BEAUFORT COUNTY
STORMWATER MANAGEMENT UTILITY BOARD
Wednesday, March 5, 2014
2:00 p.m.
Beaufort Industrial Village, Building 2 Conference Room
102 Industrial Village Road, Beaufort
843.255.2801

In accordance with South Carolina Code of Laws, 1976, as amended, Section 30-4-80(d), all local media was duly notified of the time, date, place and agenda of this meeting.

1. CALL TO ORDER – 2:00 p.m.
   A. Approval of Agenda
   B. Approval of Minutes – February 5, 2014 (backup)

2. INTRODUCTIONS

3. PUBLIC COMMENT

4. REPORTS
   A. MS4 Program Overview – Ann Clark and Jill Stewart with SCDHEC
   B. Monitoring Update – Eric Larson, P.E. (backup)
   C. Utility Update – Eric Larson, P.E. (backup) (MS4 Memo)
   D. Upcoming Professional Contracts Report – Eric Larson, P.E. (backup)
   E. GEL Engineering Annual Monitoring Report - Jack Walker/Reggie Reeves (backup)
   F. Financial Report (backup)
   G. Maintenance Project Report – Eddie Bellamy (backup)

5. UNFINISHED BUSINESS
   A. Regional Coordination – Eric Larson, P.E. (backup)

6. NEW BUSINESS
   A. Forby Tract Land Acquisition – Eric Larson, P.E. (backup)

7. PUBLIC COMMENT

8. NEXT MEETING AGENDA
   A. April 2, 2014 (backup)

9. ADJOURNMENT

Beaufort County Stormwater Management Utility Board (SWMU Board)
Meeting Minutes

February 5, 2014 at 2:00 p.m. in Beaufort Industrial Village Building #2 Conference Room
Draft February 26, 2014

Board Members		Ex-Officio Members	
Present	**Absent**	**Present**	**Absent**
Don Smith		Andy Kinghorn	Van Willis
William Bruggeman		Scott Liggett	
Patrick Mitchell		Kimberly Jones	
Allyn Schneider			
James Fargher			

Beaufort County Staff
Eric Larson
Eddie Bellamy
Carolyn Wallace
Danny Polk

Visitors

1. Meeting called to order – Don Smith

- **A.** Agenda – The agenda was approved with GEL Engineering being removed from the agenda and their presentation rescheduled for the March board meeting.
- **B.** January 8, 2014 Minutes – approved.

2. Introductions – Completed.

3. Public Comment(s) – None.

4. Reports –

- **A. Monitoring Update –** Eric Larson

  Sampling – the County continues to perform weekly sampling at select locations in the May River and Okatie River watersheds in addition to the customary sites north of the Broad River in the CoB and ToPR. Danny Polk has been discussing with the USCB lab staff about expanding the number of monitoring sites throughout the County once the staff is fully trained on the new equipment.
  USCB WQ Lab – Dr. Alan Warren reported to Eric Larson last week that the lab is fully equipped, training on the last piece of new equipment is occurring this week, and plans to get their procedures is underway. Dr. Warren also noted that the lab has entered into agreements with multiple private plantation communities in Bluffton and on Hilton Head Island and negotiating with another to provide water quality field sampling and lab analysis.
  GEL Engineering Contract - Their contract ends in January 2014. They are agreeable to extend on a month to month basis in allow the County to transition into the use of the USCB lab.
  May River Action Plan Advisory Committee – Kim Jones reported on the quarterly meeting. Through nearly 6 years of sampling they have consistently identified fecal coliform hotspots which are driving the Town of Bluffton's CIP program for identifying where they want to do retrofit

projects. The town's second 3-year MOU with the USCB lab will expire soon and in the upcoming new MOU the town would like to take advantage of the lab's expanded capabilities.

B. Utility Updates – Eric Larson

DHEC Update – We have been in communication with the MS4 coordinating staff this past month. They have provided a map of the soon to be designated MS4 permit area (please see the attachment). It will only include the urbanized boundary in the county south of the Broad River and encompassing mainly the Towns of Bluffton and Hilton Head, along with fringe incorporated county areas. The urbanized "cluster" marked North of the Broad River will not be included in the permit(s). DHEC plans to meet with the MS4 staff within the next two weeks to outline the permitting process. Letters requesting submittal of a NOI are likely to be sent out in April or May 2014. The MS4(s) will have 180 days to reply.

SWIC Update – Last Friday, Jan. 31, 2014, the SWIC met. The focus of the meeting was to define a plan for the future. The plan includes options for MS4 permit application, implementation of the MS4 programs for the County, ToB, and ToHHI, future funding needs, and the "mission" of the SWIC going forward. Future meetings will be held on a regular basis as the MS4 permit needs evolve. The SWIC did review the 2014 goals and provided input. The Stormwater Manager provided draft minutes of the meeting.

HE McCracken Circle in Bluffton - Revisiting a drainage that has been previously studied but never resolved.

Buckingham Plantation retrofit - Stormwater Management is working closely with Planning and the County Administer to conceptually design an infrastructure retrofit project that will upgrade stormwater facilities to more appropriately address water quality and improve the access and aesthetics of the area. The planned outcome is a renewed interest in the area to promote redevelopment and growth.

Bluffton Gateway Development Agreement - We have been communicating with the development team to discuss stormwater needs and opportunities.

FY 2015 Budget – Staff in Management and Infrastructure are already hard at work trying to identify needs for FY 2015 and starting the early draft of the department budget.

C. Upcoming Professional Contracts Report – Mr. Eric Larson **–** There are no new contracts to report. Planning is likely to engage an environmental consultant to review submittals from the Carolina Jellyball application.

D. Utility 2014 Goals – Mr. Larson provided a draft copy of the SWIC January meeting (please see the attachment). The committee members reviewed and endorsed the goals. There were no changes to the goals. Mr. Larson had to provide the utility's goals, successes and challenges for the upcoming County Council retreat and he used much of this document when providing the information, therefore he has essentially provided this list to the members of the County Council. The SWMU Board recommended adoption of the goals.

E. Financial Report - Copies of the December financials were provided.

F. Maintenance Projects Report – Mr. Eddie Bellamy reported on (1) major project, Horace Dawson lane. He also presented (7) minor and/or routine maintenance projects in a shortened format.

5. Unfinished Business – Eric Larson

A. Regional Coordination

US 278 retrofit ponds – Bid due date has been extended. DRT review has prompted the need to revise the design of one of the four ponds to provide proper screening buffer and tree plant back requirement.

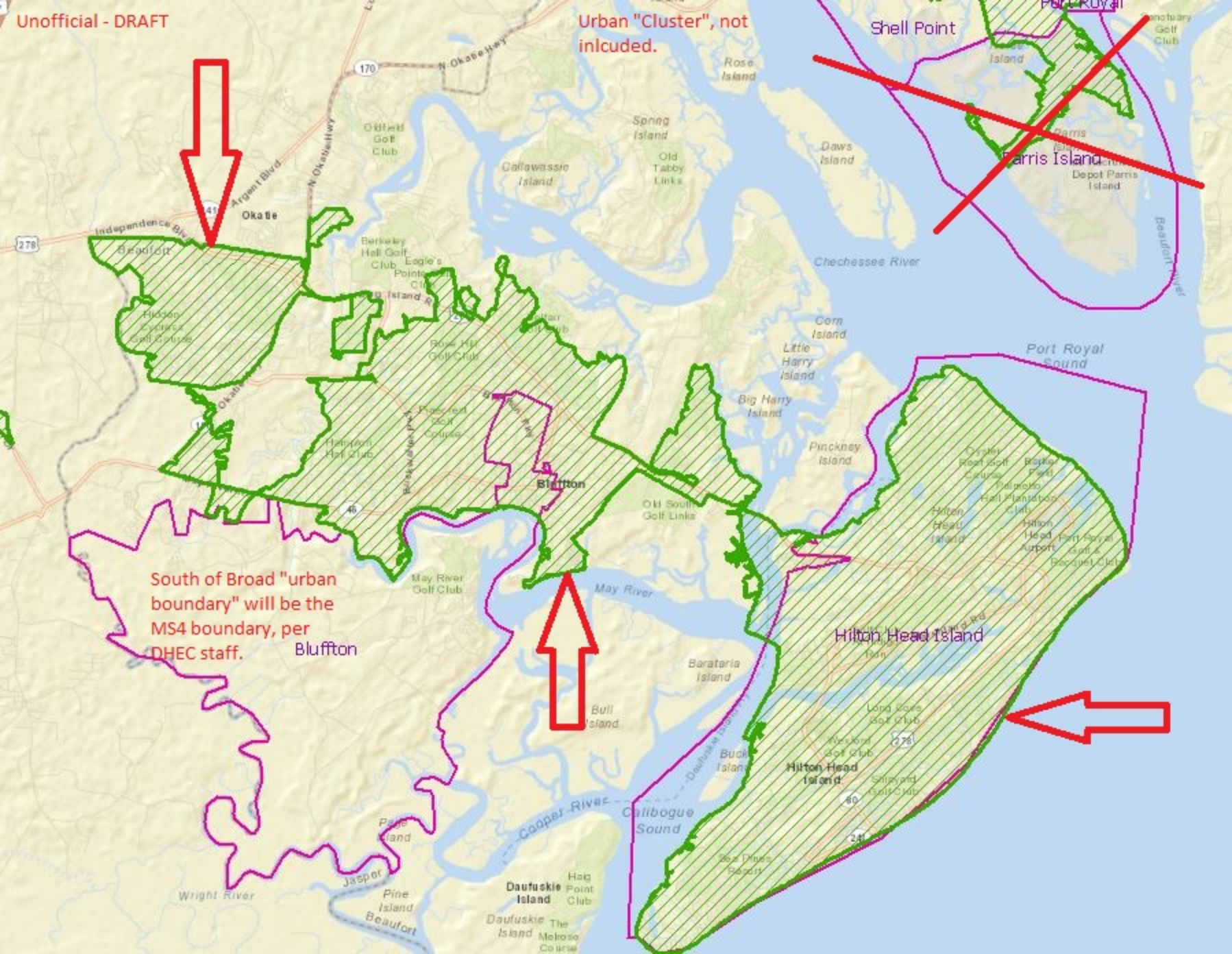
County Admin. Complex Retrofit Project – Has not gone out for bids yet. Waiting on revisions from the designer, Andrews and Burgess.
Battery Creek Pond – In design phase. The CoB and the consultant are considering activities to meet the public educational component of the 319 grant.
Stoney Creek – Ms. Jones said it was on-going with nothing new to report.
Okatie 319 grant – On going. Nothing new to report.

6. New Business – None.

7. Public Comment – Mr. Fargher said that he read in the newspaper that the proposed jelly ball operation has an unloading facility on St. Helena Island that backs up to Jenkins Creek. In the article the newspaper also provided a picture of their large, recently laid concrete slab. Mr. Fargher is concerned about the potential runoff into Jenkins Creek. Mr. Larson said he was not aware of the unloading site but he has sat in a few of the planning meetings but the discussions have been on the proposed processing facility in Lobeco. There have been discussions on various environmental concerns, from asbestos to contaminated soil, etc. Mr. Bellamy said the dock is located down Golden Dock Road and was a shrimp processing facility for years. He said from what he read in the newspaper, the facility is simply an unloading site and the jelly fish will be trucked to a facility to be dried and shipped mostly to Asia. He would think the impact would be the same as if they were unloading shrimp. Mr. Fargher said Jenkins Creek went from conditional harvesting to unrestricted harvesting in the last two years and he would not like to see it negatively affected by the operation. Mr. Kinghorn said it was worth keeping an eye on to ensure there was no cause and effect because of poor housekeeping, etc.

8. Next Meeting Agenda – The March agenda was approved with the addition of Gel Engineering's presentation being added to the agenda.

9. Meeting Adjourned.


Unofficial - DRAFT
Urban "Cluster", not inlcuded.
Shell Point
Parris Island
South of Broad "urban boundary" will be the MS4 boundary, per DHEC staff.
Bluffton
Hilton Head Island
Okatie
Beaufort
Port Royal
Port Royal Sound
Chechessee River
Broad River
May River
Calibogue Sound
Cooper River
Wright River
Daufuskie Island
Argent Blvd
N Okatie Hwy
Independence Blvd

From:	Larson, Eric
To:	(LTaylor@cityofbeaufort.org); Stanbery, Seth; Wallace, Carolyn; Bellamy, Eddie; Anthony C. Maglione (TMaglione@appliedtm.com); Jones, Kim; Bryan McIlwee (bryanm@hiltonheadislandsc.gov); Jeremy Ritchie (jritchie@townofbluffton.com); Polk, Daniel
Cc:	Larson, Eric
Subject:	SWIC Minutes
Date:	Wednesday, February 05, 2014 12:08:43 PM
Attachments:	image001.png image002.png

All,
I don't particularly like doing minutes, so my format below is basically my notes during the meeting. They are considered DRAFT to give you an opportunity to comment and/or correct me. Please send me your comments before the next SWIC meeting. Thanks.
Eric
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SWIC Minutes (DRAFT)
January 31, 2014
9:30 am - 11:30 am
BJWSA Community Room, 6 Snake Road, Okatie, SC 29909

1. Introductions
   In attendance - Eric Larson, BCSWU, Carolyn Wallace, BCSWU, Eddie Bellamy, BCPW, Seth Stanbery, BCGIS, Danny Polk, BCSWU, Kim Jones and Jeremy Ritchie, ToB, Tony Maglione, ToPR, Lamar Taylor, CoB, and Bryan McEllwee, ToHHI.

   Larson asked for a brief summary of the stormwater program activities from each agency.

2. Stormwater Program Updates
   a. Beaufort County (Larson)
      i. Utility Board Priorities for FY 2015
         Tony mentioned he had sent an email to Larson asking for clarification on monitoring. He will review the goals more with Van Willis and contact Larson again.
   b. Town of Hilton Head Island
      319 grant Upper Broad Creek. Modeling and inventory. $119,000 total.
      Started new Gel Engineering monitoring contract. Dry/wet and quarterly monitoring.
      Contract to inventory and model with Woolpert. Ongoing. Bryan will share details with SWIC. Also using Sea Island Survey for inventory.
   c. Town of Bluffton
      Finished first 319 grant for May River. Pond in New River area.
      Started second 319 grant.
      Modeling May River. Jeremey Ritchie is working on this project.
      Water quality monitoring ongoing. Working with USCB. Weekly hotspots for fecal.
      Renewing MOU with lab this year.
      Ongoing sediment and erosion control program. Addressing enforcement.
      Ongoing public education. Created Neighbors for Clean Water.

Infrastructure inventory. - Bellamy asked extent of how much Public Works staff is working with inventory. Kim stated that extent is unknown.
Bellamy mentioned need to coordinate flooding issue with Buckwalter Park. He asked for a contact person to work with.

d. City of Beaufort
319 grant for Battery Creek. Partnered with County. In design stage. $350,000.
Commerce grant. Duke st. Phase 2. LID with porous pavers. Andrews Burgess is designing.
Third grant. Has stormwater component.
Boundary St. - Has Stormwater BMPs
Internal projects. Outfall work, ditch and catch basin maintenance.
All new projects going through a New Urbanism City. Mandates Low Impact development design. They have been able to several grants using this designation.

e. Town of Port Royal
Finished Cypress Wetland project.
Finished study with redevelopment into new urbanism concept. Trying to densify their town core.
Looking into project to divert Ribaut Road drainage into the cypress wetland. They are encouraging properties to drain to the wetland and use excess capacity. They believe this will encourage redevelopment. OCRM seems open to this concept.
They have finished an inventory of all Outfalls. They are working on a repair project to clean and fix Outfalls.
Finished a ditch project in conjunction with County.
Plan on doing a Stormwater demonstration project at the new police station parking lot.

3. Monitoring Updates
   a. On-going activities
   County doing weekly sampling. Danny mentioned that he and the staff at USCB hope to expand the list of areas being monitored.
   County contract with GEL ends in January but will stay on board to assist with County's transition to the lab.
   b. USCB Lab set up and usage (Report by Alan Warren)
   Mike Monday hired - field and lab.
   Sea Pines engaging lab for work, similar to Palmetto Dunes. Kim stated Palmetto Bluff does the same services with the lab.
   Working on certifications.
   Heavy metal on ICPR training today. That is the last training needs.
   Bryan asked for copy of the agreement for the County and lab. HHI needs to understand how the procurement of the lab works.
   Eddie noted the County's vision is that the College will not just have a lab, but an environmental program to help the community.
4. MS4 Permit Update from DHEC
   a. Coverage area
   Kim noted DHEC map has outdated town boundary. They intend to ask for whole town to be included.
   Tony mentioned that large private PUD, such as Sun City, may not be included in county

MS4.

Eric encouraged option to request co-permitting. Tony noted DHEC may require individual permit rather than general permit coverage. Suggested contracting services between municipalities rather than an individual permit.

b. Submittals

Eric noted meetings to be set with us next two weeks by DHEC. Letter requiring submittal of a Notice of Intent should be coming out in May or June.

c. Timeline for implementation

Permit defines certain deadline for ordinances, programs, etc.

5. Discussion on MS4 implementation (*This discussion is intended to set a benchmark on current efforts and determine the "gap" needed to meet new MS4 permit requirements, as well as determine areas where partnering and cost sharing would be beneficial.*)

(The following items were introduced and discussed as noted. Not all items were discussed.)

Larson noted as the group began the discussion of the items below that there are numerous opportunities to partner and / or cost share and he recommends the SWIC try to identify these items for the next few months.

a. Public Education and Involvement
   i. Message(s)
   ii. Audience(s)
   iii. Methods (?)
      1. Hard copy mailers, stuffers
      2. Video and Audio ads for TV, County Channel, Radio
      3. River Clean Up days
      4. Public Meetings
      5. School Curriculum
      6. New - ToB Pet waste Postcard - Kim, Eric
   iv. Partners (?)
      1. Carolina Clear

         Overwhelming support by the SWIC on the past efforts of the Carolina Clear program and recommended their continued use.
      2. USCB
      3. Technical College of the Low Country
      4. Friends of Port Royal Sound
      5. SC Coastal Conservation League
      6. Sea Grant Consortium
      7. Low Country Institute
      8. Together for Beaufort
      9. Others

         Tony suggested Walkamu SW consortium. Used by northern South Carolina.

b. Illicit Discharge Detection and Elimination (IDDE)
   i. Ordinance

      ToB has IDDE in code but doesn't effectively cover enforcement. ToHHI, CoB,

ToPR, and the County don't have one.

ii. System Mapping

Larson recommended data sharing among the municipalities and noted the need for a good data set to facilitate permit activities.

iii. Public Reporting Mechanism(s)

iv. Inspection program

ToB has staff doing inspections based on complaint. CoB, ToHHI, ToPR, and County don't.

v. Staff Training

c. Construction Run-off

i. Ordinance

CoB and ToB have ordinances but they may not effectively cover SWPPP plan requirements or enforcement. ToHHI, ToPR, and County don't have an ordinance.

ii. Education

1. Contractors
2. Public (also see IDDE reporting mechanism)

iii. Plan Review

iv. Inspection program

ToPR, CoB, ToB, and ToHHI have inspectors. County does not, however, Danny Polk does inspect CIP projects.

v. Staff Training

d. Post-Construction Water Quality

i. Ordinance

Everyone has an ordinance or reference to the County Ordinance. However, not all ordinances address inspection and enforcement.

ii. Design Guidelines

iii. Education of Development Community

iv. Plan Review

v. Inspection Program

No one has an inspection program. ToB has done limited inspections based on complaints.

vi. Staff Training

e. Municipal Operations (Good Housekeeping)

i. Facility Inventory and Management Plan

ii. MS4 system assessment

Eddie mentioned concern with SCDOT outfall responsibility. Everyone should be thinking about how to handle maintenance of these areas in the future.

iii. Staff Training

f. Monitoring Changes

Eric discussed the County's desire to have all municipal bodies to use the USCB lab. Should be a cost savings to all and keeps economic benefit in the County.

i. outfalls

ii. TMDLs

g. Master planning, studies, initiatives

i. Update of Master Plan

ii. Hydrology, Hydraulic, and Loading Models
iii. Economic and Development Impact

h. Data Management
i. Tool(s)

No one currently uses a holistic data management software package. Larson recommended the SWIC consider selecting one software that all can use to facilitate reporting and data sharing. Larson and Stanbery will begin "shopping".

ii. Annual Reporting

6. Funding
   a. Fee Increases?
   b. Change in allocations?
   c. New - Sharing of FTE and roles (suggested by McFee) ?
7. IGA revisions based on MS4 program implementation goals and/or funding changes?
8. Redefining the SWIC role?
   a. Expansion of SWIC Membership?

   Taylor suggested SWUB membership has a voting member for each municipal body. Bellamy suggested that the board mission be revised from county implementation to overall ms4 implementation and allow the Board to review how each of the municipalities utilize their Utility fees. Larson agreed that the structure of the Board needs to be revisited with the pending implementation of the MS4 program(s).

9. Next Meeting Topics? IDDE, Const. and Post Construction programs.
10. Meeting schedule?

    Monthly, second Wednesday of month at 1:30-3:30 at BJSWA community room.
11. Other items
    a. Budget for FY2015 was discussed. Other municipalities asked for numbers for public education, monitoring, LIDAR for setting budget. Wallace will provide.
    b. SWIC agreed that new MS4 costs would not be ready in time to update utility fee distribution or the "$2.80 SFU" number and that this level of funding for FY 2015 should go forward as usual. It can be updated later, if needed.

12. Adjourn

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March 5, 2014

Stormwater Manager's report for the Stormwater Utility Board Meeting

Monitoring Update

1. USCB lab update on setup, training, and certification – Danny Polk has been meeting with representatives with GEL Engineering and the USCB lab and training on the field procedures and locations has begun. Training is almost complete and the certification process is ongoing.

Utility Update

1. DHEC and MS4 update – See attached memo. Also, DHEC staff will be presenting at today's meeting.
2. Proposed Carolina Jellyball processing facility in Lobeco and unloading facility on Golden Dock Road in St. Helena Island – The County Planning Department and Stormwater Utility Department have negotiated a scope of services with ATM, Inc. to review the proposed project submittals. The applicant has not submitted anything to date. Planning Department reported to me that the applicant has been contacted concerning the unloading dock construction. They have been instructed to submit a development plan to the DRT and to post a bond to cover the removal of the new concrete slab if the County denies the plan.
3. Continuing to review a drainage issue on H.E. McCracken Circle in Bluffton. Meetings between the County and Town of Bluffton to discuss a proposed solution are pending.
4. Budget preparation is on-going. Additional staff requests will be submitted next week.
5. Forby Tract – See attached memo / recommendation and reference map.
6. Larson, Wallace, and Polk will be attending the SESWA spring conference in April. It includes a session by EPA Region 4.
7. Infrastructure crew performed on-going maintenance needs. Significant involvement by the Stormwater Manager involved a retrofit to Basil Green Park, easement issue on Queens Road, and preliminary planning for subscribing to the PUPS 811 service.

Professional Contracts Report

1. See Discussion on consultant procurement for the Carolina Jellyball application.
2. A RFP should be going out within the next two weeks to solicit proposals for a stormwater consultant to assist with the setup of the MS4 program.

3. Water Budget Study – the study should be complete in the next two months. Dr. Badr will be presenting the findings to the Board in the upcoming months.
4. Okatie East BMP monitoring – Now that the project is complete, we should begin monitoring the volume and water quality from the basin to determine if the improvements are meeting the designed goal. I recommend retaining Ward Edwards, the project consultant, to assist the County with data collection and analysis.

Regional Coordination

1. US 278 retrofit ponds – Bid due date has been extended again pending changes to one of the ponds and access changes.
2. County Admin. Complex Retrofit Project – Revisions to the plans are complete and the project should be advertised within the next 30 days.
3. Battery Creek Pond – Still in design phase. (Lamar Taylor will report)
4. Stoney Creek – (Kim Jones will report)
5. Okatie 319 grant – Project is wrapping up work. LCOG is beginning work on the final report. I am providing matching cost data from the Okatie East Basin and US 278 pond projects.
6. Salinity Study - On going. Nothing new to report.
7. Sea Level Rise and future planning – County Planning department is facilitating a research project with the S.C. Sea Grant Consortium to determine the County's vulnerability and consequences of sea level rise. Stormwater is actively participating in the study. There is no cost to the Utility.

