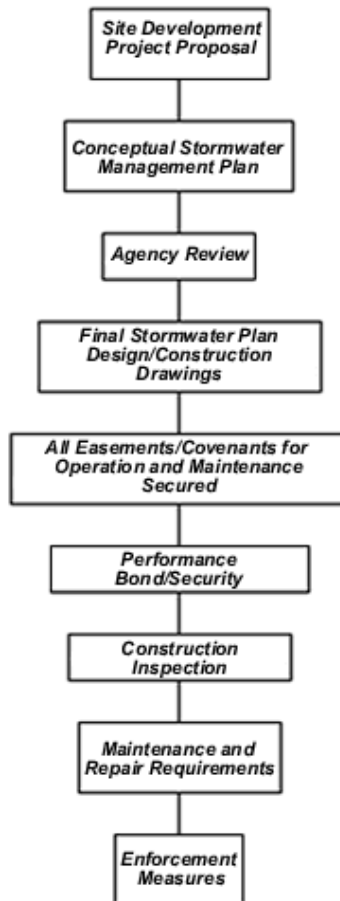


**ORDINANCE NO. \_\_\_\_\_ , 2010  
POST-CONSTRUCTION STORMWATER MANAGEMENT**

**AN ORDINANCE OF THE CITY OF WORTHINGTON, ADOPTING REGULATIONS REGARDING POST-CONSTRUCTION STORMWATER MANAGEMENT IN THE DEVELOPMENT AND REDEVELOPMENT OF PROPERTY LOCATED IN THE CITY OF WORTHINGTON THAT ARE DESIGNATED AS INSIDE THE URBANIZED AREA OF THE CITY OF WORTHINGTON AS DECLARED BY THE USEPA AND THE KENTUCKY DIVISION OF WATER, SAID AREAS BEING SUBJECT TO THE KPDES MS4 STORMWATER PERMIT ISSUED TO THE GREENUP COUNTY MS4 GROUP AND THE CITY OF WORTHINGTON AS A COPERMITTEE BY THE KENTUCKY DIVISION OF WATER; AND EXCLUDING THOSE PORTIONS OF THE CITY NOT LOCATED INSIDE THE URBANIZED MS4 AREA.**

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**Flow Chart Illustrating the Stormwater  
Permit Review Process**

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1. <i>General Provisions</i>	6. <i>Specific Performance Criteria for Stormwater Treatment Practices</i>
2. <i>Definitions</i>	7. <i>Requirements for Stormwater Management Plan Approval</i>
3. <i>Permit Procedures and Requirements</i>	8. <i>Construction Inspection Provisions</i>
4. <i>Waivers</i>	9. <i>Maintenance and Repair Requirements</i>
5. <i>General Performance Criteria for Stormwater Management</i>	10. <i>Enforcement and Violations</i>

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## **Section 1. General Provisions**

### **1.1. Findings of Fact**

It is hereby determined that:

Land development projects and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; This stormwater runoff contributes to increased quantities of water-borne pollutants, and; Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.

Therefore, the City of Worthington establishes this set of water quality and quantity policies applicable to all surface waters to provide reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development projects and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health and safety.

### **1.2. Purpose**

The purpose of this ordinance is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction. This ordinance seeks to meet that purpose through the following objectives:

1. minimize increases in stormwater runoff from any development in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;
2. minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality
3. minimize the total annual volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic regime to the maximum extent practicable.
4. reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety.

### **1.3. Applicability**

This ordinance shall be applicable to all subdivision or site plan applications, unless eligible for an exemption or granted a waiver by the City of Worthington under the specifications of Section 4 of this ordinance. The ordinance also applies to land development activities that are smaller than the minimum applicability criteria if such activities are part of a larger common plan of development that meets the following applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must also be reviewed by the local MS4 Coordinator for the City of Worthington and when necessary by a Qualified Plan Reviewer for the City of Worthington with hydrological and hydraulic expertise adequate for review of the environmental aspects of the Plans to ensure that established water quality standards will be maintained during and after development of the site and that post construction runoff levels are consistent with any local and regional watershed plans.

The minimum area for application of this ordinance shall be one (1) acre; however where the development activity creates total impervious cover areas exceeding 1,000 square feet, this ordinance will apply irrespective of how small the development activity may be.

