

## CHAPTER 943: COMPREHENSIVE STORM WATER MANAGEMENT

### Reason for Ordinance

The National Pollutant Discharge and Elimination System (NPDES) Phase 2 MS4 Permit stipulates that communities must implement ordinances for erosion and sediment control, and storm water management. This ordinance only addresses post-construction storm water quality and quantity management in the unincorporated areas of the County. Each incorporated municipality participating in the Countywide NPDES Permit is responsible for enacting similar legislation to govern activities within their jurisdictions. Chapter 941 of the Codified Ordinances of the County of Summit is already in place for erosion and sediment control during construction.

### **An Ordinance enacting Title Nine, Chapter 943 of Part Nine of the Codified Ordinances of the County of Summit entitled “Comprehensive Storm Water Management”**

**WHEREAS**, flooding is a significant threat to property, public health and safety, and storm water management lessens flood damage by reducing and holding runoff and releasing it slowly; and,

**WHEREAS**, stream bank erosion is a significant threat to property, public health and safety, and storm water management slows runoff and reduces its erosive force; and,

**WHEREAS**, insufficient control of storm water can result in significant damage to receiving water resources, impairing their capacity to sustain aquatic systems; and,

**WHEREAS**, increases in impervious surfaces due to land development alter the hydrology of local watersheds and increase storm water runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; and,

**WHEREAS**, storm water runoff contributes to increased quantities of pollutants to water resources; and,

**WHEREAS**, nonpoint source pollution can be controlled and minimized through the regulation of runoff from land development projects; and,

**WHEREAS**, there are watershed-wide efforts to reduce flooding, erosion, and water quality problems in the Cuyahoga River, Rocky River and Tuscarawas River Watersheds, and to protect and enhance the water resources of the Cuyahoga, Rocky and Tuscarawas rivers and,

**WHEREAS**, Summit County finds that the lands and waters within its borders are finite natural resources and that their quality is of primary importance in promoting and maintaining public health and safety within its borders; and,

**WHEREAS**, the County of Summit desires to establish standards, principles, and procedures for the regulation of soil-disturbing activities that may increase flooding and erosion and have adverse impact on water resources, resulting from storm water runoff; and,

**WHEREAS**, 40 C.F.R. Parts 9, 122, 123, and 124, and Ohio Administrative Code 3745-39 require designated communities, including the County of Summit, to develop a Storm Water Management Program that, among other components, requires the County of Summit to implement standards, principles, and procedures to regulate the quality of storm water runoff during and after soil disturbing activities; and,

**WHEREAS**, Article XVIII, Section 3 of the Ohio Constitution grants municipalities the legal authority to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary, and other similar regulations, as are not in conflict with general laws.

**NOW, THEREFORE, BE IT ORDAINED** by the Council of the County of Summit, State of Ohio, that:

Codified Ordinance Chapter 943, Storm Water Management is hereby adopted to read in total as follows:

**CHAPTER 943**

**COMPREHENSIVE STORM WATER MANAGEMENT**

943.01	Purpose and Scope.	943.10	Alternative Actions.
943.02	Definitions.	943.11	Easements.
943.03	Disclaimer of Liability.	943.12	Maintenance and Final Inspection Approval.
943.04	Conflicts, Severability, Nuisances and Responsibility.	943.13	On-going Inspections.
943.05	Development of Comprehensive Storm Water Management Plans.	943.14	Fees.
943.06	Application Procedures	943.15	Bond.
943.07	Compliance with Local, State, and Federal Regulations.	943.16	Installation of Water Quality Best Management Practices.
943.08	Comprehensive Storm Water Management Plans.	943.17	Violations
943.09	Performance Standards	943.18	Appeals.

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**943.01 PURPOSE AND SCOPE**

- A. The purpose of this Chapter is to establish technically feasible and economically reasonable storm water management standards to achieve a level of storm water quality and quantity control for newly developed, or redeveloped, property that will minimize damage to property, and degradation of water resources, and will promote and maintain the health, safety, and welfare of the citizens of the County of Summit.
- B. This regulation requires owners who develop or re-develop their property within the unincorporated areas of the County to:
  - 1. Control water runoff from their property and ensure the proper design, construction and maintenance of all water management practices per the Summit County Storm Water Drainage Manual.
  - 2. Reduce the adverse impact on water quality within the receiving water resources caused by unregulated new development or redevelopment.
  - 3. Control the volume, rate, and quality of water runoff originating from their property to protect water resources, and manage flooding and erosion.
  - 4. Minimize the need to construct, repair, and replace subsurface and surface drain systems.
  - 5. Preserve natural infiltration and ground water recharge, and maintain subsurface flow that replenishes water resources, except in slippage prone soils.
  - 6. Incorporate storm water quality and quantity controls into site planning and design at the earliest possible stage in the development process.
  - 7. Reduce the expense of remedial projects needed to address problems caused by inadequate storm water management.
  - 8. Maximize use of best management practices that serve multiple purposes including, but not limited to, flood control, erosion control, fire protection, water quality protection, recreation, and habitat preservation.
  - 9. Design sites to minimize the number of stream crossings and the width of associated disturbance in order to minimize the County’s future expenses related to the maintenance and repair of stream crossings.
  - 10. Maintain, promote, and re-establish conditions necessary for naturally occurring stream processes that assimilate pollutants, attenuate flood flows, and promote a healthy water resource.
- C. This Chapter shall apply to all parcels in the unincorporated areas of the County on which activity specified in Section 943.05(A) occurs.
- D. The State of Ohio, the County, and all other political subdivisions, shall comply with this Chapter for non-highway projects initiated after enactment of this Chapter and, to the maximum extent practicable, for projects initiated before that time.
- E. This Chapter does not apply to activities regulated by, and in compliance with, the Ohio Agricultural Sediment Pollution Abatement Rules.

- F. This Chapter does not require a Comprehensive Storm Water Management Plan for linear construction projects, such as pipeline, or utility line installations that do not result in the installation of impervious surface, or unreasonably modify vegetative ground cover, as determined by the County Drainage Engineer. Such projects must minimize the number of stream crossings and the width of disturbance. Linear construction projects must comply with the requirements of Chapter 941 Erosion and Sediment Control.