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I N T E R O F F I C E M E M O R A N D U M

TO: **Beaufort County Stormwater Utility Board**

FROM: **Eric W. Larson, Stormwater Manager**

SUBJECT: **Status of the Stormwater Utility related to pending MS4 implementation**

DATE: **March 5, 2014**

Introduction

For several years now, the County and the Towns and City within have been told by the South Carolina Department for Health and Environmental Control (DHEC) that the Municipal Separate Stormsewer System (MS4) water quality program would require them to apply for coverage under the General Permit and become a regulated MS4. After multiple postponements, it appears that the day has come. Within the next 6 months, the County and the Towns of Hilton Head Island and Bluffton will submit a permit. While the County has pro-actively addressed water quality since 2001, the MS4 program will require new programs and activities that we will have to implement.

As background, the United States Environmental Protection Agency's (EPA) Clean Water Act (CWA) was enacted in 1972 to address degrading water quality nationwide. The CWA addresses both point source and non-point source pollution. Point source, such as industrial plants and water treatment plants, was the original focus. In 1999, Phase I of the non-point source program focused on MS4s with population over 100,000. Starting in 2003, the "bar was lowered" to communities with 50,000 population or urban density thresholds. As a result of the 2010 U.S. Census, portions of southern Beaufort County met the density and population threshold and became designated as a MS4 by DHEC.

Coverage Area

DHEC has informed the County staff that the MS4 jurisdictional boundary will match the 2010 U.S. Census urbanized boundary. This encompasses all of Hilton Head Island, most of the Town of Bluffton, and portions of the County adjacent to these two municipal boundaries and within the urbanized boundary. Recent annexations by Bluffton are not included in the area, and most significantly, areas north of the Broad River, including the Town of Port Royal and City of Beaufort, aren't included.

Implementation of an effective program within the County is problematic given this designated area. New growth within Bluffton and the County and significant areas of urban development that contribute to urban runoff are not included. MS4 program elements lend themselves to a county-wide program. Implementation of multiple MS4 programs within the County will also lead to issues with consistency and competing interests.

MS4 Program Elements

The CWA and the DHEC MS4 General Permit defines a Stormwater Management Plan (SWMP) that addresses six (6) Minimum Control Measures (MCM). They include:

- Public Education
- Public Outreach and Involvement
- Illicit Discharge, Detection, and Elimination (IDDE)
- Construction Run-Off
- Post Construction Best Management Practices (PC-BMP)
- "Good Housekeeping" in Municipal Operations

Additional program elements require the development of a monitoring program, including specific guidelines for water bodies found to be impaired and have Total Maximum Daily Load (TMDL) allocations (e.g. The Okatie River) developed for them.

The County has had an effective Public Education and Outreach program in the past. The MS4 permit will require specific and measurable goals to be developed. Target audiences and focused messages will be required. We will be required to create opportunities for involvement. Our goal will be to continue what we have done in the past and build upon that. The key to success will be partnerships with all municipal bodies to develop a unified message. One aspect of public outreach will be expansion of informal advisory groups to "weigh in" on our program. The existing Stormwater Implementation Committee (SWIC), which has traditionally been made up of the stormwater coordinators for each municipal body, will likely be expanded to better reflect the development and water quality community.

The IDDE program serves as the foundation of the remaining MCMs and represents a new element that the County has not focused on in the past. Permit tasks include developing a system map to serve as the MS4 inventory and be used as a tool to track inspections and system condition assessment. The County has a robust GIS system and has made significant advances in the completeness of the map. However, a large gap in coverage and detail exists. A perpetual effort is needed to complete the map and keep it current as the County continues to grow.

The other aspect of the IDDE program is the identification and removal of non-stormwater flows into the stormsewer system. This duty has fallen onto DHEC staff in the past but will become a local effort. Routine inspection of the stormsewer system will find the "hotspots" and the mapping tool will be used to track the source. The adoption of an IDDE ordinance will prohibit these flows and provide a mechanism for enforcement.

Construction run-off, or erosion control on construction sites, is long recognized as a traditional stormwater pollution source. Similar to the IDDE efforts, DHEC has been the lead and provided the permitting and enforcement of regulations against sediment loss on construction sites. With the evolution of the MS4 permit, this task falls on the local jurisdictions. Ordinance development will be needed to require stormwater pollution prevention plans (SWPPP), permitting, inspections, and enforcement.

On-lot volume control and the County BMP manual are examples of County successes towards the PC-BMP MCM. However, it isn't enough. Like the IDDE and Construction programs, design, construction, inspection, and enforcement guidelines will be required by ordinance. Physically, we won't see much change in how a site is developed, but the administrative process will change significantly. Inspection of publicly owned and privately maintained BMPs will be a huge component of the program and something the County has not actively engaged in.

Municipal facilities aren't exempt from water quality standards. The last MCM is focused on the maintenance and operations of municipal properties and infrastructure to assure we are not contributing to water quality problems.

There are two sub sets of this MCM. We must develop an inventory of all buildings that conduct activities that could potentially pollutant the receiving stormsewer system and streams. Each facility must be inspected and a plan prepared to address handling of hazardous materials, maintaining equipment, etc. Two good examples are handling of used oil in a mechanic's shop and what to do if it is spilled and washing of vehicles so that the soaps, oils, and dirt are captured prior to discharge.

The other part of "good housekeeping" is maintenance and operation of our "MS4", the stormsewer system. Using the mapping and inventory developed for the IDDE program, we need to inspect the condition of the system on a regular basis so that we can fully understand our maintenance and rehabilitation needs and prioritize repairs and/or justify funding level increases.

With the implementation of the MS4 permit, our monitoring efforts will increase. We will use the system mapping to identify our outfalls into the Waters of the State and establish a dry and wet weather sampling plan. Our list of constituents of concern will grow and monitoring will involve field testing in addition to sampling and lab analysis.

Moving Forward

The success of the establishment of the new MS4 program will rely on input from stakeholders and advisory groups. The use of the SWIC and the advice of the Stormwater Utility Board will define how the program looks as it moves forward. The decisions outlined in this section should be vetted with all stakeholders to gain consensus and support.

The MS4 jurisdictional boundary needs to be modified to a more meaningful designation that can be easily managed. Development of a county-wide MS4 program via co-permitting and/or IGA agreements is needed to prevent duplication of effort and will provide consistent service throughout the County. This will likely involve revisiting the existing IGAs for funding, partnerships, and delegation of duties. Early discussions with the Town of Port Royal and the City of Beaufort indicate they will be willing participates in implementation of a county-wide stormwater program even if the MS4 boundary does not mandate such.

Implementation of the MS4 program will involve a quick "ramp up" in resources and development of key program tasks. Staffing needs will increase. Additional staff translates into additional office space, vehicles, equipment, and cost. Ramping up within the time frames established by the permit will necessitate the need for consultant services with the ongoing tasks performed with in-house staff and/or partnerships with the other municipal partners.

Significant investment has been made in the USCB water quality lab by the County and Town of Bluffton. The County, Town of Bluffton, Town of Port Royal, and City of Beaufort already utilize the lab for our water quality monitoring work. The lab's recent upgrade in equipment and staff will allow us to expand our monitoring program to meet the demands of the MS4 program. Encouraging other municipal bodies, private entities, industrial and commercial clients, and federal agencies to also utilize the lab will help provide consistent and timely service and allow USCB to build its water quality programs to benefit the community for years to come.

The Stormwater Utility has been very successful since its formation. MS4 marks the next milestone for Beaufort County. The new requirements and programs of the MS4 program prompt the needs for an update to the 2006 Beaufort County Stormwater Management Plan. The MS4 program elements will identify new capital needs that will complement the Management plan findings. The six MCMs along with the results of the Management Plan will set the course for the next 13+ years.

Final Thoughts

After the MS4 program is defined and an implementation schedule for the stormwater management plan is set into motion, funding needs will need to be evaluated. Allocation of funds between municipal bodies and funding levels for each should be reviewed to assure permit compliance, infrastructure maintenance requirements, and capital needs. It is anticipated that as stormwater program needs increase, so will costs. Hard work on the front end to develop the most efficient and cost effective program through partnerships and cooperation will minimize funding needs and the impact the MS4 program will have on our community.

GEL Engineering LLC

Environmental | Engineering | Surveying

Year 2012 – 2013 Report
Beaufort County Stormwater Quality Monitoring
Beaufort County, South Carolina

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Beaufort County Water Quality Monitoring

Beaufort County, South Carolina

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EXECUTIVE SUMMARY

The Beaufort County water quality monitoring program (WQMP) was developed to achieve the four primary goals identified in the 2006 Storm Water Management Plan (SWMP) and support the county's future implementation of this plan. The four primary goals are: 1) establish baseline water quality; 2) determine and track long-term trends to measure effectiveness of current best management practices (BMPs); 3) measure efficiency of selective BMPs, and; 4) determine runoff quality from single land use areas. Table 1 shows the recommended tributary sampling as indicated in the original SWMP and Table 2 shows the 2012-2013 sampling locations. GEL Engineering, LLC (GEL) was first selected by Beaufort County in 2007 to implement the water quality monitoring program for two years. In 2009, GEL was selected to continue the water quality monitoring program, for the potential of up to five years.

This report provides an overview of Year 6 and conducts a follow-up to the Post-Year 5 WQMP review. The activities and observations during Year 6 include the following:

- The concentrations of fecal coliform continue to exceed the state shellfish harvesting waters standard of 14 CFU/100 mL at all sample stations.
- No sample stations were added, nor was sampling discontinued at any of the existing sample stations during Year 6.
- During Year 5, the total phosphorus concentrations observed at sample station BECY-15 regularly exceeded the established "critical exceedance concentration". However, during Year 6, an increasing trend of total phosphorus concentrations was not observed, and the number of violations of the critical exceedance concentration reduced from seven in Year 5 to two in Year 6.
- The data collected in Year 6 did not regularly exceed action levels for parameters with critical exceedance concentrations, except for fecal coliform.

Following Year 5 of the WQMP, CDM Smith and GEL reviewed the water quality data since the inception of the WQMP (2007-2012). Several observations were noted during the Post-Year 5 WQMP review and follow-up investigations were completed during Year 6:

- The 2007-2012 WQMP review noted that given the dataset as a whole, the results signify 'good' water quality, as indicated by a lack of chronic or routine critical concentration exceedances. Some stations have concentrations of certain parameters that are higher in comparison to other stations, but these concentrations are typically below critical exceedance concentrations.
    - During Year 6 of the WQMP, the 2007-2012 trend of 'good' water quality continued. As noted above, the data collected during Year 6 did not

regularly exceed action levels for parameters with critical exceedance concentrations.

- The 2007-2012 WQMP review noted increasing trends for ammonia and Total Kjeldahl nitrogen (TKN) at BECY-1, BECY-2, and BECY-3. The increasing trend was due to several high concentrations observed during Year 5. However, the observed concentrations were below the critical exceedance concentrations.
    - Based on data collected during Year 6, a continued increasing trend of ammonia and TKN concentrations was not observed.
- Based on the WQMP review conducted at the end of Year 5, existing water quality sample stations require 3-4 years of data to determine baseline water quality.
    - Three sample sites, BECY-4r, BECY-15, and BECY-16, have at least three years of collected data. Therefore, if the County wishes, sampling at these sample stations can be discontinued. However, a water quality retrofit has recently been established at BECY-4r, so the County may wish to continue sampling at this location to gather data on the water quality impacts of this retrofit.

YEAR 2012-2013 REPORT

Beaufort County Water Quality Monitoring

Beaufort County, South Carolina

1.0 YEAR 6 WATER QUALITY MONITORING

GEL was retained to continue the water quality monitoring program (WQMP) that was initiated in June 2007. During Year 6, GEL:

- Continued monitoring all established stations in response to a qualified storm event;
- Reported sample values exceeding "action levels" to Beaufort County for those parameters with South Carolina Estuarine and Coastal Assessment Program (SCECAP) based "critical exceedance concentrations;"
- Routinely met with Beaufort County to review the latest data, and;
- Made adjustments to sample locations based on the monitoring results, data review, and monitoring program directives supplied by Beaufort County.

Table 2 summarizes the stations monitored during Year 6, including their name, watershed, receiving water body and classification, etc., and most importantly their purpose.

1.1 Sample Locations and Purpose

Since initiation of the WQMP, the selection and identification of appropriate sampling sites for grab sampling and automatic storm event sampling has been based on the water quality sensitivity analysis (modeling), the current level of service for water quality segments, and the existing and future land use classifications. During Year 6, five trending sites and six existing water quality stations were monitored. All sites monitored during Year 6 are displayed on Figure 1.

1.2 Qualifying Storm Events

During Year 6, GEL collected grab samples and conducted field measurements at all stations following a storm event that was greater in magnitude than 0.1 inches per hour and that occurred at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. During Year 6, nine sets of samples were collected following a qualifying rain event. Due to a lack of qualifying rain events and/or the timing of a qualifying rain event (weekend and holidays), 3 of the intended 12 sample sets were not obtained.

GEL also conducted monthly composite storm event sampling at two discrete auto sampler locations, provided that a storm event greater than 0.1 inches in magnitude per

hour had not occurred within 72 hours from a previously measurable (greater than 0.1 inch rainfall) storm event. Samples were collected with an automatic sampler that was established and secured in each of the locations. The automatic sampler collected an aliquot every two minutes for the first 30 minutes following a qualifying storm event for a "grab sample." In past years, the automatic sampler then collected a 15 minute aliquot for the next two and a half hours for a composite sample. However, based on recommendations from the Year 2 Annual Report, the composite auto sample was no longer collected beginning in September 2009. Instead, a second grab sample was collected directly from the water body when GEL personnel collected the initial grab from the automatic sampler (referred to as "Grab After" in Tables 3 through 26).

Beginning in April 2012, this sampling protocol was changed at BECY-9ra. The initial "grab sample" from the automatic sampler is still collected in the manner noted above. However, a composite sample is now collected, which is comprised of an aliquot collected every four hours for up to 16 hours (up to four aliquots). The purpose of this sampling is to determine if parameter concentrations differ over the extended time period from the initial grab sample. Additionally, at the time of sample pick-up by GEL personnel, a sample for fecal coliform analysis is still collected from the waterbody ("Grab After"). These data will be included in an analysis to investigate how fecal coliform concentrations may fluctuate after a rainfall event.

1.3 Sampling/Analytical/QA-QC Procedures

All sampling events were conducted following GEL's Standard Operating Procedures, United States Environmental Protection Agency (EPA) and South Carolina Department of Health and Environmental Control (SCDHEC) approved sampling and analytical protocols, and appropriate safety measures. The table below identifies each parameter analyzed, the method allowable maximum holding time, sample preservative and the analytical method:

Parameter	Holding Time	Sample Preservative	Analytical Method
Fecal Coliform bacteria (FCB)	24 Hours	$Na_2S_2O_3$	Idexx Colilert-18/ATP
Total suspended solids (TSS)	7 Days	4°C	EPA 160.2
Salinity	28 Days	4°C	EPA 120.1
Biochemical oxygen demand (BOD)	48 Hours	4°C	EPA 405.1
Ammonia nitrogen (NH3-N)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 350.1

Parameter	Holding Time	Sample Preservative	Analytical Method
Nitrite and nitrate nitrogen (NO_3 + NO_2)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 353.1
Total Kjeldahl nitrogen (TKN)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 351.2
Total phosphorus (TP)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 365.4
Chlorophyll-a (chl-a)	48 Hours	4°C	SM10200H
Total organic carbon (TOC) - quarterly	28 Days	4°C, H_2SO_4 (pH<2), zero headspace	EPA 415.1
Metals (cadmium, chromium, copper, iron, lead, manganese, mercury, nickel and zinc) — quarterly	6 Months	4°C, HNO_3 (pH<2)	6010B

Analysis of pH, temperature, dissolved oxygen, turbidity and conductivity was performed in the field using a calibrated Series 4a DataSonde, manufactured by Hydrolab. This allowed parameters with a short holding time to be analyzed in-situ at the time of sampling at each sample location, thus providing more accurate results. Ambient weather conditions noted during each monitoring event included precipitation over the previous 24 hours. In addition, tide levels were noted during the time of sampling at each location. Each of these field parameters was recorded on a Field Data Information Sheet.

While grab samples collected using the auto samplers was described in Section 1.2 of this report, discrete grab samples were collected by lowering a new sampling container directly into the surface water and next transferred to the appropriate laboratory sample containers that have been pre-labeled and containing the appropriate sample preservative. Sampling personnel wore new laboratory-quality, PVC gloves during all sample collection activities, and changed gloves, at a minimum, between each monitoring location. Each sample container was identified with a laboratory label that was completed during collection, and each label included the following information:

- The address and telephone number of GEL;
- A specific client code for the project;
- The parameter to be analyzed from that container;
- The sample identification number/name, and;
- The date and time of sample collection.

A chain of custody form (COC) was completed and maintained throughout sampling and transportation to the laboratory. Samples were transported to GEL Laboratories, LLC, or the designated subcontracted laboratory for analysis. A sufficient amount of freezer packs and/or ice was maintained in the cooler to ensure that the samples remain at the recommended temperature (4° C). The analytical results were submitted to the County, along with Critical Exceedances, on a monthly basis. (The COC and analytical certificates were not submitted to the County and are not included within this report, but may be supplied upon request.)

2.0 ADJUSTMENTS MADE DURING YEAR 6

During Year 6, no sample stations were added or removed from the WQMP. However, during Year 6, open water sampling was conducted for an evaluation of copper, as described below.

2.1 Open Water Copper Sampling

Port Royal Sound (Broad River) is on the 303(d) impaired water list due to elevated copper concentrations. However, no samples have been collected in association with this listing in a number of years and a Total Maximum Daily Load analysis is scheduled to be completed in 2021. As such, the Beaufort County Stormwater Utility (SW Utility) desired to learn if the impairment still existed in this waterbody. If the impairment did not currently exist, the waterbody could be removed from the 303(d) list by creating and implementing a Quality Assurance Program Plan (QAPP).

The QAPP would require collecting quarterly data for three years (12 samples) to demonstrate copper concentrations are below the established regulatory limit (3 micrograms per liter). To be removed from the 303(d) list, no greater than one of the 12 samples could exceed the regulatory limit. However, prior to writing and implementing a QAPP, GEL recommended that the SW Utility first collect an open water sample to determine the current concentration of copper and whether it would be likely the waterbody could be removed from the 303(d) list.

Samples were collected from two locations in the Broad River in April 2013. The two samples and their duplicates exceeded the established regulatory limit (concentrations ranged from 7.69 to 9.65 micrograms per liter). Based on these results, the SW Utility elected not to pursue writing and implementing a QAPP.

3.0 YEAR 6 DATA ANALYSIS

3.1 Year 6 Existing Water Quality

As noted in the Storm Water Management Plan, sample stations with results above the applicable water quality standards should receive a higher priority for implementing

future BMPs. Certain parameters are internally tracked for exceedances, which include BOD, copper, dissolved oxygen, fecal coliform, pH, total phosphorus, and TKN. The established critical exceedance concentrations, as determined by Beaufort County, are based on the SCECAP standards, which are noted on the attached Tables for each specific parameter.

During Year 6, the following observations were noted:

- All stations were observed to have average fecal coliform concentrations greater than the state shellfish harvesting standard of 14 CFU/100 ml.
- Copper was detected at concentrations greater than the established critical exceedance concentration at several sample stations. However, the copper exceedances were neither widespread nor consistent.
- During Year 5, total phosphorus concentrations at sample station BECY-15 regularly exceeded the critical exceedance concentration of 0.98 milligrams per liter (mg/L). However, during Year 6, an increasing trend of total phosphorus concentrations was not observed. The number of violations of the critical exceedance concentrations reduced from seven in Year 5 to two in Year 6, and the average concentration during Year 6 was below the critical exceedence concentration.
- Certain sample stations continue to have higher than average concentrations of various parameters, such as BOD and fecal coliform at BECY-17 and fecal coliform at BECY-8r. However, aside from fecal coliform, the observed concentrations do not routinely exceed the established critical exceedance concentrations.

Aside from these observations and typical seasonal fluctuations, sample stations in Year 6 did not experience widespread or routine results greater than the established critical exceedance concentrations.

As previously noted, GEL no longer collects a composite sample from the automatic sampler at sample location BECY-17. At this location the grab sample from the automatic sampler is collected, along with a second grab sample directly from the waterbody at the time of sample pick-up. An analysis of the fecal coliform concentrations from this sampling protocol was conducted to investigate if a correlation existed between the lapsed time between samples and the fecal coliform concentrations. This analysis did not reveal any trends based on lapsed time between the samples and the fecal coliform concentrations. As noted in the Year 5 Annual Report, it is assumed that the fecal coliform concentrations are affected by a number of variables that may overshadow the time between sample collections, such as the duration, intensity, and overall amount of rainfall that triggers a sample collection, as

well as seasonal impacts.

As noted in Section 1.2, a new sampling protocol was initiated at sample station BECY-9ra, specifically to address how time elapsed between samples affects fecal coliform concentrations. The review of the data did not indicate obvious trends between fecal coliform concentrations and the lapsed time between the initial grab sample, a longer duration (up to 16 hours) composite sample, and the final grab sample. As noted for BECY-17, the results are likely influenced by a number of variables, such as the duration, intensity, and overall amount of rainfall, as well as seasonal impacts.

4.0 2007-2012 WATER QUALITY MONITORING PROGRAM REVIEW FOLLOW-UP

At the conclusion of Year 5 of the WQMP, Beaufort County requested a more thorough review of the data and an overall evaluation of the WQMP. As part of this effort, the County contracted with Mr. Rich Wagner of CDM Smith to review the data with respect to the goals of the monitoring program as stated in the 2006 SWMP, which was also completed by CDM Smith. Several observations were noted in the Year 5 Annual Report and the following sections are a follow-up to those observations.

4.1 2007 – 2012 Water Quality Data Evaluation Follow-Up

As previously indicated, two of the primary goals of the County's WQMP are: 1) establish and evaluate baseline existing water quality and, 2) track long-term trends to evaluate BMP effectiveness.

The purpose of the existing water quality sample stations is to establish baseline water quality in developed areas where the SWMP suggested water quality controls would be effective in improving water quality. To determine the effectiveness of a future water quality control retrofit, the existing water quality has to be established for comparison to the water quality after the retrofit. Importantly, if no retrofit is established, the collected data only served to establish the water quality during the sampling of that station.

Based on CDM Smith's review of the existing water quality data, it appears that 3-4 years of data is sufficient to establish the existing water quality. After the collection of 3-4 years of data, these sample stations can be discontinued or relocated to another location. As such, data has been collected at sample stations BECY-4r, BECY-15, and BECY-16 for at least 3 years. Therefore, if the County wishes, sampling at these locations can be discontinued. However, a water quality retrofit has recently been established at BECY-4r, so the County may wish to continue sampling at this location to gather data on the water quality impacts of this retrofit.

As part of the Post-Year 5 WQMP review, the data was evaluated to determine the quality of the water at the sample stations. Given the dataset as a whole, the results

indicate “good” water quality. This indication of “good” water quality is based upon a lack of chronic or routine critical exceedance concentrations in sample results. Some stations, such as Southside, have concentrations of certain parameters (nitrogen species, phosphorus, chlorophyll-a, dissolved oxygen) that are higher in comparison to the other sample stations. However, these results are in comparison to the other sample stations, and it is important to note that the observed concentrations did not routinely exceed the critical exceedance concentrations. During Year 6 of the WQMP, the 2007-2012 trend of ‘good’ water quality continued.

The second type of data collected as part of the WQMP is to track long-term trends to evaluate BMP effectiveness. Typically, to make a full evaluation of the water quality for a long-term trend analysis, at least 10 years of data is necessary. However, a preliminary analysis was completed at the end of Year 5 to determine if any statistically significant trends were observed. The review indicated that very few significant trends were observed during the five years of collected data, which indicates that little significant change has occurred in the water quality at each station.

One trend observed in Year 5 was increasing concentrations for ammonia and TKN at sample stations BECY-1, BECY-2, and BECY-3. Interestingly, the increasing concentrations are a result of several high measurements in Year 5. If the trend analysis at these stations did not include data from Year 5, no significant trends would have been observed. However, it is important to note that the observed concentrations did not exceed the critical exceedance concentration values. Data collected during Year 6 did not indicate a trend of increasing ammonia and TKN concentrations at sample stations BECY-1, BECY-2, and BECY-3.

