Agenda

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

October 25, 2011, 9:00 a.m.

Our Mission is to protect public health and enhance the environment of our service community by providing clean water services of exceptional quality and value.

Our Vision is to become, by 2012, an organization worthy of a SC Governor's Quality Award achieved through teamwork, customer focus, and performance excellence.

Our Core Values Teamwork • Ethical Behavior & Integrity • Accountability • Customer Service Focus • Open & Honest Communication • Innovation

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

Mr. Thomas B. Pritchard, Chairman

October 25, 2011

I. Call to Order

II. Compliance With Public Notice – Mr. Pritchard

III. Invocation – Mr. Waring

IV. Pledge of Allegiance – All present

V. Adjourn to Committee Meetings, followed by Commissioners Meeting

Charleston
Water System

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

Public Contract and Finance Committee
Mr. Thomas B. Pritchard, Committee Chairman

October 25, 2011

I. Call to Order

II. Approval of Minutes of Committee Meeting of September 27, 2011

III. Review of Quarterly Revenue Data – Ms. Tricia Willcutt

Ms. Willcutt will present additional detailed financial data for the Commissioners concerning CWS's revenue in the previous calendar quarter. *(Information Only)*

IV. Presentation of 2012 Budget – Mr. Ropp / Ms. Hans / Mr. Hill

Mr. Ropp, Ms. Hans, and Mr. Hill will present the 2012 Budget for the Commissioners' consideration. Following the detailed presentation and any subsequent discussion, Mr. Ropp and Mr. Hill will request a motion to be made to approve the 2012 Budget as presented. *(Motion Requested)*

V. Adjournment

Charleston Water System

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

Administrative, Personnel, and Public Relations Committee
Mr. William E. Koopman, Jr., Committee Chairman
October 25, 2011

I. Call to Order

II. Approval of Minutes of Committee Meeting of September 27, 2011

III. Bill Inserts - Ms. Craft – Exhibit A

December 2011

- **Charleston Water System's *Water Wise* Customer Newsletter**
- **Medical University of SC Children's Hospital – *2011 Kids Helping Kids Holiday Card Project***

(Motion Requested)

IV. Charleston Water System Recognition

- 2011 Best Places to Work in South Carolina – October 4, 2011 – Mr. Atkinson/Mr. Hill
- SC Governor's Quality Award Recognition – October 26, 2011 - Exhibit B / Exhibit C

V. Outreach Programs – Ms. Craft

- **Customer Service Week – October 2-7, 2011**
- **Lowcountry Pink for the Cure Mural Competition**
- **Trident United Way – Mr. John Atkinson**

(Information Only)

VI. Adjournment

Charleston Water System

Charleston Water System

INTEROFFICE COMMUNICATION

"EXHIBIT A"

October 13, 2011

To: Commissioners and Officers

From: Jenny Craft, Public Relations Manager

Re: Bill Inserts

In accordance with Charleston Water System's approval process for bill inserts, the following bill inserts are submitted for your approval:

December 2011

- **Charleston Water System's *Water Wise* Customer Newsletter**
- **Medical University of SC Children's Hospital – *2011 Kids Helping Kids Holiday Card Project***

Should you have any questions or concerns, please feel free to contact me prior to or during our Board meeting.

Attachments

DRAFT

Water Wise

The Quarterly Newsletter of Charleston Water System | Volume 6, Issue 4 | December 2011

2012 Water and Sewer Rates

Average 5% increase

Charleston Water System's water and sewer rates increased by an average of five percent on December 1st. The increase will appear in your January bill.

The increases will fund the replacement of failing and undersized infrastructure, including the $50 million West Ashley Sewer Tunnel replacement, as well as operation and maintenance of existing infrastructure.

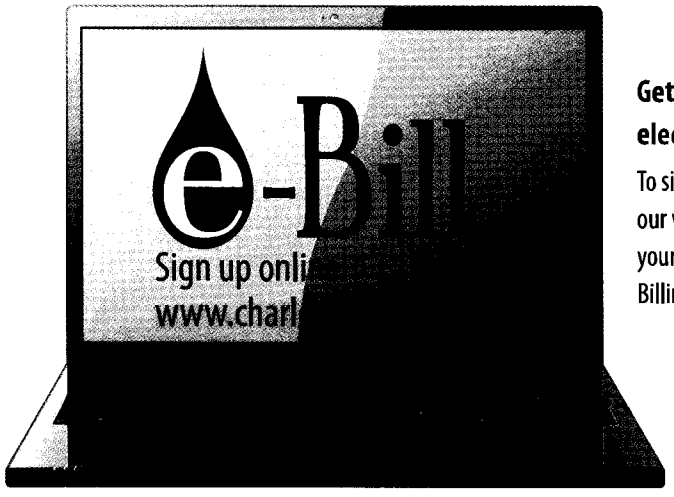
How much will my bill go up?

It depends on where you live and how much water you use. The table below shows the monthly increase for the typical residential customer, who uses 5,200 gallons of water a month, and a residential customer who uses the monthly minimum of 1,500 gallons.

Where you live	CWS service	Use 5,200 gal/month	Use 1,500 gal/month
Inside the City of Charleston	Water & sewer	$3.40	$1.95
Outside the City of Charleston	Water only	$1.35	$1.35
	Water & sewer	$5.27	$3.25

This is the second in a series of three rate increases, which were approved by Charleston Water System's Board of Commissioners last September. Rates will increase by an average of five percent again next December.

For more information, visit www.charlestonwater.com.



Get your bill electronically!

To sign up for e-Bill, visit our web site and log in to your account, then select Billing Options.

Charleston Water Receives Top Honors

SC Governor's Quality Award, 2011
Best Places to Work in SC

A focus on quality and continual improvement has earned Charleston Water System statewide recognition from the South Carolina Quality Forum and Chamber of Commerce.

In October, Charleston Water received the prestigious *SC Governor's Quality Award*, which recognizes organizations that achieve excellent performance through implementing the Malcolm Baldrige Criteria for Performance Excellence.

Also in October, Charleston Water was named one of the ten Best Places to Work in South Carolina in the large companies category.

Photo of Oct 26th Award Presentation

On October 26th, Charleston Water System associates accepted the 2011 Governor's Quality Award at the annual SC Quality Forum Conference in Columbia.

Charleston Water System

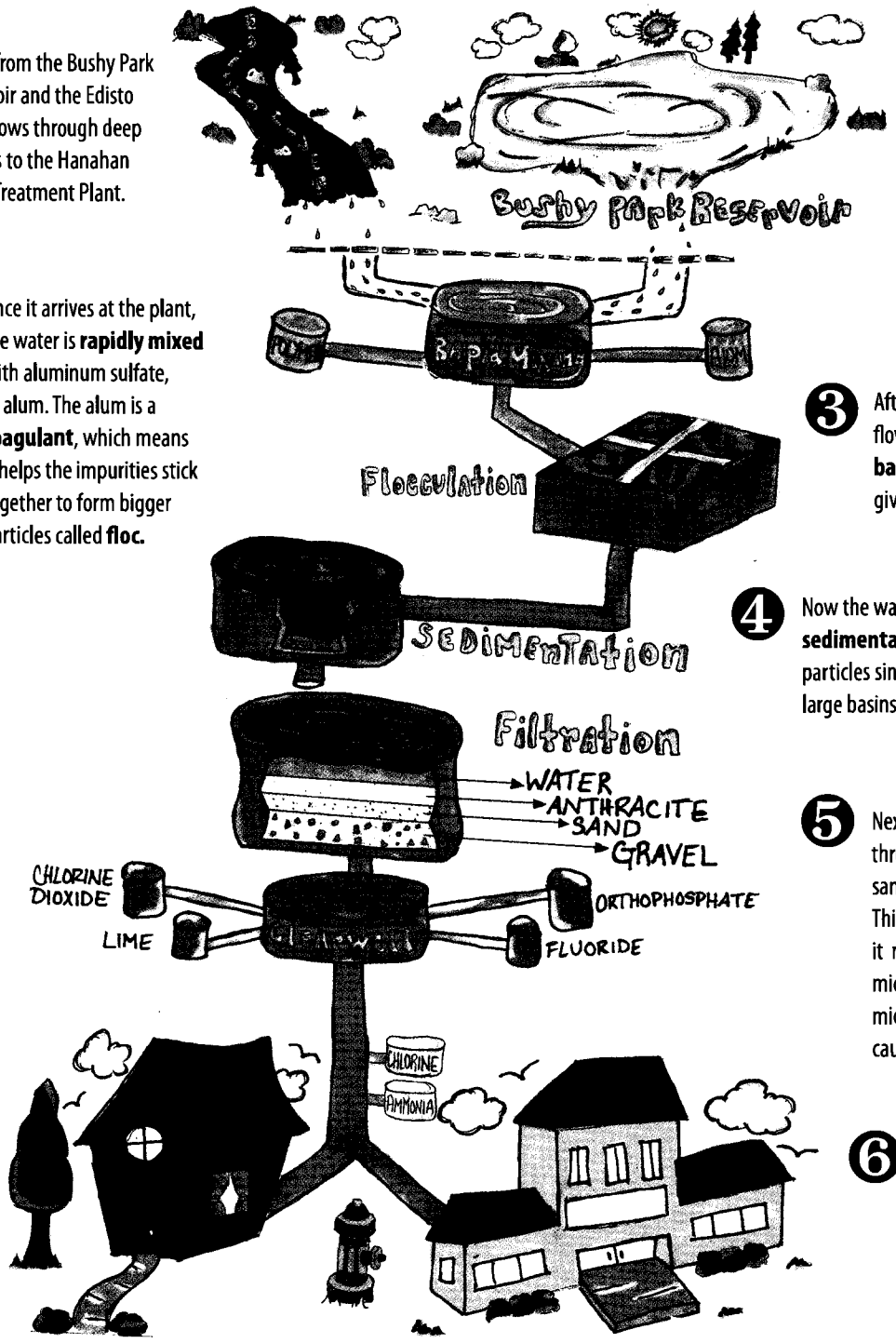
103 St. Philip Street • PO Box B • Charleston, SC 29402 • (843) 727-6800 • www.charlestonwater.com

Water Wise
The Quarterly Newsletter of Charleston Water System

The Water Treatment Process

1 Water from the Bushy Park Reservoir and the Edisto River flows through deep tunnels to the Hanahan Water Treatment Plant.

2 Once it arrives at the plant, the water is **rapidly mixed** with aluminum sulfate, or alum. The alum is a **coagulant**, which means it helps the impurities stick together to form bigger particles called **floc.**



3 After rapid mixing, the water flows into **flocculation basins,** where the floc is given time to grow bigger.

4 Now the water is ready for **sedimentation.** The heavy floc particles sink to the bottom of large basins and are removed.

5 Next, the water travels through large filters made of sand, gravel, and anthracite. This is called **filtration,** and it removes any remaining microscopic particles and microorganisms that can cause sickness.

6 Finally, the water is **disinfected** to protect it against bacteria and fluoride is added to help prevent tooth decay.

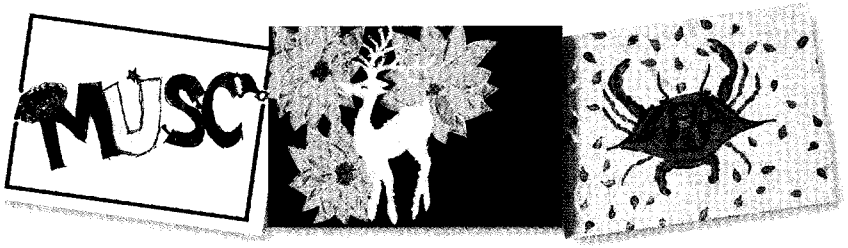
7 The clean water is then pumped into pipes that deliver it to more than 100,000 homes and businesses in the Tricounty area.

Illustration by Christine Grant and text by Gretchen Trees, associates at the Hanahan Water Treatment Plant.

