

## Ordinance 116

An Ordinance amending the Township of Stow Creek's Township Code and Land Use Ordinances to include amendments for New Jersey Stormwater Tier 1 Regulations.

### **SECTION I - Amendments to Chapter 47 known as "Animals"**

#### **47-21 C. Pet Waste**

##### 1) Definitions:

For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

- a. Immediate – shall mean that the pet solid waste is removed at once, without delay.
- b. Owner/Keeper – any person who shall possess, maintain, house or harbor any pet or otherwise have custody of any pet, whether or not the owner of such pet.
- c. Person – any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
- d. Pet - a domesticated animal (other than a disability assistance animal) kept for amusement or companionship.
- e. Pet solid waste – waste matter expelled from the bowels of the pet; excrement
- f. Proper disposal – placement in a designated waste receptacle, or other suitable container, and discarded in a refuse container which is regularly emptied by the municipality or some other refuse collector; or disposal into a system designed to convey domestic sewage for proper treatment and disposal.
- g. Proper disposal shall be made of animal food wastes, excrement, garbage, refuse, or vegetable matter deposited upon the premises, in such a manner as to prevent insect breeding or rodent infestation or pollution of the air, ground, or body of water or the creation of any other unhealthy or unsanitary condition.

##### 2) Requirement for Disposal:

All pet owners and keepers are required to immediately and properly dispose of their pet's solid waste deposited on any property, public or private, not owned or possessed by that person.

##### 3) Exemptions:

Any owner or keeper who requires the use of a disability assistance animal shall be exempt from the provisions of this section while such animal is being used for that purpose.

##### 4) Enforcement:

The provisions of this Article shall be enforced by the Honor System.

## SECTION II - New Chapter known as “Storm Sewer Systems”

### Chapter 135 SEWERS

#### 135.1 Illicit connections to any Separate Storm Sewer System

##### A. Definitions:

For the purpose of this section, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word “shall” is always mandatory and not merely directory. The definitions below are the same as or based on corresponding definitions in the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A-1.2.

- a. Domestic sewage - waste and wastewater from humans or household operations.
- b. Illicit connection – any physical or non-physical connection that discharges domestic sewage, non-contact cooling water, process wastewater, or other industrial waste (other than stormwater) to the municipal separate storm sewer system operated by the [insert name of municipality], unless that discharge is authorized under a NJPDES permit other than the Tier A Municipal Stormwater General Permit (NJPDES Permit Number NJ0141852). Non-physical connections may include, but are not limited to, leaks, flows, or overflows into the municipal separate storm sewer system.
- c. Industrial waste - non-domestic waste, including, but not limited to, those pollutants regulated under Section 307(a), (b), or (c) of the Federal Clean Water Act (33 U.S.C. §1317(a), (b), or (c)).
- d. Municipal separate storm sewer system (MS4)– a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by the Borough of Shiloh or other public body, and is designed and used for collecting and conveying stormwater.

NOTE: “MS4s do not include combined sewer systems, which are sewer systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.”

- e. NJPDES permit – a permit issued by the New Jersey Department of Environmental Protection to implement the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A
- f. Non-contact cooling water - water used to reduce temperature for the purpose of cooling. Such waters do not come into direct contact with any raw material, intermediate product (other than heat) or finished product. Non-contact cooling water may however contain algacides, or biocides to control fouling of equipment such as heat exchangers, and/or corrosion inhibitors.
- g. Person – any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
- h. Process wastewater - any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Process wastewater includes, but is not limited to, leachate and cooling water other than non-contact cooling water.
- i. Stormwater – water resulting from precipitation (including rain and snow) that runs off the land’s surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.

**B. Illicit Connections**

Illicit connections to the municipal separate storm sewer system(s) operated by the Borough of Shiloh so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

**C. Prohibited Conduct:**

No person shall discharge or cause to be discharged through an illicit connection to the municipal separate storm sewer system operated by the Borough of Shiloh any domestic sewage, non-contact cooling water, process wastewater, or other industrial waste (other than stormwater).

**C. Enforcement:**

This ordinance shall be enforced by the Superintendent of Public Works and or his/her designee.

**D. Penalties:**

Any person(s) who is found to be in violation of the provisions of this ordinance shall be subject penalties and fines found here within 135.21.

## **SECTION III - additional provisions for Chapter 135 known as “Storm Sewer Systems”**

### **ARTICLE III            Improper Disposal of Waste Ordinance**

To prohibit the spilling, dumping, or disposal of materials other than stormwater to the municipal separate storm sewer system (MS4) operated by the Borough of Shiloh so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

#### **135.2 Definitions:**

For the purpose of this ordinance, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word “shall” is always mandatory and not merely directory.

1. Municipal separate storm sewer system (MS4)– a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by [insert name of municipality] or other public body, and is designed and used for collecting and conveying stormwater. NOTE: In municipalities with combined sewer systems, add the following: “MS4s do not include combined sewer systems, which are sewer systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.”
2. Person – any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
3. Stormwater – water resulting from precipitation (including rain and snow) that runs off the land’s surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.

#### **135.22. Prohibited Conduct:**

The spilling, dumping, or disposal of materials other than stormwater to the municipal separate storm sewer system operated by [insert name of municipality] is prohibited. The spilling, dumping, or disposal of materials other than stormwater in such a manner as to cause the discharge of pollutants to the municipal separate storm sewer system is also prohibited.

#### **135.23. Exceptions to Prohibition:**

1. Water line flushing and discharges from potable water sources
2. Uncontaminated ground water (e.g., infiltration, crawl space or basement sump pumps, foundation or footing drains, rising ground waters)
3. Air conditioning condensate (excluding contact and non-contact cooling water)
4. Irrigation water (including landscape and lawn watering runoff)
5. Flows from springs, riparian habitats and wetlands, water reservoir discharges and diverted stream flows
6. Residential car washing water, and residential swimming pool discharges

7. Sidewalk, driveway and street wash water

8. Flows from firefighting activities

9. Flows from rinsing of the following equipment with clean water: - Beach maintenance equipment immediately following their use for their intended purposes; and - Equipment used in the application of salt and de-icing materials immediately following salt and de-icing material applications. Prior to rinsing with clean water, all residual salt and de-icing materials must be removed from equipment and vehicles to the maximum extent practicable using dry cleaning methods (e.g., shoveling and sweeping). Recovered materials are to be returned to storage for reuse or properly discarded. Rinsing of equipment, as noted in the above situation is limited to exterior, undercarriage, and exposed parts and does not apply to engines or other enclosed machinery.

**135.24. Enforcement:**

This ordinance shall be enforced by the honor system.

## **SECTION IV –new Chapter 135 known as “Refuse Containers / Dumpsters”**

### **153 – 10 Refuse Containers / Dumpsters**

#### **A. Purpose:**

Requiring dumpsters and other refuse containers that are outdoors or exposed to stormwater to be covered at all times and prohibits the spilling, dumping, leaking, or otherwise discharge of liquids, semi-liquids or solids from the containers to the municipal separate storm sewer system(s) operated by the Borough of Shiloh and/or the waters of the State so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

#### **B. Definitions:**

For the purpose of this ordinance, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word “shall” is always mandatory and not merely directory.

- a. Municipal separate storm sewer system (MS4) – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by the Borough of Shiloh other public body, and is designed and used for collecting and conveying stormwater.  
NOTE: “MS4s do not include combined sewer systems, which are sewer systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.”
- b. Person – any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
- c. Refuse container – any waste container that a person controls whether owned, leased, or operated, including dumpsters, trash cans, garbage pails, and plastic trash bags.
- d. Stormwater – means water resulting from precipitation (including rain and snow) that runs off the land’s surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.
- e. Waters of the State – means the ocean and its estuaries, all springs, streams 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.

