc.

Jacobs Field Services Americas Inc.

Jacobs Field Services Limited

Jacobs Field Services North America. Inc.







HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT

Jacobs Field Services North America, Inc.

Jacobs Government Services Company

Jacobs Group (Australia) Pty Ltd

Jacobs Group Australia Holdings Ltd

Jacobs Group Investments Australia PTY LTD

Jacobs Hellas A.E.

Jacobs Holding France S.A.S

Jacobs Holdings Singapore Pte.Ltd.

Jacobs Industrial Maintenance Company LLC

Jacobs Industrial Services Inc. Jacobs Industrial Services Inc. Jacobs Industrial Services Ltd.

Jacobs International Engineering Consultancy L.L.C

Jacobs International Holdings, Inc.

Jacobs International Limited

Jacobs Ireland Investment Holdings Limited

Jacobs Italia SPA

Jacobs Luxembourg Finance Company S.a.r.l.

Jacobs Luxembourg S.a.r.l. Jacobs Maintenance, Inc. Jacobs Matasis (Pty) Ltd.

Jacobs Merrion Finance Unlimited Company

Jacobs Minerals Inc. Jacobs Minerals Inc. Jacobs Nederland B.V Jacobs Nederland B.V

Jacobs Nederland B.V

Jacobs Nederland Finance and Investment Company B.V.

Jacobs New Zealand Limited

Jacobs Norway AS Jacobs Nucleaire SAS

Jacobs Nuclear Engineering Service Private Limited

Jacobs One Limited

Jacobs P.S.C.

Jacobs Pan-American Corporation

Jacobs Peru S.A.

Jacobs Process Limited

Jacobs Professional Services Inc.

Jacobs Project Management Australia PTY Ltd

Jacobs Project Management Co. Jacobs Projects (Philippines), Inc. Jacobs Projects (Shanghai) Co., Ltd.

Jacobs Projects GmbH

Jacobs PSG Inc. Jacobs PSG Inc.

Jacobs Puerto Rico Inc. Jacobs Puerto Rico Inc. Jacobs Russia LLC

Jacobs Services SEA Pte. Ltd.

Jacobs Spain S.L.

Jacobs Stobbarts Limited

Jacobs Suomi OY Jacobs Sverige AB Jacobs Technology Inc.

Jacobs Telecommunications Inc.

Jacobs Terra LLC Jacobs U.K. Limited

Jacobs UK Holdings Limited

Jacobs, Zamel and Turbag Consulting Engineers Company

JacobsGIBB Ltd.

JE Architects/Engineers, P.C.

JE Associates, Inc.

JE Professional Resources, Inc. JEG Acquisition Company Limited

JEG Architecture Nevada, Inc. Jersey Trust Company Limited

JFSL Construction Ltd.

JEST Construction Services Inc.







HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT

JFSL Fabrication Services Inc.

JFSL Field Services Ltd.

JFSL Maintenance Services Inc.

JFSL Projects Ltd.

JPI, LLC

JTC Corporate Services Limited

JTC Management Limited

JTC Trustees Limited

Kier Construction Limited

KlingStubbins LLP

KlingStubbins, Inc.

L.E.S. Construction Limited

Le Crossing Company Limited

Leigh Fisher India Private Limited

LeighFisher B.V.

LeighFisher Canada Inc.

LeighFisher Holdings Limited

LeighFisher Inc.

LeighFisher Limited

LeighFisher Switzerland Gmbh

LeighFisher U.K. Limited

Lend Lease International Pty Limited

Lim Associates (Pte) Ltd

Lindsey Engineering Services Limited

Milestone Construction Inc.

OCP SA

Onbond Secretaries Limited

Payne & Keller Company, Inc.

Perunding Mahir Bersatu Sdn. Bhd.

Pettit Engineering Group Limited

PT Jacobs Group Indonesia

Resource Spectrum, Inc.

RINGWAY INFRASTRUCTURE SERVICES LIMITED

Ringway Jacobs Limited







Robert F. Harsh & Associates, Inc.

Rocky Flats Closure Site Services LLC

Serete Corporation

Sinclair Knight Merz (Canada) Inc

Sinclair Knight Merz (China) Co Ltd

Sinclair Knight Merz (Europe) Limited

Sinclair Knight Merz (Hong Kong) Limited

Sinclair Knight Merz (Ireland) Ltd

Sinclair Knight Merz (Kenya) Limited

Sinclair Knight Merz (Liberia) LLC

Sinclair Knight Merz (NZ) Holdings Ltd

Sinclair Knight Merz (Rus) 000

Sinclair Knight Merz (South Africa) (Pty) Ltd

Sinclair Knight Merz (Thailand) Co Ltd

Sinclair Knight Merz Consulting (India) Private Limited

Sinclair Knight Merz Guinea SARL

Sinclair Knight Merz Holdings Limited

Sinclair Knight Merz International (Hong Kong) Ltd

Sinclair Knight Merz International Holdings LLC

Sinclair Knight Merz IRH SpA

Sinclair Knight Merz L.L.C. (Oman)

Sinclair Knight Merz Management Pty Limited

Sinclair Knight Merz Pakistan (Pvt) Ltd

Sinclair Knight Merz Poland SP Zo.o.

Sinclair Knight Merz Servicos Limitada (Brazil)

SKM (Singapore) Pte. Ltd.

Sula Systems Limited

Sverdrup Asia Limited

Sverdrup Hydro Projects, Inc.

Sverdrup Jacobs Services, Inc.

The Sverdrup Partnership

Traffic Services, Inc.

Transfield Services (North America) Inc.

Triman Services Inc.

HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT

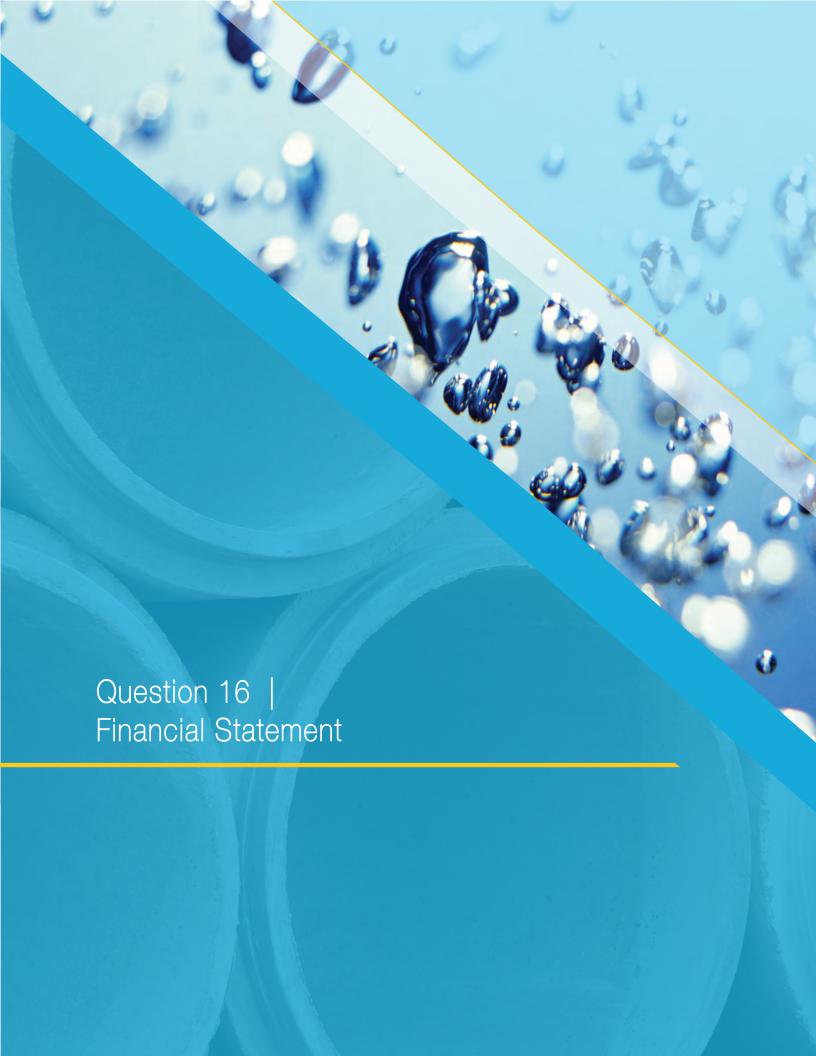
TSA of Massachusetts LLP Value Engineering and Management, Inc. Van Dyke Technology Group, INC VMS, Inc. Westminster and Earley Services Ltd.







Woodside Projects Inc. Wuxi Babtie Engineering Consultants Co. Ltd Wuxi Municipal Engineering Design Institute Zellars-Williams, Inc.



JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES CONSOLIDATED FINANCIAL STATEMENTS WITH REPORTS OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

September 29, 2017

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September 29, 2017

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CONSOLIDATED BALANCE SHEETS

(In thousands, except share information) At September 29, 2017 and September 30, 2016

	September 29, 2017	September 30, 2016
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 774,151	\$ 655,716
Receivables	2,102,543	2,115,663 93,091
Prepaid expenses and other current assets	119,486	
Total current assets	2,996,180	2,864,470
Property, Equipment, and Improvements, net	349,911	319,673
Other Noncurrent Assets:		
Goodwill	3,009,826	3,079,628
Intangibles, net Miscellaneous	332,920 692,022	336,922 759,329
Total other noncurrent assets	4,034,768	4,175,879
	\$7,380,859	\$7,360,022
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Notes payable	\$ 3,071	\$ 2,421
Accounts payable	683,605	522,427
Accrued liabilities	939,687	938,378
Billings in excess of costs	299,864	319,460
Total current liabilities	1,926,227	1,782,686
Long-term Debt	235,000	385,330
Other Deferred Liabilities	732,281	861,824
Commitments and Contingencies Stockholders' Equity: Capital stock:		
Preferred stock, \$1 par value, authorized—1,000,000 shares; issued and outstanding—none		
Common stock, \$1 par value, authorized—240,000,000 shares; issued and outstanding—120,385,544 shares and 120,950,899 shares as of	_	_
September 29, 2017 and September 30, 2016, respectively	120,386	120,951
Additional paid-in capital	1,239,782	1,168,272
Retained earnings	3,721,698	3,586,647
Accumulated other comprehensive loss	(653,514)	(610,594)
Total Jacobs stockholders' equity	4,428,352 58,999	4,265,276 64,906
•		
Total Group stockholders' equity	4,487,351	4,330,182
	\$7,380,859	\$7,360,022

See the accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF EARNINGS

For the Fiscal Years Ended September 29, 2017, September 30, 2016, and October 2, 2015 (In thousands, except per share information)

	September 29, 2017	September 30, 2016	October 2, 2015
Revenues	\$10,022,788	\$10,964,157	\$ 12,114,832
Costs and Expenses:			
Direct costs of contracts	(8,250,536)	(9,196,326)	(10,146,494)
Selling, general and administrative expenses	(1,379,983)	(1,429,233)	(1,522,811)
Operating Profit	392,269	338,598	445,527
Other Income (Expense):			
Interest income	8,748	7,848	7,262
Interest expense	(12,035)	(15,260)	(19,503)
Gain/(Loss) on disposal of business and investments	10,880	(41,410)	(2,909)
Miscellaneous expense, net	(6,645)	(3,053)	(240)
Total other income (expense), net	948	(51,875)	(15,390)
Earnings Before Taxes	393,217	286,723	430,137
Income Tax Expense	(105,842)	(72,208)	(101,255)
Net Earnings of the Group	287,375	214,515	328,882
Net Loss (Earnings) Attributable to Noncontrolling Interests	6,352	(4,052)	(25,911)
Net Earnings Attributable to Jacobs	\$ 293,727	\$ 210,463	\$ 302,971
Net Earnings Per Share:			
Basic	\$ 2.43	\$ 1.75	\$ 2.42
Diluted	\$ 2.42	\$ 1.73	\$ 2.40

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

For the Fiscal Years Ended September 29, 2017, September 30, 2016, and October 2, 2015 (In thousands)

	September 29, 2017	September 30, 2016	October 2, 2015
Net Earnings of the Group	\$ 287,375	\$ 214,515	\$ 328,882
Other Comprehensive (Loss) Income:	(140,527)	(46,515)	(126 169)
Foreign currency translation adjustments Change in pension liability (Losses) Gains on cash flow hedges	123,427 (1,350)	(111,488) (1,403)	(136,168) 33,208 2,949
Other Comprehensive Loss Before Income Taxes Income Tax (Expense) Benefit:	(18,450)	(159,406)	(100,011)
Change in pension liability (Losses) Gains on cash flow hedges	(24,380) (90)	13,303 273	(438) (766)
Income Tax (Expense) Benefit	(24,470)	13,576	(1,204)
Net Other Comprehensive Loss	(42,920)	(145,830)	(101,215)
Net Comprehensive Income of the Group	244,455	68,685	227,667
Interests	6,352	(4,052)	(25,911)
Total Comprehensive Income	\$ 250,807	\$ 64,633	\$ 201,756

See the accompanying Notes to Consolidated Financial Statements including the Company's note on Other Comprehensive Income for a presentation of amounts reclassified to net income during the period.

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

For the Fiscal Years Ended September 29, 2017, September 30, 2016, and October 2, 2015 (In thousands)

	Common Stock	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comp- rehensive Income (Loss)	Total Jacobs Stock- holders' Equity	Non- controlling Interests	Total Group Stock- holders' Equity
Relations at September 26, 2014 Net earnings Foreign currency translation		\$1,173,858 —	\$3,527,193 302,971	\$(363,549) —	\$4,469,255 302,971	\$36,405 25,911	\$4,505,660 328,882
adjustments Pension liability, net of deferred	_	_	_	(136,168)	(136,168)	_	(136,168)
taxes of \$438	_	_	_	32,770	32,770	_	32,770
deferred taxes of \$766	_	_	_	2,183	2,183	_	2,183
Noncontrolling interest acquired / consolidated Distributions to noncontrolling	_	_	(9,709)	_	(9,709)	9,627	(82)
interests	_	_	_	_	_	(7,230)	(7,230)
Issuances of equity securities, net of deferred taxes of \$10,332	1,590	80,801	_	_	82,391	_	82,391
Repurchases of equity securities	(10,190)	(117,515)	(324,243)		(451,948)		(451,948)
Balances at October 2, 2015		\$1,137,144	\$3,496,212	\$(464,764)	\$4,291,745	\$64,713	\$4,356,458
Net earnings Foreign currency translation	_	_	210,463	_	210,463	4,052	214,515
adjustments	_	_	_	(46,516)	(46,516)	_	(46,516)
taxes of \$13,303	_	_	_	(98,185)	(98,185)	_	(98,185)
deferred taxes of \$274 Noncontrolling interest acquired /	_	_	_	(1,129)	(1,129)	_	(1,129)
consolidated	_	(127)	_	_	(127)	(1,150)	(1,277)
interests	_	_	(3,146)	_	(3,146)	(2,709)	(5,855)
Issuances of equity securities, net of deferred taxes of \$3,382	1,351	72,055	_	_	73,406	_	73,406
Repurchases of equity securities	(3,553)	(40,800)	(116,882)	_	(161,235)	_	(161,235)
Balances at September 30, 2016	\$120,951	\$1,168,272	\$3,586,647	\$(610,594)	\$4,265,276	\$64,906	\$4,330,182
Net earnings		_	293,727	_	293,727	(6,352)	287,375
adjustments	_	_	_	(140,527)	(140,527)	_	(140,527)
taxes of \$24,380	_	_	_	99,047	99,047	_	99,047
deferred taxes of \$90	_	_	_	(1,440)	(1,440)	_	(1,440)
Noncontrolling interest acquired / consolidated	_	_	_	_	_	445	445
Dividends	_	_	(72,765)	_	(72,765)	_	(72,765)
interests	_	_	(4,559)	_	(4,559)	_	(4,559)
of deferred taxes of \$1,015 Repurchases of equity	1,468	99,117	_	_	100,585	_	100,585
securities	(2,033)	(27,607)	(81,352)		(110,992)		(110,992)
Balances at September 29, 2017	\$120,386	\$1,239,782	\$3,721,698	\$(653,514)	\$4,428,352	\$58,999	\$4,487,351

See the accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Fiscal Years Ended September 29, 2017, September 30, 2016, and October 2, 2015 (In thousands)

	September 29, 2017	September 30, 2016	October 2, 2015
Cash Flows from Operating Activities: Net earnings attributable to the Group Adjustments to reconcile net earnings to net cash flows provided by operations:	\$ 287,375	\$ 214,515	\$ 328,882
Depreciation and amortization: Property, equipment and improvements Intangible assets (Gain) Loss on sales of investments	76,418 46,095 (10,880)	82,363 47,608 17,049	99,924 49,368
Loss on sales of business Gain on benefit plan change Stock based compensation	822 (9,955) 38,764	24,361 32,370	2,909 — 41,412
Tax deficiency from stock based compensation	(2,877) (7,788) (26,990)	(377) (11,892) (9,380)	(1,237) 5,483 (5,980)
Change in deferred compensation plans	(531) 14,876 36,663	576 10,680 (27,407)	(3,229) 30,985 (31,177)
acquired: Receivables	75,441 (23,755)	397,268 17,906	172,958 6,644
Accounts payable Accrued liabilities Billings in excess of costs	153,961 (56,279) (31,976)	(44,214) (71,930) 33,347	(28,943) (120,847) (52,441)
Income taxes payable Other deferred liabilities Deferred gain on synthetic lease transaction	4,264 (6,026)	(4,586) (28,801)	(22,685) (15,759) 23,343
Other, net Net cash provided by operating activities	<u>17,259</u> 574,881	717 680,173	4,962
Cash Flows Used for Investing Activities: Additions to property and equipment Disposals of property and equipment Purchases of intangibles Purchases of investments	(118,060) 2,387 —	(67,688) 10,479 (10,027) (3,403)	(88,404) 369 —
Sales of investments Acquisitions of businesses, net of cash acquired Sales of business	31,701 (150,190) (2,036)	(49,943) (19,039)	(8,101)
Net cash used for investing activities	(236,198)	(139,621)	(96,123)
Cash Flows Used for Financing Activities: Proceeds from long-term borrowings Repayments of long-term borrowings Proceeds from short-term borrowings Repayments of short-term borrowings Proceeds from issuances of common stock	1,694,023 (1,846,797) 1,347 (702) 62,645	1,649,653 (1,840,789) 3,040 (14,042) 43,140	1,768,639 (1,907,109) 362,433 (382,190) 33,222
Common stock repurchases Excess tax benefits from stock based compensation Cash dividends Dividends paid to noncontrolling interests	(97,180) 2,877 (54,234) (4,559)	(152,550) 377 — (5,855)	(422,316) 1,237 (7,230)
Net cash used for financing activities	(242,580)	(317,026)	(553,314)
Effect of Exchange Rate Changes	22,332	(28,669)	(106,923)
Net Increase (Decrease) in Cash and Cash Equivalents	118,435 655,716	194,857 460,859	(271,788) 732,647
Cash and Cash Equivalents at End of Period	\$ 774,151	\$ 655,716	\$ 460,859

See the accompanying Notes to Consolidated Financial Statements.

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Description of Business and Basis of Presentation

Description of Business

We provide a broad range of technical, professional, and construction services including engineering, design, and architectural services; construction and construction management services; operations and maintenance services; and process, scientific, and systems consulting services. We provide our services through offices and subsidiaries located primarily in North America, South America, Europe, the Middle East, India, Australia, Africa, and Asia. We provide our services under cost-reimbursable and fixed-price contracts. The percentage of revenues realized from each of these types of contracts for the fiscal years ended September 29, 2017, September 30, 2016 and October 2, 2015 was as follows:

	For the Year Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Cost-reimbursable	81%	82%	83%	
Fixed-price	19%	18%	17%	

Basis of Presentation, Definition of Fiscal Year, and Other Matters

The accompanying Consolidated Financial Statements have been prepared in accordance with U.S. GAAP and include the accounts of Jacobs Engineering Group Inc. and its subsidiaries and affiliates which it controls. All intercompany accounts and transactions have been eliminated in consolidation.

The Company's fiscal year ends on the Friday closest to September 30 (determined on the basis of the number of workdays) and, accordingly, an additional week of activity is added every five -to- six years. Fiscal 2015 included an extra week of activity.

During the second quarter of fiscal 2016, we reorganized our operating and reporting structure around four lines of business ("LOB"). This reorganization is intended to better serve our global clients, leverage our workforce, help streamline operations, and provide enhanced growth opportunities. The four global LOBs are: Petroleum & Chemicals, Buildings & Infrastructure, Aerospace & Technology, and Industrial. Previously, the Company operated its business as a single segment. For a further discussion of our segment information, please refer to Note 15-Segment Information.

Please refer to Note 17—*Definitions* for the definitions of certain terms used in the accompanying Consolidated Financial Statements and these Notes to Consolidated Financial Statements.

2. Significant Accounting Policies

Revenue Accounting for Contracts and Use of Joint Ventures

We recognize revenue earned on our technical professional and field services projects under the percentage-of-completion method described in ASC 605-35, Construction-Type and Production-Type Contracts. In general, we recognize revenues at the time we provide services. Pre-contract costs are generally expensed as incurred. Contracts are generally segmented between types of services, such as project services and construction, and accordingly, gross margin related to each activity is recognized as those separate services are rendered. For multiple contracts with a single customer we account for each contract separately.

