



**Brunswick-Glynn County Joint Water and Sewer Commission**  
**1703 Gloucester Street, Brunswick GA 31520**  
**Thursday, February 7, 2019 at 2:00 pm**  
**Commission Meeting Room**

## **COMMISSION MEETING AGENDA**

### **AMENDED**

**Call to Order**

**Invocation**

**Pledge**

#### **PUBLIC COMMENT PERIOD**

*Public Comments will be limited to 3 minutes per speaker. Comments are to be limited to relevant information regarding your position and should avoid being repetitious. Individuals should sign in stating your name, address and the subject matter on which you wish to speak. Your cooperation in this process will be greatly appreciated.*

#### **EMPLOYEE RECOGNITION**

**Certificate Presentations – C. Harvey / C. Barnhart**

**Gregory Keith Crowder** – Wastewater Collection System Operator

**Antonio Damond Simmons** – Wastewater Operator Class 1

**Harrison Larimore Jackson** – Wastewater Operator Class 3

#### **APPROVAL**

1. **Minutes from January 23, 2019 Commissioners' Retreat** *(subject to any necessary changes)*
2. **Minutes from January 23, 2019 Executive Session** *(subject to any necessary changes)*
3. **Minutes from January 24, 2019 Regular Meeting** *(subject to any necessary changes)*
4. **Minutes from January 24, 2019 Executive Session-1** *(subject to any necessary changes)*
5. **Minutes from January 24, 2019 Executive Session-2** *(subject to any necessary changes)*
6. **Engineering Study RFP** – B. Turnipseed
7. **LS4003 Engineering Contract Award** – P. Crosby
8. **"L" Street Project/MOU with City of Brunswick** – T. Kline
9. **Oak Grove Comprehensive Agreement** – C. Dorminy

#### **DISCUSSION**

1. **GMA Defined Benefit Plan** – J. Donaghy  
Randy Logan, GMA / Michelle Warner, GMA / Rocky Joyner, Segal Consulting
2. **Project Update** – T. Kline

#### **EXECUTIVE DIRECTOR'S UPDATE**

#### **CHAIRMAN'S UPDATE and COMMITTEE APPOINTMENTS**

#### **EXECUTIVE SESSION**

#### **MEETING ADJOURNED**

*All citizens are invited to attend.  
There is a possibility of a quorum of City or County Commissioners being present.*



**Brunswick-Glynn County Joint Water and Sewer Commission  
1703 Gloucester Street, Brunswick, GA 31520  
Thursday, February 7, 2019 at 2:00 PM**

**COMMISSION MINUTES**

**PRESENT:**

**G. Ben Turnipseed, Chairman  
Steve Copeland, Vice-Chairman  
Donald Elliott, Commissioner  
Cornell L. Harvey, Commissioner  
Bob Duncan, Commissioner  
Tripp Stephens, Commissioner  
Wayne Neal, Commissioner**

**ALSO PRESENT:**

**Jimmy Junkin, Executive Director  
Charlie Dorminy, Legal Counsel HBS  
Andrew Burroughs, Deputy Executive Director  
Todd Kline, Director of Engineering  
Pam Crosby, Director of Procurement  
John D. Donaghy, Director of Finance  
Jay Sellers, Director of Administration  
Kirk Young, Superintendent  
Alvin Lang, Supervisor  
Derrick Simmons, Superintendent  
Cindy Barnhart, T.S.I.  
Michelle Warner, G.M.A.  
Rocky Joyner, Segal Consulting  
Janice Meridith, Exec. Commission Administrator**

**MEDIA PRESENT:**

**Taylor Cooper, The Brunswick News  
Pamela Permar Shierling, The Islander**

Chairman Turnipseed called the meeting to order at 2:00 PM.

Commissioner Neal provided the invocation and Commissioner Elliott led the pledge.

**PUBLIC COMMENT PERIOD**

Chairman Turnipseed opened the public comment period.

**Robbie Tucker, Tap-In Fees** – Mr. Tucker has purchased a lot in Riverside to build a home on. He has received a tap-in fee estimate of approximately \$10,000 and is concerned as to the extremely high cost to be allowed to tap-in to the system, and believes there should be some means of reducing that cost. He

checked the costs of a well and septic sewer system which was much lower cost, however use of a septic tank system is not allowed on the marsh.

There being no additional citizens for public comment, Chairman Turnipseed closed the public comment period.

## **EMPLOYEE RECOGNITION**

### **Gregory Keith Crowder – Wastewater Collection System Operator**

Commissioner Harvey presented Gregory Keith Crowder with his Wastewater Collection System Operator certificate. Commissioner Harvey and Cindy Barnhart along with Superintendent Kirk Young and Supervisor Frank Clark congratulated Greg on his accomplishment.

### **Antonio Damond Simmons – Wastewater Operator Class 1**

Commissioner Harvey presented Antonio Damond Simmons with his Wastewater Operator Class 1 certificate. Commissioner Harvey and Cindy Barnhart along with Supervisor Alvin Lang congratulated Antonio on his accomplishment.

### **Harrison Larimore Jackson – Wastewater Operator Class 3**

Commissioner Harvey presented Harrison Larimore Jackson with his Wastewater Collection System Operator Class 3 certificate. Commissioner Harvey and Cindy Barnhart along with Supervisor Alvin Lang congratulated Harrison on his accomplishment.

## **APPROVAL**

### **1. Minutes from the January 23, 2019 Commissioners' Retreat Workshop Meeting**

Commissioner Stephens made a motion seconded by Commissioner Neal to approve the minutes from the January 23, 2019 Commissioners' Retreat Workshop Meeting. Motion carried 7-0-0.

### **2. Minutes from the January 23, 2019 Executive Session**

Commissioner Stephens made a motion seconded by Commissioner Duncan to approve the minutes from the January 23, 2019 Executive Session. Motion carried 7-0-0.

### **3. Minutes from the January 24, 2019 Regular Commission Meeting**

Commissioner Harvey made a motion seconded by Commissioner Copeland to approve the minutes from the January 24, 2019 Regular Commission Meeting. Motion carried 7-0-0.

### **4. Minutes from the January 24, 2019 Executive Session (1)**

Commissioner Harvey made a motion seconded by Commissioner Copeland to approve the minutes from the January 10, 2019 Executive Session (1). Motion carried 7-0-0.

### **5. Minutes from the January 24, 2019 Executive Session (2)**

Commissioner Duncan made a motion seconded by Commissioner Elliott to approve the minutes from the January 24, 2019 Executive Session (2). Motion carried 6-0-1. (Commissioner Harvey abstained due to absence from the session.)

### **6. Engineering Study RFP – B. Turnipseed**

Chairman Turnipseed provided that there are numerous areas in Glynn County presently without public sewer. He noted that since the JWSC has adequate capacity to treat wastewater from additional customers a study should be completed to determine the cost to extend service to some of these areas. Chairman Turnipseed added that the study should provide construction cost estimates for each area with services provided by both a gravity collection system and a pressure collection system, and if authorized the study should be completed within 90 days. The three (3) initially designated areas with adequate

density and location near the existing sewer system for this particular study are: The area west of Highway 341 and north of Highway 303; the area east of Highway 341 and north of Community Road and west of Old Jesup Road; and the Arco community.

Commissioner Duncan made a motion seconded by Commissioner Stephens to move that the JWSC staff develop a RFP to receive proposals for completion of an engineering study to provide sewer service to three (3) unserved areas in Glynn County.

Commissioner Neal asked if there was any idea as to what the cost of the study might be, and the response was no.

Chairman Turnipseed asked when staff may be able to have the RFP prepared and sent out, and Mr. Kline responded an estimate of 30 days for staff to prepare and advertise the RFP.

Motion carried 7-0-0.

#### **7. LS4003 Engineering Contract Award – P. Crosby**

Pam Crosby presented the recommendation to award the contract for engineering services for the LS4003 Basin Improvements Project. This contract will include the engineering for the improvements to the pump station and some gravity sewer line in the immediate area. She noted that this is a part of the SPLOST 2016 referendum and that the project overall will benefit the greater downtown area of Brunswick. Mrs. Crosby noted that the RFP was issued on November 29, 2018 and a pre-proposal meeting was held on December 18, 2018 with ten (10) firms in attendance, of which seven (7) provided proposals received on January 13, 2019. She provided a RFP evaluation summary matrix for the Commissioners review, as well as noting the evaluation criteria and comments made by the evaluation team.

Commissioner Copeland made a motion seconded by Commissioner Duncan to move that the Brunswick-Glynn County Joint Water and Sewer Commission enter into a contract with Hussey Gay Bell Engineers in the amount of \$244,984.00 for Engineering Services proposal related to the SPLOST 2016 Collection System Modifications to the City of Brunswick LS4003 Basin Project.

Commissioner Duncan asked about the proposals and the options that were offered within and if a single option was already determined and if the proposal encompassed that one option. Mrs. Crosby advised that the recommended proposal included looking at both options and advise which one is the best option. Commissioner Duncan asked how the \$245K was arrived at with two options and one not yet selected as the final. Mrs. Crosby clarified that the proposal included the fees to design and the options were all inclusive; the firm will look into both options and determine the best one. The cost will not increase based on selecting the final option.

Commissioner Stephens inquired if the evaluation points awarded for location were tiered based on distance, and Mrs. Crosby replied yes, they were.

Motion carried 7-0-0.

#### **8. “L” Street Project/MOU with City of Brunswick – T. Kline**

Todd Kline presented the recommendation execution of a MOU with the City of Brunswick to participate in the construction portion of the “L” Street Project where the City of Brunswick is doing some roadway and drainage improvements between Martin Luther King Jr. Blvd. and Glynn Avenue. While the roads are under construction, JWSC would like to repair, replace and make overall improvements to the water and sewer system in that area. Mr. Kline highlighted the bidding process and further negotiations with the bidder due to the original bid coming in significantly higher than the cost estimate of the project. The revised estimate for the water systems improvements was \$711,080.00. JWSC staff recommended adding a 5% contingency based on the changes anticipated on the bid quantities, which brought the new



estimated cost of construction including contingency to \$746,634.00. Mr. Kline provided that with the JWSC portion of the bid approved and the MOU approved, the City of Brunswick will be able to proceed with the total contract award to Georgia Asphalt Producers, Inc. He also noted that the preconstruction meeting will be held in mid to late February and construction will commence shortly thereafter, with the contract having a 365 day term.

Commissioner Duncan made a motion seconded by Commissioner Copeland to move that the approval be granted to enter into a Memorandum Of Understanding for the City of Brunswick in the estimated amount of \$746,634.00 for water-related portions of the L Street Reconstruction Project.

Commissioner Duncan asked who the project manager will be on the utility portion, and Mr. Kline provided that he and staff from JWSC Planning & Construction would be providing construction oversight. Commissioner Duncan then inquired about the major milestones such as early start date and late construction date. Mr. Kline noted that the expectation of the City is that the overall complete project including paving of roadways and such is 365 days, however the water-related portion is expected to be much shorter than that, and at a later date he can provide that detail.

Commissioner Harvey provided that the City, being aware of what happened on the Mansfield Project and that contract, has addressed the manner in which contracts are constructed and prepared. He also noted that the L Street Project is a high priority project for the City and due diligence has been done to ensure this contract does not linger.

Chairman Turnipseed asked if the water lines will be installed first, and Mr. Kline responded that was the intent of the approach and made the most sense since water lines typically are installed deeper than the storm drainage lines and other utility lines, and then the roadway paving would be last.

Motion carried 7-0-0.

#### **9. Oak Grove Comprehensive Agreement – C. Dorminy**

Charlie Dorminy presented the Oak Comprehensive Agreement to the Commissioners. He provided that Carolina Holdings Group Partners, LLC (“Developer”) has contracted to purchase property owned by Oak Grove Island Limited, LLP and governed by the Oak Grove Island Plantation Planned Development (the “Property”) which is not connected to the public sewer system. The Developer wishes to extend public sewer from LS4132, which is an existing yet non-functioning JWSC pump station, as a part of its plan of development of the Property. Mr. Dorminy noted that the Developer had previously submitted an Unsolicited Proposal which was approved by the JWSC, and that staff has since worked with the Developer to negotiate the Comprehensive Agreement in which the Developer proposes to fund and contract for the necessary improvements to provide public wastewater service to the Property. He added that the JWSC will bid and award the Project. Also, regardless of who contracts for and manages the Project, JWSC has the right to inspect and approve all sewer construction. The Developer will pay the costs of the Project and receive credit toward Capital Improvement Fees. All other administrative and monthly fees will be paid for by Developer upon redeeming credit for the Development CIF’s following construction of the Project. If the costs of the Project exceed the CIF’s, the Developer will be reimbursed on a 70/30 agreement for 5 years from completion of the Project. Mr. Dorminy further provided that the JWSC agrees to reserve and guarantee sewer capacity and System access for the Development upon the completion of the Project. The Developer will obtain all approvals necessary from the Glynn County Development Department prior to accessing the System. The Developer will either redeem the credit for the CIF’s or pay the associated fees as outlined in the then-current JWSC Rate Resolution. The final details Mr. Dorminy noted included that the Agreement will terminate ten (10) years from the Effective Date, however the Reservation of Capacity and credits for amounts paid under Section 4, will be perpetual upon the completion of the Project and payment of the Capital Improvement Fees. The JWSC will not be liable for any further obligation to the Developer following termination of the Agreement; the Indemnification provision of the Agreement will survive the termination of the Agreement; and the 70/30 Reimbursement obligation will expire five years from completion of the Project as set forth herein.

Commissioner Elliott inquired as to how much capacity was being reserved, and Mr. Dorminy replied that it was capacity for 150 townhomes as provided in the Agreement and also noted in the Preliminary Engineering Report. Mr. Kline added that it was 1 REU per townhome.

Commissioner Duncan made a motion seconded by Commissioner Elliott to move that the JWSC approve the Comprehensive Agreement with Carolina Holdings Group Partners, LLC and authorize the Chairman to execute the same. Motion carried 7-0-0.

Commissioner Duncan clarified that the pump station was built by a previous developer yet never completed, so this is not a repair to an existing pump station, it is in effect a new pump station.

Commissioner Stephens asked if the rest of the existing infrastructure is in good shape, and Mr. Burroughs responded that the force main had not been camera'd but the downstream gravity is in acceptable shape.

Commissioner Elliott questioned if we make any adjustment in tap fees, either up or down, how does that affect this Agreement? Mr. Dorminy provided that the redemption amount would be as of today, so they are not taking any risk that the tap fees may go up. He added that the 70/30 would also be affected and that is paid back at the then current rates. So, if the tap fees go down, the Developer is assuming that risk as well. Mr. Dorminy provided that section and page on the Agreement where these details are noted.

Chairman Turnipseed asked who would be preparing the plans and specifications, and Mr. Burroughs provided that Robert's Civil Engineering would or the Developer who would be paying for the plans and specifications. He added that JWSC would bid the project in order to ensure that the credit amount is verified and it is confirmed what that amount should be.

Commissioner Stephens asked if the documents were sent out in advance for review, and it was noted that they had been finalized the evening before. It was requested that the Developers be made aware that if the documents needed to be provided a week in advance in order to be on the next week's agenda so that the Commissioners have the opportunity to review the documents.

Commissioner Neal asked if there was any provision for other residents of Oak Grove to use this system. Mr. Burroughs commented that according to the Developer this had been discussed at an Oak Grove HOA meeting, and that once the system is installed JWSC will allow anyone who pays the tap fee to tie onto the system.

Chairman Turnipseed asked if the Developer had all of the easements to construct the project, and Mr. Burroughs noted yes, according to the Developer they do. Mr. Dorminy added that the easements would be included with the dedication.

Chairman Turnipseed noted concern as to not having had the opportunity to review the documents and being asked to vote on it without a thorough review.

Commissioner Duncan then asked if this Agreement differs materially from other agreements that the Commission has approved. Mr. Dorminy responded no it did not, it was the same format, and he added that the plans have not changed since the original presentation of the Unsolicited Proposal for approval of the application at an earlier Commission meeting. He noted the delay of the final Agreement document was due to the process of working with staff and the attorneys in tweaking the details.

After some clarification of terms in the Agreement, a vote was taken.

Motion carried 7-0-0.

## **DISCUSSION**

### **1. GMA Defined Benefit Plan – J. Donaghy**

John Donaghy introduced Michelle Warner from Georgia Municipal Association and Rocky Joyner of Segal Consulting who were invited to give a presentation regarding the JWSC Defined Benefit Plan. Ms. Warner explained the information contained in the documents provided and then turned the presentation over to Mr. Joyner. Mr. Joyner reviewed the summary of key valuation results, gave an overview of the current plan provisions, the valuation history of the plan, and status of funding. Commissioner Copeland asked how the requirement for no employee contributions compared to other plans around the state. Mr. Joyner provided that there are 280 GMEBS in the state, and of that 280 between 20 and 25 total have employee contributions included in the plan, and all the rest are funded by the employer, and it is rare for employees to be required to contribute to the plans. Mr. Joyner continued to discuss the investments and returns, future projections, and also the retirement plan structure.

### **2. Project Update – T. Kline**

Todd Kline presented the monthly Project Update to the Commissioners. He noted the sections of the report and what was reflected in each. Mr. Kline highlighted the SPLOST 2016 North Mainland Improvements Project Phases 2 & 3 and noted that the pre-proposal meeting had been held with a good showing of engineering firms in attendance, and a site tour had been done as well. February 20, 2019 is the revised submittal date for proposals to be received, with the evaluation process to be immediately after. Mr. Kline added that Southeast Pipe is doing some CCTV work, TV'ing the gravity sewer mains in preparation for construction of that project.

## **EXECUTIVE DIRECTOR'S UPDATE**

Mr. Junkin updated the Commissioners that senior staff had attended a two day workshop with the BB&T Leadership Institute. He briefly explained the purpose of the workshop and the results of the two day session. Last thing discovered in the session which he noted as a glowing outcome, was to look at some needs involved in implementing necessary changes and resources available to make those changes. Mr. Junkin noted that staff is still working to some summary information to finalize resolution with the County to free up the monies from SPLOST V on Holly Street Project to do some repairs in the Sea Palms area. Mr. Junkin's final update was that staff has worked through many of the issues the Commissioners asked him to work on as a result of the Commissioners' Retreat. He added that staff is making good progress on those items and a summary will be provided to the Commissioners.

## **CHAIRMAN'S UPDATE and COMMITTEE APPOINTMENTS**

Chairman Turnipseed presented the committee appointments.

Communications Committee: Commissioner Stephens–Chairman, Commissioner Elliott, and Commissioner Duncan.

Economic Development Committee: Commissioner Duncan–Chairman, Commissioner Neal, and Commissioner Harvey.

Facilities Committee: Chairman Turnipseed–Chairman, Commissioner Duncan, and Commissioner Copeland.

Finance Committee: Commissioner Copeland–Chairman, Commissioner Elliott, and Commissioner Stephens.

Human Resources Committee: Commissioner Elliott–Chairman, Commissioner Harvey, and Commissioner Neal.

Legislative Committee: Commissioner Harvey–Chairman, Commissioner Neal, and Commissioner Duncan.

Emergency Preparedness Committee: Commissioner Stephens–Chairman, Commissioner Neal, and Commissioner Harvey.

While some committees may meet monthly, others may only meet as necessary.

Commissioner Stephens noted that two of the Commissioners and Mr. Junkin would be absent for the March 7<sup>th</sup> Commission Meeting.

**EXECUTIVE SESSION**

Commissioner Duncan made a motion seconded by Commissioner Neal to go into Executive Session to discuss Property with no vote to be taken. Motion carried 7-0-0.

Return to Regular Session.

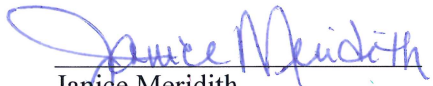
Commissioner Duncan made a motion seconded by Commissioner Harvey to adjourn from Executive Session. Motion carried 7-0-0.

Commissioner Harvey made a motion seconded by Commissioner Neal to adjourn the Commission Meeting. Motion carried 7-0-0.

There being no additional business to bring before the Commission, Chairman Turnipseed adjourned the meeting at 3:56 p.m.

  
\_\_\_\_\_  
G. Ben Turnipseed, Chairman

Attest:

  
\_\_\_\_\_  
Janice Meridith,  
Executive Commission Administrator



# Brunswick-Glynn County Joint Water and Sewer Commission

## Memo

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**To:** Commissioners  
**From:** G. Ben Turnipseed, Chairman  
**Date:** February 7, 2019  
**Re:** Engineering Study RFP Approval

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### **Background**

There are numerous areas in Glynn County that are presently without public sewer. Since the JWSC has adequate capacity to treat wastewater from additional customers a study should be completed to determine the cost to extend service to some of these areas.

### **Overview**

The JWSC has prepared a map which highlights the areas presently without service. Three (3) initial areas with adequate density and location near the existing sewer system are:

1. The area west of Highway 341 and north of Highway 303
2. The area east of Highway 341 and north of Community Road and west of Old Jesup Road
3. The Arco Community

The study should provide construction cost estimates for each area with service provided by both a gravity collection system and a pressure collection system. If authorized the study should be completed within 90 days.

### **Motion**

I hereby move that the JWSC staff develop a RFP to receive proposals for completion of an engineering study to provide sewer service to three (3) unserved areas in Glynn County.

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# Brunswick-Glynn County Joint Water and Sewer Commission

## Memo

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**To:** Brunswick- Glynn Co. Joint Water & Sewer Commission  
**From:** Pam Crosby  
**Date:** February 7, 2019  
**Re:** APPROVAL – SPLOST 2016 Collection System Modifications to the City of Brunswick LS4003 Basin – Engineering Services

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### **Background**

A collection systems project to address the needs of downtown Brunswick was approved as part of SPLOST 2016 referendum. The City of Brunswick LS4003 Basin needs significant upgrades to the pump station itself as well as the gravity sewer in the immediate vicinity. Completion of this project will benefit the greater downtown area of Brunswick.

### **Staff Report**

A Request for Proposal was issued on Thursday, November 29, 2018 and a pre-proposal meeting was held on Tuesday, December 18, 2018 for potential proposers with ten (10) firms in attendance. Seven (7) proposals were received on Wednesday, January 13, 2019. The firms submitting proposals included the following:

- Engineering Design Technologies, Inc.
- Four Waters Engineering
- Georgia Water & Environmental Services
- Goodwyn, Mills, Cawood, Inc.
- Hussey Gay Bell & DeYoung Engineers
- Roberts Civil Engineering
- Thomas & Hutton Engineering Co.

A three (3) member JWSC staff team evaluated the proposals. Listed below is the evaluation criteria considered in the evaluation:

Recently Completed Projects .....	30 possible points
Experience and Qualifications .....	30 possible points
Project Timeline and Approach .....	20 possible points
Project Cost Considerations (Design to Budget).....	10 possible points
Fees .....	15 possible points
Local Preference .....	5 possible points

A summary of scores is attached for your reference. The proposal received from Hussey Gay Bell received the highest score at 278. The following comments were made by the evaluation team with regard to the HGB proposal:

- Recent and similar project experience with both large diameter pipe and pump station rehabilitation
- Substantial experience of team members
- Provided plan to evaluate two (2) options for lift station – repurpose existing structures vs. full replacement with associated cost estimate information
- Significant detail on bypass pump plan (critical component of project)
- Timeline and costs for design and construction oversight services in line with staff expectations

After reviewing cost proposals, the \$244,984.00 amount submitted by HGB is reasonable and acceptable to staff and in line with the pricing submitted from the other proposers for the anticipated scope of services and overall project timeline.



The overall design and construction project milestones are listed below:

<b>Project Milestone</b>	<b>Anticipated Completion</b>
Engineering Proposals Received	January 2019
Award of Engineering Services	February 2019
Finalization of Construction Documents	July - August 2019
Construction Bids Received	August – September 2019
Award of Construction Services	September 2019
Pre-Con / Notice To Proceed	September - October 2019
Construction Finalized	April 2020

**Recommended Action**

Staff recommends entering into a contract with Hussey Gay Bell & DeYoung Engineers in the amount of \$244,984.000 for the Engineering Services related to this project.

