

Low Impact Development Storm Water Ordinance

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I. Purpose.

The purpose of this ordinance is to encourage and allow for the use of low impact development practices to manage storm water runoff resulting from new development or redevelopment projects in order to reduce the quantity and improve the quality of storm water runoff that leaves the site. Low impact development involves the use of site scale practices to minimize the amount of storm water runoff generated, maximize the amount of storm water runoff that infiltrates the ground on site, and maximize the quality of storm water runoff that leaves the site. Therefore, this ordinance requires the use of low impact development on new development and redevelopment projects to the maximum extent practicable.

II. Definitions.

Best Management Practice (BMP) means a structural or nonstructural practice which is designed to minimize the impacts of development on surface water or groundwater systems.

Dry detention basin means a detention basin designed to drain after temporary storage of storm water flows and to normally be dry between runoff events.

Environmental resource area means any river, nonlinear water body, ravine, wooded area, wetland, steep slope, prairie, and any other natural area that must be documented in the Storm Water Management Plan.

Floodplain means the 100 year floodplain as determined by the Federal Emergency Management Agency (FEMA).

Impervious surface means any hard-surfaced, man-made area that does not readily absorb or retain water, including but not limited to building roofs, parking and driveway areas, graveled areas, sidewalks and paved recreation areas.

Integrated management practice (IMP): A low impact development microscale and distributed management technique used to maintain predevelopment site hydrology. Integrated management

practices shall include bioretention facilities, dry wells, filter strips, buffer strips, grassed swales, rain barrels, cisterns, infiltration trenches and amended soils as specified in the Low Impact Development Design Manuals.

Low impact development: A hydrologically functional site design with pollution prevention measures to reduce impacts and compensate for development impacts on hydrology and water quality.

Major Drainage System: That portion of a drainage system needed to store and convey flows beyond the capacity of the minor drainage system. Major Drainage System components include, but are not limited to, detention ponds, dams, roadway culverts, bridges, medium or large open channels, large (trunk) storm sewers and natural overland paths. Major Drainage System components are to be designed to safely convey the 100-year recurrence interval storm event.

Minor Drainage System: That portion of a drainage system designed for the convenience of the public. It consists of integrated management practices street gutters, storm sewers, small open channels, and swales and, where manmade, is to be designed to safely convey the 10-year recurrence interval storm discharge.

Nonlinear water body means a natural or artificial body of water that retains water year round such as a depression ponded area, lake, or slough.

Prairie means an area with a minimum size of one acre that contains primarily a mixture of native warm season grasses interspersed with native flowering plants that were prevalent prior to European settlement of the region.

Ravine means a narrow valley or gorge in the earth's surface worn by running water.

River means a natural or artificial watercourse that periodically or continuously contains moving water, or that forms a connecting link between 2 or more bodies of water. A river includes any stream, creek, brook, branch, and drainage channel.

Steep slope means land with a slope which equals or exceeds a vertical rise of one foot for a horizontal run of four feet for a vertical height of 35 feet or more.

Storm water management concept plan: A generalized plan provided with the preliminary plan of subdivision or preliminary site development plan describing how storm water runoff through and from a land development project will be conveyed and controlled.

Storm water management design plan: The set of drawings and supporting documents that comprises all of the information and specifications for the systems and structures that will be used to convey and control storm water runoff in accordance with the requirements of this ordinance.

Wet bottom detention basin means a detention basin designed to maintain a permanent pool of water after the temporary storage of storm water runoff.

Wetland means land that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, under normal conditions, vegetation adapted for life in saturated soil conditions.

Wetland detention basin means a detention basin designed with all or a portion of its bottom area as a wetland.

Wooded area means an area or stand of trees whose total combined canopy covers an area of 20,000 square feet or more.

III. Applicability of Ordinance

This ordinance applies to any construction project that will include the addition of a minimum impervious surface area of 5,000 square feet, land disturbing activity that will affect a minimum area of 1 acre, land disturbing activity that will affect a minimum volume of 500 cubic yards, and any development subject to the provisions of the Subdivision Ordinance.

IV. Grading Plan

All construction projects subject to this ordinance shall receive approval of the Grading Plan in order to begin construction. The Grading Plan shall include the following information:

- A. The existing conditions on the development site;
- B. A topographic survey with proposed contour lines at not greater than one foot (1') intervals. Proposed spot elevations shall be provided at all breaks in grade and where necessary to indicate grade changes in areas of low relief; and
- C. The limits of grading and other construction activities.

