Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP)

City of Moberly, Missouri

Prepared for
City of Moberly, Missouri

December 2021

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Abbreviations and Acronyms

BMP(s)	Best Management Practice(s)
CSO	combined sewer overflow
IDDE	Illicit Discharge Detection and Elimination
MCM(s)	Minimum Control Measure(s)
MDNR	Missouri Department of Natural Resources
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SOPs	standard operating procedures
SWMP	Stormwater Management Plan
TMDL	Total Maximum Daily Load
WWTP	Wastewater Treatment Plant

1 Introduction

1.1 Location

The City of Moberly (City), which covers approximately 12 square miles, is located in Randolph County in north central Missouri. As of the 2010 census, Moberly had a population of 13,974. While the majority of land use in Moberly is commercial and residential, significant manufacturing industries are also present within the city limits.

The City is a Municipal Separate Storm Sewer System (MS4) community with a Phase II MS4 National Pollutant Discharge Elimination System (NPDES) General Permit (MO-R040030) issued by the Missouri Department of Natural Resources (MDNR). The City developed its Stormwater Management Plan (SWMP) as a measure to implement this program and comply with their permit. The SWMP describes the City's approach to implementing best management practices (BMPs) for each of the six minimum control measures (MCMs), as outlined in the City's MS4 Missouri State Operating Permit and described in Section 1.2.

The City owns and operates a water treatment plant and distribution system as well as a wastewater treatment plant (WWTP) and collection system. The City has a separate NPDES permit (No. MO-0117960) for the WWTP and combined sewer overflow (CSO) discharges. Treated effluent discharges from the WWTP to the tributary to Coon Creek from Outfall 001 (refer to Table 1-1). The City utilizes combined sewers, in which stormwater runoff is collected in portions of the City's sewage collection system and is treated at the WWTP or directly discharged at CSO. The City operates two CSO storage lagoons, permitted as CSO discharge points, that provide storage and primary treatment for the combined sewage and stormwater during rain events. The permitted CSO outfalls from the lagoons only discharge when the system storage capacity is exceeded. Water from four of Moberly's CSOs (#002-005) is pumped back to the collection system from storage and treated at the WWTP. During high flows, these outfalls may discharge to the surface waters listed in Table 1-1.

Four major streams and their tributaries receive stormwater from the City, including Coon Creek, Sweet Springs Creek, Sugar Creek, and the Elk Fork of the Salt River. Coon Creek and its tributaries receive stormwater from the southeastern part of the City, the Elk Fork of the Salt River and its tributaries receive stormwater from the northeastern part of the City, Sugar Creek and its tributaries receive stormwater from the northwestern part of the City, and Sweet Springs Creek and its tributaries receive stormwater from the southwestern part of the City. The City is not subject to any total maximum daily loads (TMDL) for the receiving waterbodies. Table 1-1 and Table 1-2 identify the outfall locations for NPDES permitted discharges from the City.

Table 1-1 MO-0117960 Outfall Locations and Receiving Waters

Outfall	Source of Discharge	UTM	Receiving Water
001	Municipal Wastewater	X=553968, Y=4364335	Tributary to Coon Creek
002	Combined Sewer Overflow	X=549992, Y=4363712	Tributary to Coon Creek
003	Combined Sewer Overflow	X=550339, Y=4363535	Tributary to Coon Creek
004	Combined Sewer Overflow	X=546585, Y=4361957	Sweet Spring Creek
005	Combined Sewer Overflow	X=546585, Y=4361957	Sweet Spring Creek

Table 1-2 MO-R040030 Outfall Locations

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
Outfall #4	39.4275576337	-92.4138551980	1308719.27434	1664749.95433
Outfall #5	39.4274803181	-92.4138157183	1308691.12463	1664761.13304
Outfall #6	39.4198616297	-92.4188547619	1305914.88300	1663340.25000
Outfall #7	39.4193398413	-92.4162672727	1305725.50200	1664071.39400
Outfall #8	39.4087674705	-92.4303522776	1301871.39800	1660095.31300
Outfall #9	39.4084300844	-92.4211034938	1301750.66400	1662708.62200
Outfall #10	39.4047116099	-92.4340243932	1300393.37500	1659058.85300
Outfall #11	39.4018162559	-92.4265951112	1299340.43700	1661158.94200
Outfall #12	39.3887017097	-92.4127273553	1294567.29400	1665082.22100
Outfall #13	39.3940471351	-92.4203849338	1296512.22400	1662916.27000
Outfall #14	39.3934263806	-92.4254498918	1296284.90800	1661485.07500
Outfall #15	39.3930886900	-92.4283153100	1296161.25800	1660675.38400
Outfall #16	39.4027355400	-92.4521996200	1299670.40500	1653923.60900
Outfall #17	39.4109356000	-92.4443177100	1302658.34500	1656148.95600
Outfall #18	39.4205053800	-92.4747562900	1306140.04300	1647547.96500
Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

The coordinate system used is NAD83 State Plane Missouri Central (in feet).

1.2 Regulatory Background

The MDNR Comprehensive General Permit for Discharges from Regulated Phase II MS4s, Permit MO-R04C030 (MS4 Permit; Attachment A) authorizes Moberly to discharge stormwater. As a city with a population between 10,000 and 40,000, Moberly is categorized as a Group B small MS4, as defined in the MS4 Permit. Part 3 of the MS4 Permit requires permittees to develop and maintain a written SWMP that includes the six MCMs established by the U.S. Environmental Protection Agency, evaluation and reporting efforts, and recordkeeping. The six MCMs are:

1. Public Education and Outreach of Stormwater Impacts (Part 4.1 of the MS4 Permit)
2. Public Involvement and Participation (Part 4.2 of the MS4 Permit)
3. Illicit Discharge Detection and Elimination (Part 4.3 of the MS4 Permit)
4. Construction Site Stormwater Runoff Control (Part 4.4 of the MS4 Permit)
5. Post-Construction Stormwater Management in New Development and Redevelopment (Part 4.5 of the MS4 Permit)
6. Pollution Prevention/Good Housekeeping for Municipal Operations (Part 4.6 of the MS4 Permit)

The Director of Public Utilities and Water Quality Coordinator serve as the responsible persons for the MCMs.

1.3 Purpose and Scope

The purpose of this SWMP is to:

- Provide BMPs for each of the six MCMs.
- Provide measurable goals to evaluate BMPs.
- Provide procedures for compliance with the proper monitoring, recordkeeping, and reporting requirements set forth by the MS4 permit.

Section 2 through Section 7 of this SWMP, which describe the City's Stormwater Program with respect to each MCM, are organized as follows:

- MCM Requirements: This section lists the applicable MS4 Permit requirements for each MCM, addressed in Part 4.1 through 4.6 of the MS4 Permit in *italic* text. ***Bold, italic*** text that precedes the permit requirement indicates the MS4 Permit requirement number. **Bold** text that follows the permit requirement indicates where this requirement is met in the SWMP.
- Target Pollutants and Audiences: This section provides the pollutant and audiences specific to each MCM. Note, this section is not applicable to MCM 2.

- Best Management Practices: This section lists, at a minimum, the required BMPs the City implements for each MCM.
- Measurable Goals: This section provides a measurable goal for each BMP listed for the MCM, the evaluation method of BMP effectiveness, and the determination of effectiveness.

2 MCM 1: Public Education and Outreach

2.1 MCM 1 Permit Requirements

4.1 *The MS4 Operator shall implement a public education program to distribute educational materials to the community and/or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.*

The public education and outreach program shall, at a minimum include the following:

4.1.A *The MS4 Operator shall target specific audiences who are likely to have significant stormwater impacts.*

1. *Traditional MS4s (cities and counties) shall address the residents being served by the MS4;*
3. *Additional other audiences within the MS4 service area (such as, but not limited to, those listed in Table I [of the Comprehensive Permit]) shall be addressed as listed below:*

Group B: A minimum of one (1) additional audience

The target audiences may remain the same for the entire permit cycle or may change if the tracking and adaptive management reviews show a new target may be better for the MS4. Any changes shall be stated and explained in the MS4 Stormwater Management Program Report.

Addressed in Moberly SWMP Section 2.2 and Table 2-1.

4.1.B *The MS4 Operator shall target specific pollutant(s) in the permittee's education program (such as, but not limited to, those listed in Table II [of the Comprehensive Permit]). 1.) Each MS4 shall have a minimum of one target pollutant for each target audience from Section 4.1.A of this permit. The same pollutant may be used for more than one target audience, the target pollutant(s) may change annually as needed.*

Addressed in Moberly SWMP Section 2.2 and Table 2-1.

4.1.C *The MS4 Operator must utilize appropriate educational resources to be used as BMPs (materials, events, activities, etc.) in conjunction with the selected pollutants for the selected target audiences. The message delivered by these BMPs needs to be appropriate to the target audience and relate to the target pollution. The distribution of the BMPs needs to be effective, and when possible associated with the target audience or pollutant (such as a swimming pool water disposal flyer when applying for a swimming pool permit). BMPs which are ongoing throughout the year or permit cycle may be counted as one annual BMP. The permittee's SWMP shall explain how each BMP relates to the target pollutant and target audience. The MS4 Operator may change BMPs during the permit cycle if determined appropriate through tracking and adaptive management reviews show a different BMP may be more effective for the MS4. Any changes shall be reflected in the SWMP and explained in the MS4 Stormwater Management Program Report.*

1. *Using Table III [of the Comprehensive Permit], the MS4 Operator shall implement a minimum of the following, including the tracking and adaptive management processes: Group B: Each permit cycle; four (4) education and outreach BMPs from Table III.*

Addressed in Moberly SWMP Section 2.3 and Table 2-2.

4.1.D *The MS4 Operator must create opportunities, or support activities that are coordinated by citizen groups, for residents and others to become involved with the Stormwater Management Program. The activities, (BMPs) must have an effort to impact stormwater runoff by improving water quality.*

1. *Using Table IV [of the Comprehensive Permit], the MS4 Operator shall implement a minimum of the follow including the tracking and adaptive management processes:*

   Group B: Each permit cycle; two (2) involvement BMPs from Table IV.

Addressed in Moberly SWMP Section 2.3 and Table 2-2.

4.1.E *The MS4 Operator shall create or support the involvement BMP(s) in Section 4.1.D. To be considered support given to the coordinating groups the MS4 Operator shall at minimum conduct the following or similar:*

- *Plan, or assist with planning, the event or activity;*
- *Contribute supplies, materials, tools, or equipment;*
- *Provide assistance from MS4 staff during the activity;*
- *Provide assistance with recruiting volunteers for events;*
- *Make a space available for projects, meetings, or events;*
- *Advertisement for the events;*
- *Supply disposal services;*
- *Arrange land or stream access;*
- *Financial support; and*
- *In-kind donations such as food.*

Addressed in Moberly SWMP Section 2.3 and Table 2-2.

4.1.F *Using adaptive management as required in parts 4.1.A.3.d and 4.1.B.1.c, all MS4 Operators shall review their Public Education and Outreach on Stormwater Impacts Program, at minimum, annually and update implementation procedures and/or BMPs as necessary within the requirements of this permit. This may be conducted when preparing the MS4 Stormwater Management Program Report for submittal to the Department.*

Addressed in Moberly SWMP Section 2.3 and Table 2-2.

2.2 Target Pollutants and Audiences

Table 2-1 provides a list of target pollutants and their associated potential sources and/or target audiences for MCM 1.

Table 2-1 MCM 1 Target Pollutants and Audiences

Target Pollutant	Potential Sources/ Target Audience(s)
Residential Pollutants: • Household hazardous waste • Litter/solid waste • Pesticides and herbicides • Pet wastes • Used oil	• Homeowners • Non-homeowners • Students; grades K-12 • Local college students • City Council
Commercial Pollutants: • Used oil • Sediment • Litter/solid waste	• Business owners • Management of large, paved areas
Industrial Pollutants: • Used oil • Sediment • Process/product chemicals • Hazardous materials • Litter/solid waste	• Business owners • Industrial site managers • Developers • Engineers • Management of large, paved areas

2.3 Best Management Practices

The City has the following ongoing public education BMPs to address MCM1, including, at a minimum:

- Staff identify target audiences who are likely to have significant stormwater impacts and target pollutants for each target audience. The City reviews these lists on an annual basis and updates the list as needed. Table 2-1 includes a list of target audiences and pollutants.
- Staff provide appropriate educational resources in conjunction with the selected pollutants for the selected target audiences. The City (a Group B MS4) is required to implement four education and outreach BMPs from Table III of the MS4 Permit each permit cycle. At a minimum, the City implements the following education and outreach BMPs:
    - Staff maintain a stormwater website with up-to-date information and working links.
    - Staff post stormwater education on social media post . Posts are made a minimum of four times per year on a minimum of one social media platform. The messages address ways community members can minimize or avoid adverse stormwater impacts or practices to improve the quality of stormwater runoff. Posts are designed to be seasonally appropriate.
    - Staff publish or post informational articles to educate the public on stormwater topics in the local newspaper, on the City's website, and/or on social media.

    - Staff host stormwater related educational meetings and trainings to address practices attendees can use to improve the quality of stormwater runoff.

- Staff organize activities for the public to become involved with the City's Stormwater Management Program. The City (a Group B MS4s) is required to implement two involvement BMPs from Table IV of the MS4 Permit each permit cycle. At a minimum, the City implements the following involvement BMPs:

    - City-sponsored and coordinated stream, lake, and watershed cleanup events; supplies and equipment for these events are provided by the City to support these activities (i.e.; trash bags, high visibility vests, etc.).
    - City-hosted public event educational displays and/or booths, which provide information intended to improve public understanding of issues related to water quality.

The City uses an adaptive management process on an annual basis to review and update the types of events, meetings, and other BMPs used. Any revisions made to BMPs used for MCM1 as a result of this review are described in the annual SWMP report.

2.4 Measurable Goals

The City has established measurable goals for each BMP to provide quantifiable milestones to document the use and effectiveness of established BMPs. All educational BMPs listed are currently implemented and ongoing. BMP effectiveness is monitored throughout the year and compiled in the annual SWMP report. Table 2-2 provides Moberly's measurable goals for the BMPs designated for MCM 1.

Table 2-2 MCM 1 Measurable Goals

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
List of target audiences and pollutants	Review lists annually	Evaluate whether the lists need to be revised	Each of the audiences and pollutants are targeted by at least one BMP once per year
Up-to-date website with stormwater information	• Links are functional • Website is updated as necessary (annually, at a minimum) and maintained the entire year	• Website usage and feedback is reviewed • Number of hits are tracked • Whether certain messages may need more education is evaluated	• Number of hits to the updated pages increases after being updated, or • City receives positive feedback on updated pages
Social media posts	A minimum of four posts per year on at least one social media platform	• Number of views, reactions, and other interactions is evaluated and tracked • Whether certain messages may need more education is evaluated	• People react or respond to posts, or • A link in the post increases hits on the city website above baseline
Post or publish articles	• Develop topics that are group specific and address activities and or pollutants of concern at a seasonally appropriate time • A minimum of two articles are posted or published annually	• Related pollutant(s) are evaluated before the article, and again after to see if there has been a change • Active responses to articles on social media or the website are tracked • Responses are tracked and evaluated to determine if the article was effective in reaching people	• The target pollutant decreases after the article, or • People actively respond to and discuss the article on social media or other documented forums
City-hosted educational meetings or trainings	• Events address methods to minimize or avoid adverse stormwater impacts or practices to improve the quality of stormwater runoff • A minimum of two events are held annually	• Attendance • Distributed education materials are tracked to gauge interest in the topic being presented • Follow-up surveys are conducted to track if the attendees retained information or found the event beneficial	• Ten or more people attend, or • The corresponding questionnaire demonstrates an improvement in topic understanding discussed among the participants

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
City-organized stream, lake or watershed cleanup events	Land area cleaned on an annual basis is, at a minimum: • 2 acres, or • 400 yards of stream/ streambank/ watershed, or • 2 miles of roadside, or • A combination of the above	The following are tracked: • Area or distance cleaned (by acre, yard or road miles) • Amount of waste removed (by tonnage, cubic yard, or Stream Team bag count) • Attendance Waste measurements are used to determine priority areas for litter entering stormwater, or areas of concern for illegal dumping	Land area cleaned is equal or greater than 2 acres, or 400 yards of stream, or 2 miles of road
City-hosted public event educational display or booth	• Improve public understanding of issues related to water quality • Provide one booth or display at a minimum, annually • Booth or display will be staffed by MS4 staff the MS4 at a minimum 50% of the time the event is open to the public	The following are tracked and evaluated to determine if the project or training covered a topic of interest and/or a topic that could be brought to a different or wider audience: • Number of interactions • Overall attendance • Topic(s) covered • Educational materials distributed	At least ten people received educational materials or otherwise interacted with the display in a measurable way (such as signing up for an upcoming event or participating in an activity at the booth)

3 MCM 2: Public Involvement and Participation

3.1 MCM 2 Permit Requirements

4.1 *The permittee shall develop and implement a comprehensive public participation program that provides opportunities for public participation in the development and oversight of the permittee's Stormwater Program.*

4.2.A *The MS4 Operator shall hold a public notice period for a minimum of thirty (30) days to allow the public to review the draft permit, and description of the MS4s Stormwater Management Program (this may be the Stormwater Management Plan) prior to the submission of the renewal application to the Department.*

Addressed in Moberly SWMP Section 3.2.1 and Table 3-1.

4.2.B *As part of the public notice, if the MS4 Operator has a public website, the required items shall be posted on their website with a way to submit comments, along with the standard public notice methods for the MS4.*

1. *The permittee shall respond to comments received during the comment period.*
2. *The MS4 Operator shall retain copies of any public comments and records of information submitted by the public received as part of the public notice process. These comments and responses shall be made available to the public or the Department upon request.*

Addressed in Moberly SWMP Section 3.2.1 and Table 3-1.

4.2.C *The MS4 Operator shall hold a public information meeting to provide information on, or describe the contents of, the proposed Stormwater Management Program. This meeting shall be advertised at least thirty (30) days prior to the public meeting.*

1. *As part of the notice of public meeting, if the MS4 Operator has a public website, the MS4 Operator shall post on that site, along with the standard public notice methods for the MS4. The notice of the public informational meeting, including the date, time and location.*
2. *The meeting must be held within the service area of the MS4.*

Addressed in Moberly SWMP Section 3.2.2 and Table 3-1.

4.2.D *The MS4 Operator shall have a publicly available mechanism to take public inquiries, concerns, or take information about stormwater and stormwater related topics.*

1. *This method shall encompass all MCMs of this permit. This mechanism may be a phone number, website comment form, voicemail box, an email address, social media platform, or a combination of these mechanisms.*
2. *All reports shall be tracked, recording the topic, location, and concern. This information can help identify pollutants of concern, priority areas, pollutant sources, and other information the MS4 Operator may use to evaluate the Stormwater Management Program.*

Addressed in Moberly SWMP Section 3.2 and Table 3-1.

4.2.E *If the MS4 Operator utilizes a stormwater management panel or committee, the MS4 Operator shall provide opportunities for citizen representatives on the panel or committee. The attendance of the meeting shall be recorded.*

Addressed in Moberly SWMP Section 3.2 and Table 3-1.

4.2.F *If the permittee has a governing board, such a County Council, City Council, or Board of Curators, a representative of the MS4 Operator, who is familiar with the MS4 Stormwater Program, shall provide an update to the governing board, at minimum, annually with the status of, or updates on, the Stormwater Management Program, and compliance with the Stormwater Management Program.*

Addressed in Moberly SWMP Section 3.2 and Table 3-1.

4.2.I *Tracking mechanisms shall be used for tracking attendance, inquiries or concerns per the requirements of Section 4.2. of this permit. Using adaptive management, all MS4 Operators shall review their Public Participation Program, at minimum, annually and update implementation procedures as necessary within the requirements of this permit. This shall be used to review how to best reach the public, the effectiveness of the mechanisms, the effectiveness of reaching the public and the MS4 Governing board and if the community and MS4 government are working together for water quality. Any additional events and/or BMPs shall be acknowledged in the Stormwater Management Program report.*

Addressed in Moberly SWMP Section 3.2 and Table 3-1.

3.2 Best Management Practices

The City has the following ongoing public involvement BMPs to address MCM 2, including, at a minimum:

- The City has a public notice period to allow the public to review the draft permit and the current SWMP prior to submitting a renewal application to MDNR. The public notice period is further described in Section 3.2.1.
- The City's website has publicly available information for the public notice, along with a method for the public to submit comments. The City provides responses to comments received during the public notice period and retains records of all responses and comments.
- The City hosts a public information meeting to provide information on, or describe the contents of, the proposed Stormwater Management Program. The public meeting information is further described in Section 3.2.2.
- The City's website has a comment form that allows the public to submit inquires, concerns, and information. City staff record and respond to all complaints and inquiries; resolutions or follow up to these submittals are kept with these records.

- Staff organize and host stormwater stakeholder committee that meets at least once per permit cycle to advise the City on stormwater issues. The City provides opportunities for citizen representatives on the committee.
- City Utility Department staff provide an update to the City Council on the Stormwater Management Program annually, at a minimum.

The City uses an adaptive management process on an annual basis to review and update the types of events, meetings, and other BMPs. Any revisions made to public involvement and participation BMPs used for MCM 2 a result of this review are described in the annual SWMP report.

3.2.1 Public Notice

The City holds a public notice period for a minimum of 30 days. The most recent public notice period was held during February 12, 2021 through March 15, 2021. The City logs and responds to comments received during the period. The City retains records of all public comments received as part of the public notice process. All comments and City responses to comments are made available upon request.

3.2.2 Public Meetings

The City holds public meetings to provide information on the SWMP, at a minimum, prior to the renewing the permit. This meeting is advertised at least 30 days prior to the public meeting. The City posts notice of public meeting on the website, including the date, time, and location. The meetings are held in a City building within the Moberly city limits.

The City held a public meeting on March 10, 2021 to allow the public to provide input to the content of the updated SWMP, prior to finalizing this plan. The meeting was announced via newspaper, City website, and social media. Invitee groups to the public meeting includes, at a minimum:

- City Council
- Moberly Area Economic Development
- Chamber of Commerce
- Main Street Moberly
- Moberly Area Public Schools
- Industries
- Commercial businesses
- Developers
- Engineering companies
- General public

3.3 Measurable Goals

All public involvement and participation BMPs described in Section 3.2 are currently implemented and ongoing. BMP effectiveness is monitored throughout the year and documented in the annual SWMP report. Table 3-1 provides the City's measurable goals for the BMPs designated for MCM 2.

Table 3-1 MCM 2 Measurable Goals

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
Public notice	Notify the public of the renewal application no less than 30 days before submission to MDNR	Stakeholders are contacted to confirm they are aware of the public notice period	Stakeholders indicate awareness of the public notice period
City-hosted public meeting	• Document meetings hosted • Host a public meeting once per permit renewal, at a minimum	Record attendance and comments	Members of the public attend
Comment forms on website	Record and respond to all complaints or inquiries	Comments and their responses / resolutions are recorded in a spreadsheet	• Comments forms are used by the public • A majority of the stormwater comments are received via online comment forms
Host stormwater committee of stakeholders	• Document meetings hosted • Host a meeting once per permit cycle	• Track attendance • Record comments are and document answers	Stakeholders attend and comment
Update to City Council	• Update Council once per year, at a minimum • Update is scripted ahead of time, and the text of the update is recorded	Feedback from City Council is provided and evaluated	The City Council is satisfied with the update

4 MCM 3: Illicit Discharge Detection and Elimination

4.1 MCM 3 Permit Requirements

4.3 *The MS4 Operator shall develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined in 10 CSR 20-6.200 at 40 CFR 122.26(b)(2)) into the regulated MS4.*

4.3.A *A current storm sewer system map that shall be updated as needed to include features which are added, removed, or changed. This map may be paper or electronic. This storm sewer map, must show at a minimum:*

1. *The location of all MS4 outfalls. The map shall be detailed enough that the outfalls can be accurately located;*
2. *The names and locations of all receiving waters of the state that receive discharges from the MS4 outfalls;*
3. *The boundary of the regulated MS4 area;*
4. *The map shall be readily available and used by field staff as needed; and*
5. *The map shall be made available to the Department upon request.*

Addressed in Moberly SWMP Section 4.3 and Table 4-2.

4.3.B *The MS4 Operator must record the sources of information used for the map and track, at minimum:*

1. *A numbering or naming system of all outfalls;*
2. *Dates that the outfall locations were verified/ or last field survey; and*
3. *For newly added outfalls, the date that it was added to the storm sewer system.*

Addressed in Moberly SWMP Section 4.3 and Table 4-2**.**

4.3.C *The MS4 shall effectively prohibit non-stormwater discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions. This prohibition shall be through ordinance or other regulatory mechanism, to the extent allowable under state or local law. This may be accomplished by more than one ordinance or mechanism. This may be done through a "nuisance code" however it must be certain that non-stormwater discharges are covered in this code. Such non-stormwater discharges may include, but are not limited to:*

- *Litter*
- *Household hazardous waste*
- *Leaves*
- *Soaps & detergents*
- *Illegal dumping*
- *Vehicle fluids*
- *Grass clippings*
- *Pet waste*

- *Sewage*

Addressed in Moberly SWMP Section 4.3 and Table 4-2.

4.3.D *A dry weather field screening strategy.*

1. *The MS4 Operator shall conduct (or have conducted on their behalf) outfall field assessments. The screening shall be conducted during dry weather conditions to check for the presence of a discharge.*
   Existing permittees:

   a) A minimum of 60% of all outfalls shall be screened during the permit cycle.

   b) Priority areas shall be screened each year.

2. *This screening shall include a checklist or other tracking devise to; ensure a complete inspection of each outfall, enhance consistency, and to track the field screening. This shall be used regardless of the presence of dry weather flow.*

   When discharge is present, the checklist or tracking devise shall note the following general observations and physical characteristics at a minimum:

   - *Date and time;*
   - *Weather conditions and temperature (air & water);*
   - *Color of discharge;*
   - *Estimate of flow rate (this may be done as a narrative);*
   - *Odor;*
   - *Surface scum, floatables or oil sheen present;*
   - *Deposits or stains;*
   - *Turbidity;*
   - *Stream impact including vegetation, fish, wildlife; and*
   - *Length of impacted stream.*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 2.2.

4.3.E *The MS4 Operator shall maintain diagnostic monitoring procedures to detect and investigate unknown non-stormwater flows as part of the dry weather screening program. These procedures are for possible illicit discharges, and may be collected, and analyzed by a contracted lab, or similar agreement with another entity who is equipped and experienced in sample collect and analysis.*

1. *This diagnostic monitoring shall include sampling unknown discharge from MS4 outfalls that are found to be flowing or ponding more than 72 hours after the last precipitation event and considered to be an illicit discharge.*

2. *The samples shall be analyzed for relevant parameters to determine if a pollutant is involved.*

a) *Relevant parameters will need to be determined on a case by case basis depending on the nature of the discharge and what the potential sources may be.*

b) *The MS4 Operator shall have the ability to sample for and analyze the samples. This may be done through a contract lab or similar agreement.*

c) *Possible parameters sampled for and analyzed when deemed applicable include but are not limited to:*

- *pH;*
- *Oil and grease;*
- *E.Coli or fecal coliform;*
- *Surfactants or fluorescence concentration;*
- *Specific conductivity;*
- *Ammonia;*
- *Chlorine;*
- *Dissolved oxygen; and*
- *Fluoride/ hardness*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 2.2.

4.3.F *The MS4 Operator shall maintain procedures for tracing the source of an illicit discharge.*

If initial screening indicates that a dry weather discharge contains pollutants, or if an illicit discharge is suspected from another reporting method, the source shall be traced.

1. *These procedures shall include mechanisms to locate and follow stormwater infrastructure. A variety of investigative tools may be used as appropriate for each situation, such as, but not limited to;*

- *Visually following the flow;*
- *Storm sewer system sampling;*
- *Full storm sewer map;*
- *Closed circuit television;*
- *Smoke or dye tracing; and*
- *Tunnel entry.*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 2.5.

4.3.G *The MS4 Operator shall maintain procedures for removing the source of the discharge. After locating the source, the pollutant and source must be removed. While the exact procedure will depend on the source and the circumstances, the MS4 Operator must maintain any necessary contacts with appropriate entities that may be needed for these procedures (such as an environmental cleaning company). This information shall be made available to the responsible staff.*

The MS4 Operator is encouraged to work with the source of the illicit discharge to remedy the situation. Possible remedies shall include:

1. *Implement source control or treatment BMPs to prevent reoccurrence of the violation;*
2. *Remediation or restoration of affected property.*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 5.0.

4.3.H *In order to prevent further illicit discharge, the MS4 Operator shall identify priority areas such as, but not limited to:*

- *Areas with evidence of ongoing illicit discharges;*
- *Past history of illicit discharges;*
- *Land use influencing storm sewer/ proximity of potential pollutant sources;*
- *Areas of higher population density;*
- *Neighborhoods with onsite sewage systems;*
- *Areas with known litter or dumping issues;*
- *Large or increased number of citizen complaints; and*
- *Industrial areas*

Annually, the MS4 Operators shall evaluate this priority area list and update as necessary to reflect changing priorities.

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 2.1.

4.3.I *The MS4 Operator shall maintain written procedures for implementing the IDDE Program, including those components described within this section, to ensure program continuity and consistency.*

1. *This shall include a description of this dry weather field screening strategy and implementation schedule to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the permittee's system.*
2. *This shall include a description of how the discharge is evaluated and the possible parameters that are tested.*
3. *If contracted to another entity, the contact information shall be listed.*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 2.4.

4.3.J *The MS4 Operator must conduct investigations in response to field screening discoveries, spills, or in response to complaints from the public, municipal staff, or adjacent MS4s. The investigation must work to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection. Responses shall meet the following investigation timelines:*

1. *Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.*
2. *Investigate (or refer to the appropriate agency with the authority to act) within five (5) days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare or the environment.*
3. *If illicit connections or illicit discharges are observed related to, discharging to, or discharging from, an adjacent MS4 Operator's municipal storm sewer system, the MS4 Operator must notify the other MS4's Operator within 24 hours of discovery or as soon as practicable.*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 2.4.

4.3.K *The MS4 Operator shall have procedures for appropriate enforcement, this may include fines, the ability to collect cleanup and abatement costs, and actions to ensure that the permittee's illicit discharge ordinance (or other regulatory mechanism) is being implemented.*

1. *The MS4 Operator shall maintain a written description of the enforcement procedure. This shall include a copy of or link to the ordinance and/or other regulatory mechanism that the MS4 Operator will use to enforce the prohibition of illicit discharges into the MS4.*

Addressed in Moberly SWMP Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 5.0.

4.3.L *The MS4 Operator shall maintain a database, or other centralized system, to track dry weather field screenings, spills, incidents, and investigations.*

1. *Tracking mechanisms shall be used for incidents, investigations, enforcement and follow up. This data shall be used to continuously evaluate the effectiveness of the IDDE program. This data shall be reviewed to determine if there is a new priority area.*

   The MS4 Operator shall record annually at a minimum:

   a) *Number of outfalls screened;*
   b) *Number of complaints received and investigated; and*
   c) *Number of illicit discharges removed.*

2. *The MS4 Operator shall document all investigations to track at a minimum:*

   a) *The date(s) the illicit discharge was observed and investigated;*
   b) *Summary of procedures used to investigate the illicit discharge;*
   c) *The outcome of the investigation including sample results and findings;*
   d) *Any follow-up of the investigation including cleanup, enforcement actions, visits to confirm the illicit discharges have been removed; and*
   e) *The date the investigation or issue was closed or resolved.*

Addressed in Moberly SWMP Section 4.3 and Table 4-2.

4.3.M *The MS4 Operator shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste, this may work with part 4.1 and part 4.6 of this permit (MCM #1 and MCM #6).*

Addressed in Moberly SWMP Section 2.3, Section 4.3, Table 4-2, and *Illicit Discharge Detection and Elimination Plan* Section 6.0.

4.3.N *All MS4 Operators shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary.*

Addressed in Moberly SWMP Section 4.3 and Table 4-2.

4.3.Q *The MS4 Operator must develop and implement or maintain a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system. This shall include staff who may handle materials which may become an illicit discharge. This shall include discharges through spills, improper disposal, mismanagement, improper vehicle or equipment washing or rinsing. This training may be conducted with resources online and may be focused for what topics are relevant to their position.*

1. *Each staff shall take this training at minimum within one year of a new employee being hired.*
2. *The applicable staff may include the following; (unless the MS4 Operator does not have the listed department under their jurisdiction). Additional staff or departments shall be included if appropriate;*
    - *Fleet maintenance staff;*
    - *Staff at facilities with fuel, chemicals, washing of vehicles or equipment;*
    - *Road maintenance staff;*
    - *Road salt/de-icing staff;*
    - *Parks, swimming pool, or golf course staff who encounter spills, equipment washing, fuel, chemicals, etc.*
3. *The training dates, topics and the attendance shall be recorded.*
4. *Reviews of the training effectiveness shall be considered after municipal site inspections or after an incident occurs. If a certain department or facility did not perform the way they were trained, or if an issue arises that was not handled properly, the MS4 Operator should consider if the training is enough or is ineffective. The MS4 Operator shall consider ways to survey or test staff to see if the training is effective.*

Addressed in Moberly SWMP Section 4.3, 7.3.1, and Table 4-2.

4.3.O *Using adaptive management the MS4 Operator shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary. This data shall be used to*

continuously evaluate the effectiveness of each BMP and the implementation of each BMP. Any additional BMPs shall be acknowledged in the annual report.

Addressed in Moberly SWMP Section 4.3 and Table 4-2.

4.2 Target Pollutants and Audiences

Table 4-1 provides a list of target pollutants and their associated target audiences for MCM 3.

Table 4-1 MCM 3 Target Pollutants and Audiences

Significant Contributors	Target Pollutants	Target Audience(s)
On-site sewer systems	E.coli	• Homeowners • Commercial businesses • Industries
Animal waste	E. coli	• General public
Shipping container activity/transport	Incidental or accidental releases of chemicals/products	• Commercial businesses • Industries
Litter	Debris, sediment	• Homeowners • Commercial businesses • Industries • Developers • Management of large, paved areas • General public
Residential chemical use	Pesticides/herbicides Household hazardous waste Used oil	Homeowners
Agricultural activities	Fertilizers, pesticides, E. coli	• Agricultural business owners
Vehicle service stations	Oil and grease, benzene, toluene, ethylene, and xylene	• Commercial businesses • Industries
Industrial activities	Various industrial products depending on industry	Industries
Construction activities [1]	Debris, sediment Incidental or accidental releases of chemicals/fluids	• Developers • Contractors

1 Further addressed by MCM 4

4.3 Best Management Practices

Chapter 34, Article II of Moberly's Code of Ordinances (Attachment B) and *Illicit Discharge Detection and Elimination Plan* (Attachment C) provide procedures and plans for illicit discharge detection and elimination (IDDE). In addition, the City has the following ongoing IDDE BMPs to address MCM 3, including, at a minimum:

- Staff maintain an up-to-date electronic map of the storm sewer system that includes the location of all MS4 outfalls, names and locations of all receiving waters of the state that receive discharges from the MS4 outfalls, and boundary of the regulated MS4 area. The map is easily accessible and available to MDNR upon request.

- Staff maintain a record of the sources of information used to develop and update the storm sewer system map. The City tracks, at a minimum, a naming system of all outfalls, and dates that the outfall locations were verified or added (for new outfalls). For reference, Attachment D includes the *MS4 Outfalls Review and Recommendations Report* provided to the City by Barr Engineering Co. in July 2018.

- The City prohibits non-stormwater discharges from the storm sewer system. This prohibition is implemented and enforced through Chapter 34, Article II of Moberly's Code of Ordinances.

- The City has a dry weather field screening strategy. The City conducts field inspections of all outfalls during dry weather to check for the presence of non-stormwater discharges. A minimum of 60% of all outfalls are screened during the permit cycle. Priority areas of the City are screened annually. The City uses a checklist to complete and track the field screening (Appendix C of the IDDE Plan).

- The City has diagnostic monitoring procedures to detect and investigate unknown non-stormwater flows as part of the dry weather screening program. These procedures are used to determine when to collect and analyze a sample of possible illicit discharges. This procedure is maintained and updated in the IDDE Plan.

- The City has procedures for tracing the source of an illicit discharge. If initial screening indicates that a dry weather discharge contains pollutants, or if an illicit discharge is suspected based on evidence or reports, the source will be traced. These procedures are included in the IDDE Plan and include mechanisms to locate and trace stormwater infrastructure.

- The City has procedures for removing the source of an illicit discharge. This procedure is described in the IDDE Plan. The City addresses the source of illicit discharges and determines feasible remedies. Possible remedies could include implementation of source control or treatment BMPs to prevent reoccurrence of the violation, and/or remediation or restoration of affected property.

- Staff identify priority inspection areas such as, but not limited to:

    - Areas with evidence of ongoing illicit discharges
    - Past history of illicit discharges
    - Land use influencing storm sewer/proximity of potential pollutant sources
    - Areas of higher population density

- Neighborhoods with on-site sewage systems
- Areas with known litter or dumping issues
- Large or increased number of citizen complaints
- Industrial areas

This priority area list is evaluated annually and updated as needed.

- Staff maintain written procedures for program implementation in the IDDE Plan.
- Staff pursue investigations in response to any field screening discoveries, spills, or in response to complaints from the public or municipal staff. The investigation is used to determine the source of the illicit discharge, the nature and volume of discharge through the illicit connection to the storm sewer, and the party responsible. The City follows these timelines for illicit discharges:
    - Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.
    - Investigate (or refer to the appropriate agency with the authority to act) within five days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare, or the environment.
- The City has procedures for appropriate enforcement. These may include fines, the ability to collect cleanup and abatement costs, and/or actions to confirm that the permittee's illicit discharge ordinance (or other regulatory mechanism) is being implemented. The City maintains a written description of the enforcement procedure. This includes a copy of or link to the ordinance and/or other regulatory mechanism that the City will use to enforce the prohibition of illicit discharges into the MS4.
- Staff maintain a tracking system used to track dry weather field screenings, spills, incidents, and investigations. The tracking system is used for incidents, investigations, enforcement, and follow up. This data gathered is used to evaluate the effectiveness of the IDDE program. This data is periodically reviewed to determine if any new priority areas need to be added. The City records the following information annually, at a minimum:
    - Number of outfalls screened
    - Number of complaints received and investigated
    - Number of illicit discharges removed

The City documents all investigations to track the following data, at a minimum:

- The date(s) the illicit discharge was observed and investigated

- Summary of procedures used to investigate the illicit discharge
- The outcome of the investigation including sample results and findings
- Any follow-up of the investigation, including cleanup, enforcement actions, and visits to confirm the illicit discharges have been removed
- The date the investigation or issue was closed or resolved

- Staff provide educational information provided to City employees, businesses, and the general public of the hazards associated with illicit discharges and improper disposal of waste to the storm sewer system.
- Staff conduct an annual review the IDDE Program, at a minimum. The IDDE Plan is updated as needed.
- The City has a training program for all municipal field staff, who, as part of their job duties, may come into contact with or observe an illicit discharge or illicit connection to the storm sewer system. This training includes discharges through spills, improper disposal, mismanagement, and improper vehicle or equipment washing or rinsing. Each staff will take this training at a minimum within one year of a new employee being hired. City staff include:
  - Fleet maintenance staff
  - Staff at facilities with fuel, chemicals, washing of vehicles or equipment
  - Road maintenance staff
  - Road salt/de-icing staff
  - Parks, swimming pool, or golf course staff who encounter spills, equipment washing, fuel, chemicals, etc.

  Training dates, topics, and the attendance will be recorded. Reviews of the training effectiveness are considered after municipal site inspections or after an incident occurs. If a certain department or facility did not perform the way they were trained, or if an issue arises that was not handled properly, the City considers if the training is sufficient or is ineffective.

The City uses an adaptive management process on an annual basis to review the IDDE program and updates implementation procedures as necessary. The review of the IDDE program also serves to evaluate the effectiveness and implementation of BMPs. Any revisions made to the list of IDDE BMPs for MCM 3 are described in the annual SWMP report.

4.4 Measurable Goals

All IDDE BMPs described in Section 4.3 are currently implemented and ongoing. BMP effectiveness is monitored throughout the year and compiled in the annual SWMP report. Table 4-2 provides the City's measurable goals for the BMPs designated for MCM 3.

