



# **Stormwater Ordinance**

**Charter Township of Portage,  
Houghton County, MI**

**July 2020**

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## **I. General**

### **1.1. Statement of Authority**

This ordinance is adopted in accordance with the Home Rule City Act, as amended, being MCL 117.1, et seq.; the Drain Code of 1956, as amended, being MCL 280.1, et seq.; the Land Division Act, as amended, being MCL 560.1, et seq.; the Revenue Bond Act, as amended, being MCL 141.101, et seq.; and the Natural Resources and Environmental Protection Act, as amended, being MCL 324.101, et seq.; Section 401(p) of the Federal Water Pollution Control Act (also known as the Clean Water Act), as amended, being 33 USC 1342(p) and 40 CFR Parts 9, 122, 123 and 124; and other applicable state and federal laws.

### **1.2. Purpose**

It is the purpose of this ordinance to establish stormwater management requirements and controls to accomplish, among others, the following objectives:

- 1) Reduce artificially induced flood damage;
- 2) Minimize increased stormwater runoff rates and volumes from identified new land development;
- 3) Minimize the deterioration of existing watercourses, culverts and bridges, and other structures;
- 4) Encourage water recharge into the ground where geologically favorable conditions exist;
- 5) Prevent an increase in non-point source pollution;
- 6) Limit overtaxing of existing storm water infrastructure by new post-development flow;
- 7) Maintain the integrity of stream channels for their biological functions, as well as for drainage and other purposes;
- 8) Minimize the impact of development upon streambank and streambed stability;
- 9) Limit post-development peak discharge to pre-development peak discharge for the four (4) storm events (listed in Section 3.2(5)) and filter impervious surface runoff in grass swales or with other similar methods.

### **1.3. Applicability, Exemptions and General Provisions**

This ordinance shall apply to any development site which requires approval of a plat or site development plan, or any other permit for work which will alter stormwater drainage characteristics of the development or redevelopment site, provided, however, that this ordinance shall not apply to the following:

- 1) Agricultural activity or silvicultural practice that is consistent with an approved Natural Resources Conservation Service conservation plan;
- 2) Additions or modifications to any single family or duplex structure;
- 3) Landscaping or gardening involving less than 1 acre of land;

- 4) Construction of a single family or duplex structure on a legal lot within a development that itself previously received approval under this ordinance provided that less than 1 acre of land is cleared or graded for such construction;
- 5) Construction of a single family or duplex structure on a legal lot that existed prior to this ordinance provided that less than 1 acre of land is disturbed;

#### **1.4. Wetland Permitting**

Developers must be aware of the Michigan Department of Environment Great Lakes and Energy and U.S. Army Corp of Engineers definitions of wetlands and floodplains. These regulatory entities oversee and regulate wetlands and floodplains. Permits may be required from these regulators and are the responsibility of the developer to determine if required and to obtain.

#### **1.5. Definitions**

For the purpose of this ordinance, the following words and phrases shall have the meanings respectively ascribed to them by this section unless the context in which they are used specifically indicates otherwise:

- 1) *Best Management Practice (BMP)* - A practice, or combination of practices and design criteria, that comply with the most recent edition of the following manuals:
  - a. Michigan Department of Environment Great Lakes and Energy (EGLE) Guidebook of BMPs for Michigan Watersheds,
  - b. EGLE Stormwater Management Guidebook,
  - c. Southeast Michigan Council of Governments (SEMCOG) Low Impact Development (LID) Manual, or
  - d. Equivalent practices and design criteria that accomplish the purposes of this ordinance (including, but not limited to minimizing stormwater runoff, removing pollutants from stormwater, and preventing the discharge of pollutants into stormwater).
- 2) *Changes in land use* - Any land use change, including, but not limited to, construction, earth change, and redevelopment.
- 3) *Construction site stormwater runoff* - Stormwater runoff from a development site following an earth change.
- 4) *Cut* - An earth change which lowers topography or removes soil.
- 5) *Design storm* - A precipitation event of a designated amount and/or frequency. Typically used in a regulatory setting to designate required design criteria for stormwater facilities.
- 6) *Detention* - A system, which is designed to capture stormwater and release it over a period of time through an outlet structure at a controlled rate.
- 7) *Detention basin* - A designed facility which stores and detains runoff and releases water at a controlled rate. These basins may be dry between runoff events or may be "wet bottom," where a base water level occurs below the elevation of the outlet structure.