The percentage-of-completion method of accounting is applied by comparing contract costs incurred to date to the total estimated costs at completion. On cost-reimbursable contracts, the cost of materials and subcontracts

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

are generally excluded from the calculation of the measure of progress towards completion to provide a more meaningful allocation of income. Contract losses are provided for in their entirety in the period they become known, without regard to the percentage-of-completion.

Unapproved change orders are included in the contract price to the extent it is probable that such change orders will result in additional contract revenue and the amount of such additional revenue can be reliably estimated. Claims meeting these recognition criteria are included in revenues only to the extent of the related costs incurred.

Certain cost-reimbursable contracts include incentive-fee arrangements. These incentive fees can be based on a variety of factors but the most common are the achievement of target completion dates, target costs, and/or other performance criteria. Failure to meet these targets can result in unrealized incentive fees. We recognize incentive fees based on expected results using the percentage-of-completion method of accounting. As the contract progresses and more information becomes available, the estimate of the anticipated incentive fee that will be earned is revised as necessary. We bill incentive fees based on the terms and conditions of the individual contracts. In certain situations, we are allowed to bill a portion of the incentive fees over the performance period of the contract. In other situations, we are allowed to bill incentive fees only after the target criterion has been achieved. Incentive fees which have been recognized but not billed are included in receivables in the accompanying Consolidated Balance Sheets.

Certain cost-reimbursable contracts with government customers as well as certain commercial clients provide that contract costs are subject to audit and adjustment. In this situation, revenues are recorded at the time services are performed based upon the amounts we expect to realize upon completion of the contracts. Revenues are not recognized for non-recoverable costs. In those situations where an audit indicates that we may have billed a client for costs not allowable under the terms of the contract, we estimate the amount of such nonbillable costs and adjust our revenues accordingly.

When we are directly responsible for subcontractor labor or third-party materials and equipment, we reflect the costs of such items in both revenues and costs (and we refer to such costs as "pass-through" costs). On those projects where the client elects to pay for such items directly and we have no associated responsibility for such items, these amounts are not reflected in either revenues or costs.

The following table sets forth pass-through costs included in revenues in the accompanying Consolidated Statements of Earnings (in millions):

For the Year Ended			
September 29, 2017	September 30, 2016	October 2, 2015	
\$2,539.3	\$2,489.9	\$2,602.6	

As is common to the industry, we execute certain contracts jointly with third parties through various forms of joint ventures and consortiums. Although the joint ventures own and hold the contracts with the clients, the services required by the contracts are typically performed by us and our joint venture partners, or by other subcontractors under subcontracting agreements with the joint ventures. The assets of our joint ventures, therefore, consist almost entirely of cash and receivables (representing amounts due from clients), and the liabilities of our joint ventures consist almost entirely of amounts due to the joint venture partners (for services provided by the partners to the joint ventures under their individual subcontracts) and other subcontractors. In general, at any given time, the equity of our joint ventures represents the undistributed profits earned on contracts the joint ventures hold with clients. Very few of our joint ventures have employees. None of our joint ventures have third-party debt or credit facilities. Under U.S. GAAP, our share of profits and losses associated with the contracts held by the joint ventures is reflected in our Consolidated Financial Statements.

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Certain of our joint ventures meet the definition of a VIE. In evaluating our VIEs for possible consolidation, we perform a qualitative analysis to determine whether or not we have a "controlling financial interest" in the VIE as defined by U.S. GAAP. We consolidate only those VIEs over which we have a controlling financial interest and are the primary beneficiary.

For the Company's unconsolidated joint ventures, we use either the equity method of accounting or proportional consolidation.

There were no changes in facts and circumstances during the period that caused the Company to reassess the method of accounting for its VIEs.

Fair Value Measurements

The net carrying amounts of cash and cash equivalents, trade receivables and payables, and notes payable approximate Fair Value due to the short-term nature of these instruments. Similarly, we believe the carrying value of long-term debt also approximates Fair Value based on the interest rates and scheduled maturities applicable to the outstanding borrowings. Certain other assets and liabilities, such as forward contracts and an interest rate swap agreement we purchased as cash-flow hedges discussed in Note 11—Commitments and Contingencies and Derivative Financial Instruments are required to be carried in our Consolidated Financial Statements at Fair Value.

The Fair Value of the Company's reporting units (used for purposes of determining whether there is an indication of possible impairment of the carrying value of goodwill) is determined using both an income approach and a market approach. Both approaches require us to make certain estimates and judgments. Under the income approach, Fair Value is determined by using the discounted cash flows of our reporting units. Under the market approach, the Fair Values of our reporting units are determined by reference to guideline companies that are reasonably comparable to our reporting units; the Fair Values are estimated based on the valuation multiples of the invested capital associated with the guideline companies. In assessing whether there is an indication that the carrying value of goodwill has been impaired, we utilize the results of both valuation techniques and consider the range of Fair Values indicated. The range of values (both ends of the range) for each reporting unit exceeded the respective book values by 27% to 110%.

With respect to equity-based compensation (i.e., share-based payments), we estimate the Fair Value of stock options granted to employees and directors using the Black-Scholes option-pricing model. Like all option-pricing models, the Black-Scholes model requires the use of subjective assumptions including (i) the expected volatility of the market price of the underlying stock, and (ii) the expected term of the award, among others. Accordingly, changes in assumptions and any subsequent adjustments to those assumptions can cause different Fair Values to be assigned to our future stock option awards. For restricted stock units containing service, market and performance conditions, compensation expense is based on the Fair Value of such units using a Monte Carlo simulation.

The Fair Values of the assets owned by the various pension plans that the Company sponsors are determined based on the type of asset, consistent with U.S. GAAP. Equity securities are valued by using market observable data such as quoted prices. Publicly traded corporate equity securities are valued at the last reported sale price on the last business day of the year. Securities not traded on the last business day are valued at the last reported bid price. Debt securities are valued at the last reported sale price on the last business day applicable. Real estate consists primarily of common or collective trusts, with underlying investments in real estate. These investments are valued using the best information available, including quoted market price, market prices for similar assets

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

when available, internal cash flow estimates discounted at an appropriate interest rate, or independent appraisals, as appropriate. Management values insurance contracts, investments in infrastructure/raw goods, and hedge funds using actuarial assumptions and certain values reported by fund managers.

The methodologies described above and elsewhere in these Notes to Consolidated Financial Statements may produce a Fair Value measure that may not be indicative of net realizable value or reflective of future Fair Values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the Fair Value of certain financial instruments could result in a different Fair Value measurement.

Cash Equivalents

We consider all highly liquid investments with original maturities of less than three months to be cash equivalents. Cash equivalents at September 29, 2017 and September 30, 2016 consisted primarily of money market mutual funds and overnight bank deposits.

Receivables and Billings in Excess of Costs

Receivables include billed receivables, unbilled receivables, and retentions receivable. Billed receivables represent amounts invoiced to clients in accordance with the terms of our client contracts. They are recorded in our financial statements when they are issued. Unbilled receivables and retentions receivable represent reimbursable costs and amounts earned and reimbursable under contracts in progress as of the respective balance sheet dates. Such amounts become billable according to the contract terms, which usually consider the passage of time, achievement of certain milestones or completion of the project. We anticipate that substantially all of such unbilled amounts will be billed and collected over the next fiscal year.

Certain contracts allow us to issue invoices to clients in advance of providing services. Billings in excess of costs represent billings to, and cash collected from, clients in advance of work performed. We anticipate that substantially all such amounts will be earned over the next twelve months.

Property, Equipment, and Improvements

Property, equipment and improvements are carried at cost, and are shown net of accumulated depreciation and amortization in the accompanying Consolidated Balance Sheets. Depreciation and amortization is computed primarily by using the straight-line method over the estimated useful lives of the assets. The cost of leasehold improvements is amortized using the straight-line method over the lesser of the estimated useful life of the asset or the remaining term of the related lease. Estimated useful lives range from 20 to 40 years for buildings, from 3 to 10 years for equipment and from 4 to 10 years for leasehold improvements.

Goodwill and Other Intangible Assets

Goodwill represents the excess of the cost of an acquired business over the Fair Value of the net tangible and intangible assets acquired. Goodwill and intangible assets with indefinite lives are not amortized; instead, on an annual basis as of the end of the third quarter of each fiscal year we test goodwill and intangible assets with indefinite lives for possible impairment. Interim testing for impairment is performed if indicators of potential impairment exist. For purposes of impairment testing, goodwill is assigned to the applicable reporting units based on the current reporting structure.

During the second quarter of fiscal 2016, we reorganized our operations around four global lines of business, which also serve as our operating segments: Petroleum & Chemicals, Buildings & Infrastructure,

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Aerospace & Technology, and Industrial. We determined that this new organization would better support the needs of managing each unique set of customers that fall within each segment. As a result of the new organization, we subsequently realigned our internal reporting structures to enable our Chief Executive Officer, who is also our Chief Operating Decision Maker, to evaluate the performance of each of these segments and make appropriate resource allocations among each of the segments. For purposes of our goodwill impairment testing, we have determined that our operating segments are also our reporting units based on management's conclusion that the components comprising each of our operating segments share similar economic characteristics and meet the aggregation criteria in accordance with ASC 350.

When testing goodwill for impairment quantitatively, the Company first compares the fair value of each reporting unit with its carrying amount. If the carrying amount of a reporting unit exceeds its fair value, a second step is performed to measure the amount of potential impairment. In the second step, the Company compared the implied fair value of the reporting unit goodwill with the carrying amount of the reporting unit's goodwill. If the carrying amount of reporting unit goodwill exceeds the implied fair value of that goodwill, an impairment loss is recognized. During 2017, we completed our annual goodwill impairment test and quantitatively determined that none of the goodwill was impaired. The Company recorded \$119.3 million of goodwill during 2017 in conjunction with the acquisitions of Aquenta Consulting Pty Ltd. and Blue Canopy LLC. Goodwill for each of the Company's segments is presented in Note 15.

We have determined that the fair value of our reporting units substantially exceeded their respective carrying values for the Consolidated Balance Sheets presented.

The following table presents the components of our goodwill by reporting unit appearing in the accompanying Consolidated Balance Sheets at September 29, 2017 (in thousands):

	September 29, 2017
Aerospace & Technology	\$1,025,780
Buildings & Infrastructure	751,407
Industrial	561,785
Petroleum & Chemicals	670,854
Total Goodwill	\$3,009,826

During the preparation of the Form 10-Q for the first fiscal quarter of 2017, the Company determined that its prior financial statements contained immaterial misstatements related to incorrect translation of the Company's non-U.S. goodwill balances from local currency to the U.S. Dollar reporting currency. It was determined that the Company had incorrectly used historical translation rates for the U.S. Dollar in place at the time of the Company's recording of its foreign goodwill balances rather than using current translation rates at each balance sheet date in accordance with U.S. GAAP. The error dated back to the time of our initial reporting of non-US goodwill balances in the late 1990s and affected our historical quarterly and annual reporting periods through the first fiscal quarter of 2017.

As a result, goodwill and accumulated other comprehensive income in the Company's September 30, 2016 consolidated balance sheet (which have not been adjusted) were each overstated by \$209.9 million and were corrected in the first fiscal quarter of 2017 foreign currency translation adjustment. Consequently, the correction was a direct component of the overall translation adjustment amount of \$140.5 million that was reported for fiscal 2017. These adjustments had no impact on the Company's Consolidated Statements of Earnings or Cash Flows. Also, other comprehensive income for the year ended September 30, 2016 was overstated by \$33.8 million as a result of these misstatements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table provides certain information related to the Company's acquired intangible assets in the accompanying Consolidated Balance Sheets at September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	Customer Relationships, Contracts, and Backlog	Developed Technology	Trade Names	Patents_	Other	Total
Balances, September 26, 2014	\$408,041	\$17,378	\$14,148	\$ —	\$ 625	\$440,192
Acquisitions	(4,315)	_	(1,292)	_	300	(5,307)
Amortization	(39,967)	(1,533)	(4,172)	_	(277)	(45,949)
Foreign currency translation	(34,418)		(1,085)		(14)	(35,517)
Balances, October 2, 2015	329,341	15,845	7,599	_	634	353,419
Acquisitions	7,286		859	10,027		18,172
Amortization	(38,595)	(1,534)	(3,819)	_	(454)	(44,402)
Foreign currency translation	9,605		147		(19)	9,733
Balances, September 30, 2016	307,637	14,311	4,786	10,027	161	336,922
Acquisitions	29,803	1,685	4,417	_	_	35,905
Amortization	(39,679)	(1,534)	(2,549)	(400)	(50)	(44,212)
Foreign currency translation	3,707		45	553		4,305
Balances, September 29, 2017	\$301,468	14,462	6,699	10,180	111	332,920
Weighted Average Amortization Period						
(years)	7.9	7.7	4.4	24	2.2	8.3

The weighted average amortization period includes the effects of foreign currency translation.

The above table excludes the values assigned to those intangible assets embedded in the Company's equity method investment in AWE Management Ltd. ("AWE") and Guimar Engenharia LTDA ("Guimar"). Those amounts are included in the carrying value of the Company's investment in AWE and Guimar. The amount of amortization expense we estimate we will record during each of the next five fiscal years relating to intangible assets existing at September 29, 2017, including those associated with AWE and Guimar, is: fiscal 2018—\$49.7 million; fiscal 2019—\$48.3 million; fiscal 2020—\$46.1 million; fiscal 2021—\$40.9 million; and fiscal 2022—\$39.5 million.

Foreign Currencies

In preparing our Consolidated Financial Statements, it is necessary to translate the financial statements of our subsidiaries operating outside the U.S., which are denominated in currencies other than the U.S. dollar, into the U.S. dollar. In accordance with U.S. GAAP, revenues and expenses of operations outside the U.S. are translated into U.S. dollars using weighted-average exchange rates for the applicable periods being translated while the assets and liabilities of operations outside the U.S. are generally translated into U.S. dollars using period-end exchange rates. The net effect of foreign currency translation adjustments is included in stockholders' equity as a component of accumulated other comprehensive income (loss) in the accompanying Consolidated Balance Sheets.

Share-Based Payments

We measure the value of services received from employees and directors in exchange for an award of an equity instrument based on the grant-date Fair Value of the award. The computed value is recognized as a

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

non-cash cost on a straight-line basis over the period the individual provides services, which is typically the vesting period of the award with the exception of awards containing an internal performance measure which is recognized on a straight-line basis over the vesting period subject to the probability of meeting the performance requirements and adjusted for the number of shares expected to be earned. The cost of these awards is recorded in selling, general and administrative expense in the accompanying Consolidated Statements of Earnings.

The following table presents our stock-based compensation expense for the various types of awards made by the Company as included in the Consolidated Statements of Earnings for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

For the Years Ended		
September 29, 2017	September 30, 2016	October 2, 2015
\$26,393	\$21,156	\$20,779
4,338	7,165	10,683
8,033	4,049	9,950
\$38,764	\$32,370	\$41,412
	\$26,393 4,338 8,033	September 29, 2017 September 30, 2016 \$26,393 \$21,156 4,338 7,165 8,033 4,049

The Company has two incentive plans whereby eligible employees and directors of Jacobs may be granted stock options, restricted stock, and/or restricted stock units.

Stock Options—Substantially all of the stock options granted during the previous years were awarded on the same date for all employees and directors (although the date is different for employees and directors). For fiscal year 2017, there were no stock options granted to either employees or directors. The following table presents the assumptions used in the Black-Scholes option-pricing model for awards made to employees and directors for the years ended September 30, 2016 and October 2, 2015:

	Awards Made to Employees		Awards Made to Directors	
	September 30, 2016	October 2, 2015	September 30, 2016	October 2, 2015
Dividend yield	— %	— %	— %	— %
Expected volatility	27.77%	27.00%	29.21%	29.28%
Risk-free interest rate	1.82%	1.67%	1.44%	1.63%
Expected term of options (in years)	5.82	5.82	5.82	5.82

Market and Performance Awards—The Company granted restricted stock units containing service, performance, and market conditions ("PSUs"). PSUs are earned over a three-year performance period if the specified performance metrics are met. During fiscal 2015, the Company only granted PSUs based on net earnings growth ("Net Earnings Growth Based PSUs"). For fiscal 2016, half of the PSUs granted were based on relative total stockholder return ("Relative TSR Based PSUs") and the other half of the PSUs were based on earnings per share ("EPS Based PSUs"). For fiscal 2017, half of the PSUs granted were EPS Based PSUs and the other half were based on return on invested capital ("ROIC Based PSUs").

2014 and 2015 Awards

The number of Net Earnings Growth Based PSUs awarded in fiscal years 2014 and 2015 which may ultimately vest is equal to the sum of the following: (1) an amount, not less than zero, equal to one-third of the

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

target Net Earnings Growth Based PSUs multiplied by the Net Earnings Growth Performance Multiplier (or, "NEGPM", as shown in the table below) determined based upon the growth in the Company's Adjusted Net Earnings (as defined in the applicable award agreements under the Stock Incentive Plan) over the period starting on the first day of the Company's third quarter of fiscal 2014 (in the case of Net Earnings Growth Based PSUs issued in fiscal 2014), or fiscal 2015 (in the case of Net Earnings Growth Based PSUs issued in fiscal 2015) and ending on the last day of the Company's second quarter of fiscal 2015 and fiscal 2016, respectively; plus, (2) an amount, not less than zero, equal to (A) two-thirds of the target Net Earnings Growth Based PSUs multiplied by the NEGPM determined based upon the average growth in the Company's Adjusted Net Earnings Growth Based PSUs issued in fiscal 2014), or fiscal 2015 (in the case of Net Earnings Growth Based PSUs issued in fiscal 2015) and ending on the last day of the Company's second quarter of fiscal 2016 and fiscal 2017, respectively, minus (B) the amount determined pursuant to (1) above; plus, (3) an amount, not less than zero, equal to (A) the target Net Earnings Growth Based PSUs multiplied by the NEGPM determined based upon the average growth in the Company's Adjusted Net Earnings over the period starting on the first day of the Company's third quarter of fiscal

2014 (in the case of Net Earnings Growth Based PSUs issued in fiscal 2014), or fiscal 2015 (in the case of Net Earnings Growth Based PSUs issued in fiscal 2015) and ending on the last day of the Company's second quarter of fiscal 2017 and fiscal 2018, respectively, minus (B) the amount determined pursuant to (1) and (2) above.

If the Company's average growth in Adjusted Net Earnings over the applicable fiscal years during the respective performance periods is between 5% and 10%, 10% and 15%, or 15% and 20%, the Net Earnings Growth Performance Multiplier will be determined using straight line interpolation based on the actual average growth in the Company's Adjusted Net Earnings.

The following table presents the basis on which the Net Earnings Growth Based PSUs are determined:

Average Adjusted Net Earnings Growth	Net Earnings Growth Performance Multiplier
Less than 5%	0%
5%	50%
10%	100%
15%	150%
20%	200%

Unless stated otherwise, the Net Earnings Growth Based PSUs are valued based on the closing price of the Company's common stock as reported in the NYSE Composite Price History on their respective grant dates.

2016 Awards

EPS Based PSUs

For the EPS Based PSUs issued in fiscal 2016, the number of restricted stock units to be issued on the vesting date of November 19, 2018 is based on the Company's adjusted EPS growth over fiscal 2016, 2017 and 2018. The number of restricted stock units to be issued equals the sum of: (i) an amount, not less than zero, equal to one-third of the target number of restricted stock units multiplied by an EPS Performance Multiplier (as defined below) for that period determined based upon the growth in the Company's adjusted EPS ("EPS Growth

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Rate") from fiscal 2015 to fiscal 2016; (ii) an amount, not less than zero, equal to two-thirds of the target number of restricted stock units multiplied by an EPS Performance Multiplier determined based upon the Compound Annual EPS Growth Rate (as defined below) for fiscal 2017 as compared to fiscal 2015, minus the amount of shares earned pursuant to clause (i); and (iii) an amount, not less than zero, equal to the target number of restricted stock units multiplied by an EPS Performance Multiplier determined based upon the Compound Annual EPS Growth Rate for fiscal 2018 as compared to fiscal 2015, minus the amount of shares earned pursuant to clauses (i) and (ii).

The "Compound Annual EPS Growth Rate" for purposes of clauses (ii) and (iii) above means the growth rate, which when multiplied two times fiscal 2015 adjusted EPS (in the case of clause (ii)) or three times fiscal 2015 adjusted EPS (in the case of clause (iii)) results in a number equal to actual fiscal 2017 adjusted EPS and fiscal 2018 adjusted EPS, respectively. The "EPS Performance Multiplier" is determined by reference to the following table based upon the Company's EPS Growth Rate or Compound Annual EPS Growth Rate over the relevant fiscal periods. The Human Resource and Compensation Committee of the Board of Directors of the Company set these metrics based on the Company's plan at the start of the fiscal year.

EPS Growth Rate or Compound Annual EPS Growth Rate	EPS Performance Multiplier
Less than 4%	0%
4%	50%
7.5%	100%
15%	150%
20% or greater	200%

If the EPS Growth Rate or Compound Annual EPS Growth Rate falls between 4% and 7.5%, 7.5% and 15%, or 15% and 20%, the EPS Performance Multiplier is determined using linear interpolation based on the actual growth in adjusted EPS.