To prevent the adverse impacts of stormwater runoff, the City of Worthington has developed a set of performance standards that must be met at new development sites. These standards apply to any construction activity disturbing 43,560 or more square feet of land. The following activities may be exempt from these stormwater performance criteria:

1. Any logging and agricultural activity which is consistent with an approved soil conservation plan or a timber management plan prepared or approved by the USDA Natural Resources Conservation Service (NRCS), as applicable.
2. Additions or modifications to existing single family structures
3. Developments that do not disturb more than 43,560 square feet of land, provided they are not part of a larger common development plan;
4. Repairs to any stormwater treatment practice deemed necessary by the City of Worthington.

When a site development plan is submitted that qualifies as a redevelopment project as defined in Section 2 of this ordinance, decisions on permitting and on-site stormwater requirements shall be governed by special stormwater sizing criteria found in the current stormwater design manual. This criteria is dependent on the amount of impervious area created by the redevelopment and its impact on water quality. Final authorization of all redevelopment projects will be determined after a review by the City of Worthington. Suffice it to say, that redevelopment projects are to be encouraged with incentives on the level of stormwater requirements required for compliance. In some instances the regulations through the stormwater design manual will allow for reduced criteria to meet the limitations of specific sites proposed for redevelopment. Reduction in impervious areas for proposed redevelopment is encouraged by the stormwater design manual, as well as considerations regarding the management of the water quality volume.

### **1.4. Compatibility with Other Permit and Ordinance Requirements**

This ordinance is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provision of law. The requirements of this ordinance should be

considered minimum requirements, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

### **1.5. Severability**

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this ordinance.

### **1.6. Development of a Stormwater Design Manual**

The City of Worthington may furnish additional policy, criteria and information including specifications and standards, for the proper implementation of the requirements of this ordinance and may provide such information in the form of a Stormwater Design Manual.

This manual will include a list of acceptable stormwater treatment practices, including the specific design criteria and operation and maintenance requirements for each stormwater practice. The manual may be updated and expanded from time to time, at the discretion of the local review authority, based on improvements in engineering, science, monitoring and local maintenance experience. Stormwater treatment practices that are designed and constructed in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards.

The Stormwater Design Manual shall emphasize the performance standards of stormwater treatment practices. An example would be the requirement for 80% removal of total suspended solids (TSS) as a means of controlling heavy metals, phosphorus, and other pollutants present in runoff.

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## **Section 2. Definitions:**

**"Accelerated Erosion"** means erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away by the action of water, wind, or chemical action.

**"Applicant"** means a property owner or agent of a property owner who has filed an application for a stormwater management permit.

**"Building"** means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.

**"Channel"** means a natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

**"Dedication"** means the deliberate appropriation of property by its owner for general public use.

**"Detention"** means the temporary storage of storm runoff in a stormwater management practice with the goals of controlling peak discharge rates and providing gravity settling of pollutants.

**"Detention Facility"** means a detention basin or alternative structure designed for the purpose of temporary storage of stream flow or surface runoff and gradual release of stored water at controlled rates.

**"Developer"** means a person who undertakes land disturbance activities.

**"Drainage Easement"** means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

**"Erosion and Sediment Control Plan"** means a plan that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

**"Fee in Lieu"** means a payment of money in place of meeting all or part of the storm water performance standards required by this ordinance.

**"Hotspot"** means an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater.

**"Hydrologic Soil Group (HSG)"** means a Natural Resource Conservation Service classification system in which soils are categorized into four runoff potential groups. The groups range from A soils, with high permeability and little runoff production, to D soils, which have low permeability rates and produce much more runoff.

**"Impervious Cover"** means those surfaces that cannot effectively infiltrate rainfall (e.g., building rooftops, pavement, sidewalks, driveways, etc).

**"Industrial Stormwater Permit"** means an National Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

**"Infiltration"** means the process of percolating stormwater into the subsoil.

**"Infiltration Facility"** means any structure or device designed to infiltrate retained water to the subsurface. These facilities may be above grade or below grade.

**"Jurisdictional Wetland"** means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

**"Land Disturbance Activity"** means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

**"Landowner"** means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

**"Maintenance Agreement"** means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

**"Nonpoint Source Pollution"** means pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

**"Offset Fee"** means a monetary compensation paid to a local government for failure to meet pollutant load reduction targets.

**"Off-Site Facility"** means a stormwater management measure located outside the subject property boundary described in the permit application for land development activity.