#### **C. Prohibited Conduct:**

Any person who controls, whether owned, leased, or operated, a refuse container or dumpster must ensure that such container or dumpster is covered at all times and shall prevent refuse from spilling out or overflowing. Any person who owns, leases or otherwise uses a refuse container or dumpster must ensure that such container or dumpster does not leak or otherwise discharge liquids, semi-liquids or solids to the municipal separate storm sewer system(s) operated by the Borough of Shiloh.

**D. Exceptions to Prohibition:**

- a. Permitted temporary demolition containers
- b. Litter receptacles (other than dumpsters or other bulk containers)
- c. Individual homeowner trash and recycling containers
- d. Refuse containers at facilities authorized to discharge stormwater under a valid NJPDES permit
- e. Large bulky items (e.g., furniture, bound carpet and padding, white goods placed curbside for pickup)

**E. Enforcement:**

This ordinance shall be enforced by the Honor System.

**F. Penalties:**

Any person(s) who is found to be in violation of the provisions of this ordinance shall be subject penalties and fines found here within.

**Section V – a new Chapter known as “Wildlife Feeding”  
Chapter 180**

**Wildlife Feeding**

- § 180-1. Purpose**
- § 180-2. Definitions**
- § 180-3. Prohibited Conduct**
- § 180-4. Enforcement**
- § 180-5. Violations and Penalties**

**Wildlife Feeding**

**§ 180-1. Purpose**

An ordinance to prohibit the feeding of unconfined wildlife in any public park or on any other property owned or operated by [insert name of municipality], so as to protect public health, safety and welfare, and to prescribe penalties for failure to comply.

**§ 180-2. Definitions**

For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

- a. Feed – to give, place, expose, deposit, distribute or scatter any edible material with the intention of feeding, attracting or enticing wildlife. Feeding does not include baiting in the legal taking of fish and/or game.
- b. Person – any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
- c. Wildlife – all animals that are neither human nor domesticated.

**§ 180-3. Prohibited Conduct**

- a. No person shall feed, in any public park or on any other property owned or operated by Borough of Shiloh any wildlife, excluding confined wildlife (for example, wildlife confined in zoos, parks or rehabilitation centers, or unconfined wildlife at environmental education centers, or feral cats as part of an approved Trap-Neuter-Release program).

**§ 180-4. Enforcement**

- a. This ordinance shall be enforced by the Honor System or official so designated by the Borough Council or Mayor
- b. Any person found to be in violation of this ordinance shall be ordered to cease the feeding immediately.

**§ 180-5. Violations and Penalties**

Any person(s) who is found to be in violation of the provisions of this ordinance shall be subject to a fine not to exceed \$ 100.00

**SECTION VI. – a new Chapter known as “Tree Removal- Replacement”  
Tree Removal-Replacement Ordinance**

**Chapter 148**

- §148-1 Purpose**
- §148-2 Definitions**
- §148-3 Regulated Activities**
- §148-4 Exemptions**
- §148-5 Enforcement**
- §148-6 Violations and Penalties**

**§148-1 Purpose**

An ordinance to establish requirements for tree removal and replacement in the Borough of Shiloh to reduce soil erosion and pollutant runoff, promote infiltration of rainwater into the soil, and protect the environment, public health, safety, and welfare.

**§148-2 Definitions**

For the purpose of this ordinance, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this ordinance clearly demonstrates a different meaning. When consistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The use of the word "shall" means the requirement is always mandatory and not merely directory.

- A. “Diameter at Breast Height (DBH)” means the diameter of the trunk of a mature tree generally measured at a point four and a half feet above ground level from the uphill side of the tree. For species of trees where the main trunk divides below the 4 ½ foot height, the DBH shall be measured at the highest point before any division.

- B. "Hazard Tree" means a tree or limbs thereof that meet one or more of the criteria below. Trees that do not meet any of the criteria below and are proposed to be removed solely for development purposes are not hazard trees
1. Has an infectious disease or insect infestation;
  2. Is dead or dying;
  3. Obstructs the view of traffic signs or the free passage of pedestrians or vehicles;
  4. Is causing obvious damage to structures (such as building foundations, sidewalks, etc.); or
  5. Is determined to be a threat to public health, safety, and/or welfare by the municipal property maintenance/health officer.
- C. "Person" means any individual, resident, corporation, utility, company, partnership, firm, or association.
- D. "Planting strip" means the part of a street right-of-way between the public right-of-way and the portion of the street reserved for vehicular traffic or between the abutting property line and the curb or traveled portion of the street, exclusive of any sidewalk.
- E. "Resident" means an individual who owns a residential property or contractor hired by the individual who owns a residential property where a tree(s) regulated by this ordinance is removed or proposed to be removed.
- F. "Street Tree" means a tree planted in the sidewalk, planting strip, and/or in the public right-of-way adjacent to (or specified distance from) the portion of the street reserved for vehicular traffic. This also includes trees planted in planting strips within the roadway right-of-way, i.e., islands, medians, pedestrian refuges.
- G. "Tree" means a woody perennial plant, typically having a single stem or trunk growing to a considerable height and bearing lateral branches at some distance from the ground.
- H. "Tree removal" means to kill or to cause irreparable damage that leads to the decline and/or death of a tree. This includes, but is not limited to, excessive pruning, application of substances that are toxic to the tree, that leads to the decline and/or death of a tree. Removal does not include responsible pruning and maintenance of a tree, or the application of treatments intended to manage invasive species.

### §148-3 Regulated Activities

#### Process:

1. Land Use applications for a Grading Plan, Preliminary Major Subdivision, Minor Site Plan or Preliminary Major Site Plan shall include a tree location plan in areas of disturbance. The plan should include the number of trees to be removed and a planting plan with the required tree replacement.

#### A. Tree Replacement Requirements

1. Any person, who removes ten or more tree(s), as defined as Tree removal, with a DBH of 8” or more per acre, unless otherwise exempt under Section IV, shall be subject to the requirements of the Tree Replacement Requirements Table.
2. An application or permit is not required for the removal or cutting of trees.

The species type and diversity of replacement trees shall be in accordance with Appendix A -

Replacement tree(s) shall:

1. Be replaced in kind with a tree that meets the Tree Replacement Criteria in the table below;
2. Be planted within twelve (12) months of the date of removal of the original tree(s) or at an alternative date specified by the municipality;
3. Be monitored by the applicant for a period of two (2) planting seasons
4. Shall not be planted in temporary containers or pots, as these do not count towards tree replacement requirements.

#### Tree Replacement Requirements Table:

| Category | Tree Removed (DBH)   | Tree Replacement Criteria (See Appendix A)  |
|----------|----------------------|---|
| 1        | DBH of 8” or greater | Replant 1 tree with a minimum tree caliper of 1.5” for exceeding ten (10) trees removed in course of one year |

#### B. Replacement Alternatives:

1. If the municipality determines that some or all required replacement trees cannot be planted on the property where the tree removal activity occurred, then the applicant shall do one of the following:
  - a. Plant replacement trees in a separate area(s) approved by the municipality.
  - b. Pay a fee of \$100.00 for exceeding ten (10) trees removed in course of one year removed. This fee shall be placed into a fund dedicated to tree planting and continued maintenance of trees.

## §148-4 Exemptions

All persons shall comply with the tree replacement standard outlined above, except in the cases detailed below.

