CITY OF POWELL
Resolution 2016-21
Exhibit A

CITY OF POWELL
STORM WATER MANAGEMENT PLAN

Permit Period 2014 - 2019
Ohio Environmental Protection Agency Issued Permit No.: 4GQ10003*CG

DRAFT – November 4, 2016

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CITY OF POWELL

Storm Water Management Plan 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 gathered and evaluated 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, 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."

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Stephen A. Lutz
Municipal Manager
City of Powell, Ohio

Executive Summary

The City of Powell is required to submit a Storm Water Management Plan (SWMP) in accordance with 40 CFR 123.25 and Ohio law (OAC 3745-39). This document outlines the City's program to develop, implement and enforce a storm water management program designed to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate requirements of the Clean Water Act (CWA) in accordance with the Ohio Environmental Protection Agency (OEPA) National Pollutant Discharge Elimination System (NPDES) Phase II program. The SWMP addresses the Six Minimum Control Measures as required by state regulations. The plan also identifies the City's legal authority to implement the requirements of the OEPA's general permit, OHQ000003, in effect from 2014-2019.

The overall goal of the plan is to protect water quality by reducing or preventing pollutants from mixing with stormwater runoff and flowing into the City's owned and operated small municipal storm sewer system (MS4) and into waterways. A MS4 system is a conveyance or system of conveyances that are owned and operated by the City that are designed or used for the collecting and conveying solely stormwater into surface water of the state.

Components of the overall MS4 system consist of the following:

- Road with drainage systems
- Municipal streets
- Storm sewer pipe and catch basins
- Roadway curbs and gutters
- Ditches and constructed channels

City of Powell MS4 Map: http://cityofpowell.us/government/engineering-department/

Legal Authority

The Charter and Code of the City of Powell provides the City with the authority to control the quality of separate storm water discharge to its MS4. The City of Powell has both the fiscal resources and legal authority to fully implement its Storm Water Management Plan. The City has adopted this Storm Water Management Plan for the permitting period, 2014-2019.

Permit Coverage Area

The SWMP traverses all areas within the incorporated City limits. Powell has an estimated population of 12,465 (US Census Bureau-Population Estimates, 2014) and encompasses approximately 4.9 square miles. The City is largely residential, with concentrations of commercial areas along main thoroughfares such as Liberty Street and Olentangy Street (State Route 750).

Reporting Requirements

The City of Powell will annually prepare a report during the permit cycle. The report is required to be submitted to the OEPA by April 1st of each year. The report will include the status of compliance with the permit conditions, an assessment of the appropriateness of the best management practices (BMPs) and progress towards achieving measurable goals for each of the Six Minimum Control Measures.

A summary of the activities the City will undertake during the subsequent annual reporting cycle and any changes to the BMPs or measurable goals will be included in the annual report.

Storm Water Management Plan (SWMP)

The SWMP outlines the Six Minimum Control Measures that are expected to result in reductions in the adverse effects of storm water discharged by the City of Powell. The City is located within two watersheds: the Scioto River watershed (Hydrologic Unit Code (HUC) 05060001 120) and the Olentangy Watershed (Hydrologic Unit Code (HUC) 05060001 120). These assessment units are very large, and do not reflect individual tributaries serving Powell. Powell-specific major waterways are: Bartholomew Run, an Olentangy River tributary stream, to the east (which serves the majority of Powell) and the Scioto River to the west.

Where applicable, The OEPA requires Best Management Practices (BMPs) to be selected as part of the overall SWMP to address US EPA approved Total Maximum Daily Load (TMDL) recommendations for identified water quality problems associated with MS4 discharges within the City's MS4 watershed. TMDLs identify and evaluate water quality problems in impaired water bodies and propose solutions to bring those waters into attainment.

The Scioto River (middle) watershed TMDL report is currently being prepared by the OEPA and has not been approved by the U.S. EPA as of the date of this plan preparation.

The Olentangy River TMDL report was approved by U.S. EPA on September 19, 2007. TMDLs were calculated for total suspended solids, total phosphorus, fecal coliform, and habitat. Recommended Best Management Practices to implement id addressing these impairments include addressing failing home sewerage treatment systems and a higher level of storm water management in urban and developing areas.

The City has incorporated various goals and proposed Best Management Practices within the SWMP to assist with addressing the stream impairments as identified within the TMDL report. The following Best Management Practices are a few examples that have been incorporated into the plan:

- Green infrastructure workshops;
- The development, adoption and implementation of an illicit discharge detection and elimination plan;
- Review of Storm Water Pollution Prevention Plans and Operation and Maintenance Plans associated with proposed site improvements;
- Construction site inspections;
- Stream riparian corridor protection zones;
- Stormwater outfall dry weather screenings;
- Stream corridor protection requirements;
- and the removal of pollutants from the City's maintained MS4.

The Six Minimum Control Measures (MCMs) are:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Each measure is addressed separately within the plan. Generally, the plan identifies the goals, strategies, existing programs and proposed programs for each minimum control measure. A table of organization outlines who will be responsible for completing each Minimum Control Measure under this permit (Figure 1).

MCM 1: Public Education/Outreach

The City of Powell has chosen a mix of BMPs for public education and outreach. This control measure will target homeowners, commercial property owners, school students and the development community. There are three general areas that the City considered when determining the implementation of their public education and outreach program: forming partnerships; using educational materials and strategies; and reaching diverse audiences.

The program for the City of Powell is predicated largely on increasing awareness of how the City's MS4 functions through information dissemination. As awareness increases, the program will be enhanced to include more active public participation.

Public education and outreach programming must target at least five different storm water themes or messages over the permit term and reach 50% of the City's total population. At a minimum, at least one theme or message must be targeted to the development community. The City must report each mechanism used to educate the community, including each storm water theme. The City must also report the audience targeted and estimate how many people were reached through each mechanism.

Forming Partnerships

The City of Powell and the Delaware Soil and Water Conservation District (DSWCD) have entered into a working agreement for the provision of educational materials and guidance (See example working agreement for 2016, Appendix B). The working agreement also includes other services included within the Six Minimum Control Measures, and will be addressed in each of those sections.

The Public Information Officer is responsible for the overall management and implementation of the storm water public education/ outreach program, through coordination with the DSWCD.

Education Materials and Strategies

The City of Powell has a number of programs specifically for the dissemination of information to its citizens. These programs include:

1. Educational booth/display at annual events (Powell Festival, Touch-a-Truck);
2. DSWCD provided educational workshops and presentations;
3. Educational information posted on the City's maintained website;
4. Educational articles for publication within a quarterly newsletter.
5. Distribution of educational brochures
6. Educational articles provided within the City's e-newsletter and Facebook page.

Reaching Diverse Audiences

The planned public education program will use a variety of strategies in which to reach a diverse audience. The City's local strategies include reaching commercial areas through brochures and publications, reaching school age children through the Olentangy Local School District System and DSWCD, homeowners through City publications and website, and the development community through the Stormwater Design Guidance Document available on the City's website and the implementation of storm water quantity and quality control measures. As a result of this outreach program, diverse audiences will be informed of the importance of reducing storm water pollution, ways they can incorporate pollution reduction in their daily lives, and opportunities for individual or group involvement.

Education Themes and Target Pollutant Sources

The education materials and strategies that the City will implement over the permit period will cover a variety of themes or messages, including but not limited to the following:

1. Construction site stormwater runoff management;
2. Stream riparian corridor protection and maintenance;
3. Water quality improvement opportunities associated with household/residential activities;
4. Commercial activities, including restaurants, stormwater pollution prevention;
5. Illicit discharge detection and elimination.

The distribution of educational material addressing the abovementioned themes will assist with stormwater pollution prevention and improving water quality by targeting the following pollutant sources:

1. Sediment within construction site runoff and streambank erosion;
2. Nutrients and chemicals associated with fertilizers/pesticides;
3. Oils/greases;
4. Litter and other debris common within urban areas.

Minimum Control Measure Evaluation

To evaluate the success of this portion of the overall program, the City will annually review the number of people reached by the outreach efforts and review the tracking of water quality related concerns and complaints received by the City from the public. The program can be modified based upon the results of the annual review and determine if additional means of outreach are needed to target specific audiences or pollutants resulting from the concerns and complaints received.

MCM 1: Public Education/Outreach Measurable Goals

- Continue to use existing and develop new outreach mechanisms that provide stormwater pollution prevention education to the target audiences in addressing the chosen themes.
- Distribute education material to at least 50% of City's population over the permit term.
- Annually, determine the effectiveness of the storm water education program and modify as necessary to ensure that the target audiences are being appropriately reached and themes addressed.

BMP	Strategy
Storm Water Management Plan (SWMP) Updates	The City will review the SWMP that was prepared under the previous OEPA permit coverage term and update the plan to meet the current OEPA permit requirements and incorporate feedback received from the public. • Post the updated SWMP for public review or present the plan at a public meeting and provide means for the City to receive and evaluate public comments.
Engineering Department Website	Maintain the City's current Engineering Department website to provide stormwater education and provide means for the general public to contact the City to report water quality concerns. • Provide means for the public to view the City's MS4 map and review the SWMP. • Provide stormwater pollution prevention educational information and links to the Delaware SWCD and Ohio EPA.
Educational Workshops	Continue to team with the Delaware SWCD and provide educational workshops to the general public and school students in addressing the themes and messages as identified within the SWMP.
Social Media	Develop an additional means of reaching out to the public and providing water quality and stormwater pollution prevention education. • Provide education and advertise public participation opportunities within the City. • Explore the use of social media sites/pages, such as Facebook and provide seasonal updates.

BMP	Strategy
Educational Articles and Brochures	Develop educational information based upon the chosen themes and distribute to the public. • Include educational articles within electronic news letters. • Create and distribute brochures relevant to the themes and messages as identified within the SWMP.
Educational Information Distribution at Public Events	Develop educational information based upon the chosen themes and distribute to the public and City organized events. • Distribute educational information at the Powell Festival, Touch-a-Truck and other public events.