5.0 CONCLUSIONS AND RECOMMENDATIONS

GEL was retained to continue the WQMP during year 2012-2013, while integrating improvements over the existing sampling and analysis program. The activities and observations during Year 6 include the following:

- The concentrations of fecal coliform continue to exceed the state shellfish harvesting waters standard of 14 CFU/100 mL at all sample stations.
- No sample stations were added, nor was sampling discontinued at any of the existing sample stations during Year 6.
- During Year 5, the total phosphorus concentrations observed at sample station BECY-15 regularly exceeded the established critical exceedance concentration. However, during Year 6, an increasing trend of total phosphorus concentrations was not observed, and the number of violations of the critical exceedance concentration reduced from seven in Year 5 to two in Year 6.

- The data collected in Year 6 did not regularly exceed action levels for parameters with critical exceedance concentrations, except for fecal coliform.

Following Year 5 of the WQMP, CDM Smith and GEL reviewed the water quality data since the inception of the WQMP (2007-2012). Several observations were noted during the Post-Year 5 WQMP review and follow-up investigations were completed during Year 6:

- The 2007-2012 WQMP review noted that given the dataset as a whole, the results signify 'good' water quality, as indicated by a lack of chronic or routine critical concentration exceedances. Some stations have concentrations of certain parameters that are higher in comparison to other stations, but these concentrations are typically below critical exceedance concentrations.
    - During Year 6 of the WQMP, the 2007-2012 trend of 'good' water quality continued. As noted above, the data collected during Year 6 did not regularly exceed action levels for parameters with critical exceedance concentrations.
- The 2007-2012 WQMP review noted increasing trends for ammonia and TKN at BECY-1, BECY-2, and BECY-3. The increasing trend was due to several high concentrations observed during Year 5. However, the observed concentrations were below the critical exceedance concentrations.
    - Based on data collected during Year 6, a continued increasing trend of ammonia and TKN concentrations was not observed.
- Based on the WQMP review conducted at the end of Year 5, existing water quality sample stations require 3-4 years of data to determine baseline water quality.
    - Three sample sites, BECY-4r, BECY-15, and BECY-16, have at least three years of collected data. Therefore, if the County wishes, sampling at these sample stations can be discontinued. However, a water quality retrofit has recently been established at BECY-4r, so the County may wish to continue sampling at this location to gather data on the water quality impacts of this retrofit.

6.0 REFERENCES

Beaufort County Storm Water Management Plan, February 20, 2006, Thomas & Hutton Engineering Co. and Camp Dresser McKee Inc.

Beaufort County Monitoring Program Review, March 24, 2008, Camp Dresser and McKee Inc.

Beaufort County Monitoring Program Review, December 4, 2012, CDM Smith.

South Carolina Department of Health and Environmental Control, April 25, 2008, Water Classifications and Standards Regulation 61-68: Bureau of Water.

South Carolina Department of Health and Environmental Control, Shellfish Sanitation Program Water Monitoring, Assessment and Protection Division, Environmental Quality Control-Bureau of Water, Annual Update, July 2006, Update.

USEPA, 2005. Microbial Source Tracking Guide Document. Office of Research and Development, Washington, DC, EPA/600/R-05/064.

USEPA, 2006, Water Quality Standards Database.

Station	Sample Method	Watershed	Hydrologic Basin	RWB	Classification	Purpose
BECY-1	Grab	May River	Stoney Creek	May River	ORW	Trend Analysis
BECY-2	Grab	May River	Tose Dhu Creek	May River	ORW	Trend Analysis
BECY-3	Grab	Colleton River	Okatie West	Okatie River	ORW	Trend Analysis
BECY-4r	Grab	Colleton River	Berkley Creek	Okatie River	ORW	Existing Water Quality
BECY-8r	Grab	Beaufort River	Battery Creek North	Battery Creek	SFH	Trend Analysis
BECY-9ra	Auto	Beaufort River	Battery Creek West	Battery Creek	SFH	Trend Analysis
BECY-15	Grab	Beaufort River	Salt Creek	Beaufort River	-	Existing Water Quality
BECY-16	Grab	Colleton River	Berkley Creek	Okatie River	ORW	Existing Water Quality
BECY-17	Auto	-	-	-	-	Existing Water Quality
BECY-18	Grab	Beaufort River	Battery Creek	Battery Creek	SFH	Existing Water Quality
BECY-19	Grab	Beaufort River	Battery Creek	Battery Creek	SFH	Existing Water Quality

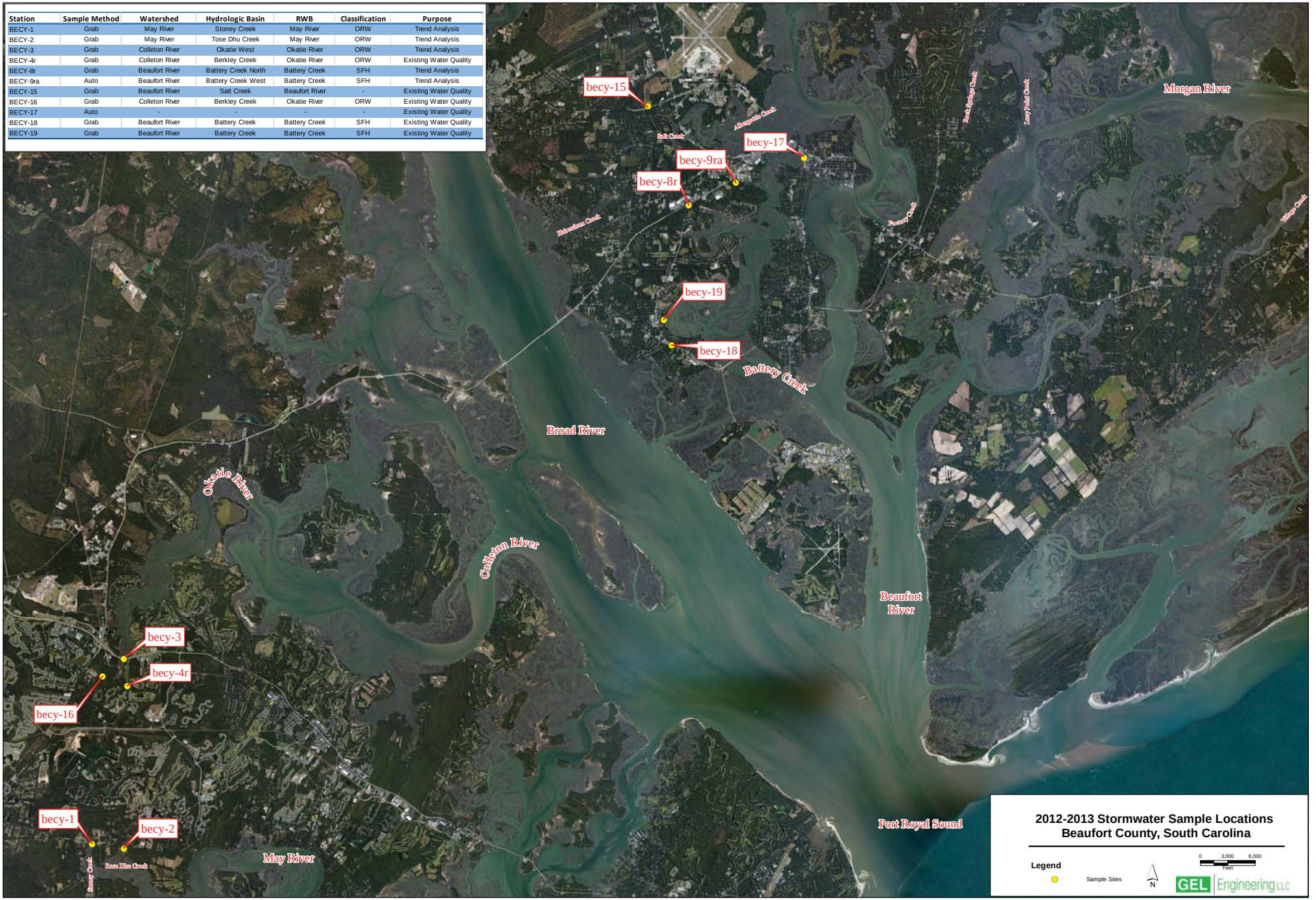


Table 1
Recommended Tributary Sample Locations

Watershed	Hydrologic Basin	% Urban - Future Land Use	% Impervious - Future Land Use	Future Increase in % Urban	Future Increase in % Impervious	Sampling Method	Purpose
Beaufort River	Southside	92%	51%	2%	1%	Automatic	High Density Residential Runoff
Beaufort River	Albergotti Creek	93%	67%	0%	0%	Automatic	Industrial Runoff
Colleton River	Camp St. Marys	48%	8%	16%	2%	Automatic	Low Density Residential Runoff
Morgan River	Rock Springs Creek	96%	22%	7%	2%	Automatic	Medium Density Residential Runoff
Beaufort River	Burton Hill	71%	43%	19%	13%	Grab	Existing Quality[1]
Beaufort River	Grober Hill	53%	25%	12%	3%	Grab	Existing Quality[1]
Beaufort River	Salt Creek	75%	27%	35%	13%	Grab	Existing Quality
Beaufort River	Salt Creek South	78%	30%	41%	11%	Grab	Existing Quality[1]
Beaufort River	Shanklin Road	81%	49%	31%	21%	Grab	Existing Quality[1]
Colleton River	Berkeley Creek	67%	18%	15%	5%	Grab	Existing Quality
Morgan River	Factory Creek	84%	25%	15%	5%	Grab	Existing Quality[1]
Morgan River	Lucy Point	95%	21%	6%	1%	Grab	Existing Quality
Beaufort River	Battery Creek North	90%	67%	55%	43%	Grab	Trend Analysis[1]
Beaufort River	Battery Creek West	82%	28%	50%	10%	Grab	Trend Analysis[1]
Colleton River	Okatie West	83%	25%	58%	19%	Grab	Trend Analysis
May River	Rose Dhu Creek	91%	22%	54%	13%	Grab	Trend Analysis
May River	Stoney Creek	72%	12%	51%	8%	Grab	Trend Analysis
Morgan River	Coffin Creek	87%	22%	59%	14%	Grab	Trend Analysis

[1] Sampling station is downstream of potential regional detention site, and therefore may provide data for prioritizing the construction of ponds and evaluating benefits (if pond is built)

[2] Location was inadvertently listed as "Coffin Creek" in the Beaufort County Stormwater Master Plan, Thomas & Hutton and CDM, 2006.

Table 2
Revised Tributary Sample Locations

Station	Sample Meth	Watershed	Hydrologic Basin	RWB	Classification	Purpose
BECY-1	Grab	May River	Stoney Creek	May River	Outstanding Resource Waters	Trend Analysis
BECY-2	Grab	May River	Tose Dhu Creek	May River	Outstanding Resource Waters	Trend Analysis
BECY-3	Grab	Colleton River	Okatie West	Okatie River	Outstanding Resource Waters	Trend Analysis
BECY-4r	Grab	Colleton River	Okatie East	Okatie River	Outstanding Resource Waters	Existing Water Quality
BECY-8r	Grab	Beaufort River	Battery Creek North	Battery Creek	Shellfish Harvesting	Trend Analysis
BECY-9ra	Auto	Beaufort River	Battery Creek West	Battery Creek	Shellfish Harvesting	Trend Analysis
BECY-15	Grab	Beaufort River	Salt Creek	Beaufort River	Class SA	Existing Water Quality
BECY-16	Grab	Colleton River	Okatie West	Okatie River	Outstanding Resource Waters	Existing Water Quality
BECY-17a	Auto	Beaufort River	Battery Creek West	Battery Creek	N/A	Existing Water Quality
BECY-18	Grab	Beaufort River	Battery Creek	Battery Creek	Shellfish Harvesting	Existing Water Quality
BECY-19	Grab	Beaufort River	Battery Creek	Battery Creek	Shellfish Harvesting	Existing Water Quality

Table 3

Year 6 Data Summary - Ammonia-Nitrogen (NH3)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.198		0.294	0.559	0.221	0.280		0.572
BECY-9ra Comp		0.257		0.192	0.489	0.198	0.234		1.660
BECY-17a After	0.101	0.102		0.179	0.977	0.233	0.475	0.728	1.530
BECY-17a Grab	0.302	0.316		0.178	0.322	0.867	0.284	0.191	0.917
BECY-1	0.103	0.180	0.290	0.272	0.312		0.363	0.361	0.329
BECY-2	0.082	0.198	0.244	0.246	0.333		0.210	0.270	0.255
BECY-3	0.069	0.158	0.290	0.364	0.287		0.200	0.291	
BECY-4r	0.206	0.141	0.523	0.322	0.327		0.309	0.181	0.214
BECY-8r	0.299	0.246	0.145	0.222	0.337	0.569	1.070	0.178	0.241
BECY-15	0.145	0.267	0.229	0.306	0.360	0.442	0.333	0.274	1.160
BECY-16	0.288	0.243	0.215	0.274	0.404		0.197	0.247	0.236
BECY-18	0.148	0.342	0.284	0.177	0.486	0.350	0.833	0.070	0.495
BECY-19	0.113	0.050	0.428	0.176	0.242	0.310	0.359	0.062	0.168

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 4

Year 6 Data Summary - Biochemical Oxygen Demand* (BOD5)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.30		3.21	4.07	6.51	1.31		5.69
BECY-9ra Comp		3.38		3.46	3.89	6.73	1.51		8.60
BECY-17a After	8.62	2.18		24.50	6.42	4.11	4.54	1.91	16.10
BECY-17a Grab	3.33	4.98		8.40	7.19	9.28	6.45	4.06	11.40
BECY-1	2.15	2.36	2.77	3.43	1.89		2.01	4.01	1.64
BECY-2	1.49	1.79	2.82	2.19	2.37		1.36	2.35	3.01
BECY-3	1.42	4.08	2.51	3.77	2.36		3.12	3.37	
BECY-4r	4.67	2.48	3.50	3.83	3.48		1.48	3.54	3.36
BECY-8r	3.64	2.20	4.05	3.32	4.80	6.13	1.58	3.91	3.51
BECY-15	5.67	2.48	2.74	2.91	3.88	2.41	1.42	4.35	12.00
BECY-16	1.38	3.46	2.75	3.22	4.47		2.08	3.08	2.88
BECY-18	4.33	1.84	2.80	3.86	2.13	8.36	1.46	2.98	1.91
BECY-19	2.68	1.66	4.19	4.86	1.25	16.30	1.00	1.94	2.01

*BOD is internally tracked for Critical Exceedances Concentration Information. Values greater than 56 mg/L are reported monthly to Beaufort County. Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 5
Year 6 Data Summary - Cadmium (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.18		0.11					1.10
BECY-9ra Comp		0.57		0.54					0.11
BECY-17a After	0.367			0.11				0.36	
BECY-17a Grab	0.23			1.93				0.11	
BECY-1	2.2*		0.11					0.89	
BECY-2	2.2*		0.11					0.11	
BECY-3	2.2*		0.11					0.11	
BECY-4r	0.55*		0.11					0.39	
BECY-8r	0.55*		0.11					2.35	
BECY-15	0.11		0.11					0.11	
BECY-16	4.4*		0.11					0.412	
BECY-18	2.2*		0.11					1.05	
BECY-19	2.2*		0.11					0.506	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in μg/L
* Elevated values due to higher minimal detection limit . Cd was not detected in any of the samples.

Table 6

Year 6 Data Summary - Chlorophyll-a

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		4.8		3.0	3.3	2.9	17.6		5.0
BECY-9ra Comp		0.4		5.3	8.3	4.6	3.9		1.8
BECY-17a After	2.5	0.7		1.0	1.0	5.8	4.9		15.6
BECY-17a Grab	1.3	0.9		0.9	0.7	1.0	4.6		10.4
BECY-1	3.6	2.8	3.9	3.9	14.2		10.2		5.4
BECY-2	2.6	5.4	6.4	9.6	17.8		5.4		6.0
BECY-3	2.5	3.9	10.8	16.6	14.2		17.9		
BECY-4r	2.8	3.4	4.6	8.5	19.7		2.5		4.1
BECY-8r	17.2	5.3	3.0	0.5	4.9	1.1	2.2		3.8
BECY-15	1.8	1.8	1.7	1.6	1.6	28.3	0.5		2.4
BECY-16	3.1	8.2	7.0	12.6	11.4		16.2		15.3
BECY-18	1.5	1.4	2.1	7.5	1.3	9.8	4.2		0.6
BECY-19	1.6	1.8	0.7	2.0	1.4	0.2	0.1		7.2

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 7

Year 6 Data Summary - Chromium (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.0		3.0					2.0
BECY-9ra Comp		2.0		2.3					2.0
BECY-17a After	2.0			2.0				2.0	
BECY-17a Grab	2.0			2.0				2.0	
BECY-1	2.0		2.0					2.5	
BECY-2	2.0		2.0					2.5	
BECY-3	2.0		2.5					3.2	
BECY-4r	2.0		2.0					2.0	
BECY-8r	2.0		2.0					2.1	
BECY-15	2.0		2.0					2.0	
BECY-16	2.0		2.0					2.0	
BECY-18	2.0		2.0					2.0	
BECY-19	2.0		2.0					2.0	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 8

Year 6 Data Summary - Conductivity

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1789		135	693	525	228		290
BECY-9ra Comp		2494		174	592	260	223		671
BECY-17a After	68	24		248	154	3170	7393	316	319
BECY-17a Grab	437	63		20	82	299	241	53	135
BECY-1	42977	1614	305	345	651		342	249	7980
BECY-2	43036	12750	1198	104	8046		30613	423	25300
BECY-3	44327	19994	1327	893	25244		1791	337	
BECY-4r	7778	117	112	89	128		17	75	114
BECY-8r	10407	318	294	160	591	369	1107	87	81
BECY-15	144	98	133	129	107	163	156	88	214
BECY-16	22821	175	116	116	176		475	86	281
BECY-18	30516	343	482	227	1286	25496	34009	323	578
BECY-19	37604	148	190	113	276	184	388	58	1300

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in µS/cm

** Field Instrument Malfunction

Table 9

Year 6 Data Summary - Copper*

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.35		**6.20**					**6.52**
BECY-9ra Comp		3.13		**5.65**					**8.80**
BECY-17a Grab After	4.18			3.22				2.79	
BECY-17a Grab	2.87			4.75				2.75	
BECY-1	**6.56**		1.79					2.46	
BECY-2	**6.72**		3.76					**10.50**	
BECY-3	**6.80**		3.37					2.65	
BECY-4r	2.22		1.98					2.31	
BECY-8r	4.45		3.00					**9.88**	
BECY-15	1.57		2.34					3.13	
BECY-16	3.8		2.31					2.06	
BECY-18	**6.18**		2.68					4.78	
BECY-19	**7.01**		**5.09**					3.66	

*Copper is internally tracked for Critical Exceedances Concentration Information. Values greater than 5 ug/L are reported monthly to Beaufort County.
BOLD = Concentration exceeds the Critical Exceedance Concentration.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in µg/L

Table 10

Year 6 Data Summary - Dissolved Oxygen* (DO)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		9.10		7.1	5.90	3.60	8.70		*
BECY-9ra Comp		7.20		7.4	6.30	3.40	6.60		*
BECY-17a After	7.1	5.3		7.7	7.8	**2.3**	6.3	5.8	*
BECY-17a Grab	12.2	7.1		3.3	5.9	**2**	**2.6**	4	*
BECY-1	11.00	-	6.90	8.00	5.60		6.50	6.10	*
BECY-2	11.10	-	8.00	7.10	4.80		7.10	5.80	*
BECY-3	12.10	-	9.10	8.20	3.99		6.60	6.30	
BECY-4r	13.30	7.10	5.80	5.80	6.30		7.10	4.30	*
BECY-8r	13.10	6.80	5.40	7.60	3.10	**2.90**	4.30	4.80	*
BECY-15	5.9	8.1	5.6	8.2	5.2	3.5	5.2	4.8	*
BECY-16	9	8.2	7.4	7.7	4.9	3.8	6.9	4.4	*
BECY-18	13.2	8.2	8.3	7.8	5.6	5.4	5.3	6.4	*
BECY-19	9.8	7.5	6	7	5.1		6.1	4.5	*

*DO is internally tracked for Critical Exceedances Concentration Information. Values less than 3.0 are reported monthly to Beaufort County.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
BOLD = Concentration exceeds the Critical Exceedance Concentration.

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

** DO field instrument malfunction

Results reported in mg/L

Table 11

Year 6 Data Summary - Fecal Coliform*

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After		**820**		**320**	**492**	**316**	**264**		**5510**
BECY-9ra Grab		**1508**		**220**	**820**	**886**	**366**		**1196**
BECY-9ra Comp		**2142**		**102**	**856**	**598**	**264**		**8720**
BECY-17a After	**1768**	**370**		**736**	**>48392**	**103**	**103**	**48392**	**4890**
BECY-17a Grab	**1678**	**172**		**268**	**25994**	**19328**	**5510**	**15402**	**31062**
BECY-1	**199**	**4611**	**798**	**1597**	**1187**		**496**	**2755**	**1918**
BECY-2	**216**	**3255**	**305**	**384**	**379**		**63**	**4884**	**414**
BECY-3	**98**	**988**	**594**	**857**	**884**		**74**	**3873**	
BECY-4r	**836**	**2755**	**670**	**1334**	**2851**		**767**	**5172**	**9804**
BECY-8r	**3030**	**506**	**1935**	**216**	**12997**	**>24196**	**1918**	**19608**	**>48392**
BECY-15	**1725**	**2143**	**573**	**860**	**5794**	**1296**	**1291**	**24196**	**24196**
BECY-16	**1314**	**1081**	**199**	**631**	**1274**		**253**	**4352**	**1169**
BECY-18	**1050**	**2987**	**1296**	**771**	**6488**	**10462**	**1291**	**>24196**	**9768**
BECY-19	**364**	**471**	**135**	**839**	**384**	**86**	**52**	**9208**	**1515**

*FC is tracked for Critical Exceedances Concentration Information.Values greater than 14 cfu/100 mL are reported monthly to Beaufort County.
BOLD = Concentration exceeds the Critical Exceedance Concentration.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in Colony Forming Units (CFU)/100 mL

Table 12

Year 6 Data Summary - Iron (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1310		1100					2370
BECY-9ra Comp		2050		1180					1970
BECY-17a After	285			127				124	
BECY-17a Grab	211			56				288	
BECY-1	1050		1790					1840	
BECY-2	1060		1450					1980	
BECY-3	1170		2820					2020	
BECY-4r	2000		1490					658	
BECY-8r	651		414					560	
BECY-15	5560		2150					1340	
BECY-16	1230		1030					1050	
BECY-18	1060		840					577	
BECY-19	1490		2640					344	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 13

Year 6 Data Summary - Lead (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1.25		1.05					1.14
BECY-9ra Comp		1.93		1.08					0.76
BECY-17a After	1.98			0.723				0.707	
BECY-17a Grab	0.876			0.5				2.21	
BECY-1	0.50		1.15					1.74	
BECY-2	0.50		0.50					1.01	
BECY-3	0.50		1.44					1.82	
BECY-4r	0.50		1.02					0.52	
BECY-8r	0.73		0.50					2.04	
BECY-15	1.05		1.38					1.73	
BECY-16	0.5		0.5					0.911	
BECY-18	0.616		0.787					1.97	
BECY-19	0.5		0.905					0.84	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 14

Year 6 Data Summary - Manganese (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		90.40		30.70					229.00
BECY-9ra Comp		120.00		39.60					266.00
BECY-17a After	20.9			10.4				8.16	
BECY-17a Grab	10.8			4.64				20.4	
BECY-1	35.90		93.70					56.20	
BECY-2	19.20		54.10					56.20	
BECY-3	20.80		113.00					42.40	
BECY-4r	250.00		63.10					21.40	
BECY-8r	45.20		38.80					15.00	
BECY-15	337		126					56.8	
BECY-16	201		49.1					37.8	
BECY-18	42.7		45.8					25.7	
BECY-19	21.5		58					8.53	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in µg/L

