

Borough of Lodi, Bergen County, New Jersey
Stormwater Control Ordinance

ORDINANCE # 606-16

The Borough of Lodi hereby amends the Land Development Ordinance(s) to include the following Stormwater Control Ordinance. The following shall govern for instances where the ordinance conflicts with the existing Land Development Ordinance.

Section 1: Scope and Purpose

A. Policy Statement

Flood control, groundwater recharge, and pollutant reduction through nonstructural or low impact techniques shall be explored before relying on structural Best Management Practices (BMPs). Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

B. Purpose

It is the purpose of this ordinance to establish minimum stormwater management requirements and controls for "major development," as defined in Section 2 and to reduce the amount of nonpoint source pollution entering surface and ground waters. Unmitigated storm waters from areas alter by development may pose public health and safety threats. This ordinance establishes the administrative mechanisms necessary for the Borough of Lodi to ensure proper storm water management. This ordinance is written to work in conjunction with current state and federal regulations. This ordinance guides development in a manner that is proactive and minimizes harmful impacts to natural resources. Specifically, this ordinance shall

1. Reduce artificially induced flood damage to public health, life, and property;
2. Minimize increased stormwater runoff rates and volumes;
3. Minimize the deterioration of existing structures that would result from increased rates of stormwater runoff;
4. Induce water recharge into the ground wherever suitable infiltration, soil permeability, and favorable geological conditions exist;
5. Prevent an increase in nonpoint source pollution;
6. Maintain the integrity and stability of stream channels and buffers for their ecological functions, as well as for drainage, the conveyance of floodwater, and other purposes;
7. Control and minimize soil erosion and the transport of sediment;
8. Minimize public safety hazards at any stormwater detention facility constructed

pursuant to subdivision or site plan approval;

9. Maintain adequate base flow and natural flow regimes in all streams and other surface water bodies to protect the aquatic ecosystem;
10. Protect all surface water resources from degradation; and
11. Protect ground water resources from degradation and diminution.

C. Applicability

1. This ordinance shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:
 - a. Non-residential major developments; and
 - b. Aspects of residential major developments that are not preempted by the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The provisions of both this ordinance and the RSIS are to be applied and reviewed concurrently for any residential development.
2. This ordinance shall also be applicable to all major developments undertaken by the Borough of Lodi.

D. Compatibility with Other Permit and Ordinance Requirements

Development approvals issued for subdivisions and site plans pursuant to this ordinance are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and New Jersey Stormwater BMP Manual application, the provisions of this ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This ordinance is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

Section 2: Definitions

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.

"Agricultural Development" means land uses normally associated with the production of food, fiber and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacturing of agriculturally related products.

"Best Management Practice (BMP)" means structural device, measure, facility or activity that helps to achieve stormwater management control objectives at a designated site.

"CAFRA Planning Map" means the geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.

"CAFRA Centers, Cores or Nodes" means those areas within boundaries accepted by the Department pursuant to N.J.A.C. 7:8E-5B.

"Category 1 (C1) Waters" means Waters of the State, including unnamed waterways that appear on Soil Survey and USGS Topographic Quadrangle within the same HUC 14 watershed, designated in NJAC 7:9B-1.15 (c) through (h) for purposes of implementing the anti-degradation policies set forth at NJAC 7:9B-1.5(d) for protection from measurable changes in water quality

characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources(s).

"Compaction" means the increase in soil bulk density by subjecting soil to greater-than-normal loading.

"Core" means a pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

"County Review Agency" means an agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

A county planning agency; or

A county water resource association created under N.J.S.A 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

"Department" means the New Jersey Department of Environmental Protection.

"Designated Center" means a State Development and Redevelopment Plan Center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

"Design Engineer" means a person professionally qualified and duly licensed in New Jersey to perform Engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

"Development" means the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, development means: any activity that requires a State permit; any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act , N.J.S.A 4:1C-1 et seq.

"Disturbance" means any activity including the clearing, excavating, storing, grading, filling or transportation of soil or any other activity that causes soil to be exposed to the danger of erosion.

"Drainage Area" means a geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

"Environmentally Critical Areas" means an area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and well head protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

"Empowerment Neighborhood" means a neighborhood designated by the Urban Coordinating Council "in consultation and conjunction with" the New Jersey Redevelopment Authority pursuant to N.J.S.A 55:19-69.

"Erosion" means the detachment and movement of soil or rock fragments by water, wind, ice or gravity.

"Escape Provisions" means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins.

"Ground Water" means a body of water below the surface of the land in a zone of saturation where the spaces between the soil or geological materials are fully saturated with water.

"Impervious Surface" means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water relative to natural conditions in the area.

"Infiltration" is the process by which water seeps into the soil from precipitation to a level below the normal root soil of plant species.