Table 4-2 MCM 3 Measurable Goals

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
Storm sewer system map	• The map is updated as needed based on field observations • Revisions to the map will be completed by October 2023	The map is reviewed for accuracy in the field	The map accurately reflects the City's knowledge of the stormwater system
Record information used to develop and update the storm sewer system map	Record: • Names of all outfalls • Dates outfalls were last surveyed	Accuracy of outfall records are reviewed	Outfall records are current
Prohibit non-stormwater discharges by City ordinance	• Maintain and review City ordinance • Updates to City ordinance will be completed (if needed) by October 2022	Ordinance is reviewed and updated as needed	Ordinance is applied as intended and revised when needed
Dry weather field screening	• Inspect 60% of all outfalls during the permit cycle • Inspect all priority areas annually • Inspections conducted a minimum of 72 hours after the last precipitation event	• Number of inspections are tracked and evaluated • City confirms tracking is kept current	All inspections are tracked and the appropriate data is recorded
Monitoring procedures to investigate non-stormwater flows	Sample and analyze dry weather non-stormwater flows during investigation events	Sample data is tracked and evaluated for non-stormwater flows	Sample data is used to investigate and determine sources for investigated non-stormwater flows
Procedures for tracing illicit discharge source(s)	Use the IDDE procedures to trace the sources for illicit discharges	• Methods used for source tracing are tracked • Procedures are reviewed and revised as needed	Source tracing procedures are used by City staff and the methods proposed are effective to determine sources
Procedures for removing the source of an illicit discharge	Use the IDDE procedures to address illicit discharges	• Illicit discharge sources removed are tracked • Procedures are reviewed and revised as needed	Procedures for addressing sources are effective in removing illicit discharges

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
Identify priority inspection areas	Complete list of priority areas and update as needed	List is reviewed and revised on an annual basis reflect priorities	List is accurate and reflective of the City's current priorities
Maintain and update the IDDE Plan and Program	IDDE Plan and Program is used to inspect, investigate, track, and eliminate illicit discharges	IDDE Plan and Program are reviewed annually and revised as needed	IDDE Plan is updated, and procedures are effective to inspect, investigate, track and eliminate illicit discharges
Conduct illicit discharge investigations	• Immediately respond to all reported illicit discharges or spills • Investigate (or refer to proper authorities) complaints and reports that are an immediate threat as soon as possible • Investigate all complaints or reports that are not an immediate threat within five business days	Investigations and response times are tracked and reviewed	All investigations are conducted within five business days and illicit discharges are addressed in a timely manner
Maintain enforcement procedures	Use the IDDE enforcement procedures to address illicit discharges	• Enforcement actions and illicit discharge sources removed are tracked • Procedures are reviewed and revised as needed	Enforcement actions result in removal of illicit discharges
Maintain IDDE tracking system	• Use tracking system to record and compile all IDDE related data and information • Record number of outfalls inspected, number of complaints investigated, number of illicit discharges removed, dates of investigations; procedures used for investigations, investigation outcomes actions taken to remove illicit discharges, and dates of resolutions	• Data recorded is used to evaluate completeness of the tracking system • Tracking system is revised as needed	Data captured in the tracking system is sufficient to evaluate the overall effectiveness of the IDDE Plan and program

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
Education on IDDE	Provide public education opportunities or events on the hazards of illicit discharges	• Education provided is reviewed and tracked • Education materials are revised as needed	Public engages with and/or participates in education opportunities or events
City staff IDDE training program	• Conduct training for City staff • City staff attend training • Track training dates, topics, and attendance	Staff knowledge is evaluated through field performance	• Staff performs as trained during and after illicit discharge inspections and incidents • Field staff receive training within one year of start date.

5 MCM 4: Construction Stormwater Runoff Control

5.1 MCM 4 Permit Requirements

4.4 *The MS4 Operator shall develop, implement and enforce a program to reduce pollutants in any stormwater runoff to their MS4 from construction activities that result in land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre shall 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.*

4.4.A *The MS4 Operator shall have a law, ordinance and/or other regulatory mechanism to require erosion and sediment control BMPs at construction/land disturbance sites greater than or equal to one (1) acre or less than one acre if the construction activity is part of a larger common plan or development or sale that would disturb one acre or more. The mechanism shall include sanctions which are designed to ensure compliance, to the extent allowable under State, Tribal, or local law.*

Addressed in Moberly SWMP Section 5.3, Table 5-2, and Land Disturbance Manual Section 1.0.

4.4.B *The MS4 Operator shall review pre-construction plans. These reviews at a minimum shall:*

1. *Incorporate the consideration of potential water quality impacts through procedures for site plan review. The site plan review procedures shall evaluate threats to water quality shall by considering, at minimum, the following factors:*
    a) *Soil erosion potential;*
    b) *Site slope;*
    c) *Project size and type;*
    d) *Sensitivity of receiving waterbodies;*
    e) *Discharge flow type (pipe or sheet flow);*
    f) *Location of discharge point in relation to receiving water;*
    g) *Proximity to receiving waterbodies; and*
    h) *Other factors relevant to the MS4 service area.*
2. *Use a checklist, or other listed criteria, to ensure consistency and completeness.*
3. *Include requirements for construction site operators to select, install, implement, and maintain appropriate stormwater control measures.*
    a) *This includes temporary BMPs throughout the life of the land disturbance, and permanent BMPs which remain on site as required by local codes and ordinances.*

4. *Consider ways to minimize disturbed areas through actions such as, phased construction requirements, temporary seeding or sodding, or erosion mats to exposed areas.*

5. *Include requirements for construction site operators to control construction-site waste that may cause adverse impacts to water quality. This shall include at a minimum:*

   a) *Discarded building materials;*

   b) *Concrete truck, and mortar mix washout;*

   c) *Chemicals (such as fertilizer, paint, oils, herbicides, pesticides);*

   d) *Litter; and*

   e) *Sanitary waste.*

Addressed in Moberly SWMP Section 5.3, Table 5-2, and Land Disturbance Manual Sections 3.0 and 4.0.

4.4.C *The MS4 Operator shall establish authority for site inspections and enforcement of control measures. To the extent allowable by state, federal, and local law, all MS4 Operators shall implement procedures for inspecting construction/land disturbance projects. The construction site stormwater program shall implement at a minimum:*

1. *Identify priority sites for inspection based on nature of the construction activity, topography, disturbed area, and the characteristics of soils and sensitivity of, or proximity to, receiving water;*
2. *Construction site inspections shall include assessment of compliance with the MS4 Operator's construction site storm water runoff control ordinance or regulatory mechanism, and other applicable ordinances;*
3. *The inspections shall evaluate any structure that functions to prevent pollution of stormwater or to remove pollutants from stormwater and use enforcement polices to require BMPs are implemented and effective;*
4. *Final inspection, upon completion of the land disturbance and prior to final approval or occupancy of construction project. Ensure all disturbed areas have been stabilized, that all temporary erosion and sediment control measures are removed.*
5. *The inspections conducted by the MS4 Operator shall be documented with a checklist. The checklist must include structural BMPs and check on the self-inspection which are conducted by the construction site operator. These MS4 Operator checklists may be electronic.*

Addressed in Moberly SWMP Section 5.3, Table 5-2, and Land Disturbance Manual Section 5.4.

4.4.D *The construction site stormwater program shall include an established, escalating enforcement policy that clearly describes the action to be taken for violations. The program shall have procedures to ensure compliance with the MS4 Operator's erosion and sediment control regulatory mechanism. This shall include the sanctions and enforcement mechanisms the permittee will use to ensure compliance and procedures for when certain penalties, injunctions or other measures will be used.*

1. *The MS4 Operator must have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance.*

2. *Enforcement responses to violations must consider the following criteria at minimum:*

   a) *Degree and duration of the violation;*

   b) *Effect the violation has on the receiving water;*

3. *Enforcement actions shall be timely in order to ensure the actions are effective. These procedures and actions must be written and available for MS4 staff for consistency and training purposes.*

4. *The MS4 Operator must have a minimum of two (2) enforcement actions they are able to use. Possible enforcement actions include, but are not limited to:*

   a) Stop Work orders;

   b) Verbal education or educational materials given to the construction site operator;

   c) Written warnings or notice of violation;

   d) Bonding or escrow requirements;

   e) Fines/ penalties; and

   f) Denials for previous non-compliance.

Addressed in Moberly SWMP Section 5.3, Table 5-2, and Land Disturbance Manual Section 7.0.

4.4.E *The MS4 Operator shall require the construction site operator to conduct inspections at minimum:*

1. *Every fourteen (14) days, when construction is active.*
2. *Within 72 hours of any storm event, and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased.*

Checklists used for these inspections conducted by construction site operators may be submitted to the MS4 Operator, or the MS4 Operator may verify that these inspections are being conducted by the construction site operator checklists during MS4 Operator inspections.

Addressed in Moberly SWMP Section 5.3, Table 5-2, and Land Disturbance Manual Section 5.4.

4.4.F *The MS4 Operator shall maintain an inventory of active public and private land disturbance sites, as defined in Section 4.4 of this permit. This may be supplemented with records such as a plan review checklist and email correspondence. The inventory must contain:*

1. *Relevant contact information for each project (e.g., tracking number, name, address, phone, etc.);*
2. *Size of the project/ area of disturbance;*
3. *If the site is a priority site/ how high of priority;*

Addressed in Moberly SWMP Section 5.3 and Table 5-2.

4.4.G *The MS4 Operator shall track their oversite inspections. This may be done by retaining copies of records such as inspection checklists and email correspondence. The MS4 Operator must make these inventories available to the Department upon request. The tracking must contain at a minimum:*

1. *Inspection dates and time;*
2. *Inspector name;*
3. *Inspection findings; and,*
4. *Follow up actions and dates, including corrective actions all enforcement actions.*

Addressed in Moberly SWMP Section 5.3 and Table 5-2.

4.4.J *The Stormwater Management Program must include procedures for the MS4 Operator to receive and consider information submitted by the public about land disturbance sites. This may be in combination with 4.2.D of this permit.*

Addressed in Moberly SWMP Section 5.3 and Table 5-2.

4.4.K *The MS4 Operator shall provide, or support access to, construction site runoff control training for MS4 inspectors and plan reviewers at minimum once during this permit cycle. This education shall be tracked or documented.*

Addressed in Moberly SWMP Section 5.3 and Table 5-2.

4.4.L *The MS4 Operator must provide written procedures outlining the local inspection and enforcement procedures to their inspectors to ensure consistency among the inspections.*

Addressed in Moberly SWMP Section 5.3 and Table 5-2.

4.4.M *Using adaptive management, all MS4 Operators shall review, at minimum annually, their Construction Site Stormwater Runoff Control Program and evaluate the ordinances, review procedures, inspection procedures, enforcement procedures, receipt of public information procedures, and effectiveness of training procedures to ensure compliance with these requirements and determine if changes are needed. This annual review may include but is not limited to:*

1. *Evaluating the most common violations, how violations are handled, how many are escalated;*
2. *If the education program can assist in reducing violations;*
3. *Determining if the site plans match the sites when violations arise or if additional items need to be evaluated at plan review;*
4. *Assessing public complaints being addressed in a timely manner; and*
5. *Evaluating if the inspections are thorough and consistent across different sites.*

Any additional BMPs shall be acknowledged in the SWMP.

Addressed in Moberly SWMP Section 5.3.

5.2 Target Pollutants and Audiences

Table 5-1 provides a list of target pollutants, potential sources, and associated target audiences for MCM 4.

Table 5-1 MCM 4 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sediment, including vehicle track-out • Litter • Construction materials / chemicals • Concrete truck washout • Vehicle and equipment fluids	• Construction sites • Sediment stockpiles • Construction materials • Waste materials • Vehicle maintenance/fueling	• Developers • Engineers • Contractors • Landowners / homeowners • Industries • Commercial business owners

5.3 Best Management Practices

Chapter 34, Article III of Moberly's Code of Ordinances and *Land Disturbance Manual* provide procedures and plans for target audiences to comply with construction stormwater runoff. In addition, the City has the following Construction Stormwater Runoff Control BMPs to address MCM 4, including, at a minimum:

- Staff review pre-construction plans. Section 3.0 and Section 4.0 of the *Land Disturbance Manual* provide additional details and a checklist (Appendix B of the *Land Disturbance Manual*) to guide the City's review of pre-construction plans.
- The City has the established authority for site inspections and control measure enforcement. The City's construction site runoff program, includes the following, at a minimum:
    - Priority sites are identified for inspection based on the nature of construction activity, topography, disturbed area, and the characteristics of soils and sensitivity of, or proximity to, receiving water.
    - City inspections are documented with a checklist, that include, at a minimum:
        - Assessment of compliance with the Chapter 34, Article III of Moberly's Code of Ordinances and *Land Disturbance Manual*
        - Evaluation of stormwater controls
        - Final inspection that confirms all disturbed areas have been stabilized and all temporary erosion and sediment controls are removed from the site
- The City as an escalating enforcement policy that clearly describes the action to be taken for violations. The City has the authority to initiate enforcement actions. Section 7 of the *Land Disturbance Manual* provides details on the City's enforcement program.

- The City requires construction site inspections by the construction site operator. The City requires construction operators to maintain inspection checklists on site and verifies these inspections are being conducted using the inspection checklists as the City uses during its inspections.
- Staff maintain an inventory of active public and private land disturbance sites, as defined in Section 4.4 of the MS4 Permit. The inventory contains, at a minimum:
    - Contact information for each project (e.g., tracking number, name, address, phone, etc.)
    - Name and contact information of permit holder
    - Site location
    - Project size / area of disturbance
    - Priority level of site
- Staff maintain an inventory of City oversite inspections. This inventory contains, at a minimum:
    - Site name and location
    - Permit holder name
    - Inspection dates and time
    - Inspector name(s)
    - Inspection findings
    - Follow-up actions and dates, including corrective actions and enforcement actions
- The City's stormwater management program includes procedures for the City to receive and consider information submitted by the public regarding land disturbance sites. The City has a designated location on its website for such submittals and responds to comments within three business days. Comments and responses are tracked in an electronic file.
- The City provides construction runoff control training for MS4 inspectors and plan reviewers at least one time during the MS4 Permit cycle and documents training attendance.
- The City has written procedures that outline the local inspection and enforcement procedures for City inspectors to confirm inspection consistency.

The City uses adaptive management to review its construction site stormwater runoff control program on an annual basis and evaluate the ordinances and procedures. At a minimum, this annual review evaluates:

- The most common violations, how violations are handled, and how many have escalated
- Whether the education program can assist in violation reduction
- If additional items need to be evaluated during site plan reviews
- The length of time to respond to public complaints

- Inspection thoroughness and consistency across sites

In addition, the City addresses any additional BMPs in the SWMP or Stormwater Management Program Report.

5.4 Measurable Goals

BMP effectiveness is monitored throughout the year and compiled in the annual SWMP report. Table 5-2 provides the City's measurable goals for the Construction Stormwater Runoff Control BMPs designated for MCM 4.

Table 5-2 MCM 4 Measurable Goals

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
City ordinance that requires BMP installation and maintenance at land disturbance sites	Evaluate inspection and violation records	Inspection and violation records are maintained and assessed	Site operators are held accountable for violations
Plan reviews for land disturbance sites	Maintain checklists and plans	Checklists for inspections and plans are saved for every land disturbance site until construction is complete	The Land Disturbance Manual's plan checklist is fulfilled, and stormwater concerns are addressed for each site
Active construction site inspections by City	Track inspections completed; goal is once per month per permitted site	Inspection records are saved and inspections are reported to the department head	• Inspections occur monthly and problems are detected before public complaints occur • Recordkeeping is complete
Enforcement actions for land disturbance violations	Record and track inspection records, enforcement actions, and violators	Inspection records and records of enforcement are recorded and reviewed annually to track frequency and perpetrators of violations	Violations decrease
Self-inspections by contractors	City reviews records during oversite inspections (implementation date: July 1, 2022)	City reviews records during oversite inspections	Contractors perform inspections and make them available to City staff
Inventory of land disturbance sites	The inventory is maintained and updated on a monthly basis	The City secretary maintains records and makes them available for review.	Recordkeeping is complete
Public information and complaints	• Maintain public site for complaints / information • Respond to complaints in a timely manner	• Complains can be submitted in the same say as general stormwater complaints • Complaint records are reviewed annually	Complaint forms are utilized and are the primary method for complaint submittals.

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
Erosion and sediment control education for contractors and plan reviewers	• Demonstrated proficiency of attendees • The City will offer this training by the end of the permit cycle	• Training includes a test to evaluate proficiency • City monitors performance following education course	Trainees demonstrate knowledge at the end of the course and avoid complaints through proper BMP management
Written procedures for inspection and enforcement is provided to inspectors	Inspectors adhere to Land Disturbance and Post Construction Manuals	Inspectors must possess both physical and digital copies of the Land Disturbance and Post Construction Manuals.	Inspection personnel possess copies of the manuals

6 MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

6.1 MCM 5 Permit Requirements

4.5 *The MS4 Operator shall continue or develop, implement, and enforce a program to address the quality of long-term stormwater runoff from new development and redevelopment projects that disturb equal to and greater than one acre, including projects less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more and that discharge into the regulated MS4. The MS4's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts.*

4.5.A *The MS4 Operator shall maintain and utilize an ordinance(s) or other regulatory mechanism(s) to address post-construction runoff from new development and redevelopment projects to the extent allowable under state or local law for sites equal to or greater than one acre including projects less than one acre that are part of a larger common plan of development or sale. The goal of this approach is to arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, utilize BMPs that effectively remove stormwater pollution, and attempt to maintain predevelopment runoff conditions.*

The MS4's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts from stormwater, after construction.

1. *If adopting a set of standards from another MS4 or other established standards, the MS4's ordinance may incorporate by reference, therefore the MS4 does not need to incorporate the entire guidance into their codes.*
2. *This program may be accomplished through one or multiple ordinances or regulatory mechanisms.*

Addressed in Moberly SWMP Section 6.3, Table 6-2,and Post Construction Manual Section 1.0.

4.5.B *The MS4 Operator shall continue or develop a strategy to minimize water quality impacts. This shall include a combination of structural and/or non-structural controls (BMPs) appropriate for the permittee's community.*

1. *Structural controls include but are not limited to; extended detention basins, grass swales, bio-retention, permeable surfaces, sand filter basins, stormwater planters, proprietary BMPs. The ordinance or regulatory mechanism for structural post-construction controls, or water quality facilities, shall include:*
    a) *Adoption or development of numeric or technical performance and/or design standards to control post-construction stormwater discharges. These post-construction stormwater standards are for designing, installing, implementing, and maintaining stormwater control measures which may include, but are not limited to BMPs that; infiltrate, evapo-transpire, harvest, detain, retain, and/or reuse stormwater. The MS4 Operator must adopt or maintain*

local stormwater discharge design standards that consider parameters such as; site discharge volume, rate, duration, and frequency for new development and redevelopment sites with the intent to minimize the impact of stormwater runoff on water quality.

2. *Non-structural controls include but are not limited to; stream buffers, no mow zones, preservation of open spaces, tree preservation, impervious cover reduction, land use planning, and low impact development. The ordinance(s) or regulatory mechanism(s) for non-structural post-construction controls, shall include:*

    a) *Adoption or development of preventative actions that involve management and source controls such as, but not limited to:*

        - *Policies and ordinances that provide requirements and standards to direct development to identified areas;*
        - *Protection of sensitive areas such as wetlands and riparian areas;*
        - *Maintain and/or increase open space (which may include a dedicated funding source for open space acquisition);*
        - *Maintain requirements for buffer zones along water bodies;*
        - *Require minimizing impervious surfaces;*
        - *Require minimizing disturbance of soils and vegetation;*
        - *Policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure;*
        - *Programs which incentivize the use of green infrastructure;*
        - *Requirements for minimization of directly connected impervious areas; and*
        - *Tree preservation ordinances.*

Addressed in Moberly SWMP Section 6.3, Table 6-2, and Post Construction Manual Section 3.0.

4.5.C *Pre-construction plan review shall be conducted by the MS4 Operator to assess site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance. The structural or non-structural controls chosen shall; protect sensitive areas, minimize the creation of stormwater pollution, and effectively reduce stormwater pollution. This can be achieved by reasonably mimicking pre-construction runoff conditions on all affected new development projects, or the permittee may achieve this goal through a method more appropriate for its community.*

1. *The plan review process shall use a checklist. This may be part of the same plan review in MCM 4.*

2. *The plan review process shall evaluate non-structural BMP selection first, such as comprehensive plans, zoning ordinances, buffer strips, and/or maximization/preservation of open space. Non-structural BMPs primarily prevent stormwater runoff from a site, which could influence the options for structural BMPs which help mitigate the stormwater related impacts after they have occurred.*

Addressed in Moberly SWMP Section 6.3, Table 6-2, and Post Construction Manual Sections 3.0 and 4.0.

4.5.D *The MS4 Operator shall have ordinances or similar enforcement mechanisms to ensure adequate long-term operation and maintenance (O&M) of the selected BMPs, including, as appropriate, agreements between the MS4 Operator and other parties such as post-development landowners or regional authorities.*

1. Long term O&M shall be addressed during the plan review and approval process.

2. Copies of O&M manuals shall be retained by the party responsible for the post-construction BMP, and with the MS4 Operator. This may be done electronically.

Addressed in Moberly SWMP Section 6.3, Table 6-2, and Post Construction Manual Section 3.7.3.

4.5.E *The MS4 Operator shall inspect, or require inspection of, each water quality structural and non-structural water post-construction BMP according to the following at minimum:*

1. *A minimum of one (1) inspection shall be conducted during construction, and one (1) inspection before the site is finalized, to verify water quality facilities are built as designed and any applicable boundaries or practices for non-structural BMPs are being observed. This may be conducted in combination with MCM 4 inspections.*
    a) *The MS4 inspector shall have access to the approved plans to ensure proper installation.*
2. *A minimum of once in the first three years after the installation by the MS4 Operator.*
3. *Annually by the owner or operator of the post-construction BMP, or by the MS4 Operator. If completed by the BMP owner or operator, this inspection report shall be submitted to the MS4 Operator for evaluation and review.*
4. *The MS4 Operator shall inspect a minimum of 60% of all water quality post-construction BMPs within the five year permit cycle. This must include installations with ongoing or open enforcement issues.*

Addressed in Moberly SWMP Sections 5.3 and 6.3, Table 6-2, Post Construction Manual Section 6.0, and Land Disturbance Manual Section 5.4.

4.5.F *The MS4 Operator must maintain a plan designed to ensure compliance with the MS4's post-construction water quality regulatory mechanism. This plan shall include escalating enforcement mechanisms the MS4 Operator will use to ensure compliance. The MS4 Operator must have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance:*

1. *Enforcement responses to violations must consider at minimum:*
    a) *Degree and duration of the violation;*
    b) *Effect the violation has on the receiving water;*
    c) *Compliance history of the post-construction BMP owner or operator; and*

d) Cooperation of the owner or operator with compliance efforts.

Addressed in Moberly SWMP Section 6.3, Table 6-2, and Post Construction Manual Section 6.0.

4.5.G *Enforcement actions shall be timely in order to ensure the actions are effective. The MS4 Operator shall begin enforcement actions within thirty (30) days of discovering a violation. The MS4 Operator shall maintain a minimum of two possible sanctions. These include, but are not limited to:*

1. *Education regarding the BMP and verbal warnings;*
2. *Written warnings or notice of violation (this includes email notification);*
3. *Property lien; and*
4. *Fines.*

Addressed in Moberly SWMP Section 6.3, Table 6-2, and Post Construction Manual Section 6.0.

4.5.H *The MS4 Operator shall maintain an inventory tracking the water quality post-construction BMPs. This inventory must contain, at a minimum:*

1. *Relevant contact information for the responsible person(s) or entity (e.g., tracking number, name, address, phone, etc.);*
2. *The type of post-construction BMP;*
3. *Applicable operations and maintenance documents;*
4. *Date the MS4 Operator approved the construction site plan; and,*
5. *If the water quality facility is owned or operated by the MS4, the tracking shall also include any maintenance, such as sediment clean-out or replanting.*

Addressed in Moberly SWMP Section 6.3 and Table 6-2.

4.5.I *The MS4 Operator shall also track the post-construction BMP inspections. This may be done by retaining copies of records such as inspection checklists and email correspondence. The MS4 Operator must make these inventories available to the Department upon request. The MS4 Operator shall track at a minimum:*

1. *Inspection dates/ times;*
2. *Inspector name(s);*
3. *Inspection findings; and,*
4. *Follow up actions including all enforcement actions.*

Addressed in Moberly SWMP Section 6.3 and Table 6-2.

4.5.L *The MS4 Operator shall provide appropriate training for MS4 inspectors at minimum once every permit cycle. This may include Green Infrastructure training, or specific operation of proprietary*

post-construction BMPs. The MS4 shall provide overall training to explain the function of both structural and non-structural post-construction water quality BMPs.

Addressed in Moberly SWMP Section 6.3 and Table 6-2.

4.5.M *Using adaptive management, all MS4 Operators shall review, at minimum annually, their Post-Construction Site Stormwater Management in New Development and Redevelopment Program and evaluate effectiveness of the overall program and determine if changes are needed. This annual review may include but is not limited to:*

1. *Reviewing the number and types of developments;*
2. *How many BMPs were installed/inspected;*
3. *The amount of watershed area being treated;*
4. *The types of violations found and how frequently; and*
5. *How education could improve the effectiveness of the program.*

Any additional programmatic BMPs shall be acknowledged in the Stormwater Management Program Report.

Addressed in Moberly SWMP Section 6.3.

6.2 Target Pollutants and Audiences

Table 6-1 provides a list of target pollutants, potential sources, and associated target audiences for MCM 5.

Table 6-1 MCM 5 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sediment • Runoff volumes • Litter • Waste materials • Commercial/industrial products	Post-construction stormwater BMPs, including permanent structural controls	• Developers • Engineers • Contractors • Landowners / homeowners • Industries • Commercial business owners • Homeowners associations • Managers of large, paved areas

6.3 Best Management Practices

Chapter 34, Article IV of Moberly's Code of Ordinances and *Post-Construction Stormwater Manual* provide procedures and plans for target audiences to comply with post-construction stormwater runoff. In addition, the City has the following post-construction stormwater management BMPs to address MCM 5 including, at a minimum:

- City ordinance addresses post-construction runoff from new development and redevelopment projects for sites equal to or greater than one acre or projects less than one acre that are part of a larger common plan of development or sale.
- The City's *Post Construction Stormwater Manual* identifies post-construction stormwater BMP requirements, , which address both structural and non-structural controls and stormwater discharge design standards.
- Staff review pre-construction plans. Section 3.0 and Section 4.0 of the *Post Construction Manual* provide additional details and a checklist (Appendix D of the *Post Construction Manual*) to guide the City's review of pre-construction plans. and prioritizes non-structural BMPs for plan reviews.
- The City requires O&M manuals for post-construction BMPs, addressed further in Section 3.7.3 of the *Post Construction Manual*. The post-construction BMP permittee and City retain copies of the O&M manuals.
- Inspections of permitted post-construction BMPs occur during the construction process (refer to MCM 4) and annually following project completion. Owners are given time allotments to correct deficiencies, per the *Post-Construction Stormwater Manual* and City Ordinance.
- The City has an escalating enforcement policy that clearly describes the action to be taken for violations. Section 6.0 of the *Post Construction Manual* provides details on the City's enforcement program. The City has the authority to initiate enforcement actions. The City initiates enforcement actions within 30 days of discovering a violation and uses written warnings and permit revocation as sanctions. Enforcement responses to violations consider, at a minimum:
    - Degree and duration of violation
    - Effect on the receiving water
    - Compliance history of the post-construction BMP owner or operator
    - Cooperation of the owner or operator with compliance efforts
- Staff maintain an inventory of water quality post-construction BMPs. The inventory contains, at a minimum:
    - Site location
    - Contact information for the responsible person(s) or entity (e.g., tracking number, name, address, phone, etc.)
    - Post-construction BMP type
    - Applicable operations and maintenance documents
    - Date the City approved the construction site plan

    - Maintenance, such as sediment clean-out or replanting, if the water quality facility is owned or operated by the City

- Staff maintain an inventory of City oversite inspections for post-construction BMPs. This inventory contains, at a minimum:
    - Site name and location
    - Permit holder name
    - Inspection dates and time
    - Inspector name(s)
    - Inspection findings
    - Follow-up actions and dates, including corrective actions and enforcement actions
- The City provides post-construction BMP training for MS4 inspectors and plan reviewers at least one time during the MS4 Permit cycle and staff document training attendance.

The City uses adaptive management to review its post-construction stormwater management program on an annual basis. At a minimum, this annual review includes:

- The amount and types of developments
- BMPs that were installed or repaired in during the year
- Amount of watershed area treated
- Types and frequency of violations
- If the education program can assist in program effectiveness

In addition, the City addresses any additional BMPs in the Stormwater Management Program Report.

6.4 Measurable Goals

BMP effectiveness is monitored throughout the year and compiled in the annual SWMP report. Table 6-2 provides the City's measurable goals for the post-construction stormwater management BMPs designated for MCM 5.

Table 6-2 MCM 5 Measurable Goals

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
City ordinance that requires maintenance of water quality BMPs at land disturbance sites	Evaluate inspection and violation records	Inspection and violation records are maintained and assessed	Site operators are held accountable for violations
Post-construction BMP inspections	• Inspections are performed prior to closing the land disturbance permit and annually thereafter • Inspections are tracked	• Inspections are performed prior to closing the land disturbance permit and annually thereafter • Inspection reports and email records are recorded and reviewed annually	• Inspections occur monthly and problems are detected before public complaints occur • Recordkeeping is complete
Enforcement actions for water quality violations	• Record and track inspection records, enforcement actions, and violators • Enforcement actions occur within 30 days of discovering a violation	• Inspection records and records of enforcement are recorded and reviewed annually to track frequency and perpetrators of violations • City maintains inspection, complaint, and violation records	• Violations decrease • Enforcement occurs in a timely manner
Inventory of permanent stormwater BMPs and contractor contact information	The inventory is maintained and updated as needed	The inventory is reviewed during the inspection process and updated as necessary	Recordkeeping is complete and up-to-date following annual inspections
Training for City inspectors	• Training records are documented • Employees are proficient in training subjects	Training records are documented	• Trained employees demonstrate understanding of stormwater issues during inspections • Employees receive at least one form of training in permanent stormwater controls annually

7 MCM 6: Pollution Prevention/Good Housekeeping

7.1 MCM 6 Permit Requirements

4.6 *The permittee shall develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.*

4.6.A *The MS4 Operator shall maintain and utilize an employee training program for MS4 staff. The training shall be given at minimum annually to all MS4 staff who work with material handling, at MS4 vehicle or equipment maintenance areas, storage yards, and material storage facilities. This may be broken up into staff units, or by applicable topics.*

Addressed in Moberly SWMP Section 7.3.1 and Table 7-2.

4.6.B *The training shall be used to prevent and reduce stormwater pollution. The training shall cover a minimum of the following topics/ activities (if applicable to the MS4):*

1. *Vehicle and equipment washing;*
2. *Fluid disposal and spills;*
3. *Fleet, equipment, and building maintenance;*
4. *Park and open space maintenance procedures (including fertilizer, herbicide, pesticide application);*
5. *New construction, road maintenance, and land disturbances;*
6. *Stormwater system maintenance;*
7. *MS4 operated salt and de-icing operations;*
8. *Street sweeper operations; and*
9. *Illicit Discharges.*

Addressed in Moberly SWMP Section 7.3.1 and Table 7-2.

4.6.C *The MS4 Operator shall:*

1. *Maintain material to use in the training program, such as those available from the EPA, the state, or other organizations.*
2. *Maintain written procedures for the training program. Include a description of how this training will coordinate with all other minimum control measures (such as Illicit Discharge), monitoring and TMDL implementations where applicable.*
3. *Maintain a written schedule to offer topic specific training when it is appropriate. Such as, swimming pool discharges in the summer, leaf disposal in the fall, proper salt clean-up and usage in the winter.*

Addressed in Moberly SWMP Section 7.3.1 and Table 7-2.

4.6.D *The MS4 Operator shall maintain a list of all municipal operations/facilities that are impacted by this operation and maintenance program.*

This shall include a minimum of (if applicable to the MS4):

1. *Maintenance yards;*
2. *Fleet or maintenance shops, including parks department;*
3. *Storage yards;*
4. *Parks and golf courses;*
5. *Municipal parking lots;*
6. *Salt/sand storage locations; and*
7. *Snow disposal areas.*

Addressed in Moberly SWMP Section 7.3.1 and Table 7-1.

4.6.E *The MS4 Operator shall maintain a list of industrial facilities the MS4 Operator owns or operates which are subject to NDPES permits for discharges of stormwater associated with industrial activity. The list shall include the permit number or a copy of the No Exposure Exemption Certification (if applicable) for each facility. This includes: municipal projects with a land disturbance permit, wastewater facilities, airports, etc. NPDES permitted facilities not owned or operated by the permittee are not required to be part of the list, however the MS4 Operator should be familiar with all such facilities in their MS4 service area as they may signify a priority area for the IDDE program.*

Addressed in Moberly SWMP Section 7.3.1 and Table 7-1.

4.6.F *The MS4 Operator shall develop or maintain controls for reducing or eliminating the discharge of floatables and pollutants from municipal facilities listed in Section 4.6.D and 4.6.E.*

These controls shall include at a minimum, where applicable:

1. *A list of potential pollutant sources at each facility, such as materials used and stored on site;*
2. *A minimum of annual inspections of all municipally owned or operated facilities for stormwater issues;*
    a) *Records shall be kept for inspections and follow up. This may be a checklist, and may be electronic;*
3. *Use of structural controls/BMPs to reduce or prevent pollutants from entering waters of the state or into another MS4.*
    a) *A map with descriptions of these BMPs shall be maintained for each facility;*
4. *All paints, solvents, petroleum products, and petroleum waste products (except fuels) under the control of the permittee shall be stored so these materials are not exposed to stormwater;*

5. *Sufficient practices of spill prevention, control, and/or management shall be provided to prevent any spill of these pollutants from entering waters of the state.*
    a) *This shall include spill kits when liquid product is stored at a facility; and*
    b) *Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.*
6. *Tracking of rock salt/brine or other deicer usage.*
7. *Maintaining municipal salt storage area(s) after use of rock salt, at minimum:*
    a) *Sweep and/or shovel spillage in loading area and storage area, and*
    b) *Unload salt hoppers or keep under cover when salt is in the hopper.*

Addressed in Moberly SWMP Section 7.3.2 and Table 7-2.

4.6.G *The MS4 Operator shall have procedures for proper disposal of waste removed from the MS4 structures and areas of jurisdiction. This waste, shall include at minimum, if applicable to the permittee:*

1. *Street sweeper spoils and washout;*
2. *Accumulated sediment;*
3. *Dredged materials;*
4. *Floatables, trash and litter;*
5. *Leaves, other organic matter; and*
6. *Other debris.*

Addressed in Moberly SWMP Section 7.3.2 and Table 7-2.

4.6.H *The MS4 Operator shall maintain and utilize the following procedures at minimum for the washing of all municipal vehicles and equipment (if applicable to the MS4):*

1. *Use of any soap or detergent shall only be where there is connection to sanitary sewer or equivalent; and*
2. *Any wash or rinse water that contains pollutants such as salt, oils, grease, sediment, grass clippings, lawn chemicals, or pesticides shall not be discharged to waters of the state or the MS4 system without appropriate treatment.*
3. *Any washing or rinsing activities shall be conducted in an appropriate area so the water is treated. This area(s) shall be marked on the map of the facility.*

Addressed in Moberly SWMP Section 7.3.2 and Table 7-2.

4.6.I *The MS4 Operator shall maintain written explanation of the controls, procedures, inspection schedules, and explanation of tracking of these controls. Tracking may be done by retaining*

inspection reports or checklists. Individual Stormwater Pollution Prevention Plans or one overarching Operations and Maintenance Manual for all applicable MS4 facilities may be used to comply with this requirement. If a unified document is used, each individual site shall be familiar with the document, and a copy shall be present on each site referenced in the document or available electronically. Annually, the MS4 Operator shall evaluate the results, controls, and inspection procedures to ensure compliance with these requirements and determine if changes are needed. This evaluation may also aid in finding priority areas or pollutants in relation to MCM 3, or adding more education in relation to MCM 1.

Addressed in Moberly SWMP Section 7.3.2 and Table 7-2.

4.6.J *The MS4 Operator shall maintain procedures to determine if there are impacts to water quality for new flood management projects, if applicable. Any flood management projects shall require the protection of water quality in the standards that are used to plan, design, build, and maintain stormwater infrastructure. Flood management projects are those projects developed or designed to reduce flooding.*

Addressed in Moberly SWMP Section 7.3.2 and Table 7-2.

4.6.M *Using adaptive management, all MS4 Operators shall review their Municipal Operations Program, at minimum, annually and update implementation procedures as necessary within the permit requirement. Any additional BMPs shall be acknowledged in the annual report.*

Addressed in Moberly SWMP Section 7.3.1.

7.2 Target Pollutants and Audiences

Table 7-1 provides a list of target pollutants, potential sources, and associated target audiences for MCM 6.

Table 7-1 MCM 6 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sanitary or combined sewer overflows • Sediment • Litter • Hazardous waste • Automotive/equipment fluids • Fuel • Street salts and sand • Chlorine	• City Parks Department • Aquatic Center • Wastewater Treatment Facility [1] • Heritage Hills Golf Course [1] • Airport [1] • Drinking Water Treatment Facility • Street Barn • Distribution and Collection Department • Animal Shelter • Household Hazardous Waste Facility • Police Department • Fire Department • Clean fill sites	• City employees • City council members • City officials • Contractors • Consultants

1 Facilities with NPDES permit coverage.

7.3 Best Management Practices

The City has the following pollution prevention / good housekeeping BMPs to address MCM 6, including, at a minimum:

- The City has an employee training program for MS4 municipal operations staff, addressed further in Section 7.3.1.
- City departments have procedures and controls for pollution prevention and good housekeeping, addressed further in Section 7.3.2.
- Staff maintain an inventory of City-owned industrial facilities that are subject to NPDES permits for discharges of stormwater associated with industrial activity. The list in Table 7-1 identifies municipal projects with a land disturbance permit, wastewater facilities, airports, etc.

The City uses adaptive management to review its municipal operations program on an annual basis, at a minimum, and update implementation procedures, as necessary, within the permit requirement. In addition, the City addresses any additional BMPs in the Stormwater Management Program Report.

7.3.1 Employee Training Program

In accordance with the MS4 Permit, the City has an annual video-based training program for stormwater pollution prevention and reduction for MS4 staff who work with material handling at MS4 owned or operated vehicle/equipment maintenance areas, storage yards, and material storage facilities. The training covers the following, at a minimum, when applicable:

- Vehicle and equipment washing
- Fluid disposal and spills

- Fleet, equipment, and building maintenance
- Park and open space maintenance procedures (including fertilizer, herbicide, and pesticide application)
- New construction, road maintenance, and land disturbances
- Stormwater system maintenance
- MS4 operated salt and de-icing operations (to be implemented in October 2022)
- Fueling
- Solid waste disposal
- Street sweeper operations
- Illicit discharges

City staff are required to maintain training material, written training procedures, and a written schedule that includes topic-specific training as appropriate, as detailed in the MS4 permit. The City uses a sign-in sheet to track individual and department attendance at training sessions. The procedures describe how this training coordinates with other MCMs. The City also maintains an updated list of municipal operations/facilities to which the training programs apply. Attachment E includes a list of trainings by department.

7.3.2 Procedures and Controls for Pollution Prevention and Good Housekeeping

The City maintains standard operating procedures (SOPs) and controls for the following, at a minimum:

- Reducing and eliminating the discharge of floatables and pollutants from municipal facilities to which the training programs discussed in Section 7.3.1 apply. The controls include, where applicable:
    - A list of potential pollutant sources at each facility, such as materials used and stored on site.
    - Annual inspections of all municipally owned or operated facilities for stormwater issues.
    - Use of structural and non-structural BMPs to reduce or prevent pollutants from entering waters of the state or into another MS4, where needed. A structural BMP map is maintained for each facility that uses them.
    - Storing paints, solvents, petroleum products, and petroleum waste products (except fuels), under the control of the permittee, so that they are not exposed to stormwater.
    - Spill prevention, control, and/or management practices are followed at City facilities. Spill kits are stored at facilities with liquid product, which include, at a minimum, the Street

Department, Parks Department, airport, and Household Hazardous Waste Facility. Containment systems are constructed of materials compatible with the substances contained and prevent the contamination of groundwater.

    - Tracking rock salt usage and maintaining municipal salt storage areas after rock salt use by sweeping the facility.

- Properly disposing waste removed from the MS4 structures and areas of jurisdiction. Such waste includes:
    - Street sweeper spoils and washout
    - Accumulated sediment
    - Dredged materials
    - Floatables, trash, and liter
    - Leaves and other organic matter
    - Other debris
- Washing municipal vehicles and equipment. The following procedures are followed, at a minimum:
    - Soap or detergent is only used at the Street Barn's designed wash bay, where there is a connection to sanitary sewer. This area is marked on facility maps.
    - Wash/rinse water that contains pollutants (e.g., salt, oils, grease, sediment, grass clippings, lawn chemicals, or pesticides) is not discharged to waters of the state or the MS4 without appropriate treatment.
- Determination of impacts to water quality for new flood management projects (i.e., those projects developed or designed to reduce flooding). Flood management projects require water quality protection in the standards that are used to plan, design, build, and maintain stormwater projects. City flood management projects shall be constructed and maintained in accordance with Section 6 and the *Post Construction Manual*. Permanent BMPs are included in the City's storm sewer map and inspected annually, in addition to inspections in response to citizen concerns and known or suspected illicit discharges.

As required by the MS4 permit, City staff maintain written explanation of the controls, procedures, inspection schedules, and tracking.

7.4 Measurable Goals

BMP effectiveness is monitored throughout the year and compiled in the annual SWMP report. Table 7-2 provides the City's measurable goals for the pollution prevention/good housekeeping BMPs designated for MCM 6.

