

Clean Water 2020 Program

CONSENT DECREE QUARTERLY REPORT

July 1, 2017 – September 30, 2017

Corrected February 2018

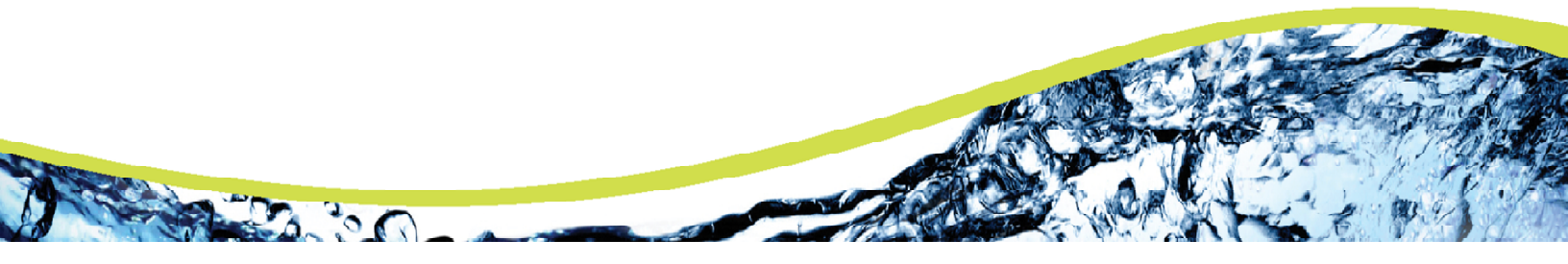


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Section 1 Introduction

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.

