

**CITY OF GRAND HAVEN
OTTAWA COUNTY, MICHIGAN**

ORDINANCE NO. 14-03

**AN ORDINANCE TO AMEND CHAPTER 37, ARTICLE VII, OF THE GRAND HAVEN
CODE OF ORDINANCES TO PROVIDE STORM WATER PERFORMANCE AND
DESIGN STANDARDS FOR NEWLY DEVELOPED AND REDEVELOPED
PROPERTIES**

The City of Grand Haven Ordains:

Section 1. Amendment. Sections 37-150 through 37-153 of the Code of Ordinances of the City of Grand Haven is amended to read as follows:

Sec. 37-150 Statutory authority and title.

This article shall be known and may be cited as the City of Grand Haven's Storm Water Design & Management Ordinance. It 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.

Sec. 37-151 Findings.

The City of Grand Haven finds that:

- (1) Water bodies, roadways, structures, and other property within, and downstream of the City are at times subjected to flooding;
- (2) Flooding is a danger to the lives and property of the public and is also a danger to the natural resources of the City and the region;
- (3) Land development alters the hydrologic response of watersheds, resulting in increased storm water runoff rates and volumes, increased flooding, increased stream channel erosion, and increased sediment transport and deposition;
- (4) Storm water runoff produced by land development contributes to increased quantities of water-borne pollutants;
- (5) Increases of storm water runoff, soil erosion, and non-point source pollution have occurred as a result of land development, and cause deterioration of the water resources of the City and downstream municipalities;
- (6) Storm water runoff, soil erosion, and non-point source pollution, due to land development within the City, have resulted in a deterioration of the water resources of the City and downstream municipalities;
- (7) Increased storm water runoff rates and volumes, and the sediments and pollutants associated with storm water runoff from future development projects within the City will, absent reasonable regulation and control, adversely affect the City's water bodies and water resources, and those of downstream municipalities;
- (8) Storm water runoff, soil erosion, and non-point source pollution can be controlled and minimized by the regulation of storm water runoff from development;
- (9) Adopting the standards, criteria and procedures contained in this ordinance and implementing the same will address many of the deleterious effects of storm water runoff;

- (10) Adopting these standards is necessary for the preservation of the public's health, safety and welfare.

Sec. 37-152 Purpose.

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

- (1) To reduce artificially induced flood damage;
- (2) To minimize increased storm water runoff rates and volumes from identified new land development;
- (3) To minimize the deterioration of existing watercourses, culverts and bridges, and other structures;
- (4) To encourage water recharge into the ground where geologically favorable conditions exist;
- (5) To prevent an increase in non-point source pollution;
- (6) To maintain the integrity of stream channels for their biological functions, as well as for drainage and other purposes;
- (7) To minimize the impact of development upon stream bank and streambed stability;
- (8) To reduce erosion from development or construction projects;
- (9) To preserve and protect water supply facilities and water resources by means of controlling increased flood discharges, stream erosion, and runoff pollution; and,
- (10) To reduce storm water runoff rates and volumes, soil erosion, and non-point source pollution, wherever practicable, from lands that were developed without storm water management controls meeting the purposes and standards of this ordinance.

Sec. 37-153 Definitions.

For the purpose of this article, the following words and phrases shall have the following meanings, unless the context in which they are used specifically indicates otherwise:

- (1) Adequate emergency overland flow-ways – Storm water conveyance systems are usually designed to handle flows generated by the 10-year storm. When larger storms generate higher flows, the conveyance system is expected to surcharge resulting in storm water accumulating on the surface of the ground. Gravity will cause such storm water to flow overland to lower elevations. By carefully managing the shape of the land surface, such overland storm water flow can be directed to locations that will not cause property damage. Adequate emergency overland flow-ways will direct storm water flows generated by the 100-year storm to avoid damage to structures and facilities.
- (2) Authorized enforcement officer – The city manager and/or any persons or representatives designated by the city manager to act as the authorized enforcement officer.
- (3) Base Flood – A flood having a one (1) percent chance of being equaled or exceeded in any given year.
- (4) Base Flood Elevation – The high water elevation of the Base Flood commonly referred to as the "100-year flood elevation".
- (5) Base Flood Plain – The area inundated by the Base Flood.
- (6) Best Management Practices (BMPs) – A practice, or combination of practices and design criteria, that accomplishes the purposes of this ordinance (including, but not limited to, reducing storm water runoff rates, reducing storm water runoff volume, and reducing the amount of pollutants in storm water) as determined by the City and, where appropriate, the standards of the Ottawa County Drain Commissioner.

