

**NPDES PHASE II MS4 GENERAL PERMIT
WATER QUALITY CHARACTERIZATION REPORT
STORMWATER QUALITY MANAGEMENT PLAN**

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Prepared for:

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Permit #: INR040159



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CHAPTER 1: INTRODUCTION

As part of the 1987 amendments to the federal Clean Water Act (CWA), the United States Congress added Chapter 402(p) to the CWA to address the water quality impacts of stormwater discharges from industrial facilities and large to medium municipal separate storm sewers systems (MS4s). Large to medium MS4s were defined as communities serving populations of 100,000 or more and are regulated by the Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System's (NPDES) Storm Water Phase I Program.

In addition to these amendments, Congress directed the EPA to issue further regulations to identify and regulate additional stormwater discharges that were considered to be contributing to national water quality impairments. In 1999, the EPA issued regulations that expanded the existing NPDES Storm Water Program to include discharges from small MS4s in "urbanized areas" serving populations of less than 100,000 and stormwater discharges from construction activities that disturb more than one acre of land. These regulations are referred to as the NPDES Phase II Storm Water Program.



Figure 1: Location of City of Brazil

In the State of Indiana, the Indiana Department of Environmental Management (IDEM) is responsible for the development and oversight of the NPDES Phase II Program. IDEM initiated adoption of the Phase II Rules that were ultimately codified as 327 IAC 15-13 (Rule 13) and became effective on August 6, 2003.

In December 2021, IDEM formally replaced Rule 13 with a new MS4 General Permit (MS4GP). Since the permits have not been updated since 2003, several new or revised provisions have been incorporated that would impact how regulated Indiana MS4 entities such as counties, cities, and towns incorporate these new changes into their existing programs. The MS4GP provides permit coverage for Phase II entities, and the requirements and conditions of the MS4GP apply to all Phase II MS4s upon submittal of a Notice of Intent (NOI).

Under Rule 13, IDEM issued approximately 185 Phase II MS4 permits in Indiana. On April 13, 2022, IDEM notified another 45 entities that they would be subject to the MS4GP regulations starting on April 13, 2023. The City of Brazil (**Figure 1**), located in Clay County, was one of the 45 entities that was notified that they were newly designated an MS4 entity and subject to the requirements of the MS4GP.

This report has been prepared to meet the requirements of the MS4GP for the development of a Water Quality Characterization Report (WQCR) and a Stormwater Quality Management Plan (SWQMP) for previously regulated and newly designated MS4s.

1.1 CITY OF BRAZIL MS4 EXISTING CONDITIONS

The City of Brazil covers approximately 2,379.7 acres and the MS4 jurisdictional boundary mirrors the city boundaries (as of May 2022), which is identified on **Figure 2**. The city is in northern Clay County in parts of Brazil, Dick Johnson, and Jackson Townships.

The primary responsibilities for implementing requirements included in the MS4GP are held by the City of Brazil Stormwater and Wastewater Department. Staff within this department are responsible for the city's Stormwater Management Plan, including compliance, project permitting, and inspections. Activities such as maintenance of the city's storm drains and inlets, trash pick-up, and household hazardous waste collection are the responsibility of the City of Brazil Streets and Sanitation Department.

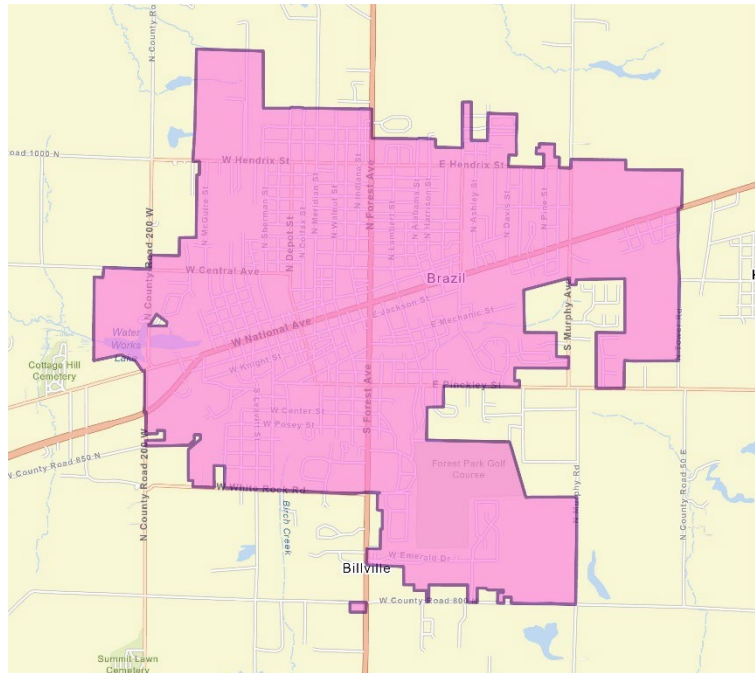


Figure 2: MS4 Boundary Map, City of Brazil

The City of Brazil has experienced a slight decrease in population growth. According to StatsIndiana, the population of Brazil in 2020 was 8,181, a decrease of 1.0% since 2010. It is the largest city in Clay County by population.

1.2 MS4 CONVEYANCE SYSTEM

The MS4GP authorizes stormwater discharges from designated MS4 entities throughout the State of Indiana. The permit applies to all areas under the ownership, control, or jurisdiction of a designated MS4 entity. “MS4” refers to the permit holder such as the city as well as the separate storm sewer system that the city owns and operates or maintains.

MS4s are defined by the State of Indiana as a conveyance or system of conveyances owned by a state, city, county, town, district, or other public entity having jurisdiction over stormwater, including special districts under state law such as a sewer district, that discharges to waters of the United States and is designed or used for collecting or conveying stormwater. Regulated conveyance systems include roads with public drains, municipal streets, catch basins, curbs, gutters, storm drains, piping, channels, ditches, tunnels, and conduits. It does not include combined sewer overflows and publicly owned treatment works.

The authorized MS4 entity or city is responsible for the MS4 conveyances that it owns, operates, or maintains within its boundaries.

CHAPTER 2: WATER QUALITY CHARACTERIZATION REPORT

REQUIREMENT MS4GP 3.1(a):

The water quality characterization report (WCQR) shall use the most current data available but may also consider additional data that describes the chemical, biological, and/or physical condition of the receiving waters of the MS4 jurisdictional area.

2.1 LAND USE/LAND COVER

REQUIREMENT MS4GP 3.1(c):

The WCQR must include: (1) An assessment of land use.

Land use and land cover can be an important tool in developing a basic overall assessment of the watershed, MS4 area, and the anticipated water quality within the receiving waters. Derived from the 2019 National Land Cover Dataset (NLCD), **Table 1** indicates the land cover (in acreage) within the jurisdictional area. Additionally, the land cover is graphically represented in **Exhibit 3**.

Table 1: City of Brazil Land Cover

Classification	Acres
Open Water	19.5
Developed, Open Space	399.5
Developed, Low Intensity	727.8
Developed, Medium Intensity	377.3
Developed, High Intensity	171.1
Barren Land (Rock/Sand/Clay)	5.3
Deciduous Forest	236.6
Evergreen Forest	0.2
Mixed Forest	119.9
Shrub/Scrub	2.0
Grassland/Herbaceous	59.5
Pasture/Hay	125.5
Cultivated Crops	135.5
Total	2,379.7

The effects of land use/land cover changes on surface runoff, stream flow, and groundwater recharge are fundamental considerations in stormwater management. Planned expansion of urban areas provides the opportunity to implement policies and best management practices (BMPs) that may significantly reduce or prevent impacts to the environment in terms of groundwater recharge, water pollution and stormwater drainage. Urbanization typically includes additional impervious surfaces and increased runoff which can result in downstream flooding, and detrimental impacts to local waterways. Since each land use/land cover may have a different impact on stormwater runoff, strategic land use planning can help minimize these impacts.

