From: Sarah Rowe
To: Ann Morbitt
Cc: Chris Broom
Subject: [EXTERNAL] City of Cleveland MS4 Proposed Option 2 Monitoring Plan
Date: Friday, March 8, 2024 9:19:38 AM
Attachments: image001.png
Cleveland MS4 Option 2 Monitoring Plan_20240307.pdf

Good morning, Ann – On behalf of the City of Cleveland Stormwater Division, S&ME is submitting the attached Monitoring Plan for your consideration under Option 2 of the City's MS4 Phase II permit (TNS075213). With TDEC's approval of the methods proposed in the plan, the City will prepare to initiate the monitoring in order to maintain their MS4 permit compliance. Please contact me with any questions or comments.

Thanks and have a nice weekend,

Sarah A. Rowe, PWS, QHP
Project Scientist

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Proposed Option 2 Stream Monitoring Plan
City of Cleveland MS4
Cleveland Bradley County, Tennessee
S&ME Project No. 23430481

PREPARED FOR:

City of Cleveland
Stormwater Division
185 2nd Street N.E.
Cleveland, Tennessee 37311

PREPARED BY:

S&ME, Inc.
6515 Nightingale Lane
Knoxville, Tennessee 37909

March 7, 2024

March 7, 2024

Tennessee Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass – Tennessee Tower
312 Rosa L. Parks Ave, 11th Floor
Nashville, Tennessee 37243

Attention: Ms. Ann Morbitt

Reference: **City of Cleveland MS4 Phase II Permit Compliance**
Proposed Option 2 Stream Monitoring Plan
Cleveland, Bradley County, Tennessee
S&ME Project No. 23430481

Dear Ms. Morbitt:

On behalf of the City of Cleveland (the City), S&ME, Inc. (S&ME) is submitting this Proposed Option 2 Stream Monitoring Plan (the Plan) in support of the City's Phase II Municipal Separate Storm Sewer System (MS4) permit compliance efforts. This Plan outlines our understanding of the project, the planned scope of monitoring services, and the schedule for performing the work. At the City's request, S&ME requests that Tennessee Department of Environment and Conservation (TDEC) review the Plan and provide comments prior to the City's initiating the monitoring described herein.

Thank you for your assistance with this project. Do not hesitate to contact us if you have questions or need further information related to the proposed Plan.

Sincerely,

S&ME, Inc.

Sarah A. Rowe, PWS, QHP
Project Biologist

Josh P. Rowe, QHP
Project Biologist

Senior reviewed by Liz Porter, PG, PMP.

cc: Mr. Chris Broom, City of Cleveland Stormwater Coordinator

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1.0 Project Information

The City of Cleveland (City) operates a regulated small Municipal Separate Storm Sewer System (MS4) and is obligated to satisfy certain water quality requirements of the Clean Water Act (CWA). The City is also recognized by the Tennessee Department of Environment and Conservation (TDEC) as a Qualifying Local Program (QLP) that meets or exceeds the provisions of its own construction general permit (CGP). Therefore, developers of proposed construction activity located within the City's jurisdiction follow the municipality's requirements for stormwater management under a CGP.

The City renewed the MS4 Phase II permit (TNS075213) in December 2022, which required the City to perform analytical and non-analytical monitoring under Option 1 of the permit; the new permit is valid from January 1, 2023 to 2027. As an alternative, the City proposes to develop a jurisdiction-specific monitoring plan (Plan) instead of the Option 1 requirements of the permit (subpart 4.6.1.1.1), which must be designed to meet objectives outlined in the permit, including:

a) Measure the effectiveness of the permittee's Stormwater Management Program;
b) Evaluate stormwater impacts to the receiving waters;
c) Identify sources of specific pollutants, including nutrients, pathogens, siltation or other parameters related to stormwater runoff from urbanized areas;
d) Gather data to inform program decisions and prioritization of future activities related to the protection of water quality;
e) Utilize division protocols for instream monitoring or alternative protocols for division approval; and
f) Include any monitoring required by a Total Maximum Daily Load (TMDL) that is applicable to MS4 jurisdictions.

The following details the proposed Option 2 Plan and its objectives. The City requests TDEC approval of the Option 2 Plan as an alternative to the current Option 1, which will replace the City's TMDL Monitoring Plan January 1, 2023 to 2027 included in the current Stormwater Management Plan (SWMP), dated January 2024. A copy of the current SWMP is included in the Attachments.

2.0 Alternative Plan Justification

The City wishes to pursue Option 2 to streamline the required monitoring and obtain more practical data to supplement their MS4 plan and goals.

Option 1 currently requires the following:

1. **Biological Sampling:** For stream segments identified by TDEC as waters with unavailable parameters for siltation and/or nutrients, biological stream sampling and habitat assessment must be performed utilizing the TDEC Semi-Quantitative Single Habitat (SQSH) method. At least one sample per stream segment must be collected, with all segments within the MS4 jurisdiction sampled in a five-year period.
2. ***Escherichia coli (E. coli)* Sampling:** For stream segments identified by TDEC as waters with unavailable parameters for pathogens, bacteriological stream sampling must be performed. Monitoring shall include the

collection of five samples within a 30-day period (to establish a geometric mean) and be performed during the summer. At least one series of five samples per stream segment must be collected, with all segments within the MS4 jurisdiction sampled in a five-year period.

3. **Visual Stream Assessment (VSA)**: VSA surveys and unavailable parameter inventories must be performed on each stream segment within the MS4 jurisdiction with unavailable parameters for siltation, pathogens, and nutrients to identify and prioritize sources of these pollutants of concern. At a minimum, a visual stream survey must be performed immediately upstream and downstream of each MS4 outfall that discharges into that stream segment. All stream segments with unavailable parameters in the permitted jurisdiction must be surveyed once every five-year period.

Option 2 proposes the following:

The Option 2 Plan will include monitoring similar to the Option 1 list above; however, macroinvertebrate sampling (Item 1) will be reduced to monitor streams only with unavailable parameters for nutrients and will not include streams listed for siltation. This method was permitted by TDEC prior to the MS4 permit renewal under the City's designation as a QLP in the QLP pilot program. The City currently has a robust construction stormwater program because being a QLP allows the City to manage construction stormwater on a local level and oversee activities that have potential to increase siltation within streams in the City's jurisdiction.

Option 2 will allow the City to focus monitoring efforts on urbanized areas and MS4-related stormwater impacts (i.e., nutrients from sewage, fertilizers, waste materials) instead of physical alterations caused by construction and agriculture activities (i.e., buffer removal, erosion, unauthorized stream impacts). Physical alterations from prior urban development within the MS4 have already negatively impacted the macroinvertebrate community, and continued monitoring of these areas is unlikely to provide useful information unless a significant restoration project occurs within that stream's watershed. Funds saved by reducing the number of macroinvertebrate sampling locations to streams with nutrient impairments (which can be more easily addressed with BMPs) will be applied towards the proposed expanded VSA (described below).

Option 2 will also include an expanded VSA that will provide additional data for future stormwater program efforts and prioritize stream impairment sources. The VSA will be performed on stream segments with unavailable parameters for siltation, pathogens, and nutrients as opposed to the minimum requirements of performing the VSA only upstream and downstream of each MS4 outfall as listed in Option 1. The VSA will document adverse physical alterations and point sources of pollution within the MS4 so that these issues can be addressed by the City and current BMPs can be evaluated for their effectiveness.

Sampling for *E. coli* monitoring (Item 2) under Option 2 will remain the same. *E. coli* sampling will be performed on stream segments identified by TDEC as waters with unavailable parameters for pathogens.

3.0 Identification of Pollutants of Concern

Eight named streams are located within the City's MS4 boundaries, which includes six stream segments listed on Tennessee's Final 2022 List of Impaired and Threatened Waters (finalized by the Environmental Protection Agency (EPA) on April 22, 2022) and also known as the 303(d) list. Candies Creek was delisted by TDEC in 2022 because of improvements in the biological and pathogen survey scores; Lick Branch has not been assessed by TDEC. Streams

located within the City's MS4 limits are shown in Table 1 and Figure 1; shaded cells in Table 1 indicate streams listed as impaired on the 303(d) list.

Table 1 –Streams Within MS4 Limits

Stream Segments	Waterbody ID	Impairment	Pollutant Source
Bigsby Creek	TN06020002005_0800	Sedimentation/Siltation, Habitat Alteration	Grazing in Riparian Zones
Candies Creek	TN06020002005_2000	Delisted within City MS4 limits in 2022	Not Applicable
Fillauer Branch	TN06020002009_0200	Sedimentation/Siltation, Habitat Alteration, *E. coli*	Sanitary Sewer Overflows, Municipal
Lick Branch	TN06020002005_0700	Not Assessed	Not Applicable
Little Chatata Creek	TN06020002012_0200	Sedimentation/Siltation, Habitat Alteration, *E. coli*	Sanitary Sewer Overflows, Municipal, Animal Feeding Operations, Grazing in Riparian Zones
South Mouse Creek	TN06020002009_2000	Sedimentation/Siltation, Habitat Alteration, *E. coli*	Channelization, Sanitary Sewer Overflows, Municipal
Spring Branch	TN06020002005_0410	Cause Unknown	Site Clearance (Land Development or Redevelopment)
Woolen Mill Branch	TN06020002009_0300	Habitat Alteration, *E. coli*, Nutrients	Sanitary Sewer Overflows, Municipal, Industrial/Commercial Stormwater Discharges

4.0 Monitoring Plan Details and Protocols

Biological Stream Monitoring

As an alternative to Option 1, the City will perform biological sampling on only the nutrient-impaired stream within their jurisdiction as performed in 2020 under the prior Phase II permit: Woolen Mill Branch (as was permitted previously because the City is a QLP). Sources of anthropogenic nutrient pollution in streams include urban stormwater runoff (e.g., fertilizers, leaves, and pet wastes); municipal wastewater discharges; industrial wastewater discharges; and concentrated animal feeding operations. Therefore, biological sampling on Woolen Mill Branch will assist the City in monitoring the effectiveness of stormwater controls and permits within this watershed.