- 8) *Developed or development* - The installation or construction of impervious surfaces on a site that require, pursuant to state law or local ordinance, Portage Township approval of a site plan, plat, site condominium, special land use, planned unit development, land division approval, private road approval or other approvals required for the development of land or the erection of buildings or structures; provided, however, that for purposes of this ordinance only, developed or development shall not include exemptions.
- 9) *Developer* - Person or entity contracted by the owner to develop property
- 10) *Discharge* - The rate of flow passing a given point, expressed as cubic feet per second.
- 11) *Disturbed area* - The surface of land from which vegetation has been disturbed, removed, and/or subjected to earth moving activities.
- 12) *Drainage* - The collection, conveyance, or discharge of ground water and/or surface water.
- 13) *Drainage area* - The contributing watershed, which is expressed in acres or square miles.
- 14) *Earth change* - Any human activity which removes ground cover, changes the slope or contours of the land, or exposes the soil surface to the process of erosion. Earth change includes, but is not limited to, any excavating, surface grading, filling, landscaping, spoil piles, or removal of vegetative roots.
- 15) *Erosion* - The process by which the ground surface is worn away by action of wind, water, gravity, or a combination thereof.
- 16) *Extended detention basin* – A detention basin that releases a 24-hour storm event over a minimum of 48 hours after the conclusion of the event.
- 17) *FEMA* – Federal Emergency Management Agency.
- 18) *Fill* - Earth or other materials added to existing topography.
- 19) *First-flush* - The term given to the initial runoff quantity, having the highest pollutant concentration, which is contained in the first 1/2 inch of precipitation.
- 20) *Forebay* – A depression near the entrance to a basin where coarse sediments are deposited.
- 19) *Grading* - Any stripping, excavating, or filling of soil, or any combination thereof, and the land in its excavated or filled condition.
- 20) *Impervious* - The surface condition which does not allow percolation or infiltration of precipitation, which results in nearly 100% runoff (roads, parking lots, sidewalks, and rooftops, etc.).
- 21) *Infiltration* - The percolation and movement of water downward into and through the soil profile. The rate of this movement is expressed in inches per hour.
- 22) *Non-point source* - Any discharge that does not meet point source criteria.
- 23) *Offsite facility* - Any portion of a stormwater management system which is located off the development site which it serves.
- 24) *100-year storm* - A storm event having a 1 percent probability of occurrence in any given year. Thus, a 50-year storm has a two percent probability, a ten-year storm a ten percent probability, etc.

- 25) *Ordinary High-Water Mark* - The point on a streambank, lakeshore, or other waterbody shoreline to which the presence and action of surface water is so continuous as to have left a distinct mark of erosion; destruction or prevention of woody terrestrial vegetation; predominance of aquatic vegetation; or another easily recognized characteristic.
- 26) *Peak discharge rate* - The maximum rate of stormwater flow from within a drainage area expressed as cubic feet per second.
- 27) *Point source* - A discharge that is released to the surface waters of the State by a discernible, confined, and discrete conveyance, including, but not limited to, a pipe, ditch, channel, tunnel, conduit, and well.
- 28) *Presettlement* – Time period before significant human change to the landscape. For the purpose of this ordinance, presettlement is synonymous with predevelopment site conditions herein.
- 28) *Property owner or legal representative* - Any person, firm, or corporation having legal or equitable title to property or any person having or exercising care, custody, or decision-making control.
- 29) *Retention* - A system, which is designed to capture stormwater runoff and contain it until it infiltrates the soil or evaporates.
- 30) *Retention basin* - A stormwater management facility, either natural or manmade, which captures and holds runoff directed into it and does not have an outlet.
- 31) *Runoff* - The portion of precipitation which does not infiltrate or percolate into the ground or evaporate, but rather moves over the land, eventually reaching a waterbody, wetland, or low area.
- 32) *Sealed* – In reference to plan drawings, means stamped, and signed by a registered professional engineer meeting Michigan statute.
- 33) *Sediment* - Any solid particulate matter which has been moved from the site of origin by erosion, is being transported by water, is in suspension in water, or has been deposited in a water body, wetland or floodplain.
- 34) *Sheetflow* - Overland runoff which moves relatively uniformly over the ground surface rather than being concentrated in a conveyance channel.
- 35) *Site* - Any tract, lot, or parcel of land or combination of tracts, lots, or parcels, which compose an area proposed for development and/or earth change.
- 36) *Soil erosion and sedimentation control* - Structures, facilities, barriers, berms, vegetative cover, basins, and/or any other installation, temporary or permanent, which are designed to minimize and prevent erosion and off-site sedimentation.
- 37) *Storm drain* - A system of open or enclosed conduits and appurtenant structures intended to convey or manage stormwater runoff, ground water and drainage.
- 38) *Stormwater facility* - Structures, BMPs, areas, or related items, which are used to control, store, receive, infiltrate, or convey runoff.
- 39) *Stormwater runoff* - The runoff and drainage of precipitation resulting from rainfall, snowmelt, or other natural event or process.
- 40) *Time of concentration* - Time required for water to flow from the most hydraulically distant point of a watershed to a design point terminus or discharge point. Flow