"Major Development" means any "Development" that provides for ultimately disturbing one or more acres of land or would create one-quarter acre or more of impervious surface. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation.

"Mitigation" means an action by an Applicant providing compensation or offset actions for onsite stormwater management requirements where the Applicant has demonstrated the inability or impracticality of strict compliance with the stormwater management requirements set forth in N.J.A.C. 7:8 in an adopted regional stormwater management plan or in this local ordinance, and has received a waiver from strict compliance from the Borough of Lodi. Mitigation for the purposes of this ordinance includes both the mitigation plan detailing how the project's failure to strictly comply will be compensated, and the implementation of the approved mitigation plan.

"Municipality" means any city, borough, town, township, or village.

"Node" means an area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

"Nonstructural Stormwater Management Techniques" means techniques that control or reduce stormwater runoff in the absence of stormwater structures (e.g., basins and piped conveyances), such as minimizing site disturbance, preserving important site features including, but not limited to, natural vegetation, reducing and disconnecting impervious cover, minimizing slopes, utilizing native vegetation, minimizing turf grass lawns, increasing time of concentration and maintaining and enhancing natural drainage features and characteristics.

"Nutrient" means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms or vegetation.

"Permeable" means a surface or land cover capable of transmitting or percolating a significant amount of precipitation into the underlying soils.

"Person" means any individual, corporation, company, partnership, firm, association, Borough of Lodi, or political subdivision of this State subject to municipal jurisdiction pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

"Plan" means a document approved at the site design phase that outlines the measures and practices used to control stormwater runoff at the site.

"Pollutant" means any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

"Pollution" means the man-made or man-induced alteration of the chemical, physical, biological and radiological integrity of water to the extent that the pollutant concentration or level violates either the Ground Water Quality Standards (N.J.A.C. 7:9-6) or the Surface Water Quality Standards (N.J.A.C. 7:9B) of New Jersey.

"Recharge" means the amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

"Review Agency (Municipal)" means the municipal body or official that is responsible for the review of a major development project for compliance with the stormwater management requirements.

"Sediment" means solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

"Site" means the lot or lots upon which a major development is to occur or has occurred.

"Soil" means all unconsolidated mineral and organic material of any origin.

"Solid and Floatable Materials" means sediment, debris, trash and other floating, suspended or settleable solids.

"Source Material" means any material(s) or machinery, located at an industrial facility that is directly or indirectly related to process, manufacturing, or other industrial activities, that could be a source of pollutants in any industrial stormwater discharge to ground or surface water. Source materials include, but are not limited to, raw materials, intermediate products, final products, water materials, by-products, industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

"State Development and Redevelopment Plan Metropolitan Planning Area (PA1)" means an area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

"State Plan Policy Map" is defined as the geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

"Stormwater" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

"Stormwater runoff" means water flow on or across the surface of the ground in drainage facilities or in storm sewers, resulting from precipitation.

"Stormwater Management Basin" means an excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

"Stormwater Management Measure" means any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

"Stream Buffer" means a strip of land located immediately adjacent to a stream channel consisting of natural, undisturbed vegetative cover, which serves as a transition area between uplands and riparian lands. A stream buffer may encompass wetlands, may be contained within a flood plain or floodway or may extend beyond a wetland, floodplain or floodway boundary.

"Structural Stormwater Techniques" means a stormwater management measure that involves control of concentrated stormwater runoff or infiltration such as stormwater basins, piped conveyance systems and manufactured stormwater devices, and can include various types of basins, filters, surfaces, and devices located on individual lots in a residential development or throughout a commercial, industrial, or institutional development site in areas not typically suited for larger, centralized structural facilities.

"Threatened and Endangered Species" – Endangered Species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed

to prevent future extinction in New Jersey. Threatened Species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate. Habitats of endangered or threatened species are those identified by the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

"Time of concentration" means the time it takes for stormwater runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed.

"Transition area" means an area of protected upland adjacent to a freshwater wetland that minimizes adverse impacts on the wetland or serves as an integral component of the wetlands ecosystem. Also known as "Buffer Area".

"Tidal Flood Hazard Area" means a flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

"Urban Coordinating Council Empowerment Neighborhood" means a neighborhood given priority access to State resources through the New Jersey Redevelopment Authority.

"Urban Enterprise Zones" means a zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et. seq.

"Urban Redevelopment Area" means previously developed portions of areas, including but not limited to the following:

1. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
2. Designated as CAFRA Centers, Cores or Nodes;
3. Designated as Urban Enterprise Zones; and
4. Designated as Urban Coordinating Council Empowerment Neighborhoods.

"Waters of the State" means the ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

"Wetlands" or "wetland" means an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

Section 3: General Standards

A. Design and Performance Standards for Stormwater Management Measures

1. Stormwater management measures for major development shall be designed and developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in Section 4. As detailed in Section 4, to the maximum extent practicable, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design along with the practicable nonstructural strategies.