Biological stream sampling and habitat assessment will be performed utilizing the TDEC SQSH method at one location in a five-year period. The macroinvertebrate survey will be conducted in accordance with the *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish—Second Edition* (RBP) (Barbour et. al, 1999), and TDEC's *Quality System Standard Operating Procedure*

(QSSOP) *for Macroinvertebrate Stream Surveys, Effective Date: December 28, 2021*. The sampling will be outsourced by the City and performed by a qualified biologist, utilizing the SQSH Sample Method described in Protocol G of the QSSOP. Since the sample location is located in Ecoregion 67g (Southern Shale Valleys), the samples will be collected using the Semi-quantitative Riffle Kick (SQKICK) or Modified SQKICK method as follows:

1. A sample will be collected from the location shown on Figures 1 and 2. If the location is not accessible or is inappropriate quality for sampling, a nearby location will be chosen within the same reach with similar habitat conditions and the location will be recorded with a Global Positioning System (GPS) or similar equipment on the data sheets and map.
2. The following information will be recorded at each station immediately prior to the biological sampling:

Water temperature (ºC)	pH (S.U.)
Dissolved oxygen (mg/l)	Conductivity (µmhos)

3. The sampling will be performed using SQKICK. A one square meter kick net with a 500-micron mesh will be placed downstream from a riffle where two kicks will be performed. If the stream is less than one-meter wide, the Modified SQKICK method will be applied, using an 18-inch-wide, single-handle, rectangular net and by performing four single kicks (or additional kicks until a sufficient sample is collected). A composite sample of debris from both kicks will be collected and preserved with ethanol.
4. The preserved composite sample will be sent to a qualified laboratory for sorting and identification. The lab will reduce the samples to a 200 +/- 20 percent organisms subsample by using a gridded pick subsampler and collecting the organisms from at least four randomly selected grid cells, as described in section 7.3 *Laboratory Processing for Macroinvertebrate Samples* in EPA's *RBP*.
5. Organisms will be identified to the genus level. Using the raw benthic data from the semi-quantitative subsample identification, the laboratory will calculate a numerical value for each of the following seven biometrics listed in Protocol K of the QSSOP and will provide them in a Microsoft Excel table:
    - TR (Taxa Richness)
    - EPT (Ephemeroptera Plecoptera Trichoptera Richness)
    - % EPT - Cheum (EPT Abundance excluding *Cheumatopsyche* spp.)
    - % OC (Percent Oligochaetes and Chironomids)
    - NCBImod (Modified North Carolina Biotic Index)
    - % Clingers - CHEUM (Percent contribution of organisms that build fixed retreats or have adaptations to attach to surfaces in flowing water excluding Cheumatopsyche spp.)
    - %TNUTOL (Percent Tennessee Nutrient Tolerant Organisms)
6. According to the QSSOP, a Stream Survey Field Sheet and Habitat Assessment are required for each sample location. The High Gradient Habitat Assessment Field Sheet found in Appendix B of the TDEC QSSOP will be used in conjunction with the riffle kick collections. The parameters will be scored on a 0 to 20 scale, with a maximum of 200 points. The scores are divided into four categories: Optimal, Suboptimal, Marginal, and Poor. The resulting scores from the Habitat Assessment Field Sheets and a brief description of each parameter will be included in the final report.

The habitat assessment will include an evaluation of the following parameters:

1. Epifaunal Substrate / Available Cover
2. Embeddedness
3. Velocity/Depth Regimes
4. Sediment Deposition
5. Channel Flow Status
6. Channel Alteration
7. Frequency of Riffles or Bends
8. Bank Stability
9. Bank Vegetative Protection
10. Riparian Vegetative Zone Width

The results from the sampling and laboratory analysis will be populated in TDEC's excel spreadsheets (i.e., Macroinvertebrate Taxa Report, Stream Survey, Habitat Assessment) in accordance with the QSSOP and submitted to TDEC electronically for Quality Assurance/Quality Control (QA/QC).

E. coli Monitoring

E. coli sampling will be performed on the pathogen/*E. coli* impaired streams within the City's jurisdiction: Fillauer Branch, Little Chatata Creek, South Mouse Creek, and Woolen Mill Branch. Point sources of *E. coli* include MS4 and wastewater treatment facility outfalls, industrial stormwater, and concentrated animal feeding operations (CAFOs). Non-point sources include failing septic systems, livestock wastes, and urban development. Sampling at multiple locations throughout the MS4 on streams impaired by *E. coli* will assist the City in identifying point sources for pathogens and areas of concerns. These sites will be monitored to evaluate the effectiveness of stormwater controls implemented by existing and new NPDES permit-holders within this watershed.

The City will either use trained in-house staff or outsource the *E. coli* sampling. Sampling will be performed at three sites on Fillauer Branch, one on Little Chatata Creek, three on South Mouse Creek, and one on Woolen Mill Branch at the locations shown on Figures 1 and 2. If a location is not accessible or is inappropriate quality for sampling, a nearby location will be chosen within the same reach with similar habitat conditions and the location will be recorded with a GPS or similar equipment. The TDEC *QSSOP for Chemical and Bacteriological Sampling of Surface Water* (TDEC, August 29, 2018) will be followed for sample collection, and additional field parameters including pH, dissolved oxygen (DO), specific conductivity, and temperature will also be collected during sampling. The water samples will be submitted under chain-of-custody to Analytical Laboratories of Cleveland for analysis within the appropriate hold time.

The geometric mean sampling method will be used, which includes collection of five consecutive samples during any 30-day period within the growing season. As recommended in the QSSOP, sampling will be performed between March and November, samples will be collected at least 24 hours apart, and rain events will be avoided. The results from the sampling and laboratory analysis will be populated in TDEC's excel spreadsheets in accordance with the QSSOP and submitted to TDEC electronically for QA/QC.

VSA

The VSA will be performed using the Stream Corridor Assessment (SCA) Survey Protocols published by the Watershed Restoration Division of the Maryland Department of Natural Resources, September 2001 on stream segments with unavailable parameters for siltation, pathogens, and/or nutrients within the City's jurisdiction: Bigsby Creek, Fillauer Branch, Little Chatata Creek, South Mouse Creek, Spring Branch, and Woolen Mill Branch.

The VSA will include the following survey elements:

- channel alteration,
- erosion sites,
- exposed pipes,
- pipe outfalls,
- tributaries
- fish barriers,
- inadequate buffer,
- in/near stream construction,
- trash dumping,
- unusual condition or comment, and
- representative site (documentation of the in-stream habitat and the condition of the adjacent stream corridor, approximately every 0.25 miles for urban streams).

The VSA will likely be outsourced by the City and be performed by qualified personnel during low-flow conditions at least once within the five-year period of permit coverage. The crews will be equipped with a GPS data logger and field book for recording information not collectable through the data logger; field crew personnel will have been trained in the use of the SCA and the field equipment.

A report will be prepared that consists of a brief description of the areas surveyed, a map showing these locations, photographs, and a GIS database download of information collected during the VSA/outfall locating. The report will provide the City with an efficient means of locating areas of concern and potential restoration reaches.

5.0 Records Requirements

The monitoring plan will be considered part of the City's SWMP (Attachments). The City will retain records of the monitoring information, including policies, procedures, forms, checklists, correspondence, records, and reports required by the Phase II permit for a period of at least three years. Records of monitoring information will include:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date analyses were performed;
- The individual(s) who performed the analyses;
- The laboratory where the analyses were performed;
- The analytical techniques or methods used; and
- The results of such analyses.

6.0 Evaluation of Stormwater Impacts to Receiving Waters

The proposed monitoring approach will provide a detailed assessment of the activities within the MS4's watershed by tracking new outfalls and point sources of pollution observed during the VSA. The results of the biological and *E. coli* monitoring will also be compared every permit cycle (i.e., five years) to determine the success or weaknesses of the MS4 program. The City will conduct an annual evaluation of the Stormwater Management Program to evaluate compliance with the terms and conditions of the permit, including the effectiveness of the Best Management Practices (BMPs), components, or controls of its Stormwater Management Program, and the status of achieving the measurable requirements in the permit.

7.0 Future Program Decisions and Prioritization

Biological and *E. coli* sampling results will be compared to previously collected data, and if the macroinvertebrate TMI scores begin trending downward and/or the *E. coli* levels trend upward, the City will evaluate the current BMPs within that stream's watershed. Further assessment may be warranted if the BMPs appear to be insufficient for the amount of pollution input from the surrounding watershed, especially if new point sources or development density and subsequent pollution volumes increase. If failing or faulty septic systems or sanitary sewer systems are located, the City will notify the respective property owner or Cleveland Utilities so that the source can be addressed.

Results of the VSA will be used to evaluate stormwater impacts on receiving streams and identify point sources for pollution that may be addressed. During the VSA, impaired areas (e.g., excessive erosion, lack of riparian vegetation, degraded banks) will also be documented and can be used by the City to identify potential opportunities for restoration and enhancement along streams within the City's jurisdiction. The results of the monitoring proposed herein and responses will be documented in subsequent annual reports.

8.0 Conclusion

S&ME appreciates the opportunity to submit this MS4 Phase II monitoring plan on behalf of the City. With TDEC's approval of the plan, the City will prepare to implement the plan to maintain MS4 permit compliance. If you have any questions or comments regarding the outlined scope of work, please contact Sarah Rowe at srowe@smeinc.com or by phone at (865)970-0003.

9.0 References

City of Cleveland, Tennessee, Stormwater Division. January 2024. City of Cleveland Stormwater Management Plan.

City of Cleveland, Tennessee Stormwater Division. January 1, 2023 to 2027. MS4 Phase II Stormwater Program, TMDL Monitoring Plan.

TDEC Division of Water Resources (DWR). August 29, 2018. Quality System Standard Operating Procedure for Chemical and Bacteriological Sampling of Surface Water. Division of Water Resources. Nashville, Tennessee.

TDEC DWR. December 28, 2021. Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys. Division of Water Resources. Revision 7. Nashville, Tennessee.