paths, ground surface slope and roughness, and channel characteristics affect this time.

- 41) *Watershed* - The total land area which contributes runoff, or is within such an area, to a common outlet, such as a lake or stream. Also known as the drainage area or catchment.
- 42) *Wet Detention Basins* – See Detention Basins.
- 43) *Wetland* - Land composed of hydric soils, characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation and/or aquatic life. Hydric soils are saturated or ponded long enough to exhibit anaerobic conditions. These areas are generally referred to as bogs, fens, swamps, marshes, etc. (from § 324.30301 of Michigan Compiled Laws, Part 303 of NREPA, Wetlands Protection). The Michigan Department of Environment Great Lakes and Energy (EGLE) and the U.S. Army Corp of Engineers are the authorities on the presence and regulatory status of wetlands.

## **II. STORMWATER PERMITS**

### **2.1. Permit Required**

- 1) A developer or property owner shall not engage in any development without first receiving a stormwater management permit from the Portage Township except as otherwise exempted.
- 2) The stormwater permit shall consist of a record of a majority vote at an official meeting of the Portage Township Planning Commission in the Planning Commission minutes.
- 3) Portage Township approval of the stormwater management plan and facilities does not connote approval of other state and federal laws such as Part 301, Part 303, Part 31, Construction Site Storm Water.

Note: A developer must coordinate with the Houghton County Drain Commissioner and comply with the Soil Erosion and Sedimentation Control (SESC) Permits for landowners in Houghton County. Earth changes that are located within 500 feet of a lake or stream and earth changes that are one acre or more in surface area require a permit.

### **2.2. Planning Commission Review**

- 1) The Portage Township Planning Commission shall review the stormwater management plan to determine compliance with the conditions contained herein.
- 2) The stormwater management plan shall be part of the Portage Township Planning Commission site plan review.

### **2.3. Conditions of Approval**

Portage Township shall grant a stormwater management permit, with terms and conditions in accordance with this ordinance, which shall be granted only upon compliance with each of the following requirements:

- 1) The developer/property owner has submitted a stormwater management plan complying with Section 2.4;
- 2) The stormwater management plan contains a description of adequate construction site erosion and runoff control methods, satisfying the requirements herein, and the developer has obtained a soil erosion permit, if necessary;
- 3) The stormwater management plan conforms with all applicable design and performance standards for stormwater management systems, as set forth in Section 3.2;
- 4) All stormwater facilities are designed in accordance with the most current BMPs;
- 5) The developer has paid the stormwater permit review fee(s) or posted the applicable financial guarantee pursuant to Section 2.7;
- 6) For commercial and industrial developments, the developer/property owner provides the required maintenance agreement for routine, emergency, and long-term maintenance of all stormwater runoff facilities in compliance with the approved drainage plan and this ordinance. The maintenance agreement shall be acceptable to Portage Township in form and substance and shall be recorded with the Houghton County Register of Deeds.