The city’s long-term plan includes several areas that will change the land use and land cover of the current MS4 area. For example, the city anticipates suburban residential housing development to continue throughout the MS4, as well as high-density redevelopment in the downtown core.

2.2 MS4 OWNED AND OPERATED STRUCTURAL STORMWATER MANAGEMENT MEASURES

REQUIREMENT MS4GP 3.1(c):

The WQCR must include: (2) An inventory of MS4 owned/operated structural stormwater management measures...including an identification number, geographic coordinate, and structure condition.

According to MS4 staff, there is two known publicly owned and/or operated structural BMPs within the jurisdictional area. **Table 2** lists those BMPs by type and includes an identification number and overall condition based on the last assessment or inspection. These structures, including maintenance dates, findings and methods are managed by the Stormwater Department through the city’s asset management database and work orders. The geographic coordinate of each BMP is tracked within the city’s database and locations can be made available upon request.

Table 2: City of Brazil MS4 Owned and/or Operated Structural BMPs

Structural BMP	Identification Number	Structural Condition
Craig Park Lake (stormwater pond)	1	Good
Detention Pond off Murphy	2	Good

2.3 RECEIVING WATERS

REQUIREMENT MS4GP 3.1(c):

The WCQR must include: (3) Identification of all receiving waters that receive discharges from outfalls within the MS4, including wetlands and lakes. (4) Any 303d listed impaired waters or TMDLs for receiving waters need to be identified.

The city discharges stormwater into the receiving waters listed in **Table 3**. These waterbodies are also identified on **Exhibit 2**.

Table 3: City of Brazil Receiving Waters

Name
Ash Run
Coal Run
Harm Run/Pogue’s Run (tunnel)/Birch Creek
Waterworks Creek
Craig Park Lake
Various Wetlands
Unnamed Lakes

2.3.1 Watersheds

According to the U.S. Geological Survey (USGS), watersheds are delineated using a nationwide system based on surface hydrologic features. This system divides the country into 21 regions (two-digit), 222 subregions (four-digit), 370 basins (six-digit), 2,270 subbasins (eight-digit), approximately 20,000 watersheds (ten-digit), and 100,000 sub-watersheds (12-digit). A hierarchical hydrologic unit code (HUC) consisting of two additional digits for each level in the hydrologic unit system is used to identify any hydrologic area.

The 12-digit HUCs (based on April 2022 MS4 boundaries) along with the acreages in the MS4 are listed in **Table 4**.

Table 4: City of Brazil Watersheds

HUC Name	HUC	Acres*
Billy Creek-Croys Creek	051202030702	29.4
Headwaters Otter Creek	051201110401	280.6
Little Birch Creek-Birch Creek	051202030601	1459.2
Waterworks Creek-Otter Creek	051201110406	610.5

2.3.2 Integrated Waters Report

Section 303(d) of the CWA requires states to identify waters that do not currently or are not expected to meet the state’s water quality standards through implementation of technology-based standards. Within this section of the CWA, states must also prioritize these waters based on the designated uses of the water and the severity of the pollution. **Table 5** identifies the segments within the jurisdictional area for Brazil that are listed on the Indiana 303(d) list of impaired waters.

Section 305(b) of the CWA requires the state to assess and report on how well the waters of Indiana support the beneficial uses designated in the Water Quality Standards (WQS). Indiana’s Integrated Water Monitoring and Assessment Report (IR) is developed every two years to fulfill this requirement and describes the condition of Indiana’s lakes and streams, the Lake Michigan shoreline, and ground water. All IDEM water quality data is evaluated and interpreted for each hydrologic unit area (HUA); typically, a 12-digit HUC. Each HUA is given a water quality rating relative to its streams’ status in meeting WQS. WQS are set at levels necessary for protecting a waterway’s designated use(s), such as swimmable, fishable, or drinkable. **Table 5** identifies known impairments for HUAs within the MS4 area.

Table 5: City of Brazil 303(d) Impaired Waters

Stream Name	Number	Impairment
Waterworks Creek	INB1146_T1002	<i>E. coli</i> , Recreational Use
Birch Creek	INW0361_01	<i>E. coli</i> , Recreational Use, Aquatic Life, DO, IBC, Nutrients

2.3.3 Total Maximum Daily Loads

The prioritized 303(d) list of impaired waters is used to compile a list of waters for which a Total Maximum Daily Load, or TMDL, must be developed. These TMDL reports identify the causes of the impairments, the amount of pollutant reduction needed, and potential actions to be taken to improve water quality within the watershed. **Table 6** identifies TMDLs relevant to the City of Brazil MS4 jurisdictional boundaries and the pollutant for which it was developed. More information regarding the TMDL program and TMDLs specific to the City of Brazil can be found in Section 2.52.

Table 6: City of Brazil TMDLs

TMDL Report	Approval Date	Project URL
Lower Eel River Watershed <i>E. coli</i> TMDL	2005	https://www.in.gov/idem/nps/resources/total-maximum-daily-load-reports/lower-eel/
Otter Creek TMDL	2013	https://www.in.gov/idem/nps/resources/total-maximum-daily-load-reports/otter-creek/

2.3.4 Wetlands

The 2021 National Wetlands Inventory (NWI) identifies potential wetland areas by utilizing infrared photography which has not been field verified. Information provided through the NWI should be utilized only as a reference, not as a definitive answer of whether wetlands are present on a particular site. According to the 2022 NWI, there are approximately 58.2 acres of potential wetlands within the City of Brazil MS4 area, which are classified as Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland, Freshwater Pond, or Riverine.

The MS4GP requires MS4s to establish a construction program that contains, at a minimum, the requirements of the Indiana Construction Stormwater General Permit (CSGP). The CSGP requires all project site owners to develop construction plans that include an existing project site layout describing the location and name of all wetlands, lakes, and water courses on or adjacent to the project site (CSGP 4.1(a)(3)(f)).

2.4 SENSITIVE AREAS

REQUIREMENT MS4GP 3.1(c):

The WQCR must include: (5) Identification of known sensitive areas including, but not limited to public swimming areas, drinking water intakes, habitats associated with threatened or endangered species, and outstanding state and national resource waters.

These areas are designated as sensitive due to their importance to the surrounding environment or economic conditions. Special considerations or restrictions may be imposed to provide an added layer of protection for those areas or land uses designated as sensitive by the MS4 or IDEM.

2.4.1 Public Swimming Areas

There are no known recreational or public swimming areas within the jurisdiction of the MS4. There is Craig Park Lake that is available for fishing and non-motorized boating located inside of the MS4 jurisdictional area in Craig Park.

2.4.2 Drinking Water Intakes

According to the Indiana Administrative Code, a public water supply system is a public water supply for the provision to the public of piped water for human consumption, if such a system has at least fifteen (15) service connections, or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days of the year.

IDEM's Drinking Water Branch carries out the requirements of the federal Safe Drinking Water Act (SDWA) which is designed to ensure that Public Water Supplies (PWS) deliver water to Hoosier homes and businesses that is adequate in quantity and is safe to drink. According to the branch, there are 6 drinking water wells in the City of Brazil. Of the six intakes, one is public and 5 are private. Three of the wells are active. Of the 3 active wells, one is a community well, and the rest are non-community. Zero wells are non-transient non-community wells. The GIS layer provided by Indiana Department of Natural Resources showed 2 public wells within the City of Brazil.

2.4.3 Wellhead Protection

The City of Brazil has wellheads are located in Putnam County. There is one public drinking water wellfield within the city limits of Brazil, which has been retired since the 1950s. The city's Wellhead Protection Program includes a contingency plan that ensures emergency response and spill cleanup activities in response to any spill, leak, or illegal discharge within the city.

While Wellhead Protection Areas are sensitive in nature, they are not considered to be sensitive areas in the context of the city's Stormwater Program.