2. The standards in this ordinance apply to both new major development and redevelopment are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or Water Quality Management Plan adopted in accordance with Department rules.

Section 4: Stormwater Management Requirements for Major Development

A. Maintenance Plan

The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with Section 10.

B. Threatened and Endangered Species

Stormwater management measures shall be implemented in order to avoid adverse impacts of concentrated flow on habitat(s) for threatened and endangered species as documented in the Department' Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150.

C. Exemptions

The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Sections 4.F and 4.G:

1. The construction of an underground utility line provided that the disturbed areas are revegetated upon completion;
2. The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and
3. The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is constructed of permeable material such as, but not limited to, wood chips, unpacked gravel and porous pavement.

D. Waiver from Strict Compliance

1. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Sections 4.F and 4.G may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

- a. The Applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
- b. The Applicant demonstrates through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Sections 4.F and 4.G to the maximum extent practicable;
- c. The Applicant demonstrates that, in order to meet the requirements of Sections 4.F and 4.G, existing structures currently in use, such as homes and buildings, would need to be condemned; and
- d. The Applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under D.3 above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Sections 4.F and 4.G that were not achievable on-site.

2. A waiver from strict compliance fro such projects can only be obtained if the Applicant agrees to undertake a suitable mitigation measure identified in the mitigation section of the Borough of Lodi's Stormwater Management Plan. In such cases, the Applicant must submit a mitigation plan detailing how the project's failure

to strictly comply will be compensated. In cases where a waiver is granted, the Applicant should provide mitigation within the same watershed within which the subject project is proposed. If mitigation within the same watershed is not possible and/or practical the Applicant shall contribute funding toward a regional stormwater control project or provide for equivalent treatment at an alternate location, or other equivalent water quality benefit, in lieu of implementing the required stormwater control measures on their specific site. Said mitigation must be reviewed and agreed upon by the Borough of Lodi and Borough Engineer prior to commencement of mitigation work.

E. Nonstructural Stormwater Management Strategies

1. To the maximum extent practicable, the standards in Sections 4.F and 4.G shall be met by incorporating nonstructural stormwater management strategies set forth at Section 4.E into the design. The Applicant shall identify the nonstructural measures incorporated into the design of the project. Documentation of the use of nonstructural stormwater management measures shall require the preparation by the Applicant of the NJDEP Low Impact Development checklist. If the Applicant contends that it is not feasible for Engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in Paragraph 2 below into the design of a particular project, the Applicant shall identify the strategy or strategies considered and provide a basis for the contention. In both cases, the Applicant bears the burden of proving any impracticability.

2. Nonstructural stormwater management strategies incorporated into site design shall:

- a. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
- b. Minimize the creation of new impervious surfaces and reduce, break up or disconnect the flow of runoff over impervious surfaces;
- c. Maximize the protection of natural drainage features and vegetation;
- d. Minimize the decrease in the "time of concentration" from pre-construction to post construction.
- e. Minimize land clearing and disturbance and overall site grading;
- f. Minimize soil compaction;
- g. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;
- h. Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;
- i. Provide other source controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:
 - (1) Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy Section 4.E.3. below;
 - (2) Site design features that help to prevent discharge of trash and debris from drainage systems;
 - (3) Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
 - (4) When establishing vegetation after land disturbance, applying fertilizer in

accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules. Prior to applying fertilizer, the Applicant must perform soil tests onsite in order to determine the type of fertilization necessary.

3. Site design features identified under Section 4.E.2.i.(2) above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For exemptions to this standard see Section 4.E.3.c below.

a. Design Engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

(1) The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or

(2) A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than 0.5 inches across the smallest dimension.

Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.

b. Whenever Design Engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an area of no more than seven (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

c. This standard does not apply:

(1) Where the review agency reviewing an application under this ordinance may, in consultation with the Borough Engineer, determine that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;

(2) Where flows from the water quality design storm as specified in Section 4.G.1 are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

(a) A rectangular space four and five-eighths inches long and one and one-half inches wide (this option does not apply for outfall netting facilities); or

(b) A bar screen having a bar spacing of 0.5 inches.

(3) Where flows are conveyed through a trash rack that has parallel bars with one-inch (1") spacing between the bars, to the elevation of the water quality design storm as specified in Section 4.G.1; or

(4) Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

4. Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 4.F and 4.G shall be:

- a. Dedicated to a government agency
- b. Subject to a conservation restriction filed with the appropriate County Clerk's office; or
- c. Subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

5. Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 7, or found on the Department's website at www.njstormwater.org.

F. Erosion Control, Groundwater Recharge and Runoff Quantity Standards

1. This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development projects.

a. The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.

b. The minimum design and performance standards for groundwater recharge are as follows:

(1) The Design Engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Section 5, either:

(a) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or

(b) Demonstrate through hydrologic and hydraulic analysis that any increase in the project site's projected stormwater runoff volume from pre-construction to post-construction for the 2-year, 24-hour storm is fully infiltrated.