2011 Kids Helping Kids Holiday Card Project

Invest in a healthier future for our children by purchasing our exclusive 2011 collection of holiday cards.

All proceeds benefit MUSC Children's Hospital



2011 Kids Helping Kids Holiday Card Project

Please email **dormanm@musc.edu**
or visit us online at
www.musckids.com/holidaycards
to place an order or
to receive information
about bulk card orders.

MUSC
Children's Hospital

ORDER YOUR HOLIDAY CARDS TODAY!

Each pack contains 15 original cards of assorted artwork contributed by MUSC Children's Hospital patients and their siblings as well as young friends of the Children's Hospital.

Internal Revenue Service
P.O. Box 2508
Cincinnati, OH 45201

Department of the Treasury

Date: JUL 11 2006

THE MEDICAL UNIVERSITY OF SOUTH CAROLINA
FOUNDATION
PO BOX 250450
CHARLESTON, SC 29425-0450

Person to Contact:
Roger Meyer
ID# 31-07707
Toll Free Telephone Number:
877-829-5500
Employer Identification Number:
57-6028985

Dear Sir or Madam:

This is in response to the amendment to your organization's Articles of Incorporation filed with the state on June 5, 2006. We have updated our records to reflect the name change as indicated above.

Our records indicate that a determination letter was issued in September 1966 that recognized you as exempt from Federal income tax. Our records further indicate that you are currently exempt under section 501(c)(3) of the Internal Revenue Code.

Our records also indicate you are not a private foundation within the meaning of section 509(a) of the Code because you are described in section 509(a)(3).

Donors may deduct contributions to you as provided in section 170 of the Code. Bequests, legacies, devises, transfers, or gifts to you or for your use are deductible for federal estate and gift tax purposes if they meet the applicable provisions of sections 2055, 2106, and 2522 of the Code.

If you have any questions, please call us at the telephone number shown in the heading of this letter.

Sincerely,

Cindy Westcott

Cindy Westcott
Manager, Exempt Organizations
Determinations

The Children's Hospital Fund Mission

The Children's Hospital Fund has played a major role in facilitating the development of programs within the Children's Hospital. Since its inception, the Children's Hospital Fund enlisted community support for three primary purposes. The first is to support research in the prevention and treatment of childhood diseases. The second purpose is to support the development of treatment programs within the Department of Pediatrics. This function includes the recruitment of specialized physicians in order to expand the range of treatment available to the community. The third purpose is to support the Child Life Division of the Hospital with toys, games, art supplies and other materials to entertain children and make their visit more pleasant. Through major grants it has made possible the establishment of outstanding divisions of Hematology/Oncology, Endocrinology, Gastrointestinal/Nutrition, Critical Care, Pulmonology and the revitalization of Cardiology division.

Private sector funds are not solicited to underwrite the operational costs of the Children's Hospital. State appropriations, along with income from insurance as well as Medicade, sustain the cost of running the hospital. The doctors and the other faculty are employees of the medical school. They work "in" the hospital, not "for" the hospital.

MUSC
Children's Hospital

Discovering. Understanding. Healing.

CHILDREN'S HOSPITAL TOP FACTS

- The Children's Emergency Department is ranked as the ninth best pediatric emergency care facility in America by *Child* Magazine.

- Overall, MUSC Children's Hospital is ranked in the top 28 Children's Hospitals in the country by *Child* Magazine.

- Our Neonatal Intensive Care Unit was ranked in the top 10 Children's Hospitals by *Child* Magazine.

- The Darby Children's Research Institute is one of only 15 research institutes in the country dedicated to children's research. Over the past five years, there have been over 500 new discoveries, and each year over $25 million in funded research; resulting in better treatments and care for the children we treat.

- We provide all the transplants for children in the State which includes: kidney, liver, bone marrow, and heart.

- Our Children's Heart Program was ranked in the top 20 programs nationally *by US News and World Report* in their 2010 rankings. We are the primary cardiac referral Center for South Carolina – the only program providing heart surgery and interventional heart catheterization services for children. 99% of infants and children have survived heart surgical procedures at MUSC over the last 5 years.

- Our pediatric cardiac echocardiography is a national and world leader in specific techniques.

- We are the State's only burn program for children.

- We treat over 60 percent of the cancer patients in South Carolina.

- We have the <u>only</u> pediatric bone marrow transplant program in South Carolina, Currently, our program is undergoing growth and expansion. Since July 2007,

referrals have increased by 62% and we have doubled the number of transplants from the previous year.

- We conduct 20 or more transplants a year placing us in the top third of pediatric transplant centers in the Pediatric Blood and Marrow Transplant Consortium, a national organization. We do all types of transplants and this year have done the first ever haploidentical or "half-matched" bone marrow transplant at MUSC. This is exciting because basically if you have a mom, dad, or sibling you are guaranteed to have at least a half-match and therefore a donor so it really opens up the doors for more patients to have options.

- We have the most successful, nationally recognized teen pregnancy program in the country.

- We have a community and school program targeting childhood and adolescent obesity, the Lean Team with a website of resources for families (www.musc.edu/leanteam)

- Our care is specifically geared for the needs of Children and their families. No child, rich or poor, is denied the finest care available. Many are facing serious, chronic, congenital, or life-threatening conditions, yet thanks to this care, they are able to hope for a brighter tomorrow.

- We have 161 beds in the Children's Hospital including 66 nursery beds.

- Our Emergency Department has approximately 19,500 visits annually approximately 50 – 54 per day.

- Yearly Hospital Admissions are over 6,000 and our clinics had approximately 100,000 visits in 2009.

- MUSC Children's Hospital is staffed by a team of more than 120 physicians and hundreds of nurses and other health related professionals.

- Our Pediatric residency program trains 14 new pediatricians per year.

All of this is made possible through the generosity of private donors, like you, in the community, who give unselfishly, knowing their families may never need our help.

"EXHIBIT B"

SOUTH CAROLINA QUALITY FORUM
University of South Carolina Upstate • 800 University Way • Spartanburg, SC 29303
Phone:1-888-231-0578 • Fax: 864-503-5995 • Web: www.scquality.com
An Affiliate of the South Carolina Chamber of Commerce

September 23, 2011

Charleston Water System
Attn: Mr. Kin Hill
103 St. Phillip St.
Charleston, SC 29403

Dear Mr. Hill,

On behalf of the South Carolina Quality Forum, I would like to formally congratulate Charleston Water System on being recognized as the Governor's Quality Award Winner for the 2010 - 2011 South Carolina Governor's Quality Award cycle.

Additionally, there is one Explorer Award to present this year. Goodwill Industries of Upstate/Midlands South Carolina, Inc. began their South Carolina Baldrige journey this year and will be recognized at the October 26, 2011 conference. You and each associate of Charleston Water System should take great pride in this accomplishment.

Thank you for participating in this process to improve the quality of products and services provided by South Carolina organizations. You are to be commended. You have already taken a significant step in the journey to continuous improvement. By early October you will receive your feedback report and we urge you to utilize the information contained in the report and continue to make improvements. Upon your request, a face-to-face review of the feedback report can be arranged with your Lead Examiner and one Judge by calling Jeanette Reeves of the Quality Forum, (888) 231-0578. The deadline for this request is November 12, 2011.

This year's award ceremony is October 26, 2011 at the Columbia Conference Center in Columbia, SC. We hope you and many of your associates will attend this year's South Carolina Quality Conference. The price for participation of winners is $80.00 per person. Please see our web site at www.scquality.org for registration information and indicate that you are an applicant registrant. As an award winner, your organization is asked to participate as a presenter during this day of celebration and sharing of information. Bridget Dewees, Conference Chair, will be in touch with you for our needs of you for the conference.

I look forward to seeing you at the conference. If you need any additional information or assistance, please contact Jeanette Reeves.

Sincerely,

Suzanne W. Rast
Chair, South Carolina Quality Forum

"EXHIBIT C"

SOUTH CAROLINA QUALITY FORUM
University of South Carolina Upstate • 800 University Way • Spartanburg, SC 29303
Phone:1-888-231-0578 • Fax: 864-503-5995 • Web: www.scquality.com
An Affiliate of the South Carolina Chamber of Commerce

October 3, 2011

Mr. John Atkinson
Human Resources Director
Charleston Water System
103 St. Philip Street
Charleston, SC 29403

Dear Mr. Atkinson:

Please forward my sincere appreciation to Mr. Jim Meeks for his exemplary performance while serving as a South Carolina Baldrige Examiner in support of our 2011 Governor's Quality Awards cycle. His dedicated and enthusiastic participation in our examiner training program, valuable insights and contributions in evaluating our award applicant, and outstanding support to his team members throughout this process contributed immeasurably towards the teams' production of a totally professional and comprehensive organizational performance assessment of the award applicant's organization.

In addition, through his attention to detail, flexibility, and personal attention to any and every question posed or request for assistance made by his team members, Mr. Meeks clearly demonstrated his in-depth understanding of the national Baldrige Criteria and his immense value as a team member.

In my over 20 years of having worked with and in support of the Baldrige process, on a both national and state level, I have rarely seen the dedication, teamwork, and remarkable desire to help improve South Carolina organizations, as has been displayed by Mr. Meeks. He is, without question, a tremendous asset to the South Carolina State Quality Forum and its Board of State Baldrige Examiners. I am also certain that you will find his experience and knowledge on organizational excellence and the Baldrige process a tremendous benefit and resource to your own organization.

Sincerely,

Clive G. Monjo
Chair, Judges Panel
South Carolina Quality Forum

cc: Mr. Kin Hill, Ms. Dorothy Harrison

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

Regulatory and Property Committee
Mr. David E. Rivers, Committee Chairman

October 25, 2011

I. Call to Order

II. Approval of Minutes of Committee Meeting of September 27, 2011

III. Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA) Monitoring Results – Jane Byrne, PhD

Dr. Byrne will present recent Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA) analytical results conducted by the SC Department of Health & Environmental Control. *(Information Only)*

IV. Adjournment

Charleston Water System

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

Mr. Thomas B. Pritchard, Chairman

October 25, 2011

I. Reconvene Commissioners' Meeting after conclusion of Committee Meetings

II. Approval of Minutes of Meeting of September 27, 2011

III. Citizens Participation/Public Comment

IV. Monthly Customer Service Activity and Financial Report – Ms. Ferguson / Mr. Ropp

V. November/December Board Meetings – Mr. Hill

Mr. Hill will inform the Commissioners that the next Board meeting is scheduled for Tuesday, November 22, 2011, two days before Thanksgiving. The December meeting is scheduled for Tuesday, December 27, 2011. Staff recommends that the December Board meeting date be rescheduled to December 20, 2011.

VI. CEOs / Staff Report

A. **Strategic Plan Team Presentation #1; Asset Management** - Mr. Rick Bickerstaff

VII. Reports of Standing Committees – Ms. Harrison

A. Public Contract and Finance Committee Meeting of October 25, 2011
B. Administrative, Personnel and Public Relations Committee Meeting of October 25, 2011
C. Regulatory and Property Committee Meeting of October 25, 2011

Charleston Water System

Meeting of the Commissioners of Public Works
of the City of Charleston, South Carolina
(Charleston Water System)

Mr. Thomas B. Pritchard, Chairman

October 25, 2011

VIII. Major Capital Project Requests - Mr. Cline

A. HWTP Stoney Filter Rehabilitation Engineering Services Agreement for Basis of Design – Exhibit D
B. Pump Station 77 Rehabilitation Engineering Services Agreement Amendment – Exhibit E
C. Future Drive 24-Inch Water Main Extension Phase II Engineering Services Agreement – Exhibit F
D. Lockwood Boulevard Sewer Replacement - Ashley Marina to Crosstown Expressway Engineering Services Agreement – Exhibit G

IX. Citizens Participation/Public Comment

X. Executive Session

Mr. Hill may request that the Commissioners move to enter into Executive Session to discuss legal and/or contractual matters.