### **943.02 DEFINITIONS**

For the purpose of this Chapter, the definitions used in Section 941.02 of the County of Summit Codified Ordinances apply and the following terms shall have the meaning herein indicated:

- A. **AS-BUILT SURVEY:** A survey shown on a plan or drawing prepared by a Registered Surveyor indicating the actual dimensions, elevations, ground contours, ground cover vegetation, and locations of any structures, pavements, underground utilities, swales, detention facilities, and sewage treatment facilities after construction is completed.
- B. **CLEAN WATER ACT:** The Federal Water Pollution Control Act or the Federal Water Pollution Control Act Amendments of 1972, and thereafter.
- C. **COMPREHENSIVE STORM WATER MANAGEMENT PLAN:** The written document that includes the Improvement Plans and the Storm Water Pollution Prevention Plan, setting forth the practices to minimize storm water runoff from a development area.
- D. **COUNTY DRAINAGE ENGINEER:** The County Engineer or an entity designated by the Summit County Council to serve as the County Drainage Engineer.
- E. **CRITICAL STORM:** A storm event calculated to create the maximum allowable storm water discharge rate from a developed site.
- F. **DEVELOPMENT DRAINAGE AREA:** A combination of each hydraulically unique watershed with individual outlet points on the development area.
- G. **EXTENDED CONVEYANCE:** A water management practice that replaces and/or enhances traditional open or closed storm drainage conduits by retarding flow, promoting percolation of runoff into the soil, and filtering pollutants during a storm event.
- H. **EXTENDED DETENTION:** A water management practice that replaces and/or enhances traditional detention facilities by releasing the runoff collected during a storm event over at least 24 to 48 hours, retarding flow and allowing pollutants to settle within the facility.
- I. **FACILITY:** An interconnected collection of structural, and nonstructural, storm water runoff controls and treatment techniques, or devices, to control runoff and/or reduce pollution levels.
- J. **GRADING:** The process in which the topography of the land is altered.
- K. **HYDROLOGIC UNIT CODE:** A cataloging system developed by the United States Geological Survey, and the Natural Resource Conservation Service, to identify watersheds in the United States.
- L. **IMPERVIOUS COVER:** Any surface that cannot effectively absorb, or be infiltrated by, water. This may include roads, streets, driveways, parking lots, rooftops, sidewalks, compacted ground surfaces, and other areas not covered by vegetation.
- M. **INFILTRATION:** A storm water management practice that does not discharge to a storm water resource during the storm event, requiring collected runoff to either infiltrate into the groundwater and/or be consumed by evapotranspiration, thereby retaining storm water pollutants within the facility.
- N. **LARGER COMMON PLAN OF DEVELOPMENT OR SALE:** A contiguous area where multiple, separate and distinct construction activities may be taking place at different times on different schedules under one plan.
- O. **NONSTRUCTURAL STORM WATER MANAGEMENT PRACTICE:** Storm water runoff control and treatment techniques that use natural practices to control runoff and/or reduce pollution levels.

- P. POST-DEVELOPMENT: The conditions that exist after soil disturbing activity that changes the topography, vegetation, land use, or water runoff.
- Q. PRE-CONSTRUCTION MEETING: Meeting prior to construction between all parties associated with the construction of the project including government agencies, contractors and owners to review agency requirements and plans as approved and submitted.
- R. PRE-DEVELOPMENT: The conditions that exist prior to soil disturbing activity that changes the topography, vegetation, land use, or water runoff.
- S. REDEVELOPMENT: A construction project on previously developed land where impervious cover has been created, and where new development will not increase the runoff coefficient.
- T. RIPARIAN AREA: Land adjacent to any brook, creek, river, or stream having a defined bed and bank that, if appropriately sized, helps to stabilize stream banks, limit erosion, reduce flood size flows, and/or filter and settle out runoff pollutants, or performs other functions consistent with the purposes of this Chapter.
- U. RIPARIAN SETBACK: The real property adjacent to a water resource on which soil disturbing activities are limited, all as defined by Summit County Codified Ordinances, Chapter 937 – Riparian Setbacks.
- V. STABILIZATION: The use of Best Management Practices that reduce or prevent soil erosion from water runoff, trench dewatering, wind, ice, gravity, or a combination thereof.
- W. STRUCTURAL STORM WATER MANAGEMENT PRACTICE: Any constructed facility, structure, or device that provides storage, conveyance, and/or treatment of storm water runoff.
- X. WATER QUALITY VOLUME: The volume of runoff from a contributing watershed that must be captured and treated, equivalent to the maximized capture volume as defined by current standards of the American Society of Civil Engineers (ASCE).
- Y. WATER RESOURCE CROSSING: Any bridge, box, arch, culvert, truss, or other type of structure intended to convey people, animals, vehicles, or materials from one side of a watercourse to another. This does not include pole mounted aerial electric or telecommunication lines, nor does it include below grade utility lines.
- Z. WATERSHED: The total drainage area contributing water runoff to a single point.

**943.03 DISCLAIMER OF LIABILITY**

- A. Compliance with the provisions of this Chapter shall not relieve any person from responsibility for damage to any person or property otherwise imposed by law. The provisions of this Chapter are promulgated to promote the health, safety, and welfare of the public and are not designed for the benefit of any individual or any particular parcel of property.
- B. By approving a Comprehensive Storm Water Management Plan under this Chapter, the County does not accept responsibility for the design, installation, and operation and maintenance of storm water management practices that may or may not conform with current best management practices.

**943.04 CONFLICTS, SEVERABILITY, NUISANCES AND RESPONSIBILITY**

- A. Where this Chapter imposes standards that differ from other provisions of law or ordinance, the most restrictive provisions, as determined by the County Drainage Engineer, shall prevail.
- B. If any clause, section, or provision of this Chapter is declared invalid or unconstitutional by a court of competent jurisdiction, the validity of the remainder shall not be affected thereby.
- C. This Chapter shall not be construed as authorizing any person to maintain a nuisance on their property, and compliance with the provisions of this Chapter shall not be a defense in any action to abate such a nuisance.
- D. Failure of the County to observe or recognize hazardous or unsightly conditions, or to recommend corrective measures, shall not relieve the site owner from the responsibility for the condition or damage resulting therefrom, and shall not result in the County, its officers, employees, or agents being responsible for any condition or damage resulting therefrom.

