

Clean Water 2020 Program

CONSENT DECREE QUARTERLY REPORT

October 1, 2020 – December 31, 2020



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Section 1 Introduction

1.1 Summary of Reporting Requirements

On May 21, 2014, the City of Columbia (City) entered into a Consent Decree (CD) with the United States Environmental Protection Agency (EPA), the United States Department of Justice (DOJ) and the South Carolina Department of Health and Environmental Control (SCDHEC). To fulfill the reporting requirements as defined in Section IX.39.a of the CD, the City has prepared this *Quarterly Report* that includes the following information (as excerpted from the CD):

1. A description of all projects and activities conducted during the most recently completed calendar quarter to comply with the requirements of this Consent Decree, in Gantt chart or similar format. This description shall include completion percentages of early action capital improvement projects under Paragraph 10, continuing sewer assessments under the CSAP, and the subsequent remedial actions under the IR Report;
2. The date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise resolve the cause of all SSOs for the most recently completed quarter in a tabulated electronic format;
3. The anticipated projects and activities that will be performed in the next quarter to comply with the requirements of this Consent Decree, in Gantt chart or similar format;
4. Any additional information that demonstrates that Columbia is implementing the remedial measures required in this Consent Decree; and
5. The results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the Consent Decree.

1.2 Report Organization

This Quarterly Report is organized as follows:

Section 1 – Introduction

This section includes a summary of the reporting requirements and describes the report organization.

Section 2 – Schedule of Projects and Activities

This section addresses the requirements of Sections IX.39.a.(i) and IX.39.a.(iii) of the Consent Decree. The section includes the projects and activities conducted during the most recently completed calendar

quarter to comply with the requirements of the CD as well as the anticipated projects and activities that will be performed in the next quarter to comply with the requirements of the CD. A Gantt chart schedule of these activities is provided and includes completion percentages of continuing sewer assessments under the CSAP and the subsequent remedial actions under the IR Report, as applicable.

Section 3 – Additional Information Demonstrating Implementation of Consent Decree Requirements

This section addresses the requirements of Section IX.39.a.(iv) of the Consent Decree and includes additional information that demonstrates that Columbia is implementing the remedial measures required in the CD. Information supplemental to that which is provided in Section 2 is provided in this section.

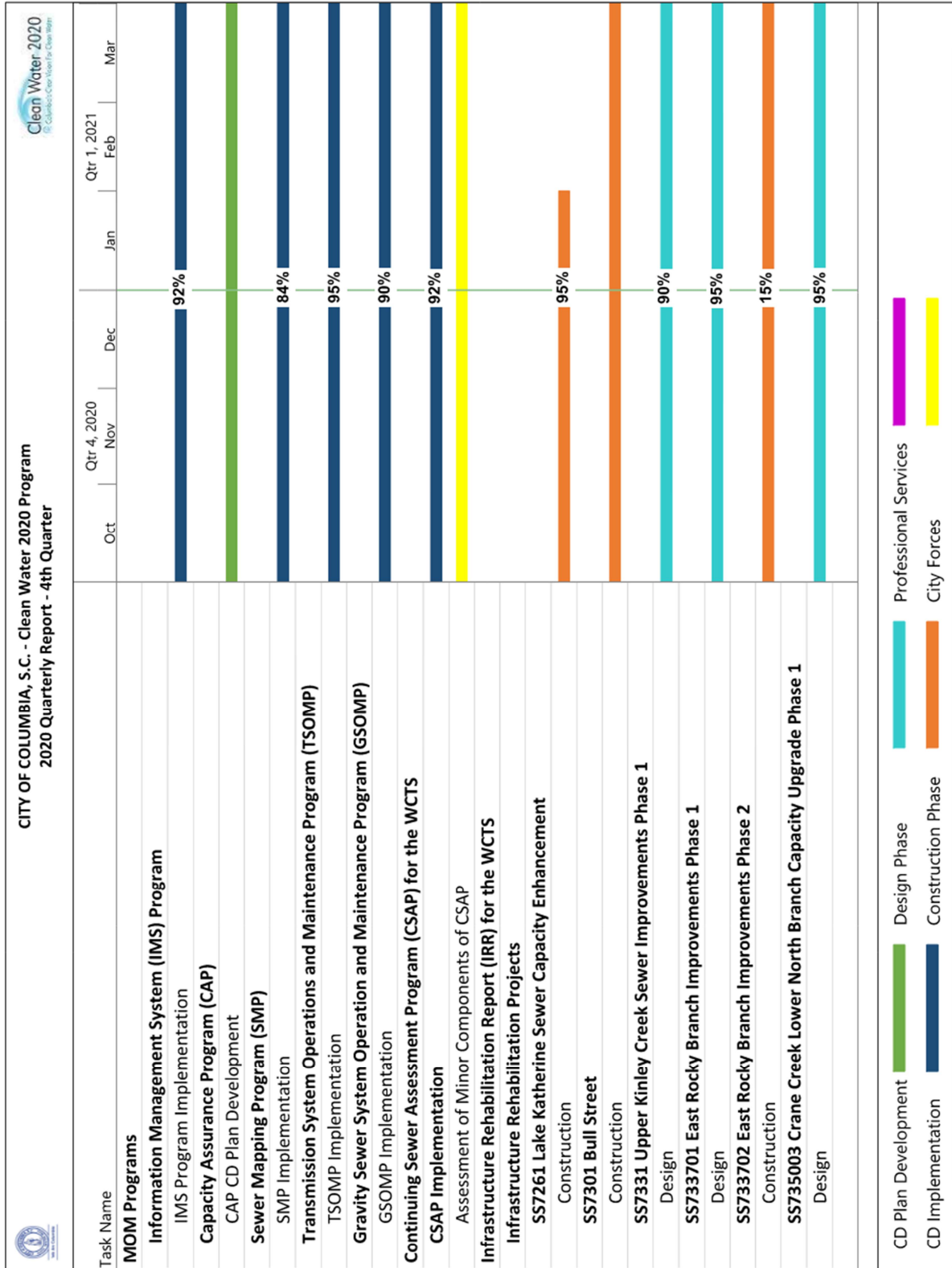
Section 4 – Quarterly SSO Report

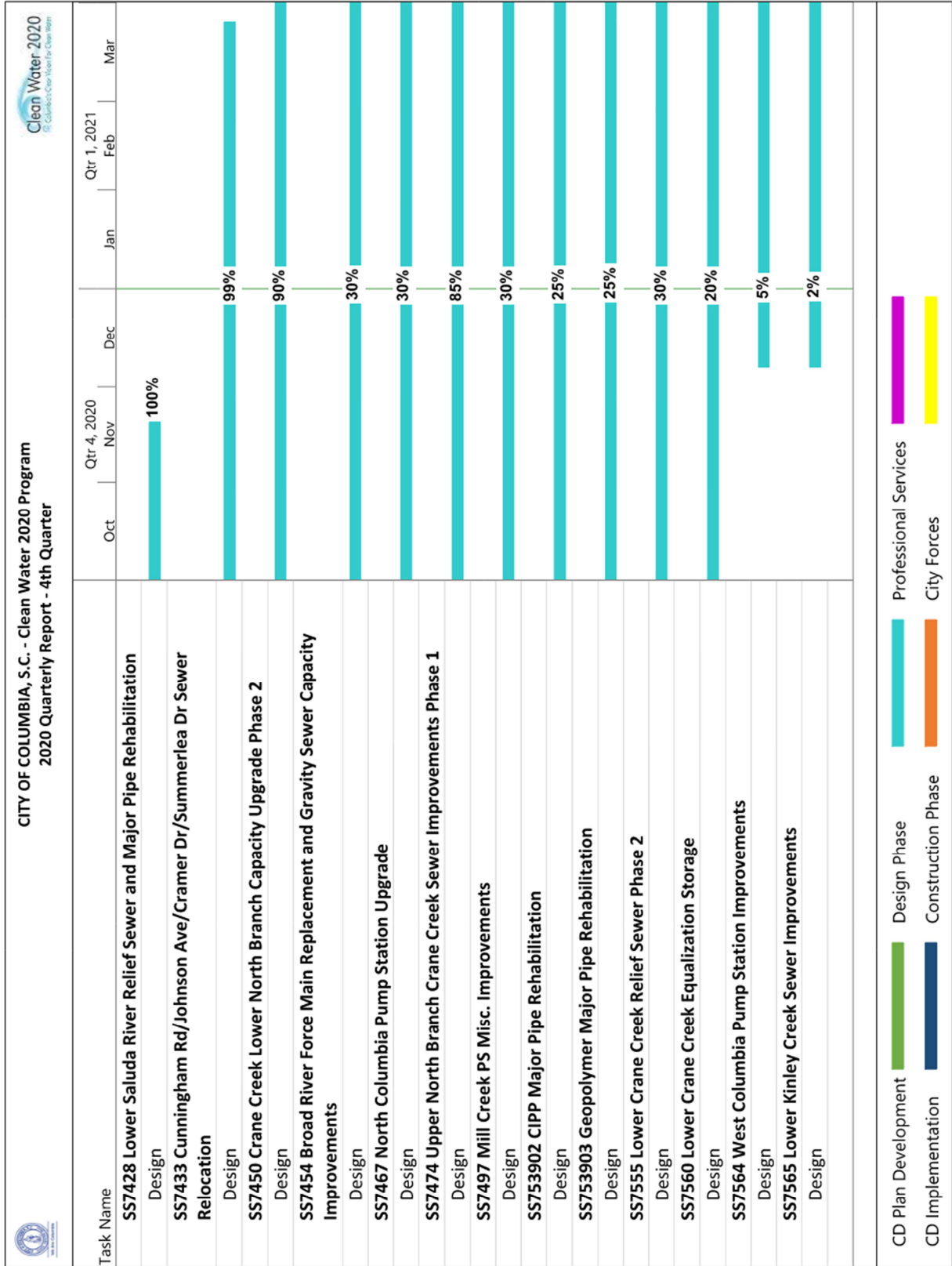
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise resolve the cause of all SSOs that occurred during the most recently completed calendar quarter.