(2) This groundwater recharge requirement does not apply to projects within the "Urban Redevelopment Area," or to projects subject to (3) below.

(3) The following two types of stormwater shall not be recharged:

(a) Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

(b) Industrial stormwater exposed to "source material."

(4) The Design Engineer shall assess and certify the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic

impacts. Potential adverse hydraulic impacts include, but are not limited to, raising the groundwater table so as to cause surface ponding, flooding of basements and other subsurface facilities, and interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or down gradient of the ground water recharge area.

c. Using the criteria for calculating stormwater runoff and ground water recharge in Section 5, the Design Engineer shall comply with at least one of the following standards:

(1) Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2, 10, and 100-year storm events do not exceed, at any point in time, the site's pre-construction runoff hydrographs for the same storm events;

(2) Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the 2, 10, and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

(3) Design onsite stormwater management measures so that the post-construction peak runoff rates for the 2, 10 and 100 year storm events are 50, 75 and 80 percent, respectively, of the site's pre-construction peak runoff rates. Peak stormwater outflow rates for these storms shall be adjusted where necessary to account for the discharge of increased stormwater runoff rates and/or volumes from project site areas not controlled by the onsite measures. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed. The percentages shall not be applied to post-construction stormwater runoff into tidal flood hazard areas if the increased volume of stormwater runoff will not increase flood damages below the point of discharge; or

(4) In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with (1), (2) and (3) above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.

2. Any application for a new agricultural development that meets the definition of major development at Section 2 shall be submitted to the appropriate Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control.

G. Stormwater Runoff Quality Standards

1. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80 percent of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre or more of impervious surface is being proposed on a development site. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Daily limits of TSS may apply to the site development based on

conditions of regulatory approvals. The water quality design storm is 1.25 inches of rainfall in two (2) hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1, subject to revisions due to subsequent rule changes. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures.

Table 1: Water Quality Design Storm Distribution			
Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500
30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

2. For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 7, or found on the Department's website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in Section 7. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the Design Engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418 Trenton, New Jersey, 08625-0418.

3. If more than one BMP in series is necessary to achieve the required 80 percent TSS reduction for a site, the Applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (AXB)/100$$

Where R = total TSS percent load removal (expressed as a whole number) from application of both BMPs, and

A = the TSS percent removal rate (whole number) applicable to the first (upstream) BMP

B = the TSS percent removal rate (whole number) applicable to the second (downstream) BMP

In cases where three (or more) BMPs are used in series, the Applicant shall calculate the TSS reduction for the two most upstream BMPs in the series using the above formula, then substitute the result @ of that calculation in the formula for "A" when calculating the combined result with the next BMP in the series.

Best Management Practice	TSS % Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	See Section 5.C
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

4. If there is more than one onsite drainage area, the 80 percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site in which case the removal rate can be demonstrated through a calculation using a weighted average.

5. Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections 4.F and 4.G. This standard may be superseded by a more stringent numeric effluent limitation imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Daily limits for nutrient loading (TMDL) may apply to the site

development based on conditions of regulatory approvals.

6. Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in Section 7.

7. In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.

8. Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage area. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

a. The Applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

(1) A 300-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the centerline of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession is provided.

(2) Encroachment within the designated special water resource protection area under Subsection (1) above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where Applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or centerline of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by the Department.

b. All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the Standard for Off-Site Stability in the "Standards For Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq.

c. If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

(1) Stabilization measures shall not be placed within 150 feet of the Category One waterway;

(2) Stormwater associated with discharges allowed by this section shall achieve a 95 percent TSS post-construction removal rate;

(3) Thermal pollution by stormwater discharges shall be addressed to ensure no significant increase or decrease in temperature occurs in the receiving waterway outside of the mixing zone;

(4) The encroachment shall only be allowed where the Applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;

(5) A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and

(6) All encroachments proposed under this section shall be subject to review and approval by the Department.

d. A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to Section 4.G(8) has been approved by the Department of Environmental Protection, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to G.8 shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in G.8.a.(1) above. In no case shall a stream corridor protection plan allow the reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

e. Paragraph G.8 does not apply to the construction of one individual single family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009.

Section 5: Calculation of Stormwater Runoff and Groundwater Recharge

A. Stormwater Runoff Calculations

1. In complying with the design and performance standards in Section 4, the Design Engineer shall calculate stormwater runoff in accordance with one of the following methods:

a. The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Part 630 – Hydrology and the current Technical Release 55 – Urban Hydrology for Small Watersheds or superseding document. ; or

b. The Rational Method for peak stormwater runoff rate calculations and the Modified Rational Method for stormwater runoff hydrograph calculations. Use of the Rational Method and Modified rational Method are limited to drainage areas of 20 acres or less. Neither the Rational Method nor Modified Rational Method shall be used to calculate runoff volumes for ground water recharge or stormwater runoff infiltration purposes.

c. Alternative groundwater recharge calculation methods may be used upon approval by the Borough Engineer.

