



Tennessee Department of Environment and Conservation
 Division of Water Resources
 William R. Snodgrass Tennessee Tower,
 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
 1-888-891-8332 (TDEC)

Phase II Small Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 Information

Name of MS4: Knox County Stormwater Management Program		MS4 Permit Number: TNS075582
Contact Person: Quinn Cypher		Email Address: Quinn.Cypher@knoxcounty.org
Telephone: (865) 215-5800		MS4 Program Web Address: knoxcounty.org/stormwater
Mailing Address: 205 W Baxter Ave		
City: Knoxville	State: TN	ZIP code: 37917

What is the current population of your MS4? 285,386 (Knoxville-Knox County Planning 2020)

What is the reporting period for this annual report? July 1 2021 to June 30 2022

2. Discharges to Waterbodies with Unavailable Parameters or Exceptional Tennessee Waters (Section 3.1)

- A. Does your MS4 discharge into waters with unavailable parameters (previously referred to as impaired) for pathogens, nutrients, siltation or other parameters related to stormwater runoff from urbanized areas as listed on TN's most current 303(d) list and/or according to the on-line state GIS mapping tool (tdeconline.tn.gov/dwr/)? If yes, attach a list. Yes No
- B. Are there established and approved TMDLs (<http://www.tn.gov/environment/article/wr-ws-tennessees-total-maximum-daily-load-tmdl-program>) with waste load allocations for MS4 discharges in your jurisdiction? If yes, attach a list. Yes No
- C. Does your MS4 discharge to any Exceptional Tennessee Waters (ETWs - http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34304:4880790061142)? If yes, attach a list. Yes No
- D. Are you implementing specific Best Management Practices (BMPs) to control pollutant discharges to waterbodies with unavailable parameters or ETWs? If yes, describe the specific practices: The County considers work within the watershed of ETWs to be priority construction activities. The additional requirements outlined in section 5.4.1 of the TNCGP are applied within the entire watershed. Yes No

3. Public Education/Outreach and Involvement/Participation (Sections 4.2.1 and 4.2.2)

- A. Have you developed a Public Information and Education plan (PIE)? Yes No

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- B. Is your public education program targeting specific pollutants and sources, such as Hot Spots? If yes, describe the specific pollutants and/or sources targeted by your public education program: The Storm Drain Style-Off initiative educates the public about stormwater infrastructure & keeping green waste, oils / auto fluids & trash out of the storm drain system. The Strong Streams promotional materials, social media posts, and programs promote planting & preserving residential streamside buffers to address excess nutrient / fertilizer (nitrogen / phosphorous) inputs into local waterways from private land uses. Knox County Stormwater's presentation at the UT Grounds Management Short Course and targeted letters to landscaping companies target pesticide and fertilizer applicator audiences and address nutrients, sediment, and dumping of green waste into the storm sewer system. The children's books target sediment, pathogens, and microplastics. The 319 grants address sediment and E. coli discharges. Yes No
- C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: www.knoxcounty.org/Stormwater Yes No
- D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: The Stormwater social media accounts, branded as Strong Streams, include Facebook, Twitter, Instagram and YouTube; posts are scheduled weekly based on events, success stories, green-friendly practices installed, and themed education campaigns, and are shared by partner organizations' social media. A newsletter promoting upcoming workshops & educational opportunities and other stormwater news is sent quarterly via email to 500+ people and posted on the website and Facebook page. Opportunities for requesting school lessons and participating in programs are posted on the website. Existing teacher contacts and Adopt-A-Stream groups are contacted directly via email for cleanups, educational opportunities, and events. Flyers are posted at local businesses and libraries. Free and paid listings for events and campaigns are put in local newspapers and in Facebook ads. Staff seek out local journalists to promote events and issues important to residents. Press releases are issued for important events.
- E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: Knox County Stormwater has conducted water quality lessons for students in several schools and afterschool programs throughout the County, facilitating educational field trips, macro invertebrate and chemical testing for water quality lessons, educational games, and lessons using models like the EnviroScope, augmented reality (AR) sandbox, and stream table. In addition to the Strong Streams quarterly newsletter, a construction e-newsletter was sent to 700+ members of the engineer/contractor community.
- Staff hosted educational booths to speak with community members about County stormwater programs and activities at a variety of events, including a fall craft fair at Marble Springs Historical Site, Apple Fest, Beaver Creek Flotilla, the Dogwood Arts House and Garden Show, and local farmers markets. Knox County Stormwater also hosted sites for TN Tree Day, distributing native trees while educating participants on the importance of trees for water quality, and Ijams River Rescue, a community-wide cleanup of the Tennessee River and its tributaries.
- Knox County has an active Adopt-A-Stream program, and eleven stream clean-ups were conducted this year. We are currently administering 319 grants from TDA in the Stock and Beaver Creek watersheds to address bacteria and/or sediment pollution in those watersheds. The grants include funding for septic and ag pollution and ed/outreach activities, as permitted. Knox County participated in the Water Quality Forum-lead events including Rainy Day Brushoff, Cheers to Clean Water TN River Paddle-Off, WaterFest (educational field trip), and a rain barrel truckload sale. The goal of all of these events is to educate and bring awareness to the public and students about water pollution, conservation, and ways to prevent all types of pollution.

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F. Summarize any specific successful outcome(s) (e.g., citizen involvement, pollutant reduction, water quality improvement, etc.) fully or partially attributable to your public education and participation program during this reporting period: Citizen involvement in our programs, events, & activities has resulted in the following reportable metrics in Knox County in FY22. These metrics are further summarized in Attachment 4.