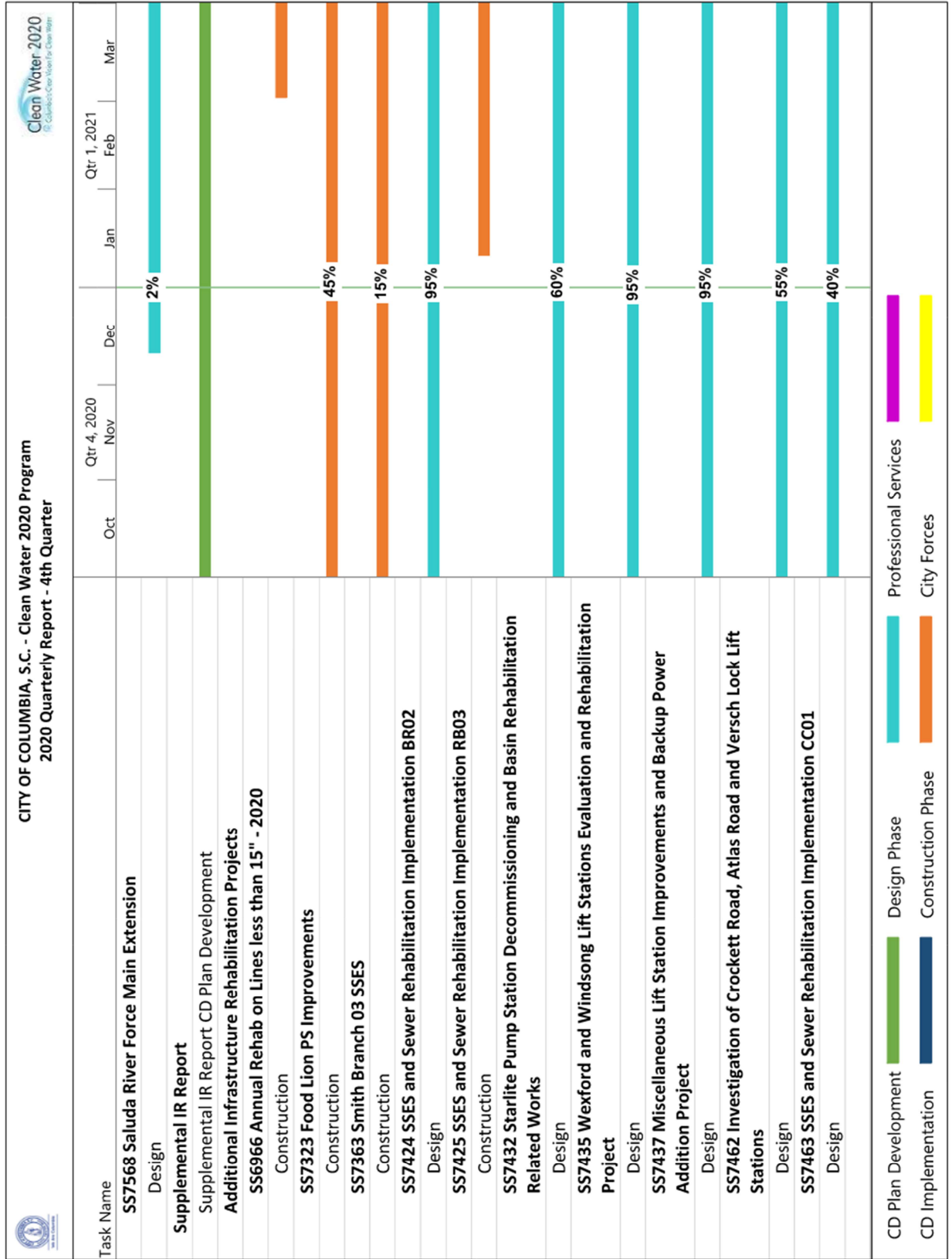
Section 5 – SEP Water Quality Monitoring Results

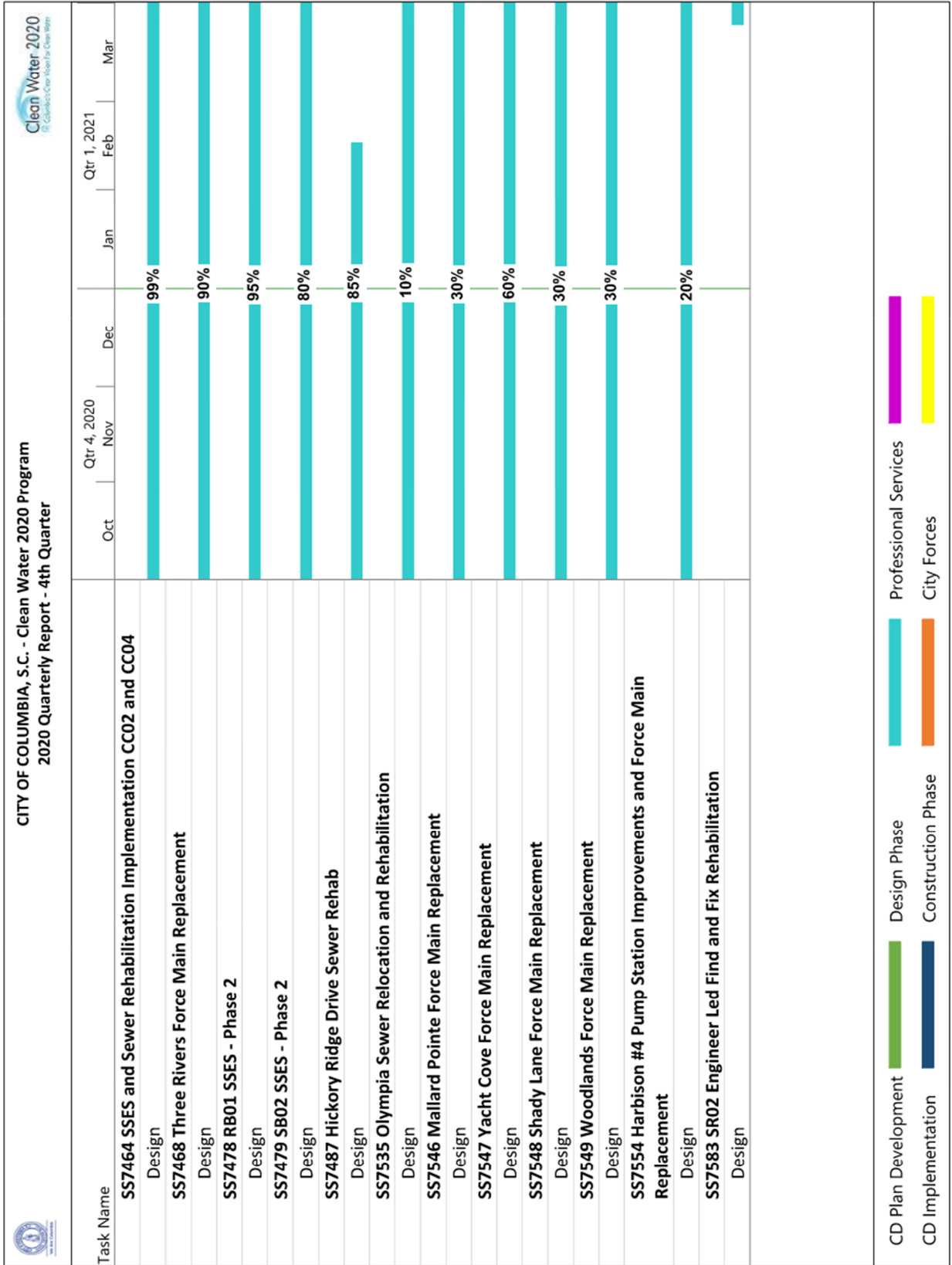
This section addresses the requirements of Section IX.39.a.(v) of the Consent Decree and provides the results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the CD.

Section 2 Schedule of Projects and Activities









Section 3 Additional Information Demonstrating Implementation of Consent Decree Requirements

In accordance with Section IX.39.a.(iv) of the CD, the following section provides additional information that demonstrates that the City is implementing the remedial measures required in the CD.

3.1 MOM Programs

In accordance with Section V.12 of the CD, the City is developing and implementing specific Management, Operations, and Maintenance (MOM) programs. The Program elements addressed in this section provide information regarding activities involving the Metro WWTP as well as the City's Wastewater Collection and Transmission System (WCTS).

3.1.1 Information Management System (IMS) Program

The IMS Program was submitted to EPA and SCDHEC on January 4, 2016. The City received final approval of the IMS Program from EPA and SCDHEC on May 23, 2016.

The activities completed or in progress during the current reporting period are as follows:

- Sewer Mapping Program – 84% Complete

3.1.2 Sewer Mapping Program

In accordance with the requirements of the CD, the City was to develop and submit a Sewer Mapping Program (SMP) to EPA and SCDHEC within 60 days of the date of entry of the CD. The City received final approval of the SMP from EPA and SCDHEC on December 9, 2014.

Projects and significant activities completed during the current reporting period:

- The City continues to complete the electronic mapping of each Sewer Basin in accordance with the approved SMP implementation plan. Progress for each WCTS Minor Gravity Mapping basin is as follows:
 - West Columbia Basin – 100% complete (Mapping complete as of June 9, 2020)
 - Smith Branch Basin – 89% complete
 - Saluda River Basin – 97% complete
 - Rocky Branch Basin – 82% complete
 - Mill Creek Basin – 28% complete
 - Gills Creek Basin – 56% complete
 - Crane Creek Basin – 71% complete
 - Broad River Basin – 47% complete

3.1.3 Transmission System Operations and Maintenance Program (TSOMP)

The TSOMP was submitted to EPA and SCDHEC on May 18, 2015. The City received final approval of the TSOMP from EPA and SCDHEC on September 2, 2016.