#### **943.05 DEVELOPMENT OF COMPREHENSIVE STORM WATER MANAGEMENT PLANS**

- A. This Chapter requires the development and implementation of a Comprehensive Storm Water Management Plan when an impervious surface is created and soil disturbing activities disturbing one (1) or more acres of total land, or less than one (1) acre if part of a larger common plan of development disturbing one (1) or more acres of total land.
- B. This Chapter does not apply to activities regulated by, and in compliance with, the Ohio Agricultural Abatement Rules 1501:15-5-01 to 15-5-18 of the Ohio Administrative Code, as amended.
- C. The County Drainage Engineer shall administer, and be responsible for ensuring compliance with, this Chapter, and shall issue notices and orders when necessary. The County Drainage Engineer may consult with the Summit Soil and Water District (Summit SWCD), private engineers, storm water districts, or other technical experts in reviewing the Comprehensive Storm Water Management Plan.

#### **943.06 APPLICATION PROCEDURES**

- A. The applicant shall attend a Concept Plan Meeting with the County Drainage Engineer, Summit County Department of Community and Economic Development, Summit SWCD, Summit County Department of Environmental Services, Summit County General Health District and others to discuss the proposed project, review the requirements of this Chapter, identify unique aspects of the project that must be addressed during the review process, and establish a preliminary review and approval schedule. The applicant will be required to submit a fee in accordance with Section 943.14(A) of this Chapter.
- B. Following the Concept Plan meeting, the applicant shall submit two (2) sets of a Preliminary Comprehensive Storm Water Management Plan (Preliminary Plan), and the applicable fees in accordance with Section 943.14(B) of this Chapter, to the County Drainage Engineer. The Preliminary Comprehensive Storm Water Management Plan shall show the proposed property boundaries, setbacks, dedicated open space, public roads, water resources, storm water control facilities, and easements in sufficient detail and engineering analysis to allow the County Drainage Engineer to determine if the site is laid out in a manner that meets the intent of this Chapter and if the proposed storm water management practices are capable of controlling runoff from the site in compliance with this Chapter.
- C. On approval of the Preliminary Plan, the applicant shall submit two (2) sets of a Final Comprehensive Storm Water Management Plan (Final Plan), and the applicable fees in accordance with Section 943.14(B) of this Chapter, to the County Drainage Engineer for approval. The Final Plan shall meet the requirements of Section 943.08 of this Chapter. One set of the Final Plan shall be submitted to Summit SWCD, as required by the Storm Water Pollution Prevention Plan (SWP3).
- D. The County Drainage Engineer shall review the Preliminary and Final Plans, and shall approve or return with comments and recommendations for revisions. A Preliminary or Final Plan rejected because of deficiencies shall receive a narrative report stating specific problems and the procedures for filing a revised Preliminary or Final Plan. Final approval of the Plans shall not be given until the Summit SWCD has approved the SWP3.
- E. The Final Plat shall not be approved, and land clearing and soil-disturbing activities shall not begin, without an approved Comprehensive Storm Water Management Plan, and an approved SWP3.
- F. Approvals issued in accordance with this Chapter shall remain valid for two (2) years from the date of approval. If regulations for storm water management change prior to the beginning of active construction, the County Drainage Engineer may require new approvals.

#### **943.07 COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS**

Approvals issued in accordance with this Chapter do not relieve the applicant of responsibility for obtaining all other necessary permits and/or approvals from other local, state, federal, and/or county agencies. If requirements vary, the most restrictive shall prevail. These permits may include, but are not limited to, those listed in Section 941.08 of the County of Summit Codified Ordinances.

#### **943.08 COMPREHENSIVE STORM WATER MANAGEMENT PLANS**

- A. The applicant shall develop a Comprehensive Storm Water Management Plan describing how the quantity and quality of storm water will be managed after construction is complete for every discharge from the site

into a water resource. The Plan will illustrate the type, location, and dimensions of every structural and nonstructural water management practice incorporated into the site design, and the rationale for their selection. The rationale must describe how these water management practices will address flooding within the site as well as flooding that may be caused by the development upstream and downstream of the site. The rationale will also describe how the water management practices minimize impacts to the physical, chemical, and biological characteristics of on-site and downstream water resources and, if necessary, correct current, or prevent predictable degradation of water resources.

- B. The Comprehensive Storm Water Management Plan shall be prepared by a registered professional engineer and include supporting calculations, plan sheets, and design details. To the extent necessary, as determined by the County Drainage Engineer, a Registered Professional Surveyor shall perform a site survey to establish boundary lines, measurements, and land surfaces.
- C. The County Drainage Engineer shall prepare, maintain and update, as necessary, procedures providing specific criteria and guidance for designing storm water management systems. The County Drainage Engineer shall make the final determination as to whether the practices proposed in the Comprehensive Storm Water Management Plan meet the requirements of this Chapter
- D. The Comprehensive Storm Water Management Plan shall contain an application, narrative report, construction site plan sheets, a long-term Inspection and Maintenance Agreement, and a site description with the following information provided:

1. Site description:

- a. A description of the nature and type of the construction activity (e.g. residential, shopping mall, highway, etc.)
- b. Total area of the site and the area of the site that is expected to be disturbed (i.e. grubbing, clearing, excavation, filling or grading, including off-site borrow areas).
- c. A description of prior land uses at the site.
- d. An estimate of the impervious area and percent of imperviousness created by the construction activity.
- e. Existing data describing the soils throughout the site, including the soil series and association, hydrologic soil group, porosity, infiltration characteristics, depth to groundwater, depth to bedrock, and any impermeable layers.
- f. If available, details of known pollutant discharge caused by prior land uses.
- g. The location and name of the immediate water resource(s) and the first subsequent water resource(s).
- h. The aerial (plan view), extent, and description of water resources at or near the site that will be disturbed or will receive discharges from the project.
- i. A description of the current condition of water resources, including the vertical stability of stream channels and indications of channel incision, that may be responsible for current or future sources of high sediment loading or loss of channel stability.

2. Site map showing:

- a. Limits of soil-disturbing activity on the site.
- b. Soils types for the entire site, including locations of unstable or highly erodible soils.
- c. Existing and proposed one-foot (1') contours. This must include a delineation of drainage watersheds expected before, during, and after major grading activities as well as the size of each drainage watershed in acres.
- d. Water wells, and associated setbacks on or within 200 feet of the site, including the boundaries of wetlands or streams and first subsequent named receiving water(s) the

applicant intends to fill or relocate and for which the applicant is seeking approval from the Army Corps of Engineers and/or Ohio EPA.