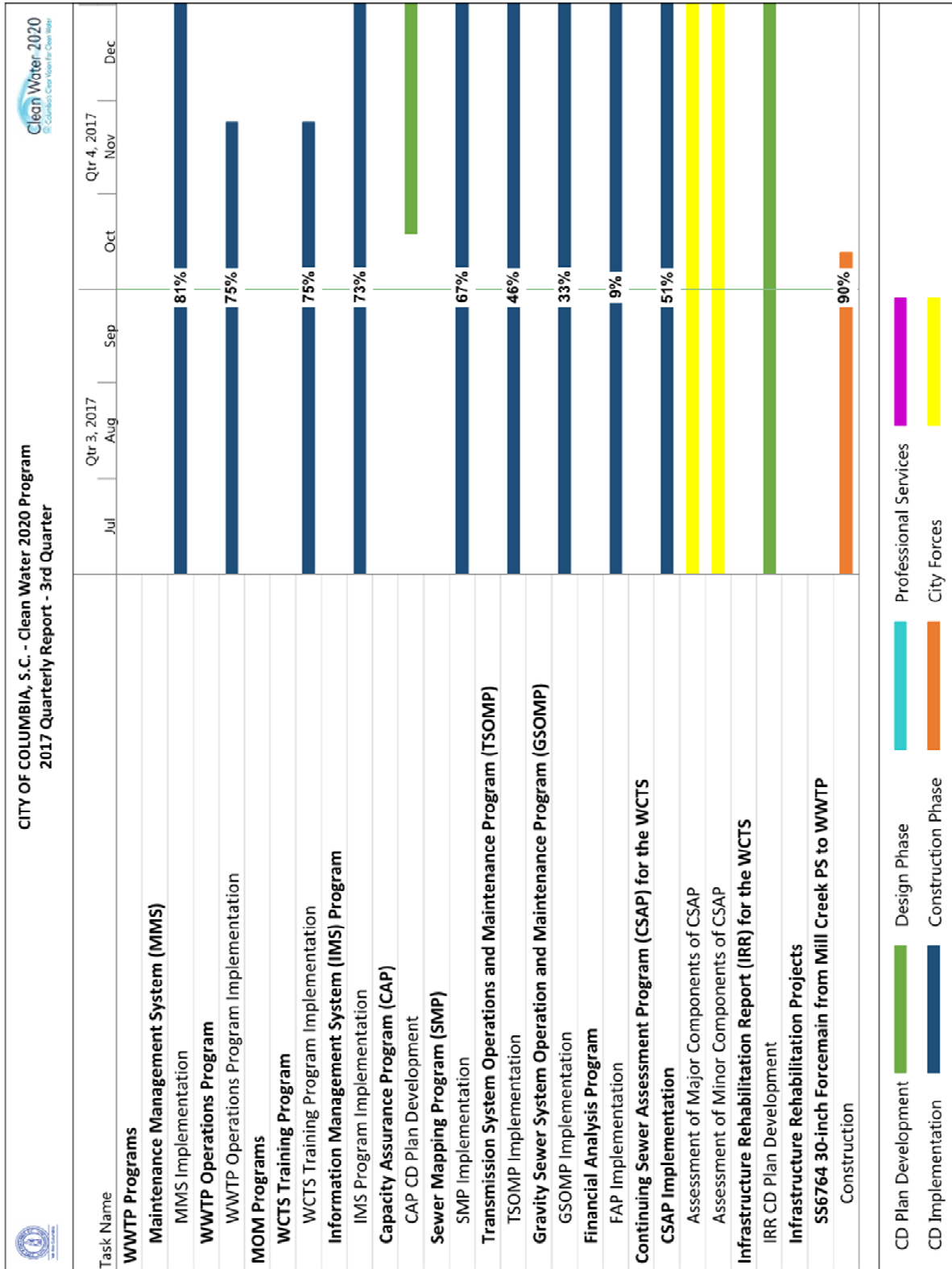
Section 4 – Quarterly SSO Report

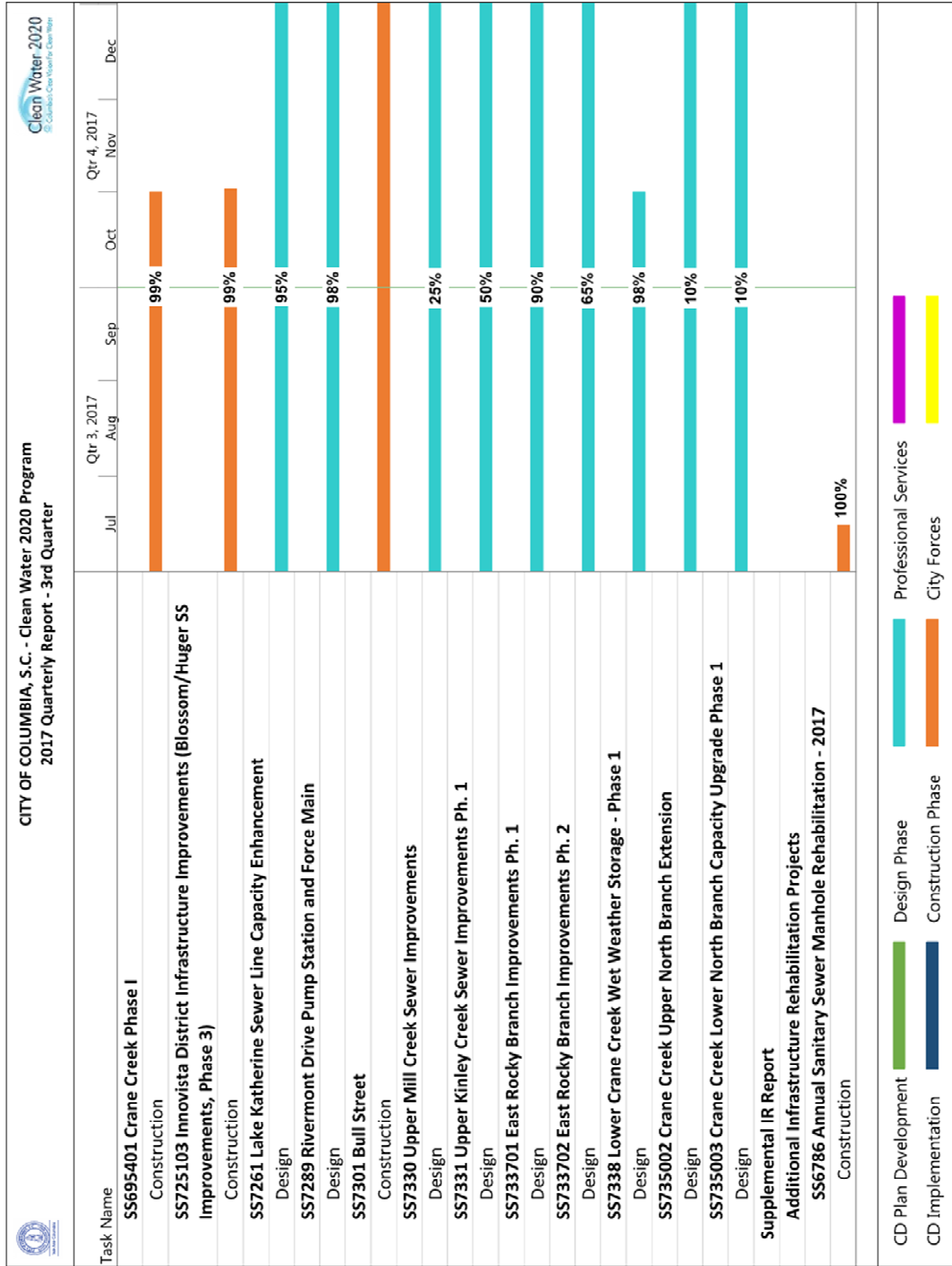
This section addresses the requirements of Section IX.39.a.(ii) of the Consent Decree and provides a tabular listing of sanitary sewer overflows (SSOs). The table includes the date, time, location, source, duration, estimated volume, receiving water (if any), cause, and actions taken to repair or otherwise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