MCM 2: Public Participation/Involvement

The City of Powell recognizes that a successful storm water program relies not only on the MS4 owners and operators and the regulatory community, but also upon the input, assistance and understanding of the general public. The City's program includes means and methods to give the public opportunity to play an active role in both the development and implementation of the NPDES Phase II program.

The City's public involvement/participation programming must include at least five (5) public involvement activities over the permit term (one per permit year). Documentation of the number of people participating in events and a brief description of each activity is required by the permit. The public events will be provided to address the stormwater themes as identified within the Public Education/Outreach Minimum Control Measure.

Strategies

The program for the City of Powell is predicated largely on increasing awareness of how the City's MS4 functions through passive information dissemination. Since awareness has been raised, the program will be enhanced to include more active public participation.

Contained in the working agreement between the City of Powell and DSWCD are additional services that DSWCD provides to aid in the development of the public participation/involvement program, including:

1. Performance of on-site inventory of and evaluation of soils, drainage, erosion and sedimentation, stream bank erosion, and soil stabilization concerns for residents;
2. Tracking participation in "stream clean-up programs;"
3. Assisting with coordination of a storm drain marking program;
4. Conducting a water quality and stormwater pollution prevention themed workshops.

The target audience for the program can be divided into general categories: residential, commercial and general public. These categories then lend themselves to further segregation. The residential category has been divided into school age children and adults, new development (through developers) and existing (through watershed groups and DSWCD). The commercial properties include small, medium and large properties, as well as type (restaurant and retail, for example).

Minimum Control Measure Evaluation

To evaluate the success of this portion of the overall program, the City will annually review the number of people that participate in the public events and review the tracking of water quality related concerns and complaints received by the City from the public. The program can be modified based upon the results of the annual review and determine if additional public events are needed to target specific audiences or stormwater themes.

The Public Information Officer is responsible for the overall management and implementation of the storm water public involvement/outreach program, through coordination with the DSWCD.

MCM 2: *Public Participation/Involvement Measurable Goals*

- Provide at least five public involvement activities over the permit term in addressing the target audience and stormwater themes as identified within the Public Education/Outreach Minimum Control Measure.
- Annually, determine the effectiveness of the storm water public participation/involvement program and modify as necessary to ensure that the target audiences are being appropriately reached.

BMP	Strategy
Storm Water Management Plan (SWMP) Updates	The City will review the SWMP that was prepared under the previous OEPA permit coverage term and update the plan to meet the current OEPA permit requirements and incorporate feedback received from the public. • Post the updated SWMP for public review or present the plan at a public meeting and provide means for the City to receive and evaluate public comments.
Public Involvement Events	Continue to participate in established public involvement event on an annual basis (Powell Festival, Touch-a-Truck). Track number of residents participating and dates of events. • Distribute educational information at the public events.

BMP	Strategy
Workshops	Continue to team with the Delaware SWCD and provide educational workshops to the general public and school students in addressing the themes and messages as identified within the SWMP.
Stream Clean-ups	The City will encourage residents to participate in organized stream clean-up events and incorporate water quality and stormwater pollution prevention education. The City will annually track the number of participants.
Public Reporting Opportunities	The City will continue to provide means for the public to report concerns associated with stormwater quality and illicit discharge concerns by means of the Public Service Request system provided on the City maintained website. The City will track the concerns and address elimination of the illicit discharges on an annual basis. The City will log information received on an electronic map for development of trend patterns. Public Reporting: http://www.cityofpowell.us/public-service-requests/
Storm Drain Labeling	Continue to work with volunteers to label the MS4 storm sewer inlets to assist with the illicit discharge education effort. The City will determine the number of inlets that have been marked and note inlets that need marking. The City will annually track the number of volunteers and inlets marked.

MCM 3: Illicit Discharge Detection and Elimination

The City of Powell has minimized the potential for illicit discharges to the storm water system through development of an ordinance and abatement program.

The City has initiated an education program to increase public awareness of the storm water system and illicit discharge control. The City will continue to make available an illicit discharge detection and elimination brochure at City offices and the public library. As the public education and outreach program results in greater awareness of the system, local citizens may become involved using the website to report illicit discharge locations.

The previous OEPA permit required that the City's program must include or have included an initial dry-weather screening of all storm water outfalls over the permit term. The City completed the initial stormwater outfall dry-weather screenings staring in 2010 and completed the screenings in 2013. The City has additionally prepared a GIS based MS4 map that identifies the stormwater conveyance features and outfall locations into the surface waters. The on-going program must establish priorities and specific goals for long-term system-wide surveillance of its MS4, as well as for specific investigations of outfalls and their tributary area where previous surveillance demonstrates a high likelihood of illicit discharges. Data collected each year will be evaluated and priorities and goals will be revised annually based on this evaluation. The City's comprehensive storm sewer system map must be updated annually, as needed.

Strategies

The City has developed a geographic information system (GIS) for the urbanized area, including the incorporation of MS4 mapping requirements. The City's Development Department will continue maintain the MS4 map and provide updates as improvements within the City are constructed.

The City has adopted City Code, section 521.12 to assist with the prevention of illicit discharges into the MS4 system. Section 521.12 identifies allowable non-stormwater discharges into the MS4 system and defines City enforcement capabilities if illicit discharges are noted. A copy of City Code 521.12 is provided within Appendix C.

The City will continue to conduct stream assessments and outfall screenings over the permit period, 2014-2019. Noted illicit discharges will be mapped and the City will reference the prepared MS4 map to assist with identifying the source and reference City Code 521.12 for enforcement if necessary to eliminate the discharge.

The City will additionally continue to provide illicit discharge education to the community and means for the public to report illicit discharges.

Minimum Control Measure Evaluation

To evaluate the success of this portion of the overall program, the City will review the results of the stormwater outfall dry weather screenings and compare the results to the screenings conducted under the previous SWMP. The program can be modified based upon the results of the review and determine if additional public education mechanisms are needed to target specific audiences or stormwater pollutants.

The Parks, Recreation & Public Service Director and GIS Planner are responsible for the implementation of the City's BMPs for this minimum control measure.

MCM 3: Illicit Discharge Detection and Elimination Measurable Goals

- Develop and implement an Illicit Discharge Detection and Elimination (IDDE) plan.
- Maintain the City's MS4 map to incorporate the required mapping components and system additions based upon recent construction activities that have been completed.
- Conduct stormwater outfall dry weather screenings and address noted illicit discharges per the prepared IDDE plan.
- Continue to provide means for the public to contact the City to report illicit discharge concerns and investigate and address the concerns per the IDDE plan.

BMP	Strategy
Illicit Discharge Detection and Elimination (IDDE) Plan	The City will prepare an IDDE plan • The plan will identify means to detect and eliminate illicit discharges into the City's MS4 system. • Training will be provided to City staff associated with the implementation of the plan.

BMP	Strategy
MS4 Mapping Updates	The City will review the current MS4 map and update to ensure the required OEPA mapping components are mapped and recent MS4 improvements are added. An up-to-date map will assist the City with tracing sources of noted illicit discharges into the MS4 system and investigate surface water outfall locations. The MS4 map will consist of the following components: • Storm pipes • Catch basins • Ditches • Retention/Detention basins • Public/Private water quality Best Management Practices • Stormwater outfall locations • Surface water locations and names
MS4 Outfall Dry Weather Screening	The City will continue to conduct MS4 outfall dry weather screening services • Conduct dry-weather screening of necessary outfalls and investigate areas of potential illicit discharges. • Determine the source of the illicit discharges and notify the responsible parties and required elimination actions.
Public Reporting Opportunities	The City will continue to provide means for the public to report concerns regarding illicit discharges by means of the Public Service Request system provided on the City maintained website. The City will track the concerns and address elimination of the illicit discharges on an annual basis. Public Reporting: http://www.cityofpowell.us/public-service-requests/
Storm Drain Labeling Program	Continue to work with volunteers to label the MS4 storm sewer inlets to assist with the illicit discharge education effort. The City will determine the number of inlets that have been marked and note inlets that need marking. The City will annually track the number of volunteers and inlets marked.

MCM 4: Construction Site Storm Water Runoff Control

The City of Powell recognizes that sediment laden runoff from construction sites, if unchecked, can deposit more sediment and pollutants in a stream than would be deposited there over the course of decades from other land use types. The resulting siltation, and other pollutants, can cause physical, chemical, and biological harm to the waterways.

The permit requires that the City's program include pre-construction storm water pollution prevention plan review of all projects from construction activities that result in a land disturbance of greater than or equal to one acre. To ensure compliance, these applicable sites must be initially inspected. The frequency of follow-up inspections is on a monthly basis unless the City's documents its procedures for prioritizing inspections, such as location to a waterway, amount of disturbed area, compliance of site, etc. These performance standards must be satisfied within two years of when coverage under this permit was granted.

Strategies

The City relies on a two-fold approach to construction site runoff control. First, the City reviews the Storm Water Pollution Prevention Plans (SWP3s) for all submitted construction drawings within the City per City Code Sections 1109.14 and 1111.07. The code sections require developers to prepare a SWP3 in accordance with the OEPA General Permits associated with construction site stormwater runoff. The SWP3 is required to be submitted to the City and construction can't commence until the plan has been approved. Second, The City conducts routine erosion and sediment control inspections to ensure that the approved SWP3 are being properly implemented. Inspection reports are prepared and submitted to the project contact. The City has established enforcement capabilities as outlined with City Code Section 1111.07. Copies of City Code 1109.14 and 1111.07 are provided within Appendix D.

The City has additionally provided means for the public to file concerns and complaints regarding construction site runoff by means of the Public Service Request system provided on the City maintained website. The City will track the requests and investigate noted concerns to ensure that the construction site runoff is being properly maintained and illicit discharges addressed.

Minimum Control Measure Evaluation

To evaluate the success of this portion of the overall program, the City will track the number of SWP3s reviewed and site inspections conducted. The program can be modified based upon the results of the monthly inspections and determine if additional education mechanisms or enforcement procedures are needed in addressing construction site stormwater runoff.

The City Engineer and Assistant City Engineer shall be responsible for the overall management and implementation of the construction site storm water runoff control program.