The activities completed or in progress during the current reporting period are as follows:

- Force Main and Easement Maintenance (Easement survey and marking and initial clearing to the surveyed limits, where practical) – 85% Complete

3.1.4 Gravity Sewer System Operation and Maintenance Program (GSOMP)

The GSOMP was submitted to EPA and SCDHEC on November 20, 2015. The City received final approval of the GSOMP from EPA and SCDHEC on May 23, 2016. The GSOMP was revised and resubmitted to EPA and SCDHEC on May 8, 2019.

The activities completed or in progress during the current reporting period are as follows:

- Gravity Sewer Easement survey and marking and initial clearing to survey the limits, where practical – 70% Complete

3.2 Continuing Sewer Assessment Program (CSAP) for the WCTS

The CSAP was submitted to EPA and SCDHEC on June 9, 2015. The City received final approval of the CSAP from EPA and SCDHEC on May 23, 2016. The CSAP was revised and resubmitted to EPA and SCDHEC on October 3, 2018. The City received approval of the revised CSAP from EPA and SCDHEC on February 6, 2019.

The activities under the Minor Components of the CSAP completed or in progress during the current reporting period are as follows:

- Minor Gravity Sewer and Manholes Condition Assessment – 77% Complete
- Minor Pump Stations Condition Assessment – 77% Complete
- Minor Force Mains Field Assessment – 77% Complete

3.3 Infrastructure Rehabilitation Report (IRR) for the WCTS

In accordance with Section V.16 of the CD, the City shall submit an Infrastructure Rehabilitation Report (IRR) summarizing the results of the CSAP of the major components of the WCTS and a description of proposed rehabilitation projects. The IRR was submitted to EPA and SCDHEC on November 22, 2019. The City is awaiting EPA and SCDHEC review and approval of the IRR.

As rehabilitation projects are identified through the assessments described in Section 3.2 and in the normal course of operations and maintenance, the City is proceeding with design and construction of those projects. Completion percentages of projects currently in progress are as follows:

- SS7261 Lake Katherine Sewer Capacity Enhancement – Construction 95% Complete
- SS7289 Rivermont Drive Pump Station and Force Main – Project has been cancelled due to further assessment of available flow data. Upon further analysis it was determined the project is no longer needed from a capacity standpoint. The implementation of SS7568 Saluda River Force Main Extension will provide the required capacity improvements within the limits of this project.
- SS7301 Bull Street – Construction in Progress; a completion percentage cannot be provided due to a varying scope of work and timeline for this project.
- SS7331 Upper Kinley Creek Sewer Improvements Phase 1 – Design 90% Complete
- SS733701 East Rocky Branch Improvements Phase 1 – Design 95% Complete
- SS733702 East Rocky Branch Improvements Phase 2 – Construction 15% Complete
- SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1 – Design 95% Complete
- SS7428 Lower Saluda River Relief Sewer and Major Pipe Rehabilitation – Design 100% Complete
- SS7433 Cunningham Rd/Johnson Ave/Cramer Dr/Summerlea Dr Sewer Relocation – Design 99% Complete
- SS7450 Crane Creek Lower North Branch Capacity Upgrade Phase 2 – Design 90% Complete
- SS7454 Broad River Force Main Replacement and Gravity Sewer Capacity Improvements – Design 30% Complete
- SS7467 North Columbia Pump Station Upgrade – Design 30% Complete
- SS7474 Upper North Branch Crane Creek Sewer Improvements Phase 1 – Design 85% Complete
- SS7497 Mill Creek Pump Station Miscellaneous Improvements – 30% Design Complete
- SS753902 CIPP Major Pipe Rehabilitation – 25% Design Complete
- SS753903 Geopolymer Major Pipe Rehabilitation – 25% Design Complete
- SS7555 Lower Crane Creek Relief Sewer Phase 2 – Design 30% Complete
- SS7560 Lower Crane Creek Equalization Storage – 20% Design Complete
- SS7564 West Columbia Pump Station Improvements – 5% Design Complete
- SS7565 Lower Kinley Creek Sewer Improvements – 2% Design Complete
- SS7568 Saluda River Force Main Extension – 2% Design Complete

In accordance with Section V.16.c of the CD, the City shall submit a Supplemental Infrastructure Rehabilitation Report (SIRR) which shall update all portions of the IRR to reflect additional information developed by the City through completion of the CSAP of the minor components of the WCTS. The SIRR is to be submitted within six months after the City has assessed the remainder of the entire WCTS pursuant to the CSAP. As rehabilitation projects are identified through the assessments described in Section 3.2 and in the normal course of operations and maintenance, the City is proceeding with design and construction of those projects. Completion percentages of projects currently in progress are as follows:

- SS6966 Annual Rehab on Lines less than 15" – 2020 Construction 0% Complete

- SS7323 Food Lion PS Improvements – Construction 45% Complete
- SS7363 Smith Branch 03 SSES – Construction 15% Complete
- SS7424 SSES and Sewer Rehabilitation Implementation BR02 – Design 95% Complete
- SS7425 SSES and Sewer Rehabilitation Implementation RB03 – Construction 0% Complete
- SS7432 Starlite PS Decommissioning and Basin Rehabilitation Related Works – Design 60% Complete
- SS7435 Wexford and Windsong Lift Stations Evaluation and Rehabilitation Project – Design 95% Complete
- SS7437 Miscellaneous Lift Station Improvements and Backup Power Addition Project – Design 95% Complete
- SS7462 Investigation of Crockett Road, Atlas Road and Versch Lock Lift Stations – Design 55% Complete
- SS7463 SSES and Sewer Rehabilitation Implementation CC01 – Design 40% Complete
- SS7464 SSES and Sewer Rehabilitation Implementation CC02 and CC04 – Design 99% Complete
- SS7468 Three Rivers Force Main Replacement – Design 90% Complete
- SS7478 Rocky Branch 01 SSES Phase 2 – Design 95% Complete
- SS7479 Smith Branch 02 SSES Phase 2 – Design 80% Complete
- SS7487 Hickory Ridge Drive Sewer Rehab – Design 85% Complete
- SS7535 Olympia Sanitary Sewer Relocation and Rehabilitation – 10% Design Complete
- SS7546 Mallard Pointe Force Main Replacement – 30% Design Complete
- SS7547 Yacht Cove Force Main Replacement – 60% Design Complete
- SS7548 Shady Lane Force Main Replacement – 30% Design Complete
- SS7549 Woodlands Force Main Replacement – 30% Design Complete
- SS7554 Harbison #4 Pump Station Improvements and Force Main Replacement – Design 20% Complete
- SS7583 Saluda River 02 Engineer Led Find and Fix Rehabilitation – Design 0%

3.4 Sewer System Hydraulic Model

The Hydraulic Model Report was submitted to EPA and SCDHEC on August 21, 2020. The City is awaiting EPA and SCDHEC review and approval of the Hydraulic Model Report.

Section 4 Quarterly SSO Report

In accordance with Section IX.39.a.(ii) of the CD, the City is to provide a list of all SSOs that occurred during the reporting period in a tabular format along with information on the date, time, location, source, duration, estimated volume, receiving water, cause, and actions taken to resolve the SSO.