V. Soil Erosion and Sediment Control Plan

All construction projects subject to this ordinance shall receive approval of the Soil Erosion and Sediment Control Plan in order to begin construction. The purpose of this plan is to ensure suitable construction site runoff control. The Soil Erosion and Sediment Control Plan shall include the following information:

- A. The location and description, including standard details, of all sediment control measures and design specifics of sediment basins and traps, including outlet details. The drainage area tributary to each sediment control measure shall be delineated on the soil erosion and sediment control plan;
- B. Location and description of all soil stabilization and erosion control measures, including seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, type and rate of lime and fertilizer application, kind and quantity of mulching for both temporary and permanent vegetative control measures, and types of non-vegetative stabilization measures;
- C. Location and description of all runoff control measures, including diversions, waterways, and outlets;

- D. Location and description of methods to prevent tracking of any sediment offsite, including construction entrance details, as appropriate. No sediment shall be tracked offsite;
- E. Description of dust and traffic control measures;
- F. Locations of stockpiles and description of stabilization methods;
- G. Description of off-site fill or borrow volumes, locations, and methods of stabilization;
- H. Provisions for maintenance of control measures, including type and frequency of maintenance, easements, and estimates of the cost of maintenance;
- I. Identification (name, address, and telephone) of the person(s) or entity which will have legal responsibility for maintenance of erosion control structures and measures during development and after development is completed; and
- J. A written narrative description of the proposed phasing (construction sequencing) of development of the site, including stripping and clearing, rough grading and construction, and final grading and landscaping. Phasing should identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, and the sequence of installation of temporary sediment control measures (including perimeter controls), clearing and grading, installation of temporary soil stabilization measures, installation of storm drainage, paving streets and parking areas, final grading and the establishment of permanent vegetative cover, and the removal of temporary measures. It shall be the responsibility of the applicant to notify the Planning and Zoning Department of any changes which occur in the site development schedule after the initial Soil Erosion and Sediment Control plan has been approved.

VI. Storm Water Management Concept Plan.

A. General

All construction projects subject to this ordinance shall receive approval of the Storm Water Management Concept Plan in order to begin construction. This plan shall provide sufficient information to demonstrate the overall storm water management approach and describe, in general, how storm water runoff through and from the development will be conveyed and controlled. This plan shall be based on the Storm Water Design Hierarchy and include critical environmental

resources such as wetlands and sensitive areas, building envelopes, open space areas, and pathways along which storm water runoff will flow.

B. Storm Water Design Hierarchy

The storm water management concept plan shall include an explanation of how the proposed storm water management system adheres to the following hierarchy (Step 1 shall be completed first, then Step 2 shall be completed, then Step 3 shall be completed, etc.) to reduce the quantity and improve the quality of storm water runoff:

1. Preservation of environmental resource features of the development site;
2. Preservation of the existing natural streams, channels and drainageways;
3. Minimizing impervious surfaces created at the site (e.g., narrowing road width, minimizing driveway length and width, clustering homes, and shared driveways);
4. Using open vegetated channels to convey storm water runoff;
5. Preservation of the natural infiltration and storage characteristics of the site (e.g., disconnection of impervious cover and on-lot bio-retention facilities);
6. Structural measures that provide water quality and quantity control;
7. Structural measures that provide only quantity control and conveyance.

C. Revisions Meeting

The applicant shall meet with representatives of the Local Government to discuss the storm water management concept plan. The purpose of the meeting will be to discuss any revisions to the storm water management concept plan that shall be included in the final storm water management plan for the site.

VII. Storm Water Management Plan.

A. Purpose

The storm water management plan shall be approved prior to the beginning of construction. This plan shall provide sufficient information to demonstrate the overall storm water management approach to reduce the quantity and improve the quality of storm water runoff.

B. Goals

The primary goals of the Storm Water Management Plan shall be to:

1. Minimize the increase in runoff volumes from the site;
2. Minimize the increase in runoff rates from the site;
3. Minimize the quantity of pollutants in runoff from the site.

A Storm Water Management Plan that merely accommodates the increase in storm water runoff and does not attempt to address the three goals stated above will not be accepted.

C. Design Hierarchy

The storm water management plan submitted by the applicant shall adhere to the following hierarchy in order to maximize the quantity of storm water runoff infiltrated on site and minimize the quantity of pollutants that enter storm water runoff:

1. Preservation of environmental resource features of the development site

Features such as areas of native vegetation, steep slopes, wetlands, and other natural areas that either are beneficial to storm water management and can be incorporated into the site's storm water management system or are sensitive to storm water runoff and whose degradation will impair storm water management shall be preserved on site. Those natural areas beneficial to storm water management shall be incorporated into the site's storm water management system, while those natural areas sensitive to storm water runoff (such as steep slopes with erodible soils) shall be protected so that the features and storm water runoff are not adversely affected.

2. Preservation of the existing natural streams, channels and drainageways;

The existing flow of water on site shall be documented, and after development is complete, the existing flow of water shall be preserved to the greatest extent possible. In the event that any portion of an existing drainageway is proposed to be developed or no longer used as a drainageway, the applicant shall submit a written statement explaining why the change to the drainageway is necessary. The Local Government reserves the right to approve with conditions or deny a drainage plan that

proposes a portion of a drainageway be developed or no longer used as a drainageway.

3. Minimizing impervious surfaces created at the site (e.g., narrowing road width, minimizing driveway length and width, clustering homes, shared driveways, and using pervious pavement);

The development application shall include practices intended to reduce the amount of impervious surface to the maximum extent practicable. Practices shall include narrowing roadways, minimizing driveway length and width, concentrating dwelling units in a compact area in one portion of the development site, constructing shared driveways, using pervious pavement, and other similar practices. The development application shall make use of all provisions from the Zoning Ordinance and Subdivision Ordinance that allow for reduction in impervious surface such as minimum front setbacks, minimum road widths, and minimum cul-de-sac radii. The Local Government may request a written explanation of why practices intended to reduce the amount of impervious surface were not included in the Storm Water Management Plan when, upon review, it appears the practices are viable options. The Local Government reserves the right to approve with conditions or deny a Storm Water Management Plan that does not include the use of practices intended to reduce the amount of impervious surface when such practices are viable options in the judgment of the Local Government.