MCM 4: Construction Site Storm Water Runoff Control Measurable Goals

- Review SWP3s that are submitted to the City to ensure compliance with the City Stormwater Design manual and the OEPA's General Permit associated with construction site discharges.
- Review construction site stormwater management requirements with developers and contractors at preconstruction meetings to ensure they understand their roles and responsibilities during the construction of the site improvements.
- Inspect all active construction projects within the City on a minimum monthly basis.
- Continue to provide means for the public to contact the City to report construction site runoff concerns and investigate and address the concerns.

BMP	Strategy
SWP3 Review	The City will require the preparation and submittal of SWP3s for site improvement projects that will result in land disturbing activities of 1 acre or more. • Review SWP3s that are submitted to the City to ensure compliance with City's code associated with erosion and sediment control and the OEPA's General Permits.
Preconstruction Meetings	The City will notify developers and contractors of their required roles and responsibilities during the construction of the site improvements. • Notice of Intent (NOI), NOI co-permittee and Individual Lot NOI submittal requirements • Weekly inspection requirements • BMP installation and maintenance requirements
Erosion & Sediment Control Inspections	The City will conduct routine erosion and sediment control site inspections for all active public and private projects. • The City will prepare inspection reports and provide copies to the developers/contractors noting violations and required corrective actions.

BMP	Strategy
Public Reporting Opportunities	The City will continue to provide means for the public to report concerns associated with construction site runoff by means of the Public Service Request system provided on the City maintained website. The City will track the concerns and address elimination of the illicit discharges on an annual basis. Public Reporting: http://www.cityofpowell.us/public-service-requests/

MCM 5: Post-Construction Storm Water Management in New Development/Redevelopment

The City addresses the post-construction storm water management in new development and redevelopment with structural and non-structural BMPs, in keeping with the BMP requirements of the OEPA's General Permits. As part of this minimum control, the City seeks to effectively manage the quantity and quality of post-development flow. Code section 1111.05 contains complete storm water management and design requirements.

The City has a formalized policy regarding the preservation of existing waterways, conservation areas, and buffer zones. This policy takes the form of dedicated easements, dedicated reserve funding, homeowner association maintenance requirements, etc. The City has historically accepted dedicated drainage management easements.

The permit requires that the City's program include pre-construction storm water pollution prevention plan review of all projects from construction activities that result in a land disturbance of greater than or equal to one acre to ensure that required controls are designed per requirements. These applicable sites must be inspected to ensure that controls are installed per requirements. The City's program must also ensure that long-term operation and maintenance (O&M) plans are developed and agreements in place for all applicable sites. These performance standards must be satisfied within two years of when coverage under this permit was granted.

Strategies

The City reviews the Storm Water Pollution Prevention Plans (SWP3s) for all submitted construction drawings within the City per City Code Section 1111.054. City Code Section 1111.054 requires developers to prepare a SWP3 in accordance with the OEPA General Permits associated with construction site stormwater runoff. The SWP3 includes the location and design of the post-construction water quality BMP that is to be installed per the proposed site improvements. City Code Section 906.03 additionally requires the developer to prepare and submit to the City for review and approval an Operation & Maintenance (O&M) plan. The plan identifies the post-construction operator and inspection and maintenance procedures. The post-construction operator is additionally required to enter into an agreement with the City that the BMP will be properly inspected and maintained. Copies of City Code 1111.054 and 906.03 are provided within Appendix E.

The City will continue to post construction site runoff design guidance on the City's maintained website to assist developers and designers implement appropriate BMPs with the overall site improvements to assist with post-construction water quality treatment. The City will annually inspect the post construction BMPs, or obtain maintenance documentation from the post-construction operator, where an agreement has been established with the post-construction operator to ensure that the controls are being properly maintained.

Minimum Control Measure Evaluation

To evaluate the success of this portion of the overall program, the City will track the number of SWP3s and O&M plans reviewed, O&M agreements established and the number of annual BMP inspections conducted. The program can be modified if it is determined the plans are not being properly prepared and the required inspections conducted. Additional education to the development community may be necessary based upon the results of the program evaluation.

The Parks, Recreation & Service Director and Development Director shall be responsible for the overall management and implementation of the post-construction storm water management program.

MCM 5: Post-Construction Storm Water Management Measurable Goals

- Review SWP3s that are submitted to the City to ensure compliance with the City Stormwater Design manual and the OEPA's General Permit associated with construction site discharges.
- Review post-construction site stormwater management requirements with developers at preconstruction meetings to ensure they understand their roles and responsibilities associated with the inspection and maintenance of the water quality BMPs.
- Ensure that the post-construction water quality BMPs are being properly inspected and maintained per the established agreement between the post-construction operator and the City.

BMP	Strategy
SWP3 Review	The City will require the preparation and submittal of SWP3s for site improvement projects that will result in land disturbing activities of 1 acre or more. • Review SWP3s that are submitted to the City to ensure compliance with City's code associated with post-construction water quality treatement and the OEPA's General Permits. • Ensure that Stream Corridor Protection Zones (SCPZs) are properly delineated on the SWP3 where applicable.

BMP	Strategy
Operation & Maintenance (O&M) Plan Review	The City will require the preparation and submittal of O&M plans for site improvement projects that will result in land disturbing activities of 1 acre or more. • Review O&M plans that are submitted to the City to ensure compliance with the City code and OEPA General Permits.
Inspection and Maintenance Agreements	The City will ensure that an Inspection and Maintenance Agreement shall be made between the Owner and the City ensuring that the BMP(s) shall be properly inspected and maintained and shall be included within the Operation and Maintenance Plan.
Preconstruction Meetings	The City will notify developers and contractors of their required roles and responsibilities upon the construction of the proposed site improvements. • BMP installation and maintenance • O&M plan review • Inspection and maintenance agreement review
Post-construction Water Quality BMP Inspection	The City will ensure that the post-construction water quality BMPs are being properly inspected and maintained. • Annually inspect the installed post-construction BMPs or obtain maintenance documentation from the post-construction operator. • Contact post-construction operators and notify them of their inspection and maintenance obligations if the controls are noted that they are not being properly maintained.
Post-construction Water Quality BMP Mapping	The City will continue to update the MS4 map • Identify and map post-construction BMPs that are installed as part of the constructed site improvements • Mapping will assist with tracking of BMPs that are required to be inspected and maintained by the post-construction operator.

MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations

Operation and Maintenance Strategies

The City currently provides tracking for their street sweeping program, herbicide, pesticide and fertilizer use, snowfall amounts and salt usage.

The ditches, swales and catch basins are cleaned when time permits, or if there is a complaint called into the City. Detention/retention basins are checked during normal rounds and mowed as necessary.

The City contracts out its vehicle maintenance and large truck maintenance. All other small motor maintenance is done in house. The Service Building has an interceptor on the floor drains to collect pollutants prior to their discharge to the storm sewer system.

The City prepared SWP3's associated with the three maintenance facilities in 2009 and 2010 and conducts routine inspections to ensure that the BMPs are being properly maintained and pollutant sources are not exposed to stormwater.

Salt is temporarily stored adjacent to the City Public Works garage in a manner so it is not exposed to stormwater. Truck equipment is regularly maintained and calibrated to ensure that the salt that is being spread is not over applied. Weather conditions are closely monitored to ensure that timing and amount of salt is being properly applied.

Fertilizer, pesticides and herbicides are stored in a manner so it is not exposed to stormwater. Material is spread per the manufacturer's recommendations and weather conditions are closely monitored prior to application. Application of material onto impervious areas and waterways are avoided.

The City contracts sweeping services to removed pollutants from the publically maintained streets and ensures that the contractor is properly disposing of the collected pollutants.

The City additionally inspects and maintains the MS4 system, including removing accumulated pollutants from storm sewer catch basin structures and surface water conveyance systems.

Employee Training

The City of Powell currently takes advantage of any training opportunities presented by state or local agencies whenever possible. Performance standards under the permit require, at a minimum, one annual employee training.

Minimum Control Measure Evaluation

To evaluate the success of this portion of the overall program, the City will annually review the tracking of pollutants applied, collected and properly disposed of as part of the City's routine municipal activities. Tacking results will be evaluated to determine if pollutant source applications can be reduced or additional pollutants removed prior to mixing with stormwater and flowing into the MS4. The City will additionally track training events attended the inspections conducted at the City maintenance facilities. Inspection results will be reviewed a determination made if BMPs are in need of maintenance or additional BMPs implemented to improve water quality.

The Parks, Recreation & Service Director shall be responsible for the overall management and implementation of the pollution prevention/good housekeeping program.

MCM 6: *Pollution Prevention Measurable Goals*

- 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.
- Update the Maintenance Facility SWP3's to meet the requirements of Ohio EPA's Industrial Storm Water General Permit (OHR000005).

BMP	Strategy
On-going Programs	The City will continue with existing programs that have a positive effect on storm water discharge. • Continue to document the amount of deicing salt applied to streets. • Continue to document the number of outfalls and curb inlets cleaned annually. Document the amount of material collected and properly disposed of. • Document maintenance activities, schedules, and long-term inspection procedures for controls to reduce pollution to the City's MS4. • Document the amount of pesticides, herbicides, and fertilizers used annually. • Summarize any new or existing flood management projects that were assessed for impacts on water quality. • Document proper disposal of waste oils and other chemicals used in City maintenance facilities. • Continue to list the number of employees that have been trained on proper disposal techniques. List classes taken, as well as offeror.

BMP	Strategy
Maintenance Facility SWP3 Updates	The City will update the Maintenance Facility SWP3's to meet the requirements of Ohio EPA's Industrial Storm Water General Permit (OHR000005). • Identify required stormwater discharge visual assessment procedures to assist with ensuring that the BMPs at the facility are being properly implemented.