- (7) Building Opening – Any opening of a solid wall such as a window or door, through which floodwaters could penetrate.
- (8) City – The City of Grand Haven or an authorized enforcement officer.
- (9) Construction Site Storm Water Runoff – Storm water runoff from a development site following an earth change and before final site stabilization.
- (10) Detention – The practice of managing storm water runoff to prevent downstream flooding by directing storm water runoff to a storage area for a limited period of time. Storage may be accomplished by surface impoundments such as dry ponds, wet ponds, holding ponds, dry detention basins, wet detentions basins, etc. or by subsurface chambers or reservoirs. Detention facilities are characterized by limiting the discharge rate to a design level and by having zero or incidental infiltration. To enhance the water quality performance, detention facility designs may include a forebay, multiple cells, or constructed wetlands.
- (11) Detention System – A system which is designed to capture storm water and release it over a given period of time through an outlet structure at a controlled rate.
- (12) Development Project – A project involving the installation or construction of buildings, structures, pavement, or other impervious surfaces on a site. The term “development project” includes redevelopment projects, and also includes projects performed over several phases when it is reasonably apparent that the phases are part of a common plan.
- (13) Developer – Any person or entity proposing or implementing the development or redevelopment of land.
- (14) Directly connected impervious area – The area of a development site that is covered by a building, pavement, or other impervious surface that drains directly to a storm water drainage system. It may be possible to disconnect an impervious area from the drainage system by directing storm water runoff to a permeable area.
- (15) Discharge – The introduction (intentionally or unintentionally, and directly or indirectly) of any liquid, substance, pollutant, or other material into a storm water drainage system or water body.
- (16) Discharger – Any person or entity that directly or indirectly discharges storm water from any property. Discharger also includes any employee, officer, director, partner, contractor, or other person who participates in, or is legally or factually responsible for, any act or omission that is, or results in, a violation of this article.
- (17) Disturbed pervious area – That portion of a development site that is not covered by a building, pavement, or other impervious surface, but has been altered by earth changes or removal of vegetation.
- (18) Drain – Any drain as defined in the Drain Code of 1956, as amended, being MCL 280.1, et. seq.
- (19) Drainage – The collection or conveyance of storm water, ground water and/or surface water.
- (20) Drainage Way – The area within which surface water or ground water is conveyed from one part of a lot or parcel to another part of the lot or parcel, or to adjacent land or to a watercourse.
- (21) Earth Change – Any human activity which removes ground cover, changes the slope or contours of the land, or exposes the soil surface to the actions of wind and rain. Earth change includes, but is not limited to, any excavating, surface grading, filling, landscaping, or removal of vegetative roots.
- (22) EPA – The United States Environmental Protection Agency.
- (23) Extended detention – The practice of managing storm water runoff to prevent downstream flooding, bank erosion, and water quality impairment by directing storm water runoff to a storage area for at least a specified period of time (e.g. 24 hours). Storage may be accomplished by surface impoundments such as dry ponds, wet ponds, holding ponds, dry detention basins, wet detentions basins, etc. or by subsurface chambers or reservoirs. Detention facilities are characterized by limiting the discharge rate to a design level and by having zero or incidental

infiltration. To enhance the water quality performance, detention facility designs may include a forebay, multiple cells, or constructed wetlands.

- (24) Exposed surface – The surface in any given location that is most likely to be the first contact point for rain water. For example, the exposed surface in an empty field is grass, the exposed surface on a building site is the roof, and the exposed surfaces where a tree is planted are the branches and leaves of the tree.
- (25) Federal Emergency Management Agency (FEMA) – The agency of the federal government charged with emergency management.
- (26) Flood Protection Elevation (FPE) – The Base Flood Elevation plus one (1) foot at any given location.
- (27) Floodway – The channel of a river or stream and the portions of the floodplain adjoining the channel that are reasonably required to carry and discharge a 100-year flood.
- (28) Grading – Any stripping, excavating, filling, and stockpiling of soil or any combination thereof.
- (29) Illicit Connection – Any method, means, or conduit for conveying an illicit discharge into a water body or a storm water drainage system.
- (30) Illicit Discharge – Any discharge to a water body or a storm water drainage system that does not consist entirely of storm water, that is not authorized by the terms of an NPDES permit, or that is not an authorized discharge as defined by this article.
- (31) Impervious Surface – Any surface that does not allow storm water to percolate into the ground.
- (32) Limited conveyance system (storm sewer or ditch) capacity – All methods of moving storm water have a limited capacity based primarily upon cross-section area and slope. Pumped conveyance systems, obviously, are limited by pump and pipeline capacity. Where public conveyance systems are utilized by multiple properties, each property has a limited conveyance system capacity based upon an equitable distribution of total capacity among the various tributary properties.
- (33) Local Floodplain – Any land area subject to periodic flooding as determined by the local government.
- (34) Lowest Floor – The lowest floor or the lowest enclosed area (including a basement), but not including an unfinished or flood-resistant enclosure which is usable solely for parking of vehicles or building access.
- (35) Maximum release rate – Detention facilities and extended detention facilities are typically designed to limit the rate of discharge to a maximum release rate based on the size of the drainage area and the intensity of the storm event.
- (36) Michigan Low Impact Development (LID) Manual - This manual provides communities, agencies, builders, developers, and the public with guidance on how to apply LID to new, existing, and redevelopment sites.
- (37) MDEQ – Michigan Department of Environmental Quality, or its successor agency.
- (38) MDNRE – Michigan Department of Natural Resources and Environment.
- (39) NPDES – National Pollutant Discharge Elimination System.
- (40) Overland flow-way – Surface area that conveys a concentrated flow of storm water runoff.
- (41) OCDC – Ottawa County Drain Commission.
- (42) Person – An individual, firm, partnership, association, public or Private Corporation, public agency, instrumentality, or any other legal entity.
- (43) Pollutant – A substance discharged which includes, but is not limited to the following: any dredged spoil, solid waste, vehicle fluids, yard wastes, animal wastes, agricultural waste

products, sediment, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological wastes, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, and industrial, municipal, commercial and agricultural waste, or any other contaminant or other substance defined as a pollutant under the Clean Water Act.