#### **2.4. Stormwater Management Plan Requirements**

- 1) General Plan Requirements:
  - a. Maps, illustrations, reports, and calculations shall display the required information in a clear and logical sequence. The stormwater management plan shall be sufficiently detailed to specify the type, location, and size of all erosion control, stormwater facilities, and structures, including calculations.
  - b. The stormwater management plan shall be drawn to a scale of at least one inch equal to 40 feet (1 inch = 40 feet) for property less than three acres and one inch equal to one hundred feet (1 inch = 100 feet) for property three acres or more in size. Include the total drainage area size to the nearest 0.1 SQ MI or nearest acre.
- 2) Plan submittal requirements:

The following plan requirements are in addition to the design requirements and construction standards specified herein. The applicant shall provide a stormwater management plan to Portage Township for review and approval. Applicant shall submit 3 paper copies and one electronic copy of the sealed stormwater management plan, which shall identify and contain all of the following information:

  - a) *Contact information* - The name, address, telephone number, e-mail address or other contact information of all persons having a legal interest in the property, the design engineering firm, and the licensed professional engineer. The property description or parcel number of the properties to be developed and/or affected. Include information on the zoning classification of the applicant's parcel and all adjacent parcels. The plan cover sheet shall include an index and the signature(s) of the owner(s) of the parcel(s) and the licensed professional engineer.

- b) *General Location Drainage map* - A USGS Hydrologic Investigations Atlas (HA) or USGS Topographic Quadrangle depicting the location of the development site delineated to show historic, existing drainage patterns.
- c) *Topographic base map* – Provide one each separately showing the existing and proposed topography and drainage plan of the development site, including the alignment and boundary of the natural drainage courses, with contours having a maximum interval of not greater than two feet. The map shall also show existing surface water drainage (permanent and intermittent) flow direction, proposed overland flood flow route, ridges to define contributory areas to facilities and outlets, including streams, ponds, culverts and inverts, existing closed drainage systems, proposed detention systems, ditch flowline elevations, and wetlands; location of 100-year floodplain, if applicable to the site; current land use including all existing structures; locations of utilities, roads including existing and proposed centerline elevations, and proposed easements; designated natural areas; and any proposed environmental mitigation features. Outlets, water bodies, ditches, and/or municipal stormwater sewer systems that will receive stormwater runoff must be clearly marked on map with the project site. Include datum used for the survey and all datum correlations used.
- d) *Soils Map* - The site soil information with the project area shall be delineated on the Natural Resources Conservation Service (NRCS) web soil survey map. Since the NRCS web soil survey maps contain a disclaimer stating that the maps are informational and not intended for regulatory purposes, include a general soil analysis to verify the NRCS soil report from the web soil survey and include boring logs if available. The general soil analysis may consist of ground level analysis where test pits verify soil type according to ASTM procedures, documented photos, and the engineer's analysis and recommendation of the soil type.
- e) *Watershed* - A map showing the drainage boundary contributing to the proposed development and/or earth change, and each discharge point and its contributing watershed exiting the development and/or earth change on a topographical map.
- f) *Calculations* - Stormwater calculations shall be provided in accordance with the design standards referenced herein.
- g) *Site plan* - A drawing showing all proposed stormwater facilities with existing and final grades. This map shall also show existing and proposed lot lines, property lines, easements, structures, parking areas, and adjacent landowners, etc. on the parcel and within 100 feet of the site.
- h) *Construction plan* - An implementation and sequencing plan for construction and inspection of all stormwater facilities, including a schedule of the estimated dates of completion of the stormwater facilities shown on the plan.
- i) *Itemized Cost Estimate* – An itemized cost estimate for the stormwater facility construction.
- j) *Sedimentation and erosion control plan* - A soil erosion and sedimentation control plan shall meet the requirements as outlined in Section 2.8. This plan shall provide the effective control of construction site stormwater runoff and sediment track-out onto roadways.

- k) *Maintenance plan* - A document in form and substance acceptable to the Portage Township for ensuring maintenance of any privately or publicly owned stormwater facilities. The maintenance plan shall include a mandatory association or other enforceable commitment to provide routine, emergency, and long-term maintenance of the facilities and, in the event that the facilities are not maintained in accordance with the approved stormwater management plan, the maintenance plan shall authorize Portage Township or hired professionals to maintain any onsite stormwater facility as reasonably necessary, at the owner's expense.
- l) *Sealed Plans* – The submitted package for compliance with this ordinance shall be stamped and signed by the licensed Michigan design professional engineer.
- m) *Vegetation plan* - A drawing, which details the existing vegetation to remain and protective measures to be undertaken during construction.
- n) *Fees* - Payment of applicable review fees is required before any review will commence.
- o) *Phased development plans* - Should the applicant plan to subdivide or develop a given area but wishes to begin with only a portion of the total area, the stormwater management plan shall include the proposed general layout for the entire area. The first phase of the subdivision/development will be clearly superimposed upon the overall plan in order to illustrate clearly the method of development and/or earth change that the applicant intends to follow. The stormwater management plan for the current phase shall comply in detail with this ordinance. Moreover, the stormwater management plan shall include preliminary calculations and devices for future phases sufficient to demonstrate to the Portage Township the feasibility of future phases complying with the standards of this ordinance.
- p) *Previously developed sites* – Previously developed sites shall meet the same criteria as undeveloped sites.