TDEC Division of Water Resources Public Data Viewer. Online at https://tdeconline.tn.gov/dwr/index.html?center=-84.8797,35.1702,4326&level=16. Accessed January 2024.

TDEC NPDES Stormwater Permitting Program website, online at https://www.tn.gov/environment/permit-permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program.html. Accessed January 2024.

TDEC. April 22, 2022. 2022 List of Impaired and Threatened Waters in Tennessee.

TDEC. September 1, 2022. TDEC NPDES from Small MS4s, Permit Number TNS000000.

U.S. Geological Survey (USGS). 2019. The StreamStats program, online at https://streamstats.usgs.gov/ss/. Accessed January 2024.

Figures

Service Layer Credits: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 1 2 Miles

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SMOUS008.8BR (B1)

SMOUS011.5BR (B2)

LCHAT004.0BR (C1)

FILLA001.2BR (B3)

FILLA1.1T0.3BR (B4)

FILLA1.1T0.1T0.1BR (B5)

WMILL000.8BR (B6)

SMOUS016.2BR (B7)

CANDI024.1BR

Bigsby Creek

Candies Creek

Misc. tribs to Candies Creek

South Mouse Creek

Fillauer Creek

Little Chatata Creek

Woolen Mill Branch

Spring Branch

Runnel Branch

Cleveland

CITY OF CLEVELAND MS4 LIMITS

BIOLOGICAL AND E. COLI SAMPLING SITE

E. COLI SAMPLING SITE

TDEC LISTED STREAMS

ATTAINMENT

FULLY SUPPORTING

NOT ASSESSED

NOT SUPPORTING (VSA STREAMS)

REFERENCE: GIS BASE LAYERS WERE OBTAINED FROM ESRI ARCGIS ONLINE. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

PROPOSED MONITORING LOCATION EXHIBIT

CITY OF CLEVELAND MS4 PHASE II PERMIT COMPLIANCE
CLEVELAND, BRADLEY COUNTY, TENNESSEE

SCALE: 1 " = 4,700 '

DATE: 1-24-24

PROJECT NUMBER 23430481

FIGURE NO. 1

Drawing Path: R:\GISRef\knoxville north_gis projects\2024_Projects\23430481_Cleveland MS4\SAMPLING_MAP.mxd plotted by Srowe 02-29-2024

FIGURE 2 - MONITORING LOCATIONS AND DETAILS

STREAM NAME	WATERBODY ID	8-DIGIT HUC & NAME	IMPAIRMENT	SOURCE TYPE	SAMPLE LOCATION	PROPOSED MONITORING PER FIVE-YEAR PERMIT CYCLE			MONITORING PURPOSE
						BIOLOGICAL	E. COLI	VSA	
Bigsby Creek	TN06020002005_0800	06020002 Hiwassee River	Sedimentation/Siltation, Habitat Alteration	Grazing in Riparian Zones	Not applicable (VSA only)			X	VSA will provide a comprehensive evaluation of stream stressers within MS4 limits that can be updated every permit cycle.
Fillauer Branch	TN06020002009_0200	06020002 Hiwassee River	Sedimentation/Siltation, Habitat Alteration, E. Coli	Sanitary Sewer Overflows, Municipal	B3 - FILLA001.2BR 35.1854 -84.8551 B4 - FILLA1.1T0.3BR 35.182657 -84.85285 B5 - FILLA1.1T0.1T0.1BR 35.18421 -84.55222		X	X	E. coli geometric mean results will be compared every permit cycle to evaluate MS4 program effectiveness. VSA will provide a comprehensive evaluation of stream stressers within MS4 limits that can be updated every permit cycle.
Little Chatata Creek	TN06020002012_0200	06020002 Hiwassee River	Sedimentation/Siltation, Habitat Alteration, E. Coli	Sanitary Sewer Overflows, Municipal, Animal Feeding Operations, Grazing in Riparian Zones	C1 - LCHAT004.0BR 35.192931 -84.816312		X	X	E. coli geometric mean results will be compared every permit cycle to evaluate MS4 program effectiveness. VSA will provide a comprehensive evaluation of stream stressers within MS4 limits that can be updated every permit cycle.
South Mouse Creek	TN06020002009_2000	06020002 Hiwassee River	Sedimentation/Siltation, Habitat Alteration, E. Coli	Channelization, Sanitary Sewer Overflows, Municipal	B1 - SMOUS008.8BR 35.232064 -84.84362 B2 - SMOUS011.5BR 35.20045 -84.8536 B7 - SMOUS016.2BR 35.1461 -84.8912		X	X	E. coli geometric mean results will be compared every permit cycle to evaluate MS4 program effectiveness. VSA will provide a comprehensive evaluation of stream stressers within MS4 limits that can be updated every permit cycle.
Spring Branch	TN06020002005_0410	6020002 Hiwassee River	Cause Unknown	Site Clearance (Land Development or Redevelopment)	Not applicable (VSA only)			X	VSA will provide a comprehensive evaluation of stream stressers within MS4 limits that can be updated every permit cycle.
Woolen Mill Branch	TN06020002009_0300	06020002 Hiwassee River	Habitat Alteration, E. Coli, Nutrients	Sanitary Sewer Overflows, Municipal, Industrial/Commercial Stormwater Discharges	B6 - WMILL000.8BR (35.152475 -84.874378)	X	X	X	Macroinvertebrate TMI scores and E. coli geometric mean results will be compared every permit cycle to evaluate MS4 program effectiveness. VSA will provide a comprehensive evaluation of stream stressers within MS4 limits that can be updated every permit cycle.

Attachments

City of Cleveland Stormwater Management Plan
Revised January 2024

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Introduction

The purpose of the following sections outlines the City of Cleveland's plan to meet the requirements of the TDEC Phase 2 MS4 permit, effective January 1, 2023. This is the City of Cleveland's comprehensive stormwater management plan (SWMP) to meet the Stormwater Management Plan required by Section 4.1 of the MS4 permit.

The City of Cleveland MS4 Phase II Permit

In 1999, the Environmental Protection Agency (EPA) adopted regulations for phase II urban areas having a total population of at least 50,000 and a density of 1,000 people per square mile. The City of Cleveland prepared the required Tennessee Department of Environment and Conservation (TDEC) notice of intent to obtain coverage under a general National Pollutant Discharge Elimination System (NPDES) permit for Municipal Separate Storm Sewer System (MS4) discharges. In February 2003, TDEC issued a general NPDES permit for 84 municipalities in Tennessee required to operate MS4 Phase II programs which included the City of Cleveland.

The original NPDES permit governing the stormwater program operations of Cleveland had a definitive beginning date of February 2003 and expiration date of February 2008. The first permit term for MS4 Phase II municipalities was dedicated to phasing in or starting the local stormwater programs. Upon expiration of the NPDES permit, TDEC revised and modified the permit conditions to satisfy the Clean Water Act (CWA) requirements, and from 2008 to 2010 the City of Cleveland operated under the original permit. The second permit started in spring 2011 and expired fall 2015. The City of Cleveland's third permit became effective on May 1, 2017, and will expire on September 30, 2021. Cleveland's fourth permit became effective on January 1, 2023, and will expire on August 31, 2027.

The NPDES permit for each entity has six minimum control measures (MCM) and, each MCM has management measures that address how the MCM is to be addressed. In addition to the permit tasks, there are also requirements related to the presence of 303d streams that require mandated inspections of all construction activity on a once per month frequency. The permit tasks were phased in annually through 2007 and became a permanent or reoccurring part of the MS4 Phase II program. Below are the six program areas listed in the City's permit:

1. Public Education and Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site stormwater Runoff Control
5. Post Construction/Permanent Stormwater Management Program in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The following is a description of each of the six program areas and their task.

MCM 1: Public Education and Outreach

The new permit requires the MS4 to implement a Public Education and Outreach Program along with the management measures shown below. The City has developed a Public Information and Education (PIE) Plan which is attached as an appendix. The program will focus on impacts of the stormwater discharges to water bodies and the steps that the public (along with the commercial, industrial, or institutional entities) can take to reduce pollutants in stormwater runoff. The program must target specific pollutants and sources that may cause or contribute to impairment. For example, in certain areas known as hot spots, the MS4 must focus education and outreach on those particular pollutants of concern. Some educational programs can lend themselves to water quality improvements. MS4's are encouraged to pursue those programs and documents related or expected water quality improvements.

1A: Awareness of the Impacts on Water Quality

Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The City of Cleveland stormwater staff will continue to participate in the Tennessee Stormwater Association (TNSA) social media outreach campaign. Cleveland stormwater staff will also continue to partner with Bradley County Water Quality and Hamilton County Water Quality to hold a Project Wet training class each year. City staff will promote and help host the event each year of the permit. The Project WET curriculum has been approved by the City of Cleveland Schools and will be the basis of the training class. The goal for attendance will be twenty teachers total for the class. City staff will also set up a booth at events such as the Master Gardeners hosted events, Earth Day event, and other events. The goal is to hold three events per year of the permit.

1B: Awareness of the Importance of Maintenance Activities for Operators of Permanent BMPs/SCMs

Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff will be to develop and distribute stormwater education materials, guidance documents, brochures, and flyers on the importance of maintenance activities for operators of permanent BMPs/SCMs. These documents will be distributed at Master Gardeners hosted events, Earth Day event, and other events. During the current permit the goal will be to have three distributions each year. The stormwater staff will continue to evaluate and update all documents, brochures, and flyers as to their effectiveness and make changes as necessary.

1C: Awareness of the Proper Storage, Use, and Disposal of Pesticides, Herbicides, Fertilizers, Oil, and Other Automotive Related Fluids
Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff will be to develop and distribute stormwater education materials, guidance documents, brochures, and flyers on the importance of proper storage, use, and disposal of pesticides, herbicides, fertilizers, oil, and other automotive related fluids. These documents will be distributed at Master Gardeners hosted events, Earth Day event, and other events. Staff will also be participating in the TNSA social media outreach campaign. During the current permit the goal will be to have three distributions each year. The stormwater staff will continue to evaluate and update all documents, brochures, and flyers as to their effectiveness and make changes as necessary.