Enclosures:

RFP Evaluation Summary

**Recommended Motion**

*"I make a motion that the Brunswick Glynn County Joint Water & Sewer Commission enter into a contract with Hussey Gay Bell Engineers in the amount of \$244,984.00 for Engineering Services proposal related to the SPLOST 2016 Collection System Modifications to the City of Brunswick LS4003 Basin project."*

RFP -- Engineering & Design Services for SPLOST 2016 Collection System Modifications to the City of Brunswick LS4003 Basin to BGJWSC No. 19-006		ENGINEERING DESIGN TECHNOLOGIES, INC	FOUR WATERS ENGINEERING, INC	GWES, LLC	GOODWYN, MILLS, CAYWOOD INC.	HUSSEY, GAY, BELL & DeYOUNG INC, CONSULTING ENGINEERS	ROBERTS CIVIL ENGINEERING PC	THOMAS & HUTTON ENGINEERING COMPANY
Evaluator #3	Possible Points							
<i>Recently Completed Projects</i>	30	62	74	56	56	81	38	71
<i>Experience &amp; Qualifications</i>	30	71	76	63	66	80	50	82
<i>Project Approach &amp; Timeline</i>	20	28	48	33	33	53	26	46
<i>Project Cost Considerations</i>	10	21	17	23	15	25	14	14
<i>Fees</i>	15	15	25	33	17	28	36	31
<i>Local Office (defined as 100 miles)</i>	5	13	11	15	15	11	15	15
<b>COMBINED SCORE</b>		210	251	223	202	278	179	259



# Brunswick-Glynn County Joint Water and Sewer Commission

## MEMORANDUM

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**To:** JWSC Commission  
**From:** Pam Crosby  
**Date:** February 7, 2019  
**Re:** APPROVAL – Memorandum Of Understanding – City of Brunswick – L Street Reconstruction Project

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### **Background**

The L Street Project is located within the City limits of Brunswick between Martin Luther King, Jr. Boulevard and Stacy Street, and is a main thoroughfare for east-west traffic through the City. The project goals are to improve COB storm drainage, rehabilitate aged JWSC water infrastructure and resurface the roadway.

In February of 2018, JWSC entered into a Memorandum Of Understanding with the City of Brunswick to cover expenses of an engineering contract with EMC Engineering, Inc., for the design of water system improvements as a portion of the overall project. The plans and specifications were received in October of 2018 for review by the COB and JWSC.

The City of Brunswick advertised bids for construction of this project in November of 2018. A pre-bid conference was held in early December with two firms in attendance. On January 8, 2019, a single bid was received from Georgia Asphalt Producers, Inc., with the JWSC water-related portion coming in at \$1,000,890.00.

The original construction cost estimate for this project was \$650,000.00. The bid tab was reviewed by JWSC and City of Brunswick staff. After this review, staff met with the bidder to clarify the quantities and bid unit prices. Reductions will be made to the quantities as a result of the discussion. The revised estimate for the water systems improvements was \$711,080.00. A copy of the Summary of Quantities is enclosed for review. COB has issued a request to the contractor to amend the contract to the new lower amount.

### **Staff Recommendation**

Staff recommends entering into a Memorandum of Understanding with the City of Brunswick for the water system portions of the L Street Reconstruction project. The City of Brunswick intends to award of contract to the sole bidder, Georgia Asphalt Producers, in the total amount of \$2,655,295.00. The water system portion of the contract will be \$711,080.00. Staff also recommends adding a 5% contingency based on the changes we are anticipating on the bid quantities. This will bring the new estimated cost of construction including contingency to \$746,634.00.

With approval of the JWSC portion of the bid approved and the MOU approved, the City of Brunswick will be able to proceed with the total contract award to Georgia Asphalt Producers, Inc. The preconstruction meeting will be held in mid to late February and construction will commence shortly thereafter. The contract is for a 365 day term.

#### Enclosures:

MOU Document

Original Bid Tab

Revised Summary of Quantities – Water System Improvements portion of project

COB Request to GA Asphalt Producers dated 23JAN2019

### **Suggested Motion**

***“I move that approval be granted to enter into a Memorandum Of Understanding for the City of Brunswick in the estimated amount of \$746,634.00 for water-related portions of the L Street Reconstruction Project.”***

**INTERGOVERNMENTAL AGREEMENT  
BY AND BETWEEN  
THE CITY OF BRUNSWICK, GEORGIA  
AND  
BRUNSWICK-GLYNN JOINT WATER AND SEWER COMMISSION**

**This Intergovernmental Agreement** (hereinafter referred to as the “Agreement”), is made and entered into as of the \_\_\_\_ day of \_\_\_\_\_, 2019, by and between the **CITY OF BRUNSWICK, GEORGIA**, a municipal corporation of the State of Georgia, acting by and through its duly elected Board of Commissioners (hereinafter the "City") and **THE BRUNSWICK-GLYNN JOINT WATER AND SEWER COMMISSION**, a body corporate and politic, acting by and through its duly elected Board of Commissioners (hereinafter the “JWSC”).

**WITNESSETH:**

**WHEREAS**, the Constitution of the State of Georgia provides, in Article IX, Section III, Paragraph I, subparagraph (a), that any county or municipality of the State of Georgia may contract for any period not exceeding 50 years, with each other or with any other public agency, public corporation, or public authority for the provision of services, or for the joint or separate use of facilities or equipment when such contracts deal with activities, services, or facilities which the contracting parties are authorized by law to undertake or provide; and

**WHEREAS**, the JWSC is a body corporate and politic created by the General Assembly of the State of Georgia pursuant to an act approved April 19, 2006, (Ga. L. 2006, p. 3661), as amended by: (i) an act of the General Assembly of the State of Georgia approved April 11, 2012 (Ga. L. 2012, p. 5287); and (ii) an act of the General Assembly of the State of Georgia approved March 31, 2016 (Ga. L. 2016, page 3523) (hereinafter collectively referred to as the “Act”), for

the purpose of, inter alia, operating the combined water and sewer systems (“Unified System”) of the City and County; and

**WHEREAS**, the City and JWSC are desirous to enter into this Agreement to complete the work set forth below; and

**WHEREAS**, L Street is located within the City limits between Martin Luther King, Jr. Boulevard and Stacy Street, and is a main thoroughfare for east-west traffic through the City, a map identifying the L Street project area is attached hereto as Exhibit “A”; and

**WHEREAS**, potable water service to the residences and businesses along L Street is provided by JWSC;

**WHEREAS**, L Street is in disrepair and in need of resurfacing as well as drainage improvements to alleviate flooding problems and the water supply pipes providing potable water service under L Street are aged and in danger of failure and in need of replacement; and

**WHEREAS**, the City entered a contract with EMC Engineering Services, Inc. (hereinafter the “EMC”) to provide survey and design services for the L Street roadway and storm drainage improvements (the “Improvements”); and

**WHEREAS**, in order to complete all necessary repairs to L Street, including the water lines, storm drainage, and resurface the roadways, an amendment to the City’s Agreement with EMC was executed dated February 7, 2018; and

**WHEREAS**, the cost of the contract agreement modification for water utility design services was made the responsibility of JWSC as specified in an Intergovernmental Agreement between the City and JWSC executed February 7, 2018; and,

**WHEREAS**, the City has obtained bids for construction of the L Street Reconstruction project including storm drainage, roadway, and water utility improvements as designed by EMC per the City's procurement guidelines; and

**WHEREAS**, the City and JWSC have determined that it is to the mutual advantage and benefit of each of the Parties to share the prorated costs of the Improvements as designated in the project summary of quantities (attached as Exhibit B); and

**WHEREAS**, it is the desire of the signatories hereto to enter into this cost-sharing Agreement for the costs of the improvements pursuant to the 1983 Constitution of the State of Georgia, Article IX, Section II, Paragraph 3.

**NOW THEREFORE**, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the Parties hereto agree as follows:

**Section 1. Purpose**

This Agreement outlines a cost-sharing arrangement between the parties for the purpose of the completion of the Improvements by Georgia Asphalt Producers for the Project.

**Section 2. Term**

The term of this Agreement shall be from the date last signed by the parties until 60 days following the final review and acceptance of Georgia Asphalt Producers' completed Improvements by the City and JWSC.

**Section 3. Responsibilities**

The City shall be responsible for managing the contract with Georgia Asphalt Producers and monitoring and directing the performance of Georgia Asphalt Producers' work under such contract. The parties understand and agree that of the Parties to this



Agreement; only the City shall enter into a contract with Georgia Asphalt Producers to complete the Improvements. City and JWSC shall be responsible for ensuring that Georgia Asphalt Producers performs and completes the Improvements related to each Parties respective portion of the Project in conformance and consistent with the standards generally recognized as being employed by professionals in the same discipline.

Each Party shall be responsible for contributing the amount of money specified in Section 4, Cost Sharing. Each party shall also be responsible for coordinating information requests from the other party to this agreement in a timely manner. JWSC shall receive duplicate original copies of any and all reports, studies, drawings, plans, data, designs, specifications, calculations, findings, and other documents and materials furnished to City by Georgia Asphalt Producers pertaining to the Improvements (hereinafter referred to “Improvement Documents”). City shall ensure that Georgia Asphalt Producers furnishes JWSC with duplicate original copies of all such Improvement Documents at the same time that they are submitted to City and that the City and JWSC are the owners of the Improvement Documents, which City and JWSC can use and/or reproduce in any manner that they deem appropriate consistent with such ownership. Completion and acceptance of the Improvements and Improvement Documents performed by Georgia Asphalt Producers are subject to the final acceptance and approval of both City and JWSC.

#### **Section 4. Cost Sharing**

The Parties hereby agree that the City will pay all costs associated with Division I (Storm Drainage and Roadway Improvements) portion of the contract, and JWSC will pay all costs associated with the Division II (Water Utility Improvements) portion of the contract. A copy of the agreement between the City and Georgia Asphalt Producers is

attached hereto as Exhibit "C." Should Georgia Asphalt Producers' total costs for the Improvements be less for whatever reason, City and JWSC's contributions under this Agreement shall be reduced accordingly.

Georgia Asphalt Producers shall invoice the costs directly to the City. Upon receiving a pay application for Division II items from Georgia Asphalt Producers, the City shall forward the application to the JWSC for the payment of the Division II application. JWSC shall be responsible for verification of all payment quantities, and verification that all items were installed in accordance with JWSC standards and specifications. The payment application shall be revised as necessary, and JWSC shall be responsible for paying the total amount listed on the corrected Division II payment application from Georgia Asphalt Producers. The JWSC shall remit its portion of the application payment directly to City within thirty (30) business days of receipt of a properly certified application from Georgia Asphalt Producers. The City shall pay the full amount of the invoice to Georgia Asphalt Producers once the JWSC's payment has been received and processed. The JWSC shall not unreasonably withhold or delay payment of its portion of the invoice.

Unless otherwise approved and agreed to in writing by both the City and JWSC through an amendment to this Agreement, the total of all costs and expenses for the service agreement, whether due and payable to Georgia Asphalt Producers or to another party or individual, shall not exceed the \$2,676,345 referenced above in this Paragraph 4. However, in the event that both the City and JWSC mutually agree in writing to increase the costs of the Improvements beyond the \$2,676,345 referenced above, the City and JWSC will bear the excess costs in the same manner and under the same agreement as set forth herein.

The cost sharing percentages between the City and JWSC referenced above have been incorporated into this Agreement as a means of allocating Georgia Asphalt Producers costs for the Improvements between City and JWSC, and are not intended, nor shall they be construed, as an indication or agreement amongst the parties hereto that the physical location of any future work on the L Street Reconstruction, and/or the costs thereof, will be based or established on any similar percentage or cost sharing formula.

**Section 5. Notices**

All notices, consents, waivers, directions, requests or other instruments or communications provided for under this Agreement shall be deemed properly given when delivered personally or sent by registered or certified United States mail, postage prepaid, as follows:

If to City of Brunswick, Georgia:

City of Brunswick, Georgia  
Attn: City Manager  
City Hall  
601 Gloucester Street  
Brunswick, Georgia 31320

If to Joint Water & Sewer  
Commission:

Brunswick-Glynn Joint Water &  
Sewer Commission  
Attn: JWSC Executive Director  
1703 Gloucester Street  
Brunswick, Georgia 31520

**Section 6. Entire Agreement**

This Agreement, including any attachments or exhibits, constitutes all of the understandings and agreements existing between the JWSC and the City with respect to the subject matter hereof. Furthermore, this Agreement supersedes all prior agreements, negotiations and communications of whatever type, whether written or oral, between the parties hereto with respect to the subject matter hereof.

**Section 7. Amendments**

This Agreement shall not be amended or modified except by agreement in writing executed by the governing authorities of the JWSC and the City.

**Section 8. Governing Law**

This Agreement shall be deemed to have been made and shall be construed and enforced in accordance with the laws of the State of Georgia.

**Section 9. Severability**

Should any phrase, clause, sentence, or paragraph of this Agreement be held invalid or unconstitutional, the remainder of the Agreement shall remain in full force and effect as if such invalid or unconstitutional provision were not contained in the Agreement unless the elimination of such provision detrimentally reduces the consideration that any party is to receive under this Agreement or materially affects the operation of this Agreement.

**Section 10. Compliance with Law**

The JWSC and the City shall comply with all applicable local, state, and federal statutes, ordinances, rules and regulations.

**Section 11. No Consent to Breach**

No consent or waiver, express or implied, by any party to this Agreement, to any breach of any covenant, condition or duty of another party shall be construed as a consent to or waiver of any future breach of the same.

**Section 12. Counterparts**

This Agreement may be executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

**Section 13. Mediation**

The JWSC and the City agree to submit any controversy arising under this Agreement to mediation for a resolution. The parties to the mediation shall mutually select a neutral party to serve as mediator. Costs of mediation shall be shared equally among the parties to the mediation.

**IN WITNESS WHEREOF**, Brunswick-Glynn Joint Water and Sewer Commission, and the City of Brunswick, Georgia, have caused this Agreement to be executed in their respective names and their respective official seals to be hereunto affixed and attested by their duly authorized officials, all as of the date first above written.

**CITY OF BRUNSWICK, GEORGIA:**

(SEAL)

By: \_\_\_\_\_  
Cornell L. Harvey, Mayor  
City of Brunswick

Attest: \_\_\_\_\_  
Naomi Atkinson, City Clerk

**BRUNSWICK-GLYNN JOINT WATER & SEWER COMMISSION:**

(SEAL)

By: \_\_\_\_\_  
Jimmy Junkin, Executive Director  
Brunswick-Glynn Joint Water & Sewer Commission

Attest: \_\_\_\_\_  
Janice Meridith, Executive Commission Admin.

Item No.	Item Description	Est. Qty.	Unit	Unit Price	Total Price
<b>Miscellaneous</b>					
1	Mobilization	JOB	LS	35,000.00	35,000.00
2	Clearing	JOB	LS	6,500.00	6,500.00
3	Traffic Control	JOB	LS	10,000.00	10,000.00
<b>Subtotal</b>					<b>51,500.00</b>
<b>Erosion and Sedimentation Control</b>					
1	Temporary Construction Exit	1	EA	2,200.00	2,200.00
2	Construct and Remove Inlet Sediment Trap	21	EA	200.00	4,200.00
3	Maintenance of Inlet Sediment Trap	21	EA	100.00	2,100.00
4	Temporary Silt Fence - NS	1000	LF	3.00	3,000.00
5	Maintenance of Temp Silt Fence - NS	1000	LF	1.50	1,500.00
6	Temporary Grassing	6500	SY	0.30	1,950.00
7	Permanent Grassing	8000	SY	0.50	4,000.00
<b>Subtotal</b>					<b>18,950.00</b>
<b>Water System</b>					
1	2" PVC Watermain	140	LF	40.00	5,600.00
2	4" PVC Watermain	70	LF	42.00	2,940.00
3	6" PVC Watermain	490	LF	48.00	23,520.00
4	8" PVC Watermain	120	LF	51.00	6,120.00
5	10" PVC Watermain	80	LF	54.00	4,320.00
6	12" PVC Watermain	5,000	LF	57.00	285,000.00
7	2" Valve in Box	5	EA	3,150.00	15,750.00
8	4" Valve in Box	1	EA	4,350.00	4,350.00
9	6" Valve in Box	8	EA	6,000.00	48,000.00
10	8" Valve in Box	4	EA	6,500.00	26,000.00
11	10" Valve in Box	1	EA	6,800.00	6,800.00
12	12" Valve in Box	24	EA	7,000.00	168,000.00
13	6" Fire Hydrant Assembly	9	EA	6,500.00	58,500.00
14	1 1/2" Service Lateral	40	LF	1,250.00	50,000.00
15	1" Meter Assembly	3	EA	1,800.00	5,400.00
16	Flowable Fill for Watermains	8400	LF	15.00	126,000.00
17	Concrete Pavement, 8 Inch	75	SY	72.00	5,400.00
18	Concrete Driveways and Sidewalks (6")	310	SY	54.00	16,740.00
19	Concrete Sidewalk (4")	2,000	SY	36.00	72,000.00
<b>Subtotal</b>					<b>930,440.00</b>
<b>Total</b>					<b>1,000,890.00</b>
<b>Roadway, Drainage &amp; Water System Improvements</b>					<b>Total \$ 2,676,345.00</b>
<b>TOTAL</b>					<b>2,676,345.00</b>

JWSC Portion

Total Project

Roadway & Water Imp. Total \$2,676,345.00  
 Alternate: Full Depth Total 188,640.00



**Summary of Quantities**  
**Water System Improvements**  
**07FEB2019**

Description	UOM	Unit	Unit Price	Total Price
Mobilization	LS	1	\$ 35,000.00	\$ 35,000.00
clearing	LS	1	\$ 6,500.00	\$ 6,500.00
traffic control	LS	1	\$ 10,000.00	\$ 10,000.00
				\$ -
Temp Const Exit	EA	1	\$ 2,200.00	\$ 2,200.00
Sediment inlet trap	EA	21	\$ 200.00	\$ 4,200.00
Maint of sediment trap	EA	21	\$ 100.00	\$ 2,100.00
Temp silt fence	LF	1000	\$ 3.00	\$ 3,000.00
maintenance of silt fence	LF	1000	\$ 1.50	\$ 1,500.00
temp grassing	SY	6500	\$ 0.30	\$ 1,950.00
perm grassing	SY	8000	\$ 0.50	\$ 4,000.00
				\$ -
				\$ -
2" water main	LF	140	\$ 40.00	\$ 5,600.00
4"water main	LF	70	\$ 42.00	\$ 2,940.00
6" water main	LF	490	\$ 45.00	\$ 22,050.00
8" water main	LF	120	\$ 50.00	\$ 6,000.00
10" water main	LF	1700	\$ 45.00	\$ 76,500.00
12" water main	LF	3300	\$ 50.00	\$ 165,000.00
2" valve	EA	5	\$ 2,500.00	\$ 12,500.00
4" valve	EA	1	\$ 4,350.00	\$ 4,350.00
6" valve	EA	8	\$ 4,500.00	\$ 36,000.00
8" valve	EA	4	\$ 5,000.00	\$ 20,000.00
10" valve	EA	1	\$ 5,800.00	\$ 5,800.00
10" In-line valve	EA	9	\$ 2,800.00	\$ 25,200.00
12" valve	EA	9	\$ 3,250.00	\$ 29,250.00
6" FH assembly	EA	9	\$ 5,500.00	\$ 49,500.00
1.5" service lateral Long side	EA	27	\$ 1,250.00	\$ 33,750.00
1.5" Short side	EA	11	\$ 750.00	\$ 8,250.00
1"meter assembly	EA	3	\$ 1,800.00	\$ 5,400.00
flowable fill water mains	LF	3200	\$ 12.00	\$ 38,400.00
concrete pavement 8"	SY	75	\$ 72.00	\$ 5,400.00
Concrete driveways and sidewalks 6"	SY	310	\$ 54.00	\$ 16,740.00
concrete sidewalk	SY	2000	\$ 36.00	\$ 72,000.00
				\$ 711,080.00



# Brunswick-Glynn County Joint Water and Sewer Commission

## Memo

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**To:** Commissioners  
**From:** Charles A. Dorminy, J.D., LL.M.  
**Date:** February 7, 2019  
**Re:** Oak Grove Comprehensive Agreement

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### **Background**

Lift Station 4132 ("LS 4132") is an existing yet non-functioning JWSC pump station located on Hermitage Island in Northern Glynn County West of Highway 314 off of Oak Grove Road.

Carolina Holdings Group Partners, LLC ("Developer") has contracted to purchase property owned by Oak Grove Island Limited, LLLP which is governed by the Oak Grove Island Plantation Planned Development (the "Property") which is not connected to the public sewer system. Developer wishes to extend public sewer system from LS 4132 as part of its plan of development of the Property. Developer submitted an Unsolicited Proposal which was approved by the JWSC. The staff has worked with the Developer and the attached Comprehensive Agreement has been negotiated in accordance with staff technical direction.

### **Overview of Proposal/Agreement**

Developer proposes to fund and contract for the necessary improvements to provide public wastewater service to the Property including 11,500 linear feet of 6" force main from the Property to LS 4132, and by installation of pumps at LS 4132 adequate to meet minimum velocity of 2.0 feet per second in the downstream force main (the "Project").

The JWSC will bid and award the Project. The Project will either be contracted for and managed by JWSC or the Developer at Developer's election. Regardless, JWSC has right to inspect and approve all sewer construction. The Developer will pay the costs of the Project and receive credit toward Capital Improvement Fees. All other administrative and monthly fees will be paid by Developer upon redeeming credit for the Development CIFs following construction of the Project. If the costs of the Project exceed the CIFs, the Developer will be reimbursed on a 70/30 agreement for 5 years from completion of the Project.

JWSC agrees to reserve and guarantee sewer capacity and System access for the Development upon the completion of the Project (hereinafter referred to as "Reservation of Capacity"). Developer will obtain all approvals necessary from the Glynn County Development Department prior to accessing the system. Developer will either redeem credit for the CIFs or pay the associated fees as outlined in the then-current JWSC Rate Resolution.

The Agreement will terminate ten (10) years from the Effective Date. However, the Reservation of Capacity and credits for amounts paid under Section 4, will be perpetual upon the completion of the Project and payment of the Capital Improvement Fees. The JWSC will not be liable for any further obligation to Developer following the termination of this Agreement. The Indemnification provision of this Agreement will survive the termination of the Agreement. The 70/30 Reimbursement obligation will expire five years from completion of the Project as set forth herein.

### **Motion**

I hereby move that the JWSC approve the Comprehensive Agreement with Carolina Holdings Group Partners, LLC and authorize the Chairman to execute the same.

## COMPREHENSIVE AGREEMENT

This COMPREHENSIVE AGREEMENT (this "Agreement") entered this \_\_\_ day of \_\_\_\_\_, 2019, by **CAROLINA HOLDINGS GROUP PARTNERS, LLC**, its, successors and assigns (hereinafter "Developer"), and **BRUNSWICK-GLYNN COUNTY WATER & SEWER COMMISSION**, a body corporate and politic created by Local Act of the General Assembly of the State of Georgia (hereinafter "Utility").