## **2.6. Approved Plans and Amendments**

- 1) Approval of final development plans, site plans, and final preliminary subdivision plats shall not be granted prior to approval of the stormwater management plan. The stormwater management plan, and the development plans, site plans, and final preliminary subdivision plats shall be sealed by a licensed professional engineer, and then must be approved by the Portage Township Planning Commission. One signed copy shall be made a part of Portage Township's files.
  - a. Portage Township approval shall expire one year from the date of such approval, unless construction has commenced and proceeds satisfactorily.
- 2) Amendments to an approved stormwater management plan may occur only under the following circumstances:
  - a. The holder of an approved plan shall notify the Planning Commission of any proposed amendment to such approved plan.
  - b. Minor changes may be approved by the Planning Commission upon certification in writing that the proposed revision does not alter the basic

design nor any specified conditions of the plan as agreed upon by the Planning Commission. The Planning Commission shall consider the following to be a minor change:

- i. Any change that does not decrease the effectiveness of approved stormwater facilities.
  - ii. Any change that does not cause an increase in runoff rate and/or volume.
- c. Should the Planning Commission determine that the requested modification to the approved plan is not minor, then the applicant shall submit a new plan for review as required by this ordinance.

## **2.7. Stormwater Permit Review Fees**

The fee for a reviewing, and approving or denying a stormwater management permit shall be set from time to time by the Township Board and included in the fee schedule.

## **2.8. Construction Site Runoff Controls**

Prior to making any earth change on a development site regulated by this ordinance, the developer shall first obtain a soil erosion permit issued in accordance with Part 91 of Act No. 451 of the Public Acts of 1994, as amended, if one is required. The developer shall install stormwater runoff facilities and shall phase the development activities so as to control sediment/construction site stormwater runoff and off-site sedimentation.

## **2.9. Financial Guarantee of Construction of Stormwater Facilities**

- 1) Portage Township shall not approve a stormwater permit until the developer submits to Portage Township, in a form and amount satisfactory to Portage Township, a letter of credit or other financial guarantee for the timely and satisfactory construction of all stormwater runoff facilities and site grading in accordance with the approved stormwater management plan.
- 2) The financial guarantee shall be equal to the amount of the estimated construction cost for the storm water management facility.
- 3) This financial guarantee shall not be construed or interpreted as relieving a developer of its obligation to pay all costs associated with on-site private stormwater management facilities as well as those costs arising from the need to make other drainage improvements in order to reduce a development's impact on a drain system consistent with adopted design standards.
- 4) The letter of credit or other financial guarantee may be released by Portage Township upon:
  - a. Certification by the developer's licensed Michigan professional engineer that the stormwater management plan facilities have been completed in accordance with the stormwater management plan.

- b. Submittal of as-constructed plans prepared by the licensed Michigan engineer which show the final constructed conditions of the improvements.
- c. Failure to comply with a. and b. may result in fines as set forth in Section 4.1.

### **2.10. No Change in Approved Facilities**

Stormwater management facilities, after construction and approval, shall be maintained in good condition, in accordance with the approved stormwater management plan, and shall not be subsequently altered, revised or replaced except in accordance with the approved stormwater management plan, or in accordance with approved amendments or revisions in the plan.

### **2.11. Terms and Conditions of Permits**

In granting a stormwater permit, the Planning Commission may impose such terms and conditions as are reasonably necessary to effectuate the purposes of this ordinance. A developer shall comply with such terms and conditions.

## **III. DESIGN AND CONSTRUCTION STANDARDS**

### **3.1. Performance and General Standards**

All developments and earth changes subject to review under the requirements of this ordinance shall be designed, constructed, and maintained to control runoff, prevent flooding and protect water quality. The particular facilities and measures required onsite shall consider:

- a. the natural features, wetlands, and watercourses on the site
- b. the potential for onsite and offsite flooding, water pollution, and erosion
- c. the size of the site.