Unless stated otherwise, the EPS Based PSUs are valued based on the closing price of the Company's common stock as reported in the NYSE Composite Price History on their respective grant dates.

Relative TSR Based PSUs

The number of Relative TSR Based PSUs which may ultimately vest is equal to the target Relative TSR Based PSUs multiplied by the TSR Performance Multiplier. The TSR Performance Multiplier is determined by comparing the Company's total stockholder return to the total stockholder return of each of the companies in a specified industry peer group over the three year period immediately following the award date. For purposes of computing total stockholder return, the beginning stock price is the average closing stock price over the 30 calendar day period ending on the award date ("Performance Period"), and the ending stock price is the average closing price over the 30 calendar day period ending on the last day of the Performance Period. Any dividend payments made over the Performance Period are deemed re-invested on the ex-dividend date in additional shares of the applicable company.

The following table presents the basis on which the Relative TSR Based PSUs are determined:

Company TSR Percentile Rank	TSR Performance Multiplier
Below 30th percentile	0%
30th percentile	50%
50th percentile	100%
70th percentile or above	150%

If the Company's total stockholder return over the Performance Period falls between any of the brackets described above, the TSR Performance Multiplier will be determined using straight line interpolation based on the actual percentile ranking.

Substantially all of the TSR Based PSUs awarded during fiscal year 2016 were awarded on the same date. For fiscal year 2017 and 2015, no TSR Based PSUs were awarded. The following table presents the assumptions used to value the TSR Based PSUs for the years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Dividend yield	— %	— %	— %
Expected volatility	— %	25.06%	— %
Risk-free interest rate	— %	1.21%	— %
Expected term (in years)		3	_

2017 Awards

For the EPS Based PSUs issued in fiscal 2017, the number of restricted stock units to be issued on the vesting date of November 16, 2019 is based on the Company's adjusted EPS growth over fiscal 2017, 2018 and 2019. The number of restricted stock units to be issued equals the sum of: (i) an amount, not less than zero, equal to one-third of the target number of restricted stock units multiplied by an EPS Performance Multiplier (as shown in the table below) for that period determined based upon the growth in the Company's adjusted EPS ("EPS Growth Rate") from fiscal 2016 to fiscal 2017; (ii) an amount, not less than zero, equal to two-thirds of the target number of restricted stock units multiplied by an EPS Performance Multiplier determined based upon the average EPS Growth Rate in fiscal years 2017 and 2018 as compared to fiscal 2016, minus the amount of shares earned pursuant to clause (i); and (iii) an amount, not less than zero, equal to the target number of restricted stock units multiplied by an EPS Performance Multiplier determined based upon the average EPS Growth Rate in fiscal years 2017, 2018 and 2019 as compared to fiscal 2016, minus the amount of shares earned pursuant to clauses (i) and (ii).

The "EPS Performance Multiplier" is determined by reference to the following table based upon the average growth in the Company's adjusted EPS over the indicated fiscal periods. The Human Resource and Compensation Committee of the Board of Directors of the Company set these metrics based on the Company's plan at the start of the fiscal year.

Average EPS Growth Rate from fiscal 2016 to fiscal 2017

Average EPS Growth Rate	EPS Performance Multiplier
Less than 0%	0
2.3%	100%
4.3%	200%

Average EPS Growth Rate from fiscal 2016 to fiscal 2018

Average EPS Growth Rate	Performance Multiplier
Less than 2.1%	0
4.1%	100%
6.1%	200%

Average EPS Growth Rate from fiscal 2016 to fiscal 2019

Average EPS Growth Rate	EPS Performance Multiplier
Less than 3.6%	0
5.6%	100%
7.6%	200%

If the average EPS Growth Rate falls between the percentages referenced in the tables above, the EPS Performance Multiplier will be determined using linear interpolation based on the actual average EPS Growth Rate.

Unless stated otherwise, the EPS Based PSUs are valued based on the closing price of the Company's common stock as reported in the NYSE Composite Price History on their respective grant dates.

For the ROIC Based PSUs issued in fiscal 2017, the number of restricted stock units to be issued on the vesting date of November 16, 2019 is based on the Company's average annual return on invested capital ("ROIC") from fiscal 2017 to fiscal 2019. The number of restricted stock units to be issued equals the target number of restricted stock units multiplied by an ROIC Performance Multiplier (as shown in the table below) determined based upon the Company's average annual ROIC from fiscal 2017 to fiscal 2019.

Average ROIC – Fiscal 2017 – 2019	ROIC Performance Multiplier
Less than 8.9%	0%
8.9%	50%
9.9%	100%
10.9%	200%

If the average annual ROIC falls between 8.9% and 9.9% and 10.9%, the ROIC Performance Multiplier will be determined using linear interpolation based on the actual average ROIC.

Concentrations of Credit Risk

Our cash balances and cash equivalents are maintained in accounts held by major banks and financial institutions located in North America, South America, Europe, the Middle East, India, Australia, Africa, and Asia. In the normal course of business, and consistent with industry practices, we grant credit to our clients without requiring collateral. Concentrations of credit risk is the risk that, if we extend a significant amount of credit to clients in a specific geographic area or industry, we may experience disproportionately high levels of default if those clients are adversely affected by factors particular to their geographic area or industry. Concentrations of credit risk relative to trade receivables are limited due to our diverse client base, which includes the U.S. federal government and multi-national corporations operating in a broad range of industries and geographic areas. Additionally, in order to mitigate credit risk, we continually evaluate the credit worthiness of our major commercial clients.

Use of Estimates and Assumptions

The preparation of financial statements in conformity with U.S. GAAP requires us to employ estimates and make assumptions that affect the reported amounts of certain assets and liabilities; the revenues and expenses reported for the periods covered by the financial statements; and certain amounts disclosed in these Notes to the Consolidated Financial Statements. Although such estimates and assumptions are based on management's most recent assessment of the underlying facts and circumstances utilizing the most current information available and past experience, actual results could differ significantly from those estimates and assumptions. Our estimates, judgments, and assumptions are evaluated periodically and adjusted accordingly.

Earlier in these Notes to Consolidated Financial Statements we discussed three significant accounting policies that rely on the application of estimates and assumptions: revenue recognition for long-term construction contracts; the process for testing goodwill for possible impairment; and the accounting for share-based payments to employees and directors. The following is a discussion of certain other significant accounting policies that rely on the use of estimates:

Accounting for Pensions—We use certain assumptions and estimates in order to calculate periodic pension cost and the value of the assets and liabilities of our pension plans. These assumptions involve discount rates, investment returns, and projected salary increases, among others. Changes in the actuarial assumptions may have a material effect on the plans' liabilities and the projected pension expense.

Accounting for Income Taxes—We determine our consolidated income tax expense using the asset and liability method prescribed by U.S. GAAP. Under this method, deferred tax assets and liabilities are recognized for the temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and income tax purposes. Such deferred tax assets and liabilities are adjusted, as appropriate, to reflect changes in tax rates expected to be in effect when the temporary differences reverse. If and when we determine that a deferred tax asset will not be realized for its full amount, we will recognize and record a valuation allowance with a corresponding charge to earnings. Judgment is required in determining our worldwide provision for income taxes. In the normal course of business, we may engage in numerous transactions every day for which the ultimate tax outcome (including the period in which the transaction will ultimately be included in taxable income or deducted as an expense) is uncertain. Additionally, we file income, franchise, gross receipts and similar tax returns in many jurisdictions. Our tax returns are subject to audit and investigation by the Internal Revenue Service, most states in the U.S., and by various government agencies representing many jurisdictions outside the U.S.

Contractual Guarantees, Litigation, Investigations, and Insurance—In the normal course of business we are subject to certain contractual guarantees and litigation. We record in the Consolidated Balance Sheets amounts

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

representing our estimated liability relating to such guarantees, litigation, and insurance claims. We perform an analysis to determine the level of reserves to establish for both insurance-related claims that are known and have been asserted against us as well as for insurance-related claims that are believed to have been incurred based on actuarial analysis, but have not yet been reported to our claims administrators as of the respective balance sheet dates. We include any adjustments to such insurance reserves in our Consolidated Statements of Earnings. In addition, as a contractor providing services to various agencies of the U.S. federal government, we are subject to many levels of audits, investigations, and claims by, or on behalf of, the U.S. federal government with respect to contract performance, pricing, costs, cost allocations, and procurement practices. We adjust revenues based upon the amounts we expect to realize considering the effects of any client audits or governmental investigations.

Accounting for Business Combinations—U.S. GAAP requires that the purchase price paid for business combinations accounted for using the acquisition method be allocated to the assets and liabilities acquired based on their respective Fair Values. Determining the Fair Value of contract assets and liabilities acquired often requires estimates and judgments regarding, among other things, the estimated cost to complete such contracts. The Company must also make certain estimates and judgments relating to other assets and liabilities acquired as well as any identifiable intangible assets acquired.

During the fourth fiscal quarter of 2017, the Company acquired Blue Canopy LLC. During the second fiscal quarter of 2017, the Company acquired Aquenta Consulting Pty Ltd. During the first fiscal quarter of 2016, the Company acquired J.L. Patterson & Associates. These acquisitions were not material to the Company's consolidated results for fiscal 2017 or 2016.

On May 19, 2017, the Company entered into an agreement with Saudi Aramco to form a 50/50 Saudi Arabia-based joint venture company to provide professional program and construction management ("PMCM") services for social infrastructure projects throughout Saudi Arabia and across the Middle East and North Africa. The venture commenced start-up operations in fourth quarter fiscal 2017. Initial funding commitments from each of the partners include \$6.5 million in capital contributions and \$7.0 million in partner loans which are expected to be executed during fiscal 2018. The partners have also committed up to an additional \$7.0 million each for future loans to the joint venture.

New Accounting Pronouncements

Revenue Recognition

From time to time, the Financial Accounting Standards Board ("FASB") issues accounting standards updates (each being an "ASU") to its Accounting Standards Codification ("ASC"), which constitutes the primary source of U.S. GAAP. The Company regularly monitors ASUs as they are issued and considers their applicability to its business. All ASUs applicable to the Company are adopted by the due date and in the manner prescribed by the FASB.

In May 2014, the FASB issued ASU No. 2014-09— Revenue from Contracts with Customers. The new guidance provided by ASU 2014-09 is intended to remove inconsistencies and perceived weaknesses in the existing revenue requirements, provide a more robust framework for addressing revenue issues, improve comparability, provide more useful information and simplify the preparation of financial statements. ASU 2014-09 was initially effective for annual and interim reporting periods beginning after December 15, 2016. On July 9, 2015, the FASB approved a one-year deferral of the effective date of this standard. The revised effective date for the standard is for annual reporting periods beginning after December 15, 2017 and interim periods therein. The FASB also approved changes allowing for early adoption of the standard as of the original effective date.

The Company's adoption activities will be performed over three phases: (i) assessment, (ii) design, and (iii) implementation. Our assessment phase is predominantly complete. The following are the potential significant differences identified during the assessment phase:

Performance Obligations

Under current U.S. GAAP the Company typically considers engineering and construction services as separate performance obligations. Under ASU 2014-09, the Company has determined that, in most instances, it is likely that engineering and construction services will be required to be combined into a single performance obligation. In these instances, this will likely change the timing and pattern of revenue recognition.

Contract Modifications

In many instances, the Company enters into contracts for construction services subsequent to entering in to engineering services contracts. Under ASU 2014-09, the construction services contract may be deemed to modify the engineering contract, or may be required to be combined with the engineering contract. This modification or combination of contracts may result in a cumulative catch-up adjustment, which will have an immediate impact on the Company's results of operations in the period the contract combination or modification occurs. In addition, it will change the timing and pattern of revenue recognition after the period the contracts have been combined or modified.

The Company currently intends to adopt the new standard using the Modified Retrospective application. This standard could have a significant impact on the Company's Consolidated Financial Statements and an administrative impact on its operations and will depend on the magnitude of the items discussed above. The Company will continue to evaluate the impact through the design and implementation phases.

Lease Accounting

In February 2016, the FASB issued ASU 2016-02—Leases. ASU 2016-02 requires lessees to recognize assets and liabilities for most leases. ASU 2016-02 is effective for public entity financial statements for annual periods beginning after December 15, 2018, and interim periods within those annual periods. Early adoption is permitted, including adoption in an interim period. The guidance must be adopted using a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. The Company is evaluating the impact of the new guidance on its consolidated financial statements. This standard could have a significant administrative impact on its operations, and the Company will further assess the impact through its implementation program.

Employee Share-Based Payment Accounting

In March 2016, the FASB issued ASU 2016-09—Improvements to Employee Share-Based Payment Accounting. ASU 2016-09 simplifies several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. ASU 2016-09 is effective for annual periods beginning after December 15, 2016, and interim periods within those annual periods. The Company is evaluating the impact of the new guidance on its consolidated financial statements and plans to adopt in fiscal 2018.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

3. Employee Stock Purchase and Stock Option Plans

Broad-Based, Employee Stock Purchase Plans

Under the 1989 ESPP and the GESPP, eligible employees who elect to participate in these plans are granted the right to purchase shares of the common stock of Jacobs at a discount that is limited to 5% of the per-share market value on the day shares are sold to employees. The following table summarizes the stock issuance activity under the 1989 ESPP and the GESPP for the fiscal years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Aggregate Purchase Price Paid for Shares Sold:			
Under the 1989 ESPP	\$21,084,657	\$23,631,241	\$28,621,800
Under the GESPP	2,105,834	2,660,067	3,535,479
Total	\$23,190,491	\$26,291,308	\$32,157,279
Aggregate Number of Shares Sold:			
Under the 1989 ESPP	403,652	564,461	696,853
Under the GESPP	39,648	63,196	84,361
Total	443,300	627,657	781,214

On January 19, 2017, the Company's stockholders approved an increase in the number of shares authorized by 4,350,000 shares for the 1989 ESPP and by 150,000 shares for the GESPP.

At September 29, 2017, there remains 4,545,854 shares reserved for issuance under the 1989 ESPP and 174,980 shares reserved for issuance under the GESPP.

Stock Incentive Plans

We also sponsor the 1999 SIP and the 1999 ODSP. The 1999 SIP provides for the issuance of incentive stock options, nonqualified stock options, share appreciation rights ("SARs"), restricted stock, and restricted stock units to employees. The 1999 ODSP provides for awards of shares of common stock, restricted stock, and restricted stock units, and grants of nonqualified stock options to our outside (i.e., nonemployee) directors. The following table sets forth certain information about the 1999 Plans:

	1999 SIP	1999 ODSP	Total
Number of shares authorized	29,850,000	1,100,000	30,950,000
Number of remaining shares reserved for issuance at September 29,			
2017	9,641,396	539,787	10,181,183
Number of shares relating to outstanding stock options at September 29,			
2017	2,289,450	227,375	2,516,825
Number of shares available for future awards:			
At September 29, 2017	7,351,946	312,412	7,664,358
At September 30, 2016	7,233,173	319,535	7,552,708

Effective September 28, 2012, all grants of shares under the 1999 SIP are issued on a fungible basis. An award other than an option or SAR are granted on a 1.92-to-1.00 basis ("Fungible"). An award of an option or SAR are granted on a 1-to-1 basis ("Not Fungible").

The following table presents the Fair Value of shares (of restricted stock and restricted stock units) vested for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Restricted Stock and Restricted Stock Units (service condition)	\$34,466	\$17,481	\$18,568
conditions at target)	4,183	4,336	11,264
Total	\$38,649	\$21,817	\$29,832

The following table presents the Company's total pre-tax compensation cost relating to share-based payments included in the accompanying Consolidated Statements of Earnings for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended	
September 29, 2017	September 30, 2016	October 2, 2015
\$38,764	\$32,370	\$41,412

At September 29, 2017, the amount of compensation cost relating to nonvested awards not yet recognized in the financial statements is approximately \$83.7 million. The majority of the unrecognized compensation costs will be recognized by the first quarter of fiscal 2019. The weighted average remaining contractual term of options currently exercisable is 4.8 years.

Stock Options

The following table summarizes the stock option activity for the years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	Number of Stock Options	Weighted Average Exercise Price
Outstanding at September 26, 2014	4,221,147	\$53.23
Granted	614,759	\$43.56
Exercised	(34,000)	\$31.54
Cancelled or expired	(729,199)	\$86.15
Outstanding at October 2, 2015	4,072,707	\$46.06
Granted	460,770	\$42.17
Exercised	(412,416)	\$40.88
Cancelled or expired	(543,549)	\$49.13
Outstanding at September 30, 2016	3,577,512	\$45.69
Granted	_	\$ —
Exercised	(906,648)	\$43.79
Cancelled or expired	(154,039)	\$48.79
Outstanding at September 29, 2017	2,516,825	\$46.19

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Stock options outstanding at September 29, 2017 consisted entirely of nonqualified stock options. The following table presents the total intrinsic value of stock options exercised for the fiscal years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended	
September 29, 2017	September 30, 2016	October 2, 2015
\$14,713	\$4.149	\$442

The total intrinsic value of stock options exercisable at September 29, 2017 was approximately \$23.5 million. The following table presents certain other information regarding our 1999 SIP and 1999 OSDP for the fiscal years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	September 29, 2017	September 30, 2016	October 2, 2015
At fiscal year end:			
Range of exercise prices for options			
outstanding	\$32.51 — \$80.63	\$32.51 — \$80.63	\$32.51 — \$80.63
Number of options exercisable	1,992,022	2,581,421	2,590,560
For the fiscal year:			
Range of prices relating to options exercised	\$37.03 — \$55.53	\$36.88 — \$55.00	\$25.87 — \$42.74
Estimated weighted average fair values of options			
granted	\$ —	\$ 12.80	\$ 13.41

The following table presents certain information regarding stock options outstanding and stock options exercisable at September 29, 2017:

	September 29, 2017				
	Options Outstanding		Options Exercisable		
Range of Exercise Prices	Number	Weighted Average Remaining Contractual Life (years)	Weighted Average Price	Number	Weighted Average Exercise Price
\$32.51 – \$37.03	247,875	4.47	\$36.99	247,875	\$36.99
\$37.43 – \$46.09	1,360,188	5.63	\$42.69	890,206	\$42.65
\$47.11 – \$55.13	836,812	5.30	\$52.81	788,116	\$52.80
\$60.08 – \$80.63	71,950	4.23	\$66.92	65,825	\$67.52
	<u>2,516,825</u>	5.37	\$46.19	1,992,022	\$46.78

The 1999 ODSP and the 1999 SIP allow participants to satisfy the exercise price of stock options by tendering shares of Jacobs common stock that have been owned by the participants for at least six months. Shares so tendered are retired and canceled, and are shown as repurchases of common stock in the accompanying Consolidated Statements of Stockholders' Equity.

Restricted Stock

The following table presents the number of shares of restricted stock and restricted stock units issued as common stock under the 1999 SIP for the year ended September 29, 2017, September 30, 2016 and October 2, 2015:

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Restricted stock	_	597,091	507,882
Restricted stock units (service condition)	496,951	183,131	126,635
Restricted stock units (service, market and performance			
conditions)	237,058	372,794	219,965

The amount of restricted stock units issued for awards with performance and market conditions in the above table are issued based on performance against the target amount. The number of shares ultimately issued, which could be greater or less than target, will be based on achieving specific performance conditions described in *Note* 2—Significant Accounting Policies.

The share amounts in the above tables reflect the Non-Fungible share counting of one share for each share of restricted stock and restricted stock unit issued.

The following table presents the number of shares of restricted stock and restricted stock units cancelled and withheld for taxes under the 1999 SIP for the years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Restricted stock	365,481	512,903	326,480
Restricted stock units (service condition)	128,536	177,640	70,296
Restricted stock units (service, market and performance			
conditions)	86,742	275,933	194,116

The amount of unvested restricted stock units cancelled for awards with service and performance conditions in the above table is based on the service period achieved and performance against the target amount.

The share amounts in the above tables reflect the Non-Fungible share counting of one share for each share of restricted stock and restricted stock unit issued.

The restrictions attached to restricted stock and restricted stock units generally relate to the recipient's ability to sell or otherwise transfer the stock or stock units. There are also restrictions that subject the stock and stock units to forfeiture back to the Company until earned by the recipient through continued employment or service.

The following table provides the number of shares of restricted stock and restricted stock units outstanding at September 29, 2017 under the 1999 SIP. Shares granted in the table below are granted on a 1.92 -to-1.00 basis (fungible):

	September 29, 2017
	Total
Restricted stock	950,593
Restricted stock units (service condition)	766,759
Restricted stock units (service, market and performance conditions)	672,440

The following table presents the number of shares of restricted stock and restricted stock units issued under the 1999 ODSP for the years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Restricted stock units (service condition)	21,123	23,090	13,500

The following table provides the number of shares of restricted stock and restricted stock units outstanding at September 29, 2017 under the 1999 ODSP:

	September 29, 2017
Restricted stock	34,000
Restricted stock units (service condition)	90,595

All shares granted under the 1999 ODSP are issued on a 1-to-1 basis.

Modification

On January 18, 2017, the Company modified time vested outstanding restricted stock units, paid out in stock and cash, specifically to allow participants to be entitled to dividend equivalents during the vesting period on the outstanding RSUs. Dividends will be paid out at the end of the vesting period and are forfeitable before the vesting period concludes. This modification affected 786 employees and resulted in \$1.1 million of incremental compensation cost and will be recognized over the remaining vesting period for each grant, since dividends are forfeitable until vesting is achieved.