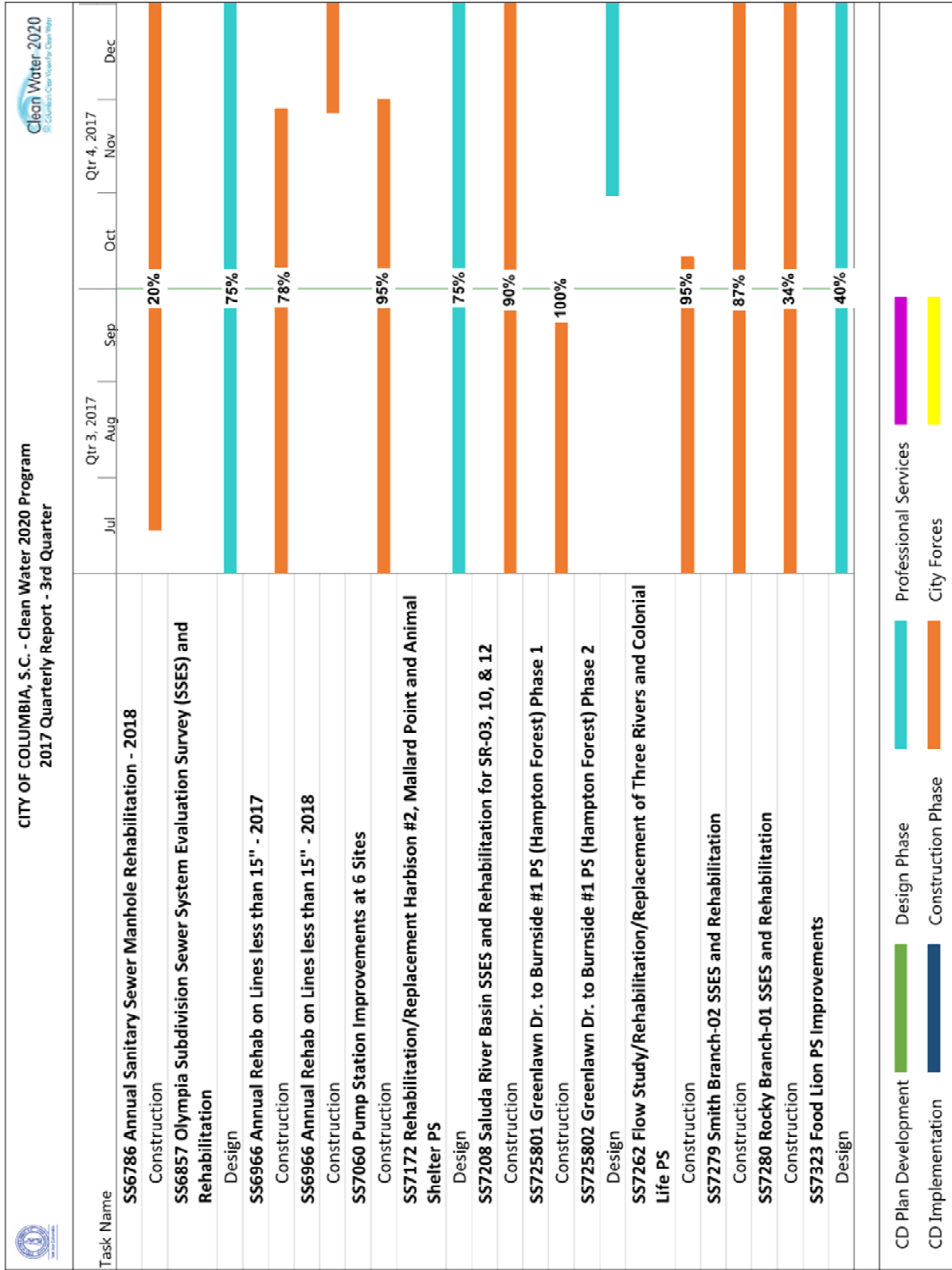
Section 5 – SEP Water Quality Monitoring Results

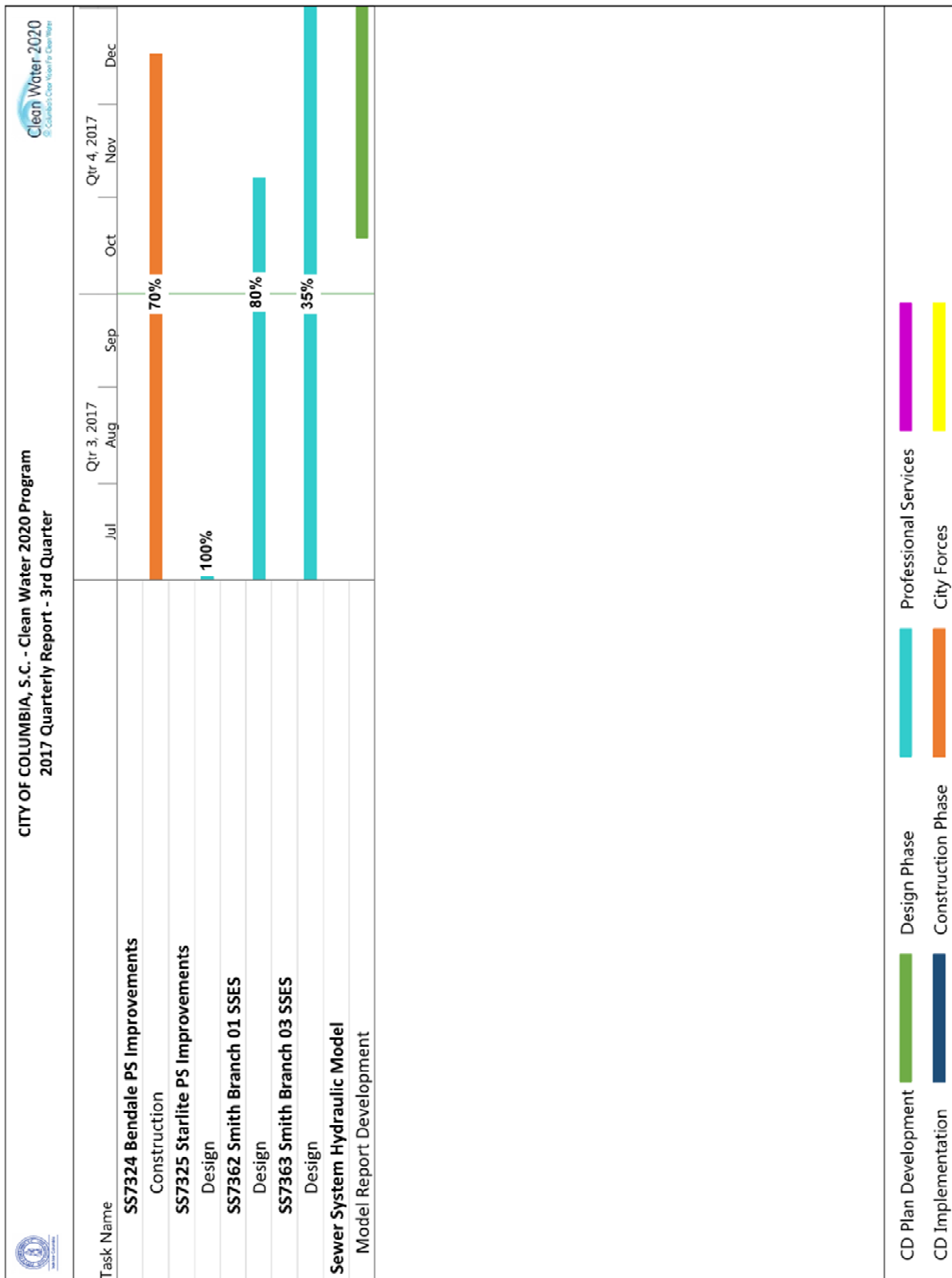
This section addresses the requirements of Section IX.39.a.(v) of the Consent Decree and provides the results of water quality monitoring conducted during the previous Calendar Quarter as part of the SEP described in Appendix I of the CD.