- e. Existing and planned locations of buildings, roads, parking facilities, and utilities.
  - f. The location of any in-stream activities including stream crossings.
3. Company name and contact information, including contact name, addresses, and phone numbers for the following:
- a. The Professional Engineer who prepared the Comprehensive Storm Water Management Plan.
  - b. The site owner.
4. Phase, if applicable, of the overall development plan.
5. List of subplot numbers if the project is a subdivision.
6. Ohio EPA NPDES Permit Number, and other applicable state and federal permit numbers if available, or status of various permitting requirements if final approvals have not been received.
7. Location, including complete site address and subplot number if applicable.
8. Location of any easements or other restrictions placed on the use of the property.
9. A site plan sheet showing:
- a. The location of each proposed post-construction storm water management practice.
  - b. The geographic coordinates of the site and each proposed practice in North American Datum Ohio State Plane North.

It is preferred that the entire site be shown on one plan sheet to allow a complete view of the site during plan review. If a smaller scale is used to accomplish this, separate sheets providing an enlarged view of areas on individual sheets should also be provided.

10. The Inspection and Maintenance Agreement, required for water management practices under this Chapter, shall be a stand-alone document between the County and the applicant, and shall contain the following information and provisions:
- a. The location of each storm water management practice, including those practices permitted to be located within a riparian setback area, as allowed under Section 937.06 of the Codified Ordinances of the County of Summit, and identification of the drainage area served by each water management practice.
  - b. A schedule for regular maintenance for each aspect of the storm water management system and a description of routine and non-routine maintenance tasks to ensure continued performance of the system as detailed in the approved Comprehensive Storm Water Management Plan. This schedule may include additional standards, as required by the County Drainage Engineer, to ensure continued performance of storm water management practices permitted to be located within a riparian setback area, as allowed under Section 937.06 of the Codified Ordinances of the County of Summit.
  - c. The location and documentation of all access and maintenance easements on the property.
  - d. Identification of the landowner(s), organization, or political subdivision responsible for long-term maintenance, including repairs, of the water management practices.
  - e. A provision allowing the County to enter upon the property to conduct inspections as necessary to verify that the water management practices are being maintained and operated in accordance with this Chapter.

- f. The County Drainage Engineer shall keep records of site inspections which will be made available to the parties responsible for the maintenance of the storm water management practices. The inspection report shall indicate any non-compliance, and the required corrective actions to bring the storm water management practices into compliance.
- g. An acknowledgement that if the County notifies the landowner(s), organization, or political subdivision responsible for maintenance of the problems that require correction, the specific corrective actions shall be taken within a reasonable time frame as determined by the County.
- h. An acknowledgement that the County is authorized to enter upon the property to perform the corrective actions identified in the inspection report if the landowner(s), organization, or political subdivision responsible for maintenance does not make the required corrections in the specified time period. The landowner(s), organization, or political subdivision responsible for maintenance shall reimburse the County within 10 days of receipt of invoice, for all expenses incurred.
- i. The method of funding long-term maintenance and inspections of all storm water management practices.
- j. A release of the County from all damages, accidents, casualties, occurrences, or claims that might arise, or be asserted, against the County from the construction, presence, existence, or maintenance of the storm water management practices.

The applicant must provide a draft of this Inspection and Maintenance Agreement as part of the Comprehensive Storm Water Management Plan submittal. Once a draft is approved, a recorded copy of the Agreement must be submitted to the County Drainage Engineer to receive final inspection approval of the site.

- 11. The applicant shall submit calculations for projected water runoff flows, volumes, and timing into and through all storm water management practices for flood control, channel protection, water quality, and the condition of the habitat, stability, and incision of each water resource and the floodplain, as required in Section 943.09 of this Chapter. These submittals shall be completed for both pre- and post-development land use conditions and shall include the underlying assumptions and hydrologic and hydraulic methods and parameters used for these calculations. The applicant shall also include critical storm determination and demonstrate that the runoff from upper watershed areas have been considered in the calculations.
- 12. Prior to construction, the applicant shall provide the names, addresses, and phone numbers of all contractors and subcontractors, where available, involved with the implementation of the Comprehensive Storm Water Management Plan, and a document containing their signatures, acknowledging that they have reviewed and understand the requirements and responsibilities of the Comprehensive Storm Water Management Plan.
- 13. The location and description of existing, and proposed drainage patterns, associated riparian setbacks, and water management practices, including any related storm water management practices beyond the development area and the larger common development area.
- 14. For each water management practice to be employed on the development area, include the following:
  - a. Detail drawings showing the location and size, the maintenance requirements during and after construction, and design calculations.
  - b. Final site conditions including storm water inlets and permanent nonstructural and structural water management practices. Details of water management practices shall be drawn to scale and shall show volumes and sizes of contributing drainage areas.
  - c. Any other structural and/or nonstructural water management practices necessary to meet the design criteria in this Chapter, and any supplemental information requested by the County Drainage Engineer.