1D: Awareness of Identifying and Reporting Procedures for Illicit Connections/Discharges, Sanitary Sewer Seepage, Spills, etc.
Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff will be to distribute stormwater education materials, guidance documents, brochures, and flyers. These documents include the City of Cleveland Stormwater website and phone number which the public can use to report water pollution. Distribution events include Master Gardeners hosted events, Earth Day event, and other events. Staff will also be participating in the TNSA social media outreach campaign. Stormwater Staff will also install 150 drain markers. During the current permit the goal will be to have three distributions each year. The stormwater staff will continue to evaluate and update all documents, brochures, and flyers as to their effectiveness and make changes as necessary.

1E: Awareness of Stormwater Ordinances, Regulations, and Guidance Materials Related to Long-term Water Quality Impacts
Target Audience: Engineering & Development Community
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff will be to update through a yearly email to the engineering and development community. These emails will include the latest stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts along with a link to the City of Cleveland Stormwater website. During the current permit the goal will be to send one email each year. The stormwater staff will continue to evaluate and update the email as to its effectiveness and make changes as necessary.

1F: Awareness of Stormwater Ordinances, Regulations, and Guidance Materials Related to Long-term Water Quality Impacts
Target Audience: Engineering & Development Community
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff will be to update, through preconstruction meetings, the engineering and development community. These meetings will consist of a preconstruction meeting packet which will include information on the latest stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts along with a link to the City of Cleveland Stormwater website. During the current permit the goal will be to have a meeting before a land disturbance permit is issued. The stormwater staff will continue to evaluate and update the preconstruction meeting packets as to their effectiveness and make changes as necessary.

1G: Awareness of Water Quality Impacts from Daily Operations
Target Audience: Public Employees
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the permit all engineering staff, building inspectors, and public works supervisors will obtain or refresh the level one certification as needed. Stormwater staff will hold an in-house good housekeeping training for the Parks and Recreation Department and the Public Works Department alternating every other year. The in-house training will include the MS4 Rain Check training video. Stormwater staff will ensure that all new Parks and Recreation Department and Public Works Departments employees are trained within six months of their start date. Staff will continue to present the good housekeeping training and see that new employees have the level one certification as soon as possible.

1H: Pollution Prevention and Good Housekeeping
Target Audience: Public Employees
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the permit all Parks and Recreation Department and the Public Works Department employees will attend the in-house training which will include the MS4 Rain Check training video. Stormwater staff will ensure that all new Parks and Recreation Department and Public Works Departments employees are trained within six months of their start date. Staff will continue to present the good housekeeping training every year or as needed.

1I: Awareness of Identifying and Reporting Procedures for Illicit Connections/Discharges, Sanitary Sewer Diversions or Seepages, Spills, etc.
Target Audience: Public Employees

Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

Identifying and reporting Procedures for illicit connections/discharges, sanitary sewer diversions or seepages, spills, etc. is covered during the in-house training. The MS4 Rain Check training video covers reporting any illicit discharges. Staff will also provide their contact information in the event a supervisor is not available. Stormwater staff will ensure that all new Parks and Recreation Department and Public Works Departments employees are trained within six months of their start date. Staff will continue to present the good housekeeping training every year or as needed.

MCM 2: Public Involvement/Participation

The Public Participation part of the program shall comply with all applicable state and local public notice requirements. Elements of the program may include participation in local stormwater management work groups, public notices of MS4 meetings and public hearings, recruiting education volunteers, involving the public with program coordination, detection of illicit discharges, and monitoring efforts. The program shall encourage and promote citizen reporting of illegal spillage, dumping, or otherwise illicit disposal of materials into the MS4 system.

2A: Pollution Prevention

Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to partner with Cleveland High School, Bradley County High School, Walker Valley High School, Bradley County Stormwater Department, Keep Cleveland & Bradley County Beautiful, and others to host at least two stream cleanups along Mouse Creek during low flow times. The first will be in the spring in conjunction with Earth Day and the second will be in the fall as part of the Tennessee River Rescue. City staff will provide trash removal services, refreshments, and promote the event. The City of Cleveland Stormwater Division will also co-sponsor the Tennessee Tree Day event (which includes distributing trees to the public) in the spring, and the Household Hazardous Waste Collection Day event in the fall. During the current permit the goal will be to hold three events each year.

2B: Impacts on Water Quality or Local Stormwater Management Issues

Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to partner with Cleveland High School, Bradley County High School, Walker Valley High School, Bradley County Stormwater Department, Keep Cleveland & Bradley County Beautiful, and others to host at least two stream cleanups

along Mouse Creek during low flow times. One in the fall and the other in the spring. City staff will prove trash removal services, refreshments, and promote the event. The City of Cleveland Stormwater Division will also co-sponsor the Tennessee Tree Day event (which includes distributing trees to the public) in the spring, and the Household Hazardous Waste Collection Day event in the fall. During the current permit the goal will be to hold three events each year.

2C: Storage, Use, and Disposal of Household Hazardous Waste, Automotive Related Fluids, Pesticides, Herbicides, Fertilizers, Use
Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to partner with Bradley County Stormwater Department and Keep Cleveland & Bradley County Beautiful, and others to host a Household Hazardous Waste Collection Day event in the fall and two Tire Take Back or Cleanup Days During the current permit the goal will be to hold three events each year.

2D: Identifying and Reporting Procedures for Illicit Connections/Discharges, Sanitary Seepages, Spills, etc.
Target Audience: General Public
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to inform the general public on how to report illicit discharges by using the stormwater website. The website address is located on all the stormwater brochures, flyers, and giveaways. Inspections for illicit discharges will be performed by the public during stream cleanup events and supervised by the stormwater staff. All illicit discharges will be entered into the City's complaint tracking site. During the current permit the goal will be to hold three events each year.

2E: Pollution Prevention
Target Audience: Commercial & Development Community
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to make public the need for volunteers and/or sponsors for the stream cleanups (spring and fall), and the Household Hazardous Waste Collection Day event in the fall. During the current permit the goal will be to obtain volunteers or sponsors for one event each year.

2F: Impacts on Water Quality or Local Stormwater Management Issues
Target Audience: Commercial & Development Community
Person Responsible: Stormwater Coordinator

Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to hold Stormwater Board meetings to review and revise the City's Stormwater Ordinance and to meet yearly to receive and consider comments on the stormwater program. During the current permit the goal will be to hold one meeting each year. For major modifications (as stated in the current MS4 permit) to the Stormwater Management Plan, as stated in the current MS4 permit, a formal public notice is required. Notice of Public Comment will be posted 30 days before the meeting date. Stormwater Board meetings will be posted for public notice at a minimum of 15 days before the meeting. The public notices will be posted in the Cleveland Daily Banner along with TDEC's Division of Water Resources (water.permits@tn.gov).

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

The goal of these minimum control measures is to raise awareness of the citizens and the staff of the City of Cleveland that the storm sewer system is not a treated sewer and drains to the creeks and rivers and the need to eliminate illicit discharges. Along with public awareness the stormwater staff will track and inspect any reports of illicit discharges. Staff will continue to promote the stormwater website as a means to report water pollution.

3A: Storm Sewer Mapping
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The stormwater staff will continue to map all storm sewer infrastructure as required by the permit. This will be accomplished by utilizing the City's GIS system. The map will be made available to TDEC as requested. Mapping will continue for each of the five permit years.

3B: Identifying and Investigating Non-Stormwater Discharges
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The goal of the stormwater staff is to maintain an inventory and investigate all non-stormwater discharges or flows (as indicated in subpart 4.2.3 of the 2022 TDEC MS4 permit) that the City of Cleveland has identified as a significant contributor of pollutants. This information will be logged into the City's complaint tracking software. Stormwater staff will also inspect twenty percent of the mapped outfalls every year of the permit for signs of illicit discharges. This will continue each year of the permit.

3C: Illicit Discharge Reporting and Investigations
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The stormwater staff is to track and inspect complaints and referrals as stated in "Guidelines and Standard Operating Procedures for the City of Cleveland" section 1.1 through 1.8 along with the City of Cleveland Stormwater Management Enforcement Response Plan (ERP). During the previous permit cycle staff developed a complaint tracking application that was added to the City of Cleveland website. The goal for the current permit is to continue with tracking and inspections and to evaluate the application tracking feature.

MCM 4: Construction Site stormwater Runoff Control

The City of Cleveland is required by the Tennessee Department of Environment and Conservation (TDEC) to develop, implement, and enforce a construction site stormwater runoff pollutant control program to reduce pollutants in any stormwater runoff to Cleveland's waterways from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. Below are the management measures that achieve this requirement.

4A: Updating Stormwater Ordinance to Meet the Requirements of the Currently Effective Tennessee Construction General Permit (CGP)

Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The stormwater staff will ensure that the City of Cleveland's Stormwater Ordinance is up to date with any new TDEC CGP requirements within 18 months of a newly issued CGP becoming effective.

4B: Maintain an Inventory of Both Public and Private Active Construction Sites

Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the previous permits the Cleveland Stormwater Division developed and implemented a mapping layer on the GIS system of construction sites within the city limits. Stormwater staff will continue to map public and private construction sites using the City's GIS system. Staff will evaluate and continue during the current permit.

4C: Construction Site Plans Review and Approval

Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the first permit cycle, the City of Cleveland created the Site Review committee. The committee includes staff from Planning, Engineering, Building Inspection, Stormwater

and others. Since 2017 the Cleveland Stormwater Division has been a Tennessee Qualifying Local Program (QLP). The qualifying local program provision for the management and oversight of stormwater runoff from construction activities allows for this streamlining between TDEC, City of Cleveland, and the Development Community. Staff will evaluate and continue during the current permit.

4D: Public Comments for New & Redevelopment Projects
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

Plan Review Committee staff will post a list of plans for new development and redevelopment on the plan review website. Public comments may be emailed to staff for review and consideration.

4E: Construction Site Inspections
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the last few permit cycles, the City of Cleveland Stormwater Division has created and refined how construction sites are inspected and archived. All stormwater staff will maintain the Tennessee Fundamentals of Erosion Prevention and Sediment Control Level 1 Certification. The stormwater staff utilizes the City's GIS system for performing site inspections. Staff uses the TDEC inspection form that is then saved to the construction site's GIS location. This provides staff with the means to review plans and past inspections in the field and office. Staff will evaluate and continue during the current permit.