2.4.4 Surface Water Protection

There are no surface drinking water intakes in the City of Brazil.

2.4.5 Habitat Associated with Threatened or Endangered Species

The IDNR's Division of Nature Preserves maintains the Natural Heritage Data for the State of Indiana. Natural Heritage Data includes general information on endangered, threatened, and rare species for each Indiana county. According to the IDNR, as of February 2022 there are three mollusk (mussels), one insect (dragonflies and damselflies), two amphibians, five reptiles, four birds, three mammals, three vascular plants, and one high quality natural community listed as endangered, threatened, or rare within Clay County. City officials are not aware of any of these species being present within the city's jurisdictional boundaries.

2.4.6 Limited Use and Outstanding State Resource Waters

The federal CWA requires all states to develop, review, revise, and adopt Water Quality Standards (WQS). Water quality standards consist of:

- **Designated Uses:** identification of how people, aquatic communities and wildlife use our waters (e.g., public water supply, protection and propagation of fish, shellfish, and wildlife, and recreation).
- **Water Quality Criteria:** numeric or narrative in form and protect the designated uses. Numeric criteria are allowable concentrations of specific pollutants in a water body while narrative criteria are statements of unacceptable conditions in and on the water.

- **Antidegradation Policies:** protection of existing uses and extra protection for high-quality or unique waters.

General antidegradation policies will allow the city to protect existing uses of waterbodies and aid in ensuring these waterbodies will continue to meet WQS. Waters that may be considered for designation as outstanding state resource waters (OSRW) include waterbodies that have unique or special ecological, recreational, or aesthetic significance. According to the Natural Resource Commission’s “Outstanding Rivers List for Indiana”, there are no outstanding state resources waters within the MS4 boundary.

2.4.7 Other Sensitive Areas

Erodible Soils: The Natural Resource Conservation Service (NRCS) uses the soil erodibility index (EI) to provide a numerical expression of the potential for a soil to erode considering the physical and chemical properties of the soil and the climactic conditions where it is located. As a result, the basis for identifying highly erodible land (HEL) is the EI of the soil map unit.

The EI of a soil is determined by dividing the potential erodibility for each soil by the soil loss tolerance (T) value established for the soil. The T value represents the maximum “tolerable” annual rate of soil erosion that could take place without causing a decline in long-term productivity. **Table 7** documents the HEL and Potentially HEL (PHEL) soils within Clay County and therefore potentially throughout the MS4 area.

Table 7: Clay County Highly Erodible Soils

Map Unit Symbol	Soil Name	HEL Classification
AnC	Alvin	HEL
AvB2	Ava	PHEL
BdF	Berks-Gilpin	HEL
BmD, BmF	Bloomfield	HEL
CcC2, CcC3, CcC3	Cincinnati	PHEL
ChF	Chetwynd	HEL
FcB	Fairpoint	PHEL
FcG	Fairpoint	HEL
GmE	Gilpin-Wellston	HEL
HcD, HcD3, HcE, HcF	Hickory	HEL
MuB2	Muren	PHEL
PaD2	Parke	HEL
PkB2	Pike	PHEL
PkC2	Pike	HEL
PnB	Princeton	PHEL
PnC	Princeton	HEL
WeD2	Wellston	HEL

Recognizing the potential water quality impacts associated with soil erosion, the MS4 will consider these soils to be sensitive areas and will prioritize new or redevelopment occurring on these sites during the plan review, inspection, and enforcement process. Provisions will exist in the City of Brazil ordinance to include limiting soil erosion into waterways and stormwater infrastructure.

2.5 REVIEW OF EXISTING WATER QUALITY DATA

REQUIREMENT MS4GP 3.1(c):

The WQCR must include: (6) A review and summary of existing and available monitoring data of the MS4 receiving waters, including, as applicable, data that can be correlated from stream reach characterization and evaluation reports (SRCER).

2.5.1 Stream Reach Characterization and Evaluation Report

The stream reach characterization and evaluation report (SRCER) characterize and evaluates the pollutant sources on receiving waters from a combined sewer system discharge. The SRCER can be utilized to identify ways to beneficially change the storm sewer system within the MS4 and to improve water quality around combined sewer system outfalls. The city is not aware of any remaining combined sewer outfalls within the City of Brazil MS4 boundaries. The city separated the sewer systems in the 1990s.

2.5.2 Established TMDLs

States are required to develop a priority ranking for waters that do not or are not expected to meet applicable water quality standards considering the severity of pollution and the designated uses of the waters. Once this listing and ranking of waters is completed, the states are required to develop TMDLs for these waters in order to achieve compliance with water quality standards. The relevant TMDLs developed to date are described in the following sections. Many of the TMDLs propose similar BMPs to reduce pollutants, especially *E. coli*. These BMPs may include:

- Septic system outreach program and funding to help fix/replace failing systems through Clay County Health Department.
- Identification of failing septic systems by local health departments. Requirements for periodic pumping and inspection of septic systems.
- Installation of structural urban BMPs.
- Education campaigns designed to address relevant nonpoint source pollutants from the actions of watershed residents.

Regarding the inputs of *E. coli* from MS4 communities and IDEM's MS4GP, the TMDLs anticipate that once MS4 permits have been issued and implemented, they will improve water quality and address storm water impacts in these watersheds.

Lower Eel River Watershed (Clay, Owen, Greene, Vigo, and Sullivan Counties) *E. coli* TMDL

Finalized in 2005, the TMDL for the Lower Eel River watershed located in southwest Indiana, covers 256 square miles of drainage area in Clay, Owen, Greene, Vigo, and Sullivan counties. Pollution sources in the watershed indicates that sources of *E. coli* are both point and nonpoint sources. Pollution sources in the watershed include nonpoint sources include illicit septic connections, failing septic tanks, confined feeding operations (CFO's), and contaminated run-off from cropland, and animal habitats such as urban park areas and forest. These point sources include combined sewer overflows (CSOs), wastewater treatment plants (WWTP), and landfills. TMDLs for the watershed are established for *E. coli* and will address storm water controls, point source controls, manure management and habitat improvements.

Otter Creek Watershed *E. coli* TMDL

Finalized in 2013, the TMDL for Otter Creek watershed located northeast of Terre Haute, Indiana, drains approximately 124 square miles. The watershed originates near northern Clay County, then flows southwest where it ultimately empties into the Wabash River west of North Terre Haute. Potential sources of *E. coli* in the watershed include regulated point sources such as the Town of Carbon wastewater treatment plant (WWTP), the Town of Staunton WWTP, Seelyville MS4, and Terre Haute MS4. Point sources are regulated through the National Pollutant Discharge Elimination System (NPDES). Unregulated nonpoint sources such as confined feeding operations (CFOs), livestock pastures, failing home septic systems, and row crop agriculture are also potential sources. TMDLs for the watershed are established for *E. coli* and will address septic system improvements, reducing livestock access to stream environments, manure collection and storage practices, riparian area management practices, and agricultural land management practices.

2.5.2 Watershed Management Plans

A watershed management plan (WMP) is a strategy for achieving water quality goals by characterizing the watershed, setting goals and actions steps, and developing an implementation plan to address documented problems. Ultimately, the purpose of the WMP is to guide resource managers, watershed coordinators, policy makers, community organizations, and other relevant stakeholders in restoring and protecting the waterbodies within a given watershed. Information about WMPs relevant to the City of Brazil waters and watersheds can be found in this section.

Lower Eel River WMP (2008)

The Lower Eel River Watershed Management Plan was to address high *E. coli* counts and the high levels of mercury and PCB's found in fish. The watershed area is 241,265 acres. It includes Vigo, Owen, and Greene counties. It is predominately agricultural, but it does include Clay City and the City of Brazil. The plan developed 6 goals and action items based on concerns and pollutant sources identified during the development of the plan. A thorough evaluation of stormwater management was completed to identify methods of improving the quality of stormwater runoff. The implementation of policies and programs to meet these goal statements improved watershed management in the Lower Eel River Watershed.