- (44) Poorly draining soils – A condition in which water moves through the soil so slowly that the soil is saturated periodically during the growing season or remains wet for long periods (e.g. greater than 7 days).
- (45) Pre-development runoff rate – The rate at which water, in gallons per minute or cubic feet per second, is generated by a particular storm event calculated for a particular area of a development site utilizing the existing (i.e., pre-development) land uses. This term is distinct from “Pre-settlement” runoff rate which would consider land uses existing prior to human habitation (forest or meadow).
- (46) Pre-development runoff volume – The amount of water, in gallons or cubic feet, generated by a particular storm event calculated for a particular area of a development site utilizing the existing (i.e., pre-development) land uses. This term is distinct from “Pre-settlement” runoff volume which would consider land uses existing prior to human habitation (forest or meadow).
- (47) Property Owner – Any person having legal or equitable title to property or any person having or exercising care, custody, or control over any property.
- (48) Redevelopment – A plan involving the construction, modification, or demolition/replacement of buildings, structures, or other surfaces on a developed parcel of land. Redevelopment does not include interior renovations to a building or structure having no effect on exterior impervious surfaces, and does not include roof replacement or repavement so long as like materials are used.
- (49) Retention – The practice of managing storm water runoff to prevent downstream flooding, bank erosion, and water quality impairment by causing runoff to infiltrate through permeable soils into the groundwater. Retention may be accomplished by infiltration basins, subsurface infiltration chambers, grassy swales, and rain gardens, among other facilities. To a lesser degree, retention may be accomplished through evaporation, transpiration, and storm water reuse. Retention facilities are distinguished from Detention facilities by their design to have no discharge of storm water up to a specified design storm event.
- (50) State of Michigan Water Quality Standards – All applicable State rules, regulations, and laws pertaining to water quality, including the provisions of Section 3106 of Part 31 of 1994 PA 451, as amended.
- (51) State-Regulated Floodplain – Any area of land adjoining a river or stream that will be inundated by a base flood that has a drainage area of 2 square miles or more.
- (52) Storm Drain – A system of open or enclosed conduits and appurtenant structures intended to convey or manage storm water runoff, ground water and drainage.
- (53) Storm Water – Water that originates during precipitation events or with snowmelt.
- (54) Storm Water Drainage System – Storm sewers, conduits, curbs, gutters, catch basins, drains, ditches, pumping devices, parking lots, roads, or other man-made channels that are designed or used, singly or together in combination with one another, for collecting or conveying storm water.
- (55) Storm Water Permit – A permit issued pursuant to this ordinance.
- (56) Storm Water Runoff – Storm water that either flows directly into surface waters or is channeled into storm drainage systems.
- (57) Storm water treatment for runoff – A process for reducing the total suspended solids of storm water discharges from what would be discharged with untreated runoff. Treatment may be provided by sedimentation, filtration, retention, solids separation, bio-retention, or bio-filtration.

- (58) Storm Water Management Facility – The method, structure, area, system, or other equipment or measures which are designed to receive, control, store, convey, infiltrate, or treat storm water.
- (59) Stream – A river, stream or creek which may or may not be serving as a drain, or any other water body that has definite banks, a bed, and visible evidence of a continued flow or continued occurrence of water.
- (60) Toxic material – Any pollutant or combination of pollutants that is or can potentially be harmful to the public health or the environment, including, without limitation, those listed in 40 CFR 401.15 as toxic under the provisions of the Clean Water Act, or listed in the Critical Materials Register promulgated by the Michigan Department of Environmental Quality, or as otherwise provided by local, state, or federal laws, rules, or regulations.
- (61) Total Suspended Solids – Total suspended solids is a water quality measurement usually abbreviated TSS and expressed in mg/L. It is listed as a conventional pollutant in the U.S. Clean Water Act. The term refers to the dry-weight, in milligrams (mg), of particles in a liter (L) of water that are trapped by a filter. This parameter is also called non-filterable residue. See federal regulations 40CFR136 (Residue—non-filterable (TSS), mg/L) and Procedure 2540 D in Standard Methods for the Examination of Water and Wastewater, 19th Edition, 1995, APHA, AWWA, WEF.
- (62) Wastewater – Any water or other liquid, other than uncontaminated storm water, discharged from a premise. The term includes any water that has in any way been used and degraded or physically or chemically altered.
- (63) Water Body – A river, lake, stream, creek or other watercourse or wetlands.
- (64) Watershed – A land area draining into a water body.
- (65) Wetlands – Land characterized by the presence of water at a frequency and duration sufficient to support wetland vegetation or aquatic life.
- (66) 25-year rainfall event – A rainfall event which has a 4% chance of occurring in any given year. For storm water management it is often convention to consider the 24 hour storm events. For Ottawa Counties, Michigan, the 25-year, 24-hour rainfall event is equivalent to 4.45 inches of rain in 24 hours.
- (67) 2-year, 24-hour rainfall event – A rainfall event which has a 50% chance of occurring in any given year. For storm water management it is often convention to consider the 24 hour storm events. For Ottawa Counties, Michigan, the 2-year, 24-hour rainfall event is equivalent to 2.37 inches of rain in 24-hours. This rainfall event is considered to be the upper limit of the events that shape and influence streambank erosion the most in small streams.
- (68) 90% annual non-exceedance storm – For Ottawa Counties Michigan, the 90% annual non-exceedance storm is equivalent to 1.0 inch of rainfall. That is, only 10% of all storms in a given year would be expected to exceed 1.0 inch of rainfall. A BMP sized to capture and treat the 1.0 inch rainfall will effectively treat 90% of the annual average rainfall.