4F: Priority Construction Sites
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

Priority construction sites are those that discharge directly into, or immediately upstream of, waters the state recognized as unavailable condition for siltation or Exceptional Tennessee Waters. TDEC requirements for those sites are as follows: pre-construction meetings with construction-site operators for priority construction activities; inspections by the permittee of priority construction sites at least once per calendar month; documentation of procedures, including related meetings and inspections. Stormwater staff inspects all construction sites that are within the city limits. Prior to issuing a land disturbance or Notice of Coverage, Stormwater staff holds preconstruction meetings for sites that are one acre or larger, part of a larger common plan of development, commercial development, or multifamily development. Staff also inspects those sites once a month and updates the GIS system. Staff will evaluate and continue during the current permit.

MCM 5: Post Construction/Permanent Stormwater Management Program in New Development and Redevelopment

The City of Cleveland is required to develop, implement, and enforce a program to address permanent (post-construction) stormwater runoff management from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the City of Cleveland MS4. This program must ensure that controls are in place that would prevent or minimize water quality impacts. In August 2017 the City of Cleveland Stormwater Division was designated as a Qualifying Local Program (QLP).

5A: Water Quality Riparian Buffers
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the previous permits the City of Cleveland adopted buffers for streams, wetlands, ponds, and lakes. The buffers are 30' and 60'. Waters with available parameters for siltation or habitat alteration or unassessed waters have a buffer of 30' or an average of 30' but no closer than 15'. Exceptional Tennessee Waters or waters with unavailable parameters for siltation or habitat alterations have a buffer of 60' or an average of 30' but no closer than 30'. Staff will continue to enforce these buffers during the current permit.

5B: Development Project Plan Review, Approval, and Enforcement
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

Stormwater staff will revise and implement the project plan review, approval, and enforcement as it pertains to stormwater control measures (SCM) during the current permit. Staff will revise the existing stormwater ordinance to reflect the requirements in the current TDEC MS4 permit.

5C: Stormwater Control Measure (SCM) Installation Verification and Enforcement
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The City of Cleveland currently requires an as-built survey and approval of the design engineer prior issuing a certificate of occupancy. Stormwater staff will revise and implement enforcement as it pertains to stormwater control measures (SCM) during the current permit. Staff will revise the existing stormwater ordinance to reflect the requirements in the current TDEC MS4 permit.

5D: Legal Authority for SCM Maintenance and Access
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

Stormwater staff will review the stormwater ordinance with the city attorney and revise the stormwater ordinance as needed to meet the requirements of the current permit.

5E: Stormwater Control Measure (SCM) Tracking
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the previous permit the stormwater staff developed a program for tracking post construction BMP's using the city's GIS database. Staff will review and revise the tracking data as needed and continue to update the GIS during the current permit.

MCM6: Pollution Prevention/Good Housekeeping for Municipal Operations

The permit requires the City of Cleveland to develop and implement an operation and maintenance program that has the ultimate goal of preventing or reducing pollutants from municipal operations. This program must include employee training to prevent and reduce stormwater pollution from activities such as park and open spaces maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.

6A: Employee Training for Municipal Operations at City Facilities
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

During the permit all engineering staff, building inspectors, public works supervisors will obtain or refresh the level one certification as needed. Stormwater staff will hold an in-house good housekeeping training for the Parks and Recreation Department and the Public Works Department alternating every other year. The in-house training will include the MS4 Rain Check training video. Stormwater staff will ensure that all new parks and Recreation Department and Public Works Departments employees are trained within six months of their start date. Staff will continue to present the good housekeeping training and seeing that new employees have the level one certification as soon as possible.

6B: Develop an Operation and Maintenance (O&M) Program
Person Responsible: Stormwater Coordinator
Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

Stormwater staff developed standard operating procedures (SOP) during the second permit cycle. Staff will review and revise as needed to meet the requirements in the current permit. The revised O&M facility plans will be located at the city owned facilities as required.

6C: Facility Site Inspections
Person Responsible: Stormwater Coordinator

Schedule: Year 1 and ongoing implementation
Measurable Goals and Milestones:

The stormwater staff will inspect each of the City's facilities once a month for each of the permit years for stormwater violations. For additional information concerning good housekeeping please refer to the "Pollution Prevention and Good Housekeeping" section of "Guidelines and Standard Operating Procedures for the City of Cleveland, Tennessee"

Appendix A

Public Information and Education Plan

City of Cleveland, TN

Public Information and Education (PIE) Plan

May 2023

Table of Contents

INTRODUCTION

The Public Information and Education (PIE) Plan is a requirement in the State of Tennessee's Small Municipal Separate Storm Sewer System (MS4) General National Pollution Discharge Elimination System Permit (hereafter referred to as the "NPDES permit"). Coverage under this permit was granted to the City of Cleveland on January 1, 2023, under Permit Tracking Number TNS075213. The requirements of the PIE plan are listed in section 4.2.1 of the NPDES permit. Under this section, the City of Cleveland must provide for the following:

- Specific public information/education activities that are designed to meet the management measure;
- Specific public involvement/participation activities that are designed to meet the management measures;
- A mechanism for citizen reporting of illegal spillage, dumping, or otherwise illicit disposal of materials into the MS4 system;
- Publicity plan for public involvement and participation opportunities by methods designed to reach the intended audience;
- Permittees shall create opportunities for the public to participate in the decision-making processes for developing, implementing, and updating the Stormwater Management Program;
- Mechanisms, procedures, and processes for public access to information on new development and redevelopment projects and receiving and considering comments from the public on those new development and redevelopment projects (See subpart 4.2.4 of the TDEC MS4 permit);
- Develop and implement a public notice process in accordance with subpart 4.4.1 of the TDEC MS4 permit;
- Permittees shall track and maintain records of public involvement and participation opportunities;
- Identification of job categories and applicable management measures for employee education (see subpart 4.2.1.3 of the TDEC MS4 permit);
- Schedule/calendar of events for each year;
- Methodology to evaluate components to assess overall effectiveness and the need for improvement;

- Include targeted educational and outreach campaigns along with public involvement and participation opportunities to address the following issues:

  a) General public awareness of the impacts on water;

  b) General public awareness of the importance of maintenance activities for operators of permanent BMPs/SCMs;

  c) General public awareness on the proper storage, use, and disposal of pesticides, herbicides, fertilizers, oil and other automotive-related fluids;

  d) General public awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.;

  e) Engineering & development community awareness of the stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts;

  f) Public employee awareness of water quality impacts from daily operations;

  g) Public employee pollution prevention and good housekeeping (see Permit sub-part 4.2.6. of the TDEC MS4 permit);

  h) Public employee awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer diversions or seepages, spills, etc.;

  i) General public involvement and participation with pollution prevention;

  j) General public involvement and participation with impacts on water quality or local stormwater management issues;

  k) General public involvement and participation with storage, use, and disposal of household hazardous waste, automotive-related fluids, pesticides, herbicides, and fertilizers use;

  l) General public involvement and participation with identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.;

  m) Commercial & development community involvement and participation with pollution prevention; and

  n) Commercial & development community involvement and participation with impacts on water quality or local stormwater management issues

The objective of this PIE Plan is to document the City's plan for compliance with these requirements.

The PIE Plan shows that the City's PIE program provides both general information on impacts of stormwater discharges to water bodies and the steps that the public can take to reduce pollutants in stormwater runoff, and more targeted information for specific water resources, audiences, and/or pollutants located within the MS4. In other parts of the Small MS4 Permit, the City, as the MS4 operator, is required to serve as regulator or maintenance provider. The public education requirement engages the City in the more subtle role of educator, and invokes the use of marketing strategies, rather than citations, inspections or physical maintenance activities. The public education requirement is predicated on the idea that awareness of positive and negative behaviors can empower residents within an MS4 to have a positive impact on stormwater quality in their daily activities. Thus, if the MS4 can demonstrate it is promoting awareness, in tandem with its other responsibilities, then it has positioned itself to implement its stormwater management program to the maximum extent practicable standard, as required by law. In addition to meeting the legal requirement, implementing a stormwater information and education program pays credence to the adage, "an ounce of prevention is worth a pound of cure". Though results can be difficult to measure, implementing an education program is generally considered more cost-effective than enforcement and/or physical corrective actions.

Most of the public information and education measures documented in this PIE Plan are already in place as part of the City's on-going Small MS4 Permit compliance program. The PIE Plan incorporates these existing activities and provides for new measures that address targeted geographic areas, people, or pollutants to meet the requirements of the current effective Small MS4 Permit. The plan provides a mode for evaluating effectiveness by establishing a method to record metrics for each educational activity, keeping in mind that the goal is to impress upon, or "touch" people and/or groups. By observing the number of impressions made from year to year, the City can evaluate the extent of its effort and decide whether it is properly allocating its resources, or if changes are needed. The metrics are also useful for the reporting requirement for the small MS4 permit.

Diagnosing Potential Stormwater Problems to Identify Targets

One way to identify specific streams and/or pollutants is to use information prepared by the State of Tennessee in the published 303(d) List of impaired streams. It is important to understand that the 303(d) list is prepared for watershed planning purposes, and small MS4s represent one of many watershed stakeholders in the overall process of addressing water quality issues. The City may choose to supplement information gathered from the 303(d) list with information it collected on its own, including, but not limited to visual observations in the field, information obtained from complaints, enforcement activities, or highly effective programs. Through examination of the 303(d) list, the City can determine which local water resources are exhibiting negative impacts in the form of pollutants, which may be attributed to stormwater runoff from the small MS4. The next step is to consider the individuals or groups whose behaviors may affect the introduction of those pollutants to the MS4, thus identifying the target audience(s). Information and education on how their activities can have an impact on water quality can then be provided by the MS4, with the intent that the target audience will be inclined to change their approach to those activities. Target audiences are selected through a process of determining whose behaviors have the most potential to contribute pollutants to streams. This PIE Plan outlines activities that will be directed toward these targets, which are identified in Table 1 below.