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Table 7-2 MCM 6 Measurable Goals

BMP	Measurable Goal	Evaluation Method of BMP Effectiveness	Determination of Effectiveness
Operation and maintenance program	• Maintain a list of municipal operations affected by the operation and maintenance program • Maintain a list of industrial facilities owned/operated by the City that are subject to NPDES industrial stormwater permits	• Municipal operations list is evaluated annually and updated as needed • NPDES permit applicability is evaluated annually and updated as needed	Recordkeeping is complete
City staff training	Track names of staff who complete training, dates of training, and departments trained	• City offers surveys after training sessions to evaluate knowledge of stormwater issues (implemented in January 2022) • Staff understanding during municipal inspections is assessed	• Employees demonstrate understanding of stormwater issues • Employees prevent illicit discharges following training
SOPs / Controls (completion date: June 2022)	• Maintain written explanation of SOPs, controls, inspection schedules, and an explanation of tracking these BMPs • Inspect City facilities	• SOPs are updated as needed • SOPs will be used as evaluation tools during annual inspections and training • Location and reports of inspections and follow-up inspections are tracked, as needed.	• Employees are familiar with and fulfill their SOP requirements, as evaluated during inspection and training • Inspections are documented
Water quality BMPs for flood reduction projects	Flood projects undergo plan review, are inspected monthly during construction, and are inspected annually following completion	• Inspections are documented • Projects follow the *Land Disturbance Manual*	Manual violations are resolved before leading to problems or complaints

8 Recordkeeping and Reporting

8.1 Recordkeeping

This section of the SWMP was developed in accordance with MS4 Permit Section 5.2. The City will retain the most recent version of this SWMP and it will be made available upon request. In addition, the City will maintain the following records for a minimum of three years from the date of application for coverage under the MS4 Permit:

- Activities requiring recordkeeping by this SWMP
- A copy of the NPDES permit, ordinances, policies, and formal procedures for all six MCMs
- Records of the data used to complete the application for the MS4 Permit

8.2 Reporting

This section of the SWMP was developed in accordance with MS4 Permit Section 5.3. The City will submit a SWMP report to MDNR annually on or before February 28. Reports will be submitted through the MDNR's Form MO 780-1846 (Attachment F), unless an alternative reporting format is approved. If the MS4 becomes subject to a TMDL, this SWMP will be updated accordingly and the City will become subject to annual reporting. Reports will contain the following required information from January 1 to December 31 of the previous year:

- Information regarding progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable
- The status of the MS4's compliance with permit conditions
- Assessment(s) of the appropriateness of identified BMPs and corresponding measurable goals for each MCM
- A summary of information collected and analyzed during the reporting period, including monitoring data or quantifiable values per the MS4's measurable goals
- Any proposed changes to the permittee's SWMP, including changes to any identified BMPs or measurable goals that apply to the SWMP
- If applicable, notice that the permittee is relying on another government entity to satisfy some of the permittee's permit obligations. The permittee will supply the name of the entity, the name of the entity's primary contact person, and other relevant contact information.

Attachments

Attachment A

State of Missouri, Department of Natural Resources Operating Permit, MO-R04C000

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law (Chapter 644 RSMo, hereinafter, the Law) and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.: MO-R04Cxxx

Owner:
Address:

Continuing Authority:
Address:

Facility Name:
Facility Address:

Legal Description:
UTM Coordinates:

Receiving Stream:
First Classified Stream and ID:
USGS Basin and Sub-watershed No.:

is authorized to discharge from the facility described herein, in accordance with the effluent limitations, benchmarks, and monitoring requirements as set forth herein.

FACILITY DESCRIPTION

All Outfalls – Discharges from Regulated Phase II Municipal Separate Storm Sewer Systems
Comprehensive general permit
SIC/NAICS 924110

This permit authorizes only mine dewatering discharges, stormwater discharges, and land application under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas.

October 1, 2021
Effective Date

Edward B. Galbraith, Director, Division of Environmental Quality

September 30, 2026
Expiration Date

Chris Wieberg, Director, Water Protection Program

Table of Contents

PART 1. PERMIT COVERAGE AND APPLICABILITY
This permit is for coverage under this Comprehensive General Permit for Phase II MS4s

1.1.A Permit Area: This Missouri State Operating Permit (permit) covers all areas served by a Municipal Separate Storm Sewer System (MS4) for which the applicant is identified as the Continuing Authority.
The Permit Area may change based upon areas incorporated into or removed from the permittee's jurisdictional area during the term of this permit, or expansion of the Urbanized Area. Areas added shall be covered under this permit and noted in the Stormwater Management Plan.

1.1.B Applicability: This permit authorizes discharges of stormwater from regulated MS4s, as defined in 10 CSR 20-6.200(D)24. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate National Pollutant Discharge Elimination System (NPDES) permits or no exposure certification as defined in 10 CSR 20-6.200(C).
The permittee, or co-permittee, is authorized to discharge under the terms and conditions of this general permit if the permittee:

1. Owns or operates a regulated Small MS4 as defined in 10 CSR 20-6.200 (D)16;
2. Also is located in the Urbanized Area (UA) as defined by the most recent U.S. Census for which the applicant is identified as the Continuing Authority with a population of at least 1,000;
3. OR inside the municipal corporate limits of a jurisdiction with a population of at least ten thousand (10,000) and a population density of one thousand (1,000) people per square mile or greater;
4. OR is inside the service area of a publicly owned separate storm sewer system designated by the Department if it is determined that its discharges from the MS4 have caused, or have the potential to cause, an adverse impact on water quality.

1.1.C Categories of Regulated Small MS4s under this comprehensive permit.
This comprehensive permit categorizes MS4s by the following categories, or Groups, based on the population served as determined by the most the recent Decennial Census at the time of permit issuance, the type of Regulated MS4, and the co-permittee situation.

Group A	Group B	Group C
Traditional Small MS4s (cities) that serve a population of less than 10,000 within a UA; OR	Traditional Small MS4s that serve a population of at least 10,000 but less than 40,000; OR	Traditional Small MS4s that serve a population of 40,001 or more; OR
Class 2 counties; Non-traditional such as Universities, Federal facilities.	Class 1 counties	Co-permit Small MS4s

<u>This is the Comprehensive General Permit to cover Group A, B, and C MS4s.</u>
The population of a Small MS4 may change during the permit term. However, the Group designation of a regulated MS4 will not change during the permit term based on population fluctuation.

1. The Group designation of a regulated MS4 is based on the most recent Decennial Census at the time of permit issuance. Results of the national Census held during a permit term will not affect the Group of an MS4 until the next permit renewal unless the permittee joins another MS4 as co-permittee.
2. For the purpose of this section "serve a population" means the residential population within the regulated portion of the Small MS4 based on the most recent Decennial Census.

1.1.D Authorized discharges: The following are types of discharges authorized by this permit:

1. *Stormwater discharges*. This permit authorizes stormwater discharges to waters of the state from the regulated MS4 identified in Section 2.1.A except as excluded in Section 2.1.F of this permit.
2. *Non-Stormwater discharges*. The permittee is authorized to discharge the following non-stormwater sources provided the permitting authority has not determined these sources to be substantial contributors of pollutants to the permittee's MS4:
    - Water line flushing;
    - Landscape irrigation and lawn watering;
    - Diverted stream flows;
    - Rising ground waters and springs;
    - Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(b)(20));
    - Discharges from potable water sources;

- Foundation or footing drains;
- Air conditioning condensation;
- Irrigation water;
- Water from crawl space pumps;
- Individual residential car washing;
- Flows from riparian habitat and wetlands;
- Street and sidewalk wash water, water used to control dust, that does not use detergents;
- Dechlorinated and uncontaminated residential swimming pool discharges; and
- Discharges or flows from emergency firefighting activities. Fire-fighting activities do not include washing of trucks, run-off water from training activities, and similar activities.

1.1.E In the event the regulated MS4 has an oil water separator which is used to exclusively treat stormwater; this permit authorizes the operation of oil water separators solely for the treatment of stormwater. The oil water separators must be appropriately operated and sized per manufacturer's or engineering specifications. The specifications and operating records must be made accessible to Department staff upon request. Oil water separator sludge is considered used oil; sludge must be disposed of in accordance with 10 CSR 25-11.279.

PART 2. PERMIT RESTRICTIONS AND EXEMPTIONS

2.1.A Limitations on coverage: The permittee, shall prohibit non-stormwater discharges and stormwater discharges that combine with sources of non-stormwater into the MS4, except where:

1. Non-stormwater discharges are in compliance with a separate NPDES permit; and
2. Authorized by Section 1.1.D of this permit.

2.1.B This operating permit does not affect, remove, or replace any requirement of the Endangered Species Act; the National Historic Preservation Act; the Comprehensive Environmental Response, Compensation and Liability Act; or the Resource Conservation and Recovery Act. Determination of applicability to the above mentioned acts is the responsibility of the permittee. Additionally, this permit does not establish terms and conditions for runoff resulting from silvicultural activities listed in Section 402(l)(3)(a) of the Clean Water Act.

2.1.C Discharge Limitations

1. The permittee shall implement Best Management Practices (BMPs) via an iterative process to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) into the MS4 for the goal of attainment with Missouri's Water Quality Standards.
2. The permittee shall implement and enforce a Stormwater Management Program per the requirements listed in this operating permit in accordance with section 402(p)(3)(B)(iii) of the CWA, corresponding NPDES regulations, 40 CFR 122.34, 40 CFR 122.28(d)(2), and in accordance with the Missouri Clean Water Law (MCWL) and its implementing regulations under 10 CSR 20-6.200.
3. The permittee shall comply with all provisions and requirements contained in this permit and with their individual Stormwater Management Program including plans, ordinances, and schedules developed in fulfillment of this permit.
4. If the Department determines a regulated MS4 is causing or contributing to instream excursions of Missouri's Water Quality Standards, then the Department may require corrective action(s) or require an application for a site-specific permit to ensure that BMPs are being implemented via an iterative process to reduce pollutants to the MEP.
5. Newly designated regulated MS4s applying for coverage under this general permit and discharging to waterbodies or watersheds subject to an existing EPA approved or established TMDL may be denied coverage under this general permit and required to apply for and obtain a site-specific operating permit for stormwater discharges from their regulated MS4.

2.2 Authorization to Discharge and Application Requirements

2.2.A Authorization to discharge stormwater from a regulated MS4 requires each permittee (existing and recently designated regulated MS4s) to submit a complete application for the MS4 general permit. The permittee shall submit their application on the latest version of the application form(s); either Form K, or Form L and Form M.

2.2.B The application shall be signed and dated by an authorized signatory.

1. All permit applications shall be signed and certified in accordance with 40 CFR 122.22 and 10 CSR 20-6.010(2) by either a principal executive officer or by an individual having overall responsibility for environmental matters for the permittee.

2. All reports required by this permit, and other information requested by the Department shall be signed by a person described in Section 2.2.B.1 of this permit, or by a duly authorized representative of that person. A person is a duly authorized representative only if the authorization is made in writing by a person designated in Section 2.2.B.1 of this permit.

2.2.C Existing regulated permittees seeking renewal of their MS4 permit shall submit a renewal application within 180 days prior to the expiration date of this operating permit unless the permittee has been notified by the Department that an earlier application is required in accordance with 10 CSR 20-6.200 (1)(D)24.B.

2.2.D Newly designated regulated MS4s shall submit their permit application within 180 days following notification by the Department that permit coverage is required.

PART 3. STORMWATER MANAGEMENT PROGRAM AND PLAN

3.1 Stormwater Management Program

3.1.A To the extent allowable under state and local law, a Stormwater Management Program must be developed, implemented, and enforced according to the requirements of this general permit. This permit includes specific terms and conditions, which are the requirements needed to meet the MS4 regulatory requirements.

1. **Existing permittees** shall assess program elements that were described in the previous permit, modify as necessary, and/or implement new elements, as necessary.
2. **Newly regulated permittees** shall have the program fully implemented within 5 years of issuance of their permit.

3.1.B As part of the Stormwater Management Program, the permittee shall update or develop a document, with appropriate appendices and supplemental attachments explaining the Stormwater Management Program. Permittees shall create and maintain this written Stormwater Management Plan (SWMP) describing schedules, procedures, contacts or other items listed under Part 4 of this permit. This document may be electronic.

1. The SWMP shall be maintained by the MS4 Operator to ensure consistency with the implementation, continuity of the Stormwater Management Program, and iterative reviews of programmatic BMPs and procedures.
2. The SWMP does not go through Department approval and is not incorporated into this permit.
3. The SWMP shall be updated or developed within 90 days after the renewal of the permit.

3.1.C The MS4 Operator may add supplemental items to the SWMP. These items include but are not limited to:

- Maps;
- Standard operating procedures (SOPs);
- Inspection forms;
- Sample data;
- Operations and Maintenance Manual;
- Website or social media account tracking;
- Stream Team Activity Reports;
- Tracking and evaluation documents; and
- Documentation of agreements for co-permittees and/or cooperative agreements.

3.1.D Permittees shall implement programmatic BMPs consistent with the provisions of this permit to achieve compliance with the standard of reducing pollutants to the maximum extent practicable per 40 CFR 122.34.

3.1.E The MS4 Operator may replace or modify ineffective BMPs with effective BMPs. If the name of a MS4 contact changes, that may be updated on the next Stormwater Management Program Report and/or via email to the Department at MS4@dnr.mo.gov.

3.2 Sharing Responsibility

3.2.A Co-permittees agreements.

1. Implementation of one or more of the minimum control measures may be shared with another governmental entity or the governmental entity can assume responsibility for the measure via the co-permittee option if:
   a) The co-permittee has a MS4 located within or partially within an Urbanized Area (UA) as determined by the most recent Bureau of Census, which can include, but is not limited, to: municipalities, county, military bases, large hospitals, prison complexes, universities, sewer districts, and highway departments;
   b) The co-permittee, in fact, implements the control measure(s);
   c) The specific control measure, or component of a control measure, is at least as stringent as the corresponding permit requirements;

d) The co-permittee agrees to implement the control measure on the other permittee's behalf; and
e) Written acceptance of this obligation is required.

2. This co-permittee obligation and written acceptance, shall be described and maintained as part of the SWMP.
3. If the co-permittee agrees to report on the control measure, the co-permittee shall cooperate with the reporting requirements contained in Section 5.3 of this permit.
4. If one co-permittee fails to implement the control measures, then that co-permittee shall remain liable for any discharges due to that failure to implement. Additionally, the Department may require corrective actions(s), require an application for a site-specific permit, or require the co-permittee to apply and obtain their own Phase II MS4 general permit.

3.2.B Other agency agreements. Implementation of one or more of the minimum control measures or BMPs may be contracted out to another entity or organization, such as a non-profit organization or watershed organization. The MS4 Operator may grant responsibility for the MCM or BMP. The agreement must be described in the SWMP detailing which BMPs are being assumed by the other entity or organization. Written agreements between another entity or organization stipulating arrangements and responsibilities for meeting permit requirements shall be made available to the Department upon request. The permittee is responsible for oversite to ensure compliance with this permit.

3.3 Reviewing and Updating the Stormwater Management Program

3.3.A The MS4 Operator shall conduct an annual review of their Stormwater Management Program. This is recommended to be in conjunction with preparation of the MS4 Stormwater Management Program Report required under Section 5.

3.3.B Changes to the Stormwater Management Program requested by the Department must be made in writing, set forth a time schedule for the permittee to develop the changes, and offer the permittee opportunities to propose alternative program changes to meet the objective of the requested modification. All changes required by the Department will be made in accordance with 10 CSR 20-6.200. The Department may require changes to the Stormwater Management Program as needed to:

1. Address impacts on receiving water quality caused or affected by discharges from the MS4.
2. Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements; or
3. Include such other conditions deemed necessary by the Department to comply with the goals and requirements of the MCWL and the federal Clean Water Act (CWA).

3.3.C In the event of a transfer of ownership, change in Continuing Authority, or change in responsibility for Stormwater Management Program implementation; the permittee shall implement the Stormwater Management Program on all new areas added to the permittee's portion of the MS4 (or for which the permittee becomes responsible for implementations of stormwater quality controls) as expeditiously as practicable, but not later than one (1) year from the addition of the new areas.

PART 4. MINIMUM CONTROL MEASURES

Entities seeking coverage under this general permit shall develop and implement a Stormwater Program that includes the following six (6) Minimum Control Measures (MCMs).

1. All six MCMs apply to all traditional MS4s (cities and counties) regulated under this permit.
2. For non-traditional MS4s (universities, hospital complexes, prisons, and federal facilities) or MS4s in a co-permit that do not have responsibility over all MCMs. The permittee shall document in the SWMP and on each MS4 Stormwater Management Program Report which MCMs are not applicable. Contact the Department for any questions regarding applicability of MCMs.

4.1 MCM 1. Public Education and Outreach on Stormwater Impacts

The MS4 Operator shall implement a public education program to distribute educational materials to the community and/or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

The public education and outreach program shall, at a minimum include the following:

4.1.A The MS4 Operator shall target specific audiences who are likely to have significant stormwater impacts.

1. Traditional MS4s (cities and counties) shall address the residents being served by the MS4;
2. Non-traditional MS4s shall address the community served by the MS4 as listed below:
   a) Universities shall target the faculty, other staff, and students;
   b) Military bases shall target military personnel (and dependents), and employees (including contractors).
   c) Prison complexes or other multi-building complexes shall target staff and applicable contractors.

3. Additional audiences within the MS4 service area (such as, but not limited to, those listed in **Table I)** shall be addressed as listed below:

Group A: No requirement for additional audiences
Group B: A minimum of one (1) additional audiences
Group C: A minimum of two (2) additional audiences

The target audiences may remain the same for the entire permit cycle or may change if the tracking and adaptive management reviews show a new target may be better for the MS4. Any changes shall be stated and explained in the MS4 Stormwater Management Program Report.

Table I -Target Audiences

- Schools, educational organizations, or youth service and youth groups;
- Businesses, including commercial facilities, home-base and mobile businesses;
- Institutions or formal organizations such as churches, hospitals, service organizations;
- Developers or construction site operators;
- Homeowner or neighborhood associations;
- Industrial facilities;
- Local government;
- Contractors;
- Visitors/ tourist; and
- Other target group, noted in the MS4 Stormwater Management Program Report.

4.1.B The MS4 Operator shall target specific pollutant(s) in the permittee's education program (such as, but not limited to, those listed in **Table II)**.
Each MS4 shall have a minimum of one target pollutant for each target audience from Section 4.1.A of this permit. The same pollutant may be used for more than one target audience, the target pollutant(s) may change annually as needed.

Table II- Pollutants/ sources

- Grass clippings & leaf litter;
- Fertilizer & pesticides;
- Litter, trash containment, balloon releases;
- Dumping of solid waste;
- Illegal disposal of household hazardous waste;
- Pet waste;
- Failing septic systems;
- Swimming pool discharge, including salt water pools;
- De-icing/ rock salt usage/ storage;
- Oil, grease, fluids from vehicles;
- Sediment runoff from construction/land disturbance;
- Unauthorized discharge of restaurant waste;
- Power washing;
- Unauthorized discharge of industrial waste;
- Vehicle washing; and
- Wash water/ grey water.

4.1.C The MS4 Operator must utilize appropriate educational resources to be used as BMPs (materials, events, activities, etc.) in conjunction with the selected pollutants for the selected target audiences.
The message delivered by these BMPs needs to be applicable to the target audience and relate to the target pollution. The distribution of the BMPs needs to be effective, and when possible associated with the target audience or pollutant (such as a swimming pool water disposal flyer when applying for a swimming pool permit). BMPs which are ongoing throughout the year or permit cycle may be counted as one annual BMP. The permittees SWMP shall explain how each BMP relates to the target pollutant and target audience. The MS4 Operator may change BMPs during the permit cycle if determined appropriate through tracking and adaptive management reviews show a different BMP may be more effective for the MS4. Any changes shall be reflected in the SWMP and explained in the MS4 Stormwater Management Program Report.

1. Using **Table III**, over the permit term the MS4 Operator shall implement a minimum of the following, including the tracking and adaptive management processes:

Group A: Each permit cycle; two (2) education and outreach BMPs from Table III.
Group B: Each permit cycle; four (4) education and outreach BMPs from Table III.
Group C: Each permit cycle; five (5) education and outreach BMPs from Table III.

Table III - Outreach and Education BMPs

BMPs:	**Measurable goals (The quantity or frequency required to count as a full BMP)**	**Tracking & Adaptive Management**
Information on the MS4 Operator's website;	Maintain a webpage with up to date information, & working links. All links shall be checked, and the page shall be updated as necessary at minimum annually. Must be maintained the entire year.	The number of hits shall be tracked. The MS4 Operator shall use this to see which messages get reactions, and if certain messages may need more education.
Social Media posts, social media campaign;	Post a minimum of four (4) times a year, on a minimum of one social media platform. The messages shall address ways attendees can minimize or avoid adverse stormwater impacts or practices to improve the quality of stormwater runoff. The messages shall be seasonally appropriate. Must be continued for the full year.	The number of views, impressions, and other interactions shall be tracked. The MS4 Operator shall use this to see which messages get reactions, and if certain messages may need more education.
Maintain, or mark storm inlet with "No Dumping – Drains to Stream" or similar message. In addition to, or instead of, permanent wording cast into the structure of the inlet;	Placard, stencil, or paint, a minimum of 10% of all known stormwater inlets in the MS4 area per year.	Number of inlets, the location of the inlets and how they were marked shall be tracked. These areas shall be noted on MCM #3 dry weather screenings, and illicit discharge investigations as a method to determine if the markings are effective or if areas could benefit from the markings.
Require installation of permanent embossed, or precast inlets with "No Dumping-Drains to Stream" or similar message.	Requirement for all new inlets in the MS4 area.	Number of inlets, the location of the inlets shall be tracked. These areas shall be noted on MCM #3 dry weather screenings, and illicit discharge investigations as a method to determine if the markings are effective or if areas could benefit from the markings

Media/ advertising campaign: Billboard; Bus shelter/ bench; radio/ television/ movie theatre/ areas of high visibility.	Develop topics that address activities and/or pollutants of concern. Advertisement must be active for a minimum of three weeks; OR must have an estimated exposure for the duration of the campaign that is 2 times the most recent U.S. Census Bureau decennial population value for the permit area.	To the extent possible, evaluate the pollutant before the advertising campaign, and again after to see if there has been a change. The dates, time, and/or estimated media exposure for each spot broadcast shall be documented. Consider including a mechanism to track active response such as a QR Code, following the social media account(s) or a website to visit. Track those responses to determine if the advertisement was effective in reaching people.
Publish articles in local newsletter, may be electronic;	Develop topics that are group specific and address activities and or pollutants of concern at a seasonally appropriate time. A minimum of two articles annually shall be published or emailed.	To the extent possible evaluate the pollutant before the article, and again after to see if there has been a change. Consider including a mechanism to track active response such as following the social media account or a website to visit. Track those responses to determine if the article was effective in reaching people.
Permanent Stormwater related signage;	Place signage in a location where the message is relevant, and highly-visible to target audience. Signage will count as an annual BMP for the year it was put in place and for each subsequent year of this permit cycle as long as each of those years tracking is taking place to message effectiveness and to ensure the signage is maintained.	Evaluate the pollutant before the signage, and again after to see if there has been a change. Consider including a mechanism to track active response such as following on social media, a QR Code, or a website to visit. Track those responses to determine if the signage was effective in reaching people.
Promote, host, or develop educational meetings, seminars, or trainings;	The events shall address ways attendees can minimize or avoid adverse stormwater impacts or practices to improve the quality of stormwater runoff. A minimum of two events shall be held, hosted or promoted annually. These events may address different pollutants/audiences.	Attendance, and any distributed education materials shall be tracked. This shall be used to gauge interest in the topic. Consider using a questionnaire or follow up survey to track if the attendees retained information or found the event beneficial.
Fact sheets/ brochures/ utility bill insert/ door hangers.	The sum of all fact sheets, brochures, bill inserts, handouts, or e-mails distributed in one year shall be at minimum equal to the most recent U.S. Census Bureau decennial housing units value for the permit area.	The applicable U.S. Census housing units value shall be recorded, and the amount of material shall be recorded. This may be a combination of materials, using a targeted approach to get the appropriate material to the applicable audience.
Paid membership in a regional or watershed group.	The organization must focus on stormwater runoff.	The group may enact BMPs on behalf of all members, the permittee must participate to ensure their MS4 has representation, and receives some of the educational BMPs.

Targeted education campaign, via mail, email, or in person.	Minimum of one annually OR with a specific event. (Examples: Sediment control with small building permit; leaf litter email during street sweeping season, or education brochure to all businesses conducting certain activity.)	Education material distributed, or amount of people contacted shall be tracked. Follow up on if noticeable behavior has changed.

4.1.D The MS4 Operator must create opportunities, or support activities that are coordinated by citizen groups, for residents and others to become involved with the Stormwater Management Program. The activities, (BMPs) must have an effort to impact stormwater runoff by improving water quality.

1. Using **Table IV**, the MS4 Operator shall implement a minimum of the follow including the tracking and adaptive management processes:

Group A: Each permit cycle; one (1) involvement BMP from Table IV.
Group B: Each permit cycle; two (2) involvement BMPs from Table IV.
Group C: Each permit cycle; three (3) involvement BMPs from Table IV.
Co-permittees: Each permit cycle; one (1) involvement BMP in the boundaries of each co-permit.

Table IV Involvement BMPs

BMPs	**Measurable goals (The quantity or frequency required to count as a full BMP)**	**Tracking & Adaptive Management**
Stream/lake or Watershed clean-up events; Litter clean-up events such as Missouri Stream Team, Adopt-A-Spot, Adopt-A-Street, Adopt-A-Stream;	To be considered an event, the land area cleaned must be at minimum 2 acres, or 400 yards of stream/ streambank/ watershed, or 2 miles of road side. (These may be combined such as 1 acre of land and 200 yards of stream.)	Track the area or distance cleaned (by acre, yard or lane miles), the amount of waste removed (by tonnage, cubic yard, or Stream Team bag count) and the attendance. Use the waste measurements to determine if there are priority areas for litter entering stormwater, or areas for illegal dumping.
Habitat improvement; Tree planting; Invasive vegetation removal; Stream restoration.	To be considered an event, the project must be a minimum of .5 acres or 25 yards. These may be a combination. This may take place in streams, parks, areas adjacent to public waterways, and/or other green space.	Track the location(s) along with the amount planted or remove, or miles improved or restored. Analyzing the areas improved upon, the MS4 Operator shall see if there are opportunities to join the improve areas, or work on a watershed basis.
Volunteer water quality monitoring;	To be considered an event, the monitoring must be conducted at minimum once a year.	Record the sites for the volunteers, what parameters were measured/monitored, and the dates of the monitoring.
Hold events to train residents, or work a project for homeowner associations (HOAs), or other public groups. The event or training must cover stormwater related topics such as: building rain barrels; Fertilizer application training; Rain garden/ bio retention creation or maintenance; How to recognize illicit discharge activities and communicate	Provide one project or training at minimum annually.	Record the attendance, the topic covered, and any training materials distributed. Use these numbers and interactions during the event to determine if the project or training covered a topic of interest and/or a topic that could be brought to a different or wider audience.

observations to appropriate MS4 staff.		
School, public event, etc. educational display/booth; Provide information or displays that work to improve public understanding of issues related to water quality.	Provide one booth or display at minimum annually. The booth or display must be staffed by staff of the MS4 at minimum 50% of the time the event is open to the public.	Record the number of interactions, the overall attendance, or the number of hours the event was staffed. Record the topic covered, and any educational materials distributed. Use these numbers and interactions during the event to determine if the project or training covered a topic of interest and/or a topic that could be brought to a different or wider audience.
Stormwater related speaker series;	Provide a minimum of two sessions a year. These may be different speakers and/or audiences.	Record the attendance, the topic covered, and any training materials distributed. Use these numbers and interactions during the event to determine if the project or training covered a topic of interest and/or a topic that could be brought to a different or wider audience.
Ongoing yard waste collection, designated yard waste collection area, household hazardous waste collection, or street sweeping program.	Provide the service as an annual occurrence or at readily accessible location. For street sweeping, this shall be conducted at minimum twice a year.	Track the amount collected. If educational information is being used in conjunction with this activity track for changes due to the education. Tracking can be used with illicit discharge tracking, to determine if the rate of this type of discharges or dumping were reduced.
MS4 area wide stormwater survey.	A series of public survey to establish a baseline in the first year of the permit and then a minimum of annually throughout the permit cycle.	Use the same or similar questions to evaluate BMPs and/or full program effectiveness. Surveys can be done with utility bills, online, social media, or a combination. All participation should be tracked.

4.1.E The MS4 Operator shall create or support the involvement BMP(s) in Section 4.1.D. To be considered support given to the coordinating groups the MS4 Operator shall at minimum conduct the following or similar:

- Plan, or assist with planning, the event or activity;
- Contribute supplies, materials, tools, or equipment;
- Provide assistance from MS4 staff during the activity;
- Provide assistance with recruiting volunteers for events;
- Make a space available for projects, meetings, or events;
- Advertisement for the events;
- Supply disposal services;
- Arrange land or stream access;
- Financial support; and
- In-kind donations such as food.

4.1.F Using adaptive management as required in parts 4.1.A.3.d and 4.1.B.1.c, all MS4 Operators shall review their Public Education and Outreach on Stormwater Impacts Program, at minimum, annually and update implementation procedures and/or BMPs as necessary within the requirements of this permit.
This may be conducted when preparing the MS4 Stormwater Management Program Report for submittal to the Department.

4.2 **MCM 2. Public Participation**

The permittee shall develop and implement a comprehensive public participation program that provides opportunities for public participation in the development and oversight of the permittee's Stormwater Program.

This program must provide opportunities for public participation of the permittee's permit renewal and shall, at a minimum, comply with any state and local public notice requirements. Additionally, the program must provide opportunities for public participation in activities related to developing and implementing the Stormwater Management Program.

The public participation program shall, at a minimum include the following:

4.2.A The MS4 Operator shall hold a public notice period for a minimum of thirty (30) days to allow the public to review the draft permit, and description of the MS4s Stormwater Management Program (this may be the SWMP) prior to the submission of the renewal application to the Department.

4.2.B As part of the public notice, if the MS4 Operator has a public website, the required items shall be posted on their website with a way to submit comments, along with the standard public notice methods for the MS4.

1. The permittee shall respond to comments received during the comment period.
2. The MS4 Operator shall retain copies of any public comments and records of information submitted by the public received as part of the public notice process. These comments and responses shall be made available to the public or the Department upon request.

4.2.C The MS4 Operator shall hold a public information meeting to provide information on, or describe the contents of, the proposed Stormwater Management Program. This meeting shall be advertised at least thirty (30) days prior to the public meeting.

1. As part of the notice of public meeting, if the MS4 Operator has a public website, the MS4 Operator shall post on that site, along with the standard public notice methods for the MS4. The notice of the public informational meeting, including the date, time and location.
2. The meeting must be held within the service area of the MS4. Co-permittees shall hold the meeting within the boundaries of each co-permittee.

4.2.D The MS4 Operator shall have a publicly available method to accept public inquiries, or concerns, and to take information provided by the public about stormwater and stormwater related topics.

1. This method, or a combination of method, shall encompass all MCMs of this permit. This method may be a phone number, website comment form, voicemail box, an email address, social media platform, or a combination of these.
2. All reports shall be tracked, recording the topic, location, and concern. This information can help identify pollutants of concern, priority areas, pollutant sources, educational needs, and other information the MS4 Operator may use to evaluate the Stormwater Management Program.

4.2.E If the MS4 Operator utilizes a stormwater management panel or committee, the MS4 Operator shall provide opportunities for citizen representatives on the panel or committee. The attendance of the meeting shall be recorded.

4.2.F If the permittee has a governing board such as; County Council, City Council, or Board of Curators, a representative of the MS4 Operator, who is familiar with the MS4 Stormwater Program, shall provide an update to the governing board. This shall be conducted at minimum, annually with the status of, or updates on, the Stormwater Management Program, and compliance with the Stormwater Management Program.

4.2.G **Existing permittees**: Shall evaluate their current program to ensure it is in compliance with this permit and promoted to the community. Existing permittees shall modify their program as necessary, and develop and implement elements, as necessary, to continue reducing the discharge of pollutants from the MS4 to the maximum extent practicable, following the requirements of Section 4.2 of this permit.

4.2.H **Newly regulated permittees**: Shall develop a stormwater Public Participation program. The Permittees shall have the program fully implemented by the end of this permit term.

4.2.I Tracking mechanisms shall be used for tracking attendance, inquiries or concerns per the requirements of Section 4.2 of this permit. Using adaptive management, all MS4 Operators shall review their Public Participation Program, at minimum, annually and update implementation procedures as necessary within the requirements of this permit. This shall be used to review how to best reach the public, the effectiveness of the mechanisms, the effectiveness of reaching the public and the MS4 Governing board and if the community and MS4 government are working together for water quality. Any additional events and/or BMPs shall be acknowledged in the Stormwater Management Program report.

4.3 **MCM 3. Illicit Discharge Detection and Elimination (IDDE)**

The MS4 Operator shall implement, and enforce a program to detect and eliminate illicit discharges (as defined in 10 CSR 20-6.200 at 40 CFR 122.26(b)(2)) into the regulated MS4.

The illicit discharge detection and elimination program shall at minimum, include the following:

4.3.A A current storm sewer system map that shall be updated as needed to include features which are added, removed, or changed. This map may be paper or electronic.
This storm sewer map, must show at a minimum:

1. The location of all MS4 outfalls. The map shall be detailed enough that the outfalls can be accurately located;
2. The names and locations of all receiving waters of the state that receive discharges from the MS4 outfalls;
3. The boundary of the regulated MS4 area;
4. The map shall be readily available and used by field staff as needed; and
5. The map and any accompanying necessary information shall be made available to the Department upon request.

4.3.B The MS4 Operator must record the sources of information used for the map and track, at minimum:

1. A numbering or naming system of all outfalls;
2. Dates that the outfall locations were verified/ or last field survey; and
3. For newly added outfalls, the date that it was added to the storm sewer system.

4.3.C The MS4 shall effectively prohibit non-stormwater discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions.
This prohibition shall be through ordinance or other regulatory mechanism, to the extent allowable under state or local law. This may be accomplished by more than one ordinance or mechanism.
This may be done through a "nuisance code" however it must be certain that non-stormwater discharges are covered in this code. Such non-stormwater discharges may include, but are not limited to:

- Litter;
- Household hazardous waste disposal;
- Leaf disposal;
- Use of soaps & detergents with discharge to stormsewer;
- Illegal dumping of solid waste;
- Vehicle fluid disposal;
- Grass clippings;
- Pet waste; and
- Sewage.

4.3.D A dry weather field screening strategy.

1. The MS4 Operator shall conduct (or have conducted on their behalf) outfall field assessments. The screening shall be conducted during dry weather conditions (a minimum of 72 hours after the last precipitation event) to check for the presence of a discharge.
   Existing permittees:
   a) A minimum of 60% of all outfalls shall be screened during the permit cycle.
   b) Priority areas, such as those listed in 4.3.H, shall be screened each year.
   Newly regulated permittees:
   a) All outfalls shall be located and screened during the 5 year permit cycle.
   b) Priority areas shall be established.

2. This screening shall include a checklist or other tracking device to; ensure a complete inspection of each outfall, enhance consistency, and to track the field screening. This shall be used regardless of the presence of dry weather flow.
   When discharge is present, the checklist or tracking device shall note the following general observations and physical characteristics at a minimum:
   - Date and time;
   - Weather conditions and temperature (air & water);
   - Color of discharge;
   - Estimate of flow rate (this may be noted qualitatively);
   - Odor;
   - Surface scum, algal bloom, floatables or oil sheen present;
   - Deposits or stains (note the color);
   - Turbidity (may be noted qualitatively);

- Stream impact including vegetation, fish, wildlife;
- Length of impacted stream; and
- Notes of an obvious source of flow (such as lawn irrigation, etc.)

4.3.E The MS4 Operator shall maintain diagnostic monitoring procedures to detect and investigate unknown non-stormwater flows as part of the dry weather screening program.
These procedures are for possible illicit discharges, and may be collected, and analyzed by a contracted lab, or similar agreement with another entity who is equipped and experienced in sample collect and analysis.

1. This diagnostic monitoring shall include sampling unknown discharge from MS4 outfalls that are found to be flowing or ponding more than 72 hours after the last precipitation event and considered to be an illicit discharge.
2. The samples shall be analyzed for relevant parameters to determine if a pollutant is involved.
    a) Relevant parameters will need to be determined on a case by case basis depending on the nature of the discharge and what the potential sources may be.
    b) The MS4 Operator shall have the ability to sample for and analyze the samples. This may be done through a contract lab or similar agreement.
    c) Possible parameters sampled for and analyzed when deemed applicable include but are not limited to:

- pH;
- Oil and grease;
- *E.Coli* or fecal coliform;
- Surfactants or fluorescence concentration;
- Specific conductivity;
- Ammonia;
- Chlorine;
- Dissolved oxygen; and
- Fluoride/ hardness.

4.3.F The MS4 Operator shall maintain procedures for tracing the source of an illicit discharge.
If initial screening indicates that a dry weather discharge contains pollutants, or if an illicit discharge is suspected from another reporting method, the source shall be traced. These procedures shall include mechanisms to locate and follow stormwater infrastructure. A variety of investigative tools may be used as appropriate for each situation, such as, but not limited to;

- Visually following the flow;
- Storm sewer system sampling;
- Full storm sewer map;
- Closed circuit television;
- Smoke or dye tracing; and
- Tunnel entry.

4.3.G The MS4 Operator shall maintain procedures for removing the source of the discharge.
After locating the source, the pollutant and source must be removed. While the exact procedure will depend on the source and the circumstances, The MS4 Operator must maintain any necessary contacts with appropriate entities that may be needed for these procedures (such as an environmental cleaning company). This information shall be made available to the responsible staff.

The MS4 Operator is encouraged to work with the source of the illicit discharge to remedy the situation. Possible remedies shall include:

1. Implement source control or treatment BMPs to prevent reoccurrence of the violation;
2. Remediation or restoration of affected property.

4.3.H In order to prevent further illicit discharge, the MS4 Operator shall identify priority areas such as, but not limited to:

- Areas with evidence of ongoing illicit discharges;
- Areas with a past history of illicit discharges;
- Certain land use influencing stormsewer/ proximity of potential pollutant sources;
- Areas of higher population density;
- Neighborhoods with onsite sewage systems;
- Areas with known litter or dumping issues;
- Areas with large or increased number of citizen complaints; and
- Industrial areas

Annually, the MS4 Operators shall evaluate this priority area list and/or map and update as necessary to reflect changing priorities.

If a co-permittee, each co-permittee shall identify priority areas within their boundaries.

4.3.I The MS4 Operator shall maintain written procedures for implementing the IDDE Program, including those components described within this section, to ensure program continuity and consistency.

1. This shall include a description of this dry weather field screening strategy and implementation schedule to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the permittee's system.
2. This shall include a description of how the discharge is evaluated and the possible parameters that are tested.
3. If contracted to another entity, the contact information shall be listed.

4.3.J The MS4 Operator must conduct investigations in response to field screening discoveries, spills, or in response to complaints from the public, municipal staff, or adjacent MS4s.
The investigation must work to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection.
Responses shall meet the following investigation timelines:

1. Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.
2. Investigate (or refer to the appropriate agency with the authority to act) within five (5) business days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare or the environment.
3. If illicit connections or illicit discharges are observed related to, discharging to, or discharging from, an adjacent MS4 Operator's municipal storm sewer system, the MS4 Operator must notify the other MS4's Operator within 24 hours of discovery or as soon as practicable.

4.3.K The MS4 Operator shall have procedures for appropriate enforcement, this may include fines, the ability to collect cleanup and abatement costs, and actions to ensure that the permittee's illicit discharge ordinance (or other regulatory mechanism) is being implemented.

1. The MS4 Operator shall maintain a written description of the enforcement procedure. This shall include a copy of or link to the ordinance and/or other regulatory mechanism that the MS4 Operator will use to enforce the prohibition of illicit discharges into the MS4.

4.3.L The MS4 Operator shall maintain a database, or other centralized system, to track dry weather field screenings, spills, incidents, and investigations.

1. Tracking mechanisms shall be used for incidents, investigations, enforcement and follow up. This data shall be used to continuously evaluate the effectiveness of the IDDE program. This data shall be reviewed to determine if there is a new priority area.
   The MS4 Operator shall record annually at a minimum:
   a) Number of outfalls screened;
   b) Number of complaints received and investigated; and
   c) Number of illicit discharges removed.
2. The MS4 Operator shall document all investigations to track at a minimum:
   a) The date(s) the illicit discharge was observed and investigated;
   b) Summary of procedures used to investigate the illicit discharge;
   c) The outcome of the investigation including sample results and findings;
   d) Any follow-up of the investigation including cleanup, enforcement actions, visits to confirm the illicit discharges have been removed; and
   e) The date the investigation or issue was closed or resolved.

4.3.M The MS4 Operator shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste, this may work with part 4.1 and part 4.6 of this permit (MCM #1 and MCM #6).

4.3.N All MS4 Operators shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary.

4.3.O **Existing permittees:** Shall evaluate their current program to ensure that it is in compliance with this permit.

1. Any revisions to the ordinance or regulatory mechanism shall be complete in the first year of the permit cycle.
2. Maintain an updated map with the items listed above. Items not included in the current map must be added within the first 2 years of the permit cycle.

4.3.P **Newly regulated permittees:** Shall develop an IDDE Program. Newly regulated permittees shall describe the IDDE program in their SWMP. The MS4 Operator shall have the program fully implemented within five (5) years of permit issuance.

1. If the MS4 Operator needs to develop the regulatory mechanism, the ordinance or regulatory mechanism must be adopted within the first 3 years of permit coverage.
2. Develop or update a map in accordance with Section 4.3.A of this Permit. The MS4 Operator must develop or update a map with the items listed above. All outfalls shall be dry weather field screened within the first five (5) years of permit issuance.