**"On-Site Facility"** means a stormwater management measure located within the subject property boundary described in the permit application for land development activity.

**"Recharge"** means the replenishment of underground water reserves. "Redevelopment" means any construction, alteration or improvement exceeding square feet in areas where existing land use is high density commercial, industrial, institutional or multi-family residential.

**"Redevelopment"** means any construction, alteration or improvement exceeding 43,560 square feet in areas where existing land use is high density commercial, industrial, institutional or multi-family residential.

**"Stop Work Order"** means an order issued which requires that all construction activity on a site be stopped.

**"Storm Water Management"** means the use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, discharge volumes, and/or peak flow discharge rates.

**"Storm Water Retrofit"** means a stormwater management practice designed for an existing development site that previously had either no stormwater management practice in place or a practice inadequate to meet the stormwater management requirements of the site.

**"Stormwater Runoff"** means flow on the surface of the ground, resulting from precipitation.

**"Stormwater Treatment Practices (STPs)"** means measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

**"Water Quality Volume (WQv)"** means the storage needed to capture and treat 90% of the average annual stormwater runoff volume. Numerically (WQv) will vary as a function of long term rainfall statistical data.

**"Watercourse"** means a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

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## **Section 3. Permit Procedures and Requirements**

### **3.1. Permit Required.**

No land owner or land operator shall receive any of the building, grading or other land development permits required for land disturbance activities without first meeting the requirements of this ordinance prior to commencing the proposed activity.

### **3.2. Application Requirements**

Unless specifically excluded by this ordinance, any land owner or operator desiring a permit for a land disturbance activity shall submit to the City of Worthington a permit application on a form provided for that purpose.

Unless otherwise excepted by this ordinance, a permit application must be accompanied by the following in order that the permit application be considered: a stormwater management plan; a maintenance agreement; and a non-refundable permit review fee.

The stormwater management plan shall be prepared to meet the requirements of Sec. 5 of this ordinance, the maintenance agreement shall be prepared to meet the requirements of Sec. 9 of this ordinance, and fees shall be those established by the City of Worthington

### **3.3. Application Review Fees**

The fee for review of any land development application shall be based on the amount of land to be disturbed at the site, and the fee structure shall be established by the City of Worthington. All of the monetary contributions shall be credited to a local budgetary category to support local plan review, inspection and program administration, and shall be made prior to the issuance of any building permit for the development.

### **3.4. Application Procedure**

1. Applications for land disturbance activity permits must be filed with the City of Worthington on any regular business day.
2. A copy of this permit application shall be forwarded to City of Worthington for review
3. Permit applications shall include the following: two copies of the stormwater management plan, two copies of the maintenance agreement, and any required review fees.
4. Within 20 business days of the receipt of a complete permit application, including all documents as required by this ordinance, the City of Worthington shall inform the applicant whether the application, plan and maintenance agreement are approved or disapproved.
5. If the permit application, stormwater management plan or maintenance agreement are disapproved, the applicant may revise the stormwater management plan or agreement. If additional information is submitted, the City of Worthington shall have 15 business days

from the date the additional information is received to inform the applicant that the plan and maintenance agreement are either approved or disapproved.

6. If the permit application, final stormwater management plan and maintenance agreement are approved by the City of Worthington, all appropriate land disturbance activity permits shall be issued.

### **3.5. Permit Duration**

Permits issued under this section shall be valid from the date of issuance through the date the City of Worthington notifies the permit holder that all stormwater management practices have passed the final inspection required under permit condition.

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## **Section 4. Waivers to Stormwater Management Requirements**

### **4.1. Waivers for Providing Stormwater Management**

Every applicant shall provide for stormwater management as required by this ordinance, unless a written request is filed to waive this requirement. Requests to waive the stormwater management plan requirements shall be submitted to the City of Worthington for approval.

The minimum requirements for stormwater management may be waived in whole or in part upon written request of the applicant, provided that at least one of the following conditions applies:

1. It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this ordinance.
2. Alternative minimum requirements for on-site management of stormwater discharges have been established in a stormwater management plan that has been approved by the City of Worthington and the implementation of the plan is required by local ordinance.
3. Provisions are made to manage stormwater by an off-site facility. The off-site facility is required to be in place, to be designed and adequately sized to provide a level of stormwater control that is equal to or greater than that which would be afforded by on-site practices and there is a legally obligated entity responsible for long-term operation and maintenance of the stormwater practice.
4. The City of Worthington finds that meeting the minimum on-site management requirements is not feasible due to the natural or existing physical characteristics of a site.
5. Non-structural practices will be used on the site that reduce: a) the generation of stormwater from the site, b) the size and cost of stormwater storage and c) the pollutants generated at the site. These non-structural practices are explained in detail in the current design manual and the amount of credit available for using such practices shall be determined by the City of Worthington.