### WITNESSETH THAT:

WHEREAS, the Utility owns and operates the water and wastewater system serving customers inside the limits of the City of Brunswick and in the unincorporated portion of Glynn County, Georgia (hereinafter "System");

WHEREAS, Developer has contracted to purchase property owned by Oak Grove Island Limited, LLLP which is governed by the Oak Grove Island Plantation Master Plan and Zoning Text (the "Property") which is not currently served by the System;

WHEREAS, Developer desires to develop the Property by construction of up to 150 townhomes, a marina and a clubhouse on the Property (the "Development");

WHEREAS Developer wishes to extend public wastewater service to the Property for the Development;

WHEREAS, Developer and Utility desire to improve the System infrastructure by extending public wastewater service from Lift Station 4132 ("LS 4132") to the Property necessary to provide wastewater service for the Development by installation of 11,500 linear feet of 6" force main from the Property to LS 4132, and by installation of pumps at LS 4132 adequate to meet minimum velocity of 2.0 feet per second in the downstream force main (the "Project");

WHEREAS, the Utility has created a uniform Unsolicited Proposal Policy (hereinafter the "Policy") through which private entities may submit proposals the Utility is not currently pursuing and to provide a mechanism through which the System may be improved with minimal concurrent cost to the Utility;

WHEREAS, the Developer submitted an unsolicited proposal dated September 4, 2018 (hereinafter the "Proposal") pursuant to the Policy to address infrastructure expansion to support the Development and the Proposal was subsequently approved by the Utility;

WHEREAS, the Utility and Developer desire to enter into this Comprehensive Agreement (hereinafter the "Agreement") wherein Developer will pay for the Project by providing funding to Utility and the Utility will reimburse Developer through applying an equivalent amount of credit toward future Capital Improvement Fees that would otherwise be due for the Development upon approval of constructions plans for the Property;

WHEREAS, it is the intention of the parties hereto to enter into this Agreement to provide a statement of the respective covenants, conditions and agreements in connection with the Project;

NOW THEREFORE, FOR AND IN CONSIDERATION of the mutual covenants and conditions set forth herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

**1. CONTRACT DOCUMENTS**

- (a) This Agreement consists of this document and other documents which are incorporated herein by reference as though set forth fully herein as follows:
  - (1) Developer's Proposal, including Addendums, if any;
  - (2) Utility Purchasing Policy;
  - (3) Utility Water and Wastewater Systems Development Procedures;
  - (4) Offsite Water and Sewer Detailed Design Drawings and Construction Plans to be prepared to the mutual satisfaction of the Parties following execution of the Agreement.
- (b) In case of any conflicts, the terms and conditions set forth in this Agreement shall control over the terms and conditions of the documents incorporated herein by this Section 1, Contract Documents.

**2. REPRESENTATIONS AND WARRANTIES**

Developer hereby represents and warrants to Utility as follows:

- (a) **Good Standing.** Developer is a Limited Liability Company in the State of South Carolina, duly organized, validly existing, and in good standing under the laws of South Carolina and authorized to transact business in the State of Georgia, and has the power and authority to own its property and to carry on its business in each jurisdiction in which it does business, including Georgia;
- (b) **Authority and Compliance.** Developer has full power and authority to execute and deliver this Agreement and accompanying Contract Documents outlined in Section 1 above, and to incur and perform the obligations provided for therein, all of which has been duly authorized by all proper and necessary action of the appropriate governing body of Developer. To the best of its knowledge, Developer is in compliance with all laws and regulatory requirements to which it is subject;

- (c) **Binding Agreement.** This Agreement, including the other Contract Documents incorporated herein outlined in Section 1 above, executed by Developer and Utility constitute valid and legally binding obligations of Developer and Utility, their successors and assigns, enforceable in accordance with their terms;
- (d) **No Conflicting Agreements.** To the best of Developer's knowledge, there is no charter, articles, bylaw, stock provision, operating or partnership agreement, or other document pertaining to the organization, power, or authority of Developer and no provision of any existing agreement, mortgage, indenture, or contract binding on Developer or affecting its property, which would conflict with or in any way prevent the execution, delivery, or carrying out of the terms of this Agreement and the Contract Documents;
- (e) **Conveyance of Improvements to the System.** Developer acknowledges and agrees that it will convey the wastewater improvements to the System Utility upon completion; and
- (f) **Continuation of Representation and Warranties.** All representations and warranties made under this Agreement shall be deemed to be made at and as of the date hereof.

3. **RESPONSIBILITIES**

- (a) Utility will bid the Project based on the Preliminary Engineering Report and plans based thereon in accordance with the Utility Purchasing Policy;
- (b) Utility will solicit and review bids for the Project in accordance with the Utility Purchasing Policy;
- (c) The Project shall be limited to the work identified in this Agreement and shall not be changed unless agreed to by both Parties in writing.
- (d) In the event Developer elects to undertake the Development, Developer at its election shall either:
  - 1. Provide funding to Utility in an amount sufficient to complete the Project to be used by the Utility for sole purpose of the Project in which case the Utility shall contract directly with the contractor whom Utility votes to be awarded the contract; or
  - 2. Contract directly for the construction of the Project and in good faith enter into negotiations to contract with the contractor whom Utility votes to be awarded the contract and pay the costs to complete the Project.



- (e) In the event Developer elects to contract and manage the Project, Developer shall manage the Project in a reasonable manner;
- (f) In the event Developer elects to contract and manage the Project, Utility shall have an opportunity to review and approve or disapprove of all change order requests;
- (g) In the event Developer elects to contract and manage the Project, and upon completion of the Project, the Developer shall dedicate the improvements to Utility in accordance with the Utility Water and Wastewater Systems Development Procedures' dedication procedure;
- (h) In the event Developer elects to provide funding for the Project and Utility to contract directly for the Project, Developer shall have no obligation to manage the Project;
- (i) Utility has the right to inspect and accept or refuse to accept any improvements associated with the Project in the event any portion of the Project is not completed in accordance with the Contract Documents or to the satisfaction of the Utility;
- (j) Utility shall have the right to inspect the Project at any time;
- (k) Upon dedication of the Project improvements, Utility shall apply credit as outlined in Section 4 herein toward future Capital Improvement Fees that would otherwise become due from Developer in an amount equal to all amounts paid by the Developer and not refunded.

**4. CREDIT FOR AMOUNTS PAID**

- (a) All amounts paid by Developer in accordance with Section 3 above shall be credited by Utility toward future Capital Improvement Fees that would otherwise become due from Developer upon construction plan approval, and the contemporaneous opening of accounts, during the development of the Property;
- (b) In the event Developer elects to contract and manage the Project:
  - i. Developer shall submit evidence of expenses and payments upon completion of the Project, or any portion thereof;
  - ii. Utility may request additional information to verify all amounts claimed;

- iii. The Capital Improvement Fees for which Developer shall receive credit shall be based on the Capital Improvement Fee rates in effect as of February 7, 2019.
  - iv. In the event the cost of the Project paid by Developer exceeds its Capital Improvement Fees, Utility agrees to reimburse Developer for the cost of the Project in excess of the Developer's Capital Improvement Fees by paying to the Developer on a quarterly basis seventy percent (70%) of all Capital Improvement Fees charged and collected at the then-current rate for access to Sewer Basin 4132 for all new customers, other than those in the Development, who connect to the system following completion of the Project until Developer has been fully repaid for the cost of the Project in excess of its Capital Improvement Fees (hereinafter "70/30 Reimbursement");
  - v. Upon Developer redeeming the full amount of credit for the amounts paid for the Project, the Developer and remaining Property shall be subject to the rates and fees outlined in the then-current Utility Rate Resolution, as amended;
- (c) Developer may submit construction plans for review, and, have accounts opened contemporaneously upon approval, in phases and at its discretion;
  - (d) Developer shall be responsible for any operational and administrative fees associated with opening of the accounts based on the Utility Rate Resolution as of the time of any construction plan approval;
  - (e) Once an account is opened, Developer shall be responsible for all monthly rates and fees, in accordance with the then-current Utility Rate Resolution;
  - (f) In no event shall Developer be entitled to reimbursement or redemption of credit in excess of the amounts paid for the Project, nor shall any credit be redeemable following expiration of the Term Date of this Agreement as defined in Section 6;
  - (g) Developer and Utility hereby acknowledge that the amounts paid by Developer for the Project, and credited by Utility toward development of the Property, may not be fully recuperated or redeemed by Developer. Any credit not redeemed on or before the Term Date shall be forfeited and shall be deemed a gift to the Utility.

## **5. RESERVATION OF CAPACITY**

Utility agrees to accept Developer's payment of the Capital Improvement Fees for the Development or any phase thereof and Utility hereby agrees to reserve and guarantee sewer capacity and System access for the Development upon the completion of the Project (hereinafter referred to as "Reservation of Capacity"). Prior to allowing access to the System, Developer shall obtain all approvals necessary from the Glynn County

Development Department, and, further, Developer shall either redeem credit as outlined hereinabove, or pay the associated fees as outlined in the then-current Utility Rate Resolution. Nothing in this Agreement shall abridge the Utility's ability to suspend service in the event of an emergency in accordance with the Glynn County Water and Sewer Ordinances.

**6. TERM OF THE AGREEMENT**

The effective date of the Agreement shall be the date first written below (hereinafter "Effective Date") and shall terminate ten (10) years from the Effective Date (hereinafter "Term Date"). However, the Reservation of Capacity and credits for amounts paid under Section 4, shall be perpetual upon the completion of the Project and payment of the Capital Improvement Fees. The Utility shall not be liable for any further obligation to Developer following the termination of this Agreement. The Indemnification provision of this Agreement shall survive the termination of the Agreement. The 70/30 Reimbursement obligation shall expire five years from completion of the Project as set forth herein.

**7. INDEMNIFICATION**

Developer shall indemnify, defend and hold harmless the Utility, its officers, employees, and agents from and against all actions, liabilities, claims, suits damages, losses and expenditures, liens, judgments, attorneys' fees and costs arising out of or resulting from this Agreement or the Project; provided, however, Developer shall not indemnify the Utility, its officers, employees, and/or agents for Utility's own, sole negligence.

This Section shall survive termination of this Agreement.

**8. ENFORCEABILITY**

Utility hereby warrants and agrees that this Agreement shall be entered into the minutes of the Utility and shall be binding and enforceable upon Utility and Developer and its successors and assigns. To the extent necessary, the adoption of this Agreement by Utility shall be deemed an express waiver of any legal immunities that may apply to Utility with respect to this Agreement or the Project.

**9. MODIFICATION OF AGREEMENT**

Any modification, alteration, or change to this Agreement, including but not limited to, modification of the Scope of Work for the Project and extension of the Term Date shall be made by written amendment to this Agreement and executed by the parties.

**10. WAIVER**

The failure of either party at any time to enforce or require performance of any provision hereof shall in no way operate as a waiver of, or affect the rights of, such party at a later time to enforce the same. No waiver by either party of any condition or the breach of any provision contained in this Agreement, whether by conduct or otherwise, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such condition or breach, or a waiver of any other condition or of any breach of any other provision contained in this Agreement.

**11. TERMINATION OF AGREEMENT**

Developer may terminate this Agreement for any reason by giving written notice to the other sixty (60) calendar days before the effective date of such termination.

**12. NOTICES**

- (a) All notices, approvals, consents, requests, demands, claims or other communications shall be in writing (collectively referred to as “Notice”).
- (b) It shall be sufficient service of any Notice if the same shall be delivered or mailed by first class registered or certified mail, return receipt requested, postage prepaid and addressed as follows:

(1) If to Developer: Gary Wadsten  
Carolina Holdings Group Partners, LLC  
4605 Oleander Drive  
Suite 301  
Myrtle Beach, South Carolina 29577  
[gwadsten@carolinaholdingsgroup.com](mailto:gwadsten@carolinaholdingsgroup.com)

With a copy to: James L. Roberts, IV  
Roberts Tate, LLC  
2487 Demere Road  
Suite 400  
PO Box 20828  
St. Simons, Georgia 31522  
[jroberts@robertstate.com](mailto:jroberts@robertstate.com)

(2) If to Utility: Jimmy Junkin  
Executive Director  
Brunswick – Glynn County Water and Sewer Commission  
1703 Gloucester Street  
Brunswick, Georgia 31520  
[jjunkin@bgjwsc.org](mailto:jjunkin@bgjwsc.org)

With a copy to: Charles Dorminy, J.D., LL.M.  
JWSC Attorney  
Hall Booth Smith, P.C.  
3528 Darien Highway, Suite 300  
Brunswick, Georgia 31525  
[cdorminy@hallboothsmith.com](mailto:cdorminy@hallboothsmith.com)

- (c) Any Notice hereunder shall be deemed to have been given or made as of the time of actual delivery or, in the case of mailing, when the same should have been received in due course of posting. Any notice by facsimile transmission shall be deemed to have been given or made upon receipt and if verified by the facsimile apparatus that the transmission was, in fact, sent, including the number to which the facsimile was sent, and the time and date it was transmitted successfully.
- (d) The parties hereto may, by Notice given hereunder, designate any different address to which subsequent Notices shall be sent or the person to whose attention the same shall be directed.

**13. ENTIRE AGREEMENT: BENEFIT TO PARTIES**

- (a) This Agreement and any attached exhibit(s) constitute the entire agreement between the parties hereto. No prior written promises, or contemporaneous or subsequent oral promises or representations shall be binding.
- (b) With the exception of rights expressly conferred herein, nothing expressed or mentioned in or implied herein is intended or shall be construed to give to any person other than the parties hereto, and their successors and assigns, any legal or equitable right, remedy or claim under or in respect hereto. Nor shall any agreement or condition or provision herein contained be construed as creating any debt against Developer or Utility in favor of any third person, except the Parties' successors and assigns. This Agreement and the covenants, conditions and provisions hereof are intended to be used for the sole and exclusive benefits of the parties hereto and their successors and assigns.

**14. ASSIGNMENT**

Developer's rights and duties under this Agreement shall be freely assignable without need for the consent of the Utility. Specifically, the Parties hereto acknowledge that Developer may desire to sell the Property or Development or portions thereof in the future, and Utility agrees and acknowledges that any rights Developer has under this Agreement shall be freely assignable and transferable to any such purchaser and shall inure to the benefit of any subsequent owner or owners of the Property or any portion thereof. As defined above, the term "Developer" includes Developer and its successors and assigns.

**15. GOVERNING LAW**

This Agreement shall be governed by and construed in accordance with the laws of the State of Georgia.

**16. TIME IS OF THE ESSENCE**

Time is of the essence in fulfilling all terms and conditions of this Agreement.

**17. EXECUTION IN COUNTERPARTS**

This Agreement may be simultaneously executed in two counterparts, each of which shall be an original and which shall constitute one and the same instrument.

**18. MISCELLANEOUS PROVISIONS**

(a) Section captions herein are for convenience of reference only and neither limits nor amplifies the provisions of this Agreement.

(b) The foregoing “whereas” clauses are hereby incorporated into this Agreement and made a part thereof.

**19. CONDITION PRECEDENT TO OBLIGATIONS UNDER AGREEMENT**

In the event that Developer elects not to undertake the Development, Developer shall be relieved of all obligations under this Agreement and this Agreement may be terminated by Developer as provided in Paragraph 11 of this Agreement.

*The remainder of this page is left blank intentionally.*

**IN WITNESS WHEREOF**, the parties have caused this Agreement to be executed in their names under seal, all by their fully authorized officers or agents as written below.

**BRUNSWICK – GLYNN COUNTY  
WATER AND SEWER COMMISSION**

---

G. Ben Turnipseed, Chairman

---

Jimmy Junkin, Executive Director

**CAROLINA HOLDINGS GROUP PARTNERS,  
LLC**

---

Gary Wadsten  
Its: Managing Member

# Oak Grove Cottages Preliminary Engineering Report for Offsite Sewer Improvements

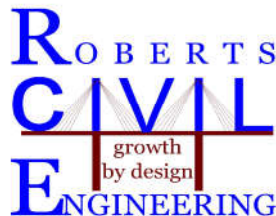
Glynn County, GA

Original Issue 12-02-2018

Revised 1-03-2019



Prepared by:



301 Sea Island Road Suite 10, St Simons, GA 31522 912-638-9681 Office 912-289-0339 Fax





**Frederica  
Preliminary Engineering Report  
for Offsite Sewer Improvements**

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Appendix A: South Parcel Pump Station Calculations

Appendix B: North Parcel Pump Station Calculations

Appendix C: Lift Station 4132 Calculations

Appendix D: Opinion of Probable Cost



**Frederica  
Preliminary Engineering Report  
for Offsite Sewer Improvements**

**1.0 Introduction**

Carolina Holdings Group Partners, LLC proposes to develop 138 townhome sites on Oak Grove Island located off of Oak Grove Road in Glynn County. The Brunswick-Glynn Joint Water and Sewer Commission (BGJWSC) informed Roberts Civil Engineering that nearest public sewer is located at Hermitage Island on Oak Grove Road that is approximately two miles from the project site, so the new development will require a public sewer extension. As a result, the developer and BGJWSC entered into an Unsolicited Proposal Agreement on July 19, 2018 to extend public sewer to the project site. The following report reviews the specific improvements necessary to accommodate the project.

**2.0 Design Parameters from BGJWSC**

The initial Unsolicited Proposal Agreement authorized BGJWSC staff to review the existing sewer data and point out the lift stations and/or force mains that would need to be upgraded. Meetings were held with BGJWSC personnel, Roberts Civil Engineering, and the developer's representative to discuss the areas requiring upgrades. It was discussed that the current Lift Station 4132 located at Hermitage Island is the nearest public sewer but that no pumps are currently installed in the station. Therefore, the developer would need to install appropriate pumps at Lift Station 4132 and extend a force main to new pump stations at the project site. BGJWSC indicated that the infrastructure downstream of Lift Station 4132 was capable of handling the proposed development.



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for Offsite Sewer Improvements**

**3.0 Existing System**

Lift Station 4132 is located off Oak Grove Road approximately 2 miles east of the project site. The lift station was installed to serve the Hermitage Island development and future growth at Oak Grove Island, but the pumps were removed by BGJWSC because no homes were connected to the system. The current developed lots at Oak Grove Island have private septic systems on each lot.

**4.0 Proposed System**

The proposed sewer improvements are shown on Figure 1 and consist of two new pump stations, a force main extension, and new pumps at Lift Station 4132. The development consists of the South Parcel and the North Parcel that each will have a new public pump station. The South Pump Station will pump through 4,500 linear feet of 4" force main to the North Pump Station. The effluent will be repumped through 11,500 linear feet of 6" force main to Lift Station 4132 that will be upgraded with new pumps.

**4.1 Analysis for the South Parcel**

The pump station for the South Parcel was sized according to the peak flows expected for the station. The peaking factor was determined using the Fair Geyer Equation based on the population of the basin. Then a system curve was developed for a 4" force main and the pump was selected that can handle the peak flow rate. The proposed pumps are Flygt NP 3127 SH 3. The pump flow rate exceeds the peak inflow in order to have



**Frederica  
Preliminary Engineering Report  
for Offsite Sewer Improvements**

the pumps operate as close as possible to the best efficiency point of the pump curve.

Refer to Appendix A for the analysis of the South Parcel analysis.

**4.2 Analysis for the North Parcel**

The pump station for the North Parcel was sized according to the same methodology described in Section 4.1. In addition, the North Parcel analysis added in the full flow from the South Parcel pumps to the peak flow for the North Parcel because the south pump station flows to the north pump station. The proposed pumps are Flygt NP 3127 SH 3. The pump flow rate exceeds the peak inflow in order to have the pumps operate as close as possible to the best efficiency point of the pump curve. Refer to Appendix B for the North Parcel analysis.

**4.3 Analysis for Lift Station 4132**

Lift Station 4132 was sized according to the full flow from the South Parcel pump station plus flows from an additional 250 connections that may occur at Oak Grove and/or Hermitage Island. The proposed pumps are Wilo FK17.1-4/16KEx with an operating point of 500 gallons per minute at 37.9 total dynamic head. Note that the operating point exceeds the peak inflow to the station in order to achieve the minimum velocity of 2.0 feet per second in the downstream force main. Refer to Appendix C for the analysis of Lift Station 4132.



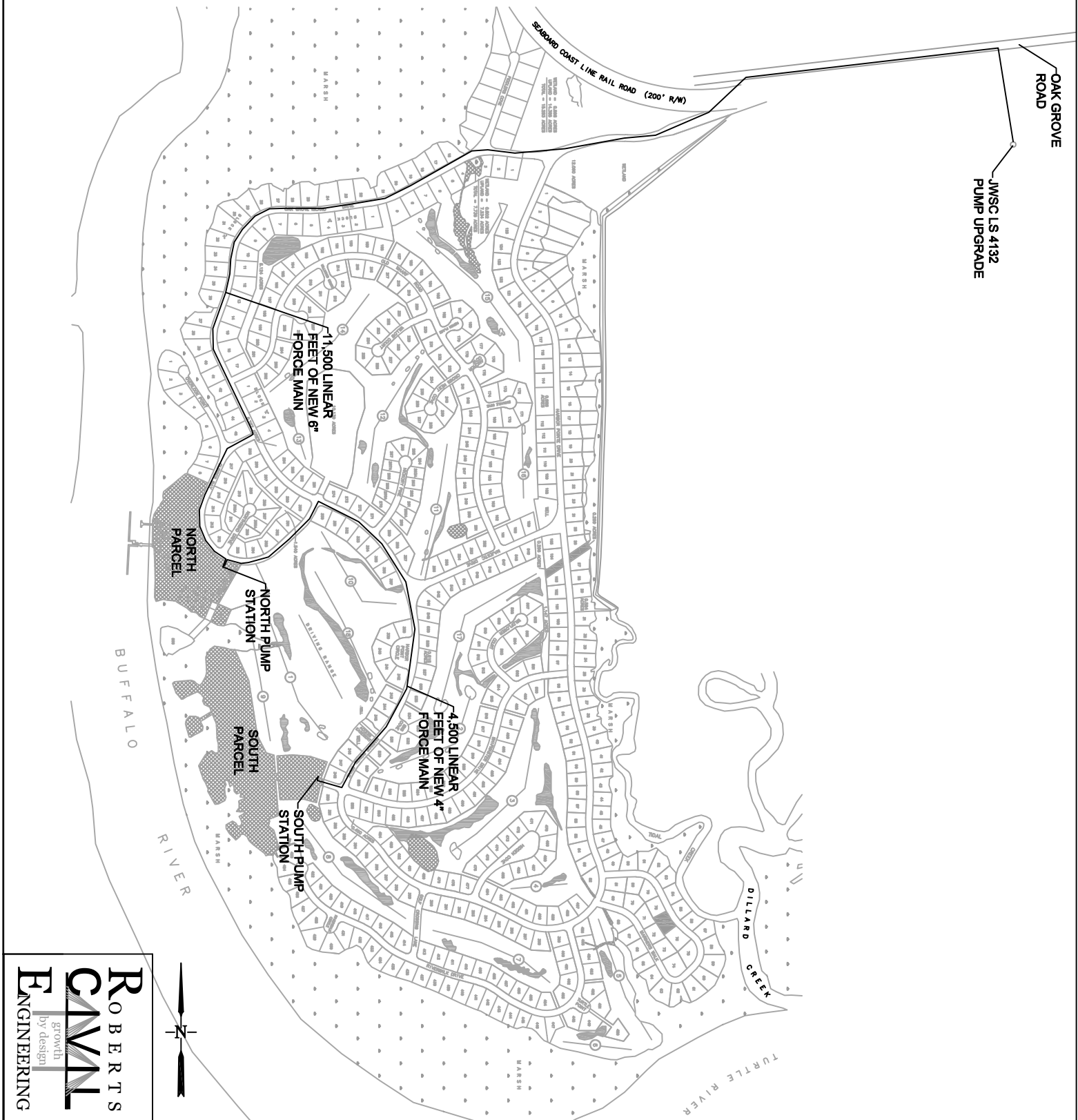
**Frederica  
Preliminary Engineering Report  
for Offsite Sewer Improvements**

**5.0 Opinion of Probable Cost**

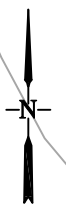
The opinion of cost is \$753,500 for the two new pump stations, force main extension, and upgrades to Lift Station 4132 as shown in Appendix D.

**6.0 Conclusion**

The Oak Grove Cottages project consists of 138 new homesites on Oak Grove Island in Glynn County, Georgia. The Brunswick Glynn Joint Water and Sewer Commission (BGJWSC) has reviewed the downstream infrastructure and indicated that sewer improvements are warranted to serve the development. The analysis recommends creating two new pump stations at the development along with a force main extension and upgrades to Lift Station 4132. The report has sized the proposed upgrades and provided an opinion of cost for the improvements.