XI. Adjournment

Charleston Water System

INTEROFFICE COMMUNICATION

"EXHIBIT D"

TO: Mark Cline, P.E.
Capital Projects Officer

FROM: Russell L. Huggins, Jr., P.E. RLH
Director of Engineering

DATE: October 19, 2011

RE: Stoney Filters Rehabilitation Project
Engineering Services Contract

In order to refine the major capital improvements program (MCIP), Charleston Water System (CWS) prepared master plans for the primary operational areas; the water treatment plant, the wastewater treatment plants, the water distribution system, and the wastewater collection system. The master plans address CWS's operational needs such as meeting foreseeable regulatory requirements, treatment process improvements, meeting capacity increases due to growth, and replacement or rehabilitation of aging infrastructure. This information was used to develop and support a MCIP based on prioritization of identified needs, and to secure bond market funding. As a part of the Hanahan Water Treatment Plant Master Plan, a physical facilities assessment task was performed consisting of a review of the existing filtration equipment and support facilities including the underdrains, tubs and washwater troughs, structural integrity, piping and valves, mechanical systems, electrical and instrumentation system, and backwash supply and filter to waste capabilities. Results of the assessment recommended rehabilitation of the existing Stoney filters to include installation of new filter underdrains and media, replacement of existing hydraulic cylinder valve actuators with electric actuators, and associated electrical, and mechanical improvements.

Originally constructed in 1962, the Stoney Filter Building was expanded to its present size in 1978. The original eight filters are conventional dual media filters with Wheeler Bottom underdrains. The twelve filters that were added in 1978 are also conventional dual media filters, but have a proprietary Hydracone underdrain system. The useful life for Wheeler type underdrains is generally 40 years and the original eight Stoney filters are nearing the end of their usable lifespan. Of the remaining twelve filters with Hydracone underdrains, several of these filter underdrain systems have experienced common structural failures in recent years, demonstrating that these too are nearing the end of their service life. Furthermore, finding replacement parts for the proprietary system is becoming increasingly more difficult.

To effectively address rehabilitation of the Stoney filters, a Basis of Design Report (BODR) is required to effectively evaluate and identify rehabilitation/replacement alternatives. Included in the BODR will be the following: 1) Detailed condition assessment and evaluation of the existing Stoney filter underdrain systems, filter tubs, washwater troughs, filter piping and valves, and ventilation/heating/dehumidification of the filter pipe gallery; 2) Evaluation of electrical system improvements necessary to serve new electrical valve actuators to replace existing hydraulic actuators, and new ventilation/heating/ dehumidification equipment; 3) Evaluation of blower system improvements necessary for air scour with new filter underdrain options; 4) Evaluation of necessary SCADA system improvements/modifications;

5) Detailed discussion and comparison of rehabilitation/ replacement options for each system with final recommendations; 6) Detailed cost estimate (to include final design and construction) for each rehabilitation/replacement option; and 7) Project schedule for rehabilitation/replacement options to include final design, permitting, bidding, and construction phase activities.

To address this need, CWS Engineering staff publicly advertised a Request for Qualifications (RFQ) from engineering firms interested in preparing a BODR for the Stoney Filter Rehabilitation Project. A copy of the RFQ is attached. These qualification statements will allow CWS to determine which firm can provide the combination of experienced staff, relevant project experience, and necessary services that offer the best value solution to achieve our project goals.

Twelve (12) firms responded to the RFQ, from which Statements of Qualifications (SOQ) were received from the following seven (7) firms: AECOM, Arcadis, Black & Veatch, CDM, Hazen and Sawyer, URS/BPB, and Weston & Sampson. A four member panel composed of CWS Engineering and Construction staff evaluated each SOQ based on the following weighted criteria outlined in the RFQ: Prior Experience, Staff, Project Management, Local Experience and Proximity to the Work Location, and References. The SOQ evaluation process used by the panel allowed each member to individually consider the merits of each firm's SOQ using the aforementioned criteria, then as a group to discuss and compile the results of their individual evaluations. A copy of the SOQ evaluation form is attached. The final results of the SOQ evaluation identified Hazen and Sawyer (H&S) as the firm best qualified for this project. The described process for solicitation and selection of professional services is compliant with CWS procurement policy and SCLLR regulations governing professional engineers and surveyors.

Attached for your review is an engineering services proposal from H&S that outlines the necessary tasks and associated fees to provide a BODR for the Stoney Filter Rehabilitation Project. The total cost of their engineering services is $143,000. Included is an allowance of $18,000 for filter media removal from one filter in order to facilitate inspection if necessary. If approved, the scope of services will be incorporated into our standard engineering services agreement format. Therefore, it is our recommendation that the Commissioners award a contract to H&S in the amount of $143,000 to prepare a Basis of Design Report for the Stoney Filter Building Rehabilitation Project. Funding is available through the Water Major Capital Improvement Program.

Attachments

cc: Andy Fairey, Jane Byrne, PhD, Linda Hans, Larry Drolet, Don Benjamin, P.E.

EXHIBIT A

SCOPE OF SERVICES AND COMPENSATION

I. PROJECT BACKGROUND AND DESCRIPTION

The Stoney Filter Building at the Hanahan Water Treatment Plant (WTP) was originally constructed in 1962 and expanded to its present size in 1978. The building has a total of twenty filters. The original eight filters are conventional dual media filters with Wheeler bottom underdrains. Twelve conventional dual media filters were added in 1978, but these filters have proprietary Hydracone underdrain systems. Each of the twenty Stoney filters is 22 feet wide by 24 feet long with a useable filtration surface area of 528 sf. The filters are permitted for a filtration rate of 6 gpm/sf with a total filtration capacity of 92 MGD.

The dual media design of all twenty filters is 20 inches of anthracite over 10 inches of sand over 12 inches of graded gravel. In 1992, an air scour piping grid was installed directly above the gravel layer of each filter to improve backwash efficiency.

Settled water is delivered from the sedimentation basins to the filters through a single settled water flume to the odd numbered filters on the west side of the Stoney Filter Building and a double settled water flume (sized to accommodate additional filters on this side of the existing structure) to the even numbered filters on the east side. The capability to feed pre-filter or post-filter free chlorine and chlorine dioxide is available.

Filter backwash for the Stoney filters is supplied from a 1.5 million gallon (MG) washwater tank that is located on the Hanahan WTP site. Washwater supply is controlled through two pressure reducing valves in parallel and a modulating butterfly valve. A Venturi type flow tube is provided to monitor washwater flow. A single centrifugal blower supplies air for filter air scour. Each of the Stoney filters is equipped with filter-to-waste capability.

A new filter building was constructed adjacent to the Stoney Filter Building with four new dual media filters which were placed into operation in 2010. Each new filter consists of two bays that are 14 feet wide by 25 feet long with a total filtration surface area of 700 sf. Each filter has a filtration capacity of 6 MGD at the maximum permitted filtration rate of 6 gpm/sf. These four new filters are designed with Leopold block lateral type "SL" underdrains, the same dual media depths as described above, and air scour during backwash.

II. PROJECT SCOPE

CPW intends to have the filter underdrain systems in the Stoney Filter Building assessed, evaluated, and rehabilitated. The ENGINEER will serve as CPW's professional engineering representative in those phases of the Project to which this Contract applies and will give consultation and advice to CPW during performance of the services. The ENGINEEER will provide engineering services for the assessment and evaluation of the existing filter underdrain and support systems and develop a Basis of Design Report (BODR) that includes alternatives and recommendations for rehabilitation of these systems. Engineering services to be performed under this Contract are as follows:

Task 1A – Collection of Background Information and Condition Assessment

Task 1 will begin with a Project Initiation Meeting to introduce the members of the project team, tour the project site, and discuss what information may be available from CPW to assist the ENGINEER in conducting the assessment. CPW will provide the ENGINEER with all pertinent record drawings, operational data, and reports. Following the initiation meeting, the ENGINEER will review the provided record drawings, operational data, and reports. Followup meetings, interviews, phone calls, site visits, etc. will be conducted by the ENGINEER as is necessary in order to clarify and verify collected background information as well as discuss operation of the existing filters with the WTP staff. Based on the initial review, the ENGINEER will develop a detailed plan for conducting the condition assessment.

The ENGINEER will perform a detailed condition assessment of the Stoney Filters and associated support systems that will include the following items:

- A structural review and assessment will be performed based on review of as-built drawings and visual inspection of all accessible points within the filter building including filter underdrains, filter tubs, washwater troughs, wall pipe penetrations, etc.
- An assessment of all existing filter piping, valves, flow meters, etc.
- An assessment of the existing electrical and control systems associated with the filter valves and filter controls.
- An assessment of the existing air scour delivery system piping and valves in the Stoney Filter Building.
- An assessment of the existing HVAC and dehumidification systems.

The ENGINEER will document the findings of the condition assessment in a technical memorandum and submit to CPW.

Task 1B – Detailed Underdrain Assessment

Task 1B includes a detailed inspection and assessment of two (2) of the Wheeler bottom filters and their plenums. The ENGINEER will perform the following tasks:

- The ENGINEER will perform a site visit for the purpose of visually inspecting and assessing the structural and material condition of two (2) of the Stoney Filter Building Wheeler bottom filters. Initially an inspection of each filter's plenum area will be performed via access through an existing access hatch located in the pipe gallery which is situated below each filter's underdrain. If necessary, the ENGINEER will also perform an inspection and assessment of the top side of one (1) of the Wheeler bottom filters to assess the condition of the underdrain support blocks, thimbles, and spheres.
- The ENGINEER will work with the WTP staff to develop a work plan for entering the filter plenums. The ENGINEER will be responsible for managing all confined space activities and will provide all equipment and supervision as is necessary to comply with current OSHA regulations.
- Upon initial assessment by the ENGINEER that the Wheeler bottom plenum areas appear adequate and may only require rehabilitation, not full replacement, the ENGINEER will work with the WTP staff to develop a work plan for inspecting the top side of one (1) of the filter underdrains. An allowance is included in this scope for The ENGINEER, if

deemed necessary, to subcontract removal of the selected filter's media by a CPW approved vendor. Once the media is removed, the ENGINEER will provide all labor and equipment required for accessing the filter underdrain and inspecting the supports, cones, thimbles, and spheres. CPW will be responsible for the replacement of any media and placing the filter back in service if necessary.

The ENGINEER understands that several failures of the Hydracone filter bottoms have occurred in the past few years and that these filters are in poor condition. It is understood that it is the intent of CPW to replace all of the Hydracone filter bottoms, therefore this scope does not include detailed inspection or assessment of the Hydracone underdrains or their plenum areas.

Task 2 – Rehabilitation Evaluation

Upon completion of the inspections and condition assessment tasks, the ENGINEER will perform an evaluation of all underdrain systems and associated support systems components to identify the need for rehabilitation and/or replacement. This evaluation task will include the following:

- Identify acceptable underdrain replacements. The underdrains selected for evaluation will be selected based on the ENGINEER's experience with similar installations and on CPW preference. The evaluation will include feasible alternative arrangements with preliminary layouts to determine how replacement underdrains will fit into the existing filter boxes and integrate with existing backwash piping and new air scour system. Operational considerations shall be taken into account, including the future use of granular activated carbon with an increased filter depth. This includes hydraulic considerations through the new filter bottoms. The evaluation will include alternatives for underdrain replacement for all twenty (20) filters, including an option for replacement of the twelve (12) Hydracone bottom underdrains with rehabilitation of the eight (8) Wheeler bottom underdrains.
- An evaluation of the ability of the existing blower system to provide adequate air volume and rate of flow for air scour to the underdrain alternatives identified.
- It is the ENGINEER's understanding that the existing hydraulic valve actuators have been replaced with new electric actuators on one (1) of the twenty (20) filters. The ENGINEER will evaluate replacement of the remaining hydraulic actuators with the same make and model of electric actuators, including identifying electrical improvements and mounting arrangements for the actuators. This includes the addition of a filter influent valve actuator and all filter effluent/waste valve actuators for the remaining (19) filters.
- It is the ENGINEER's understanding that replacement filter valves are necessary on approximately nine (9) filters. This includes filter effluent/waste valves.
- The ENGINEER will evaluate and recommend improvements to the existing electrical and control systems associated with the filters, electric valve actuators, and HVAC/dehumidification system.
- The ENGINEER will evaluate the existing SCADA system and identify required changes to integrate the new filter bottoms with air scour and electric control valves into the existing filtration operational controls.