Table 1 - SSO Report, 4th Quarter 2020

| City of Columbia, SC Quarterly SSO Listing 4th Quarter 2020 | | | | | | | | | |
|---|-------|--|-------------------|---------------------------|---------------------------|----------------------------|-------------------------------------|--------------------------|--|
| Date | Time | Location | Source | Date of Corrective Action | Time of Corrective Action | Estimated Volume (gallons) | Receiving Water (If any) | Cause | Actions Taken |
| 10/2/2020 | 23:00 | 343 Wycombe Rd, Columbia, SC 29212 | Cleanout | TBD | | 1676 | Storm Drain | Roots | Main Line Wash To Remove Stoppage And Resume Normal Flow. Main Line Repair. |
| 10/4/2020 | 10:15 | 7402 Fairfield Rd, Columbia, SC 29203 | Manhole | 10/8/2020 | 09:00 | 2454 | Trib To Crane Creek | Debris | Removed Stoppage To Resume Normal Flow. Main Line Wash. |
| 10/5/2020 | 13:50 | 2731 Prince Charles Ct, Columbia, SC 29209 | Line Segment | 10/8/2020 | 12:00 | 315000 | Trib To Mill Creek | Collapsed Line | Removed Stoppage To Unblock The Main Line. Main Line Repair. |
| 10/7/2020 | 09:04 | 88 Ridge Lake Dr, Columbia, SC 29209 | Manhole | 10/7/2020 | 10:00 | 53900 | Unnamed Pond And Trib To Mill Creek | Equipment Failure | Deflated Plug In Line And Allowed Flow To Resume. Replaced Bypass Pump And Relocated Plug. |
| 10/8/2020 | 06:45 | 88 Ridge Lake Dr, Columbia, SC 29209 | Manhole | 10/8/2020 | 07:30 | 15750 | Unnamed Pond And Trib To Mill Creek | Equipment Failure | Replaced Fuel Filter On Bypass Pump And Restarted Pump. |
| 10/9/2020 | 09:04 | 1844 Tall Pines Cir, Columbia, SC 29205 | Cleanout | 10/9/2020 | 10:30 | 55 | | Debris | Removed Blockage To Resume Normal Flow. Washed Service Line To Remove Blockage. |
| 10/12/2020 | 10:15 | 349 Wycombe Rd, Columbia, SC 29212 | Cleanout | 10/12/2020 | 10:45 | 38 | | Roots | Removed Stoppage To Resume Normal Flow. Washed Service Line To Remove Roots. |
| 10/14/2020 | 12:45 | 631 S Assembly St, Columbia, SC 29201 | Manhole | 10/15/2020 | 09:00 | 900 | Storm Drain | Grease | Removed Stoppage To Resume Normal Flow. Washed Main Line To Remove Grease Deposits. |
| 10/16/2020 | 11:35 | 900 Gregg St, Columbia, SC 29201 | Cleanout | 10/19/2020 | 11:45 | 10 | Storm Water Ditch | Roots | Removed Stoppage To Resume Normal Flow. Service Line Root Cut. |
| 10/16/2020 | 15:20 | 196 Upper Wing Trl, Blythewood, SC 29016 | Manhole | 10/16/2020 | 16:30 | 516 | | Grease | Removed Blockage To Resume Normal Flow. Main Line Wash To Remove Grease. |
| 10/19/2020 | 12:28 | 1100 Butler St, Columbia, SC 29205 | Cleanout | TBD | | 15 | | Roots | Removed Stoppage To Resume Normal Flow. Service Line Repair. |
| 10/26/2020 | 14:40 | 331 Killian Rd, Columbia, SC 29203 | Forcemain | 10/27/2020 | 16:11 | 140 | Storm Drain | Force Main | Shut Down Pump Station. Force Main Repair. |
| 10/28/2020 | 09:45 | 226 Wren Creek Cir, Columbia, SC 29016 | Manhole | TBD | | 425 | Lot Branch | Roots | Removed Stoppage To Resume Normal Flow. Main Line Root Cut. |
| 10/30/2020 | 11:00 | 204 Kemsing Rd, Columbia, SC 29212 | Cleanout | TBD | | 25 | | Roots | Removed Blockage To Resume Normal Flow. Cleanout Repair. |
| 11/3/2020 | 14:30 | 100 Northeast Dr, Columbia, SC 29203 | Manhole | TBD | | 30 | | Roots | Removed Blockage To Resume Normal Flow. Main Line Repair. |
| 11/7/2020 | 15:00 | 511 Alcott Dr, Columbia, SC 29203 | Manhole | 11/7/2020 | 15:15 | 118 | Storm Drain | Grease | Removed Blockage To Resume Normal Flow. Washed Main Line To Remove Blockage. |
| 11/9/2020 | 12:30 | 6825 Pennington Rd, Columbia, SC 29209 | Manhole | TBD | | 35 | | Collapsed Line | Removed Stoppage To Resume Normal Flow. Main Line Repair. |
| 11/12/2020 | 16:05 | 7504 Teague Rd, Columbia, SC 29209 | Manhole | TBD | | 10085 | Sunview Lake (Mill Creek) | Roots | Removed Blockage To Resume Normal Flow. Manhole Repair. |
| 11/17/2020 | 16:30 | 104 Overland Dr, Columbia, SC 20203 | Cleanout | TBD | | 54 | Storm Drain | Collapsed Line | Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair. |
| 11/20/2020 | 16:05 | 3028 Richfield Dr, Columbia, SC 29201 | Cleanout | 11/21/2020 | 13:30 | 180 | Storm Drain | Collapsed Line | Removed Stoppage To Resume Normal Flow. Emergency Service Line Repair. |
| 11/19/2020 | 08:45 | 4700 Devereaux Rd, Columbia, SC 29205 | Cleanout | 11/19/2020 | 08:45 | 10 | | Roots | Removed Blockage To Resume Normal Flow. Service Line Root Cut. |
| 11/29/2020 | 14:10 | 409 Old Woodlands Rd, Columbia, SC 29209 | Manhole | 12/1/2020 | 09:00 | 3000 | | Roots | Removed Blockage To Resume Normal Flow. Main Line Repair. |
| 11/30/2020 | 10:20 | 409 Old Woodlands Rd, Columbia, SC 29209 | Manhole | 12/1/2020 | 09:00 | 860 | | Roots | Removed Blockage To Resume Normal Flow. Main Line Repair. |
| 12/2/2020 | 16:00 | 7628 N Woodrow St, Irmo, SC 29063 | Manhole, Cleanout | TBD | | 1294 | Storm Drain | Roots | Removed Blockage To Resume Normal Flow. Tap Renewal On Multiple Taps. |
| 12/6/2020 | 15:30 | 712 Irby Ave, Columbia, SC 29203 | Manhole | 12/6/2020 | 17:00 | 900 | | Debris | Removed Stoppage To Resume Normal Flow. Washed Main Line To Remove Debris. |
| 12/8/2020 | 16:00 | 3001 Millwood Ave, Columbia, SC 29205 | Cleanout | 12/9/2020 | 00:00 | 51 | Storm Drain | 3rd Party Responsibility | Removed Blockage To Resume Normal Flow. Service Line Repair. |

| City of Columbia, SC Quarterly SSO Listing 4th Quarter 2020 | | | | | | | | | |
|---|-------|--|-----------|---------------------------|---------------------------|----------------------------|--------------------------|--------------------------|--|
| Date | Time | Location | Source | Date of Corrective Action | Time of Corrective Action | Estimated Volume (gallons) | Receiving Water (if any) | Cause | Actions Taken |
| 12/8/2020 | 10:30 | 810 Pelican Cir, Columbia, SC 29203 | Manhole | 12/16/2020 | 07:16 | 15 | | Collapsed Line | Removed Blockage To Resume Normal Flow. Main Line Repair. |
| 12/9/2020 | 14:00 | 124 Harbison Blvd, Columbia, SC 29212 | Manhole | 12/9/2020 | 15:30 | 120 | | Roots | Removed Blockage To Resume Normal Flow. Washed Main Line 60 Feet To Remove Roots. |
| 12/20/2020 | 11:05 | 133 Crossbow Ct, Columbia, SC 29212 | Manhole | TBD | | 714 | | Roots | Removed Blockage To Resume Normal Flow. Main Line Repair To Remove Root Ball. |
| 12/13/2020 | 12:00 | 2936 Stratford Rd, Columbia, SC 29204 | Cleanout | 12/14/2020 | 13:00 | 8 | Storm Drain | 3rd Party Responsibility | Removed Stoppage To Resume Normal Flow. Emergency Clean Out Install/Service Line Repair. |
| 12/14/2020 | 17:30 | 7309 Patterson Rd, Columbia, SC 29209 | Cleanout | TBD | | 22 | | 3rd Party Responsibility | Removed Blockage To Resume Normal Flow. Service Line Repair. |
| 12/15/2020 | 16:44 | 1601 Assembly St, Columbia, SC 29201 | Manhole | N/A | | 5 | Storm Drain | Collapsed Line | Removed Stoppage To Resume Normal Flow. Repair To Be Done By A Contractor. |
| 12/21/2020 | 07:40 | 7321 Fontana Dr, Columbia, SC 29209 | Cleanout | TBD | | 675 | Trib To Mill Creek | Collapsed Line | Removed Blockage To Resume Normal Flow. Main Line Repair. |
| 12/21/2020 | 18:00 | 18 Thistle Ct, Irmo, SC 29063 | Forcemain | 12/21/2020 | 21:00 | 6069 | Swygert Branch | Force Main | Emergency Force Main Repair. |
| 12/21/2020 | 15:07 | 409 Old Woodlands Rd, Columbia, SC 29209 | Manhole | 12/23/2020 | 12:00 | 9565 | Storm Water Ditch | Roots | Removed Blockage To Resume Normal Flow. Main Line Repair. |
| 12/22/2020 | 19:00 | 3513 Moss Ave, Columbia, SC 29205 | Cleanout | TBD | | 15 | | Roots | Removed Stoppage To Resume Normal Flow. Tap Renewal. |
| 12/29/2020 | 13:00 | 4412 Palmetto Ave, Columbia, SC 29205 | Cleanout | 12/29/2020 | 13:20 | 200 | | Collapsed Line | Removed Blockage From Manhole. Washed Main Line 350 Feet. |

As noted in Section IV.8.a of the CD, a Building Backup is defined as a release of wastewater into a building or onto private property that is caused by blockages, flow conditions, or other malfunctions in the WCTS.

No building backups were identified within the City’s system for the current reporting period.

Section 5 SEP Water Quality Monitoring Results

In accordance with Section IX.39.a.(v) of the CD, the following section provides a summary of the results of water quality monitoring conducted during the previous calendar quarter as part of the Supplemental Environmental Project (SEP) described in Appendix I of the CD.

5.1 Sampling Conducted and Results

As a part of the SEP requirements established in Section VIII and Appendix I of the CD, the City is to conduct water quality monitoring at three locations to assist in evaluation of the environmental benefits of the SEP in improving water quality in Smith Branch and Gills Creek. The City is to implement a program for ambient monitoring of dissolved oxygen (DO), total suspended solids (TSS), temperature, and E. coli at the following monitoring sites:

- Gills Creek at Garner's Ferry Road
- Smith Branch at North Main Street
- Gills Creek at Bluff Road

In accordance with the requirements of the CD, the City was to submit a Quality Assurance Project Plan (QAPP) to SCDHEC within 60 days of the date of entry of the CD. The City originally submitted the QAPP to SCDHEC on July 18, 2014 in advance of the deliverable deadline. The City subsequently received comments from SCDHEC and resubmitted the QAPP to SCDHEC on January 13, 2015. The City received final approval of the QAPP from EPA and SCDHEC on January 15, 2016. The QAPP was revised and resubmitted to SCDHEC on May 31, 2017 and on December 19, 2018 to reflect changes in City personnel. The revised QAPP was approved on January 9, 2019. The QAPP was subsequently revised and resubmitted to SCDHEC on January 22, 2019 to reflect a change in the testing laboratory. Following comments from SCDHEC and additional resubmittals, the City received approval of the revised QAPP from EPA and SCDHEC on April 2, 2019.

The City monitored quarterly for the first three years under the CD (through January 15, 2019) and will monitor monthly (or every other month at the Gills Creek at Bluff Road site) from years four through six under the CD.