4.3.Q The MS4 Operator must develop and implement or maintain a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system.
This shall include staff who may handle materials which may become an illicit discharge. This shall include discharges through spills, improper disposal, mismanagement, improper vehicle or equipment washing or rinsing. This training may be conducted with resources online and may be focused for what topics are relevant to their position.

1. Each staff shall take this training at minimum within one year of a new employee being hired.
2. The applicable staff may include the following; (unless the MS4 Operator does not have the listed department under their jurisdiction). Additional staff or departments shall be included if appropriate;
    - Fleet maintenance staff;
    - Staff at facilities with fuel, chemicals, washing of vehicles or equipment;
    - Road maintenance staff;
    - Road salt/de-icing staff; and
    - Parks, swimming pool, or golf course staff who encounter spills, equipment or vehicle washing, fueling, chemicals, etc.
3. The training dates, topics and the attendance shall be recorded.
4. Reviews of the training effectiveness shall be considered after municipal site inspections or after an incident occurs. If a certain department or facility did not perform the way they were trained, or if an issue arises that was not handled properly, the MS4 Operator should consider if the training is enough or is ineffective. The MS4 Operator shall consider ways to survey or test staff to see if the training is effective.

4.3.R Using adaptive management the MS4 Operator shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary. This data shall be used to continuously evaluate the effectiveness of each BMP and the implementation of each BMP.
Any additional BMPs shall be acknowledged in the Stormwater Management Program report.

4.4 **<u>MCM 4. Construction Site Stormwater Runoff Control</u>**

The MS4 Operator shall develop, implement and enforce a program to reduce pollutants in any stormwater runoff to their MS4 from construction activities that result in land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre shall 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.

4.4.A The MS4 Operator shall have a law, ordinance and/or other regulatory mechanism to require construction site runoff control BMPs at construction/land disturbance sites greater than or equal to one (1) acre or less than one acre if the construction activity is part of a larger common plan or development or sale that would disturb one acre or more. The mechanism shall include sanctions which are designed to ensure compliance, to the extent allowable under State, or local law.

4.4.B The MS4 Operator shall review pre-construction plans. These reviews at a minimum shall:

1. Incorporate the consideration of potential water quality impacts through procedures for site plan review. The site plan review procedures shall evaluate threats to water quality shall by considering, at minimum, the following factors:
    a) Soil erosion potential;
    b) Site slope;
    c) Project size and type;
    d) Sensitivity of receiving waterbodies;
    e) Discharge flow type (pipe or sheet flow);
    f) Location of discharge point in relation to receiving water;
    g) Proximity of the site to receiving waterbodies; and
    h) Other factors relevant to the MS4 service area.
2. Use a checklist, or other listed criteria, to ensure consistency and completeness.
3. Include requirements for construction site operators to select, install, implement, and maintain appropriate stormwater control measures.

a) This includes; temporary BMPs throughout the life of the land disturbance, and permanent BMPs which remain on site as required by local codes and ordinances.

4. Consider ways to minimize disturbed areas through actions such as, phased construction requirements, temporary seeding or sodding, or erosion mats to exposed areas.
5. Include requirements for construction site operators to control construction-site waste that may cause adverse impacts to water quality.
   This shall include at a minimum:
   a) Discarded building materials;
   b) Concrete truck, and mortar mix washout;
   c) Chemicals (such as fertilizer, paint, oils, herbicides, pesticides);
   d) Litter; and
   e) Sanitary waste.

4.4.C The MS4 Operator shall establish authority for site inspections and enforcement of control measures. To the extent allowable by state, federal, and local law, all MS4 Operators shall implement procedures for inspecting construction/land disturbance projects.
The construction site runoff control program shall implement at a minimum:

1. Identify priority sites for inspection based on nature of the construction activity, topography, disturbed area, and the characteristics of soils and sensitivity of, or proximity to, receiving water;
2. Construction site inspections shall include assessment of compliance with the MS4 Operator's construction site stormwater runoff control ordinance or regulatory mechanism, and other applicable ordinances;
3. The inspections shall evaluate any structure that functions to prevent pollution of stormwater or to remove pollutants from stormwater and use enforcement polices to require BMPs are implemented and effective;
4. Final inspection, upon completion of the land disturbance and prior to final approval of construction project. Ensure all disturbed areas have been stabilized, that all temporary erosion and sediment control measures are removed.
5. The inspections conducted by the MS4 Operator shall be documented with a checklist. The checklist must include structural BMPs and check on the self-inspection which are conducted by the construction site operator. These MS4 Operator checklists may be electronic.

4.4.D The construction site runoff control program shall include an established, escalating enforcement policy that clearly describes the action to be taken for violations.
The program shall have written procedures to ensure compliance with the MS4 Operator's construction site runoff control regulatory mechanism. This shall include the sanctions and enforcement mechanisms the permittee will use to ensure compliance and procedures for when certain penalties, injunctions or other measures will be used.

1. The MS4 Operator must have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance.
2. Enforcement responses to violations must consider the following criteria at minimum:
   a) Degree and duration of the violation;
   b) Effect the violation has on the receiving water;
3. Enforcement actions shall be timely in order to ensure the actions are effective. These procedures and actions must be written and available for MS4 staff for consistency and training purposes.
4. The MS4 Operator must have a minimum of two (2) enforcement actions they are able to use.
   Possible enforcement actions include, but are not limited to:
   a) Stop Work orders;
   b) Verbal education or educational materials given to the construction site operator;
   c) Written warnings or notice of violation;
   d) Bonding or escrow requirements;
   e) Fines/ penalties; and
   f) Denials for previous non-compliance or current non-compliance at other sites.

4.4.E The MS4 Operator shall require the construction site operator to conduct inspections at minimum:

1. Every fourteen (14) days, when construction is active.
2. Within 72 hours of any storm event, and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased.

Checklists used for these inspections conducted by construction site operators shall either be submitted to the MS4 Operator, or the MS4 Operator shall verify that these inspections are being conducted by the construction site operator checklists during MS4 Operator inspections**.**

4.4.F The MS4 Operator shall maintain an inventory of active public and private land disturbance sites, as defined in Section 4.4 of this permit. This may be supplemented with records such as a plan review checklist and email correspondence.

The inventory must contain:

1. Relevant contact information for each project (e.g., tracking number, name, address, phone, etc.);
2. Size of the project/ area of disturbance;
3. If the site is a priority site/ how high of priority;

4.4.G The MS4 Operator shall track their oversite inspections. This may be done by retaining copies of records such as inspection checklists and email correspondence. The MS4 Operator must make these inventories available to the Department upon request.
The tracking must contain at a minimum:

1. Inspection dates and time;
2. Inspector name;
3. Inspection findings; and,
4. Follow up actions and dates, including corrective actions and enforcement actions.

4.4.H **Existing permittees:** Review the Stormwater Management Program including ordinances, permitting procedures, review procedures, inspection procedures and enforcement procedures to ensure compliance with these requirements. Any changes necessary to be in compliance with this permit shall be completed within the first year of this permit issuance.
The inventory of active sites must be updated as new projects are reviewed and projects are completed. If the MS4 Operator needs to develop this inventory, it shall be completed within one (1) year of this permit issuance.

4.4.I **Newly regulated permittees:** If the MS4 Operator needs to develop this construction site runoff program, the SWMP shall describe the construction site stormwater plan and scheduled implementation. Development of this program shall be completed within the first three (3) years of the permit issuance. If the MS4 Operator's ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the SWMP.
For new permittees, the inventory must be completed with one (1) year of permit issuance and then updated as new projects are permitted.

4.4.J The Stormwater Management Program must include procedures for the MS4 Operator to receive and consider information submitted by the public about land disturbance sites. This may be in combination with 4.2.D of this permit.

4.4.K The MS4 Operator shall provide, or support access to, construction site runoff control training for MS4 inspectors and plan reviewers at minimum once during this permit cycle. This education shall be tracked or documented.

4.4.L The MS4 Operator must provide written procedures outlining the local inspection and enforcement procedures to their inspectors to ensure consistency among the inspections.

4.4.M Using adaptive management, all MS4 Operators shall review, at minimum annually, their Construction Site Stormwater Runoff Control Program and evaluate the ordinances, review procedures, inspection procedures, enforcement procedures, receipt of public information procedures, and effectiveness of training procedures to ensure compliance with these requirements and determine if changes are needed. This annual review may include but is not limited to:

1. Evaluating the most common violations, how the violations are handled, how many are escalated;
2. If the education program can assist in reducing violations;
3. Determining if the site plans match the sites when violations arise or if additional items need to be evaluated at plan review;
4. Assessing public complaints being addressed in a timely manner; and
5. Evaluating if the inspections thorough and consistent across different sites.

Any additional BMPs shall be acknowledged in the SWMP.

4.5 **<u>MCM 5. Post-Construction Stormwater Management in New Development and Redevelopment</u>**
The MS4 Operator shall continue or develop, implement, and enforce a program to address the quality of long-term stormwater runoff from new development and redevelopment projects that disturb equal to and greater than one acre, including projects less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more and that discharge into the regulated MS4.
The MS4's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts

4.5.A The MS4 Operator shall maintain and utilize an ordinance(s) or other regulatory mechanism(s) to address post-construction runoff from new development and redevelopment projects to the extent allowable under state or local law for sites equal to or greater than one acre including projects less than one acre that are part of a larger common plan of development or sale. The

goal of this approach is to arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, utilize BMPs that effectively remove stormwater pollution, and attempt to maintain predevelopment runoff conditions.

The MS4's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts from stormwater, after construction.

1. If adopting a set of standards from another MS4 or other established standards, the MS4's ordinance may incorporate by reference, therefore the MS4 does not need to incorporate the entire guidance into their codes.
2. This program may be accomplished through one or multiple ordinances or regulatory mechanisms.

4.5.B The MS4 Operator shall continue or develop a strategy to minimize water quality impacts. This shall include a combination of structural and/or non-structural controls (BMPs) appropriate for the permittee's community.

1. Structural controls include but are not limited to; extended detention basins, grass swales, bio-retention, permeable surfaces, sand filter basins, stormwater planters, proprietary BMPs.
   The ordinance or regulatory mechanism for structural post-construction controls, or water quality facilities, shall include:
   a) Adoption or development of numeric or technical performance and/or design standards to control post-construction stormwater discharges.
      These post-construction stormwater standards are for designing, installing, implementing, and maintaining stormwater control measures which may include, but are not limited to BMPs that; infiltrate, evapo-transpire, harvest, detain, retain, and/or reuse stormwater.
      The MS4 Operator must adopt or maintain local stormwater discharge design standards that consider parameters such as; site discharge volume, rate, duration, and frequency for new development and redevelopment sites with the intent to minimize the impact of stormwater runoff on water quality.

2. Non-structural controls include but are not limited to; stream buffers, no mow zones, preservation of open spaces, tree preservation, impervious cover reduction, land use planning, and low impact development.
   The ordinance(s) or regulatory mechanism(s) for non-structural post-construction controls, shall include:
   a) Adoption or development of preventative actions that involve management and source controls such as, but not limited to:
      - Policies and ordinances that provide requirements and standards to direct development to identified areas;
      - Protection of sensitive areas such as wetlands and riparian areas;
      - Maintain and/or increase open space (which may include a dedicated funding source for open space acquisition);
      - Maintain requirements for buffer zones along water bodies;
      - Require minimizing impervious surfaces;
      - Require minimizing disturbance of soils and vegetation;
      - Policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure;
      - Programs which incentivize the use of green infrastructure;
      - Requirements for minimization of directly connected impervious areas; and
      - Tree preservation ordinances.

4.5.C Pre-construction plan review shall be conducted by the MS4 Operator to assess site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance.
The structural or non-structural controls chosen shall; protect sensitive areas, minimize the creation of stormwater pollution, and effectively reduce stormwater pollution. This can be achieved by reasonably mimicking pre-construction runoff conditions on all affected new development projects, or the permittee may achieve this goal through a method more appropriate for its community.

1. The plan review process shall use a checklist. This may be part of the same plan review in MCM 4.
2. The plan review process shall evaluate non-structural BMP selection first, such as comprehensive plans, zoning ordinances, buffer strips, and/or maximization/preservation of open space. Non-structural BMPs primarily prevent stormwater runoff from a site, which could influence the options for structural BMPs which help mitigate the stormwater related impacts after they have occurred.

4.5.D The MS4 Operator shall have ordinances or similar enforcement mechanisms to ensure adequate long-term operation and maintenance (O&M) of the selected BMPs, including, as appropriate, agreements between the MS4 Operator and other parties such as post-development landowners or regional authorities.

1. Long term O&M shall be addressed during the plan review and approval process.

2. Copies of O&M manuals shall be retained by the party responsible for the post-construction BMP, and with the MS4 Operator. This may be done electronically.

4.5.E The MS4 Operator shall inspect, or require inspection of, each water quality structural and non-structural water post-construction BMP according to the following at minimum:

1. A minimum of one (1) inspection shall be conducted during construction, and one (1) inspection before the site is finalized, to verify water quality facilities are built as designed and any applicable boundaries or practices for non-structural BMPs are being observed. This may be conducted in combination with MCM 4 inspections.
    a) The MS4 inspector shall have access to the approved plans to ensure proper installation.
2. A minimum of once in the first three years after the installation by, the MS4 Operator.
3. Annually by the owner or operator of the post-construction BMP, or by the MS4 Operator. If completed by the BMP owner or operator, this inspection report shall be submitted to the MS4 Operator for evaluation and review.
4. The MS4 Operator shall inspect a minimum of 60% of all water quality post-construction BMPs within the five year permit cycle. This must include installations with ongoing or open enforcement issues.

4.5.F The MS4 Operator must maintain a plan designed to ensure compliance with the MS4's post-construction water quality regulatory mechanism. This plan shall include escalating enforcement mechanisms the MS4 Operator will use to ensure compliance.

The MS4 Operator must have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance.

1. Enforcement responses to violations must consider at minimum:
    a) Degree and duration of the violation;
    b) Effect the violation has on the receiving water;
    c) Compliance history of the post-construction BMP owner or operator; and
    d) Cooperation of the owner or operator with compliance efforts.

4.5.G Enforcement actions shall be timely in order to ensure the actions are effective. The MS4 Operator shall begin enforcement actions within thirty (30) days of discovering a violation.

The MS4 Operator shall maintain a minimum of two possible sanctions. These include, but are not limited to:

1. Education regarding the BMP and verbal warnings;
2. Written warnings or notice of violation (this includes email notification);
3. Property lien; and
4. Fines.

4.5.H The MS4 Operator shall maintain an inventory tracking the water quality post-construction BMPs. This inventory must contain, at a minimum:

1. Relevant contact information for the responsible person(s) or entity (e.g., tracking number, name, address, phone, etc.);
2. The type of post-construction BMP;
3. Applicable operations and maintenance documents;
4. Date the MS4 Operator approved the construction site plan; and,
5. If the water quality facility is owned or operated by the MS4, the tracking shall also include any maintenance, such as sediment clean-out or replanting.

4.5.I The MS4 Operator shall also track the post-construction BMP inspections. This may be done by retaining copies of records such as inspection checklists and email correspondence. The MS4 Operator must make these inventories available to the Department upon request.

The MS4 Operator shall track at a minimum:

1. Inspection dates/ times;
2. Inspector name(s);
3. Inspection findings; and,
4. Follow up actions including all enforcement actions.

4.5.J **Existing permittees:** Evaluate the ordinances, permitting procedures, review procedures, inspection procedures and enforcement procedures to ensure compliance with these requirements and determine if changes are needed. Any changes necessary to be in compliance with this permit shall be completed within the first two (2) years of permit issuance.

The inventory of water quality facilities must be updated as new facilities are added and projects are completed. If the MS4 Operator needs to develop this inventory, it shall be completed within two (2) years of this permit issuance.

4.5.K **Newly regulated permittees:** Shall develop the ordinance or regulatory mechanism. Development of this program shall be completed within the first five (5) years of the permit issuance.

For new permittees, the inventories of public and private post-construction water quality BMPs must be completed within two (2) years of permit issuance and then updated as new projects are permitted and projects are completed.

4.5.L The MS4 Operator shall provide appropriate training for MS4 inspectors at minimum once every permit cycle. This may include Green Infrastructure training, or specific operation of proprietary post-construction BMPs. The MS4 shall provide overall training to explain the function of both structural and non-structural post-construction water quality BMPs.

4.5.M Using adaptive management, all MS4 Operators shall review, at minimum annually, their Post-Construction Site Stormwater Management in New Development and Redevelopment Program and evaluate effectiveness of the overall program and determine if changes are needed. This annual review may include but is not limited to:

1. Reviewing the number and types of developments;
2. How many BMPs were installed/inspected;
3. The amount of watershed area being treated;
4. The types of violations found and how frequently; and
5. How education could improve the effectiveness of the program.

Any additional programmatic BMPs shall be acknowledged in the Stormwater Management Program Report.

4.6. <u>MCM 6. Pollution Prevention/Good Housekeeping for Municipal Operations</u>

The permittee shall develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

4.6.A The MS4 Operator shall maintain and utilize an employee training program for MS4 municipal operations staff. The training shall be given at minimum annually to all MS4 staff who work with material handling, at MS4 owned or operated vehicle/equipment maintenance areas, storage yards, and material storage facilities. This may be broken up into staff units, or by applicable topics.

4.6.B The training shall be used to prevent and reduce stormwater pollution.
The training shall cover a minimum of the following topics/ activities (if applicable to the MS4):

1. Vehicle and equipment washing;
2. Fluid disposal and spills;
3. Fleet, equipment, and building maintenance;
4. Park and open space maintenance procedures (including fertilizer, herbicide, pesticide application);
5. New construction, road maintenance, and land disturbances;
6. Stormwater system maintenance;
7. MS4 operated salt and de-icing operations;
8. Fueling;
9. Solid waste disposal;
10. Street sweeper operations; and
11. Illicit Discharges.

4.6.C The MS4 Operator shall:

1. Maintain material to use in the training program, such as those available from the EPA, the state, or other organizations.
2. Maintain written procedures for the training program. Include a description of how this training will coordinate with all other minimum control measures (such as Illicit Discharge), monitoring and TMDL implementations where applicable.
3. Maintain a written schedule to offer topic specific training when it is appropriate. Such as, swimming pool discharges in the summer, leaf disposal in the fall, proper salt clean-up and usage in the winter.

4.6.D The MS4 Operator shall maintain a list of all municipal operations/facilities that are impacted by this operation and maintenance program.
This shall include a minimum of the following if owned and operated by the MS4 and if applicable to the MS4:

1. Maintenance yards;
2. Fleet or maintenance shops, including parks department;
3. Storage yards;
4. Parks, golf courses, swimming pools, and splash pads;
5. Municipal parking lots;
6. Salt/sand storage locations;
7. Snow disposal areas; and
8. Other locations expected to contribute floatables and/or pollutants.

4.6.E The MS4 Operator shall maintain a list of industrial facilities the MS4 Operator owns or operates which are subject to NPDES permits for discharges of stormwater associated with industrial activity. The list shall include the permit number or a copy of the No Exposure Exemption Certification (if applicable) for each facility.
This includes; municipal projects with a land disturbance permit, wastewater facilities, airports, etc.
NPDES permitted facilities not owned or operated by the permittee are not required to be part of the list; however, the MS4 Operator should be familiar with all such facilities in their MS4 service area as they may signify a priority area for the IDDE program.

4.6.F The MS4 Operator shall develop or maintain controls for reducing or eliminating the discharge of floatables and pollutants from municipal facilities listed in Section 4.6.D and 4.6.E.
These controls shall include at a minimum, where applicable:

1. A list of potential pollutant sources at each facility, such as materials used and stored on site;
2. A minimum of annual inspections of all municipally owned or operated facilities for stormwater issues;
    a) Records shall be kept for inspections and follow up. This may be a checklist, and may be electronic;
3. Use of structural controls/BMPs to reduce or prevent pollutants from entering waters of the state or into another MS4 where needed.
    a) A map with descriptions of these BMPs shall be maintained for each facility;
4. All paints, solvents, petroleum products, and petroleum waste products (except fuels) under the control of the permittee shall be stored so these materials are not exposed to stormwater;
5. Sufficient practices of spill prevention, control, and/or management shall be provided to prevent any spill of these pollutants from entering waters of the state;
    a) This shall include spill kits when liquid product is stored at a facility; and
    b) Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
6. Tracking of rock salt/brine or other deicer usage;
7. Maintaining municipal salt storage area(s) after use of rock salt, at minimum:
    a) Sweep and/or shovel spillage in loading area and storage area, and
    b) Unload salt hoppers or keep under cover when salt is in the hopper.

4.6.G The MS4 Operator shall have procedures for proper disposal of waste removed from the MS4 structures and areas of jurisdiction.
This waste, shall include at minimum, if applicable to the permittee:

1. Street sweeper spoils and washout;
2. Accumulated sediment;
3. Dredged materials;
4. Floatables, trash and litter;
5. Leaves, other organic matter; and
6. Other debris.

4.6.H The MS4 Operator shall maintain and utilize the following procedures, at minimum, for the washing of all municipal vehicles and equipment (if applicable to the MS4):

1. Use of any soap or detergent shall only be where there is connection to sanitary sewer or equivalent treatment; and
2. Any wash or rinse water that contains pollutants such as salt, oils, grease, sediment, grass clippings, lawn chemicals, or pesticides shall not be discharged to waters of the state or the MS4 system without appropriate treatment.
3. Any washing or rinsing activities shall be conducted in an appropriate area so the water is treated. This area(s) shall be marked on the map of the facility.

4.6.I The MS4 Operator shall maintain written explanation of the controls, procedures, inspection schedules, and explanation of tracking of these controls. Tracking may be done by retaining inspection reports or checklists.
Individual Stormwater Pollution Prevention Plans or one overarching Operations and Maintenance Manual for all applicable MS4 facilities may be used to comply with this requirement. If a unified document is used, each individual site shall be familiar with the document, and a copy shall be present on each site referenced in the document or available electronically.
Annually, the MS4 Operator shall evaluate the results, controls, and inspection procedures to ensure compliance with these requirements and determine if changes are needed. This evaluation may also aid in finding priority areas or pollutants in relation to MCM 3, or adding more education in relation to MCM 1.

4.6.J The MS4 Operator shall maintain procedures to determine if there are impacts to water quality for new flood management projects, if applicable. Any flood management projects shall require the protection of water quality in the standards that are used to plan, design, build, and maintain stormwater infrastructure.
Flood management projects are those projects developed or designed to reduce flooding.

4.6.K **Existing permittees:** Shall evaluate the current Stormwater Management Program including training, inspection procedures, and other municipal operation procedures to ensure compliance with these requirements. Any changes necessary to be in compliance with this permit shall be completed within one (1) year of this permit issuance.

4.6.L **Newly regulated permittees:** Shall develop this program. The SWMP shall describe the pollution prevention/ good housekeeping plan and scheduled implementation. Development of this program shall be completed within the first five (5) years of the permit issuance.

4.6.M Using adaptive management, all MS4 Operators shall review their Municipal Operations Program, at minimum, annually and update implementation procedures as necessary within the permit requirement. Any additional BMPs shall be acknowledged in the Stormwater Management Program Report.

PART 5. MONITORING, RECORDKEEPING, AND REPORTING

5.1 Monitoring

5.1.A The MS4 Operator shall retain records of any monitoring information used to complete the application for this operating permit, implementation of any part of this operating permit, and implementation for any part of the permittee's Stormwater Management Program for a period of at least three (3) years from the date of the sample, measurement, or analysis. This period may be extended by official written request by the Department at any time. These records may be maintained electronically.

Monitoring data shall include, if applicable, the below information:

1. All calibrations and maintenance records of sample or analytical equipment;
2. All original strip chart recordings for continuous monitoring instrumentation;
3. The date, location, and time of sampling or measurement;
4. Name of the individual(s) who performed the sampling or measurements;
5. The date(s) analyses were performed;
6. Name of the individual(s) who performed the analyses;
7. The analytical techniques or methods used; and
8. The results of such analyses.

5.1.B Any monitoring conducted for the purpose of implementation of any part of this permit shall be conducted in accordance to test procedures approved under 40 CFR Part 136 unless another method is required under 40 CFR subchapters N or O.

5.2 Recordkeeping

All records required by this permit may be maintained electronically, as long as they are accessible upon request by the Department. If a non-electronic version is kept, the permittee shall retain the most recent versions of the records and shall be accessible to the Department upon request.

5.2.A The permittee shall retain records of all activities requiring recordkeeping by the Stormwater Management Program, a copy of the NPDES permit, a copy of all ordinances, policies, and formal procedures for all six (6) MCMs and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the report or application. This period may be extended by official request of the Department at any time.

5.2.B The permittee shall retain the most recent version of their SWMP at a reasonable location accessible to the Department, this may be done as a publicly available website.

5.2.C If requested in writing by the public, the permittee shall submit the items required under Part 5 of this permit, including a copy of the permit, SWMP, or application.

5.2.D The permittee shall submit the items contained in Part 5 of this permit to the Department upon request.

5.3 MS4 Stormwater Management Program Report

5.3.A A report to the Department on the status of the MS4's program is due annually on or before February 28th. This report shall cover the previous year from January 1st to December 31st. The report shall be submitted on the Department approved, MS4 Stormwater Management Program Report form. If approved by the Department, permittees may submit the MS4 Stormwater

Management Program Report using an alternative report format. The MS4 Operator shall submit the MS4 Stormwater Management Program Report containing, at a minimum:

1. Information regarding progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable;
2. The status of the MS4's compliance with permit conditions;
3. Assessment(s) of the appropriateness of identified BMPs and corresponding measurable goals for each MCM;
4. A summary of results of information collected and analyzed during the reporting period, including monitoring data or quantifiable values per the MS4's measurable goals;
5. A summary of the TMDL Assumptions and Requirement Attainment Plan (ARAP), if applicable, containing the implementation status of BMPs and measurable goals specific to the TMDL ARAP or progress toward implementing the schedule for implementation of the TMDL ARAP. The summary shall also include any changes to BMPs and corresponding measurable goals;
6. If the permittee is utilizing integrated planning, the permittee shall provide a summary of the status of the integrated plan; and
7. A statement if the permittee is relying on another entity to satisfy some of the permittee's permit obligations. If applicable, the permittee shall supply the name of the entity, the name of the entity's primary contact person, and other relevant contact information.

5.3.B Electronic Discharge Monitoring Report (eDMR) Submission System. Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit), shall be submitted via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data for the NPDES program. The eDMR system is currently the only Department-approved reporting method for this permit unless specified elsewhere in this permit, or a waiver is granted by the Department. The facility must register in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due.

PART 6. SPECIAL CONDITIONS FOR TOTAL MAXIMUM DAILY LOADS

6.1 MS4s Subject to Total Maximum Daily Loads (TMDL)

6.1.A Any regulated MS4 identified in an EPA approved or established TMDL with an applicable Wasteload Allocation (WLA) shall implement steps toward the attainment of applicable WLAs in accordance with 40 CFR 122.44(k)(2) and (3).

6.1.B The MS4 Operator shall develop a TMDL ARAP to address the TMDL's assumptions and requirements where applicable.

6.1.C The TMDL ARAP shall be incorporated into the Stormwater Management Program and include, at a minimum:

1. A plan to identify potential sources of the pollutants(s);
2. A plan to implement BMPs to address the sources within the MS4 service area; and
3. A schedule, including beginning and ending milestones, which are expressed as month and year to implement planned BMPs.

The schedule for the implementation of the TMDL ARAP shall be completed as soon as practicable, but is not limited to the five year term of this operating permit as attainment can take years or even multiple permit terms.

6.1.D BMPs shall be developed or designed with a purpose of reducing the pollutant(s) of concern The ARAP shall list each BMP and shall contain a description of the BMP, the purpose of the BMP, and the expected result of the BMP.

6.1.E Measurable goals shall be established for each BMP or in conjunction with multiple BMPs.

1. Each measurable goal shall contain a statement clearly indicating how it will be established to determine the appropriateness of identified BMPs and progress toward the expected results of the BMP.
2. Measurable goals shall be quantifiable; however, if it is not feasible to utilize a measurable goal that is quantifiable, then the permittee shall provide justification indicating why the measurable goal cannot be quantifiable.
3. If applicable, measurable goals shall also utilize interim and completion milestone dates, and a periodic frequency of measurement to document progress. Interim and final milestone dates shall be established with a format of month and year, or as 1st, 2nd, 3rd, 4th, and 5th year of the operating permit cycle.

6.1.F An iterative process shall be utilized by the permittee documenting how each BMP is evaluated and subject to replacement or modification. The permittee shall apply reasonable further progress by replacing or modifying ineffective BMPs with effective BMPs.

6.1.G If the permittee is subject to an approved or established TMDL, the permittee shall draft and submit their TMDL ARAP to the Department as soon as practicable but no later than 30 months after the date the EPA approves or establishes the TMDL or the effective date of their operating permit, whichever is later.
The initial TMDL ARAP is to be submitted to the Department's Water Protection Program, MS4 Team for review and approval at MS4@dnr.mo.gov or Water Protection Program, MS4 Team, P.O. Box 176, Jefferson City, MO 65102. The deadline for the TMDL ARAP may be extended through written request by the permittee and written approval by the Department.

6.1.H The MS4 Operator shall submit annual TMDL ARAP status reports to the Department on February 28th of each year until the TMDL ARAP has been submitted.
The annual status report shall provide a brief update on the status of completion of the TMDL ARAP to be submitted to the Department. The deadline for the TMDL ARAP status report may be extended through written request by the permittee and with written approval by the Department. The annual status report shall be submitted to the Department's Water Protection Program, MS4 Team at MS4@dnr.mo.gov or Water Protection Program, MS4 Team, P.O. Box 176, Jefferson City, MO 65102.

6.1.I If the Department approves the TMDL ARAP, it will be presumed that the TDML ARAP is affordable by the permittee.
If the Department disapproves a submitted TMDL ARAP and requires any additional or different controls or expenses, the Department will conduct an affordability analysis in support of the disapproval unless waived by the permittee. In addition to the disapproval, the Department shall provide an itemized list of recommendations, discrepancies, and plan corrective action(s) to the permittee in written correspondence, which will also provide deadlines for any corrective action(s).

6.1.J If the TMDL ARAP has been submitted to the Department but has not received approval, the MS4 Operator is not required to implement any actions listed in their TMDL ARAP and shall notify the Department of this in their MS4 Stormwater Management Program Report.

6.1.K If the TMDL ARAP has received Department approval, the permittee shall implement their TMDL ARAP in accordance to schedules established in the TMDL ARAP.
Implementation of all TMDL ARAP control measures shall be documented and retained by the permittee, and made available to the Department or the EPA upon request.

6.1.L If the MS4 Operator has an approved TMDL ARAP, the permittee shall provide a summary listing the BMPs and the status of the measurable goals in the MS4 Stormwater Management Program Report.

6.1.M If the MS4 Operator is subject to a TMDL, the MS4 Operator may demonstrate no additional controls are needed beyond the successful implementation of the six Minimum Control Measures (MCMs), which includes modifications to the BMPs or measurable goals, for the attainment with the TMDL's assumptions and requirements.
The demonstration is subject to Department approval. The MS4 Operator shall contact the Water Protection Program's MS4 Team to begin the process.

6.1.N If the permittee has already developed an integrated plan, a separate ARAP is not be required provided the integrated plan meets the requirements outlined in section 6.1 of this permit.
Review and rating of an integrated plan is subject to the same requirements of section 6.1 of this permit. The MS4 Operator shall contact the Water Protection Program's MS4 Team to begin the process.

6.1.O Permittees subject to existing TMDL Assumptions and Requirements shall submit their plan and status of implementation to the Department with the MS4 Stormwater Management Program Report required by this permit. Existing plans shall be subject to the same conditions listed in items 6.1.

6.1.P If the EPA approved or established TMDL indicates that the permittee does not cause or contribute to the impairment, the permittee is not required to develop and implement any action contained in Part 6 of this permit.

PART 7. STANDARD PERMIT CONDITIONS

7.1.A Duty to Comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and the Federal Clean Water Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal.

7.1.B Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

7.1.C Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance may also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

7.1.D Inspection and Entry. The permittee shall allow the Department or an authorized representative (including an authorized contractor acting as a representative of the Department), upon the presentation of credentials and other documents as may be required by law to:

1. Enter the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit.
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, and have the authority to request records be provided electronically in absentia.
3. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substance or parameters at any location.

7.1.E Monitoring Methods. See Part 5.1 of this operating permit.

7.1.F Need to Halt or Reduce Activity Not an Excuse. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

7.1.G Permit Actions. This permit may be modified, revoked, reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

7.1.H Duty to Reapply.

1. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
2. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. A permittees with currently effective general permit shall submit an application for renewal at least 180 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.) Continuation of expiring permits are in accordance with 10 CSR 20-6.010(10)(C) and subsequent amendments.

7.1.I Administrative Continuation of the Permit. If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 10 CSR 20-6.010(10)(C) and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date, and who has applied for renewal at least 180 days prior to the expiration date, will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time the permittee shall comply with the application conditions of the new permit to maintain authorization to discharge;
2. Notice of termination;
3. Issuance of a site-specific permit or alternative general permit for MS4 discharges; or

4. A permit decision by the Director not to reissue this general permit, at which time the permittee shall seek coverage under an alternative general permit or a site-specific permit.

7.1.J Permit Transfers. Subject to 10 CSR 20-6.010(11), an operating permit may be transferred upon submission to the Department. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the MCWL or the CWA. (See 40 CFR 122.61. In some cases, modification or revocation and reissuance is mandatory.)

7.1.K Procedures for Modification or Revocation. If at any time the Department determines that the quality of waters of the state may be better protected by reopening this permit, or revoking this permit and requiring the owner/operator of the permitted site to apply for a site-specific (individual) permit or alternative general permit, the Department may revoke a general permit and require any person to obtain such an operating permit as authorized by 10 CSR 20-6.010(13), 10 CSR 20-6.200(1)(B) or 10 CSR 20-6.200(6).

7.1.L If this permit is reopened, modified, or revoked pursuant to this section, the permittee retains all rights under Chapters 536 and 644 Revised Statutes of Missouri upon the Department's reissuance of the permit as well as all other forms of administrative, judicial, and equitable relief available under law.

7.1.M The Department may require the permittee to apply for and obtain a site-specific or alternative general permit if:

1. The permittee is not in compliance with the conditions of this general permit.
2. The discharge no longer qualifies for this general permit due to changed site conditions and regulations.
3. The permittee will be notified in writing of the need to apply for a site-specific permit or an alternative general permit. When a site-specific permit or alternative general permit is issued to the authorized permittee, the applicability of this general permit to the permittee will be terminated upon the effective date of the site-specific or alternative general permit, whichever the case may be.

7.1.N Site-Specific Permit or Alternative General Permit. The permittee may apply for a site-specific permit or alternative general permit in lieu of coverage under this general permit. In such cases, the permittee shall submit an application for the alternate permit in accordance with the requirements of 10 CSR 20-6.200 with reasons supporting the request. The request may be granted by issuance of any site-specific permit or an alternative general permit.

7.1.O Property Rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

7.1.P Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable amount of time, any information which the Department may request to determine whether cause exists for modifying, revoking, and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

7.1.Q Falsification Penalties. Any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both. Second and successive convictions for violations under this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two years, or both;

7.1.R Reopener Clause. Nothing in this permit shall prevent the Department from re-opening, modifying, or revoking this permit as authorized by law.

7.1.S Signatory Requirements.

1. All permit applications shall be signed and certified in accordance with 40 CFR 122.22 and 10 CSR 20-6.010(2)(B) by either a principal executive officer or by an individual having overall responsibility for environmental matters for the permittee.

2. All reports required by this permit, and other information requested by the Department shall be signed by a person described in section 2.2.B of this permit, or by a duly authorized representative of that person. A person is a duly authorized representative if:
   a) The authorization is made in writing by a person designated in Section 2 of this permit;
   b) The authorization specifies an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of stormwater manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the permittee. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
   c) The written authorization is submitted to the Director; and
   d) If an authorization under section 2.2.B is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new, written authorization satisfying the requirements of this paragraph must be submitted to the Director prior to, or together, with any reports, information, or applications signed by an authorized representative.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
PHASE II SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
MO-R04C000
MASTER GENERAL PERMIT

The Federal Water Pollution Control Act [Clean Water Act (CWA)] Section 402 of Public Law 92-500 (as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the CWA). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Missouri Department of Natural Resources (Department) under an approved program, operated in accordance with federal and state laws (Federal CWA and Missouri Clean Water Law Section 644 as amended). Permits are issued for a period of five (5) years unless otherwise specified.

Per 40 CFR 124.56, 40 CFR 124.8, and 10 CSR 20-6.020(1)(A)2., a Fact Sheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the permit. A Fact Sheet is not an enforceable part of an MSOP.

This Fact Sheet is for a Master General Permit.

Part I – Facility Information

Facility Type:	Industrial; Stormwater
Facility SIC Code(s):	#9511
Facility NAICS Code:	#924110
Facility Description:	Urban Stormwater Runoff. The permittee's MS4 collects and routes stormwater from industrial, commercial, roadways, and residential areas located within the permittee's municipal boundary and discharges the stormwater to waters of the state.

This Permit establishes Stormwater Management Program and Stormwater Management Plan (SWMP) requirements for all permit holders under this permit.

Clarification:
Coverage under this general permit may be issued to Public entities located inside the service area of a publicly owned separate storm sewer system designated by the Department if it is determined that its discharges from the MS4 have caused, or have the potential to cause, an adverse impact on water quality. Extension of such coverage shall be at the discretion of the Department.

Significant Changes to this permit include:
- ✓ Establishment of terms and conditions of the permit necessary to meet the MS4 permit standard in clear, specific and measurable terms per 40 CFR 122.34.
- ✓ Establishment of public notice, public comment and public hearing process necessary to meet the permit standard per 40 CFR 124.10.

DEFINITIONS
The definitions in this section shall apply to this permit only, and do not supersede or replace the definitions contained in Section 644.016, RSMo, 10 CSR 20-2.010, and 10 CSR 20-6.200(1)(D), which are all incorporated herein by reference. To aid understanding of some key terms, explanations of several statutory and regulatory definitions are provided. However, in the event of any inconsistencies, the statutory and regulatory definitions are controlling.

Adaptive management: A repetitive or cyclical process of decision making that requires monitoring activities to adjust behavior, decisions, and actions and to incorporate new knowledge and actual changes.
Adaptive management enables MS4 permittees to continually improve their stormwater control strategies and practices as they implement their programs and learn from experience to better control pollutant discharges. The process starts with the evaluation of a BMP with its designated measurable goal. If the BMP is found effective, then the MS4 Operator continues with this BMP until the next round of evaluation. If the BMP is found to be ineffective, then the MS4 Operator is required to conduct analysis to determine what can be altered or modified or if the BMP needs to be replaced.

Best Management Practices (BMPs): "Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas." 10 CSR 20-6.200(1)(D)1.

- BMPs can be temporary or permanent, and include structural items or non-structural practices or activities including schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants.
- BMPs encompass both the enforceable terms and conditions of this permit as well as particular activities and practices selected by the permittee that will be undertaken to meet the permit requirements but that are not themselves enforceable.

Clear, specific, and measurable terms: This permit is written to contain clear, specific, and measurable terms, using plain language to clearly establish permit requirements and the standards that will be used to assess compliance. "Such terms and conditions may include narrative, numeric, or other types of requirements (*e.g.*, implementation of specific tasks or best management practices (BMPs), BMP design requirements, performance requirements, adaptive management requirements, schedules for implementation and maintenance, and frequency of actions)." 40 C.F.R. § 122.34(a)

Common Plan of Development or Sale: An area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. This plan may consist of many small construction projects that collectively add up to one or more acres of total disturbed land. For example, an original common plan of development of a residential subdivision might identify the streets, house lots, and areas for parks, schools and commercial development that the developer plans to build or sell to others for development. All these areas would remain part of the common plan of development or sale until the intended construction is completed.

Construction activities: Clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre. Construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) acre. *See* 10 CSR 20-6.200(1)(D)28.

Construction Site Operator: The entity or entities with operational control over construction plans and specifications including the ability to make modifications to those plans and specifications; or with day-to-day operational control of those activities at a project that are necessary to ensure compliance with a Stormwater Pollution Prevention Plan (SWPPP) for the site or other permit conditions. Typically this is the owner of the site or the general contractor of the project.

Control Measure: Any BMP or other method used to prevent or reduce the discharge of pollutants to waters of the state.

Conveyance: Curbs, gutters, artificial channels, swales, ditches, drains, pipes, catch basins, paved or unpaved channels, storm drains, or other constructed or natural features designed or utilized for routing of stormwater.

Co-permittee: "A permittee to a state operating permit that is responsible only for permit conditions relating to the discharge for which it is owner or operator, or both." 10 CSR 20-6.200(1)(D)4.
An operator of a regulated municipal separate storm sewer system (MS4) that applies jointly with one or more other applicants for coverage under a single municipal stormwater permit. Applicants within one urbanized area, or within a common watershed, or in an area served in common by one service provider may apply as co-applicants to share the administrative responsibilities of the application process and to become co-permittees under an issued permit.
A co-permittee must comply with the conditions of the permit relating to discharges from the MS4 the co-permittee owns or operates. Co-permittees will need to cooperate with each other to develop, implement, and report on their programs.

Discharge: "[T]he causing or permitting of one or more water contaminants to enter the waters of the state." Section 644.016(6) RSMo
The water contaminant authorized to be discharged by this permit is urban stormwater runoff.

Illicit Discharge: "Any discharge to a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to a state operating permit, other than storm water discharge permits and discharges from fire fighting activities." 10 CSR 20-6.200(1)(D)7.