The ENGINEER will provide operational and construction cost comparisons for each of the identified alternatives. The ENGINEER will develop a detailed cost estimate and a project schedule for final design services as well as construction of the recommended improvements. The ENGINEER will conduct a review meeting with CPW to present the recommendations and to receive feedback prior to moving forward with the Basis of Design Report (BODR) phase.

Task 3 – Basis of Design Report

Task 3 is the compilation of the BODR. The BODR will describe the results of the evaluations performed in Tasks 1 and 2, and it will also identify the design criteria needed to proceed with detailed design. A detailed list of the BODR components is included in Exhibit C. The ENGINEER will prepare a draft BODR for submittal to CPW. Upon CPW review of the draft, the ENGINEER will conduct a review meeting to summarize the BODR and receive CPW comments. Following the review meeting, the ENGINEER will incorporate all comments into the BODR and submit a Final BODR to CPW.

II. COMPENSATION

The ENGINEER shall be compensated for adequate completion of the aforementioned Scope of Services in the sum amount of $143,000.00. See attached Fee Estimate Summary.

FEE ESTIMATE SUMMARY
CHARLESTON WATER SYSTEM
STONEY FILTER REHABILITATION PROJECT

ITEM DESCRIPTION	FEE
BASIS OF DESIGN REPORT	
1A. Collection of Background Information and Condition Assessment	$ 33,000
1B. Detailed Underdrain Assessment	$ 20,000
Filter Media Removal Allowance	$ 18,000
2. Rehabilitation Evaluation	$ 44,000
3. Basis of Design Report	$ 28,000
Total Engineering Services	**$ 143,000**

EXHIBIT B – SCHEDULE

The ENGINEER shall conduct the Scope of Services in accordance with the following Schedule. The ENGINEER anticipates the project starting on November 9, 2011 with completion on June 1, 2012 as described below:

Task	Start	End
Project Initiation Meeting	November 9	November 9
Collection of Background Information	November 9	December 7
Detailed Condition Assessment and Evaluation	December 8	February 2
Underdrain Evaluation	February 6	April 2
Review Meeting	April 6	April 6
Prepare Draft BODR	April 9	April 30
CWS Review	May 1	May 18
Review Meeting	May 18	May 18
Finalize BODR	May 21	June 1

EXHIBIT C – DELIVERABLES

The following is a summary of the project deliverables and shall be in accordance with the Scope of Services:

- Basis of Design Report (BODR) for the Stoney Filter Rehabilitation Project. The BODR will include the following:
  - A summary of the detailed condition assessment and evaluation
  - A summary of the underdrain rehabilitation evaluation and identified alternatives. The summary will include a discussion of the types of underdrains evaluated, description of the selection criteria, alternative layouts, and a final recommendation. In addition the BODR will include an evaluation and description of the requirements for the following:
    - Electric valve operators
    - HVAC and dehumidification improvements
    - Blower and air scour requirements for the new underdrains
    - Electrical and control system improvements
    - Required structural rehabilitation and improvements
    - SCADA system improvements/modifications
  - Design criteria and acceptable manufacturers for major project components
  - General arrangement drawings (30% level) for the rehabilitation of both types of underdrains
  - Review of constructability and preliminary Maintenance of Plant Operations (MOPO) discussion
  - List of required permits with anticipated schedule for obtaining permits
  - Preliminary Opinion of Probable Cost for construction for each identified alternative with projected construction schedule
  - Preliminary fee estimate for final design engineering and construction administration/inspection
  - Projected final design and construction schedule

The BODR will be submitted in Draft format for review by CWS. Following the BODR review meeting, the meeting comments will be incorporated into a Final BODR for submittal.

REQUEST FOR QUALIFICATIONS

for

ENGINEERING SERVICES

STONEY FILTER UNDERDRAIN EVALUATION AND REHABILITATION
HANAHAN WATER TREATMENT PLANT

Charleston Water System
Clean Water for Life

CITY OF CHARLESTON
SOUTH CAROLINA

JULY 2011

REQUEST FOR QUALIFICATIONS
STONEY FILTER UNDERDRAIN EVALUATION AND REHABILITATION

Section 1 – Introduction Overview

1.1 Purpose

The purpose of this Request for Qualifications (RFQ) by Charleston Water System (CWS) is to solicit Qualifications from interested engineering consulting firms (Firms) for engineering services to conduct an evaluation of the Stoney Filter Building's 1962 and 1978 filter underdrain systems at the Hanahan Water Treatment Plant (WTP) and to design for the rehabilitation and/or replacement of the filter underdrain systems. Responses to the RFQ will be evaluated to identify those Firms with the requisite experience, qualifications, and resources to complete the Stoney Filter Underdrain Evaluation and Rehabilitation Project successfully within the established project schedule. Initially, engineering services will be contracted for the preparation of a Basis of Design Report (BODR) in order to conduct the underdrain systems evaluation and identify rehabilitation/replacement alternatives. It is anticipated that an Engineering Services Contract Amendment for final design phase services under the traditional design-bid-build process will be awarded to the selected BODR Firm upon CWS' review and approval of the final BODR.

The BODR shall include the following information at a minimum: 1) Detailed condition assessment and evaluation of the existing Stoney filter underdrain systems, filter tubs, washwater troughs, filter piping and valves, and ventilation/heating/dehumidification of the filter pipe gallery; 2) Evaluation of electrical system improvements necessary to serve new electrical valve actuators to replace existing hydraulic actuators, and new ventilation/heating/dehumidification equipment; 3) Evaluation of blower system improvements necessary for air scour with new filter underdrain options; 4) Evaluation of necessary SCADA system improvements/modifications; 5) Detailed discussion and comparison of rehabilitation/replacement options for each system with final recommendations; 6) Detailed cost estimate (to include final design and construction) for each rehabilitation/replacement option; and 7) Project schedule for rehabilitation/replacement options to include final design, permitting, bidding, and construction phase activities.

1.2 Project Background

Charleston Water System is one of the largest water and wastewater utilities in the state of South Carolina. It owns and operates a public water system (SC1010001) providing drinking water and fire protection to a population of approximately 400,000 in Charleston, Berkeley and Dorchester counties of South Carolina. The water treatment facility, known as the Hanahan Water Treatment Plant (HWTP), is located in Hanahan, South Carolina. It is a conventional surface water treatment plant with a current rated filtration capacity of 116 million gallons per day (MGD) and an average daily production of approximately 51 MGD.

The Stoney Filter Building was originally constructed in 1962 and expanded to its present size in 1978. The original eight filters are conventional dual media filters with Wheeler Bottom underdrains. The twelve filters that were added in 1978 are also conventional dual media filters, but have proprietary Hydracone underdrain systems. Each of the twenty Stoney filters is 22 feet wide by 24 feet long with a useable filtration surface area of 528 sf. The filters are permitted for a filtration rate of 6 gpm/sf with a total filtration capacity of 92 MGD. The dual media design of all twenty filters is 20 inches of anthracite over 10 inches of sand over 12 inches of graded gravel. In 1992, an air scour piping grid was installed directly above the gravel layer of each filter to assist with media agitation during backwash.

Settled water is delivered from the sedimentation basins to the filters through a single settled water flume to the odd numbered filters on the west side of the Stoney Filter Building and a double settled water flume (sized to accommodate additional filters on this side of the existing structure) to the even numbered filters on the east side. The capability to feed pre-filter or post-filter free chlorine and chlorine dioxide is available.

Filter backwash for the Stoney filters is supplied from a 1.5 million gallon (MG) washwater tank that is located on the HWTP site. Washwater supply is controlled through two pressure reducing valves in parallel and a modulating butterfly valve. A venturi type flow tube is provided to monitor washwater flow. A single centrifugal blower supplies air for filter air scour. Each of the Stoney filters is equipped with filter-to-waste capability.

A new filter building was constructed adjacent to the Stoney Filter Building with four new dual media filters which were placed into operation in 2010. Each new filter consists of two bays that are 14 feet wide by 25 feet long with a total filtration surface area of 700 sf. Each filter has a filtration capacity of 6 MGD at the maximum permitted filtration rate of 6 gpm/sf. These four new filters are designed with Leopold block lateral type "SL" underdrains, the same dual media depths as described above, and air scour during backwash.

All wastewater from filter backwash and filter to waste operations at the HWTP flows into one of two 300,000 gallon (useable capacity) decant tanks located at the on-site solids handling facility for treatment before being released to the NPDES discharge into the saltwater side of the Goose Creek Dam.

In following the recommendations of the 2005 Hanahan WTP Master Plan, Charleston Water System, as part of its Capital Improvement Program, intends to evaluate the condition of the Stoney filter underdrains and implement recommended improvements for rehabilitation and/or replacement.

Section 2 – Statement of Qualification (SOQ) Instructions

2.1 Pre-SOQ Meeting

A Pre-SOQ Meeting will be held on **Tuesday, August 2, 2011, at 1:00 P.M.** for interested Firms. Meeting will be held at the Hanahan Water Treatment Plant, Administration Building, Second Floor Conference Room, 1104 Hanahan Road, Hanahan, South Carolina 29410. The purpose of the meeting will be to provide additional project information and to discuss project goals. Relevant copies of previous project Record Drawings and sections of the 2005 Master Plan will be provided to each Firm present at the Pre-SOQ Meeting for use in preparing their SOQ. Attendance at the Pre-SOQ Meeting is not mandatory for submission of an SOQ; however, it is highly encouraged.

Immediately following the Meeting, a site visit will be conducted. Please notify Don Benjamin at benjamind@charlestoncpw.com prior to your Firm's attendance at the Meeting with the number and names of attendees in order to gain access to the HWTP. No additional site visits for the purpose of SOQ preparation will be allowed.

2.2 Interviews

Interviews subsequent to submission of the SOQ may be required to determine the selected Firm.

2.3 Submission of SOQ

All SOQs are to be delivered before **5:00 P.M. on Tuesday, August 16, 2011** to:

Donald E. Benjamin, Jr., P.E.
Charleston Water System
P.O. Box B / 103 St. Philip Street
Charleston, SC 29402

CWS will not accept any SOQ after the designated time. SOQs shall be enclosed in a sealed envelope and labeled "Statement of Qualifications Enclosed for the Stoney Filter Underdrain Evaluation and Rehabilitation Project." Seven (7) copies of the SOQ are required.

All SOQs submitted to CWS shall become the property of CWS. Firms shall identify any information contained in the SOQ that is deemed confidential or proprietary in nature.

2.4 Inquiries

Direct questions related to the RFQ to Don Benjamin via email: benjamind@charlestoncpw.com or phone: (843) 727-6876.

Original requests for the RFQ shall be directed to Don Benjamin at said email address. CWS reserves the right to amend the RFQ at any time and only those Firms registered through Don Benjamin will receive amendments.

2.5 SOQ and Interview Costs

CWS will not be liable in any way for any costs incurred by any Firm in the preparation of its SOQ or subsequent interview.

Section 3 – Evaluation Process

3.1 Selection Committee

A selection committee will review and evaluate the submissions received. The selection committee will identify the Firm who, in its opinion, is best qualified to perform the work. Upon final selection, all respondents will be notified.

3.2 Review and Selection

The evaluation of the submissions will be based on the following:

a. The contents and completeness of the submission.

b. Any clarifications provided in writing in response to questions asked by the selection committee.

c. Interviews, as necessary.