Section 2. Renumbering of Divisions. Chapter 37, Article VII, Divisions 2, 3, 4, and 5 shall be combined into a single Division 2, entitled “General Prohibitions and Enforcement.” Division 2 shall consist of Sections 37-154 through 37-171.

Section 3. Amendment. Sections 37-154, 37-155, and 37-168 of the Code of Ordinance for the City of Grand Haven shall be amended to read as follows:

Sec. 37-154 Applicability.

This Division 2 shall apply to all discharges to the storm water drainage system and water bodies from any developed and undeveloped lands.

Sec. 37-155 Prohibited discharges and illicit connections.

- (1) It is unlawful for any person to discharge, or cause to be discharged, to a storm water drainage system or water body any substance or material, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water or an authorized discharge. This prohibition includes the commencement, conducting, or continuance of any illicit discharge by any person to a storm water drainage system or water body.
- (2) Any person discharging storm water shall effectively prevent pollutants from being discharged with the storm water, except in accordance with BMPs.
- (3) The authorized enforcement officer is authorized to require dischargers to implement pollution prevention measures, using storm water pollution prevention plans and BMPs, as determined necessary by the authorized enforcement officer to prevent or reduce the discharge of pollutants to a storm water drainage system or water body.
- (4) The discharge prohibitions of this section shall not apply to any non-storm water discharge authorized under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the EPA, provided the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm water drainage system.
- (5) It is unlawful for any person to construct, use, maintain (or to allow the construction, use, maintenance or continued existence of) an illicit connection. This prohibition expressly includes, without limitation, illicit connections made prior to the effective date of this article, and regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

Sec. 37-168 Appeals.

Any person to whom any provision of this article has been applied may appeal in writing to the city, not later than thirty (30) days after the action or decision being appealed. Such appeal shall identify the matter being appealed, and the basis for the appeal. The city's construction board of appeals shall consider the appeal and make a decision whereby it affirms, rejects, or modifies the action being appealed. In considering any such appeal, the construction board of appeals may consider the recommendations of the authorized enforcement officer and the comments of other persons having knowledge or expertise regarding the matter. In considering any such appeal, construction board of appeals may grant a variance or other relief from the terms of this article, but only upon finding that the following requirements are satisfied:

- (1) Exceptional or extraordinary circumstances or conditions apply to the property in question that do not apply generally to other properties in the City. Such circumstances create a practical difficulty by rendering full compliance with this article impossible, or by increasing costs to the point where the expense of full compliance would far outweigh the benefit to the community.
- (2) The requested relief shall not cause a substantial adverse effect upon properties in the immediate vicinity.
- (3) The exceptional or extraordinary circumstances applying to the property in question are not self-created.
- (4) The requested relief is the minimum relief that will enable reasonable use or development of the property.
- (5) The requested relief will not substantially impair the intent or purpose of this ordinance.

Section 4. Addition. A new Chapter 37, Article VII, Division 3, entitled "Standards for Newly Developed and Redeveloped Properties" shall be added to read as follows:

Division 3
Standards for Newly Developed and Redeveloped Properties

Sec. 37-172 Applicability, Exemptions and General Provisions

- (1) This Division 3 shall apply to all development projects in the City commenced after its effective date that modify the exposed surface of at least 1 acre of land within a contiguous area owned by a single developer, or within a contiguous area that is part of a single plat, subdivision, or site condominium plan. The modification of exposed surfaces may result from construction or demolition activity, landscaping, or earth changes of any type affecting a property. This Division shall not apply to:
 - (a) The installation or removal of individual mobile homes within a mobile home park. However, this exemption shall not be construed to apply to the construction, expansion, or modification of a mobile home park.
 - (b) Ordinary farming operations such as the planting and harvesting of crops. This exemption shall not be construed to apply to paving or construction activity located on farm property, such as the construction of greenhouses, stables, silos, or other structures.
 - (c) Plats with preliminary plat approval and other developments with final land use approval prior to the effective date of this ordinance, wherein such approvals remain in effect.

Sec. 37-173 Permit Required

- (1) No person shall engage in any development activity without first receiving a storm water permit from the City pursuant to Section 37-174.
- (2) The granting of a storm water permit only authorizes the discharge of storm water from the development for which the permit is required, subject to the terms of the permit. It shall not be deemed to approve other development, other land use activities, or replace other required permits.

Sec. 37-174 Storm Water Permit Review Procedures

- (1) The City shall grant a storm water permit, which may impose terms and conditions in accordance with Section 37-174(2), only upon compliance with each of the following requirements:
 - (a) The developer has submitted a drainage plan complying with Section 37-175.
 - (b) The developer has paid or deposited the storm water permit review fee pursuant to Section 37-174(4).
 - (c) The developer has paid or posted the applicable financial guarantee pursuant to Section 37-177.
 - (d) The developer agrees to provide all easements necessary to implement the approved drainage plan and to otherwise comply with this Ordinance including, but not limited to, Section 37-183. All easements shall be acceptable to the City in form and substance and shall be recorded with the County Register of Deeds. At the discretion of the local government, the final easement may be required prior to permit issuance.
 - (e) The developer provides the required maintenance agreement for routine, emergency, and long-term maintenance of all storm water management facilities and in compliance with the approved drainage plan and this Ordinance including, but not limited to, Section 37-184 (Maintenance Agreement). The Maintenance Agreement shall be acceptable to the City in form and substance, shall be binding on all future property owners, and shall be recorded with the County Register of Deeds.
- (2) In granting a storm water permit, the City 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.