TABLE OF ORGANIZATION

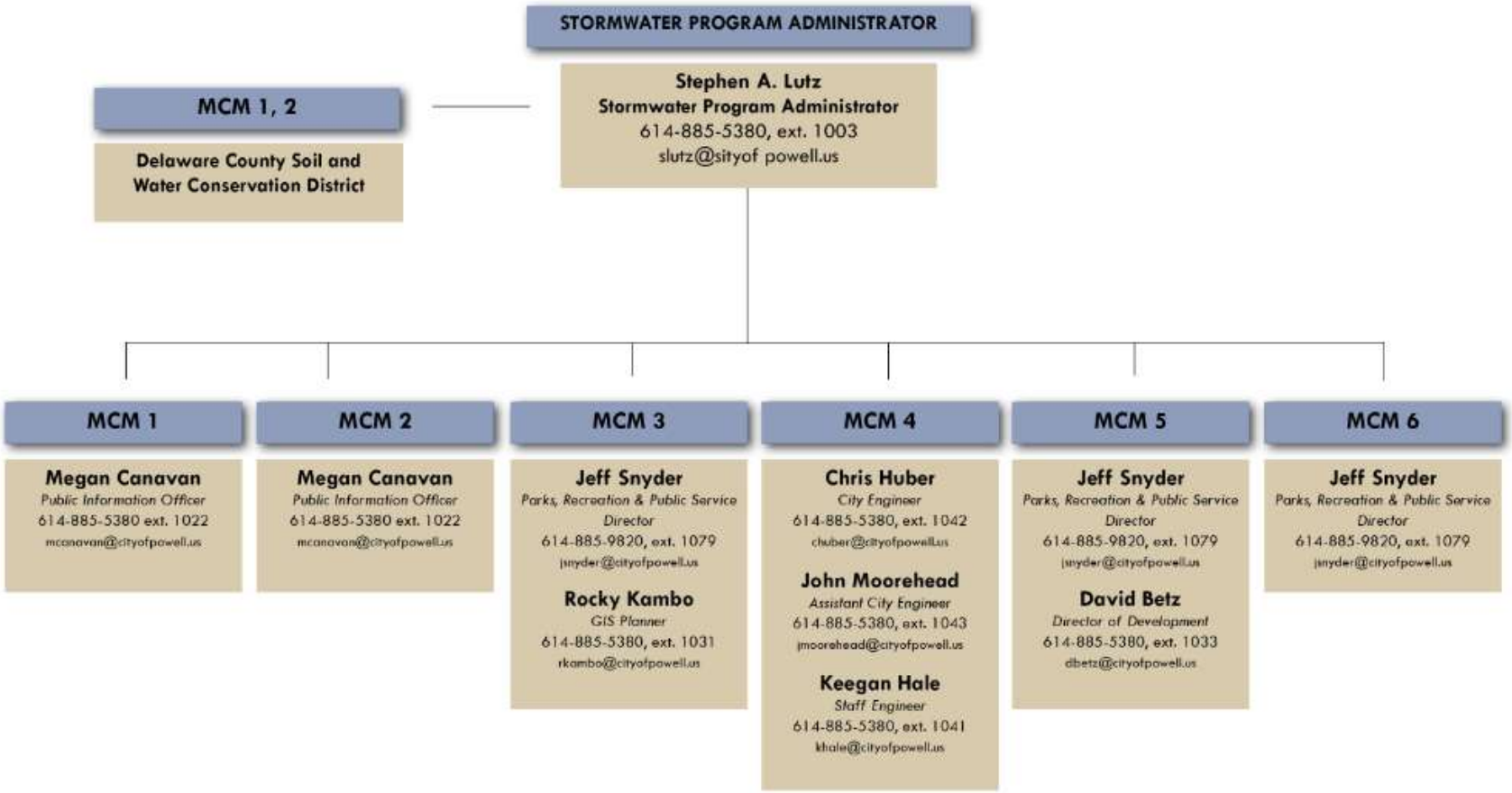

Figure 1

Appendix A

OEPA NPDES Permit Approval Letter

OhioEPA

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

12/2/2014

CITY OF POWELL
STEPHEN LUTZ
47 HALL ST
POWELL OH 43065

RE: Approval for coverage under Ohio EPA NPDES General Permit OHQ000003
STORM WATER ASSOCIATED WITH SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

Dear Applicant:
The Ohio Environmental Protection Agency has received a Notice of Intent for coverage under the above referenced general permit for :

CITY OF POWELL OHIO

47 HALL ST

Ohio EPA Facility Permit Number: 4GQ10003*CG

This site/facility is approved for coverage under the above referenced Ohio EPA general permit. Please use your Ohio EPA facility permit number in all future correspondences.

Please familiarize yourself with your general permit. The permit contains requirements and prohibitions with which you must comply. Coverage remains in effect until a renewal general permit is issued and Ohio EPA has contacted you in writing about submitting a new NOI for continuing coverage.

For Coal Suface Mining Pemittees enclosed are Monthly Operating Report (MOR) forms for your use.

Program contacts:

Anthony Robinson	MS4 / Industrial
Mike Joseph	Construction
Jason Fyffe	MS4 /Marina / Alt.Const

You may obtain current information and forms from our web site at:
http://www.epa.ohio.gov/dsw/storm/stormform.asp

Thank you for your cooperation in this matter.

Sincerely,

Craig W. Butler
Director

Appendix B

Delaware SWCD 2016 Working Agreement

DELAWARE SOIL AND WATER CONSERVATION DISTRICT AND CITY OF POWELL WORKING AGREEMENT

This working agreement is entered into on this 16th day of February, 2016 and becomes effective on February 16, 2016 and continues through December 31, 2016. The agreement is subject to the limitations of authorities, resources and policies of the Delaware Soil and Water Conservation District (SWCD) and City of Powell (the City).

For ease of understanding, this agreement is arranged according to the order of the Six Minimum Controls for the National Pollutant Discharge Elimination System (NPDES) Phase II for Storm Water as defined with the Ohio Revised Code 3745-39-04 (B)(1) through (6). The activities outlined herein represent Year 14 of the City's Storm Water Management Plan.

Delaware SWCD will provide the following services for the City:

Minimum Control Measure No. 1: Public Education/Outreach

1. The Delaware SWCD and the City will meet to identify City-specific events where the Delaware SWCD will be present to disseminate NPDES Phase II related information to the general public. For the time period addressed as part of this Agreement, two (2) City-wide events will be assumed.

   (a) The SWCD shall provide, at a minimum, a dedicated booth or area at the event, staffed by a minimum of one (1) person knowledgeable in the materials presented throughout the event's hours, unless otherwise agreed-to by the City.

   (b) The SWCD shall track the number of event attendees that visit said booth. The SWCD shall identify general age group and gender, at a minimum.

   (c) The SWCD shall identify that the event booth is a cooperative effort between the City and the SWCD *(shall include display of City specific brochures).*

2. The SWCD shall provide articles for publication in each of the City's quarterly community guides. Each article will cover a single topic relative to the City's stormwater program. The SWCD shall provide the City with a list of six to eight article topics for consideration for publication. After selection of topics by the City, the SWCD shall provide said articles in a timely fashion for publication. (See City services below.)

3. The SWCD shall provide an annual report of all educational activities to the City. The SWCD shall provide a separate section within the annual report describing educational activities completed within the school district serving the City of Powell.

4. Grant permission to the City to establish a link on its website to the SWCD website.

5. The SWCD shall develop and provide to the City 1,000 updated brochures for the use and distribution by the City, at the City's discretion. The brochure will include the City's logo.

6. The SWCD shall develop a training session for properly caring for and managing landscaping. This shall be coordinated with Public Service Director.

Minimum Control Measure No. 2: Public Participation

1. Upon request by the City, the SWCD shall perform on-site inventory and evaluation of soils, drainage, erosion and sedimentation, stream bank erosion, and soil stabilization concerns for residents within the incorporated City limits of the City of Powell.

   (a) The SWCD shall make technical recommendations and comments to landowners, providing a copy of same to the City for its records.

   (b) The SWCD shall track the number and type of individuals requesting this service.

2. The SWCD shall provide an annual report of all participation activities to the City.

3. Upon request by a landowner within the City, the SWCD shall perform on-site inventory and evaluation of soils, drainage, erosion and sedimentation, stream bank erosion, and soil stabilization concerns for residents within the incorporated City limits of the City of Powell.

   (a) The SWCD shall make technical recommendations and comments to landowners.

   (b) The SWCD shall track the number and type of individuals requesting this service.

4. The SWCD shall track participation in established District 'stream clean-up' programs by participants' residency.

5. The SWCD shall assist the City in the coordination of a storm drain marking program. The City of Powell will be responsible for the purchase of drain marking materials.

6. The SWCD shall conduct a "backyard workshop". The workshop shall be planned and coordinated to be apart of the 2016 Summer Parks and Recreation Guide. Coordination of this shall be done prior to the publication of the 2016 Summer Program Guide during the planning period for the Summer programs

Minimum Control Measure No. 3: Illicit Discharge

Not applicable

Minimum Control Measure No. 4: Construction

Not applicable

Minimum Control Measure No. 5: Post-Construction

Not applicable

Minimum Control Measure No. 6: Good Housekeeping/Pollution Prevention

1. The SWCD shall inform the City of upcoming training sessions, seminars and classes available to City employees, staff and/or City-retained consultants relative to NPDES Phase II topics, such as, but not limited to: erosion and sedimentation control, storm routing, public education, public outreach, storm water system maintenance and best management practices.

2. The SWCD shall carry out a continued public information program relating to the wise use of natural resources and provide to the local government and its representative's information and education materials relating to the management of soil and water and related resources.

General

1. The District will work with the City to determine the number of service hours needed for the next year's agreement and develop a grant request for the next year. This coordination shall commence no later than September 2015.

The City of Powell will provide the following:

1. The City shall participate in the SWCD's annual planning process. Participation will include attending up to three meetings to discuss the success of various programs used by the City and the potential for additional utilization in the future.

2. The City shall participate in the SWCD's committee for NPDES Phase II requirements.

3. The City shall provide the SWCD the submittal deadlines for the quarterly community guide.

4. The City shall establish a link on its website to the SWCD website.

Compensation

1. The City of Powell shall compensate the SWCD in the form of a grant. The amount of the grant for the period outlined within this agreement is $12,500.