Adopt-a-Stream Cleanup Events: 11

Trash Removed (pounds): 3,045

Sediment + Green Waste Removed (pounds- campus cleanup + outdoor classrooms): ~10,160

Brochures distributed at libraries: 381

Number of people educated through targeted illicit discharge mailings: 42

Students Educated: 1,451

General Public (children + adults) educated: 5,500

General Public Ed/Outreach and Involvement Events: 12

4. Illicit Discharge Detection and Elimination (Section 4.2.3)

A. Have you developed and do you continue to update a storm sewer system map that shows the location of system outfalls where the municipal storm sewer system discharges into waters of the state or conveyances owned or operated by another MS4? Yes No

B. If yes, does the map include inputs into the storm sewer collection system, such as the inlets, catch basins, drop structures or other defined contributing points to the sewershed of that outfall, and general direction of stormwater flow? Yes No

C. How many outfalls have you identified in your storm sewer system? 4041 outfalls

D. Do you have an ordinance, or other regulatory mechanism, that prohibits non-stormwater discharges into your storm sewer system? Yes No

E. Have you implemented a plan to detect, identify and eliminate non-stormwater discharges, including illegal disposal, throughout the storm sewer system? If yes, provide a summary: Knox County is using many methods to detect, identify and eliminate illicit discharges through the current IDDE Plan. One method is through the dry weather screening program, which identifies hot spot areas in the County by utilizing land use maps, zoning maps, complaint tracking, SPAPs, and TDEC permits. Knox County also issues Special Pollutant Abatement Permits (SPAPs) to "hot spot" businesses, which include automotive and restaurant related businesses as well as businesses with large parking areas. Complaint and spill tracking are also used to determine where there are issues and also helps determine what kind of education and outreach needs to be implemented and where it would be most effective. All of these tools are administered through the county's robust GIS applications and maintained in the Cartegraph asset management database. Knox County also applies for and administers 319 watershed grants to help citizens repair failing septic systems or connect to the sewer system, if available. Knox County enforces the illicit discharge ordinance through an enforcement response plan, which allows written Notices of Violation and Civil Penalties up to \$5000 per day/per violation. Yes No

F. How many illicit discharge related complaints were received this reporting period? 98

G. How many illicit discharge investigations were performed this reporting period? 98

H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 81

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5. Construction Site Stormwater Runoff Pollutant Control (Section 4.2.4)

- A. Do you have an ordinance or other regulatory mechanism requiring:
Construction site operators to implement appropriate erosion prevention and sediment control BMPs consistent with those described in the TDEC EPSC Handbook? Yes No
Construction site operators to control wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste? Yes No
Design storm and special conditions for unavailable parameters waters or Exceptional Tennessee Waters consistent with those of the current Tennessee Construction General Permit (TNR100000)? Yes No
- B. Do you have specific procedures for construction site plan (including erosion prevention and sediment BMPs) review and approval? Yes No
- C. Do you have sanctions to enforce compliance? Yes No
- D. Do you hold pre-construction meetings with operators of priority construction activities and inspect priority construction sites at least monthly? Yes No
- E. How many construction sites disturbing at least one acre or greater were active in your jurisdiction this reporting period? 213
- F. How many active priority and non-priority construction sites were inspected this reporting period? 213
- G. How many construction related complaints were received this reporting period? 69

6. Permanent Stormwater Management at New Development and Redevelopment Projects (Section 4.2.5)

- A. Do you have a regulatory mechanism (e.g. ordinance) requiring permanent stormwater pollutant removal for development and redevelopment projects? If no, have you submitted an Implementation Plan to the Division? Yes No
 Yes No
- B. Do you have an ordinance or other regulatory mechanism requiring:
Site plan review and approval of new and re-development projects? Yes No
A process to ensure stormwater control measures (SCMs) are properly installed and maintained? Yes No
Permanent water quality riparian buffers? If yes, specify requirements: 25 foot minimum and 50 foot average buffer width required to be shown on a recorded plat. Yes No
- C. What is the threshold for development and redevelopment project plans plan review (e.g., all projects, projects disturbing greater than one acre, etc.)? All projects that disturb over an acre or projects that add 10,000 square feet or more of impervious area
- D. How many development and redevelopment project plans were reviewed for this reporting period? 68
- E. How many development and redevelopment project plans were approved? 71
- F. How many permanent stormwater related complaints were received this reporting period? 9
- G. How many enforcement actions were taken to address improper installation or maintenance? 0
- H. Do you have a system to inventory and track the status of all public and private SCMs installed on development and redevelopment projects? Yes No

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- I. Does your program include an off-site stormwater mitigation or payment into public stormwater fund? If yes, specify. _____ Yes No

7. Stormwater Management for Municipal Operations (Section 4.2.6)

- A. As applicable, have stormwater related operation and maintenance plans that include information related to maintenance activities, schedules and the proper disposal of waste from structural and non-structural stormwater controls been developed and implemented at the following municipal operations:

- | | | |
|--|---|--|
| Streets, roads, highways? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Municipal parking lots? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Maintenance and storage yards? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Fleet or maintenance shops with outdoor storage areas? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Salt and storage locations? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Snow disposal areas? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Waste disposal, storage, and transfer stations? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

- B. Do you have a training program for employees responsible for municipal operations at facilities within the jurisdiction that handle, generate and/or store materials which constitute a potential pollutant of concern for MS4s? Yes No

- If yes, are new applicable employees trained within six months, and existing applicable employees trained and/or retrained within the permit term? Yes No

8. Reviewing and Updating Stormwater Management Programs (Section 4.4)

- A. Describe any revisions to your program implemented during this reporting period including but not limited to:

Modifications or replacement of an ineffective activity/control measure. None for this reporting period.