**ROBERTS**  
**CIVIL**  
**ENGINEERING**  
 growth  
 by design



**1**

DATE: 2018-12-31  
 DRAWN BY: JDR  
 CHECKED BY: JDR  
 SCALE: 1" = 1200'

**OAK GROVE SEWER EXTENSION**  
**BRUNSWICK, GA**

PREPARED FOR:  
 CAROLINA HOLDINGS GROUP

ROBERTS CIVIL ENGINEERING  
 301 SEA ISLAND ROAD, SUITE 10  
 ST. SIMONS, GA 31522  
 912-638-9681 OFFICE  
 912-289-0339 FAX

Appendix A  
South Parcel Pump Station  
Calculations

Peak Flow Calculation South Parcel  
 Project: Oak Grove Townhomes  
 Date: 2018-10-31

**South Parcel**

**Step 1: Determine Population**

Qty	Units	People Per Unit	Population In Thousands (P)
88	Townhomes	2.6	0.2288

**Step 2: Determine Peaking Factor**

Fair Geyer Equation from 10 States Standards

$$Q = (18 + (P)^{0.5}) / (4 + (P)^{0.5})$$

Q 4.13

**Step 3: Determine Average Daily Flow**

Qty	Units	Daily Flow Per Unit	Total Average Flow
88	Townhomes	300	26400

**Step 4: Determine Peak Flow**

Average Flow (gpm)	Peaking Factor	Peak Flow (gpm)
18.33	4.13	<b>76</b>



System Curve Calculations  
 Oak Grove Development South Parcel  
 Date: 2019-01-03

Peak Flow = Development Area A = 76 gpm  
 See Peak Flow Calcs SS  
 125 gpm is duty point for chosen pump station

System Characteristics:

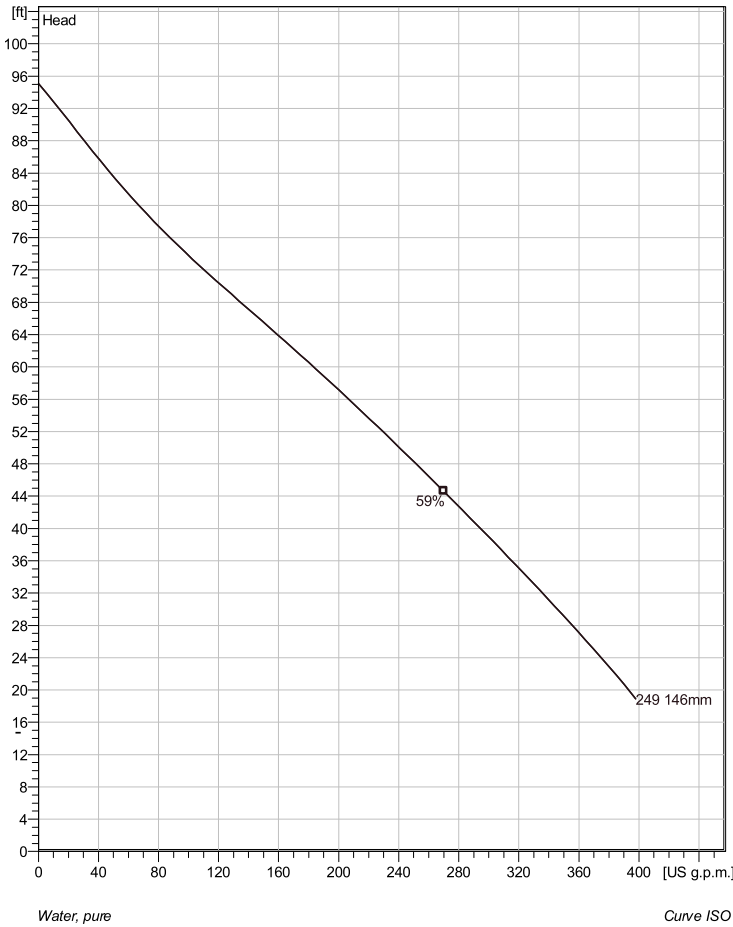
D (Pipe Diameter in ft)	0.33	4
C (Roughness Coefficient)	120	
L (Length of Pipe in ft)	4500	
Static Head (ft)	10	

Hazen-Williams Formula

Friction Headloss:  $h = (3.022 * v^{1.85} * L) / (C^{1.85} * D^{1.17})$

Q (flow in gpm)	Velocity (ft/sec)	h	Static Head	TDH
80	2.04	26.27	10	36.27
85	2.17	29.39	10	39.39
90	2.30	32.67	10	42.67
95	2.43	36.11	10	46.11
100	2.55	39.70	10	49.70
105	2.68	43.45	10	53.45
110	2.81	47.36	10	57.36
115	2.94	51.41	10	61.41
120	3.07	55.63	10	65.63
125	3.19	59.99	10	69.99
130	3.32	64.50	10	74.50
135	3.45	69.17	10	79.17
140	3.58	73.98	10	83.98
145	3.70	78.95	10	88.95
150	3.83	84.06	10	94.06
155	3.96	89.31	10	99.31
160	4.09	94.71	10	104.71
165	4.22	100.26	10	110.26
170	4.34	105.96	10	115.96
175	4.47	111.79	10	121.79
180	4.60	117.77	10	127.77
185	4.73	123.90	10	133.90
190	4.85	130.16	10	140.16
195	4.98	136.57	10	146.57
200	5.11	143.12	10	153.12
205	5.24	149.81	10	159.81
210	5.36	156.64	10	166.64

## NP 3127 SH 3~ Adaptive 249 Technical specification



Note: Picture might not correspond to the current configuration.

### General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

### Impeller

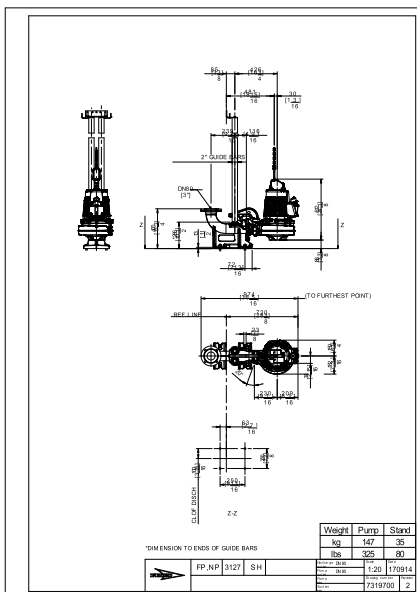
Impeller material	Hard-Iron™
Discharge Flange Diameter	3 1/8 inch
Suction Flange Diameter	80 mm
Impeller diameter	146 mm
Number of blades	2

### Motor

Motor #	N3127.060 21-11-2AL-W 7.4KW
Stator variant	28
Frequency	50 Hz
Rated voltage	190 V
Number of poles	2
Phases	3~
Rated power	9.9 hp
Rated current	30 A
Starting current	274 A
Rated speed	2910 rpm
Power factor	
1/1 Load	0.85
3/4 Load	0.79
1/2 Load	0.69
Pump Efficiency	
1/1 Load	87.5 %
3/4 Load	87.9 %
1/2 Load	86.7 %

### Configuration

### Installation: P - Semi permanent, Wet



Project	Project ID	Created by	Created on	Last update
			12/31/2018	

## NP 3127 SH 3~ Adaptive 249



### Performance curve

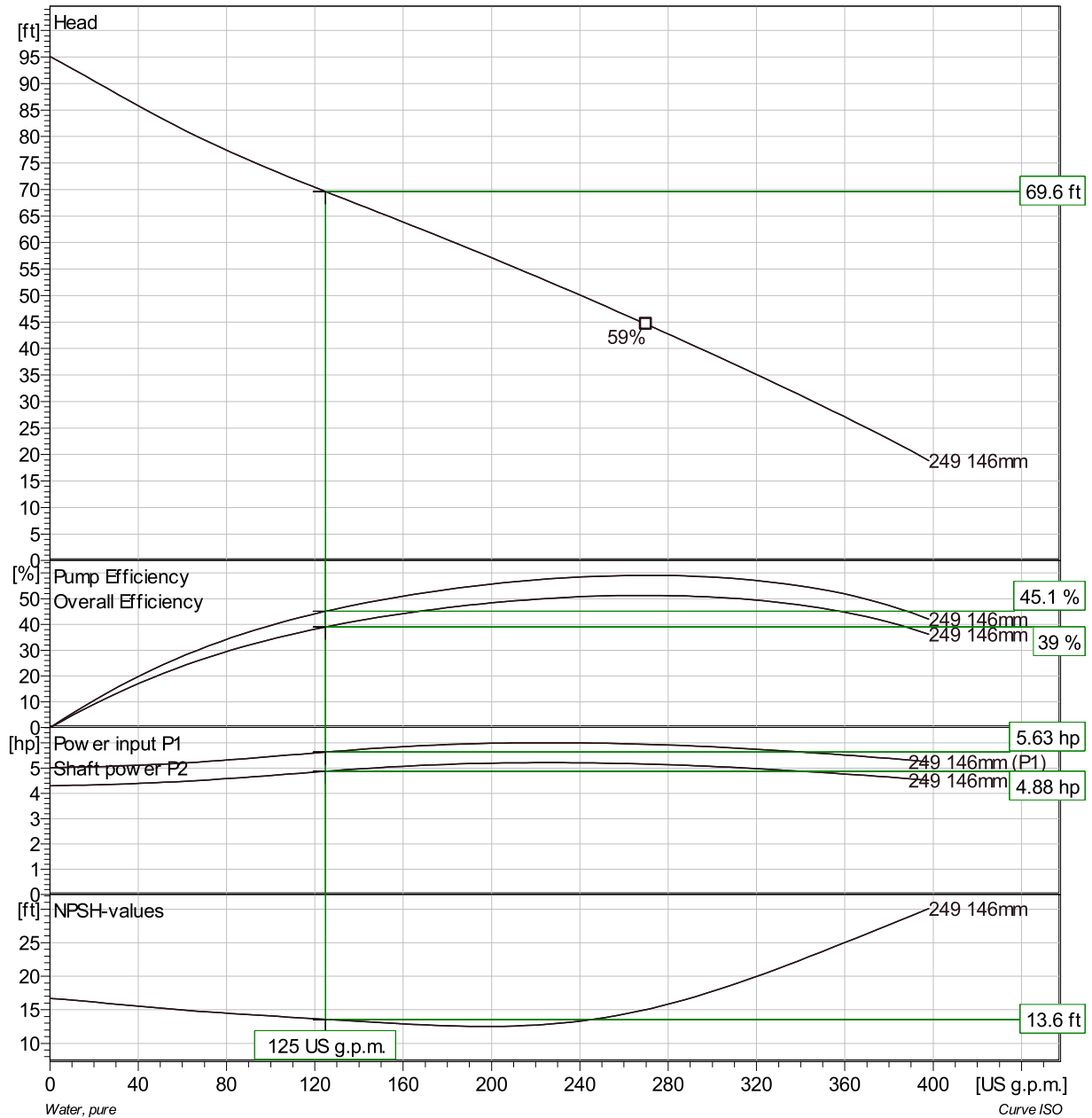
#### Pump

Discharge Flange Diameter 3 1/8 inch  
 Suction Flange Diameter 80 mm  
 Impeller diameter 5 3/4"  
 Number of blades 2

#### Motor

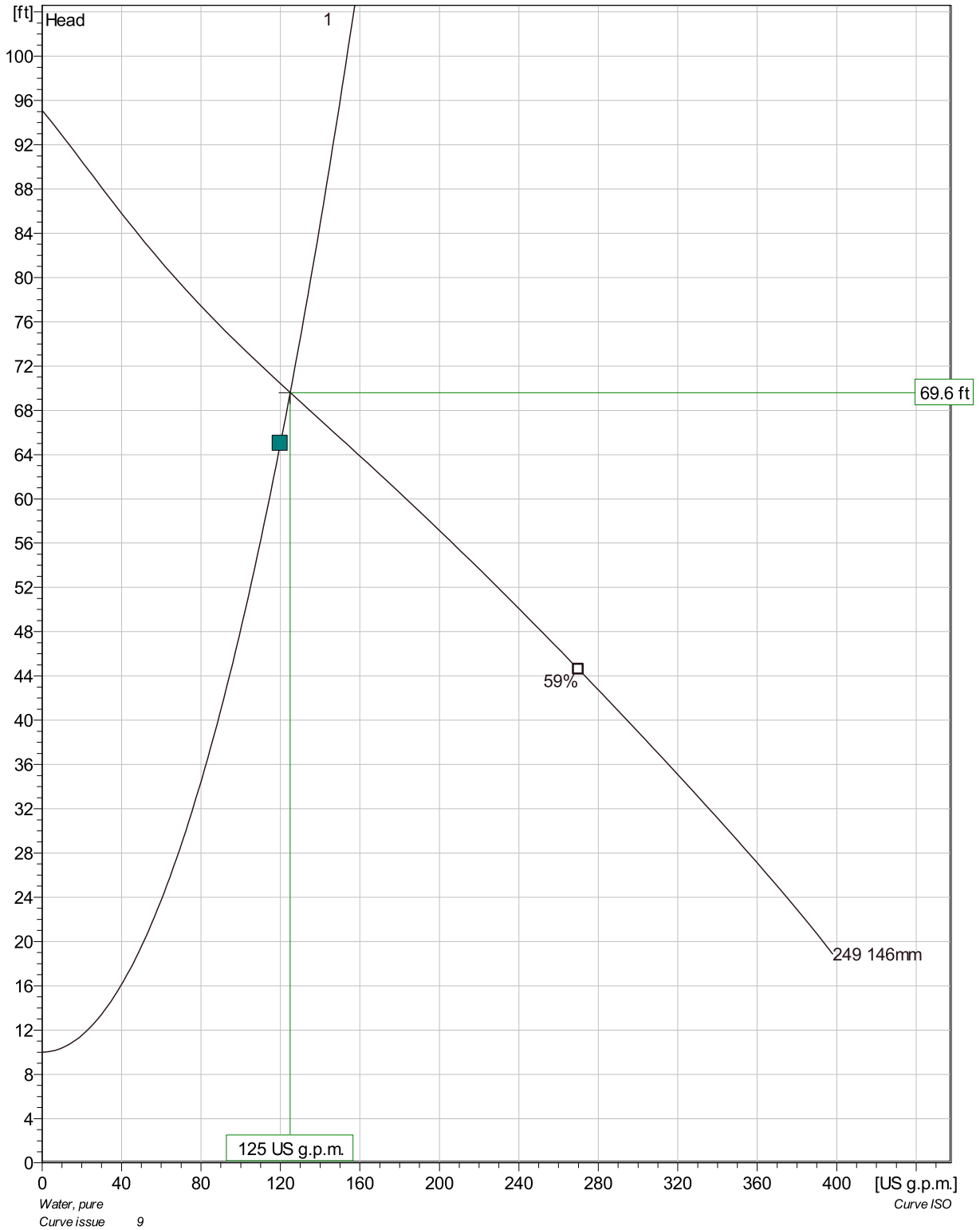
Motor # N3127.060 21-11-2AL-W 7.4KW  
 Stator variant 28  
 Frequency 50 Hz  
 Rated voltage 190 V  
 Number of poles 2  
 Phases 3~  
 Rated power 9.9 hp  
 Rated current 30 A  
 Starting current 274 A  
 Rated speed 2910 rpm

Power factor  
 1/1 Load 0.85  
 3/4 Load 0.79  
 1/2 Load 0.69  
 Pump Efficiency  
 1/1 Load 87.5 %  
 3/4 Load 87.9 %  
 1/2 Load 86.7 %



Project	Project ID	Created by	Created on 12/31/2018	Last update
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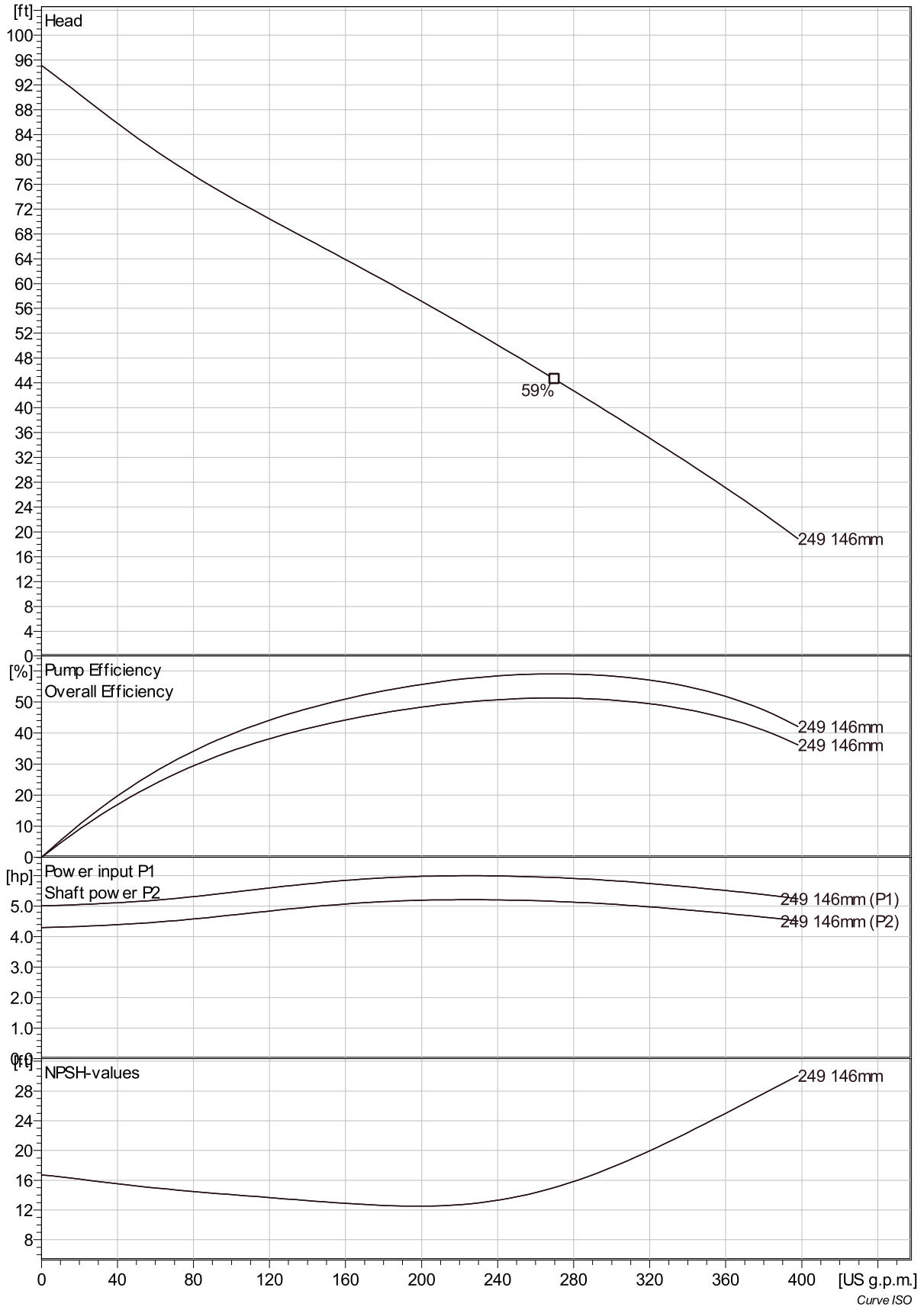
## NP 3127 SH 3~ Adaptive 249 Duty Analysis



Pumps running /System	Individual pump			Total					
	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	125 US g.p.m.	69.6 ft	4.88 hp	125 US g.p.m.	69.6 ft	4.88 hp	45.1 %	560 kWh/US MG	13.6 ft

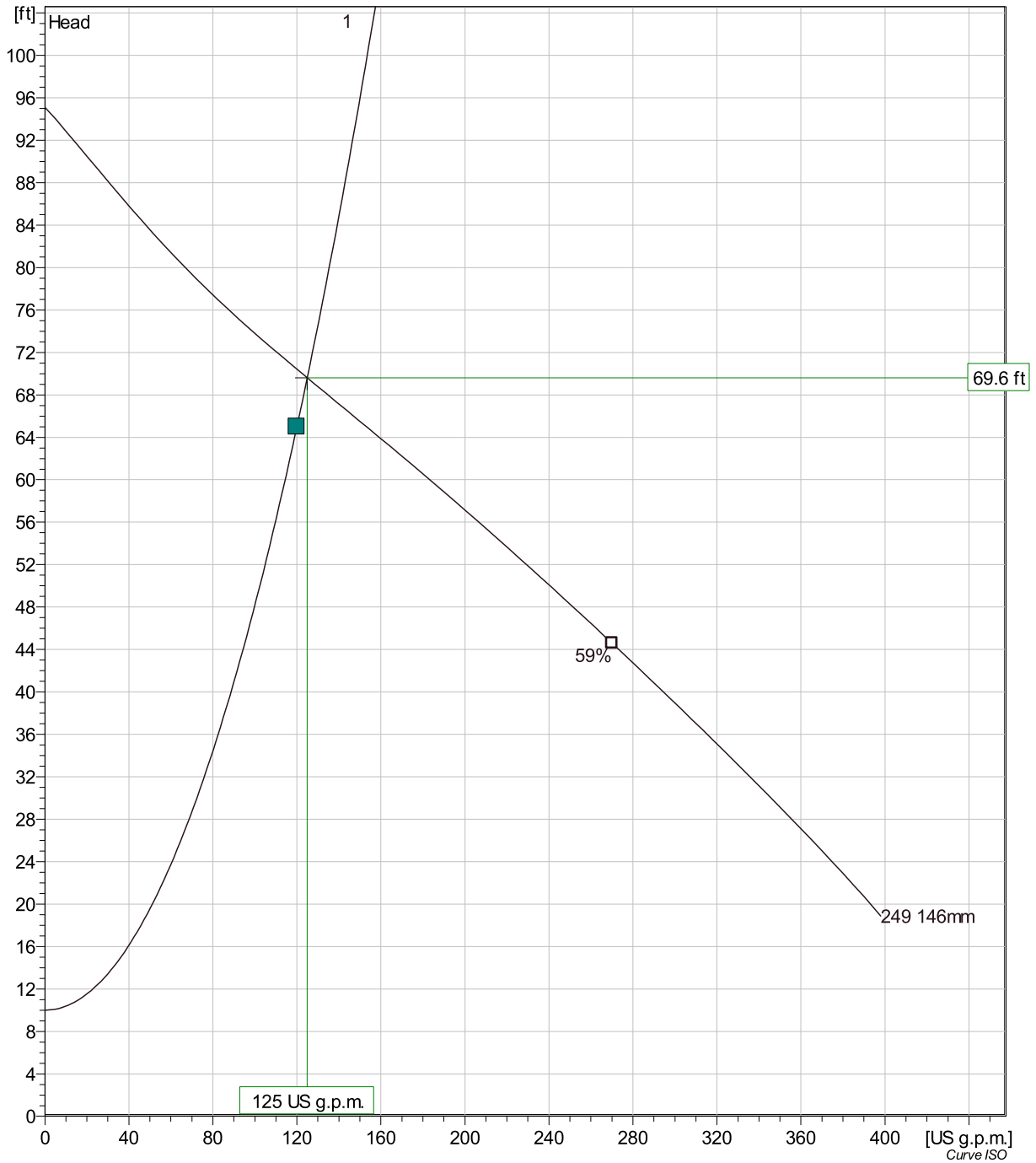
Project	Project ID	Created by	Created on 12/31/2018	Last update
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## NP 3127 SH 3~ Adaptive 249 VFD Curve