4. Earnings Per Share

Basic and Diluted Earnings Per Share

Basic and diluted earnings per share are computed using the two-class method, which is an earnings allocation method that determines earnings per share ("EPS") for common shares and participating securities. The undistributed earnings are allocated between common shares and participating securities as if all earnings had been distributed during the period. Participating securities and common shares have equal rights to undistributed earnings. Net earnings used for the purpose of determining basic and diluted earnings per share is determined by taking net earnings, less earnings available to participating securities.

The following table reconciles the denominator used to compute basic EPS to the denominator used to compute diluted EPS for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Numerator for Basic and Diluted EPS:			
Net income	\$293,727	\$210,463	\$302,971
Net income allocated to participating securities	(3,077)		
Net income allocated to common stock for EPS calculation	\$290,650	\$210,463	\$302,971
Denominator for Basic and Diluted EPS:			
Weighted average basic shares	119,370	120,133	125,007
Effect of dilutive securities:			
Stock compensation plans	777	680	481
Restricted stock	1,319	670	622
Diluted shares	121,466	121,483	126,110
Shares allocated to participating securities	(1,319)		
Shares used for calculating diluted EPS attributable to common			
stock	120,147	121,483	126,110
Basic EPS	\$ 2.43	\$ 1.75	\$ 2.42
Diluted EPS	\$ 2.42	\$ 1.73	\$ 2.40

Share Repurchases

On July 23, 2015, the Board of Directors approved a share repurchase program to repurchase up to \$500 million of the Company's common stock over the ensuing three years (the "2015 Share Repurchase Program"). As authorized, share repurchases may be executed through various means including, without limitation, open market transactions and/or privately negotiated transactions. The 2015 Share Repurchase Program does not obligate the Company to purchase any shares, and expires on July 22, 2018. The timing of shares repurchases may depend upon market conditions, other uses of capital, and other factors.

The following table summarizes the activity under this program during fiscal 2017 (in thousands, except per-share amounts):

Amount Authorized (in thousands)	Average Price Per Share (1)	Shares Retired (In thousands)	Shares Repurchased (In thousands)
\$500,000	\$55.60	1,748	1,748

⁽¹⁾ Includes commissions paid and calculated as the average price per share since the repurchase program authorization date.

Dividend Program

On December 1, 2016, the Company announced that the Board of Directors has approved the initiation of a cash dividend program. Quarterly dividends of \$0.15 per share were paid in each of the second, third and fourth

quarters of fiscal 2017. On September 27, 2017, the Board of Directors declared a quarterly cash dividend of \$0.15 per share, which was paid on November 10, 2017. Future dividend payments are subject to review and approval by the Company's Board of Directors.

5. Restructuring and Other Charges

During the second fiscal quarter of 2015, the Company began implementing a series of initiatives intended to improve operational efficiency, reduce costs, and better position itself to drive growth of the business in the future. We refer to these initiatives, in the aggregate, as the "2015 Restructuring". These activities evolved and developed over time as management identified and evaluated opportunities for changes in the Company's operations (and related areas of potential cost savings), as economic conditions changed and as the realignment of the Company's operations into its four global lines of business was implemented. Actions related to the 2015 Restructuring included involuntary terminations, the abandonment of certain leased offices, combining operational organizations, and the co-location of employees into other existing offices. We did not exit any service types or client end-markets in connection with the 2015 Restructuring.

The majority of the costs associated with the 2015 Restructuring are included in SG&A expense in the Consolidated Statements of Earnings. The following table summarizes the impacts of the 2015 Restructuring on the Company's reportable segment income by line of business for the years ended September 29, 2017 and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Aerospace & Technology	\$ 1,820	\$ 5,835
Buildings & Infrastructure	23,675	23,378
Industrial	6,698	29,690
Petroleum & Chemicals	36,664	87,188
Corporate	29,831	41,816
Total Restructuring Charges	\$98,688	\$187,907

Total 2015 restructuring charges were \$157,192 for the year ended October 2, 2015. The activity in the Company's accrual for the 2015 Restructuring for the year ended September 29, 2017 is as follows (in thousands):

Balance at September 30, 2016	\$ 152,174
Charges	98,688
Payments	(122,407)
Balance at September 29, 2017	\$ 128,455

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table summarizes the 2015 Restructuring by major type of restructuring costs for the years ended September 29, 2017 and September 30, 2016 (in thousands):

	For the Years Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Lease Abandonments	\$55,647	\$ 92,643	\$ 90,569	
Involuntary Terminations	30,716	85,599	55,313	
Outside Services	4,236	7,398	12,734	
Other restructuring related costs, net	8,089	2,267	(1,424)	
Total	\$98,688	\$187,907	\$157,192	

Cumulative amounts incurred to date for the 2015 Restructuring by each major type of restructuring costs as of September 29, 2017 is as follows (in thousands):

Lease Abandonments	\$238,859
Involuntary Terminations	171,628
Outside Services	24,368
Other restructuring related costs, net	8,932
Total	\$443,787

The 2015 Restructuring was completed in the fourth quarter of fiscal 2017.

Also, during the second fiscal quarter of 2017, the Company entered into strategic business restructuring activities associated with realignment of its Europe, U.K. and Middle East regional operations in our Buildings & Infrastructure segment. Pre-tax net charges of \$22.6 million were recorded associated mainly with net realizable value write-offs on contract accounts receivable of \$16.5 million, with additional charges recorded for statutory redundancy and severance costs of \$1.4 million and other liabilities of \$4.7 million which are both expected to be paid or settled within fiscal 2018. Additional charges of \$1.2 million were recorded under this business exit during third quarter fiscal 2017 associated mainly with contract accounts receivable charges. Further, management has determined that these business restructuring activities do not qualify for discontinued operations treatment in accordance with U.S. GAAP.

6. Borrowings

Short-Term Credit Arrangements

The Company maintains both committed and uncommitted credit arrangements with several banks providing for short-term borrowing capacity and overdraft protection. There were borrowings of \$3.1 million outstanding under these short-term credit facilities at a weighted average interest rate of 4.33% at September 29, 2017, and there were borrowings of \$2.4 million outstanding under these short-term credit facilities at September 30, 2016.

Long-term Debt

On February 7, 2014, the Company and certain of its subsidiaries entered into a \$1.6 billion long-term unsecured, revolving credit facility (as amended the "Revolving Credit Facility") with a syndicate of large U.S. and international banks and financial institutions. The following table presents certain information regarding the

Company's long-term revolving credit facilities at September 29, 2017 and September 30, 2016 (dollars in thousands):

September 29, 2017		September 30, 2016		
	Principal Balance Outstanding	Range of Interest Rates	Principal Balance Outstanding	Range of Interest Rates
	\$235,000	1.0% - 2.23%	\$385,330	1.0% – 1.65%

The total amount outstanding under the Revolving Credit Facility in the form of direct borrowings at September 29, 2017 was \$235.0 million. The Company issued \$2.5 million in letters of credit leaving \$1.363 billion of available borrowing capacity under the Revolving Credit Facility at September 29, 2017. In addition, the Company had \$259.6 million issued under separate, committed and uncommitted letter-of-credit facilities for total issued letters of credit of \$262.1 million at September 29, 2017.

The Revolving Credit Facility expires in February 2020 and permits the Company to borrow under two separate tranches in U.S. dollars, certain specified foreign currencies, and any other currency that may be approved in accordance with the terms of the Revolving Credit Facility. Depending on the Company's Consolidated Leverage Ratio, borrowings under the Revolving Credit Facility will bear interest at either a euro rate plus a margin of between 1.0% and 1.5% or a base rate plus a margin of between 0% and 0.5%. The Revolving Credit Facility also provides for a financial letter of credit subfacility of \$300.0 million, permits performance letters of credit, and provides for a \$50.0 million subfacility for swingline loans. Letters of credit are subject to fees based on the Company's Consolidated Leverage Ratio at the time any such letter of credit is issued. The Revolving Credit Facility also provides an accordion feature that allows the Company and the lenders to increase the facility amount to \$2.1 billion. The Company pays a facility fee of between 0.100% and 0.25% per annum depending on the Company's Consolidated Leverage Ratio. Amounts outstanding under the Revolving Credit Facility may be prepaid at the option of the Company without premium or penalty, subject to customary breakage fees in connection with the prepayment of eurocurrency loans. The Revolving Credit Facility contains affirmative, negative, and financial covenants customary for financings of this type including, among other things, limitations on certain other indebtedness, loans and investments, liens, mergers, asset sales and transactions with affiliates. In addition, the Revolving Credit Facility contains customary events of default. We were in compliance with these debt covenants at September 29, 2017.

On September 28, 2017, the Company entered into a Second Amendment to the Revolving Credit Facility, which provides for, among other things, an amendment to certain financial definitions used in the Revolving Credit Facility, including "Consolidated EBITDA". These amendments are effective upon the consummation of the acquisition of CH2M.

On September 28, 2017, the Company entered into a \$1.5 billion unsecured delayed-draw term loan facility (the "Term Loan Facility") with a syndicate of financial institutions as lenders and letter of credit issuers and BNP Paribas as administrative agent, TD Bank, N.A. and U.S. Bank National Association as co-documentation agent, BNP Paribas Securities Corp., The Bank of Nova Scotia and Wells Fargo Securities, LLC as joint book runners, and as joint arrangers.

Subject to certain terms and conditions set forth therein, loans under the Term Loan Facility may be incurred on the day the CH2M acquisition is consummated in order to pay cash consideration for the acquisition, and to pay fees and expenses related to the acquisition and the Term Loan Facility. The Term Loan Facility has a three year maturity from the date of initial funding and permits the Company to borrow in U.S. dollars at a base rate or a eurocurrency rate. Depending on the Company's consolidated leverage ratio, borrowings under the Term

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Loan Facility will bear interest at either a eurocurrency rate plus a margin of between 1.00% and 1.50% or a base rate plus a margin of between 0.00% and 0.50%. In addition, prior to the date the acquisition is consummated, the Company must pay a ticking fee of between 0.10% and 0.25% of unused commitments under the Term Loan Facility. Amounts outstanding under the Term Loan Facility may be prepaid at the option of the Company without premium or penalty, subject to customary breakage fees in connection with the prepayment of eurocurrency loans.

The Term Loan Facility contains affirmative, negative and financial covenants customary for financings of this type, including, among other things, limitations on certain other indebtedness, investments, liens, mergers, asset sales and transactions with affiliates. In addition, the Term Loan Facility contains customary events of default. We were in compliance with these covenants at September 29, 2017.

The following table presents certain additional information regarding the Company's long-term debt for the fiscal years shown:

	2017	2016
Maximum amount outstanding at any month-end during the fiscal year	\$659,103	\$958,460
Average amount outstanding during the year	\$639,210	\$825,641
Weighted average interest rate during the year	1.67%	1.39%

The following table presents the amount of interest paid by the Company during September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended	
September 29, 2017	September 30, 2016	October 2, 2015
\$12,862	\$13,282	\$15,506

7. Pension and Other Postretirement Benefit Plans

Company-Only Sponsored Plans

We sponsor various defined benefit pension plans covering employees of certain U.S. and international subsidiaries. The pension plans provide pension benefits that are based on the employee's compensation and years of service. Our funding policy is to fund the actuarially determined accrued benefits where applicable, allowing for projected compensation increases using the projected unit method.

The accounting for pension and other post-retirement benefit plans requires the use of assumptions and estimates in order to calculate periodic benefit cost and the value of the plans' assets and benefit obligations. These assumptions include discount rates, investment returns, and projected salary increases, among others. The discount rates used in valuing the plans' benefit obligations were determined with reference to high quality corporate and government bonds that are appropriately matched to the duration of each plan's obligations. The expected long-term rate of return on plan assets is generally based on using country-specific simulation models which select a single outcome for expected return based on the target asset allocation. The expected long-term-rates of return used in the valuation are the annual average returns generated by these assumptions over a 20-year period for each asset class based on the expected long-term rate of return of the underlying assets.

The following table sets forth the changes in the plans' combined net benefit obligation (segregated between plans existing within and outside the U.S.) for the years ended September 29, 2017 and September 30, 2016 (in thousands):

	U.S. Pension Plans		Non-U.S. Pension Plans	
	September 29, 2017	September 30, 2016	September 29, 2017	September 30, 2016
Net benefit obligation at the beginning of the year	\$185,664	\$ 533,665	\$1,363,782	\$1,155,592
Service cost	1,000	9,875	7,509	14,378
Interest cost	5,757	16,746	31,205	38,892
Participants' contributions	_	1,847	250	2,255
Actuarial (gains)/losses	(9,922)	29,129	(142,273)	382,691
Benefits paid	(14,338)	(14,143)	(40,208)	(32,277)
Curtailments/settlements		(35,224)	(1,375)	(35,375)
Transfers *	_	(356,231)	_	_
Effect of exchange rate changes and other, net	1,781		87,917	(162,374)
Net benefit obligation at the end of the year	\$169,942	\$ 185,664	\$1,306,807	\$1,363,782

^{*} Pension plan transferred to a new sponsor for the plan

The following table sets forth the changes in the combined Fair Value of the plans' assets (segregated between plans existing within and outside the U.S.) for the year ended September 29, 2017 and September 30, 2016 (in thousands):

	U.S. Pension Plans		Non-U.S. Pension Plans	
	September 29, 2017	September 30, 2016	September 29, 2017	October 2, 2016
Fair value of plan assets at the beginning of the year	\$142,464	\$ 379,907	\$1,003,911	\$ 896,298
Actual return on plan assets	18,662	28,835	16,789	242,927
Employer contributions	1,000	10,213	21,005	23,217
Participants' contributions	_	1,847	250	2,255
Gross benefits paid	(14,338)	(14,143)	(40,208)	(32,277)
Curtailments/settlements	_	(35,224)	(228)	(1,863)
Transfers *	_	(228,971)	_	_
Effect of exchange rate changes and other, net			75,409	(126,646)
Fair value of plan assets at the end of the year	\$147,788	\$ 142,464	\$1,076,928	\$1,003,911

^{*} Pension plan transferred to a new sponsor for the plan

During fiscal 2017 we curtailed the pension plan in Ireland and in fiscal 2016 we curtailed our U.K. and French pension plans.

The following table reconciles the combined funded statuses of the plans recognized in the accompanying Consolidated Balance Sheets at September 29, 2017 and September 30, 2016 (segregated between plans existing within and outside the U.S.) (in thousands):

	U.S. Pension Plans		Non-U.S. Pension Plans	
	September 29,	September 30,	September 29,	September 30,
	2017	2016	2017	2016
Net benefit obligation at the end of the year Fair value of plan assets at the end of the year	\$169,942	\$185,664	\$1,306,807	\$1,363,782
	147,788	142,464	1,076,928	1,003,911
Under funded amount recognized at the end of the year	\$ 22,154	\$ 43,200	\$ 229,879	\$ 359,871

The following table presents the accumulated benefit obligation at September 29, 2017 and September 30, 2016 (segregated between plans existing within and outside the U.S.) (in thousands):

	U.S. Pension Plans		Non-U.S. Pension Plans	
	September 29, 2017	September 30, 2016	September 29, 2017	September 30, 2016
Accumulated benefit obligation at the end of the				
year	\$169,942	\$185,664	\$1,291,600	\$1,331,884

The following table presents the amounts recognized in the accompanying Consolidated Balance Sheets at September 29, 2017 and September 30, 2016 (segregated between plans existing within and outside the U.S.) (in thousands):

	U.S. Pension Plans		Non-U.S. Po	ension Plans
	September 29, 2017	September 30, 2016	September 29, 2017	September 30, 2016
Prepaid benefit cost included in prepaid assets	<u>\$</u>	<u>\$</u>	\$ 3,035	\$ 492
Accrued benefit cost included in current liabilities Accrued benefit cost included in noncurrent	_	_	585	608
liabilities	22,154	43,200	232,329	359,755
Net amount recognized at the end of the year	\$22,154	\$43,200	\$229,879	\$359,871

In fiscal 2015 and through June 30, 2016, we were responsible for administering a U.S. pension plan for participating employees who were assigned to, and worked exclusively on, a specific operating contract with the U.S. federal government. The costs of this pension plan were fully reimbursed by the U.S. federal government pursuant to applicable cost accounting standards. As of June 30, 2016, we ceased performing on this operating contract, and, as such, we are no longer responsible for administering this pension plan. As a result of no longer administering the plan, we derecognized the plan benefit obligation and plan assets pertaining to the plan resulting in a decrease of plan benefit obligation by \$356.2 million and plan assets by \$229.0 million.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table presents the significant actuarial assumptions used in determining the funded statuses and the following year's benefit cost of the Company's U.S. plans for the years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	For the Year Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Weighted average discount rates	3.5%	3.2	3.9% to 4.0%	
Rates of compensation increases	— %	— %	3.0%	
Return on Assets	7.5%	7.4%	7.4%	

The following table presents the significant actuarial assumptions used in determining the funded statuses and the following year's benefit cost of the Company's non-U.S. pension plans for the years ended September 29, 2017, September 30, 2016 and October 2, 2015:

	September 29, 2017		October 2, 2015
Weighted average discount rates	1.3% to 7.0%	0.7% to 7.0%	1.6% to 7.8%
Rates of compensation increases	2.5% to 7.5%	2.5% to 7.5%	2.4% to 7.5%
Expected long-term rates of return on assets	3.5% to 8.5%	3.5% to 8.5%	3.5% to 8.5%

The following table presents certain amounts relating to our U.S. pension plans recognized in accumulated other comprehensive (gain) loss at September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	September 29, 2017	September 30, 2016	October 2, 2015
Arising during the period:			
Net actuarial (gain) loss	\$(11,372)	\$ 4,337	\$12,237
Reclassification adjustments:			
Net actuarial losses	(2,431)	(2,312)	(2,347)
Total	\$(13,803)	\$ 2,025	\$ 9,890

The following table presents certain amounts relating to our non-U.S. pension plans recognized in accumulated other comprehensive (gain) loss at September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	September 29, 2017	September 30, 2016	October 2, 2015
Arising during the period:			
Net actuarial (gain) loss	\$(76,860)	\$102,925	\$(27,165)
Prior service cost (benefit)	119	580	(1,512)
Total	(76,741)	103,505	(28,677)
Net actuarial losses	(8,732)	(7,508)	(14,034)
Prior service cost	229	163	51
Total	(8,503)	(7,345)	(13,983)
Total	\$(85,244)	\$ 96,160	\$(42,660)

The following table presents certain amounts relating to our pension plans recorded in accumulated other comprehensive loss that have not yet been recognized as components of net periodic benefit cost at September 29, 2017, and September 30, 2016 (segregated between U.S. and non-U.S. plans) (in thousands):

	U.S. Pension Plans		Non-U.S. Pension Plans	
	September 29, 2017	September 30, 2016	September 29, 2017	September 30, 2016
Net actuarial loss	\$47,681	\$61,483	\$218,752	\$304,345
Prior service cost			(855)	(1,203)
Total	\$47,681	\$61,483	\$217,897	\$303,142

The following table presents the amount of accumulated comprehensive income that will be amortized against earnings as part of our net periodic benefit cost in fiscal 2018 based on 2017 exchange rates (segregated between U.S. and non-U.S. plans) (in thousands):

	U.S. Pension Plans	Non-U.S. Pension Plans
Unrecognized net actuarial loss	\$3,325	\$6,829
Unrecognized prior service cost		(277)
Accumulated comprehensive loss to be recorded against earnings	\$3,325	\$6,552

We consider various factors in developing the estimates for the expected, long-term rates of return on plan assets. These factors include the projected, long-term rates of returns on the various types of assets in which the plans invest, as well as historical returns. In general, investment allocations are determined by each plan's trustees and/or investment committees. The objectives of the plans' investment policies are to (i) maximize returns while preserving capital; (ii) provide returns sufficient to meet the current and long-term obligations of the plan as the obligations become due; and (iii) maintain a diversified portfolio of assets so as to reduce the risk associated with having a disproportionate amount of the plans' total assets invested in any one type of asset, issuer or geography. None of our pension plans hold Jacobs common stock directly (although some plans may hold shares indirectly through investments in mutual funds). The plans' weighted average asset allocations at September 29, 2017 and September 30, 2016 (the measurement dates used in valuing the plans' assets and liabilities) were as follows:

	U.S. Pension Plans		Non-U.S. Pension Pans	
	September 29, 2017	September 30, 2016	September 29, 2017	September 30, 2016
Equity securities	70%	71%	24%	25%
Debt securities	23%	20%	32%	32%
Real estate investments	— %	2%	5%	6%
Other	7%	7%	39%	37%

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table presents the Fair Value of the Company's Domestic U.S. plan assets at September 29, 2017, segregated by level of Fair Value measurement inputs within the Fair Value hierarchy promulgated by U.S. GAAP (in thousands):

	September 29, 2017 Fair Value, Determined Using Fair Value Measurement Inputs			
	Level 1	Level 3	Total	
U.S. Domestic equities	\$103,760	\$ —	\$103,760	
U.S. Domestic bonds	33,404	_	33,404	
Cash and equivalents	4,448	_	4,448	
Hedge funds		6,176	6,176	
Total	\$141,612	\$6,176	\$147,788	

The following table presents the Fair Value of the Company's non-U.S. pension plan assets at September 29, 2017, segregated by level of Fair Value measurement inputs within the Fair Value hierarchy promulgated by U.S. GAAP (in thousands):

		September 29, 2017		
	Fair Value, Determined Using Fair Value Measurement Input			
	Level 1	Level 3	Total	
U.S. Domestic equities	\$ 30,916	\$ —	\$ 30,916	
Overseas equities	229,205	_	229,205	
U.S. Domestic bonds	263,145	_	263,145	
Overseas bonds	77,682	_	77,682	
Cash and equivalents	38,924	_	38,924	
Real estate	_	58,974	58,974	
Insurance contracts	_	74,353	74,353	
Other		303,729	303,729	
Total	\$639,872	\$437,056	\$1,076,928	

The following table presents the Fair Value of the Company's U.S. pension plan assets at September 30, 2016, segregated by level of Fair Value measurement inputs within the Fair Value hierarchy promulgated by U.S. GAAP (in thousands):

		September 30, 2016	
	Fair Value, Determin	ed Using Fair Value	Measurement Inputs
	Level 1	Level 3	Total
U.S. Domestic equities	\$ 85,494	\$ —	\$ 85,494
Overseas equities	15,169	_	15,169
U.S. Domestic bonds	28,886	_	28,886
Cash and equivalents	3,723	_	3,723
Real estate	_	3,477	3,477
Hedge funds		5,715	5,715
Total	\$133,272	\$9,192	<u>\$142,464</u>

The following table presents the Fair Value of the Company's non-U.S. pension plan assets at September 30, 2016, segregated by level of Fair Value measurement inputs within the Fair Value hierarchy promulgated by U.S. GAAP (in thousands):

September 30, 2016

	Fair Value, Determined Using Fair Value Measurement Inputs		
	Level 1	Level 3	Total
U.S. Domestic equities	\$ 31,972	\$ —	\$ 31,972
Overseas equities	220,179	_	220,179
U.S. Domestic bonds	258,949	_	258,949
Overseas bonds	61,974	_	61,974
Cash and equivalents	63,182	_	63,182
Real estate	_	55,665	55,665
Insurance contracts	_	39,473	39,473
Hedge funds		272,517	272,517
Total	\$636,256	\$367,655	\$1,003,911

At September 29, 2017 and September 30, 2016, the Company holds no assets in the U.S. or non-U.S. pension plans that use Level 2 fair value measurement inputs.