2. If services to be provided as part of this Agreement exceed the estimated service hours (200 hours) during the duration of this agreement, services provided will be charged at $40.00/ hour to the year 2015 grant agreement; with prior written approval from the City of Powell.

3. A record of time and efforts provided will be maintained by the SWCD. A quarterly report shall be provided to the City's Public Service Director that will include:

   - Total grant amount
   - Activities completed in that quarter
   - Total cost expended in that quarter
   - Total hours expended in that quarter
   - Total cost expended to date

- Total hours expended to date

It is Mutually Agreed:

1. That the SWCD is a conservation technical and education service agency and therefore is not granted regulatory authority in the Ohio Revised Code.

2. That the working relationship is defined to include lines of communications with appropriate departments.

3. That the City and the SWCD will meet when necessary to review and coordinate activities and programs with the aim of developing a multi-discipline approach to resource management.

4. That all parties will review quality of service and address concerns as they arise.

5. That credit will be given jointly to the SWCD and the City in natural resource/ NPDES Phase II related publications prior to publication.

6. That this working agreement may be amended or terminated at any time by mutual consent of both parties, or the agreement may be terminated by either party giving sixty (60) days notice in writing to the other. Upon termination, the SWCD shall refund that portion of the grant not used through the termination date to the City of Powell.

SIGNATURES

The below signatures certify consent on the above agreement.

DELAWARE SOIL AND WATER CONSERVATION DISTRICT

Signature	Title	Date
[signature]	Chairman	2-16-16

CITY OF POWELL

Signature	Title	Date
[signature]	City Manager	2-16-16

Appendix C

City Code 521.12: Illicit Discharge and Obstruction of the Municipal Separate Storm Sewer System

521.12 ILLICIT DISCHARGE AND OBSTRUCTION OF THE MUNICIPAL SEPARATE STORM SEWER SYSTEM.

(a) A person commits an offense if the person introduces, or causes to be introduced, into the MSF any discharge that is not composed entirely of stormwater.

(b) It is an affirmative defense to any enforcement action for a violation of subsection (a) that the discharge was composed entirely of one or more of the following categories of discharges:

(1) A discharge authorized by, and in full compliance with, an NPDES permit (other than the NPDES permit for discharges from the MS4);

(2) A discharge or flow resulting from fire fighting by the Fire Department;

(3) A discharge or flow of fire protection water that does not contain oil or hazardous substances or materials that the Fire Code requires to be contained and treated prior to discharge, in which case treatment adequate to remove harmful quantities of pollutants must have occurred prior to discharge;

(4) Agricultural stormwater runoff;

(5) A discharge or flow from water line flushing or disinfection that contains no harmful quantity of total residual chlorine (TRC) or any other chemical used in line disinfection;

(6) A discharge or flow from lawn watering, or landscape irrigation;

(7) A discharge or flow from a diverted stream flow or natural spring;

(8) A discharge or flow from uncontaminated pumped groundwater or rising groundwater;

(9) Uncontaminated groundwater infiltration (as defined at 40 C.F.R. 35.2005(20)) to the MS4;

(10) Uncontaminated discharge or flow from a foundation drain, crawl space pump, or footing drain;

(11) A discharge or flow from a potable water source not containing any harmful substance or material from the cleaning or draining of a storage tank or other container;

(12) A discharge or flow from air conditioning condensation that is unmixed with water from a cooling tower, emissions scrubber, emissions filter, or any other source of pollutant;

(13) A discharge or flow from individual residential car washing;

(14) A discharge or flow from a riparian habitat or wetland;

(15) A discharge or flow from cold water (or hot water with prior permission of the Director) used in street washing or cosmetic cleaning that is not contaminated with any soap, detergent, degreaser, solvent, emulsifier, dispersant, or any other harmful cleaning substance; or

(16) Drainage from a private residential swimming pool or hot tub/spa containing no harmful quantities of chlorine or other chemicals. Drainage from swimming pool filter backwash is prohibited;

(17) A discharge or flow of uncontaminated storm water pumped from an excavation or existing pond.

(c) No affirmative defense shall be available under subsection (b) if:

(1) The discharge or flow in question has been determined by the City Engineer to be a source of a pollutant or pollutants to the waters of the United States or to the waters of the State or to the MS4;

(2) Written notice of such determination has been provided to the discharger;

(3) The discharge has continued after the expiration of the time given in the notice to cease the discharge;

(4) A person commits an offense if the person introduces or causes to be introduced into the MS4 any harmful quantity of any substance.

(d) Definitions. For the purpose of this chapter, certain rules or word usage apply to the text as follows:

(1) Municipal Separate Storm Sewer System (MS4): “Municipal Separate Storm Sewer System” or “MS4" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

A. Owned or operated by the City;

B. Designed or used for collecting or conveying storm water;

C. Which is not a combined sewer; and

D. Which is not part of a Publicly Owned Treatment Works (POTW) as defined by Title 40 Code of Federal Regulations Part 122.2 (40 CFR 122.2).

(e) Whoever violates this section is guilty of a minor misdemeanor.

(Ord. 2004-14. Passed 3-23-04.)

Appendix D

City Code 1109.14: Erosion and Sediment Control Plan
and
City Code 1111.07: Erosion and Sediment Control

1109.14 EROSION AND SEDIMENT CONTROL PLAN.

An Erosion and Sediment Control Plan shall be prepared for all developments covered by this regulation which require improvements to more than one acre of land.

For subdivided developments where the erosion and sediment control plan does not call for a centralized sediment control capable of controlling multiple individual lots, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices shall be provided to the City Engineer. This does not remove the responsibility to designate specific erosion and sediment control practices in the erosion and sediment control plan for critical areas such as steep slopes, stream banks, drainage ways and riparian zones.

The Erosion and Sediment Control Plan may be combined with other plans, if such a combination is neat and the information easily read. The Erosion and Sediment Control Plan shall not meet the minimum design requirements identified by Chapter 1111. An Erosion and Sediment Control Plan for a proposed development area, with maps drawn to a scale of one inch equals 20 feet, shall be submitted containing the following information:

(a) The development title, sheet scale, north arrow, and location map, unless it is made a part of the construction plans or the grading plan;

(b) Location of the area and its relationship to its general surroundings, including but not limited to:

(1) Offsite areas susceptible to sediment deposits or to erosion caused by accelerated runoff; and

(2) Offsite areas affecting potential accelerated runoff and erosion control;

(c) Existing topography of the development area and adjacent land within two hundred feet of the boundaries. The topographic mapping should contain an appropriate contour interval to clearly portray the confirmation and drainage pattern of the area;

(d) The location of existing buildings; structures; utilities; water bodies; drainage facilities, vegetative cover; a general description of the predominant soil types and their location; paved areas (streets, roads, driveways, sidewalks, etc.) and other significant natural or man-made features on the development area and adjacent land within two hundred feet of the boundaries;

(e) Name and location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s);

(f) Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site; including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA, if applicable.

(g) The areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project;

(h) Proposed use of the development area including present development and ultimate utilization with detail on soil cover, both vegetative and impervious (total impervious area in acres and as a percentage of the whole area). The location of unstable or highly erodable soils shall be shown on the plans;

(1) Makeup of proposed surface soil (upper six inches) on areas not covered by buildings, structures, or pavement. Description shall be in such terms as: original surface soil, subsoil, sandy, heavy, clay, stony, etc.

(2) Proposed kind of cover on areas not covered by buildings, structures, or pavement. Description shall be in such terms as: lawns, turfgrass, shrubbery, trees, forest cover, rip-rap, mulch, etc.

(i) Delineate areas for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle refueling, when applicable;

(j) Identify locations designated for construction entrances and means for controlling sediment at said locations;

(k) All proposed earth disturbance including:

(1) Areas of excavation, grading, and filling.

(2) The finished grades.

(3) Proposed kind of cover on areas not covered by buildings, structures, or pavement. Description shall be in such terms as: lawn, turfgrass, shrubbery, trees, forest cover, rip-rap, mulch, etc.;

(4) Proposed, paved and covered area in square feet or to scale on the Plan.

(5) Delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres;

(6) Description of the quality of any discharge from the site (pre-and post- construction);

(7) The location of any in-stream activities, including stream crossings;

(l) Design computations and applicable assumptions for determining soil loss and the erosion and sediment control facilities. Refer to Chapter 1111 for settling requirements. Volume and velocity of flow must be given for all surface water conveyance. This information shall also be provided for surface water outlets.

(m) The calculation for determination of the runoff coefficients for both the pre- and post-construction site conditions;

(n) The locations and procedures for maintaining the erosion and sediment control measures and stormwater management facilities during the construction and maintenance periods, which extends through the lifetime of the facility;

(o) Proposed construction sequence and time schedule for all earth disturbing activities and installation of provisions for erosion and stormwater management;

(p) The procedures and specifications for temporary and permanent seeding during construction and prior to acceptance of the development by the City;

(q) Provisions for maintenance of control facilities including easements to insure short as well as long term erosion and sediment pollution control and storm water management;

(r) Provisions for the management of stormwater, derived both on-site and from upper watershed areas, including the control of accelerated on-site, runoff, to a stable receiving outlet;

(s) All temporary and permanent drainage facilities, channels, and grassways that will be used to control erosion and retain sediment, debris and waste material;

(t) The procedures to be followed to correct any erosion and remove any deposits of sediment, debris and waste materials that develop downstream of the development due in part or in total to the improvements in the development;

(u) Names and address of the person(s) preparing the plan, the owner, and the person responsible for the development area;

(v) Certification that all earth disturbance, construction, and development will be done pursuant to the plan;

(w) Estimate of cost of erosion and sediment control and water management structures and features;

(x) A copy of the Notice of Intent application to use Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the

National Pollutant Discharge Elimination System and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits, shall be provided to the City with the Erosion and Sediment Control Plan.

The approving agency may waive specific requirements for plan detail or may require additional information to show that work will conform to basic requirements of the ordinance;

(y) All proposed utilities and proposed locations of installation;

(z) Seeding mixtures and rates, lime and fertilizer application rates, and kind and quantity of mulching for both temporary and permanent vegetative control measures. (Ord. 2011-03. Passed 3-15-11.)