Changes to the program as required by the division to satisfy permit requirements. N/A

Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. N/A

- B. In preparation for this annual report, have you performed an overall assessment of your stormwater management program effectiveness? If yes, summarize the assessment results, and any modifications and improvements scheduled to be implemented in the next reporting period. See Attachment 5 Yes No

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9. Enforcement Response Plan (Section 4.5)

A. Have you implemented an enforcement response plan that includes progressive enforcement actions to address non-compliance, and allows the maximum penalties specified in TCA 68-221-1106? If no, explain. _____ Yes No

B. As applicable, identify which of the following types of enforcement actions (or their equivalent) were used during this reporting period; indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater management), and note those for which you do not have authority:

<u>Action</u>	<u>Construction</u>	<u>Permanent Stormwater</u>	<u>Illicit Discharge</u>	<u>In Your ERP?</u>	
Verbal warnings	#153	#0	#5	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Written notices	#11	#14	#36	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Citations with administrative penalties	#10	#0	#0	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Stop work orders	#9	#N/A	#0	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Withholding of plan approvals or other authorizations	#3	#0	#N/A	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Additional Measures	#N/A	#N/A	#N/A	Describe: _____	

C. Do you track instances of non-compliance and related enforcement documentation? Yes No

D. What were the most common types of non-compliance instances documented during this reporting period?
Construction:

1. Temporary sediment controls are not properly installed, functional and/or maintained. 2. Failure to temporarily stabilize non-vegetated areas within 14 days and/or steep slopes within 7 days since location was actively worked. 3. Failure to install sediment basins according to the approved design plans.

Illicit Discharges:

1. Failing or leaking sewer/septic systems and grey water discharges 2. Dumping yard waste in drainageways or storm sewer system (residential) 3. Dumping oils/solvents/chemicals in storm sewer (residential) & Sediment discharge (non-construction)(residential)

Permanent Construction:

1. Fix Filter Box. 2. Remove Woody Vegetation. 3. Remove Accumulated Sediment 4. Address Pipe Condition Issue

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10. Monitoring, Recordkeeping and reporting (Section 5)

- A. Summarize any analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Knox County continues to monitor streams for pathogens using the indicator E.coli and the 5-in-30 standard method. Samples were collected at eleven (11) sampling sites, some of which represent new sites as we work through our impaired stream list and repeat sites that we continue to monitor each year to track for change based on restoration activities in specific watersheds. The results of the analyses are included in attachment 6.
- B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Knox County concluded surveys of all streams with Unavailable Parameters requiring non-analytical surveys. The work includes stream surveys that document impacted buffers, severe erosion and trash & debris using the Center for Watershed Protection Unified Stream Assessment method. To date, all streams except Flat Creek and Little Flat Creek have been walked and surveyed using ESRI Collector/Field Maps. For the Flat Creek and Little Flat Creek watersheds desktop analysis was conducted to identify 101 likely MS4 outfalls and monitoring was conducted immediately upstream and downstream of those outfalls. Stream condition information was taken using the Center for Watershed Protection Unified Stream Assessment Method, however the entire stream segments were not walked in the watershed. Data was recorded using ESRI Collector/Field Maps.
- C. If applicable, are monitoring records for activities performed during this reporting period submitted with this report. Yes No

11. Certification

This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in sub-part 6.7.2 of the permit.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Glen Jacobs, Mayor
Printed Name and Title


Signature

9/15/2022
Date

Annual reports must be submitted by September 30 of each calendar year (Section 5.4) to the appropriate Environmental Field Office (EFO), identified in the table below:

EFO	Street Address	City	Zip Code	Telephone
Chattanooga	1301 Riverfront Pkwy, Suite 206	Chattanooga	37402	(423) 634-5745
Columbia	1421 Hampshire Pike	Columbia	38401	(931) 380-3371
Cookeville	1221 South Willow Ave.	Cookeville	38506	(931) 520-6688
Jackson	1625 Hollywood Drive	Jackson	38305	(731) 512-1300
Johnson City	2305 Silverdale Road	Johnson City	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	Knoxville	37921	(865) 594-6035
Memphis	8383 Wolf Lake Drive	Bartlett	38133	(901) 371-3000

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Nashville	711 R S Gass Boulevard	Nashville	37216	(615) 687-7000
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Attachment 1
Question 2.A

Knox County Waters from 2022 303(d) List

Tier 1 includes those streams where discharges from the County's public stormwater conveyance system (i.e., the MS4) are considered as the sole source of pollutant(s). Tier 1 streams are of primary focus in the County's water quality program, therefore permit compliance activities target the impairments in these waterbodies. The County's stormwater management program includes activities that target the pollutant(s) causing the impairment(s)

Tier 1 Streams			
ID 305B Waterbody ID	Waterbody Name	Impairment Cause Name	Potential Impairment Source Name
TN06010104001_0100	Love Creek	Escherichia coli (e. Coli) Nitrate/nitrite (nitrite + nitrate as n) Other anthropogenic substrate alterations Sedimentation/siltation	Municipal (urbanized high density area)
TN06010104001_1400	Swanpond Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
TN06010201020T_0100	Toll Creek	Alteration in stream-side or littoral vegetative covers Sedimentation/siltation	Municipal (urbanized high density area)
TN06010201037_1000	Little Turkey Creek	Alteration in stream-side or littoral vegetative covers Sedimentation/siltation	Municipal (urbanized high density area)
TN06010201066_0500	McCall Branch	Sedimentation/siltation	Municipal (urbanized high density area)
TN06010201066_0600	High Bluff Branch	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
TN060102011330_1000	Sinking Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
TN060102011334_0100	Ten Mile Creek	Alteration in stream-side or littoral vegetative covers	Municipal (urbanized high density area)
TN06010201340_1000	Turkey Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
TN06010207011_0500	Hines Branch	Alteration in stream-side or littoral vegetative covers Escherichia coli (e. Coli) Other anthropogenic substrate alterations	Municipal (urbanized high density area)
TN06010207011_0600	Knob Fork	Alteration in stream-side or littoral vegetative covers Escherichia coli (e. Coli) Nutrients Other anthropogenic substrate alterations Sedimentation/siltation	Municipal (urbanized high density area)
TN06010207011_0700	Grassy Creek	Alteration in stream-side or littoral vegetative covers Escherichia coli (e. Coli) Sedimentation/siltation	Municipal (urbanized high density area)
TN06010207011_0800	Meadow Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
TN06010207011_0900	Plumb Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)

Attachment 1

Question 2.A

Knox County Waters from 2022 303(d) List

Tier 2 includes those streams where discharges from the County’s MS4 are one of several sources of pollutant(s). Tier 2 streams are also a strong focus of the County’s water quality program; therefore, permit compliance activities target the impairments in these waterbodies. However, water quality improvements in these waterbodies likely cannot be achieved by the County’s efforts alone.