In instances where one of the conditions above applies, the City of Worthington may grant a waiver from strict compliance with these stormwater management provisions, as long as acceptable mitigation measures are provided. However, to be eligible for a variance, the applicant must demonstrate to the satisfaction of the City of Worthington that the variance will not result in the following impacts to downstream waterways:



Deterioration of existing culverts, bridges, dams, and other structures;  
Degradation of biological functions or habitat;  
Accelerated stream bank or streambed erosion or siltation;  
Increased threat of flood damage to public health, life, property .

Furthermore, where compliance with minimum requirements for stormwater management is waived, the applicant will satisfy the minimum requirements by meeting one of the mitigation measures selected by the jurisdictional stormwater authority. Mitigation measures may include, but are not limited to, the following:

- The purchase and donation of privately owned lands, or the grant of an easement to be dedicated for preservation and/or reforestation. These lands should be located adjacent to the stream corridor in order to provide permanent buffer areas to protect water quality and aquatic habitat,
- The creation of a stormwater management facility or other drainage improvements on previously developed properties, public or private, that currently lack stormwater management facilities designed and constructed in accordance with the purposes and standards of this ordinance,
- Monetary contributions (Fee-in-Lieu) to fund stormwater management activities such as research and studies (e.g., regional wetland delineation studies, stream monitoring studies for water quality and macroinvertebrates, stream flow monitoring, threatened and endangered species studies, hydrologic studies, and monitoring of stormwater management practices.

#### **4.2. Fee in Lieu of Stormwater Management Practices**

Where the City of Worthington waives all or part of the minimum stormwater management requirements, or where the waiver is based on the provision of adequate stormwater facilities provided downstream of the proposed development, the applicant shall be required to pay a fee in an amount as determined by the City of Worthington. When an applicant obtains a waiver of the required stormwater management, the monetary contribution required shall be in accordance with a fee schedule (unless the developer and the stormwater authority agree on a greater alternate contribution) established by the City of Worthington, and based on the cubic feet of storage required for stormwater management of the development in question. All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made by the developer prior to the issuance of any building permit for the development.

#### **4.3. Dedication of land**

In lieu of a monetary contribution, an applicant may obtain a waiver of the required stormwater management by entering into an agreement with the City of Worthington for the granting of an easement or the dedication of land by the applicant, to be used for the construction of an off-site stormwater management facility. The agreement shall be entered into by the applicant and the City of Worthington prior to the recording of plats or, if no record plat is required, prior to the issuance of the building permit.

## Section 5. General Performance Criteria for Stormwater Management

Unless judged by the City of Worthington to be exempt or granted a waiver, the following performance criteria shall be addressed for stormwater management at all sites:

- A. The post-construction BMPs chosen for stormwater management at all sites shall be designed to minimize water quality impacts, and shall attempt to maintain pre-development runoff conditions.
- B. All site designs shall establish stormwater management practices to control the peak flow rates of stormwater discharge associated with specified design storms and reduce the generation of stormwater. These practices should seek to utilize pervious areas for stormwater treatment and to infiltrate stormwater runoff from driveways, sidewalks, rooftops, parking lots, and landscaped areas to the maximum extent practical to provide treatment for both water quality and quantity.
- C. All stormwater runoff generated from new development shall not be allowed to discharge untreated directly into a jurisdictional wetland or local water body without adequate treatment. Where such discharges are proposed, the impact of the proposal on wetland functional values shall be assessed using a method acceptable to the City of Worthington. In no case shall the impact on functional values be any less than allowed by the Army Corp of Engineers (ACE) or the City of Worthington for natural resources.
- D. Annual groundwater recharge rates shall be maintained, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall mimic the annual recharge from pre-development site conditions.
- E. For new development, structural stormwater treatment practices (STP) shall be designed to remove 80% of the average annual post development total suspended solids load (TSS). It is presumed that a STP complies with this performance standard if it is:
  - o sized to capture the prescribed water quality volume (WQv),
  - o designed according to the specific performance criteria outlined in the local stormwater design manual,
  - o constructed properly, and
  - o maintained regularly.
- F. An on-site stormwater runoff quality treatment standard shall be based on an analysis of precipitation records to determine the equivalent surface depth of runoff (e.g. 0.75 inches) produced from an 80<sup>th</sup> percentile precipitation event.
- G. Special considerations and measures shall be implemented for new or expanded discharges to high-quality waters that provide sufficient treatment to protect existing in-stream water uses and the level of water quality necessary to protect the existing uses.
- H. To protect stream channels from degradation, a specific channel protection criteria shall be provided as prescribed in the stormwater design manual.
- I. Stormwater discharges to critical areas with sensitive resources (i.e., cold water fisheries, shellfish beds, swimming beaches, recharge areas, water supply reservoirs) may be subject to additional performance criteria, or may need to utilize or restrict certain stormwater management practices.
- J. Certain industrial sites are required to prepare and implement a stormwater pollution prevention plan, and shall file a notice of intent (NOI) under the provisions of the National Pollutant Discharge Elimination System (NPDES) general permit. The stormwater pollution