Table 1. PIE Plan Targets for the City of Cleveland, TN

Target Streams	Target Pollutants	Target Audience
South Mouse Creek	Siltation/ Habitat Alterations/ Escherichia Coli	• Engineering & Development Community • General Public • Municipal Employees • To be determined based on information collected through the city's MS4
Candies Creek	Siltation/ Substrate Habitat Alterations	
Woolen Mill Branch	Alteration in Stream-side Cover/ Organic Enrichment/ Escherichia Coli	
Little Chatata Creek	Siltation Alteration in Stream-side Vegetation/ Escherichia Coli	
Fillauer Branch	Siltation Alteration in Stream-side Cover/ Escherichia Coli	
Bigsby Creek		
Spring Branch		
Lick Branch		

In addition to targeted information, broad-spectrum information provided to the general public has a place in stormwater information and education programs because it offers opportunities to introduce the concept of stormwater systems and their impacts on receiving waters. People can relate to places where they derive drinking water or recreate. More importantly, they can see the value in protecting those resources, which could result in positive behavioral changes. An advantage of incorporating general information for a general audience is that materials are typically already developed and available, relieving the City of the burden to develop new ones. Partnerships are often formed for the purpose of delivering stormwater messages to the general public, which also effectively leverages the city's resources. For these reasons, the City has chosen to implement a number of activities that address general information to the general public.

Public Information and Education Activities and Goals

A number of public information and education activities are currently being implemented by the City as a result of permit requirements that exist outside of public education and public outreach minimum control measures. New educational activities were added as a result of the issuance of

the 2022 Small MS4 Permit. The total of these activities comprise the PIE Plan, which is presented in Table 2. The activities and goals are set to meet targets or provide general information with the resources that are available to the City. Each activity is associated with one or more message delivery methods or activity types. The chosen activities correspond with permit requirements.

Table 2. PIE Plan Activities and Goals

Target Audience	Management Measure	Delivery Method / Materials	MS4 Permit Citation	Minimum Number of Activities Conducted
General Public	Awareness of the impacts on water quality.	TNSA social media outreach campaign. Project WET training for teachers. Table at the Master Gardeners hosted events, Earth Day event, and/or other events.	4.2.1.1	3
General Public	Awareness of the importance of maintenance activities for operators of permanent BMPs/SCMs.	Table at the Master Gardeners hosted events, Earth Day event, and/or other events.	4.2.1.1	3
General Public	Awareness on the proper storage, use, and disposal of pesticides, herbicides, fertilizers, oil and other automotive-related fluids.	TNSA social media outreach campaign. Table at the Master Gardeners hosted events, Earth Day event, and/or other events.	4.2.1.1	3
General Public	Awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.	TNSA social media outreach campaign. Brochure distribution. Install 150 drain markers.	4.2.1.1	3
Engineering & Development Community	Awareness of the stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts	Outreach through the City's plan review process via email to developers, engineers, and contractors.	4.2.1.2	1
Engineering & Development Community	Awareness of the stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts	Outreach through pre-construction meetings.	4.2.1.2	1

Target Audience	Management Measure	Delivery Method / Materials	MS4 Permit Citation	Minimum Number of Activities Conducted
Public Employees	Awareness of water quality impacts from daily operations.	This will be covered during the Employee Good Housekeeping training class using the MS4Rain Check training video.	4.2.1.3	1
Public Employees	Pollution Prevention and Good Housekeeping (see Permit sub-part4.2.6.)	This will be covered during the Employee Good Housekeeping training class using the MS4Rain Check training video.	4.2.1.3	1
Public Employees	The awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer diversions or seepages, spills, etc.	This will be covered during the Employee Good Housekeeping training class.	4.2.1.3	1
General Public	Pollution Prevention	Stream cleanups. Sponsor the Tennessee River Rescue. Sponsor the Tennessee Tree Day event and be a tree distribution location. Household Hazardous Waste Collection Day.	4.2.2.1	3
General Public	Impacts on water quality or local stormwater management issues	Sponsor the Tennessee Tree Day event and be a tree distribution location. Stream cleanups. Household Hazardous Waste Collection Day.	4.2.2.1	3
General Public	Storage, use, and disposal of household hazardous waste, automotive-related fluids, pesticides, herbicides, and fertilizers use	Household Hazardous Waste Collection Day. Tire Take Back Days.	4.2.2.1	3
General Public	Identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.	Reported by using Cleveland's Website. The website is located on brochures and other handouts.	4.2.2.1	3

		Inspections for illicit discharges will occur during stream cleanup events.		
Target Audience	**Management Measure**	**Delivery Method / Materials**	**MS4 Permit Citation**	**Minimum Number of Activities Conducted**
Commercial & Development Community	Pollution Prevention	Make public the need for the Commercial and Development Community to volunteer or sponsor Household Hazardous Waste Collection Day and/or Stream cleanup events.	4.2.2.2	1
Commercial & Development Community	Impacts on water quality or local stormwater management issues.	Using the Stormwater Board of the City to review and revise the City's Stormwater Ordinance and to meet yearly for updates and to receive and consider comments on the stormwater program.	4.2.2.2	1

Public Information and Education Implementation and Metrics

Under section 4.2.1 of the Small MS4 Permit, the PIE Plan must include a mode for evaluating effectiveness. The City must also track and maintain records and report education and outreach activities in the annual report for the small MS4 permit. The City will accomplish these requirements by providing a specific implementation schedule, with interim goals, and a way to record metrics for activities as they are performed. The annual entry of results verifies that the intended audience is being reached according to the plan. If any results are insufficient, reduced or missing, the City can seek adjustments to properly address inadequacies. Table 3 below outlines the implementation schedule and corresponding metric(s) for each PIE Activity, along with a place to enter results annually.

Table 3. Public Information and Education Implementation and Metrics

Management Measure	Delivery Method/ Materials	Total Number of Activities Conducted	Description	Date	Approximate Number of Audience Reached
Awareness of the impacts on water quality.	TNSA social media outreach campaign. Project WET training for teachers. Table at the Master Gardeners hosted events, Earth Day event, and/or other events.				
Awareness of the importance of maintenance activities for operators of permanent BMPs/SCMs.	Table at the Master Gardeners hosted events, Earth Day event, and/or other events.				
Awareness on the proper storage, use, and disposal of pesticides, herbicides, fertilizers, oil and other automotive-related fluids.	TNSA social media outreach campaign. Table at the Master Gardeners hosted events, Earth Day event, and/or other events.				
Awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.	TNSA social media outreach campaign. Brochure distribution. Install 150 drain markers.				
Awareness of the stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts	Outreach through the City's plan review process via email to developers, engineers, and contractors.				

Management Measure	Delivery Method/ Materials	Total Number of Activities Conducted	Description	Date	Approximate Number of Audience Reached
Awareness of the stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts	Outreach through pre-construction meetings.				
Awareness of water quality impacts from daily operations.	This will be covered during the Employee Good Housekeeping training class using the MS4Rain Check training video.				
Pollution Prevention and Good Housekeeping (see Permit sub-part4.2.6.)	This will be covered during the Employee Good Housekeeping training class using the MS4Rain Check training video.				
The awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer diversions or seepages, spills, etc.	This will be covered during the Employee Good Housekeeping training class.				
Pollution Prevention	Stream cleanups. Sponsor the Tennessee River Rescue. Sponsor the Tennessee Tree Day event and be a tree distribution location. Household Hazardous Waste Collection Day.				

Management Measure	Delivery Method / Materials	Total Number of Activities Conducted	Description	Date	Approximate Number of Audience Reached
Impacts on water quality or local stormwater management issues	Sponsor the Tennessee Tree Day event and be a tree distribution location. Stream cleanups. Household Hazardous Waste Collection Day.				
Storage, use, and disposal of household hazardous waste, automotive-related fluids, pesticides, herbicides, and fertilizers use	Household Hazardous Waste Collection Day. Tire Take Back Days.				
Identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.	Reported by using Cleveland's Website. The website is located on brochures and other handouts. Inspections for illicit discharges will occur during stream cleanup events.				
Pollution Prevention	Make public the need for the Commercial and Development Community to volunteer or sponsor Household Hazardous Waste Collection Day and/or Stream cleanup events.				

Management Measure	Delivery Method / Materials	Total Number of Activities Conducted	Description	Date	Approximate Number of Audience Reached
Impacts on water quality or local stormwater management issues.	Using the Stormwater Board of the City to review and revise the City's Stormwater Ordinance and to meet yearly for updates and to receive and consider comments on the stormwater program.				

Appendix B

Enforcement Response Plan

City of Cleveland, Tennessee
Stormwater Division

City of Cleveland
Stormwater Management
Enforcement Response Plan

National Pollutant Discharge Elimination System Permit Number TNS075213 authorizes the City of Cleveland to discharge stormwater runoff in accordance with certain water quality management programs and provisions as set forth in the permit.

Section 4.1 titled "Requirements" provides that the City of Cleveland must develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to Cleveland's MS4.

The City of Cleveland passed Ordinance Number 2004-41 establishing city regulation and enforcement oversight regarding stormwater management. This Ordinance, as amended by Ordinance Number 2015-06, is codified in the Cleveland Municipal Code in Sections 18-301 through 18-314.

Section 18-311 of the Cleveland Municipal Code outlines the administrative enforcement remedies available to the Stormwater Coordinator and other City staff to assure compliance with the City's stormwater ordinance. Penalties for violations are prescribed by Section 18-312, and Section 18-313(4), which authorizes the Stormwater Regulations Board to adopt an enforcement protocol to aid City staff in enforcing the provisions of the City's Stormwater Ordinance.

Under Sections 8-311 and 8-312 of the Cleveland Municipal Code, enforcement mechanisms include:

(a) Verbal Warnings
(b) Notification of Violation
(c) Consent Orders
(d) Show Cause Hearings
(e) Compliance Orders
(f) Cease and Desist Orders
(g) Civil Penalties
(h) Recovery of Damages and Costs.