3.3 Evaluation Criteria

Responses to this RFQ will be evaluated using the following criteria:

CRITERIA	POINTS
Prior Experience. Presentation of experience with evaluation, design, and rehabilitation projects of similar size, scope, use, and complexity as herein required. Details of past record and past performance, number, and size of projects completed in the last ten (10) years.	30
Staff. Description of the skill, capability, and experience level of professional personnel provided in personnel resumes and project descriptions. Appropriate qualification, experience, and capabilities of the project team and management personnel assigned to this project with evidence of prior successful projects. Adequate amount of personnel assigned to this project, or access to sufficient personnel, with appropriate project experience to accelerate the project schedule, if necessary.	20
Project Management. Demonstration of the ability to meet time and budget requirements on delivery of projects of similar size, scope, use, and complexity. Description of the skill of workload balancing for current and projected workload of the Firm and the personnel proposed for work on this project. Include demonstration of ability to include opportunities for DBE participation throughout the design phase. Consideration for timeliness of proposed project schedule to complete assessments/evaluations with submission of BODR	20
Local Experience and Proximity to the Work Location. Descriptions detail ability to furnish the required services that best serve the needs of CWS. In this category, the familiarity of the local area and the amount of business performed in South Carolina is significant. Also, the presence of local staff including project management and design professionals that will primarily perform the work for this project. The ability to obtain permits within South Carolina in a timely manner is also shown as evidenced through prior projects.	20
References. References provided by clients that would recommend the Firm for similar services. Notable comments provided from references and evidence of a good past performance record with clients.	10
TOTAL	**100**

3.4 Interviews

At the discretion of CWS, interviews may be required for some or all of the respondents. CWS will be under no obligation to conduct interviews; however, if CWS chooses to conduct interviews, those respondents will be given at least two weeks prior notice.

3.5 Notification of Selection

Upon final selection and approval by CWS's Board of Commissioners, all respondents will receive notification in writing.

Section 4 – SOQ Content and Format

4.1 General

The information listed below shall be submitted with each SOQ in the exact order listed in letter size 8.5 x 11, single-sided page format, minimum of 10 point font size, single spaced. A maximum of two (2) pages may be submitted on 11 x 17 for a chart, table or graphic.

4.2 Executive Summary (maximum two (2) pages)

Provide an executive summary or overview of the company and its corporate structure. Include a statement signed by an officer of the Firm who has contracting authority over this Project stating the contents of the SOQ are true and accurate.

4.3 Project Experience (maximum five (5) pages)

Provide a brief summary of past projects of similar size, scope, use, and complexity performed by the Firm and the project team members involved. These projects should include specific experience and expertise in performing filter underdrain and filter tub condition assessments as well as evaluations and design of improvements for rehabilitation and/or replacement of filter underdrain systems. Experience and expertise in evaluating existing electrical systems and ventilation/heating/dehumidification conditions should also be included. Condition assessments and systems evaluations should have been performed using a sequential methodology or other means whereby permitting continuous filter plant operations. List a maximum of five (5) projects that have been completed within the last ten (10) years. Include the following for each project:

- Owner's Name
- Project Name
- Contact Person (with current phone number and email address)
- Detailed Description of the Project
- Description of the Engineering Services Provided
- Project Cost with Change Order History
- Project Duration and Completion History
- Type(s) of Underdrain System(s) Evaluated and Installed
- Other Filter Building Improvements Included in the Project Scope

4.4 Project Team Experience (maximum six (6) pages)

Provide name, resume, and organizational chart of the key project staff assigned for this project. Include the following at a minimum:

- Project Principal In Charge
- Project Manager

- Lead Design Engineer
- Staff Engineers

Describe each team member's role for this project. Describe each team member's prior experience with similar projects. Also indicate office location for each individual and area of residence.

4.5 Permitting (maximum of one (1) page)

Outline experience the Firm has with working with SCDHEC on permitting and compliance requirements.

4.5 Project Schedule and Personnel Rate Schedule (maximum two (2) pages)

Provide an estimate of anticipated number of manhours and timeframe in which to complete the initial filter condition assessment and system evaluations with submission of the BODR. Provide an hourly Personnel Rate Schedule.

HWTP Stoney Filter Rehabilitation Project CWS Job No. 1041-0001 SOQ Evaluation Table		RAW SCORING (0 - 10)								WEIGHTED SCORING (CALCULATIONS BASED ON WEIGHTED CRITERIA)						
DIRECTIONS: ***For each firm's SOQ, please enter a value from 0 to 10 (with 0 being the lowest score and 10 being the highest score) for the respective evaluation criteria. Only input numbers for your Raw Scoring (green columns). When finished, your completed rankings will be tallied for you. Red columns are for weighted calculations only.***	**CRITERIA WEIGHT**	**AECOM**	**ARCADIS**	**BLACK & VEATCH**	**CDM**	**HAZEN AND SAWYER**	**URS | BP BARBER**	**WESTON & SAMPSON**		**AECOM**	**ARCADIS**	**BLACK & VEATCH**	**CDM**	**HAZEN AND SAWYER**	**URS | BP BARBER**	**WESTON & SAMPSON**
Prior Experience. Presentation of experience with evaluation, design, and rehabilitation projects of similar size, scope, use, and complexity as herein required. Details of past record and past performance, number, and size of projects completed in the last ten (10) years.	**30**															
Staff. Description of the skill, capability, and experience level of professional personnel provided in personnel resumes and project descriptions. Appropriate qualification, experience, and capabilities of the project team and management personnel assigned to this project with evidence of prior successful projects. Adequate amount of personnel assigned to this project, or access to sufficient personnel, with appropriate project experience to accelerate the project schedule, if necessary.	**20**															
Project Management. Demonstration of the ability to meet time and budget requirements on delivery of projects of similar size, scope, use, and complexity. Description of the skill of workload balancing for current and projected workload of the Firm and the personnel proposed for work on this project. Include demonstration of ability to include opportunities for DBE participation throughout the design phase. Consideration for timeliness of proposed project schedule to complete assessments/evaluations with submission of BODR.	**20**															
Local Experience and Proximity to the Work Location. Descriptions detail ability to furnish the required services that best serve the needs of CWS. In this category, the familiarity of the local area and the amount of business performed in South Carolina is significant. Also, the presence of local staff including project management and design professionals that will primarily perform the work for this project. The ability to obtain permits within South Carolina in a timely manner is also shown as evidenced through prior projects.	**20**															
References. References provided by clients that would recommend the Firm for similar services. Notable comments provided from references and evidence of a good past performance record with clients.	**10**															
TOTAL	**100**								**SCORING TOTALS**							

Charleston Water System

INTEROFFICE COMMUNICATION

"EXHIBIT E"

TO: Mark Cline, P.E.
Capital Projects Officer

FROM: Russell Huggins, P.E.
Director of Engineering RH

DATE: October 19, 2011

RE: Pump Station 77 Rehabilitation Project
Engineering Services Contract Amendment

At the April 2011 Commissioner's Meeting, approval was given to the engineering firm HDR Engineering (HDR) to prepare a Basis of Design Report (BODR) for the Pump Station 77 Rehabilitation Project. Located along the West Ashley Greenway near Stinson drive, the pump station is a critical component of the West Ashley wastewater collection system receiving flow from the Hwy 61 and US 17 corridors, Johns Island, and the Hollywood and Ravenel collection systems. Wastewater is pumped from Pump Station 77 (PS 77) to the West Ashley Tunnel where flow is then carried by gravity to the Plum Island Wastewater Treatment Plant. Due to a high degree of flow agitation and the relative high strength of the entering wastewater, the splitter box and wetwell have been subject to high levels of hydrogen sulfide exposure, resulting in significant concrete corrosion and reduced structural integrity. In addition to the structural concerns, the pump station has limited hydraulic capacity, which could result in operational challenges as flows increase with additional growth in the service area. To effectively address these concerns, HDR prepared a BODR that identified and recommended structural repair and replacement options, and included a hydraulic capacity evaluation based on current and future flows, including the addition of the Red Top Regional Pump Station scheduled to become operational in 2013.

CWS Engineering and Wastewater Collection staff reviewed the repair and replacement options presented in the BODR and concurred with the recommendations presented by HDR. Recommendations include rehabilitation of the existing wetwell and complete replacement of the splitter box with a new junction box. Included in the wetwell rehabilitation are utilization of passive cathodic protection of the concrete reinforcement, a calcium aluminate overlay for wall rehabilitation, and construction of a new roof slab. The structural condition and process functionality of the splitter box is such that rehabilitation of the structure is not justifiable. Demolition of the existing splitter box and construction of a new junction box will provide CWS with a long-lasting and functional system through which to manage incoming wastewater flow.

Accurate and reliable output data from a wastewater hydraulic model is dependent on several variables such as accurate physical representation of collection system infrastructure, availability of current gravity and pressure flow data, pump station run times, and the effects of wet weather conditions. The hydraulic evaluation performed as a part of the BODR revealed significant data deficiencies that limited the evaluation results. While the data was sufficient to confirm adequacy of near-term hydraulic capacity, reliable modeling scenarios for future flow conditions was not possible.

Based on the recommendations presented in the BODR and concurrence of the same by CWS staff, CWS Engineering staff requested an engineering services proposal from HDR to amend the BODR contract to provide design and construction administration services necessary to implement the repair and replacement recommendations presented in the BODR for the Pump Station 77 Rehabilitation Project. Additionally, staff requested the proposal include development of a hydraulic model of the PS 77 upstream and downstream conditions to identify any future capacity limitations, develop pumping strategies, and the need and timing of future infrastructure improvements.

Attached for your review is a contract amendment proposal from HDR that outlines the necessary tasks and associated fees for the Pump Station 77 Rehabilitation Project and development of a hydraulic model. The total cost of their amendment is $240,513. Inclusive in this fee is $111,733 for design and construction administration services and $128,780 for hydraulic model development. If approved, the amendment will be incorporated into our standard engineering services agreement.

Therefore, it is our recommendation that the Commissioners award an engineering services contract amendment to HDR in the amount of $240,513 for the Pump Station 77 Rehabilitation Project. The original contract amount was $71,880. The new contract amount will be $312,393. Funding is available through the Wastewater Major Capital Improvement Program.

Attachments

cc: Andy Fairey
Baker Mordecai, P.E.
Linda Hans
Chad Hendrix, P.E.

Charleston Water System
West Ashley Pump Station 77
Scope of Services for Design, Permitting, Bidding and Construction Administration and Modeling Evaluation
10/19/11

HDR Engineering Inc. of the Carolinas (ENGINEER) has been requested by Charleston Water System (OWNER) to design, permit, bid and provide construction administration for the West Ashley Pump Station 77 Rehabilitation Project. In addition, the project includes a modeling evaluation of the West Ashley service area to determine the capacity of the existing 36-inch force main in the Church Creek area and the affect on the existing pump capacity at Pump Station 77. These items comprise the PROJECT as defined in more detail below.

Pump Station 77 Rehabilitation Design

1. Survey: ENGINEER will utilize a subconsultant to survey the pump station site, including locations of existing structures, fence boundaries, topographic information and the location of any below ground utilities marked by CWS.
2. Design: ENGINEER will design the project in accordance with the recommendations provided in the West Ashley Pump Station 77 Rehabilitation Basis of Design Report.
    a. Design Drawings – Design drawings will be prepared including a site plan, junction structure, wetwell rehabilitation, mechanical piping and a bypass plan. The design will include odor control, based on a biofilter design.
    b. Specifications – A specification package will be developed using the OWNER's standard specifications. Any additional specifications required will be provided by the ENGINEER.
    c. OWNER reviews - Plan submittals will be made for OWNER review at the 60% and 90% completion stage and comments will be incorporated for final review prior to bidding.
3. Permitting: ENGINEER will prepare and submit the OCRM Land Disturbance permit for the project. It has been assumed that a SCDHEC construction permit is not required since the project is rehabilitation of the existing wetwell.
4. Opinion of Probable Costs: ENGINEER will furnish to the OWNER an Opinion of Probable Construction Costs based on the final set of drawings and specifications and at key milestone meetings listed in 2.c.