All post-development peak flow shall not exceed predevelopment peak flow while addressing first-flush water quality. All discharges must be addressed from the site in question, while riparian rights are maintained.

- 1) General standards – The standards for onsite and offsite stormwater management are:
  - a. Stormwater facilities shall be designed to prevent flood hazards and water pollution related to stormwater runoff, soil erosion, and channel erosion from the proposed earth change.
  - b. Existing stormwater from upstream and offsite locations shall be safely conveyed around or through the site, or stored onsite. Existing offsite flow (run-on) that

contributes to onsite flow shall be incorporated into the proposed onsite calculations.

- c. Unless otherwise approved, stormwater runoff shall be conveyed through swales and vegetated buffer strips so as to decrease runoff velocity, to allow for natural infiltration and passive storage, to allow suspended sediment particles to settle, and to remove pollutants.
  - d. Cutting, filling, and grading shall be minimized and the natural topography of the site shall be preserved, except where specific findings demonstrate that major alterations will still meet the purposes and requirements of this ordinance.
  - e. All development involving earth changes shall be designed, constructed, and completed so that the exposed area of any disturbed land is exposed for the shortest possible period of time.
  - f. Developers of residential subdivisions shall provide stormwater facilities that account for the total buildout of the subdivision, including but not limited to projected roof, lawn, driveway areas, and all new roads.
  - g. Developers of commercial or industrial areas shall provide stormwater facilities for all proposed improvements for which planning commission approval is sought. For subdivided commercial or industrial lots, future developers/owners will be responsible for their proposed development. However, the Planning Commission may request evidence that future development can be accommodated by designed stormwater facilities to meet the requirements of this ordinance.
- 2) Stormwater facilities - The types of stormwater facilities are listed in order of preference, with the most desirable listed first.
- a. Stormwater storage facilities. Options for storage basins are listed below:
    - i. *Wet detention/retention basins with aeration,*
    - ii. *Extended detention basin,*
    - iii. *Detention basins.*
  - b. *Infiltration facilities* - Stormwater management plan designers must consider the site criteria, including soil permeability and the safe-guarding of soil structure during saturated periods when designing storm water infiltration components of a management system. If infiltration facilities are desired, at least two ASTM soil permeability test results and boring profiles must be provided in the area of the desired facility. However, the following areas and conditions are considered inappropriate for use of stormwater infiltration:
    - i. Fueling and vehicle maintenance and storage areas.
    - ii. Areas with less than 3 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.
    - iii. Areas with runoff from industrial, commercial and institutional parking lots and roads with less than 5 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.

- iv. Areas within 400 feet of a community water system well or within 100 feet of a private well.
- v. Any area where the soil between the bottom of the infiltration system and seasonal high groundwater or the top of bedrock is a clean sand (consisting of less than 10% silt/clay sized soil particles).

### 3.2. Design and Performance Standards

For additional design and performance assistance to meet this ordinance, the EGLE BMP, EGLE Stormwater Guidebook, and SEMCOG LID manual, etc. may be utilized.

- 1) *Rate of Peak Discharge* – By design, stormwater facilities of the post-construction site shall be employed to maintain or reduce the peak runoff discharge rate following the same rainfall, as compared to presettlement/predevelopment conditions.
- 2) *Volume of Total Discharge* – Any increased volume of water discharged due to earth changes and/or development of the site shall not create adverse impacts to downstream property owners and watercourses. Copies of drainage easements must be included. These adverse impacts may include, but are not limited to, flooding, excessive soil saturation, crop damage, erosion, water quality impairment, or wildlife habitat damage.
- 3) *First-Flush from Impervious Surfaces* – First flush must be contained within a detention basin. The system must be designed so that when first flush containment is at capacity, excess flow must bypass the first flush containment.
- 4) *Detention, Extended Detention and Retention Basin Design* - Detention and retention basins shall be designed to hold runoff in accordance with Section 3.2.5 below. All basins and associated berms and landscaping:
  - a. Shall be permanently stabilized to minimize erosion;
  - b. Shall have an overflow system;
  - c. Shall be designed to protect public safety and to be visually attractive;
  - d. Shall include a forebay depression;
  - e. Shall be provided in platted out lots, common areas, or open space areas;
  - f. Shall have an emergency outflow.
- 5) *Design Storm Events* - The following National Weather Service rainfall data from NOAA Atlas 14 Point Precipitation Frequencies shall be used when completing runoff calculations for locations within Portage Township:
  - a. 2-year, 24-hour Type II storm = 2.4 inches.
  - b. 25-year, 24-hour Type II storm = 3.9 inches.
  - c. 50-year, 24-hr Type II storm = 4.5 inches.
  - d. 100-year, 24-hour Type II storm = 5.0 inches.