Project	Project ID	Created by	Created on	Last update
			12/31/2018	

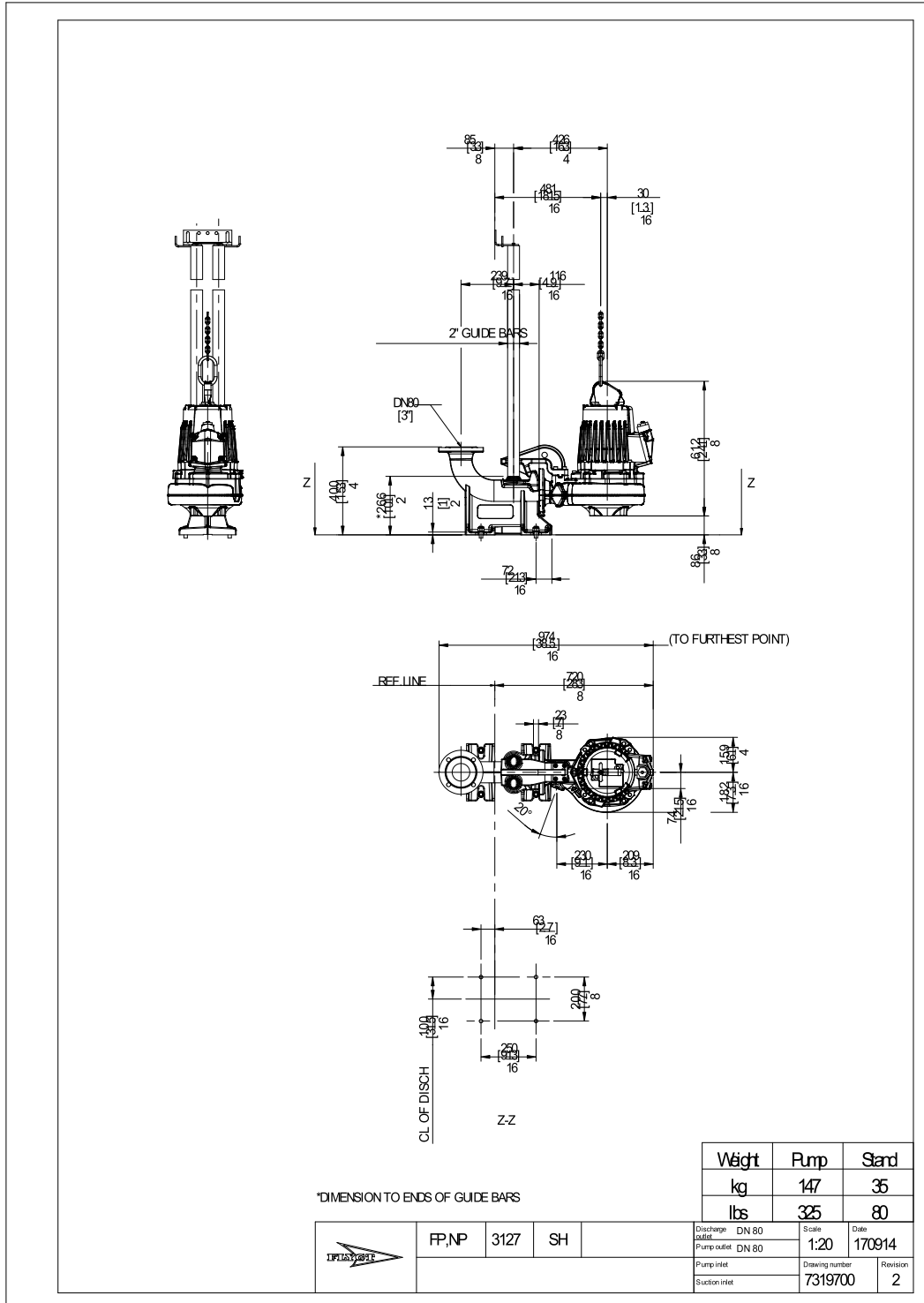
## NP 3127 SH 3~ Adaptive 249 VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	50 Hz	125 US g.p.m.	69.6 ft	4.88 hp	125 US g.p.m.	69.6 ft	4.88 hp	45.1 %	560 kWh/US MG	13.6 ft
1	45 Hz	110 US g.p.m.	56.5 ft	3.53 hp	110 US g.p.m.	56.5 ft	3.53 hp	44.7 %	474 kWh/US MG	11.5 ft
1	40 Hz	95.7 US g.p.m.	45 ft	2.47 hp	95.7 US g.p.m.	45 ft	2.47 hp	44.1 %	403 kWh/US MG	9.54 ft
1	35 Hz	80.6 US g.p.m.	34.8 ft	1.64 hp	80.6 US g.p.m.	34.8 ft	1.64 hp	43.1 %	348 kWh/US MG	7.76 ft
1	30 Hz	64.7 US g.p.m.	26 ft	1.02 hp	64.7 US g.p.m.	26 ft	1.02 hp	41.5 %	312 kWh/US MG	6.13 ft

Project	Project ID	Created by	Created on	Last update
			12/31/2018	

## NP 3127 SH 3~ Adaptive 249 Dimensional drawing



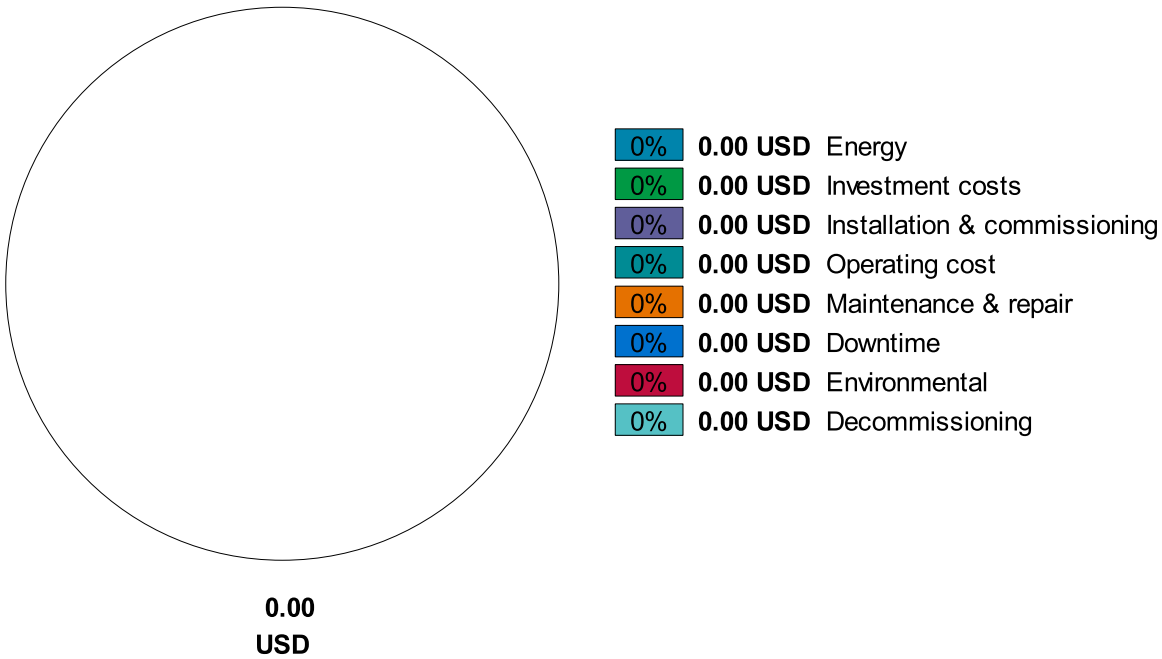
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## NP 3127 SH 3~ Adaptive 249

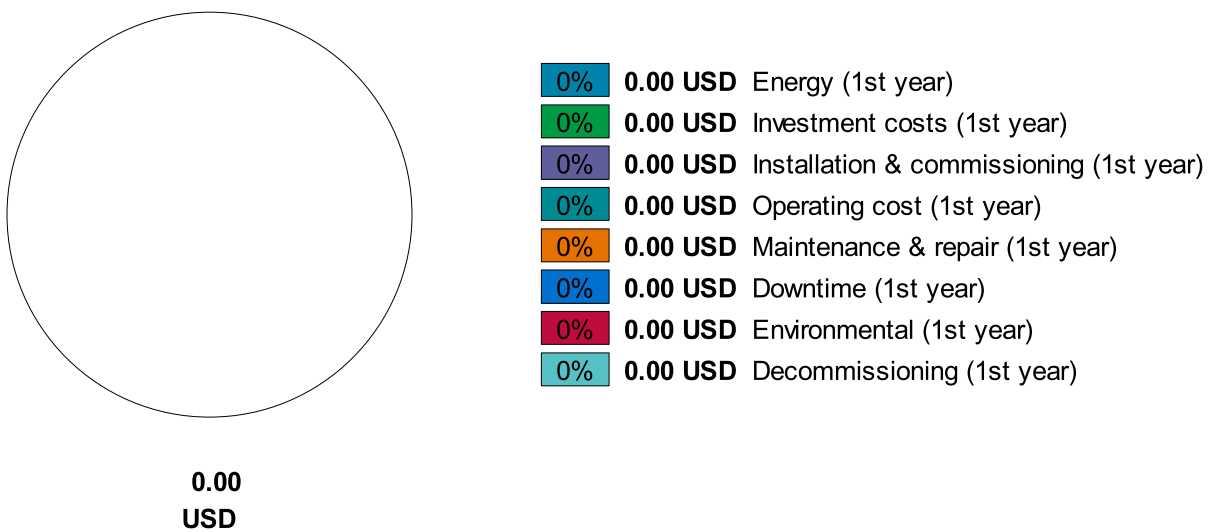
### Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

### Total costs



### First year costs



*Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xylem inc can therefore not guarantee that the estimated savings will actually occur.*

Project	Project ID	Created by	Created on <b>12/31/2018</b>	Last update
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Appendix B  
North Parcel Pump Station  
Calculations

Peak Flow Calculations North Parcel  
 Project: Oak Grove Townhomes  
 Date: 2019-01-03

**North Parcel**

**Step 1: Determine Population**

Qty	Units	People Per Unit	Population In Thousands (P)
50	Townhomes	2.6	0.13

**Step 2: Determine Peaking Factor**

Fair Geyer Equation from 10 States Standards

$$Q = (18 + (P)^{0.5}) / (4 + (P)^{0.5})$$

Q 4.21

**Step 3: Determine Average Daily Flow**

Qty	Units	Daily Flow Per Unit	Total Average Flow
50	Townhomes	300	15000

**Step 4: Determine Peak Flow**

Average Flow (gpm)	Peaking Factor	Peak Flow (gpm)
10.42	4.21	<b>44</b>

Operating Point for South Parcel Pump Station 125

**Total Peak Flow 169**

System Curve Calculations

Oak Grove Development Area B

Date: 2019-01-03

Peak Flow = South plus North Parcels = 125 + 44 = 169 gpm

See Peak Flow Calcs SS

256 gpm is duty point for chosen pump station

System Characteristics:

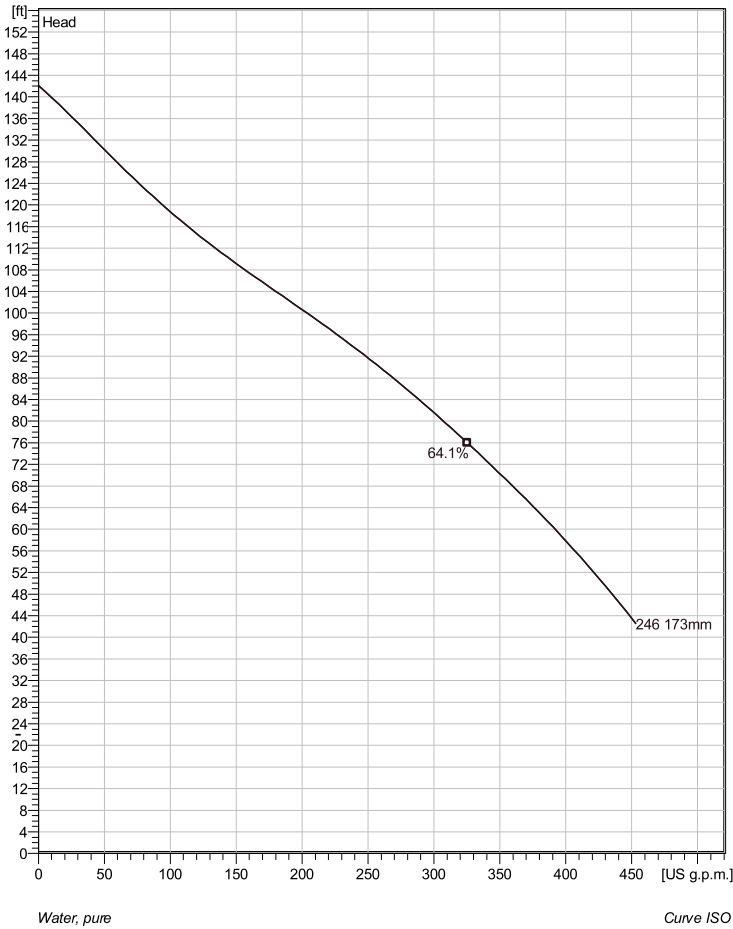
D (Pipe Diameter in ft)	0.50	6
C (Roughness Coefficient)	120	
L (Length of Pipe in ft)	11500	
Static Head (ft)	10	

Hazen-Williams Formula

Friction Headloss:  $h = (3.022 * v^{1.85} * L) / (C^{1.85} * D^{1.17})$

Q (flow in gpm)	Velocity (ft/sec)	h	Static Head	TDH
120	1.36	19.73	10	29.73
130	1.48	22.88	10	32.88
140	1.59	26.25	10	36.25
150	1.70	29.82	10	39.82
160	1.82	33.60	10	43.60
170	1.93	37.59	10	47.59
180	2.04	41.78	10	51.78
190	2.16	46.18	10	56.18
200	2.27	50.77	10	60.77
210	2.38	55.57	10	65.57
220	2.50	60.56	10	70.56
230	2.61	65.75	10	75.75
240	2.72	71.14	10	81.14
250	2.84	76.72	10	86.72
260	2.95	82.49	10	92.49
270	3.07	88.46	10	98.46
280	3.18	94.61	10	104.61
290	3.29	100.96	10	110.96
300	3.41	107.50	10	117.50
310	3.52	114.22	10	124.22
320	3.63	121.13	10	131.13
330	3.75	128.22	10	138.22
340	3.86	135.50	10	145.50

## NP 3127 SH 3~ Adaptive 246 Technical specification



Note: Picture might not correspond to the current configuration.

### General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

### Impeller

Impeller material	Grey cast iron
Discharge Flange Diameter	3 1/8 inch
Suction Flange Diameter	80 mm
Impeller diameter	173 mm
Number of blades	2

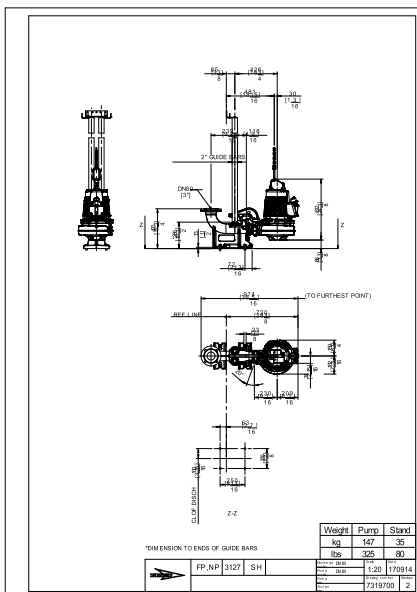
### Motor

Motor #	N3127.901 21-11-2AS-W IE3 8.5KW
Stator variant	1
Frequency	50 Hz
Rated voltage	220 V
Number of poles	2
Phases	3~
Rated power	11.4 hp
Rated current	27 A
Starting current	189 A
Rated speed	3000 rpm
Power factor	
1/1 Load	0.90
3/4 Load	0.91
1/2 Load	0.88
Pump Efficiency	
1/1 Load	90.5 %
3/4 Load	91.2 %
1/2 Load	90.5 %

IE3 Rating is based on Y connection

### Configuration

### Installation: P - Semi permanent, Wet



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			12/31/2018	

## NP 3127 SH 3~ Adaptive 246



### Performance curve

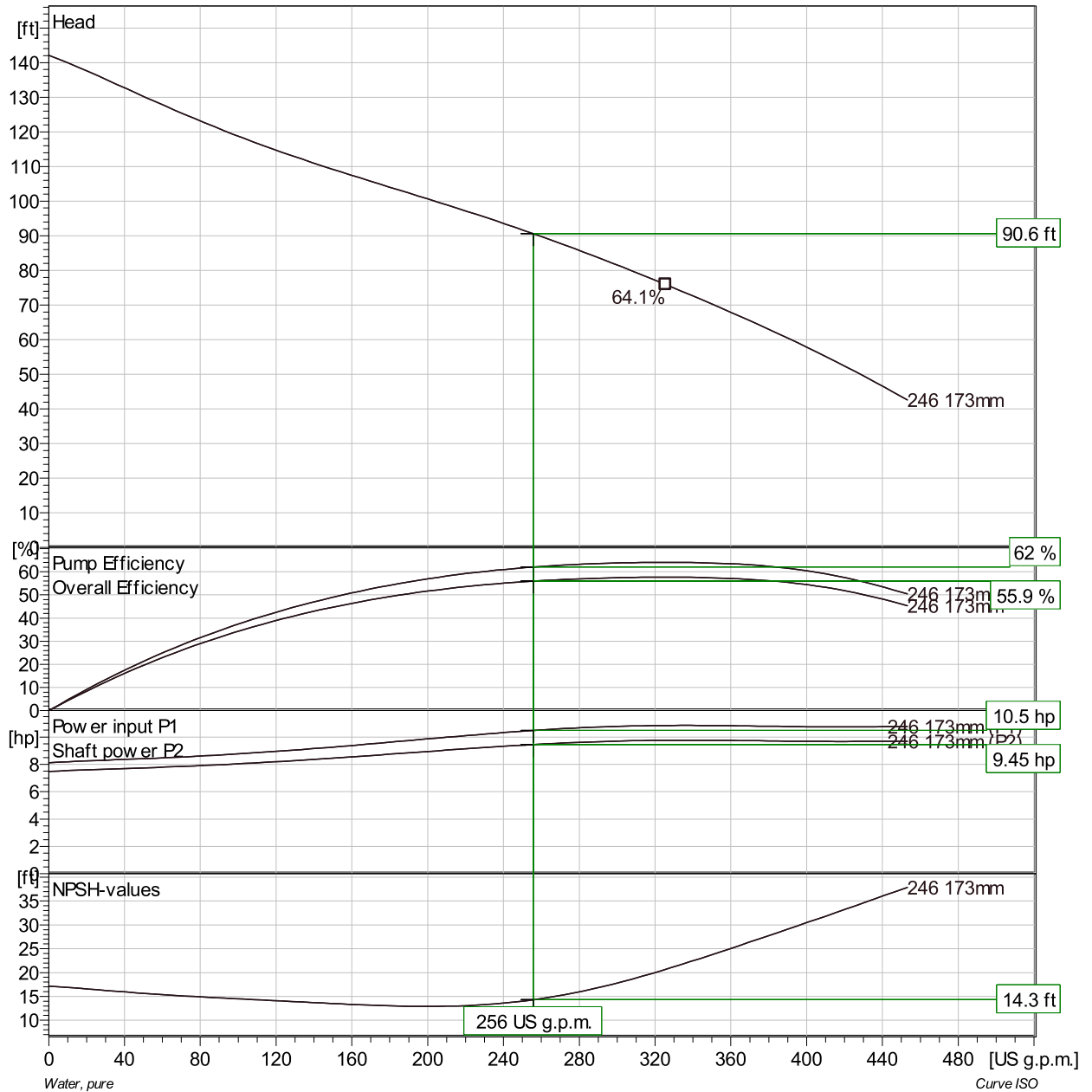
#### Pump

Discharge Flange Diameter 3 1/8 inch  
 Suction Flange Diameter 80 mm  
 Impeller diameter 6<sup>13/16</sup>"  
 Number of blades 2

#### Motor

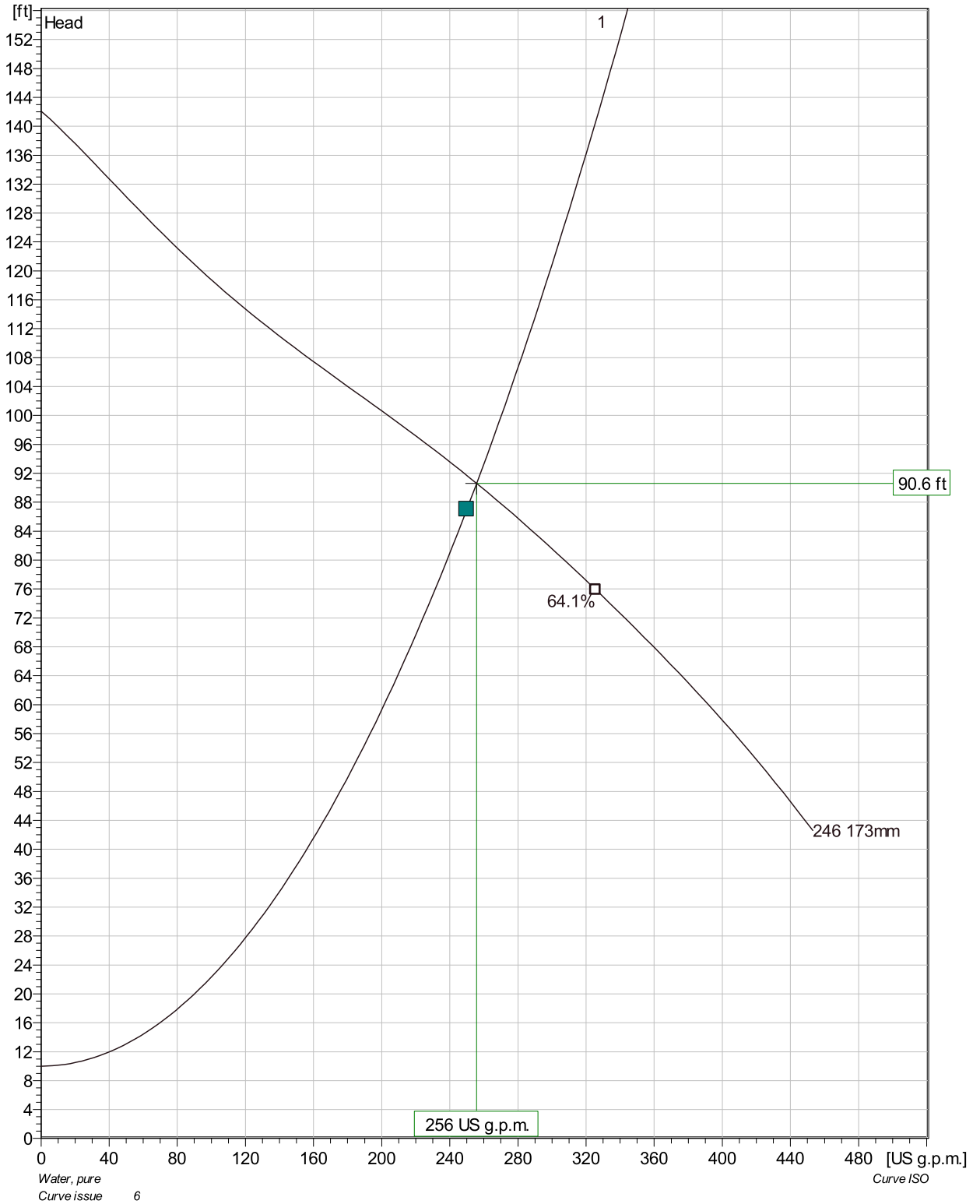
Motor # N3127.901 21-11-2AS-W IE3 8.5KW  
 Stator variant 1  
 Frequency 50 Hz  
 Rated voltage 220 V  
 Number of poles 2  
 Phases 3~  
 Rated power 11.4 hp  
 Rated current 27 A  
 Starting current 189 A  
 Rated speed 3000 rpm  
 IE3 Rating is based on Y connection

Power factor  
 1/1 Load 0.90  
 3/4 Load 0.91  
 1/2 Load 0.88  
 Pump Efficiency  
 1/1 Load 90.5 %  
 3/4 Load 91.2 %  
 1/2 Load 90.5 %