Tier 2 Streams			
ID 305B Waterbody ID	Waterbody Name	Impairment Cause Name	Potential Impairment Source Name
TN06010201067_1000	Third Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
		Nutrients	
		Other anthropogenic substrate alterations	
		Sedimentation/siltation	Sanitary sewer overflows (collection system failures)
		Escherichia coli (e. Coli)	
		Sedimentation/siltation	
TN06010201080_0100	Whites Creek	Escherichia coli (e. Coli)	Municipal (urbanized high density area)
		Other anthropogenic substrate alterations	
		Sedimentation/siltation	Streambank modifications/destabilization
		Other anthropogenic substrate alterations	
TN06010201089_0110	Unnamed Trib to Flenniken Branch	Chloride	Landfills
		Sedimentation/siltation	Municipal (urbanized high density area)
TN06010201723_1000	Goose Creek	Other anthropogenic substrate alterations	Municipal (urbanized high density area)
		Sedimentation/siltation	
		Polychlorinated biphenyls (pcbs)	Rcra hazardous waste sites
		Escherichia coli (e. Coli)	Sanitary sewer overflows (collection system failures)
TN06010207004_0100	Grable Branch	Physical substrate habitat alterations	Channelization
		Sedimentation/siltation	Channelization
		Sedimentation/siltation	Municipal (urbanized high density area)
TN06010207004_1000	Hickory Creek	Alteration in stream-side or littoral vegetative covers	Grazing in riparian or shoreline zones
		Alteration in stream-side or littoral vegetative covers	Municipal (urbanized high density area)
		Sedimentation/siltation	
		Alteration in stream-side or littoral vegetative covers	Site clearance (land development or redevelopment)
		Sedimentation/siltation	Site clearance (land development or redevelopment)
TN06010207011_0200	Willow Fork	Alteration in stream-side or littoral vegetative covers	Grazing in riparian or shoreline zones
		Alteration in stream-side or littoral vegetative covers	Municipal (urbanized high density area)
		Escherichia coli (e. Coli)	
		Sedimentation/siltation	

Attachment 1
Question 2.A
Knox County Waters from 2022 303(d) List

Tier 2 Streams			
ID 305B Waterbody ID	Waterbody Name	Impairment Cause Name	Potential Impairment Source Name
TN06010207011_1000	Beaver Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
		Nutrients	
		Physical substrate habitat alterations	Municipal (urbanized high density area)
		Sedimentation/siltation	
		Nutrients	Municipal point source discharges
TN06010207011_2000	Beaver Creek	Escherichia coli (e. Coli)	Sanitary sewer overflows (collection system failures)
		Alteration in stream-side or littoral vegetative covers	Grazing in riparian or shoreline zones
		Physical substrate habitat alterations	
		Sedimentation/siltation	
		Alteration in stream-side or littoral vegetative covers	Municipal (urbanized high density area)
		Escherichia coli (e. Coli)	
		Physical substrate habitat alterations	
		Sedimentation/siltation	
		Escherichia coli (e. Coli)	Sanitary sewer overflows (collection system failures)
TN06010207011_3000	Beaver Creek	Alteration in stream-side or littoral vegetative covers	Grazing in riparian or shoreline zones
		Escherichia coli (e. Coli)	
		Physical substrate habitat alterations	
		Sedimentation/siltation	
		Alteration in stream-side or littoral vegetative covers	Municipal (urbanized high density area)
		Escherichia coli (e. Coli)	
		Physical substrate habitat alterations	
		Sedimentation/siltation	
		Escherichia coli (e. Coli)	Sanitary sewer overflows (collection system failures)
TN06010207014_1000	Bullrun Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
		Escherichia coli (e. Coli)	Municipal (urbanized high density area)
TN06010207014_2000	Bullrun Creek	Alteration in stream-side or littoral vegetative covers	Grazing in riparian or shoreline zones
		Escherichia coli (e. Coli)	
		Sedimentation/siltation	
TN06010207455_1000	Conner Creek	Alteration in stream-side or littoral vegetative covers	Grazing in riparian or shoreline zones
		Alteration in stream-side or littoral vegetative covers	Municipal (urbanized high density area)
		Sedimentation/siltation	Site clearance (land development or redevelopment)

Attachment 1
Question 2.A

Knox County Waters from 2022 303(d) List

Tier 3 includes those streams where discharges from Knox County's MS4 are NOT considered a source of pollutant(s). Water quality in these waterbodies are addressed by the County's stormwater management ordinance, general public education/outreach efforts and by other County stormwater program activities (e.g., illicit discharge enforcement), but the County's stormwater management resources are typically not highly focused on these streams