Otter Creek Implementation (2020)

The Otter Creek Watershed area is 79,422.3 acres from Clay, portions of Parke and Vigo Counties before it flows into the Wabash River north of Terre Haute, Indiana. Based on watershed inventory efforts; stakeholder input for concerns, problems, and sources; and watershed loading information, the following goals and strategies were developed for reduce nutrient loading, reduce sediment loading, reduce *E. coli* loading, increase public awareness and participation, and forest management. A list of potential BMPs practices was developed and models were developed based upon the amount of reduction each BMP can result in and estimated cost for each. The next step is to submit for an implementation focused grant application. This would be used to cost-share the installation of the BMP's.

2.5.3 Lake and River Enhancement Projects

The IDNR's Division of Fish and Wildlife aims to enhance aquatic habitat for fish and wildlife and ensure the continued viability of Indiana's publicly accessible lakes and streams through their Lake and

River Enhancement Program (LARE). The program aims to accomplish this through measures that reduce non-point sediment and nutrient pollution of surface waters to a level that meets or surpasses state water quality standards. The LARE Program provides technical and financial assistance for qualifying projects. The City of Brazil has not received LARE funding.

2.6 POTENTIAL AREAS OF POLLUTION

REQUIREMENT MS4GP 3.1(c):

The WQCR must include: (7) Identification of areas that have a reasonable potential for or are actually contributing to stormwater quality problems based on available land use and complaint information and relevant chemical, biological, and physical data.

2.6.1 Complaint Data

When concerns are observed by the city staff, they are equipped to address the issues quickly. Observations of a potential illicit discharge or other stormwater concerns, either received by city staff or through other means, are investigated and resolved. Determined by the nature and severity of the issue, violation notices or fines may be issued. These complaints and observations are not currently tracked by location to develop trend data.

2.6.2 Industrial Facilities

The city is aware of 15 facilities within the MS4 boundary which, according to their Standard Identification Classification (SIC) code, should be assessed for their potential to discharge to an MS4 conveyance. While they may also have IDEM Rule 6 permits, it is important for the city to understand the potential impacts to the conveyances and receiving waters. It is important to note that IDEM is currently working on a replacement, master general permit for Rule 6.

2.6.3 Residential Septic Systems

Existing policies dictate all new developments occurring within the City limits are required to connect to the sanitary sewer system if service is readily available within 300'. However, when sanitary sewer service is not available, on-site wastewater treatment permits are issued by the Clay County Health Department, if site conditions meet all applicable Indiana State Department of Health Standards. Any residential septic system issues that arise are addressed promptly.

2.6.4 Surface Visual Conveyance Inspection Findings

IDEM requires the city to complete visual inspections of catch basins, outfalls, and conveyance systems over the five-year permit term with a minimum of 15% must be completed each year. Areas anticipated to contribute to pollution or decrease system function must be noted and corrected. As of the development of this document, the city has not implemented this inspection program.

2.6.5 IDDE Findings

As complaints are received and/or IDDE screening brings impacts to light, the city will follow through on investigations and mitigation of any problems. It is anticipated that as redevelopment continues within this area, many of the issues will be negated.

A community should understand the extend of water quality problems caused by illicit discharges. The desktop assessment should draw on existing background and anecdotal information to initially characterize illicit discharge potential at the sub-watershed level. Sub-watersheds are then screened based on their composite score, and are designated as having a low, medium, or high risk. **Table 8** describes discharge factors to screen sub-watersheds based on their illicit discharge potential (IDP).

Table 8: Discharge Screening Factors for IDDE Desktop Assessment

Discharge Screening Factors	Defining and Deriving the Factor
Past Discharge Complaints and Reports	Frequency of past discharge complaints, hotline reports, and spill responses per subwatershed. Any subwatershed with a history of discharge complaints should automatically be designated as having high Illicit Discharge Potential (IDP).
Poor Dry Weather Water Quality	Frequency that individual samples of dry weather water quality exceed benchmark values for bacteria, nutrients, conductivity or other predetermined indicators. High risk if two or more exceedances are found in any given year.
Density of Generating Sites or Industrial NPDES Storm Water Permits	Density of more than 10 generating sites of five industrial NPDES stormwater sites per square mile indicates high IDP. Density determined by screening business or permit databases.
Stormwater Outfall Density	Density of mapped stormwater outfalls in the subwatershed, expressed as the average number per stream or channel mile. A density of more than 20 outfalls per stream mile indicates high IDP.
Age of Subwatershed Development	Defined as the average age of the majority of development in a subwatershed. High IDP is often indicated for developments older than 50 years. Determined from tax maps and parcel data, or from other known information about neighborhoods.
Sewer Conversion	Subwatersheds that had septic systems but have been connected to the sanitary sewer system in the last 30 years have high IDP.
Historic Combined Sewer Systems	Subwatersheds that were once served by combined sewer system but were subsequently separated have a high IDP.
Presence of Older Industrial Operations	Subwatersheds with more than 5% of its area in industrial sites that are more than 40 years old are considered to have high IDP. Determined from historic zoning, tax maps, and "old-timers."
Aging of Failing Sewer Infrastructure	Defined as the age and condition of the subwatershed sewer network. High IDP is indicated when the sewer age exceeds design life of its construction materials (e.g., 50 years) or when clusters of pipe breaks, spills, overflows or are reported by sewer authorities
Density of Aging Septic Systems	Subwatersheds with a density of more than 100 older drain fields per square mile are considered to have high IDP. Determined from analysis of lot size outside sewer service boundaries.

2.7 DATA SUMMARY

REQUIREMENT MS4GP 3.1(c):

The WQCR must include: (8) An evaluation of data collected to determine which areas or specific discharge points that may need to be considered for future planning and implementation of new stormwater measures or modification of existing measures. The highest priority should be given to sensitive areas and the prohibition of new or significantly increased MS4 discharges.

Several sensitive areas have been identified for special considerations related to stormwater quality runoff and land cover/land use changes. These areas include drinking water sources, wetlands, habitats of endangered, threatened, or rare species, and recreational waters. These areas, and any identified discharge points near these areas, should be evaluated for the potential addition of structural or non-structural BMPs to maximize the possible protection for the area as well as the receiving waters. Types of BMPs for consideration may include targeted education and awareness programs highlighting the importance of sensitive areas, additional requirements for structural controls on new construction, and/or enhanced post-construction structural BMPs. The structural condition of the current MS4 owned and operated BMPs will guide prioritization of BMP maintenance and repairs over the current MS4GP permit cycle.

As the city plans for future growth and development, land use changes are anticipated within areas of the MS4. Components of the City of Brazil comprehensive plan includes the layout, the location, extension or widening of thoroughfares; the general design of neighborhoods and their street patterns; the use of land; their street patterns; the use of land; and the location of sites for schools, parks, recreation and other public uses and community facilities.

Brazil's heritage and natural resources are essential components of the community. Because Brazil's natural resources are inherent components the provision of adequate greenspace and the protection of sensitive environmental areas must be considered. Additionally, heritage preservation is an important local government value. One of the overall concepts of the proposed future environment and design framework includes capitalizing on natural features for economic and environmental sustainability.

CHAPTER 3: STORMWATER QUALITY MANAGEMENT PLAN

REQUIREMENT MS4GP 4.2:

The SWQMP must be developed, implemented, and maintained to include provisions that will reduce the discharge of pollutants from the MS4 to protect water quality, human health, and the biotic community.

3.1 MS4 BOUNDARIES

The MS4 boundaries are identified on **Exhibit 1** while the specific township, range and section coverage is listed within **Table 9**. Boundaries will be updated as necessary following any future land annexations or acquisitions.