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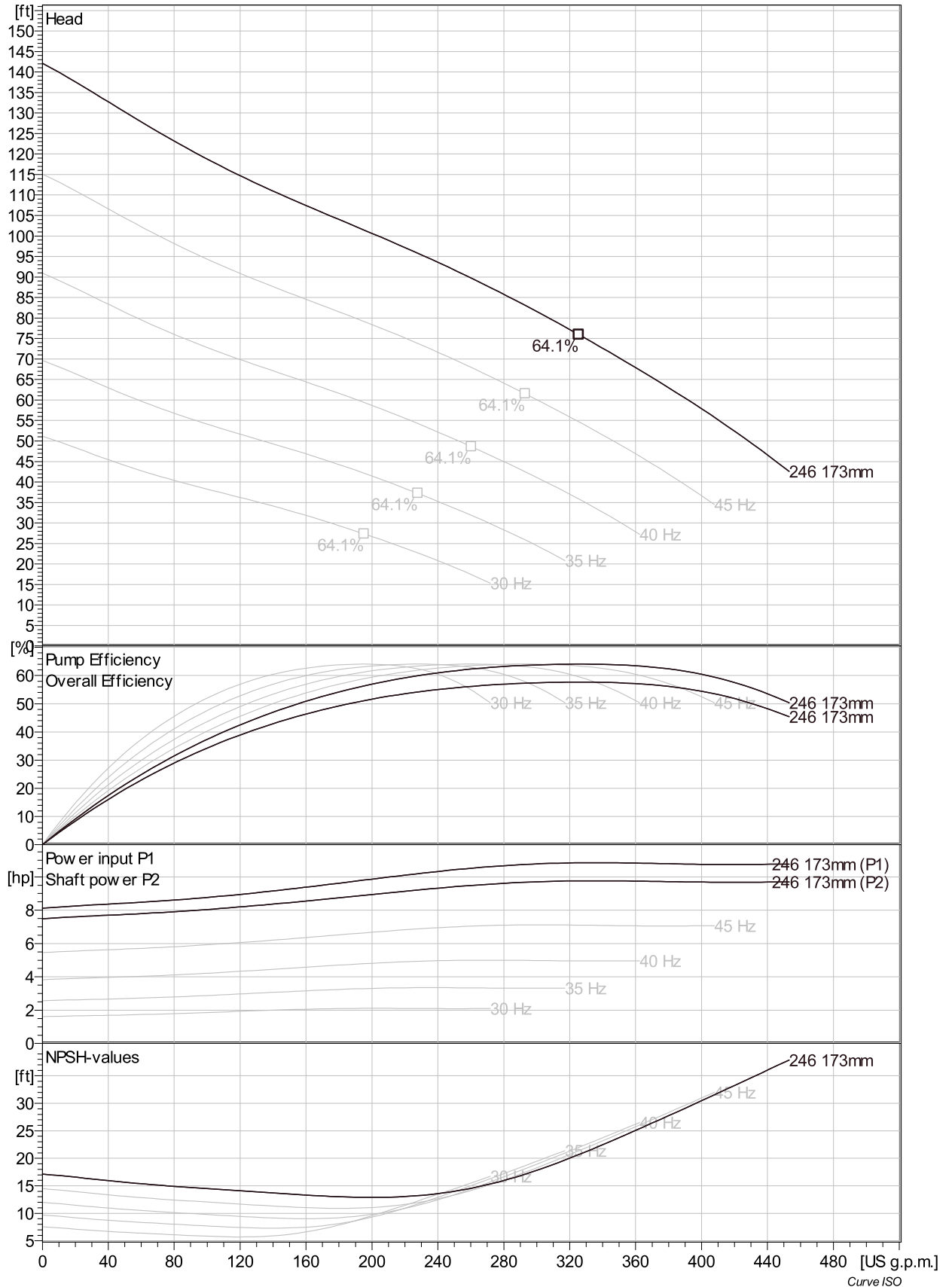
## NP 3127 SH 3~ Adaptive 246 Duty Analysis



Pumps running /System	Individual pump			Total					
	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	256 US g.p.m.	90.6 ft	9.45 hp	256 US g.p.m.	90.6 ft	9.45 hp	62%	509 kWh/US MG	14.3 ft

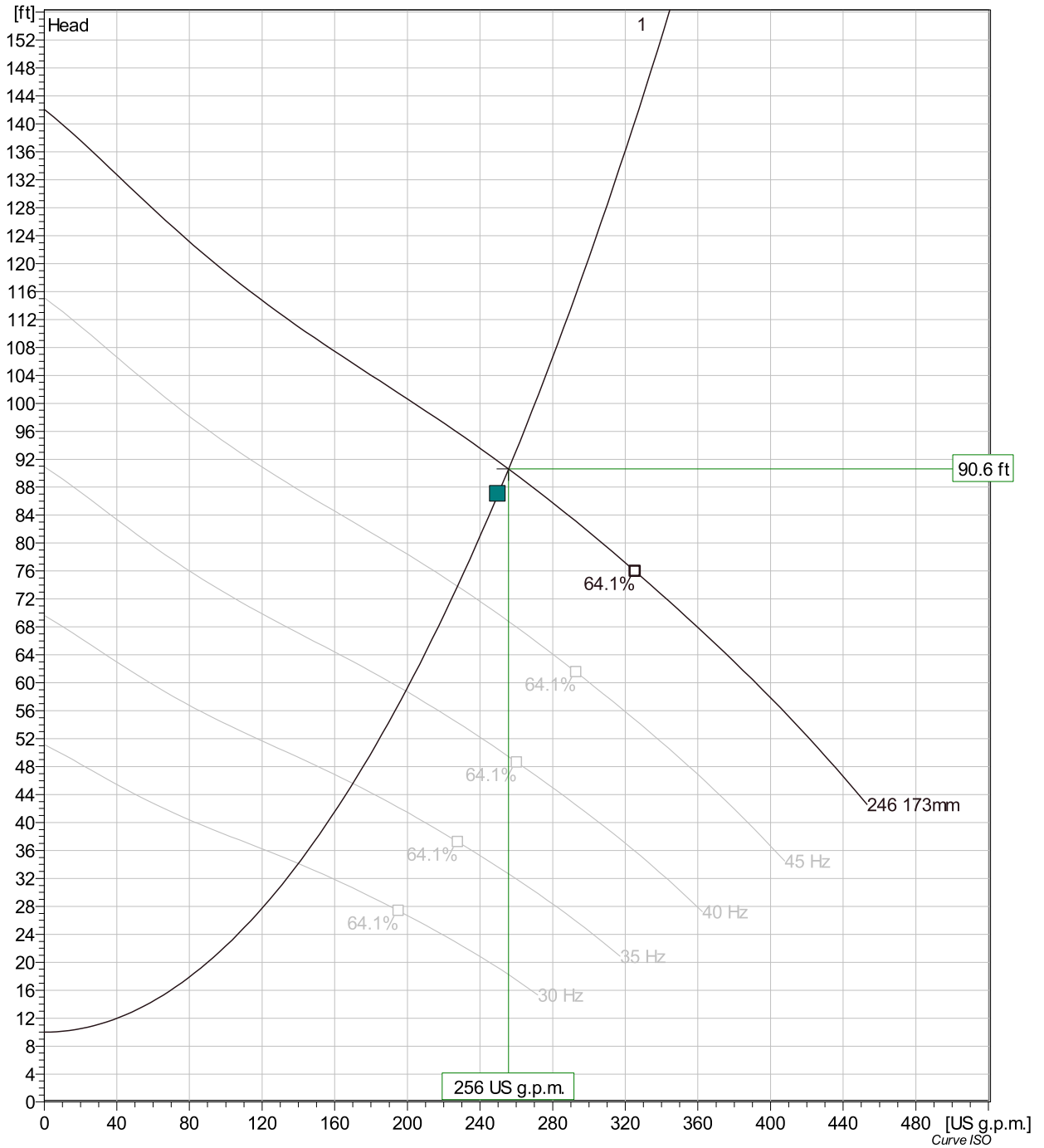
Project	Project ID	Created by	Created on 12/31/2018	Last update
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## NP 3127 SH 3~ Adaptive 246 VFD Curve



Project	Project ID	Created by	Created on	Last update
			12/31/2018	

## NP 3127 SH 3~ Adaptive 246 VFD Analysis

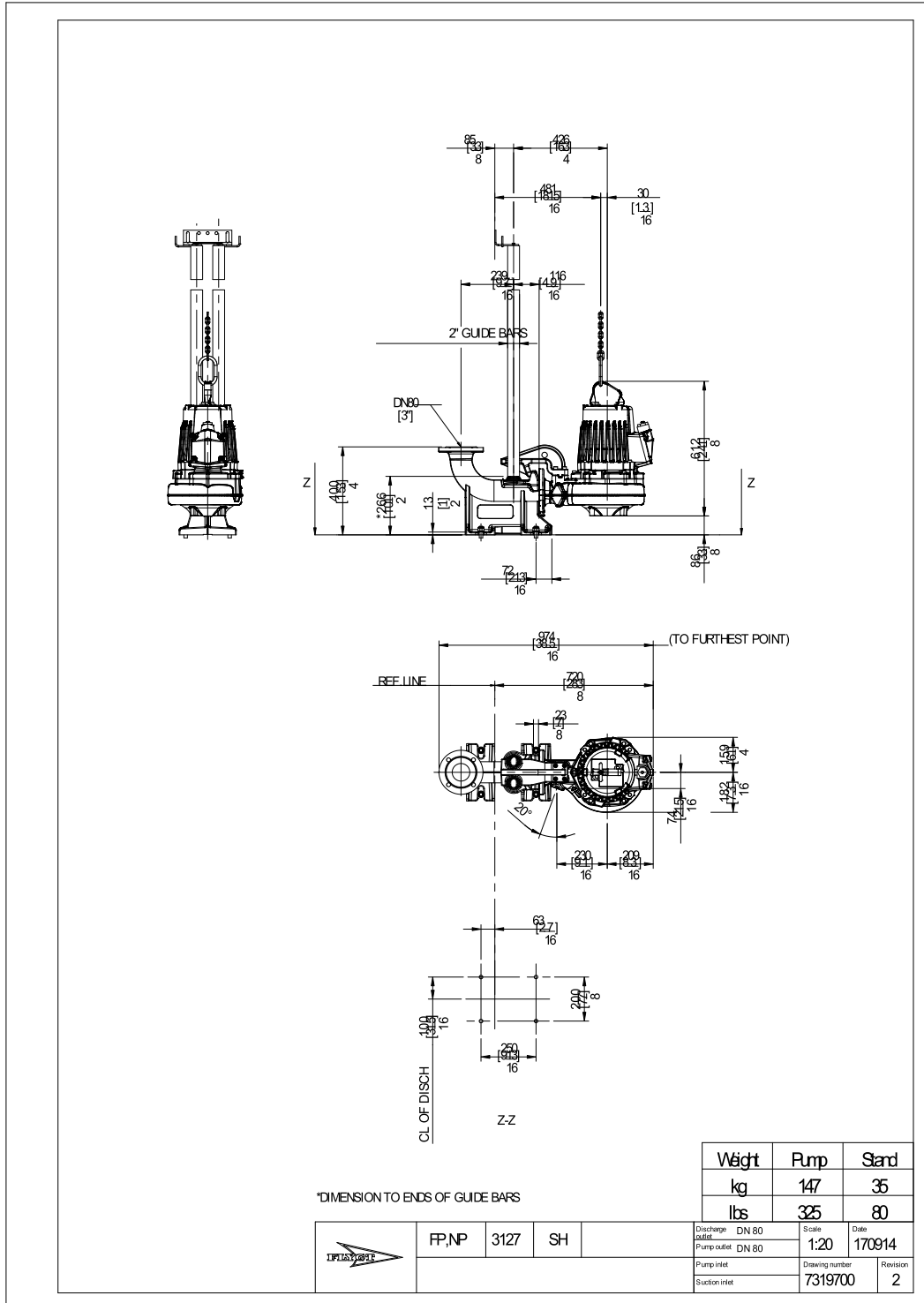


Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	50 Hz	256 US g.p.m.	90.6 ft	9.45 hp	256 US g.p.m.	90.6 ft	9.45 hp	62 %	509 kWh/US MG	14.3 ft
1	45 Hz	228 US g.p.m.	73.8 ft	6.87 hp	228 US g.p.m.	73.8 ft	6.87 hp	61.8 %	407 kWh/US MG	12 ft
1	40 Hz	199 US g.p.m.	58.8 ft	4.81 hp	199 US g.p.m.	58.8 ft	4.81 hp	61.6 %	340 kWh/US MG	9.76 ft
1	35 Hz	170 US g.p.m.	45.6 ft	3.21 hp	170 US g.p.m.	45.6 ft	3.21 hp	61.2 %	274 kWh/US MG	7.74 ft
1	30 Hz	140 US g.p.m.	34.1 ft	2 hp	140 US g.p.m.	34.1 ft	2 hp	60.4 %	215 kWh/US MG	5.9 ft

Project	Project ID	Created by	Created on <b>12/31/2018</b>	Last update
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## NP 3127 SH 3~ Adaptive 246 Dimensional drawing



Project

Project ID

Created by

Created on  
12/31/2018

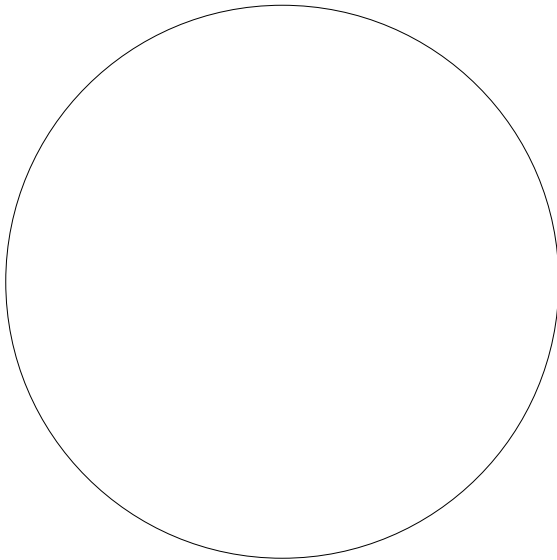
Last update

## NP 3127 SH 3~ Adaptive 246

### Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

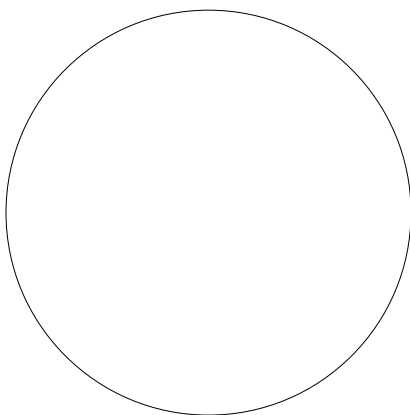
### Total costs



**0.00  
USD**

- 0%** **0.00 USD** Energy
- 0%** **0.00 USD** Investment costs
- 0%** **0.00 USD** Installation & commissioning
- 0%** **0.00 USD** Operating cost
- 0%** **0.00 USD** Maintenance & repair
- 0%** **0.00 USD** Downtime
- 0%** **0.00 USD** Environmental
- 0%** **0.00 USD** Decommissioning

### First year costs



**0.00  
USD**

- 0%** **0.00 USD** Energy (1st year)
- 0%** **0.00 USD** Investment costs (1st year)
- 0%** **0.00 USD** Installation & commissioning (1st year)
- 0%** **0.00 USD** Operating cost (1st year)
- 0%** **0.00 USD** Maintenance & repair (1st year)
- 0%** **0.00 USD** Downtime (1st year)
- 0%** **0.00 USD** Environmental (1st year)
- 0%** **0.00 USD** Decommissioning (1st year)

*Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xylem inc can therefore not guarantee that the estimated savings will actually occur.*

Project	Project ID	Created by	Created on <b>12/31/2018</b>	Last update
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Appendix C  
Lift Station 4132  
Calculations

Peak Flow Calculation Lift Station 4132  
 Project: Oak Grove Townhomes  
 Date: 2019-01-03

**Future Oak Grove Tie Ins (downstream of new development pumps)**

**Step 1: Determine Population**

Qty	Units	People Per Unit	Population In Thousands (P)
200	Homes	2.6	0.52

**Step 2: Determine Peaking Factor**

Fair Geyer Equation from 10 States Standards

$$Q = (18 + (P)^{0.5}) / (4 + (P)^{0.5})$$

Q 3.97

**Step 3: Determine Average Daily Flow**

Qty	Units	Daily Flow Per Unit	Total Average Flow
250	Homes	300	75000

**Step 4: Determine Peak Flow**

Average Flow (gpm)	Peaking Factor	Peak Flow (gpm)
52.08	3.97	<b>207</b>

Peak Flow for Future Tie Ins	207
North Parcel Pump Station Operating Flow	256
<b>Total Peak Flow</b>	<b>463</b>

System Curve Calculations

LS 4132

Date: 2018-10-31

Peak Flow = 256 + 86 = 336 gpm

See Peak Flow Calcs SS

500 gpm is duty point for chosen pump station

System Characteristics:

D (Pipe Diameter in ft)	0.83	10
C (Roughness Coefficient)	120	
L (Length of Pipe in ft)	11480	
Static Head (ft)	15	

Hazen-Williams Formula

Friction Headloss:  $h = (3.022 * v^{1.85} * L) / (C^{1.85} * D^{1.17})$

Q (flow in gpm)	Velocity (ft/sec)	h	Static Head	TDH
320	1.31	10.05	15	25.05
330	1.35	10.64	15	25.64
340	1.39	11.24	15	26.24
350	1.43	11.86	15	26.86
360	1.47	12.49	15	27.49
370	1.51	13.14	15	28.14
380	1.55	13.81	15	28.81
390	1.59	14.49	15	29.49
400	1.63	15.18	15	30.18
410	1.68	15.89	15	30.89
420	1.72	16.62	15	31.62
430	1.76	17.36	15	32.36
440	1.80	18.11	15	33.11
450	1.84	18.88	15	33.88
460	1.88	19.66	15	34.66
470	1.92	20.46	15	35.46
480	1.96	21.27	15	36.27
490	2.00	22.10	15	37.10
500	2.04	22.94	15	37.94
510	2.08	23.80	15	38.80
520	2.13	24.67	15	39.67
530	2.17	25.55	15	40.55
540	2.21	26.45	15	41.45
550	2.25	27.37	15	42.37
560	2.29	28.29	15	43.29
570	2.33	29.24	15	44.24
580	2.37	30.19	15	45.19
590	2.41	31.16	15	46.16
600	2.45	32.15	15	47.15

Technical data  
 Submersible sewage pump

FA 10.33E

with motor  
 FK 17.1-4/16KEx

Pump						
Pump type	FA 10.33E			Installation type	Suspension device	
Impeller Ø	max. possible	249	mm	Free passage	DN100/2RK	
	standard	208	mm		80	mm
	designed	205	mm	Suction port	Pressure rating	PN10
	min. possible	194	mm		Rated diameter	DN80
Nominal speed	1740	1/min	Standard	Pressure rating	PN10	
Frequency	60	Hz		Rated diameter	DN100	
Impeller type	Single-channel			Discharge port	Standard	EN1092-2-S
Impeller construction	Closed				Rated diameter	DN100
				Standard	EN1092-2-D	
Weights						
Weight of pump end	max. 68.3	lb	Weight of unit	max. 304.2	lb	
Weight of motor	235.9	lb				
Materials						
Pump housing	EN-GJL-250					
Stationary wear ring	1.4308					
Impeller	EN-GJS-500-7					
Mobile wear ring	1.4462/1.4470					
Motor						
Motor name	FK 17.1-4/16KEx			Number of poles	4	
Rated power	10.2	hp	Rated speed	1700	rpm	
Power input with rated power				13.1	hp	
Rated voltage				460 ~3	V	
Current input with rated power				14.3	A	
Efficiency with rated power				78	%	
cos phi with rated power	0.86		Rated frequency	60	Hz	
cos phi with starting				Operation type wet	S1	
Starting current, direct starting	69	A	Operation type dry	S1		
Starting current, star-delta	23	A	Max. fluid temperature	104	°F	
Starting torque	43	lbf ft	Starts per hour max.	15		
Inertia moment	0.2563	lb ft <sup>2</sup>	Degree of protection	IP 68		
Sel. explosion protection	FM			Ex-number	-	
Ex-designation	FM					
Motor connection cable				7G1,5 H07RN-F		
Duty point data						
Volume flow	500.7	US g.p.m.	Fluid	Water, pure		
Head	38.1	ft	Required pump NPSH	14.2	ft	
Shaft power	P <sub>2</sub>	7	hp	Speed	1732	
Pump efficiency	69.3	%	Total efficiency	= $\frac{P_2 * \text{Pump efficiency}}{P_1}$		
Power input	P <sub>1</sub>	8.8				hp
Item no.						

Technical data

with motor

Submersible sewage pump

FA 10.33E

FK 17.1-4/16KEx

**Tender text**

Submersible Sew age Pump as submersible, single-stage block unit in stationary, vertical installation to pump untreated sewage which doesn't attack the pump neither chemically nor mechanically. Pump with radially arranged discharge piece and axial pump intake. Service-friendly design by separated motor and pump casing. Pumping values to be guaranteed as per ISO 9906 Annex A

Submersible motor in pressure-resistant design, with internal, hermetically-tight active cooling with highly efficient heat exchanger, double mechanical shaft seal in EMU block design, as well as separate sealing chamber. The motor chamber and the sealing chamber are filled with medical white oil. Motor sealing at the shaft by a double, wear-resistant mechanical shaft seal independent of the direction of rotation entirely made of silicon-carbide as closed unit in EMU sealing cartridge of stainless steel with intermediate separation chamber and additional shaft sealing ring.

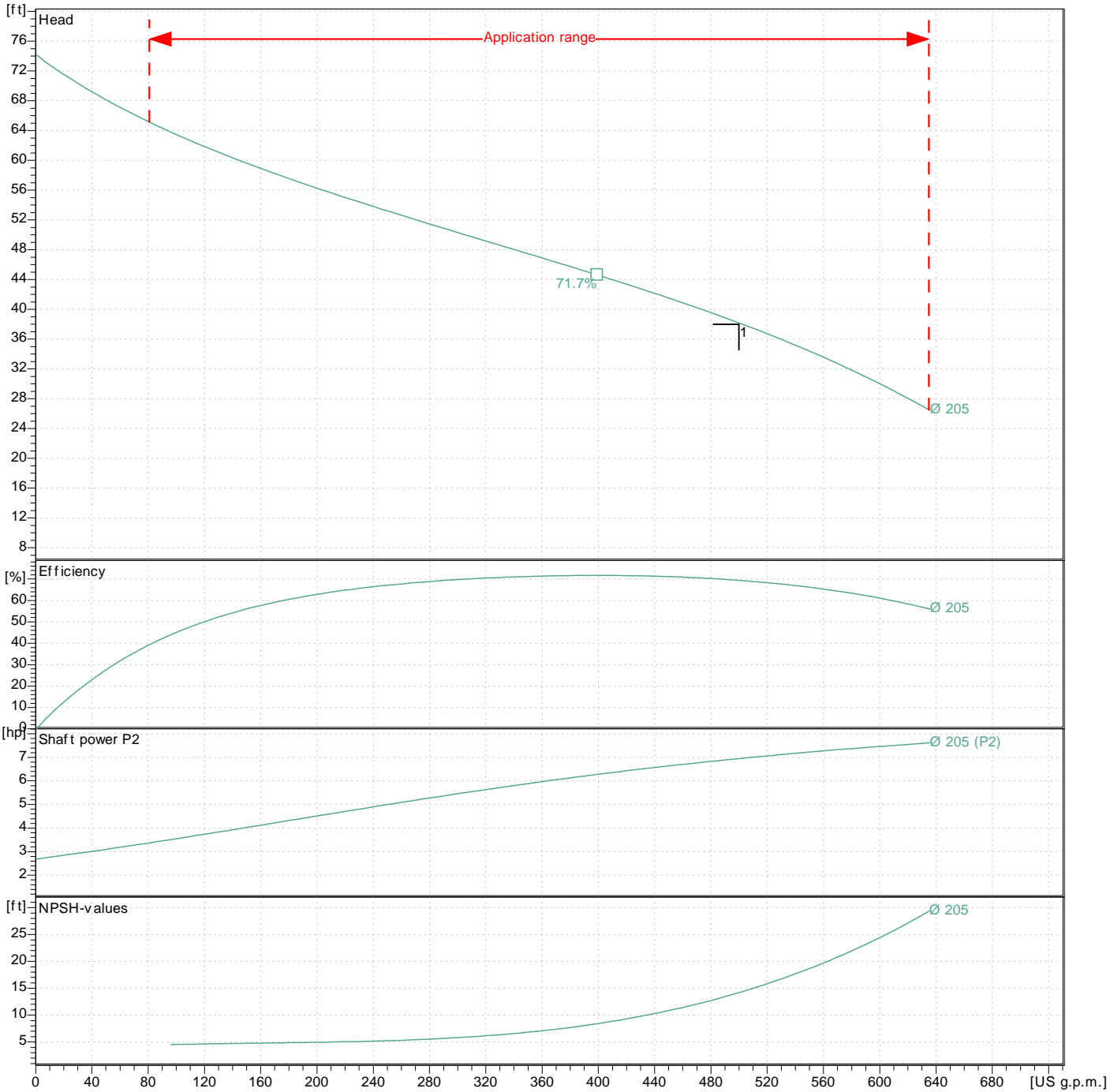
Both seals are cooled and lubricated. The motor chamber is equipped with connecting terminals. Protection of the motor winding by thermistors installed. Both closed ball bearings are maintenance-free and filled with high-quality grease. All casing parts are of cast iron. Shaft and connecting elements are of stainless steel. The motor is suitable for continuous operation (s1) under full load in immersed and completely emerged condition.