Tier 3 Streams			
ID 305B Waterbody ID	Waterbody Name	Impairment Cause Name	Potential Impairment Source Name
TN06010104001_0500	Roseberry Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones On-site treatment systems (septic systems and similar decentralized systems)
TN06010104019_0100	Little Flat Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
TN06010104019_1000	Flat Creek	Escherichia coli (e. Coli) Phosphorus, total Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones Municipal point source discharges Sanitary sewer overflows (collection system failures)
TN06010107039_1000	Tuckahoe Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
TN06010201026_0100	Roddy Branch	Physical substrate habitat alterations Alteration in stream-side or littoral vegetative covers Escherichia coli (e. Coli) Sedimentation/siltation	Channelization Grazing in riparian or shoreline zones
TN06010201066_0400	Grandview Branch	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
TN06010201066_1000	Stock Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
TN06010201066_1200	Gunn Hollow Branch	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
TN06010201066_2000	Stock Creek	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones
TN06010207011_0210	Mill Branch	Escherichia coli (e. Coli)	Grazing in riparian or shoreline zones

TMDLs and HUC-8 Boundaries in Knox County

Lower Clinch - 0601020

2006 TMDL for Siltation/Habitat Alteration

- 06010207004_0100 Grable Branch
- 06010207011_0500 Hines Branch
- 06010207011_0600 Knob Fork
- 06010207011_0700 Grassy Creek
- 06010207011_0800 Meadow Creek
- 06010207011_1000 Beaver Creek
- 06010207011_2000 & 3000 Beaver Creek
- 06010207014_0100 Williams Branch
- 06010207014_0110 Foster Branch
- 06010207014_1000 Bullrun Creek

2010 TMDL for PCB's and Clordane

- TN06010207006-1000 Melton Hill Reservoir

Watts Bar/Fort Loudoun Lake - 06010201026

2006 TMDL for Siltation/Habitat Alteration

- 06010201026_0100 Roddy Branch
- 06010201066_0100 Casteel Branch
- 06010201066_0500 McCall Branch
- 06010201066_1000 Stock Creek
- 06010201067_1000 Third Creek
- 06010201080-0100 Whites Creek

2010 TMDL for PCB's and Clordane

- TN06010201020_1000 Fort Loudoun Reservoir
- TN06010201020_2000 Fort Loudoun Reservoir

2017 TMDL for E. coli

- 06010201026_0100 Roddy Branch
- TN06010201066_0400 Grandview Branch
- TN06010201066_0600 High Bluff Branch
- TN06010201066_1000 Stock Creek
- TN06010201066_1200 Gunn Hollow Branch
- TN06010201066_2000 Stock Creek
- TN06010201080_0100 White's Creek
- TN060102011330_1000 Sinking Creek
- TN060102011334_0100 Ten Mile Creek
- TN06010201340_1000 Turkey Creek
- TN06010201697_1000 Fourth Creek
- TN06010201723_1000 Goose Creek

2017 TMDL for E. coli

- TN06010207011_0200 Willow Fork
- TN06010207011_0500 Hines Branch
- TN06010207011_0600 Knob Fork
- TN06010207011_0700 Grassy Creek
- TN06010207011_0800 Meadow Creek
- TN06010207011_0900 Plumb Creek
- TN06010207011_1000 Beaver Creek
- TN06010207011_2000 Beaver Creek
- TN06010207011_3000 Beaver Creek
- TN06010207014_1000 Bullrun Creek
- TN06010207014_2000 Bullrun Creek

Holston 06010104

Holston- 06010104

- 2018 TMDL for E. coli
- TN06010104001_0100 Love Creek
- TN06010104001_0500 Roseberry Creek
- TN06010104001_1400 Swanpond Creek
- TN06010104019_0100 Little Flat Creek
- TN06010104019_1000 Flat Creek