4. Using open vegetated channels to convey storm water runoff;

Open vegetated channels shall be used to convey storm water runoff across the development site to the maximum extent practicable. Open vegetated channels shall be designed to filter pollutants through the use of appropriate vegetation in the channel and designed to infiltrate storm water through the use of appropriate vegetation and the use of an appropriate subsoil matrix. The Local Government may request a written explanation of why open vegetated channels were not included in the Storm Water Management Plan to convey storm water runoff when, upon review, it appears their use is viable. The Local Government reserves the right to approve with conditions or deny a Storm Water Management Plan that does not include the use of open vegetated channels to convey storm water runoff when use of open vegetated channels is viable in the judgment of the Local Government.

5. Preservation of the natural infiltration, filtration, and storage characteristics of the site;

Natural areas that can be incorporated into the storm water management system of the site shall be preserved and used to manage storm water runoff to the maximum extent practicable. Natural areas that shall be preserved include areas of native vegetation, areas of permeable soils, and other areas that have intrinsic characteristics to filter, infiltrate, and store storm water runoff. In the event that any applicable natural area is proposed to be developed, damaged, or altered so that it cannot perform its intrinsic storm water management function, the applicant shall submit a written statement explaining why the development, damaging, or alteration of the applicable natural area is necessary. The Local Government reserves the right to approve with conditions or deny a Storm Water Management Plan that proposes any portion of any applicable natural area be developed, damaged, or altered so that it cannot perform its intrinsic storm water management function.

6. Using filter strips, bioretention areas, and infiltration devices to filter and infiltrate storm water runoff;

Best Management Practices (BMPs) that filter and infiltrate storm water runoff on site shall be used to the maximum extent practicable. Appropriate BMPs include but are not limited to filter strips, sand and organic filters, infiltration trenches, infiltration basins, and bioretention areas. The Local Government may request a written explanation of why appropriate BMPs were not included in the Storm Water Management Plan when, upon review, it appears that appropriate BMPs are viable options. The Local Government reserves the right to approve with conditions or deny a Storm Water Management Plan that does not include the use of appropriate BMPs when appropriate BMPs are viable options in the judgment of the Local Government.

7. Structural measures that provide water quality and quantity control;

Detention basins and retention basins that provide water quantity control through groundwater infiltration and evaporation and provide water quality control through the settling and removal of pollutants shall be proposed as part of the Storm Water Management Plan only when all other storm water management options that fall under the first six (6) sections of the Design Hierarchy have been exhausted. When structural measures that provide water quality and quantity control are proposed as part of the Storm Water Management Plan, the applicant must submit in writing an explanation of how the Storm Water Management Plan incorporates practices from the first six (6) sections of the Design Hierarchy, a description of practices from the first six (6) sections of the Design Hierarchy that were considered in place of the proposed measures, and

why the proposed measures ultimately are necessary. The Local Government reserves the right to approve with conditions or deny a Storm Water Management Plan that proposes the use of structural measures that provide water quality and quantity control when practices from the first six (6) sections of the Design Hierarchy are feasible options in the judgment of the Local Government.

8. Structural measures that provide only quantity control and conveyance.

The use of storm sewers, whether on site or off site, shall be used to convey storm water runoff only when all other storm water management options to infiltrate and convey storm water runoff from the Design Hierarchy have been exhausted. When structural measures that provide only quantity control and conveyance are proposed as part of the Storm Water Management Plan, the applicant must submit in writing an explanation of how the Storm Water Management Plan incorporates practices from all other sections of the Design Hierarchy, a description of practices from all other sections of the Design Hierarchy that were considered in place of the proposed measures, and why the proposed measures ultimately are necessary. The Local Government reserves the right to approve with conditions or deny a Storm Water Management Plan that proposes the use of structural measures that provide only quantity control and conveyance when practices from any other section of the Design Hierarchy are feasible options in the judgment of the Local Government.

D. Use of Integrated Management Practices

The use of integrated management practices is integral to a storm water management approach that complies with the hierarchy above. Integrated management practices shall be used to the maximum extent practicable because of their ability to minimize storm water runoff and not just mitigate storm water related impacts. If integrated management practices cannot be used, the reasons why must be demonstrated to the Local Government's satisfaction. The Storm Water Management Plan shall list the quantity of storm water runoff to be infiltrated on site and the quantity of storm water runoff to be conveyed to water bodies, environmental resource areas, structural measures that provide quantity control, or other locations.