**943.09 PERFORMANCE STANDARDS**

- A. The storm water system, including water management practices for storage, treatment and control, and conveyance facilities, shall be designed to prevent structure flooding during the 100-year, 24-hour storm event; to maintain predevelopment runoff patterns, flows, and volumes; and to meet the following criteria:
1. The storm water management practices shall function as an integrated system that controls flooding and minimizes the degradation of the physical, biological, and chemical integrity of the water resources receiving storm water discharges from the site. Acceptable practices shall:
    - a. Not disturb riparian areas, unless the disturbance is intended to support a watercourse restoration project, and complies with Chapter 937 of the Codified Ordinances of the County of Summit.
    - b. Maintain predevelopment hydrology and groundwater recharge on as much of the site as practicable.
    - c. Only install new impervious surfaces and compact soils where necessary to support the future land use.
    - d. Compensate for increased runoff volumes caused by new impervious surfaces and soil compaction by reducing storm water peak flows to less than predevelopment levels.
  2. Areas developed for a subdivision, as defined in Part 11 of the Codified Ordinances of the County of Summit, shall provide water management and water quality controls for the development of all subdivided lots. This shall include provisions for lot grading and drainage that prevent structure flooding during the 100-year, 24-hour storm, and maintain, to the extent practicable, the predevelopment runoff patterns, volumes, and peaks from the lots.
  3. Storm water management practices and related activities shall not be constructed in water resources unless the applicant shows proof of compliance with all appropriate permits from the Ohio EPA, the U.S. Army Corps, and other applicable federal, state, and local agencies as required in Section 943.07 of this Chapter, and the activity is in compliance with Chapters 937 and 941 of the Codified Ordinances of the County of Summit, all as determined by the County Drainage Engineer.
  4. All storm water pond and storm conveyance designs must provide a minimum of one (1) foot freeboard above the projected peak stage within the facility during the 100-year, 24-hour storm. When designing storm water ponds and conveyance channels the applicant shall include, to the extent practicable, practices to address public safety concerns.
  5. The site where soil-disturbing activities are conducted shall be exempt from the requirements of Section 943.09 of this Chapter if it can be shown to the satisfaction of the County Drainage Engineer that the site is part of a larger common plan of development where the storm water management requirements for the site are provided by an existing storm water management practice, equal to, or better than, that required herein, or if the storm water management requirements for the site are provided by practices defined in a regional or local storm water management plan approved by the County Drainage Engineer.
  6. All storm water management practices shall be maintained in accordance with Inspection and Maintenance Agreements approved by the County Drainage Engineer as detailed in Section 943.08 of this Chapter.
  7. Unless otherwise required by the County, storm water management practices serving multiple lots in subdivisions shall be on a separate lot held, where possible, and maintained by an entity of common ownership. For those subdivisions that are subject to drainage maintenance assessments, as per Section 1109.03(a) of the Codified Ordinances of the County of Summit, maintenance shall be the responsibility of the County Drainage Engineer. Storm water management practices serving single lots shall be placed on these lots, protected within an easement, and maintained by the property owner.
  8. Practices that preserve and/or improve the existing natural drainage shall be used to the maximum extent practicable. Such practices may include minimizing site grading and compaction, protecting and/or restoring water resources, riparian areas and existing vegetation, and maintaining unconcentrated water runoff to and through these areas.

9. Concentrated water runoff from BMPs to wetlands shall be converted to diffuse flow before the runoff enters a wetland in order to protect the natural hydrology, hydroperiod, and wetland flora. The flow shall be released such that no erosion occurs down slope. Practices such as level spreaders, vegetative buffers, infiltration basins, conservation of forest covers, and the preservation of intermittent streams, depressions, and drainage corridors may be used to maintain the wetland hydrology.

If proposing to discharge to natural wetlands, the applicant shall perform a hydrological analysis to demonstrate that the proposed discharge matches the pre-development hydroperiods and hydrodynamics.

10. The course of flow of storm water discharge from a facility shall be shown to be adequate when such flow reaches a public stream or right-of-way. Where such a course may cross land owned by another, an easement adequate enough for maintenance access shall be provided.

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

1. The County Drainage Engineer may allow the enclosure or relocation of water resources only if the applicant shows proof of compliance with all appropriate permits from the Ohio EPA, the U.S. Army Corps, and other applicable federal, state, and local agencies as required in Section 943.07 of this Chapter, and the activity is in compliance with Chapters 937 and 941 of the Codified Ordinances of the County of Summit, all as determined by the County Drainage Engineer. At a minimum, stream relocation designs must show how the project will minimize changes to the vertical stability, floodplain form, channel form, and habitat of upstream and downstream channels on and off the property.
2. Off-site storm water runoff that discharges onto, or across, the applicant's development site shall be conveyed through the storm water conveyance system planned for the development site at its existing peak flow rates during each design storm. Off-site flows shall be diverted around the post construction water quality practices or, if this is not possible, the post construction water quality practices shall be sized to treat the off-site flow. Comprehensive Storm Water Management Plans will not be approved until it is demonstrated to the satisfaction of the County Drainage Engineer that off-site runoff will be adequately conveyed through, and from, the development site in a manner that does not exacerbate upstream or downstream flooding and erosion.
3. The site shall be graded in a manner that maintains sheet flow over as large an area as possible. The maximum area of sheet flow shall be determined based on the slope, the uniformity of site grading, and the use of easements or other legally binding mechanisms that prohibit re-grading and/or the placement of structures within sheet flow areas. In no case shall the sheet flow length be longer than 300 feet, nor shall a sheet flow area exceed 1.5 acres. Flow shall be directed into an open channel, storm sewer, or other storm water management practice from areas too long and/or too large to maintain sheet flow, all as determined by the County Drainage Engineer.
4. Unless otherwise allowed by the County Drainage Engineer, drainage tributary to storm water management practices shall be provided by an open channel with landscaped banks designed to carry the 10-year, 24-hour storm water runoff from upstream contributory areas.
5. Open drainage systems shall be preferred on all new development sites to convey storm water where feasible. Storm sewer systems shall be allowed only when the site cannot be developed at densities allowed under local zoning requirements, or where the use of an open drainage system affects public health or safety, all as determined by the County Drainage Engineer. The following criteria shall be used to design storm sewer systems when necessary:
  - a. Storm sewers shall be designed such that they do not surcharge from runoff caused by the 5-year, 24-hour storm, and that the hydraulic grade line of the storm sewer stays below the gutter flow line of the overlying roadway, or below the top of drainage structures outside the roadway during a 10-year, 24-hour storm. The system shall be designed to meet these requirements when conveying the flows from the contributory area within the proposed development and existing flows from offsite areas that are upstream from the development.