Lower French Broad 06010107

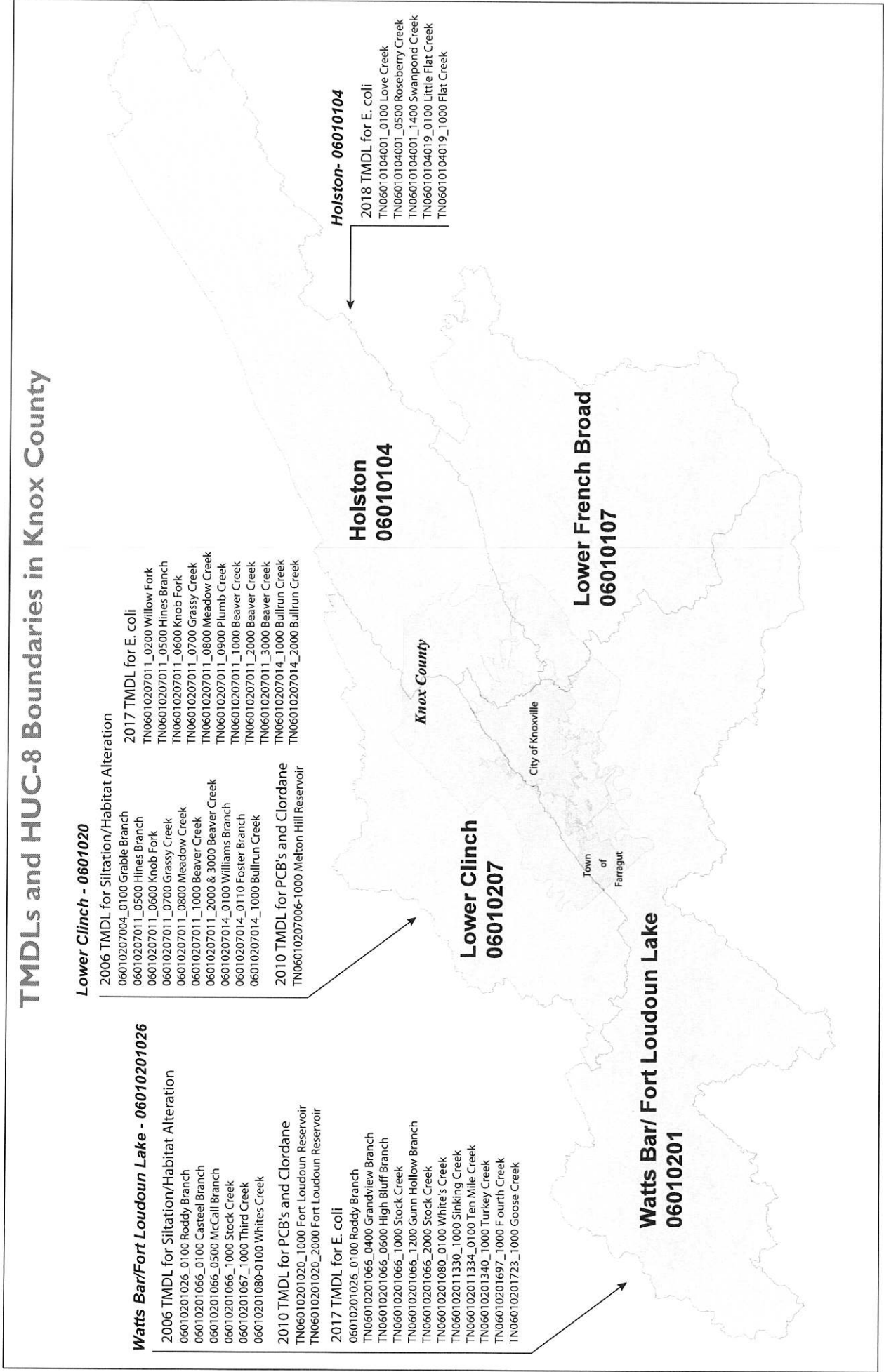
Lower Clinch 06010207

Watts Bar/ Fort Loudoun Lake 06010201

Knox County

City of Knoxville

Town of Farragut



Attachment 3
Question 2C.
Exceptional Tennessee Waters in Knox County

Waterbody Name	Start and End points	Designation	Basis for Inclusion
Exceptional Tennessee Waters (ETW)			
Brice Branch Unnamed Tributaries	Portion in House Mountain SNA	Exceptional Tennessee Water	House Mountain State Natural Area
Clinch River	From Melton Hill Dam to Pellissippi Parkway	Exceptional Tennessee Water	State Scenic River (Class III Developed River Area)
Flat Creek Unnamed Tributary	Portion in House Mountain SNA	Exceptional Tennessee Water	House Mountain State Natural Area
French Broad River	From Holston River to Douglas Dam	Exceptional Tennessee Water	Endangered Species
Hogskin Branch	Portion in House Mountain SNA	Exceptional Tennessee Water	House Mountain State Natural Area
Holston River	From confluence with French Broad to McBee Island	Exceptional Tennessee Water	Endangered Species
Tuckahoe Creek	In its entirety	Exceptional Tennessee Water	State Scenic River (Class III Developed River Area)
Turkey Creek	From Fort Loudon Lake to Hwy 11	Exceptional Tennessee Water	Endangered Species

Knox County Education/Outreach & Public Participation, 7/1/21-6/30/22

Action Date	Event/Outreach/ Education	# Students	# General public	# Eng/ contractors	# Staff	lbs of trash/debris	Comments
09/08/2021	South Doyle Middle School Classroom Lesson	16.00					Worked with 8th grade class- collected macros
09/30/2021	Fall 2021 Strong Streams Newsletter		136.00				# people who opened newsletter, 30.6% open rate
10/09/2021	Craft Fair at Marble Springs (old John Sevier Days)		100.00				Macro sample, Sediment Survival game, bug craft, info booth
10/15/2021	Adopt-A-Stream Clean-Up - Gresham Smith		8.00			160	Plus a kiddy pool and lots of car parts
10/16/2021	Apple Festival		65.00				Info booth, kid craft, native plant raffle
10/22/2021	Dogwood Elementary- 1st grade field trip	90.00					
10/23/2021	Adopt-A-Stream Clean-Up - Knoxville Gay Men's Chorus		5.00			200	Plus several tires, pallets, and shopping cart
11/02/2021	SCD Kids Poster Contest	10.00					
11/03/2021	Adopt-A-Stream Clean-Up - Asset Planning Corp		7.00			200.00	Plus 3 shopping carts + some traffic cones
11/04/2021	Knox County Construction Services Newsletter- Fall			198.00			198 opened out of 801 recipients (85 bounced back)
11/06/2021	Adopt-A-Stream Clean-Up - Beaver Creek Kayak Club		8.00			135.00	Plus a car bumper
11/08/2021	Dogwood UW Club 4/5th graders	23.00					EnviroScope & watershed discussion
11/10/2021	Dogwood UW Club 3rd graders	15.00					EnviroScope & watershed discussion
11/14/2021	Adopt-A-Stream Clean-Up - Sacred Heart 6th graders		12.00			210.00	Plus 3 pallets and some tires
11/16/2021	Adopt-A-Stream Clean-Up - Elavon		17.00			320.00	Plus gutter pieces and 2 carts
11/20/2021	Adopt-A-Stream Clean-Up - Knoxville Ski & Outing Club		16.00			180.00	Plus a shopping cart
12/01/2021	Watershed Club at Powell Middle School	17.00					Activity on groundwater contamination & watersheds
12/14/2021	South Doyle Middle School Classroom Lesson	12.00					Macros, pH, and Dissolved Oxygen
12/15/2021	Solid Waste Staff PPGH Training				29.00		
12/17/2021	Fall Instagram posts (aug-dec)		142.00				Number of likes from Aug-Dec
12/18/2021	Nourish Knox Farmers Market		50.00				Information passed out at children's booth
12/21/2021	Fall Facebook Posts (aug-dec)		1307.00				Post engagements from Aug-Dec
12/31/2021	Winter 2021 Strong Streams Newsletter		169.00				# people who opened newsletter, 37.6% open rate
01/12/2022	Watershed Club at Powell Middle School	16.00					Macro adaptations & indicators of water quality
01/20/2022	UT Grounds Management Short Course		130.00				Presentation on grounds management BMPs
01/24/2022	Mooreland Heights Elementary 4th grade	47.00					EnviroScope & Sediment Survival
02/07/2022	South Doyle Middle School Classroom Lesson	20.00					Macros
02/08/2022	South Doyle Middle School Classroom Lesson	17.00					Chemical tests
02/09/2022	South Doyle Middle School Classroom Lesson	24.00					Pollution
02/11/2022	Dogwood Arts House and Garden Show		400.00				
03/04/2022	South Doyle Middle School Invasive Species Removal	24.00					Weight of green waste removed calculated by Living Earth scale
03/08/2022	Data Visualization (Monitoring) Presentation to Bearden Middle School	15.00					Zoom lesson with Quinn

