



TOWN OF RIDGEFIELD

Planning and Zoning Department

ADOPTED AMENDMENT TO THE ZONING REGULATIONS

Section 7.15 - Stormwater Management and Drainage Requirements

A. PURPOSE AND INTENT

This section is intended to regulate the development and redevelopment of properties in Ridgefield with the goal to maintain post-development peak rate of stormwater runoff to a level that is less than or equal to pre-development conditions, manage quantity of runoff, and improve the water quality of the runoff.

These regulations are intended to protect the public health, safety, and welfare of Ridgefield's residents, to avoid adverse and cumulative impacts to downstream properties and structures, and to protect the integrity of our wetlands and watercourses.

Implementation of these standards, in conjunction with adherence to the standards in Section 7.6 (Erosion and Sedimentation Control) will minimize any unnecessary accelerated erosion and sedimentation, and result in compliance with MS4 requirements, as amended.

B. APPLICABILITY

Within the Town of Ridgefield, any new development or redevelopment, received after the date of adoption, including any earth disturbance (excavation, filling, or grading, etc.), and/or any submissions of any application subject to the review by the Planning and Zoning Commission (e.g., Special Permits and Revisions to Special Permits, Subdivisions, Floodplain Site Plan Applications, etc.), shall be subject to these regulations.

1. Residential Zones:

Unless the project, upon completion, will result in total impervious coverage that is the same or less than the percentage threshold shown in Table 1, stormwater management shall be required. However, stormwater management shall only apply to the area of new impervious coverage. Stormwater management shall be required:

- A. When impervious coverage on a property currently exceeds the threshold shown in Table 1.
- B. When impervious coverage on a property is currently under the percentage threshold shown in Table 1, but completion of the proposed activity would result in exceeding that threshold.

Table 1. Impervious Coverage Thresholds.

Residential Lot Area (square feet)	Impervious Coverage Threshold – Maximum Allowed Without Requiring Stormwater Management Requirements
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Less than 7,500	35% of lot area
7,500-9,999	2,625 plus 5% of lot area in excess of 7,500 sq ft
10,000-19,999	2,750 plus 6% of lot area in excess of 10,000 sq ft
20,000-39,999	3,350 plus 6.5% of lot area in excess of 20,000 sq ft
40,000-79,999	4,650 plus 4% of lot area in excess of 40,000 sq ft
80,000-99,999	6,250 plus 3.5% of lot area in excess of 80,000 sq ft
100,000-199,999	6,950 plus 2% of lot area in excess of 100,000 sq ft
200,000 or More	8,950 plus 1.5% of lot area in excess of 200,000 sq ft

2. Business/Commercial and Multi-Family Dwelling Zones:

Where new impervious coverage is proposed, a stormwater management plan shall be submitted in accordance with this regulation. Stormwater management shall only apply to the area of new impervious coverage.

C. GOALS FOR STORMWATER DRAINAGE DESIGN AND FACILITIES

Proposed stormwater drainage systems shall address the following goals:

- Preserve the pre-development site hydrology;
- Preserve and protect streams, channels, wetlands, water bodies, watercourses and other natural features that provide water quality and quantity benefits, including upland review areas;
- Prevent pollution of drinking water sources, both above ground and below ground (aquifers) by minimizing the discharge of soluble pollutants;
- Prevent pollutants from entering receiving waters and wetlands;
- Preserve undisturbed natural areas from development and minimize grading and clearing of land;
- Avoid compaction of soils and restore the original properties and porosity of the soil. In areas where no improvements are proposed, but there has been, or will be, earth disturbance due to onsite construction, the soils should be loosened to a minimum depth of six (6) inches below grade prior to placing topsoil or final landscaped surface;
- Manage stormwater runoff in a manner that maintains or improves the physical and biological characteristics of existing drainage systems and prevents increases in downstream flooding,

stream bank erosion, and water pollution;

- In accordance with the Connecticut Department of Energy and Environmental Protection General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Water Systems (effective date 07/01/2017, and as amended), consideration of Low Impact Development (“LID”) techniques, Best Management Practices (“BMPs”), runoff reduction site planning and development practices, and non-structural approaches to controlling runoff and water quality, where appropriate;
- On applications where the increase in the area of impervious surfaces exceeds the impervious coverage thresholds in Table 1, or any application adding impervious coverage in any commercial or business zones, ensure that the new peak rate of runoff is less than or equal to the existing condition peak rate of runoff for a 1, 10, and 50-year storm event, based on a 24 hour storm duration;
- Utilize infiltration, where appropriate, to reduce stormwater runoff rate and volume, to improve stormwater quality and to recharge groundwater.