- b. The minimum inside diameter of pipe to be used in public storm sewer systems is 12 inches. Smaller pipe sizes may be used in private systems, subject to the approval of the County Drainage Engineer.
  - c. All storm sewer systems shall be designed taking into consideration the tailwater of the receiving facility or water resource. The tailwater elevation used shall be based on the design storm frequency. The hydraulic grade line for the storm sewer system shall be computed with consideration for the energy losses associated with entrance into and exit from the system, friction through the system, and turbulence in the individual manholes, catch basins, and junctions within the system.
  - d. The inverts of all curb inlets, manholes, yard inlets, and other structures shall be formed and channelized to minimize the incidence of quiescent standing water where mosquitoes may breed.
  - e. Headwalls shall be required at all storm sewer inlets or outlets to and from open channels or lakes.
6. The following criteria shall be used to design structures that cross a water resource in the County:
- a. Water resource crossings other than bridges shall be designed to convey the stream's flow for the minimum 25-year, 24-hour storm.
  - b. Bridges, open bottom arch or spans are the preferred crossing technique and shall be considered in the planning phase of the development. Bridges and open spans should be considered for all State Scenic Rivers, cold water habitat, exceptional warm water habitat, seasonal salmonid habitat streams, and Class III headwater streams.
  - c. Bridges shall be designed such that the hydraulic profile through a bridge shall be below the bottom chord of the bridge for either the 100-year, 24-hour storm, or the 100-year flood elevation as determined by FEMA, whichever is more restrictive
  - d. If a culvert or other closed bottom crossing is used, twenty-five (25) percent of the cross-sectional area, or a minimum of 1 foot of box culverts and pipe arches, must be embedded below the channel bed.
  - e. All culvert installations shall be designed with consideration for the tailwater of the receiving facility or water resource. The tailwater elevation used shall be based on the design storm frequency.
  - f. Headwalls shall be required at all culvert inlets or outlets to and from open channels or lakes.
  - g. Streams with a drainage area of 5 square miles or larger shall incorporate floodplain culverts at the bankfull elevation to restrict head loss differences across the crossing so as to cause no rise in the 100-year storm event.
  - h. The minimum inside diameter of pipes to be used for crossings shall be 12 inches.
  - i. The maximum slope allowable shall be a slope that produces a 10 fps velocity within the culvert barrel under design flow conditions. Erosion protection and/or energy dissipaters shall be required to control entrance and outlet velocities.
7. Overland flood routing paths shall be used to convey storm water runoff from the 100-year, 24-hour storm event to an adequate receiving water resource or water management practice such that the runoff is contained within the drainage easement for the flood routing path and does not cause flooding of buildings or other structures. The peak 100-year, 24-hour storm surface water elevation along flood routing paths shall be at least one foot below the finished grade elevation at the structure. When designing the flood routing paths, the conveyance capacity of the site's storm sewers shall be taken into consideration.
8. In order to preserve floodplain storage volumes, and thereby avoid increases in water surface elevations, any filling within floodplains approved by the County must be compensated by removing an equivalent volume of material. First consideration for the location(s) of

compensatory floodplain volumes should be given to areas where the stream channel will have immediate access to the new floodplain within the limits of the development site. Consideration will also be given to enlarging existing or proposed retention basins to compensate for floodplain fill if justified by a hydraulic analysis of the contributing watershed. Unless otherwise permitted by the County Drainage Engineer, reductions in volume due to floodplain fills must be mitigated within the legal boundaries of the development. Embankment slopes used in compensatory storage areas must reasonably conform to the natural slopes adjacent to the disturbed area.

9. Velocity dissipation devices shall be placed at discharge locations, and along the length of any outfall, to provide non-erosive flow velocity from the structure to a water resource so that the natural physical and biological characteristics of the water resource are maintained and protected.

C. Storm Water Quality Control

1. The site shall be designed to direct runoff to one or more of the following water quality practices which shall be designed to comply with the current version of the Summit County Engineer Storm Water Drainage Manual:
  - a. Extended conveyance facilities that slow the rate of storm water runoff, filter and biodegrade pollutants in storm water, promote infiltration and evapotranspiration of storm water, and discharge the controlled runoff to a water resource.
  - b. Extended detention facilities that detain storm water, settle or filter particulate pollutants, and release the controlled storm water to a water resource.
  - c. Infiltration facilities that retain storm water, promote settling, filtering, and biodegradation of pollutants. The County Drainage Engineer may require a soil engineering report to be prepared for the site to demonstrate that any proposed infiltration facilities meet these performance standards.
  - d. For sites less than five (5) acres, but greater than one (1) acre and not part of a common plan of development, where (1) or more acres are disturbed, the County Drainage Engineer may approve other BMPs if the applicant demonstrates to the County Drainage Engineer's satisfaction that these BMPs meet the objectives of this Chapter.
  - e. For sites equal to or greater than five (5) acres, or less than five (5) acres but part of a larger common plan of development or sale which will disturb five (5) or more acres, the County Drainage Engineer may allow alternative BMPs if the applicant demonstrates that these BMPs meet the objectives of this Chapter and has prior written approval from the Ohio EPA.
  - f. For the construction of new roads and roadway improvement projects by public entities (i.e. the state, counties, townships, cities, or villages), the County Drainage Engineer may approve BMPs not included in this Chapter, but they must show compliance with the current Ohio Department of Transportation standards.
2. Each BMP shall be designed to facilitate sediment removal, vegetation management, debris control, and other maintenance activities defined in the Inspection and Maintenance Agreement for the site. All BMPs must be sized to treat the water quality volume (WQv), and to ensure compliance with Ohio Water Quality Standards (OAC Chapter 3745-1) and the latest revision of the NPDES Construction Storm Water General Permit for Ohio.
3. Additional criteria applying to infiltration facilities
  - a. Infiltration facilities shall only be allowed if the soils of the facility fall within hydrologic soil groups A or B, if the seasonal high water table is at least three (3) feet below the final grade elevation, and any underlying bedrock is at least six feet below the final grade elevation.
  - b. All runoff directed into an infiltration basin must first flow through a pretreatment practice such as a grass channel or filter strip to remove sediments that could cause a loss of infiltration capacity.

- c. During construction all runoff from disturbed areas of the site shall be diverted away from the proposed infiltration basin site. No construction equipment shall be allowed within the infiltration basin site to avoid soil compaction.

4. Additional criteria applying to extended conveyance facilities

- a. Facilities shall be lined with fine turf-forming, flood-tolerant grasses.
- b. Facilities designed according to the extended conveyance detention criteria shall:
  - (1) Not be located in areas where the depth to bedrock and/or seasonal high water table is less than 3 feet below the final grade elevation.
  - (2) Only be allowed where the underlying soil consists of hydrologic soil group (HSG) A or B, unless the underlying soil is replaced by at least a 2.5 foot deep layer of soil amendment with a permeability equivalent to a HSG A or B soil, and an under drain system is provided.
- c. Facilities designed according to the flow through design drain time criteria shall:
  - (1) Only be allowed on sites where:
    - (a) The total area disturbed is 5 acres or less.
    - (b) The discharge rate from the BMP will have negligible hydrologic impacts to received waters as described in the most current version of the Ohio EPA's General Permit for Storm Water Discharge from Small and Large Construction Activities.
    - (c) Prior written approval is given by the County Drainage Engineer; and
    - (d) For sites greater than five (5) acres or less than five (5) acres but part of a larger common plan of development or sale that will disturb five (5) or more acres, prior written approval has been given by the Ohio EPA.
  - (2) Be designed to slow and filter runoff flowing through the turf grasses with a maximum depth of flow no greater than 3 inches.
  - (3) Be designed to have a minimum hydraulic residence time of 5 minutes.
- d. Concentrated runoff shall be converted to sheet flow, or a diffuse flow, using a plunge pool, flow diffuser, or level spreader, before entering an extended conveyance facility designed according to the flow through drain time.