2. For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at Section 5.A.1.a and the Rational and Modified Rational Methods at Section 5.A.1.b. A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the Design Engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five (5) years without interruption prior to the time of application. If more than one land cover has existed on the site during the five (5) years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).
3. In calculating pre-construction site stormwater runoff, the Design Engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, and/or culverts that may reduce pre-construction site stormwater runoff rates and/or volumes.
4. In calculating stormwater runoff from all design storms, the Design Engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site within the drainage area.
5. Calculation of stormwater runoff from unconnected impervious surfaces shall be based, as applicable, upon the Two-Step methodology as described in the Department's current Stormwater Best Management Practices Manual or the methodology as described in the NRCS Technical Release 55 – Urban Hydrology for Small Watersheds.
6. If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the Design Engineer shall take into account the effects of tail water in the design of structural stormwater management measures.

B. Groundwater Recharge Calculations

When selecting or calculating runoff coefficients for the Design Engineer may calculate groundwater recharge in accordance with the New Jersey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at <http://www.state.nj.us/dep/njgs/>; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427 Trenton, New Jersey 086250427; (609) 984-6587.

Section 6: Standards for Structural Stormwater Management Measures

A. Structural Stormwater Management Measures

1. Structural stormwater management measures shall be designed to take into account the existing site conditions which may cause the measure to fail, have an adverse effect on water quality or quantity, or cause harm or damage to persons or property, including, but not limited to, environmentally critical areas, wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type; permeability and texture; drainage area and drainage patterns; existing or former mines; significant land fillings; and the presence of solution-prone carbonate rocks (limestone).

2. Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch (1") spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third (1/3) the width of the diameter of the orifice or one-third (1/3) the width of the weir, with a minimum spacing between bars of one-inch and a maximum spacing between bars of six (6) inches. In addition, the design of trash racks must comply with the requirements of Section 8.D.
3. Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement. The measures are to be sequenced in the site development process so that erosion control standards are met and so the measure is not compromised or impaired by construction runoff.
4. At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of two and one-half (2.5) inches in diameter.
5. Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at Section 8.
6. Where tail water will affect the hydraulic performance of a stormwater management measure, the Design Engineer shall include such effects in the design of said measure.

B. Guidelines for Stormwater Management Measures

Stormwater management measure guidelines are available in the New Jersey Best Management Practices Manual and other documents as described in Section 7. Other stormwater management measures may be utilized provided the Design Engineer demonstrates to the satisfaction of the review agency, in consultation with the Borough Engineer that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by Section 4 of this ordinance.

C. Manufactured Treatment Devices

1. Manufactured treatment devices may be used to meet the requirements of Section 4 of this ordinance; provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.
2. Non-verified manufactured treatment devices may also be used for purposes other than underground discharge of stormwater, where such devices provide a clear benefit to stormwater quality or flow control in a manner that facilitates improved nonstructural stormwater management controls on the site, or avoids the need for approval of off-site mitigation. The benefits of proposed non-verified manufactured treatment devices must be proved to the satisfaction of the review agency, in consultation with the Borough Engineer.
3. Manufactured treatment devices may be used only where the maintenance plan required by Section 10 ensures that the manufactured device will be properly maintained for its functional lifespan and will be replaced as needed with management measures that are at least as effective as the original manufactured treatment device working in accordance with manufacturer's specifications.

Section 7: Sources for Technical Guidance

A. Primary Technical Guidance

Technical guidance for stormwater management measures can be found in the documents listed at 1 and 2 below, which are available from Maps and Publications, New Jersey Department of Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; telephone (609) 777-1038.

1. Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on stormwater management measures such as: bioretention systems, constructed stormwater wetlands, dry wells, extended detention basins, infiltration structures, manufactured treatment devices, pervious paving, sand filters, vegetative filter strips, and wet ponds. This document is also available at www.njstormwater.org.
2. The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended.

B. Additional Technical Guidance

Additional technical guidance for stormwater management measures can be obtained from the following:

1. The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District maybe obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540 or the Bergen County Soil Conservation District, 700 Kinderkamack Road, Suite 106, Oradell, NJ 07649; (201)261-4407.
2. The Rutgers Cooperative Extension Service, 732-932-9306; and
3. The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey, 08625; (609) 292-5540.
4. The United States Environmental Protection Agency, including the National Management Measures to Control Nonpoint Source Pollution from Urban Areas, available at the Web site: <http://www.epa.gov/owow/nps/urbanmm/index.html>.
5. Field guides of the United States Department of Agriculture, Natural Resources Conservation Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; (609) 777-1038.
6. Other similarly authoritative governmental or trade association sources acceptable to the Borough of Lodi.