1111.07 EROSION AND SEDIMENT CONTROL.

(a) Requirements. No person shall cause or allow earth-disturbing activities on a development area except in compliance with the standards and criteria set out in subsection (c) hereof and the applicable subsection (a)(1) or (2) hereof:

(1) When a proposed development area consists of one (1) or more acres and earth-disturbing activities are proposed for the whole area or any part thereof, the responsible person shall develop and submit for approval a sediment control plan prior to any earth-disturbing activity. Such a plan must contain sediment pollution control practices so that compliance with other provisions of this chapter will be achieved during and after development. Such a plan shall include specific requirements established by the approving agency and be filled with approving agency.

(2) When a proposed development area involves less than one (1) acre, it is not necessary to submit a sediment control plan; However, the responsible person must comply with the other provisions of this chapter. All earth- disturbing activities shall be subject to surveillance and site investigation by the approving agency to determine compliance with the standards and regulations.

(b) Exceptions. No sediment control plan shall be required for public road, highway, other transportation, or drainage improvement, or maintenance thereof, undertaken by a government agency or entity if such agency or entity plans to follow a statement of sediment control policy which has been submitted by the sponsoring agency or entity and approved by the approving agency.

(c) Standards and Criteria During and Through the End of Construction. In order to control sediment pollution of water resources the owner or person responsible for the development area shall use conservation planning and practices to maintain the level of conservation established by the following standards:

(1) Timing of sediment-trapping practices. Sediment control practices shall be functional throughout earth-disturbing activity. Settling facilities, perimeter controls, and other practices intended to trap sediment shall be implemented as the first step of grading including the start of clearing and grubbing. They shall continue to function until the upslope development area is restabilized.

(2) Stabilization of denuded areas. Denuded areas shall have temporary and permanent soil stabilization applied according to the following tables:

Area Requiring Temporary Stabilization	Time Frame to Apply Temporary Stabilization
Any disturbed areas within 50 feet of a stream and not a final grade	Within two days of the most recent disturbance if the area will remain idle for more than 21 days
For all construction activities, any disturbed areas that will be dormant for more than 21 days but less than one year and not within 50 feet of a stream	Within seven days of the most recent disturbance in the area
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Area Requiring Permanent Stabilization	Time Frame to Apply Permanent Stabilization

Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance in the area

Area Requiring Permanent Stabilization	Time Frame to Apply Permanent Stabilization
Any areas within 50 feet of a stream and at final grade	Within 2 days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

(3) Settling facilities. Concentrated stormwater runoff from denuded areas shall pass through a sediment-settling facility.

The facility's storage capacity shall be sixty-seven cubic yards per acre of drainage area.

(4) Sediment barriers.

A. Sheet flow runoff from denuded areas shall be filtered or diverted to a settling facility.

B. Sediment barriers such as sediment fence or diversions to settling facilities shall protect adjacent properties and water resources from sediment transported by sheet flow.

(5) Storm sewer inlet protection. All storm sewer inlets which accept water runoff from the development area shall be protected so that sediment-laden water will not enter the storm sewer system without first being filtered or otherwise treated to remove sediment.

(6) Working in or crossing streams.

A. Streams including bed and banks shall be restabilized immediately after in-channel work is completed, interrupted, or stopped.

To the extent practicable, construction vehicles shall be kept out of streams. Where in-channel work is necessary, precautions shall be taken to stabilize the work area during construction to minimize erosion.

B. If a live (wet) stream must be crossed by construction vehicles regularly during construction, a temporary stream crossing shall be provided.

(7) Construction access routes. Measures shall be taken to prevent soil transport onto surfaces where runoff is not checked by sediment controls, or onto public roads.

(8) Sloughing and dumping.

A. No soil, rock, debris, or any other material shall be dumped or placed into a water resource or into such proximity that it may readily slough, slip, or erode into a water resource unless such dumping or placing is authorized by the approving agency, and when applicable, the U.S. Army Corps of Engineers, for such purposes as, but not limited to, constructing bridges, culverts, mitigating wetlands, and erosion control structures.

B. Unstable soils prone to slipping or landsliding shall not be graded, excavated, filled or have load imposed upon them unless the work is done in accordance with a qualified professional engineer's recommendation to correct, eliminate, or adequately address the problems.

(9) Cut and fill slopes. Cut and fill slopes shall be designed and constructed in a manner which will minimize erosion. Consideration shall be given to the length and steepness of the slopes, soil type, upslope drainage area, groundwater conditions, and slope stabilization.

(10) Stabilization of outfalls and channels. Outfalls and constructed or modified channels shall be designed and constructed to withstand the expected velocity of flow from a post-development, ten-year frequency storm to minimize erosion.

(11) Establishment of permanent vegetation. A permanent vegetation shall not be considered established until ground cover is achieved which, in the opinion of the approving agency, provides adequate cover and is mature enough to control soil erosion satisfactorily and to survive adverse weather conditions.

(12) Disposition of temporary practices. All temporary erosion and sediment control practices shall be disposed of within thirty days after final site stabilization is achieved or after the temporary practices are no longer needed, unless otherwise authorized by the approving agency. Trapped sediment shall be permanently stabilized to prevent further erosion.

(13) Maintenance. All temporary erosion and sediment control practices shall be designed and constructed to minimize maintenance requirements. They shall be maintained and repaired as needed to assure continued performance of their intended function.

(d) Additional Requirements.

(1) The standards are general guidelines and shall not limit the right of the approving agency to impose additional, more stringent requirements, nor shall the standards limit the right of the approving agency to waive individual requirements.

(2) Erosion and sediment control practices used to satisfy standards shall meet the specifications in the current edition of Water Management and Sediment Control For Urbanizing Areas (Soil Conservation Service, Ohio).

(3) Erosion and sediment control practices used shall satisfy the requirements set forth in Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or. OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits.

(e) Post-construction Storm Water Management Requirements. Post-construction storm water quality management design shall satisfy the requirements set forth in Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or. OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits.

(f) Stream Channel and Flood Plain Erosion.

(1) To control pollution of public waters by soil sediment from accelerated stream channel erosion and to control flood plain erosion caused by accelerated stormwater runoff from development areas, the increased peak rates and volumes of runoff shall be controlled such that:

A. The peak rate of runoff from the 100-year storm (unless the City Engineer requires more stringent criteria) and all more frequent storms occurring on the development area does not exceed the peak rate of runoff from a one-year frequency, twenty-four hour storm occurring on the same area under predevelopment conditions.

B. The peak rate of runoff for the water quality volume shall not exceed those release rates calculated as part of the Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or. OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits.

(2) Methods for controlling increases in stormwater runoff peaks and volumes may include but are not limited to:

A. Retarding flow velocities by increasing friction; for example, grassed road ditches rather than paved street gutters where practical (low density development areas, access roads, etc.); discharging roof water to vegetated areas; or grass and rock lined drainage channels:

B. Grading and construction of terraces and diversions to slow runoff and use of grade control structures to provide a level of control in flow paths and stream gradients;

C. Induced infiltration of increased stormwater runoff into the soil where practical; for example, constructing special infiltration areas where soils are suitable; retaining topsoil for all areas to be revegetated; or providing good infiltration areas with proper emergency overflow facilities; and,

D. Provisions for detention and retention; for example, permanent ponds and lakes with stormwater basins provided with proper drainage, multiple use areas for stormwater detention and recreation, wildlife, transportation, fire protection, aesthetics, or subsurface storage areas.

(g) Administration.

(1) Plan review. The approving agency shall within ninety (90) days of receipt of a sediment control plan, indicate its approval or disapproval to the person who filed the plan. Indication of disapproval shall include the plan deficiencies and the procedures for filing a revised plan. Pending preparation and approval of a revised plan, earth-disturbing activities shall proceed only in accordance with conditions outlined by the approving agency.

(2) Inspection to ensure compliance. The Municipality or its representative may inspect development areas to determine compliance with these regulations. If it is determined that a violation of these regulations exists, the responsible person will be notified of the deficiencies or noncompliance. After a reasonable time for voluntary compliance, the inspector or inspecting agency shall report that deficiency or noncompliance to the Municipality. The Municipality upon determination that a person is not complying with these regulations may issue, an order to cease all construction activity until the development is in compliance. The order shall describe the problem and the work needed, and specify a date whereby the work must be completed.

(3) Appeals. Any person aggrieved by any order, requirement, determination, or any other action or inaction in relation to this regulation may appeal to the court of common pleas. Such an appeal shall be made within twenty (20) days of the date of an order or decision and shall specify the grounds for appeal.

(4) Maintenance. The Municipality shall assume overriding responsibility for permanent maintenance of structures and other facilities designed to control erosion and manage stormwater runoff when the benefiting area involves two or more property owners unless otherwise determined by agreement. The Municipality may require structures and facilities to be designed to reduce maintenance costs and/or allow individual or group property owners' maintenance, with ultimate responsibilities remaining with the Municipality.

(h) Penalties for Violations. Violation of the provisions of this chapter or failure to comply with any of its requirements shall constitute a minor misdemeanor. Any person who violates this

chapter or fails to comply with any of its requirements shall upon conviction thereof be fined not more than one hundred dollars ($100.00) for each offense, and in addition pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the municipality from taking such other lawful action as is necessary to prevent or remedy any violation.

(i) Definitions. For the purpose of this chapter certain rules or word usage apply to the text as follows:

(1) Words used in the present tense include the future tense; and the singular includes the plural, unless the context clearly indicates the contrary.

(2) The term "shall" is always mandatory and not discretionary; the word "may" is permissive.

(3) The word or term not interpreted or defined by this article shall be used with a meaning of common or standard utilization, so as to give this ordinance it most responsible application.

(4) "Approving Agency" means the governing body of the Municipality or its duly designated representative.

(5) "Channel" means a natural stream that conveys water; a ditch or channel excavated for the flow of water.

(6) "Development Area" means any contiguous (abutting) area owned by one person or operated as one development unit and used or being developed for non-farm commercial, industrial, residential, or other non-farm purposes upon which earth-disturbing activities are planned or underway.