5. Additional criteria for extended detention facilities

Additional criteria for extended detention facilities shall comply with the latest revisions of the Ohio Department of Natural Resources Division of Soil and Water Resources manual, *Rainwater and Land Development*, and the Summit County Engineer Storm Water Drainage Manual.

- D. The Comprehensive Storm Water Management Plan shall describe how the proposed water management practices are designed to meet the following requirements for storm water quantity control for each watershed in the development:
  - 1. The peak discharge rate of runoff from the Critical Storm, and all more frequent storms occurring under post-development conditions, shall not exceed the peak discharge rate of runoff from a 1-year, 24-hour storm occurring on the same development drainage area under pre-development conditions.
  - 2. Storms of less frequent occurrence (longer return periods) than the Critical Storm, up to the 100-year, 24-hour storm, shall have peak runoff discharge rates no greater than the peak runoff rates from equivalent size storms under pre-development conditions. The 1, 2, 5, 10, 25, 50, and 100-year storms shall be considered in designing a facility to meet this requirement.

3. The Critical Storm for each specific development drainage area shall be determined as follows:
  - a. Calculate, using a curve number-based hydrologic method that generates hydrographs, or other hydrologic methods approved by the County Drainage Engineer, the total volume (acre-feet) of runoff from a 1-year, 24-hour storm occurring on the development drainage area before and after development. These calculations shall meet the following standards:
    - (1) Calculations shall include the lot coverage assumptions used for full build out as proposed.
    - (2) Calculations shall be based on the entire contributing watershed to the development area.
    - (3) Curve numbers for the pre-development condition must reflect the average type of land use over the past 10 years and not only the current land use.
    - (4) Account for future post-construction improvements to the site, calculations shall assume an impervious surface such as asphalt or concrete for all parking areas and driveways, regardless of the surface proposed in the site description.
  - b. From the volume determined in Section 943.09 (D)(3)(a), determine the percent increase in volume of runoff due to development. Using the percentage, select the 24-hour Critical Storm from the latest revision of the Summit County Engineer Storm Water Drainage Manual.

E. Comprehensive Storm Water Management Plans for redevelopment projects shall comply with the requirements of the most current version of the Ohio EPA's permit, "General Construction Permit Authorization for Storm Water Discharges associated with Construction Activity under the National Pollutant Discharge Elimination System".

**943.10 ALTERNATIVE ACTIONS**

A. When the County Drainage Engineer determines that site constraints compromise the intent of this Chapter, off-site alternatives that result in an improvement of water quality and a reduction of storm water quantity may be used. Such alternatives shall meet the following standards:

1. Achieve the same level of storm water quantity and quality control achieved by the on-site controls required under this Chapter.
2. Implement the same Hydrologic Unit Code (HUC) 14 watershed unit as the proposed development project.
3. The mitigation ratio of the water quality volume is 1.5 to 1 or the water quality volume at the point of retrofit, whichever is greater.
4. Establish an inspection and maintenance agreement, as described in Chapter 943.08.D.10, to ensure perpetual maintenance.
5. Obtain prior written approval from Ohio EPA.

B. Alternative actions require approval by the County Drainage Engineer.

**943.11 EASEMENTS**

Access to storm water management practices as required by the County Drainage Engineer for inspections and maintenance shall be secured by easements. The following conditions shall apply to all easements:

- A. Easements shall be included in the Inspection and Maintenance Agreement submitted with the Comprehensive Storm Water Management Plan.
- B. Easements shall be approved by the County Drainage Engineer prior to approval of a final plat, and shall be recorded with the Summit County Fiscal Officer, and on all property deeds.

- C. Unless otherwise required by the County Drainage Engineer, access easements between a public right-of-way and all storm water management practices, including the outlet flow path, shall be no less than 25 feet wide. The easement shall also incorporate the entire practice plus an additional 25-foot wide band around the perimeter of the storm water management practice.
- D. The easement shall be graded and/or stabilized as necessary to allow maintenance equipment access in and around each facility, as defined in the Inspection and Maintenance Agreement for the site.
- E. There shall be no construction of buildings, fences, walls, and other structures, within the Easements that may obstruct the free flow of storm water and the passage of inspectors and maintenance equipment, and no changes to the final grading plan approved by the County. The County Drainage Engineer may remove any re-grading and/or obstruction placed within a maintenance easement at the property owners' expense.

**943.12 MAINTENANCE AND FINAL INSPECTION APPROVAL**

To receive final inspection and acceptance of any project, or portion thereof, the following must be completed and provided to the County Drainage Engineer:

- A. Final stabilization must be achieved and all permanent storm water management and post construction water quality practices must be installed and made functional, as determined by the County Drainage Engineer and per the approved Comprehensive Storm Water Management Plan.
- B. An As-Built Certificate, including an As-Built Survey and Inspection Report, sealed, signed and dated by a Professional Engineer and a Professional Surveyor with a statement certifying that the storm water management and water quality practices, as designed and installed, meet the requirements of the Comprehensive Storm Water Management Plan approved by the County Drainage Engineer. In evaluating this Certificate, the County Drainage Engineer may require the submission of a new set of storm water practice calculations if he/she determines that the design was altered significantly from the approved Comprehensive Storm Water Management Plan.
- C. A copy of the complete and recorded Inspection and Maintenance Agreement, which will include the entity responsible for long-term maintenance, as specified in Section 943.08.

**943.13 ON-GOING INSPECTIONS**

A. Subdivisions

The County Drainage Engineer will perform ongoing inspection and maintenance of all storm water control BMPs in subdivisions assessed by the County for drainage maintenance.