Infill development: The building of homes, businesses and public facilities on unused and underutilized lands within existing urban areas. Infill development is the use of land in established neighborhoods for new development or redevelopment.

Iterative process: A documented process consisting of action items and analysis conducted by the MS4 Operator to ensure that BMPs are effective. This includes evaluating results and adjusting actions on the basis of what has been learned, as a part of adaptive management.

Maximum Extent Practicable (MEP): An adaptive management approach whereby the permittee will implement management measures, including structural and non-structural BMPs. MEP is a permittee-specific determination guided by factors such as: community financial capability and the need for reasonable rate or funding increases, weighing program-wide priorities compared to site-specific MS4 improvements, MS4 impacts to receiving waters, local priorities, watershed planning, integrated planning, MS4 size, climate, implementation schedules, hydrology, topography, geology, and the MS4's capacity to perform additional operation and maintenance.

Minimum Control Measure (MCM): The Phase II Rule defines a small MS4 stormwater management program as comprised of six areas of management, known as Minimum Control Measures. When administered properly and collectively, they are expected to result in reduction of the discharge of pollutants into receiving water bodies.

Modification: A revision to the MS4's Stormwater Management Program during the life of this permit. Modifications may include:

a. Addition of new components, controls, or requirements to the Stormwater Management Program;
b. Replacing or modifying ineffective or unfeasible BMPs in accordance with adaptive management and the permittee's iterative process;
c. Modifying the iterative process or adaptive management procedures;
d. Replacing or modifying time schedules that are not explicitly required by this permit;
e. The addition or removal of jurisdictional areas;
f. Contact names for the Stormwater Management Program; and
g. Other changes as determined appropriate by the MS4 Operator.

MS4 Operator: "The owner, or an agent of the owner, of a separate storm sewer with responsibility for operating and maintaining the effectiveness of the system." 10 CSR 20-6.200(1)(D)17.

Municipal Separate Storm Sewer (MS4): "A municipal separate storm sewer system" 10 CSR 20-6.200(1)(D)11.
"Municipal separate storm sewer means a conveyance or system of conveyances including roads and highways with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, paved or unpaved channels, or storm drains designated and utilized for routing of storm water which—

A. Does not include any waters of the state as defined in section 644.016, RSMo.
B. Is owned and operated by the state, city, town, village, county, district, association, or other public body created by or pursuant to the laws of Missouri having jurisdiction over disposal of sewage, industrial waste, storm water, or other liquid wastes;
C. Is not a part or portion of a combined sewer system;
D. Is not a part of a publicly owned treatment works as defined in 40 CFR 122.2." 10 CSR 20-6.200(1)(D)16.

Non-Structural Controls: Pollution prevention practices that focus on management by limiting or eliminating pollutants before they mix with stormwater. Non-structural controls may include but are not limited to; site and land use planning, vegetated filters, stream buffers, low impact development (LID), open space preservation, and impervious cover restrictions.

Outfall: "A point source as defined by 10 CSR 20-2.010 at the point where a municipal separate storm sewer discharges and does not include open conveyances connecting two (2) municipal separate storm sewers, pipes, tunnels, or other conveyances which connect segments of waters of the state and are used to convey waters of the state." 10 CSR 20-6.200(1)(D)18.
Outfalls are the point of discharge from the MS4 to waters of the state. Outfalls include discharges from pipes, ditches, swales, and other points of concentrated flow. An outfall is not where a stream or waters of the state leave the municipal boundary.

Owner: "A person who owns and controls the use, operation, and maintenance of a separate storm sewer." 10 CSR 20-6.200(1)(D)20.
"Person" is defined by Section 644.016(15) RSMo as "any individual, partnership, copartnership, firm, company, public or private corporation, association, joint stock company, trust, estate, political subdivision, or any agency, board, department, or bureau of the state or federal government, or any other legal entity whatever which is recognized by law as the subject of rights and duties."

Permittee: Refers to the MS4 Operator, or the entities identified as the owner and continuing authority of this general permit.

Stormwater: "[S]torm water runoff, snowmelt runoff and surface runoff, and drainage." 10 CSR 20-6.200(1)(D)31.

Stormwater Management Program: A comprehensive and documented program to manage the quality of stormwater discharges from the MS4.

Stormwater Management Plan (SWMP): The document explaining the MS4's Stormwater Program. It should be a comprehensive document that explains BMPs and the ongoing evaluation of the BMPs, as well as tracking, methods of documentation, and other

procedures for each requirement of this permit. The MS4 Operator must utilize the procedures and other supplemental documents contained with or referenced in the SWMP during the activities performed to attain permit compliance.

In this comprehensive general permit, the SWMP details the specific BMPs, time schedules, and other details for the individual MS4 and community, and does not need to be reviewed for approval by the Department during the application process.

Structural Controls: Pollution prevention practices that require the construction, or use of a device, to capture or prevent pollution in stormwater runoff. Structural controls may include but are not limited to: extended detention basins, bio-retention, infiltration basins, stormwater wetlands, bio-swales, vegetative lined ditches, subsurface drains, permeable pavement or concrete, sand filter basins, stormwater planters, proprietary BMPs, storage tanks, and hydrodynamic separators.

Urbanized Area (UA): An area of densely developed territory as defined and used by the U.S. Census Bureau, that may include multiple MS4s. The Census Bureau delineates urbanized areas after each decennial census.

Waters of the State: "[A]ll waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or two or more persons jointly or as tenants in common." Section 644.016(27) RSMo.

The definition of Waters of the State takes precedence when applying state regulations.

Part II – Receiving Stream Information

Municipal Stormwater Outfalls:

Applications for MS4 operating permit (renewal or new) require the MS4 to provide information regarding the location of outfalls from the regulated MS4. The NPDES MS4 operating permit covers all discharges from the permittee's stormwater system into waters of the state.

Outfalls listed under the Facility Description in the operating permit only include representative stormwater outfalls. Representative outfalls are outfalls that discharge to the primary stem of principal watercourses in separate sub-regional watersheds and are representative of various land uses. Representative outfalls are listed in the permit as a subset of ALL of the MS4's outfalls. Listing all MS4 stormwater outfalls could add several extra pages to the permit and would require the operating permit to be modified if any outfall changes were made. However, the permittee is required by the operating permit to maintain a map as part of their Stormwater Management Program of all stormwater outfalls that discharge to waters of the state.

Applications for renewal or to receive (i.e., new permit) of the MS4 general permit require the permittee to provide the legal description, outfall number and receiving stream. In addition, the application for both co-permittees and individual MS4 permittees require a United States Geological Survey map showing the locations of the municipality/area in relation to the local road system and to indicate on the map the municipal/area boundary, receiving stream(s), and the map section, township, and range.

From this information, Department permit writers will establish a full description of these permitted features on the permit's certification page with the following:
Permitted Feature ID (e.g., Outfall #001)
Legal Description: ¼, ¼, Section, Township, Range, Direction
UTM Coordinates: X=000000.0, Y=0000000.0 (Easting, Northing respectively)
Receiving Stream: Name & Classification
First Classified Stream and ID: Name, Class, Waterbody ID – currently provided by the department
USGS Basin & Sub-watershed No.: (# – #) [12 digit USGS Hydrologic Unit Code (HUC)]

Applicable Designations of Waters of the State:

Per Missouri Effluent Regulations (10 CSR 20-7.015), the waters of the state are divided into seven (7) categories. This permit applies to facilities discharging to the following water body categories:

☒ Missouri or Mississippi River [10 CSR 20-7.015(2)]
☒ Lakes or Reservoirs [10 CSR 20-7.015(3)]
☒ Losing Streams [10 CSR 20-7.015(4)]
☒ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
☒ Special Streams [10 CSR 20-7.015(6)]
☒ All Other Waters [10 CSR 20-7.015(8)]

Missouri Water Quality Standards (10 CSR 20-7.031) defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses shall be maintained in accordance with 10 CSR 20-7.031(4). A general permit does not take into consideration site-specific conditions.

The Permit Area may change based upon areas incorporated into or removed from the permittee's jurisdictional area during the term of this permit, or expansion of the Urbanized Area (UA). Areas added shall be covered under this permit and reflected in the Stormwater Management Program. For Permittees that are designated due to population density in a UA, which has areas that are not in the UA, the regulated MS4 is the portion which is inside of the UA.

The Department may require the regulated MS4 to submit an application for an alternate or additional general permit. Such as if the permittee is conducting regulated activities that are not covered under this permit but are addressed in a separate Master General Permit.

If the Department disapproves the application or SWMP and requires additional controls which add expenses, then the Department will conduct an affordability analysis in support of the disapproval for the application or SWMP. However, permittees may waive the requirement of the Department to conduct an affordability analysis at any time. If the permittee waives the affordability analysis, the Department shall assume all additional required controls are affordable.

Part III – Stormwater Management Program and Plan:

Stormwater Management Program

This permit, in accordance with 10 CSR 20-6.200 and 40 CFR Part 122, requires the permittee to develop and implement a Stormwater Management Program. The Stormwater Management Program shall address the six minimum control measures; public education and outreach, public involvement/participation process, illicit discharge detection and elimination, construction site stormwater runoff control, post-construction stormwater management and pollution prevention/good housekeeping for municipal operations. In addition, the Stormwater Management Program addresses TMDL implementation plan components, if applicable.

The Stormwater Management Program also includes, but is not limited to, specific BMPs, relevant local regulations, policies, procedures, interim milestones, measurable goals, measures of success, designation of responsible persons/positions for each of the measurable goals, and any applicable TMDL assumptions and requirements.

Stormwater Management Plan (SWMP)

The SWMP is a documented implementation plan describing a schedule of MS4 program activities including prohibitions of practices, implementation of required practices, development of standards for urban growth, maintenance procedures, education, trainings, inspections, and other management practices to prevent or reduce the pollution of waters of the state.

For this comprehensive permit, a SWMP is required, it does not need to be submitted to the Department as part of the application. The SWMP shall lay out standard procedures and details of the Stormwater Management Program. This document will help ensure consistency and continuity in the Stormwater Management Program.

SWMP Public Notice Procedure:

The MS4 Remand Rule became effective on January 9, 2017 and requires public participation in the permitting process. The comprehensive permit lays out the requirements of the Stormwater Management Program, using the specific SWMP may make an effective method of explaining the Stormwater Management Program.

Stormwater Management Program Ordinances:

To the extent allowable under state or local law, ordinances (or other regulatory mechanisms if a non-traditional MS4) are required to be developed, implemented and enforced within five years of initial permit issuance under the following sections, in accordance with 40 CFR 122.34(b):

Illicit discharge detection and elimination; to prohibit non-stormwater discharges into the storm sewer system, and implement appropriate enforcement procedures and actions;

Construction site stormwater runoff control; to require erosion and sediment controls at construction sites, as well as sanctions designed to ensure compliance; and

Post-construction; to address post-construction runoff from new development and redevelopment projects, and sanctions designed to ensure compliance. The "Missouri Guide to Green Infrastructure: Integrating Water Quality into Municipal Stormwater Management" (May 2012) was written specifically to aid MS4s in developing and implementing the post-construction runoff program. The guide can be viewed at https://dnr.mo.gov/document-search/missouri-guide-green-infrastructure-pub2446. The EPA and the Department and certain MS4s have developed compliant model ordinances that may be adapted for use by other interested MS4s.

Stormwater Management Program Reporting Frequency:
The previous version of this operating permit required biennial reporting of the Stormwater Management Program for existing regulated MS4s; however, annual reporting will now be required for existing regulated MS4 permittees in accordance with 40 CFR 122.34(d)(3).

The annual reporting ensures the annual review of the MCMs and overall stormwater management program is being conducted as required in this permit. The annual requirement also ensures there is no further confusion regarding which year the biennial report was due. The annual submittal of the Stormwater Management Program Report is also consistent with the MS4 Operators who are subject to TMDLs that must submit annual water quality schedules.

The reports shall be reported electronically by the owner, operator, or the duly authorized representative of the MS4 to the Department via the eDMR system. This annual Stormwater Management Program Report can be used by the Department and the public to evaluate the quality and compliance of a MS4's program. A MS4 Operator may consider including additional information with the annual report to show the quality and comprehensiveness of the MS4 program. The report can be used to showcase an outstanding program.

Date	Item	Report submitted to Department
January 1, 2022	Updates to Stormwater Management Plan complete	No (unless requested by Department staff)
February 28, 2022	Annual Stormwater Management Program Report	yes
February 28, 2023	Annual Stormwater Management Program Report	yes
February 28, 2024	Annual Stormwater Management Program Report	yes
February 28, 2025	Annual Stormwater Management Program Report	yes
February 28, 2026	Annual Stormwater Management Program Report	yes

Part IV - Rationale and Derivation of Effluent Limitations & Permit Conditions

Professional Best Judgement:
The permit writer used professional best judgement as a high quality technical opinion developed by a permit writer after considerations of all reasonably available and pertinent data or information that forms the basis for the terms and conditions of a NPDES permit.

Previous versions of the MS4 Master General Permit followed federal regulations for the BMPs applicable to Phase II MS4s via the Minimum Control Measures (MCMs) under 40 CFR 122.34(b). BMPs are Technology-based Effluent Limits (TBELs), which then subjects the BMPs to case- by-case determinations using professional best judgement.

The Remand Rule was a non-substantive rule, requiring the permitting authority (the Department) to ensure permit requirements include narrative, numeric, or other types of requirements. Permit requirements that simply copy the language of the federal Phase II regulations without providing further detail on the level of effort required or that do not include the minimum actions that must be carried out during the permit term do not provide clear, specific, and measurable requirements. The permit writer used professional best judgement in deciding the clear, specific and measurable requirements for this permit.

Comprehensive Category Grouping
MS4 designation is based primarily off of population size. Because there is such diversity, even in Phase II MS4s the permit writer wanted to offer differing levels to help in areas where the population of the regulated MS4 impacts the BMPs the most. These groups are used to offer assistance to the smallest MS4s while ensuring the more populated MS4s are targeting the appropriate amount of target audiences and pollutants.

The designated groups only vary in MCM 1 BMPs in areas where target audiences and target pollutants are concerned. In researching audit reports and compliance assistance visits throughout the state certain challenges were seen facing the MS4s with the smallest populations. One noticeable challenge was the lack of variety in target audiences, this was similar to non-traditional MS4 that also have a limited population.

The number of MCM 1 BMPs were the lowest for these in Group A to reflect the lower amount of possible target audiences, the lower population to participate in events, and even the ability of their population to participate in events or behaviors targeted. Class 2 counties were also included in the Group A to reflect the smaller population size those counties. The MS4s in this group may not have industries in their boundaries. There are often no schools, or religious organizations.

The Group B MS4s have a larger population, which will reflect in the number of potential target audiences. The population size ranges from 10,000 to reflect the designation of population of 10,000 for a municipality outside urbanized areas. The MS4s in this group are also joined by Class 1 counties, which have larger populations. These Group B MS4 will have more sub-groups in their population to target. MS4s of this size will have industries, educational institutions, and other potential target audiences.

The Group C MS4s are the largest of the Phase II MS4s. The Census Bureau identifies an Urbanized Area (UA) as an area meeting the minimum population density requirement, with a population of over 50,000. Missouri has three large UAs; Kansas City, St. Louis, and Springfield. Additionally, as of the 2010 census, there are four other UAs in Missouri. Each of those individual municipalities has a high enough population to have the name designation of an UA. So while the area in that population density must meet 50,000 population as a whole, the main municipality will carry the majority of that population. The population of 40,000 was established as the bottom level for Group C to capture the larger municipalities in these UAs. MS4s of this size will have a variety of industries, educational institutions, and residents to draw from. They will also have a variety of potential pollutants or sources of pollution to target.

Integrated Planning
As noted in the June 5, 2012 EPA memorandum, "*Integrated Municipal Stormwater and Wastewater Planning Approach Framework*" EPA has increasingly embraced integrated planning approaches to municipal wastewater and stormwater management. EPA further committed to work with states and communities to implement and utilize these approaches in its October 27, 2011 memorandum "*Achieving Water Quality through Municipal Stormwater and Wastewater Plans*."

Integrated planning assist MS4 communities on their critical paths to achieving the human health and water quality objectives of the Clean Water Act by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how best to prioritize capital investments. Integrated planning can also facilitate the use of sustainable and comprehensive solutions, including green infrastructure, that protect human health, improve water quality, manage stormwater as a resource, and support other economic benefits and quality of life attributes that enhance the vitality of communities.

For more information regarding integrated planning please review both of the memorandums cited above or contact the Department's MS4 Team.

Maximum Extent Practicable (MEP)
Prior to 1987, municipal stormwater was subject to the same controls as other point sources like industrial and domestic discharges, which was section 301(b) of the CWA. However, in 1987, "Congress retained the existing, stricter controls for industrial stormwater discharges but prescribed new controls for municipal stormwater discharges," *NRDC v. EPA, 966 f.2D 1292, 9th Cir. 1992 (NRDC v. EPA)*. This "new control" was established in section 402(p)(3)(B)(iii) of the CWA, which states, "*Permits for discharges from municipal storm sewers – shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, designs and engineering methods, and such other provisions as the Administrator or State determines appropriate for the controls of such pollutants*."

The argument for "new controls" contained in the case of NRDC v. EPA was subsequently supported in the case of *Defenders of Wildlife v. Browner*, in which it was concluded that section 402(p)(3)(B) of the CWA "replaces" the requirements of 301(b) of the CWA with the MEP standard for MS4 discharges, and that it creates a "lesser standard" than section 301(b) of the CWA establishes on other types of discharges. Thus, MEP is a technology-based standard established by Congress in Section 402(p)(3)(B)(iii) of the CWA. As established in the *1999 National Pollution Discharge Elimination System Regulations for Revisions of Water Pollution Control Program Addressing Storm Water Discharges* (64 FR No. 235), MEP is, "*…the statutory standard that establishes the level of pollutant reduction that operators of regulated MS4s must achieve,*" (i.e., not water quality standards).

In addition to indicating that MEP is the statutory requirement, the EPA also clearly stated that MEP is applicable to the six (6) minimum controls measures in 64 FR No. 235, which states, "*The first component, reduction to the MEP, would be realized through implementation of the six minimum measures*." The description of MEP continues in 64 FR No. 235, with "*EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards*." The iterative process, mentioned is also defined in 644 FR. No 235 with the following, "*…implement an iterative process of using BMPs, assessment, and refocused BMPs, leading toward the attainment of water quality standards.*"

Ninth Circuit court ruling in EDC v. EPA (2003) found that the Phase II rule requirements for small MS4 General Permits violated the CWA. The court ruling found a lack of permitting authority review and lack of public participation in permit process. The MS4 Remand Rule was promulgated December 9, 2016 and became effective on January 9, 2017 as a result of this ruling. The Remand Rule requires more stringent public notice requirements and authorization requirements, including SWMP review, approval, and incorporation for two-step general permits. There is not review, approval or incorporation for this Comprehensive permit.

The Remand Rule ensures permit requirements include narrative, numeric, or other types of requirements such as:

- Implementation of specific tasks or best management practices (BMPs)
- BMP design requirements, performance requirements
- Adaptive management requirements
- Schedules for implementation and maintenance
- Frequency of actions.

All requirements in this permit must be expressed in clear, specific, and measurable terms. This applies to any part of the permit addressing the six MCMs, TMDLs, and Stormwater Management Program Reports. MCMs were not intended to serve as stand-alone permit requirements, but rather areas of stormwater management that must be addressed in the permit through clear, specific, and measurable terms and conditions that meet the MS4 permit standard. Verbatim adoption of the MCMs from the Federal regulations will not satisfy this requirement.

Measurable Goals

Measurable goals are designed objectives or goals that quantify the progress of program implementation and performance of BMPs. They are objective markers or milestones that the permittee uses to track the progress and effectiveness of BMPs in reducing pollutants to the MEP. At a minimum, measurable goal should contain descriptions of actions that will be taken to implement each BMP, what is anticipated to be achieved by each goal, and the frequency and dates for such actions to be taken. BMPs and measurable goals are the mechanisms used to establish a clear and specific baseline against which future progress at reducing pollutants to the MEP can be measured.

There are a number of different ways the permittee can establish measurable goals. Examples of potential measurable goals include the following:

- **Tracking implementation over time** - Where a BMP is continually implemented over the permit term, a measurable goal can be developed to track how often, or where, this BMP is implemented.
- **Measuring progress in implementing the BMP** - Some BMPS are developed over time; a measurable goal can be used to track this progress until the BMP implementation is completed.
- **Tracking total numbers of BMPs implemented** - Measurable goals can be used to track BMP implementation numerically (e.g., the number of wet detention basins in place or the number of people changing their behavior due to the receipt of educational materials).
- **Tracking program/BMP effectiveness** - Measurable goals can be developed to evaluate BMP effectiveness, for example, by evaluating a structural BMP's effectiveness at reducing pollutant loading, or evaluating a public education campaign's effectiveness at reaching and informing the target audience to determine whether it reduces pollutants to the MEP. A measurable goal can also be a BMP design objective or performance standard.
- **Tracking environmental improvement** - The ultimate goal of the NPDES stormwater program is environmental improvement, which can be a measurable goal. Achievement of environmental improvement can be assessed and documented by ascertaining whether state water quality standards are being attained, or by tracking trends or improvements in water quality (chemical, physical, and biological) and other indicators, such as the hydraulics or habitat condition of the waterbody or watershed.

Because of changes due to the MS4 Remand Rule, measurable goals are specifically laid out in this permit. The MS4 Remand Rule emphasizes that permit requirements must be expressed in “clear, specific, and measurable” terms, which may include narrative, numeric, or other types of requirements (e.g., implementation of specific tasks or best management practices (BMPs), BMP design requirements, performance requirements, adaptive management requirements, schedules for implementation and maintenance, and frequency of actions). These rule modifications do not alter the existing, substantive requirements of the six minimum control measures in 40 CFR 122.34(b).

Examples of measurable goals in this MOR04C (this is <u>not</u> a complete chart of all measurable goals in this permit):

MCM	Requirement	Group A	Group B	Group C	Co-permittee adjustment	Newly designated differences	Reference
1	Target audiences	Residents	Residents; plus 1 throughout permit cycle	Residents; plus 2 throughout permit cycle			Table I 4.1.A
1	Target pollutants	1 per audience	1 per audience	1 per audience			Table II 4.1.B
1	BMPs (outreach material or action)	2 per permit cycle	4 per permit cycle	5 per permit cycle			Table III 4.1.C
1	Participation	1 per permit cycle	2 per permit cycle	3 per permit cycle	1 in boundary of each co-		Table IV 4.1.D

					permittee		
2	Public Notice	30 days	30 days	30 days			4.2.A
2	Public Meeting	30 day advertised	30 day advertised	30 day advertised			4.2.C
2	Update governing board	1 time annually	1 time annually	1 time annually			4.2.F
3	Outfall map	All outfalls, receiving water, boundary or MS4	All outfalls, receiving water, boundary or MS4	All outfalls, receiving water, boundary or MS4		Complete by end of first 5 years	4.3.A
3	Dry weather outfall screening	60% per permit cycle	60% per permit cycle	60% per permit cycle		Locate & screen all in first 5 years	4.3.D
3	Identify priority areas	Identify and evaluate annually	Identify and evaluate annually	Identify and evaluate annually	Each shall identify areas		4.3.H
4	Pre Construction plan reviews	Each land disturbance site	Each land disturbance site	Each land disturbance site			4.4.B
4	Inspection program	Each land disturbance site	Each land disturbance site	Each land disturbance site			4.4.C
4	Construction site operator inspection requirements	Each land disturbance site	Each land disturbance site	Each land disturbance site			4.4.E
5	Water Quality post-construction BMP standards	Standards for structural controls and non-structural controls	Standards for structural controls and non-structural controls	Standards for structural controls and non-structural controls			4.5.B
5	Pre Construction plan reviews	Each land disturbance site	Each land disturbance site	Each land disturbance site			4.5.C
5	Long term operations and maintenance agreements	All new post-construction water quality BMPs	All new post-construction water quality BMPs	All new post-construction water quality BMPs			4.5.D
5	Water Quality post-construction BMP inspection	60% per permit cycle	60% per permit cycle	60% per permit cycle			4.5.E
6	Training	1 time annually	1 time annually	1 time annually			4.6.A - 4.6.C
6	List of MS4 owned/operated NPDES facilities	Continuous, update annually	Continuous, update annually	Continuous, update annually			4.6.D
6	On site pollutant controls	Continuous, update annually	Continuous, update annually	Continuous, update annually			4.6.F
6	Washing (vehicles and equipment) procedures	Continuous	Continuous, update annually	Continuous, update annually			4.6.H

Modifications
Minor modifications to BMPs or implementation may be allowed under this Comprehensive General Permit, if the changes do not alter the permit requirements.

As an example, the MS4 permit requires tracking for construction sites including plan reviews, inspections, and enforcement actions. The MS4 Operator used a central excel sheet, but now has the ability to purchase software that will store checklists for each step. This is considered an alteration in a BMP and is not a major modification as the permit requirement is still in effect.

Minimum Control Measures (MCMs)
The NPDES Permitting authority must include permit terms and conditions to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. Terms and conditions that satisfy the requirements of this section must be expressed in clear, specific, and measurable terms. Such terms and conditions may include narrative, numeric, or other types of requirements (e.g., implementation of specific tasks or best management practices (BMPs), BMP design requirements, performance requirements, adaptive management requirements, schedules for implementation and maintenance, and frequency of actions) per 40 CFR 122.34(a).

In general, the Phase II MCMs as described in the federal regulation are not intended to serve as permit requirements, but rather areas of stormwater management that must be addressed in the permit through clear, specific, and measurable terms and conditions. Relying on the literal adoption of the MCMs from the federal regulations will not meet the requirement to establish clear, specific, and measurable permit requirements under the MS4 remand rule.

MCM 1 Public Education and Outreach on Stormwater Impacts
Terms and conditions related to this MCM are in accordance with 40 CFR 122.34(b)(1).
Public education and outreach is vital, as an informed and knowledgeable community is central to the success of a stormwater management program. Everyone has a part to play in both contributing to stormwater runoff and protecting water quality.

The MS4 Operator has the flexibility to choose which target audiences make sense for their MS4. The MS4 Operator can choose the audience, the medium, and the specific message. By educating the residents, the MS4 can help ensure greater support for stormwater management measures, and the public gains a greater understanding of the reasons why stormwater management programs are necessary and important. Public support is extremely beneficial for MS4 operators to institute new funding initiatives for the stormwater program or in seeking support or volunteers to help implement the program.

Education to schools or youth will reach the next generation of residents, and they can bring their lessons home. Businesses of all types have potential to impact urban stormwater. Retail, restaurants, manufacturing, even home based businesses bring their own potential issues. Plastic bags, litter, grease disposal, open garbage containers, and improper disposal methods should be evaluated and be seen as educational opportunities. Formal organizations such as Rotary Clubs, Lions, Churches, sports teams, or college organizations, can support the messages and provide audiences ready to listen, learn, and even help. In MS4s where development is happening, or being encouraged, educating developers is a great way to get in front of issues, and improve compliance with MCM #4.

The MS4 can target the education provided to specific groups. In educating Homeowner Associations (HOAs), for example, pollutants specific to them, such as fertilizer usage, car washing practices, stream buffers, and proper disposal of organic and household hazardous waste can be reviewed and specific BMPs and guidance provided to the HOAs to manage these pollutant sources. This audience can also be informed on maintenance of post-construction water quality facilities or ways they as homeowners can improve the quality of stormwater runoff. Another specific group that may be addressed is industrial facilities. Industrial facilities will bring potential new issues with the products or the production processes. Looking at each facility, and offering education based on the stormwater concerns, can reduce the pollutants in the runoff and diminish larger issues in the future.

Some MS4s may have a valid reason to include another target audience to their education program. If an area has a high level of tourist this may be a good target. If the area is retrofitting basins, the neighboring homeowners may be a target audience. It is part of the Missouri Nutrient Loss Reduction Strategy to enhance public involvement and education of nutrients in urban stormwater runoff. Residents can learn practical ways to decrease nutrients into the stormwater. Educating people on ways they can make an impact on a bigger picture can cause small changes which will add up. Focusing on trash is a way to show MS4 audiences the problem with a very visible media. By seeing how litter travels in the stormwater, it is easier to understand how smaller pollutants, such as oils, heavy metals, nutrients, or bacteria travel through the stormwater.

Tracking is important to ensure the target audiences are getting the information about the targeted pollutants. Many MS4 programs will see cycles of when education for certain topics is needed more than other topics. Learning through tracking and adaptive management will help the MS4 get effective education to the audiences.

Encouraging multiple stakeholder groups to become involved in the Stormwater Management Program will help foster a greater understanding of urban stormwater runoff and the potential impacts that can come from daily life in an urban setting. Because impacts are made in stormwater at businesses, and at home, it is vital to reach as many different groups as possible. Making the topic of stormwater management a relatable issue will help to get the message across, and give the recipients more reason to make changes.

When people participate in an activity, the underlying message becomes more tangible, and their personal impact has a stronger tie to the message. There are many ways to get people involved, and these ways will ideally reach different groups. Communities may already have philanthropic organizations willing to assist the permittee with activities. The Missouri Stream Team program is available state wide and engages in most of the activities listed in Part 4.2 of this permit. Learn more at mostreamteam.org or contact StreamTeam@mdc.mo.gov.

The MS4 Operator shall offer support of their own in conjunction with or to organizations helping with participation activities. There are a variety ways to offer support to groups who plan or organize events. By engaging with the groups or individuals creating these participation opportunities, the MS4 Operator can find ways to help in a manner which fits them, and really impacts the activities positively.

Co-permittees may gain a lot by sharing resources for much of the Stormwater Management Program. However, a part of the participation element is having the connection between behavior and action. It is important to have events located in the area of each MS4 in a co-permit to gain ownership and accountability in the local stormwater management program. A visible activity in a physical or geographic area will impact those in that same area, which is a large part of what makes this MCM work.

In working to establish a specific minimum of BMPs, the permit writer used professional best judgment. In looking at a calendar year, there are three seasons which are conducive to outdoor activities. Likewise the calendar could be seen as quarters, or as a traditional

school year plus summer break. Tracking is important to ensure the target audiences are getting the information about the targeted pollutants. Many MS4 programs will see cycles when education is more needed for certain topics, such as seasonal changes, or a re-education on a topic after a few years to remind the audience. Learning through tracking and adaptive management will help the MS4 get effective education to the audiences.

Recording elements such as the number of participants, the amount of litter collected, trees planted, or audience attending will help the MS4 Operator understand if the activity was useful or not. Attendance sheets, receipts, Stream Team Activity Reports, or a spreadsheet can be used to keep track of events and results. Sometimes events may be less attended than anticipated, but the MS4 Operator should consider that even a small impact is still an impact. When using adaptive management properly, adjustments can be made and the activity can be repeated.

MCM 2 Public Participation
This MCM is required in accordance with 40 CFR 122.34(b)(2).
The Stormwater Management Program shall use the same procedure as the Master General Permit because the Management Program is the part that is specific to the MS4 it was created for. Following the public notice processes laid out in Part 4.2 of this permit will give the public the opportunity to comment on or learn about the Stormwater Management Program.

The MS4 Operator does not need to create a stormwater management panel or committee. Having such a panel or committee will give the MS4 Operator a more immediate way of getting public representation involved and getting feedback from the public. A board with a diverse membership can enhance a stormwater management program by getting multiple viewpoints. Involving so much feedback and input will help gain backing from the residents and this understanding of the program will garner support when needed.

Giving updates on the Stormwater Management Program to the governing body or board can help the decision makers understand the reasons behind the processes and the benefit a healthy stormwater management can have on the economic value to their area. This update can be an opportunity to show successes in the program, and may be in done in conjunction with preparing the Stormwater Management Program Report. These updates may be given as an in person presentation, as a written document, or via another method that will get the message effectively to the board.

MCM 3 Illicit Discharge Detection and Elimination (IDDE)
This MCM is required in accordance with 40 CFR 122.34(b)(3).
An outfall is any point where a separate storm sewer system discharges to waters of the state, which is owned or operated by the permittee. Outfalls include discharges from stormwater conveyances such as pipes, ditches, swales, gutters, and other points of concentrated flow.

An outfall does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other waters of the state and are used to convey waters of the state (such as culverts). If waters of the state flow through a channelized area, this remains waters of the state, not an open conveyance.

Outfalls are not where streams leave the municipal boundaries of an MS4. Outfalls are not limited by size, as illicit discharge can travel through any size outfalls, even those that are small. While larger outfalls may collect more drainage from a larger area, small outfalls were also constructed to convey stormwater and are equally likely to have illicit discharges. Overland flows, or areas of non-concentrated or sheet flow, are not considered to be outfalls. Therefore they are not required to be mapped. Where a conveyance ends and discharges to a BMP, such as a vegetated area, and there is no conveyance to waters of the state, the conveyance end is not an outfall if the discharge does not reach waters of the state.

Mapping all MS4 outfalls is vital to a functioning illicit discharge program. Outfalls mapping gives the MS4 Operator a starting point to trace back to the source. Knowing the locations of outfalls and receiving waters are necessary to be able to conduct dry weather field screening for non-stormwater flows and to respond to illicit discharge reports from the public. Outfalls must be mapped no matter their size.

Mapping the storm sewer system which leads to those outfalls will further assist in illicit discharge tracing. Once an illicit discharge is detected at an outfall, it will be necessary to trace the discharge through that portion of the storm sewer system leading to the outfall in order to locate the source.

Because privately owned storm sewers and conveyances were authorized by a municipality or the county to become connected with the municipal system, the municipality or county with the MS4 permit does have responsibility for that stormwater. Facilities owned by homeowners associations, for example, are subject to local codes, ordinances, and enforcement. The municipalities are responsible, therefore, for discharges of wastes from private stormwater conveyance systems. Therefore enforcement actions shall take place if an illicit discharge is detected from a private outfall. So while the outfalls from such private stormwater conveyances and outfall are not required for mapping, it is recommended to do so in order to assist with illicit discharge investigations and enforcement.

Ongoing dry weather field screening for non-stormwater flows is a strong tool for detecting illicit discharges. This process will verify outfall locations by walking, wading or even using a boat in the streams or along the streambanks and shorelines. Evidence of past non-stormwater flows, trash, improper yard waste disposal, along with the structural integrity of the storm sewer system can be found.

The field screenings are important in relation to priority areas. The field screening may identify new priority areas (problems areas) or the MS4 Operator may conduct more frequent screenings in the priority areas. When considering where priority areas are, look at land use on the watershed. Priority areas may be industrial areas, areas with a concentration of food establishments with grease disposal, or parts of the city with older infrastructure which may have cross contamination from aged domestic sewers, or an area of retail where litter may be an issue. The MS4 Operator should consider all types of pollutants when determining priority areas.

Investigating pollutants may involve sampling for the following parameters: specific conductivity, chloride, ammonia, nitrates, potassium, surfactant and/or fluorescence concentration, pH, *E. coli* and other chemicals indicative of suspected sources. Useful observations of any physical characteristics of the discharge include: flow rate, temperature, odor, color, turbidity, floatable matter, deposits, stains, and impacts to vegetation or wildlife.

The MS4 Operator does not need to have the sample analyzation equipment, they must at minimum maintain a contract lab relationship so the samples can be taken and analyzed. For guidance on illicit discharge investigations, and parameters to sample for see: https://www.epa.gov/sites/production/files/2015-11/documents/sw_idde_pittbacklit.pdf
Or https://stormwater.pca.state.mn.us/images/b/b2/Final_IDDE_Field_Guide_HRPDC.pdf

The program must include procedures for tracing the source of an illicit discharge. Once an illicit discharge is detected and field tests have provided source characteristics, the next step is to determine the location of the pollutant source. The map of the storm sewer system is a valuable tool, and is most often the first step in this plan. Techniques for tracing the discharge to its place of origin may include: following the flow up the storm drainage system via observations and/or chemical testing in manholes or in open channels, televising storm sewers, using infrared and thermal photography, conducting smoke or dye tests.

Education efforts in resolving the problem should occur before taking legal action; however, the MS4 needs to have the ability to enforce the IDDE plan. The procedures for removing the source of the illicit discharge will vary depending on the source of the discharge. The plan may include notifying the property owner and specifying a time for the owner to eliminate the discharge. Additional notifications and escalating legal actions, if needed, should also be described in this part of the plan. The MS4 Operators should consider creating an enforcement response plan, including the ability to collect cleanup and abatement costs from the responsible party. The MS4 Operator should also maintain contacts for environmental cleanup and environmental emergency response.

Per 260.505 RSMo, any emergency involving a hazardous substance must be reported to the Department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The Department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply when the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I. https://dnr.mo.gov/waste-recycling/investigations-cleanups/environmental-emergency-response.

Each MS4 will need to determine their own priority areas. However, if an area receives three complaints or reports of separate events within a six month range, the MS4 must prioritize this area until the source is determined.

The MS4 Operator must have procedures for responding to reports of illicit discharges. Actions taken under the illicit discharge program should be documented. The MS4 Operator must use tracking to show progress is being made to eliminate illicit connections and discharges.

Illicit discharges may originate in one MS4 jurisdiction and cross into another MS4 jurisdiction before being discharged at an outfall. The MS4 that detects the illicit flow is expected to trace it to the point where it leaves their jurisdiction and notify the adjoining MS4 of the flow, and any other physical or chemical information. The adjoining MS4 shall then trace it to the source or to the location where it enters their jurisdiction. The process of notifying the adjoining MS4 should continue until the source is located and eliminated.

MCM 4 Construction Site Runoff Control
This MCM is required in accordance with 40 CFR 122.34(b)(4).

Polluted stormwater runoff from construction sites often flows to MS4 storm sewers and is ultimately discharged into local waterbodies. Of the pollutants that have the potential to be discharged, sediment is usually the main pollutant of concern. According to the 2000 National Water Quality Inventory, States and Tribes report sediment as one of the most widespread pollutants affecting assessed rivers and streams, second only to pathogens (bacteria). Sources of sediment include agriculture, urban runoff, construction

and forestry. However, sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands and 1,000 to 2,000 times greater than those from forest lands.

During a short time period, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation and contribution of other pollutants from construction sites can cause physical, chemical, and biological harm to Missouri's waters.

The MS4 Operator must establish a construction program that controls polluted runoff from construction sites with a land disturbance of greater than or equal to one acre. There must be control through ordinances and/or other regulatory mechanism, such as a permit for land disturbance or grading activity.

Site Plan Review ensures the implementation of appropriate BMPs on construction sites to control erosion and sediment along with litter and other wastes at the site. To determine if a construction site is in compliance with such provisions, the MS4 operator can review the site plans submitted by the construction site before ground is broken. Plan reviews can aid in compliance and enforcement efforts since they alert the MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities. Reviewing non-structural BMPs first shall help make sure a more appropriate order of operation is being maintained. This may prevent actions such as removing trees only to install a permanent structural BMP which has the same effect as the removed trees. The structural BMPs may also reduce the quantity of runoff, which will have an influence on any permanent structural BMP.

Land disturbance activities, such as clearing and grading the land surface, increases the potential for sediment discharges. Clearing reduces the natural uptake of water and nutrients by vegetation and excessive grading can smooth the ground surface, increasing amount and velocity of runoff. Vegetation inhibits erosion as the roots hold the topsoil in place, while leaves protect the surface against rain. Once the vegetative cover is gone, erosion is accelerated. The longer the exposed area is subject to erosive forces, the more severe the effect.

The goal for this land disturbance program, should be to expose the smallest practical area of land, for the shortest possible time, to eroding forces. Phased construction minimizes the amount of land exposed at one time.

When the site becomes active, BMPs must be in place and the permittee inspection and enforcement activities must begin. To ensure that the BMPs are properly installed, the permittee is required to develop procedures for site inspection and enforcement of control measures to deter infractions. Procedures include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, the characteristics of soil and the receiving water body's quality. Inspections give MS4s an opportunity to provide additional guidance and education, issue warnings, or assess penalties.

Each site shall self-inspect to ensure their compliance with the regulations of both the MS4 and the State of Missouri Clean Water Law. An MS4 may require the site operator submit their self-inspection reports to the MS4 Operator as a form of oversite, tracking of compliance, or issues with the site. For consistency the requirements mirror the requirements of the current Missouri State Land Disturbance permit.

To fully ensure compliance the MS4 Operator must conduct oversite inspections as well. The MS4 Operator may choose to contract out these inspections to qualified inspectors, or consultants. If choosing this option, the MS4 Operator must make it clear to the site operators that the inspections are being conducted on behalf of the MS4. The oversite inspections must be conducted at a frequency which ensures compliance, but not so often that the site operator can use the MS4 oversite inspections as their own inspections. Too frequent oversite inspections may cause the inspector to become complacent or too familiar with the site or the personnel. Inspections can be used as educational opportunities from the inspector to the site operator.

Plan reviews before construction begins will help to identify priority site based off of site characteristics. Past inspections and the tracking of compliance issues may also assist in this identification if there have been issues with particular construction site operators or neighbors in the area of a site. Final inspections performed after the completion of the land disturbance project, ensure the site is properly stabilized, clean of solid waste and temporary BMPs. Terminating the Missouri Land Disturbance permit will reduce the number of NPDES permits open in that MS4 service area. Documenting inspections, such as with a checklist, will be evidence that the inspections are being conducting, ensure thoroughness and uniformity for the inspector. These documents be used to show the site operators that the inspectors are being consistent between sites.