Table 9: MS4 Boundaries

Township	Range	Section
13 N	7 W	25, 35, 36
13 N	6 W	29, 30, 31, 32
12 N	7 W	1, 2, 12
12 N	6 W	6

3.2 MS4 ADMINISTRATION

While the MS4 program oversight will be provided by the Planning and Zoning Department as noted in Section 1.1, other departments, staff members, and partners may be responsible for the implementation of individual minimum control measures (MCMs) and tasks. Responsible parties are included in the MCM tables in the following sections.

The City of Brazil plans to participate in a regional approach to collaborate with other MS4 communities and the County SWCD regarding the Public Education, Outreach, Participation and Involvement MCM. Annually, the member MS4 communities review the long-term plan and adjust the annual work plan accordingly. Each MS4 community is then responsible for their own local implementation of the resources developed.

3.3 MCM PROGRAM DESCRIPTIONS

REQUIREMENT MS4GP 4.2(a):

The SWQMP must at a minimum include:

- (3) Program goals that are established and required by this permit and others identified by the MS4 entity to address local stormwater resource issues within their jurisdiction.
- (4) A detailed program description for each minimum control measure (MCM):
 - (A) A timetable for SWQMP implementation for each MCM and the WQCR
 - (B) A summary of measurable goals for each MCM and a discussion of environmental impact
 - (C) Individuals that are responsible for implementing each MCM including their contact information

3.3.1 Programmatic Indicators

Programmatic indicators are categories of data collected throughout the annual period by the MS4 entity which are used to measure implementation of each of the MCMs. These indicators pertain to specific environmental gauges that focus on the impacts of stormwater runoff. IDEM utilizes the indicators to determine the degree of success achieved by the stormwater management programs. IDEM requires an annual update for each indicator and if an indicator is not applicable to the MS4 operator, then the operator shall provide rationale for the non-applicability.

Each of the programmatic indicators has been addressed by BMPs within the MS4 entity. For reference, programmatic indicators are listed in Appendix 1.

All indicators have been addressed in the tables within following sections detailing BMPs for each MCM. Programmatic indicators are listed in Appendix 1 for reference.

3.3.2 Public Education, Outreach, Participation and Involvement

An MS4 must develop strategies to inform constituents and target groups of the impacts that polluted stormwater runoff can have on water quality and ways they can minimize their impact on stormwater quality.

The city is planning to reach out to potential partners in the area, such as the Clay County Soil & Water Conservation District (SWCD), to provide public information and outreach services while also playing a major role in the public involvement and participation activities related to the household hazardous waste and recycling efforts.

Table 10 provides a summary of the Public Education, Outreach, Participation and Involvement BMPs to be implemented and identifies the associated measurable goals, timeline, priority areas, and responsible parties.

Table 10: Public Education, Outreach, Participation and Involvement BMPs

BMP	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
<p>Public Education and Involvement Plan</p> <p>(4.3(a))</p>	<ul style="list-style-type: none"> • Identify target constituents • Develop a stormwater public education and involvement plan • Develop list of three community wide stormwater issues to assist with education and involvement efforts for construction, residential and commercial/industrial groups • Develop or collaborate with existing efforts to conduct two public events annually • Develop or collaborate with existing efforts to highlight identified community wide stormwater issues at three events for target groups • Develop educational materials • Provide annual training to construction site run-off and post-construction target groups 	<ul style="list-style-type: none"> • Plan developed • Reviewed annually and revised as needed • Events and activities will be decided in conjunction with development and annual review of the education and involvement plan • Maintain a list of topics covered and constituents reached for each event 	<ul style="list-style-type: none"> • 2025 • 2026 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
<p>Stormwater Educational Materials</p> <p>(4.3(a)(4)) (4.3(b)) (4.3(d))</p>	<ul style="list-style-type: none"> • Develop, produce, or distribute printed materials related to stormwater issues • Provide available stormwater handouts/information at MS4 Coordinator's office • Include information related to proper disposal of wastes 	<ul style="list-style-type: none"> • Materials and opportunities will be discussed during the development and annual review of the education and involvement plan • Work with local entities to publish stormwater information in existing newsletters, newspapers • Maintain a list of materials developed, distributed, and utilized 	<ul style="list-style-type: none"> • 2025 • 2026 	<ul style="list-style-type: none"> • City of Brazil MS4 staff

BMP	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
Web Page (4.3(c))	<ul style="list-style-type: none"> • Maintain the City of Brazil web page regarding stormwater quality issues, a location to report stormwater quality issues and links to other sites • Include articles developed, brochures, and calendar updates • Include ordinances, applicable fees, and MS4 program information 	<ul style="list-style-type: none"> • Utilize education and involvement plan to identify messages, issues, and partners • Review web page and update with new information annually • Track total number of hits site receives each year • Document all questions and comments received via the web page as well as the responses to them • Document posts relevant to stormwater issues 	<ul style="list-style-type: none"> • 2025 • 2026 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
Elected Official Update (4.3(e))	<ul style="list-style-type: none"> • Report stormwater program updates to elected officials 	<ul style="list-style-type: none"> • Updates will be provided at a meeting • Maintain a list of attendees and materials distributed 	<ul style="list-style-type: none"> • 2025 • 2026 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
Household Hazardous Waste (HHW) and Recycling Activities (4.4(b)(4))	<ul style="list-style-type: none"> • Identify HHW and prescription medication drop off locations in the area • Encourage residents and staff to use existing HHW and prescription medication drop off for proper disposal • Educate Brazil residents about illicit discharges and proper disposal of waste • Encourage Brazil residents to participate in curbside recycling program 	<ul style="list-style-type: none"> • Document dates, times, and attendance at all presentations to citizen and school groups that incorporate stormwater quality discussions • Document the number of stormwater materials distributed on an annual basis 	<ul style="list-style-type: none"> • On-going 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
Public Reporting Program (4.4(b)(6))	<ul style="list-style-type: none"> • Field complaints from the public on illegal dumping, illicit discharges, poor erosion control practices, and other activities that negatively impact stormwater quality 	<ul style="list-style-type: none"> • Implement the pollution response program • Promote, advertise, and follow-up on complaints and calls received • Include educational material developed • Respond to complaints • Document the number of complaints received and all follow up actions taken on reports 	<ul style="list-style-type: none"> • On-going 	<ul style="list-style-type: none"> • City of Brazil MS4 staff

BMP	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
<p>Annual Report</p> <p>(4.3(g)) (4.3(h))</p>	<ul style="list-style-type: none"> Assess the program annually Report progress in an annual report to IDEM 	<ul style="list-style-type: none"> Assess program in conjunction with gathering data and compilation of the annual report Include: <ul style="list-style-type: none"> List of each public participation and outreach event and activity conduction, a description of the activity, an estimate of the number of attendees, and an assessment if the goals and objectives were met The number and types of construction and/or post-construction stormwater training opportunities what were provided to contractors, developers and builders, property owners (commercial, industrial, residential, homeowner associations, and other targeted entities during the reporting period Documentation that presentations were made to elected officials or boards Describe each targeted audience selected and how they were reached during the reporting period and describe behavioral changes observed A list of all public education materials used during the reporting period Submit annual report 	<ul style="list-style-type: none"> 2025 2026 	<ul style="list-style-type: none"> City of Brazil MS4 staff

3.3.3 Illicit Discharge Detection and Elimination

An MS4 must develop a program which uses education and both structural and non-structural BMPs to detect, address, and eliminate illicit discharges into the MS4 conveyance system. Problem areas must be located via dry weather screening or other means, the source must be determined, illicit connections must be removed or otherwise corrected, and the actions taken must be documented. Through an ordinance or other regulatory mechanism, illicit discharges must be prohibited from entering the MS4 conveyances and appropriate enforcement procedures and actions are required.