- (3) All expenses and costs incurred by the City directly associated with processing, reviewing and approving or denying a storm water permit application shall be paid (or reimbursed) to the City from the funds in a separate escrow account established by the developer, as provided in subsection (4). The City may draw funds from a developer's escrow account to reimburse the City for out-of-pocket expenses incurred by the City relating to the application. Such reimbursable expenses include, but are not limited to, expenses related to the following:
 - (a) Services of the City Attorney directly related to the application.
 - (b) Services of the City Engineer directly related to the application.
 - (c) Services of other independent contractors working for the City which are directly related to the application.
 - (d) Any additional public hearings, required mailings and legal notice requirements necessitated by the application.
- (4) At the time a developer applies for a storm water permit, the developer shall deposit with the City clerk, as an escrow deposit, an initial amount as determined by resolution of the City Council for such matters, and shall provide additional amounts as requested by the City in such increments as are specified in said resolution. Any excess funds remaining in the escrow account after the application has been fully processed, reviewed, and the final City approval and acceptance of the development has occurred, will be refunded to the developer with no interest to be paid on those funds. At no time prior to the City's final decision on an application shall the balance in the escrow account fall below the required initial amount. If the funds in the account are reduced to less than the required initial amount, the developer shall deposit into the account an additional amount as determined by City Council resolution, before the application review process will be continued. Additional amounts may be required to be placed in the escrow account by the developer at the discretion of the City.

Sec. 37-175 Drainage Plan

The developer shall provide adequate storm water management facilities for the development site. Adequate facilities reduce the exposure of people to drainage-related inconvenience and to health and safety hazards. They reduce the exposure of real and personal property to damage by storm water inundation. Storm water transport facilities (storm sewers) shall be designed to handle a 10 year storm without surcharge. Emergency overland flow-ways shall be provided to handle a 100 year storm to protect structures from flooding. The storm water management facilities shall provide adequate capacity for managing any storm water entering the site from adjacent properties.

The developer shall provide a drainage plan to the City for review and approval by the City. The drainage plan shall identify and contain all of the following:

- (1) The location of the development site and water bodies that will receive storm water runoff.
- (2) The existing and proposed topography of the development site, including the alignment and boundary of the natural drainage courses, with contours having a maximum interval of two foot (using USGS datum). The development site shall be shown on the pertinent county soil map.
- (3) A drawing of the development site indicating state-regulated floodplain areas, local floodplain areas, and areas subject to periodic storm water inundation.
- (4) The development tributary area to each point of discharge from the development.
- (5) Calculations of storm water rates and volumes for each point of discharge as follows:
 - (a) Pre-development peak discharge rate for the 2 year – 24 hour storm (2.37 inches of rain);
 - (b) Post-development peak discharge rate for the 2 year – 24 hour storm;
 - (c) Pre-development storm water discharge volume for the 2 year – 24 hour storm;
 - (d) Post-development storm water discharge volume for the 2 year – 24 hour storm;

- (e) Post-development storm water discharge rate for the 90% annual non-exceedance storm (1.0 inch of rain);
 - (f) Post-development storm water discharge volume for the 90% annual non-exceedance storm;
 - (g) Pre-development peak discharge rate for the 25 year storm event;
 - (h) Post-development peak discharge rate for the 25 year storm event, and;
 - (i) Post-development peak discharge rate for the 100 year storm event.
- (6) Design calculations for all storm water management, transport, control, and treatment facilities.
 - (7) The sizes and locations of upstream and downstream culverts serving the major drainage routes flowing into and out of the development site. Any significant off-site and on-site drainage outlet restrictions other than culverts should be noted in the drainage plan.
 - (8) An implementation plan for construction and inspection of all storm water management facilities necessary to the overall drainage plan, including a schedule of the estimated dates of completing construction of the storm water management facilities shown on the plan and an identification of the proposed inspection procedures to ensure that the storm water management facilities are constructed in accordance with the approved drainage plan.
 - (9) A plan to ensure the effective control of construction site storm water runoff and sediment track-out onto roadways consistent with Section 37-176 (Construction Site Runoff Controls).
 - (10) The drainage plan contains a description of an adequate, temporary storm water retention system to prevent construction site storm water runoff, satisfying the requirements of Section 37-176, and the developer has obtained a soil erosion permit, if necessary.
 - (11) Drawings, profiles, and specifications for the construction of the storm water management facilities proposed by the developer to ensure that storm water runoff will be drained, stored, or otherwise controlled in accordance with this ordinance, and in particular Article VIII, as required by the City.
 - (12) The name of the engineering firm and the registered professional engineer that designed the drainage plan and that will inspect final construction of the storm water management facilities.
 - (13) All design information must also be submitted in an electronic format as specified by the City.
 - (14) Any other information necessary for the City to verify that the drainage plan complies with the City's design and performance standards for drains and storm water management systems.
 - (15) Documentation to ensure that construction site activity does not interfere with the long-term functionality of the post-construction storm water management facilities, especially infiltration practices.
 - (16) Identification of emergency overland flow-ways adequate to protect structures from damage resulting from storms greater than the 100 year storm.