Section 8: Safety Standards for Stormwater Management Basins

A. General Scope

This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin.

B. Requirements for Trash Racks, Overflow Grates and Escape Provisions

1. A trash rack is a device intended to intercept runoff-borne trash and debris that might otherwise clog/block the hydraulic openings in the outlet structure of a structural

stormwater management measure. Trash racks shall be installed at the upstream intake of such stormwater management outlet structure to ensure proper functioning of the structural stormwater management measure in accordance with the following:

- a. The trash rack shall have parallel bars, with no greater than six (6) inch spacing between the bars.
- b. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.
- c. The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.
- d. The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs/ft sq.

2. An overflow grate is a device intended to protect the opening in the top of a stormwater management measure outlet structure. It is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:

- a. The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
- b. The overflow grate spacing shall be no less than two (2) inches across the smallest dimension.
- c. The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs./ft sq.

3. Stormwater management basins shall include escape provisions as follows:

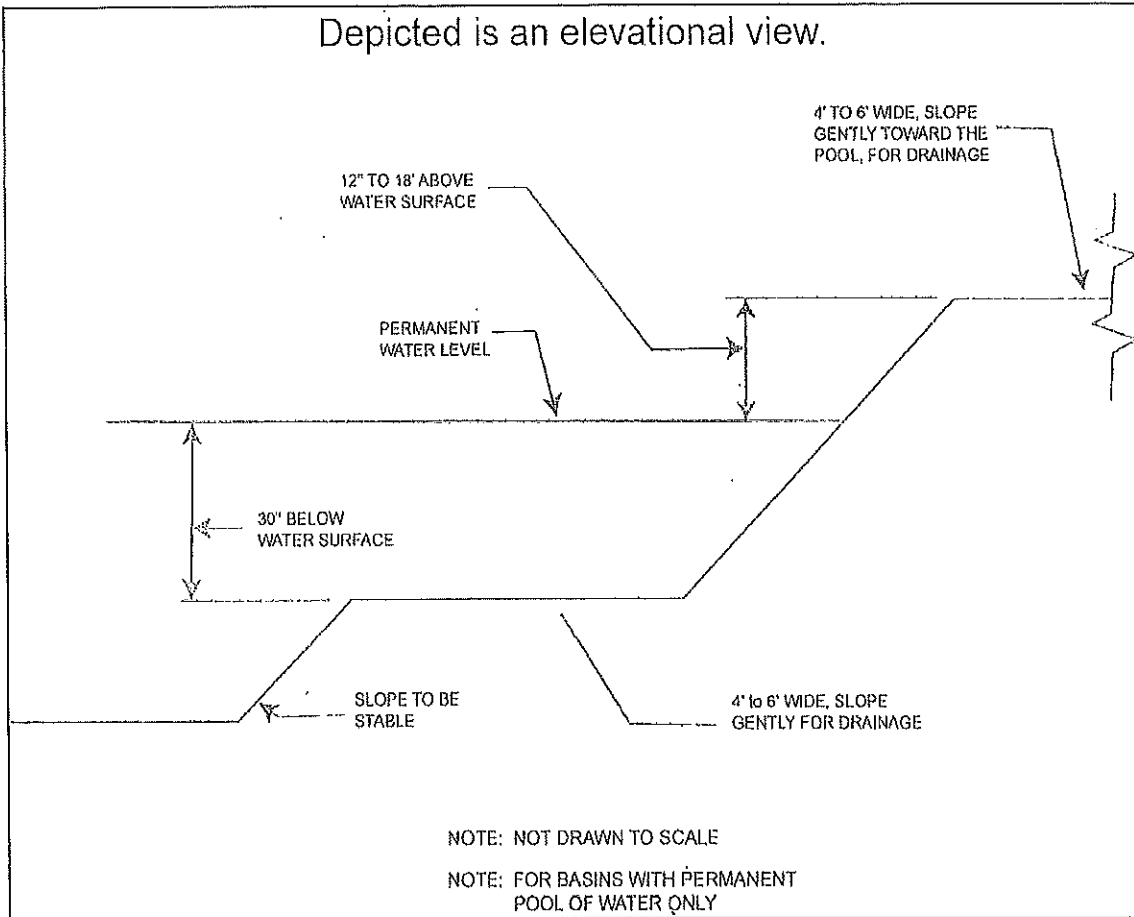
- a. If a structural stormwater management measure has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency and/or the Borough Engineer identified in Section 8.C a free-standing outlet structure may be exempted from this requirement.
- b. Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than two and one-half (2.5) feet. Such safety ledges shall be comprised of two steps. Each step shall be four (4) to six (6) feet in width. One step shall be located approximately two and one-half (2.5) feet below the permanent water surface, and the second step shall be located one to one and one-half (1.5) feet above the permanent water surface. See Section 8.D for an illustration of safety ledges in a stormwater management basin.
- c. In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than 3 horizontal to 1 vertical in accordance with N.J.A.C. 7:8-6(c)3.
- d. An emergency drawdown method for detention basins is required where the permanent pool will be more than two and one-half (2.5) feet deep. This drawdown method must consider downstream or offsite stability at the outfall in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

C. Variance or Exemption from Safety Standards

1. A variance or exemption from the safety standards for stormwater management

basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or Department) that the variance or exemption will not constitute a threat to public safety.