E. Content

The following information shall be submitted for all applicable developments: an existing and proposed topographic survey of the property at two-foot (2) contours (or one-foot contours for relatively flat areas where additional detail will be required

to review drainage designs); a written statement explaining how the Storm Water Management Plan addresses the Storm Water Design Hierarchy; and an existing drainage and proposed drainage plan for the property and one hundred (100) feet surrounding the property at a scale of not more than one hundred (100) feet to one (1) inch, and including the following (unless otherwise specified by the appropriate jurisdiction official):

1. The proposed locations and sizes of environmental resource areas;
2. The proposed location and sizes of building envelopes;
3. The proposed locations and sizes of open space areas;
4. Proposed vegetation;
5. Infiltration capacity of soils calculated by using the Natural Resources Conservation Service runoff curve number;
6. On-site and adjacent wells and septic fields;
7. Floodplains, base flood elevation, and flood fringe;
8. Location of any existing flooding areas;
9. Existing and post-development drainage areas;
10. Existing stream erosion areas;
11. General type, size, and location of integrated management practices;
12. General type, size, and location of conventional storm water management facilities;
13. Storm sewer system inlet locations;
14. Storm sewer system outlet locations;
15. Storm sewers;
16. Culverts;
17. Detention and retention areas showing inlet and outlet locations and details;

18. Square feet of existing and proposed impervious surface;
19. All existing, or proposed, easements;
20. All existing, abandoned, or proposed water mains;
21. The banks and centerline of streams and channels;
22. Shoreline of lakes, ponds, and detention basins with normal water level elevation;
23. Farm drains and tiles;
24. Location, size and slope of storm water conduits, drainage swales, and pathways along which storm water runoff will flow and the direction of flow;
25. Roads, streets and associated storm water inlets including finished grades;
26. A vicinity map showing the relationship of the site to its general surroundings at a scale of not greater than two thousand (2,000) feet to one (1) inch (1:24,000)
27. Title, scale, north arrow, legend, seal of Licensed Professional Engineer, date, and name of person preparing plans;
28. Subwatershed boundaries within the property;
29. Offsite areas draining to property, including entire offsite drainage boundary(ies);
30. Depressional storage areas;
31. The following certifications and design statements:
 - a. Basis of design for the final drainage system components;
 - b. A statement giving any applicable engineering assumptions and calculations;
 - c. A statement by the design engineer of the drainage system's

provision for conveying storm flows exceeding the 100-year magnitude;

- d. Design calculations and other submittals as required by this Ordinance, including flow rates and velocities at critical points in the drainage system; and
 - e. A statement of certification of all drainage plans, calculations, and supporting data by a Professional Engineer Licensed in the State of _____.
32. A depiction of environmental features of the property and immediate vicinity including the following:
- a. Rivers;
 - b. Nonlinear water bodies;
 - c. Ravines;
 - d. Wooded areas;
 - e. Wetlands;
 - f. Base flood elevation, flood fringe, and regulatory floodplains;
 - g. Steep slopes;
 - h. Prairies;
 - i. Any designated natural areas or prime farmland;
 - j. Any proposed environmental mitigation features;
 - k. Location and dimensions of a stream buffer area; and
 - l. Abandoned mines.
33. Any and all local, state or federal maps marked to reflect any proposed change in the floodway delineation or base flood, due to the proposed project;
34. Conditional approval by the Federal Emergency Management Agency (FEMA) or other regulatory agencies of the proposed changes in the

floodway map that have been made if the floodway delineation or base flood will change due to the proposed project;

35. Engineering calculations and data supporting all proposed plans. Hydrologic analysis and detention system design shall be completed in accordance with Section VIII. of this Ordinance;
36. If the project involves channel modification, the following information shall be submitted:
 - a. Discussion of the purpose and need for the proposed work;
 - b. Discussion of the practicability of using alternative locations or methods to accomplish the purpose of the proposed work;
 - c. Analysis of the impacts of the proposed project, considering cumulative effects on the physical and biological conditions of the body of water affected;
 - d. Hydraulic analysis of the channel modifications, including pre- and post-project base flood elevations; and
 - e. Additional information as required by this Ordinance.
37. A Storm Water Pollution Prevention Plan (SWP3).

F. Approval or Denial

The Local Government shall review the Grading Plan, Soil Erosion and Sediment Control Plan, Storm Water Management Concept Plan, and Storm Water Management Plan as they pertain to the provisions of this Ordinance and render one of the following judgments:

1. Approve all four plans;
2. Approve all four plans subject to such reasonable conditions as may be necessary to secure substantially the objectives of this Ordinance, and issue the approval subject to these conditions;
3. Deny all four plans, indicating the deficiencies and the procedure for submitting revised plans; or
4. Approve one or more plans subject to such reasonable conditions as may be necessary to secure substantially the objectives of this Ordinance, and

issue the approval subject to these conditions; and deny one or more plans, indicating the deficiencies and the procedure for submitting revised plans.