- prevention plan requirement applies to both existing and new industrial sites.
- K. Stormwater discharges from land uses or activities with higher potential pollutant loadings, known as "hotspots", may require the use of specific structural STPs and pollution prevention practices.
  - L. Prior to design, applicants are required to consult with the City of Worthington to determine if they are subject to additional stormwater design requirements.
  - M. The calculations for determining peak flows as found in the Stormwater Design Manual shall be used for sizing all stormwater management practices.

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## **Section 6. Basic Stormwater Management Design Criteria**

The design standards for the development application to the City of Worthington shall utilize the current Stormwater Design Manual for the exact design criteria for the stormwater management practices appropriate for a specific site. Design considerations for the application shall address the following:

- Site Design Feasibility
- Conveyance Issues
- Pretreatment Requirements
- Treatment/Geometry Conditions
- Environmental/Landscaping Standards
- Maintenance Needs

### **6.1. Minimum Control Requirements**

All stormwater management practices will be designed so that the specific storm frequency storage volumes (e.g., recharge, water quality, channel protection, 10 year, 100 year) as identified in the current Stormwater Design Manual are met, unless the City of Worthington grants the applicant a waiver or the applicant is exempt from such requirements.

In addition, if hydrologic or topographic conditions warrant greater control than that provided by the minimum control requirements, the City of Worthington reserves the right to impose any and all additional requirements deemed necessary to control the volume, timing, and rate of runoff.

### **6.2 Site Design Feasibility**

Stormwater management practices for a site shall be chosen based on the physical conditions of the site. Among the factors that should be considered:

1. Topography
2. Maximum Drainage Area
3. Depth to Water Table
4. Soils
5. Slopes
6. Terrain
7. Head
8. Location in relation to environmentally sensitive features or ultra-urban areas

Applicants shall consult the Stormwater Design Manual for guidance on the factors that determine site design feasibility when selecting a stormwater management practice.

### **6.3. Conveyance Issues**

All stormwater management practices shall be designed to convey stormwater to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include, but not be limited to:

1. Maximizing of flow paths from inflow points to outflow points
2. Protection of inlet and outfall structures
3. Elimination of erosive flow velocities
4. Providing of underdrain systems, where applicable

The Stormwater Design Manual shall provide detailed guidance on the requirements for conveyance for each of the approved stormwater management practices.

### **6.4. Pretreatment Requirements**

Every stormwater treatment practice shall have an acceptable form of water quality pretreatment, in accordance with the pretreatment requirements found in the current Stormwater Design Manual. Certain stormwater treatment practices, as specified in the Stormwater Design Manual, are prohibited even with pretreatment in the following circumstances:

- A. Stormwater is generated from highly contaminated source areas known as "hotspots"
- B. Stormwater is carried in a conveyance system that also carries contaminated, non-stormwater discharges
- C. Stormwater is being managed in a designated groundwater recharge area.
- D. Certain geologic conditions exist (e.g., karst) that prohibit the proper pretreatment of stormwater

### **6.5. Treatment/Geometry Conditions**

All stormwater management practices shall be designed to capture and treat stormwater runoff according to the specifications outlined in the Stormwater Design Manual. These specifications will designate the water quantity and quality treatment criteria that apply to an approved stormwater management practice.