B. Single Lots

Owners of single lots, or lots not assessed for drainage maintenance, shall be responsible for the ongoing inspection and maintenance of all storm water control BMPs within those lots. Owners shall submit an annual inspection and maintenance report to the County Drainage Engineer detailing all the activities carried out in order to comply with the requirements of this Chapter. The County Drainage Engineer will carry out inspections of these lots, at reasonable intervals, but no more frequently than once per calendar year, to ensure compliance with the requirements of this Chapter. The property owner will be billed the actual cost of these inspections. Failure to submit an annual report to the County Drainage Engineer, or any non-compliance found during the inspections carried out by the County Drainage Engineer, constitutes a violation of this Chapter and Section 943.17 of this Chapter will apply. Any non-compliant BMPs are subject to additional inspections by the County Drainage Engineer at the property owner's expense until the BMPs are compliant with this Chapter.

The County Drainage Engineer reserves the right to have any third party inspector, carry out inspections on its behalf.

**943.14 FEES**

- A. At the Concept Plan Meeting, the applicant will pay a fee of \$250.00 to the County Drainage Engineer.
- B. The County Drainage Engineer shall establish a fee based upon the actual estimated cost for review, filing, and inspection. At the time of the submittal of the Preliminary Comprehensive Storm Water Management Plan, the applicant will submit a deposit to the County Drainage Engineer to cover the cost of at least 50%

of the anticipated fee. The deposit, submitted to the County Drainage Engineer, is required before the review process begins. This deposit will reimburse the MVGT fund for actual expenses as they occur during the review and inspection phases of the project. If and/or when the amount of the deposit is at, or below, 10% of the original estimate, a further deposit of funds will be required to restore the balance to 50% of the original anticipated fee. The County Drainage Engineer may halt review until a sufficient deposit is restored.

#### **943.15 BOND**

- A. A performance and maintenance bond shall be posted according to the County of Summit Subdivision Regulations. No project will be released from the bond if there is failure to comply with the requirements of this Chapter. The bond will be returned, less Summit County administrative fees as detailed in Section 943.14 of this Chapter, when the following three criteria are met:
1. After 80% of the lots of the project have been complete and 100% of the total project has been permanently stabilized for three (3) years.
  2. The County Drainage Engineer has conducted an as-built inspection of all storm water management and water quality practices.
  3. The County Drainage Engineer has accepted an Inspection and Maintenance Agreement signed by the developer, the contractor, the County, and the private owner or homeowners association who will take long-term responsibility for these BMPs.
- B. Once these criteria are met, the applicant shall be reimbursed all bond monies that were not used for any part of the project. If any of these criteria are not met after three years of permanent stabilization of the site, Summit County may use the bond monies to fix any outstanding issues with all storm water management structures on the site. Any remainder of the bond shall be given to the private lot owner/ homeowners association for the purpose of long-term maintenance of the project. Should such outstanding issues exceed the bond amount, the County shall invoice the applicant accordingly.

#### **943.16 INSTALLATION OF WATER QUALITY BEST MANAGEMENT PRACTICES**

The applicant may not direct runoff through any water quality structures or portions thereof that would be degraded by construction site sediment until the entire area tributary to the structure has reached final stabilization as determined by the County Drainage Engineer and Summit SWCD. This occurs after the completion of the final grade at the site, after all of the utilities are installed, and the site is subsequently stabilized with vegetation or other appropriate methods. The developer must provide documentation acceptable to the County Drainage Engineer to demonstrate that the site is completely stabilized. Upon this proof of compliance, the water quality structure(s) may be completed and placed into service. Upon completion of installation of these practices, all disturbed areas and/or exposed soils caused by the installation of these practices must be stabilized within 2 days.

#### **943.17 VIOLATIONS**

- A. No person shall violate or cause or knowingly permit to be violated any of the provisions of this Chapter, or fail to comply with any of such provisions or with any lawful requirements of any public authority made pursuant to this Chapter, or knowingly use or cause or permit the use of any lands in violation of this Chapter or in violation of any permit granted under this Chapter.
- B. If, after a period of not less than thirty (30) days has elapsed following the issuance of a notice of violation, the violation continues, the County Drainage Engineer shall issue a second notice of violation. Except as provided in division (D) of this Section, if, after a period of not less than fifteen (15) days has elapsed following the issuance of the second notice of violation, the violation continues, the County Drainage Engineer shall issue a stop work order, if appropriate, and may undertake the necessary repairs and assess the responsible party.
- C. Each violation of this chapter shall result in a civil fine of not less than one hundred dollars (\$100) or more than five hundred dollars (\$500). Each day of violation of a rule or stop work order issued under this Chapter shall be considered a separate violation subject to a civil fine.
- D. In addition to any fines, the Summit County Prosecutor may seek an injunction, or other appropriate relief.

- E. No stop work order shall be issued under this section against any public highway, transportation, or drainage improvement or maintenance project undertaken by a government agency or political subdivision in accordance with its standard policies that are approved by the County or the Ohio Department of Natural Resources' Division of Soil and Water Resources.
- F. The Summit County Department of Building Standards may suspend the issuance of occupancy certificates within developments that do not comply with this Chapter.
- G. The County Drainage Engineer may suspend the inspection of site improvements and/or refuse the release of Bonds on developments that do not comply with this Chapter.

#### **943.18 APPEALS**

Any person aggrieved by any order, requirement, determination or any other action or inaction by the County (hereinafter "Action") in relation to this Chapter may appeal to the Summit County Planning Commission. The person seeking the appeal (hereinafter "Appellant") shall give written notice of the appeal and request for a hearing (hereinafter "Notice") before the Summit County Planning Commission within ninety (90) days of the Action to the Summit County Director of Community and Economic Development. Upon receipt of the notice, the Director of Community and Economic Development shall immediately notify members of the Planning Commission and shall arrange for a hearing on the appeal before the Planning Commission, or a subcommittee of the Planning Commission, (hereinafter, collectively referred to as "Commission") within forty-five (45) days of receipt of the Notice. The Appellant may present evidence before the Commission at the hearing. The Commission shall give written notification to the Appellant of its determination within thirty (30) days of the hearing. Following receipt of the Commission's determination, the Appellant may appeal the decision of the Commission to the Court of Common Pleas. Written notice of the appeal to the Court of Common Pleas shall be served on the Summit County Executive, and a copy shall be provided to the County Drainage Engineer.