MS4 staff must have enforcement tools available if they observe noncompliance with the MS4 regulatory mechanisms. The tools available may be notices of violation, stop work orders, or withholding of funds. These tools and mechanisms, and how to use them, should be described in the SWMP. The SWMP should also list who can use the enforcement tools, enforcement follow-up actions, such as follow-up inspections; how and when enforcement is escalated if the violation isn't corrected, and documentation requirements.

Having an inventory of all sites with relevant contact information and project information ensures the MS4 Operator is aware of the projects in their area. The tracking of sites is useful not only for the MS4 Operator's recordkeeping and reporting purposes, but also for members of the public interested in ensuring that sites are in compliance.

MCM 4 also includes a requirement to allow the public to report concerns they have regarding construction sites and water quality impacts. An educated public is more aware of sediment runoff as a pollutant, therefore this may be reflected in the amount of reports of water quality impacts and improper site management increasing. Conversely, as education for the developer increases, the amount of reports on these things may decrease. It should also be noted that while erosion and sediment regulations are typically focused on sediment, MCM 4 is not limited to just sediment. MS4 Operators must enforce construction sites for other types of waste, such as litter or concrete washout.

Many MS4s use existing code or building inspectors to also look at the sediment and erosion aspects of a site. These inspectors must have training, and must understand why the sediment and erosion inspections are of value. The permit writer understands that not all MS4s are able to afford extra training for inspectors, however there are free resources available. Because of the great impact, even one mismanaged construction site can cause a stream to be damaged. The effort and time to establish these training resources to create a training program are necessary to have competent inspectors.

Educating the individual site operators will add more awareness for how to manage sediment and erosion on a site, and why this is important. More information on the Missouri land disturbance permit is found at: https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/stormwater/construction-land-disturbance.

MCM 5 Post-Construction Runoff Control
This MCM is required in accordance with 40 CFR 122.34(b)(5).

If water quality impacts are considered from the beginning stages of a project, new development and redevelopment provide more opportunities for water quality protection. Post-construction stormwater management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving waterbodies. Many studies indicate that prior planning and design for minimization of pollutants in post-construction stormwater discharges is the most cost-effective approach to stormwater quality management.

The Phase II rule applies to redevelopment projects that alter the footprint of an existing site or building in such a way that there is a disturbance of equal to or greater than one acre of land. This program requires ordinances, or policies, that address stormwater runoff quality. Post-construction stormwater management can be utilized in ways that preserve and protect in a non-structural way, and in structural items that are used to mitigate the decreased water quality in the stormwater runoff. Because structural and non-structural practices work together, a minimum of one ordinance is required for structural controls and one ordinance for non-structural controls.

Structural controls have traditionally been concrete or "gray" infrastructure created to quickly move the stormwater away from the place it falls. These have caused increased erosion and water quality degradation to the receiving streams. Current standards include water quality as a factor in design, and many standards are actually based on natural systems and rely upon vegetation and soil mechanisms in order to perform as intended. The choice of which structural BMPs are most appropriate comes not as a post-construction fix, but rather as a result of the site design review, which should also look at the stormwater management of the site comprehensively.

Numeric, or technical, performance standards are broken into two types for stormwater discharges, a treatment standard or a volume-based/retention standard. Treatment standards typically specify an amount of pollutant to be managed, for example 80% TSS removal. Volume-based or retention standards typically require the use of infiltration, evapotranspiration or harvest practices to control a specified volume of stormwater onsite and are usually expressed as a volume of rainfall, a percentile storm event or a groundwater recharge volume.

Non-structural controls focus on preserving open space, protecting natural systems, and incorporating existing landscape features such as wetlands and stream corridors into a site plan to manage stormwater at its source. There is also emphasis on clustering and concentrating development, minimizing disturbed areas, and reducing the size of impervious areas.

Both structural and non-structural controls consider comprehensive stormwater management items such as:

- Stormwater should be managed as a resource
- Natural features and systems should be preserved and utilized
- Stormwater should be managed as close to the source as possible
- The hydrologic balance of surface and ground water should be maintained
- Runoff should be slowed down
- Potential water quality and quantity problems should be prevented
- Problems that cannot be avoided should be minimized
- Stormwater management should be integrated into the initial site design process.

The Department has created the Missouri Guide to Green Infrastructure, Integrating Water Quality into Municipal Stormwater Management for guidance; https://dnr.mo.gov/document-search/missouri-guide-green-infrastructure-pub2446.

Other guidance and model ordinances may be found at the following:
https://www.epa.gov/nps/urban-runoff-model-ordinances-post-construction-controls
https://www.epa.gov/nps/urban-runoff-model-ordinances-aquatic-buffers
https://www.epa.gov/nps/urban-runoff-model-ordinances-open-space-development
https://www3.epa.gov/npdes/pubs/sw_ms4_compendium.pdf
https://www.epa.gov/sites/production/files/2015-09/documents/urban_ch05.pdf
https://www.epa.gov/green-infrastructure
https://www.cwp.org/reducing-stormwater-runoff/

The MS4 Operator must ensure adequate long-term operation and maintenance of post-construction BMPs. This is accomplished through agreements between the MS4 Operator and land owners or regional authorities. Tying a structural control to the land deed may be adequate for some MS4s. If the agreement is recorded with local land records, any successive owner of the property would take the responsibilities of the operations and maintenance of that structural control in the agreement.

Both structural controls and non-structural controls, must be tracked and inspected. An inspection program must be established to ensure the stormwater controls are working and being properly maintained.

Non-structural controls must also be reevaluated. If an urban growth area was identified, it must be evaluated to ensure is room for more development, or if a new growth area should be found. If open spaces or sensitive areas are protected by ordinances or similar mechanism, these places should be inspected to ensure there is no encroachment of development or by neighboring properties. If impervious areas were minimized, these places should be inspected to ensure no additional impervious areas were added.

Educating MS4 on post-constructions BMPs will ensure the inspections are effective. There are free resources available online such as: https://www.youtube.com/watch?v=SM9sI9wQgz0&feature=youtu.be
As the public becomes more educated on post-construction stormwater runoff BMPs and controls, they may have more concerns to report. Through education however, there may be ways an MS4 can also gain participation to assist with maintenance issues, and to also further education on water quality and stormwater management.

MCM 6 Pollution Prevention/Good Housekeeping
This MCM is required in accordance with 40 CFR 122.34(b)(6).

The MS4 Operator's actions, and facilities are the example for the residents of that MS4. Leading by example can be an important component of education.

Training shall be given to any staff that have influence on stormwater for the MS4, not just environmental coordinators. By only focusing the training on a few members, the message will not get out. Each MS4 should take a realistic look at each department, division, and individual. If their work may either negatively impact or positively impact stormwater runoff, they must attend the training.

Training may be broken down into topics and dispersed throughout the year. It may be given in conjunction with other training. There are free resources available online such as;
https://stormwater.pca.state.mn.us/index.php?title=Employee_training
https://www.youtube.com/watch?v=UxOam2GEVgQ
https://www.youtube.com/watch?v=16ubsys6AZY

While emergency firefighting actives are an authorized non-stormwater discharge, other actives related to a fire department, such as washing of trucks, run-off water from training activities, test water from fire suppression systems, and hydrant pressure testing, are not.

Live and simulated fire training should be conducted at facilities that have been built and engineered specifically for training exercises. These facilities should have run-off controls or BMPs to prevent discharging this water or foam used in training exercises. Any water used during training activities is considered wastewater and will require a separate permit (or de minimis determination) from the Department for discharge or land application. Water that is collected and conveyed to a wastewater treatment facility is not required to obtain a separate permit.

If firefighter training cannot be conducted at a specially designed facility, additional pollution prevention actions will need to be taken before training begins in order to prevent illicit discharges. Additional actions may include; sweeping prior to and after training; blocking off all potentially affected stormwater structures; directing to a sanitary sewer line; if spraying water over a landscape, arch the water so that velocities are dissipated and there is less chance of soil erosion; use dechlorination blankets and/or dechlorination diffusers after/prior to spraying, dispose of ashes and partially burnt debris in dumpsters.

Maintaining an Operations and Maintenance document, or SWPPP for each municipal site will ensure proper management, and behavior at those sites. This document should also include inspections for these sites as a method of checking up on the individual site programs. Inspections, cleaning, and routine maintenance of stormwater structures is necessary to ensure the structures are functioning properly and stormwater is managed properly.

Road salt and other deicers are a safety item for most residents of Missouri. However the chloride concentrations in streams is increasing which can potentially to harm aquatic life and may impair drinking water.
So while there is a need for road salt, there are changes that can be made to use less salt and still clear the roads for the safety of the public. This is seen in product management. Loading, unloading and cleanup practices in the loading and parking areas can greatly reduce the amount of salt loss to precipitation and subsequent stormwater. A winter maintenance program which tracks the rock salt use and finds ways to manage the product to reduce loss on the municipal yard is the goal of any BMPs designed and implemented for rock salt. In addition, educating private entities to reduce their usage of salt by incorporating salt reduction practices into their procedures is vital.

In contrast with road salt, brine spreads more evenly, stays where it falls, and begins working immediately. This is because the salt is already in solution. As a result, spraying liquid brine is more effective while using less salt. Beet juice has been suggested as an alternative, however, in practice, the sugar in the runoff has been shown to cause nutrient loading of waterways to increase.

For training or additional resources including application rates please see;
https://www.wisaltwise.com/Tools/Application-Guidelines-Calculator
https://www.iwla.org/conservation/water/winter-salt-watch/road-salt-best-practices

Yard waste includes any organic debris such as grass clippings, leaves, and tree branches. Research by the U.S. Geological Survey show municipal leaf collection programs have the ability to reduce loads of total and dissolved phosphorus in a given drainage area by 84 and 83%, respectively, and total and dissolved nitrogen by 74 and 71%.This research indicates that nearly 60% of the annual phosphorus yield in urban and suburban environments comes from leaf litter in the fall, making it a huge contributor of nutrients to urban receiving waters.

Removing leaf litter from roads and drain systems means; cleaner streets, safety, and a reduced likelihood of clogged storm drain inlets. Educating residents to not put leaves in, or on storm inlets and/or providing alternate means of disposal can help reduce the amount of effort needed to clean storm drain inlets.

For more information please see;
https://www.sciencedirect.com/science/article/pii/S0048969716314462
https://slco.org/watershed/stream-friendly-practices/dont-dump-debris/

There is also free training on overall stormwater management for MS4 Operators;
https://www.torranceca.gov/home/showdocument?id=18591
https://njmel.org/mel-safety-institute/webinars/
https://www.youtube.com/watch?v=Z09Yz_qS1f4
https://www.youtube.com/watch?v=ACP7DOdOEDE

Part V – Rationale for General Terms and Conditions:

Clean Water Act section 402(l)
On December 7, 2012, the U.S. EPA promulgated a rule (77FR 72970) clarifying that discharges of stormwater from silviculture activities do not require a NPDES permit. On March 20, 2013, the U.S. Supreme Court ruled that discharges of stormwater that run off from logging roads into ditches, culverts, and channels did not require a NPDES permit as stormwater from industrial activity.

In January 2014, Congress amended Clean Water Act 402(l) to prohibit the requirements of NPDES permits for the discharge of runoff "resulting from the conduct of the following silviculture activities conducted in accordance with standard industry practice: nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage or road construction and maintenance." In 2016, the U.S. EPA published its decision to not regulate forest road discharges under Phase II stormwater non-permitting programs.

Additional Federal Acts
In accordance with 40 CFR 122.49(b) and (c) the operating permit cites the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA) and places the permittee on notice that the operating permit does not affect, remove or replace the requirements or compliance determination for NPDES operating permits. It is the responsibility of the permittee to determine if activities conducted within their MS4 or stormwater discharging from their MS4 are in compliance with the ESA and NHPA.

Assistance in determining applicability to ESA conditions and requirements can be found on the U.S. Fish and Wildlife Service (FWS) Endangered Species webpage, which is located at: http://www.fws.gov/endangered/. Additionally, the FWS Information for Planning and Conservation (IPaC) web-based project planning tool that streamlines the environmental review process is highly recommended and is located at: http://ecos.fws.gove/ipac/.

Assistance in determining applicability to NHPA conditions and requirements can be found on the Department's State Historic Preservation Office Section 106 Review, which is located at: https://mostateparks.com/page/84371/state-historic-preservation-office. Additionally, the Advisory Council on Historic Preservation Citizen Guide to Section 106 Review, which explains the process, is located at: http://www.achp.gov/citizensguide.html.

In addition to the ESA and NHPA, this operating permit does not affect, replace or remove the requirements and compliance determinations with respect to substances not otherwise covered under a NPDES permit and regulated by federal law under the Resource Conservation and Recovery Act or the Comprehensive Environmental Response, Compensation, and Liability Act.

Anti-Backsliding
Anti-backsliding is a provision in federal regulations CWA §303(d)(4); CWA §402(o); 40 CFR 122.44(l) that requires a reissued permit to be as stringent as the previous permit with some exceptions.
The permit complies with Anti-backsliding regulations.

Anti-Degradation
Antidegradation policies ensure protection of water quality for a particular water body on a pollutant by pollutant basis to ensure Water Quality Standards are maintained to support beneficial uses such as fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as an Outstanding National Resource Water or Outstanding State Resource Water [10 CSR 20-7.031(3)(C)]. Antidegradation policies are adopted to minimize adverse effects on water.

The Department has determined that the best avenue forward for implementing the Anti-degradation requirements into the MS4 general permit is by requiring the appropriate development and maintenance of a Stormwater Management Program.

Application requirements
Small MS4s (as defined under 10 CSR 20-6.200) are to apply and obtain a small MS4 General Permit or site-specific permit in accordance with 40 CFR 122.33 and 10 CSR 20-6.200(5).

Compliance and Enforcement
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri CWL, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Dischargers of stormwater from regulated MS4s, as defined in the Missouri Stormwater Regulations 10 CSR 20-6.200 who do not obtain coverage under this or other Missouri general permits, or under a site-specific NPDES permit, will be in violation of the Missouri CWL and its implementing regulations and subject to civil penalties of up to $10,000 per violation, per day. For entities covered under a NPDES permit, failure to comply with any NPDES permit requirement also constitutes a violation of the Missouri CWL and its implementing regulations.

Oil/Water Separators:
Oil water separator (OWS) tank systems are frequently found at industrial sites where process water and stormwater may contain oils and greases, oily wastewaters, or other immiscible liquids requiring separation. Food industry discharges typically require pretreatment prior to discharge to municipally owned treatment works. Per 10 CSR 26-2.010(2)(B), all oil water separator tanks must be operated according to manufacturer's specifications and authorized in NPDES permits per 10 CSR 26-2.010(2) or may be regulated as a petroleum tank.

This permit authorizes the operation of OWS for the treatment of stormwater without the requirement to obtain a separate permit. If the OWS treats water other than precipitation which has run across the property (for example: wash water, effluent from shop drains, drips, spills, etc.) the facility must obtain an MOG14 or site specific permit to cover the discharges.

Pesticide Rule
The Department has developed a Pesticide General Permit #MOG-870000 for point source discharges resulting from the application of pesticides. This permit has been developed as a result of federal requirements under NPDES.
The general permit authorizes the discharge of pesticides that leave a residue in water when such applications are made into, over or near waters of the United States. The department has determined that entities most likely affected by this permit include public health entities, including mosquito or other vector control districts and commercial applicators that service this sector. Others potentially affected by this permit include resource and land management entities, such as public and private entities managing public land; park areas and university campuses; as utilities maintaining easements and right-of-ways; golf courses; and other large residential developments which maintain a large grounds area. In addition, permits may be required for applications involving pesticide use for agricultural related activities when pesticides are applied to crops grown in or near a water of the United States.

The Department is collaborating closely with the Missouri Department of Agriculture, which already administers the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) along with the Missouri Pesticide Use Act, to ensure proper oversight of pesticide applications.

MS4s under this permit are subject to the pesticide rule. To determine if a permit is required, please visit the Department's website. The thresholds listed in Table 1 of the pesticide general permit will assist in determining if a permit is required. If a permit is required, the permittee/facility shall apply for either the Pesticide General Permit or a site-specific pesticide permit from the Department.

Secondary Containment
Prior to release of stormwater in secondary containments, the presence of petroleum sheen and odor must be observed. Steps must be taken if petroleum sheen or odor are observed to remove the petroleum from the stormwater prior to release. All secondary containment valves must remain closed when not actively draining stormwater. Release of stormwater from secondary containment must be controlled so as not to cause physical impacts such as forming rills, transporting solids, or scouring vegetation. If the stormwater is contaminated, the MS4 operator has the option of pumping out the secondary containment and taking it to an accepting wastewater treatment facility for treatment. Causing a sheen to be released to the environment is a violation of this permit and general water quality standards at 10 CSR 20-7.031(4)(B).
Standard Conditions:
The standard conditions Part I are incorporated into this permit, and incorporate all sections of 10 CSR 20-6.010(8) and 40 CFR 122.41(a) through (n) by reference as required by law. These conditions, in addition to the conditions enumerated within the standard conditions should be reviewed by the facility to ascertain compliance with this permit, state regulations, state statues, federal regulations, and the Clean Water Act.

Water Quality Standards
As noted previously, the nature of the MS4 program is technology-based, which is in accordance with Section §402(p)(3)(B)(iii) of the CWA with the establishment of the technology-based standard MEP. Many in the MS4 community believe that MEP is the only standard applicable for compliance determination, which for the most part (specifically for the six (6) minimum control measures, is correct). Given the litigious nature surrounding the "agreeability" of MS4 compliance with WQS, MS4 permits have been the subject of court cases for several years.

40 CFR 122.34(a)(1) clearly requires that the MS4 permit will require the MS4 permittee to, *"…develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act*." While this regulation seems to be in contradiction to Section §402(p)(3)(B)(iii) of the CWA due to the fact that it appears to require the permittee to "…*protect water quality*" and "*satisfy the appropriate water quality requirements…*" it actually is not; however, has been mistakenly applied to require strict, immediate compliance with WQS even in previously issued Missouri MS4 Master General Permits.

As noted in 64 FR No. 235, "*The Court, did, however, disagree with the EPA's interpretation of the relationship between CWA sections 301 and 402(p). The Court reasoned that MS4s are not compelled by section 301(b)(1)(C) to meet all State water quality standards, but rather the Administrator or the State may rely on section 402(p)(3)(B)(iii) to require such controls*." The discussion continues with, "*…the 1996 Policy describes how permits would implement an iterative process using BMPs, assessment, and refocused BMPs leading toward attainment of water quality standards. The ultimate goal of the iteration would be for water bodies to support their designated uses…*" and "*EPA also believes the iterative approach toward attainment of water quality standards represents a reasonable interpretation of CWA section 402(p)(3)(B)(iii)*."

A break-down of 40 CFR 122.34(a) is given in 64 FR No. 235, as follows, "*The first component, reduction to the MEP, would be realized through implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under the CWA section 402(p)(3)(B)(iii) of the need to achieve reasonable further progress toward the attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to MS4s, as they would other point sources*."

Part VI - 303(D) List, Total Maximum Daily Load (TMDL)

Section 303(d) of the CWA requires that each state identify waters that are not meeting water quality standards. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) List helps state and federal agencies keep track of waters that are impaired but not addressed by typical water pollution control programs. Federal regulations require permitting authorities to develop TMDLs to address impaired waters listed per Section 303(d) of the CWA. A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is impaired. Please visit the Department's website to determine if you are listed in an approved or established TMDL at: https://dnr.mo.gov/water/what-were-doing/water-planning/quality-standards-impaired-waters-total-maximum-daily-loads/tmdls.

Federal regulation 40 CFR 122.34(a) establishes the requirements applicable to all MS4s with, "*Your NPDES MS4 permit will require at a minimum that you develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act*." EPA translated this regulation into three parts in 64 FR No. 235, as follows, "*The first component, reductions to the MEP, would be realized through implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under CWA section 402(p)(3)(B)(iii) of the need to achieve reasonable further progress toward attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to MS4s, as they would to other point sources.*"

The above citation of 64 FR No. 235 clearly states that MEP is specific to the six (6) MCMs and clearly establishes that Wasteload Allocations (WLAs) are applicable to MS4s. However, unlike other traditional point sources that utilize treatment facilities, the EPA clearly indicated that attainment of the WLA is to be conducted via "*the iterative BMP process*." Thus, requiring any condition for the attainment of water quality standards in addition to the MCMs is going beyond MEP but the process for attainment of the WLA is still achieved with BMPs using the iterative process of establishing BMPs, evaluating the BMPs, and refocusing on BMPs.

However, just because a WLA for any given pollutant(s) of concern (POC) has been established in a TMDL for a MS4, additional BMPs or modifications to BMPs for the six MCMs should not be required as a trigger action. Rather, the MS4 permittee subject to an effective and approved TMDL should first make a determination if the implementation of their MCMs is adequately meeting the requirements and assumptions of the TMDL. As noted in 64 FR No. 235, "*At this time, EPA determines that water quality-based controls, implemented through the iterative process today are appropriate for the control of such pollutants and will result in reasonable further progress towards the attainment of water quality standards*." While potentially rare this does indicate that no further action may be necessary to implement the requirements and assumptions of the TMDL as the MS4 community may, through successful implementation to the MEP for each of the MCMs, have already demonstrated "*reasonable further progress*." This, rightfully so, places the burden of support on the MS4 community; however, in order for the MS4 community to continue operating only under the six MCMs, the determination of beneficial use re-attainment must be reviewed and timely approved by applicable program staff (i.e., the MS4 Team and Watershed Protection Section staff).

If the requirements and assumptions of the TMDL are not being met, then the MS4 will need to, at a minimum, develop BMPs that target the given POC with the goal or design for the reduction of the pollutant. Due to the nature of stormwater controls via the iterative process, subsequent determinations can and should be made by the MS4 community to determine if "*reasonable further progress*" has resulted in the attainment of the WLA.

In addition to the initial determination or additional BMPs as required in the MS4 general permit, integrated planning actions may be considered as actions taken to specifically restore a waterbody's beneficial uses. Regardless, if the MS4 permittee uses integrated planning or BMPs design to reduce pollutants, other factors need to be considered in accordance with 64 FR No. 235, which states, "*If the permitting authority (rather than the regulated small MS4 operator) needs to impose additional or more specific measures to protect water quality, then that action will most likely be the result of an assessment based on a TMDL or equivalent analysis that determines sources and allocations of pollutant(s) of concern. EPA believes that the small MS4's additional requirements, if any, should be guided by its equitable share based on a variety of considerations, such as cost effectiveness, proportionate contribution of pollutants, and ability to reasonably achieve Wasteload reductions. Narrative effluent limitations in the form of BMPs may still be the best means of achieving those reductions.*"

In addition to the above, the TMDL portion of the permit (Part 3) requires the development and implementation of a TMDL Assumption and Requirement Attainment Plan (ARAP). While the TMDL ARAP is not a Schedule of Compliance actions and schedules established in the TMDL ARAP will be subjected to the federal regulations on Schedules of Compliance [40 CFR 122.47]. Specifically if the development and implementation of the TMDL ARAP is to be conducted in a period of time extending one calendar year, then the permittee will be required to report annually for either the status of the development of the plan or for the implementation of the plan based on 40 CFR 122.47(a)(3)(ii).

Regarding the time period allowed for development of the TMDL ARAP (i.e., as soon as practicable not exceeding 30 months), the Department has determined the 30 month time period is appropriate as it allows the permittee the necessary time and flexibility that is needed to ultimately achieve attainment with the TMDLs assumptions and requirements. The Department has experience in the facilitation of an adaptive SWMP, along with EPA Region 7, with a MS4 community that addressed the assumption and requirements of an applicable TMDL. The time period to develop the adaptive SWMP took more than 30 months, but the assumptions and requirements of the TMDL were more complex than other straight forward TMDLs. Thus, the 30 month maximum time period allows the permittee to determine or develop appropriate BMPs, measurable goals, funding sources, local votes, strategic planning, opportunity to engage interested parties and stakeholders, etc… However, it would be naïve to believe that all regulated MS4s could develop a plan in 30 months, which is why the permit also indicates that the permittee can request an extension to the 30 months.

Permittees seeking approval of the extension will need to provide appropriate justification of why the extension is needed, a revised time schedule of compliance, and reason for failing to meet the 30 month maximum time; however, the allowance of extending the time period beyond 30 months is not guaranteed.

Stakeholder Outreach
In an effort to improve overall effectiveness of the MS4 MOR04 permit renewal process, introduction to the MOR04C permit, and to maximize stakeholder input, the Department published a preliminary draft of this MS4 NPDES permit and conducted extensive outreach for stakeholders in the preparation of the draft MS4 NPDES permits. A listing of stakeholder meetings is as follows:

Meeting Location	Meeting Date	Total attendees	Number of regulated MS4s represented
Jefferson City, MO	March 2, 2020	5	2
Macon, MO	March 3, 2020	7	5
Springfield, MO	March 5, 2020	17	11
Lee's Summit, MO	March 9, 2020	28	18
Poplar Bluff, MO	March 13, 2020	12	8
Web	March 23, 2020	13	10

Additionally, the Department held virtual meetings with municipal permittees in an effort to explain and gather feedback about proposed permit conditions. These meetings were broken down by MCM. Notification of such workshops was provided via e-mail invitation to all provided MS4 contacts in Missouri's permitted municipalities. A listing of each workshop follows:

Meeting topic	Meeting Date	Total attendees	Number of regulated MS4s represented
MCM 1	April 6, 2020	37	23
MCM 3	April 7, 2020	30	21
MCM 6	April 9, 2020	37	23
MCM 5	April 13, 2020	42	29
MCM 4	April 14, 2020	35	24
MCM 2	April 14, 2020	28	17
Other parts of the draft permits	April 20, 2020	40	27

Part VII – Administrative Requirements

On the basis of preliminary staff review and applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the permit. The proposed determinations are tentative pending public comment.

Public Meeting:

A public meeting for this permit was held on July 30, 2020.

Public Notice:

The Department shall give public notice when a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest or because of water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and facility must be notified of the denial in writing.

The Department must give public notice of a pending permit or of a new or reissued Missouri State Operating Permit. The public comment period is a length of time not less than thirty (30) days following the date of the public notice, during which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed permit, please refer to the Public Notice page located at the front of this draft permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- ✓ The Public Notice period for this permit was from September 4, 2020 through October 5, 2020

Date of Fact Sheet: August 17, 2020

SARAH WRIGHT, ENVIRONMENTAL SPECIALIST
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Attachment B

Chapter 34 of the City of Moberly's Code of Ordinances

Chapter 34 - STORMWATER MANAGEMENT AND CONTROL

ARTICLE I. - IN GENERAL

Sec. 34-1. - Purpose and policy.

(a) This chapter sets forth uniform requirements related to stormwater activity for the city and enables the city to comply with applicable state and federal laws. The objectives of this chapter are:

(1) To prevent erosion and sediment from land disturbance activities from creating a nuisance and entering neighboring properties and waters of the state;

(2) To prevent the introduction of pollutants into the publically owned treatment works (POTW) that will interfere with the operation of the POTW or which will pass through the POTW into receiving waters;

(3) To encourage the use of best management practices (BMPs) during construction and post construction activities;

(4) To improve the water quality in receiving streams;

(5) To provide for fees and penalties for land disturbance and stormwater permits; and

(6) To enable the city to comply with its municipal separate storm sewer system (MS4) permit.

(b) This chapter shall apply to all development, construction, and excavation activity within the city. This chapter authorizes the issuance of land disturbance permits, authorizes monitoring, compliance and enforcement activities; establishes administrative review procedures, requires land disturbance inspection and reporting; and provides for the setting of fees for the equitable distribution of costs resulting from the program established herein.

(Code 1987, § 28-185; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-2. - Administration.

Except as otherwise provided herein, the director of public utilities shall administer, implement, and enforce the provisions of this chapter. Any powers granted to or duties imposed upon the director may be delegated by the director to other city personnel.

(Code 1987, § 28-186; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-3. - Abbreviations and acronyms.

The following abbreviations and acronyms shall have the designated meanings:

(1) BMP: Best management practice.

(2) EPA: Federal Environmental Protection Agency.

(3) MDNR: State department of natural resources.

(4) MS4: Municipal separate storm sewer system.

(5) NPDES: National pollutant discharge elimination system.

(4) POTW: Publicly owned treatment works.

(5) SWPPP: Stormwater pollution prevention plan.

(Code 1987, § 28-187; Ord. No. 8799, § 1, 1-22-2013)

Secs. 34-4—34-29. - Reserved.

ARTICLE II. - ILLICIT DISCHARGES

Sec. 34-30. - Purpose and objectives.

The purpose of this article is to provide for the health, safety, and general welfare of the citizens of the city through the regulation of non-stormwater discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This article establishes methods for controlling the introduction of pollutants into the MS4 to comply with requirements of the NPDES permit process. The objectives of this article are:

(1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user.

(2) To prohibit illicit connections and discharges to the municipal separate storm sewer system.

(3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this article.

(Code 1987, §§ 28-172, 28-188; Ord. No. 8216, § 1(I), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-31. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Authorized enforcement agency means employees or designees of the city designated to enforce this article.

Best management practices (BMPs) means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Clean Water Act means the federal Water Pollution Control Act (33 USC 1251 et seq.) and any subsequent amendments thereto.

Construction activity means activities subject to NPDES construction permits. Currently, these include construction projects resulting in land disturbance of one acre or more. Such activities include, but are not limited to, clearing and grubbing, grading, excavating, and demolition.

Hazardous materials means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal discharge means any direct or indirect non-stormwater discharge to the storm drain system, except as exempted in this article.

Illicit connections means either of the following:

(1) Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system, including, but not limited to, any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to

enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether the drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency; or

(2) Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Industrial activity means activities subject to NPDES industrial permits as defined in 40 CFR 122.26 (b)(14).

National pollutant discharge elimination system (NPDES) stormwater discharge permit means a permit issued by EPA (or by a state under authority delegated pursuant to 33 USC 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-stormwater discharge means any discharge to the storm drain system that is not composed entirely of stormwater.

Person means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant means anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Premises means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm drainage system means publicly owned facilities by which stormwater is collected or conveyed, including, but not limited to, any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Stormwater means any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Stormwater pollution prevention Plan (SWPPP) means a document which describes the best management practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, or receiving waters to the maximum extent practicable.

Wastewater means any water or other liquid, other than uncontaminated stormwater, discharged from a facility.

(Code 1987, §§ 28-173, 28-189; Ord. No. 8216, § 1(II), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-32. - Applicability.

This article shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

(Code 1987, §§ 28-174, 28-190; Ord. No. 8216, § 1(III), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-33. - Responsibility for administration.

The city shall administer, implement, and enforce the provisions of this article. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the director of public utilities to persons or entities acting in the beneficial interest of or in the employ of the agency.

(Code 1987, §§ 28-175, 28-191; Ord. No. 8216, § 1(IV), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-34. - Ultimate responsibility.

The standards set forth herein and promulgated pursuant to this article are minimum standards; therefore, this article does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

(Code 1987, §§ 28-177, 28-193; Ord. No. 8216, § 1(VI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-35. - Discharge prohibitions.

(a) *Prohibition of illegal discharges.* No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

(1) The following discharges are exempt from discharge prohibitions established by this article: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising groundwater, groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if dechlorinated, typically less than one ppm chlorine), firefighting activities, and any other water source not containing pollutants.

(2) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

(3) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

(b) *When prohibition does not apply.* The prohibition shall not apply to any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

(c) *Prohibition of illicit connections.*

(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(3) A person is considered to be in violation of this article if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

(Code 1987, §§ 28-178, 28-194; Ord. No. 8216, § 1(VII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-36. - Suspension of MS4 access.

(a) *Suspension due to illicit discharges in emergency situations.* The city may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or waters of the United States, or to minimize danger to persons.

(b) *Suspension due to the detection of illicit discharge.* Any person discharging to the MS4 in violation of this article may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for a reconsideration and hearing.

(c) *MS4 access reinstated to premises without approval.* A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this section, without the prior approval of the authorized enforcement agency.

(Code 1987, §§ 28-179, 28-195; Ord. No. 8216, § 1(VIII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-37. - Industrial or construction activity discharges.

Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with the permit may be required in a form acceptable to the director of public utilities prior to the allowing of discharges to the MS4.

(Code 1987, §§ 28-180, 28-196; Ord. No. 8216, § 1(IX), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-38. - Monitoring of discharges.

(a) *Applicability.* This section applies to all facilities that have stormwater discharges associated with industrial activity, including construction activity.

(b) *Access to facilities.*

(1) The utilities director or his designee shall be permitted to enter and inspect facilities subject to regulation under this article as often as may be necessary to determine compliance with this article. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

(2) Facility operators shall allow the city ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.

(3) The city shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring or sampling of the facility's stormwater discharge.

(4) The city has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

(5) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected or sampled shall be promptly removed by the operator at the written or oral request of the director of public utilities and shall not be replaced. The costs of clearing such access shall be borne by the operator.

(6) Unreasonable delays in allowing the city access to a permitted facility is a violation of a stormwater discharge permit and of this article. A person who is the operator of a facility with a NPDES permit to discharge stormwater associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for conducting any activity authorized or required by this article.

(7) If the city has been refused access to any part of the premises from which stormwater is discharged, and he is able to demonstrate probable cause to believe that there may be a violation of this article, or that there is a need to inspect or sample as part of a routine inspection and sampling program designed to verify compliance with this article or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

(Code 1987, §§ 28-180.1, 28-196.1; Ord. No. 8216, § 1(X), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-39. - Prevention, control, and reduction of stormwater pollutants.

(a) The city will adopt requirements identifying best management practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of stormwater, the storm drain system, surface waters or groundwaters.

(b) The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premises which is, or may be, the source of an illicit discharge may be required to implement, at the person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system.

(c) Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section.

(d) BMPs shall be part of a SWPPP as necessary for compliance with requirements of the NPDES permit.

(Code 1987, §§ 28-180.2, 28-196.2; Ord. No. 8216, § 1(XI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-40. - Watercourse protection.

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

(Code 1987, §§ 28-180.3, 28-196.3; Ord. No. 8216, § 1(XII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-41. - Notification of spills.

(a) Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or waters of the nation, the person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release.

(b) In the event of a release of hazardous materials, the person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, the person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the director of public utilities within three business days of the phone notice.

(c) If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

(Code 1987, §§ 28-180.4, 28-196.4; Ord. No. 8216, § 1(XIII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-42. - Enforcement.

(a) Upon violation of a prohibition or failure to meet a requirement of this article, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require, without limitation:

(1) The performance of monitoring, analyses, and reporting;

(2) The elimination of illicit connections or discharges;

(3) That violating discharges, practices, or operations shall cease and desist;

(4) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;

(5) Payment of a fine to cover administrative and remediation costs; and

(6) The implementation of source control or treatment BMPs.

(b) If abatement of a violation or restoration of affected property are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. The notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

(Code 1987, §§ 28-180.5, 28-197; Ord. No. 8216, § 1(XIV), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-43. - Appeal of notice of violation.

Any person receiving a notice of violation may appeal the determination of the director of public utilities. The notice of appeal must be received within 15 days from the date of the notice of violation. Hearing on the appeal before the city manager or his designee shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the city or their designee shall be final.

(Code 1987, §§ 28-180.6, 28-198; Ord. No. 8216, § 1(XV), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-44. - Enforcement measures after appeal.

If the violation has not been corrected pursuant to the requirements set forth in the notice of violation or, in the event of an appeal, within 30 days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take the measures necessary to abate the violation or restore the property. It is unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

(Code 1987, §§ 28-180.7, 28-199; Ord. No. 8216, § 1(XVI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-45. - Cost of abatement of the violation.

Within 15 days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within 15 days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the city by reason of such violation. The liability shall be paid in not more than 12 equal payments. Interest at the rate of percent per annum shall be assessed on the balance beginning on the first day following discovery of the violation.

(Code 1987, §§ 28-180.8, 28-200; Ord. No. 8216, § 1(XVII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-46. - Injunction relief.

It is unlawful for any person to violate any provision or fail to comply with any of the requirements of this article. If a person has violated or continues to violate the provisions of this article, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

(Code 1987, §§ 28-180.9, 28-201; Ord. No. 8216, § 1(XVIII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-47. - Alternative compensatory actions authorized.

In lieu of enforcement proceedings, penalties, and remedies authorized by this article, the city may impose upon a violator alternative compensatory actions such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.

(Code 1987, §§ 28-180.10, 28-202; Ord. No. 8216, § 1(XIX), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-48. - Violations deemed a public nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this article is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

(Code 1987, §§ 28-180.11, 28-203; Ord. No. 8216, § 1(XX), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-49. - Criminal prosecution.

Any person that has violated or continues to violate this article shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of $1,000.00 per violation per day or imprisonment for a period of time not to exceed 30 days. The authorized enforcement agency may recover all attorneys' fees, court costs and other expenses associated with enforcement of this article, including sampling and monitoring expenses.

(Code 1987, §§ 28-180.12, 28-204; Ord. No. 8216, § 1(XXI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-50. - Remedies not exclusive.

The remedies listed in this article are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

(Code 1987, §§ 28-180.13, 28-205; Ord. No. 8216, § 1(XXII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Secs. 34-51—34-76. - Reserved.

ARTICLE III. - LAND DISTURBANCE

Sec. 34-77. - Purpose and objectives.

The purpose of this article is to establish controls on activities related to land disturbance through the following objectives:

(1) To protect the quality of local streams, lakes, and other bodies of water from the effects of increased erosion and sediment discharge.

(2) To protect the welfare of individuals and their property by reducing the amount of sediment that leaves land disturbance sites.

(3) To protect the environment and aquatic habitat of fish and other species.

(4) To reduce the need for maintenance of storm sewers and ditches as well as the dredging of lakes and ponds.

(Code 1987, § 28-207; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-78. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

City public utilities means the department that has the authority to manage, enforce, and regulate land disturbance activities within the city.

Drainageway means a natural or artificial watercourse, including, but not limited to, streams, rivers, creeks, ditches, channels, canals, waterways, gullies, ravines, or washes in which water flows in a definite direction or course, either continuously or intermittently, including any area adjacent to it that is subject to inundation by reason of overflow or floodwater and meets any of the following conditions:

(1) Provides for conveyance of stormwater runoff from an upstream property or development.

(2) Defined as waters of the United States by the U.S. Army Corps of Engineers.

(3) Supports riparian area or sensitive habitat.

(4) Tributary area equal to or greater than 20 acres.

(5) Alternation or filling will change the manner in which runoff is discharged onto a downstream property and potentially results in a negative impact to that downstream property.

Erosion control means any method, including the use of best management practices, which reduces the potential for soil particles to become dislodged and carried by wind or water.

Land disturbance includes the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity that bares soil or rock or involves the diversion or piping of any natural or manmade watercourse.

Land disturbance field manual gives requirements and guidance relating to land disturbance, similar to the land disturbance manual, but only addresses field requirements and guidance relating to land disturbance. It is intended to be used by the person performing the land disturbance and not the engineer that develops the plans.

Land disturbance manager means the person responsible for ensuring that the site is in accordance with the standard land disturbance permit as well as performing site inspections and maintaining the required records.

Land disturbance manual gives requirements and guidance relating to land disturbance

Land disturbance permit means the permit obtained from the city public utilities department prior to commencement of land disturbance activities as defined in the most current land disturbance manual.

Sediment control means any method, including the use of best management practices, used to capture or contain sediment particles after they have been eroded.

Stop work order means a written notice posted at the site of the land disturbance by the city's land disturbance inspector that requires land disturbance activities cease until requirements of the stop work order are met and signed stop work order release form is obtained. The stop work order is enforceable as provided in this Code.

(Code 1987, § 28-208; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-79. - Permits; design and construction requirements.

(a) The city shall administer and enforce this article with the issuance of land disturbance permits. Requirements and guidance for the land disturbance permit are contained within the most current edition of the land disturbance manual with a supplemental land disturbance field manual.

(b) Before conducting land disturbance activities that are equal to or greater than one acre, or are part of a larger common plan of development or sale that will disturb one or more acres over the life of the project within the city limits, a land disturbance permit must be obtained.

(c) Before conducting land disturbance activities when installing utilities with 1,000 feet or more of length within the city limits, a land disturbance permit must be obtained.

(d) Before conducting land disturbance activities located within 100 feet or more of a drainage way within the city limits, a land disturbance permit must be obtained.

(e) Before conducting fill or excavation of 50 or more cubic yards of material, not related to building of a detached single-family residential unit within the city limits, a land disturbance permit must be obtained.

(f) Land disturbance activities less than one acre in size in the city may require erosion and sediment control measures and a land disturbance permit if city public utilities deems it necessary to prevent sediment and erosion from occurring.

(g) The land disturbance manual with supplemental land disturbance field manual may be updated and expanded from time to time at the discretion of the city based on improvements in engineering, science, monitoring, or local maintenance experience.

(h) In addition to the requirements set forth by the city, all other local, state, and federal permits, ordinances, laws, and regulations relating to land disturbance must be followed. Any construction or land disturbance activity that will result in the disturbance of one acre or more must obtain a land disturbance permit from the state department of natural resources.

(Code 1987, § 28-209; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-80. - Fees.

Fees are shown in the appendix of the most current version of the city's land disturbance manual.

(Code 1987, § 28-210; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-81. - Inspections.

All land disturbance activities shall be subject to inspection by the city. Representatives of the city shall have the right to enter upon any land for making an inspection or acquiring information to determine whether the property conforms to the requirements of this article.

(Code 1987, § 28-211; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-82. - Enforcement.

The city public utilities department shall have the authority and responsibility to manage, enforce, and regulate land disturbance activities within the city.

(Code 1987, § 28-212; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-83. - Violations and penalties.