Table 15

Year 6 Data Summary - Mercury (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.067		0.067					0.067
BECY-9ra Comp		0.067		0.067					0.067
BECY-17a After	0.117			0.067				0.067	
BECY-17a Grab	0.082			0.067				0.067	
BECY-1	0.067		0.067					0.067	
BECY-2	0.067		0.067					0.067	
BECY-3	0.067		0.067					0.067	
BECY-4r	0.067		0.067					0.067	
BECY-8r	0.089		0.067					0.067	
BECY-15	0.085		0.067					0.067	
BECY-16	0.067		0.067					0.067	
BECY-18	0.067		0.067					0.067	
BECY-19	0.103		0.067					0.067	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 16
Year 6 Data Summary - Nickel (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.52		1.35					12.60
BECY-9ra Comp		3.53		7.10					4.77
BECY-17a After	1.30			0.587				0.779	
BECY-17a Grab	0.967			0.613				0.685	
BECY-1	12.40		1.18					1.2	
BECY-2	13.00		1.25					0.94	
BECY-3	13.30		2.03					1.10	
BECY-4r	3.20		1.18					0.70	
BECY-8r	4.36		1.30					2.45	
BECY-15	0.999		1.49					1.01	
BECY-16	7.61		0.7					0.789	
BECY-18	10.1		1.86					1.86	
BECY-19	12.7		2.18					0.811	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in μg/L

Table 17

Year 6 Data Summary - Nitrate-Nitrite (NOx)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.038		0.090	0.298	0.108	0.056		0.109
BECY-9ra Comp		0.048		0.075	0.155	0.092	0.046		0.148
BECY-17a After	0.104	0.090		0.107	1.700	0.017	0.017	0.237	0.017
BECY-17a Grab	0.219	0.320		0.176	0.243	0.188	0.018	0.043	0.338
BECY-1	0.019	0.023	0.017	0.017	0.032		0.040	0.017	0.128
BECY-2	0.019	0.051	0.017	0.032	0.039		0.017	0.104	0.0503
BECY-3	0.019	0.034	0.017	0.020	0.074		0.017	0.024	
BECY-4r	0.039	0.025	0.017	0.017	0.057		0.094	0.017	0.035
BECY-8r	0.073	0.073	0.030	0.101	0.045	0.243	0.095	0.228	0.131
BECY-15	0.017	0.635	0.036	0.017	0.020	0.059	0.061	0.017	0.199
BECY-16	0.041	0.041	0.017	0.017	0.147		0.077	0.023	0.067
BECY-18	0.064	0.204	0.245	0.105	0.573	0.537	0.128	0.157	0.356
BECY-19	0.076	0.188	0.075	0.112	0.227	0.241	0.167	0.083	0.076

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in mg/L

Table 18

Year 6 Data Summary - pH*

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		8.1		8.0	8.9	8.5	8.2		7.2
BECY-9ra Comp		8.3		7.9	8.8	8.5	8.1		7.6
BECY-17a After	7.5	7.8		7.2	7.2	8.0	7.6	6.9	6.7
BECY-17a Grab	7.6	8.0		7.4	7.6	8.1	7.7	7.1	7.5
BECY-1	8.2	7.8	7.7	7.9	7.5		8.0	6.9	7.5
BECY-2	8.2	8.0	8.1	8.0	7.5		8.4	7.6	7.0
BECY-3	8.3	7.6	7.6	7.6	7.0		8.1	7.3	
BECY-4r	7.9	7.2	7.4	7.5	8.0		7.4	7.0	8.1
BECY-8r	7.6	7.0	7.2	7.5	8.0	8.3	7.9	6.4	7.7
BECY-15	7.4	6.1	6.9	6.4	7.9	8.3	8.2	6.0	8.3
BECY-16	7.9	7.5	7.5	7.6	6.9		8.1	7.0	7.9
BECY-18	8.1	7.4	7.9	7.7	7.4	8.1	8.1	7.2	7.8
BECY-19	7.9	7.3	7.2	7.5	7.6	7.7	7.9	7.1	8.1

*pH is internally tracked for Critical Exceedances Concentration Information. Values <6.0 and >9.0 are reported monthly to Beaufort County.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
BOLD = Concentration exceeds the Critical Exceedance Concentration.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in pH Standard Units
** Field Instrument Malfunction

Table 19

Year 6 Data Summary - Phosphorus* (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.470		0.152	0.398	0.156	0.449		0.639
BECY-9ra Comp		0.141		0.136	0.274	0.194	0.204		0.327
BECY-17a After	0.617	0.097		0.126	0.273	0.313	0.153	0.205	0.675
BECY-17a Grab	0.282	0.212		0.104	0.373	0.415	0.278	0.311	0.484
BECY-1	0.064	0.159	0.135	0.179	0.123		0.110	0.212	0.287
BECY-2	0.048	0.106	0.165	0.224	0.142		0.104	0.409	0.225
BECY-3	0.047	0.127	0.219	0.331	0.101		0.115	0.313	
BECY-4r	0.240	0.126	0.095	0.146	0.116		0.119	0.114	0.225
BECY-8r	0.143	0.168	0.060	0.069	0.419	0.252	0.322	0.194	0.256
BECY-15	**1.610**	0.663	0.552	0.459	0.444	0.958	0.821	0.386	**1.590**
BECY-16	0.142	0.091	0.077	0.098	0.146		0.150	0.222	0.165
BECY-18	0.116	0.167	0.143	0.205	0.425	0.384	0.161	0.233	0.377
BECY-19	0.072	0.151	0.139	0.102	0.076	0.082	0.053	0.088	0.159

*Phosphorus is tracked for Critical Exceedances Concentration Information. Values greater than 0.98 mg/L are reported monthly to Beaufort County. Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.

BOLD = Concentration exceeds the Critical Exceedance Concentration.

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 20

Year 6 Data Summary - Salinity

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1.1		1.0	1.0	1.0	1.0		12.5
BECY-9ra Comp		1.7		1.0	1.0	1.0	1.0		3.1
BECY-17a After	1.0	1.0		1.0	8.5	2.1	6.3	1.0	22.6
BECY-17a Grab	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
BECY-1	33.0	1.0	1.0	1.0	1.0		15.7	1.0	4.4
BECY-2	33.8	8.7	1.0	1.0	4.6		23.4	1.0	16.0
BECY-3	34.2	14.5	1.0	1.0	16.2		24.5	1.0	
BECY-4r	1.7	1.0	1.0	1.0	1.0		1.0	1.0	1.0
BECY-8r	7.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BECY-15	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BECY-16	17.3	1.0	1.0	1.0	1.0		1.0	1.0	1.0
BECY-18	24.7	1.0	1.0	1.0	1.0	19.6	25.6	1.0	1.0
BECY-19	26.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in parts per thousand

Table 21

Year 6 Data Summary - Temperature

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	41256.0	41312.0	41352.0	41369.0	41431.0	41443.0	41477.0	41501.0	41534.0
BECY-9ra Grab After									
BECY-9ra Grab		11.9		10.6	24.1	24.7	25.5		23.7
BECY-9ra Comp		11.5		103.0	24.1	24.4	25.6		23.9
BECY-17a After	10.9	13.6		11.9	23.6	24.8	25.8	24.3	24.4
BECY-17a Grab	9.0	12.6		10.8	24.2	24.5	26.2	23.1	23.8
BECY-1	13.7	12.8	16.8	11.4	23.5		27.2	24.3	24.5
BECY-2	14.1	13.6	17.8	13.6	25.6		28.8	26.8	26.0
BECY-3	13.5	13.2	17.3	11.8	26.0		28.6	24.7	
BECY-4r	11.3	12.3	16.0	12.1	23.6		24.7	24.9	24.0
BECY-8r	12.1	13.1	15.5	13.1	25.3	24.8	26.7	26.1	24.6
BECY-15	11.3	11.9	15.7	12.0	23.4	23.1	23.7	24.0	22.7
BECY-16	11.4	13.6	17.8	12.5	24.9		26.0	25.6	25.1
BECY-18	11.7	12.2	15.2	11.3	23.2	26.6	26.7	23.6	24.1
BECY-19	13.0	14.8	16.4	13.2	22.5	23.5	24.2	24.7	25.0

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in °C

** Field Instrument Malfunction

Table 22

Year 6 Data Summary - Total Kheldahl Nitrogen* (TKN)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1.44		0.67	1.76	0.75	1.10		2.12
BECY-9ra Comp		1.22		0.65	0.96	1.44	0.64		3.45
BECY-17a After	2.61	0.565		0.808	2.61	0.147	**8.08**	0.36	3.62
BECY-17a Grab	0.84	0.968		0.528	1.06	3	**8.19**	0.94	2.54
BECY-1	0.17	0.92	0.93	1.20	0.91		1.04	0.59	1.19
BECY-2	0.17	0.34	0.80	1.37	0.94		1.00	1.13	1.10
BECY-3	0.17	1.05	1.43	1.93	1.04		1.24	1.15	
BECY-4r	0.56	0.86	0.95	1.35	0.95		**6.57**	0.97	0.92
BECY-8r	0.54	0.42	0.56	0.55	1.16	1.61	5.15	0.42	1.00
BECY-15	1.35	1.18	0.976	0.698	1.05	1.25	0.863	0.944	3.12
BECY-16	0.451	0.796	0.515	0.87	1.26		1.28	1.18	1.2
BECY-18	0.165	0.851	0.862	0.932	1.08	1.42	0.861	0.708	1.24
BECY-19	0.165	0.452	0.951	1.09	0.475	0.474	**8.69**	0.353	0.411

*TKN is internally tracked for Critical Exceedances Concentration Information. Values greater than 5.8 mg/L are reported monthly to Beaufort County.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in mg/L

Table 23

Year 6 Data Summary - Total Organic Carbon (TOC)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		14.1		9.5					8.5
BECY-9ra Comp		17.4		13.4					21.8
BECY-17a After	8.6			10.2				7.4	
BECY-17a Grab	6.4			8.4				5.1	
BECY-1	1.0		23.6					18.0	
BECY-2	1.0		16.7					14.6	
BECY-3	1.0		18.2					18.4	
BECY-4r	12.7		58.0					16.8	
BECY-8r	4.7		12.8					12.3	
BECY-15	13.1		18.8					27.7	
BECY-16	4.4		15.6					20.2	
BECY-18	1.7		21.9					24.6	
BECY-19	0.9		18.0					7.5	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 24

Year 6 Data Summary - Total Suspended Solids (TSS)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		54.9		14.4	72.4	42.8	94.6		29.5
BECY-9ra Comp		82.4		19.7	24.8	26.6	13.1		10.4
BECY-17a After	89.2	19.4		5.8	12.9	3.2	52.4	67.4	37.1
BECY-17a Grab	17.6	17.2		4.7	19.4	8.2	17.2	28.1	8.4
BECY-1	9.7	38.4	20.6	31.6	34.2		20.7	53.1	33.4
BECY-2	8.1	16.9	15.2	32.8	13.7		39.0	63.3	15.2
BECY-3	11.6	61.3	97.4	153.0	28.8		84.4	96.8	
BECY-4r	14.0	16.4	8.4	19.0	30.0		11.3	18.8	92.8
BECY-8r	15.6	32.8	4.9	4.0	9.3	3.6	3.6	11.5	8.8
BECY-15	22.4	57.9	29.6	12.6	30.4	25.6	28.8	25.7	226.0
BECY-16	10.8	20.0	6.0	12.2	18.2		11.4	18.7	22.2
BECY-18	39.8	2.8	2.6	4.5	1.9	12.0	12.0	16.6	2.0
BECY-19	23.6	9.4	12.6	5.5	3.2	4.4	2.5	7.7	5.6

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 25

Year 6 Data Summary - Turbidity

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		40.8		22.2	36.1	14.6	87.3		*
BECY-9ra Comp		61.4		28.1	35.6	17.1	26.8		*
BECY-17a After	25.4	10.9		14.4	*	14.0	32.9	147.0	*
BECY-17a Grab	17.6	18.0		160.0	*	16.2	19.0	13.1	*
									*
BECY-1	12.3	38.7	34.6	52.0	*		30.8	60.6	*
BECY-2	13.2	17.0	24.8	43.0	*		23.7	48.5	*
BECY-3	13.3	30.9	60.5	168.5	*		30.4	69.0	*
BECY-4r	25.3	20.2	22.1	130.0	*		32.8	23.9	*
BECY-8r	20.6	14.7	12.7	17.4	24.4	13.3	25.4	40.1	*
BECY-15	47.2	41.0	36.6	26.5	27.4	58.6	51.3	34.8	*
BECY-16	15.9	21.5	24.2	26.1	*		29.2	27.8	*
BECY-18	17.2	10.5	11.6	16.8	*	18.3	23.6	27.8	*
BECY-19	16.1	17.3	12.9	19.7	*	16.4	21.2	15.8	*

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in Nephelometric Turbidty Units

* Field Instrument Malfunction

Table 26

Year 6 Data Summary - Zinc (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		12.9		17.9					20.0
BECY-9ra Comp		36.3		37.3					18.5
BECY-17a After	42.2			14.1				14.7	
BECY-17a Grab	17.0			25.7				15.6	
BECY-1	10.1		5.0					6.8	
BECY-2	10.4		3.5					6.2	
BECY-3	14.1		5.9					6.5	
BECY-4r	7.4		5.7					6.4	
BECY-8r	25.2		29.5					42.2	
BECY-15	3.7		11.0					14.6	
BECY-16	7.2		3.7					4.8	
BECY-18	47.6		19.8					55.3	
BECY-19	14.4		19.2					13.9	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

UNAUDITED AND PRELIMINARY

BEAUFORT COUNTY, SOUTH CAROLINA
STATEMENT OF NET ASSETS
Stormwater Utility
January 31, 2014 & January 31, 2013

	January 31, 2014	January 31, 2013
ASSETS		
Current Assets		
Cash and Investments with Trustee	$ 4,099,396	$ 3,732,781
Receivables, Net	18,383	2,334
Inventories	92,511	102,941
Total Current Assets	4,210,290	3,838,056
Capital Assets	2,904,079	2,798,912
Accumulated Depreciation	(2,154,279)	(1,957,502)
	749,800	841,410
Total Assets	$ 4,960,090	$ 4,679,466
LIABILITIES		
Liabilities		
Account Payable	34,657	36,559
Accrued Payroll	36,020	35,951
Accrued Compensated Absences	6,247	4,470
Total Current Liabilities	76,924	76,980
Long Term Liabilities		
Accrued Compensated Absences	55,379	64,937
Net Other Postemployment Benefits Obligation	804,438	663,958
Total Long Term Liabilities	859,817	728,895
Total Liabilities	936,741	805,875
NET ASSETS		
Invested in Capital Assets, Net of Related Debt	749,800	841,410
Reserved for Encumbrances	211,828	660,777
Unrestricted	3,061,721	2,371,404
Total Net Assets	$ 4,023,349	$ 3,873,591

Unaudited and Preliminary

BEAUFORT COUNTY, SOUTH CAROLINA
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS
Stormwater Utility
For the Period Ended January 31, 2014

	Budget FY 2014	January 31, 2014	Budget to Actual	Percent of Budget
Operating Revenues				
Stormwater Utility Fees	$ 3,475,000	$ 3,159,998	(315,002)	91%
Stormwater Utility Project Billings	60,023	11,534	(48,489)	19%
Total Operating Revenues	3,535,023	3,171,532	(363,491)	90%
Operating Expenses				
Personnel	2,160,475	1,103,990	(1,056,485)	51%
Purchased Services	961,864	348,995	(612,869)	36%
Supplies	381,446	196,619	(184,827)	52%
Depreciation	242,119	141,239	(100,880)	58%
Total Operating Expenses	3,745,904	1,790,843	(1,955,061)	48%
Operating Income (Loss)	(210,881)	1,380,689	1,591,570	-655%
Non-Operating Revenues (Expenses)				
Interest Earned	6,922	-	(6,922)	0%
Total Non-Operating Revenues (Expenses)	6,922	-	(6,922)	0%
Change in Net Assets	(203,959)	1,380,689	1,584,648	-677%
Net Assets, Beginning	2,642,660	2,642,660		
Net Assets, Ending	$ 2,438,701	$ 4,023,349	1,584,648	165%

Unaudited and Preliminary

BEAUFORT COUNTY, SOUTH CAROLINA
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS
Stormwater Utility
For the Period Ended January 31, 2013

	Budget FY 2013	January 31, 2013	Budget to Actual	Percent of Budget
Operating Revenues				
Stormwater Utility Fees	$ 3,469,180	$ 2,774,150	(695,030)	80%
Stormwater Utility Project Billings	370,664	19,900	(350,764)	5%
Total Operating Revenues	3,839,844	2,794,050	(1,045,794)	73%
Operating Expenses				
Personnel	2,014,323	1,089,538	(924,785)	54%
Purchased Services	1,297,125	255,740	(1,041,385)	20%
Supplies	425,660	149,255	(276,405)	35%
Depreciation	273,545	159,572	(113,973)	58%
Total Operating Expenses	4,010,653	1,654,105	(2,356,548)	41%
Operating Income (Loss)	(170,809)	1,139,945	1,310,754	-667%
Non-Operating Revenues (Expenses)				
Interest Earned	11,389	-	(11,389)	0%
Total Non-Operating Revenues (Expenses)	11,389	-	(11,389)	100%
Change in Net Assets	(159,420)	1,139,945	1,299,365	-100%
Net Assets, Beginning	2,733,646	2,733,646		
Net Assets, Ending	$ 2,574,226	$ 3,873,591	1,299,365	150%

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Patterson Road / Joe Allen Drive Channel

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

Project improved 326 L.F. drainage system. Installed 72 L.F. of channel pipe. Cleaned out (1) catch basin. Jetted 254 L.F. of channel pipe. Installed sod and rip rap for erosion control.

2013-025 / Patterson Road / Joe Allen Drive	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	1.0	$20.46	$0.00	$0.00	$0.00	$13.23	$33.69
CBCO / Catch basin - clean out	9.0	$198.96	$10.86	$6.60	$0.00	$136.05	$352.47
HAUL / Hauling	139.0	$2,921.56	$1,403.04	$3,368.08	$0.00	$1,812.92	$9,505.60
OFPI / Outfall Pipe - Installation	40.0	$888.80	$414.21	$1,420.06	$0.00	$396.90	$3,119.97
OFPJ / Outfall Pipe - Jetted	9.0	$205.24	$77.34	$46.77	$0.00	$139.14	$468.49
OFPRE / Outfall Pipe - Reinstalled	56.5	$1,307.84	$309.20	$107.97	$0.00	$516.18	$2,241.19
ONJV / Onsite Job Visit	71.0	$2,269.75	$257.02	$146.23	$0.00	$1,498.04	$4,171.04
PL / Project Layout	5.0	$221.35	$18.10	$11.56	$0.00	$169.80	$420.81
PP / Project Preparation	59.0	$1,355.26	$93.05	$103.81	$0.00	$743.31	$2,295.43
PROFS / Professional Services	0.0	$0.00	$0.00	$0.00	$1,259.44	$0.00	$1,259.44
SI / Sod - Installation	51.0	$1,134.76	$61.54	$26.40	$0.00	$758.16	$1,980.86
STAGING / Staging Materials	24.0	$575.52	$78.02	$70.72	$0.00	$213.36	$937.62
WSDR / Workshelf - Dressed	135.5	$3,148.67	$602.16	$284.30	$0.00	$1,470.31	$5,505.44
2013-025 / Patterson Road / Joe Allen Drive Sub Total	**600.0**	**$14,248.17**	**$3,324.54**	**$5,592.51**	**$1,259.44**	**$7,867.40**	**$32,292.05**
Grand Total	**600.0**	**$14,248.17**	**$3,324.54**	**$5,592.51**	**$1,259.44**	**$7,867.40**	**$32,292.05**

Before

During

After

Project: Patterson Road/Joe Allen Drive

Activity: Routine/ Preventive Maintenance

Project #: 2013-025

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 30 60 120 180 240 Feet

1 inch = 131 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/20/14
File:C:/sethdata/projects/projectmaps/Patterson Rd/Joe Allen Dr 2013-025

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Duncan Farms Channel

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

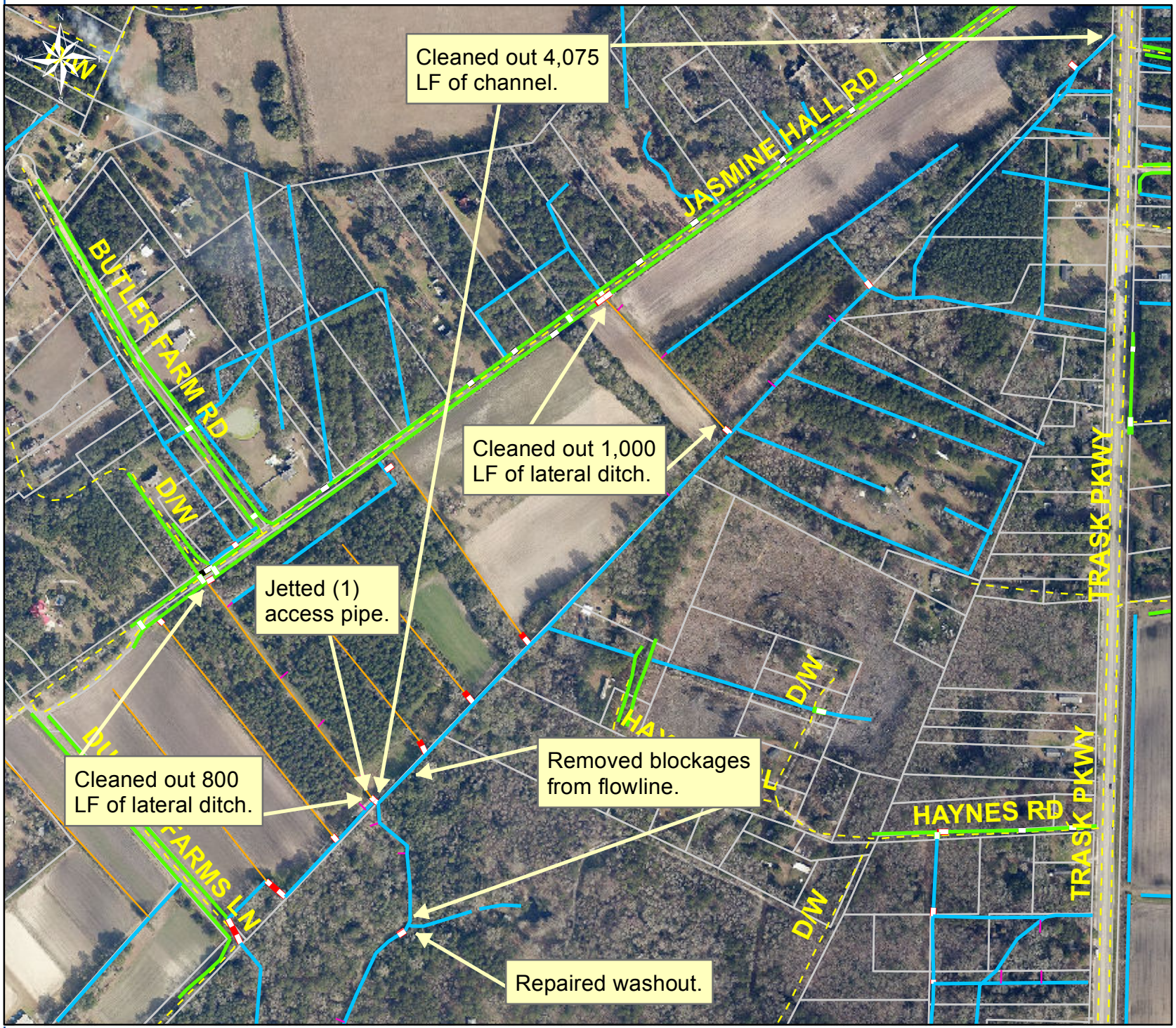
Project improved 10,789 L.F. of drainage system. Bush hogged 9,813 L.F. of channel, lateral ditch and 976 L.F. of roadside ditch. Cleaned out 9,813 L.F. of channel and lateral ditch. Removed blockages from flowline. Repaired washouts. Jetted (2) access pipes.