G. Other Agency Permits and Reviews

1. The Local Government shall not allow site work to commence unless all required federal, state and local permits and reviews have been obtained by the applicant and copies thereof reviewed by the appropriate official. The acquisition of these permits shall be the sole responsibility of the applicant. Compliance with this Ordinance shall in no way affect the owner's responsibility to obtain the approval required by any other statute, ordinance or code, or to meet the requirements of other jurisdiction ordinances and regulations, including but not limited to:
 - a. Building or other relevant permits of the Local Government;
 - b. Permits in accordance with Sections 401 and 404 of the Clean Water Act; 33 U.S.C. Section 1251, including any applicable floodway construction permits from the State;
 - c. Permits in accordance with Section 106 of the National Historic Preservation Act;
 - d. Permits required under Section 10 of the Rivers and Harbors Act;
 - e. Permits required by the applicable State Agency that pertain to regulations addressing rivers, lakes, streams, and any other water bodies;
 - f. Natural Resources reports that pertain to regulations addressing Soil and Water Conservation Districts;
 - g. Any reviews required by regulations that address farmland preservation;
 - h. Any reviews required by regulations that address groundwater protection;
 - i. Any permits that may be required by regulations that address environmental protection, including any permits required by National Pollutant Discharge Elimination System (NPDES) regulations;
 - j. Any reviews required by the Threatened and Endangered Species Act, 16 USC 1531 et.seq.

- k. Any reviews required by the applicable State Agency that pertain to endangered species protection;
 - l. Conditional Letter of Map Revision, 44 CFR 60; and
 - m. Approval/permit from local Flood Insurance Program community.
2. Any work involving the construction, modification or removal of a dam as defined by applicable State Regulations shall require the applicable dam safety permits or a letter stating that a permit is not required, prior to permit being issued by the Local Government.
 3. Any development involving work in waters of the United States, including wetlands and streams as identified and regulated by the U.S. Army Corps of Engineers, shall require permits or sign-offs from the Corps prior to the issuance of a Local Government permit.
 4. Confirmation of compliance or exemption from all applicable entities requiring the above permits or reviews shall be provided by the applicant to the Local Government.

VIII. Design Criteria

A. Release Rates

The drainage system for new developments or redevelopments meeting the requirements of this Ordinance shall be designed to control the peak rate of discharge from the total property under development for the one- (1-) year, ten- (10-) year, and one hundred- (100-) year, storm events. The allowable release rates for the three design storms are as follows:

<u>Event frequency</u>	<u>Maximum release rate (cfs/acre)</u>
1-year	0.08 (while providing 24 hour detention time)
10-year	0.08
100-year	0.30

If it is determined that the downstream (receiving) storm drainage system cannot safely convey the allowable release rate(s), the release rate(s) shall be lowered such that the receiving system can safely handle the detention pond discharge. The applicant shall provide documentation that downstream capacity is adequate and erosion prevention measures will be installed.

B. Drainage System Design

All storm water management systems shall be designed to provide capacity to pass the ten (10) year peak flow in the minor drainage system and an overland flow path (major drainage system) for flows in excess of the design capacity. Whenever practicable, the storm water systems shall not result in cross connections between different storm sewer systems unless no other alternative exists.

C. Vegetated Filter Strips and Vegetated Swales

Sites shall be designed to maximize the use of vegetated filter strips and vegetated swales to effectively filter storm water pollutants and promote infiltration of runoff. Runoff from impervious surfaces shall be directed onto filter strips and swales comprised of native grasses and forbs to the maximum extent practicable before being routed to a storm sewer or detention basin.

D. Channel Modification

Channel modification is acceptable only if the purpose is to restore natural conditions and improve water quality. If the proposed development activity involves a channel modification, the following must be demonstrated:

1. Water quality and other natural functions would be significantly improved by the modification or the impacts are offset by the replacement of an equivalent degree of natural resource values;
2. The activity has been planned and designed and will be constructed in a way which will minimize its adverse impacts on the natural conditions of the stream or body of water affected; and
3. Channel modifications will not result in an increase in the base flood elevation or flow velocities. The Local Government may require hydraulic calculations to be provided which detail the pre- and post-development 100-year high water elevations and flow velocities.

E. Detention Storage

1. Use

The temporary detention of storm water runoff from the site will be used to meet release rates as required in this Ordinance after all previous steps of the Design Hierarchy in Section VII.C have been exhausted.

2. Requirements

The design storage to be provided in the detention basin shall be based on the need to restrict the runoff from the 1-year, 10-year and 100-year events to the allowable release rates while providing a minimum of one (1) vertical foot of freeboard for the 100-year event.

3. Waiver of Requirements

The requirement for storm water detention and release rates does not apply when the development occurs on a lot in a new subdivision for which detention is otherwise provided.

4. Ownership of Facilities

Detention basins shall be owned and maintained by the property owner or a property owners association unless otherwise indicated by the Local Government.

5. Location

In subdivisions, detention basins and their one hundred (100) year design high water elevation shall be contained within platted lots dedicated for drainage purposes. In redevelopments, detention basins and their one hundred (100) year design high water elevation shall be contained within a drainage easement.

6. Frontage

Detention basin lots shall have a minimum of twenty (20) feet of frontage on a right-of-way for the purpose of providing unrestricted access for maintenance. Exceptions may be made for infill development.

7. Freeboard

Detention basins shall be provided with a minimum of one (1) foot of vertical freeboard above the one hundred (100) year peak design water elevation. There shall be at least two (2) feet of freeboard between the one hundred (100) year design water elevation and all boundaries of the parcel or easement containing the detention basin.