In order to assure fair and just enforcement to all parties involved and to provide adequate guidance to City stormwater field personnel, the following protocol shall be employed in enforcement of the City's stormwater ordinance.

1. **Land Disturbing Activities without Obtaining Necessary Land Disturbing Permit**

   (a) First Offense (Property Owner and Contractor): Cease and Desist Order; Notice of Violation; Civil Penalty equal to Cost of Permit. The Penalty shall be in addition to the land disturbance permit fee. Site and/or erosion control plans must be submitted for approval within 30 days.

(b) Second Offense (Property Owner and/or Contractor): Cease and Desist Order, Issuance of Civil Penalty of $500.00 plus damages consisting of cost of permit and salary costs of enforcement of article.

(c) Third or Subsequent Offense (Property owner and/or Contractor): Cease and Desist Order; Issuance of Civil Penalty of up to $5,000.00 a day plus damages consisting of cost of permit and salary costs of enforcement of article.

(d) Failure to Properly Transfer Land Disturbing Permit: Issuance of Civil penalty equal to the cost of new permit. The Penalty shall be in addition to the land disturbance permit fee.

(e) Failure to Request Extension of Permit: Issuance of Civil Penalty equal to the cost of new permit. The Penalty shall be in addition to the land disturbance permit fee.

Note: Enforcement under this subsection is contractor and property owner specific, not site specific. Therefore, if a contractor receives a Notice of Violation for a first offense, the civil penalty for a second offense is to be issued against the Contractor for the second offense, regardless of the property owner or location of the property.

2. **Failure to Install, Maintain or Use Proper Construction Entrance (Tracking Mud on Street**)

(a) First Offense: Written Warning Issued to Land Disturbing Permit Applicant. Copies sent to General Contractor and Property Owner.

(b) Second Offense: Notice of Violation issued to Land Disturbing Permit Applicant.

(c) Third or Subsequent Offense: Issuance of Civil Penalty against Land Disturbing Permit Applicant of $250.00 per day, plus salary costs of enforcement of article.

Note: Failure of a Land Disturbance Permit applicant to aggressively remove any mud, debris or construction material that is deposited in a public roadway after receiving a Written Warning or a Notice of Violation will result in an additional civil penalty of $250.00 per incident, plus the salary costs of enforcement of article, plus the cost of the city's expenses if city crews are required to remove mud, debris or construction material to protect the safety of the public.

3. Failure to Install, Maintain or Use Proper Structural Erosion or Sediment Controls (Sediment Discharge)

(a) First Project Offense: Written Warning issued to Land Disturbing Permit Applicant. Copies sent to Property Owner if different than applicant. If project is exempt from obtaining a land disturbing permit, written warning is given to the property owner. Issuance of Civil Penalty for cost of damages for city expenses if

City crews are required to clean up sediment discharged into City Streets, right of-way or stormwater structures.

(b) Second Offense: Notice of Violation issued to Land Disturbing Permit Applicant or Property Owner; Cease and Desist Order until necessary erosion and sedimentation controls are installed or maintained; Compliance Order to Submit Self-Inspection Documentation on Monthly Basis; Permit Exempt projects required to obtain Land Disturbing Permit. Issuance of Civil Penalty for cost of city expenses if City crews are required to clean up sediment discharged into City Streets, right-of-way or stormwater structures.

(c) Third Offense: Issuance of Civil Penalty of $100.00 per discharge point per discharge plus salary costs of enforcement of article to land disturbance permit applicant plus damages equal to the cost of city expenses if City crews are required to clean up sediment discharged into City Streets, right-of-way or stormwater structures. Cease and Desist Order until necessary erosion and sedimentation controls are installed or maintained.

(d) Fourth or Subsequent Offense: Issuance of Civil Penalty of $500.00 per discharge point per discharge to land disturbance permit applicant. Damages for the cost of city expenses if City crews are required to clean up sediment discharged into City Streets, right-of-way or stormwater structures. Cease and Desist Order until necessary erosion and sedimentation controls are installed or maintained.

(e) Failure to Properly Maintain Erosion Control Self Inspection Sheets and On-Site Erosion Control Plan: Issuance of Civil Penalty of $100.00 per inspection in which self-inspection sheets or up-to-date erosion control plans cannot be provided when asked by inspector.

(f) Failure to Provide Proper Final Stabilization: Issuance of Civil Penalty of $250.00 per day issued against Property Owner for each day past issuance date of final certificate of occupancy.

4. Failure to Comply with Approved Stormwater Design Plans

(a) Upon Notice of Variation of Approved Plans: Written notification to Property Owner, Design Engineer, General Contractor and Land Disturbing Permit Applicant that construction does not match approved plans and that if modifications are to be made, revised plans must be submitted for review and approval within 30 days.

(b) Failure to Submit Revised Plans: Stormwater Management Inspectors cannot authorize approval for certificate of occupancy until modifications have been submitted and approved.

(c) Failure to Implement Approved Stormwater Design Plan (Previously Occupied)

i. Notice of Violation and Compliance Order: A Notice of Violation and Compliance Order shall be issued to the property owner giving a maximum of thirty days to install all required stormwater infrastructure.

Note: This protocol does not in any way deter the Stormwater Manager from entering into a Consent Order to eliminate illicit discharges in lieu of other enforcement actions.

ii. Failure to Meet Compliance Order Deadline: Issuance of Civil Penalty of up to $5,000.00 per day for each day approved plans is not met.

5. Failure to Properly Install/Construct a Permanent Stormwater Management Device or Facility as Part of an Approved Stormwater Design Plan

(a) Notice of Violation and Compliance Order - A notice of violation and compliance order shall be issued to the property owner/developer giving a maximum of 30 days to install the permanent stormwater management device or facility as detailed on the approved stormwater design plans. This shall include approval from the design engineer and city staff.

(b) Failure to Meet Compliance Order Date - Stormwater Management Inspectors cannot authorize approval for certificate of occupancy until modifications have been approved by the design engineer and city staff.

6. Failure to Properly Operate and/or Maintain a Permanent Stormwater Management Device or Facility Constructed as Part of an Approved Stormwater Design Plan

(a) Notice of Violation and Compliance Order - A notice of violation and compliance order shall be issued to the property owner giving a maximum of 30 days to submit an action plan to restore a permanent stormwater management device or facility to an acceptable level of maintenance and/or effective operation.

(b) Failure to Meet Compliance Order Date - Issuance of a civil penalty against the property owner of $1,000.00 per occurrence for each day during which stormwater is discharged from the permanent stormwater management device or facility between the expiration of the restoration period allowed by the compliance order and the date of completion of the restoration of the permanent stormwater management device or facility as determined by the Program Manager.

7. Illicit Discharges (Non-residential, Non-accidental)
City staff must investigate a complaint within 7 days and follow the City of Cleveland Standard Operating Procedures for Illicit Discharge Detection and Elimination.

(a) First Offense: Notice of Violation issued to responsible party for non-stormwater discharge. Additional damages consisting of salaries and the cost of all city crew

or contracted services to clean up illicit discharge will be assessed to the responsible party. Additional damages may include other items such as loss of income for not properly using sanitary sewer system. If the discharge cannot be stopped within 14 days or corrective actions will take longer than 14 days, a corrective action plan will be required.

(b) Second Offense: Issuance of Civil Penalty against responsible party of up to $5,000.00. Additional damages consisting of salaries and the cost of all city crew or contracted services to clean up illicit discharge will be assessed to the responsible party. Additional damages may include other items such as loss of income for not properly using sanitary sewer system.

(c) Third or Subsequent Offense: Issuance of Civil Penalty against responsible party of up to $5,000.00.

Note: An Illicit discharge properly reported as an accidental discharge will be reclassified as Accidental Releases and not subject to a Civil Penalty as an illicit discharge. However, the responsible party may still be held liable for damages to the City. Additional damages consisting of salaries and the cost of all city crew or contracted services to clean up accidental release will be assessed to the responsible party.

8. Illicit Discharges (Residential Wastewater Discharge)
City staff must investigate a complaint within 7 days and follow the City of Cleveland Standard Operating Procedures for Illicit Discharge Detection and Elimination.

(a) First Offense: Issuance of Notice of Violation and Compliance Order to stop illicit discharge within 10-days. If the discharge cannot be stopped within 14 days or corrective actions will take longer than 14 days, a corrective action plan will be required.

(b) Failure to comply with Compliance Order: Enforcement action based on individual action. Enforcement may include investigation by City Code enforcement seeking input on condemnation of the residential unit for noncompliance with Order.

Note: An Illicit discharge properly reported as an accidental discharge will be reclassified as Accidental Releases and not subject to a Civil Penalty as an illicit discharge. However, the responsible party may still be held liable for damages to the City. Additional damages consisting of salaries and the cost of all city crew or contracted services to clean up accidental release will be assessed to the responsible party.

9. Illicit Discharges (Residential Other than Wastewater Discharge)
City staff must investigate a complaint within 7 days and follow the City of Cleveland Standard Operating Procedures for Illicit Discharge Detection and Elimination.

(a) First Offense: Enforcement action based on individual action. More serious violations, such as deliberate dumping of pesticide, used motor oil, or other hazardous or dangerous chemical into a storm drainage system, would result in Issuance of Civil Penalty plus recovery of actual costs of enforcement and/or damages. If the discharge cannot be stopped within 14 days or corrective actions will take longer than 14 days, a corrective action plan will be required. A less serious violation, such as raking leaves into drainage system, may result in written or verbal warning.

Note: An Illicit discharge properly reported as an accidental discharge will be reclassified as Accidental Releases and not subject to a Civil Penalty as an illicit discharge. However, the responsible party may still be held liable for damages to the City. Additional damages consisting of salaries and the cost of all city crew or contracted services to clean up accidental release will be assessed to the responsible party.

10. Issuance of Show Cause Order:

Pursuant to Cleveland Municipal Code Section 18-311, a Show Cause Hearing may be ordered if this protocol is unclear or inadequate to address any violation of the City's Stormwater Ordinance as codified in the Cleveland Municipal Code, Sections 18-301 through 18-314.