Sec. 37-176 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 the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, if one is required. The developer shall install storm water management facilities and shall phase the development activities so as to prevent construction site storm water runoff and off-site sedimentation. During all construction activities on the development site, the City may inspect the development site to ensure compliance with the approved construction site runoff controls.

Sec. 37-177 Financial Guarantee

- (1) The City shall not approve a storm water permit until the developer submits to the City, in a form and amount satisfactory to the City, a letter of credit or other financial guarantee for the timely

and satisfactory construction of all storm water management facilities and site grading in accordance with the approved drainage plan. Upon: 1) certification by a registered professional engineer that the storm water management facilities have been completed in accordance with the approved drainage plan including, but not limited to, the provisions contained in Section 37-175(8), and: 2) receipt of construction record drawings meeting the minimum requirements of the City or the OCDC, the City may release the letter of credit, or other financial guarantee subject to final City acceptance and approval.

- (2) Except as provided in subsection (3), the amount of the financial guarantee shall be \$10,000, unless the City determines that a greater amount is appropriate, in which case the basis for such determination shall be provided to the developer in writing. In determining whether an amount greater than \$10,000 is appropriate, the City shall consider the size and type of the development, the size and type of the on-site storm water system, and the nature of the off-site storm water management facilities the development will utilize.
- (3) The City's Director of Public Works may reduce or waive the amount of the financial guarantee for a development that will not increase the percentage of impervious surface of the development site by more than ten percent (10%).
- (4) This ordinance shall not be construed or interpreted as relieving a developer of its obligation to pay all costs associated with on-site private storm water 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 consistent with adopted design standards.

Sec. 37-178 Certificate of Occupancy

No certificate of occupancy shall be issued until storm water management facilities have been completed in accordance with the approved drainage plan. However, the City may issue a certificate of occupancy if an acceptable letter of credit or other financial guarantee has been submitted to the City for the timely and satisfactory construction of all storm water management facilities and site grading in accordance with the approved drainage plan.

Sec. 37-179 Management of, and Responsibility for, Storm Water System

- (1) The City is not responsible for providing drainage facilities on private property for the management of storm water on said property. It shall be the responsibility of the property owner to provide for, and maintain, private storm water management facilities serving the property, and to prevent or correct the accumulation of debris that interferes with the drainage function of a water body. The City shall not be liable for any disruption, failure or deficiency in the storm sewer system.
- (2) All storm water management facilities shall be constructed and maintained in accordance with all applicable federal, state and local ordinances, and rules and regulations.
- (3) Storm water management facilities, after construction and approval, shall be maintained in good condition in accordance with the approved drainage plan, and shall not be subsequently altered, revised, or replaced except in accordance with the approved drainage plan or in accordance with approved amendments or revisions in the plan.

Sec. 37-180 Floodplain Standards

- (1) All new buildings and substantial improvements to existing buildings shall be protected from flood damage up to the Flood Protection Elevation (FPE) and shall be in accordance with all applicable federal, state and local ordinances, rules and regulations. Floodway alteration in a local floodplain shall be permitted only upon review and approval by the City, in accordance with an approved drainage plan. Any construction, fill or alteration of a floodplain of a river, stream, or drain which has a drainage area greater than or equal to 2 square miles, also requires a state floodplain permit.
- (2) A drainage plan providing for the filling or alteration of a floodway within a local floodplain shall include provisions for maintaining stability of the banks of streams or other water bodies.

Establishing buffer zones is one means of providing protection of the slopes and banks of water bodies.

- (3) Within any required buffer zone, no earth change shall take place except in accordance with the approved drainage plan. Such a plan may also include provisions for the replacement of local flood plain storage volume, where such storage volume is lost or diminished as a result of approved development.
- (4) Any earth change within a state-regulated floodplain shall only be undertaken in accordance with any required state or federal permit.

Sec. 37-181 Soil Erosion and Sedimentation Control

- (1) All persons who cause, in whole or in part, any earth change to occur shall provide soil erosion and sedimentation control so as to adequately prevent soils from being eroded and discharged or deposited onto adjacent properties or into a storm water drainage system, a public street or right of way, wetland, creek, stream, water body or floodplain. All development shall be in accordance with all applicable federal, state and local ordinances, rules and regulations.
- (2) During any earth change which exposes soil to an increased risk of erosion or sediment track-out, the property owner and other persons causing or participating in the earth change shall do the following:
 - (a) Comply with the storm water management standards of this ordinance.
 - (b) Obtain and comply with the terms of a soil erosion and sedimentation control permit if required by law.
 - (c) Prevent damage to any public utilities or services within the limits of grading and within any routes of travel or areas of work of construction equipment.
 - (d) Prevent damage to, or impairment of, any water body on or near the location of the earth change or affected area thereby.
 - (e) Prevent damage to adjacent or nearby land.
 - (f) Apply for all required approvals or permits prior to the commencement of work.
 - (g) Proceed with the proposed work only in accordance with the approved plans and in compliance with this ordinance.
 - (h) Maintain all required soil erosion and sedimentation control measures including, but not limited to, measures required for compliance with the terms of this ordinance.
 - (i) Promptly remove all soil, sediment, debris, or other materials applied, dumped, tracked, or otherwise deposited on any lands, public streets, sidewalks, or other public ways or facilities, including catch basins, storm sewers, ditches, drainage swales, or water bodies. Removal of all such soil, sediment, debris or other materials within twenty-four (24) hours shall be considered prima facie compliance with this requirement, unless such materials present an immediate hazard to public health and safety.
 - (j) Refrain from grading lands at locations near or adjoining lands, public streets, sidewalks, alleys, or other public or private property without providing adequate support or other measures so as to protect such other lands, streets, sidewalks or other property from settling, cracking or sustaining other damage.
 - (k) Request and obtain inspection of soil erosion and sedimentation control facilities, by the City at such frequency as required by the City.