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 WWTP Programs

In accordance with Section V.11 of the CD, the City is developing and implementing specific Wastewater Treatment Plant (WWTP) programs. The Program elements addressed in this section provide information regarding activities involving the Metro WWTP.

3.1.1 Maintenance Management System (MMS)

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

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

- Cityworks Testing & Implementation – 85% Complete
- Summary Reports Generation, Equipment Failures for Prior Month – 50% Complete
- Summary Reports Generation, Outstanding Work Orders for Prior Month – 50% Complete

3.1.2 WWTP Operations Program

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

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

- Written procedures describing the various operational controls at the WWTP – 75% Complete

3.1.3 WWTP Training Program

The WWTP Training Program was submitted to EPA and SCDHEC on May 20, 2016. The City is awaiting EPA and SCDHEC review and approval of the WWTP Training Program.

3.2 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).

3.2.1 WCTS Training Program

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

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

- Plant Maintenance Technologist Apprentice Program (PMTAP) – 75% Complete

3.2.2 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:

- Storeroom Component of Cityworks – 80% Complete
- Sewer Mapping Program – 67% Complete

3.2.3 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 – 93% complete
 - Smith Branch Basin – 67% complete
 - Saluda River Basin – 87% complete
 - Rocky Branch Basin – 43% complete
 - Mill Creek Basin – 26% complete
 - Gills Creek Basin – 29% complete
 - Crane Creek Basin – 65% complete
 - Broad River Basin – 27% complete
- Progress for each WCTS Major Gravity Mapping basin is as follows:
 - West Columbia Basin – 95% complete
 - Smith Branch Basin – 98% complete
 - Saluda River Basin – 80% complete
 - Rocky Branch Basin – 61% complete
 - Mill Creek Basin – 78% complete

- Gills Creek Basin – 75% complete
- Crane Creek Basin – 87% complete
- Broad River Basin – 89% complete

3.2.4 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:

- SCADA System Enhancements – 50% Complete
- Force Main and Easement Maintenance (Easement survey and marking and initial clearing to the surveyed limits, where practical) – 20% Complete
- Corrosion Control – 6% Complete

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

- Gravity Line Preventive Maintenance Plan (GLPMP) – 20% Complete
- Evaluation of potential sulfide and corrosion control of the WCTS – 6% Complete
- Inspection and evaluation of crossings and stream bank encroachment areas with a higher likelihood of SSOs – 10% Complete
- Gravity Sewer Easement survey and marking and initial clearing to survey the limits, where practical – 20% Complete
- Evaluation of resource commitment as part of the implementation of the GSOMP – 100% Complete

3.2.6 Financial Analysis Program

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

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

- Capital Improvement Financing Program – 50% Complete

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

- Major Gravity Sewer Video Inspection or Multi-Sensor Inspection – 45% Complete
- Major Manhole Inspection – 75% Complete
- Major Pump Stations Condition Assessment – 50% Complete
- Major Force Mains Field Assessment – 50% Complete

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

- Initial Minor Gravity Sewer and Manholes Desktop Condition Assessment/Prioritization – 60% Complete
- Minor Gravity Sewer and Manholes Condition Assessment – 23% Complete
- Minor Pump Stations Condition Assessment – 23% Complete
- Minor Force Mains Field Assessment – 23% Complete

3.4 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 is to be submitted within six months after the City has assessed the major components of the WCTS once pursuant to the CSAP. As rehabilitation projects are identified through the assessments described in Section 3.4 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:

- SS6764 30" Forcemain from Mill Creek PS to WWTP – Construction 90% Complete
- SS695401 Crane Creek Phase I – Construction 99% Complete
- SS725103 Innovista District Infrastructure Improvements – Construction 99% Complete
- SS7261 Lake Katherine Sewer Line Capacity Enhancement – Design 95% Complete
- SS7289 Rivermont Drive Pump Station and Force Main – Design 98% Complete
- SS7301 Bull Street – Construction in Progress; a completion percentage cannot be provided due to a varying scope of work and timeline for this project.
- SS7330 Upper Mill Creek Sewer Improvements – Design 25% Complete
- SS7331 Upper Kinley Creek Sewer Improvements Ph. 1 – Design 50% Complete
- SS733701 East Rocky Branch Improvements Ph. 1 – Design 90% Complete

- SS733702 East Rocky Branch Improvements Ph. 2 – Design 65% Complete
- SS7338 Lower Crane Creek Wet Weather Storage - Phase 1 – Design 98% Complete
- SS735002 Crane Creek Upper North Branch Extension – Design 10% Complete
- SS735003 Crane Creek Lower North Branch Capacity Upgrade Phase 1 – Design 10% 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 3.4 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:

- SS6786 Annual Sanitary Sewer Manhole Rehabilitation – 2017 Construction 100% Complete, 2018 Construction 20% Complete
- SS6857 Olympia Subdivision Sewer System Evaluation Survey (SSES) and Rehabilitation Design – Design 75% Complete
- SS6966 Annual Rehab on Manholes and Lines less than 15" – 2017 Construction 78% Complete, 2018 Construction 0% Complete
- SS7060 Pump Station Improvements at 6 Sites – Construction 95% Complete
- SS7172 Rehabilitation/Replacement Harbison #2, Mallard Point and Animal Shelter PS – Design 75% Complete (decrease in completion % from previous report due to contract amendment)
- SS7208 Saluda River Basin SSES and Rehabilitation for SR-03, 10, & 12 – Construction 90% Complete
- SS725801 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 1 – Construction 100% Complete
- SS725801 Greenlawn Dr. to Burnside #1 PS (Hampton Forest) Phase 2 – Design 0% Complete
- SS7262 Flow Study/Rehabilitation/Replacement of Three Rivers and Colonial Life PS – Construction 95% Complete
- SS7279 Smith Branch-02 SSES and Rehabilitation – Construction 87% Complete
- SS7280 Rocky Branch-01 SSES and Rehabilitation – Construction 34% Complete
- SS7323 Food Lion PS Improvements – Design 40% Complete
- SS7324 Bendale PS Improvements – Construction 70% Complete
- SS7325 Starlite PS Improvements – Design 100% Complete
- SS7362 Smith Branch 01 SSES – Design 80% Complete
- SS7363 Smith Branch 03 SSES – Design 35% Complete

3.5 Supplemental Environmental Project

In accordance with Section VIII and Appendix I of the CD, the City will perform a Supplemental Environmental Project (SEP). Within three years of the effective date of the CD, the City was to submit to EPA preliminary reports on the condition of Rocky Branch, Smith Branch, and Gills Creek and plans for

Phase II for each of the SEP watersheds. On March 24, 2016, the City submitted a supplemental report related to the October 4, 2015 *force majeure* event and requested an additional six months to November 21, 2017 to complete the submittal of the preliminary reports and plans for improving the SEP areas. This request was granted by EPA. The SEP Preliminary Report and Phase II plan for Rocky Branch, Smith Branch, and Gills Creek was submitted to EPA on June 14, 2017.

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

- Design for the Rocky Branch project was completed April 11. The bid package was completed and advertised. Bid opening is expected in October.
- Sediment removal has taken place within the waterways in the Smith Branch watershed.
- Representatives of the City of Columbia and Gills Creek Watershed Association met on September 5 to discuss and outline an approach to the Gills Creek stream cleanup. Gills Creek Watershed Association is scheduled to complete GPS data collection of locations of large debris to be removed this fall. City Council approved CIP funding for this debris removal.

