

CITY OF NORTON SHORES
COUNTY OF MUSKEGON
STATE OF MICHIGAN

AN ORDINANCE TO CREATE A NEW SECTION OF CHAPTER 48
OF THE CODE OF ORDINANCES TO INCLUDE MODEL LOW IMPACT DEVELOPMENT
(LID) STORMWATER MANAGEMENT STANDARDS

Ordinance No. 733

THE CITY OF NORTON SHORES HEREBY ORDAINS:

Section 1: Purpose.

1. To promote storm water management practices that maintain and replicate pre-development hydrology through site design, site development, building design and landscape design techniques that infiltrate, filter, store, evaporate and detain storm water close to its source.
2. To protect natural resources, particularly streams, lakes, wetlands, floodplains and other natural aquatic systems on/or downstream of the development site from degradation that could be caused by construction activities and post-construction conditions.
3. To protect other properties from damage that could be caused by excessive storm water runoff and sediment during construction activities and post-construction conditions on/or from the development site.
4. To improve the quality of site storm water runoff.
5. To reduce the impacts from impervious surfaces such as streets, parking lots, rooftops and other paved surfaces.
6. To protect public safety from flooding and stream bank erosion, reduce public expenditures in removing sediment from storm water drainage systems and natural resource areas, and to prevent damage to municipal infrastructure caused by inadequate storm water controls.

Section 2: Definitions. That the following definitions be added to the existing definitions contained in Section 48-5 of Chapter 48 of the Code of Ordinances for the City of Norton Shores, to read as follows:

Applicant. Any person proposing or implementing the development of land.

BMP or "Best Management Practice". A practice, or combination of practices and design criteria that comply with the Michigan Department of Environmental Quality's Guidebook of BMPs for Michigan Watersheds, and Low Impact

Development Manual for Michigan, or equivalent practices and design criteria that accomplish the purposes of this Ordinance (including, but not limited to, minimizing storm water runoff and preventing the discharge of pollutants into storm water) as determined by the City of Norton Shores Engineer, Environmental Consultant and/or, where appropriate, the standards of the Muskegon County Drain Commissioner.

Conveyance facility. A storm drain, pipe, swale, or channel.

Design Engineer. The registered professional engineer responsible for the design of the storm water management plan.

Detention. 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.

Development, Developed or Redevelopment. The installation or construction of impervious surfaces on a development site that require, pursuant to state law or local ordinance, City of Norton Shores approval of a site plan, site condominium, special land use, planned unit development, rezoning of land, 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 development, developed or redevelopment shall not include the actual construction of, or an addition, extension, or modification to, an individual single-family or a two-family detached dwelling.

Engineered Site Grading Plan. A sealed drawing or plan and accompanying text prepared by a registered engineer or landscape architect which shows alterations of topography, alterations of watercourses, flow directions of storm water runoff, and proposed storm water management and measures, having as its purpose to ensure that the objectives of this Ordinance are met.

Grading. Any stripping, excavating, filling, and stockpiling of soil or any combination thereof and the land in its excavated or filled condition.

Impervious Surface. Surface that does not allow storm water runoff to slowly percolate into the ground.

Infiltration. The percolation of water into the ground, expressed in inches per hour.

Maintenance Agreement. A binding agreement that sets forth the terms, measures, and conditions for the maintenance of storm water systems and facilities.

Offsite Facility. All or part of a drainage system that is located partially or completely off the development site which it serves.

Peak Rate of Discharge. The maximum rate of storm water flow at a particular location following a storm event, as determined by the City and as measured at a given point and time in cubic feet per second (CFS).

Plan. Written narratives, specifications, drawings, sketches, written standards, operating procedures, or any combination of these which contain information pursuant to this Ordinance.

Retention. A holding system for storm water, either natural or man-made, which does not have an outlet to adjoining watercourses or wetlands. Water is removed through infiltration and/or evaporation processes.

Runoff. That part of precipitation which flows over the land.

Sediment. Mineral or organic particulate matter that has been removed from its site of origin by the process of soil erosion, is in suspension in water, or is being transported.

Storm Drain. A conduit, pipe, swale, natural channel or man-made structure which serves to transport storm water runoff. Storm drains may be either enclosed or open.

Storm Water BMP. Any facility, structure, channel, area, process or measure which serves to control storm water runoff in accordance with the purposes and standards of this Ordinance.

Section 3: That a new Division 8 be added to Chapter 48 of the Code of Ordinances for the City of Norton Shores to read as follows:

Division 8. Model Low Impact Development (LID) Stormwater Management Standards

48.1057 *Scope and Applicability.*

A. This ordinance shall apply to all development within the City of Norton Shores requiring site plan approval.

B. Exemptions:

- I. Any activity that will disturb an area less than one (1) acre, or
- II. Any activity that will increase an impervious area or contiguous impervious area less than 10,000 square feet, or
- III. The construction of any fence that will not alter existing terrain or drainage patterns.
- IV. Development in environmentally unfeasible locations, e.g. Brownfields.