The Illicit Discharge Detection and Elimination (IDDE) BMPs outlined in **Table 11** will be implemented by the MS4 staff in order to comply with the minimum requirements of the MCM. The programs are designed to gain a thorough awareness of their separate storm conveyance system and thereby allowing the identification and elimination of illicit discharges entering the system. The program also establishes the legal, technical, and educational means needed to eliminate illicit discharges.

Table 11: IDDE BMPs

Best Management Practice (BMP)	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
IDDE Ordinance (4.4(a))	<ul style="list-style-type: none"> Review IDDE language contained in the City of Brazil ordinance documents for needed updates and to ensure compliance with the MS4GP 	<ul style="list-style-type: none"> Enforce ordinance Review policies at least once per permit term 	<ul style="list-style-type: none"> 2024 (develop/update) Implementation throughout permit term 	<ul style="list-style-type: none"> City of Brazil MS4 staff
IDDE Plan (4.4(b)) (4.4(h))	<ul style="list-style-type: none"> Develop the IDDE Plan and update as necessary to reflect the proposed actions for illicit discharge detection and elimination in the current permit term Implement the IDDE plan to detect, address, and eliminate illicit discharges into the MS4 conveyance system Include SOPs to locate problem areas and to ensure consistent investigations for all illicit discharges Investigate transient illicit discharges that have been reported to the MS4 Coordinator for additional follow-up Utilize the Desktop Assessment of Illicit Discharge (in WQCR) to better prioritize areas for IDDE screening activities 	<ul style="list-style-type: none"> Develop IDDE plan in first year of permit term Conduct dry weather screening until 100% screened by end of permit term Conduct screening of all non-stormwater discharges until discharge is eliminated or determined to be uncontaminated 	<ul style="list-style-type: none"> 2024 (develop/update) Implementation throughout permit term 	<ul style="list-style-type: none"> City of Brazil MS4 staff
Stormwater System Mapping (4.4(d)) (4.4(e)) (4.4(f))	<ul style="list-style-type: none"> Identify priority areas based on land use, prior history, and frequency of discharges Enhance existing maps with information collected during dry-weather screening events, maintenance activities, etc. Add new outfalls and conveyance systems to the map for the appropriate jurisdiction per ordinance as-built requirements or new developments 	<ul style="list-style-type: none"> Review and update map annually Identify priority areas within first year of permit term 	<ul style="list-style-type: none"> 2024 (identify priority areas) Throughout permit term (outfalls mapped) Review/update annually 	<ul style="list-style-type: none"> City of Brazil MS4 staff
IDDE Staff Training (4.4(g))	<ul style="list-style-type: none"> Train appropriate staff members on investigation of illicit discharges or illicit connections to the stormwater conveyance system 	<ul style="list-style-type: none"> Conduct annual refresher training to appropriate departments and staff Document number of staff, number of events held, and the topics covered in each session 	<ul style="list-style-type: none"> Annually 	<ul style="list-style-type: none"> City of Brazil MS4 staff Relevant city employees

<p>Annual Report</p> <p>(4.4(i)) (4.4(k))</p>	<ul style="list-style-type: none"> • Assess the program annually • Report progress in an annual report to IDEM 	<ul style="list-style-type: none"> • Assess program in conjunction with gathering data and compilation of the annual report • Include: <ul style="list-style-type: none"> • IDDE program updates • A summary of any storm sewer system mapping changes to the stormwater outfall and conveyance maps • Number of new MS4 outfalls mapped • Number and location of dry weather outfalls screened for illicit discharges • Number and location of illicit discharges detected • Number and location of illicit discharges eliminated • Number of illicit discharges and/or spills reported to the MS4 entity • Number of enforcement actions taken by the MS4 entity • Submit annual report 	<ul style="list-style-type: none"> • 2025 • 2026 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
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3.3.4 Construction Site Stormwater Run-Off

The MS4GP requires the MS4 Operator to develop and administer an erosion and sediment control program which includes strategies to manage the overall program components, monitor compliance of program requirements, and if necessary, enforce any violations. Requirements also include the development of an ordinance or other regulatory mechanism and establishment of a construction program that controls polluted runoff from construction activities that disturb one or more acres of land in the MS4 area. This construction program must include a permitting process, erosion control plan review process, site inspections, and enforcement. The permitting process must include a requirement for the construction project site owner to submit a copy of the permit application directly to IDEM. MS4 entities must provide an opportunity for local SWCD to provide comments and recommendations to the MS4 operator on individual projects.

The construction program must include requirements for the implementation of appropriate BMPs on construction sites to control sediment, erosion, and other waste. MS4 entities must review and approve construction plans submitted by the construction site operator before construction activity commences. Procedures must be developed for site inspection and enforcement to ensure BMPs are properly installed. The procedures must include a means to identify priority sites for inspection and enforcement, as well as a means to receive and consider public inquiries, concerns, and information submitted regarding local construction activities. A tracking process must be implemented in which submitted public information is documented and then given to the appropriate staff for follow-up. Further MS4 personnel responsible for plan review, inspection, and enforcement of construction activities shall receive annual training.

Table 12 in the next section provides a detailed description of the Construction and Post-Construction Site Stormwater Runoff Control BMPs to be implemented and identifies the measurable goals, progress indicators, timelines, priority areas, and responsible parties. Information such as which structural BMPs are allowed within new or redevelopment, BMP selection criteria, and the associated performance standards may be found in the Stormwater Ordinance and Technical Standards for the City of Brazil. These BMPs have been combined with the Post-Construction Site Stormwater Runoff Control BMPs (MCM #5) for ease of presentation and discussion.

3.3.5 Post-Construction Site Stormwater Run-Off

The MS4GP requires the development of an ordinance or other regulatory mechanism and establishment of a post-construction program that addresses runoff from new development and redevelopment areas that disturb one or more acres of land in the MS4 area. This program must include a permitting process, plan review process, site inspections, and enforcement. MS4 area personnel responsible for plan review, inspection, and enforcement of post-construction BMPs shall receive annual training.

Where appropriate, MS4 entities must use a combination of storage, infiltration, filtering, or vegetative practices to reduce the impact of pollutants in stormwater runoff on receiving waters in areas that are the responsibility of the MS4 entity. A written Operational and Maintenance (O&M) Plan must be developed and implemented for all existing stormwater structural BMPs, which are under the control of the MS4 entity. As new post-construction BMPs are added to areas under the control of the MS4 entity, the O&M Plan must be updated accordingly.

Compliance with this MCM requires MS4s to develop a program for managing Post-Construction Stormwater Runoff Control BMPs that will ensure adequate, long-term stormwater quality benefits in new development and redevelopment activities. Once construction is complete, post-construction practices specified by the MS4 must be implemented to ensure adequate stormwater quality is maintained from the developed site. **Table 12** provides a summary of the Construction and Post-Construction Site Stormwater

Runoff Control BMPs to be implemented and identifies the associated measurable goals, programmatic indicators, timeline, priority areas and responsible parties. These BMPs have been combined with the Construction Site Stormwater Runoff Control BMPs (MCM #4) for ease of presentation and discussion.