- A. Residents and homeowners are permissible to cut 10 trees per acre every year before requiring tree replacement.
- B. Tree farms in active operation, nurseries, fruit orchards, and garden centers;
- C. Properties used for the practice of silviculture under an approved forest stewardship or woodland management plan that is active and on file with the municipality;
- D. Any trees removed as part of a municipal or state decommissioning plan. This exemption only includes trees planted as part of the construction and predetermined to be removed in the decommissioning plan.
- E. Any trees removed pursuant to a New Jersey Department of Environmental Protection (NJDEP) or U.S. Environmental Protection Agency (EPA) approved environmental clean-up, or NJDEP approved habitat enhancement plan;
- F. Approved game management practices, as recommended by the State of New Jersey Department of Environmental Protection, Division of Fish, Game and Wildlife;
- G. Hazard trees may be removed with no fee or replacement requirement.
- H. Trees removed as part of an ongoing active agricultural use needed to support and maintain the agricultural activities.
- I. Agricultural / Farmland is exempt.
- J. Trees under electric wires that pose a hazard.
- K. Trees grown for timbering activities.

### **§148-5 Enforcement**

This ordinance shall be enforced by the Honor System. The Borough of Shiloh will notify property owners of the Tree Ordinance and provide the property owners with the tree replacement policy.

### **§148-6 Violations and Penalties**

Any person(s) who is found to be in violation of the provisions of this ordinance shall be subject to a warning / summons, community service or fine of \$500.00 as such court in its discretion may impose.

## Appendix A

Following is a list of approved replacement trees in the Borough of Shiloh for trees being removed per Chapter 145, 148-3 the mix, number and location of trees or substitutions shall be reviewed and approved by the Township Engineer. Not all tree species may be appropriate for certain uses, locations, site conditions, and soil types.

| <u>Tree Species</u>                | <u>Common Name</u>                  |
|------------------------------------|-------------------------------------|
| Acer Rubrum                        | Red Maple                           |
| Acer Negundo                       | Boxelder                            |
| Betula Nigra                       | River Birch                         |
| Carpinus Caroliniana               | American Hornbeam                   |
| Carya Ovalis                       | Red Hickory                         |
| Cornus Florida                     | Flowering Dogwood or other dogwoods |
| Fraxinus Americana                 | White Ash                           |
| Ginkgo Biloba (male)               | Ginkgo                              |
| Gleditsia triacanthos var. inermis | Honey Locust (Thornless)            |
| Liriodendron Styraciflua           | Tuliptree                           |
| Nyssa Sylvatica                    | Blackgum                            |
| Populus Grandidentata              | Bigtooth Aspen                      |
| Quercus Alba                       | White Oak                           |
| Quercus palustris                  | Pin Oak                             |
| Quercus Rubra                      | Northern Red Oak                    |
| Tilia Cordata                      | Littleleaf Linden                   |
| Ulmus Americana                    | American Elm "Princeton"            |

The planting procedure and season for planting shall follow recommendations from the NJ Shade Tree Federation , "Trees for NJ Streets".

Following is a list of trees that shall not be planted as replacement trees:

Sweet Gum

Bradford Pear

## **SECTION VII. - Amendments to the LAND USE CODE**

### **Section 4.30. Private Storm Drain Inlet Retrofitting**

Requires the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the [insert name of municipality] so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

#### **A. Definitions:**

For the purpose of this ordinance, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word “shall” is always mandatory and not merely directory.

1. Municipal separate storm sewer system (MS4)– a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by [insert name of municipality] or other public body, and is designed and used for collecting and conveying stormwater. NOTE: In municipalities with combined sewer systems, add the following: “MS4s do not include combined sewer systems, which are sewer systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.”
2. Person – any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
3. Storm drain inlet- an opening in a storm drain used to collect stormwater runoff and includes, but is not limited to, a grate inlet, curb-opening inlet, slotted inlet, and combination inlet. d. Waters of the State – means the ocean and its estuaries, all springs, streams 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.

#### **B. Prohibited Conduct:**

No person in control of private property (except a residential lot with one single family house) shall authorize the repaving, repairing (excluding the repair of individual potholes), resurfacing (including top coating or chip sealing with asphalt emulsion or a thin base of hot bitumen), reconstructing or altering any surface that is in direct contact with an existing storm drain inlet on that property unless the storm drain inlet either:

1. Already meets the design standard below to control passage of solid and floatable materials; or
2. Is retrofitted or replaced to meet the standard in Section 4 below prior to the completion of the project.

#### **C. Design Standard:**

Storm drain inlets identified in Section 3 above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, “solid and floatable materials” means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Section 3 below.

1. 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:
  - a. 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
  - b. 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.
2. 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.
3. This standard does not apply:
  - a. Where the municipal engineer agrees 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;
  - b. Where flows 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:
    - i. 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
    - ii. A bar screen having a bar spacing of 0.5 inches.
  - c. Where flows are conveyed through a trash rack that has parallel bars with one-inch (1”) spacing between the bars; or
  - d. 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.

**E. Enforcement:**

This ordinance shall be enforced by the Zoning Officer of the Borough of Shiloh

**F. Penalties:**

Any person(s) who is found to be in violation of the provisions of this ordinance shall be subject penalties and fines found here within.

**4.38 Municipal Stormwater Control**

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**4.38.1 Scope and Purpose:**

- A. Policy Statement Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID 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 The purpose of this ordinance is to establish minimum stormwater management requirements and controls for “major development,” as defined below in Section 4.38.2
- C. Applicability 1. This ordinance shall be applicable to the following major developments: a. Non-residential major developments; and b. Aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards at N.J.A.C. 5:21. 2. This ordinance shall also be applicable to all major developments undertaken by the Borough of Shiloh

D. Compatibility with Other Permit and Ordinance Requirements Development approvals issued pursuant to this ordinance are to be considered an integral part of development approvals 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 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.

#### **4.38.2. Definitions:**

For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. 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.

“CAFRA Centers, Cores or Nodes” means those areas with boundaries incorporated by reference or revised by the Department in accordance with N.J.A.C. 7:7-13.16.

“CAFRA Planning Map” means the map used by the Department to identify the location of Coastal Planning Areas, CAFRA centers, CAFRA cores, and CAFRA nodes. The CAFRA Planning Map is available on the Department's Geographic Information System (GIS). “Community basin” means an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond, established in accordance with N.J.A.C. 7:8- 4.2(c)14, that is designed and constructed in accordance with the New Jersey Stormwater Best Management Practices Manual, or an alternate design, approved in accordance with N.J.A.C. 7:8-5.2(g), for an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond and that complies with the requirements of this chapter.

“Compaction” means the increase in soil bulk density.

“Contributory drainage area” means the area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself.

“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 Commissioners to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

1. A county planning agency or

2. 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 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 enlarge, 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, 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 land, 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 the placement or reconstruction of impervious surface or motor vehicle surface, or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Milling and repaving is not considered disturbance for the purposes of this definition.

“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 constrained area” means the following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. 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.

“Environmentally critical area” means an area or feature which is of significant environmental value, including but not limited to: stream corridors, natural heritage priority sites, habitats 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 Neighborhoods” means neighborhoods 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.

“Green infrastructure” means a stormwater management measure that manages stormwater close to its source by:

1. Treating stormwater runoff through infiltration into subsoil;
2. Treating stormwater runoff through filtration by vegetation or soil; or
3. Storing stormwater runoff for reuse.

"HUC 14" or "hydrologic unit code 14" means an area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

“Impervious surface” means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water. “Infiltration” is the process by which water seeps into the soil from precipitation.

“Lead planning agency” means one or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee pursuant to N.J.A.C. 7:8-3.2, that serves as the primary representative of the committee.