48.1058 *LID/Storm water Management Application Materials*

For all development requiring a site plan approval which requires excavation, the following information shall be presented on a plan or plans drawn to scale with supporting documents and technical details as necessary:

- A. An existing condition site assessment providing baseline information on features which may include slope profiles showing existing gradients, soil types, trees and other vegetation, natural water bodies, historic water tables, wetlands and sensitive natural communities, and site features that aid in storm water management including natural drainage ways and forested and vegetated lands located on stream, lake and wetland buffers;
- B. A soil erosion and sediment control plan that incorporates accepted best management practices as recommended by the state of Michigan. Permits for erosion and sedimentation control are administered by the Muskegon County Public Works Department.
- C. A storm water management plan identifying the construction disturbance area and demonstrating that storm water runoff is minimized through the use of natural drainage systems and on-site infiltration and treatment techniques. The plan shall demonstrate that soils best suited for infiltration are retained and that natural areas consisting of tree canopy and other vegetation are preserved, preferably in contiguous blocks or linear corridors where feasible, for protection of the best storm water management features identified in the site assessment. The City may consider and impose appropriate safeguards, modifications and conditions relative to the general standards and guidelines listed in Section 7 of this ordinance.

48.1059 *General Pre-Development and Construction Site Standards.*

All development in the City of Norton Shores is subject to the following pre-development and construction site standards to ensure that all sources of soil erosion and sediment on the construction site are adequately controlled, and that existing site features that naturally aid in storm water management are protected to the maximum extent practical.

- A. Minimize Land Disturbance. Development of a lot or site shall require the least amount of vegetation clearing, soil disturbance, duration of exposure, soil compaction and topography changes as possible.
 - 1. To the extent feasible, soils best suited for infiltration shall be retained and natural areas consisting of tree canopy and other vegetation shall be preserved, preferably in contiguous blocks or linear corridors.

2. The time the soil is left disturbed shall be minimized. The City may require project phasing to minimize the extent of soil disturbance and erosion during each phase of site development.
3. There shall be no soil compaction except in the construction disturbance area, which shall be identified and delineated in the field with appropriate safety or landscape fencing. In areas outside the disturbance area there shall also be no storage of construction vehicles, construction materials, or fill, nor shall these areas be used for circulation.

B. Preserve Natural Areas. Development shall not result in an undue adverse impact on fragile environments, including wetlands, wildlife habitats, streams, lakes, steep slopes, floodplains, aquifers, water tables and vegetated riparian buffers.

1. Open space or natural resource protection areas shall be retained preferably in contiguous blocks or linear corridors where feasible, for the protection of the best storm water management features identified in the site assessment as required in Section 4(a) of this ordinance.
2. Forested lands located on stream, lake and wetland buffers and steep slopes are priority areas and clearing them shall be avoided in order to protect wildlife habitats and prevent erosion and sedimentation resulting from storm water runoff.
3. A minimum 50-foot vegetated buffer shall be established along any lakes, streams and/or any other water bodies located within the property lines.
4. Lot coverage and building footprints shall be minimized and where feasible, development clustered, to minimize site disturbance and preserve large areas of undisturbed space. Environmentally sensitive areas, such as areas along streams, wetlands, and steep slopes shall be a priority for preservation and open space.

C. Manage Water, Prevent Erosion and Control Sediment During Construction. Applicants shall maintain compliance with the accepted erosion prevention and sediment control plan as required by Section 4(b) of this ordinance and as permitted by the Muskegon County Public Works Department.

1. Runoff from above the construction site must be intercepted and directed around the disturbed area in a manner that would create the least amount of erosion or conveyance of sediment.

2. On the site itself, water must be controlled, and kept at low velocities, to reduce erosion in drainage channels.
3. The amount of sediment produced from areas of disturbed soils shall be minimized by utilizing best management practices control measures such as vegetated strips, diversion dikes and swales, sediment traps and basins, check dams, stabilized construction entrances, dust control, and silt fences.
4. Immediate seeding and mulching or the application of sod shall be completed at the conclusion of each phase of construction, or at the conclusion of construction if not phased.

48.1060 *Low Impact Development Design.*

The use of LID design approaches is preferred and shall be implemented to the maximum extent practical given the site's soil characteristics, slope, and other relevant factors. To the extent that LID design approaches are not proposed in the storm water management plan, as required in Section 4(c) of this ordinance, the applicant shall provide a full justification and demonstrate why the use of LID approaches is not possible before proposing to use conventional structural storm water management measures which channel storm water away from the development site.

48.1061 *LID/Storm Water General Post Construction Review Standards and Guidelines.*

- A. All applications for development are subject to the following post construction storm water management standards and guidelines to ensure that storm water management approaches that maintain natural drainage patterns and infiltrate precipitation are utilized to the maximum extent practical.
- B. Standards are statements that express the development and design intentions of this ordinance. The guidelines suggest a variety of means by which the applicant might comply with the standards. The guidelines are intended to aid the applicant in the design process and the City when reviewing applications. Options for compliance with the standards are not limited to the guidelines listed.