### **6.6. Landscaping Plans Required**

All stormwater management practices must have a landscaping plan detailing both the vegetation to be in the practice and how and who will manage and maintain this vegetation. This plan must be prepared by a registered landscape architect or soil conservation district.

### **6.7. Maintenance Agreements**

All stormwater treatment practices shall have an enforceable operation and maintenance agreement

to ensure the system functions as designed. This agreement will include any and all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater treatment practice. In addition, a legally binding covenant specifying the parties responsible for the proper maintenance of all stormwater treatment practices shall be secured prior to issuance of any permits for land disturbance activities.

## **6.8. Non-Structural Stormwater Practices**

The use of non-structural stormwater treatment practices is encouraged in order to minimize the reliance on structural practices. Credit in the form of reductions in the amount of stormwater that must be managed can be earned through the use of non-structural practices that reduce the generation of stormwater from the site. These non-structural practices are explained in detail in the current design manual and applicants wishing to obtain credit for use of non-structural practices must ensure that these practices are documented and remain unaltered by subsequent property owners.

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## **Section 7. Requirements for Stormwater Management Plan Approval**

### **7.1. Stormwater Management Plan Required for All Developments**

No application for development will be approved unless it includes a Stormwater Management Plan detailing in concept how runoff and associated water quality impacts resulting from the development will be controlled or managed. This plan must be prepared by an individual with adequate qualifications and approved by the City of Worthington. The plan must indicate whether stormwater will be managed on-site or off-site and, if on-site, the general location and type of practices. The Stormwater Management Plan(s) shall be referred for comment to all other interested agencies, and any comments must be addressed in a Final Stormwater Management Plan. This final plan must be signed by a licensed professional engineer (PE), who will verify that the design of all stormwater management practices meet the submittal requirements outlined in the Submittal Checklist found in the Stormwater Design Manual. No building, grading, or sediment control permit shall be issued until a satisfactory Final Stormwater Management Plan, or a waiver thereof, shall have undergone a review and been approved by the City of Worthington after determining that the plan or waiver is consistent with the requirements of this ordinance.

### **7.2. Stormwater Management Concept Plan Requirements**

A Stormwater Management Concept Plan shall be required with all permit applications and will include sufficient information (e.g., maps, hydrologic calculations, etc) to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, both present and future, on the water resources, and the effectiveness and acceptability of the measures proposed for managing stormwater generated at the project site. The intent of this conceptual planning process is to determine the type of stormwater management measures necessary for the proposed project, and ensure adequate planning for management of stormwater runoff from future development. To accomplish this goal the following information shall be included in the concept plan:

1. A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment control facilities. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads and easements; the limits of clearing and grading; A written description of the site plan and justification of proposed changes in natural conditions may also be required.
2. Sufficient engineering analysis to show that the proposed stormwater management measures are capable of controlling runoff from the site in compliance with this ordinance and the specifications of the Stormwater Design Manual.
3. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of soil conditions, forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for development.
4. A written description of the required maintenance burden for any proposed stormwater management facility.
5. The City of Worthington may also require a concept plan to consider the maximum development potential of a site under existing zoning, regardless of whether the applicant presently intends to develop the site to its maximum potential.

For development or redevelopment occurring on a previously developed site, an applicant shall be required to include within the stormwater concept plan measures for controlling existing stormwater runoff discharges from the site in accordance with the standards of this Ordinance to the maximum extent practicable.

### **7.3. Final Stormwater Management Plan Requirements**

After review of the Stormwater Management Concept Plan, and modifications to that plan as deemed necessary by the City of Worthington, a Final Stormwater Management Plan must be submitted for approval. The Final Stormwater Management Plan, in addition to the information from the concept plan, shall include all of the information required in the Final Stormwater Management Plan checklist found in the Stormwater Design Manual. This includes:

1. Contact Information

The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected.

2. Topographic Base Map

A 1" = 200' topographic base map of the site which extends a minimum of 100 feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; current land use including all existing structures; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown.

### 3. Calculations

Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this ordinance. Such calculations shall include (i) description of the design storm frequency, intensity and duration, (ii) time of concentration, (iii) Soil Curve Numbers or runoff coefficients, (iv) peak runoff rates and total runoff volumes for each watershed area, (v) infiltration rates, where applicable, (vi) culvert capacities, (vii) flow velocities, (viii) data on the increase in rate and volume of runoff for the design storms referenced in the Stormwater Design Manual, and (ix) documentation of sources for all computation methods and field test results.