(7) "District" means a soil and water conservation district, organized under Chapter 1515 of the Ohio Revised Code.

(8) "Ditch" means an excavation either dug or natural for the purpose of drainage or irrigation with intermittent flow.

(9) "Drainageway" means an area of concentrated water flow other than a river, stream, ditch, or grassed waterway.

(10) "Dumping" means grading, pushing, piling, throwing, unloading, or placing.

(11) "Earth-Disturbing Activity" means any grading, excavating, filling or other alteration of the earth's surface where natural or man-made ground cover is destroyed and which may result in or contribute to erosion and sediment pollution.

(12) "Earth Material" means soil, sediment, rock, sand, gravel, and organic material or residue associated with or attached to the soil.

(13) "Erosion" means:

A. The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

B. Detachment and movement of soil or rock fragments by wind, water, ice, or gravity.

C. Erosion includes:

1. Accelerated erosion: Erosion much more rapid than normal, natural or geologic erosion, primarily as a result of the influence of the activities or man.

2. Floodplain erosion: Abrading and wearing away of the nearly level land situated on either side of the channel due to overflow flooding.

3. Gully erosion: The erosion process whereby water accumulates in narrow channels during and immediately after rainfall or snow or ice melt and actively removes the soil from this

narrow area to considerable depths such that the channel would not be obliterated by normal smoothing or tillage operations.

4. Natural erosion (geologic erosion): Wearing away of the earth's surface by water, ice or other natural environmental conditions of climate, vegetation, etc., undisturbed by man.

5. Normal erosion: The gradual erosion of land used by man which does not greatly exceed natural erosion.

6. Rill erosion: An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently disturbed soils.

7. Sheet erosion: The removal of a fairly uniform layer of soil from the land surface by wind or runoff water.

(14) “Grassed Waterway" means a broad or shallow natural course or constructed channel covered with erosion-resistant grasses or similar vegetative cover and used to conduct surface water.

(15) “Landslide" means the rapid downward and outward movement of large rock material and/or soil mass under the influence of gravity in which the movement of the soil mass occurs along an interior surface of sliding.

(16) "Person" means any individual, corporation, partnership, joint venture, agency, unincorporated association, municipal corporation, county or state agency, the federal government, or any combination thereof.

(17) "Sediment" means solid material both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by wind, water, gravity, or ice, and has come to rest on the earth's surface above or below sea level.

(18) "Sediment Basin" means a barrier, dam, or other suitable detention facility built across an area of waterflow to settle and retain sediment carried by the runoff waters.

(19) "Sediment Control Plan" means a written description, acceptable to the approving agency, of methods for controlling sediment pollution from accelerated erosion on a development area of five or more contiguous acres or from erosion caused by accelerated runoff from a development area of five or more contiguous acres.

(20) "Sediment Pollution" means failure to use management or conservation practices to abate wind or water erosion of the soil or to abate the degradation of the waters of the state by soil sediment in conjunction with land grading excavating, filling or other soil-disturbing activities on land used or being developed for non-farm commercial, industrial, residential, or other non-farm purposes.

(21) "Slip" means landslide as defined above.

(22) "Sloughing" means a slip or downward movement of an extended layer of soil resulting from the undermining action of water or the earth-disturbing activity of man.

(23) "Soil Loss" means soil relocated on or removed from a given site by the forces of erosion and the redeposit of the soil at another site on land or in a body of water.

(24) "Stabilization" means such practices as temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.

(25) "Storm Frequency" means the average period of time within which a storm of a given duration and intensity can be expected to be equaled or exceeded.

(26) "Stream" means a body of water running or flowing on the earth's surface or channel in which such flow occurs. Flow may be seasonally intermittent.

(27) "Topsoil" means surface and upper surface soils which presumably are darker colored, fertile soil materials, ordinarily rich in organic matter or humus debris. (Ord. 2011-03. Passed 3-15-11.)

Appendix E

City Code 1111.054: Specific Design Specifications and City Code 906.03: Post-Construction Stormwater Best Management Practice Operation and Maintenance

1111.054 SPECIFIC DESIGN SPECIFICATIONS.

(a) Roadway Culverts.

(1) General specifications. The size and shape of the culvert should be such that it will carry a predetermined design peak discharge without the depth of water at the entrance or the velocity at the outlet exceeding allowable limits.

(2) Design procedure. The culvert design procedure recommended for use is Hydraulic Engineering Circular No. 5, U.S. Government Printing Office.

(3) Preferred construction. Single span culverts, including concrete box and slab top are preferred. Multiple cell pipe culverts, when they are the only structures that will meet the physical requirements introduced by rigid headwater controls, will be acceptable.

(4) Drainage area. The drainage area in acres, and the estimated runoff or design discharge in cubic feet per second, and the storm frequency in years shall be shown on the plan for each culvert.

(5) Inlet elevation. The flowline elevation at the culvert inlet should be set deep enough to provide an adequate outlet for future storm sewer improvements upstream.

(6) Design storm frequency (roadway culverts). The minimum frequency used shall be twenty-five year storm frequency.

(7) Design flow. For method of calculation, refer to Table A.

(8) Maximum allowable headwater. The maximum allowable headwater shall not exceed or cause any of the following:

A. 18 inches below the top of curb;

B. 12 inches below the edge of pavement;

C. 1.2 times the diameter of culvert; or

D. Diameter or rise plus two feet, in deep ravines.

(9) Manning's roughness coefficient (n). (See Table C) Manning's Roughness Coefficient (n) shall be as given in Table C unless an alternate value is approved by the Municipal Engineer.

(10) Entrance loss coefficient (Ke). (See Table C) The Entrance Loss Coefficient (Ke) shall be as given in Table C based upon the headwall configuration unless an alternative value is approved by the Municipal Engineer.

(11) Minimum cover to subgrade. Nine (9) inches from top of pipe to bottom of subgrade shall be minimum cover.

(12) Maximum allowable outlet velocity.

Turf Channel	5 f.p.s.
Rock Protection	18 f.p.s.

Notes:

A. When the outlet velocity exceeds 18 f.p.s., a stilling basin must be used.

B. The downstream channel must have the ability to handle the flow satisfactorily.

(13) Structural design criteria. The structural design criteria for culverts will be the same as that required by the Ohio Department of Transportation (ODOT).

(14) Emergency flow routing. Also show how emergency flow passes the structure. Additional scour protection may be needed for this.

(b) Storm Sewers. The more important criteria to consider in designing storm sewer systems are listed below.

(1) The sewer must be deep enough to receive the flow from all of its sources within the watershed.

(2) The size of the storm sewer must be adequate for flowing full based on the design storm. If the sewer is designed for surcharging, explain and justify.

(3) All storm sewer systems are to be designed using the Manning's equation:

$$V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

$$Q = AV$$

where: Q = Rate of discharge (c.f.s.)
A = Area of cross-section of flow (sq.ft.)
V = Mean velocity of flow (f.p.s.)
n = Manning's roughness coefficient
r = A/wp = Hydraulic radius (ft.)
s = Slope of channel or hydraulic grade line if surcharged (ft./ft.) wp = Wetted perimeter (ft.)

(4) The storm sewer material shall be concrete or approved plastics.

(5) The flowline of the storm sewer pipes should be set so that the crown of the pipes, at the junctions, are at the same elevation. However, the crown of the outlet pipe may be lower.

(6) Minimum design storm frequency (storm sewers). Five (5) year storm (flowing full).

(7) Hydraulic gradient. Based on a five year storm, the hydraulic gradient shall not exceed the window or grate elevation for an inlet or catch basin. Grade line shall be based on the tailwater or eight tenths (8/10) of the diameter at the outlet or other critical points within the system.

(8) Design flow.

For method of calculation, refer to Table A.

Minimum time of concentration:

Curb Inlet	10 minutes
Ditch C.B.	15 minutes

(9) Minimum diameter of storm sewer pipe. 10 inches

(10) Manning's roughness coefficient (n).

For all storm sewers: n = 0.012

(11) Minimum cover to subgrade:

Reinforced or Extra Strength Pipe (Top of pipe to Bottom of Subgrade)	9 inches
Standard Strength Pipe	18 inches

(Beyond pavement and paved shoulders)	

(12) Maximum cover. The support strength of the conduit, as installed, must be in accordance with current ODOT specifications. The design procedure recommended for use in structural design of storm sewers is found in Concrete Pipe Design Manual, prepared by American Concrete Pipe Association, 1501 Wilson Boulevard, Arlington, Virginia 22209.

(13) Maximum length between access structures.

Pipes under 60 inches	300 Feet
Pipes 60 inches and over	500 Feet

(14) Minimum velocity for design flow. 3 f.p.s.

(c) Open Water Courses. All open channels (natural or man-made) will be enclosed with a storm sewer when an area is developed. This policy will apply even when the open watercourse is located on a property line.

Exemptions may be for individual, developments which, based on a five year design storm, would require a pipe sixty inches in diameter or larger. Exemptions may also be made for areas of heavily wooded ravines with large diameter trees and with depth sufficient to receive the flow from storm sewers without disturbing the natural state. Exemptions may also be made for environmental reasons when there are areas with existing natural scenic drainage courses with depth and grade sufficient to receive flow from storm sewers. If exemptions are made on any project, it will be with the requirement that complete computations will be made and adequate protection be installed to prevent erosion at times of peak flow. The computations shall also insure good flow characteristics at time of low flow. Access to storm drainage ditches and channels shall be by means of maintenance easements. Such maintenance easements shall be not less than twenty-five feet in width, measured horizontally from the top of the bank, exclusive of the width of the ditch, or channel, and a maintenance easement of this type shall be provided on each side of a flood control or storm drainage ditch channel or similar type facility. Maintenance easements are to be kept free of obstructions. A request for an exemption must be in writing at the time of submission of "preliminary engineering plan".

(1) Minimum design storm frequency (open watercourses).

Ten year storm 0.8 full depth when man-made watercourse

- bank full depth when natural watercourse

(2) Design flow. For method of calculation, refer to Table A.