2013-658 / Duncan Farms Channel	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
APJT / Access pipe - jetted	4.0	$88.87	$44.32	$32.25	$0.00	$59.40	$224.84
AUDIT / Audit Project	1.5	$30.69	$0.00	$0.00	$0.00	$19.85	$50.54
DLO / Ditch Layout	30.0	$674.87	$36.20	$42.89	$0.00	$321.20	$1,075.16
HAUL / Hauling	117.0	$2,521.89	$1,251.90	$640.55	$0.00	$922.88	$5,337.22
LM / Loading Materials	13.0	$291.59	$89.59	$42.90	$0.00	$194.63	$618.71
ODBH / Outfall ditch - bushhogged	98.0	$2,002.06	$1,376.31	$353.57	$0.00	$692.16	$4,424.10
ODCO / Outfall ditch - cleaned out	405.0	$9,109.24	$1,905.47	$792.61	$0.00	$5,528.86	$17,336.18
ONJV / Onsite Job Visit	53.5	$1,709.24	$255.71	$212.42	$0.00	$1,159.51	$3,336.88
PL / Project Layout	13.0	$289.71	$25.84	$12.79	$0.00	$114.36	$442.70
RB / Remove blockage from flowline	17.0	$379.56	$207.34	$227.70	$0.00	$259.69	$1,074.29
WSL / Workshelf - Level	20.0	$420.87	$36.20	$74.58	$0.00	$264.60	$796.25
2013-658 / Duncan Farms Channel Sub Total	**772.0**	**$17,518.60**	**$5,228.88**	**$2,432.26**	**$0.00**	**$9,537.13**	**$34,716.87**
Grand Total	**772.0**	**$17,518.60**	**$5,228.88**	**$2,432.26**	**$0.00**	**$9,537.13**	**$34,716.87**

Before

During

After



Project: Duncan Farms Map 1

Activity: Routine/ Preventive Maintenance

Project #: 2013-658

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 130 260 520 780 1,040 Feet

1 inch = 500 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/13/14
File:C:/sethdata/projects/projectmaps/Duncan Farms 2013-658 Map1

Project: Duncan Farms Map 2

Activity: Routine/ Preventive Maintenance

Project #: 2013-658

Township: Port Royal Island

Completed: January 2014

Legend

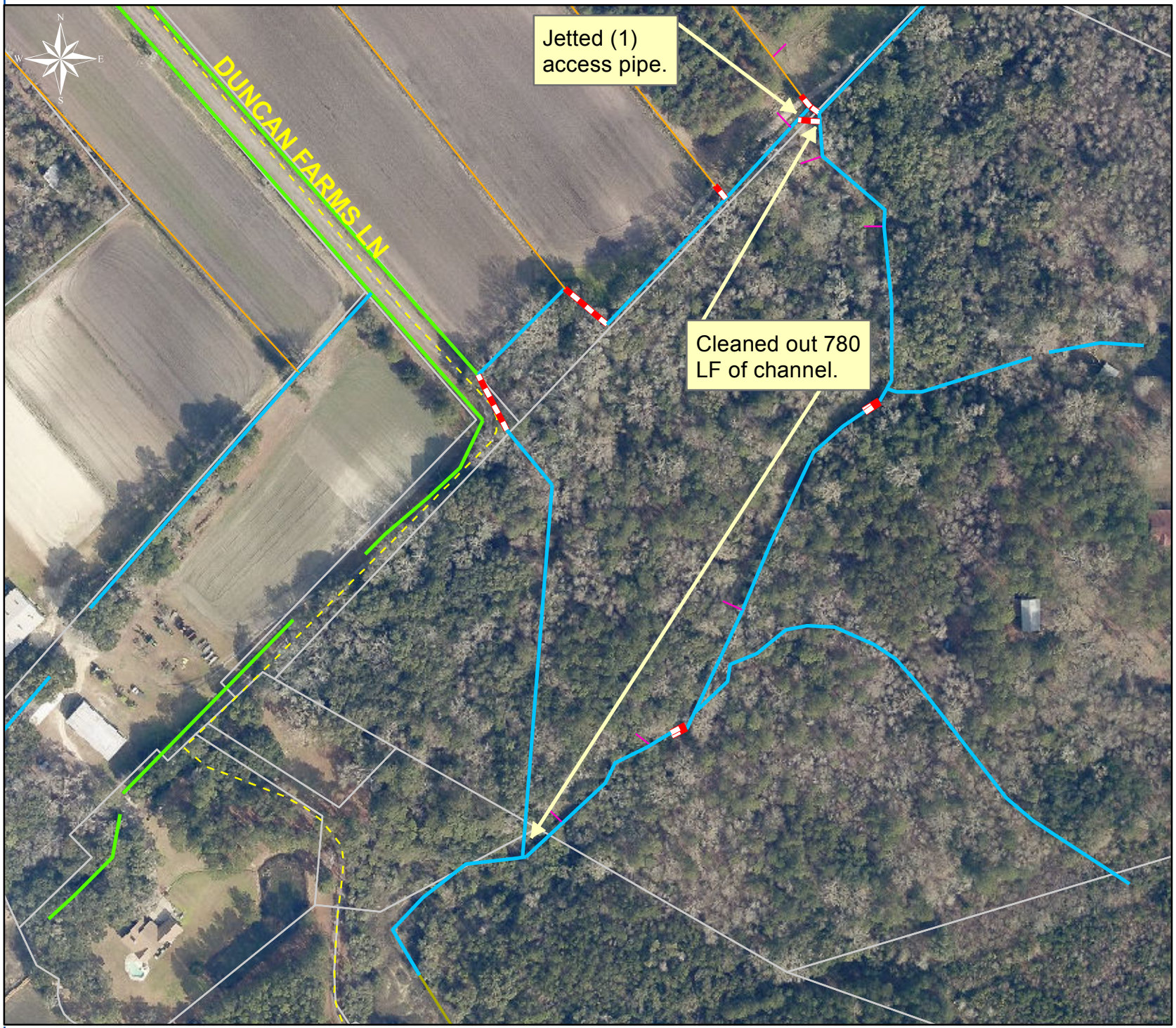
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 95 190 380 570 760 Feet

1 inch = 362 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/27/14
File:C:/sethdata/projects/projectmaps/Duncan Farms 2013-658 Map2



Project: Duncan Farms Map 3

Activity: Routine/ Preventive Maintenance

Project #: 2013-658

Township: Port Royal Island

Completed: January 2014

Legend

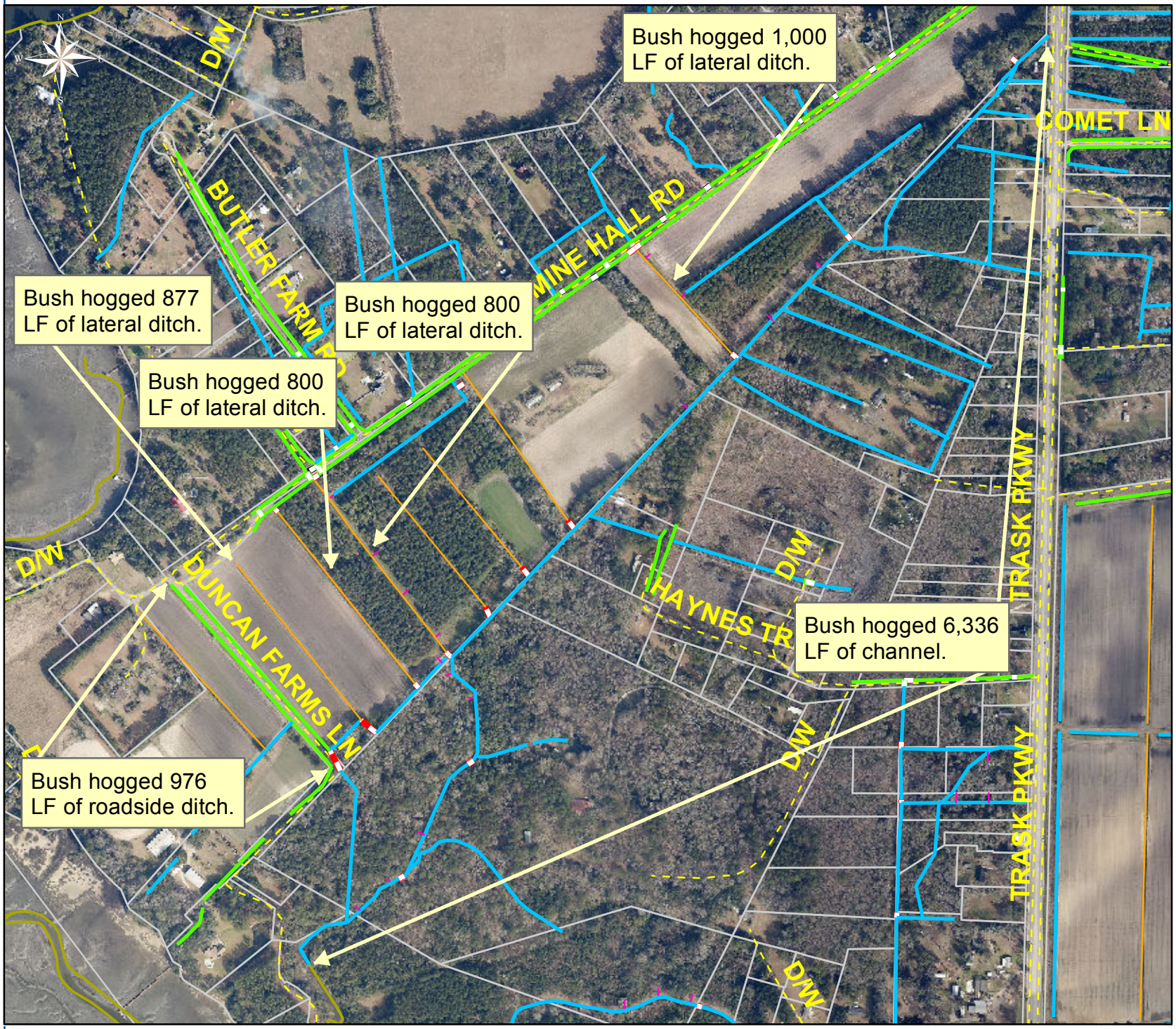
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 55 110 220 330 440 Feet

1 inch = 220 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/20/14
File:C:/sethdata/projects/projectmaps/Duncan Farms 2013-658 Map3



Project: Duncan Farms Map 4

Activity: Bush Hog

Project #: 2013-658

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 162.5325 650 975 1,300 Feet

1 inch = 617 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/13/14
File:C:/sethdata/projects/projectmaps/bushhog/Duncan Farms 2013-658 Map4

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Forest Field Subdivision - Clydesdale Circle Phase II

Activity: Drainage Improvement

Narrative Description of Project:

Completion: Feb-14

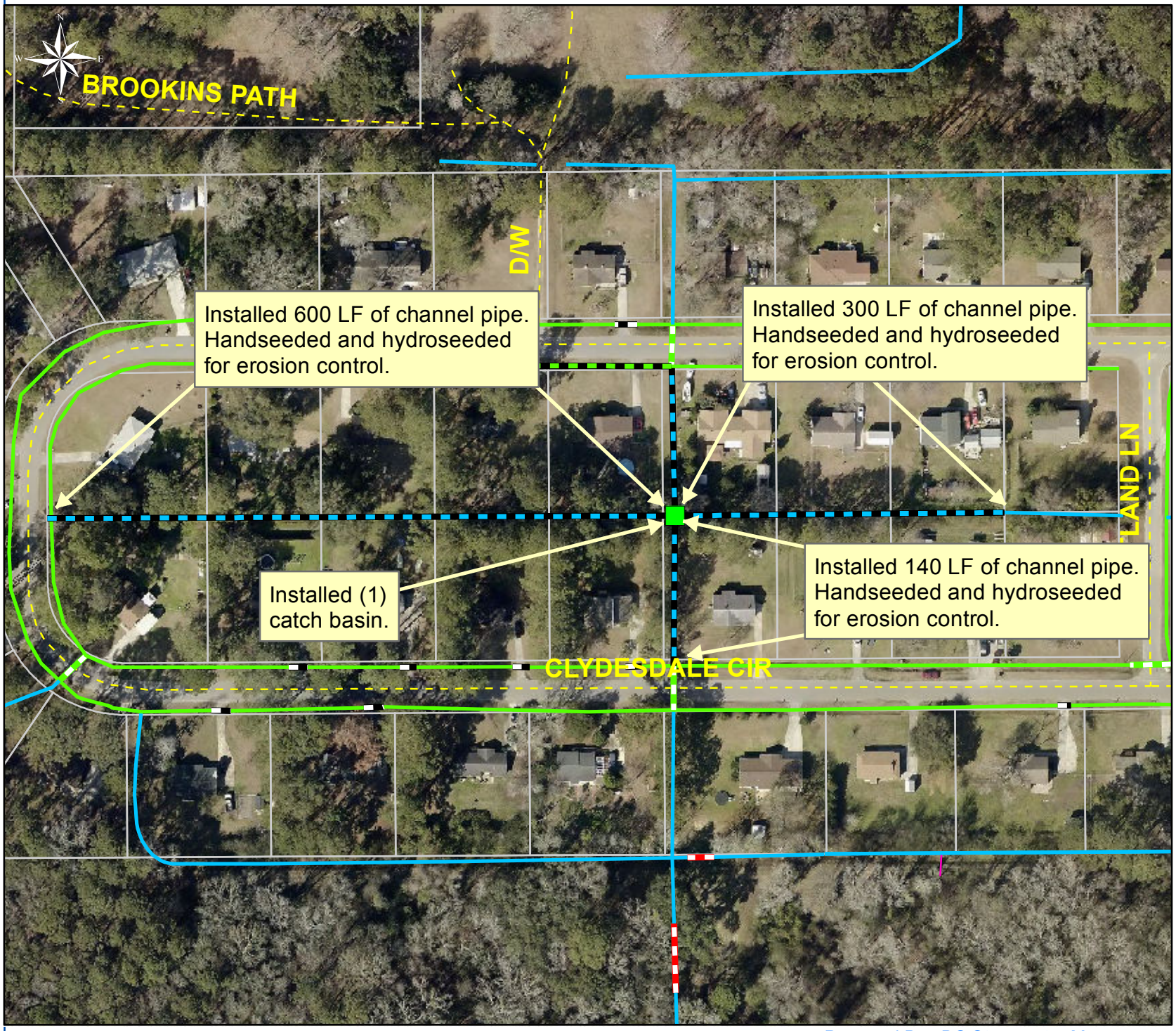
Project improved 1,040 L.F. of drainage system. Installed (1) catch basin, 1,040 L.F. of channel pipe, rip rap, handseeded and hydroseeded for erosion control.

2013-646A / Forest Field Subdivision	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	1.5	$30.69	$0.00	$0.00	$0.00	$19.85	$50.54
BKFILL / Back Fill	80.0	$1,730.40	$1,039.08	$501.60	$0.00	$1,058.40	$4,329.48
CBIR / Catch Basin - Inlet Raised	28.0	$623.98	$101.11	$14.94	$0.00	$396.06	$1,136.09
HAUL / Hauling	283.0	$6,055.79	$3,028.10	$12,514.98	$0.00	$4,070.66	$25,669.53
HYDR / Hydroseeding	54.0	$1,210.44	$104.52	$994.47	$0.00	$584.22	$2,893.65
LM / Loading Materials	20.0	$531.60	$230.36	$75.90	$0.00	$374.40	$1,212.26
OFPI / Outfall Pipe - Installation	340.0	$7,559.59	$827.52	$9,827.95	$0.00	$3,502.04	$21,717.10
ONJV / Onsite Job Visit	136.0	$4,471.31	$481.46	$201.43	$0.00	$2,950.41	$8,104.61
PI / Project Inspection	6.0	$132.14	$7.24	$5.78	$0.00	$53.26	$198.42
PL / Project Layout	18.0	$424.62	$21.72	$5.78	$0.00	$160.02	$612.14
PP / Project Preparation	30.0	$707.70	$36.20	$17.34	$0.00	$266.70	$1,027.94
PROFS / Professional Services	0.0	$0.00	$0.00	$0.00	$359.35	$0.00	$359.35
RRI / Rip Rap - Installed	44.0	$954.93	$291.37	$235.56	$0.00	$615.93	$2,097.79
SG / Shoot Grade	10.0	$228.04	$18.10	$8.67	$0.00	$67.20	$322.01
STAGING / Staging Materials	50.0	$1,140.30	$181.72	$91.42	$0.00	$531.30	$1,944.74
UTLOC / Utility locates	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
WSDR / Workshelf - Dressed	80.0	$1,848.00	$477.32	$236.95	$0.00	$798.00	$3,360.27
2013-646A / Forest Field Subdivision Sub Total	**1,181.0**	**$27,659.75**	**$6,845.82**	**$24,732.78**	**$359.35**	**$15,455.06**	**$75,052.76**
Grand Total	**1,181.0**	**$27,659.75**	**$6,845.82**	**$24,732.78**	**$359.35**	**$15,455.06**	**$75,052.76**

Before

During

After



Project: Forest Field Subdivision - Clydesdale Circle

Activity: Drainage Improvement

Project #: 2013-646A

Township: Port Royal Island

Completed: Feburary 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 30 60 120 180 240 Feet

1 inch = 130 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/20/14
File:C:/sethdata/projects/projectmaps/Clydesdale Cir 2013-646A

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Sheldon Washout Repair - Backache Acres

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Aug-13

Repaired washout.

2014-516 / Sheldon Washout Repair	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
RPWO / Repaired Washout	10.0	$216.64	$59.77	$35.55	$0.00	$110.78	$422.74
2014-516 / Sheldon Washout Repair Sub Total	**10.5**	**$226.87**	**$59.77**	**$35.55**	**$0.00**	**$117.40**	**$439.59**
Grand Total	**10.5**	**$226.87**	**$59.77**	**$35.55**	**$0.00**	**$117.40**	**$439.59**

Before

After

Project: Backache Acres

Activity: Routine/ Preventive Maintenance

Project #: 2014-516

Township: Sheldon

Completed: August 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 50 100 200 300 400 Feet

1 inch = 205 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/13/14
File:C:/sethdata/projects/projectmaps/Backache AC 2014-516

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: St. Helena Island Washout Repair - Bible Camp Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Aug-13

Repaired washout.

2014-523 / St. Helena Island Washout Repair	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
RPWO / Repaired Washout	16.0	$345.41	$74.09	$68.46	$0.00	$186.16	$674.12
2014-523 / St. Helena Island Washout Repair Sub Total	**16.5**	**$355.64**	**$74.09**	**$68.46**	**$0.00**	**$192.78**	**$690.96**
Grand Total	**16.5**	**$355.64**	**$74.09**	**$68.46**	**$0.00**	**$192.78**	**$690.96**

(Pictures Not Available)

Project: Bible Camp Road

Activity: Routine/ Preventive Maintenance

Project #: 2014-526

Township: St. Helena Island

Completed: August 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 45 90 180 270 360 Feet

1 inch = 186 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/21/14
File:C:/sethdata/projects/projectmaps/Bible Camp Rd 2014-526

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Bluffton Bush Hog - Lotus Court and Westbury Park

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Oct-13

Project improved 800 L.F. of drainage system. Bush hogged 800 L.F. of workshelf and weedeat around catch basins.

2014-304 / Bluffton Bush Hog	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
ODBH / Outfall ditch - bushhogged	30.0	$625.48	$72.76	$56.60	$0.00	$396.90	$1,151.74
WEED / Weedeating	10.0	$217.57	$18.10	$46.31	$0.00	$83.40	$365.37
2014-304 / Bluffton Bush Hog Sub Total	**40.5**	**$853.28**	**$90.86**	**$102.90**	**$0.00**	**$486.92**	**$1,533.95**
Grand Total	**40.5**	**$853.28**	**$90.86**	**$102.90**	**$0.00**	**$486.92**	**$1,533.95**

Before

During

After

Project: Westbury Parkway

Activity: Bush Hog

Project #: 2014-304

Township: Bluffton

Completed: October 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 25 50 100 150 200 Feet

1 inch = 104 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/20/14
File:C:/sethdata/projects/projectmaps/BH/Westbury Pkwy 2014-304

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Bluffton Vacuum Truck - Sandy Pointe Drive, Skylark Drive, Benton Field Road and Devonwood Drive

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Oct-13

Project improved 16 L.F. of drainage system. Cleaned out (9) catch basins. Jetted (4) driveway pipes, (4) crossline pipes and 16 L.F. of channel pipe.

2014-310 / Bluffton Vacuum Truck	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
CBCO / Catch basin - clean out	18.0	$389.29	$206.68	$142.50	$0.00	$148.23	$886.70
CBIN / Catch basin - inspected	20.0	$432.54	$36.20	$23.76	$0.00	$164.70	$657.20
CLPJT / Crossline Pipe - Jetted	40.0	$912.06	$443.20	$276.09	$0.00	$494.10	$2,125.45
DPJT / Driveway Pipe - Jetted	10.0	$239.76	$110.80	$40.58	$0.00	$164.70	$555.84
ONJV / Onsite Job Visit	2.0	$88.54	$7.24	$11.88	$0.00	$67.92	$175.58
RB / Remove blockage from flowline	10.0	$216.27	$110.80	$51.45	$0.00	$82.35	$460.87
2014-310 / Bluffton Vacuum Truck Sub Total	**100.5**	**$2,288.69**	**$914.92**	**$546.26**	**$0.00**	**$1,128.62**	**$4,878.48**
Grand Total	**100.5**	**$2,288.69**	**$914.92**	**$546.26**	**$0.00**	**$1,128.62**	**$4,878.48**

Before

During

After

Project: Devonwood Drive and Benton Field Road

Activity: Vacuum Truck

Project #: 2014-310

Township: Bluffton

Completed: October 2013

Legend

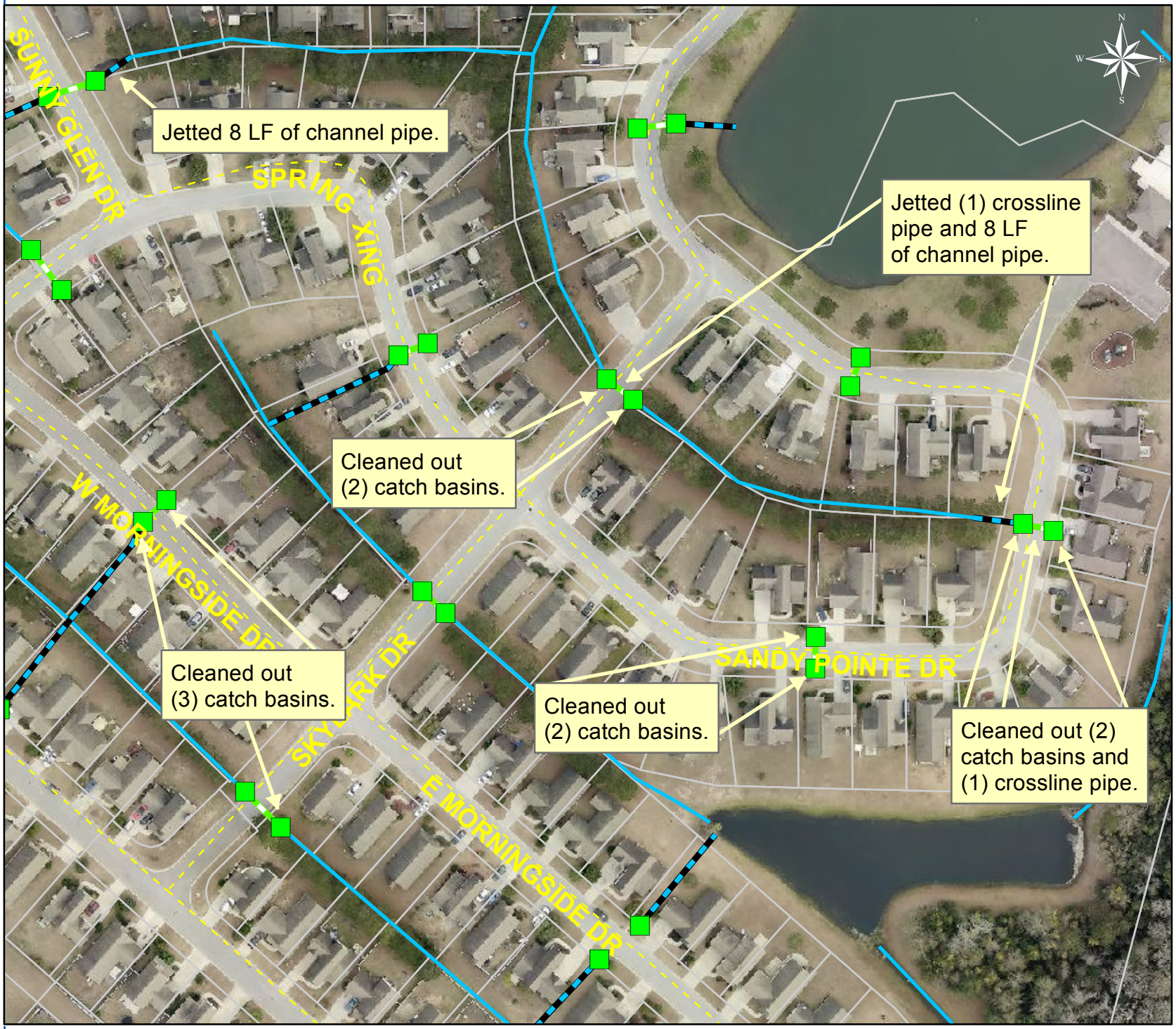
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 30 60 120 180 240 Feet

1 inch = 123 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/21/14
File:C:/sethdata/projects/projectmaps/Vac/Devonwood Dr 2014-310



Project: Sandy Point Drive and Skylark Drive

Activity: Vacuum Truck

Project #: 2014-310

Township: Bluffton

Completed: October 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 30 60 120 180 240 Feet

1 inch = 125 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/27/14
File:C:/sethdata/projects/projectmaps/Vac/Skylark Dr 2014-310

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Burton Wells Pond Maintenance

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Oct-13

Cleaned out (1) manhole. Raised manhole. Installed strawmat and hydroseeded for erosion control.