“Major development” means an individual “development,” as well as multiple developments that individually or collectively result in:

1. The disturbance of one or more acres of land since February 2, 2004;
2. The creation of one-quarter acre or more of “regulated impervious surface” since February 2, 2004;
3. The creation of one-quarter acre or more of “regulated motor vehicle surface” since March 2, 2021 {or the effective date of this ordinance, whichever is earlier}; or
4. A combination of 2 and 3 above that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.

Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of paragraphs 1, 2, 3, or 4 above. Projects undertaken by any government agency that otherwise meet the definition of “major development” but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered “major development.”

” NOTE: The definition of major development above aligns with the definition at N.J.A.C. 7:8-1.2 and is recommended for consistency. Alternatively, a municipality may adopt the following definition, which is the minimum standard required. Municipalities that have already adopted the definition at N.J.A.C. 7:8-1.2 or another definition that goes beyond the minimum requirement should not reduce the stringency of their definition by adopting the minimum standard.

“Major development” means an individual “development,” as well as multiple developments that individually or collectively result in the disturbance of one or more acres of land since February 2, 2004. Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually result in the disturbance of one or more acres of land since February 2, 2004. Projects undertaken by any government agency that otherwise meet the definition of “major development” but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered “major development.”

Additionally, individual municipalities may define major development with a smaller area of disturbance, a smaller area of regulated impervious or motor vehicle surface, or both.

“Motor vehicle” means land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low speed vehicles. For the purposes of this definition, motor vehicle does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on rails or tracks.

“Motor vehicle surface” means any pervious or impervious surface that is intended to be used by “motor vehicles” and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.

“Municipality” means any city, borough, town, township, or village.

“New Jersey Stormwater Best Management Practices (BMP) Manual” or “BMP Manual” means the manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department’s determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the municipality, in accordance with Section 4.38.4 of this ordinance and N.J.A.C. 7:8-5.2(g), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this chapter.

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

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

“Person” means any individual, corporation, company, partnership, firm, association, political subdivision of this State and any state, interstate or Federal agency.

“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.

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

“Regulated impervious surface” means any of the following, alone or in combination:

1. A net increase of impervious surface;
2. The total area of impervious surface collected by a new stormwater conveyance system (for the purpose of this definition, a “new stormwater conveyance system” is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created);
3. The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or
4. The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased.

“Regulated motor vehicle surface” means any of the following, alone or in combination:

1. The total area of motor vehicle surface that is currently receiving water;
2. A net increase in motor vehicle surface; and/or quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

“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.

“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 management BMP” means an excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management BMP may either be normally dry (that is, a detention basin or infiltration system), 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 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.

“Stormwater runoff” means water flow on the surface of the ground or in storm sewers, resulting from precipitation. “Stormwater management planning agency” means a public body authorized by legislation to prepare stormwater management plans.

“Stormwater management planning area” means the geographic area for which a stormwater management planning agency is authorized to prepare stormwater management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

“Tidal Flood Hazard Area” means a flood hazard area in which the flood elevation resulting from the two-, 10-, or 100-year storm, as applicable, is governed by tidal flooding from the Atlantic Ocean. Flooding in a tidal flood hazard area may be contributed to, or influenced by, stormwater runoff from inland areas, but the depth of flooding generated by the tidal rise and fall of the Atlantic Ocean is greater than flooding from any fluvial sources. In some situations, depending upon the extent of the storm surge from a particular storm event, a flood hazard area may be tidal in the 100-year storm, but fluvial in more frequent storm events.

“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” is defined as previously developed portions of areas:

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.

“Water control structure” means a structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the flood elevation resulting from the two-, 10-, or 100-year storm, flood hazard area limit, and/or floodway limit of the water. Examples of a water control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir. “Waters of the State” means the ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or groundwater, 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.

#### **4.38.3 Design and Performance Standards for Stormwater Management Measures**

A. Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment as follows:

1. The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90.
2. The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quantity shall be met by incorporating green infrastructure.

B. The standards in this ordinance apply only to new major development and 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.

Note: Alternative standards shall provide at least as much protection from stormwater related loss of groundwater recharge, stormwater quantity and water quality impacts of major development projects as would be provided under the standards in N.J.A.C. 7:8- 5.

#### **4.38.4 Stormwater Management Requirements for Major Development**

- A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with Section X.
- B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department’s Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B 15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlnebergi* (bog turtle).
- C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity requirements of Section 4.38.4 P, Q and R:

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 made of permeable material.
- D. A waiver from strict compliance from the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity requirements of Section 4.38.4 O, P, Q and R 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:
1. The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
  2. The applicant demonstrates through an alternatives analysis, that through the use of stormwater management measures, the option selected complies with the requirements of Section 4.38.4 O, P, Q and R to the maximum extent practicable;
  3. The applicant demonstrates that, in order to meet the requirements of Section 4.38.4 O, P, Q and R, existing structures currently in use, such as homes and buildings, would need to be condemned; and
  4. 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 4.38.4 D.3 above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Section 4.38.4 O, P, Q and R that were not achievable onsite.
- E. Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in Section 4.38.4 O, P, Q and R. When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2 (f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department's website at:
- [https://njstormwater.org/bmp\\_manual2.htm](https://njstormwater.org/bmp_manual2.htm).
- F. Where the BMP tables in the NJ Stormwater Management Rule are different due to updates or amendments with the tables in this ordinance the BMP Tables in the Stormwater Management rule at N.J.A.C. 7:8-5.2(f) shall take precedence.

| <b>Table 1</b><br><b>Green Infrastructure BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity</b> |  |                            |   |  |
|---|--|----------------------------|---|--|
| Best Management Practice  | Stormwater Runoff Quality TSS Removal Rate (percent) | Stormwater Runoff Quantity | Groundwater Recharge                    | Minimum Separation from Seasonal High Water Table (feet) |
| Cistern   | 0  | Yes                        | No                                      | --   |
| Dry Well <sup>(a)</sup>   | 0  | No                         | Yes                                     | 2  |
| Grass Swale   | 50 or less   | No                         | No                                      | 2 <sup>(e)</sup><br>1 <sup>(f)</sup>                     |
| Green Roof  | 0  | Yes                        | No                                      | --   |
| Manufactured Treatment Device <sup>(a) (g)</sup>  | 50 or 80   | No                         | No                                      | Dependent upon the device                                |
| Pervious Paving System <sup>(a)</sup>   | 80   | Yes                        | Yes <sup>(b)</sup><br>No <sup>(c)</sup> | 2 <sup>(b)</sup><br>1 <sup>(c)</sup>                     |
| Small-Scale Bioretention Basin <sup>(a)</sup>   | 80 or 90   | Yes                        | Yes <sup>(b)</sup><br>No <sup>(c)</sup> | 2 <sup>(b)</sup><br>1 <sup>(c)</sup>                     |
| Small-Scale Infiltration Basin <sup>(a)</sup>   | 80   | Yes                        | Yes                                     | 2  |
| Small-Scale Sand Filter   | 80   | Yes                        | Yes                                     | 2  |
| Vegetative Filter Strip   | 60-80  | No                         | No                                      | --   |

*(Notes corresponding to annotations <sup>(a)</sup> through <sup>(g)</sup> are found on Page D-15)*