The following table summarizes the changes in the Fair Value of the Company's U.S. Pension Plans' Level 3 assets for the year ended September 29, 2017 (in thousands):

	Real Estate	Hedge Funds
Balance at September 30, 2016	\$ 3,477	\$5,715
Purchases, sales, and settlements	(3,477)	(557)
Realized and unrealized gains		1,018
Balance at September 29, 2017	<u>\$</u>	\$6,176

The following table summarizes the changes in the Fair Value of the Company's non-U.S. Pension Plans' Level 3 assets for the year ended September 29, 2017 (in thousands):

	Real Estate	Insurance Contracts	Hedge Funds
Balance at September 30, 2016	\$55,665	\$39,473	\$272,517
Purchases, sales, and settlements	(1,199)	422	(9,022)
Realized and unrealized gains (losses)	2,642	(7,572)	19,662
Transfers	_	40,031	11,758
Effect of exchange rate changes	1,866	1,999	8,814
Balance at September 29, 2017	\$58,974	\$74,353	\$303,729

The following table summarizes the changes in the Fair Value of the Company's U.S. Pension Plans' Level 3 assets for the year ended September 30, 2016 (in thousands):

	Real Estate	Hedge Funds
Balance at October 2, 2015	\$ 9,914	\$ 16,372
Purchases	(6,530)	(10,788)
Realized and unrealized gains	93	131
Balance at September 30, 2016	\$ 3,477	\$ 5,715

The following table summarizes the changes in the Fair Value of the Company's non-U.S. Pension Plans' Level 3 assets for the year ended September 30, 2016 (in thousands):

	Real Estate	Insurance Contracts	Hedge Funds
Balance at October 2, 2015	\$61,996	\$32,522	\$260,720
Purchases, sales, and settlements	(462)	(165)	(1,205)
Realized and unrealized gains	2,572	6,451	57,656
Effect of exchange rate changes	(8,441)	665	(44,654)
Balance at September 30, 2016	\$55,665	\$39,473	<u>\$272,517</u>

The following table presents the amount of cash contributions we anticipate making into the plans during fiscal 2018 (in thousands):

	U.S. Pension Plans	Non-U.S. Pension Pans
Anticipated cash contributions	\$1,300	\$22,574

The following table presents the total benefit payments expected to be paid to pension plan participants during each of the next five fiscal years, and in total for the five years thereafter (in thousands):

	U.S. Pension Plans	Non-U.S. Pension Pans
2018	\$21,506	\$ 31,063
2019		32,509
2020		32,923
2021		36,220
2022		38,086
For the periods 2023 through 2027	54,747	231,183

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table presents the components of net periodic benefit cost for the Company's U.S. pension plans recognized in the accompanying Consolidated Statements of Earnings for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	September 29, 2017	September 30, 2016	October 2, 2015
Service cost	\$ 1,000	\$ 9,875	\$ 12,045
Interest cost	5,757	16,746	20,629
Expected return on plan assets	(9,942)	(22,368)	(29,526)
Actuarial loss	3,985	7,512	3,756
Prior service cost		(176)	(239)
Net pension cost, before special items	800	11,589	6,665
Contractual expense/Settlement loss	1,781	8,061	
Total net periodic pension cost recognized	\$ 2,581	\$ 19,650	\$ 6,665

The fiscal 2016 settlement loss included in the U.S. pension plan net periodic benefit cost table above related to the previously discussed transfer of a U.S. pension plan to a new service provider.

The following table presents the components of net periodic benefit cost for the Company's Non-U.S. pension plans recognized in the accompanying Consolidated Statements of Earnings for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	September 29, 2017	September 30, 2016	October 2, 2015
Service cost	\$ 7,509	\$ 14,378	\$ 21,374
Interest cost	31,205	38,892	44,659
Expected return on plan assets	(56,269)	(50,190)	(53,052)
Actuarial loss	10,616	9,092	17,398
Prior service cost	(329)	(260)	(96)
Net pension cost, before special items	(7,268)	11,912	30,283
Curtailments and settlements	(298)	(7,512)	255
Total net periodic pension cost recognized	<u>\$ (7,566)</u>	\$ 4,400	\$ 30,538

The fiscal 2016 settlement loss included in the Non-U.S. pension plan net periodic benefit cost table above related to the sale of the Company's French subsidiary.

Multiemployer Plans

In Canada and the U.S., we contribute to various trusteed pension plans covering hourly construction employees under industry-wide agreements. We also contribute to various trusteed plans in Australia and certain countries in Europe covering both hourly and certain salaried employees. Contributions are based on the hours worked by employees covered under these agreements and are charged to direct costs of contracts on a current basis.

The majority of the contributions the Company makes to multiemployer pension plans are outside the U.S. With respect to these multiemployer plans, the Company's liability to fund these plans is generally limited to the contributions we are required to make under collective bargaining agreements.

Based on our review of our multiemployer pension plans under the guidance provided in ASU 2011-09—*Compensation-Retirement Benefits-Multiemployer Plans*, we have concluded that none of the multiemployer pension plans into which we contribute are individually significant to our Consolidated Financial Statements.

The following table presents the Company's contributions to these multiemployer plans for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	September 29, 2017	September 30, 2016	October 2, 2015
Canada	\$35,182	\$44,912	\$42,575
Europe	\$ 6,212	\$ 8,771	\$10,902
United States	\$ 4,548	\$ 5,058	\$ 5,968
Contributions to multiemployer pension plans	\$45,942	\$58,741	\$59,445

Other Benefit Plans

During the second fiscal quarter of 2017, the Company restructured certain employee welfare trust plans benefitting certain of its employees within its India operations by moving these plans under the legal ownership and operation of the Company's legal entity structure in the region. Historically, the Company structured these plans as separate, stand-alone entities outside of the Company's consolidated legal entity framework. As a result of these changes, the Company has recorded a one-time, non-cash benefit of \$9.9 million reported in SG&A expense in its Consolidated Statement of Earnings for the year ended September 29, 2017, with corresponding assets in the plans associated with restricted investments of \$7.7 million and employee loans receivable of \$2.2 million and both recorded in Total other non-current assets in our Consolidated Balance Sheet at September 29, 2017.

8. Other Comprehensive Income

The following table presents amounts reclassified from changes in pension liabilities in other comprehensive income to direct cost of contracts and SG&A expenses in the Company's Consolidated Statements of Earnings for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 related to the Company's defined benefit pension plans (in thousands):

	September 29, 2017	September 30, 2016	October 2, 2015
Amortization of Defined Benefit Items:			
Actuarial losses	\$(14,601)	\$(12,880)	\$(21,153)
Prior service cost	328	260	96
Total Before Income Tax	(14,273)	(12,620)	(21,057)
Income Tax Benefit	3,339	2,963	4,727
Total reclassifications after-tax	\$(10,934)	\$ (9,657)	\$(16,330)

9. Savings and Deferred Compensation Plans

Savings Plans

We sponsor various defined contribution savings plans which allow participants to make voluntary contributions by salary deduction. Such plans cover substantially all of our domestic, nonunion employees in the

U.S. and are qualified under Section 401(k) of the U.S. Internal Revenue Code. Similar plans outside the U.S. cover various groups of employees of our international subsidiaries and affiliates. Several of these plans allow the Company to match, on a voluntary basis, a portion of the employee contributions. The following table presents the Company's contributions to these savings plans for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

September 29, 2017	September 30, 2016	October 2, 2015
\$82,882	\$89,966	\$87,973

Deferred Compensation Plans

Our Executive Security Plan and Executive Deferral Plans are nonqualified deferred compensation programs that provide benefits payable to directors, officers, and certain key employees or their designated beneficiaries at specified future dates, upon retirement, or death. Benefit payments under both plans are funded by a combination of contributions from participants and the Company, and most of the participants are covered by life insurance policies with the Company designated as the beneficiary. The following table presents the amount charged to expense for the Company's deferred compensation plans for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

September 29, 2017	September 30, 2016	October 2, 2015
\$4,368	\$5,792	\$5,536

10. Income Taxes

The following table presents the components of our consolidated income tax expense for years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Current income tax expense:				
Federal	\$ 29,297	\$ 36,020	\$ 72,840	
State	8,535	11,336	16,248	
Foreign	31,347	52,259	43,344	
Total current tax expense	69,179	99,615	132,432	
Deferred income tax expense (benefit):				
Federal	29,390	6,439	13,337	
State	3,407	485	2,295	
Foreign	3,866	(34,331)	(46,809)	
Total deferred tax expense (benefit)	36,663	(27,407)	(31,177)	
Consolidated income tax expense	\$105,842	<u>\$ 72,208</u>	\$101,255	

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Deferred taxes reflect the tax effects of temporary differences between the amounts recorded as assets and liabilities for financial reporting purposes and the comparable amounts recorded for income tax purposes. Deferred tax assets and liabilities are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. The following table presents the components of our net deferred tax assets at September 29, 2017 and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Deferred tax assets:		
Obligations relating to:		
Defined benefit pension plans	\$ 52,299	\$ 77,834
Other employee benefit plans	192,299	179,063
Net Operating Losses	136,783	139,125
Self-insurance programs	489	1,722
Contract revenues and costs	(18,374)	(8,177)
Deferred Rent	25,654	7,955
Restructuring	18,258	47,792
Other	19,389	9,933
Valuation Allowance	(58,097)	(41,684)
Gross deferred tax assets	368,700	413,563
Deferred tax liabilities:		
Depreciation and amortization	(176,327)	(154,939)
Other, net	(1,438)	(1,555)
Gross deferred tax liabilities	(177,765)	(156,494)
Net deferred tax assets	\$ 190,935	\$ 257,069

A valuation allowance is recorded to reduce deferred tax assets to the amount that is more likely than not to be realized based on an assessment of positive and negative evidence, including estimates of future taxable income necessary to realize future deductible amounts. The valuation allowance at September 29, 2017 and September 30, 2016 was \$58.1 million and \$41.7 million, respectively.

Net operating loss carry forwards of foreign subsidiaries at September 29, 2017 and September 30, 2016 totaled \$490.9 million and \$483.4 million, respectively. If unused, foreign net operating losses of \$117.1 million will expire between 2018 and 2037. Net operating losses of \$373.8 million can be carried forward indefinitely.

The following table presents the income tax benefits realized from the exercise of nonqualified stock options and disqualifying dispositions of stock sold under our employee stock purchase plans for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in millions):

	For the Years Ended	
September 29, 2017	September 30, 2016	October 2, 2015
\$5.20	\$1.50	\$0.20

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The Company's consolidated effective income tax rate is generally lower than the US statutory rate of 35% primarily due to the impacts of favorable tax rate differences in our foreign operations. The following table reconciles total income tax expense using the statutory U.S. federal income tax rate to the consolidated income tax expense shown in the accompanying Consolidated Statements of Earnings for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (dollars in thousands):

	For the Years Ended					
	September 29, 2017	%	September 30, 2016	<u></u> %	October 2, 2015	<u>%</u>
Statutory amount	\$137,626	35.0%	\$100,353	35.0%	\$150,548	35.0%
State taxes, net of the federal benefit	8,955	2.3%	7,853	2.7%	12,857	3.0%
Exclusion of tax on non-controlling interests	2,223	0.6%	(1,418)	(0.5%)	(9,069)	(2.1%)
Foreign:						
Difference in tax rates of foreign operations	(16,987)	(4.3%)	(17,184)	(6.0%)	(19,180)	(4.5%)
Benefit from foreign valuation allowance						
release	(3,085)	(0.8%)	(11,182)	(3.9%)	(3,372)	(0.8%)
Tax deductible foreign currency loss	_	0.0%	_	0.0%	(23,100)	(5.4%)
U.K. tax rate change on deferred tax assets	_	0.0%	8,853	3.1%	_	0.0%
Nontaxable income from foreign affiliate	(3,280)	(0.8%)) —	0.0%	_	0.0%
U.S. tax cost of foreign operations	18,612	4.7%	30,850	10.9%	6,814	1.6%
Tax differential on foreign earnings	(4,740)	(1.2%)	11,337	4.1%	(38,838)	(9.0%)
Foreign tax credits	(20,454)	(5.2%)	(44,018)	(15.4%)	(21,313)	(5.0%)
Uncertain tax positions	(5,779)	(1.5%)	1,449	0.5%	2,281	0.5%
Other items:						
IRS §179D deduction	(3,351)	(0.8%)	(2,153)	(0.8%)	_	0.0%
IRS §199D deduction	(2,113)	(0.5%)	(2,800)	(1.0%)	(4,582)	(1.1%)
Foreign partnership income/(loss)	(9,861)	(2.5%)	(2,658)	(0.9%)	11,858	2.8%
Other items – net	3,336	0.7%	4,263	1.5%	(2,487)	(0.6%)
Total other items	(11,989)	(3.1%)	(3,348)	(1.2%)	4,789	1.1%
Taxes on income	\$105,842	<u>26.9</u> %	\$ 72,208	25.2%	\$101,255	23.5%

The Company's consolidated effective income tax rate for the year ended September 29, 2017 increased to 26.9% from 25.2% for fiscal 2016. Key drivers for this year over year increase include the impacts of lower foreign tax credit benefits and lower benefits from valuation allowance releases on foreign deferred tax assets, partly offset by favorable impacts of U.S. tax cost of foreign operations, the non-recurrence of 2016 tax rate change impacts on deferred income tax assets in the UK and favorable impacts from change in uncertain tax positions.

The Company's consolidated effective income tax rate for the year ended September 30, 2016 increased to 25.2% from 23.5% for fiscal 2015. The primary components of this increase in tax rate were due mainly to unfavorable impacts from U.S. tax cost of foreign operations, the non-recurrence of tax deductible foreign currency losses in fiscal 2015, unfavorable impacts from U.K. tax rates changes on deferred tax assets and other unfavorable items. These unfavorable impacts on the tax rate were partly offset by favorable foreign tax credits year over year, favorable income levels from our foreign partnerships in 2016 and comparably higher benefits from foreign valuation allowance releases in fiscal 2016.

The following table presents income tax payments made during the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in millions):

September 29, 2017	September 30, 2016	October 2, 2015
\$78.39	\$116.30	\$156.50

The following table presents the components of our consolidated earnings before taxes for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
United States earnings	\$232,342	\$206,159	\$283,504
Foreign earnings	160,875	80,564	146,633
	\$393,217	\$286,723	\$430,137

United States income taxes, net of applicable credits, have been provided on the undistributed earnings of the Company's foreign subsidiaries, except in those instances where the earnings have been permanently reinvested. At September 29, 2017, approximately \$26.1 million of such undistributed earnings of certain foreign subsidiaries have been permanently reinvested. Should these earnings be repatriated, approximately \$6.0 million of income taxes would be payable.

The Company accounts for unrecognized tax benefits in accordance with ASC Topic 740, *Income Taxes*. It accounts for interest and penalties on unrecognized tax benefits as interest and penalties (i.e., not as part of income tax expense). The Company's liability for gross unrecognized tax benefits was \$38.6 million and \$44.2 million at September 29, 2017 and September 30, 2016, respectively, all of which, if recognized, would affect the Company's consolidated effective income tax rate. The Company had \$36.6 million and \$36.4 million in accrued interest and penalties at September 29, 2017 and September 30, 2016, respectively. The Company estimates that, within 12 months, \$6.5 million of gross, primarily non-U.S. unrecognized tax benefits will reverse due to the anticipated expiration of time to assess tax. As of September 29, 2017, the Company's U.S. federal income tax returns for tax years 2015 and forward remain subject to examination.

The following table presents the reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Balance, beginning of year	\$44,167	\$42,666	\$41,923	
year	5,900	5,670	6,440	
Additions for tax positions of prior years	237	367		
Reductions for tax positions of prior years	(4,524)	(2,451)	(5,697)	
Settlement	(7,200)	(2,085)		
Balance, end of year	\$38,580	\$44,167	\$42,666	

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

11. Commitments and Contingencies, and Derivative Financial Instruments

Commitments Under Operating Leases

We lease certain of our facilities and equipment under operating leases with net aggregate future lease payments of approximately \$753,102 million at September 29, 2017, payable as follows (in thousands):

In fiscal years,	
2018	\$139,967
2019	133,609
2020	118,207
2021	97,062
2022	104,990
Thereafter	174,269
	768,104
Amounts representing sublease income	(15,002)
	\$753,102

We recognize rent expense, inclusive of landlord concessions and tenant allowances, over the lease term on a straight-line basis. We also recognize rent expense on a straight-line basis for leases containing fixed escalation clauses and rent holidays. Contingent rentals are included in rent expense as accruable. Operating leases relating to many of our major offices generally contain renewal options, and provide for additional rental based on escalation in operating expenses and real estate taxes.

The following table presents rent expense and sublease income offsetting the Company's rent expense for the years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Years Ended		
	September 29, 2017	September 30, 2016	October 2, 2015
Rent expense	\$145,344	\$151,539	\$175,067
Sublease income	(7,052)	(7,212)	(5,275)
Net rent	\$138,292	\$144,327	\$169,792

Guarantee

We are party to a synthetic lease agreement involving certain real and personal property located in Houston, Texas that we use in our operations. A synthetic lease is a type of off-balance sheet transaction which provides us with certain tax and other financial benefits. Significant terms of the lease are as follows:

End of lease term	2025
End of term purchase option (in thousands)	\$76,950
Residual value guaranty (in thousands)	\$62,412

The Company refinanced the synthetic lease agreement effective July 28, 2015 with a ten-year term. The new lease agreement continues to gives us the right to request an extension of the lease term. We may also assist the owner in selling the property at the end of the lease term, the proceeds from which would be used to reduce our residual value guarantee. The minimum lease payments required by the lease agreement is included in the above lease pay-out schedule. We have determined that the estimated Fair Value of the aforementioned financial guarantee was not significant at September 29, 2017.

Derivative Financial Instruments

In situations where our operations incur contract costs in currencies other than their functional currency, we attempt to have a portion of the related contract revenues denominated in the same currencies as the costs. In those situations where revenues and costs are transacted in different currencies, we sometimes enter into foreign exchange contracts in order to limit our exposure to fluctuating foreign currencies. The Company does not currently have exchange rate sensitive instruments that would have a material effect on our consolidated financial statements or results of operations.

Letters of Credit

Letters of credit outstanding at September 29, 2017 totaled \$262.1 million. Of this amount, \$2.5 million has been issued under the Revolving Credit Facility and \$259.6 million are issued under separate, committed and uncommitted letter-of-credit facilities.

12. Contractual Guarantees, Litigation, Investigations, and Insurance

In the normal course of business, we are subject to certain contractual guarantees and litigation. The guarantees to which we are a party generally relate to project schedules and plant performance. Most of the litigation in which we are involved has us as a defendant in workers' compensation, personal injury, environmental, employment/labor, professional liability, and other similar lawsuits.

We maintain insurance coverage for various aspects of our business and operations. Our insurance programs have varying coverage limits and maximums, and insurance companies may seek to not pay any claims we might make. We have also elected to retain a portion of losses that occur through the use of various deductibles, limits, and retentions under our insurance programs. As a result, we may be subject to future liability for which we are only partially insured or completely uninsured. We intend to mitigate any such future liability by continuing to exercise prudent business judgment in negotiating the terms and conditions of our contracts. Our insurers are also subject to business risk and, as a result, one or more of them may be unable to fulfill their insurance obligations due to insolvency or otherwise.