D. Illustration of Safety Ledges in a New Stormwater Management Basin



Section 9: Requirements for a Site Development Stormwater Plan

A. Submission of Site Development Stormwater Plan

1. Whenever an Applicant seeks municipal approval of a development subject to this ordinance, the Applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at Section 9.C below as part of the submission of the Applicant's application for subdivision or site plan approval.
2. The Applicant shall demonstrate through Submission Requirements that the project meets the standards set forth in this ordinance.
3. The Applicant shall submit to the reviewing agency the required number of copies of materials listed in the checklist for site development stormwater plans in accordance with Section 9.C of this ordinance.

B. Site Development Stormwater Plan Approval

The Applicant's Site Development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the Engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this ordinance.

C. Checklist Requirements

The following information shall be required:

1. Existing Site Conditions Base Map, including topography and the following information:

a. The reviewing Engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of 1"=200' or greater, showing 2-foot contour intervals.

b. The map as appropriate should include the following (when applicable): existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and flood plains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown.

2. Environmental Site Analysis

A written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, environmentally sensitive features or environmentally critical areas and to those that provide particular opportunities or constraints for development.

3. Project Description and Site Plan(s)

A map (or maps) at the scale of the existing site conditions base map (topographical base map) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high ground water elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.

4. Land Use Planning and Source Control Plan

This plan shall provide a demonstration of how the goals and standards of Sections 3 through 6 are being met, including both nonstructural and structural approaches. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible. The Applicant should refer to the Borough of Lodi Stormwater Management Plan and the Borough of Lodi Stormwater Pollution Prevention Plan for additional requirements.

5. Stormwater Management Facilities Map

The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

a. Total area to be paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to infiltrate, manage, control and dispose of stormwater.

b. Details of all stormwater management facility designs, during and after

construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

6. Calculations

a. Comprehensive hydrologic and hydraulic design and discharge stability calculations for the pre-development and post-development conditions for the design storms specified in Section 4 of this ordinance.

b. When the proposed stormwater management control measures (e.g., infiltration basins) depend on the hydrologic properties of soils, then a soils report shall be submitted for review. The soils report shall be based on onsite boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure. The Borough of Lodi shall be notified of site investigation activities and given the opportunity to have a witness, either prior to approval or as a condition of approval, as appropriate for the specific type of measure. Subsequent to approval of the development, post-construction bulk soil density and infiltration testing shall be required for all infiltration measures that were used as justification for meeting the recharge standard, to ensure that they were properly constructed.

7. Maintenance and Repair Plan

The design and planning of the stormwater management facility shall meet the maintenance requirements of Section 10.

8. Waiver from Submission Requirements

The Borough of Lodi official or board reviewing an application under this ordinance may, in consultation with the Borough Engineer, waive submissions of any of the requirements in Sections 9.C.1 through 9.C.6 of this ordinance when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the Applicant to obtain and its absence will not materially affect the review process.

Section 10: Maintenance and Repair

A. Applicability

1. Projects subject to review as in Section 1.C of this ordinance shall comply with the requirements of Sections 10.B and 10.C.

B. General Maintenance

1. The Design Engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development. This plan shall be separate from all other documents and designed for ongoing use by the site owner(s) or operator(s) in performing and documenting maintenance and repair, and by the Borough of Lodi in ensuring implementation of the maintenance plan. The final maintenance plan shall be updated and provided to the Borough of Lodi post-construction to include an evaluation based on the specifications of the initial maintenance plan and as-built conditions.

2. The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; safety needs; identification of methods and disposal sites for materials removed during maintenance; maintenance requirements for created wetlands and other ecological systems; safety devices and systems; warranty and operational standards from the manufactures of any manufactured treatment devices; and the

name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement) using maintenance guidelines for stormwater management measures from Section 7, the Borough of Lodi Municipal Stormwater Management Plan, Borough of Lodi Stormwater Pollution Prevention Plan, any relevant regional stormwater management plan and the maintenance guidelines for stormwater management measures as described in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

3. Responsibility for maintenance shall not be assigned or transferred to the owner(s) or tenant(s) of an individual property in a residential development or project, unless such owner(s) or tenant(s) owns or leases the entire residential development or project.