2014-545 / Burton Wells Pond Maintenance	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
CBCO / Catch basin - clean out	10.0	$239.80	$110.80	$63.96	$0.00	$164.70	$579.26
HAUL / Hauling	8.0	$170.94	$85.60	$30.87	$0.00	$115.36	$402.77
HYDR / Hydroseeding	6.0	$127.43	$19.68	$94.96	$0.00	$81.76	$323.83
LBB / Locate Blind Box	15.0	$353.83	$177.14	$18.18	$0.00	$133.35	$682.49
MHRA / Manhole Cover - Raised	20.0	$459.88	$111.36	$143.53	$0.00	$205.45	$920.22
ONJV / Onsite Job Visit	15.0	$518.68	$63.54	$32.67	$0.00	$361.33	$976.22
PP / Project Preparation	0.3	$11.07	$4.02	$2.97	$0.00	$8.49	$26.55
PRRECON / Project Reconnaissance	3.0	$99.54	$0.00	$0.00	$0.00	$73.41	$172.95
WSDR / Workshelf - Dressed	6.0	$126.26	$29.14	$47.77	$0.00	$79.38	$282.55
2014-545 / Burton Wells Pond Maintenance Sub Total	**83.8**	**$2,117.66**	**$601.28**	**$434.89**	**$0.00**	**$1,229.84**	**$4,383.68**
Grand Total	**83.8**	**$2,117.66**	**$601.28**	**$434.89**	**$0.00**	**$1,229.84**	**$4,383.68**

Before

During

After

Project: Burton Wells Pond Maintenance

Activity: Routine/ Preventive Maintenance

Project #: 2014-545

Township: Port Royal Island

Completed: October 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Manhole

0 65 130 260 390 520 Feet

1 inch = 250 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/27/14
File:C:/sethdata/projects/projectmaps/Burton Wells Pond 2014-545

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Old Dawson Acres

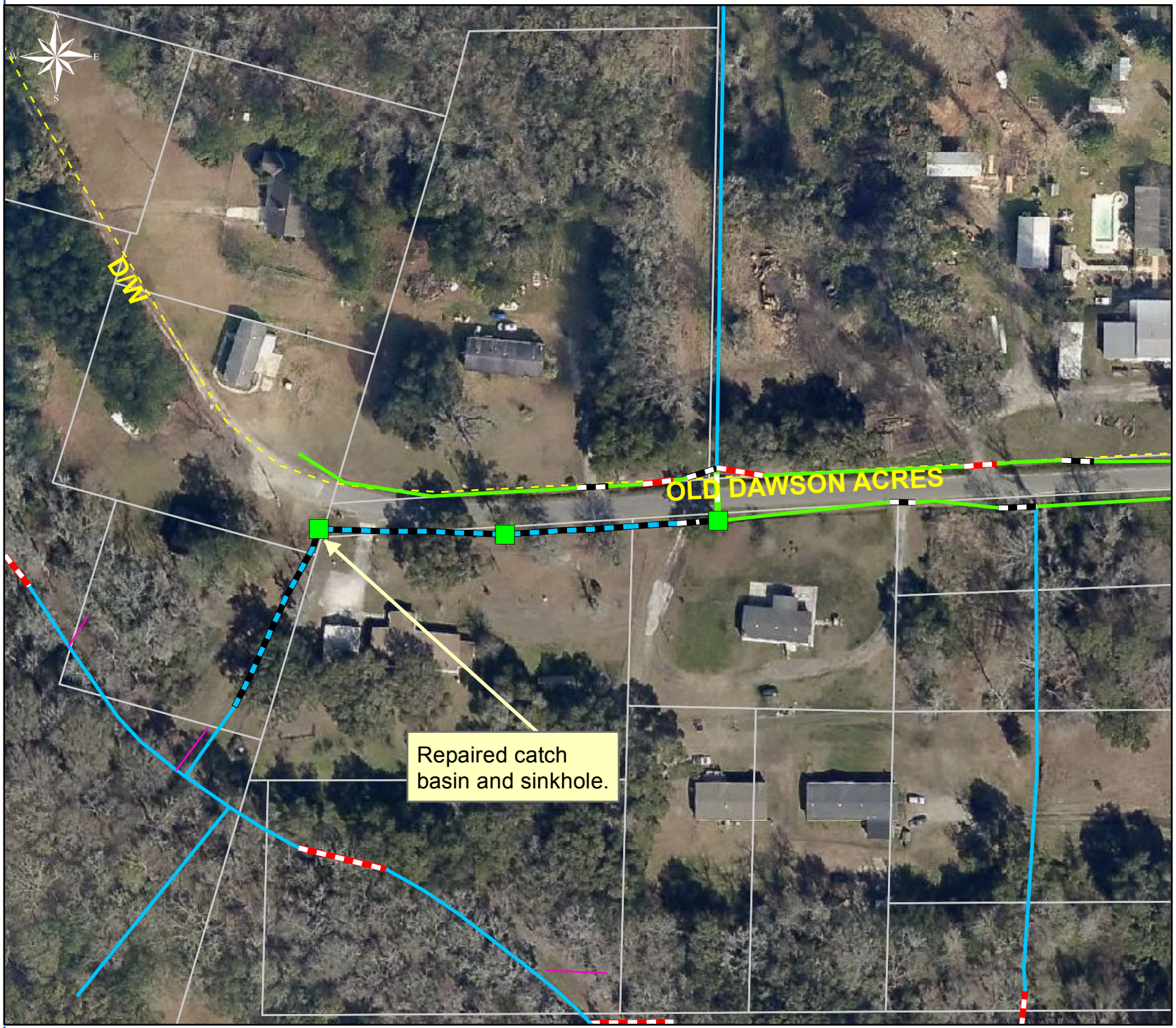
Activity: Routine/Preventive Maintenance

Narrative Description of Project:
Repaired catch basin and sinkhole.

Completion: Nov-13

2014-550 / Old Dawson Acres	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
CBREP / Catch basin - repaired	11.0	$256.75	$0.00	$30.24	$0.00	$109.71	$396.70
HAUL / Hauling	3.0	$64.89	$32.10	$23.31	$0.00	$43.26	$163.56
ONJV / Onsite Job Visit	3.0	$89.52	$10.86	$8.76	$0.00	$54.69	$163.83
2014-550 / Old Dawson Acres Sub Total	**17.5**	**$421.39**	**$42.96**	**$62.31**	**$0.00**	**$214.28**	**$740.93**
Grand Total	**17.5**	**$421.39**	**$42.96**	**$62.31**	**$0.00**	**$214.28**	**$740.93**

(Pictures Not Available)



Project: Old Dawson Acres

Activity: Routine/ Preventive Maintenance

Project #: 2014-550

Township: Sheldon

Completed: November 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 30 60 120 180 240 Feet

1 inch = 117 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/27/14
File:C:/sethdata/projects/projectmaps/Old Dawson Acres 2014-550

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: St Helena Island Tree Removal - David Green Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Dec-13

Removed fallen tree from workshelf.

2014-555 / St. Helena Island Tree Removal	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
RMTRW / Remove trees - Workshelf	12.0	$268.20	$102.55	$56.44	$0.00	$179.46	$606.65
2014-555 / St. Helena Island Tree Removal Sub Total	**12.5**	**$278.43**	**$102.55**	**$56.44**	**$0.00**	**$186.08**	**$623.50**
Grand Total	**12.5**	**$278.43**	**$102.55**	**$56.44**	**$0.00**	**$186.08**	**$623.50**

Before

After

Project: David Green Road

Activity: Routine/ Preventive Maintenance

Project #: 2014-555

Township: St. Helena Island

Completed: December 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 62.5125 250 375 500 Feet

1 inch = 241 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/4/14
File:C:/sethdata/projects/projectmaps/David Green Rd 2014-555

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Buckwalter Parkway

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Dec-13

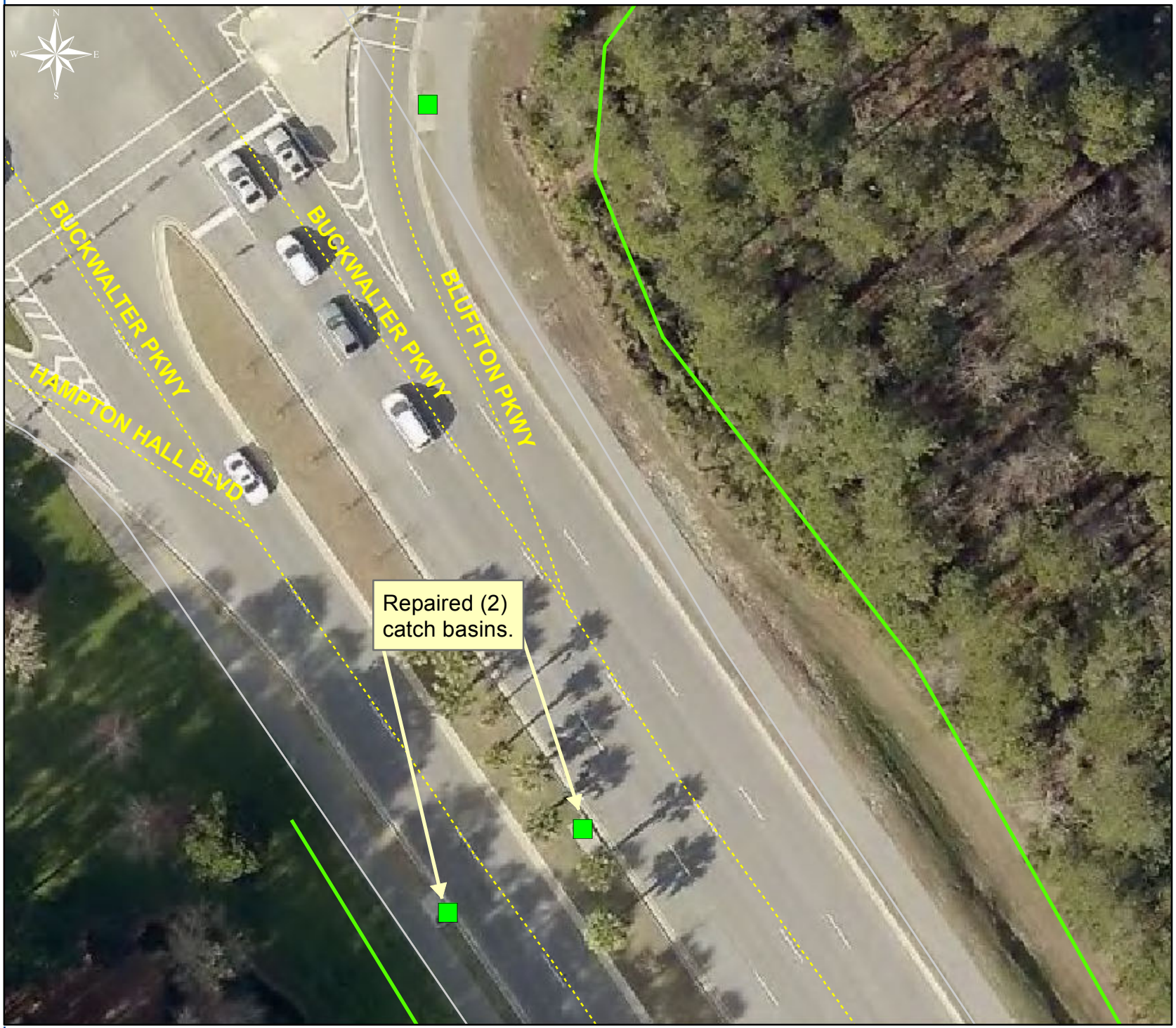
Repaired (2) catch basins and sinkholes.

2014-558 / Buckwalter Parkway	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
CBREP / Catch basin - repaired	36.0	$810.51	$43.44	$51.42	$0.00	$551.41	$1,456.78
ONJV / Onsite Job Visit	5.0	$165.90	$18.10	$22.96	$0.00	$122.35	$329.31
2014-558 / Buckwalter Parkway Sub Total	**41.5**	**$986.64**	**$61.54**	**$74.38**	**$0.00**	**$680.37**	**$1,802.94**
Grand Total	**41.5**	**$986.64**	**$61.54**	**$74.38**	**$0.00**	**$680.37**	**$1,802.94**

Before

During

After



Project: Buckwalter Parkway

Activity: Routine/ Preventive Maintenance

Project #: 2014-558

Township: Bluffton

Completed: December 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 5 10 20 30 40 Feet

1 inch = 35 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/6/14
File:C:/sethdata/projects/projectmaps/Buckwalter Pkwy 2014-558

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Greenleaf Lane

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Dec-13

Repaired washout. Installed rip rap and handseeded for erosion control.

2014-559 / Greenleaf Lane	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
HAUL / Hauling	3.0	$57.84	$32.10	$401.10	$0.00	$40.20	$531.24
ONJV / Onsite Job Visit	2.0	$66.36	$7.24	$8.61	$0.00	$48.94	$131.15
RPWO / Repaired Washout	6.0	$134.10	$10.86	$84.04	$0.00	$89.73	$318.73
2014-559 / Greenleaf Lane Sub Total	**11.5**	**$268.53**	**$50.20**	**$493.75**	**$0.00**	**$185.49**	**$997.97**
Grand Total	**11.5**	**$268.53**	**$50.20**	**$493.75**	**$0.00**	**$185.49**	**$997.97**

Before

During

After

Project: Greenleaf Lane

Activity: Routine/ Preventive Maintenance

Project #: 2014-559

Township: Port Royal Island

Completed: December 2013

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 12.525 50 75 100 Feet

1 inch = 54 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/12/14
File:C:/sethdata/projects/projectmaps/Greenleaf Ln 2014-559

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Port Royal Island Vacuum Truck - Mulrain Road, Jonesfield Road, Salt Creek Road East, Smalls Hill Road, Grays Hill Acres and Jacob Lane.

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

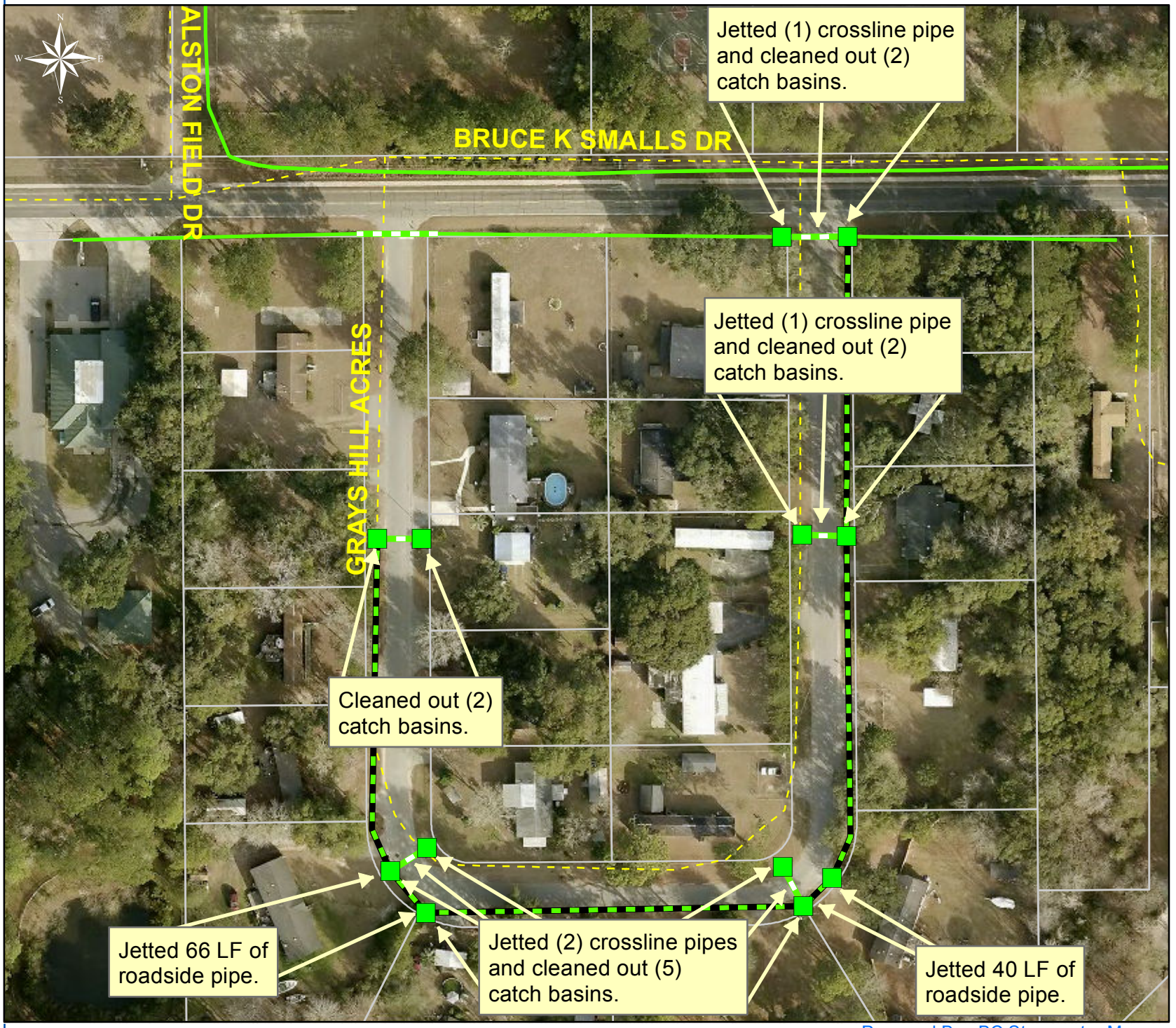
Cleaned out (41) catch basins. Jetted (16) crossline pipes, 928 L.F. of roadside pipe and (40) L.F. of channel pipe.

2014-306 / Port Royal Island Vacuum Truck	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	1.0	$20.46	$0.00	$0.00	$0.00	$13.23	$33.69
CBCO / Catch basin - clean out	98.0	$2,143.14	$1,108.00	$355.25	$0.00	$1,331.20	$4,937.59
CLPJT / Crossline Pipe - Jetted	14.0	$311.05	$155.12	$74.88	$0.00	$207.90	$748.95
ONJV / Onsite Job Visit	6.0	$192.40	$21.72	$19.94	$0.00	$134.34	$368.40
PI / Project Inspection	4.0	$88.87	$44.32	$0.00	$0.00	$59.40	$192.59
RSPJ / Roadside Pipe - Jetted	40.0	$900.40	$443.20	$215.40	$0.00	$605.90	$2,164.90
2014-306 / Port Royal Island Vacuum Truck Sub Total	**163.0**	**$3,656.32**	**$1,772.36**	**$665.47**	**$0.00**	**$2,351.97**	**$8,446.12**
Grand Total	**163.0**	**$3,656.32**	**$1,772.36**	**$665.47**	**$0.00**	**$2,351.97**	**$8,446.12**

Before

During

After



Project: Grays Hill Acres

Activity: Vacuum Truck

Project #: 2014-306

Township: Port Royal Island

Completed: January 2014

Legend

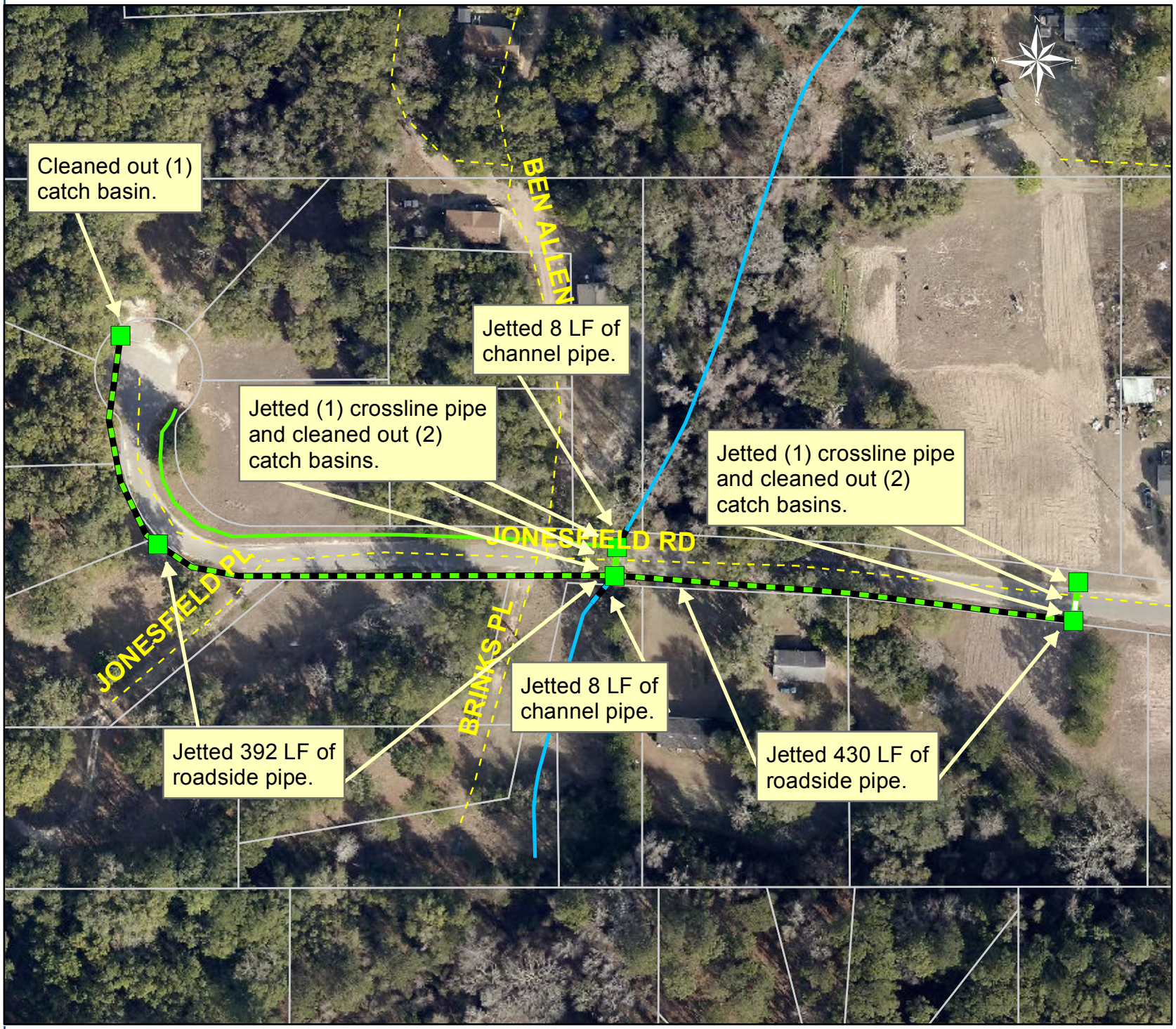
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 25 50 100 150 200 Feet