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, 3rd Quarter 2017

City of Columbia, SC Quarterly SSO Listing 3rd Quarter 2017									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
7/2/2017	20:40	240 Waterford Dr, Columbia, SC 29203	Cleanout	7/3/2017	10:00	100	Storm Drain	Debris	Washed Cleanout 30 Ft To Resume Normal Flow. Televised Service Line 30 Ft.
7/6/2017	12:40	301 Challedon Ct, Columbia, SC 29212	Cleanout	7/6/2017	13:00	40		Roots	Washed Service Line 75 Ft To Resume Normal Flow. Service Line Repair To Be Scheduled.
7/11/2017	20:11	128 Forest Fern Rd, Columbia, SC 29212	Cleanout	TBD		4		Collapsed Line	Washed Mainline 5 Ft. Tap Renewal To Be Scheduled.
7/19/2017	12:00	108 Bowland Ct, Columbia, SC 29212	Other	TBD		120	Conveyance Ditch	Collapsed Line	Washed Mainline 80 Ft To Resume To Normal Flow. Emergency Mainline Repair To Be Scheduled.
7/21/2017	14:45	4511 Bluff Rd, Columbia, SC 29209	Bypass Hose	7/21/2017	16:15	180		Equipment Failure	Replaced Bypass Discharge Hose; Pump Trucks Ordered To Control Flows At Pump Station Wet Well. Overflow Sewer That Could Be Recovered Was Pumped Into Sewer System. Area Was Diluted And Lime Spread Over The Affected Area.
7/21/2017	14:19	5200 Bluff Road, Columbia, SC 29217	Manhole	7/21/2017	15:32	334	Reeder Point Branch Creek	3rd Party Responsibility	Returned Pump Station Back To Operational Status. Temporary Repair Made To Construction Project Allowing The Lift Station To Be Returned To Service.
7/23/2017	20:04	716 Santee Ave, Columbia, SC 29205	Manhole	TBD		11,250	Rocky Branch	Wet Weather	Wet Weather, Observation Only. CIP Project In Design Phase Of Line.
7/23/2017	20:10	3123 Harrison Rd, Columbia, SC 29204	Manhole	TBD		14,844		Wet Weather	Did Not Observe Overflowing. Capacity Enhancement Project In Design Phase.
7/23/2017	20:19	1806 Blossom St, Columbia, SC 29201	Manhole	TBD		5,313	Rocky Branch	Wet Weather	Observation Only. Engineering In Design Phase.
7/23/2017	20:27	1548 Kathwood Dr, Columbia, SC 29206	Manhole	TBD		15,450	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line.
7/23/2017	20:35	4645 Pine Grove Ct, Columbia, SC 29206	Manhole	TBD		10,000	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line.
7/24/2017	17:20	1806 Blossom St, Columbia, SC 29201	Manhole	TBD		80	Rocky Branch	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line.
7/24/2017	17:45	1548 Kathwood Dr, Columbia, SC 29206	Manhole	TBD		4,950	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line.
7/24/2017	17:55	4645 Pine Grove Ct, Columbia, SC 29206	Manhole	TBD		1,500	Lake Katherine (Gills Creek)	Wet Weather	Wet Weather, Observation Only. Engineering In Design Phase Of Line.
8/1/2017	11:32	510 Heyward St, Columbia, SC 29201	Other	8/1/2017	13:52	70		Equipment Failure	Retightened Repair Clamp.
8/1/2017	11:33	795 Greenlawn Dr, Columbia, SC 29209	Cleanout	TBD		94		Collapsed Line	Washed Mainline 425 Ft To Resume Normal Flow.
8/24/2017	13:03	1200 Simmon Tree Ln, Columbia, SC 29201	WWTP	8/24/2017	13:30	225		3rd Party Responsibility	Occurred In Pit, Closed T1 Transfer Valve To DAF. Drained What We Could And Put Lime Down On The Rest. Repaired The Pipe.
8/30/2017	07:15	3900 Bentley Dr, Columbia, SC 29210	Other	8/30/2017	07:45	600	Unnamed Creek To Broad River	Equipment Failure	Reinflate Plug Due To Plug Coming Out Of The Line. Reinflate Plug Until Line Is Replaced.
9/9/2017	14:30	4622 Oxford Rd, Columbia, SC 29209	Cleanout	9/9/2017	14:45	34		Roots	Jetted Clean Out 15 Ft. Televised Service Line 15 Ft.
9/11/2017	07:41	107 Cove Court, Columbia, SC 29212	Equipment	9/12/2017	09:00	45		Equipment Failure	Leaking Bauer Filling; Shut Down Bypass Pump. The Bypass Pump Was Disconnected And Hose Removed From The Bypass Connection.

City of Columbia, SC Quarterly SSO Listing 3rd Quarter 2017									
SSO Date	SSO Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
9/18/2017	12:00	901 Cedar Ter, Columbia, SC 29209	Cleanout	9/18/2017	12:00	5		Debris	Washed Service Line To Remove Stoppage, Spread Lime.
9/18/2017	10:30	3900 Bentley Dr, Columbia, SC 29210	Manhole	9/18/2017	11:14	1,170	Unnamed Tributary To Broad River	Collapsed Line	Jetted To Remove Blockage. Flushed With Hydrant, Spread Lime.
9/20/2017	13:30	2421 Lady St, Columbia, SC 29204	Cleanout	9/25/2017	13:49	10		3rd Party Responsibility	The Service Line Was Washed 50 Ft. Tap Will Be Cut By Contractor.
9/23/2017	14:29	2118 Gordon St, Columbia, SC 29204	Cleanout	9/23/2017	15:50	43		Equipment Failure	Washing Service Line Caused Overflow From Homeowner's Clean Out. Removed Roots From The Service Line And A City Cleanout Will Be Installed.
9/23/2017	16:31	2301 Apple Valley Rd, Columbia, SC 29210	Cleanout	9/23/2017	17:31	22		Equipment Failure	Washed Mainline From Homeowner's Clean Out. Washed Roots Out Of Service Line. A City Clean Out Is Being Installed To Resolve Future Issues.
9/25/2017	14:00	1925 Bull St, Columbia, SC 29201	Cleanout	9/25/2017	15:00	2		Equipment Failure	The Service Line Was Washed 15 Ft To Resume Normal Flow. The Service Line Was Televised 53 Ft To The Mainline. The Service Line Was In Good Condition.
9/25/2017	09:00	347 Tram Rd, Columbia, SC 29210	Cleanout	9/25/2017	10:30	9		Equipment Failure	Washed Service Line To Remove Roots, City Clean Out Will Be Installed.
9/25/2017	10:40	115 Nottingham Rd, Columbia, SC 29210	Cleanout	9/25/2017	11:30	5		Equipment Failure	Washed Service Line To Remove Roots. City Clean Out Will Be Installed.
9/25/2017	14:00	7400 Wilson Blvd, Columbia, SC 29203	Manhole	9/27/2017	15:32	55		Debris	The Mainline Was Washed 300 Ft To Resume Normal Flow. The Mainline Was Televised 159.6 Ft. Found Oil And Grit Deposits.
9/27/2017	19:10	2301 Apple Valley Rd, Columbia, SC 29210	Cleanout	9/27/2017	19:12	53		Equipment Failure	Washed Service Line 22 Feet To Remove Stoppage. City Clean Out Installed 9/28/17.
9/30/2017	18:30	1116 Olympia Ave, Columbia, SC 29201	Cleanout	9/30/2017	20:30	5		Equipment Failure	Washed Service Line To Resume Normal Flow. Used Root Cutter To Remove Roots Found On City Side. A City Clean Out Will Be Installed.