### 4. Soils Information

If a stormwater management control measure depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil sits shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the control measure.

### 5. Maintenance and Repair Plan

The design and planning of all stormwater management facilities shall include detailed maintenance and repair procedures to ensure their continued function. These plans will identify the parts or components of a stormwater management facility that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan.

### 6. Landscaping plan

The applicant must present a detailed plan for management of vegetation at the site after construction is finished, including who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a Registered Landscape Architect, Professional Engineer, or by the local office of the Natural Resources Conservation Service (NRCS).

### 7. Maintenance Easements

The applicant must ensure access to all stormwater treatment practices at the site for the purpose of inspection and repair by securing all the maintenance easements needed on a permanent basis. These easements will be recorded with the plan and will remain in effect even with transfer of title to the property.

### 8. Maintenance Agreement

The applicant must execute an easement and an inspection and maintenance agreement binding on all subsequent owners of land served by an on-site stormwater management

measure in accordance with the specifications of this ordinance.

#### 9. Erosion and Sediment Control Plans for Construction of Stormwater Management Measures

The applicant must prepare an erosion and sediment control plan for all construction activities related to implementing any on-site stormwater management practices.

#### 10. Other Environmental Permits

The applicant shall assure that all other applicable environmental permits have been acquired for the site prior to approval of the final stormwater design plan.

### **7.4. Performance Bond/Security**

The City of Worthington may, at its discretion, require the submittal of a performance security or bond prior to issuance of a permit in order to insure that the stormwater practices are installed by the permit holder as required by the approved stormwater management plan. The amount of the installation performance security shall be the total estimated construction cost of the stormwater management practices approved under the permit, plus 25%. The performance security shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan. The installation performance security shall be released in full only upon submission of "as built plans" and written certification by a registered professional engineer that the stormwater practice has been installed in accordance with the approved plan and other applicable provisions of this ordinance. The City of Worthington will make a final inspection of the stormwater practice to ensure that it is in compliance with the approved plan and the provisions of this ordinance. Provisions for a partial pro-rata release of the performance security based on the completion of various development stages can be done at the discretion of the City of Worthington.

The City of Worthington may also require the issuance of a performance security or bond for the maintenance costs estimated in the stormwater plan for the period during which the permit holder has maintenance responsibility which shall be released when the responsibility for the maintenance has passed on to another party via an approved maintenance agreement.

## **Section 8. Construction Inspection**

### **8.1. Notice of Construction Commencement**

The applicant must notify the City of Worthington in advance before the commencement of construction. Regular inspections of the stormwater management system construction shall be conducted by the staff of the City of Worthington or certified by a professional engineer or their designee who has been approved by the City of Worthington. All inspections shall be documented and written reports prepared that contain the following information:

1. The date and location of the inspection;
2. Whether construction is in compliance with the approved stormwater management plan
3. Variations from the approved construction specifications
4. Any violations that exist



If any violations are found, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. No added work shall proceed until any violations are corrected and all work previously completed has received approval by the City of Worthington.

## **8.2. As Built Plans**

All applicants are required to submit actual "as built" plans for any stormwater management practices located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer. A final inspection by the City of Worthington is required before the release of any performance securities can occur.

## **8.3. Landscaping and Stabilization Requirements**

Any area of land from which the natural vegetative cover has been either partially or wholly cleared or removed by development activities shall be revegetated within ten (10) days from the substantial completion of such clearing and construction. The following criteria shall apply to revegetation efforts:

Reseeding must be done with an annual or perennial cover crop accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until such time as the cover crop is established over ninety percent (90%) of the seeded area.

Replanting with native woody and herbaceous vegetation must be accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until the plantings are established and are capable of controlling erosion.

Any area of revegetation must exhibit survival of a minimum of seventy-five percent (75%) of the cover crop throughout the year immediately following revegetation. Revegetation must be repeated in successive years until the minimum seventy-five percent (75%) survival for one (1) year is achieved.

In addition to the above requirements, a landscaping plan must be submitted with the final design describing the vegetative stabilization and management techniques to be used at a site after construction is completed. This plan will explain not only how the site will be stabilized after construction, but who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect or by the soil conservation district, and must be approved prior to receiving a permit.