4. If the person responsible for maintenance identified under Section 10.B.2 above is not a public agency, the maintenance plan and any future revisions based on Section 10.B.7 below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

5. Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including, but not limited to, repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.

6. The person responsible for maintenance identified under Section 10.B.2 above shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance related work orders.

7. The person responsible for maintenance identified under Section 10.B.2 above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

8. The person responsible for maintenance identified under Section 10.B.2 above shall retain, submit annually to the Borough of Lodi and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Sections 10.B.6 and 10.B.7 above.

9. The requirements of Sections 10.B.3 and 10.B.4 do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency of competent jurisdiction.

10. Authorized representatives of the Borough of Lodi, including, but not limited to, the Borough Engineer, Superintendent of the Department of Public Works and Building Department Official may enter the site as needed in order to conduct onsite inspections as discussed in Section 10.D. The inspections shall be required to review and confirm that the information filed in the required reports as stated in Section 10.B.6 are correct. Additional inspections and reviews may be made as deemed appropriate by the Borough of Lodi.

11. In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the Borough of Lodi shall so notify the responsible person in writing. Upon receipt of that notice, the

responsible person shall have seven (7) calendar days from receipt of the notice to temporarily correct the violations and fourteen (14) calendar days from receipt of notice to permanently maintenance or repair facility in a manner that is approved by the Borough Engineer or his designee. The Borough of Lodi, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the Borough of Lodi may immediately proceed to do so and shall either bill the cost thereof to the responsible person, enforce penalties and/or liens as determined by the Borough of Lodi and describe below.

C. Performance and Maintenance Guarantee

Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A.40:55D-53.

D. Maintenance Access

The maintenance plan shall specifically provide a specific municipal right of access, which may include stormwater easements or covenants. The maintenance access shall be provided by the property owner(s) for access regarding facility inspections and maintenance, as required. Easements and covenants shall be recorded with the Borough of Lodi prior to issuance of a permit.

E. Alteration of Maintenance Plan

Any alteration in maintenance responsibility or alterations to maintenance plans and agreements must be reviewed and approved by the Borough of Lodi official or board that reviewed the application under this ordinance in consultation with the Borough Engineer, Superintendent of the Department of Public Works and Building Department Official.

F. Recording of Information

All maintenance information and alterations to maintenance agreements shall be recorded with the office of the Borough of Lodi Building Department Official as described in Section 10.B.8. Copies of all maintenance agreements and alterations to maintenance agreements shall be included in the Applicant's stormwater management plans and documents. Recording of the maintenance agreements in accordance with this ordinance shall be the responsibility of the owner.

Section 11: Penalties

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this ordinance shall be subject to the following penalties:

A. Responsibility for Administration

The Superintendent of the Department of Public Works, Borough Engineer and Building Department Official shall administer, implement and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the Superintendent of the Department of Public Works, Borough Engineer or Building Department Official may be delegated in writing to the person(s) or entities acting in the best interest of or in the employment of the Borough of Lodi.

B. Enforcement of Penalties and Liens

1. Should the applicant/owner fail to take the corrective actions, the Borough of Lodi shall then have the right to take the available appropriate remedies it deems necessary to correct the violations including fining the owner pursuant to Article XIII Penalties for Violations; Section 13.1 Penalties for Violations of the Borough of Lodi Land Development Ordinance and to assert a lien on the subject property in an amount equal to the costs of remedial actions. The lien shall be enforced in the

manner provided or authorized by law for the enforcement of common law liens on personal property. The lien shall be recorded with the Borough of Lodi and shall incur legal interest from the date of recording. The imposition of any penalty shall not exempt the offender from compliance with the provisions of this ordinance, including assessment of a lien on the property.

2. Whenever a structural BMP is not implemented, operated, and/or maintained in accordance with the Stormwater Management Plan which has been approved in accordance with this ordinance. Any penalty invoked shall be in accordance with Article XIII Penalties for Violations; Section 13.1 Penalties for Violations of the Borough of Lodi Land Development Ordinance.

Section 12: Effective Date

This ordinance shall take effect immediately upon the approval by the County review agency, or sixty (60) days from the receipt of the ordinance by the County review agency if the County review agency should fail to act.

Section 13: Severability

If the provisions of any section, subsection, paragraph, subdivision, or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, subdivision, or clause of this ordinance.

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	AYE	NAY	ABSTAINED	ABSENT
J.C. PIPARO	✓			
<i>M</i> B. McCASKEY	✓			
<i>S</i> M.N. SCHRIEKS	✓			
K. VISCANA	✓			
MAYOR PAPAROZZI	✓			

	AYE	NAY	ABSTAINED	ABSENT
J.C. PIPARO				✓
<i>S</i> B. McCASKEY	✓			
<i>M</i> M.N. SCHRIEKS	✓			
K. VISCANA	✓			
MAYOR PAPAROZZI	✓			