8. Wet Bottom Detention Basins

The following requirements apply to wet bottom detention basins:

a. Written Statement

The applicant shall submit a written statement explaining how the wet bottom detention basin will satisfy the following requirements:

- i. Remove storm water pollutants;
- ii. Be safe for users of the property;
- iii. Be aesthetically pleasing; and
- iv. Be available for recreational use, if feasible.

b. Depth

Wet bottom detention basins shall be at least three (3) feet deep, excluding near-shore zones and safety ledges.

c. Permanent Pool Volume

The minimum permanent pool volume in a wet bottom detention basin at normal depth shall be equal to the runoff volume from its watershed for the two (2) year, twenty-four (24) hour event.

d. Safety Ledge

All wet bottom detention basins shall have a level safety ledge at least four (4) feet in width two and one-half to three (2.5 to 3) feet below the normal water depth.

e. Vegetation

Water tolerant native vegetation shall be used to landscape the shorelines and side slopes of wet bottom detention basins. The selected plants and planting methods shall conform to the soils, hydrology, and water quality conditions present in such facilities, with plants being tolerant of highly variable hydrologic conditions and degraded water quality (e.g., high turbidity and salinity content).

f. Dewatering

The wet bottom detention basin shall be designed to allow for gravity dewatering for maintenance. If gravity dewatering is not feasible, an alternative outlet structure shall be provided to allow dewatering of the basin for maintenance.

9. Wetland Detention Basins

The following requirements apply to wetland detention basins:

a. Written Statement

The applicant shall submit a written statement explaining how the wetland detention basin will satisfy the following requirements:

- i. Remove storm water pollutants;
- ii. Be safe for users of the property;
- iii. Be aesthetically pleasing; and
- iv. Be available for multiple uses, if feasible.

b. Vegetation

Water tolerant native vegetation shall be used to landscape the shorelines, bottoms, and side slopes of wetland detention basins. The selected plants and planting methods shall conform to the soils, hydrology, and water quality conditions present in such facilities, with plants being tolerant of highly variable hydrologic conditions and degraded water quality (e.g., high turbidity and salinity content).

10. Dry Detention Basins

The following requirements apply to dry detention basins:

a. Written Statement

The applicant shall submit a written statement explaining how the dry detention basin will satisfy the following requirements:

- i. Remove storm water pollutants;
- ii. Be safe for users of the property;
- iii. Be aesthetically pleasing; and
- iv. Be available for multiple uses, if feasible.

b. Drainage

Dry basins shall be designed so that eighty percent (80%) of their bottom area shall have standing water no longer than seventy-two (72) hours for any runoff event less than the one hundred (100) year event.

c. Temporary Sediment Trap

A sediment trap shall be constructed at each major inlet to a dry basin during construction. The temporary sediment trap shall be designed in accordance with criteria in the Illinois Urban Manual.

11. Floodplain Prohibition

The placement of detention basins within the 100-year floodplain is prohibited. Where there is no regulatory (FEMA) floodplain, and the receiving stream has a drainage area greater than or equal to one (1) square mile, a 100-year floodplain delineation shall be performed by a Professional Engineer registered in the State, and the delineation shall be used to determine the areas where detention is prohibited.

12. Prime Farmland Prohibition

The placement of detention basins at areas that consist of prime farmland is prohibited. If no feasible alternative exists, the applicant must submit to the Local Government a written statement explaining why no feasible alternative exists.

F. Protection of Water Bodies

Developments with drainage that flows directly into wetlands, rivers, lakes, or ponds shall adhere to the following requirements:

1. Detention in Water Bodies

Existing wetlands, rivers, lakes, or ponds shall not be modified for the purposes of storm water detention unless it is demonstrated that the proposed modifications will maintain or improve its habitat and ability to perform beneficial functions and shall comply with other relevant permitting. Existing storage and release rate characteristics of wetlands, rivers, lakes, ponds, or other depressional storage areas shall be maintained, and the volume of detention storage provided to meet the requirements of this section shall be in addition to this existing storage.

2. Detention/Sedimentation.

All runoff from the development shall be routed through a preliminary detention/sedimentation basin designed to capture the two (2) year, twenty-four (24) hour event and hold it for at least twenty-four (24) hours, before being discharged to the wetland, river, lake or pond. This basin

shall be constructed before property grading begins and shall be maintained throughout the construction process. In addition, integrated management practices shall be used to minimize runoff volumes and rates being discharged to the wetland, river, stream, lake or pond.

3. Vegetated Buffer Strip.

A buffer strip of at least twenty-five (25) feet in width, vegetated with native plant species, shall be maintained or restored around the periphery of a wetland, river, lake or pond.

IX. Inspections

The owner of the construction site shall notify the Local Government at the following times in order to allow the Local Government to conduct an inspection of the storm water management system:

- A. Two (2) working days prior to the start of any land disturbing activities;
- B. Upon completion of installation of sediment and runoff control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading;
- C. After stripping and clearing;
- D. After rough grading;
- E. After seeding and landscaping; and
- F. After final stabilization and landscaping and prior to removal of temporary sediment controls.

X. Required Practices

A. Pretreatment

All storm water runoff must flow through a pretreatment component to filter pollutants before being discharged off site, to a water body, to a storm sewer system, or to a detention or retention area.