Additionally, as a contractor providing services to the U.S. federal government and several of its agencies, we are subject to many levels of audits, investigations, and claims by, or on behalf of, the U.S. federal government with respect to our contract performance, pricing, costs, cost allocations, and procurement practices. Furthermore, our income, franchise, and similar tax returns and filings are also subject to audit and investigation by the Internal Revenue Service, most states within the U.S., as well as by various government agencies representing jurisdictions outside the U.S.

We record in our Consolidated Balance Sheets amounts representing our estimated liability relating to such claims, guarantees, litigation, and audits and investigations. We perform an analysis to determine the level of reserves to establish for insurance-related claims that are known and have been asserted against us, and for insurance-related claims that are believed to have been incurred based on actuarial analysis, but have not yet been reported to our claims administrators as of the respective balance sheet dates. We include any adjustments to such insurance reserves in our consolidated results of operations. Insurance recoveries are recorded as assets if recovery is probable. Estimated liabilities are not reduced by expected insurance recoveries.

The Company believes, after consultation with counsel, that such guarantees, litigation, U.S. government contract-related audits, investigations and claims, and income tax audits and investigations should not have any material adverse effect on our consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

On August 9, 2014, the Company received a Notice of Arbitration from Motiva Enterprises LLC ("Motiva") seeking monetary relief in excess of \$8 billion from the Bechtel-Jacobs CEP Port Arthur Joint Venture ("BJJV"), a joint venture between Bechtel Corporation ("Bechtel") and the Company. On December 30, 2016, the arbitral panel in this matter issued its unanimous decision, which rejected all of Motiva's claims and assigned no liability to BJJV, the Company or Bechtel.

On September 30, 2015, Nui Phao Mining Company Limited ("NPMC") commenced arbitration proceedings against Jacobs E&C Australia Pty Limited ("Jacobs E&C"). The arbitration is pending in Singapore before the Singapore International Arbitration Centre. In March 2011, Jacobs E&C was engaged by NPMC for the provision of management, design, engineering, and procurement services for the Nui Phao mine/mineral processing project in Vietnam. In the Notice of Arbitration dated February 1, 2016, and in a subsequently filed Statement of Claim and Supplementary Statement of Claim dated February 26, 2016, and an Amended Statement of Claim dated August 17, 2017, NPMC asserts various causes of action and alleges that the quantum of its claim exceeds \$167 million. Jacobs has denied liability and is vigorously defending this claim. A hearing on the merits is scheduled to begin on November 27, 2017. The Company does not expect the resolution of this matter to have a material adverse effect on its financial condition, results of operations and/or cash flows.

On December 7, 2009, the Judicial Council of California, Administrative Office of the Courts ("AOC") initiated an action in the San Francisco County Superior Court against Jacobs Facilities Inc. ("JFI") and Jacobs Project Management ("JPM") and subsequently added Jacobs as a defendant. The action arises out of a contract between AOC and JFI pursuant to which JFI provided regular maintenance and repairs at certain AOC court facilities. AOC has alleged, among other things, that the Jacobs entities are required under California's Contractors' State License Law ("CSLL") to disgorge certain fees paid by AOC, and the Jacobs entities have, among other things, cross-claimed for unpaid sums for work performed. On May 2, 2012, the jury returned a special verdict in favor of the Jacobs entities finding, among other things, JPM was owed approximately \$4.7 million in unpaid fees and that JFI was not required to disgorge the approximate \$18.3 million that AOC had paid for work performed. On August 20, 2015, the California Court of Appeal reversed the jury's verdict, holding that JFI had violated the CSLL. The Court of Appeal remanded to the San Francisco County Superior Court for an evidentiary hearing to determine whether the JFI had "substantially complied" with the CSLL under California Business and Professions Code Section 7031(e). Establishing "substantial compliance" would prevent \$18.3 million in disgorgement against Jacobs and permit Jacobs to recover \$4.7 million. The evidentiary hearing on substantial compliance was conducted between July 18 and August 5, 2016. On December 29, 2016, the court issued a Statement of Decision in favor of the Company, finding that Jacobs Facilities had substantially complied with the CSLL, and entered a judgment in favor of JPM in the amount of \$4.7 million plus prejudgment interest. On January 30, 2017, AOC filed a notice of appeal and has filed its opening brief. The Company's response is due in January 2018, subject to any extensions. The Company does not expect the resolution of this matter to have a material adverse effect on its financial condition, results of operations and/or cash flows.

13. Common and Preferred Stock

Jacobs is authorized to issue two classes of capital stock designated "common stock" and "preferred stock" (each has a par value of \$1.00 per share). The preferred stock may be issued in one or more series. The number of shares to be included in a series as well as each series' designation, relative powers, dividend and other preferences, rights and qualifications, redemption provisions, and restrictions are to be fixed by the Company's Board of Directors at the time each series is issued. Except as may be provided by the Company's Board of Directors in a preferred stock designation, or otherwise provided for by statute, the holders of shares of common stock have the exclusive right to vote for the election of directors and on all other matters requiring stockholder action. The holders of shares of common stock are entitled to dividends if and when declared by the Company's Board of Directors from whatever assets are legally available for that purpose.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

14. Other Financial Information

Receivables

The following table presents the components of "Receivables" as shown in the accompanying Consolidated Balance Sheets at September 29, 2017 and September 30, 2016 as well as certain other related information (in thousands):

	September 29, 2017	September 30, 2016
Amounts billed, net	\$ 949,060	\$1,110,042
Unbilled receivables and other	1,118,144	937,552
Retentions receivable	35,339	68,069
Total receivables, net	\$2,102,543	\$2,115,663
Other information about receivables:		
Amounts due from the United States federal government included		
above, net of advanced billings	\$ 226,236	\$ 235,203
Claims receivable	\$ 4,600	\$ 26,061

Billed receivables, net consist of amounts invoiced to clients in accordance with the terms of the client contracts and are shown net of an allowance for doubtful accounts. We anticipate that substantially all of such billed amounts will be collected over the next twelve months.

Unbilled receivables and retentions receivable represent reimbursable costs and amounts earned and reimbursable under contracts in progress as of the respective balance sheet dates. Such amounts become billable according to the contract terms, which usually consider the passage of time, achievement of certain milestones or completion of the project. We anticipate that substantially all of such unbilled amounts will be billed and collected over the next twelve months.

Claims receivable are included in "Receivables" in the accompanying Consolidated Balance Sheets and represent certain costs incurred on contracts to the extent it is probable that such claims will result in additional contract revenue and the amount of such additional revenue can be reliably estimated.

Property, Equipment, and Improvements, Net

The following table presents the components of our property, equipment, and improvements, net at September 29, 2017 and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Land	\$ 17,197	\$ 16,680
Buildings	93,313	91,194
Equipment	627,609	531,539
Leasehold improvements	220,295	221,437
Construction in progress	21,300	36,764
	979,714	897,614
Accumulated depreciation and amortization	(629,803)	(577,941)
	\$ 349,911	\$ 319,673

Miscellaneous Noncurrent Assets

The following table presents the components of "Miscellaneous noncurrent assets" shown in the accompanying Consolidated Balance Sheets at September 29, 2017 and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Deferred income taxes	\$368,700	\$413,563
Cash surrender value of life insurance policies	130,411	122,364
Investments	145,069	178,256
Notes receivable	17,839	18,303
Other	30,003	26,843
Total	\$692,022	\$759,329

Accrued Liabilities

The following table presents the components of "Accrued liabilities" shown in the accompanying Consolidated Balance Sheets at September 29, 2017 and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Accrued payroll and related liabilities	\$572,946	\$561,652
Project-related accruals	71,815	102,400
Non project-related accruals	68,025	87,813
Insurance liabilities	67,546	54,984
Sales and other similar taxes	32,163	37,029
Deferred rent	60,593	69,059
Dividends payable	18,180	
Other	48,419	25,441
Total	\$939,687	\$938,378

Other Deferred Liabilities

The following table presents the components of "Other deferred liabilities" shown in the accompanying Consolidated Balance Sheets at September 29, 2017 and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Liabilities relating to defined benefit pension and early retirement		
plans	\$254,483	\$402,955
Liabilities relating to nonqualified deferred compensation		
Arrangements	114,616	123,926
Deferred income taxes	177,765	156,494
Miscellaneous	185,417	178,449
Total	\$732,281	\$861,824

Total Accumulated Other Comprehensive Loss

The following table presents the components of "Accumulated other comprehensive loss" shown in the accompanying Consolidated Balance Sheets at September 29, 2017, and September 30, 2016 (in thousands):

	September 29, 2017	September 30, 2016
Foreign currency translation adjustments	\$(386,131)	\$(245,603)
Adjustments relating to defined benefit pension plans	(265,578)	(364,625)
Other	(1,805)	(366)
Total	\$(653,514)	\$(610,594)

Supplemental Cash Flow Information

During fiscal 2017 and fiscal 2016, the Company acquired businesses for cash of \$150.2 million and cash and stock of \$49.9 million, respectively. The following table presents the non-cash adjustments relating to these acquisitions made in preparing the accompanying Consolidated Statements of Cash Flows (in thousands):

	September 29, 2017	September 30, 2016
Working capital	\$ 9,121	\$10,023
Property and equipment	912	879
Noncurrent assets	35,976	8,192
Deferred liabilities	(273)	_
Goodwill	104,454	30,849

15. Segment Information

During the second fiscal quarter of 2016, we reorganized our operations around four global lines of business ("LOB"), which also serve as our operating segments: Petroleum & Chemicals, Buildings & Infrastructure, Aerospace & Technology, and Industrial. We determined that this new organization would better support the needs of managing each unique set of customers that fall within each segment. As a result of the new organization, we subsequently realigned our internal reporting structures to enable our Chief Executive Officer, who is also our Chief Operating Decision Maker ("CODM"), to evaluate the performance of each of these segments and make appropriate resource allocations among each of the segments. For purposes of our goodwill impairment testing, we have determined that our operating segments are also our reporting units based on management's conclusion that the components comprising each of our operating segments share similar economic characteristics and meet the aggregation criteria in accordance with ASC 350.

Under the current organization, each LOB has a president that reports directly to the Company's Chairman and CEO or CODM. In addition, the sales function, which had been managed centrally for many years, is now managed on an LOB basis, and accordingly, the associated cost is now embedded in the new segments and reported to the respective LOB presidents. In addition, a portion of the costs of other support functions (e.g., finance, legal, human resources, and information technology) is allocated to each LOB using methodologies which, we believe, effectively attribute the cost of these support functions to the revenue generating activities of the Company on a rational basis. The cost of the Company's cash incentive plan, the Management Incentive Plan ("MIP") and the expense associated with the Jacobs Engineering Group Inc. 1999 Stock Incentive Plan ("1999 SIP") have likewise been charged to the LOBs except for those amounts determined to relate to the business as a whole (which amounts remain in corporate's results of operations).

Financial information for each LOB is reviewed by the CODM to assess performance and make decisions regarding the allocation of resources. The Company generally does not track assets by LOB, nor does it provide such information to the CODM.

The CODM evaluates the operating performance of our LOBs using operating profit, which is defined as margin less "corporate charges" (e.g., the allocated amounts described above). The Company incurs certain SG&A costs which relate to its business as a whole which are not allocated to the LOBs.

The following tables present total revenues and operating profit for each reportable segment (in thousands) and includes a reconciliation of segment operating profit to total U.S. GAAP operating profit by including certain corporate-level expenses and expenses relating to the Restructuring and other charges and CH2M professional fees and integration costs (in thousands).

	For the Years Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Revenues from External Customers:				
Aerospace & Technology	\$ 2,360,613	\$ 2,657,433	\$ 2,924,753	
Buildings & Infrastructure	2,452,321	2,253,512	2,458,379	
Industrial	2,743,662	2,793,713	2,517,571	
Petroleum & Chemicals	2,466,192	3,259,499	4,214,129	
Total	\$10,022,788	\$10,964,157	<u>\$12,114,832</u>	

	For the Years Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Operating Profit:				
Aerospace & Technology	\$ 202,595	\$ 203,808	\$ 205,368	
Buildings & Infrastructure (1)	193,455	174,648	145,299	
Industrial	115,262	81,268	126,531	
Petroleum & Chemicals	113,858	126,604	138,351	
Total Segment Operating Profit	625,170	586,328	615,549	
Other Corporate Items	(81,595)	(60,100)	(15,739)	
Restructuring and Other Charges	(134,206)	(187,630)	(154,283)	
CH2M Professional Fees and Integration Costs	(17,100)	_	_	
Total U.S. GAAP Operating Profit	392,269	338,598	445,527	
Gain (Loss) on disposal of business and investments	10,880	(41,410)	(2,909)	
Total Other Expense (2)	(9,932)	(10,465)	(12,481)	
Earnings Before Taxes	\$ 393,217	\$ 286,723	<u>\$ 430,137</u>	

⁽¹⁾ Excludes \$23,844 in restructuring and other charges for the fiscal year ended September 29, 2017.

Included in "other corporate items" in the above table are costs and expenses which relate to general corporate activities as well as corporate-managed benefit and insurance programs. Such costs and expenses include: (i) those elements of SG&A expenses relating to the business as a whole; (ii) those elements of the

⁽²⁾ Years ending September 29, 2017 and September 30, 2016 include Restructuring and other charges of \$1,233 and \$277, respectively.

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Management Incentive Plan and the 1999 SIP relating to corporate personnel whose other compensation costs are not allocated to the LOBs; (iii) the amortization of intangible assets acquired as part of purchased business combinations; (iv) the quarterly variances between the Company's actual costs of certain of its self-insured integrated risk and employee benefit programs and amounts charged to the LOBs; and (v) certain adjustments relating to costs associated with the Company's international defined benefit pension plans. In addition, "other corporate items" includes adjustments to contract margins (both positive and negative) associated with projects where it has been determined, in the opinion of management, that such adjustments are not indicative of the performance of the related LOB and therefore should not be attributed to the LOB.

Included in gain on disposal of business and investments for the year ended September 29, 2017 was a gain on the sale of the Company's ownership interest in the Neste Jacobs joint venture. Included in loss on disposal of business and investments for the year ended September 30, 2016 was the losses associated with the sale of the Company's French subsidiary and a non-cash write-off on an equity investment.

We provide a broad range of technical, professional, and construction services including engineering, design, and architectural services; construction and construction management services; operations and maintenance services; and process, scientific, and systems consulting services. We provide our services through offices and subsidiaries located primarily in North America, South America, Europe, the Middle East, India, Australia, Africa, and Asia. We provide our services under cost-reimbursable and fixed-price contracts.

The following tables present total services revenues for each reportable segment for the three years ended September 29, 2017, September 30, 2016 and October 2, 2015 (in thousands):

	For the Year Ended						
	September 29, 2017						
	Aerospace & Technology	Buildings & Infrastructure	Industrial	Petroleum & Chemicals	Total		
Technical Professional Services Revenues							
Project Services	\$ 960,374	\$2,185,220	\$ 196,171	\$1,464,098	\$ 4,805,863		
Process, Scientific and Systems							
Consulting	774,063	_	_	31,081	805,144		
Total Technical Professional Services							
Revenues	1.734.437	2,185,220	196,171	1,495,179	5,611,007		
Field Services Revenues	-,,,,,	_,,		-, ., -, -, -	-,,		
Construction	250,956	254,118	1,901,299	967.888	3,374,261		
Operations and Maintenance ("O&M")		12,983	646,192	3,125	1,037,520		
Total Field Services Revenues	626,176	267,101	2,547,491	971,013	4,411,781		
Total Field Services Revenues	020,170	207,101	2,347,491	9/1,013	4,411,701		
Total Revenues	\$2,360,613	\$2,452,321	\$2,743,662	\$2,466,192	\$10,022,788		

	For the Year Ended						
	September 30, 2016						
	Aerospace & Technology	Buildings & Infrastructure Industrial		Petroleum & Chemicals	Total		
Technical Professional Services Revenues							
Project Services	\$ 910,290	\$2,094,282	\$ 891,018	\$1,843,250	\$ 5,738,840		
Process, Scientific and Systems							
Consulting	803,654			48,675	852,329		
Total Technical Professional Services							
Revenues	1,713,944	2,094,282	891,018	1,891,925	6,591,169		
Field Services Revenues							
Construction	171,614	119,463	1,601,562	1,366,251	3,258,890		
Operations and Maintenance ("O&M")	771,875	39,767	301,133	1,323	1,114,098		
Total Field Services Revenues	943,489	159,230	1,902,695	1,367,574	4,372,988		
Total Revenues	\$2,657,433	\$2,253,512	\$2,793,713	\$3,259,499	\$10,964,157		

The following table presents certain financial information by geographic area (in thousands):

	For the Years Ended			
	September 29, 2017	September 30, 2016	October 2, 2015	
Revenues:				
United States	\$ 5,822,843	\$ 6,247,448	\$ 7,154,433	
Europe	2,262,092	2,346,224	2,074,837	
Canada	590,604	927,942	1,065,651	
Asia	253,167	299,952	304,393	
India	165,295	187,929	163,871	
Australia and New Zealand	628,945	436,670	611,271	
South America and Mexico	73,456	125,610	143,014	
Middle East and Africa	226,386	392,382	597,362	
Total	\$10,022,788	\$10,964,157	\$12,114,832	
Property, equipment and improvements, net:				
United States	\$ 220,416	\$ 195,392	\$ 208,155	
Europe	46,108	37,163	55,713	
Canada	18,435	21,464	36,647	
Asia	2,793	3,069	3,859	
India	19,191	13,350	16,264	
Australia and New Zealand	18,692	18,888	24,460	
South America and Mexico	4,619	5,621	9,127	
Middle East and Africa	19,657	24,726	27,013	
Total	\$ 349,911	\$ 319,673	\$ 381,238	

Revenues were earned from unaffiliated clients located primarily within the various and respective geographic areas shown.

The following table presents the revenues earned directly or indirectly from the U.S. federal government and its agencies, expressed as a percentage of total revenues:

For the Years Ended			
September 29, 2017	September 30, 2016	October 2, 2015	
19.2%	21.4%	21.7%	

16. Selected Quarterly Information—Unaudited

The following table presents selected quarterly financial information. (in thousands, except for per share amounts):

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Fiscal Year
September 29, 2017					
Revenues	\$2,551,604	\$2,302,567(f)	\$2,514,751(f)	\$2,653,866	\$10,022,788
Operating profit (a)	88,628	68,173(f)	128,475(f)	106,993	392,269
Earnings before taxes	85,880	60,491	127,396	119,450	393,217
Net earnings of the Group	61,153	44,165	88,629	93,428	287,375
Net earnings attributable					
to Jacobs	60,536(f)	50,018(f)	89,032(f)	94,141(f)(g)	293,727
Earnings per share:					
Basic	0.50(f)	0.41(f)	0.74(f)	0.78(f)(g)	2.43
Diluted	0.50(f)	0.41(f)	0.74(f)	0.78(f)(g)	2.42
September 30, 2016					
Revenues	\$2,847,934	\$2,781,763	\$2,693,873	\$2,640,587	\$10,964,157
Operating profit (a)	59,450	86,781	109,556	82,811	338,598
Earnings before taxes	57,787	90,456	102,807	35,673	286,723
Net earnings of the Group	50,306	63,389	70,937	29,883	214,515
Net earnings attributable					
to Jacobs	46,514(b)	65,250(b)	69,055(b)	29,644(b)	210,463
Earnings per share:					
Basic	0.38(b)	0.54(b)	0.58(b)	0.25(b)	1.75
Diluted	0.38(b)	0.54(b)	0.57(b)	0.24(b)	1.73
October 2, 2015					
Revenues	\$3,187,005	\$2,903,332	\$2,907,541	\$3,116,954	\$12,114,832
Operating profit (a)	158,223	133,045	100,434	53,825	445,527
Earnings before taxes	154,695	128,962	97,188	49,292	430,137
Net earnings of the Group	106,195	88,110	97,308	37,269	328,882
Net earnings attributable					
to Jacobs	100,079	81,967(c)	91,062(c)	29,863(c)	302,971
Earnings per share:					
Basic	0.78	0.65(c)	0.74(c)	0.25(c)	2.42
Diluted	0.77	0.64(c)	0.73(c)	0.24(c)	2.40

⁽a) Operating profit represents revenues less (i) direct costs of contracts, and (ii) selling, general and administrative expenses.

⁽b) Includes costs of \$48.1 million, or \$0.39 per diluted share, in the first quarter of fiscal 2016, \$25.7 million or \$0.21 per diluted share in the second quarter of fiscal 2016, \$25.8 million, or \$0.21 per diluted share, in

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

the third quarter, and \$36.0 million or \$0.3 per diluted share in the fourth quarter of fiscal 2016, in each case, related to the 2015 Restructuring. Also included in the fourth quarter of fiscal 2016 were \$17.1 million, or \$0.14 per diluted share related to the loss on sale of our French subsidiary; and \$10.4 million, or \$0.09 per diluted share related to the non-cash write-off on an equity investment.