1 inch = 104 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/27/14
File:C:/sethdata/projects/projectmaps/Vac/Grays Hill Acres 2014-306



Project: Jonesfield Road

Activity: Vacuum Truck

Project #: 2014-306

Township: Port Royal Island

Completed: January 2014

Legend

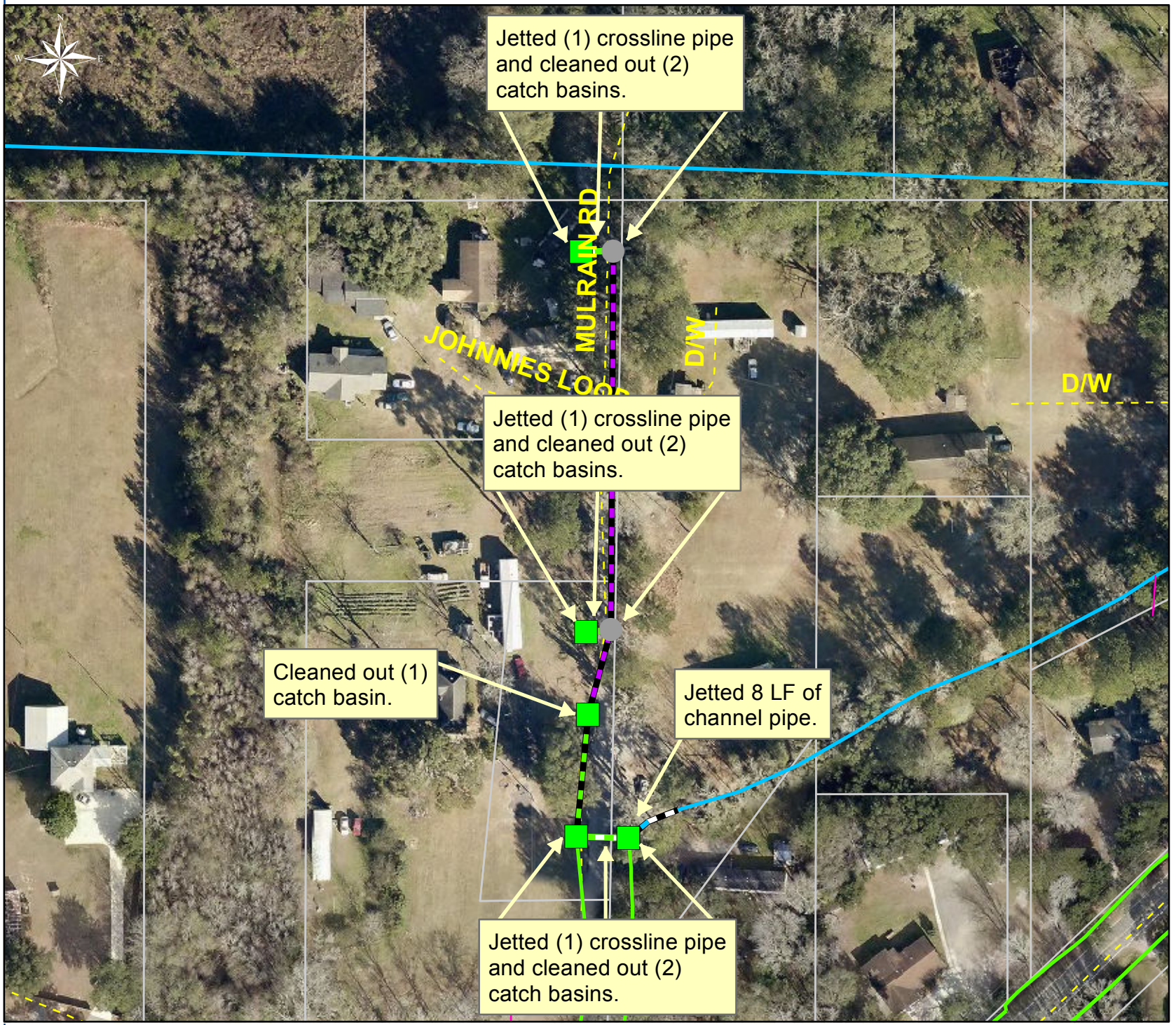
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 30 60 120 180 240 Feet

1 inch = 125 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/5/14
File:C:/sethdata/projects/projectmaps/Vac/Jonesfield Rd 2014-306



Project: Mulrain Road

Activity: Vacuum Truck

Project #: 2014-306

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

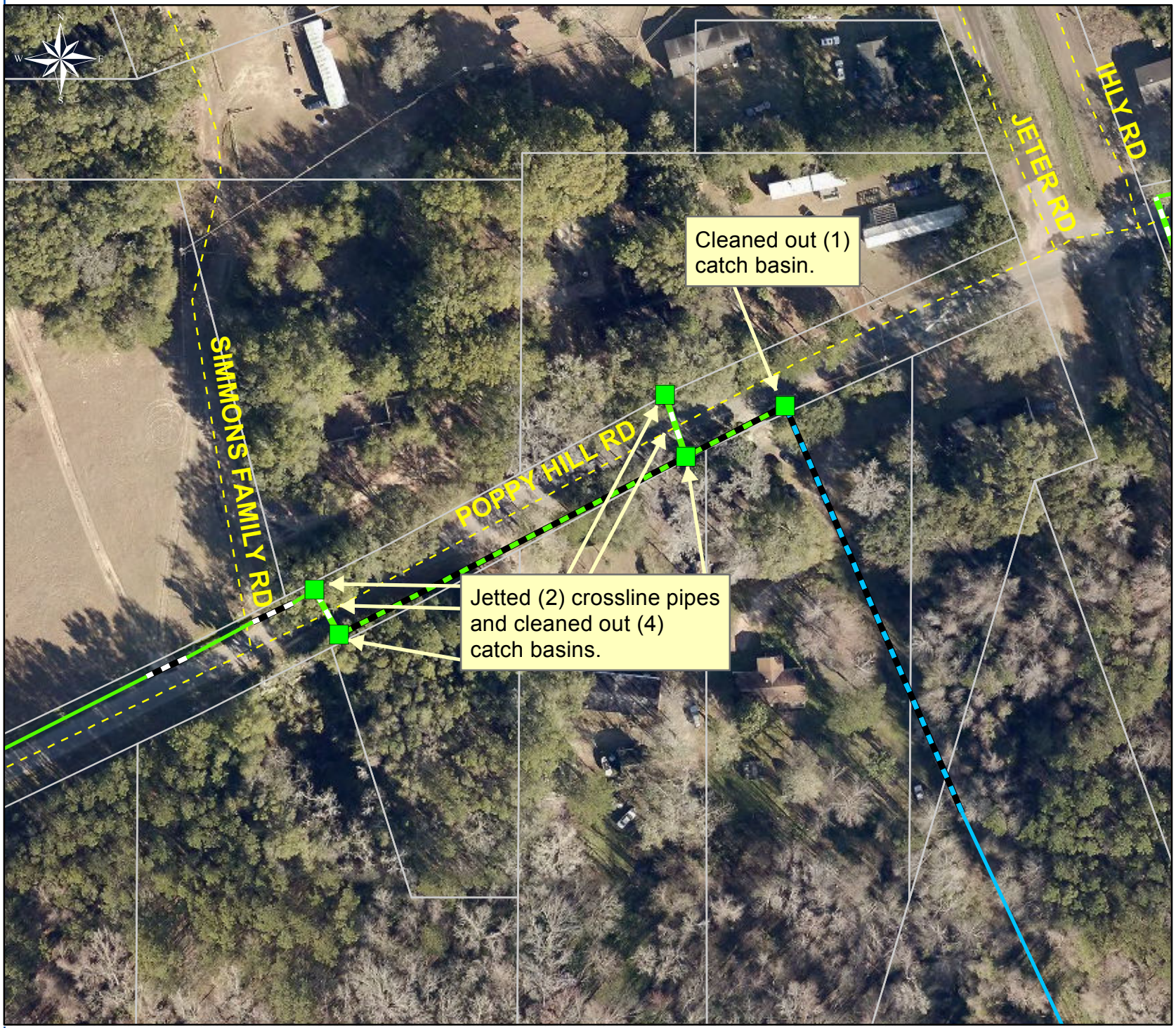
TYPE

- Catch Basin
- Manhole

0 25 50 100 150 200 Feet

1 inch = 104 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/5/14
File:C:/sethdata/projects/projectmaps/Vac/Mulrain Rd 2014-306



Project: Poppy Hill Road

Activity: Vacuum Truck

Project #: 2014-306

Township: Port Royal Island

Completed: January 2014

Legend

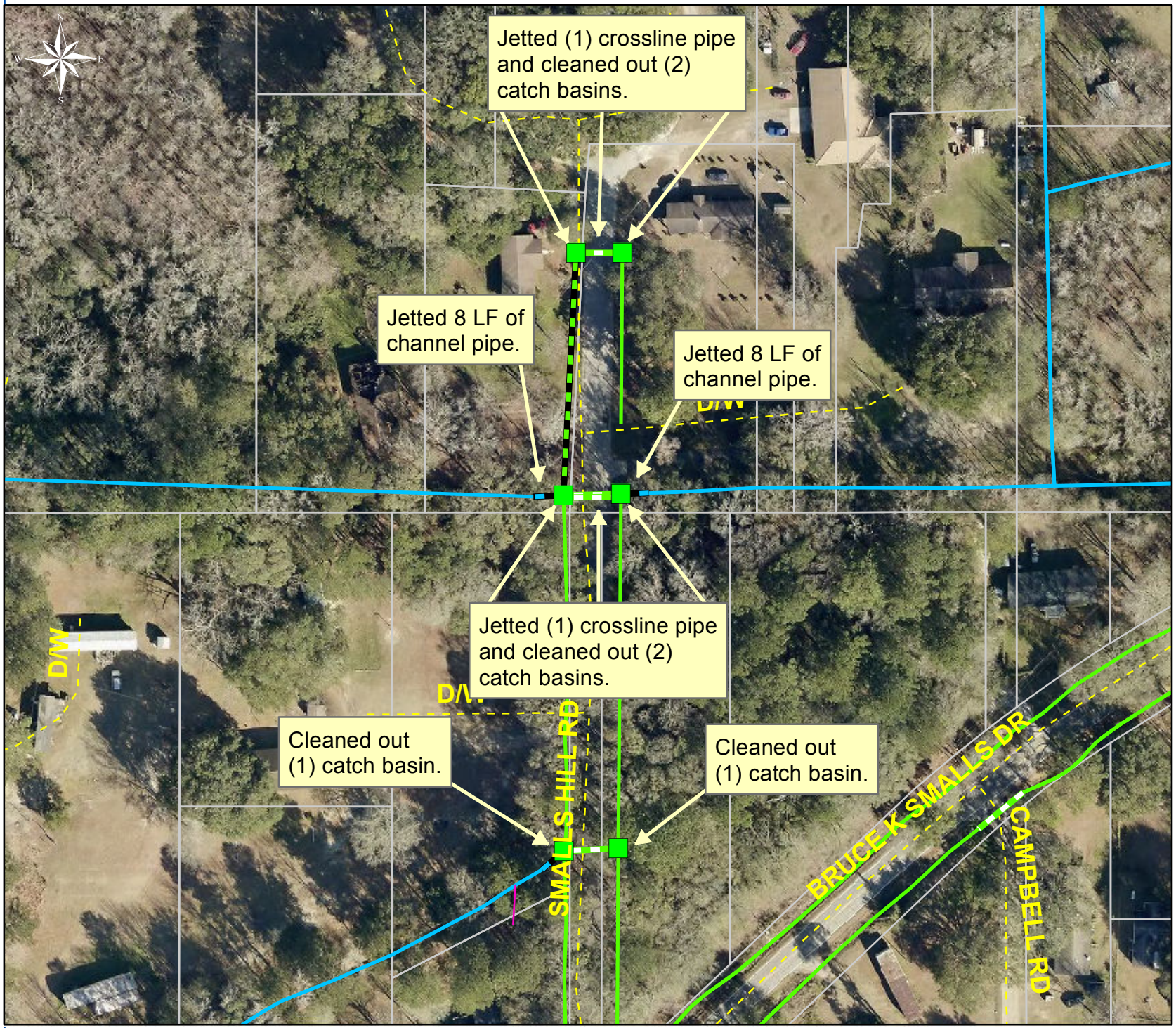
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 25 50 100 150 200 Feet

1 inch = 101 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/6/14
File:C:/sethdata/projects/projectmaps/Vac/Poppy Hill Rd 2014-306



Project: Smalls Hill Road

Activity: Vacuum Truck

Project #: 2014-306

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 25 50 100 150 200 Feet

1 inch = 105 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/6/14
File:C:/sethdata/projects/projectmaps/Vac/Smalls Hill Rd 2014-306

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Ladys Island Vacuum Truck - Johnson Landing Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:
Jetted (2) crossline pipes and (28) driveway pipes.

Completion: Jan-14

2014-307 / Ladys Island Vacuum Truck	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
CLPJT / Crossline Pipe - Jetted	20.0	$444.36	$221.60	$61.20	$0.00	$297.00	$1,024.16
DPJT / Driveway Pipe - Jetted	80.0	$1,795.06	$997.20	$421.85	$0.00	$1,204.20	$4,418.31
PRRECON / Project Reconnaissance	10.0	$239.80	$221.60	$23.10	$0.00	$164.70	$649.20
2014-307 / Ladys Island Vacuum Truck Sub Total	**110.5**	**$2,489.45**	**$1,440.40**	**$506.15**	**$0.00**	**$1,672.51**	**$6,108.52**
Grand Total	**110.5**	**$2,489.45**	**$1,440.40**	**$506.15**	**$0.00**	**$1,672.51**	**$6,108.52**

Before

During

After

Project: Johnson Landing Road Map 1

Activity: Vacuum Truck

Project #: 2014-307

Township: Lady's Island

Completed: January 2014

Legend

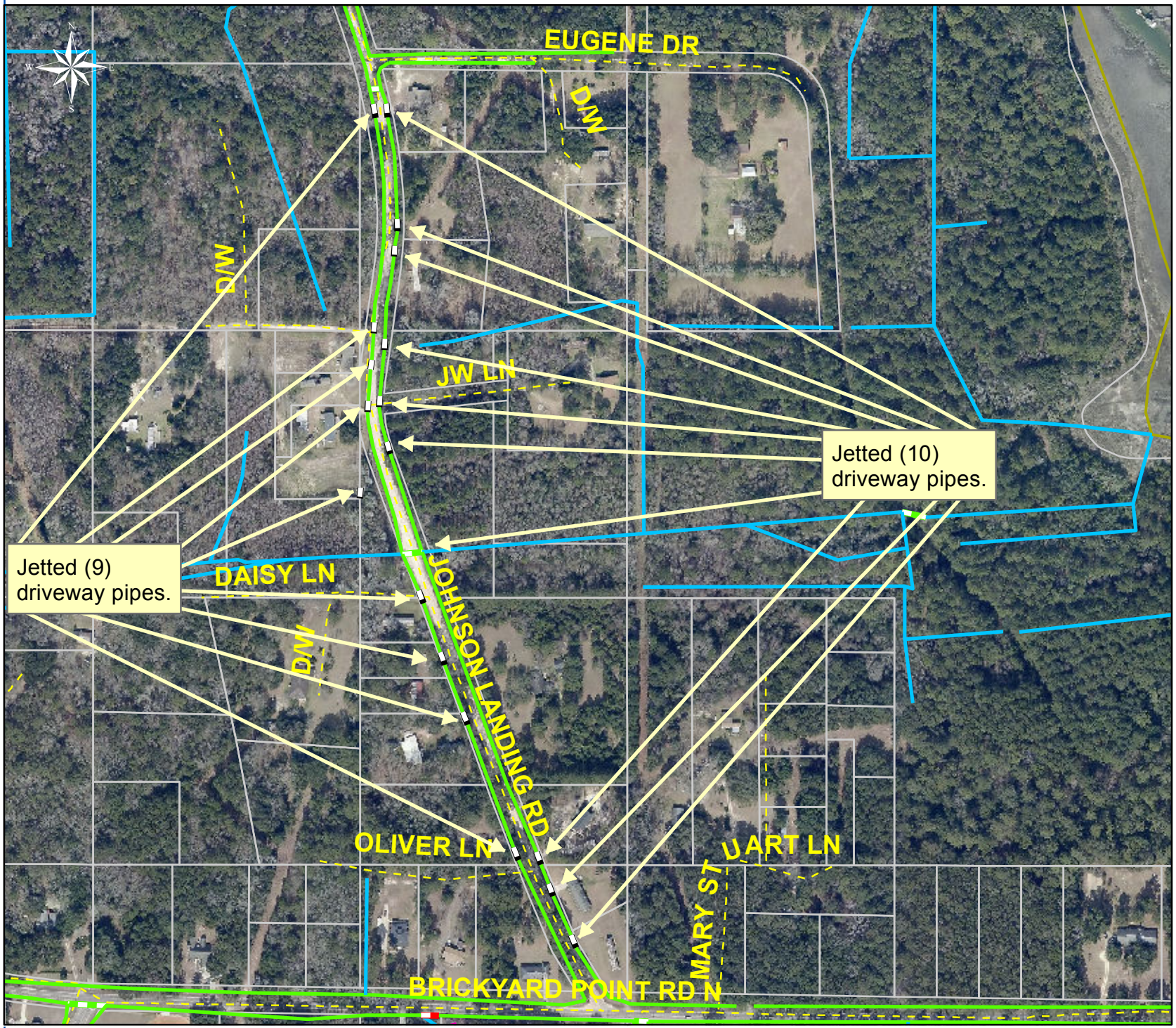
TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 80 160 320 480 640 Feet

1 inch = 311 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/7/14
File:C:/sethdata/projects/projectmaps/Vac/Johnson Landing Rd 2014-307 Map1



Project: Johnson Landing Road Map 2

Activity: Vacuum Truck

Project #: 2014-307

Township: Lady's Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 87.5175 350 525 700 Feet

1 inch = 333 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/7/14
File:C:/sethdata/projects/projectmaps/Vac/Johnson Landing Rd 2014-307 Map2

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Jasmine Hall Road (Rework)

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

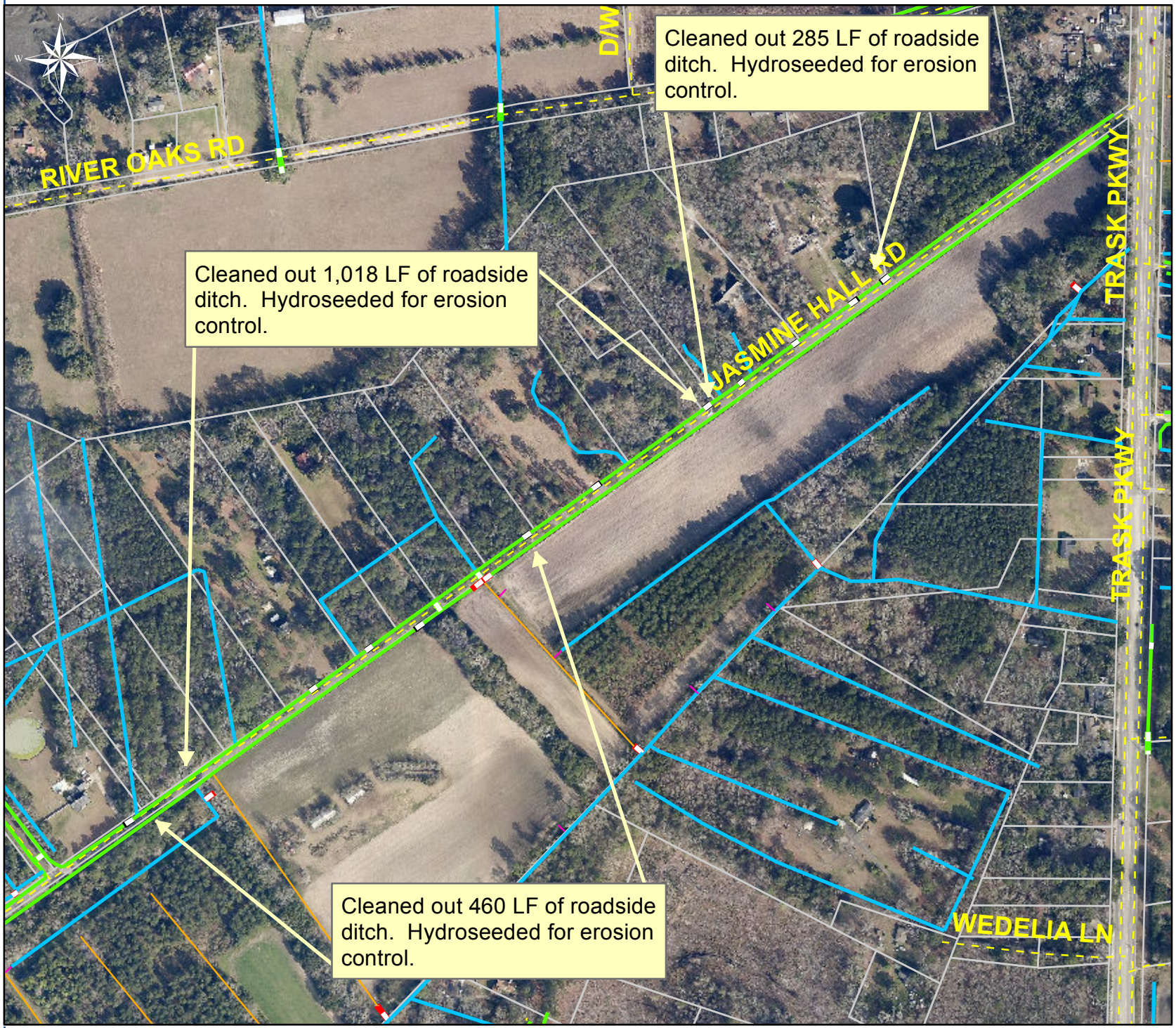
Project improved 1,763 L.F. of drainage system. Cleaned out 1,763 L.F. of roadside ditch. Hydroseeded for erosion control.