Performance curves  
 Submersible sewage pump

FA 10.33E

with motor  
 FK 17.1-4/16KEx

Power data referred to: Water, pure [100%]; 68°F; 62.315lb/ft<sup>3</sup>; 1.0768E-5ft<sup>2</sup>/s  
 Tolerance as per ISO 9906 / Annex A.2



Pump			Duty point data		
Impeller Ø	designed	205	mm	Volume flow	500.7 US g.p.m.
Nominal speed		1740	rpm	Head	38.1 ft
Frequency		60	Hz	Shaft power P <sub>2</sub>	7 hp
Impeller type		Single-channel		Pump efficiency	69.3 %
				Power input P <sub>1</sub>	8.8 hp
Rated power		10.2	hp	Required pump NPSH	14.2 ft
Sel. explosion protection		FM		Speed	1732 rpm



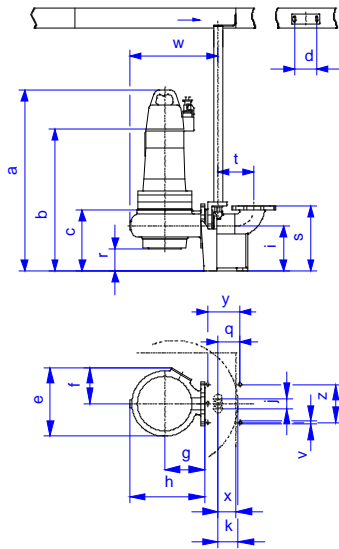
Technical data

with motor

Submersible sewage pump

FA 10.33E

FK 17.1-4/16KEx



Dimensions in mm				Connections
a	1054	r	131	Suction port DN80 PN10
b	844	s	325	
c	294	t	176	
d	110	v	15	Discharge port DN100 PN10
e	374	w	527	
f	197	x	90	
g	269	y	160	
h	462	z	190	Suspension device DN100/2RK
i	225			
j	50			
k	98			
q	109			

## Appendix D

### Opinion of Probable Cost



**Opinion of Probable Cost**

Oak Grove Cottages

Prepared by Roberts Civil Engineering, PC

Date: 2019-01-03

Category	Description	Quantity	Unit	Unit Price	Amount
<b>Force Main Extension</b>	Mobilization	1	LS	4000.00	\$ 4,000.00
	Force main 4" (Trenched)	4500	LF	14.00	\$ 63,000.00
	Force main 6" (Trenched)	11400	LF	20.00	\$ 228,000.00
	Force main 6" (Bored)	100	LF	100.00	\$ 10,000.00
	Force main Steel Casing Under RR Right of Way	120	LF	200.00	\$ 24,000.00
	Connect to Existing Manhole	1	EA	3500.00	\$ 3,500.00
	Route Survey	1	EA	30000.00	\$ 30,000.00
	Engineering Construction Plans	1	EA	25000.00	\$ 25,000.00
	Engineering Utility Report for EPD Sewer Extension	1	LS	7500.00	\$ 7,500.00
	Staking	1	EA	18500.00	\$ 18,500.00
	<b>Subtotal Force Main Upgrade</b>				
<b>Pump Stations</b>	North parcel pump station complete	1	LS	150000.00	\$ 150,000.00
	South parcel pump station complete	1	LS	150000.00	\$ 150,000.00
	Lift Station 4132 upgrades	1	LS	40000.00	\$ 40,000.00
	<b>Subtotal Pump Station Upgrade</b>				
<b>Total</b>					<b>\$ 753,500.00</b>

# Brunswick-Glynn County Water & Sewer Authority



## Summary of the January 1, 2018 Actuarial Valuation

February 5, 2019



# Brunswick-Glynn County Water & Sewer Authority

Summary of Key Valuation Results		
<b>Valuation date</b>	January 1, 2018	January 1, 2017
<b>Contributions for fiscal year beginning:</b>	July 1, 2018	July 1, 2017
Recommended Contribution	\$560,387	\$493,084
as a percent of expected payroll	8.98%	9.05%
net amortization period as of the valuation date	15	16
Absolute Minimum	\$479,164	\$424,177
as a percent of expected payroll	7.68%	7.78%
<b>Funding Percentage</b>	<b>71.40%</b>	<b>71.65%</b>
<b>Active Demographics as of valuation date:</b>		
Number of active employees	131	121
Total valuation payroll	\$6,156,245	\$5,362,432
Average age	44.9	44.7
Average service	8.7	8.6

# Brunswick-Glynn County Water & Sewer Authority

## Current City Retirement Program

The City's current plan provides:

- The City participates in Social Security
- A defined benefit (DB) plan
  - Accrual multiplier of 2.00%  
(The benefit is offset by benefits from prior plans),
  - Normal retirement age of 65 with 3 years of service,
  - Reduced benefit at Early retirement age of 55 with 10 years of service,
  - No employee contributions are required,
  - No COLA
  - 1/3 Vesting at 3 years, 2/3 at 4 years and 100% at 5 years,
- A voluntary employee funded 457(b) Deferred Compensation (DC) plan is available



The current annuitants under the plan are receiving an average benefit of \$541 a month. An average 30-year career employee would be expected to get about \$2,300 a month at age 65 based on 2018 dollars.

# Brunswick-Glynn County Water & Sewer Authority

## Valuation History

Year	Recommended Contribution Rate	Funding Percentage	Number of Active Employees	Covered Salary	Average Salary
5/1/2009	9.34%	13.84%	82	2,818,400	34,400
1/1/2010	7.77%	38.26%	96	3,550,900	37,000
1/1/2011	8.52%	44.19%	95	3,657,600	38,500
1/1/2012	8.23%	51.77%	97	3,729,000	38,400
1/1/2013	8.12%	53.53%	115	4,673,300	40,600
1/1/2014	8.24%	62.09%	108	4,365,500	40,400
1/1/2015	7.76%	70.19%	119	4,621,900	38,800
1/1/2016	8.70%	69.30%	124	5,174,300	41,700
1/1/2017	9.05%	71.65%	121	5,362,400	44,300
1/1/2018	8.98%	71.40%	131	6,156,200	47,000

### Key impacts on the above valuations

- 2010 – Based on the 2010 experience review study, the GMEBS Board changed a number of the valuation assumptions used to value plan liabilities.
- 2015 – Based on the 2014 experience review study, the GMEBS Board changed a number of the valuation assumptions used to value plan liabilities.
- 2018 – Based on the 2017 review of economic assumptions, the GMEBS Board changed a number of the economic assumptions used to value plan liabilities.



# Brunswick-Glynn County Water & Sewer Authority Projections

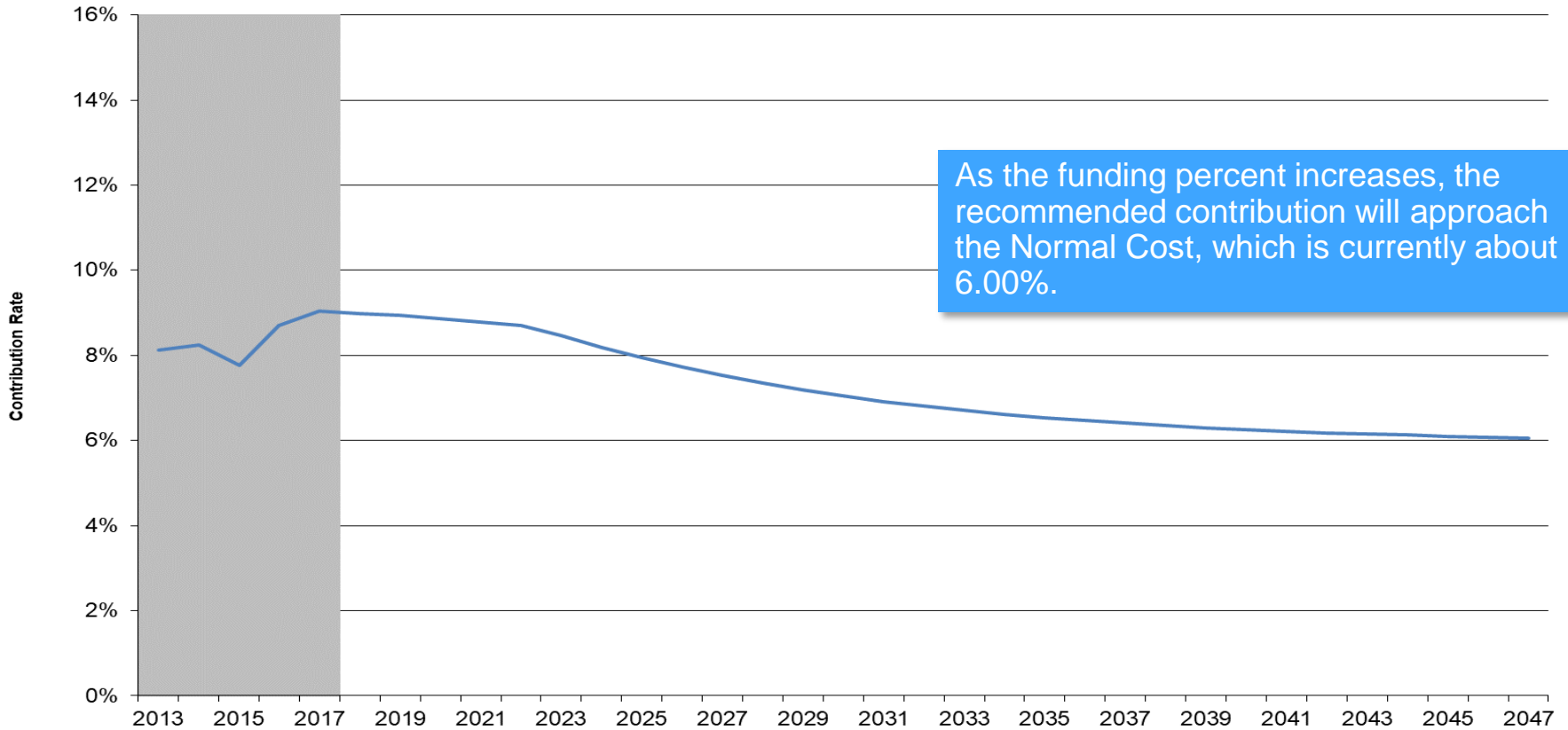
- The following slides include projections of the Plan's contribution rates, contribution amounts and funding percentage.
- All investment gains and losses are expected to be recognized through the asset smoothing method over the next few years. Future returns are projected to be 7.50% annually.
- All assumptions are presumed to be met in the aggregate, so that no future experience gains or losses are anticipated (other than those resulting from the smoothing of existing deferred investment gains and losses).
- The recommended contributions are determined based on the GMEBS funding policy approved by the Board.
- No changes in plan provisions are anticipated for this purpose.





# Brunswick-Glynn County Water & Sewer Authority Projected Contribution Rates

## PROJECTED CONTRIBUTION RATE

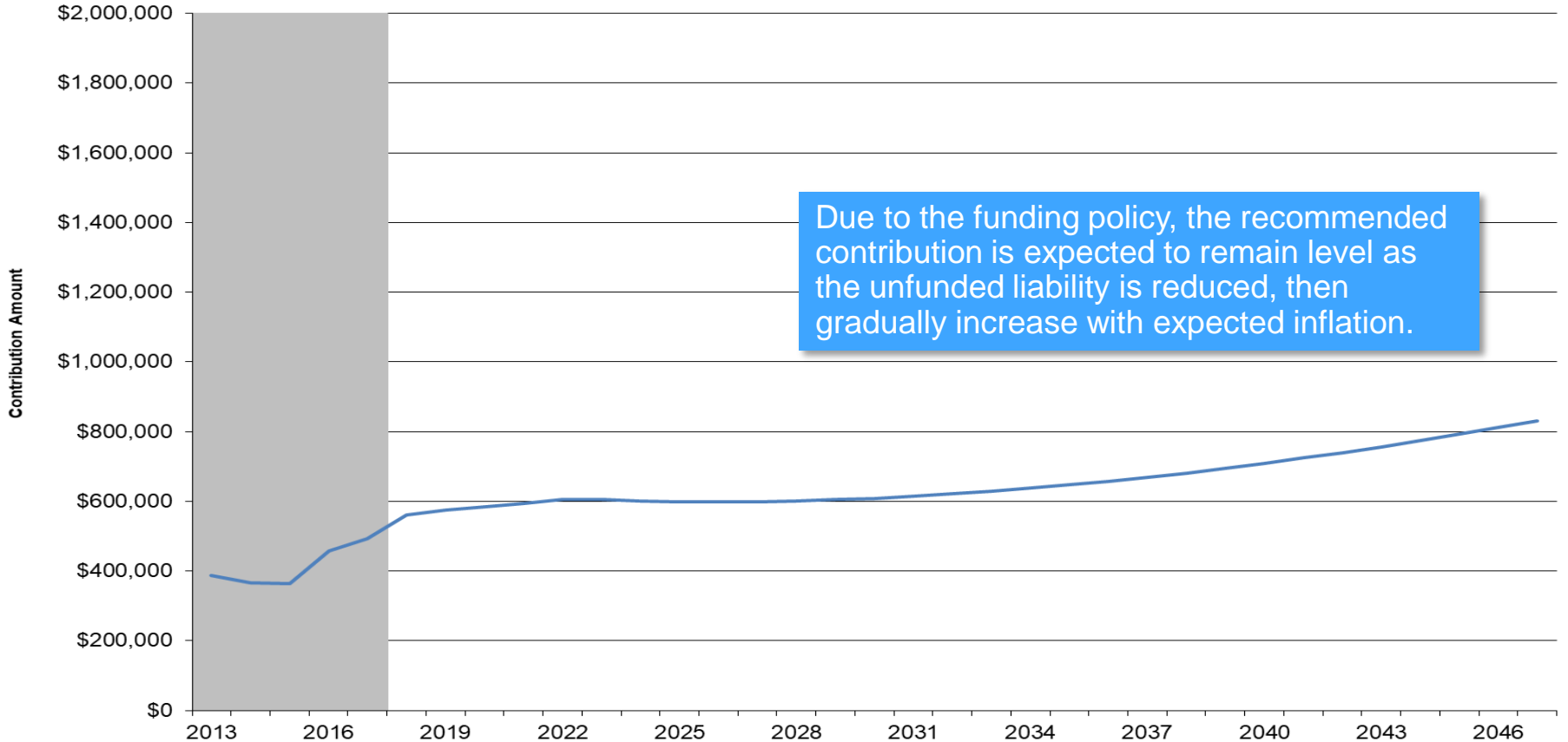


The above projections assume that plan experience will match current assumptions and that the number of active employees, their age and service will remain relatively consistent from year to year.

# Brunswick-Glynn County Water & Sewer Authority

## Projected Contribution Amounts

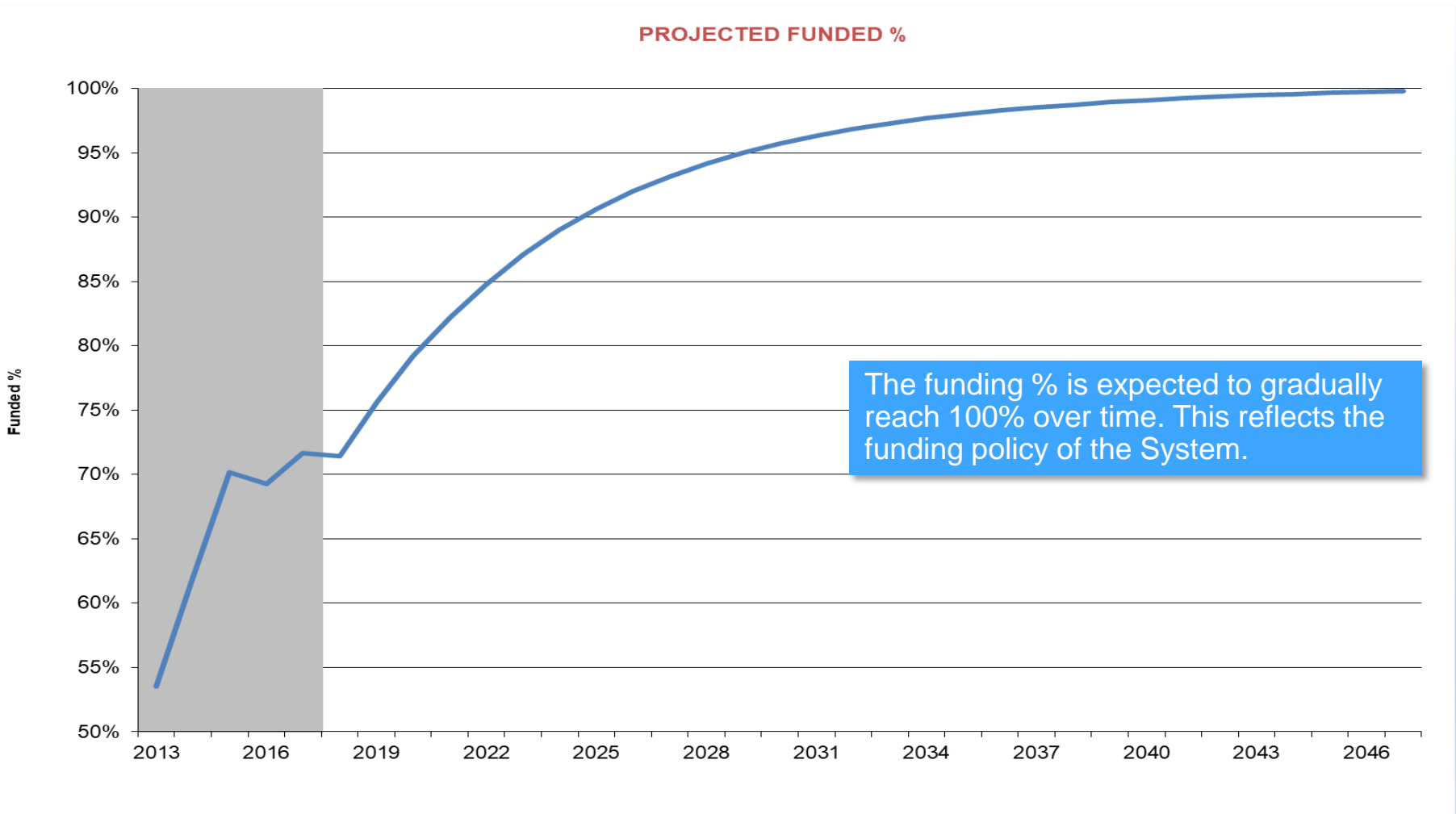
### PROJECTED CONTRIBUTION AMOUNT



The above projections assume that plan experience will match current assumptions and that the number of active employees, their age and service will remain relatively consistent from year to year.

# Brunswick-Glynn County Water & Sewer Authority

## Projected Funded Percentage



The above projections assume that plan experience will match current assumptions and that the number of active employees, their age and service will remain relatively consistent from year to year.

## Considerations for Retirement Plan Design



# Retirement Plan Structure

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- Retirement Plans fall into 2 broad categories:
  - **Defined Benefit Plans** – which focus on benefit security
  - **Defined Contribution Plans** - which focus on wealth accumulation
- **Defined Benefit Plans** include final average salary plans, career average salary plans and flat dollar plans
  - Risk generally borne by Employer
  - Risk includes: Wage inflation, Inflation risk, Interest rate, Investment risk, Longevity risk, Incentive risk, Regulatory risk
- **Defined Contribution Plans** include 401(a), 403(b), 457(b) and matching plans
  - Risk generally borne by Employee
  - Risk includes: Wage inflation, Inflation risk, Interest rate, Investment risk, Longevity risk, Incentive risk, Regulatory risk, Non-participation risk, Leakage risk, Cognitive and Will-power risk

# Setting Priorities

---



- What is the ultimate purpose in reviewing plan design?
  - If yes, by how much? As a dollar amount or as a % of pay?
- Is it to reduce contribution requirements?
  - If yes, by how much? As a dollar amount or as a % of pay?
- Is it to reallocate potential retirement risk?
  - If yes, how will responsibility for retirement income be shared?
- Is it to modify work force behavior to better coincide with management and personnel objectives?
  - If yes, how do we quantify these objectives?

# Balancing Taxpayer, Employer and Member Concerns

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## Taxpayer Concerns

- Cost

## Employer Concerns

- Mission

## Employee Concerns

- Adequacy



# Impact on Retirement

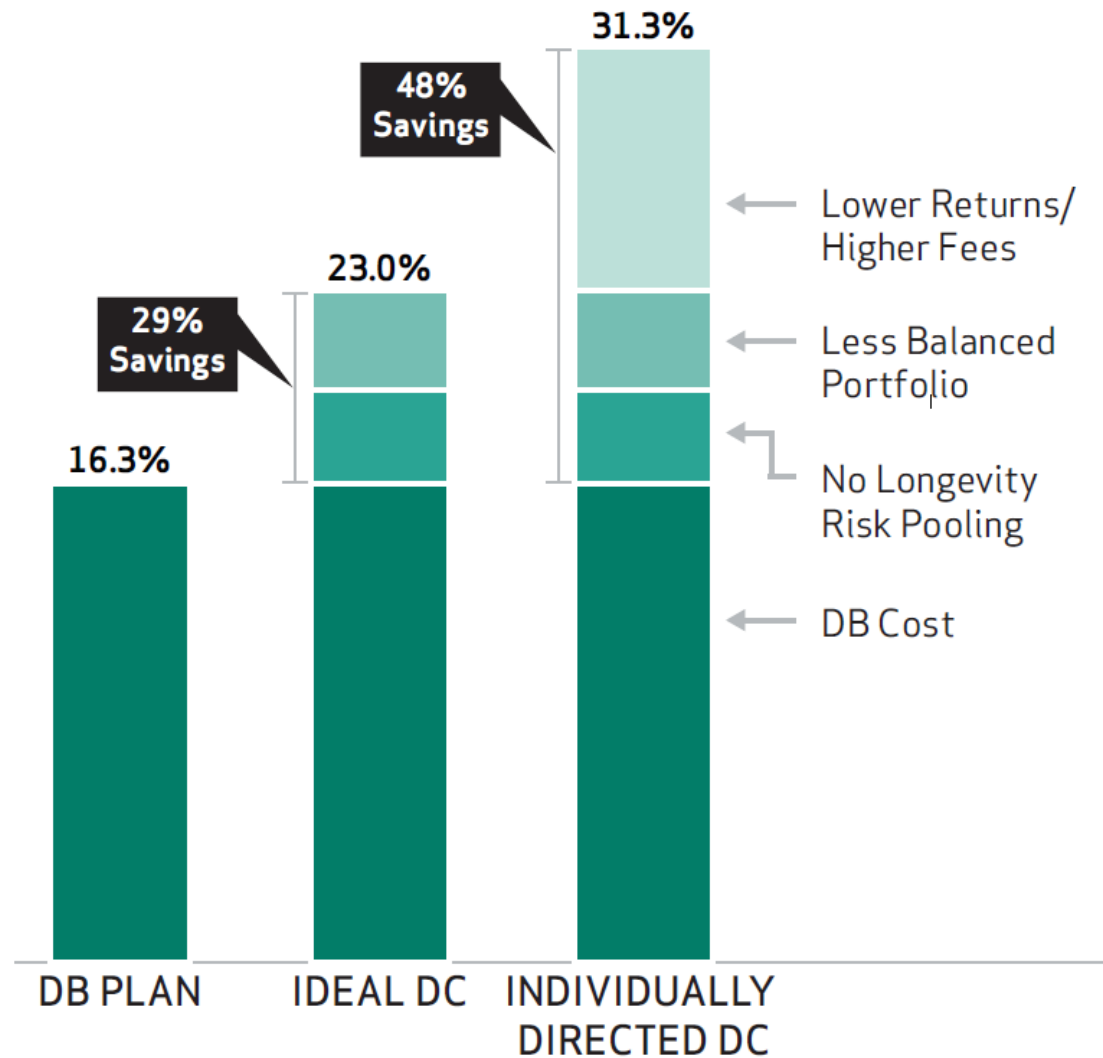
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## Case Studies

- In December 2014, the NIRS released an update of their 2008 study “Better Bang for the Buck”.
- In spite of some discussions proposing to use DC plans as the base retirement in the public sector, this study shows that the DB model is inherently more cost-efficient than DC plans.
- These efficiencies in delivering benefits are due to three structural advantages.
  - Longevity risk pooling
  - Asset allocation
  - Low fees and professional management
- Consequently, any savings from shifting from a DB plan to a DC plan results from decreasing retirement income.
- Since 2008, improvements have been made in benefit delivery for some DC plans. The Better Bang paper refers to these as “ideal DC” plans, also known as pooled DC plans.
  - These plans remove asset allocation and selection from the individual to a professional manager.
  - Even with this improvement DB plans are 29% more efficient than an “ideal” DC plan.
- The chart on the following page from “Still a Better Bang for the Buck” illustrates the impact of these structural efficiencies inherent in DB plans.
  - For an individually managed DC plan, a DB plan is 48% more cost effective in delivering benefits.
  - As noted on the prior page, the efficiency is 29% better than an “ideal” DC plan.