D. STORMWATER TREATMENT GENERAL PROCEDURES AND GUIDELINES

In general, the preferred methods for meeting the objectives of post-construction runoff control include the installation of Site Design Best Management Practices and/or Low Impact Development measures, described below, which can be considered as both stormwater pretreatment facilities and primary treatment facilities, as applicable.

Pretreatment facilities are designed to remove large particles and debris from runoff in order to prevent clogging and minimize maintenance of any downstream primary treatment facility.

Primary treatment facilities are designed to capture and treat the design water quality volume (WQV) or the design water quality flow (WQF) in accordance with the design procedures contained in the Connecticut Stormwater Quality Manual, as amended, and address the Goals and Guidelines set forth in these regulations.

Site Design Best Management Practices (BMPs). Site design BMPs are techniques and facilities that can be used to reduce the quantity of runoff, and to treat runoff in order to reduce the level of pollutants. Preferred site design techniques include minimizing impervious areas and retaining native vegetation. Site design BMPs include roof downspout infiltration systems, drywells and the utilization of pervious surfaces where appropriate. Preferably, runoff storage and treatment measures shall be spread throughout the site rather than being placed at a single stormwater collection point (end-of-pipe structure).

Low Impact Development (LID). A site design strategy intended to maintain or replicate pre-development hydrology through the use of small-scale controls integrated throughout the site to manage runoff as close to its source as possible. This involves strategic placement of lot-level controls to reduce runoff volume and pollutant loads through infiltration, evapotranspiration, and reuse of stormwater runoff. Small-scale LID practices include, but are not limited to, the use of vegetated swales, buffers, and filter strips, bioretention facilities and rain gardens, dry wells, subsurface chambers, and infiltration trenches, rainwater harvesting, vegetated roof covers (green roofs), and pervious surfaces. The main feature that distinguishes these practices from conventional structural stormwater controls is scale. These small

systems are typically designed as off-line systems that accept runoff from a single residential lot or portions of a lot, as opposed to large multiple-lot or end-of-pipe controls.

E. STORMWATER MANAGEMENT REQUIREMENTS

1. Application Submission

Proposed stormwater drainage systems shall be shown on a stamped and signed site plan prepared by a Connecticut licensed professional engineer, using current engineering practices, and shall be designed to create post-development runoff that is less than or equal to existing conditions. Plans shall incorporate BMPs, LID, and/or other Stormwater Treatment General Procedures to manage the quantity of stormwater and to treat the quality of stormwater in order to comply with the Goals for Stormwater Drainage Design and Facilities. Application submissions shall include calculations and documentation to support and identify the methods used in the design of the stormwater management and drainage facilities, and compliance with the Connecticut Stormwater Quality Manual, as amended.

Any application submission subject to these regulations shall be accompanied by a written narrative describing the proposed project, and the following stormwater management requirements shall be included and/or addressed in documentation, plans, and details:

- A. An analysis performed in accordance with the Connecticut Stormwater Quality Manual, providing a comparison of the pre-development conditions with the proposed post-development conditions;
- B. Attenuation of the post-development peak runoff rate;
- C. All drainage/conveyance systems, whether structural or non-structural, shall be analyzed, designed and constructed to accommodate existing upstream off-site runoff and developed on-site runoff (post-development);
- D. Provisions for the treatment of surface runoff in order to minimize the discharge of pollutants into existing conveyance systems, wetlands, watercourses, and water bodies;
- E. Measures to control soil erosion and sedimentation during construction and post-development in accordance with Section 7.6 in these regulations;
- F. Pretreatment of runoff prior to discharging to the site's primary stormwater treatment facility or to any infiltration facility. If a pretreatment facility is used, primary treatment shall also be required;
- G. Primary treatment of stormwater runoff at all points where stormwater discharges from the site into an existing stormwater conveyance system, wetland, or watercourse; and
- H. All stormwater conveyance systems, storm sewer systems, surface drainage systems, detention systems, swales, channels, and similar facilities shall be appropriate for the site and shall be designed in accordance with current engineering practices, addressing the goals and requirements in these regulations.