Water quality monitoring for 2020 Q3 was completed on October 29, 2020, November 25, 2020, and December 28, 2020. Monitoring results are provided below for the following samples:

- C-001: Gills Creek at Garner's Ferry Road
- B-280: Smith Branch at North Main Street
- C-017: Gills Creek at Bluff Road

City of Columbia Quality Assurance Project Plan (QAPP) Data

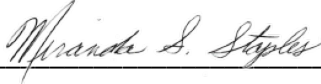
Verification and Validation Form

City of Columbia Supplemental Environmental Projects QAPP

November 2015, Revised May 2017, Revised December 2018, Revised January 2019

Laboratory Report Date: 10-29-2020

The undersigned verifies the data in the above referenced report, per the QAPP requirements.



Project Verifier/QA Manager

11/09/2020

Date

Miranda S. Staples

Printed Name

The undersigned validates the data in the above referenced report, per the QAPP requirements.

AJ Jessee

Project Manager/Project Validator

11/9/2020

Date



Printed Name



Rogers & Callcott
ENVIRONMENTAL



Laboratory Services

Laboratory Report

| | | | |
|---------------|---|--------------------|-----------------------|
| Client | Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210 | Project: | Water Quality Testing |
| | | Work Order: | 0101210 |
| | | Received: | 10/22/2020 12:50 |

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on October 22, 2020. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNi standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at lhollister@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Lauren Hollister
Project Manager



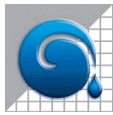
Certificate of Analysis

*South Carolina Greenville Laboratory Identification 23105
 South Carolina Columbia Laboratory Identification 40572
 North Carolina Laboratory Certification Number 27
 North Carolina Drinking Water Lab Number 45710
 NELAP Utah Certificate Number SC000042014-1
 Georgia Drinking Water Lab ID 880*

Client Woolpert Inc. - City of Columbia
 Michael Long
 2000 Center Point Road Ste 2200
 Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0101210
Received: 10/22/2020 12:50

| Sample Number | Sample Description | Matrix | Sampled | Type |
|---------------|---|------------|----------------|------|
| 0101210-01 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 10/22/20 11:19 | Grab |
| 0101210-02 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 10/22/20 11:20 | Grab |
| 0101210-03 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 10/22/20 11:52 | Grab |
| 0101210-04 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 10/22/20 11:53 | Grab |
| 0101210-05 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 10/22/20 12:22 | Grab |
| 0101210-06 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 10/22/20 12:23 | Grab |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0101210
Reported: 10/29/20 09:56

Sample Data

Sample Number 0101210-01
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 10/22/20 11:19

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|----------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 8.1 | 0.1 | mg/L | 1.00 | 10/22/20 11:21 | SM 4500 OG-2011 | | MBW | B0J1109 | RC-C |
| Grab | Complete | | | | 10/22/20 11:19 | Grab | | MBW | B0J1109 | RC-C |
| Temperature | 20.7 | 0.0 | °C | 1.00 | 10/22/20 11:21 | SM 2550B-2010 | | MBW | B0J1109 | RC-C |

Sample Number 0101210-02
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 10/22/20 11:20

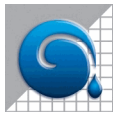
| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 4962 | 20 | MPN/100 mL | 20.0 | 10/22/20 15:07 | SM 9223B-2004 | | MBW | B0J1182 | RC-C |
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 2.0 | 1.0 | mg/L | 1.00 | 10/27/20 09:00 | SM 2540D-2011 | | SMN | B0J1260 | RC-C |

Sample Number 0101210-03
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 10/22/20 11:52

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|--------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 8.1 | 0.1 | mg/L | 1.00 | 10/22/20 11:54 | SM 4500 OG-2011 | | MBW | B0J1109 | RC-C |
| Temperature | 23.9 | 0.0 | °C | 1.00 | 10/22/20 11:54 | SM 2550B-2010 | | MBW | B0J1109 | RC-C |

Sample Number 0101210-04
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 10/22/20 11:53

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 828 | 20 | MPN/100 mL | 20.0 | 10/22/20 15:07 | SM 9223B-2004 | | MBW | B0J1182 | RC-C |
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 8.4 | 1.4 | mg/L | 1.40 | 10/27/20 09:00 | SM 2540D-2011 | | SMN | B0J1260 | RC-C |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0101210
Reported: 10/29/20 09:56

Sample Number 0101210-05
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 10/22/20 12:22

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|--------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 7.0 | 0.1 | mg/L | 1.00 | 10/22/20 12:24 | SM 4500 OG-2011 | | MBW | B0J1109 | RC-C |
| Temperature | 25.5 | 0.0 | °C | 1.00 | 10/22/20 12:24 | SM 2550B-2010 | | MBW | B0J1109 | RC-C |

Sample Number 0101210-06
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 10/22/20 12:23

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 292 | 20 | MPN/100 mL | 20.0 | 10/22/20 15:07 | SM 9223B-2004 | | MBW | B0J1182 | RC-C |
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 6.2 | 1.0 | mg/L | 1.00 | 10/27/20 09:00 | SM 2540D-2011 | | SMN | B0J1260 | RC-C |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

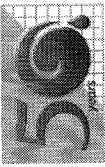
Project: Water Quality Testing
Work Order: 0101210
Reported: 10/29/20 09:56

Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
NR Not reported

Laboratory Reference:

RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572



Rogers & Callcott
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Half a century of commitment and quality

Mailing Address: PO Box 5655, Greenville, SC 29606
Phone (864) 232-1556
Shipping Address: 426 Fairforest Way, Greenville, SC 29607
Phone (864) 232-6140
215B Stoneridge Drive, Columbia, SC 29210
Phone (803) 509-8999

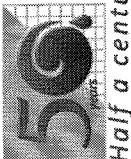
Client Name: Woolpert - City of Columbia
Address: 2000 Center Point Road Suite 2200
Columbia, SC 29210
Report To: Michael Long
Email Address: Michael.long@woolpert.com
Telephone #: 803-214-5936

PO # _____ Project # Water Quality Testing

CHAIN OF CUSTODY RECORD

WORK ORDER 010210

| R & C WORK ORDER | YR/D DATE | TIME | SAMPLE DESCRIPTION | Total Number of Containers | Parameter(s) ↓ | N | N | Filtered (Yes/No) | Cooled (Yes/No) | Container Type (Plastic/Glass) | Container Volume (ml) | Sample Type (Grab/Composite) | Sample Source (WW, GW, DW, SW, S, Other) | Preservation Code(s) | COMMENTS |
|---|-----------|---------|--|----------------------------|----------------|---|---|-------------------|-----------------|--------------------------------|-----------------------|------------------------------|--|--|---|
| -04 | 10-22 | 1153 AM | DHEC C-001 (Gillis Creek @ Garners Ferry Rd) | 1 | TSS | Y | N | | | | 0.5G | WW | WW | A - None E - HCl F - Na ₂ S ₂ O ₃ G - Boric Acid H - Ascorbic Acid | -03 |
| -04 | 10-22 | 1153 | DHEC C-001 (Gillis Creek @ Garners Ferry Rd) | 1 | F. Coll | Y | N | | | | 1.20 | G | WW | B - HNO ₃ C - H ₂ SO ₄ D - NaOH I - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl | D.O.- 8.09 mg/L Temp- 23.9 °C Collected @ 1152 Analyzed @ 1154 |
| | | | | | | | | | | | | | | | Weather- 78°F / mostly Cloudy |
| <p>SAMPLER - RELINQUISHED BY: <u>1. March B. Wright</u> DATE/TIME: <u>10-22-20 1250</u> RECEIVED BY: <u>2. [Signature]</u></p> <p>RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: 4. _____</p> <p>RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: 6. _____</p> <p>RELINQUISHED BY: _____ DATE/TIME: _____ RECEIVED BY: 8. _____</p> | | | | | | | | | | | | | | | |
| <p>Composite Start Date/Time: _____</p> <p>Composite End Date/Time: _____</p> <p>Time or Flow (Circle one) Initials: _____</p> <p>Temperature of blank or representative sample</p> <p>At time of collection _____ °C</p> <p>At time of lab receipt <u>0.3</u> °C</p> | | | | | | | | | | | | | | | |



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Mailing Address: PO Box 5655, Greenville, SC 29606
Phone (864) 232-1556
Shipping Address: 426 Fairforest Way, Greenville, SC 29607
Phone (864) 232-6140
215B Stoneridge Drive, Columbia, SC 29210
Phone (803) 509-8999

Client Name: Woolpert - City of Columbia
Address: 2000 Center Point Road Suite 2200, Columbia, SC 29210
Report To: Michael Long
Email Address: Michael.long@woolpert.com
Telephone #: 803-214-5936
PO #: _____
Project #: Water Quality Testing

CHAIN OF CUSTODY RECORD

WORK ORDER 0101210

| Parameters | Total Number of Containers | N | Y | N | Y | Filtered (Yes/No) | Cooled (Yes/No) | Container Type (Plastic/Glass) | Container Volume (mL) | Sample Type (Grab/Composite) | Sample Source (WW, GW, DW, SW, S, Other) | Preservation Code(s) |
|------------|----------------------------|---|---|---|---|-------------------|-----------------|--------------------------------|-----------------------|------------------------------|--|---|
| TSS | 1 | | | | | | | | | | | A - None E - HCl F - Na ₂ S ₂ O ₃ G - Boric Acid H - Ascorbic Acid I - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl |
| E. Coli | 1 | | | | | | | | | | | -05 COMMENTS |
| D.O. | 1 | | | | | | | | | | | D.O.- 6.98 mg/L |
| Temp | 1 | | | | | | | | | | | Temp- 25.5 °C |
| Collected | 1 | | | | | | | | | | | Collected @ 1122 1222 |
| Analyzed | 1 | | | | | | | | | | | Analyzed @ 1124 1224 |
| Weather | 1 | | | | | | | | | | | Weather- 80° F / Mostly Cloudy |

| SAMPLER - RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
|----------------------------|---------------|-----------------------|---------------|
| 1. <i>Nindi B. Wright</i> | 10-22-20 1150 | 2. <i>[Signature]</i> | 12-22-20 1230 |
| RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
| 3. | | 4. | |
| RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
| 5. | | 6. | |
| RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
| 7. | | 8. | |