(a) All persons are required to obtain a land disturbance permit before performing any activities that are stated in section 34-79. If land disturbance activities are performed without a permit, but require a permit, or a level I violation occurs on a permitted site, the city public utilities department will place a posted stop work order at the location of the land disturbance activity. This stop work order revokes or suspends the land disturbance permit for permitted sites and stops work on permitted and non-permitted sites. The order shall state what is required prior to continuing the land disturbance activity and the time frame in which these actions must occur.

(1) In the case that the permit is revoked, reapplication for a permit is required and for suspensions the permittee must obtain a signed stop work order release from the city public utilities department prior to commencing land disturbance activities.

(2) If the stop work order is removed by anyone other than the city, or the land disturbance act continues without following the requirements of the stop work order, then the person performing the work and the owner of the property are in violation of the land disturbance code.

(3) If the land disturbance activities stop after the stop work order is posted at the site but actions required by the order are not followed within the time frame stated on the order, then the owner of the property is in violation of the land disturbance code.

(4) If the property owner chooses stop work and does not obtain or renew a permit, the property owner will still be required to reestablish the original topography and vegetation of the site prior to the land disturbance activities in a form amenable to the stormwater coordinator within the timeframe stated on the stop work order. If the property owner does not reestablish the site to standard and time stated in the order, the property owner will be in violation of this land disturbance code.

(5) Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor and each day during which any violation of the provisions of this article is committed, continued, or permitted, shall constitute a separate offense. Upon conviction of any such violation, such person, partnership, or corporation shall be punishable by a fine of not more than $1,000.00 for each offense. In addition to any other penalty authorized by this section, any person, partnership, or corporation convicted of violating any of the provisions of this article shall be required to bear the expense of restoration.

(b) The city may revoke a land disturbance permit if failure to comply with any term, condition, limit, deadline or other provision of the land disturbance permit occurs.

(c) The city may recover all attorneys' fees, court costs, stabilization of disturbed areas, cleanup costs, and other expenses associated with enforcement of this article through required fiscal securities and any other forms available.

(Code 1987, § 28-213; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-84. - Appeal of notice of violations.

Any person receiving a notice of violation may appeal the determination of the city public utilities department. The notice of appeal must be received within 15 days from the date of the notice of violation in written form. Hearing on the appeal before the director of public utilities shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the director of public utilities shall be final.

(Code 1987, § 28-214; Ord. No. 8799, § 1, 1-22-2013)

Secs. 34-85—34-100. - Reserved.

ARTICLE IV. - POST CONSTRUCTION

Sec. 34-101. - Purpose and objectives.

The purpose of this article is to establish controls on the quantity and quality of stormwater released from post construction developments through the following objectives:

(1) To protect against increased flooding and decreased water quality of downstream areas and streams due to effects of development.

(2) To protect the welfare of individuals and their property by reducing the effects of development.

(3) To protect the environment and aquatic habitat of fish and other species.

(Code 1987, § 28-215; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-102. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Administrative variance means a variance that is considered by the city to be complicated and which will require a more extensive review. These administrative variances shall be reviewed by the city engineer or outside consultants designated by the city.

Applicants means the owner and contractor who complete and sign the post-construction stormwater permit application.

Best management practice (BMP) means a measure implemented to control stormwater.

City public utilities means the department within the city that has the authority and responsibility to manage, enforce, and regulate stream buffer activities within the city.

Construction means the implementation of a proposed plan of improvements by a contractor that may include excavating, site grading, utility work, paving, building, and other activities that may contribute to the disturbance of land and elevated levels of erosion and sediment.

Design engineer means the professional engineer responsible for the design of the post-construction stormwater BMPs.

Development means the process of creating new residential, commercial, office, or other land uses through the process of construction.

Drainageway means any natural or artificial watercourse, including, but not limited to, streams, rivers, creeks, ditches, channels, canals, waterways, gullies, ravines, or washes in which water flows in a definite direction or course, either continuously or intermittently, including any area adjacent to it that is subject to inundation by reason of overflow or floodwater and meets any of the following conditions:

(1) Provides for conveyance of stormwater runoff from an upstream property or development.

(2) Defined as waters of the United States by the U.S. Army Corps of Engineers.

(3) Supports riparian area or sensitive habitat.

(4) Tributary area equal to or greater than 20 acres.

(5) Alternation or filling will change the manner in which runoff is discharged onto a downstream property and potentially results in a negative impact to that downstream property.

Erosion means the process by which the land surface is worn away by the action of wind, water, ice, and gravity.

Hydrograph means the distribution of runoff over time.

Inspector means the city representative who visits sites to check for compliance with the post-construction stormwater permit.

Permittees means the owner and contractor who obtain a post-construction stormwater permit.

Post-construction stormwater permit process means the process applicants proceed through to obtain a stormwater permit from the city.

Post-construction stormwater program means the program developed and administered by the city to regulate the quantity and quality of stormwater within the incorporated limits of the city.

Pre-development condition means the natural condition of a site before development occurred.

Professional engineer means an individual currently registered with the state board of registration as a professional engineer, practicing engineering in accordance with state law.

Sediment basin means an impoundment that captures sediment-laden runoff and releases it slowly, providing prolonged settling times to capture coarse and fine-grained soil particles.

Seeding and mulching means seeding disturbed areas with permanent grasses and spreading straw mulch to provide immediate protection against raindrops and wind erosion and, as the grass cover becomes established, to provide long-term stabilization of exposed soils.

Staff variance means a variance that is considered by the city to be minor in nature.

Stormwater means runoff generated as a result of a precipitation event.

Stormwater permit means the permit obtained from the city prior to commencement of land-disturbing activities as defined in the city post-construction stormwater manual.

Stormwater pollution prevention plan (SWPPP) means the complete package of required information submitted to the city for review and acceptance for a land disturbance permit which include drawings, land disturbance report, report checklist, and option of probable cost example worksheet.

Stormwater quality depth (SQD) means the depth of runoff from a one-year 24-hour storm.

Stormwater quality release rate (SQR) means the discharge that will drain the stormwater quality volume from the detention basin in 24 hours.

Stormwater quality volume (SQV) means the total volume of runoff from a one-year 24-hour storm.

Time of concentration (tc) means the time it takes for runoff to flow from the hydraulically most remote point in the watershed to the point of analysis.

(Code 1987, § 28-216; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-103. - Permits; design and construction requirements.

(a) The city shall administer and enforce this article with the issuance of post-construction stormwater permits. Requirements and guidance for the post-construction stormwater permits are contained within the most current edition of the post-construction stormwater manual.

(b) Before conducting development activities that are equal to or greater than one acre, or are part of a larger common plan of development or sale that will develop one or more acres over the life of the project within the city limits, a post-construction stormwater permits must be obtained. Other project requirements for post-construction stormwater permits are contained within the most current edition of the post-construction stormwater manual.

(c) Development activities less than one acre in size in the city may require post-construction stormwater permits if city public utilities deems it necessary.

(d) The post-construction stormwater manual may be updated and expanded from time to time at the discretion of the city based on changes in rules and regulations of the federal environment protection agency and the state department of natural resources, improvements in engineering, science, and monitoring, and local maintenance experience.

(e) In addition to the requirements set forth by the city, all other local, state, and federal permits, ordinances, laws, and regulations of post-construction stormwater manual must be followed.

(Code 1987, § 28-217; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-104. - Fees.

Fees are shown in the most current version of the city's post-construction stormwater manual.

(Code 1987, § 28-218; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-105. - Inspections.

All post-construction stormwater BMPs shall be subject to inspection by the city. Representatives of the city shall have the right to enter upon any land for the purposes of making an inspection or acquiring information to determine whether the property conforms to the requirements of this article.

(Code 1987, § 28-219; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-106. - Enforcement.

The city public utilities department shall have the authority and responsibility to manage, enforce, and regulate post-construction stormwater activities within the city.

(Code 1987, § 28-220; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-107. - Violations.

(a) All persons are required to obtain a post-construction stormwater permit before performing any activities that are stated in section 34-103. If activities requiring post-construction stormwater permit are performed without a permit, but require one, the city public utilities department will place a posted stop work order at the location of the activity. This stop work order stops work on non-permitted sites. The order shall state what is required prior to continuing activity and the time frame in which these actions must occur.

(1) If the stop work order is removed by anyone other than the city, or the act continues without following the requirements of the stop work order, then the person performing the work and the owner of the property are in violation of the post-construction stormwater code.

(2) If the land disturbance activities stop after the stop work order is posted at the site but actions required by the order are not followed within the time frame stated in the order, then the owner of the property is in violation of the post-construction stormwater code.

(3) If the property owner chooses stop work and not obtain a permit, the property owner will still be required to reestablish the original topography and vegetation of the site prior to activities in a form amenable to the stormwater coordinator within the timeframe stated in the order. If the

property owner does not reestablish the site to standards and time stated in the order the property owner will be in violation of this post-construction stormwater code.

(4) Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor and each day during which any violation of any of the provisions of this article is committed, continued, or permitted, shall constitute a separate offense. Upon conviction of any such violation, such person, partnership, or corporation shall be punished by a fine of not more than $1,000.00 for each offense. In addition to any other penalty authorized by this section, any person, partnership, or corporation convicted of violating any of the provisions of this article shall be required to bear the expense of such restoration.

(b) The city may revoke a post-construction stormwater permit if failure to comply with any term, condition, limit, deadline or other provision of the post-construction stormwater permit occurs.

(c) The city may recover, through required fiscal securities and any other forms available, all attorneys' fees, court costs, cleanup costs, and other expenses associated with enforcement of this article, including, without limitation, the costs of stabilizing disturbed areas and completing necessary post-construction stormwater BMPs.

(Code 1987, § 28-221; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-108. - Appeal of notice of violations.

Any person receiving a notice of violation may appeal the determination of the city public utilities department. The notice of appeal must be received within 15 days from the date of the notice of violation in written form. Hearing on the appeal before the director of public utilities shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the director of public utilities shall be final.

(Code 1987, § 28-222; Ord. No. 8799, § 1, 1-22-2013)

Attachment C

City of Moberly's Illicit Discharge Detection and Elimination Plan

Illicit Discharge Detection and Elimination Plan

City of Moberly, Missouri

Prepared for
City of Moberly, Missouri

December 2021

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Illicit Discharge Detection and Elimination Plan

December 2021

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1.0 Introduction

The City of Moberly, Missouri (City) has developed this illicit discharge detection and elimination (IDDE) plan in accordance with the Missouri Department of Natural Resources (MDNR) National Pollutant Discharge Elimination System (NPDES) State Operating Permit Number MO-R040030 (MS4 Permit) and Ch. 34, Art. II of Moberly's Code of Ordinances (IDDE Ordinance). Per Moberly's IDDE Ordinance, the purpose of IDDE is to provide for the health, safety, and general welfare of the citizens of Moberly. The plan applies to City employees, residents, and workforce, including contractors. The objective of this plan is to develop prevention and detection procedures regarding illicit connections and illicit discharges to the City's stormwater system.

The City provides the following definitions:

Illicit Connection means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge refers to any discharge to a municipal separate storm sewer that is not entirely composed of stormwater, except discharges authorized under a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from emergency fire-fighting activities.

Ch. 34, Art. II, Section 34-31 of Moberly's Code of Ordinances further defines an illicit connection illegal (illicit) discharge:

Illicit Connection means either of the following: Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency; or, any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Illegal Discharge means any direct or indirect non-stormwater discharge to the storm drain system, except as exempted (in Ch. 34, Art. II of Moberly's Code of Ordinances).

The following discharges are exempt by Moberly's IDDE ordinance, Ch. 34, Art. II, Section 34-35:

- Water line flushing or other potable water sources
- Landscape irrigation or lawn watering
- Diverted stream flows
- Rising groundwater

- Groundwater infiltration to storm drains
- Uncontaminated pumped groundwater
- Founding or footing drains (not including active groundwater dewatering systems)
- Crawl space pumps
- Air conditioning condensation
- Springs
- Non-commercial washing of vehicles
- Natural riparian habitat or wetland flows
- Swimming pools, if dechlorinated (typically less than 1 ppm chlorine)
- Fire-fighting activities
- Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety
- Dye testing, upon verbal notification to the authorized enforcement agency
- Any other water source not containing pollutants

2.0 Illicit Discharge Identification

The following sections describe the methods for identification of an illicit discharge to the City's MS4. The release or suspected release of an illicit discharge should be reported to the appropriate authorities, as described in Section 2.5. To prevent and detect illicit discharges, the City will inspect stormwater outfalls regularly, identify and inspect priority areas, and address illicit discharges, as needed.

2.1 Priority Inspection Areas

The City has identified priority inspection areas, by considering the following criteria:

- Areas with older infrastructure
- Areas of higher population density
- Areas that have primarily industrial and/or commercial use
- Areas with a history of past illicit discharges
- Areas with evidence of ongoing illicit discharges
- Areas with on-site sewage disposal systems
- Areas upstream of sensitive waters
- Areas that are susceptible to flooding
- Areas of active development
- Areas with significant shipping container activity or transport
- Areas with known litter or dumping issues
- Areas with large or increased number of citizen complaints
- Transportation corridors
- Large, paved areas or parking lots
- Gas stations and truck stops
- City Parks Department properties
- Distribution centers
- Vehicle service centers

Using the above criteria, the City has identified priority inspection areas, and had marked these locations for focused inspection on a map of the City, as shown in Appendix A. A minimum schedule for inspection of priority areas is described in Section 2.2.

2.2 Identification Plan

As discussed in Section 1.0 of the Stormwater Management Plan (SWMP), the City has identified 19 stormwater outfalls that discharge to four major drainage areas (see Table 2-1). Appendix B includes a map with the locations of stormwater outfalls within the City. The City inspects a minimum of 60% of all outfalls during the permit period to provide for the health and safety of the public.

Table 2-1 Stormwater Outfall Locations

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
Outfall #4	39.4275576337	-92.4138551980	1308719.27434	1664749.95433
Outfall #5	39.4274803181	-92.4138157183	1308691.12463	1664761.13304
Outfall #6	39.4198616297	-92.4188547619	1305914.88300	1663340.25000
Outfall #7	39.4193398413	-92.4162672727	1305725.50200	1664071.39400
Outfall #8	39.4087674705	-92.4303522776	1301871.39800	1660095.31300
Outfall #9	39.4084300844	-92.4211034938	1301750.66400	1662708.62200
Outfall #10	39.4047116099	-92.4340243932	1300393.37500	1659058.85300
Outfall #11	39.4018162559	-92.4265951112	1299340.43700	1661158.94200
Outfall #12	39.3887017097	-92.4127273553	1294567.29400	1665082.22100
Outfall #13	39.3940471351	-92.4203849338	1296512.22400	1662916.27000
Outfall #14	39.3934263806	-92.4254498918	1296284.90800	1661485.07500
Outfall #15	39.3930886900	-92.4283153100	1296161.25800	1660675.38400
Outfall #16	39.4027355400	-92.4521996200	1299670.40500	1653923.60900
Outfall #17	39.4109356000	-92.4443177100	1302658.34500	1656148.95600
Outfall #18	39.4205053800	-92.4747562900	1306140.04300	1647547.96500
Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

Note: The coordinate system used is NAD83 State Plane Missouri Central (in feet), and this data is in standard UTM zone 15.

Based on the priority inspection areas established in Appendix A, Moberly has developed a list of areas of highest priority for inspection. The City will annually inspect all priority inspection areas. Additional information regarding outfall inspections is provided in Section 2.3. An inspection form for inspections and illicit discharge investigations is provided in Appendix C.

2.3 Significant Contributions

The City has identified the following significant contributors and their related parameters of concern (see Table 2-2). The City may sample for parameters of concern at each outfall or at any potential illicit discharge, if deemed necessary, to trace potential illicit flows or connections to storm sewers and track significant contributions over time. Table 2-2 will be periodically reviewed by the City and updated as needed.

Table 2-2 Significant Contributors and Parameters of Concern

Significant Contributors	Pollutants of Concern
On-site sewer systems	E. coli
Animal waste	E. coli
Shipping container activity/transport	Incidental or accidental releases of chemicals/products
Litter	Debris, sediment
Residential chemical use	Pesticides/herbicides, household hazardous waste, used oil
Agricultural activities	Fertilizers, pesticides, E. coli
Vehicle service stations	Petroleum products
Industrial activities	Various industrial products depending on industry
Construction activities	Debris, sediment, incidental or accidental releases of chemicals/fluid

2.4 Inspection and Investigation Procedures

Dry and wet weather outfall screening will occur annually, according to the outfall inspection plan provided in Section 2.2. Considerations for both dry and wet weather screening are provided in Table 2-3. Field observations and outfall sampling (when needed) will be performed during the inspections to further evaluate discharges. An inspection form for screening inspections and illicit discharge investigations is provided in Appendix C.

Table 2-3 Outfall Screening Considerations

Screening Type	Strategies/Considerations
Dry weather	• Appropriate screening times include during dry weather (a minimum of 72 hours after a rain event) when trees are not shedding • If necessary, place sandbags at the outfall to pond flow for sampling • Note travel of stormwater • Complete the inspection form, collect a grab sample if dry weather flow is present, and document the inspection with photographs
Wet weather	• Appropriate screening times include during wet weather (a maximum of 48 hours after a rain event but preferably within 24 hours) • Note travel of stormwater • Complete the inspection form, collect a grab sample, and document the inspection with photographs

The City conducts investigations in response to field screening discoveries, spills, or in response to complaints from the public or municipal staff. Investigations are used to determine the source of illicit discharges, the nature and volume of discharges through the any illicit connection to the storm sewer, and the party responsible. The City follows these timelines for illicit discharges:

- Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.
- Investigate (or refer to the appropriate agency with the authority to act) within five days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare or the environment.

Sampling will include a grab sample at each outfall, which will be analyzed in-house at the City's laboratory. The list of sampling parameters at each screening or investigation includes:

- 5-day biological oxygen demand (BOD_5)
- Ammonia (NH_3)
- Chemical oxygen demand (COD)
- Chloride
- Chlorine
- Dissolved oxygen

- E. coli
- pH
- Temperature
- Total suspended solids (TSS)

The City may sample for additional parameters if their presence is suspected. For parameters sampled on a case-by-case basis, the City will collect a grab sample and have the sample analyzed at a certified laboratory. These parameters may include, but are not limited to:

- Fluorescence
- Fluoride
- Hardness, total
- Metals, total
- Nitrogen, total
- Oil and grease
- Phosphorus, total
- Specific conductivity
- Surfactants

Data from each outfall inspection and sample analysis will be kept in City records, so that stormwater quality data can be reviewed or analyzed as needed.

2.5 Source Tracing

If evidence of an illicit discharge is reported to Moberly or discovered during an inspection, the Public Utility Department will take the following steps:

1. The inspector will systematically visually examine structures upstream of the discovered discharge until evidence of the discharge is no longer present or a source is located.
2. The inspector may take sample(s) of the discharge upstream and at the outfall to determine potential sources.
3. The inspector will attempt, through systematic inspection (and using data and the MS4 map, if needed), to locate the source of the illicit discharge.
4. If a source cannot be located through systematic inspections, then Moberly may also consider dye testing, televising, or smoke testing as additional tools to help identify the source.

5. Once the potential source is discovered, Moberly will identify and contact the responsible party to initiate corrective actions. Section 3.0 provides further detail regarding illicit discharge enforcement.

3.0 Illicit Discharge Reporting

In the event of an illicit discharge, or upon the suspected release of an illicit discharge, emergency response agencies will be notified immediately.

Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetland, or area like a road ditch that drains into one of the above. If applicable, report oil releases to:

National Response Center
(800)-424-8802

It is required by state law that spills of a petroleum product in excess of 50 gallons be reported to the MDNR. Spills of hazardous materials should be reported to both the MDNR and the City immediately. In addition, any reportable spills of oil or any spills of hazardous materials will be reported to the following number:

Missouri Department of Natural Resources
24-hour Spill Line
(573) 634-2436

In the event of any type spill that is reported to the state or federal government, the City will also be notified.

City of Moberly, Public Utility Department
(660) 269-8705, ext. 2073

City of Moberly, Police Department
(660) 263-0346

In the event of a release of a non-hazardous material, authorized enforcement agencies will be notified in person or by phone no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed to the Director of Public Utilities within three business days of the original notice.

If the discharge of prohibited materials originates at a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record for a minimum of three years that includes a description of the discharge and actions taken to prevent its recurrence.

4.0 Emergency Spill Response Plan

The City's Emergency Spill Response Plan provides procedures for city staff to respond to and mitigate releases and spills. The City maintains this plan and ensures that all appropriate city staff have access to a copy of the plan. Emergency responders are trained to respond to spills and releases and to take appropriate safety measures.

Emergency responders will coordinate with the City's Public Utility Department to notify them of releases. If the release or spill is from an unknown source, the City will attempt to identify the source of the release using the procedures outlined in Section 2.5. The City's current Emergency Spill Response Plan is provided in Appendix D.

5.0 Enforcement

If a person or entity that violates a prohibition or failed to meet a requirement of Chapter 34, Article II of Moberly's IDDE ordinance, the authorized enforcement agency may order compliance by written Notice of Violation to the responsible person. Such notice may require without limitation:

- The performance of monitoring, analyses, and reporting
- The elimination of illicit connections or discharges
- That violating discharges, practices, or operations shall cease and desist
- The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property
- Payment of a fine to cover administrative and remediation costs
- The implementation of source control or treatment best management practices (BMPs)

Violators may also be subject to suspension of their MS4 discharge access and criminal prosecution to the fullest extent of the law.

If abatement of a violation and/or restoration of affected property are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

Violators have the option to appeal a Notice of Violation; the City's decision regarding an appeal shall be final. If violations not corrected as outlined in the Notice of Violation or hearing decision, authorized enforcement agencies may take any and all measures necessary to abate the violation and/or restore the property and the property owner will be notified of the abatement costs within 15 days after abatement. The property owner may file a written protest of the abatement costs within 15 days of the assessment.

In lieu of enforcement proceedings, penalties, and remedies authorized by Chapter 34, Article II of Moberly's Code of Ordinances, the City may impose alternative compensatory actions upon a violator, such as storm drain stenciling, attendance at compliance workshops, creek clean-ups, etc.

6.0 Education and Outreach

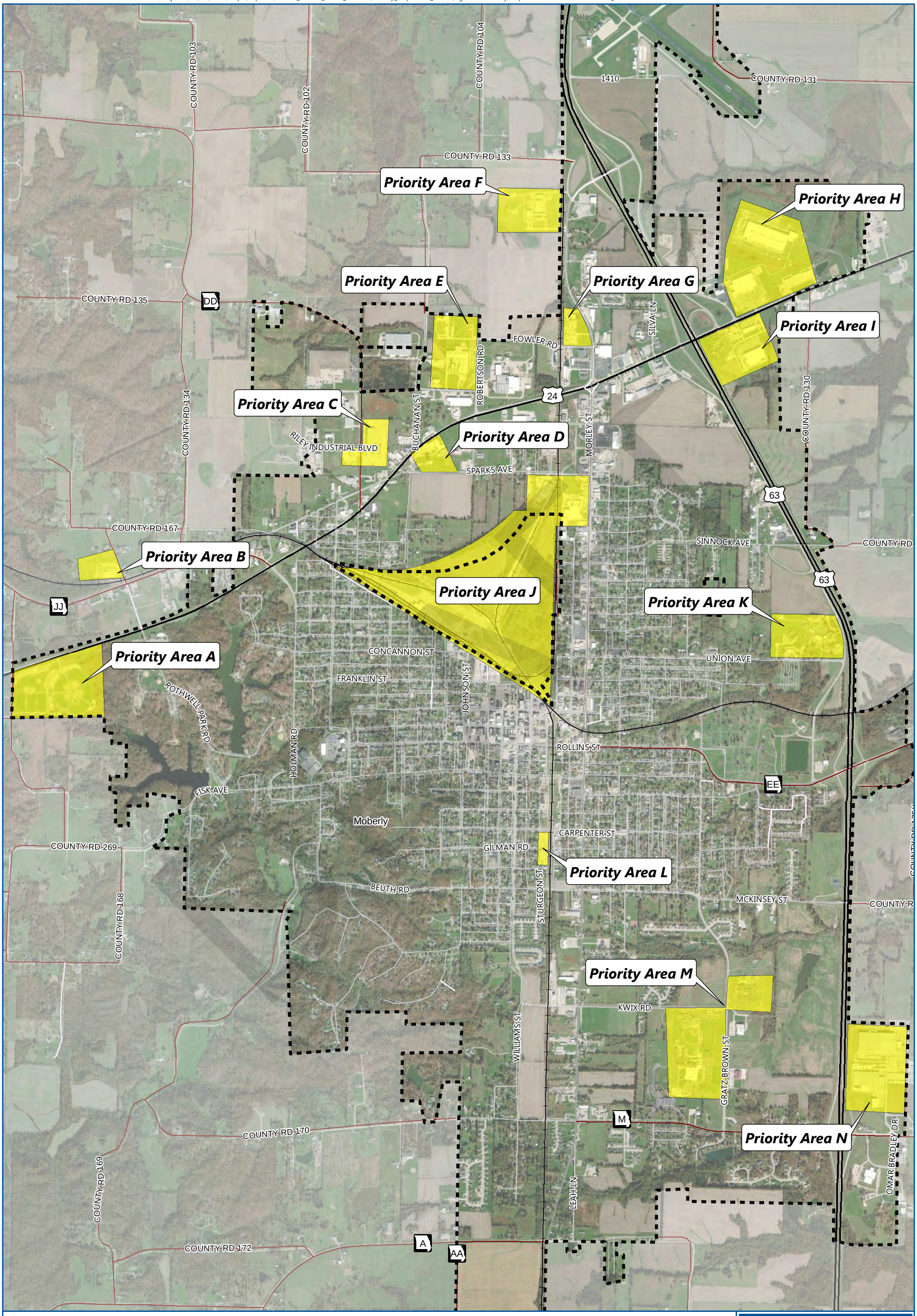
Education and outreach efforts are performed by the City to inform citizens about IDDE. The City conducts IDDE outreach activities to businesses, industries, and the public on a calendar year basis, as outlined in Section 2.0 of the SWMP. The City will continue to develop outreach methods and will add to this list, as needed.

Appendices

Appendix A

Priority Inspection Areas

Barr Footer: ArcGIS 10.6, 2018-08-09 11:27 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\Priority_Inspection_Areas\Figure 01 Priority Inspection Areas.mxd User: MRQ



Appendix B

MS4 Outfall Map

Barr Footer: ArcGIS 10.6, 2018-07-15 12:36 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\2018\Figure02 MS4 Moberly Outfalls.mxd User: MRQ

Sugar Creek
Elk Fork Salt River
Outfall 1
900
Outfall 19
Outfall 3
Outfall 2
Outfall 4
Outfall 5
Outfall #002 - Taylor Street CSO
Outfall 18
850
Outfall #005 - Holman Road CSO
Outfall 6
Outfall 7
Moberly
Outfall #003 - Rollins Street CSO
Outfall 17
Sweet Spring Creek
Outfall 8
Outfall 9
Coy Branch
Outfall #004 - Seven Bridges Road CSO
Outfall 10
Outfall 16
Outfall 11
750
800
Outfall 14
Outfall 13
Outfall 15
Outfall 12
Coon Creek
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Proposed Outfall Location
Combined Sewer Overflow Locations (Approximate)
National Hydrography Dataset (NHD) Flowline
Municipal Boundary
Surface Elevation Contours
50 foot
10 foot

N
0 3,250 6,500
Feet

BARR

MOBERLY MS4 OUTFALLS
City of Moberly
Moberly, MO

Appendix C

MS4 Outfall and Illicit Discharge Inspection Form

City of Moberly
MS4 Outfall and Illicit Discharge Inspection Form

GENERAL INFORMATION

Outfall Number: **Watershed/Priority Area:**

Date: _____ **Time:** _____ **Inspector:** _____

Weather: ☐ Clear ☐ Overcast ☐ Rain

Temperature: **Air** _____ **deg F** **Water** _____ **deg F**

Rain Totals: in 24 hours: _____ in 48 hours: _____

Sample #: _____

Photo #(s): _____

SITE INFORMATION

Flow Observed: ☐ Yes ☐ No **Channelized Flow:** ☐ Yes ☐ No

Flow rate estimate: _____ **gpm / gph (circle one, or add a narrative description)**

Erosion Observed: ☐ Yes ☐ No

Water Body Impacts Observed: ☐ Yes ☐ No **Approximate length of stream impacts:** _____

VISUAL OBSERVATIONS

Biological: ☐ Fish ☐ Algae ☐ Eggs ☐ Bacteria ☐ Larvae ☐ Iron Bacteria
Other: _____

Turbidity / Color: ☐ None ☐ Clear ☐ Opaque ☐ Gray ☐ Red ☐ Green ☐ Yellow ☐ Brown
Other: _____

Deposits / Stains: ☐ None ☐ Mineralization ☐ Petroleum ☐ Sediments
Other: _____

Floatable: ☐ None ☐ Litter ☐ Oil Sheen ☐ Sewage ☐ Suds
Other: _____

Odor: ☐ None ☐ Petroleum ☐ Sewage ☐ Rotten Eggs (Sulfur) ☐ Musty
Other: _____

Structural Condition: ☐ Normal ☐ Cracking ☐ Spalling ☐ Corrosion ☐ Clogged
Other: _____

Vegetation Condition: ☐ Normal ☐ Inhibited Growth ☐ Bare ☐ Excessive Growth
Other: _____

Comments/impacts to water body:

_____

_____

RECOMMENDED FOLLOW-UP

☐ Contact landowner _____

☐ Conduct tracing/sampling of discharge _____

☐ Follow up on reported concern _____

☐ Other actions needed _____

Additional Comments:

_____

_____

Appendix D

Emergency Spill Response Plan

Emergency Response Plan for Spills and Illicit Discharges

Department of Public Utilities

City of Moberly, MO

Spill Response Plan

Introduction:

Hazardous materials incidents are a fact of life in communities around the world and must be recognized as such. Catastrophic emergencies created by hazardous materials incidents may pose a serious threat to the local Wastewater Treatment Facility, sewer systems and area waterways. Municipalities and local governments are often completely on their own during the first stage of almost any hazardous materials incident. The City of Moberly Public Utilities Department shall strive to be prepared for such incidents with an Emergency Response Plan designed to handle hazardous materials. The goal of this plan is to protect the community and the environment served by the City of Moberly's Wastewater Treatment Facility.

Catastrophic emergencies that may be encountered include:

- Railroad or trucking accidents involving toxic, flammable or explosive chemicals or strong, highly corrosive acids or bases,
- Accidents involving radioactive materials,
- Accidents involving unknown substances,
- Spills, accidental and/or deliberate discharges by industries,
- Spills, accidental and/or deliberate discharges by individuals,

In the event the Public Utilities Emergency Response Plan should overlap with the Randolph County Local Emergency Operations Plan, the Randolph County Local Emergency Operations Plan shall take precedence.

Purpose:

The purpose of this document is to outline the Department of Public Utilities' coordinated spill response plan and procedures. This document will be used as a reference by the Public Utilities, Police and Fire Department staff and all other entities that may be involved in fielding calls and/or responding to incidents. This document is intended to reflect the essential steps necessary to initiate, conduct and terminate an emergency response action.

Definitions:

"Hazardous Materials" generally refers to petroleum, petroleum products, radioactive materials, acutely toxic chemicals and other toxic chemicals**.**

"LEOP" refers to the Randolph County Local Emergency Operations Plan, revised 3/30/2004.

"RCRA" refers to the Resource Conservation and Recovery Act (of 1976). This act established a framework for the proper management and disposal of all wastes.

"Receiving Stream" is defined as any body of water that receives discharge from the City of Moberly sanitary, combined and/or separate sewer system and is permitted through the MoDNR

"Spill" is defined as any discharge, accidental or deliberate, that may enter the "Waters of the State" and has or may have the potential to harm humans, wildlife and/or the environment. This definition also includes any discharge, accidental or deliberate, that may cause harm to the Municipal Wastewater Treatment Facility and/or "pass through", untreated, into the environment.

"Waters of the State" means any and/or all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural and artificial, lying within or forming a part of the boundaries of the State of Missouri which are not entirely confined or retained completely upon the property of a single person.

"WWTF" is an acronym for the City of Moberly's Wastewater Treatment Facility. The facility is located east of Moberly, off State Rd EE. Turn north from EE on County Rd 2350 . Turn west immediately after crossing the RR tracks.

Plan Distribution:

The following will receive a copy of the Spill Response Plan:

City Manager,

Director of Public Utilities,

Chief Operator, WWTF,

Industrial Pretreatment Coordinator,

Distribution and Collection Superintendent,

Distribution and Collection Foreman,

Public Works Director,

Fire Department LEPC Coordinator,

Fire Department LEOP Coordinator,

Police Department, Chief,

Police Department, Assistant Chief,

NOTE:

According to the National Response Team, Emergency Planning Guide this plan should be made available to the public for comment and/or review on the city website and at City Hall.

The spill response plan includes:

1. Contact appropriate individuals,

2. Control the area of concern,

3. Contain the spill,

4. Cleanup the area.

1. Contact

A. Spills may be reported by the following:

Local citizens,

City employees,

State/County employees,

Commercial/Industrial employees or officials,

Health Department,

Police Department,

Highway Patrol

B. Spills may be <u>reported to</u> the following departments:

911 emergency,

Fire Department,

Police Department

Public Utilities Department,

Street Department,

Randolph County Sheriff's Office,

Randolph County Health Department,

City Hall

Online complaint forms

C. <u>Assistance from other Departments</u>

1. The Moberly Police Department: 660.263.0346

Command center,

Activation of notification processes,

Traffic and crowd control,

Evacuation procedures,

The command center will complete a message form (see Attachment A) for each message sent or received.

NOTES:

In the event evacuation procedures are required, the Randolph County LEOP will take effect.

In the event evacuation procedures require "safe housing" for the evacuees, the Randolph County LEOP will take effect.

2. The Moberly Fire Department: 660.269.8705 ext. 2035

Coordination center,

Containment supplies, including:

Hazmat contacts,

List of chemicals used by individual industries,

Fire control

Search and Rescue,

SCBA equipment,

Radiological Monitoring Equipment, One (1) Self Support Kit,

Personnel emergency first aide/medical treatment,

General public first aide/medical treatment,

NOTE:

In the event City personnel or the general public require emergency first aide and or medical treatment the Randolph County LEOP will take effect.

3. Water Department, Distribution and Collection

Available resources

Blower,

Vactor truck,

Traffic cones,

Traffic signage,

Barracades,

Personnel,

Portable pumps,

Gas meter,

Safety vests,

Vehicles,

Backhoe (2)

Equipment operators,

4. Public Works/Street Department

Available resources

Personnel,

Vehicles,

Traffic cones,

Traffic signage,

Backhoe,

End loader,

Safety vests,

Sand,

Barricades,

Equipment operators,

5. Wastewater Department

Available Resources

Tractor,

Personal floatation devices,

Boat/oars,

Vehicles,

Equipment operator,

6. Parks Department

Available resources

Equipment available?

Operators?

7. Radio Station

Public announcements

8. Industry Contacts

See attachment F

9. MoDNR Emergency Response Personnel

10. USEPA Emergency Response Personnel

In the event of a major spill and/or chemical hazards the Director of Public Utilities shall be notified first and be recognized as the "person in authority".

The "person in authority" will take notes of all events to the best of his ability. These notes shall contain:

Names of persons contacted and the time of contact.

Brief statement concerning the reason for the contact.

Decisions made concerning the spill and/or containment and/or clean up.

Director of Public Utilities

Dana Ulmer

Work Cell: 660.269.7659

Personal Cell: 660.651.7565

The Director of Public Utilities, or their designee, shall be responsible for any press releases to the local radio stations, newspaper and/or any other local media.

In the event the Director is unavailable The WWTF Chief Operator shall be notified.

WWTF Chief Operator

Emily Lute

WWTF: 1.660.269.9437

WWTF Cell: 1.660.353.1885

The following is a list of personnel that may need to be notified in the event of an emergency spill:

Industrial Pretreatment Coordinator

Emily Lute

Office: 1.660.269.9437

Stormwater Coordinator

Rachel Hultz

Work: 660.353.9745

Superintendent, Water Distribution and Collection

Tim Patrick

Work Cell: 660.998.0127

Foreman, Water Distribution and Collection

Chris Bohm

Work cell:660.998.0128

Personal cell: 660.651.3829

Public Works/Street Department

Tim Grimsley

Office:660.353.8003

Work cell: 660.924.1813

Clifton Stockhurst

Work cell: 660.269.9451

Fire Department

Donald Ryan: Fire Chief

Phone: 319.750.2591

In the event the material is not an immediate threat to life and property

Notification will be limited to:

a. Director of Public Utilities,

b. Wastewater treatment facility, Chief Operator,

c. Industrial pretreatment inspector,

d. Collection system personnel,

e. Stormwater Coordinator,

f. Other concerned or involved agencies (MoDNR, EPA)

2. **Control**

The initial size-up and risk/benefit analysis of all tactical considerations shall be identified early in the incident. This will have a major impact on the recovery/clean up processes later.

First Responders.

The priorities for all who respond to hazardous materials incidents are first, protecting life, second, protecting the environment and third, protecting property and equipment.

The first responder on the scene will:

1. Evaluate the situation as quickly as possible with out putting him/herself in danger,

Questions of importance

A. Will traffic control be needed?

Moberly Police Department

B. Will the area need to be barricaded?

Street Department,

D and C Crew,

C. Will the spill require evacuation in the immediate area of the spill, along the path the spill will travel? How large a buffer area is needed?

Toxic fumes,

Explosive possibility,

Police Dept,

D. Can the spill be contained before it enters the stormwater drainage system or any waters of the state.

2. Contact the command center to activate the notification procedure, Initially, the first responder on the scene should only have to make one phone call. The command center will relay all information to the appropriate departments and personnel involved.

3. The following information shall be reported to the command center:

Physical address of the spill,

Contaminants present, if known and/or possible contaminants,

Present dangers/hazards, if known and/or possible dangers/hazards, i.e. flammability, explosion potential, etc.,

Personnel to be notified,

Departments to be notified,

Equipment and/or supplies needed,

3.Containment

Because protection of the environment is second only to protection of life, the tactical consideration used to handle a hazardous material emergency must be based on the overall effect those tactics will have on the environment.

When formulating tactical considerations aimed at minimizing impact to the environment, the emergency responders are simultaneously improving the recovery potential and minimizing the clean up that is required.

Procedure to follow in the event the spill is flammable, toxic and/or hazardous.

A. <u>Flammable, Toxic and/or hazardous materials.</u>

Questions of importance:

1. Is the source of the spill known?

a. If yes, request all MSDSs related to the material.

b. If no, request the aid of the Hazmat Crew via the Moberly Fire Department. (Response time will be at least 1 hour.)

2. What is the approximate volume of the spill?

3. What field test equipment is available for immediate use?

a. pH meter for acidic or base conditions,

b. gas detector for flammability,

(What field test equipment is available from the MFD?)

4. Can the spill be contained before it enters the sanitary sewer and /or stormwater system?

a. Storm drains blocked,

- Sand bags,
- Pillows,

b. Vactor truck,

c. Containers,

d. Sump hole,

In the event the spill has reached the sanitary sewer and/or stormwater system.

Questions of importance:

1. Can the system in the area of the spill either minimize gas accumulation or enhance the opportunity for release of gases?
2. Is the system in the area of the spill gravity flow or force main?
3. Are there any dead spots in the system downstream of the spill that may cause flammables to accumulate?
4. What oxidants are present in the system that may support flammability or promote explosion?

a. Oxygen,

b. Hydrogen peroxide,

c. Chlorine gas,

d. Other

Notes:

1. Compounds that present the biggest risk to the sewage system are flammable liquids with low solubility, are lighter than water and have low boiling points or high vapor pressures (volatile). Liquid hydrocarbons are confirmed to pose a significant danger of fire or explosion in a wastewater mixture.

Assess the situation:

1. If unknown, use the gas detector at nearby manholes to determine flammability.

a. In the event the material is known to be or is determined to be flammable, manhole covers can be removed at all locations where gas is detected in order to dissipate or dilute the gas. An attendant or a barrier should be left at the open manholes.

b. If a manhole upstream of the spill can be located where the gas is yet undetectable, a blower can be used to dissipate the gas. Make certain, ***before*** **the blower is started** that **NO gas is detectable** as the blower may spark and ignite any gas that is present. If a blower can be used, replace all manhole covers along the route. This will prevent the fresh air introduced into the sewer from escaping through the path of least resistance.

2. Whenever possible shut down the pumps at the closest lift station downstream of the spill in order to contain the material.

3. The vactor truck can be used to remove the material from the lift station wet well.

a. In the event that the amount of material is greater than the vactor truck capacity, containers to store the material should be available .

4. In the event that the spill is of a volume that cannot be contained by the lift station capacity, or in the event the material is of a nature that would cause harm to the WWTF and/or pass through the WWTF; the material can be diverted to the Rollins Street CSO (Outfall #3) and/or the Seven Bridges Road CSO (Outfall #4) for the purpose of containment and cleanup.

Diversion to the Seven Bridges Road CSO (west lagoon) can be accomplished by shutting down the pumps at the lift station. The pump control panel is located inside the building. Normally, only one pump is running at any given time. Observe which of the three pumps is running, then turn the auto/off/on switch to the off position.