**Table 2**  
**Green Infrastructure BMPs for Stormwater Runoff Quantity**  
**(or for Groundwater Recharge and/or Stormwater Runoff Quality**  
**with a Waiver or Variance from N.J.A.C. 7:8-5.3)**

| Best Management Practice     | Stormwater Runoff Quality TSS Removal Rate (percent) | Stormwater Runoff Quantity | Groundwater Recharge                    | Minimum Separation from Seasonal High Water Table (feet) |
|------------------------------|--|----------------------------|---|--|
| Bioretention System          | 80 or 90   | Yes                        | Yes <sup>(b)</sup><br>No <sup>(c)</sup> | 2 <sup>(b)</sup><br>1 <sup>(c)</sup>                     |
| Infiltration Basin           | 80   | Yes                        | Yes                                     | 2  |
| Sand Filter <sup>(b)</sup>   | 80   | Yes                        | Yes                                     | 2  |
| Standard Constructed Wetland | 90   | Yes                        | No                                      | N/A  |
| Wet Pond <sup>(d)</sup>      | 50-90  | Yes                        | No                                      | N/A  |

*(Notes corresponding to annotations <sup>(b)</sup> through <sup>(d)</sup> are found on Page D-15)*

**Table 3**  
**BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or**  
**Stormwater Runoff Quantity**  
**only with a Waiver or Variance from N.J.A.C. 7:8-5.3**

| Best Management Practice                     | Stormwater Runoff Quality TSS Removal Rate (percent) | Stormwater Runoff Quantity | Groundwater Recharge | Minimum Separation from Seasonal High Water Table (feet) |
|--|--|----------------------------|----------------------|--|
| Blue Roof                                    | 0  | Yes                        | No                   | N/A  |
| Extended Detention Basin                     | 40-60  | Yes                        | No                   | 1  |
| Manufactured Treatment Device <sup>(h)</sup> | 50 or 80   | No                         | No                   | Dependent upon the device                                |
| Sand Filter <sup>(c)</sup>                   | 80   | Yes                        | No                   | 1  |
| Subsurface Gravel Wetland                    | 90   | No                         | No                   | 1  |
| Wet Pond                                     | 50-90  | Yes                        | No                   | N/A  |

Notes to Tables 1, 2, and 3:

- (a) subject to the applicable contributory drainage area limitation specified at Section IV.O.2;
- (b) designed to infiltrate into the subsoil;
- (c) designed with underdrains;
- (d) designed to maintain at least a 10-foot wide area of native vegetation along at least 50 percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;
- (e) designed with a slope of less than two percent;
- (f) designed with a slope of equal to or greater than two percent;
- (g) manufactured treatment devices that meet the definition of green infrastructure at Section II;
- (h) manufactured treatment devices that do not meet the definition of green infrastructure at Section II.

- G. An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with Section 4.38.4 B. Alternative stormwater management measures may be used to satisfy the requirements at Section 4.38.4 O only if the measures meet the definition of green infrastructure at Section II. Alternative stormwater management measures that function in a similar manner to a BMP listed at Section O.2 are subject to the contributory drainage area limitation specified at Section O.2 for that similarly functioning BMP. Alternative stormwater management measures approved in accordance with this subsection that do not function in a similar manner to any BMP listed at Section O.2 shall have a contributory drainage area less than or equal to 2.5 acres, except for alternative stormwater management measures that function similarly to cisterns, grass swales, green roofs, standard constructed wetlands, vegetative filter strips, and wet ponds, which are not subject to a contributory drainage area limitation. Alternative measures that function similarly to standard constructed wetlands or wet ponds shall not be used for compliance with the stormwater runoff quality standard unless a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section 4.38.4 D is granted from Section 4.38.4 O.
- H. Whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess 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, exacerbating a naturally or seasonally high water table, so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems or other subsurface structures within the zone of influence of the groundwater mound, or interference with the proper functioning of the stormwater management measure itself.
- I. Design standards for stormwater management measures are as follows:
1. Stormwater management measures shall be designed to take into account the existing site conditions, 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; and the presence of solution-prone carbonate rocks (limestone);
  2. 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 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 the width of the diameter of the orifice or one-third the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of Section 4.38.8 C;

3. 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;
  4. Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at Section 4.38.8; and
  5. The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of two and one-half inches in diameter.
- J. Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Section II may be used only under the circumstances described at Section 4.38.4 O.4.
- K. Any application for a new agricultural development that meets the definition of major development at Section II shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at Sections 4.38.4 O, P, Q and R and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "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 manufacture of agriculturally related products.
- L. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section 4.38.4 P, Q and R shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas.
- M. Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the {insert Office of the County Clerk or the registrar of deeds and mortgages of the county in which the development, project, project site, or mitigation area containing the stormwater management measure is located, as appropriate, to the municipality}. A form of deed notice shall be submitted to the municipality for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section 4.38.4 O, P, Q and R and shall identify the location of the stormwater management measure(s) in NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Latitude and Longitude in decimal degrees. The deed notice shall also reference the maintenance plan required to be recorded upon the deed pursuant to Section 4.38.10 B.5. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality.

Proof that the required information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the municipality is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the municipality within 180 calendar days of the authorization granted by the municipality.

N. A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to Section 4.38.4 of this ordinance and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the municipality for approval and subsequently recorded with the {insert appropriate Office of the County Clerk or the registrar of deeds and mortgages, as applies} and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with M above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality in accordance with M above.

O. Green Infrastructure Standards

1. This subsection specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.
2. To satisfy the groundwater recharge and stormwater runoff quality standards at Section 4.38.4 P and Q, the design engineer shall utilize green infrastructure BMPs identified in Table 1 at Section 4.38.4 F. and/or an alternative stormwater management measure approved in accordance with Section 4.38.4 G. The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

| <u>Best Management Practice</u>  | <u>Maximum Contributory Drainage Area</u>  |
|----------------------------------|--|
| Dry Well                         | 1 acre   |
| Manufactured Treatment Device    | 2.5 acres  |
| Pervious Pavement Systems        | Area of additional inflow cannot exceed three times the area occupied by the BMP |
| Small-scale Bioretention Systems | 2.5 acres  |
| Small-scale Infiltration Basin   | 2.5 acres  |
| Small-scale Sand Filter          | 2.5 acres  |

3. To satisfy the stormwater runoff quantity standards at Section 4.38.4R, the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with Section 4.38.4 G.
4. If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section 4.38.4 D is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with Section 4.38.4 G may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section 4.38.4 P, Q and R.
5. For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of this subsection shall only apply to areas owned in fee simple by the government agency or utility, and areas within a right-of-way or easement held or controlled by the government agency or utility; the entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this subsection. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements of this subsection, each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at Section 4.38.4P, Q and R, unless the project is granted a waiver from strict compliance in accordance with Section 4.38.4 D.

#### P. Groundwater Recharge Standards

1. This subsection contains the minimum design and performance standards for groundwater recharge as follows:
2. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Section 4.38.5, either:
  - i. 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
  - ii. Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated.
3. This groundwater recharge requirement does not apply to projects within the “urban redevelopment area,” or to projects subject to 4 below.
4. The following types of stormwater shall not be recharged:
  - i. 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

ii. Industrial stormwater exposed to “source material.” “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, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste 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.

#### Q. Stormwater Runoff Quality Standards

1. This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of major development. Stormwater runoff quality standards are applicable when the major development results in an increase of one-quarter acre or more of regulated motor vehicle surface.
2. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:
  - i. Eighty percent TSS removal of the anticipated load, expressed as an annual average shall be achieved for the stormwater runoff from the net increase of motor vehicle surface.
  - ii. If the surface is considered regulated motor vehicle surface because the water quality treatment for an area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant is to be modified or removed, the project shall maintain or increase the existing TSS removal of the anticipated load expressed as an annual average.
3. 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 Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with 2 above, unless the major development is itself subject to a NJPDES permit with a numeric effluent limitation for TSS or the NJPDES permit to which the major development is subject exempts the development from a numeric effluent limitation for TSS.
4. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 4, below. The calculation of the volume of runoff may take into account the implementation of stormwater management measures.