5. Project Management: ENGINEER will perform PROJECT administration activities throughout the duration of the PROJECT, including maintaining a PROJECT filing system for storage and retrieval of documents, preparing monthly invoices for ENGINEER's services, and maintaining a PROJECT Cost Accounting system. ENGINEER will apply on-going quality assurance and quality control procedures throughout the duration of the PROJECT. In addition, the ENGINEER shall conduct a review of all design elements by senior level staff, not performing the design of the PROJECT.

6. Bidding: Following authorization from OWNER, ENGINEER shall perform the following services related to Bidding and Award.

   a. Assist OWNER in advertising for pre-qualification of Contractors.
   b. Assist OWNER in advertising for pre-qualification of contractors.
   c. Distribute bidding documents to pre-qualified bidders.
   d. Maintain a record of prospective bidders to whom Contract Documents have been issued.
   e. Prepare addenda as appropriate to interpret, clarify, or further define the Contract Documents. One addendum has been included in the scope.
   f. Attend the bid opening.
   g. Prepare certified bid tabulation sheets and make recommendations concerning contract award.

7. Construction Administration: The following tasks are included in the construction phase services. This is based on a five month overall construction schedule.

   a. Assist OWNER in contract preparation.
   b. Attend pre-construction meeting.
   c. Perform site visits. Three site visits have been assumed.
   d. Log, review and distribute shop drawings.
   e. Respond to requests for information.
   f. Review change orders.
   g. Review pay applications on a monthly basis.
   h. Assist with closeout documentation.
   i. Prepare record drawings utilizing information provided by the Contractor and OWNER field personnel. The Record Drawing deliverable will include one mylar, six copies and an electronic copy of the CADD files.

   For construction contract administration, neither the ENGINEER's review of construction Contractor's work for the purposes of recommending payments nor ENGINEER's recommendation of any payment including final payment will impose on ENGINEER responsibility to supervise, direct, or control construction Contractor's work in progress or for the means, methods, techniques, sequences, or procedures of construction, or safety precautions or programs incident thereto, or Contractor's compliance with Laws and Regulations applicable to Contractor's furnishing and performing the Work. It will also not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes

Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any portion of the work in progress, materials, or equipment has passed to the OWNER free and clear of any liens, claims, security interests, or encumbrances, or that there may not be other matters at issue between the OWNER and Contractor that might affect the amount that should be paid.

8. Fee Estimate: The fee for the design portion of this PROJECT is $111,733 and is summarized in Table 1 in Attachment A. Services will be provided on a Lump Sum basis.
9. Schedule: The proposed schedule for the design portion of this PROJECT is presented in Attachment B.

West Ashley Modeling Effort

1. Kick-off Meeting: A kick-off meeting will be held and include key members from the OWNER and ENGINEER and will focus on the scope of work, field work and data collection coordination, schedule and other pertinent items.
2. Flow Monitoring: The objective of flow monitoring is to collect system data for dry weather and wet weather flow events for model development of per capita flows, diurnal curves, wet weather flows and model calibration. The intent is to monitor flow upstream of each pump station that pumps into the existing 20-inch and 36-inch force mains. In addition, pump stations that will be diverted to the Red Top Regional Pump Station will also be monitored. Up to 11 flow monitoring sites have been included in the scope, with 6 rain gauges. Flow monitoring will be conducted simultaneously with rain monitoring for at least 60 consecutive days to obtain adequate hydraulic information for dry and wet weather conditions. If adequate wet weather events are not included in the 60 days of monitoring, the ENGINEER will discuss with the OWNER extending the monitoring and associated costs for approval. In terms of this project, an adequate weather event is a storm capable of deriving RTKs for an immediate, moderate and long term storm response. A site investigation will be performed to determine the locations for the flow monitors and rain gauges.
3. Develop Model:
    a. The model development will use InfoWorks CS version 11. The existing CWS GIS will be used to generate the physical model. The entire West Ashley service area GIS information will be used to generate the network. However, only the 20-inch and 36-inch force main systems and associated pump stations, with the Red Top area changes, will be modeled.
    b. Existing pump run time information, meter data from the Hollywood pump station and wetwell float elevations will be provided by the OWNER for use in developing the model. Pump curves, where available,

are also to be provided by the OWNER. For stations where the pump curve is not available, a recent drawdown test will be provided to the ENGINEER.

c. Using GIS data and the flow monitoring results, subcatchment areas will be developed and existing population, per acre flows and diurnal curves will be developed for the existing system. Using data from the flow monitoring task, the ENGINEER will calibrate the dry weather model so that dry weather hydrographs correspond with observed flow monitoring.

d. Using the rainfall data collected, a wet weather scenario will be generated in the model. The wet weather model will also be calibrated.

e. Future scenarios will be developed based on future growth, changes in population and infrastructure changes, and applying per-acre flows to additional acreage. CWS will assist in determining the future growth areas.

f. Existing and future dry and wet weather scenarios will be run in the model. These scenarios will include the initial Red Top scenario in 2013 and future scenarios to determine additional capacity in the 36-inch force main. The results will be analyzed to determine the remaining capacity in the existing 36-inch force main, if operated in parallel with the 20-inch force main, and the timeline for this additional capacity.

4. Analyze PS 77 Pumps: The existing pumps at PS 77 will be analyzed for use in parallel operation with the 20-inch and 36-inch force mains in operation. If needed, alternate pumps will be evaluated for use with the 20 and 36-inch parallel system. These will be modeled in the various scenarios described in Task 3.

5. Draft Report, Review Meeting and Final Report: A Draft Report will be prepared providing a summary of the flow monitoring data, development of the model, model results and evaluation of the capacity of the 36-inch force main and Pump Station 77 pumps. A review meeting will be held with the OWNER to discuss the report and comments will be incorporated into a Final Report. The model will be delivered to the OWNER electronically, with the model runs included.

6. Fee Estimate: The fee for the modeling portion of this PROJECT is $128,780 and is summarized in Table 2 in Attachment A. Services will be provided on a Lump Sum basis.

7. Schedule: The proposed schedule for the modeling portion of this PROJECT is presented in Attachment C.

ATTACHMENT A

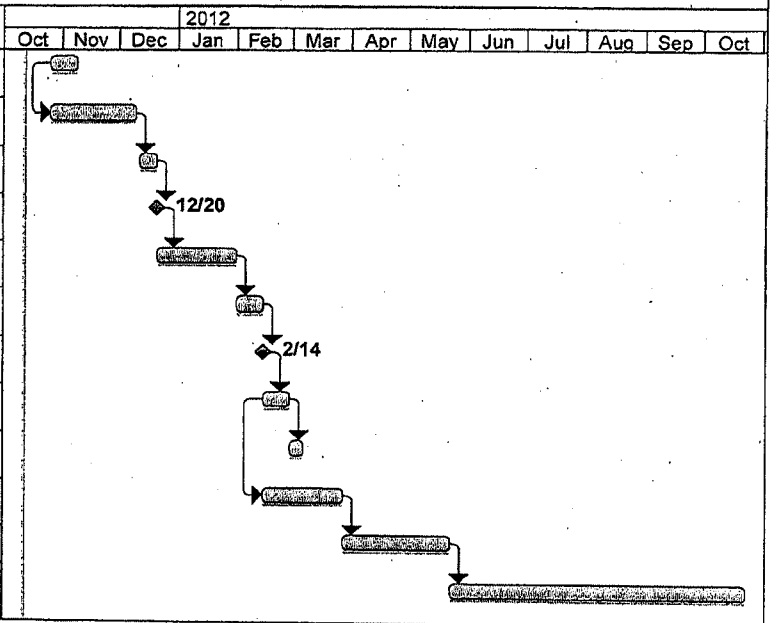
Table 1 - Fee Summary - PS 77 Rehabilitation Design	
Design and Permitting	$79,848
Bidding	$7,537
Construction Administration	$24,348
	$111,733

Table 2 - Fee Summary - PS 77 Rehabilitation Modeling	
Data Collection	$45,592
(Flow Monitoring Subconsultant - $39,600)	
Modeling	$55,872
Evaluation and Reporting	$27,316
	$128,780

ATTACHMENT B

Attachement B
Charleston Water System
Pump Station 77 Rehabilitation Design Schedule

ID	Task Name	Start	Finish
1	Surveying	Wed 10/26/11	Tue 11/8/11
2	60% Design	Wed 10/26/11	Fri 12/9/11
3	CWS 60% Review	Mon 12/12/11	Tue 12/20/11
4	60% Review Meeting	Tue 12/20/11	Tue 12/20/11
5	90% Design	Wed 12/21/11	Tue 1/31/12
6	CWS 90% Review	Wed 2/1/12	Tue 2/14/12
7	90% Review Meeting	Tue 2/14/12	Tue 2/14/12
8	100% Design	Wed 2/15/12	Tue 2/28/12
9	CWS Final Review	Wed 2/29/12	Tue 3/6/12
10	Permitting	Wed 2/15/12	Tue 3/27/12
11	Bidding	Wed 3/28/12	Tue 5/22/12
12	Construction	Wed 5/23/12	Tue 10/23/12

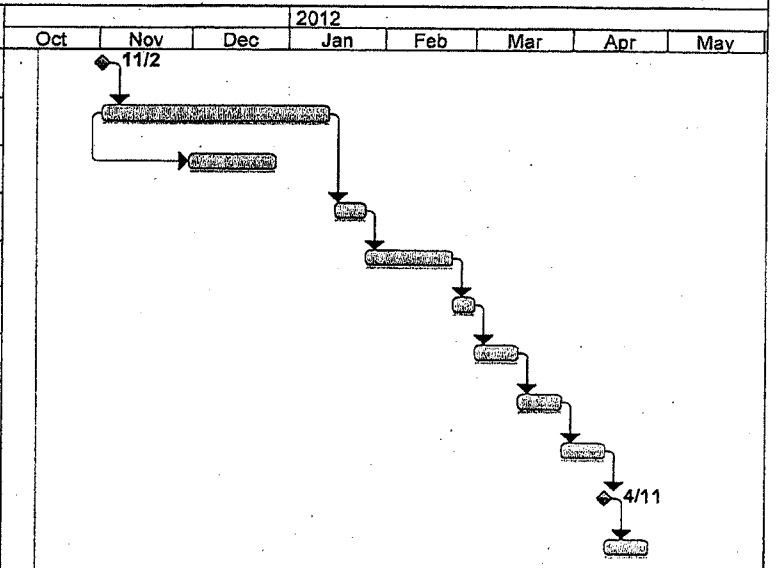


Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External MileTask
Split

ATTACHMENT C

Attachement C
Charleston Water System
Pump Station 77 Rehabilitation Modeling Schedule

ID	Task Name	Start	Finish
1	Kick-off Meeting	Wed 11/2/11	Wed 11/2/11
2	Flow Monitoring	Wed 11/2/11	Fri 1/13/12
3	Develop Model Network and Demograhics	Wed 11/30/11	Tue 12/27/11
4	Analyze Data	Mon 1/16/12	Wed 1/25/12
5	Model Development and Calibration	Thu 1/26/12	Wed 2/22/12
6	QC Model	Thu 2/23/12	Wed 2/29/12
7	Model Simulations	Thu 3/1/12	Wed 3/14/12
8	Draft Report	Thu 3/15/12	Wed 3/28/12
9	CWS Review	Thu 3/29/12	Wed 4/11/12
10	Review Meeting	Wed 4/11/12	Wed 4/11/12
11	Final Report	Thu 4/12/12	Wed 4/25/12



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External Tasks
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Charleston Water System

INTEROFFICE COMMUNICATION

"EXHIBIT F"

TO: Mark Cline, P.E.
Capital Projects Officer

FROM: Russell L. Huggins, Jr., P.E. RH
Director of Engineering

DATE: October 20, 2011

RE: Future Drive 24-inch Water Main Extension Project – Phase II
Engineering Services Contract