To divert the flow to the Rollins Street CSO (east lagoon) the gate will need to be closed. Inside the building, next to the north window, is the control panel. Turn the on/off switch to the off position, and then push the down button until the gate closes. In the event the key to the building is not available, the gate, which is located directly north of the old east plant building, can also be closed manually. Push the lever on the back of the motor to the hand position and crank the handle. This may take a large number of turns due to the gear ratio. The gate is visible from the top of the structure. The lagoon return valve, located along the east fence line must also be closed. It is a left hand valve.

Notes:

The decision to divert the flow to either of the lagoons will be dependent on:

a. The current water level in the lagoon/s,
b. If rain is imminent or already falling,
c. Amount of snow melt expected,
d. The estimated amount of flow that will be diverted.

5. In the event the estimated flow is too great to be diverted to the lagoons and must be allowed to flow to the WWTF and/or in the event the flow has already reached the WWTF the following modes of operation are available:

A. The WWTF can be operated in a mock storm mode.

Observe which of the two SBR basins has the lowest level. This SBR will be used to collect the pollutants and will be referred to as “the collection basin”..

Operational controls for “the collection basin”.

- Ensure the collection basin sludge pump control button is in the off position on the PLC control panel.
- Ensure the collection basin decant valves are closed and in the off position on the PLC control panel.
- If not already, open the influent valve to the collection basin and leave in the manual position

1. The remaining SBR will be referred to as “the idle basin”.

Operational controls for “the idle basin”.

- Close the influent valve to the idle basin and turn to the off position on the PLC control panel.
- Turn off any blowers that may be running in the idle basin.
- Close any blower valves that may be open in the idle basin.

Immediately begin making storage space available.

- Observe which of the two digesters has the lowest level.
- Start pumping sludge from that digester to the sludge holding basin.
- *Start the sludge pump in the idle basin and pump sludge to the digester that is emptying into the sludge holding basin. This will lower the level in the idle basin while the collection basin accepts the pollutants.
- Open the gate valve fully, at the post equalization basin, in order to release the maximum amount possible.

- Observe the settleability in the idle basin. As soon as possible open the decant valve to lower the level in the idle basin. Observe the discharge. Allow the idle basin to discharge as long as the effluent is of a good quality.

The Hazmat Team should have the field test equipment needed to monitor the influent. When it is determined that all the pollutants have been collected, **"the idle basin"** can begin filling. The idle basin will be used on a pass through basis.

- Open the influent valve on the idle basin.
- Continue pumping sludge from this basin to maintain as much capacity as possible.
- Close the influent valve to the collection basin.
- Close one of the decant valves in the idle basin. This will provide equalization between the incoming and out going flows. In the event it is raining, or has recently rained, both decant valves will need to be left open.
- Adjust the post equalization basin gate valve to a nearly closed position. This will allow for maximum settling and retention of any solids that are carried over to the post equalization basin. Monitor the post eq basin for capacity and adjust as necessary to prevent overflow.

In the event the spill is on the east side of town and will not at any time reach the Seven Bridges Road CSO (west lagoon), the pumps at the west lagoon can be turned off.

This can be done without regard to the level of the lagoon for the following reason:

a. This is a MoDNR permitted discharge point,
b. The discharge from this lagoon receives primary treatment.
c. The discharge from this lagoon is consistently under the MoDNR mandated limits.

d. The diversion of this flow will greatly increase the storage capacity of the WWTF.

Note: In the event partially treated and/or untreated sewage must be released to a City of Moberly MoDNR permitted receiving stream in order to contain a potentially more hazardous substance a press release will be provided to the local radio stations (Attachment C). This announcement will contain the following information:

Date of discharge,

Time discharge was initiated,

Duration of the discharge,

Approximate amount of discharge,

Receiving stream,

Location along the receiving stream where the discharge enters the stream,

What type of treatment the discharge has received,

Potential hazards related to the discharge.

In the event a toxic/hazardous spill reaches the storm drain system:

Questions of importance:

1. What waterway will receive the spill?

a. Where along the waterway will the spill enter?

2. What is the approximate volume of the spill?

3. Is the source of the spill known?

c. If yes, request all MSDSs related to the material.

d. If no, request the aid of the Hazmat Crew via the Moberly Fire Department. (Response time will be at least 1 hour.)

4. What field test equipment is available for immediate use?

c. pH meter for acidic or base conditions,

d. gas detector for flammability,

(What field test equipment is available from the MFD?)

5. What is the volume of flow already present in the stream?

a. Has there been a recent substantial rain?

b. Is it currently raining or is rain eminent?

c. Heavy snow melt in progress?

All local waterways that receive discharges from the stormwater drainage system shall be designated on the system map. The earliest point of entry of the system into these waterways shall also be designated, along with all accessible points on the waterways.

Earth moving equipment and/or operators for the purpose of building dams and/or other containment structures such as sump ponds, are available locally.

1. Street barn,

a. End loader

b. Dump trucks

c. Bulldozer

d. Equipment operators

2. Distribution and Collection,

a. backhoe (2)

b. dump truck

c. equipment operators

Note:

Additional operators available through other departments:

Wastewater, Parks, Water, and Fire Department,

Note: In the event that a chemical spill has reached any receiving stream permitted by the City of Moberly through MoDNR, a press release will be provided to the local radio stations. The announcement will contain the following: (Attachment D)

Date of spill,

Time of spill,

Receiving stream,

Location where it will enter the receiving stream.,

Approximate amount of spill,

Type of chemical involved,

Hazards involved to humans, wildlife and/or the environment,

5. Clean-up

Any and all expenses incurred for the clean up of the spill, and/or equipment used in the clean-up process will be paid for by the person/s, industry or entity that perpetrated the spill. (City of Moberly, Stormwater ordinance Chapter 34, Article 2, Section 34-42)

Analytical Laboratory

Inovatia Laboratories, LLC

120 East Davis Street

Fayette, MO 65248-1405

660.248.1911

Regulatory Authority

Stormwater-Illicit discharge ordinance

Follow-up activities

After the field situation is stabilized and the immediate danger is under control an Illicit Discharge Report Form (see attachment B) is to be completed by the person in charge of the response team.

Note:

The Resource Conservation and Recovery Act (RCRA) developed and enforced by EPA clearly states that, after an emergency ends and the recovery and clean up process begins, emergency responders are no longer exempt from compliance with the requirements of RCRA.

In the event the spill has reached the sewer system or entered the stormwater drainage system and the source of the spill is unknown.

a. Start working upstream of the last known location of the material in the system,
b. Collect grab samples at each location, and mark each with time and location
c. Record the pH,
d. Observe and record physical characteristics such as color, odor, amount of flow,
e. Use collection system maps to determine possible flow routes and sources,
f. If flow stops before it can be traced back to its source, identify which industries could be the source of the material.
g. The samples shall be taken to the laboratory for analysis.

Procedures for testing and updating the plan

Testing:

Testing of the Emergency Response Plan shall take place at a minimum of once every other year. This testing may involve tabletop exercises, chemical tracing activities in the sewer system, and/or mock emergency response drills. All persons involved in the practices shall submit a brief written report on their part in the exercise with emphasis on:

- What part of the plan worked well,
- What did not work and why,
- What improvements in the plan are needed,
- How these improvements will fit into the plan.

All reports shall be turned in to the Director of Public Utilities within five (5) working days of the exercise.

In the event the Emergency Response Plan must be activated all City of Moberly personnel involved in the emergency shall submit a brief written report with emphasis on:

- What part of the plan worked well,
- What did not work and why,
- What improvements in the plan are needed,
- How these improvements will fit into the plan.

All reports shall be turned in to the Director of Public Utilities within five (5) working days after the emergency is abated.

Updating:

- Twice yearly (June and December) all personnel names, addresses, phone numbers, etc shall be reviewed and updated as necessary.
- Industry contact phone numbers and addresses shall be reviewed and updated as necessary.
- Tier 11 reports shall be updated as necessary.
- The task of updating the plan shall be completed by the Stormwater Coordinator and verified as completed by Director of Public Utilities.

Copies of the updates shall be delivered to all persons on the distribution list.

Attachment A

Message Form
Illicit Discharge/Spill Response Plan
Communications Center

Date: _____
Time: _____
To: _____
From: _____

Message:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Message received by: _____
Message relayed by: _____
Time relayed: _____

Notes:

Attachment B

Illicit Discharge Report Form

Date _____ Time _____
Incident location _____

Responsible party: Unknown: _____
Name: _____ Phone: _____
Address: _____
Business/Industry type: _____

Reported by: Unknown _____
Name: _____ Phone: _____
Address: _____

Reported to:
Name/Title: _____
Date: _____ Time: _____

Incident description:
_____
_____
_____
_____
_____

First responder on the scene: _____
Departments on the scene:
Police _____ Fire _____ D & C _____ Street _____
Other _____

Material description:
Flammable_____ Reactive _____ Toxic _____
Corrosive _____ Biological _____ Unknown _____
Other _____
Material identified by:
Hauler ___ Industry/Business ___ Container label ___ Hazmat ___ Laboratory ___

Corrective action taken: _____
_____
_____
_____
_____
_____

Attachment C

Press Release
Sewage Release

In order to contain a potentially toxic chemical spill the City of Moberly Waste Water Treatment Facility is forced to discharge waste water to _____ .
(Receiving stream)

The discharge will enter the stream in the vicinity of _____
_____
_____ .

The release will occur on _____, and begin at approximately _____ (AM, PM).
(Date) (Time)

The duration of the discharge will be approximately _____ with a total
(Length of time)

volume of _____ gallons.
(Amount)

The wastewater discharged has received _____
_____..
(Type of treatment discharge has received)

The potential hazards associated with this type of discharge are _____
_____
_____
_____
_____

The City of Moberly strongly advises area residents avoid contact with the waters in this stream until further notice.

_____
Signature/Title

Attachment D

Press Release
Chemical Spill

Due to a (an) _____
(Type of accident that has occurred)

the chemical _____ has the potential to enter _____ .
(Chemical name) (Name of stream)

The _____ may enter the
(Chemical name)

stream in the vicinity of _____
(Approximate location of entry)

The spill occurred on _____,
(Date)

and may enter _____ at approximately _____ (AM, PM).
(Name of creek) (Time)

The duration of the chemical release will be approximately _____ with a total
(Length of time)

volume of _____ gallons.
(Amount)

The chemical release has received _____
_____..
(Type of treatment, if any the chemical has received)

The potential hazards associated with this type of chemical are _____
_____
_____
_____
_____

The City of Moberly strongly advises area residents avoid contact with the waters in this stream until further notice.

_____
Signature/Title

Attachment E

Local Industry Contacts

- Central State Enterprises of Missouri 1251 CR1317
    - Alex Watson, Plant manager
    - Cell 660 372-8190
- Wilson trailer Sales 1600 Rt. DD
    - Chris Mathis, Safety Officer
    - 660 263-2070
- Lakeview Biodiesel 607 W. Fowler Rd.
    - Joe Youse, Plant Manager
    - Office 660 263-7273
    - Cell 660 651-9013
- Total Power Coat & Finish PO Box 746, 715 Sturgeon St.
    - Josh Taylor
    - 660 263-7444
- Orscheln Product LLC 1177 N. Morley St.
    - Tom Hall, EH&S Manager
    - 660 269-3564
    - Cell 660 651-2749
- Dura Automotive Systems 1855 Robertson Rd.
    - Mark Barron, Plant Engineer
    - 660 269-2325
- (New) MacRak Inc. 100 Sparks Ave
    - Shawn MacDonald, President
    - Office 815 723-7400
    - Cell 815 557-5643

Attachment D

MS4 Outfall Report and Map

Municipal Separate Storm Sewer System (MS4) Outfalls Review and Recommendations

Prepared for
City of Moberly, Missouri

July 2018

1001 Diamond Ridge, Suite 1100
Jefferson City, MO 65109
573.638.5000
www.barr.com

Municipal Separate Storm Sewer System (MS4) Outfalls Review and Recommendations
July 2018

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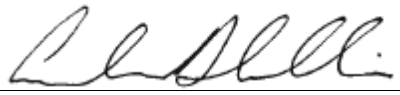
List of Photographs

Certifications

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Missouri.



July 7, 2018

Andrea D. Collier
PE #: 2007020252

1.0 Background

This report outlines activities conducted by Barr Engineering Co. (Barr) regarding the review of the City of Moberly's (City's) Municipal Separate Storm Sewer System (MS4) Program and Stormwater Management Plan (SWMP), and includes a report on the desktop review and field survey of the City's MS4 outfalls.

As part of a review of the City's MS4 Program, Barr conducted a review of the City's MS4 outfall locations. This review included an evaluation of MS4 outfall regulatory requirements, definitions, and Missouri Department of Natural Resources (MDNR) guidance; a desktop review of outfall maps; and a field survey of existing, revised, and proposed outfall locations.

This review was conducted to align the City's MS4 outfall map with the City's SWMP and, as part of the SWMP, as a requirement of the Illicit Discharge Detection and Elimination Program. The City's MS4 Missouri State Operating Permit (MSOP), MO-R040030, Section 4.2.3.1.1., regarding the implementation of the Illicit Discharge Detection and Elimination Program states that, at a minimum, the City shall provide:

> *"A storm sewer map showing the location of all constructed outfalls and the names and locations of all of the receiving waters of the state that receive discharges from those outfalls. The permittee shall describe the sources of information used for the map(s), and how the permittee plans to verify the outfall locations with field surveys. If already completed, the permittee shall describe how the map was developed and how the map will be regularly updated. The permittee shall make the information available to the Department upon request."*

The resulting new outfall map was produced in accordance with these requirements to be included as part of the City's SWMP.

An initial review of the City's current hardcopy of the MS4 outfall map revealed that all eight outfalls are located at the municipal boundary and in the bed of existing intermittent streams. In preparation for a more detailed review, Barr conducted an evaluation of regulatory requirements to ensure that the outfall locations that are selected meet the definitions, as provided in the rule, and that the revised outfall map as part of the City's MS4 SWMP meets the City's MS4 MSOP requirements, as stated above.

Municipal Separate Storm Sewer, as defined by 10 CSR 20-6.200 (1)(C)16., is:

> *"…a conveyance or system of conveyances including roads and highways with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, paved or unpaved channels, or storm drains designated and utilized for routing of stormwater which—*
>
> *A. Does not include any waters of the state as defined in this rule;*
> *B. Is contained within the municipal corporate limits or is owned and operated by the state, city, town, village, county, district, association, or other public body created by or pursuant to the laws of Missouri having jurisdiction over disposal of sewage, industrial waste, stormwater, or other liquid wastes;*

C. *Is not part or portion of a combined sewer system;*
D. *Is not part of a publicly owned treatment works as defined in 40 CFR 122.2."*

An MS4 outfall, as defined by 10 CSR 20-6.200(1)(C)18., states that it is:

> *"A point source as defined by 10 CSR 20-2.010 at the point where a municipal separate storm sewer discharges and does not include open conveyances connecting two municipal separate storm sewers, pipes, tunnels, or other conveyances which connect segments of waters of the state and are used to convey waters of the state."*

MDNR's MS4 coordinator provided the following additional explanation of these definitions as guidance. The MS4 outfall is where stormwater from the regulated MS4 discharges or has the potential to discharge to waters of the state. The potential for discharging stormwater to waters of the state is at locations where the storm sewer leaves the jurisdiction of the regulated MS4, but flows to waters of the state. The location where it leaves the jurisdiction is the outfall. If the MS4 discharges to a combined sewer, then it is not classified as a MS4 but as a combined sewer. An MS4 outfall cannot be part of or located in waters of the state, but instead should be a representative point within or at the boundary of the City's jurisdiction where the MS4 discharges to waters of the state. The definition of MS4 outfall excludes non-point source discharges or sheet flow. The location of a MS4 outfall is not typically located at the municipal boundary, unless the municipal boundary is the point at which the MS4 discharges or has the potential to discharge to waters of the state.

Because of the current regulatory definitions of MS4 and MS4 outfall and MDNR guidance, Barr recommends that all existing outfall locations be revised. The desktop review and field survey of the outfalls were conducted to determine where revisions to existing outfall locations could be made and to locate additional outfalls. The recommended revised and proposed new MS4 outfalls were identified in accordance with the above regulations, the MSOP and MDNR guidance, as described below.

2.0 Desktop Review of Outfalls

The City provided a hardcopy map that included approximate locations for the eight existing MS4 outfalls. This map was recreated in ArcGIS and included the eight existing outfalls, the four combined sewer overflow (CSO) outfalls, light detection and ranging (LiDAR) aerial photography, 10-foot topographic contours, national hydrography dataset (NHD) flowlines, surface water impoundments, and the municipal boundaries. Using the LiDAR data, the NHD, and topographic contours, each existing outfall was examined and, as determined to be necessary, revisions to these outfall locations and potential additional outfalls were marked on a map. All of these outfall locations were included on a revised map that was used to conduct the field survey of the outfalls. The results are described below.

3.0 Field Survey of Outfalls

After completion of the desktop review of the outfalls, on Friday, June 30, 2017, the Barr team conducted the field survey to confirm outfall locations and to identify if any outfalls needed to be relocated or removed. The City had received a combined 3.57 inches of precipitation the morning of the field survey and the day before (June 29 and 30), which was based on rainfall data from a National Oceanic and Atmospheric Administration (NOAA) station in Moberly, Missouri. The Barr team arrived to conduct the fieldwork just after 7:00 a.m. The weather was cloudy and intermittently raining; the rain ceased around 9:00 a.m. The recent rain event resulted in ideal conditions to conduct a field assessment of stormwater outfalls, because the outfalls were currently discharging and stormwater flow paths were easily observed. A secondary field survey event was performed by Aaron Grimm to reassess an appropriate location for Existing Outfall #3 on Tuesday, July 18, 2017. The field surveys were conducted using maps and a Trimble GPS unit to collect additional outfall location data and to collect locations of revised or new outfalls. As a result of the field survey and outfall review, a revised MS4 outfall map showing the existing and proposed outfalls was created and is included as Figure 1. Figure 2 shows only the proposed outfalls and the CSOs.

Existing outfalls are named "Existing Outfall #X" where X represents the number of the outfall. Existing outfalls were numbered in numerical order starting at the northernmost existing outfall and moving around the municipal boundary clockwise until Existing Outfall #8. Proposed (new and revised) outfalls are named "Outfall #X" in numerical order starting at the northernmost proposed outfall and moving around the municipal boundary clockwise, through Outfall #19. The locations of the existing and proposed outfalls can be seen in Figure 1, as well as tabulated in Table 2. The final map of proposed outfalls and CSOs is presented in Figure 2.

3.1 Existing Outfall #1

Existing Outfall #1 was identified in the field and a sign was present marking the location. This outfall fell on the edge of the City's municipal boundary just on the east side of U.S. Highway 63 (Hwy 63) and was in the bed of the existing intermittent stream (unnamed tributary to the Elk Fork Salt River). Existing Outfall #1 can be seen below in Photo 3.1.1.

Photo 3.1.1 Existing Outfall #1 Facing Northeast

The Barr team explored the area upstream and to the west of Hwy 63 and identified a potential replacement for Existing Outfall #1. The recommended revised outfall location can be seen on Figure 1.

The location of Existing Outfall #1 is within a water of the state as identified by a NHD flowline, which does not align with the regulatory definition or MDNR guidance for an MS4 outfall. It is recommended to remove Existing Outfall #1 and to replace it with Outfall #1 in order to provide a more representative stormwater outfall location from the City of Moberly before it enters into a water of the state.

3.2 Existing Outfall #2

Existing Outfall #2 was identified using the map from the City of Moberly and field observations. A sign marking the outfall location was not found. Existing Outfall #2 was estimated to be located where a water of the state (unnamed tributary to the Elk Fork Salt River), as identified by an NHD flowline, crosses County Road B130/2305 to the east of Hwy 63. The upstream culvert of the road crossing at Existing Outfall #2 can be seen below in Photo 3.2.1.

Photo 3.2.1 Existing Outfall #2 Facing North

Existing Outfall #2 location is within a water of the state and not within a conveyance that is in the City's jurisdiction, which does not comply with MDNR rules and guidance for MS4 outfalls. New potential outfall locations were identified and surveyed in the field. Outfalls #2 and #3 identify where City stormwater drainage conveyances enter into the same water of the state (unnamed tributary to the Elk Fork Salt River) and are upstream of Existing Outfall #2. Outfall #2 is the City stormwater ditch entering the southern side of the unnamed tributary, and Outfall #3 is the stormwater ditch entering the northern side of the unnamed tributary.

It is recommended to remove Existing Outfall #2 and to replace it with Outfalls #2 and #3. Outfalls #2 and #3 can be seen in Photo 3.2.2 below. Outfall #2 is on the left side of the photo (south) just before the stormwater ditch joins the unnamed tributary to the Elk Fork Salt River. Outfall #3 is on the right side of the photo (north) just before the stormwater ditch joins the unnamed tributary to the Elk Fork Salt River. Photo 3.2.3 shows only Outfall #2 as it enters the unnamed tributary. In Photo 3.2.3, the City stormwater ditch enters the unnamed tributary from the left side of the photo.

Photo 3.2.2 **Outfalls #2 and #3 Showing Unnamed Tributary to the Elk Fork Salt River Facing West**

Photo 3.2.3 **Outfall #2 as it Enters the Unnamed Tributary Facing West/Southwest**

3.3 Existing Outfall #3

Existing Outfall #3 was identified while in the field. A sign marking the outfall location was present. The outfall is just east of Hwy 63 at the municipal boundary and is located within a water of the state (unnamed tributary to Coon Creek), which does not comply with MDNR rules and guidance for MS4 outfalls. Potential outfall replacements were identified in the field. Outfalls #4 and #5 are located just west of Hwy 63 and are in City stormwater ditches just before they discharge into the unnamed tributary. Outfall #4 is in the southern City stormwater ditch where it discharges into the unnamed tributary. Outfall #5 is in the northern City stormwater ditch where it discharges into the unnamed tributary. Existing Outfall #3 is shown in Photo 3.3.1 below. Photo 3.3.2 shows the area in which Outfalls #4 and #5 discharge into the unnamed tributary (Outfall #4 is on the left side and Outfall #5 is on the right). Photo 3.3.3 shows Outfall #4 where it discharges into the unnamed tributary, and Photo 3.3.4 is taken from the approximate location of Outfall #5 but is looking upstream of the City stormwater ditch.

Photo 3.3.1 Existing Outfall #3 Facing Southeast

Photo 3.3.2 Outfalls #4 and #5 Facing Southwest

Photo 3.3.3 Outfall #4 Facing South

Photo 3.3.4 Upstream City Stormwater Ditch from Outfall #5 Facing North

3.4 Existing Outfall #4

Existing Outfall #4 was determined to be very difficult and unsafe to access; therefore, it was not visited in the field. It is unknown whether a sign is posted marking the outfall location. From the desktop review of Existing Outfall #4 on the City's map, it was estimated that this outfall is located in the bed of an unnamed tributary and is likely outside the City's jurisdiction. Outfalls #6 and #7 were investigated as potential outfall replacements for Existing Outfall #4.

Outfalls #6 and #7 were determined to be potential replacements for Existing Outfall #4. Outfall #7 is located upstream of Existing Outfall #4 and appeared to discharge into an unnamed tributary to Coon Creek. The CSO Outfall #003 is nearby to Outfall #7 and appears to drain into the same stream. In the case that this entire basin drains to the CSO, there would be no MS4 outfall in this area. The definition of MS4 outfall excludes all CSOs. Although it was nearby CSO #003, Outfall #7 was examined and is believed to be a separate stormwater outfall. Outfall #6 is located upstream of Existing Outfall #4. Outfall #6 is located in a City stormwater drainage conveyance just as it enters into a heavily wooded area prior to draining into the same unnamed tributary mentioned above. Both Outfalls #6 and #7 are believed to be outfalls that capture stormwater within the City's municipal boundary and jurisdiction and are separate from CSO #003. It is recommended that Existing Outfall #4 be removed and replaced with the more representative and accessible location of Outfalls #6 and #7. Outfalls #6 and #7 are shown in Photos 3.4.1 and 3.4.2 below.

Photo 3.4.1 Outfall #6 Facing South/Southeast

Photo 3.4.2 Outfall #7 Facing East

3.5 Existing Outfall #5

Existing Outfall #5 was located in the field and a sign marking the location of the outfall was present. The outfall was located just east of Hwy 63 in Coy Branch, which is a water of the state as identified by an NHD flowline. Photo 3.5.1 below shows Existing Outfall #5.

Photo 3.5.1 Existing Outfall #5 Facing East/Southeast

Possible outfall replacements and/or additional outfalls were identified at Outfalls #8, #9, #10, and #11.

Outfall #8 is located on the downstream side of a City stormwater culvert that passes under Russhaven Drive (just south of the Russhaven Drive and East McKinsey Street intersection) as the stormwater ditch drains towards Coy Branch. Outfall #9 is located at the upstream end of the City stormwater culvert that passes under the Seventh-Day Adventist Church driveway off East Mckinsey Street as the stormwater ditch drains towards Coy Branch. Outfall #10 is located just upstream (to the west) of where Coy Branch begins and is just off the east side of South Morley Street (just north of Bob's Butcher Shop). Outfall #10 is on the downstream side of a culvert that passes underneath South Morley Street. Outfall #11 is located at a City stormwater drainage culvert just west of Moberly Middle School and just before it passes under Kwix Road as it drains to Coy Branch.

Existing Outfall #5 is located in Coy Branch, a water of the state; therefore, it is recommended to be removed and replaced with more representative Outfalls #8, #9, #10, and #11. Each outfall captures a different area of drainage within the drainage basin to Coy Branch. The suggested new outfalls can be seen in the Photos 3.5.2, 3.5.3, 3.5.4, and 3.5.5 below.

Photo 3.5.2 Outfall #8 Facing Southeast

Photo 3.5.3 Outfall #9 Facing Northwest

Photo 3.5.4 Outfall #10 Facing East (downstream)

Photo 3.5.5 Outfall #11 Facing South

3.6 Existing Outfall #6

The location of the sign for Existing Outfall #6 was not found while in the field. Existing Outfall #6 was estimated to be in the bed of an unnamed tributary to Coon Creek at the City's municipal boundary, just east of Hwy 63. Because Existing Outfall #6 is located in waters of the state, this outfall is recommended to be replaced. Potential replacement and additional outfalls were identified at Outfalls #12, #13, #14, and #15.

Outfall #12 is located in a stormwater ditch just on the east side of Hwy 63 as it drains towards an unnamed tributary of Coon Creek. Outfall #13 is in a stormwater conveyance just on the south side of East Urbandale Drive as it drains towards the same unnamed tributary. Outfall #14 is in a stormwater conveyance off the east side of the south end of Chrisman Lane in a residential area as it drains towards the same unnamed tributary. Outfall #15 is located in a stormwater conveyance off the east side of Thomas Street just before it turns into a private drive, also in a residential area, as it drains towards the same unnamed tributary.

It is recommended that Existing Outfall #6 be removed and replaced with Outfalls #12, #13, #14, or #15. Even though Existing Outfall #6 was not clearly identified in the field, the area where it was marked on the City outfall map was along a NHD flowline and would therefore not be a representative MS4 outfall in accordance with MDNR rules and guidance. Outfalls #12, #13, #14, and #15 are shown in Photos 3.6.1, 3.6.2, 3.6.3, and 3.6.4.

Photo 3.6.1 Outfall #12 Facing South

Photo 3.6.2 Outfall #13 East/Northeast

Photo 3.6.3 Outfall #14 Facing South/Southeast

Photo 3.6.4 Outfall #15 Facing Northwest

3.7 Existing Outfall #7

Existing Outfall #7 was located in the field (see Photos 3.7.1, 3.7.2, and 3.7.3) and had a sign marking the location. Existing Outfall #7 is located in the bed of an existing unnamed tributary (in waters of the state) and, as such, is not located in accordance with MDNR rules and guidance. The field team explored the lower area of this basin that was accessible from public roads. This existing outfall is located in a heavily wooded area with fewer public access areas and few roads and public stormwater conveyances. In addition, this area appears to drain to CSO #004, which discharges from a combined sewer impoundment. Replacement outfalls could not initially be identified, but after an additional survey of potential replacement outfalls, Outfalls #16, #17, and #18 were identified as replacement outfalls for Existing Outfall #7.

Photo 3.7.1 Existing Outfall #7 Facing East

Photo 3.7.2 Existing Outfall #7 Facing Southeast

Photo 3.7.3 Immediately Downstream of Existing Outfall #7 Facing West/Northwest

3.8 Existing Outfall #8

The exact location of Existing Outfall #8 was not identifiable in the field due to its close proximity to an industrial facility and private property. The estimated location for Existing Outfall #8 is in the bed of an unnamed tributary to Sugar Creek and is in an NHD flowline. The field team searched for the outfall sign behind the industrial facility and was unable to locate it due to heavy woody vegetation and lack of access points to the unnamed tributary. The estimated location of Existing Outfall #8 is shown in Photo 3.8.1 below.

A potential replacement location was identified at Outfall #19, which was in a stormwater conveyance that discharged just north of an unnamed tributary to Sugar Creek that is shown as a NHD flowline. Outfall #19 is at the discharge point of a small stormwater pipe off the west side of Missouri State Highway DD (Hwy DD) and just north of where the unnamed tributary to Sugar Creek crosses under the Hwy DD and Huntsville Road intersection through a box culvert.

It is recommended that Existing Outfall #8 be replaced with Outfall #19. Outfall #19 is shown in Photo 3.8.2 below. Photo 3.8.1 is taken from Outfall #19 and is looking downstream to where the stormwater ditch discharges into the unnamed tributary to Sugar Creek. Outfall #19 is at the discharge pool of the small pipe shown in the photo.

Photo 3.8.1 Estimated Existing Outfall #8 Facing Southeast

Photo 3.8.2 Outfall #19 Facing Southwest

4.0 Conclusions

Table 1 below outlines Barr's recommendations for outfalls to be removed, replaced, and added. Table 2 contains the nineteen (19) new or revised outfalls and their respective location data, as plotted in the Existing and Proposed Outfalls Map (Figure 1) and the Moberly MS4 Outfalls Map (Figure 2). The coordinate system used is NAD83 State Plane Missouri Central (in feet).

Table 1 Barr's Recommendations for Outfalls to be Removed, Replaced, and Added

Outfalls to be Removed	Replacement Outfalls/New Outfalls
Existing Outfall #1	Outfall #1
Existing Outfall #2	Outfalls #2, #3
Existing Outfall #3	Outfalls #4, #5
Existing Outfall #4	Outfalls #6, #7
Existing Outfall #5	Outfalls #8, #9, #10, #11
Existing Outfall #6	Outfalls #12, #13, #14, #15
Existing Outfall #7	Outfalls #16, #17, #18
Existing Outfall #8	Outfall #19

Table 2 New and Recommended Outfalls and Location Data

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
Outfall #4	39.4275576337	-92.4138551980	1308719.27434	1664749.95433
Outfall #5	39.4274803181	-92.4138157183	1308691.12463	1664761.13304
Outfall #6	39.4198616297	-92.4188547619	1305914.88300	1663340.25000
Outfall #7	39.4193398413	-92.4162672727	1305725.50200	1664071.39400
Outfall #8	39.4087674705	-92.4303522776	1301871.39800	1660095.31300
Outfall #9	39.4084300844	-92.4211034938	1301750.66400	1662708.62200
Outfall #10	39.4047116099	-92.4340243932	1300393.37500	1659058.85300
Outfall #11	39.4018162559	-92.4265951112	1299340.43700	1661158.94200
Outfall #12	39.3887017097	-92.4127273553	1294567.29400	1665082.22100
Outfall #13	39.3940471351	-92.4203849338	1296512.22400	1662916.27000
Outfall #14	39.3934263806	-92.4254498918	1296284.90800	1661485.07500
Outfall #15	39.3930886900	-92.4283153100	1296161.25800	1660675.38400
Outfall #16	39.4027355400	-92.4521996200	1299670.40500	1653923.60900
Outfall #17	39.4109356000	-92.4443177100	1302658.34500	1656148.95600
Outfall #18	39.4205053800	-92.4747562900	1306140.04300	1647547.96500
Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

The coordinate system used is NAD83 State Plane Missouri Central (in feet).

Figures

Barr Footer: ArcGIS 10.6, 2018-07-14 21:16 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\2018\Figure01 Existing and Proposed Outfalls.mxd User: MRQ

Sugar Creek
Elk Fork Salt River
Existing Outfall 1
Outfall 1
900
Outfall 19
Existing Outfall 8
Outfall 3
Outfall 2
Existing Outfall 2
Outfall 4
Outfall 5
Existing Outfall 3
Outfall #002 - Taylor Street CSO
Existing Outfall 4
Outfall 18
850
Outfall #005 - Holman Road CSO
Outfall 6
Outfall 7
Moberly
Outfall #003 - Rollins Street CSO
Sweet Spring Creek
Outfall 17
Outfall 8
Outfall 9
Existing Outfall 7
Outfall #004 - Seven Bridges Road CSO
Coy Branch
Existing Outfall 5
Outfall 10
Outfall 16
Outfall 11
750
800
Outfall 14
Outfall 13
Outfall 15
Outfall 12
Existing Outfall 6
Coon Creek

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BARR

Existing Outfall Location
Proposed Outfall Location
Combined Sewer Overflow Locations (Approximate)
National Hydrography Dataset (NHD) Flowline
Municipal Boundary
Surface Elevation Contours
50 foot
10 foot

N

0 3,250
Feet

EXISTING AND PROPOSED OUTFALLS
City of Moberly
Moberly, MO

FIGURE 1

Barr Footer: ArcGIS 10.6, 2018-07-15 12:36 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\2018\Figure02 MS4 Moberly Outfalls.mxd User: MRQ

Sugar Creek
Elk Fork Salt River
Outfall 1
900
Outfall 19
Outfall 3
Outfall 2
Outfall 4
Outfall 5
Outfall #002 - Taylor Street CSO
Outfall 18
850
Outfall #005 - Holman Road CSO
Outfall 6
Outfall 7
Moberly
Outfall #003 - Rollins Street CSO
Outfall 17
Sweet Spring Creek
Outfall 8
Outfall 9
Coy Branch
Outfall #004 - Seven Bridges Road CSO
Outfall 10
Outfall 16
Outfall 11
750
800
Outfall 14
Outfall 13
Outfall 15
Outfall 12
Coon Creek

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Proposed Outfall Location
Combined Sewer Overflow Locations (Approximate)
National Hydrography Dataset (NHD) Flowline
Municipal Boundary
Surface Elevation Contours
50 foot
10 foot

N
0 3,250
Feet

BARR

MOBERLY MS4 OUTFALLS
City of Moberly
Moberly, MO

FIGURE 2

Attachment E

Department Trainings

Municipal training program: All training is administered annually by the Stormwater Coordinator

Department	Training Title	Training format
Parks	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Tracks 1 and 5	DVD from North Central TX Council of Governments
Street Department	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Tracks 1,2,3, and 4	DVD from North Central TX Council of Governments
Fire Department	Illicit Discharge Detection and Elimination and Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Track 1	DVD from North Central TX Council of Governments
Police Department	Illicit Discharge Detection and Elimination	DVD from North Central TX Council of Governments
Water Department	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Track 1	DVD from North Central TX Council of Governments
Wastewater Department	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Track 1	DVD from North Central TX Council of Governments
Stormwater	Illicit Discharge Detection and Elimination and Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do All tracks	DVD from North Central TX Council of Governments
Cemetery	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Track 1	DVD from North Central TX Council of Governments
Animal Shelter	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Track 1	DVD from North Central TX Council of Governments
Airport	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Track 1	DVD from North Central TX Council of Governments
Distribution and Collections Department	Municipal Employee Training Series: Preventing Storm Water Pollution: What We Can Do Tracks 1 and 4	DVD from North Central TX Council of Governments

Attachment F

Missouri DNR MS4 Reporting Form MO 780-1846

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) STORMWATER MANAGEMENT PLAN REPORT

FOR OFFICE USE ONLY
PROJECT ID NUMBER
DATE RECEIVED

Part A – MS4 PERMIT HOLDER INFORMATION

1. MS4 NAME	2. NPDES PERMIT NUMBER	3. MS4 UNIQUE ID NO.	
4. ADDRESS	5. CITY	6. STATE	7. ZIP CODE
8. TELEPHONE NUMBER WITH AREA CODE	9. EMAIL		
10. NAME OF MS4 CONTACT PERSON			

11. Have any areas of the MS4 been added or removed from the MS4 jurisdiction due to annexation or other legal means since the most recent permit application (renewal, new, modification), or most recent MS4 stormwater management plan report?

☐ Yes ☐ No

If yes, please include a map along with a brief description as an attachment.

Part B – REPORTING PERIOD

1. Is your MS4 subject to a TMDL?

☐ Yes ☐ No

If yes, you are required to submit the MS4 report annually. Reports are due Feb. 28 each year. For the first reporting period, the beginning date will be June 13, 2016, and the ending date will be Dec. 31, 2016. All other annual reports shall cover the reporting period of Jan. 1 to Dec. 31 each year.

2. Is your MS4 new permitted (i.e., is this your first MS4 permit)?

☐ Yes ☐ No

If yes, you are required to submit the MS4 stormwater management plan report annually. Reports are due Feb. 28 each year. For the first reporting period, the beginning date will be the date of issuance of the permit and the ending date will be Dec. 31, 2016. All other annual reports shall cover the reporting period of Jan. 1 to Dec. 31 each year.

3. Is your MS4 a previously permitted MS4 and not subject to a TMDL?

☐ Yes ☐ No

If yes, you are required to submit the MS4 stormwater management plan report biennially (i.e., once every two years). Reports are due Feb. 28 every odd year. The first report will be due February 2017, and will cover the reporting period from June 13, 2016, to Dec. 31, 2016. All other reports shall cover the reporting period of Jan. 1 of the first year to Dec. 31 of the second year.

4. If you are part of a co-permitted MS4 permit, submit combined MS4 stormwater management plan reports, and one or more of the co-permitted MS4s have annual reporting based on the above criteria, then submit your MS4 stormwater management plan report annually by Feb. 28 of each year.

IF you are part of a co-permitted MS4 permit and do not submit combined MS4 stormwater management plan report, then each MS4 co-permittee will submit their MS4 stormwater management plan report based on the above criteria.

5. Reporting Period:

BEGINNING: ENDING:

Part C – STORMWATER MANAGEMENT PLAN REPORT PROGRESS AND COMPLIANCE

As an attachment, please provide information for each of the items below. Provide informative data, success stories, and experiences that support the successful implementation of your stormwater management plan report.

1. Describe the status of compliance with permit conditions for the permitted MS4.
2. Provide information regarding the progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable to the MS4.
3. If another governmental entity implements any best management practice or minimum control measure, please provide the following:
    a. Name of the government entity;
    b. Name of the primary contact for the government entity;
    c. Contact information (i.e., address, city, ZIP code, state, and phone number); and
    d. Specific best management practices or minimum control measures being implemented by the government entity.

It is the responsibility of the permittee to provide all information under this report regardless if best management practices or minimum control measures are being implemented by another governmental entity. If a complete minimum control measure is being implemented by an alternative governmental entity, then only indicate the best management practice under the minimum control measure.

4. Provide a summary of any stormwater activities and known construction activities that will be covered under the authority of the MS4 permit that are scheduled to begin during the next reporting period.
5. Provide a description of any changes to the stormwater management plan report, best management practices, measurable goals, and the iterative process that have occurred during the covered reporting period.
6. Provide a list of best management practices that were evaluated during the covered reporting period, and provide information on how the best management practice was determined effective.
    a. If any of the best management practices were determined to be ineffective, provide a summary on how the ineffective best management practice was resolved.
7. If any water samples were collected and analyzed during the covered reporting period by the permitted MS4 or on behalf of the permitted MS4, please complete Part D – Water Sample(s) Analysis.

Part D – WATER SAMPLE(S) ANALYSIS

PARAMETER OR INDICATOR	FREQUENCY	RESULT	DRY WEATHER SAMPLE?	WET WEATHER SAMPLE?
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No

1. Are any of the parameters being sampled due to the MS4 being subject to an established or approved Total Maximum Daily Load?
☐ Yes ☐ No
If yes, please indicate the parameter/pollutant.

2. Does the data support water quality attainment or support trend data toward water quality attainment?
☐ Yes ☐ No
If yes, please describe.

Part E – TOTAL MAXIMUM DAILY LOAD (TMDL) ASSUMPTIONS AND REQUIREMENTS ATTAINMENT PLAN

1. Is your MS4 subject to an established or approved TMDL? If no, please indicate "No" below and do not complete any other portion of the TMDL Assumptions and Requirements Attainment Plan portion of this report.

☐ Yes ☐ No

2. Has your TMDL Assumptions and Requirements Attainment Plan been completed and submitted? If no, please provide a summary as an attachment on the progress toward submitting and implementing the TMDL Assumptions and Requirements Attainment Plan.

☐ Yes ☐ No

3. Has your TMDL Assumptions and Requirements Attainment Plan received approval from the department? If yes, please provided a summary of the status of the plan and include implementation status of identified best management practices and measurable goals along with any changes to best management practices or measurable goals (if applicable)..

☐ Yes ☐ No

4. Does the TMDL Assumptions and Requirements Attainment Plan incorporate Integrated Planning? If yes, please provide a summary of the status of the Integrated Plan.

☐ Yes ☐ No

PART F – SUBMIT REPORT TO:

Missouri Department of Natural Resources
Water Protection Program
MS4 Program Coordinator
P.O. Box 176
Jefferson City, MO 65102-0176

PART G - CERTIFICATION

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

SIGNATURE OR PERMITTEE (LEGALLY RESPONSIBLE PERSON)	DATE SIGNED
NAME (PRINTED OR TYPED)	TITLE

MO 780-1846 (10-16)