Sample Receipt Verification

Client: Woolpert Date Received: 10.22.20 Work Order: 0101210

| | | | | | | | |
|--------------------------------|--------|-------|-----|---------|---------|-----------------------|--------------|
| Carrier Name: (to Columbia) | Client | FedEx | UPS | US Mail | Courier | Field Services | Other: _____ |
| Tracking Number: _____ | | | | | | | |

| | | | | | | | |
|----------------------------------|--------|-------|-----|---------|---------|----------------|--------------|
| Carrier Name: (to Greenville) | Client | FedEx | UPS | US Mail | Courier | Field Services | Other: _____ |
| Tracking Number: <u>N/A</u> | | | | | | | |

| Receipt Criteria | Yes | No | N/A | Comments |
|---|---|----|-----|------------------------------------|
| Shipping container / cooler intact? | X | | | Damaged Leaking Other: |
| Custody seals intact? | | | X | |
| COC included with samples? | X | | | |
| COC signed when relinquished and received? | X | | | |
| Sample bottles intact? | X | | | Damaged Leaking Other: |
| Sample ID on COC agree with label on bottle(s)? | X | | | |
| Date / time on COC agree with label on bottle(s)? | X | | | |
| Number of bottles on COC agrees with number of bottles received? | X | | | |
| Samples received within holding time? | X | | | |
| Sample volume sufficient for analysis? | X | | | |
| VOA vials free of headspace (<6mm bubble)? | | | X | |
| Samples requiring pH preservation at proper pH? <small>Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench.</small> | | | X | |
| Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? <small>Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.</small> | X | | | |
| Samples cooled when received in Columbia ? | Temp at time of receipt <u>0.3</u> °C Temp measured with IR SN: 36301069WS | X | | Ice Cold Packs Dry Ice None |
| Samples cooled when received in Greenville ? | Temp at time of receipt <u>N/A</u> °C Temp measured with IR SN: 97050067 | | | Ice Cold Packs Dry Ice None |

| If in-house preservation used – record Lot # | | | |
|--|--|--------------------------------|--|
| HCL | | H ₃ PO ₄ | |
| H ₂ SO ₄ | | NaOH | |
| HNO ₃ | | Other | |

Comments:

Were non-conformance issues noted at initial sample receipt? Yes or No

Non-Conformance issue other than noted above:

City of Columbia Quality Assurance Project Plan (QAPP) Data
Verification and Validation Form

City of Columbia Supplemental Environmental Projects QAPP

November 2015, Revised May 2017, Revised December 2018, Revised January 2019

Laboratory Report Date: 11/25/2020

The undersigned verifies the data in the above referenced report, per the QAPP requirements.



Project Verifier/QA Manager

12/14/2020

Date

Miranda Staples

Printed Name

The undersigned validates the data in the above referenced report, per the QAPP requirements.



Project Manager/Project Validator

12/14/2020

Date

AJ Jessee

Printed Name



Rogers & Callcott
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Laboratory Services

Laboratory Report

| | | | |
|---------------|---|--------------------|-----------------------|
| Client | Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210 | Project: | Water Quality Testing |
| | | Work Order: | 0111119 |
| | | Received: | 11/20/2020 10:21 |

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on November 20, 2020. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNi standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

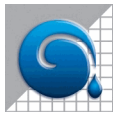
Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at lhollister@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Lauren Hollister
Project Manager



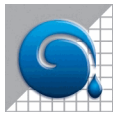
Certificate of Analysis

*South Carolina Greenville Laboratory Identification 23105
 South Carolina Columbia Laboratory Identification 40572
 North Carolina Laboratory Certification Number 27
 North Carolina Drinking Water Lab Number 45710
 NELAP Utah Certificate Number SC000042014-1
 Georgia Drinking Water Lab ID 880*

Client Woolpert Inc. - City of Columbia
 Michael Long
 2000 Center Point Road Ste 2200
 Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0111119
Received: 11/20/2020 10:21

| Sample Number | Sample Description | Matrix | Sampled | Type |
|---------------|---|------------|----------------|------|
| 0111119-01 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 11/20/20 07:45 | Grab |
| 0111119-02 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 11/20/20 07:40 | Grab |
| 0111119-03 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 11/20/20 07:42 | Grab |
| 0111119-04 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 11/20/20 09:40 | Grab |
| 0111119-05 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 11/20/20 09:35 | Grab |
| 0111119-06 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 11/20/20 09:37 | Grab |
| 0111119-07 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 11/20/20 09:17 | Grab |
| 0111119-08 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 11/20/20 09:12 | Grab |
| 0111119-09 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 11/20/20 09:15 | Grab |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0111119
Reported: 11/25/20 08:59

Sample Data

Sample Number 0111119-01
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 11/20/20 07:45

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|----------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 9.3 | 0.1 | mg/L | 1.00 | 11/20/20 07:45 | SM 4500 OG-2011 | | CDT | B0K1016 | RC-C |
| Grab | Complete | | | | 11/20/20 07:45 | Grab | | CDT | B0K1016 | RC-C |
| Temperature | 10.7 | 0.0 | °C | 1.00 | 11/20/20 07:45 | SM 2550B-2010 | | CDT | B0K1016 | RC-C |

Sample Number 0111119-02
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 11/20/20 07:40

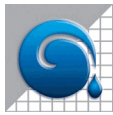
| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|-------|------|----------------|---------------|------|---------|---------|------|
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | ND | 1.0 | mg/L | 1.00 | 11/23/20 13:55 | SM 2540D-2011 | | SMN | B0K1075 | RC-C |

Sample Number 0111119-03
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 11/20/20 07:42

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-----------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 482 | 20 | MPN/100 mL | 20.0 | 11/20/20 12:12 | SM 9223B-2004 | | HBB | B0K1091 | RC-C |

Sample Number 0111119-04
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 11/20/20 09:40

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|--------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 8.8 | 0.1 | mg/L | 1.00 | 11/20/20 09:40 | SM 4500 OG-2011 | | CDT | B0K1016 | RC-C |
| Temperature | 12.0 | 0.0 | °C | 1.00 | 11/20/20 09:40 | SM 2550B-2010 | | CDT | B0K1016 | RC-C |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0111119
Reported: 11/25/20 08:59

Sample Number 0111119-05
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 11/20/20 09:35

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|-------|------|----------------|---------------|------|---------|---------|------|
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 7.1 | 1.0 | mg/L | 1.00 | 11/23/20 13:55 | SM 2540D-2011 | | SMN | B0K1075 | RC-C |

Sample Number 0111119-06
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 11/20/20 09:37

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-----------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 170 | 20 | MPN/100 mL | 20.0 | 11/20/20 12:12 | SM 9223B-2004 | | HBB | B0K1091 | RC-C |

Sample Number 0111119-07
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 11/20/20 09:17

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|--------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 9.3 | 0.1 | mg/L | 1.00 | 11/20/20 09:17 | SM 4500 OG-2011 | | CDT | B0K1016 | RC-C |
| Temperature | 13.4 | 0.0 | °C | 1.00 | 11/20/20 09:17 | SM 2550B-2010 | | CDT | B0K1016 | RC-C |

Sample Number 0111119-08
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 11/20/20 09:12

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|-------|------|----------------|---------------|------|---------|---------|------|
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 68.4 | 4.0 | mg/L | 4.00 | 11/23/20 13:55 | SM 2540D-2011 | | SMN | B0K1075 | RC-C |

Sample Number 0111119-09
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 11/20/20 09:15

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-----------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 126 | 20 | MPN/100 mL | 20.0 | 11/20/20 12:12 | SM 9223B-2004 | | HBB | B0K1091 | RC-C |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0111119
Reported: 11/25/20 08:59

Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
NR Not reported

Laboratory Reference:

RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572



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Shipping Address: 426 Fairforest Way, Greenville, SC 29607, Phone (803) 509-8999
215B Stoneridge Drive, Columbia, SC 29210

Client Name: Woolpert - City of Columbia
Address: 2000 Center Point Road Suite 2200, Columbia, SC 29210
Report To: Michael Long
Email Address: Michael.long@woolpert.com
Telephone #: 803-214-5936
PO #: Project # Water Quality Testing

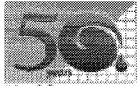
CHAIN OF CUSTODY RECORD

WORK ORDER 011119

| R & C WORK ORDER | YR DATE | TIME | SAMPLE DESCRIPTION | Total Number of Containers | Parameters(s) ↓ | N | N | Filtered (Yes/No) | Cooled (Yes/No) | Container Type (Plastic/Glass) | Container Volume (mL) | Sample Type (Grab/Composite) | Sample Source (WW, GW, DW, SW, S, Other) | Preservation Code(s) | COMMENTS |
|------------------|---------|------|---|----------------------------|-----------------|---|---|-------------------|-----------------|--------------------------------|-----------------------|------------------------------|--|--|---|
| 08 | 11/20 | 0912 | DHEC C-001 (Gills Creek @ Garners Ferry Rd) | 1 | TSS | 1 | | | | | | | | A - None E - HCl F - HNO ₃ G - H ₂ SO ₄ H - NaOH | D.O. - 9.33 mg/L |
| 09 | 11/20 | 0915 | DHEC C-001 (Gills Creek @ Garners Ferry Rd) | 1 | E. Coli | 1 | | | | | | | | B - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl | Temp - 13.4 °C Collected @ 0917 11/20/20 Analyzed @ 0917 11/20/20 |
| | | | | | | | | | | | | | | | Weather - 43° Sunny |