Master Plans developed to support Charleston Water System's (CWS) Major Capital Improvement Program identified increased utilization of the Northwest Water Storage Facility and transmission main improvements as necessary to meet growing water service and fire protection demands within CWS's northern service area. Recommended transmission main improvements include the 3.96 mile extension of the 24-inch water main along Palmetto Commerce Parkway and the extension of approximately 8000 linear feet of 24-inch water main along planned Future Road from the Northwest Storage Facility to the Palmetto Commerce Parkway. At the February 2011 Commissioner's Meeting, approval was given to award a construction contract for the Palmetto Commerce Parkway Water Main Extension Project. The project was constructed in conjunction with Charleston County's Palmetto Commerce Parkway Extension Project from Patriot Boulevard to Ashley Phosphate Road. Construction of the water main is complete and the water main is in service. Similarly, in late 2009 Charleston County announced its plan to construct the Future Drive Extension Project connecting Highway 78 to the Palmetto Commerce Parkway. At the February 2010 Commissioner's Meeting, approval was given to the engineering firm HEG Engineering Consultants, now doing business as Weston & Sampson (W&S), to provide design and construction administration services for the Future Drive 24-inch Water Main Extension Project to be constructed as a part of the roadway project. Subsequent to awarding the contract, the County informed CWS of its decision to divide the road construction into three separate phases identified as Divisions I, II & III. Division I, to be constructed immediately, will extend approximately 2800 linear feet of roadway from Highway 78 southward towards the Palmetto Commerce Parkway. Division II will continue the extension of Future Drive to Northside Drive. The third and final division will connect Future Drive to the Palmetto Commerce Parkway. In addition to the decision to phase road construction, significant routing changes were made to Divisions II & III to facilitate a planned interchange with Interstate 26. The routing changes will require the County to procure new road right-of-way and will involve significant environmental permitting, the timing of which remains uncertain. Furthermore, the routing changes shift the road alignment eastward away from Palmetto Commerce Parkway adding significant distance to the planned Future Drive 24-inch water main extension if constructed parallel to the road right-of-way as planned.

Concerns over the timing and uncertainty of the construction of Future Drive and water quality issues associated with a large diameter dead-end water main, led CWS staff to consider delaying construction of the Future Drive Water Main Extension Project until such time as the main could be connected to the Palmetto Commerce Parkway. Although funded by Charleston County, the Future Drive Extension Project is being managed by the City of North Charleston (City). To minimize conflicts with roadway infrastructure and to encourage development, the City requested CWS proceed with constructing the approximately 2800 linear feet of 24-inch water main as a part of the Future Drive Extension Division I Project. CWS agreed with the City's request and in turn requested W&S revise the scope of its water main design accordingly. At the February 2010 Commissioner's meeting, approval was given to award a construction contract for the Future Drive 24-inch Water Main Extension Project – Phase I. This project is also complete and the water main is operational. To facilitate project closure, the W&S engineering services contract was closed as well. As a result this and the reduction of the original design scope, approximately $55,000 of the engineering services fee authorized for the project was not utilized and returned to the Water Major Capital Improvement Program.

Connection of the 24-inch Future Drive water main to the Palmetto Commerce Parkway remains a priority to meet growing service area demands and to address water quality concerns. Due to the uncertainty of the timing of the roadway extensions and the changes in road alignment, CWS Engineering staff requested a new engineering services proposal from W&S to provide design and construction administration services to extend the 24-inch water main from its current terminus on Future Drive to the Palmetto Commerce Parkway. Included in the scope is an evaluation of alternative routing options that may utilize easements rather than following the planned Future Drive right-of-way. Alternate routing will provide an opportunity to significantly shorten the length of the water main, minimize wetland crossings and avoid potential conflicts with future roadway infrastructure. Attached for your review is an engineering services proposal from W&S that outlines the necessary tasks and associated fees for the Future Drive Water Main Extension Project – Phase II. The total cost of their engineering services is $108,560. The engineer's preliminary construction cost estimate is $1,359,557.

Therefore, it is our recommendation that the Commissioners approve a contract to W&S in the amount of $108,560 for design and construction phase services for the Future Drive Water Main Extension Project – Phase II. Funding is available through the Water Major Capital Improvement Program.

Attachment

cc: Andy Fairey
Kan Oberoi
Linda Hans
Greg Hider, P.E.

672 Marina Drive, Suite 204
Charleston, SC 29492
tel: 843.881.9804 fax: 843.881.9807
www.westonandsampson.com

October 18, 2011

SCOPE OF SERVICES

planning, permitting, design, construction, operation, maintenance, design/build, & equipment

Weston&Sampson®

Future Drive Water Transmission Main, Phase 2

Background

Charleston Water System

Charleston Water System currently owns and operates a CWS 16" Water Transmission Main located on Palmetto Commerce Parkway in the area formerly known as Ingleside Plantation. CWS has also recently completed a Water Transmission Main along Palmetto Commerce Parkway from the Chrysler facility to Ashley Phosphate Road in conjunction with a Charleston County Roadwise Project. Ingleside plantation, along with several other large tracts of land between Ladson Road and Ashley Phosphate Road, is a site that has been partly developed into a Commercial and light industrial center of North Charleston with developments such as DaimlerChrysler, Gwinnet Industries, Western Star, Weber USA (proposed), Shimano American, Landmark Business Park and a few other smaller commercial and light industrial developments. Future Drive Phase 1 has also been recently completed. Future Drive is ultimately planned to connect Palmetto Commerce Parkway with Highway 78 however the schedule for completion of this road is not known at this time. The last remaining section of the roadwork proposed for the area will be the extension of Northside Drive to Future Drive.

The overall project, Future Drive 24" Water Main Phase 2, is approximately 6,605 feet in length and includes the crossing of a CSX Railroad and miscellaneous potential small isolated and/or jurisdictional wetlands. CWS has performed preliminary hydraulic modeling based on the proposed land use in the area as well as future demands that may be realized associated with additional extensions towards the Dorchester Road area and west Ashley area. Pipe sizes will be confirmed by the CWS Hydraulic Modeling effort. It is anticipated that the project will include a 24" ductile iron water main and segments of 24" FPVC for HDD Wetland Crossings.

Project Scope

Preliminary

The Scope of Service for the project includes the following:
Coordinate with Santee Cooper for R/W Access to Share Power Easement
Coordinate with CSX RR for RR Crossing
Coordinate with Property Owners along proposed Route in anticipation of Easement Acquisitions
Walk Route and ID project specific items including Protected trees, Grand Trees, potential wetlands, Wetlands and other significant Topographical Features that may require preservation or avoidance and adjust Route to mitigate impacts
Present a conceptual Encroachment Permit Application Request to Santee Cooper for Conceptual Approval
Incorporate all available existing and proposed utilities, storm drainage facilities, lighting, Power, Gas, embankment and grading from Road Construction Plans
Provide early coordination with Roadwise to accommodate future projects
Coordinate with OCRM & USA COE and SHPO for preliminary Route & Alignment

Planning

Confirm Hydraulics & Growth Issues Based on projections provided BY CWS & Others
Determine Final Route for Water Transmission Main Extension
Conduct Preliminary Planning Meeting with Water Distribution
Identify any Off Site Issues affecting design, performance and/or operations
Develop Preliminary Plan from Existing Record and Conceptual drawings
Provide Technical Memo to document Initial Design Parameters
Coordinate with NCPW for connection to Future Drive and Crossing Proposed R/W
Coordinate with NCPW for connection to Palmetto Commerce Parkway

Surveying

Perform Existing Condition Survey of route
Perform existing conditions survey at tie in locations (2, Palmetto Commerce Parkway and Future Drive)
Provide required field Surveying of existing Conditions to develop complete base drawings for Water Main Construction and GIS incorporation based on State Plane Coordinates
Provide Property/Plat Research & Field documentation as required for Easement documents
Develop Easement Plats for parcels 393-00-00-007, 131, 132, 134 and provide Plats to Don Williams for Acquisition

Geotechnical Investigation

Perform Soil Boring(s) at potential Wetland Crossing locations and Jack & Bore Locations (2) and Provide Geotechnical Report

Preliminary Engineering
Develop Preliminary Plan & Profile Drawings
Perform Plan Review with Owner

Final Engineering
Provide Final Plan & Profiles & Specifications based on input from Preliminary Review
Provide Project Details
Submit Progress at 30%, 60%, 90%
Provide Cost Estimate, Review Budget Compliance

Easements
Provide Draft Easement Documents (4) for Review
Modify Easement Documents based on Revisions
Provide Easement Documents to CWS for Acquisition

Permitting

SCDHEC OCRM
Land Disturbance Permit/Erosion Prevention
Water System Certification
OCRM Mitigation Credit Purchase Documentation

NCPW
Land Disturbance MS4/Erosion Prevention

South Carolina Department Of Health & Environmental Control
Water System Construction Permit

US Army Corps of Engineers
Jurisdictional Determination
NWP for Utility (If Required)
(Open Cut installations of jurisdictional wetland areas will require a COE Permit)

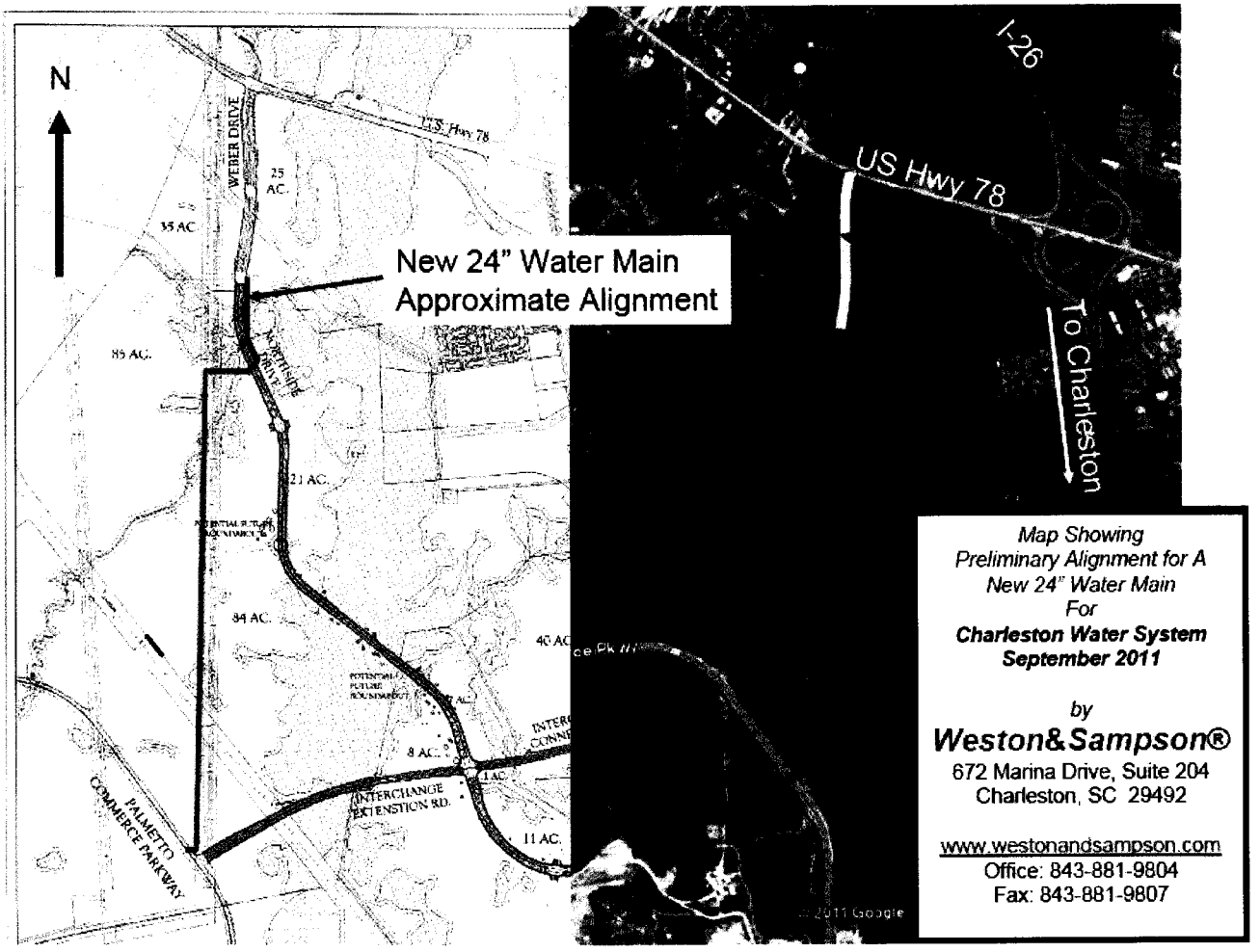
Municipal Authorities
North Charleston Public Works (MS4)
North Charleston Planning (Grand Tree/Mitigation)
Charleston County