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.

Separate from the SSO listing provided in Table 1 above, the following table identifies building backups within the City's system for the current reporting period.

Table 2 - Building Backup Report, 3rd Quarter 2017

City of Columbia, SC Quarterly Building Backup Listing 3rd Quarter 2017									
Date	Time	Location	Source	Date of Corrective Action	Time of Corrective Action	Estimated Volume (gallons)	Receiving Water (if any)	Cause	Actions Taken
8/17/2017	13:30	4017 Claremont Dr, Columbia, SC 29205	Other	8/17/2017	14:00	50		Equipment Failure	Bypass Pump Cycled. Floats Removed, Pump Put In Continuous Operation.
9/1/2017	08:55	646 Kentucky St, Columbia, SC 29201	Other	9/1/2017	09:30	5		Equipment Failure	Ceased Washing Mainline. Owner Toweled Excess Water From Spill Area.
9/18/2017	10:17	119 Lincoln Inn Rd, Columbia, SC 29212	Inside Property	9/18/2017	10:30	2		Equipment Failure	Ceased Washing City Mainline.

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 Gill's 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:

- Gill's Creek at Garner's Ferry Road
- Smith Branch at North Main Street
- Gill's 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 to reflect a change in City personnel. The City will monitor quarterly for the first three years under the CD and 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 2017 Q3 was completed on August 4, 2017. Monitoring results are provided below for the following samples:

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

Laboratory Report Date: 8/4/17

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



Ralana Wilson/QA Manager

8/15/17

Date

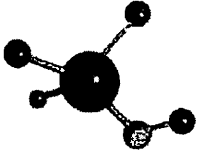
The undersigned validates the data in the above referenced report, per the QAPP requirements.



Michael Jaspers/Project Validator

8/15/17

Date



ACCESS
ANALYTICAL, INC.

ANALYTICAL REPORT

CLIENT:

City of Columbia
1136 Washington Street
Columbia, SC 29201

PROJECT:

WATER QUALITY MONITORING

REPORT DATE:

08.04.17

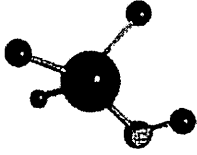
REPORT APPROVED BY:

Bryant W. Boyd
Laboratory Manager
bryant@axs-inc.com

Any questions related to this report should be directed to Access Analytical, Inc. via phone at 803.781.4243 or via email at the address listed above.

Access Analytical, Inc. SCDHEC certification #'s: 32571001 (Irmo Lab)
 25003001 (Hampton Lab)

Access Analytical, Inc.
15 Thames Valley Rd. ~ Irmo, SC 29063
PHONE: 803.781.4243 ~ FAX: 803.781.4303 ~ WEB: www.axs-inc.com



ACCESS
ANALYTICAL, INC.

Report of Analysis

Lab ID #: 05056-001

Matrix: Waste Water

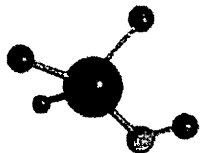
Project: WATER QUALITY MONITORING

Collected: 7/27/2017 @ 14:01

Sample Name: C-017

Date Received: 7/27/2017 @ 15:24

Parameter	Result	Reporting Limit	Units	Method Reference	Data Flag	Date/Time of Analysis	Analyst
DO	5.92	None	mg/L	SM 4500-O G-2011		7/27/2017 14:01	JRS
E. Coli (MPN)	78.9	1	MPN	SM 9223 B-2004		7/27/2017 16:05	MML
Temperature	27	None	oC	SM 2550B-2010		7/27/2017 14:01	JRS
TSS	6.7	1	mg/L	SM 2540 D-2011		7/28/2017 14:00	JRS



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Report of Analysis

Lab ID #: 05056-002

Matrix: Waste Water

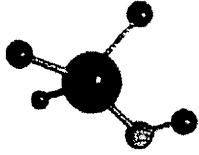
Project: WATER QUALITY MONITORING

Collected: 7/27/2017 @ 14:20

Sample Name: C-001

Date Received: 7/27/2017 @ 15:24

Parameter	Result	Reporting Limit	Units	Method Reference	Data Flag	Date/Time of Analysis	Analyst
DO	6.46	None	mg/L	SM 4500-O G-2011		7/27/2017 14:20	JRS
E. Coli (MPN)	166.4	1	MPN	SM 9223 B-2004		7/27/2017 16:05	MML
Temperature	29	None	oC	SM 2550B-2010		7/27/2017 14:20	JRS
TSS	331	1	mg/L	SM 2540 D-2011		7/28/2017 14:00	JRS