Sec. 37-182 Building Openings

- (1) No building opening or Lowest Floor shall be constructed below the following elevations:
 - (a) One foot above the Base Flood Elevation.

- (b) The building opening established at the time of plat or development approval and on file with the City.
 - (c) Three feet above the top of any downstream culvert.
 - (d) Four feet above the bottom of any downstream drain.
- (1) A waiver from elevations stated in Section 37-182(1) may be granted by the City following receipt of a certification from a registered professional engineer demonstrating that the proposed elevation does not pose a risk of flooding.
 - (2) Upon completion of construction of the structure's foundation and or slab on grade, a registered land surveyor shall certify any minimum building opening or Lowest Floor elevation specified by this ordinance. This certificate shall attest that the building opening or Lowest Floor elevation complies with the standards of this ordinance. The permittee for the building permit shall submit the certificate to the City's Building Inspections official prior to the commencement of framing and/or structural steel placement. If the surveyor should find that the minimum building opening or Lowest Floor elevation is below the elevation specified in Section 37-182(1), that opening must be raised using a method that meets with the approval of the City. After reconstruction, a registered land surveyor or engineer shall re-certify that the minimum building opening or Lowest Floor elevation complies with the standards of this ordinance prior to the commencement of framing and or structural steel placement.

Sec. 37-183 Storm Water Management Easements

The developer shall provide all storm water management easements necessary to implement the approved drainage plan and to otherwise comply with this ordinance in form and substance required by the City and shall record such easements as directed by the City. The easements shall assure access for proper inspection and maintenance of storm water management facilities and shall provide adequate emergency overland flow-ways.

Sec. 37-184 Maintenance Agreements

- (1) Maintenance Agreement Required. The developer shall provide all storm water maintenance agreements necessary to implement the approved drainage plan and to otherwise comply with this ordinance in form and substance as required by the City, and shall record such agreements as directed by the City. The maintenance agreements shall, among other matters, assure access for proper inspection and maintenance of storm water management facilities and adequate emergency overland flow-ways. A formal maintenance plan shall be included in the maintenance agreement.
- (2) Maintenance Agreement Provisions.
 - (a) The maintenance agreement shall include a plan for routine, emergency and long-term maintenance of all storm water BMPs, with a detailed annual estimated budget for the initial three years, and a clear statement that only future maintenance activities in accordance with the maintenance agreement plan shall be permitted without the necessity of securing new permits.
 - (b) Written notice and submittal of maintenance documentation shall be provided to the Local Government by the property owner at the interval set forth in the maintenance agreement.
 - (c) If it has been found by the City, following notice and an opportunity to be heard by the property owner, that there has been a material failure or refusal to undertake maintenance as required under this ordinance and/or as required in the approved maintenance agreement as required hereunder, the City shall then be authorized, but not required, to hire an entity with qualifications and experience in the subject matter to undertake the monitoring and maintenance as so required, in which event the property owner shall be obligated to advance or reimburse payment for all costs and expenses associated with such monitoring and maintenance, together with a reasonable administrative fee. The maintenance agreement required under this Ordinance shall

contain a provision spelling out the requirements and, if the applicant objects in any respect to such provision or the underlying rights and obligations, such objection shall be resolved prior to the commencement of construction of the proposed development on the property.

Sec. 37-185 Establishment of County Drains

Prior to final approval, all storm water management facilities for platted subdivisions shall be established as county drains as authorized in Section 433, Chapter 18 of the Michigan Drain Code (P.A. 40 of 1956, as amended) for long-term maintenance.

Sec. 37-186 Storm Water Management Zones

- (1) In order to achieve the goals and purposes of this ordinance, the following three storm water management zones (Zones A, B and C) are hereby established. The Zones are shown on the map attached as Appendix A and made a part of this ordinance, and any modifications to the Zones shall be made by ordinance only.
 - (a) Zone A requires the greatest water resource protection. Zone A may include urbanizing rural areas or redeveloping older neighborhoods that discharge to a headwater stream, wetland, pond, ravine, or depression where increases in storm water runoff rate and volume may negatively affect stream stability, wetland hydrology, and floodplains. Channel protection, flood control, and water quality are all required in Zone A. All areas that are not designated as Zones B or C will be designated as Zone A.
 - (b) Zone B, if delineated in a storm water master plan, includes areas that discharge to rivers and larger streams where full channel protection is still required, but where peak rate reduction for flood control to the standard specified for Zone A is not required. Zone B includes areas along existing flood-prone watercourses where floodplain expansion may be required in lieu of onsite storm water detention.
 - (c) Zone C requires a lesser amount of storm water runoff control. Zone C is comprised of lands that discharge to a river, lake, or municipal regional storm water facility where peak rate control to the standard specified for Zone A is not required. Volume control (onsite retention) is encouraged in Zone C to the extent it is practical. Peak rate reduction for flood control is required only to the extent determined necessary to prevent flooding of the local infrastructure between the proposed development and the Zone C water body. Water quality is required to be met. Zone C water bodies generally include: the Great Lakes, inland lakes and large rivers. They may be more specifically defined in a storm water master plan.