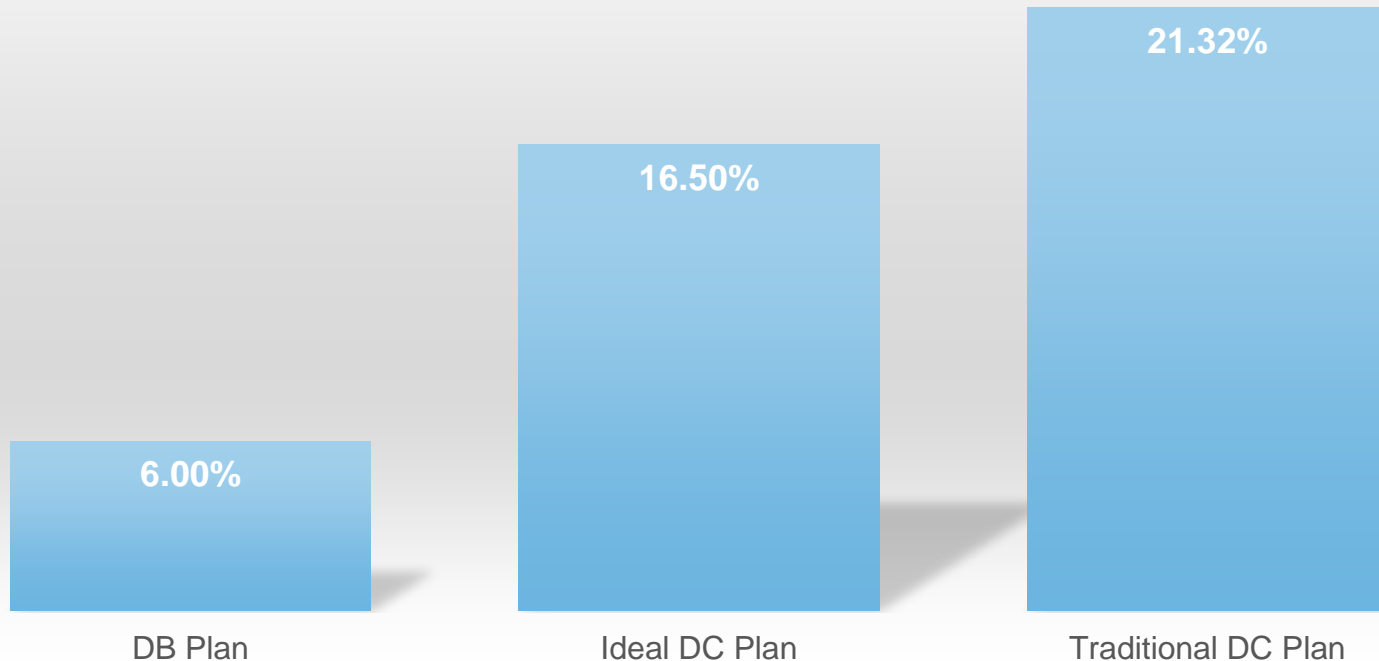
# Cost of DB and DC Plans as a % of Payroll



# Brunswick-Glynn County Water & Sewer Authority

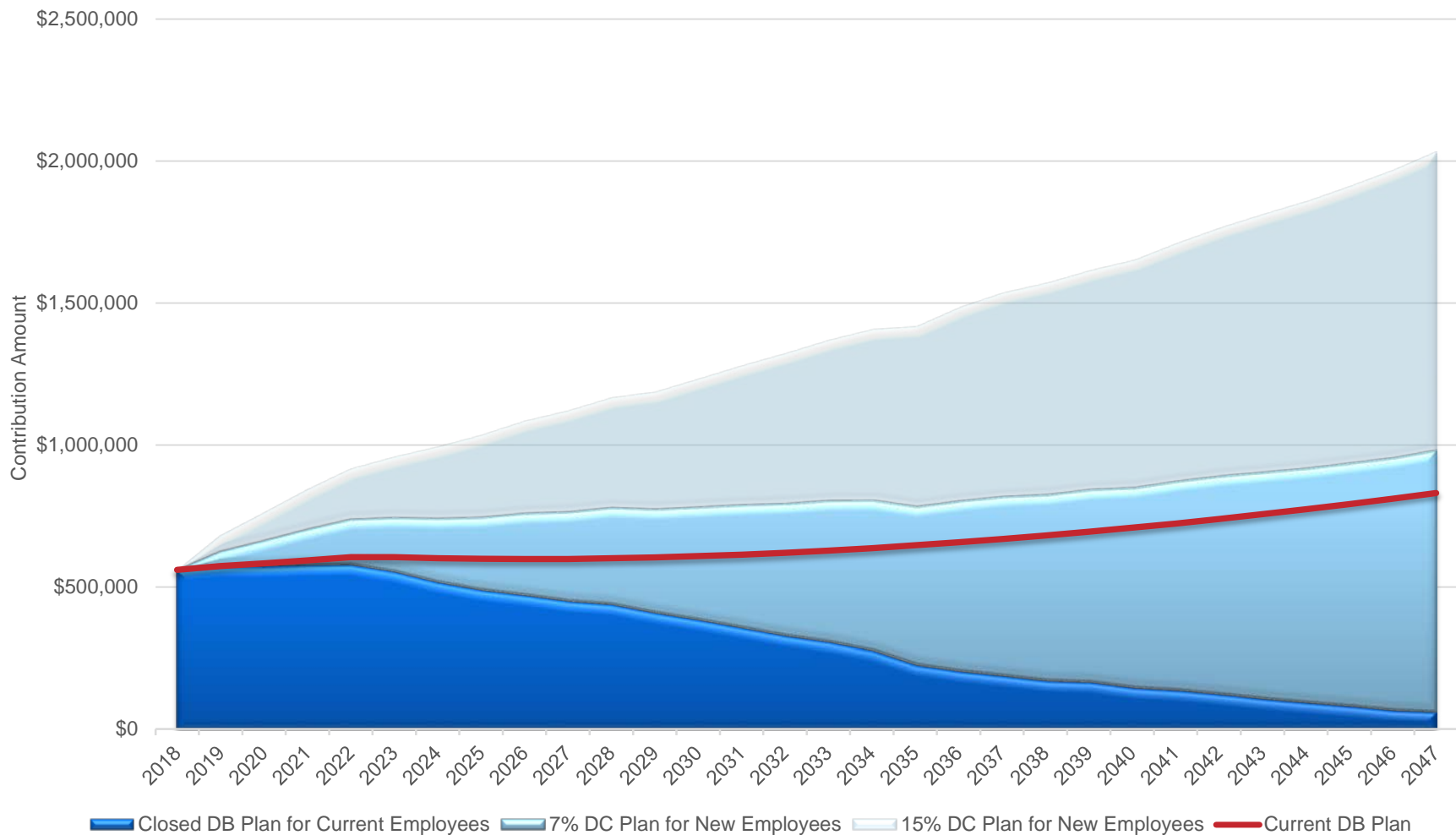
## Comparison of Sample DC Plans with Current DB Plan

Contribution Rates Necessary to Generate the Same Benefit as the Current 2% DB Plan at age 65 for an Employee Hired at Age 35



# Brunswick-Glynn County Water & Sewer Authority Impact on Retirement

## PROJECTED CONTRIBUTION AMOUNT



# Brunswick-Glynn County Water & Sewer Authority

## The Small Print

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- This presentation is intended for the use of interested parties of the Plan, and is a supplement to Segal Consulting's full valuation report for the Plan as of January 1, 2018.
- Please refer to the full valuation report for a description of assumptions and plan provisions reflected in the results shown in this presentation. The report also includes more comprehensive information regarding the System's membership, assets, and experience during the most recent plan year.
- Projections, by their nature, are not a guarantee of future results. They are intended to serve as estimates of future financial outcomes that are based on assumptions about future experience and the information available to us at the time the modeling is undertaken and completed. The projected future results included in this presentation show how the System would be affected if specific investment return, salary, mortality, turnover, disability and retirement assumptions are met. Actual results may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.
- The calculations included in this presentation were completed under the supervision of Jeanette Cooper, FCA, FSA, MAAA, EA and Malichi Waterman, FCA, MAAA, EA.

# Questions

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## Segal Consulting

2727 Paces Ferry Road, Building One, Suite 1400  
Atlanta, GA 30339  
T 678.306.3119 F 678-669-1887  
[www.segalco.com](http://www.segalco.com)

**Leon F. (Rocky) Joyner FCA, ASA, EA, MAAA**  
*Vice President and Actuary*  
[rjoyner@segalco.com](mailto:rjoyner@segalco.com)



**PROJECT REPORT: Data as of 01-31-2019**

NOTE: Funding Source and Uncommitted Funds figures are from Cash Report

Proj #	Project Name	Original Project Estimate	Proj Mgr.	Concept Design	Detail Design	Construction	BOC APPROVED FUNDING & SOURCE			BUDGET VS. EXPENDITURES						Current Phase Completion	Next Phase Length of Time	Total Project Anticipated Completion	Status				
							R&R Reserve	CIF Reserve	SPOST 2015/2016	Total Approved Funds	Purchase Orders Issued	BOC Approved Change Orders	Total PO+CO	Expenditures Paid to BOC	Expenditures Encumbered					Remaining Expenditures	Uncommitted \$\$\$ (Budget-Exp)	% Approved Budget Available	
232	SR-99 Water Main Extension	2,200,000	T. Kline	EMC	RGA / EMC	Seaboard		2,200,000			2,200,000	1,263,167	287,693	1,550,860	1,538,289	177,373	223,254	261,084	11.87%	TBD	TBD	TBD	Reviewed Ph.1 rev. w/ Seaboard. Easement docs forwarded to Seaboard for execution. Change Order will be necessary to complete Ph.1. Retainage reduced to 5%. JWSC potholing existing utilities for onsite GDOT mtg to move forward.
417	Ridgewood Water Production Facility	1,000,000	T. Kline	JWSC	RGA	TBD	1,000,000				1,000,000	0	0	0	0	0	65,943	934,057	93.41%	TBD	TBD	TBD	Awaiting prioritization for plan update/construction.
501	Alder Circle	300,000	T. Kline	JWSC	EMC	TBD	35,300		178,599		213,899	20,750	14,550	35,300	18,440	0	2,560	192,899	90.18%	TBD	TBD	TBD	SPOST V funded. All first bids declined. Pricing main crossings @ Frederica/Columbia/Windward.
503	Canal Crossing W/S Improvements	1,500,000	T. Kline	JWSC	EMC	East Coast Paving		837,836			837,836	26,393	785,193	811,586	811,443	26,393	0	0	0.00%	COMPLETE	COMPLETE	COMPLETE	Awaiting Final Pay Request from Glynn County.
602	Holly Street	650,000	T. Kline	JWSC	HHNT	TBD	46,000		561,795		607,795	46,700	0	46,700	41,963	0	0	565,832	93.10%	TBD	TBD	TBD	Reallocating to collection system rehab; possibly Sea Palms.
702	North Mainland Sewer Improvements - Phase 2 (PS4114/Harry Driggers/Canal Rd FM)	5,400,000	T. Kline	JWSC/EMC	TBD	TBD	1,600,000	3,800,000		5,400,000	97,625	1,995	99,620	84,575	13,752	0	5,301,673	98.18%	Winter 2019	180 days	Fall 2020	Mandatory pre-proposal meeting to held on 1/29/2019. Proposals due on 2/13/2019. 02/20/19.	
702	North Mainland Sewer Improvements - Phase 3 (Phase 2 downstream; PS4036 fmain to Academy WWTP)	5,400,000	T. Kline/ R. Juliano	JWSC	TBD	SE Pipe/ TBD	1,600,000	3,800,000		5,400,000	48,675	3,650	52,325	52,325	55,449	11,476	5,280,750	97.79%	Winter 2019	30 days	Fall 2020	Southeast Pipe Survey Inc. CCTV work in progress.	
703	PS 4003 Decommission and Gravity Sewer	3,300,000	T. Kline	JWSC	TBD	TBD		3,300,000		3,300,000	3,615	0	3,615	3,615	0	3,589	3,292,796	99.78%	Winter 2019	120 days	Fall 2020	Design bids received on 01/23/2019. Staff recommendation to BOC 02/07/19	
704	Canal Road to Glynco 12" Watermain Loop	1,200,000	T. Kline	JWSC	JWSC	TBD	1,200,000			1,200,000	48,000	0	48,000	48,000	0	0	1,152,000	96.00%	TBD	TBD	TBD	Design at concept stage. Utilize surplus 12" C900 PVC material. Connect Glynco Pkwy. to Canal Rd. loop; JWSC engr. & const. Installation under Altamaha Canal complete.	
801	FEMA Hazard Mitigation-Academy Creek	3,188,000	A. Burroughs	Haggerty	TBD	TBD	3,188,000			3,188,000	33,908	0	33,908	28,083	0	60,099	3,099,818	97.23%	TBD	TBD	TBD	Pre-Applications have been approved. Final applications due 1/31/2019.	
804	Magnolia Water Improvements	1,150,000	T. Kline	JWSC	City of BWK / EMC	TBD	1,150,000			1,150,000	117,050	0	117,050	25,571	91,479	0	1,032,950	89.82%	Winter 2019	270 days	Winter 2019	City Project/contract. Adding bid alternate for new 12" WM along Habersham. Additional survey by EMC in progress; awaiting plan revisions.	
805	L Street Water Improvements	650,000	T. Kline	JWSC	City of BWK / EMC	TBD	650,000			650,000	40,700	0	40,700	29,200	11,500	0	609,300	93.74%	Winter 2019	180 days	Fall 2019	COB Project/contract. Staff recommendation to BOC 02/07/19 with main size/price reduction.	
806	Academy Creek Oxygen System Rehab	650,000	A. Burroughs	HGB	HGB	TBD	1,040,000			1,040,000	989,060	9,690	998,750	47,099	942,113	0	50,788	4.88%	120 days	N/A	120 days	Pre Construction Meeting 1-30-2019; in progress.	
807	SSI Phase I Smoke & Dye Testing	150,000	R. Juliano	TBD	TBD	TBD	150,000			150,000	0	0	0	0	0	0	150,000	100.00%	TBD	TBD	TBD	Staff reviewing draft RFP.	
901	Lift Station 3114 Upgrades Phase 1	60,000	K. Young	JWSC	JWSC	JWSC		60,000		60,000	53,600	0	53,600	26,856	26,744	0	6,400	10.67%	TBD	TBD	Spring 2019	SP&M In-house Project. Panels ordered.	
902	Friendly Express #71 W & Fmain Ext/Coop Agreement	200,000	T. Kline	JWSC	CES ENGR.	Developer		220,000		220,000	217,915	0	217,915	0	217,915	0	2,085	0.95%	Winter 2019	N/A	Winter 2019	Water/Fmain install COMPLETE. C/O approved for store; opening Thursday. Minor revisions to accommodate first proposed commercial customer north side of Hwy303. Possible W&S easement extension to US341.	
903	SR 27 Resurfacing from Yellow Bluff Creek to US 25	77,000	T. Kline	JWSC/GDOT	GDOT	GDOT	77,000			77,000	0	0	0	0	0	0	77,000	100.00%	TBD	TBD	TBD	No update from GDOT.	
904	Lift Station 4021 Improvements	275,000	T. Kline	JWSC	JWSC	TBD	275,000			275,000	0	0	0	0	0	0	275,000	100.00%	TBD	TBD	Summer 2019	In-House Engineering in progress.	
905	Glynn County Village Storm Improvements Phase 1	60,000	T. Kline	JWSC	GWES/ GlynnCo	Hiers/Griffin Utility	60,000			60,000	0	0	0	0	0	0	60,000	100.00%	Winter 2019	60 days	Winter 2019	Glynn Co project. Contractor installing storm drains along Butler Av. Utility WM relocation Butler Av. complete. ~30 lf. new main installed.	
Total Applied to Projects:							7,319,300	8,069,836	11,640,394														

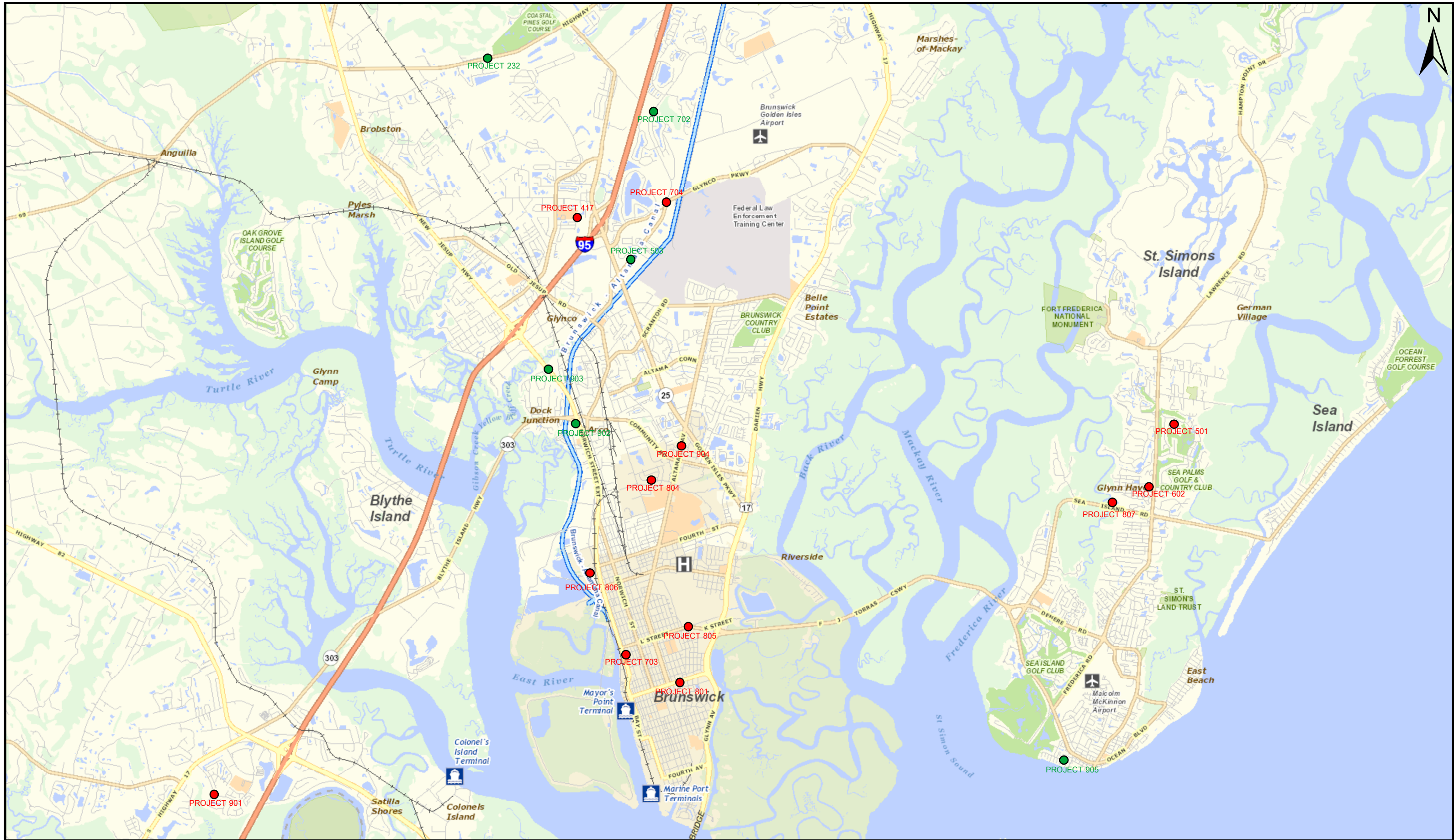
UNSELECTED PROPOSALS	DESCRIPTION	Concept	Application	Preliminary Engineering Report (PER)	Comprehensive Agreement	Project Value	Capital Fees Generated	STATUS
Sinclair S/D residential development (SSI)	121 Lot S/D; proposed improvements to PS2056 and force main.	Complete	Complete	Complete	Complete	*	*	Development still in planning review with Glynn County.
Bergen Woods Apartments	Proposed 252 apartment development; PS4105 and force main improvements.	Complete	Complete	Complete	Complete	*	*	Waiting on offsite forcemain & PS improvement plans for approval.
Frederica Township	Downstream upgrades to accommodate 200 additional lots; cooperative w/ Sinclair U.P.	Complete	Complete	Complete	Complete	*	*	Waiting on offsite forcemain & PS improvement plans for approval.
Oak Grove/Carolina Partners	Force main improvements to serve proposed development on Oak Grove Island.	Complete	Complete	Complete	Under review	*	*	Pending BOC approval.
PS 4107/4105 and FM Upgrade (CONCEPT)	PS and forcemain upgrades to serve multiple proposed developments/growing area.	Under eval.				*	*	JWSC defining solution; in discussion with several projects within basins.

<b>BULL PEN (Proposed)</b>	
Glynn County Village Storm Improvements-Phase II 5-Year Plan List of Projects Currently Under Review	Opportunity project with Glynn County to replace/upgrade sections of W&S in common with areas of storm improvements. (PENDING JWSC BOC APPROVAL)

Uncommitted Funds (Available)	R&R	CIF	SPOST
	3,010,336	654,972	0

COMPLETED/REMOVED FROM LIST		
213 NM WTP NPDES Permit	418 Southport Water Production Facility	705 Hautala to Old Jesup Watermain Loop
225 CMMS System Upgrade	419 Canal Rd to Old Jesup W/S Improvements	706 Dunbar Creek WWTP Project Evaluation
301 SCADA Upgrade Project	424 Low Pressure Sewer Design-Community Rd	707 Academy Creek WWTP Project Evaluation
304 SSI Village Area Water Improvements	425 Low Pressure Sewer Design-Epworth Acres	708 Academy Creek WWTP Odor Control
319 Urbana	504 Canal Rd Pump Station	709 Mainland Sewer Transmission Sys Cap
421 Mansfield	505 Lift Station 2032 and Forcemain	710 LF 2002 Upgrades
403 SCADA Upgrade	701 PS 4048 Force Main Improvements	802 VT SCADA
409 LS 2030 and FM Rehab	702 North Mainland Sewer Improvements Ph 1	803 SSI Sanitary Sewer Flow Monitoring
413 Frederica/Atlantic Sewer & FM Rehab		
416 Hampton Water Production Facility		





Any information provided by the JWSC relating to the size and location of existing utilities (i.e. GIS maps, records, drawings, etc.) are offered to assist the designers and others in identifying available points of connection. Such information is offered for the user's information only and is not guaranteed. Use of such information for detailed design purposes without proper field verification shall be at the users own risk. Created by H. Patel

**BRUNSWICK-GLYNN JOINT WATER & SEWER COMMISSION**  
 1703 GLOUCESTER STREET, BRUNSWICK, GA 31520  
**JWSC R&R/CAPITAL PROJECTS - 02/01/2019**

- CONSTRUCTION IN PROGRESS
- DESIGN IN PROGRESS