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Report of Analysis

Lab ID #: 05056-003

Matrix: Waste Water

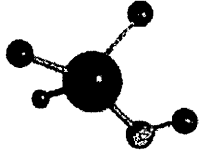
Project: WATER QUALITY MONITORING

Collected: 7/27/2017 @ 14:50

Sample Name: B-280

Date Received: 7/27/2017 @ 15:24

Parameter	Result	Reporting Limit	Units	Method Reference	Data Flag	Date/Time of Analysis	Analyst
DO	8.08	None	mg/L	SM 4500-O G-2011		7/27/2017 14:50	JRS
E. Coli (MPN)	1299.7	1	MPN	SM 9223 B-2004		7/27/2017 16:05	MML
Temperature	28	None	oC	SM 2550B-2010		7/27/2017 14:50	JRS
TSS	9.0	1	mg/L	SM 2540 D-2011		7/28/2017 14:00	JRS



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Laboratory Endorsement / Definitions

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency, Standard Methods or other recognized agencies.

Common abbreviations that may be utilized in this report:

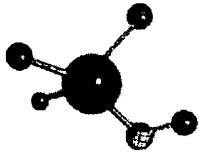
ND	Indicates the result was Not Detected at the specified reporting limit
"<"	Indicated the result as less than the indicated amount
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous to Count
SUB	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
DF	Dilution Factor
RL	Reporting Limit
MDL	Calculated minimum detection limit
PQL	Practical Quantitation Limit
RE	Re-analysis

Reporting flags that may be utilized in this report:

J	Indicates the result is between the MDL and PQL and considered to be an estimated result
MB	Indicates the analyte was detected in the associated Method Blank
H	Indicates the recommended holding time was exceeded
*	Indicates a non-compliant or not applicable QC recovery or RPD
A	BOD or CBOD GGA check value for this sample did not meet acceptance criteria.
B	BOD or CBOD blank depletion did not meet acceptance criteria.
C	Indicates the spike % recovery was not acceptable.
D	Indicates the duplicate % difference was not acceptable.
E	Toxicity is apparent in the sample.

Sample receipt at Access Analytical is documented through the attached chain of custody. In accordance with laboratory protocol, this report shall be reproduced only in full and with the written permission of Access Analytical, Inc.. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

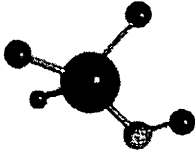
This report pertains only to the samples listed in the attached report and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.



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Sample Receipt

Were samples received on ice?	YES
Were samples received within required temperature limits?	YES
Are the number of samples the same as stated on the chain of custody?	YES
Are samples submitted with a correct and complete chain of custody?	YES
Are bottle caps tight and securely in place, coolers and samples intact?	YES
Are the correct sample containers provided?	YES
Were samples within the holding time for requested test(s)?	YES
Is the volume of sample submitted sufficient for the requested test(s)?	YES
Is there sufficient air space in bottle for bacteriological analysis?	YES
Were samples received with applicable preservative?	YES



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Chain of Custody

Access Lab Report #: 05054		Chain of Custody Record				
City of Columbia		Access Analytical, Inc. 11100 N. Highway 101, Suite 200 Phoenix, AZ 85028 Phone: (602) 998-4883 / Fax: (602) 998-4887 / Web: www.access-analytical.com CDPIC Lab Certificate # 2021				
Client:	City of Columbia	Preservatives (see code):	9 S NA			
Address:	1136 Washington Street	Bottle Types (see code):	P P NA			
City:	Columbia	Lab Code:	29201			
Phone:	803-545-0076	State:	SC			
Fax:		Zip Code:	29201			
Email:	mjaspers@columbiasc.net	Project Name:	Water Quality Monitoring			
Sampled By (Signature):	<i>[Signature]</i>	Requested Lab Analysis:	DO, Temperature			
Lab ID	Sample Name	Date Collected	Time Collected	Method	Number of Samples	Notes / Comments
001	C-017	7-27-17	1401	G	WW	DO (mg/L) = 5.92 Temperature (°C) = 27.3
002	C-001	"	1420	G	WW	DO (mg/L) = 6.46 Temperature (°C) = 28.6
003	B-280	"	1450	G	WW	DO (mg/L) = 8.08 Temperature (°C) = 27.6
Auto Sampler Data (composite samples only): Composite Harvest Temp (°C) = _____ Date/Time Set On: _____ by whom: _____ Date/Time On: _____ by whom: _____ Difference: _____ X _____ (factor)						
Turnaround Time Requested:	Project Location:	Relinquished By:	Received By:	Date:	Time (24hr):	Sample Received on for:
Standard:	SC					Y N N/A
Batch #:	RC					Y N N/A
Other (Specify):	Other (Specify):					Y N N/A
Chain of Custody Page _____ of _____	Received in lab by: <i>[Signature]</i>			7-27-17	1524	Y N N/A
Sample Temp. Upon Receipt in Lab: 22.2 (°C) NOTE: Relinquishing samples waives this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions. White Copy: Lab Original / Green Copy: RMC Copy / Pink Copy: Client Copy						