Submission of a Stormwater Maintenance and Drainage System Agreement and Plan shall accompany all applications when required by these regulations.

Maintenance of all proposed stormwater drainage systems/facilities not dedicated to the Town shall be the sole responsibility of the property owner or property association. A Stormwater Management Maintenance Agreement must be submitted.

Detention systems not dedicated to the Town require an operation and maintenance schedule/plan that addresses items of routine maintenance, frequency of maintenance, the party responsible for maintenance, accessibility for town inspection, and an emergency operation plan outlined in a document that must be filed as an agreement with the Town prior to the issuance of any Zoning Certificate of Compliance for the development.

2. Stormwater Quality

All development subject to these regulations shall include provisions for the treatment of stormwater runoff in order to minimize the transport of pollutants into existing conveyance systems, wetlands, watercourses, water bodies, and into the groundwater, in accordance with the Town of Ridgefield's policy to comply with the National Pollutant Discharge Elimination System (NPDES) Permit Phase II Requirements for Post-Construction Runoff Control. The Commission or its Agent may require a post-development pollutant renovation analysis for business or commercial site development, where warranted by the proposed use and potential for pollutant runoff.

Specifically, all stormwater management facilities including, but not limited to, stormwater conveyance systems, storm sewer systems, surface drainage systems, detention systems, drainage swales and channels shall be designed to:

- A. Remove at least 80% of the average total suspended solids (TSS) load;
- B. Remove all oils, greases and vehicle fluids from the post development runoff, prior to the runoff leaving the site, to the maximum extent possible;
- C. Incorporate stormwater management practices that mitigate potential increases in the temperature of runoff.

Water quality volume shall be calculated based on the precipitation depth of 1.5 inches.

The use of pervious surfaces, as defined in Section 2.2, is encouraged, and the amount of coverage required to be managed, in accordance with this regulation, shall be reduced by 50% of the area of new pervious surface, provided the plan prepared by a Connecticut licensed professional engineer is acceptable.

3. Stormwater Quantity / Peak Runoff Attenuation

All development subject to these regulations shall attenuate the post-development peak runoff rate. Peak runoff attenuation can be accomplished by limiting impervious coverage, increasing travel times, utilizing pervious pavers and pavements, introducing groundwater recharge, constructing stormwater detention facilities or other approved methods.

The following standards shall be applied in designing for peak rate attenuation:

- A. Increases in peak runoff must be attenuated for the 1, 10, and 50-year storms, based on data for 24-hour storm duration, upon certification from a Connecticut licensed engineer. The

Commission or local review authority may waive the peak runoff attenuation criterion for sites that discharge to a large river (fourth order or greater) or lake where the development area is less than 5 percent of the watershed area upstream of the development site;

- B. Rainfall data (Point Precipitation Frequency Estimates) for Ridgefield Connecticut shall be obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14: (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html);
- C. Additional attenuation may be required where the development is in close proximity to designated Special Flood Hazard Areas, designated on Federal Flood Insurance Rate Maps for the Town of Ridgefield, where the cumulative impact of the development has the potential to adversely affect downstream developed properties, or the Commission determines that additional attenuation for the 100-year storm may be required.

F. OTHER APPROVALS MAY BE REQUIRED

An approval under this Section does not relieve any person from having to obtain other permit approvals that may be required, including:

- 1. A regulated activity in a wetland or watercourse area;
- 2. An activity within a floodplain area; or
- 3. An activity regulated by a local, state, or federal agency.

G. REFERENCES FOR DESIGN

The analysis and design of drainage and stormwater management systems shall utilize the latest versions of the following publications, where applicable:

- 1. State of Connecticut Department of Transportation (CONNDOT) Drainage Manual;
- 2. U.S. Soil Conservation Service TR-55 Manual;
- 3. U.S. Soil Conservation Service TR-20 Manual;
- 4. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (DEP Bulletin 34);
- 5. 2004 Connecticut Stormwater Quality Manual, including the Low Impact Development Appendix to the Manual (2011)