Appendix C

Standard Operating Procedures and Forms

Appendix D

TMDL Monitoring Plan

City of Cleveland MS4 Phase II Stormwater Program
TMDL Monitoring Plan January 1, 2023 to 2027

I. Background

In July 2003, the City of Cleveland under the regulatory authority of a National Pollutant Discharge Elimination System Permit (NPDES) and Tennessee Department of Environment and Conservation (TDEC) coverage, permit number TNS075213, established a MS4 Phase II Stormwater Management Program. The city renewed this permit in December 2022.

The aforementioned NPDES permit for the City of Cleveland MS4 Phase II Stormwater Program lists the monitoring requirements for 303d listed surface waters that have approved Total Maximum Daily Load (TMDL). In January 2006, the first TMDL's were established for surface waters located within the municipal boundary of the City of Cleveland. These TMDL's have been updated in 2023. The plan outlined below will serve as the City of Cleveland's required TMDL Monitoring Plan.

Below is the monitoring requirement as stated in TDEC's MS4 Permit (Page 58)

4.6.1 Monitoring Program, Sampling Requirements and Reporting

4.6.1.1. Monitoring

Permittees shall develop and implement a monitoring and assessment program that provides data and information to identify pollutant sources and aids in determining the effectiveness of the stormwater management program. A description of this program must be included in the Stormwater Management Program. The monitoring and assessment program must be designed to meet the following objectives:

a) *Assess compliance with this permit;*
b) *Measure the effectiveness of the permittee's stormwater management program;*
c) *Evaluate stormwater impacts to the receiving waters;*
d) *Identify sources of specific pollutants, including nutrients, pathogens, siltation, or other parameters related to stormwater discharges from the MS4 System: and*
e) *Gather data to inform program decisions and prioritization of future activities related to the protection of water quality and identify corrective actions.*

The permittee shall perform monitoring in compliance with the requirements in Option 1 below or develop a jurisdiction-specific monitoring plan in compliance with the objectives in Option 2 below. Regardless of the option chosen, at a minimum the permittee shall perform monitoring as prescribed for stream segments subject to EPA approved TMDLs for streams with unavailable parameters for nutrients, pathogens, or siltation as applicable to MS4 jurisdictions.

4.6.1.1.1. Option 1

The permittee shall perform analytical monitoring as a part of its Stormwater Management Program within the MS4 program area.

For stream segments identified by the Division as waters with unavailable parameters for ***siltation and/or nutrients****, biological stream sampling and habitat assessment must be performed utilizing the Semi-Quantitative Single Habitat (SQSH) Method (see subpart 4.6.1.3) as identified in the Division's most current version of the Quality System Standard Operating Procedure for Macroinvertebrate Stream Survey. At least one sample per stream segment*

must be collected, with all segments within the MS4 jurisdiction sampled in a five-year period i.e. no more than 5 years between samples in a segment.

For stream segments identified by the Division as waters with unavailable parameters for ***pathogens****, bacteriological stream sampling must be performed utilizing methods identified in the Division's most current version of the Quality System Standard Operating Procedure for Chemical and Bacteriological Sampling of Surface Water. Monitoring shall include the collection of five samples within a thirty-day period (to establish a geometric mean) and be performed during the summer (March through November). Corresponding flow measurement is recommended but not required. At least one series of five samples per stream segment must be collected, with all segments within the MS4 jurisdiction sampled in a five-year period.*

Visual Stream Surveys and Unavailable Parameter Inventories must be performed on each stream segment within the MS4 jurisdiction with unavailable parameters for siltation, pathogens, and nutrients to identify and prioritize sources of these pollutants of concern. At a minimum, a visual stream survey must be performed immediately upstream and downstream of each MS4 outfall that discharges into that stream segment. All stream segments with unavailable parameters in the permitted jurisdiction must be surveyed once every five-year period.

Permittees shall develop and implement visual stream survey protocols in the Stormwater Management Program. The permittee must:

a) *Adopt existing survey protocols such as the ones available through the Natural Resources Conservation Service, State of Maryland Department of Natural Resources, and/or the State of Tennessee Habitat Assessment Protocol and related Stream Survey Field Sheets (See Subpart 8.3 for links to referenced protocols); or*

b) *Develop their own protocol which must address the following at a minimum:*

1. *Training, Safety, and Private Property Access;*
2. *Equipment and Logistics;*
3. *Recordkeeping and photo documentation;*
4. *Scoring Mechanism;*
5. *Visual Survey Assessment elements:*
    a. *Channel Condition*
    b. *Hydrologic Alteration*
    c. *Bank Condition*

d. Riparian Area Condition
e. Canopy Cover
f. Water Appearance
g. Nutrient Enrichment
h. Animal Or Human Waste Presence
i. Pools
j. Barriers
k. Fish Habitat Complexity
l. Invertebrate Habitat
m. Invertebrate Community
n. Riffle Embeddedness
o. Other as defined by the permittee

For the purpose of complying with subpart, the permittee is only required to monitor the stream segments that were designated as unavailable conditions for nutrients, pathogens, and siltation by the Division upon the effective date of this permit.

II. Minimum TMDL Monitoring Frequency and Methodology

TDEC has established the minimum monitoring frequencies for the MS4 Phase II programs including the City of Cleveland. Two categories of TMDL monitoring have been identified and are based upon TDEC and EPA approved analytical monitoring and/or the impaired condition of surface waters.

A. Waters with Unavailable Parameters for Siltation and/or Nutrients

Biological Stream Sampling

Methodology

Biological stream sampling must be performed utilizing the Semi-Quantitative Single Habitat (SQSH) Method as identified in TDEC's most current version of the Quality System Standard Operating Procedure for Macroinvertebrate Stream Survey.

Frequency

At least one sample per stream segment listed in the TMDL must be collected, with all segments in the MS4 jurisdiction sampled in a five-year period.

Staff Qualifications

To satisfy the minimum for biological stream sampling, the City of Cleveland adopts TDEC's most current version of the Quality System Standard Operating Procedure for Macroinvertebrate Stream Survey. The minimum education/experience requirements are a B.S. in a biological science. Coursework in stream ecology and macroinvertebrate taxonomy is desirable with one year experience.

Approach

Due to the staff qualifications to institute this SOP, the City of Cleveland proposes to outsource the biological stream sampling.

B. Unavailable Parameters for Pathogens

Method

Staff will use TDEC's most current version of the Quality System Standard Operating Procedure for Chemical and Bacteriological Sampling of Surface Water.

Frequency

Monitoring shall include the collection of five samples within a thirty-day period (to establish a geometric mean) and be performed during the summer (March through November).

Approach

The City of Cleveland has technical and engineering staff that are deemed qualified if supplemented with sample collection training. As proposed, the City of Cleveland staff in conjunction with the only local laboratory, Analytical Laboratories of Cleveland, would collect and transport the samples using chain of custody. There are 9 sampling sites identified for pathogen testing, each site requiring 5 sets of collection events that must occur between March through November.

C. Visual Stream Surveys

Methodology

Visual Stream Surveys and Unavailable Parameter Inventories must be performed on each stream segment within the MS4 jurisdiction with unavailable parameters for siltation, pathogens, and nutrients to identify and prioritize sources of these pollutants of concern. The main objective of the survey is the identification and prioritization of stream impairment sources. The "*Stream Corridor Assessment Survey" (SCA),* published by the Watershed Restoration Division of the Maryland Department of Natural Resources.

Frequency

A visual stream survey must be performed immediately upstream and downstream of each MS4 outfall that discharges into that stream segment. All stream segments with

unavailable parameters in the permitted jurisdiction must be surveyed once every five-year period.

Approach

Due to the qualifications and biological experience required to institute this SOP, the City of Cleveland proposes to outsource the visual and biological stream sampling.

III. TMDL Monitoring Plan

The City of Cleveland MS4 Phase II program has identified monitoring locations with the assistance of TDEC, which are comprised of the minimum number of monitoring sites. These sites have been entered into the City's GIS system.

IV. TMDL Summary

In January 2006 and April 2023, the Environmental Protection Agency (EPA) approved the TMDL's for the Hiwassee River Watershed (HUC 06020002) tributaries in Bradley County for two categories of surface water degradation in reports titled:

Total Maximum Daily Load (TMDL)
For
Siltation and Habitat Alteration

Total Maximum Daily Load (TMDL)
For
Pathogens

The surface water tributaries that discharge to Hiwassee River contained within the municipal boundary of the City of Cleveland have been identified as non-supportive of classified uses and/or impaired. TMDL's for surface waters in the City of Cleveland were established based upon analytical data collected by TDEC.

Stream Segments	**TMDL Monitoring Description**
South Mouse Creek	
TN06020002009_2000	Approximately 6.5 miles beginning at the intersection of Industrial Way and Industrial Lane extending north and parallel with Keith Street to Mouse Creek Road
Approved TMDL's	Siltation and Habitat & Pathogens
Monitoring Sites	3 Sites- B7- SMOUS016.2BR, B2- SMOUS011.5BR, B1- SMOUS008.8BR

Stream Segments	**TMDL Monitoring Description**
Mill Branch	
TN06020002009_0300	Approximately 3.92 miles of a tributary to S. Mouse Creek.
Approved TMDL's	Siltation and Habitat Loss & Pathogens
Monitoring Sites	1 Site- B6- WMILL000.8BR
Fillauer Branch	
TN06020002009_0200	Approximately 3.92 mile of a tributary to S. Mouse Creek.
Approved TMDL's	Siltation and Habitat Loss & Pathogens
Monitoring Sites	3 Sites- B3- FILLA001.2BR, B4- FILLA1.1T0.3BR, B5- FILLA1.1T00.1T0.1BR
Candies Creek	
TN06020002005_2000	Approximately 16.32 miles.
Approved TMDL's	Siltation and Habitat Loss & Pathogens
Monitoring Sites	1 Site- A1- CAND1024.1BR
Chatata Creek	
TN06020002012_0200	Approximately 14.3 miles of a tributary to Chatata Creek.
Approved TMDL's	Siltation and Habitat Loss & Pathogens
Monitoring Sites	1 Site- C1- LCHAT004.0BR