**Table 4 - Water Quality Design Storm Distribution**

| Time (Minutes) | Cumulative Rainfall (Inches) | Time (Minutes) | Cumulative Rainfall (Inches) | Time (Minutes) | Cumulative Rainfall (Inches) |
|----------------|------------------------------|----------------|------------------------------|----------------|------------------------------|
| 1              | 0.00166                      | 41             | 0.1728                       | 81             | 1.0906                       |
| 2              | 0.00332                      | 42             | 0.1796                       | 82             | 1.0972                       |
| 3              | 0.00498                      | 43             | 0.1864                       | 83             | 1.1038                       |
| 4              | 0.00664                      | 44             | 0.1932                       | 84             | 1.1104                       |
| 5              | 0.00830                      | 45             | 0.2000                       | 85             | 1.1170                       |
| 6              | 0.00996                      | 46             | 0.2117                       | 86             | 1.1236                       |
| 7              | 0.01162                      | 47             | 0.2233                       | 87             | 1.1302                       |
| 8              | 0.01328                      | 48             | 0.2350                       | 88             | 1.1368                       |
| 9              | 0.01494                      | 49             | 0.2466                       | 89             | 1.1434                       |
| 10             | 0.01660                      | 50             | 0.2583                       | 90             | 1.1500                       |
| 11             | 0.01828                      | 51             | 0.2783                       | 91             | 1.1550                       |
| 12             | 0.01996                      | 52             | 0.2983                       | 92             | 1.1600                       |
| 13             | 0.02164                      | 53             | 0.3183                       | 93             | 1.1650                       |
| 14             | 0.02332                      | 54             | 0.3383                       | 94             | 1.1700                       |
| 15             | 0.02500                      | 55             | 0.3583                       | 95             | 1.1750                       |
| 16             | 0.03000                      | 56             | 0.4116                       | 96             | 1.1800                       |
| 17             | 0.03500                      | 57             | 0.4650                       | 97             | 1.1850                       |
| 18             | 0.04000                      | 58             | 0.5183                       | 98             | 1.1900                       |
| 19             | 0.04500                      | 59             | 0.5717                       | 99             | 1.1950                       |
| 20             | 0.05000                      | 60             | 0.6250                       | 100            | 1.2000                       |
| 21             | 0.05500                      | 61             | 0.6783                       | 101            | 1.2050                       |
| 22             | 0.06000                      | 62             | 0.7317                       | 102            | 1.2100                       |
| 23             | 0.06500                      | 63             | 0.7850                       | 103            | 1.2150                       |
| 24             | 0.07000                      | 64             | 0.8384                       | 104            | 1.2200                       |
| 25             | 0.07500                      | 65             | 0.8917                       | 105            | 1.2250                       |
| 26             | 0.08000                      | 66             | 0.9117                       | 106            | 1.2267                       |
| 27             | 0.08500                      | 67             | 0.9317                       | 107            | 1.2284                       |
| 28             | 0.09000                      | 68             | 0.9517                       | 108            | 1.2300                       |
| 29             | 0.09500                      | 69             | 0.9717                       | 109            | 1.2317                       |
| 30             | 0.10000                      | 70             | 0.9917                       | 110            | 1.2334                       |
| 31             | 0.10660                      | 71             | 1.0034                       | 111            | 1.2351                       |
| 32             | 0.11320                      | 72             | 1.0150                       | 112            | 1.2367                       |
| 33             | 0.11980                      | 73             | 1.0267                       | 113            | 1.2384                       |
| 34             | 0.12640                      | 74             | 1.0383                       | 114            | 1.2400                       |
| 35             | 0.13300                      | 75             | 1.0500                       | 115            | 1.2417                       |
| 36             | 0.13960                      | 76             | 1.0568                       | 116            | 1.2434                       |
| 37             | 0.14620                      | 77             | 1.0636                       | 117            | 1.2450                       |
| 38             | 0.15280                      | 78             | 1.0704                       | 118            | 1.2467                       |
| 39             | 0.15940                      | 79             | 1.0772                       | 119            | 1.2483                       |
| 40             | 0.16600                      | 80             | 1.0840                       | 120            | 1.2500                       |

5. 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:

$$R = A + B - (A \times B) / 100,$$

Where

R = total TSS Percent Load Removal from application of both BMPs, and

A = the TSS Percent Removal Rate applicable to the first BMP

B = the TSS Percent Removal Rate applicable to the second BMP.

6. 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 green infrastructure BMPs that optimize nutrient removal while still achieving the performance standards in Section 4.38.4 P, Q and R.
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. The Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-4.1(c)1 establish 300-foot riparian zones along Category One waters, as designated in the Surface Water Quality Standards at N.J.A.C. 7:9B, and certain upstream tributaries to Category One waters. A person shall not undertake a major development that is located within or discharges into a 300-foot riparian zone without prior authorization from the Department under N.J.A.C. 7:13.
9. Pursuant to the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-11.2(j)3.i, runoff from the water quality design storm that is discharged within a 300-foot riparian zone shall be treated in accordance with this subsection to reduce the post-construction load of total suspended solids by 95 percent of the anticipated load from the developed site, expressed as an annual average.
10. This stormwater runoff quality standards do not apply to the construction of one individual single-family dwelling, provided that it is not part of a larger development or subdivision that has received preliminary or final site plan approval prior to December 3, 2018, and that the motor vehicle surfaces are made of permeable material(s) such as gravel, dirt, and/or shells.

#### R. Stormwater Runoff Quantity Standards

1. This subsection contains the minimum design and performance standards to control stormwater runoff quantity impacts of major development.
2. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Section 4.38.5, complete one of the following:

- i. 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 pre-construction runoff hydrographs for the same storm events;
  - ii. 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;
  - iii. Design 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 pre-construction peak runoff rates. 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; or
  - iv. In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with 2.i, ii and iii above is required unless the design engineer demonstrates through hydrologic and hydraulic analysis that the increased volume, change in timing, or increased rate of the stormwater runoff, or any combination of the three will not result in additional flood damage below the point of discharge of the major development. No analysis is required if the stormwater is discharged directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure.
3. The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.

#### **4.38.5 Calculation of Stormwater Runoff and Groundwater Recharge:**

A. Stormwater runoff shall be calculated in accordance with the following:

1. The design engineer shall calculate runoff using one of the following methods:
  - i. The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Chapters 7, 9, 10, 15 and 16 Part 630, Hydrology National Engineering Handbook, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at:

[https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1044171.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf)

or at United States Department of Agriculture Natural Resources Conservation Service, 220 Davison Avenue, Somerset, New Jersey 08873; or

- ii. The Rational Method for peak flow and the Modified Rational Method for hydrograph computations. The rational and modified rational methods are described in "Appendix A-9 Modified Rational Method" in the Standards for Soil Erosion and Sediment Control in New Jersey, January 2014. This document is available from the State Soil Conservation Committee or any of the Soil Conservation Districts listed at N.J.A.C. 2:90-1.3(a)3. The location, address, and telephone number for each Soil Conservation District is available from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625. The document is also available at:

<http://www.nj.gov/agriculture/divisions/anr/pdf/2014NJSoilErosionControlStandardsComplete.pdf>.