- (c) Includes costs of \$9.6 million, or \$0.08 per diluted share, in the second quarter of fiscal 2015, \$30.1 million or \$0.24 per diluted share in the third quarter of fiscal 2015, and \$68.2 million, or \$0.56 per diluted share, in the fourth quarter of fiscal 2015, in each case, related to the 2015 Restructuring.
- (d) Includes costs of \$47.0 million, or \$0.35 per diluted share, in the third quarter of fiscal 2014, and \$30.4 million, or \$0.23 per diluted share, in the fourth quarter of fiscal 2014, in each case, related to the 2014 Restructuring.
- (e) Includes \$6.4 million, or \$0.05 per diluted share, increase to net earnings related to a gain on the sale of certain intellectual property in the second quarter of fiscal 2014.
- (f) Includes costs of \$31.7 million, or \$0.18 per diluted share, in the first quarter of fiscal 2017; includes \$16.5 million in revenue, \$72.2 million in operating profit, \$45.2 million in net earnings attributable to Jacobs, or \$0.37 per diluted share, in the second quarter of fiscal 2017; includes \$1 million in revenue, \$10.7 million in operating profit and \$6.3 million in net earnings attributable to Jacobs, or \$0.05 per diluted share, in the third quarter of fiscal 2017; includes \$19.5 million in operating profit, \$13.6 million in net earnings attributable to Jacobs, or \$0.11 per diluted share, in the fourth quarter of fiscal 2017, in each case, related to restructuring and other charges.
- (g) Includes costs of \$10.6 million, or \$0.09 per diluted share, in the fourth quarter of fiscal 2017 related to professional fees and integration costs for the CH2M acquisition.

17. Definitions

The following terms used in the accompanying Consolidated Financial Statements and these Notes to Consolidated Financial Statements have the meanings set forth below:

"1989 ESPP" means the Jacobs Engineering Group Inc. 1989 Employee Stock Purchase Plan, as amended and restated. The 1989 ESPP is a shareholder-approved, broad-based, employee stock purchase plan qualified under Section 423 of the U.S. Internal Revenue Code.

"1999 ODSP" means the Jacobs Engineering Group Inc. 1999 Outside Director Stock Plan, as amended and restated. The 1999 ODSP is a shareholder-approved, equity-based compensation plan covering Jacobs' non-management directors.

"1999 SIP" means the Jacobs Engineering Group Inc. 1999 Stock Incentive Plan, as amended and restated. The 1999 SIP is a shareholder-approved, equity-based compensation plan covering the Company's officers and key employees.

The "2015 Restructuring" refers to a series of initiatives intended to improve operational efficiency, reduce costs, and better position the Company to drive growth of the business in the future. Actions included involuntary terminations, the abandonment of certain leased offices, and the co-location of employees. Included in the Company's consolidated results of operations for fiscal 2017, fiscal 2016 and fiscal 2015 are pre-tax costs of \$98.7 million, \$187.9 million and \$157.2 million, respectively, relating to the 2015 Restructuring. These costs are primarily included in SG&A in the accompanying Consolidated Statements of Earnings.

The "2014 Restructuring" refers to a series of initiatives intended to improve operational efficiency, reduce costs, accelerate the integration of SKM, and better position the Company to drive growth of the business in the

JACOBS ENGINEERING GROUP INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

future. Actions included involuntary terminations, the abandonment of certain leased offices, and the co-location of employees. Included in the Company's consolidated results of operations for fiscal 2014 are pre-tax costs of \$93.3 million relating to the 2014 Restructuring. These costs are included in SG&A in the accompanying Consolidated Statements of Earnings.

"ASC" refers to the Accounting Standards Codification as maintained by the FASB. The ASC is the primary source of U.S. GAAP to be applied by the Company and all other nongovernmental entities. The ASC organizes and presents hundreds of previously separate pieces of authoritative accounting guidance into a single on-line research database. The accounting principles promulgated by the ASC are organized therein by broad topics, and are updated by the FASB through the issuances of ASUs.

"ASU" means Accounting Standards Updates, the primary means by which the ASC is updated by the FASB.

"Company" (including "we", "us" or "our") means Jacobs Engineering Group Inc. and its consolidated subsidiaries and affiliates.

"Consolidated EBITDA" generally means consolidated net earnings attributable to Jacobs, plus consolidated (i) interest expense, (ii) tax expense, and (iii) depreciation and amortization expense (including amortization expense relating to intangible assets).

"Consolidated Funded Indebtedness" generally means the sum of (i) the balances outstanding under all loan, credit, and similar agreements for borrowed money (including purchase money indebtedness), (ii) all amounts representing direct obligations arising under letters of credit, (iii) indebtedness in respect of capital leases and similar financing arrangements, and (iv) the value of all guarantees issued with respect to the types of indebtedness described in (i) through (iii).

"Consolidated Leverage Ratio" means, as of any date of determination, the ratio of (i) the Company's Consolidated Funded Indebtedness as of such date to (ii) the Company's Consolidated EBITDA for the immediately preceding four consecutive fiscal quarters.

"EPS" means earnings-per-share. "Basic EPS" is computed by dividing the consolidated net earnings attributable to Jacobs by the weighted average number of shares of common stock outstanding during the period. "Diluted EPS" is computed in a manner similar to the computation of Basic EPS, but gives effect to all dilutive securities that were outstanding during the period. Our dilutive securities consist of nonqualified stock options and restricted stock (including restricted stock units)

"Fair Value" means the price that would be received from selling an asset, or paid to transfer a liability, in an orderly transaction between market participants as of the date fair value is determined (i.e., the "measurement date"). When determining fair value, U.S. GAAP requires that we consider the principal or most advantageous market in which we would transact any sale or purchase. U.S. GAAP also requires that the inputs (factors) we use (consider) to determine fair value be considered in the following order of priority:

- Level 1 inputs are quoted prices in active markets for identical assets or liabilities;
- Level 2 inputs are observable inputs (other than quoted prices in active markets included in Level 1) such as (i) quoted prices for similar assets or liabilities, (ii) quoted prices in markets that have insufficient volume or infrequent transactions (i.e., less active markets), and (iii) model-driven valuations in which all significant inputs are observable or can be derived principally from, or corroborated with, observable market data for substantially the full term of the asset or liability; and

 Level 3 inputs are unobservable inputs to the valuation methodology that are significant to the fair value measurement.

"FASB" means the Financial Accounting Standards Board. The FASB is the designated organization within the U.S. for establishing standards of financial accounting that govern the preparation of financial reports by nongovernmental entities.

"GESPP" means the Jacobs Engineering Group Inc. Global Employee Stock Purchase Plan, as amended. The GESPP is a shareholder-approved, broad-based, employee stock purchase plan covering employees of certain of Jacobs' non-U.S. subsidiaries.

"Group" refers to the combined economic interests and activities of Jacobs and the persons and entities holding noncontrolling interests in the subsidiaries and affiliates that are consolidated into the accompanying Consolidated Financial Statements.

"Jacobs" means Jacobs Engineering Group Inc.

"U.S. GAAP" means those accounting principles and practices generally accepted in the United States.

"U.S. IRC" means the U.S. Internal Revenue Code of 1986, as amended.

"VIE" means a "Variable Interest Entity" as defined in U.S. GAAP. A VIE is a legal entity in which equity investors do not have sufficient equity at risk for the entity to finance its activities without additional subordinated financial support or, as a group, the holders of the equity investment at risk lack any one of the following three characteristics: (i) the power, through voting rights or similar rights, to direct the activities of a legal entity that most significantly impact the entity's economic performance; (ii) the obligation to absorb the expected losses of the legal entity; or (iii) the right to receive the expected residual returns of the legal entity. Accordingly, entities issuing consolidated financial statements (i.e., a "reporting entity") shall consolidate a VIE if the reporting entity has a "controlling financial interest" in the VIE, as demonstrated by the reporting entity having both (i) the power to direct the activities of a VIE that most significantly impact the VIE's economic performance; and (ii) the right to receive benefits from the VIE that could potentially be significant to the VIE or the obligation to absorb losses of the VIE that could potentially be significant to the VIE.

Report of Ernst & Young LLP Independent Registered Public Accounting Firm

The Board of Directors and Stockholders Jacobs Engineering Group Inc.

We have audited the accompanying consolidated balance sheets of Jacobs Engineering Group Inc. and subsidiaries as of September 29, 2017 and September 30, 2016, and the related consolidated statements of earnings, comprehensive income, stockholders' equity, and cash flows for each of the three fiscal years in the period ended September 29, 2017. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Jacobs Engineering Group Inc. and subsidiaries at September 29, 2017 and September 30, 2016, and the consolidated results of their operations and their cash flows for each of the three fiscal years in the period ended September 29, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Jacobs Engineering Group Inc. and subsidiaries' internal control over financial reporting as of September 29, 2017, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated November 21, 2017 expressed an unqualified opinion thereon.

/S/ Ernst & Young, LLP

Dallas, Texas November 21, 2017

Report of Ernst & Young LLP Independent Registered Public Accounting Firm

The Board of Directors and Stockholders Jacobs Engineering Group Inc.

We have audited Jacobs Engineering Group Inc. and subsidiaries' internal control over financial reporting as of September 29, 2017, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). Jacobs Engineering Group Inc. and subsidiaries' management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Jacobs Engineering Group Inc. and subsidiaries maintained, in all material respects, effective internal control over financial reporting as of September 29, 2017, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Jacobs Engineering Group Inc. and subsidiaries as of September 29, 2017 and September 30, 2016 and the related consolidated statements of earnings, comprehensive income, stockholders' equity, and cash flows for each of the three fiscal years in the period ended September 29, 2017 of Jacobs Engineering Group Inc. and subsidiaries and our report dated November 21, 2017 expressed an unqualified opinion thereon.

/S/ Ernst & Young, LLP

Dallas, Texas November 21, 2017





Registrar and Transfer Agent

Wells Fargo Shareholder Services South St. Paul, Minnesota

Shareholder Services

Correspondence about share ownership, transfer requirements, changes of address, lost stock certificates, and account status may be directed to:

Wells Fargo Shareowner Services 161 North Concord Exchange Street South St. Paul, Minnesota 55075-1139 800.469.9716 http://www.wellsfargo.com/shareownerservices

Independent Registered Public Accounting Firm

Ernst & Young LLP Dallas, Texas

Stockholder Contact

A copy of our Annual Report on Form 10-K, as filed with the Securities and Exchange Commission, will be furnished without charge to any stockholder upon written request to:

Kevin C. Berryman
Executive Vice President and Chief Financial Officer
Jacobs Engineering Group Inc.
1999 Bryan Street, Suite 1200
Dallas, Texas 75201
+1.214.638.0145

Photography

Front Cover

Transport Scotland

Queensferry Crossing

Edinburgh, Scotland, UK

Feasibility phase, design, promotion through statutory bill, procurement and construction monitoring services, as part of the JacobsArup joint venture

Image courtesy Transport Scotland

Inside Front Cover

Walsh Vinci Construction (WVC)

Ohio River Bridge

Prospect, KY, USA

Lead engineering firm responsible for the roadway, pavement, traffic, structural, drainage, electrical (lighting and ITS), geotechnical, aesthetics, landscaping design, and design of the tunnel's permanent liner and mechanical and electrical systems as well as the main span cable stay bridge over the Ohio River

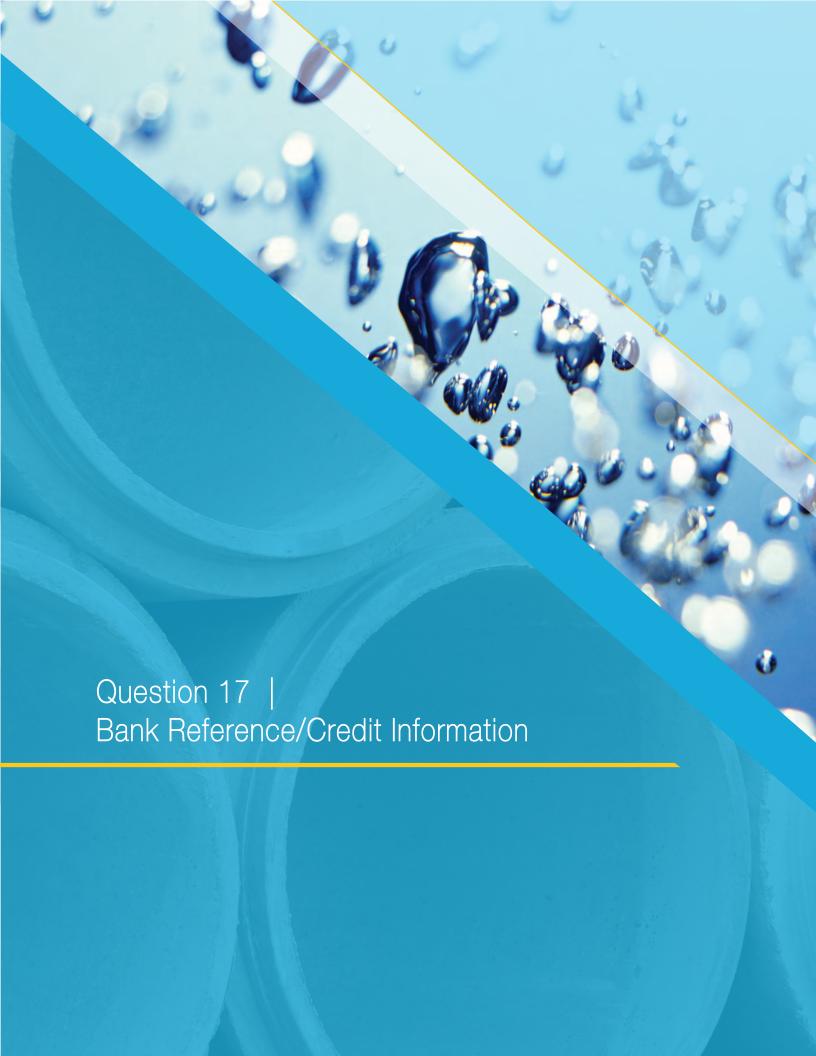
© Bryan Moberly



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1999 Bryan Street, Suite 1200 Dallas, Texas 75201 USA





Jacobs Engineering Group Inc.

Credit Information

Location: 1999 Bryan Street, Suite 1200

Dallas, TX 75201

Business Classification: Engineering/Design/Procurement/Construction Management

Officers: Steven J Demetriou, President and CEO

Kevin Berryman, Executive VP and CFO William B Allen, Senior VP and CAO

Bank References Bank of America

Account Number: 3750076705

Credit inquiries on commercial banking accounts are handled through www.bankvod.com. For questions about website please call 1-888-801-0091

Credit References:

McJunkin Corporation

PO Box 513

Charleston, WV 25322

Marilyn.mcmahan@mrcglobal.com

Or fax Marilyn at 866-468-0136

BMW Constructors Inc P. O. Box 22210

Indianapolis, IN 46222

(317) 267-0467 - Rick Shuman

Gravba

12431 Collections Center Dr

Chicago, IL 60693

Fax Request to: (201) 596-2655 - Raquel

Acct. #0000419754

Hertz Equipment Rental

PO Box 26390

Oklahoma City, OK 73126-0390

Fax requests only to (405)979-3940

Dun & Bradstreet Number:

07-410-3508

General Information:

See Purchase Orders for taxability status.

Federal Tax ID Number:

Jacobs Engineering Group Inc. - 95-4081636

Daniel J. Manger

Vice President-Controller, Shared Services

Symons

P. O. Box 712299

Cincinnati, OH 45271

(847) 391-4700 ext 23919 - Colleen

Acct. #840047

Associated Staffing Inc 626 Holcomb Bridge Rd #600

Roswell, GA 30076

Fax request to: (770) 643-8558 Attn: Valerie

ARC

1304 Langham Creek, #324

Houston, TX 77084

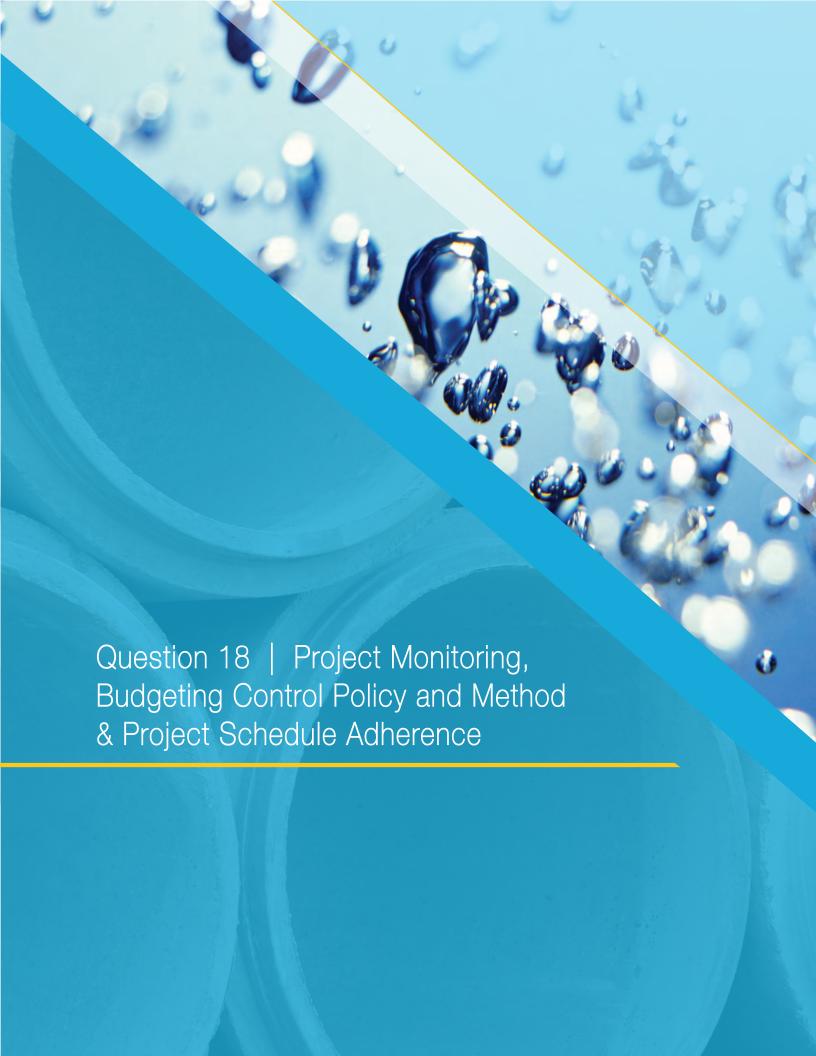
Fax requests to: (713) 779-6065

Grainger

5959 W. Howard St.

Niles, IL 60714-4014

(847) 647-2060 Jacobs A/C# 825219496



HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT



PROJECT CONTROLS

This section demonstrates our approach to providing world-class service to the City. We are proud of our relationship and value-added service to City to-date, and look forward to more years of service. We are familiar with the City's systems, people, and infrastructure and will be able to hit the ground running at full speed when selected for this contract work. Similarly, the City is familiar with the people within Jacobs and have experienced our value-enhancing systems and processes.

Our management and project delivery approach promotes team integration, effective communication, and streamlined task order delivery.

Our management approach is structured to deliver any task associated with this contract. Our extensive local presence and team structure empower us to simultaneously deliver concurrent projects of any size or scope—regardless of their discipline or group. This approach provides the City a single point of contact and full accountability, immediate responsiveness, a customized approach to meet the needs of any project, and the best local resources available to deliver projects to the City's full satisfaction.

► PROJECT DELIVERY SYSTEM (PDS)

Our PDS provides the flexibility to meet the need of any project, large or small. The most successful projects involve collaboration between client and project team. Workshops conducted at various phases of the project, including kick-off, support clear communications and precise understanding among team members and



PROJECT DELIVERY SYSTEM

JACOBS FIVE-STEP PROCESS



Establish client/consultant roles and responsibilities and establish and follow communication protocols.

PLAN PROJECT

Document work definition, work scheduling, resource planning, deliverables, reviews, and performance measurements in an approved Project Management Plan.

PERFORM WORK

Perform work as planned and coordinate/communicate with all stakeholders. Quality control continues throughout work.

MANAGE CHANGE

Plan for change and follow a process to provide quality through managed project change.

CLOSE PROJECT AND TRANSFER KNOWLEDGE

Identify and implement project closeout and learning activities throughout the project.

stakeholders. Through clearly defined processes, our team focuses on client needs and satisfaction, guided by five critical steps that are critical to project success.

Our delivery approach is customized to the size and complexity of projects, but these objectives identified are never compromised.

Our PDS is a perpetual project control plan that supports effective management of critical project components, including:

- Team building and cohesiveness
- Budget and schedule adherence
- Communication

- Change management
- Quality control

HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT



PROJECT CONTROL TOOLS

Assuring responsiveness, efficiency, quality, cost control, and schedule adherence through proven project controls strategies.

PDS provides a systematic approach to better control of project costs, improved schedule execution, and increased quality. Through clearly defined processes, we will focus on your needs and satisfaction to successfully deliver projects.



Our control and reporting tools allow continuous monitoring of progress and status of deliverables, schedule, and level of effort for all tasks.

▶ TASK-ORDER BASED PROJECT DELIVERY

The key to successfully managing task-order based requests is fully understanding the scope and level of effort required to complete a project, and applying the appropriate processes to allow the project manager and discipline managers to efficiently manage assignments. For every task order issued, we will tailor our approach with the end goal in mind.