2014-515R / Jasmine Hall Road	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
BKFILL / Back Fill	110.0	$2,436.60	$311.03	$120.62	$0.00	$1,619.20	$4,487.45
HAUL / Hauling	64.5	$1,375.04	$690.15	$401.00	$0.00	$918.19	$3,384.38
HYDR / Hydroseeding	10.0	$228.04	$32.80	$189.59	$0.00	$148.50	$598.92
ONJV / Onsite Job Visit	21.0	$696.65	$72.40	$58.67	$0.00	$479.94	$1,307.66
RSDCL / Roadside Ditch - Cleanout	30.0	$698.40	$103.44	$56.10	$0.00	$455.60	$1,313.54
2014-515R / Jasmine Hall Road Sub Total	**236.0**	**$5,444.95**	**$1,209.82**	**$825.98**	**$0.00**	**$3,628.04**	**$11,108.79**
Grand Total	**236.0**	**$5,444.95**	**$1,209.82**	**$825.98**	**$0.00**	**$3,628.04**	**$11,108.79**

Before

During

After



Project: Jasmine Hall Road

Activity: Routine/ Preventive Maintenance

Project #: 2014-515R

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 105 210 420 630 840 Feet

1 inch = 395 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/13/14
File:C:/sethdata/projects/projectmaps/Jasmine Hall Rd 2014-515R

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Peaches Hill Circle

Activity: Routine/Preventive Maintenance

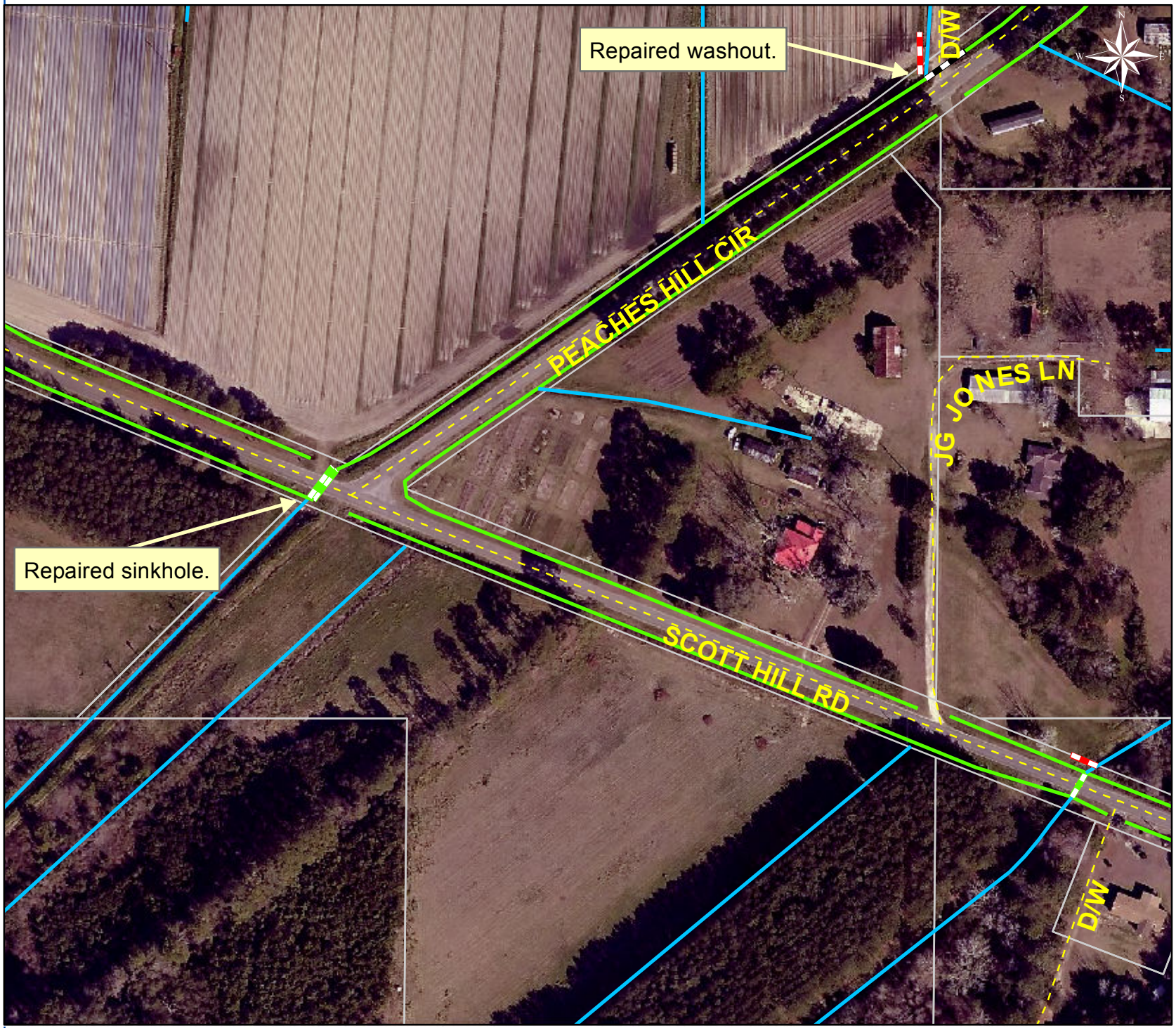
Narrative Description of Project:

Repaired washout.

Completion: Jan-14

2014-557 / Peaches Hill Circle	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
SR / Sinkhole repair	3.0	$71.94	$32.10	$172.02	$0.00	$49.41	$325.47
2014-557 / Peaches Hill Circle Sub Total	**3.5**	**$82.17**	**$32.10**	**$172.02**	**$0.00**	**$56.03**	**$342.32**
Grand Total	**3.5**	**$82.17**	**$32.10**	**$172.02**	**$0.00**	**$56.03**	**$342.32**

(Pictures Not Available)



Project: Peaches Hill Circle

Activity: Routine/ Preventive Maintenance

Project #: 2014-557

Township: St. Helena Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 40 80 160 240 320 Feet

1 inch = 168 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/27/14
File:C:/sethdata/projects/projectmaps/Peaches Hill Cir 2014-557

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Rivers End Subdivision - Rivers End Drive

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

Project improved 112 L.F. of drainage system. Cleaned out 112 L.F. of roadside ditch. Jetted (1) driveway pipe. Repaired washouts.

2014-560 / Rivers End Subdivision	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
DPJT / Driveway Pipe - Jetted	6.0	$129.77	$73.72	$135.02	$0.00	$89.61	$428.12
HAUL / Hauling	4.0	$86.52	$42.80	$60.11	$0.00	$57.68	$247.11
ONJV / Onsite Job Visit	2.0	$66.36	$7.24	$11.56	$0.00	$48.94	$134.10
PRRECON / Project Reconnaissance	2.0	$66.36	$7.24	$11.56	$0.00	$48.94	$134.10
RPWO / Repaired Washout	9.0	$196.20	$10.86	$16.50	$0.00	$130.05	$353.61
2014-560 / Rivers End Subdivision Sub Total	**23.5**	**$555.44**	**$141.86**	**$234.75**	**$0.00**	**$381.84**	**$1,313.88**
Grand Total	**23.5**	**$555.44**	**$141.86**	**$234.75**	**$0.00**	**$381.84**	**$1,313.88**

Before

After

Project: Rivers End Subdivision

Activity: Routine/ Preventive Maintenance

Project #: 2014-560

Township: Bluffton

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 30 60 120 180 240 Feet

1 inch = 125 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/6/14
File:C:/sethdata/projects/projectmaps/Rivers End SD 2014-560

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Prescott Road Channel #1

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

Project improved 310 L.F. of drainage system. Cleaned out 310 L.F. of channel.

2014-562 / Prescott Road Channel #1	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
HAUL / Hauling	11.0	$235.41	$117.70	$66.00	$0.00	$158.62	$577.73
ODCO / Outfall ditch - cleaned out	30.0	$654.00	$119.35	$30.05	$0.00	$433.50	$1,236.90
ONJV / Onsite Job Visit	4.0	$119.36	$14.48	$5.78	$0.00	$72.92	$212.54
2014-562 / Prescott Road Channel #1 Sub Total	**45.5**	**$1,019.00**	**$251.53**	**$101.83**	**$0.00**	**$671.66**	**$2,044.02**
Grand Total	**45.5**	**$1,019.00**	**$251.53**	**$101.83**	**$0.00**	**$671.66**	**$2,044.02**

Before

During

After

Project: Prescott Road

Activity: Routine/ Preventive Maintenance

Project #: 2014-562

Township: Sheldon

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 45 90 180 270 360 Feet

1 inch = 173 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/6/14
File:C:/sethdata/projects/projectmaps/Prescott Rd 2014-562

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Country Manor Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

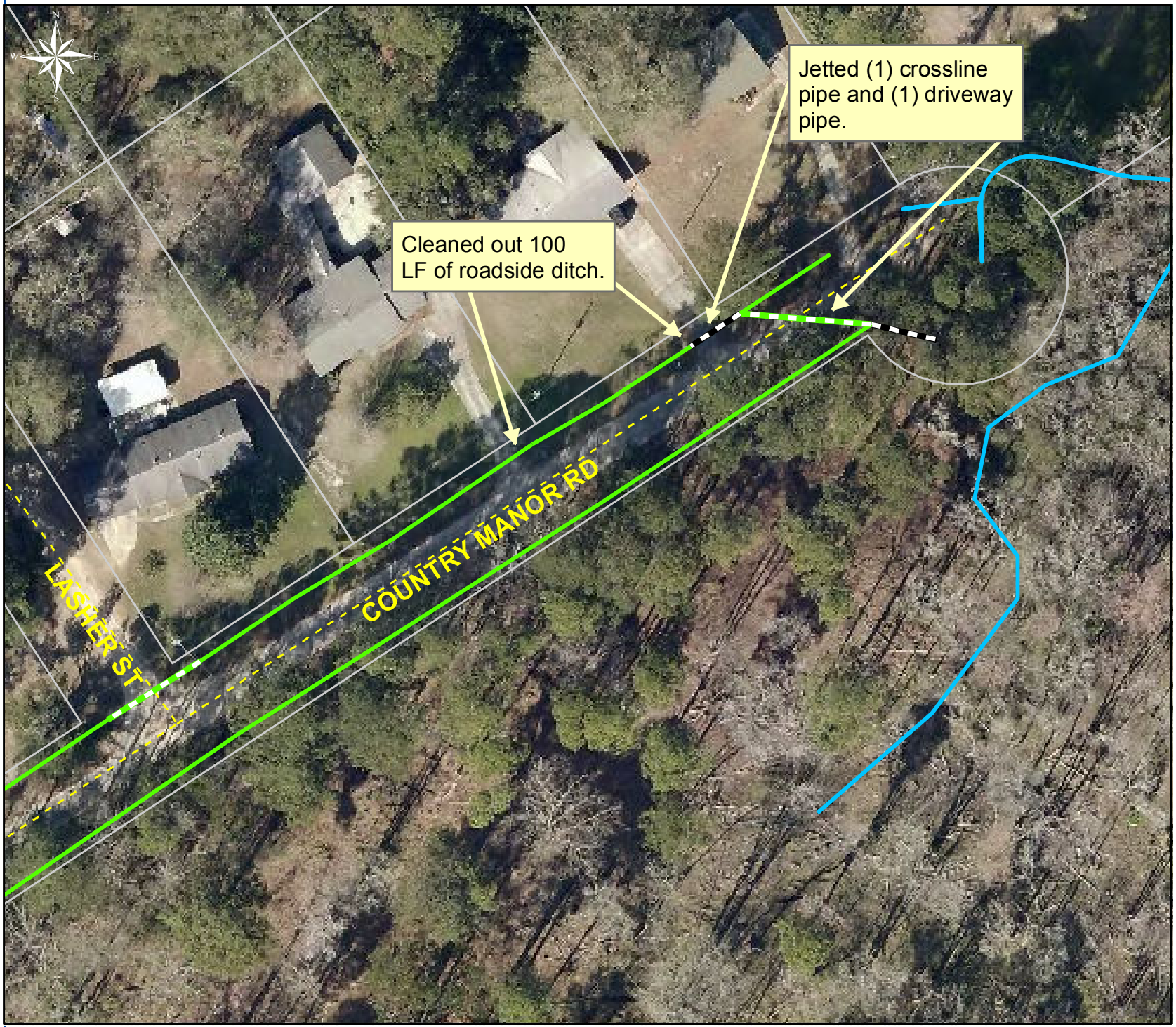
Project improved 100 L.F. of drainage system. Cleaned out 100 L.F. of roadside ditch by hand. Jetted (1) driveway pipe and (1) crossline pipe.

2014-564 / Country Manor Road	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
CLPJT / Crossline Pipe - Jetted	10.0	$222.19	$73.72	$27.42	$0.00	$148.50	$471.83
ONJV / Onsite Job Visit	2.0	$59.68	$7.24	$2.87	$0.00	$36.46	$106.25
PRRECON / Project Reconnaissance	1.0	$44.27	$3.62	$2.87	$0.00	$33.96	$84.72
2014-564 / Country Manor Road Sub Total	**13.5**	**$336.37**	**$84.58**	**$33.16**	**$0.00**	**$225.54**	**$679.64**
Grand Total	**13.5**	**$336.37**	**$84.58**	**$33.16**	**$0.00**	**$225.54**	**$679.64**

Before

During

After



Project: Country Manor Road

Activity: Routine/ Preventive Maintenance

Project #: 2014-564

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 15 30 60 90 120 Feet

1 inch = 62 feet

Prepared By: BC Stormwater Management Utility
Date Print: 1/28/14
File:C:/sethdata/projects/projectmaps/County Manor Rd 2014-564

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Pinewood Circle Channel #1

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Jan-14

Project improved 1,470 L.F. of drainage system. Removed trees. Cleaned out 1,470 L.F. of channel. Installed rip rap and handseeded for erosion control.

2014-565 / Pinewood Circle Channel #1	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
HAUL / Hauling	48.0	$1,025.22	$513.60	$2,095.22	$0.00	$692.16	$4,326.20
ODCO / Outfall ditch - cleaned out	20.0	$449.40	$341.78	$153.45	$0.00	$301.20	$1,245.83
ONJV / Onsite Job Visit	16.0	$491.87	$57.92	$26.01	$0.00	$307.41	$883.21
RMTR / Remove trees-roads	42.0	$962.76	$309.20	$155.10	$0.00	$619.14	$2,046.20
RRI / Rip Rap - Installed	22.0	$477.92	$236.55	$101.68	$0.00	$308.94	$1,125.09
WSL / Workshelf - Level	9.0	$206.76	$123.58	$111.68	$0.00	$139.77	$581.79
2014-565 / Pinewood Circle Channel #1 Sub Total	**157.5**	**$3,624.16**	**$1,582.63**	**$2,643.13**	**$0.00**	**$2,375.24**	**$10,225.16**
Grand Total	**157.5**	**$3,624.16**	**$1,582.63**	**$2,643.13**	**$0.00**	**$2,375.24**	**$10,225.16**

Before

During

After

Project: Pinewood Circle

Activity: Routine/ Preventive Maintenance

Project #: 2014-565

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 50 100 200 300 400 Feet

1 inch = 199 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/6/14
File:C:/sethdata/projects/projectmaps/Pinewood Cir 2014-565

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Parker Drive Channel #1

Activity: Routine/Preventive Maintenance

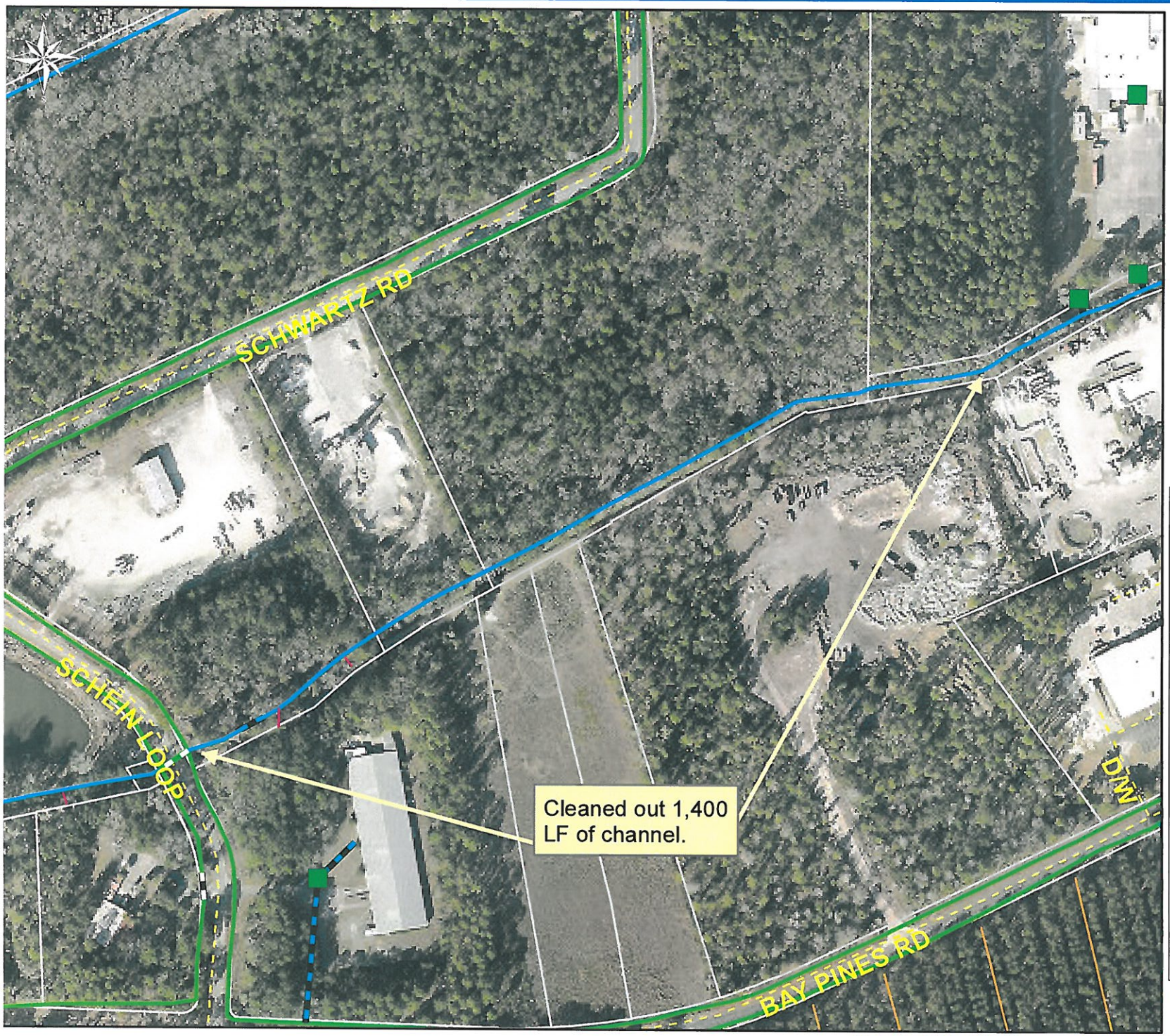
Narrative Description of Project:

Completion: Jan-14

Project improved 1,400 L.F. of drainage system. Cleaned out 1,400 L.F. channel.

2014-566 / Parker Drive Channel #1	**Labor Hours**	**Labor Cost**	**Equipment Cost**	**Material Cost**	**Contractor Cost**	**Indirect Labor**	**Total Cost**
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
HAUL / Hauling	6.0	$127.26	$64.20	$23.24	$0.00	$86.52	$301.22
ODCO / Outfall ditch - cleaned out	12.0	$269.64	$174.51	$33.20	$0.00	$180.72	$658.07
2014-566 / Parker Drive Channel #1 Sub Total	**18.5**	**$407.13**	**$238.71**	**$56.44**	**$0.00**	**$273.86**	**$976.14**
Grand Total	**18.5**	**$407.13**	**$238.71**	**$56.44**	**$0.00**	**$273.86**	**$976.14**

(Pictures Not Available)



Project: Parker Drive Channel #1

Activity: Routine/ Preventive Maintenance

Project #: 2014-566

Township: Port Royal Island

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe
- Catch Basin

0 70 140 280 420 560 Feet

1 inch = 270 feet

Prepared By: BC Stormwater Management Utility
Date Print: 1/28/14

Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Keans Neck Road Channel #2

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Completion: Feb-14

Removed blockage from flowline. Replaced (1) bleeder pipe.

2014-578 / Keans Neck Road Channel #2	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	$10.23	$0.00	$0.00	$0.00	$6.62	$16.85
BPREP / Bleeder Pipe - Replaced	20.0	$433.85	$34.91	$225.42	$0.00	$221.65	$915.83
HAUL / Hauling	5.0	$108.15	$53.50	$23.10	$0.00	$72.10	$256.85
2014-578 / Keans Neck Road Channel #2 Sub Total	**25.5**	**$552.23**	**$88.41**	**$248.52**	**$0.00**	**$300.37**	**$1,189.52**
Grand Total	**25.5**	**$552.23**	**$88.41**	**$248.52**	**$0.00**	**$300.37**	**$1,189.52**

Before

During

After

Project: Keans Neck Road Channel #2

Activity: Routine/ Preventive Maintenance

Project #: 2014-578

Township: Sheldon

Completed: January 2014

Legend

TYPE

- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Lateral
- Lateral Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Access Pipe
- Bleeder Pipe

0 40 80 160 240 320 Feet

1 inch = 164 feet

Prepared By: BC Stormwater Management Utility
Date Print: 2/20/14
File:C:/sethdata/projects/projectmaps/Keans Neck Channel 2 2014-578

BEAUFORT COUNTY STORMWATER UTILITY
120 Shanklin Road
Beaufort, South Carolina 29906
Voice (843) 255-2801 Facsimile (843) 255-9478

I N T E R O F F I C E M E M O R A N D U M

TO: **Bryan Hill, Deputy County Administrator**
Beaufort County Stormwater Utility Board

FROM: **Eric W. Larson, Stormwater Manager**

SUBJECT: **Land Acquisition for Stormwater Capital Project – Forby Tract**

DATE: **February 24, 2014**

Per our discussion on February 10, 2014, the County is currently contemplating the purchase of the entire Forby tract along US 278 and I was requested to review this situation to determine if any justified stormwater use could be made of the property.

The 2006 Beaufort County Stormwater Management Plan (due to be updated next year), identified numerous locations on the SCDOT roadway system where cross drain pipes are potentially undersized and roadway overtopping may occur. At Sawmill Parkway on US 278 (Fording Island Road) the 3 – 30" RCP SCDOT cross drains are identified as potentially insufficient to convey the 100-year storm event, possibly resulting in overtopping of the roadway. The Forby tract is part of a fresh water wetland system that extends upstream under Bluffton Parkway and into the Heritage Lakes Development, receiving runoff from an approximately 310 acre watershed consisting of mostly residential development. The runoff from this sub-watershed crosses US 278 at this location and enters the Colleton River. The river is not currently impaired from pollution.

By supplementing the land acquisition cost for the frontage road with stormwater funds, the frontage road could potentially be re-designed with a staged control release structure for stormwater. The re-design will require a thorough hydrology study of the watershed to determine volumes and the effect the existing upstream lagoons have on peak flow and water quality. This study could cost another $35,000-$40,000 and will almost certainly indicate an increase in the tail water elevations in the lagoons if water is ponded on the Forby tract. Army Corps of Engineers permitting of the Bluffton Parkway project required proof that this would not occur. Any alteration of these existing wetlands will require additional Army Corps of Engineers approval.

The County has numerous existing water quality projects identified, all of them related to known stream impairments. At this time there are no projects related to roadway overtopping that the County has implemented as a result of the Management Plan or the approved 2011 Regional Stormwater Quality BMP Retrofit Project report. Should this project be undertaken, the cost would encumber a significant portion of additional available funding and would delay higher priority projects.

Therefore, if the use of Stormwater Utility funds is planned to supplement the frontage road land acquisition budget to acquire the Forby tract in total, then funds should also be earmarked to supplement the re-design and construction of the frontage road, including a hydrology and hydraulic model of the wetland's watershed to determine the feasibility of the stormwater component and to properly size the road's stormsewer conveyance to meet the goals set forth by the Utility for water quality and public safety. Finally, the County should anticipate the need to pay for wetland mitigation by enhancement or use of the USCAE Wetland Bank program.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D/W
FORDING ISLAND RD
FORDING ISLAND RD
D/W
FRONTAGE RD
COASTAL DR
CALLE DE CARDO
D/W
0 50 100 200 300 400
Feet
R600-40-134
Forby Tract
2013 Aerial
Proposed Frontage Road
TYPE
River
Creek/Stream
River/Creek/Marsh BANK
Channel (fka Outfall)
Channel Pipe
Roadside
Roadside Pipe
Road Pipe
Crossline Pipe
Driveway Pipe
Lateral
Lateral Pipe
Access Pipe
Bleeder Pipe
Streets

BEAUFORT COUNTY
STORMWATER MANAGEMENT UTILITY BOARD
Wednesday, April 2, 2014
2:00 p.m.
Beaufort Industrial Village, Building 2 Conference Room
102 Industrial Village Road, Beaufort
843.255.2801

In accordance with South Carolina Code of Laws, 1976, as amended, Section 30-4-80(d), all local media was duly notified of the time, date, place and agenda of this meeting.

1. CALL TO ORDER – 2:00 p.m.
   A. Approval of Agenda
   B. Approval of Minutes – March 5, 2014 (backup)

2. INTRODUCTIONS

3. PUBLIC COMMENT

4. REPORTS
   A. Special Presentation – Town of Bluffton
   B. Monitoring Update – Eric Larson, P.E. (backup)
   C. Utility Update – Eric Larson, P.E. (backup)
   D. Stormwater Implementation Committee Report – Eric Larson, P.E. (backup)
   E. Upcoming Professional Contracts Report – Eric Larson, P.E. (backup)
   F. Financial Report – Alan Eisenman (backup)
   G. FY 2015 Budget – Carolyn Wallace (backup)
   H. Maintenance Project Report – Eddie Bellamy (backup)

5. UNFINISHED BUSINESS
   A. Regional Coordination – Eric Larson, P.E. (backup)

6. NEW BUSINESS

7. PUBLIC COMMENT

8. NEXT MEETING AGENDA
   A. May 7, 2014 (backup)

9. ADJOURNMENT