Table 12: Construction and Post-Construction BMPs

Best Management Practice (BMP)	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
Stormwater Management Ordinance & Technical Standards (4.5(b)) (4.5(f)) (4.6(b)) (4.6(c))	<ul style="list-style-type: none"> Develop and adopt active construction and post-construction site ordinance language and stormwater technical standards to ensure compliance with the MS4GP and the CSGP 	<ul style="list-style-type: none"> Develop, adopt and enforce the Stormwater Management Ordinance Review and approve proposed new and redevelopment projects for compliance with the Stormwater Technical Standards Incorporate post-construction performance standards into the ordinance and/or technical standards Review at least once per permit term 	<ul style="list-style-type: none"> 2024 (develop/update) Implementation throughout permit term 	<ul style="list-style-type: none"> City of Brazil MS4 staff
Plan Review and Permitting Procedures (4.5(c))	<ul style="list-style-type: none"> Establish or review plan review and permitting procedures, internal processes, and timetables Hold pre-construction meetings on selected new and re-development projects 	<ul style="list-style-type: none"> Establish or review written procedures for plan review Develop or review forms, checklists Review and approve proposed new and redevelopment projects Review 100% of construction plans and inspect prioritized sites for compliance 	<ul style="list-style-type: none"> Implementation throughout permit term 	<ul style="list-style-type: none"> City of Brazil MS4 staff
Inspection Procedures (4.5(d)) (4.6(e)) (4.6(f))	<ul style="list-style-type: none"> Establish or review procedures and processes to inspect sites to ensure measures are installed and maintained Inspect 100% of all permitted construction sites with greater than one acre of disturbance Re-inspect and follow-up on prioritized sites having identified problem areas and/or concerns Complete active construction site and post-construction BMP inspection forms Establish procedures or mechanisms to ensure BMPs are successful and in compliance 	<ul style="list-style-type: none"> Establish or review written procedures for inspections Develop or review forms, checklists Identify priority sites for inspections Conduct inspections in accordance with procedures Complete forms for active construction sites and post-construction BMPs inspected Implement performance requirements for 100% of all active construction sites over 1 acre and privately owned BMPs 	<ul style="list-style-type: none"> Implementation throughout permit term 	<ul style="list-style-type: none"> City of Brazil MS4 staff
Enforcement Procedures (4.5(e))	<ul style="list-style-type: none"> Establish or review procedures and policies to enforce local ordinance 	<ul style="list-style-type: none"> Establish or review written procedures to address violations, including compliance and escalating enforcement 	<ul style="list-style-type: none"> Implementation throughout permit term 	<ul style="list-style-type: none"> City of Brazil MS4 staff
Public Reporting Program (4.5(g))	<ul style="list-style-type: none"> Field complaints from the public on illegal dumping, illicit discharges, poor erosion control practices, and other activities that negatively impact stormwater quality 	<ul style="list-style-type: none"> Respond to complaints and inquiries Document the number of complaints received and all follow up actions taken on reports 	<ul style="list-style-type: none"> On-going 	<ul style="list-style-type: none"> City of Brazil MS4 staff

Best Management Practice (BMP)	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
Staff Training (4.5(j)) (4.6(i))	<ul style="list-style-type: none"> • Train appropriate staff members on plan review, inspection, compliance, and enforcement 	<ul style="list-style-type: none"> • Conduct annual refresher training to appropriate departments and staff • Provide relevant training to all staff involved in plan review, site inspection, and enforcement requirements for construction and post-construction MCMs • Document number of staff, number of events held, and the topics covered in each session 	<ul style="list-style-type: none"> • Annually 	<ul style="list-style-type: none"> • City of Brazil MS4 staff • Relevant city employees
Active Site Inventory (4.5(l))	<ul style="list-style-type: none"> • Maintain an inventory of all projects subject to the CSGP, the MS4GP, and owned or operated by the MS4 • Track the status of construction projects, erosion and sediment control activities, and post-construction BMPs • Track violations, complaints, and public information requests • Track publicly owned structural BMPs 	<ul style="list-style-type: none"> • Establish or revise tracking procedures • Track active construction and post-construction BMPs 	<ul style="list-style-type: none"> • On-going 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
Operation & Maintenance (O&M) Manuals (4.6(d))	<ul style="list-style-type: none"> • Require O&M manuals to be submitted for all post-construction BMPs identified as part of a project submittal package 	<ul style="list-style-type: none"> • Enforce ordinance requirements for O&M plan submittal and plan contents for new BMPs 	<ul style="list-style-type: none"> • Upon adoption of ordinance • As plans are submitted 	<ul style="list-style-type: none"> • City of Brazil MS4 staff
CSGP Compliance (4.5(k))	<ul style="list-style-type: none"> • Ensure MS4 owned/operated projects are compliant with the CSGP 	<ul style="list-style-type: none"> • Submit plans to SWCD • Comply with MS4 Stormwater Ordinance • Develop SOP which includes self-monitoring of projects 	<ul style="list-style-type: none"> • On-going 	<ul style="list-style-type: none"> • City of Brazil MS4 staff

Best Management Practice (BMP)	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
<p>Annual Report</p> <p>(4.5(i)) (4.5(m)) (4.6(h)) (4.6(j))</p>	<ul style="list-style-type: none"> • Assess the program annually • Report progress in an annual report to IDEM 	<ul style="list-style-type: none"> • Assess program in conjunction with gathering data and compilation of the annual report • Include: <ul style="list-style-type: none"> •The number of construction projects owned and/or operated by the MS4 entity that are active at the time of submittal •The number of construction sites obtaining a MS4 entity-issued stormwater run-off permit or authorization to discharge •The number of construction sites inspection •The number and type of enforcement actions taken •The number of public information requests and/or complaints received •Updates to the post-construction ordinance or regulatory mechanism •Number of sites requiring post-construction controls •Number, type, and location of structural measures installed •Number, type, and location of structural measures modified to function properly to improve water quality benefits •Number, type, and location of structural measures inspection to ensure each meets design requirements and/or are being maintained • Submit annual report 	<ul style="list-style-type: none"> • 2025 • 2026 	<ul style="list-style-type: none"> • City of Brazil MS4 staff

3.3.6 Municipal Operations Pollution Prevention and Good Housekeeping

The MS4GP requires the development and implementation of a program to prevent or reduce polluted runoff from municipal operations within the MS4 area. The program must include written documentation of maintenance activities, maintenance schedules, and long-term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers.

Controls must be implemented for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations. Written procedures must be developed and implemented for the proper disposal of waste or materials removed from separate storm sewer systems and operational areas. New flood management projects must be assessed via written documentation for their impacts on water quality and existing flood management projects must be examined for incorporation of additional water quality protection devices or practices. MS4 entity employees must be properly trained on various topics such as herbicide and insecticide application and the function of BMPs. Such training must be documented in writing.

Table 13 provides a summary of the Pollution Prevention and Good Housekeeping BMPs to be implemented and identifies the associated measurable goals, programmatic indicators, environmental benefits, timeline, priority areas and responsible parties associated with each BMP. A detailed description of each BMP is provided below.

Table 13: Pollution Prevention and Good Housekeeping BMPs

Best Management Practice (BMP)	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
<p>Stormwater Pollution Prevention Plans (SWPPPs) (4.7(b-f))</p>	<ul style="list-style-type: none"> • Evaluate listing of properties, lots, storage facilities, etc. owned or operated by the city • Develop SWPPPs or SOPs • Include facility inspection sheets, employee training form, spill documentation • This general BMP covers specific BMPs such as: <ul style="list-style-type: none"> ○ Secondary containment ○ Salt/sand management ○ Snow disposal areas ○ Spill prevention and clean up ○ Fertilizer and pesticide management ○ Waste disposal ○ Wash water management 	<ul style="list-style-type: none"> • Develop new SWPPP documents for identified facilities • Utilize SWPPP and sheets to track inspections, training, etc. for each facility • Conduct and document quarterly facility inspections and assessments 	<ul style="list-style-type: none"> • Annually (review and revise) • Quarterly (inspections) 	<ul style="list-style-type: none"> • City of Brazil MS4 staff • Other relevant city departments
<p>Facility Inspections 4.7(c) 4.7(f)</p>	<ul style="list-style-type: none"> • Assess existing operations at each MS4 owned and/or operated facility • Conduct quarterly inspections at each facility and update records in SWPPP 	<ul style="list-style-type: none"> • Conduct and document quarterly facility inspections and assessments, at least one of which is conducted by the MS4 coordinator or a designated individual 	<ul style="list-style-type: none"> • Quarterly 	<ul style="list-style-type: none"> • City of Brazil MS4 staff • Other relevant city departments
<p>Stormwater Infrastructure Maintenance (4.7(g))</p>	<ul style="list-style-type: none"> • Develop a written O&M plan for MS4 owned and/or operated stormwater infrastructure • Perform a surface visual inspection of all catch basins, outfalls, and conveyance systems • Maintain the MS4 conveyance and associated structures included outfalls, open channels, and ditches 	<ul style="list-style-type: none"> • Implement a storm sewer system maintenance schedule and track activities to document the amount of pollution that has been kept out of local receiving waters as a result of the stormwater program • Complete surface visual inspections of the entire system within the permit cycle with a minimum of 15% completed annually • Document the amount of litter picked up as a result of periodic litter pickup events • Document the amount of materials removed from the storm sewer system and disposal methods • Document all improvements made to roadside shoulders and ditches • Document all improvements made to stormwater outfalls • Document all issues noted during visual inspection 	<ul style="list-style-type: none"> • Implementation throughout permit term 	<ul style="list-style-type: none"> • City of Brazil MS4 staff • Other relevant city departments