An experienced project manager/process technologist with more than 15 years of experience in South Florida, our Project Manager/Primary Project Professional, Gerrit Bulman, brings a strong record of completing projects on time and within budget. During the contract, once an assignment is identified, Gerrit will review the requirements and assign the appropriate discipline manager to manage each individual project in accordance with his or her specific technical expertise. Depending on the project, additional task or project leaders will be assigned and, together with the discipline manager and project manager, they will meet with City staff to understand the details of the request, ensure the proper personnel are mobilized, align our staff with the appropriate City engineering and operations staff, and ensure a project work plan is established.



We have successfully delivered hundreds of general engineering contracts firmwide, proving our ability to respond quickly, mobilize qualified technical personnel, and produce quality results for any size project despite short deadlines and difficult technical demands.

SCHEDULE METHODOLOGY

We have a solid, proven record of meeting or exceeding delivery schedule requirements on our projects. Our commitment to schedule performance is demonstrated by our ability to beat demanding schedules and by our willingness to find approaches to successfully complete the project faster. We institute state-of-the-art project delivery and control systems so our project teams operate at optimal performance levels. Our project delivery system serves to:

- Understand and establish the baseline schedule of each task order
- Communicate and receive buy-in and commitment by project team members regarding the schedule
- Consistently check the baseline delivery schedule against project milestones
- Develop recovery plans as needed to maintain project schedules

Because the projects anticipated under this contract will vary in size, scope and complexity, we will develop an individual timeline for each task order to ensure the effective management and execution of work in the optimum time.

HYDROGEOLOGICAL CONSULTING SERVICES BEQ No. 023-2821-18/IT



PROJECT BUDGET CONTROL

For each project, detailed project schedules and estimated staff requirements will be used to develop cost projections. Projected staff requirements will be established for each principal project task and compared to actual costs each week in our computer-based project cost tracking system. Once we establish a baseline cost during the predesign phase, we update the budget estimate document on an as-needed basis to reflect scope changes (process, owner, or market driven), to maintain a current look at the overall anticipated project cost. This process will allow for changes in direction, early in the design and procurement stages, and allows the team to track costs and adjust to meet budget if needed, and identifies "scope creep" during the design phase. We also proactively manage costs by:



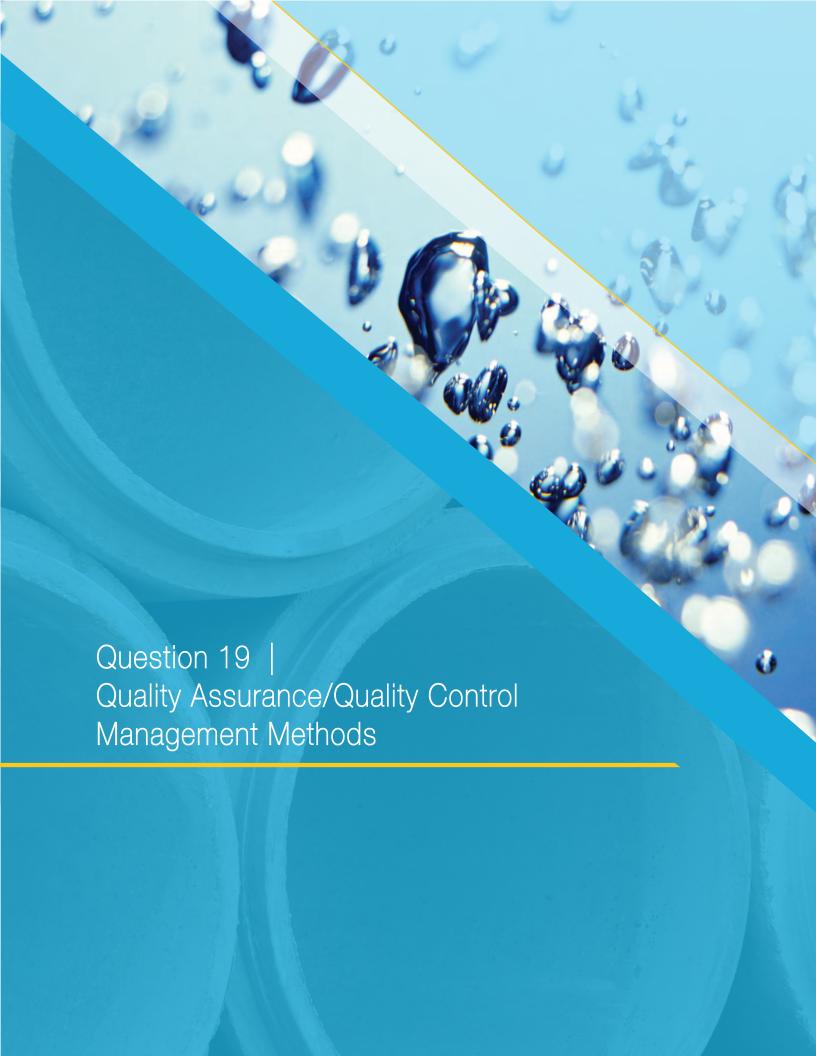
- Assisting in negotiating favorable permit conditions and environmental mitigation requirements
- Include cost impacts as a criterion for final selection of processes and equipment
- Facilitate priority setting with client staff to help achieve the greatest value for the money spent
- If necessary, include deductible alternatives in the construction bid forms
- Use our weekly cost reporting system to track actual engineering costs versus plan

▶ DISPUTE RESOLUTION

Our best practice change management and claims prevention strategies focus on capability, foster teamwork and promote problem solving to support early identification of potential issues and the timely application of corrective actions. Our integrated cost estimating tools enable us to confirm that contractor cost and change request proposals are realistic and accurate, and facilitate effective change order management and negotiations.

Depending on the complexity of projects and the higher risks associated with project tasks, our dispute resolution and management approach will include several elements, including early identification of contracts and work elements with higher risk of potential claims

- Designation of senior, qualified project staff to take responsibility and ownership for different types and levels of claims, calculation of monetary value, and schedule impacts
- Early recognition and prompt response to potential disputes with appropriate notification
- Immediate open discussion when an issue arises so that it can be resolved rapidly
- Expert negotiation and alternative dispute resolution strategies



HYDROGEOLOGICAL CONSULTING SERVICES REQ No. 023-2821-18/IT



OUALITY CONTROL PLAN

Our Quality Management System (QMS) provides a common framework for uniform QA/QC processes for all members of the team. For a contract such as this, we believe plans should be scalable to the specific task order with the City. Our management staff will ensure our QA/QC plan for this contract is appropriate to the needs of each project and communicated to all project participants, making each employee responsible for knowing the contents of the QA/QC plan and its policy statements. We are committed to:

- Providing quality, excellence, and attention to detail in all our activities and deliverables
- Ensuring conformance with approved designs and specifications through systematic application of our quality program, including checks and audits to identify and correct non-complying work
- Maintaining requisite standards of quality throughout all phases of our project
- Eliminating excesses and maximizing efficiency through continuous quality improvement
- Maximizing efficiency through a philosophy of continuous quality improvement

Our team is structured to provide consistent, high-quality deliverables. We've structured our team, with Daniel Dietch and Gerrit Bulman as our core leaders in the roles of Principal-in-Charge and Project Manager (PM), respectively. Gerrit will lead an experienced team of Project Professionals to deliver successful projects.

Our QA/QC review team will be involved throughout the work, working closely with City Utilities and Public Works management to perform reviews of studies and plans, process and design reviews, as well as value engineering (VE), operability and constructability reviews when required—particularly during the early stages of a project when it is easiest to influence the work to be accomplished—to ensure projects are not only buildable but also provide life-cycle cost savings and operate as intended.

We will include a QA/QC plan as a part of our overall project specific project management plans. The plan will be developed from our QA/QC template and will be specific to the project tasks described in this proposal. Our quality guidelines describe how we use our policies, procedures, and systems to establish and achieve our management objectives and can be provided on request. We distinguish between QA/QC processes as follows:

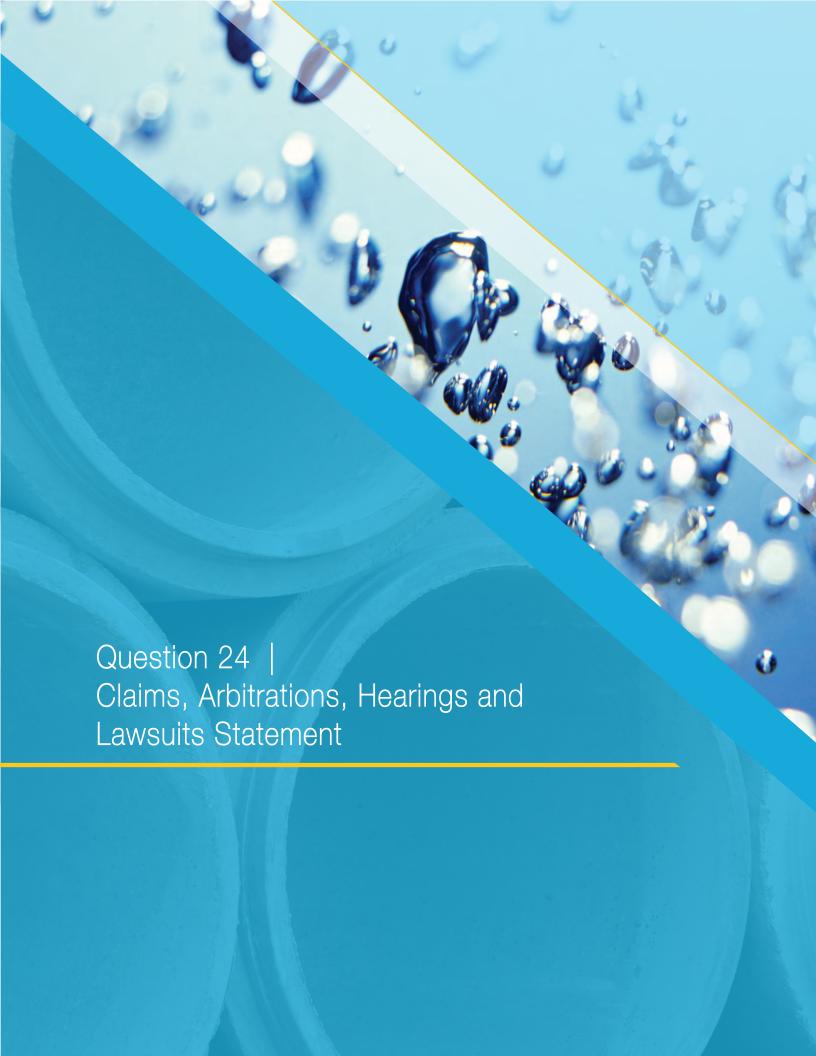
- Our QA is a plan and a system of review procedures conducted to make sure QC steps are implemented correctly, and documented on record.
- Our QC program includes definitive milestone reviews. We also perform inter-discipline checks that bring each discipline together, one-on-one, to identify conflicts, as well as perform project reviews.

Incorporating QA/QC across our work processes is a requirement for all projects and actions, and is required before moving from one step to the next. Gerrit will ensure that formal QA/QC procedures begin with the first day of the project effort and continue until final acceptance of the work product. Each Project Professional, working with Gerrit, is responsible for making sure QC checks occur at specified milestones during the execution of each project. Key features of our approach to project QA/QC include:

- Working sessions involving key staff, senior consultants and your staff throughout the course of the project. We conduct inhouse formal reviews with senior consultants at varying work stages of completion, and on all deliverables.
- Continuity of project personnel by maintaining key members of the preliminary team throughout all phases of each project.
- Project tracking systems to ensure quality results on time and within budget.
- A detailed coordination check conducted by independent reviews at the 95 percent complete level.

Specific written roles and responsibilities, as well as defined workflows, are associated with each of the QA/QC levels.

Our QC process comprises routine reviews and quality checks to measure and control the quality of the project by ensuring correctness of calculations, completeness of product, identifying possible errors and omissions, and documenting and recording these activities. Gerrit will drive a systematic process where the disciplines coordinate with each other to ensure all project standards are set and met from the outset.



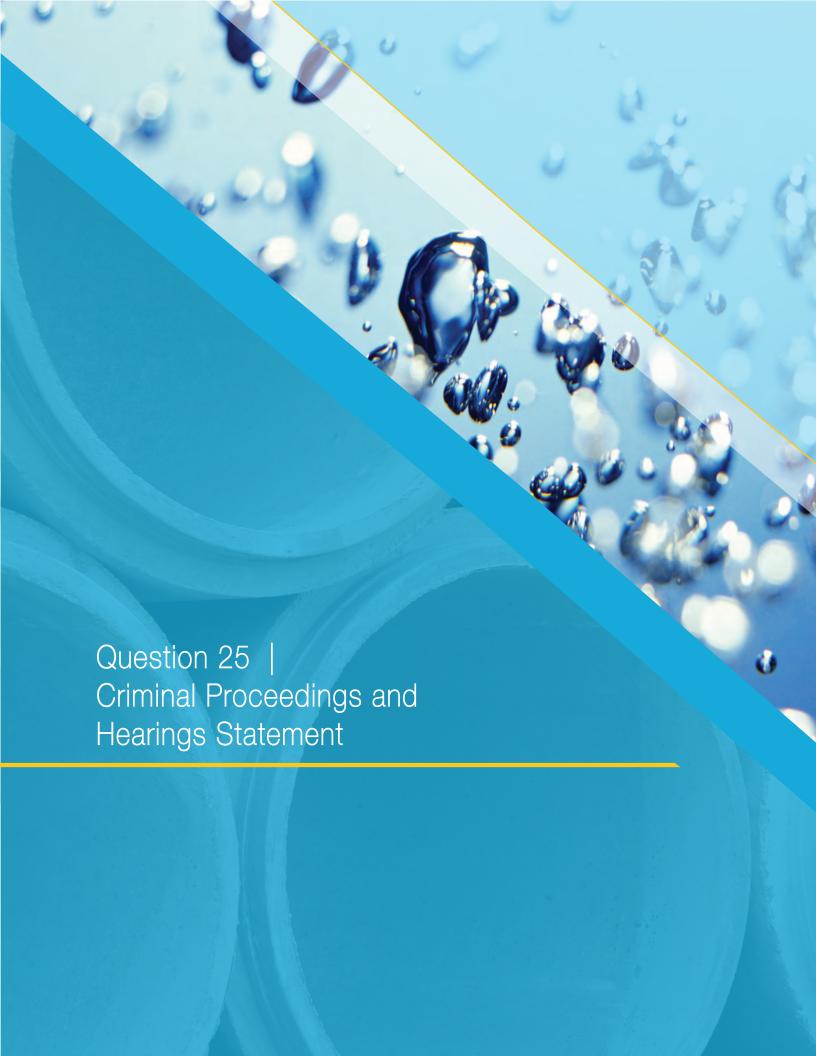






24. LIST ALL CLAIMS, ARBITRATIONS, ADMINISTRATIVE HEARINGS AND LAWSUITS BROUGHT BY OR AGAINST THE PROPOSER OR ITS PREDECESSOR ORGANIZATION(S) DURING THE LAST FIVE (5) YEARS. THE LIST SHALL INCLUDE ALL CASE NAMES, CASE ARBITRATION OR HEARING IDENTIFICATION NUMBERS, THE NAME OF THE PROJECT WHICH THE DISPUTE AROSE, AND A DESCRIPTION OF THE SUBJECT MATTER OF THE DISPUTE.

The Submitting Firm, Jacobs Engineering Group Inc., and its subsidiaries form an organization that is comprised of approximately 250 operating companies and affiliates, having a total current employment complement of approximately 74,000 persons and revenues approaching \$15 billion. From time to time and in the ordinary course of its business, the Company is subject to various claims, disputes, terminations, arbitrations, and other legal proceedings. It is the Company's practice to vigorously defend itself in such actions, many of which are generally subject to insurance and none of which are expected to have a materially adverse effect on the Company's consolidated financial statements.



HYDROGEOLOGICAL CONSULTING SERVICES RFQ No. 023-2821-18/IT



25. LIST AND DESCRIBE ALL CRIMINAL PROCEEDINGS OR HEARINGS CONCERNING BUSINESS RELATED OFFENSES TO WHICH THE PROPOSER, ITS PRINCIPALS OR OFFICERS OR PREDECESSORS' ORGANIZATION(S) WERE DEFENDANTS.

To the best of its knowledge, the Submitting Firm, Jacobs Engineering Group Inc., is unaware of any criminal proceedings or hearings concerning business related offenses where the Submitting Firm, its principals or officers or predecessor organization(s) were defendants. However, the Submitting Firm and its subsidiaries form an organization that is comprised of approximately 125 operating companies and affiliates, having a total current employment complement of approximately 50,000 persons and revenues approaching \$12 billion. From time to time and in the ordinary course of its business, the Company is subject to various claims, disputes, terminations, arbitrations, and other legal proceedings. It is the Company's practice to vigorously defend itself in such actions, many of which are generally subject to insurance and none of which are expected to have a materially adverse effect on the Company's consolidated financial statements.







CONTRACT COMMENTS

We have reviewed your RFQ and sample Hydrogeological Consulting Services Agreement and find it to be generally acceptable as the basis for the negotiation of a mutually-agreed-to final contract between the parties. However, we have the following comments concerning the terms and conditions:

1. INDEMNITY.

We ask that Consultant's indemnification not include the obligation to "defend" the City and that same be on a comparative negligence basis and be limited to injuries or damages resulting from Consultant's negligence. We further ask that City be responsible for injuries which are due to its own negligence, for loss of or damage to its own property and employees, for changes which it directs against Consultant's recommendations or which have the effect of reducing safety related features, and for injury or damage resulting from the release of or exposure to hazardous/toxic substances.

2. STANDARD OF CARE & LIABILITY.

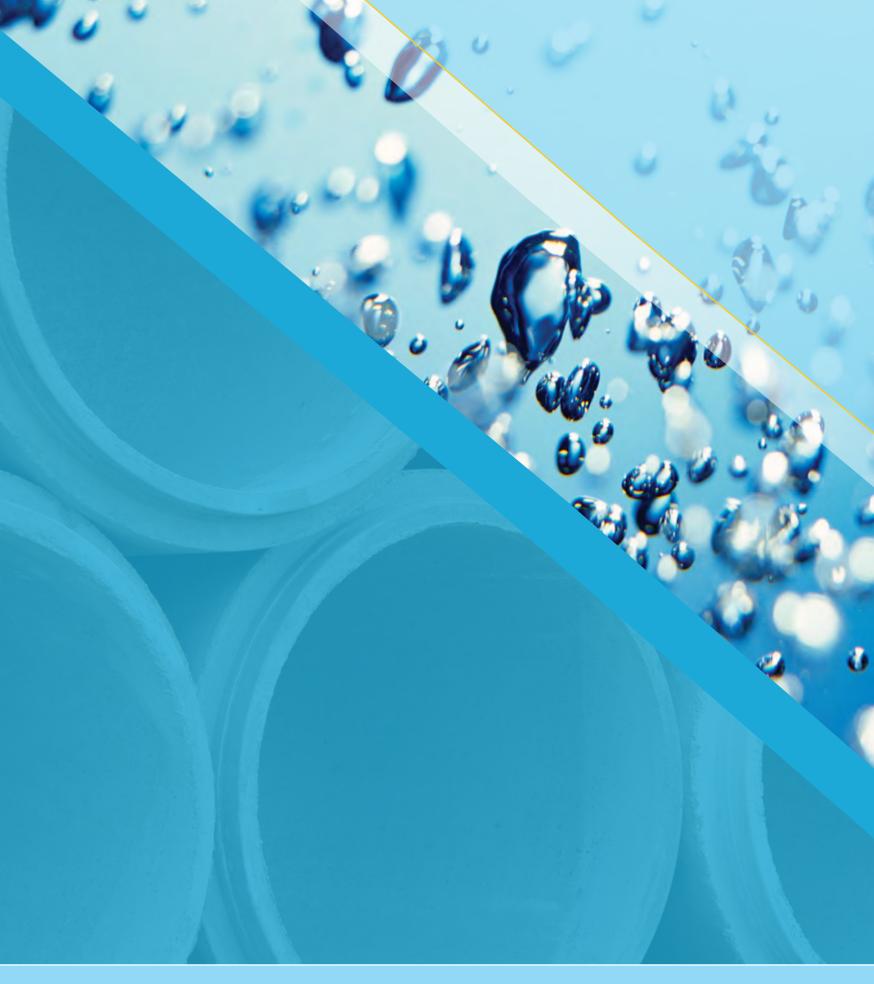
Consultant shall perform the services to the degree of care and skill of like professionals customarily found in the general area of the project. We request that Consultant's sole liability with respect to any deficient services be the reperformance of such services at no cost to City for a twelve month time period after the performance of such services and that Consultant have no liability for the repair or replacement of equipment or facilities. Lastly, we ask that a waiver of consequential and indirect damages be included in the contract along with an equitable general limitation of liability.

3. PAYMENT.

If rewarded contract Consultant requests that payment terms be one hundred percent of invoiced amount, payable net thirty (30) days based on monthly invoices.

4. INSURANCE.

Owner will be named as an additional insured as respects Consultant's negligent performance of its services under this contract for all policies except for professional liability and workers compensation. However such obligation shall not apply to Owner subcontractors and any non-official offices of Owner. Consultant shall provide notice of any potential cancellation of its insurance policies in accordance with the terms of such policy which do include a 30 day notice provision. However, due to changes in the insurance industry, the certificate of insurance will not contain a statement specifying the actual notice period.



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