Construction Phase
Bidding
Provide for Plan Distribution to CWS Approved Contractors
Respond to Contractor questions
Evaluate Bids
Provide Recommendation for Award

Construction
Conduct Pre-Construction Conference
Perform Shop Drawing Review
Provide Construction Inspection (Optional)
Provide Construction Administration
Provide Payment Request Review, Verification and Approval
Provide Change Order Evaluation
Perform SCDHEC Construction Permit Compliance Monitoring
Perform OCRM Permit Weekly/Monthly Compliance Monitoring

Closeout
Provide Record Drawing Certification
Perform Water System Final Inspections, Participate in Final Performance Testing & Certifications
Apply for SCDHEC Water System Permit To Operate
Prepare Close-Out Documentation
Prepare OCRM Notice of Termination (NOT) Submittal

Exhibit Showing Future Drive Phase II, 24" Water Transmission Main



Weston & Sampson ®

Proposal Summary

Proposal Date: October 19, 2011
Expiration Date: December 19, 2011

Project Name: **Future Drive Water Transmission Main, Phase 2**
Owner / Client: Charleston Water System / Greg Hider, PE
Project Manager Robert L. Horner, PE

Planning			
	Subtotal	**$**	**9,680.00**
Existing Conditions Survey, Easement Plats			
	Subtotal	**$**	**22,100.00**
Engineering			
	Subtotal	**$**	**22,100.00**
Permitting			
	Subtotal	**$**	**9,660.00**
Construction Administration			
	Subtotal	**$**	**13,300.00**
Project Close Out			
	Subtotal	**$**	**12,220.00**
Sub-Consultants			
(Geotechnical, Archeological, Wetland Scientist)	**Subtotal**	**$**	**14,500.00**
Reimbursable Expenses		**$**	**5,000.00**
	Total	**$**	**108,560.00**
Construction Inspection (Optional)			
	Subtotal	**$**	**18,920.00**

NOTES

1. Scope includes Project Coordination with Santee Cooper for Encroachment
2. Easement Plat Preparation is Included for Four Parcels
3. Construction Inspection is Based on a Construction Schedule of 25 Weeks, 6 Hours per Week. Project Estimate is Tied to Schedule Dated Oct 11, 2011

Weston & Sampson Engineers
672 Marina Drive, Suite 204
Charleston, SC 29492
Phone: 843-881-9804

Charleston Water System

INTEROFFICE COMMUNICATION

"EXHIBIT G"

TO: Mark Cline, P.E.
Capital Projects Officer

FROM: Russell L. Huggins, Jr., P.E.
Director of Engineering

DATE: October 17, 2011

RE: Lockwood Boulevard Sewer Main Replacement Project – Ashley Marina to Crosstown
Engineering Services Contract

As a part of the Wastewater Collection System Master Plan, a condition assessment was performed to develop a priority list for wastewater main rehabilitation. The condition assessment considered such things as pipe age, flow restrictions, severity of external corrosion and main break history. A weighted point value was used to score each main and to establish priorities for rehabilitation or replacement. Subsequent to the master plan report, the Wastewater Collection Department elevated the replacement priority for the wastewater main along Lockwood Boulevard from the Ashley Marina to the Crosstown. Constructed in the 1960s, the gravity sewer main was placed on wooden pile supports to prevent settlement in the marshy infill area of peninsular Charleston adjacent to the Ashley River. Recent Closed Caption Television Video (CCTV) inspections conducted by the Wastewater Collection Department have identified multiple areas where significant settlement has occurred between the pile supports and overburden has compressed the pipe section at the pipe supports, resulting in partial collapses of the pipe wall and bellies in the pipe, thus severely restricting the ability of wastewater to flow by gravity.

Wastewater Collection Department staff met with Engineering Department staff to evaluate repair/replacement alternatives. Proximity of the sewer to a major thoroughfare and limited access to property for alternative routing limited repair/replacement options. Additionally, options involving gravity sewer were eliminated in favor of a pump station and force main option due to concerns of future settling that would likely occur as a result of the poor soil conditions. Routing options for a new force main were evaluated with a preferred route identified parallel to Lockwood Boulevard, discharging into an existing manhole located at the intersection of Lockwood and Spring Street.

Poor soil conditions, limited right-of-way and the force main crossing of Cannon Street and US Highway 17 will present complex design and construction challenges. Because of these challenges, engineering staff met with the firm Hussey, Gay, Bell & DeYoung (HGBD) and requested an engineering services proposal to provide design and construction administration services for the Lockwood Boulevard Sewer Main Replacement Project – Ashley Marina to the Crosstown. HGBD was selected based on their extensive experience with the design of water and wastewater main replacement projects in complex urban areas and their experience working in downtown Charleston on projects of a similar nature. Attached for your review is an engineering services proposal from HGBD that outlines the necessary tasks and associated fees for the Lockwood Boulevard Sewer Main Replacement Project – Ashley Marina to the Crosstown. The total cost of their engineering services is $40,600. Included in this fee is $10,000 for construction administration and observation services. If approved, the scope of services will be incorporated into our standard engineering services agreement format. HGBD's preliminary construction cost opinion is $336,675.

Therefore, it is our recommendation that the Commissioners award a contract to HGBD in the amount of $40,600 for design and construction phase services for the Lockwood Boulevard Sewer Main Replacement Project – Ashley Marina to the Crosstown. Funding is available through the Wastewater Major Capital Improvement Program.

Attachments

cc: Andy Fairey
Baker Mordecai, P.E.
Linda Hans
Larry Drolet
Chad Hendrix, P.E.

HUSSEY, GAY, BELL & DEYOUNG, INC.
CONSULTING ENGINEERS
A Bell Company

October 3, 2011

Mr. Russell Huggins, P.E.
Charleston Water System
P.O. Drawer B
Charleston, SC 29402

Re: Lockwood Boulevard Sanitary Sewer System Pump Station and Force Main Professional Engineering Services Proposal

Dear Mr. Huggins:

Hussey, Gay, Bell & DeYoung, Inc. is pleased to present for your consideration this proposal to provide professional engineering services associated with the referenced project. Based upon our previous discussions, I have included all tasks for a "turn key" design through construction. Our opinion of probable construction cost is $336,675.00 (Encl. 1).

Following are the tasks and fee for each component of work for the project:

I. SUPPORT SERVICES

A. Geotechnical Investigations
This task shall include one (1) 60' boring (SPT or CPT) at the location of the pump station. A letter report with foundation recommendations and pile design shall be performed.

Lump Sum Fee: $3,250.00

B. Critical Line Determination
This service shall include a delineation of the critical line in the vicinity of the pump station site and force main alignment and submittal of a critical line plat to the regulatory agencies.

Lump Sum Fee: $950.00

474 WANDO PARK BLVD., SUITE 201 (29464) • P.O. BOX 1771 • MT. PLEASANT, SOUTH CAROLINA 29465 • TELEPHONE 843.849.7500 • FACSIMILE 843.849.7502

329 Commercial Drive (31406)
P.O. Box 14247
Savannah, GA 31416-1247
Telephone: 912.354.4626
Facsimile: 912.354.6754

1219 Assembly Street (29201)
P.O. Box 7967
Columbia, SC 29202
Telephone: 803.799.0444
Facsimile: 803.799.1499

625 Green Street, N.E.
Gainesville, GA 30501
Telephone: 770.535.1133
Facsimile: 770.535.1134

www.hgbd.com

C. Survey Services

This task shall include the field surveys necessary to update and supplement previous surveys performed by HGBD for the City's storm water tunnel project. Additionally, a critical delineation plat and one fee simple plat for the pump station site will be prepared. Existing utilities will be located based upon a PUPS level of locates. Subsurface Utilities Engineering (SUE) Level A or B quality surveys are not included.

HGBD shall establish horizontal control based upon State Plane Coordinates and vertical control based upon National Geodetic Datum of 1929 (NGVD 29).

Lump Sum Fee: $5,500.00

Our proposal excludes a subsurface utility survey (SUE), environmental site assessment, archaeological or endangered species status.

II. DESIGN SERVICES

A. This task shall include the design and preparation of construction documents for one duplex grinder pump station (100 GPM) and approximately 900 LF of 4" diameter (approx.) force main as generally depicted on Exhibit A (Attachment "A"). This system will serve the existing Marriott Courtyard, Ashley Marina and a new hotel to be constructed beginning late this year. The Ashley Marina and new hotel flows will be received via an existing 4" force main. Our design presumes that the typical CWS pump station layout plan will be modified in order to minimize the "footprint" of the site. In lieu of elevating the controls one foot above the 100 year flood elevation we intend to design a dry proof NEMA 6 enclosure. In order to mitigate subsidence of the lift station due to very poor soils in the area, we have included structural design for a pile supported foundation.

Lump Sum Fee: $14,000.00

Though not recommended, if CWS decides to accept some settlement of the station by not including a pile supported foundation design, then our design fee can be reduced by $2,500.00 and eliminate the geotechnical exploration task ($3,250.00) for a total savings of $5,750.00.

III. PERMITTING SERVICES

This task shall include the preparation and submittal of permit applications to the following agencies:

A. SCDHEC/OCRM – Critical line certification and construction permit.
B. City of Charleston – Engineering and MS4. The "TRC" process is not anticipated and not included.
C. SCDHEC – Construction permit by delegated review process.
D. SCDOT – Temporary construction encroachment permit.

A COE permit is not anticipated, consequently this effort is not included in our proposal.

Permitting services shall be provided on an hourly basis in accord with our Schedule of Hourly Rates (Attachment "B").

Fee Allowance: $3,000.00

IV. CONSTRUCTION BIDDING SERVICES

HGBD shall prepare construction bid documents, opinion of probable construction cost and solicit bids from CWS's pre-qualified list of contractors and make recommendations for award.

Lump Sum Fee: $3,500.00

V. CONSTRUCTION OVERVIEW AND OBSERVATION SERVICES

A. Construction Overview Services
HGBD shall provide general construction administrative services to check the Contractor's work for general compliance with the drawings and specifications and endeavor to protect CWS against defects and deficiencies in the work of the Contractor as outlined in Attachment "C". Our fee for this service is based upon an estimated four (4) week construction period.

Fee Allowance: $4,000.00

B. Construction Observation Services
HGBD shall provide an inspector to have the authority to act on behalf of CWS to the extent as provided in this contractual agreement as outlined in Attachment "B". This estimated fee is based upon an anticipated four (4) week construction period at approximately 20 hours per week and our Schedule of Hourly Rates (Attachment "B"). CWS will supplement inspection services as necessary during and beyond the four (4) week construction period provided by HGBD.

Fee Allowance: $6,000.00

Expenses for drawings and specification reproduction during the design phase of the project, travel in the Charleston area, and all other miscellaneous expenses shall be billed on a reimbursable basis. Estimated reimbursable expense costs are **$400.00**.

We appreciate this opportunity to provide our services to CWS and look forward to another successful project. Please call me if you have any questions.

Sincerely,
Hussey, Gay, Bell & DeYoung, Inc.

Alan E. Townsend, P.E.

AET/bw
Enclosures
Y:\HGBD\PROPOSAL\CPW\Lockwood Blvd Sanitary Sewer 10-3-11.doc