Composite Start Date/Time: _____
Composite End Date/Time: _____
Time or Flow (Circle one) Initials: _____
Temperature of blank or representative sample
At time of collection _____ °C
At time of lab receipt 0.5 °C

RECEIVED BY: [Signature] DATE/TIME: 11/20/20 10:21
RECEIVED BY: _____ DATE/TIME: _____
RECEIVED BY: _____ DATE/TIME: _____
RECEIVED BY: _____ DATE/TIME: _____



Sample Receipt Verification

Client: Woolpert Date Received: 11/20/20 Work Order: 011119

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: _____
Tracking Number: _____

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: _____
Tracking Number: NA

| Receipt Criteria | Yes | No | NA | Comments |
|---|---|----|----|------------------------------------|
| Shipping container / cooler intact? | X | | | Damaged Leaking Other: |
| Custody seals intact? | | | X | |
| COC included with samples? | X | | | |
| COC signed when relinquished and received? | X | | | |
| Sample bottles intact? | X | | | Damaged Leaking Other: |
| Sample ID on COC agree with label on bottle(s)? | X | | | |
| Date / time on COC agree with label on bottle(s)? | X | | | |
| Number of bottles on COC agrees with number of bottles received? | X | | | |
| Samples received within holding time? | X | | | |
| Sample volume sufficient for analysis? | X | | | |
| VOA vials free of headspace (<6mm bubble)? | | | X | |
| Samples requiring pH preservation at proper pH? Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench. | | | X | |
| Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis. | X | | | |
| Samples cooled when received in Columbia ? | Temp at time of receipt <u>0.5</u> °C Temp measured with IR SN: 36301069WS | X | | <u>Ice</u> Cold Packs Dry Ice None |
| Samples cooled when received in Greenville ? | Temp at time of receipt <u>NA</u> °C Temp measured with IR SN: 97050067 | | | Ice Cold Packs Dry Ice None |

| If in-house preservation used – record Lot # | | | |
|--|--|--------------------------------|--|
| HCL | | H ₃ PO ₄ | |
| H ₂ SO ₄ | | NaOH | |
| HNO ₃ | | Other | |

Comments:

Were non-conformance issues noted at initial sample receipt? Yes or No
Non-Conformance issue other than noted above:

City of Columbia Quality Assurance Project Plan (QAPP) Data

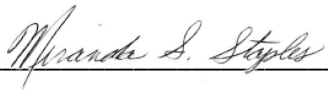
Verification and Validation Form

City of Columbia Supplemental Environmental Projects QAPP

November 2015, Revised May 2017, Revised December 2018, Revised January 2019

Laboratory Report Date: 12-28-2020

The undersigned verifies the data in the above referenced report, per the QAPP requirements.



Project Verifier/QA Manager


1/5/2021

Date

Miranda S. Staples

Printed Name

The undersigned validates the data in the above referenced report, per the QAPP requirements.



Project Manager/Project Validator

1/5/2021

Date

AJ Jessee

Printed Name



Laboratory Report

| | | | |
|---------------|---|--------------------|-----------------------|
| Client | Woolpert Inc. - City of Columbia Michael Long 2000 Center Point Road Ste 2200 Columbia, SC 29210 | Project: | Water Quality Testing |
| | | Work Order: | 0121069 |
| | | Received: | 12/21/2020 14:20 |

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on December 21, 2020. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNI standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

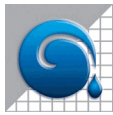
Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at lhollister@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Trevor Gauron

Report Approved By:

Lauren Hollister
Project Manager



*South Carolina Greenville Laboratory Identification 23105
 South Carolina Columbia Laboratory Identification 40572
 North Carolina Laboratory Certification Number 27
 North Carolina Drinking Water Lab Number 45710
 NELAP Utah Certificate Number SC000042014-1
 Georgia Drinking Water Lab ID 880*

Certificate of Analysis

Client Woolpert Inc. - City of Columbia
 Michael Long
 2000 Center Point Road Ste 2200
 Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0121069
Received: 12/21/2020 14:20

| Sample Number | Sample Description | Matrix | Sampled | Type |
|---------------|---|------------|----------------|------|
| 0121069-01 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 12/21/20 12:44 | Grab |
| 0121069-02 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 12/21/20 12:45 | Grab |
| 0121069-03 | DHEC B-280 Smith Branch @ N. Main St | Wastewater | 12/21/20 12:46 | Grab |
| 0121069-04 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 12/21/20 13:19 | Grab |
| 0121069-05 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 12/21/20 13:20 | Grab |
| 0121069-06 | DHEC C-001 Gills Creek @ Garners Ferry Rd | Wastewater | 12/21/20 13:21 | Grab |
| 0121069-07 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 12/21/20 13:50 | Grab |
| 0121069-08 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 12/21/20 13:51 | Grab |
| 0121069-09 | DHEC C-017 Gills Creek @ Bluff Road | Wastewater | 12/21/20 13:52 | Grab |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0121069
Reported: 12/28/20 16:35

Sample Data

Sample Number 0121069-01
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 12/21/20 12:44

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|----------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 8.3 | 0.1 | mg/L | 1.00 | 12/21/20 12:46 | SM 4500 OG-2011 | | MBW | B0L1026 | RC-C |
| Grab | Complete | | | | 12/21/20 12:44 | Grab | | MBW | B0L1026 | RC-C |
| Temperature | 20.2 | 0.0 | °C | 1.00 | 12/21/20 12:46 | SM 2550B-2010 | | MBW | B0L1026 | RC-C |

Sample Number 0121069-02
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 12/21/20 12:45

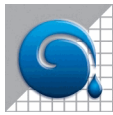
| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|-------|------|----------------|---------------|------|---------|---------|------|
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 1.5 | 1.0 | mg/L | 1.00 | 12/22/20 11:12 | SM 2540D-2011 | | SMN | B0L1052 | RC-C |

Sample Number 0121069-03
Sample Description DHEC B-280 Smith Branch @ N. Main St collected on 12/21/20 12:46

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-----------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 1248 | 5 | MPN/100 mL | 5.00 | 12/21/20 15:26 | SM 9223B-2004 | | MBW | B0L1122 | RC-C |

Sample Number 0121069-04
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 12/21/20 13:19

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|--------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 8.6 | 0.1 | mg/L | 1.00 | 12/21/20 13:24 | SM 4500 OG-2011 | | MBW | B0L1026 | RC-C |
| Temperature | 20.1 | 0.0 | °C | 1.00 | 12/21/20 13:24 | SM 2550B-2010 | | MBW | B0L1026 | RC-C |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0121069
Reported: 12/28/20 16:35

Sample Number 0121069-05
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 12/21/20 13:20

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|-------|------|----------------|---------------|------|---------|---------|------|
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 30.0 | 3.3 | mg/L | 3.33 | 12/22/20 11:12 | SM 2540D-2011 | | SMN | B0L1052 | RC-C |

Sample Number 0121069-06
Sample Description DHEC C-001 Gills Creek @ Garners Ferry Rd collected on 12/21/20 13:21

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-----------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 168 | 5 | MPN/100 mL | 5.00 | 12/21/20 15:26 | SM 9223B-2004 | | MBW | B0L1122 | RC-C |

Sample Number 0121069-07
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 12/21/20 13:50

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------|--------|-----------------|-------|------|----------------|-----------------|------|---------|---------|------|
| Field Parameters | | | | | | | | | | |
| Dissolved Oxygen | 9.7 | 0.1 | mg/L | 1.00 | 12/21/20 13:54 | SM 4500 OG-2011 | | MBW | B0L1026 | RC-C |
| Temperature | 22.0 | 0.0 | °C | 1.00 | 12/21/20 13:54 | SM 2550B-2010 | | MBW | B0L1026 | RC-C |

Sample Number 0121069-08
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 12/21/20 13:51

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-------------------------------------|--------|-----------------|-------|------|----------------|---------------|------|---------|---------|------|
| General Chemistry Parameters | | | | | | | | | | |
| Total Suspended Solids | 10.0 | 1.7 | mg/L | 1.67 | 12/22/20 11:12 | SM 2540D-2011 | | SMN | B0L1052 | RC-C |

Sample Number 0121069-09
Sample Description DHEC C-017 Gills Creek @ Bluff Road collected on 12/21/20 13:52

| Parameter | Result | Reporting Limit | Units | DF | Analyzed | Method | Flag | Analyst | Batch | Lab |
|-----------------------------------|--------|-----------------|------------|------|----------------|---------------|------|---------|---------|------|
| Microbiological Parameters | | | | | | | | | | |
| E. Coli | 240 | 5 | MPN/100 mL | 5.00 | 12/21/20 15:26 | SM 9223B-2004 | | MBW | B0L1122 | RC-C |



Woolpert Inc. - City of Columbia
2000 Center Point Road Ste 2200
Columbia, SC 29210

Project: Water Quality Testing
Work Order: 0121069
Reported: 12/28/20 16:35

Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
NR Not reported

Laboratory Reference:

RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572



Rogers & Callcott

ENVIRONMENTAL
Half a century of commitment and quality

Mailing PO Box 5655 Shipping 426 Fairforest Way 215B Stoneridge Drive
Address: Greenville, SC 29606 Address: Greenville, SC 29607 Columbia, SC 29210
Phone (864) 232-1556 Fax (864) 232-6140 Phone (803) 509-8999

Client Name Woolpert - City of Columbia
Address 2000 Center Point Road Suite 2200
Columbia, SC 29210
Report To: Michael Long
Email Address Michael.long@woolpert.com
Telephone # 803-214-5936
PO # _____ **Project #** Water Quality Testing