I. Standard 1: Vegetation and Landscaping

Vegetative and landscaping controls that intercept the path of surface runoff shall be considered as a component of the comprehensive storm water management plan. Suggested vegetative and landscaping controls include:

- a. Direct runoff from roads, driveways, parking lots and other types

of drivable or walkable surfaces to vegetated areas to allow for water infiltration.

- b. Design parking lot landscaping to function as part of the development's storm water management system utilizing vegetated islands with bio-retention functions.
- c. Incorporate existing natural drainage ways and vegetated channels, rather than the standard concrete curb and gutter configuration to decrease flow velocity and allow for storm water infiltration.
- d. Divert water from downspouts away from driveway surfaces and into bio-retention areas or rain gardens to capture, store, and infiltrate storm water on-site.
- e. Encourage construction of vegetative LID storm water controls (bio-retention, swales, filter strips, buffers) on lands held in common.

II. Standard 2: Development on Steep Slopes

Development on steep slopes equal to or in excess of 15% shall be sited and constructed, and slopes stabilized to minimize risks to surface and ground waters and to protect neighboring properties from damage. Steep slope development shall include the following practices:

- a. Prohibit development, re-grading and clearing of vegetation on land where the slope is greater than 25%.
- b. Locate house sites, subsurface sewage systems and parking areas on the flattest portion of the site.
- c. Minimize crossing steep slopes with roads and driveways and lay them out to follow topographic contours in order to minimize soil and vegetation disturbance. Avoid long driveways.

III. Standard 3: Reduce Impervious Surfaces

Storm water shall be managed through land development strategies that emphasize the reduction of impervious surface areas such as streets, sidewalks, driveway and parking areas and roofs. Reduce impervious surfaces utilizing the following criteria:

- a. Evaluate the minimum widths of all streets and driveways to demonstrate that the proposed width is the narrowest possible necessary to conform with safety and traffic concerns and requirements.

- b. Reduce the total length of residential streets by examining alternative street layouts to determine the best option for increasing the number of homes per unit length.
- c. Minimize the number of residential street cul-de-sacs and incorporate vegetated islands to reduce their impervious cover. The radius of cul-de-sacs should be the minimum required to accommodate emergency and maintenance vehicles. Consider alternative turn-around areas.
- d. Reduce driveway lengths by minimizing setback distances. Encourage common driveways.
- e. Use permeable pavement for parking stalls and spillover parking, sidewalks, driveways and bike trails.
- f. Establish parking maximums and utilize shared parking for uses with different peak demand periods.
- g. Reduce building footprints by using more than one floor level.

IV. Standard 4: Low Impact Integrated Management Practices (IMPs)

Storm water shall be managed through the use of small-scale controls to capture, store and infiltrate storm water close to its source. This can be accomplished by:

- a. Create vegetated depressions, commonly known as bio-retention areas or rain gardens that collect runoff and allow for short-term ponding and slow infiltration. Rain gardens consist of a relatively small depressed or bowl shaped planning bed that treats runoff from storms of one inch or less.
- b. Use filter strips or bands of dense vegetation planted immediately downstream of a runoff source to filter runoff before it enters a receiving structure or water body. Natural or man-made vegetated riparian buffers adjacent to water bodies provide erosion control, sediment filtering and habitat.
- c. Utilize shallow grass-lined channels to convey and store runoff.
- d. Incorporate rooftop gardens which partially or completely cover a roof with vegetation and soil or a growing medium, planted over a waterproofing membrane.
- e. Use permeable paving and sidewalk construction materials that allow storm water to seep through into the ground.
- f. Use rain barrels and cisterns of various sizes that store runoff conveyed through building downspouts.

- g. Utilize tree box filters placed below grade, covered with a grate, filled with filter media and planted with a tree, to act both as a water retention tank and a natural filter.

48.1062 *Independent Consultants.*

- A. The City may retain independent consultants to facilitate the review of applications for development subject this bylaw and whose services shall be paid for by the applicant. The consultant(s) shall work at the City's direction and shall provide the City such reports and assistance, as the City deems necessary to determine compliance with this bylaw.

48.1063 *Other Ordinances.*

- A. This ordinance is in addition to all other ordinances of the City of Norton Shores and all applicable Federal laws and enforcement and penalties, and laws of the State of Michigan.

Section 4. Severability. Should any part of this ordinance be held invalid by a Court of Competent Jurisdiction, the remaining parts shall be severable and shall continue in full force and effect.

Section 5. Ordinance Repeal. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 6. Effective Date. This ordinance shall be effective upon adoption and publication.

Lynne A. Fuller, City Clerk

Introduced: April 19, 2011

Adopted: May 2, 2011

Published: May 7, 2011