B. Sediment Control during Construction

Sediment shall be prevented from leaving the construction site during any stage of the construction process by the use of silt fences, sediment traps, and any other

BMPs appropriate to prevent sediment from leaving the construction site. Disturbed areas shall be minimized, disturbed soil shall be protected and stabilized, and construction entrances shall be managed to prevent sediment from being deposited onto adjacent roadways via vehicles and equipment accessing the construction site. Disturbed areas shall be stabilized with appropriate vegetative measures fourteen (14) calendar days following the end of active disturbance, and all temporary soil erosion and sediment control BMPs shall remain in place and be fully maintained until the establishment of permanent vegetation throughout the construction site.

C. Erosion and Sediment Control

The following principles shall apply to all construction under the authorization of this Ordinance.

1. Land with slopes greater than seven percent (7%) shall not be disturbed.
2. All natural vegetation shall be retained and protected wherever possible. When natural vegetation is proposed to be disturbed, the applicant must submit a written statement explaining why the disturbance of natural vegetation is necessary for the project.
3. Areas immediately adjacent to natural wetlands, lakes, rivers, and ponds shall be left undisturbed. When an area immediately adjacent to a water body is proposed to be disturbed, the applicant must submit a written statement explaining why the disturbance of the land is necessary for the project.
4. During construction, the smallest practical area of land shall be exposed for the shortest practical time.
5. Sediment basins or traps, filter barriers, diversions, and any other appropriate sediment or runoff control measures shall be installed prior to site clearing and grading and maintained to remove sediment from run-off waters from land undergoing development.
6. The storm water management system shall be designed so that additional erosion on-site or downstream does not occur.
7. All temporary soil erosion and sediment control practices shall be maintained to function as intended until the contributing drainage area has been permanently stabilized.

XI. Maintenance

A. Responsible Party

The Local Government shall maintain all storm water management facilities that are on public land and have been dedicated and accepted for maintenance or stipulated by agreement for maintenance by Local Government. All other storm water management facilities shall be maintained by the owner of the property on which the facilities exist or the owner of the storm water management facility.

B. Proper Maintenance

The party responsible for maintenance of storm water management facilities shall ensure all facilities are properly maintained. Facilities will be considered to be properly maintained if they are in proper working order, performing at the level specified in the Storm Water Management Plan, and performing at a level that meets the requirements of this Ordinance. If any storm water management facility is not in proper working order, not performing at the level specified in the Storm Water Management Plan, or not performing at a level that meets the requirements of this Ordinance, the facility shall be repaired immediately so that it returns to a properly maintained state.

C. Watercourses and Drainage Channels

Watercourses and drainage channels shall be maintained to allow water to be conveyed according to the design of the storm water management system. Any obstructions of watercourses and drainage channels shall be removed immediately.

D. Paved Surfaces

Paved surfaces, both pervious and impervious, including streets, driveways, and parking lots shall be cleaned regularly to prevent the accumulation of pollutants such as automobile fuels, litter, natural debris, sediment, and other materials that pollute storm water runoff. Sudden accumulations of pollutants, such as those that result from spills or storms, shall be cleaned immediately.

E. Waste Materials

Waste materials, including those that result from the cleaning of vehicles or equipment used to transport materials such as ready-mixed concrete, shall be contained on construction sites, properly disposed, and prevented from being released to any elements of the site's storm water management system.

F. Rejection of Specific Practices

Many of the IMPs and BMPs used to achieve low impact development require regular maintenance in order to function adequately throughout their design life. Design provisions shall be made to minimize long-term maintenance requirements. In some situations, specific IMPs and BMPs may be rejected if projected maintenance requirements cannot be met by either the property owner or the jurisdiction.

G. Design Considerations

1. Native vegetation shall be used to the maximum extent practicable to reduce maintenance.
2. Wet basins shall be provided with alternate outflows, which can be used to completely drain the pool for sediment removal.
3. Pre-sedimentation basins shall be included, where feasible, for localizing sediment deposition and removal.

H. Long-Term Maintenance Requirements

The following shall be completed to ensure storm water management facilities are operating properly.

1. Routine removal of excessive trash and debris from storm water management facilities;
2. Removal of obstructions from basin outlet structures;
3. Periodic removal of accumulated sediment from swales, forebays, settling basins, and other locations where sediment has accumulated. Sediment shall not accumulate in forebays and sediment basins so that one foot or more of sediment has accumulated in the basin bottom;
4. Controlled burning of naturally landscaped areas every one to three years as needed to control invasive weeds;
5. Mowing of naturally landscaped areas not suitable to be burned, to occur annually; and
6. Mowing of areas covered by turf grass, to occur regularly to maintain a grass height below 6 (six) inches.

I. Maintenance Plan

A plan for the ongoing maintenance of all storm water management facilities, including wetlands, shall be submitted prior to site work being allowed to commence. The plan shall include the following components:

1. The maintenance tasks to be performed to allow all storm water management facilities to function properly;
2. The party responsible for performing the maintenance tasks;
3. A schedule of when maintenance tasks will be completed;
4. A description of all permanent public or private access maintenance easements and overland flow paths, and compensatory storage areas; and
5. A description of dedicated sources of funding for the required maintenance.