CHAIN OF CUSTODY RECORD

WORK ORDER

0121069

| R & C WORK ORDER | YR 20 DATE | TIME | SAMPLE DESCRIPTION | Total Number of Containers | Parameter(s) ↑ | N | N | Filtered (Yes/No) |
|------------------|------------|------|--|----------------------------|----------------|------|---|---|
| <u>02</u> | 12-21 | 1245 | DHEC B-280 (Smith Branch @ N. Main St) | 1 | TSS | Y | N | Y |
| <u>03</u> | 12-21 | 1246 | DHEC B-280 (Smith Branch @ N. Main St) | 1 | | P | N | Cooled (Yes/No) |
| | | | | | | 0.5G | N | Container Type (Plastic/Glass) |
| | | | | | | G | N | Container Volume (mL) |
| | | | | | | ww | N | Sample Type (Grab/Composite) |
| | | | | | | A | N | Sample Source (WW, GW, DW, SW, S, Other) |
| | | | | | | | N | Preservation Code(s) |
| | | | | | | | N | A - None |
| | | | | | | | N | E - HCl |
| | | | | | | | N | I - Zn Acetate |
| | | | | | | | N | F - Na ₂ S ₂ O ₃ |
| | | | | | | | N | J - H ₃ PO ₄ |
| | | | | | | | N | G - Boric Acid |
| | | | | | | | N | K - NaH ₂ PO ₄ |
| | | | | | | | N | D - NaOH |
| | | | | | | | N | H - Ascorbic Acid |
| | | | | | | | N | L - NH ₄ Cl |
| | | | | | | | N | |
| | | | | | | | N | COMMENTS |
| | | | | | | | N | D.O. - 8.34 mg/L |
| | | | | | | | N | Temp - 20.2 °C |
| | | | | | | | N | Collected @ 1244 |
| | | | | | | | N | Analyzed @ 1244 |
| | | | | | | | N | |
| | | | | | | | N | Weather - 54° F / Partly Cloudy |

SAMPLER - RELINQUISHED BY: 1. Michael B. Wolf DATE/TIME: 12-21-20 1420
RECEIVED BY: 2. [Signature] DATE/TIME: 12/20/1420
RELINQUISHED BY: 3. _____ DATE/TIME: _____
RECEIVED BY: 4. _____ DATE/TIME: _____
RELINQUISHED BY: 5. _____ DATE/TIME: _____
RECEIVED BY: 6. _____ DATE/TIME: _____
RELINQUISHED BY: 7. _____ DATE/TIME: _____
RECEIVED BY: 8. _____ DATE/TIME: _____

Composite Start Date/Time: _____
 Composite End Date/Time: _____
 Time or Flow (Circle one) Initials: _____

Temperature of blank or representative sample _____ °C
 At time of collection _____ °C
 At time of lab receipt 0.5 °C



Rogers & Callcott
ENVIRONMENTAL
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Mailing Address: PO Box 5655
Greenville, SC 29606
Phone (864) 232-1556

Shipping Address: 426 Fairforest Way
Greenville, SC 29607
Phone (864) 232-6140

215B Stoneridge Drive
Columbia, SC 29210
Phone (803) 509-8999

Client Name: Woolpert - City of Columbia

Address: 2000 Center Point Road Suite 2200
Columbia, SC 29210

Report To: Michael Long

Email Address: Michael.long@woolpert.com

Telephone # 803-214-5936

PO # _____ Project # Water Quality Testing

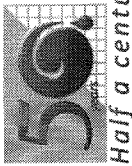
CHAIN OF CUSTODY RECORD

WORK ORDER 0121009

| R & C WORK ORDER | YR DATE | TIME | SAMPLE DESCRIPTION | Total Number of Containers | Parameter(s) ↑ | N | N | Filtered (Yes/No) |
|------------------|--------------|-------------|---|----------------------------|----------------|------|---|-------------------|
| <u>05</u> | <u>12-21</u> | <u>1320</u> | DHEC C-001 (Gills Creek @ Garners Ferry Rd) | 1 | TSS | Y | N | |
| <u>06</u> | <u>12-21</u> | <u>1321</u> | DHEC C-001 (Gills Creek @ Garners Ferry Rd) | 1 | F. Coli | P | N | |
| | | | | | | 0.5G | | |
| | | | | | | G | | |
| | | | | | | ww | | |
| | | | | | | A | | |

| SAMPLER - RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
|----------------------------|----------------------|--------------------|-------------------|
| 1. <u>Nandi B. Wright</u> | <u>12-21-20 1420</u> | <u>[Signature]</u> | <u>12/20/1420</u> |
| RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
| 3. _____ | _____ | 4. _____ | _____ |
| RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
| 5. _____ | _____ | 6. _____ | _____ |
| RELINQUISHED BY: | DATE/TIME: | RECEIVED BY: | DATE/TIME: |
| 7. _____ | _____ | 8. _____ | _____ |

Composite Start Date/Time: _____
Composite End Date/Time: _____
Time or Flow (Circle one) Initials: _____
Temperature of blank or representative sample
At time of collection _____ °C
At time of lab receipt 0.5 °C



Rogers & Callcott
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Mailing Address: PO Box 5655 Greenville, SC 29606 Phone (864) 232-1556
Shipping Address: 426 Fairforest Way Greenville, SC 29607 Phone (864) 232-6140
115B Stoneridge Drive Columbia, SC 29210 Phone (803) 509-8999

Client Name Woolpert - City of Columbia

Address 2000 Center Point Road Suite 2200

Columbia, SC 29210

Report To: Michael Long

Email Address Michael.Long@woolpert.com

Telephone # 803-214-5936

PO # 20 Project # Water Quality Testing

| R & C WORK ORDER | YR DATE | TIME | SAMPLE DESCRIPTION |
|------------------|---------|------|---------------------------------------|
| 08 | 12.21 | 1351 | DHEC C-017 (Gills Creek @ Bluff Road) |
| 09 | 12.21 | 1352 | DHEC C-017 (Gills Creek @ Bluff Road) |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

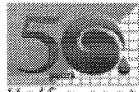
| | | |
|--|---------------------------------|------------------------------------|
| SAMPLER - RELINQUISHED BY: <u>1. Linda B. Wright</u> | DATE/TIME: <u>12.21.20 1420</u> | RECEIVED BY: <u>[Signature]</u> |
| RELINQUISHED BY: <u>3. [Signature]</u> | DATE/TIME: _____ | RECEIVED BY: <u>4. [Signature]</u> |
| RELINQUISHED BY: <u>5. [Signature]</u> | DATE/TIME: _____ | RECEIVED BY: <u>6. [Signature]</u> |
| RELINQUISHED BY: <u>7. [Signature]</u> | DATE/TIME: _____ | RECEIVED BY: <u>8. [Signature]</u> |

CHAIN OF CUSTODY RECORD

WORK ORDER 0121069

| Parameter(s) ↑ | TSS | F. Coli | Filtered (Yes/No) | Cooled (Yes/No) | Container Type (Plastic/Glass) | Container Volume (mL) | Sample Type (Grab/Composite) | Sample Source (WW, GW, DW, SW, S, Other) | Preservation Code(s) | COMMENTS |
|----------------------------|-----|---------|-------------------|-----------------|--------------------------------|-----------------------|------------------------------|--|---|------------------------|
| Total Number of Containers | 1 | | N | Y | P | 0.5G | G | ww | A - None E - HCl F - Na ₂ S ₂ O ₃ G - Boric Acid H - Ascorbic Acid I - Zn Acetate J - H ₃ PO ₄ K - NaH ₂ PO ₄ L - NH ₄ Cl | D.O. - 9.68 mg/L |
| | | | | | | | | | | Temp - 22.0 °C |
| | | | | | | | | | | Collected @ 1350 |
| | | | | | | | | | | Analyzed @ 1354 |
| | | | | | | | | | | Weather - 57°F / Sunny |

| | |
|------------------------------|--|
| DATE/TIME: <u>12/21/2014</u> | Composite Start Date/Time: _____ |
| DATE/TIME: _____ | Composite End Date/Time: _____ |
| DATE/TIME: _____ | Time or Flow (Circle one) Initials: _____ |
| DATE/TIME: _____ | Temperature of blank or representative sample _____ °C |
| DATE/TIME: _____ | At time of collection _____ °C |
| DATE/TIME: _____ | At time of lab receipt <u>0.5</u> °C |



Sample Receipt Verification

Client: Woolpert

Date Received: 12/21/20

Work Order: 0121069

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: _____
Tracking Number: _____

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: _____
Tracking Number: NA

| Receipt Criteria | Y e s | No | N A | Comments |
|---|---|----|--------|------------------------------------|
| Shipping container / cooler intact? | X | | | Damaged Leaking Other: |
| Custody seals intact? | | | X | |
| COC included with samples? | X | | | |
| COC signed when relinquished and received? | X | | | |
| Sample bottles intact? | X | | | Damaged Leaking Other: |
| Sample ID on COC agree with label on bottle(s)? | X | | | |
| Date / time on COC agree with label on bottle(s)? | X | | | |
| Number of bottles on COC agrees with number of bottles received? | X | | | |
| Samples received within holding time? | X | | | |
| Sample volume sufficient for analysis? | X | | | |
| VOA vials free of headspace (<6mm bubble)? | | | X | |
| Samples requiring pH preservation at proper pH? Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench. | | | X | |
| Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis. | X | | | |
| Samples cooled when received in Columbia ? | Temp at time of receipt <u>0.5</u> °C Temp measured with IR SN: 36301069WS | X | | <u>Ice</u> Cold Packs Dry Ice None |
| Samples cooled when received in Greenville ? | Temp at time of receipt <u>NA</u> °C Temp measured with IR SN: 97050067 | | | Ice Cold Packs Dry Ice None |

| If in-house preservation used – record Lot # | | | |
|--|--|--------------------------------|--|
| HCL | | H ₃ PO ₄ | |
| H ₂ SO ₄ | | NaOH | |
| HNO ₃ | | Other | |

Comments:

Were non-conformance issues noted at initial sample receipt? Yes or No
Non-Conformance issue other than noted above:

Note: Samples received initially in Columbia Facility. Sample preservation checks performed at Columbia Facility. Revised March 2019

Completed by: ABB