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## **Section 9. Maintenance and Repair of Stormwater Facilities**

### **9.1. Maintenance Easement**

Prior to the issuance of any permit that has an stormwater management facility as one of the requirements of the permit, the applicant or owner of the site must execute a maintenance easement agreement that shall be binding on all subsequent owners of land served by the stormwater management facility. The agreement shall provide for access to the facility at reasonable times for

periodic inspection by the City of Worthington, or their contractor or agent, and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this ordinance. The easement agreement shall be recorded by the City of Worthington in the land records.

## **9.2. Maintenance Covenants**

Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance covenant that must be approved by the City of Worthington and recorded into the land record prior to final plan approval. As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater management facility. The covenant shall also include plans for periodic inspections to ensure proper performance of the facility between scheduled cleanouts.

The City of Worthington, in lieu of a maintenance covenant, may accept dedication of any existing or future stormwater management facility for maintenance, provided such facility meets all the requirements of this chapter and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance. Specific conditions for application to dedicate any existing or future stormwater management facility for maintenance to the City of Worthington shall be provided in the Stormwater Design Manual.

## **9.3. Requirements of Maintenance Covenants**

All stormwater management facilities must undergo, at the minimum, an annual inspection to document maintenance and repair needs and ensure compliance with the requirements of this ordinance and accomplishment of its purposes. These needs may include; removal of silt, litter and other debris from all catch basins, inlets and drainage pipes, grass cutting and vegetation removal, and necessary replacement of landscape vegetation. Any maintenance needs found must be addressed in a timely manner, as determined by the City of Worthington, and the inspection and maintenance requirement may be increased as deemed necessary to ensure proper functioning of the stormwater management facility.

## **9.4. Inspection of Stormwater Facilities**

Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other stormwater treatment practices.

## **9.5. Right of Entry for Inspection**

When any new drainage control facility is installed on private property, or when any new connection is made between private property and a public drainage control system, sanitary sewer or combined sewer, the property owner shall grant to the **City of Worthington** the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this ordinance is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this ordinance.

## **9.6. Records of Installation and Maintenance Activities**

Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least 15 years. These records shall be made available to the City of Worthington during inspection of the facility and at other reasonable times upon request.

## **9.7. Failure to Maintain Practices**

If a responsible party fails or refuses to meet the requirements of the maintenance covenant, the City of Worthington, after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition. In the event that the stormwater management facility becomes a danger to public safety or public health, the City of Worthington shall notify the party responsible for maintenance of the stormwater management facility in writing. Upon receipt of that notice, the responsible person shall have 7 days to effect maintenance and repair of the facility in an approved manner. After proper notice, the City of Worthington may assess the owner(s) of the facility for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes by the county.

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## **Section 10. Enforcement and Penalties**

### **10.1. Violations**

Any development activity that is commenced or is conducted contrary to this Ordinance, may be restrained by injunction or otherwise abated in a manner provided by law.

### **10.2. Notice of Violation**

When the City of Worthington determines that an activity is not being carried out in accordance with the requirements of this Ordinance, it shall issue a written notice of violation to the owner of the property. The notice of violation shall contain :

1. the name and address of the owner or applicant;
2. the address when available or a description of the building, structure or land upon which the

- violation is occurring;
3. a statement specifying the nature of the violation;
  4. a description of the remedial measures necessary to bring the development activity into compliance with this Ordinance and a time schedule for the completion of such remedial action;
  5. a statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;
  6. a statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within fifteen (15) days of service of notice of violation.

### **10.3. Stop Work Orders**

Persons receiving a notice of violation will be required to halt all construction activities. This "stop work order" will be in effect until the City of Worthington confirms that the development activity is in compliance and the violation has been satisfactorily addressed. Failure to address a notice of violation in a timely manner can result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this ordinance.

### **10.4. Civil and Criminal Penalties**

In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this Ordinance shall be punished by a fine of not less than \$500 Dollars or by imprisonment for a period not to exceed 30 days, or both such fine and imprisonment. Such person shall be guilty of a separate offense for each day during which the violation occurs or continues.

### **10.5. Restoration of lands**

Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the City of Worthington may take necessary corrective action, the cost of which shall become a lien upon the property until paid.

### **10.6. Holds on Occupation Permits**

Occupation permits will not be granted until corrections to all stormwater practices have been made and accepted by the City of Worthington.

Acknowledged by: \_\_\_\_\_

Date: \_\_\_\_\_