Action Date	Event/Outreach/ Education	# Students	# General public	# Eng/ contractors	# Staff	lbs of trash/debris	Comments
03/10/2022	Corryton Elementary STEAM Day						
	Ijams River Rescue Site		8.00			800.00	Plus bulky items (tires, car parts, buckets, etc.)
03/19/2022	TN Tree Day		80.00				People who picked up trees, 10 people took Rain Garden brochures
03/20/2022	AAS Beaver Creek kayak Club		37.00			200.00	Plus some bulky items
03/22/2022	Grace Christain Academy	108.00					EnviroScape & Sediment survival- 2nd & 3rd graders
03/28/2022		15.00					Sediment Survival Game
03/29/2022	South Doyle Middle School Riparian Buffer Planting	20.00					Planted 27 saplings w/ two classes
04/08/2022	Spring 2022 Strong Streams Newsletter		195.00				# people who opened newsletter, 41.1% open rate
04/12/2022	SMRCD Regional Envirothon	45.00					
04/22/2022	South Doyle Lesson	28.00					Chemical Testing
04/26/2022	AAS Elavon & US Bank		6.00			200.00	Plus some bulky items
04/30/2022	Baker Creek BioBlitz		30.00				Macros
05/02/2022	South Doyle Middle School Classroom Lesson	20.00					Teachers and chaperones make up general public conversations, brochures taken, newsletter signups
05/10/2022	WaterFest	659.00	219.00				Plus some bulky items
05/14/2022	Beaver Creek Flotilla		60.00				~10,000 lbs sediment/trash removed
05/15/2022	KSOC AAS Clean-Up				23.00	60.00	# people who pined newsletter, 37.6% open rate
05/19/2022	Annual EPW Clean Up						165lbs + metal pipe, bucket, etc.
06/01/2022	Summer 2022 E-Newsletter		186.00			180.00	
06/10/2022	Ensafe AAS Clean-Up		9.00				
	Cheers to Clean Water TN River Paddle-Off + Cleanup		90.00			200.00	
06/11/2022							
06/16/2022	Nourish Knox Farmers Market Kids' Booth		133.00				93 kids, ~40 adults
6/25/2022	Rain Barrel Truckload Sale		24.00				42 barrels sold in Knox County
6/29-6/29/2022	PPGH training				72.00		
06/30/2022	Spring Facebook posts (Jan-Jun)		687.00				Post engagements from Jan-Jun
06/30/2022	Spring Instagram Posts (Jan-Jun)		741.00				Post reach from Jan-Jun
7/1/21-6/30/22	Targeted illicit discharge mailings		42.00				
7/1/21-6/30/22	Library Brochures Distributed		381.00				# of brochures taken at County libraries
Totals:		1451	5500	198	124	3205	Total AAS Trash: 2,045lbs

Attachment 5

NPDES Small MS4 Permit for Knox County

Annual Assessment: Milestone Year 6 (July 1, 2021-June 30, 2022)

This is the annual assessment of the Stormwater Management Plan, NOI, and policy/procedures for Milestone Year 6 by Knox County EPW. This exercise is required by permit section 4.4.1. Comments are listed below the applicable BMP. If a BMP is not listed, then staff considered the activity on track or completed. The permit also requires a plan and schedule to address the modifications and improvements identified by the assessment. Targets for completion of each modification or improvement is noted.

Public Education and Public Participation

1B: Knox County will create a Public Information and Education (PIE) Plan that details specific goals and specific public information events and activities that will occur over the permit cycle as per permit requirements.

- Knox County did not participate in two events that were listed in the PIE plan, the Halls Outdoor Classroom and the Bonnie Kate Fun Night, due to staffing constraints. However, Knox County did participate in events not listed in the PIE Plan as listed in Attachment 4.

1C: Knox County will continue with social media and website efforts: Facebook and Twitter dialogue, Facebook videos, Knox County Stormwater website updates, and a quarterly E-Newsletter. Knox County will develop a YouTube account to upload informational & "How-To" videos.

- Knox County has prioritized Facebook and Instagram for our social media efforts as we have found that those platforms engage more of our target audience.

Permanent Stormwater Management Program

4B: KC will submit an implementation plan within 90 days of January 1, 2018 (or later date if notified by TDEC).

- This action was pending a new implementation plan deadline from TDEC and will be implemented within the timeline set forth in permit TNS000000.

4C: KC will continue to operate and enforce, in accordance with the current stormwater program, the ordinance adopted January 2008, which addresses permanent stormwater management from new development and re-development projects that disturb one or more acres, or add more than 10,000 sf of imperviousness. In 2016, KC accepted the extension to permanent stormwater provisions of the 2010 NPDES small MS4 permit and therefore did not modify the program or ordinance under the 2010 permit. The program will be modified, through ordinance revisions, as necessary to meet the Program Requirements, Permanent Stormwater Standards, Site- Specific Limitations, and Water Quality Treatment Volume permit conditions per the implementation plan in 4B.

- This action was pending a new implementation plan deadline from TDEC and will be implemented within the timeline set forth in permit TNS000000.