Best Management Practice (BMP)	BMP Description	Measurable Goals, Tracking and Programmatic Indicators	Timeline	Responsible Party
Third Party Compliance (4.7(j))	<ul style="list-style-type: none"> Establish or review procedures to ensure contractors or third-party entities hired by the MS4 entity are required to comply with stormwater good housekeeping 	<ul style="list-style-type: none"> Establish or review written procedures for compliance and enforcement Document actions taken 	<ul style="list-style-type: none"> As needed 	<ul style="list-style-type: none"> City of Brazil MS4 staff
Flood Management Projects (4.7(k)) (4.7(l))	<ul style="list-style-type: none"> Assess flood management projects for incorporation of water quality devices or practices 	<ul style="list-style-type: none"> Document that flood control projects are assessed for incorporation of additional water quality devices or practices 	<ul style="list-style-type: none"> As projects proposed 	<ul style="list-style-type: none"> City of Brazil MS4 staff Other relevant city departments
Staff Training (4.7(m))	<ul style="list-style-type: none"> Train appropriate staff members on new technology, operations, fueling spill prevention and clean-up, other responsibilities that arise during the year, site specific stormwater run-off issues, and permit requirements 	<ul style="list-style-type: none"> Conduct annual refresher training to appropriate departments and staff Document number of staff, number of events held, and the topics covered in each session 	<ul style="list-style-type: none"> 2024 Annually and as needed with new hires 	<ul style="list-style-type: none"> City of Brazil MS4 staff Other relevant city departments
Annual Report (4.7(i)) (4.7(n))	<ul style="list-style-type: none"> Assess the program annually Report progress in an annual report to IDEM 	<ul style="list-style-type: none"> Assess program in conjunction with gathering data and compilation of the annual report Include: <ul style="list-style-type: none"> Number and location of stormwater outfalls and conveyance systems that have been repaired Estimated amount of material collected from stormwater drainage system cleaning including the disposal methods utilized Estimated amount of materials collected from street sweeping, if applicable, including the disposal method utilized Number and location of de-icing, salt and sand storage areas and methods used to minimize stormwater exposure Submit annual report 	<ul style="list-style-type: none"> 2025 2026 	<ul style="list-style-type: none"> City of Brazil MS4 staff

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APPENDIX 1: Programmatic Indicators

MCM	Programmatic Indicator Permit Citation	Description
Public Education, Outreach, Participation & Involvement	4.3(h)(2)	A list of each public participation and outreach events and activities conducted, a description of the activity, an estimate of the number of attendees, and an assessment if the goals and objectives were met.
	4.3(h)(3)	The number and types of construction and/or post-construction stormwater training opportunities that were provided to contractors, developers and builders, property owners (commercial, industrial, residential, homeowner associations, and other targeted entities during the reporting period.
	4.3(h)(4)	Documentation that presentations were made to elected officials or boards.
	4.3(h)(5)	Describe each targeted audience selected and how they were reached during the reporting period and describe behavioral changes observed.
	4.3(h)(6)	A list of all public education materials used during the reporting period.
Illicit Discharge Detection & Elimination	4.4(k)(2)	IDDE program updates.
	4.4(k)(3)	A summary of any storm sewer system mapping changes to the stormwater outfall and conveyance maps.
	4.4(k)(4)	Number of new MS4 outfalls mapped.
	4.4(k)(5)	Number and location of dry weather outfalls screened for illicit discharges.
	4.4(k)(6)	Number and location of illicit discharges detected.
	4.4(k)(7)	Number and location of illicit discharges eliminated.
	4.4(k)(8)	Number of illicit discharges and/or spills reported to the MS4 entity.
Construction Site Stormwater Run-off	4.5(m)(2)	The number of construction projects owned and/or operated by the MS4 entity that are active at the time of submittal.
	4.5(m)(3)	The number of construction sites obtaining a MS4 entity-issued stormwater run-off permit or authorization to discharge.
	4.5(m)(4)	The number of construction sites inspected.
	4.5(m)(5)	The number and type of enforcement actions taken.
	4.5(m)(6)	The number of public information requests and/or complaints received.
Post-Construction Stormwater Run-off	4.6(j)(2)	Updates to the post-construction ordinance or regulatory mechanism.
	4.6(j)(3)	Number of sites requiring post-construction controls.
	4.6(j)(4)	Number, type, and location of structural measures installed.
	4.6(j)(5)	Number, type, and location of structural measures modified to function properly or improve water quality benefits.

	4.6(j)(6)	Number, type, and location of structural measures inspected to ensure each meets design requirements and/or are being maintained.
Municipal Operations Pollution Prevention & Good Housekeeping	4.7(n)(2)	Number and location of stormwater outfalls and conveyance systems that have been repaired.
	4.7(n)(3)	Estimated amount of material collected from stormwater drainage system cleaning including the disposal methods utilized.
	4.7(n)(4)	Estimated amount of material collected from street sweeping, if applicable, including the disposal methods utilized.
	4.7(n)(5)	Number and location of de-icing salt and sand storage areas and methods used to minimize stormwater exposure.

APPENDIX 2: Acronyms

BMP	Best Management Practice
CBBEL	Christopher B. Burke Engineering, LLC
CSGP	Construction Stormwater General Permit
CSO	Combined Sewer Overflow
CWA	Clean Water Act
EI	Erodibility Index
EPA	Environmental Protection Agency
GIS	Geographical Information System
HEL	Highly Erodible Land
HHW	Household Hazardous Waste
HUA	Hydrologic Unit Area
HUC	Hydrologic Unit Code
IAC	Indiana Administrative Code
IBC	Impaired Biotic Communities
IDDE	Illicit Discharge Detection and Elimination
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
IDP	Illicit Discharge Potential
IR	Integrated Water Monitoring and Assessment Report
LARE	Lake and River Enhancement Program
LTCP	Long Term Control Plan
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
MS4GP	Municipal Separate Storm Sewer System General Permit
NLCD	National Land Cover Dataset
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
O&M	Operation & Maintenance Manual/Plan
OSRW	Outstanding State Resource Waters
PCB	Polychlorinated biphenyls
PHEL	Potentially Highly Erodible Land
PI	Programmatic Indicators
PWS	Public Water Supplies
SDWA	Safe Drinking Water Act
SIC	Standard Identification Classification
SOP	Standard Operating Procedure
SRCER	Stream Reach Characterization and Evaluation Report
SWCD	Soil and Water Conservation District
SWMD	Solid Waste Management District
SWPPP	Stormwater Pollution Prevention Plan
SWQMP	Stormwater Quality Management Plan
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey
WHPA	Wellhead Protection Area
WMP	Watershed Management Plan
WQCR	Water Quality Characterization Report
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant

APPENDIX 3: Exhibits