(3) Allowable velocities in new ditches. For allowable velocities, refer to "Erosion and Sediment Control" requirements of these Standards.

(4) Allowable velocities in existing channels. The channel must have the ability to handle the flow satisfactorily.

(5) Manning's roughness coefficient (n) (open watercourses).

Sod or jute mat lining:	0.05
Paved lining:	0.015
Rock protection:	0.08

Existing channel:	
Downstream from the Development Area:	0.25

(6) Minimum slope.

For New Channels

(Desirable)	0.40%
(Absolute)	0.24% with a minimum velocity of 2 f.p.s.

(7) Side slopes (desirable): 1:4 - one foot vertical for each four feet of horizontal width.

(d) Curb Inlet.

(1) General. The satisfactory removal of surface water from curbed pavement is as important as any other phase of stormwater control. The spread of water on the pavement for the design storm is considered as the best control for pavement drainage. The design procedure recommended for use is Hydraulic Engineering Circular No. 12, available from the Superintendent of Documents, U.S. Government Printing Office. On combined runs of over 600 feet contributing to a snag curve, an additional inlet may be required near the low point, plus or minus two-tenths foot above the inlet at the sag.

(2) Design storm (curb inlets). The following shall be used:

A. Two year storm frequency.

B. Rational method of calculation.

C. Ten minutes for minimum time of concentration.

D. 0.015 for roughness coefficient.

E. Maximum width of spread of flow:

Street Width	Width of Spread
< 26 ft.	8 ft.
> 26 ft.	9 ft.

(e) Detention Facilities.

(1) General. The location, construction, ownership and maintenance of the detention or retention facility, whether public or private, shall be resolved prior to recording the final subdivision plat and the acceptance of the "final engineering and construction plan". No lot sales will be permitted until this is done.

(2) Types of facilities. In development and developing urban and suburban areas, several means for controlling stormwater runoff could be used. This usually involves storing runoff on or below the ground surface. The following types of storage facilities are suggested for detention:

A. Parking lot storage. Parking lot storage is surface storage where shallow ponding is designing to flood specifically graded areas of the parking lot. Controlled release features are incorporated into the surface drainage system of the parking lot. Parking lot storage is a convenient multi-use structural control method where impervious parking lots are planned. Design features include small ponding areas with slotted controlled release structures and/or pipe-size reduction, and increased curb heights. This method can easily be incorporated into a site development at approximately the same cost as that of a conventional parking lot. The

major disadvantage is the inconvenience to users during the ponding function. This inconvenience can be minimized with proper design consideration. Clogging of the flow control device and icy conditions during cold weather are maintenance problems. Parking lot design and construction grades are critical factors. For these reasons, the functional effectiveness of parking lot storage is questionable. This method is intended to control the runoff directly from the parking area, and is usually not appropriate for storing large runoff volumes.

B. Dry basins or detention basins. Dry basins are surface storage areas created by constructing a typical excavated or embankment basin. There is no normal pool level and a specific controlled release feature is included to control the rate of discharge. The detention flow control structure is usually a multi-stage device, and the retention flow control structure is usually a single-stage device. Dry basins are the most widely used structural method of stormwater management. The soil permeability and water storage potential are not as important with dry basins as with wet basins; therefore, dry basins have the greatest potential for broad applications. They can be utilized in small developments because they can be designed and constructed as small structures.

Dry basins are often less costly than wet ponds because they do not require extensive design and construction considerations. They can be designed for multi-use purposes such as recreation and parks.

C. Wet ponds or basins. Wet basins.

(3) Design criteria.

A. Acceptable methods of calculation.

1. See Table A.

2. Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System - Part III.G.2.e. or any pertinent section of subsequent issuances of this permit and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System- Part III.G.2.g, or any pertinent section of subsequent issuances of this permit.

3. Whichever acceptable method results in a larger detention volume shall prevail.

B. Release rates.

1. Under post development conditions the peak rate of runoff from a 100 year frequency, twenty-four storm shall not be greater than the peak runoff rate from a one year frequency, twenty-four hour storm.

2. Release rates as defined for post construction stormwater management Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System- Part III.G.2.e, or any pertinent section of subsequent issuances of this permit and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System- Part III.G.2.g, or any pertinent section of subsequent issuances of this permit.

C. Specifications.

1. The surface of a detention area should be constructed with sufficient slopes (minimum of: 2% - grassed surfaces, 1% - paved surfaces, and 0.5% - paved channels) to drain properly so that all the runoff is removed following a storm.

2. A ditch(es) shall be paved and constructed from the pipe(s) outletting into the basin, to the outlet structure.

3. Seeding and other erosion control methods will be used to protect all slopes: sod, jute matting, rock protection or concrete.

4. The side slopes for a detention facility shall be no steeper than 4:1 (horizontal or vertical).

D. Debris-control structures. Debris-control structures may be required in some of the detention methods and should be considered as an essential part of the design. The procedure recommended for use is Hydraulic Engineering Circular No. 9, available from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C.. For dams and levies over ten feet in height, refer to Ohio R.C. 1521.062.

E. Proof surveys. Proof Surveys when required shall be performed by the Developer, Contractor, or other entity constructing the stormwater drainage facilities, or order to demonstrate conclusively that the facilities are constructed to the elevations, slopes, grades, and sizes shown on the reviewed plans on file with the Municipality. Such surveys shall be conducted by a registered Professional Surveyor, shall employ standard survey techniques, and shall produce original field notes which shall be furnished to the City for review and record purposes. Reduction of notes, and any plotting necessary to make the notes interpretable, shall be by the surveyor performing separate from, other construction surveys which may be conducted by the City or its agents. All discrepancies revealed in the as-construction facilities by the proof survey shall be rectified by the Developer, Contractor, or other entity constructing the stormwater drainage facilities, and the proof survey re-performed, in order to demonstrate conformance.

F. Access and maintenance easements. Specific, dedicated easement rights shall be required, in order to provide for the necessary maintenance of all stormwater facilities. Generally, a maintenance easement of twenty foot minimum width, in addition to the size of the stormwater facility when flooded, is required. A specifically located, twenty foot minimum width access easement shall also be required, from the easement at, alongside, or around the stormwater facility, to the nearest public right-of-way. Maintenance responsibilities will be determined and so stated in the easement. The twenty minimum outside the flooded facility must be on a slope of 10:1 maximum.

(f) Post Construction Best Management Practices.

(1) General - Developments disturbing land in excess of 1 acre are required to follow Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System- Part III.G.2.e, or any pertinent section of subsequent issuances of this permit and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System- Part III.G.2.g, or any pertinent section of subsequent issuances of this permit for best management practices in providing for post construction run off.

(2) Acceptable post construction best management practices - Although the Ohio EPA Permit Numbers OHC000003 and OHCO00001 provides several best management practices that are acceptable to the State, the City Engineer shall determine whether certain of these practices are acceptable in relation to the site and type of development proposed.

(Ord. 2011-03. Passed 3-15-11.)

906.03 POST-CONSTRUCTION STORMWATER BEST MANAGEMENT PRACTICE OPERATION AND MAINTENANCE.

(a) Operation and Maintenance Plan.

(1) The developer/property owner shall prepare an Operation and Maintenance Plan meeting the minimum requirements of the latest version of the Ohio EPA NPDES Construction Stormwater Permit for redevelopment and new development projects wherein construction activities will result in the disturbance of one or more acres.

(2) The Operation and Maintenance Plan shall be submitted by the developer/property owner to City of Powell for review and approval prior to the City issuing the building permit.

(3) The Operation and Maintenance Plan must be a stand-alone document containing the following:

A. Designate the entity associated with providing the Best Management Practices (BMPs) inspection and maintenance.

B. Indicate routine and non-routine maintenance tasks to be undertaken.

C. Indicate a schedule for inspection and maintenance tasks.

D. Provide proof of any necessary legally binding maintenance easements and agreements that are necessary to properly inspect and maintain the BMP(s).

E. Provide a map showing the location of the BMP(s) that are indicated on the City of Powell approved Storm Water Pollution Prevention Plan (SWPPP) and necessary access and maintenance easements.

F. Provide detailed BMP drawings and inspection and maintenance procedures.

G. Ensure that the collected pollutants resulting from BMP maintenance activities are disposed of in accordance with local, state and federal guidelines.

(b) Declaration of Covenants and Restrictions. A Declaration of Covenants and Restrictions shall be made between the Owner and the City of Powell ensuring that the BMP(s) shall be properly inspected and maintained and shall be included within the Operation and Maintenance Plan.

(c) Inspection.

(1) Personnel identified within the Operation and Maintenance Plan shall inspect the BMP(s) to ensure proper functionality and determine if maintenance is necessary.

(2) At a minimum, inspections are to be conducted on an annual basis, or as specified in the Operation and Maintenance Plan.

(3) Written inspection reports summarizing the BMP(s) inspection observations and maintenance requirements are to be submitted to the City of Powell upon request by the City.

(d) Maintenance.

(1) All BMPs are to be maintained according to the measures outlined within the Operation and Maintenance Plan.

(2) Ensure that the collected pollutants resulting from BMP maintenance activities are disposed of in accordance with local, state and federal guidelines.

(3) In addition to any applicable provision of Section 1111.052, the Owner shall make necessary repairs within fourteen days of their discovery as identified within the inspection reports or through a request from the City of Powell resulting from City conducted inspections.

(4) Maintenance activities performed are to be documented on a written report and submitted to the City of Powell upon request.

(5) In addition to any applicable provisions of Sections 906.01, 906.02, and 1111.052, the Owner shall grant permission to the City of Powell to enter the property and inspect the BMP(s) whenever the City deems necessary. In an event of any default or failure by the Owner in properly maintaining the BMP(s) in accordance with the approved Operation and Maintenance Plan, or, in the event of an emergency as determined by the City of Powell, it is the sole discretion of the City, after providing reasonable notice to the Owner, to enter the property and take whatever steps necessary to correct deficiencies and to charge the cost of such repairs to the Owner. Nothing herein shall obligate the City to maintain the BMP(s).

(Ord. 2011-05. Passed 3-15-11.)