[https://hdsc.nws.noaa.gov/hdsc/pfds/pfds\\_map\\_cont.html?bkmrk=mi](https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=mi)
- 6) *Runoff & Routing Calculations:*

- a. Methods - All existing and proposed stormwater runoff calculations shall be completed using the USDA- Natural Resources Conservation Service (NRCS) NEH Part 630 methodology (commonly known as TR-55), or equivalent methodology. Equivalent methodology can be TR-20, winTR-20 (limited to 2,000 acres) HEC-1, or HEC-HMS (any size basin) these include basin and pond routing. Other methods must be approved in writing by the Planning Commission before submittals are made.
- b. Submittals – To demonstrate compliance with performance standards indicated herein, calculations must be supplied for, at a minimum, the four storm events listed in Section 3.2(5) (in addition to calculated flow rates, include detention volumes). Provide flow rates, detention volumes, routing calculations, conveyance capacities, freeboard heights. Give a brief description of methods used and state all assumptions. Include IDF curves used, computer printouts, and computer files. Include freeboard and clearance where applicable if placing a structure under a road. Provide culvert and storm sewer calculations as necessary.

### **3.3. Landscaping and Vegetation**

Within Portage Township, vegetative materials used must adhere to MDOT Landscaping Guidelines or ELGE manuals. For further assistance regarding low impact development design and vegetation, see the MDOT LID, EGLE LID, and SEMCOG LID manuals and guidelines. Introduction of invasive species such as Spotted Knapweed, Buckthorn, Japanese Knotweed are prohibited and will have to be removed.

### **3.4. Buffer Zones**

No building or impervious surface shall be constructed within 50 feet of the ordinary high-water mark of a lake, pond or stream with the exception of Portage Canal. The definition of ordinary high-water mark is provided in Section 1.5. No building or impervious surface shall be constructed within 25 feet of the delineated boundary of a wetland.

### **3.5. Variances**

The Planning Commission shall have the authority to interpret this ordinance and may grant variances to these requirements provided the variances are consistent with the general purpose and intent of the requirements. In addition to these procedures, when variances are requested from the stormwater management ordinance, the applicant shall show that stormwater management systems have been provided to the maximum extent feasible within the requirements of this ordinance.

## **IV. ENFORCEMENT**

### **4.1. Violations**

A person who violates any provision of this ordinance is responsible for a municipal civil infraction, subject to payment of a civil fine as set forth in the Portage Township Municipal Civil Infraction Ordinance.

#### **4.2. Stop Work Order**

1. *Stop work order* – Where there is work in progress that causes a violation of any provision of this ordinance, Portage Township is authorized to issue a stop work order to prevent further or continuing violations. All persons to whom the stop work order is directed, or who are involved in any way with the work or matter described in the stop work order shall fully and promptly comply with this order. Portage Township may also undertake or cause to be undertaken any necessary measures to prevent violations of this ordinance or to avoid or reduce the effects of noncompliance. The cost of any such protective measures shall be the responsibility of the owner of the property upon which the work is being done and the responsibility of any person carrying out or participating in the work.
2. *Emergency measures* - When emergency measures are necessary to moderate a nuisance, to protect public safety, health and welfare, or to prevent loss of life, injury or damage to property, Portage Township is authorized, but not required, to carry out or arrange for all such emergency measures. Property owners shall be responsible for the cost of such measures made necessary as a result of a violation of this ordinance, and shall promptly reimburse Portage Township for all such costs.

#### **4.3. Restoration**

Any violator of this ordinance may be required to restore land to its presettlement/predevelopment condition and/or repair and stabilize damaged areas. In the event that restoration or repairs are not undertaken within a reasonable time after notice, Portage Township may take necessary corrective action, the cost of which shall become the responsibility of the violator.