Sec. 37-187 Performance and Design Standards

- (1) Protection of the public health, safety and welfare shall be a primary consideration in the performance and design of all storm water management facilities.
- (2) The City requires that developers use the most current Michigan LID Manual or comparable standard for design and performance standards for storm water management facilities, consistent with the terms of this ordinance, and in order to further implement its goals and purposes.
- (3) Storm water management facilities shall be designed to manage storm water flow within the available capacity of the downstream conveyance system as determined by the City.
- (4) In addition, storm water management facilities shall be designed to meet the following Water Quality, Channel Protection, and Flood Control requirements for the Zone into which site storm water discharges.
- (5) The design standards for Zones A, B and C, as described in Section 37-186, are the following:

| Criteria | Zone A | Zone B | Zone C |
|---|--|--|--|
| Zone Description | Site discharges to a headwater stream, ravine, wetland, pond or depression. | Site discharges to a stream needing channel protection but where Zone A Flood Control criteria have been determined to be not necessary. | Site discharges to a river, lake, depression or regional storm water facility where Zone A and B channel protection and flood control criteria have been determined to be not necessary. |
| Channel Protection <i>(volume and peak rate control)</i> | Onsite retention: No net increase in the pre-development runoff volume and rate from the disturbed portion of the site for the 2-year, 24-hour rainfall event. | Onsite retention: No net increase in the pre-development runoff volume and rate from the disturbed portion of the site for the 2-year, 24-hour rainfall event. | Incorporate onsite retention to the extent it is practical. |
| Flood Control <i>(peak rate control)</i> | Provide detention of the 25-year rainfall event with a maximum release rate of 0.13 cfs/acre. | None, unless required due to limited conveyance system (storm sewer or ditch) capacity between development and Zone B water body. | None, unless required due to limited conveyance system (storm sewer or ditch) capacity between development and Zone C water body. |
| Water Quality <i>(treat by infiltration, filtration, extended detention, or permanent pool)</i> | Provide storm water treatment for runoff produced by the 90% annual non-exceedance storm from the directly connected impervious area and disturbed pervious area designed to reduce Total Suspended Solids to less than 80 mg/L. (Water quality control will likely be met through channel protection criteria.) | Provide storm water treatment for runoff produced by the 90% annual non-exceedance storm from the directly connected impervious area and disturbed pervious area designed to reduce Total Suspended Solids to less than 80 mg/L. (Water quality control will likely be met through channel protection criteria.) | Provide storm water treatment for runoff produced by the 90% annual non-exceedance storm from the directly connected impervious area and disturbed pervious area designed to reduce Total Suspended Solids to less than 80 mg/L. |

Sec. 37-188 Waivers

- (1) *Regional facilities.* Where storm water management facilities are provided on a regional basis, City may waive all or a portion of the channel protection, flood control, and water quality requirements of Section 37-187 to the extent the objectives are met by the regional facilities.
- (2) *Substitution of extended detention criteria for channel protection.* The City may waive all or a portion of the on-site retention criteria for channel protection in Section 37-187 if the developer demonstrates that site constraints preclude sufficient retention onsite.
- (3) *Site retention.* Infiltration shall be used as the primary means of retention. It is not, however, the sole means of providing onsite retention, and the developer must include consideration of storm water re-use, interception, evaporation, and transpiration. Site constraints that may limit the use of infiltration include:

- (a) Poorly draining soils
 - (b) Bedrock
 - (c) High groundwater or the potential of mounded groundwater to impair other uses
 - (d) Well-head protection areas
 - (e) Brownfield sites and areas of soil or groundwater contamination
- (4) *Approvable demonstration.* An approvable demonstration must show the technical basis for concluding the Section 37-187 criteria make development of the site infeasible due to site constraints. A demonstration that only considers financial aspects shall not be approved.

PLOT INFO: N:\05212\GIS\MAP_DOCUMENT\CPW_ASR\RESULTS.MXD DATE: 13/05/2009 USER: MCL



Section 5. Effective Date. This ordinance shall become effective 20 days after its adoption or upon its publication, whichever occurs later.

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| YEAS: | Monetza, Hierholzer, Scott, Fritz, and McCaleb |
| NAYS: | NONE |
| ABSTAIN: | NONE |
| ABSENT: | NONE |

CERTIFICATION

I certify this true and complete copy of Ordinance No. 14-02 was adopted at a Regular Meeting of the Grand Haven City Council held on June 2, 2014.

Linda L. Browand, City Clerk

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|-------------|---------------|
| Introduced: | May 19, 2014 |
| Adopted: | June 2, 2014 |
| Published: | June 12, 2014 |
| Effective: | June 22, 2014 |