J. Detention Basins

1. Detention basins and associated inflow and outflow systems shall be maintained by the property owner absent any specific legal agreement to the contrary.
2. Maintenance agreements may be required by the Local Government to define parties responsible for the maintenance of commercial detention basins.
3. The detention basin owner shall be responsible for the following items:
 - a. An annual report on the detention basin condition to be submitted to the Local Government;
 - b. An inspection of the detention basin at five (5) year intervals to be completed by a professional engineer registered in the State. A report of this inspection shall be submitted to the Local Government within sixty (60) days of the inspection. An annual report is not required for the year when the five-year report is due; and
 - c. Notification of subsequent owners of their maintenance responsibilities and transfer of basin maintenance records to the party with active maintenance responsibility.

XII. Enforcement

A. Right of Entry and Sampling

1. Whenever the appropriate official has cause to believe that there exists, or potentially exists, in or upon any premises any condition which constitutes a violation of this Ordinance, the appropriate official shall have the right to enter the premises at any reasonable time to determine if the discharger is complying with all requirements of this article. In the event that the owner or occupant refuses entry after a request to enter has been made, the jurisdiction is hereby empowered to seek assistance from a court of competent jurisdiction in obtaining such entry.
2. The appropriate official shall have the right to set up on the property of any discharger to the storm drainage system such devices that are necessary to conduct sampling of discharges.

B. Notice of Violation

Whenever an authorized enforcement person determines that a person has violated or failed to meet a requirement of this Ordinance, the enforcement person will order compliance by written Notice of Violation to the responsible person. Posting the written notice on the property will constitute written notice. Whenever possible, a courtesy copy of the Notice of Violation will be mailed by ordinary mail to the address of the property owner.

The Notice of Violation shall include:

1. The name of the responsible person or property owner;
2. The date and location of the violation;
3. A description of the violation;
4. Actions that must be taken by the responsible person to remedy the violation;
5. The deadline within which the required actions must be completed;
6. Enforcement actions that may be taken by the jurisdiction; and
7. Notice date.

Any person receiving a Notice of Violation may file a written appeal to the Notice of Violation to the appropriate official within fifteen (15) days of the Notice date. The appropriate official will affirm, modify or rescind the Notice in writing, within 15 days of the date of the appeal. If the recipient of a Notice of Violation is dissatisfied with the outcome of the appeal to the appropriate official, the appeal process outlined in Section XII.F of this Ordinance will be followed.

C. Enforcement Actions

Any person who fails to comply with or appeal a Notice of Violation, or fails to comply with an appeal decision of the appropriate authority, will be subject to one or more of the following enforcement actions:

1. Stop Work Order.

The appropriate official may issue a stop work order to the owner and contractors on a construction site by posting the order at the construction site and distributing the order to all Local Government departments whose decisions may affect any activity at the site. Unless express written exception is made, the stop work order shall prohibit any further construction activity at the site and shall bar any further inspection or approval necessary to commence or continue construction or to assume occupancy at the site. A Notice of Violation shall accompany the stop work order, and shall define the compliance requirements.

2. Abatement of an Illicit Connection.

The appropriate official may order Local Government representatives to terminate an illicit connection. Any expense related to such abatement by Local Government representatives shall be fully reimbursed by the property owner.

3. Abatement of a Violation on Private Property.

When a property owner is not available, not able or not willing to correct a violation, the appropriate official may order Local Government representatives to enter private property to take any and all measures necessary to abate the violation. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow Local Government representatives to enter upon the premises for these purposes. Any expense related to such abatement by Local Government representatives shall be fully reimbursed by the property owner.

4. Recovery of Costs.

Within thirty (30) days after abatement by Local Government representatives, the appropriate official shall notify the property owner of the costs of abatement, including administrative costs, and the deadline for payment. The property owner may appeal the recovery costs as outlined in Section XII.F of this Ordinance.

5. Termination of Utility Services.

After lawful notice to the customer and property owner concerning the proposed disconnection, the appropriate official shall have the authority to order the disconnection of water, sanitary sewer and/or sanitation services, upon a finding by the appropriate official that the disconnection of utility services will remove a violation of this Ordinance that poses a public health hazard or environmental hazard.

6. Criminal Prosecution.

Any person who violates or continues to violate a prohibition or requirement of this Ordinance shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to criminal penalties.

D. Criminal Penalties

Any person violating this Ordinance shall, upon an adjudication of guilt or a plea of no contest, be fined a minimum of \$250.00 to a maximum of \$1,500.00. Each separate day on which a violation is committed or continues shall constitute a separate offense.

E. Other Legal Action

Notwithstanding any other remedies or procedures available to the Local Government, if any person violates this Ordinance, the Local Government Attorney may commence an action for appropriate legal and equitable relief including damages and court costs. The Local Government Attorney may seek a preliminary or permanent injunction or both which restrains or compels the activities on the part of the discharger.

F. Appeals

The appropriate entity shall consider each application for modification to the decision of an appropriate official at a public meeting within thirty (30) days after the appeal application is received by the appropriate official. Within thirty (30)

days after the public meeting, the appropriate entity shall uphold, modify or overrule the decision of the appropriate official.

XIII. Severability

If any section, paragraph, clause or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining provisions of this Ordinance.