### **V. MAINTENANCE**

#### **5.1. Responsibility**

- 1) *Responsibility* - Maintenance of stormwater facilities shall be the responsibility of the person or persons holding title to the property. These persons are responsible for the continual operation, maintenance, and repair of stormwater facilities and BMPs in accordance with the provisions of this ordinance. Options, other than the property owner, include:
  - a. Property owner's association provisions for financing necessary maintenance included in deed restrictions or other contractual agreements.
  - b. Means of permanent maintenance through agreement with Portage Township, or another appropriate governmental agency.

- 2) *Maintenance plan* - A maintenance plan for each stormwater management facility and all its elements shall include specific maintenance activities for each stormwater facility and any other elements of the approved stormwater management plan. The maintenance plan shall be submitted simultaneously for municipal review with all other required elements of the stormwater management plan. Failure to maintain the stormwater management facility and all its elements may result in payment of a civil fine as set forth in the Portage Township Municipal Civil Infraction Ordinance and/or revocation of the stormwater permit by the Planning Commission.
- 3) *Record keeping* - Parties responsible for the operation and maintenance of stormwater facilities shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least five years. These records shall be made available to Portage Township during inspection of the facility and at other reasonable times upon request.

## 5.2. Access

When any new stormwater facilities are installed on private property, or when any new connection is made between private property and a public drainage control system, the property owner shall grant to Portage Township, through an easement, the right to enter the property at reasonable times and in a reasonable manner for the purpose of periodic inspections. This access includes the right to enter a property when Portage Township has reason to believe that a violation of this ordinance is occurring or has occurred, and to enter when necessary for the abatement of a public nuisance or correction of a violation of this ordinance.

## 5.3. Easements

- 1) *Easements*. The owner shall provide all easements necessary to implement the stormwater management plan and to otherwise comply with this ordinance in form and substance required by Portage Township. The owner shall submit the easement to Portage Township for recording prior to issuance of the permit. The easements shall assure access for proper inspection and maintenance of stormwater facilities in perpetuity and shall provide adequate emergency overland flow ways.

Easement widths will be determined by Portage Township and be situated in such a way as to allow maximum adequate maintenance access. In general, easement widths are 20 feet, but final determination will be by the Planning Commission as deemed necessary.

This Ordinance was enacted by the Planning Commission of the Charter Township of Portage, Houghton County, Michigan on the \_\_\_\_ day of \_\_\_\_\_, 2020

\_\_\_\_\_  
, Portage Township Planning Commission Chair

\_\_\_\_\_  
, Secretary

## Permit Application Deliverables Checklist

1. Stormwater management plan compliant with this ordinance and current BMPs
  - a. Contact information
  - b. General Location Drainage map
  - c. Topographic base maps one each
    - i. existing conditions
    - ii. proposed conditions
  - d. Datum and correlations
  - e. Soil map with site delineation
  - f. Drainage easements
2. Calculations must include:
  - a. Presettlement/predevelopment CFS
  - b. Detention volumes
  - c. First flush accounting
  - d. Description of methods, computer software, models
  - e. Description of assumptions
  - f. Explanation and documentation of IDF curves and rainfall data that were used
  - g. Computer printouts and files
  - h. Culvert and storm sewer calculations as necessary
  - i. Freeboard and clearance elevations as necessary
3. Engineering plans
  - a. Sealed site plan compliant with site erosion and runoff control methods
  - b. Sealed construction plan
  - c. Vegetation/landscaping/low impact development (LID) plan
  - d. Property lines and right-of-way delineation
  - e. Phased development plans where necessary
  - f. Cost estimate
4. Erosion control/sedimentation plan
  - a. Copy of Houghton County Soil Erosion and Sedimentation Control Permit
  - b. Copy of correspondence with Houghton County Drain Commissioner
5. Fees
  - a. Developer has paid/deposited permit review fee(s)
  - b. Developer/property owner has paid or posted the applicable financial guarantee
6. All developments
  - a. Developer/property owner has provided the required maintenance plan and agreement for routine, emergency, and long-term maintenance of all stormwater runoff facilities
  - b. Maintenance plan/agreement recorded with register of deeds
  - c. Easements on file with Portage Township
7. Michigan Department of Natural Resources/Michigan Department of Environment Great Lakes and Energy (EGLE) and U.S. Army Corp of Engineers wetland and floodplain permits
8. Any variances issued must be included