4F: KC will research, develop, and implement an SCM owner/operator inspection program that meets the permit requirements.

- This BMP has not been implemented. This action was pending a new implementation plan deadline from TDEC and will be implemented within the timeline set forth in permit TNS000000.

Monitoring

Knox County changed its monitoring methodology for Visual Stream Assessments in the Flat Creek Watershed as referenced in section 10 B of the report. The change was made to monitor MS4 outfalls more efficiently in this rural/agricultural watershed. These changes were approved by the Division before the monitoring was conducted.

Attachment 6 Page 1 of 3
Geometric Mean of E. Coli

2016 303 d list	Station ID	Fall 2016 Geometric Mean 5 samples in 30 days	Recreation Criteria (Coliform)
impaired	BULLR007.2AN	79	meets standard
unassessed	CONNE000.1KN	493	impaired
unassessed	CONNE001.7KN	1608	impaired
Supporting	COX000.2KN	70	meets standard
impaired	FLAT000.4KN	210	impaired
impaired	HOGSK000.1KN	332	impaired
impaired	LFLAT000.3KN	327	impaired
impaired	LFLAT005.9KN	1673	impaired
impaired	ROSEB000.6KN	672	impaired
impaired	ROSEB002.4KN	1093	impaired
impaired	ROSEB006.2KN	924	impaired
impaired	STOCK002.0KN	158	impaired
impaired	WHITE000.1KN	356	impaired
impaired	WHITE003.2T000.3KN	693	impaired
impaired	WHITE003.5KN	408	impaired

2017 303 d list	Station ID	Fall 2017 Geometric Mean 5 samples in 30 days	Recreation Criteria (Coliform)
impaired	FLAT000.4KN	135	impaired
impaired	HBLUF000.1KN	310	impaired
impaired	STOCK002.0KN	198	impaired
impaired	TMILE000.3KN	256	impaired
impaired	SINKI000.2KN	233	impaired
unassessed	CONNE000.1KN	196	impaired
impaired	WILLO000.5KN	404	impaired
impaired	HINES000.2KN	606	impaired
impaired	KNOB000.3KN	237	impaired
impaired	MEADO000.2KN	233	impaired
impaired	PLUMB000.3KN	251	impaired
impaired	GRASS000.3KN	335	impaired

2018 303 d list	Station ID	Fall 2018 Geometric Mean 5 samples in 30 days	Recreation Criteria (Coliform)
impaired	FLAT000.4KN	250	impaired
impaired	FLAT005.6KN	381	impaired
impaired	LFLAT000.3KN	297	impaired
impaired	LFLAT005.9KN	747	impaired
impaired	BULLR016.2KN	258	impaired
impaired	BEAVE024.7KN	337	impaired
impaired	BEAVE037.0KN	1020	impaired

Attachment 6 Page 2 of 3
Geometric Mean of E. Coli

2018 303 d list (cont.)	Station ID	Fall 2018 Geometric Mean 5 samples in 30 days	Recreation Criteria (Coliform)
impaired	GOOSE000.8KN	1146	impaired
impaired	SWANP000.8KN	172	impaired
impaired	GRAND000.5	195	impaired
impaired	SINK1002.1KN	85	meets standard
Unassessed	CONNE000.1KN	212	impaired
impaired	BEAVE003.5KN	142	impaired

2019 303 d list	Station ID	Fall 2019 Geometric Mean 5 samples in 30 days	Recreation Criteria (Coliform)
impaired	BEAVE037.0KN	482	impaired
impaired	FLAT000.4KN	340	impaired
impaired	FLAT005.6KN	374	impaired
impaired	GUNN_GO.5KN	934	impaired
impaired	HOGSK000.1KN	441	impaired
impaired	LFLAT000.3KN	512	impaired
impaired	LFLAT005.9KN	823	impaired
impaired	RODDY000.6BT	420	impaired
impaired	ROSEB000.6KN	434	impaired
impaired	ROSEB002.4KN	499	impaired
impaired	ROSEB006.2KN	1249	impaired

2020 303 d list	Station ID	Fall 2020 Geometric Mean 5 samples in 30 days	Recreation Criteria (Coliform)
impaired	FLAT000.4KN	128	impaired
impaired	FLAT005.6KN	287	impaired
impaired	LFLAT000.3KN	313	impaired
impaired	LFLAT005.9KN	1038	impaired
impaired	TURKE004.5KN	237	impaired
meets standard	HICKO003.4KN	119	meets standard
impaired	BEAVE003.5KN	108	meets standard
impaired	BEAVE036.7KN	269	impaired
impaired	BEAVE037.0KN	291	impaired

2021 303 d list	Station ID	Geometric Mean of 5 samples in 30 days E. coli (MPN/100ml)	Recreation Criteria for Coliform
impaired	ROSEB000.6KN	411	impaired
impaired	ROSEB002.4KN	455	impaired
impaired	ROSEB006.2KN	545	impaired
impaired	HOGSK000.1KN ^a	379	impaired
impaired	FLAT000.4KN	255	impaired

Attachment 6 Page 3 of 3
 Geometric Mean of E. Coli

2021 303 d list (cont.)	Station ID	Geometric Mean of 5 samples in 30 days E. coli (MPN/100ml)	Recreation Criteria for Coliform
impaired	FLAT005.6KN	261	impaired
impaired	LFLAT000.3KN	190	impaired
impaired	LFLAT005.9KN	748	impaired
impaired	TURKE004.7KN ^b	171	impaired
impaired	TURKE004.9KN ^c	237	impaired
impaired	TURKE005.0KN ^d	960	impaired

^aHogskin Branch at confluence of Roseberry Creek

^bLocation 35.907588; -84.14927856

^cLocation 35.90853741; -84.15042262

^dLocation 35.91045963; -84.14986387