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 above at Section 4.38.5 A.1.i and the Rational and Modified Rational Methods at Section 4.38.5 A.1.ii. 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 years without interruption prior to the time of application. If more than one land cover have existed on the site during the five 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 computing pre-construction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce pre-construction stormwater runoff rates and volumes.
  4. In computing 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. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55 – Urban Hydrology for Small Watersheds or other methods may be employed.
  5. 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 tailwater in the design of structural stormwater management measures.
- B. Groundwater recharge may be calculated in accordance with the following:

The New Jersey Geological Survey Report GSR-32, A Method for Evaluating Groundwater-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 the New Jersey Geological Survey website at:

<https://www.nj.gov/dep/njgs/pricelst/gsreport/gsr32.pdf>

or at New Jersey Geological and Water Survey, 29 Arctic Parkway, PO Box 420 Mail Code 29-01, Trenton, New Jersey 08625-0420.

#### **4.38.6 Sources for Technical Guidance:**

A. Technical guidance for stormwater management measures can be found in the documents listed below, which are available to download from the Department's website at:

[http://www.nj.gov/dep/stormwater/bmp\\_manual2.htm](http://www.nj.gov/dep/stormwater/bmp_manual2.htm).

1. Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3.
2. Additional maintenance guidance is available on the Department's website at:

[https://www.njstormwater.org/maintenance\\_guidance.htm](https://www.njstormwater.org/maintenance_guidance.htm).

B. Submissions required for review by the Department should be mailed to: The Division of Water Quality, New Jersey Department of Environmental Protection, Mail Code 401-02B, PO Box 420, Trenton, New Jersey 08625-0420.

#### **4.38.7 Solids and Floatable Materials Control Standards:**

A. Site design features identified under Section 4.38.4 F above, or alternative designs in accordance with Section 4.38.4 G above, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Section 4.38.7 .2 below.

1. Design engineers shall use one 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:
  - i. 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; or
  - ii. 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 system floors used to collect stormwater from the surface into a storm drain or surface water body.

- iii. For curb-opening inlets, including curb-opening inlets in combination inlets, 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.
2. The standard in A.1. above does not apply:
- i. Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;
  - ii. Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;
  - iii. Where flows from the water quality design storm as specified in N.J.A.C. 7:8 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 (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or
    - b. A bar screen having a bar spacing of 0.5 inches.

Note that these exemptions do not authorize any infringement of requirements in the Residential Site Improvement Standards for bicycle safe grates in new residential development (N.J.A.C. 5:21-4.18(b)2 and 7.4(b)1).

- iv. Where flows are conveyed through a trash rack that has parallel bars with one-inch (1 inch) spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or
- v. 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.

#### **4.38.8 Safety Standards for Stormwater Management Basins:**

- A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management BMPs. This section applies to any new stormwater management BMP.
- B. The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management BMPs. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management BMPs to be retrofitted to meet one or more of the safety standards in Section 4.38.8 C.1, 4.38.8 C.2, and 4.38.8 C.3 for trash racks, overflow grates, and escape provisions at outlet structures.

### C. Requirements for Trash Racks, Overflow Grates and Escape Provisions

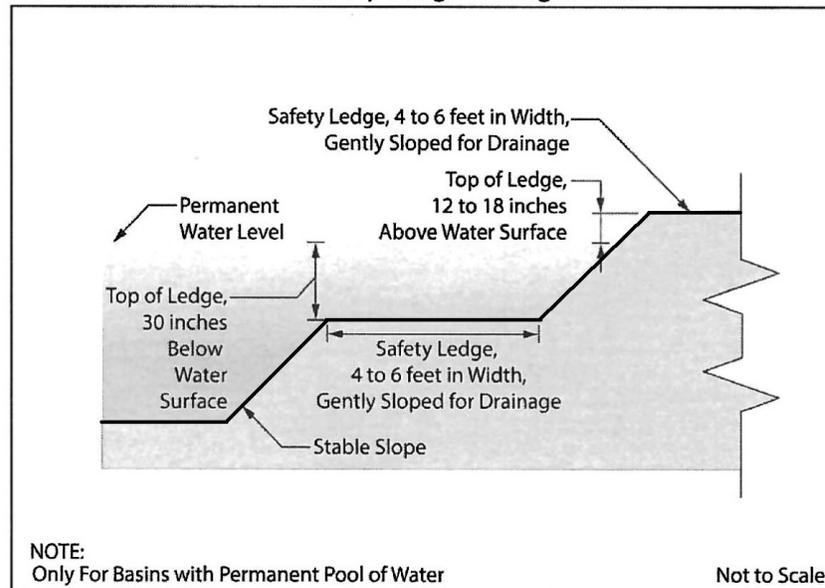
1. A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the Stormwater management BMP to ensure proper functioning of the BMP outlets in accordance with the following:
  - i. The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars;
  - ii. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure;
  - iii. 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; and
  - iv. The trash rack shall be constructed of rigid, durable, and corrosion resistant material and designed to withstand a perpendicular live loading of 300 pounds per square foot.
2. An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
  - i. The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
  - ii. The overflow grate spacing shall be no less than two inches across the smallest dimension
  - iii. 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 pounds per square foot.
3. Stormwater management BMPs shall include escape provisions as follows:
  - i. If a stormwater management BMP has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions include the installation of permanent ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management BMPs. With the prior approval of the municipality pursuant to 4.38.8 C, a free-standing outlet structure may be exempted from this requirement;
  - ii. Safety ledges shall be constructed on the slopes of all new stormwater management BMPs having a permanent pool of water deeper than two and one-half feet. Safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one half feet below the permanent water surface, and the second step shall be located one to one and one-half feet above the permanent water surface. See 4.38.8 E for an illustration of safety ledges in a stormwater management BMP; and
  - iii. In new stormwater management BMPs, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.

#### D. Variance or Exemption from Safety Standard

A variance or exemption from the safety standards for stormwater management BMPs may be granted only upon a written finding by the municipality that the variance or exemption will not constitute a threat to public safety.

#### E. Safety Ledge Illustration Elevation View –Basin Safety Ledge Configuration

Elevation View –Basin Safety Ledge Configuration



### 4.38.9 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 4.38.9 C below as part of the submission of the application for approval.
2. The applicant shall demonstrate that the project meets the standards set forth in this ordinance.
3. The applicant shall submit 12 copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 4.38.9 C of this ordinance.

#### B. Site Development Stormwater Plan Approval

The applicant's Site Development project shall be reviewed as a part of the review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the municipality's review engineer 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. Submission of Site Development Stormwater Plan The following information shall be required:

1. Topographic Base Map

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. The map as appropriate may indicate the following: 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 surroundings should be submitted. 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, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.

3. Project Description and Site Plans

A map (or maps) at the scale of the 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 will occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification for proposed changes in natural conditions shall 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 4.38.3 through 4.38.5 are being met. 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.

5. Stormwater Management Facilities Map

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

- i. Total area to be disturbed, 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 control and dispose of stormwater.

- ii. 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

- i. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section 4.38.4 of this ordinance.
- ii. When the proposed stormwater management control measures depend on the hydrologic properties of soils or require certain separation from the seasonal high water table, then a soils report shall be submitted. 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.

#### 7. Maintenance and Repair Plan

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

#### 8. Waiver from Submission Requirements

The municipal official or board reviewing an application under this ordinance may, in consultation with the municipality's review engineer, waive submission of any of the requirements in Section 4.38.9 C.1 through 4.38.9 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.

#### **4.38.10 Maintenance and Repair:**

- A. Applicability Projects subject to review as in Section 4.38.1 C of this ordinance shall comply with the requirements of Section 4.38.10 B and 4.38.10 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.
  2. The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). The plan shall contain information on BMP location, design, ownership, maintenance tasks and frequencies, and other details as specified in Chapter 8 of the NJ BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable
  3. If the maintenance plan identifies a person other than the property owner (for example, a developer, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's or entity's agreement to assume this responsibility, or of the owner's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

4. Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project. The individual property owner may be assigned incidental tasks, such as weeding of a green infrastructure BMP, provided the individual agrees to assume these tasks; however, the individual cannot be legally responsible for all of the maintenance required.
5. If the party responsible for maintenance identified under Section 4.38.10 B.3 above is not a public agency, the maintenance plan and any future revisions based on Section 4.38.10 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.
6. Preventative and corrective maintenance shall be performed to maintain the functional parameters (storage volume, infiltration rates, inflow/outflow capacity, etc.) 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 non-vegetated linings.
7. The party responsible for maintenance identified under Section 4.38.10 B.3 above shall perform all of the following requirements:
  - i. 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;
  - ii. evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and
  - iii. retain 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 Section 4.38.10 B.6 and B.7 above.
8. The requirements of Section 4.38.10 B.3 and B.4 do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency, subject to all applicable municipal stormwater general permit conditions, as issued by the Department.

Note: It may be appropriate to delete requirements in the maintenance and repair plan that are not applicable if the ordinance requires the facility to be dedicated to the municipality. If the municipality does not want to take this responsibility, the ordinance should require the posting of a two year maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

Maintenance and inspection guidance can be found on the Department's website at:

[https://www.njstormwater.org/maintenance\\_guidance.htm](https://www.njstormwater.org/maintenance_guidance.htm).

9. 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 municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The municipality, 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 municipality or County may immediately proceed to do so and shall bill the cost thereof to the responsible person. Nonpayment of such bill may result in a lien on the property.

C. Nothing in this subsection 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

#### **4.38.11 Penalties:**

Any person(s) 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:

Any person who shall violate any provision of this chapter shall be liable to a fine of one hundred dollars (\$100.) for the first offense and, for subsequent offenses, a fine of at least one hundred dollars (\$100.) and up to ninety (90) days' community service, on such terms and in such form as the court shall deem appropriate, or any combination thereof.

#### **4.38.12 Severability:**

Each section, subsection, sentence, clause and phrase of this Ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this Ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this Ordinance.

#### **4.38.13 Effective Date:**

This Ordinance shall be in full force and effect from and after its adoption and any publication as required by law.

**LD-4.38.9-SCMD**

**ARTICLE VI FEES would become 4.40**

#### **4.39. Privately-Owned Salt Storage**

##### **A. Purpose:**

The purpose of this ordinance is to prevent stored salt and other solid de-icing materials from being exposed to stormwater. This ordinance establishes requirements for the storage of salt and other solid de-icing materials on properties not owned or operated by the municipality (privately-owned), including residences, in the Borough of Shiloh to protect the environment, public health, safety and welfare, and to prescribe penalties for failure to comply.

##### **B. Definitions:**

For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When consistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word “shall” is always mandatory and not merely directory.

1. “De-icing materials” means any granular or solid material such as melting salt or any other granular solid that assists in the melting of snow.
2. “Impervious surface” means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.
3. “Storm drain inlet” means the point of entry into the storm sewer system.
4. “Permanent structure” means a permanent building or permanent structure that is anchored to a permanent foundation with an impermeable floor, and that is completely roofed and walled (new structures require a door or other means of sealing the access way from wind driven rainfall).

A fabric frame structure is a permanent structure if it meets the following specifications:

- a. Concrete blocks, jersey barriers or other similar material shall be placed around the interior of the structure to protect the side walls during loading and unloading of de-icing materials;
  - b. The design shall prevent stormwater run-on and run through, and the fabric cannot leak;
  - c. The structure shall be erected on an impermeable slab;
  - d. The structure cannot be open sided; and
  - e. The structure shall have a roll up door or other means of sealing the access way from wind driven rainfall.
5. “Person” means any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.
  6. “Resident” means a person who resides on a residential property where de-icing material is stored.

**C. Deicing Material Storage Requirements:**

1. Temporary outdoor storage of de-icing materials in accordance with the requirements below is allowed between October 15<sup>th</sup> and April 15<sup>th</sup>:
  - a. Loose materials shall be placed on a flat, impervious surface in a manner that prevents stormwater run-through;
  - b. Loose materials shall be placed at least 50 feet from surface water bodies, storm drain inlets, ditches and/or other stormwater conveyance channels;
  - c. Loose materials shall be maintained in a cone-shaped storage pile. If loading or unloading activities alter the cone-shape during daily activities, tracked materials shall be swept back into the storage pile, and the storage pile shall be reshaped into a cone after use;
  - d. Loose materials shall be covered as follows:
    1. The cover shall be waterproof, impermeable, and flexible;
    2. The cover shall extend to the base of the pile(s);
    3. The cover shall be free from holes or tears;
    4. The cover shall be secured and weighed down around the perimeter to prevent removal by wind; and
    5. Weight shall be placed on the cover(s) in such a way that minimizes the potential of exposure as materials shift and runoff flows down to the base of the pile.
    6. Sandbags lashed together with rope or cable and placed uniformly over the flexible cover, or poly-cord nets provide a suitable method. Items that can potentially hold water (e.g., old tires) shall not be used;
    7. Containers must be sealed when not in use; and
    8. The site shall be free of all de-icing materials between April 16<sup>th</sup> and October 14<sup>th</sup>.
2. De-icing materials should be stored in a permanent structure if a suitable storage structure is available. For storage of loose de-icing materials in a permanent structure, such storage may be permanent, and thus not restricted to October 15 -April 15.
3. All such temporary and/or permanent deicing material storage structures must also comply with all other local ordinances, including building and zoning regulations.

4. The property owner, or owner of the de-icing materials if different, shall designate a person(s) responsible for operations at the site where these materials are stored outdoors, and who shall document that weekly inspections are conducted to ensure that the conditions of this ordinance are met. Inspection records shall be kept on site and made available to the municipality upon request.
5. Residents who operate businesses from their homes that utilize de-icing materials are required to perform weekly inspections.

**D. Exemptions:**

Residents may store de-icing materials outside in a solid-walled, closed container that prevents precipitation from entering and exiting the container, and which prevents the de-icing materials from leaking or spilling out. Under these circumstances, weekly inspections are not necessary, but repair or replacement of damaged or inadequate containers shall occur within 2 weeks.

If containerized (in bags or buckets) de-icing materials are stored within a permanent structure, they are not subject to the storage and inspection requirements in Section D above. Piles of de-icing materials are not exempt, even if stored in a permanent structure.

This ordinance does not apply to facilities where the stormwater discharges from de-icing material storage activities are regulated under another NJPDES permit.

**E. Enforcement:**

This ordinance shall be enforced by Honor System.

**F. Penalties:**

Any person(s) who is found to be in violation of the provisions of this ordinance shall be subject penalties and fines found in section 6.03.

SECTION 8. All Ordinances or parts of Ordinances inconsistent herewith to the extent of such inconsistencies be and the same are hereby repealed to the extent of such inconsistency.

SECTION 9. This Ordinance shall take effect upon its final passage and publication as required by law. The provisions of this Ordinance shall remain in full force and effect until amended or repealed.

A Public Hearing shall be held on this Ordinance on Tuesday October 8, 2024 at 7:00 pm prevailing time at the Shiloh Borough Municipal Building, 900 Main Street, Shiloh, New Jersey 08353. The public will have an opportunity to make any public comment regarding this ordinance at that time.

This Ordinance introduced for First Reading on Tuesday September 10, 2024, will be published by Title in the South Jersey Times and placed on the Township's Bulletin Board giving notice of said Public Hearing on Tuesday October 8, 2024 as required by Law.

Introduction September 10, 2024 Ayes: Burton, Cruzan, Shivers Nays: none Absent: none

Adoption October 8, 2024 Ayes: Burton, Cruzan, Nays: none Absent: Shivers