Town of Southampton - Green Infrastructure Regulatory Review

TO: Randall Kemp, Town of Southampton Highway Superintendent

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Background

Section 2.3.6.c. of the United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (referred to herein as "2016 Small MS4 General Permit") requires permittees to develop a report assessing existing local regulations to determine the feasibility of making, at a minimum, the following practices allowable when appropriate site conditions exist:

i. Green roofs

ii. Infiltration practices such as rain gardens, curb extensions, planter gardens, porous and pervious pavements, and other designs to manage stormwater using landscaping and structured or augmented soils

iii. Water harvesting devices such as rain barrels and cisterns, and the use of stormwater for non-potable uses

The following memorandum evaluates whether green infrastructure practices are allowable under appropriate site conditions in the Town of Southampton's existing bylaws and regulations, under what circumstances they are allowed, and an evaluation of barriers to use in these practices. The memo also includes a summary of recommendations for potential changes in local bylaws and regulations to make green infrastructure practices allowable, and a schedule for implementation.

Review of Existing Bylaws and Regulations

The following existing bylaws and regulations of the Town of Southampton were assessed with regard to whether green infrastructure practices such as green roofs, infiltration practices, and water harvesting devices are allowed where feasible:

- Town of Southampton General Bylaws (as revised March 15, 2018)
- Town of Southampton Zoning Bylaws (as revised March 15, 2018)
- Rules and Regulations Governing the Subdivision of Land (as revised March 4, 2015)
- Ground Water Protection Regulation Southampton Board of Health (adopted September 13, 2005)
- Stormwater Management & Erosion and Sediment Control Bylaw and Stormwater Management & Erosion and Sediment Control Regulations (from Section XIV of the Zoning Bylaw, proposed revisions as of June 17, 2020 and approved at Annual Town Meeting on June 13, 2021)

Town of Southampton General Bylaws

There are no explicit references within the Town of Southampton General bylaws to green infrastructure, low impact development (LID), green roofs, porous/pervious pavement, water harvesting devices such as rain barrels or cisterns, non-potable use of stormwater, or allowance of features such as rain gardens.

Town of Southampton Zoning Bylaw

The Town of Southampton Zoning Bylaw is intended to give direction or effect to the land development policies and proposals of the Planning Board including the making of Southampton a viable and pleasing place to live, work, and play. The Zoning Bylaw regulates development within the Town, including identifying allowed uses and dimensional requirements for each zoning district.

Relevant stormwater references within the Zoning Bylaw relative to the potential use of or barriers to use of green infrastructure include the following sections:

- Section XIII, Wireless Communications Facility By-law, F. Site Criteria:
    3. Stormwater run-off as a result of the wireless facility finished construction shall be contained on-site.

- Section XIV, Existing Erosion and Sediment Control for Stormwater Management Bylaw, H. Stormwater Management Performance Standards:
    1. Minimum Control Measures
        c. Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable.
    2. Stormwater Management Measures
        a. Stormwater management measures shall be required to satisfy the minimum control requirements and shall be according to the following order of preference:
            (1) Infiltration, flow attenuation, and pollutant removal of runoff on-site to existing areas with grass, trees, and similar vegetation and through the use of open vegetated swales and natural depressions.
        b. Infiltration practices shall be utilized to reduce runoff volume increases. A combination of successive practices may be used to achieve the applicable minimum control requirements. Justification shall be provided by the applicant for rejecting each practice based on site conditions.
    3. Specific Design Criteria
        c. The applicant shall give consideration in any plan to incorporating the use of natural topography and land cover such as natural swales, and depressions as they exist prior to development to the degree that they can accommodate the additional flow of water.
        d. The Planning Board shall give preference to the use of swales in place of the traditional use of curbs and gutters based on a case by case review of stormwater management plans by the Highway Department.

The Zoning Bylaw incorporates language promoting infiltration and use of existing drainage patterns and vegetation. However, there are no explicit references within the Town of Southampton Zoning bylaw to green infrastructure, LID, green roofs, porous/pervious

pavement, water harvesting devices such as rain barrels or cisterns, non-potable use of stormwater, or allowance of features such as rain gardens.

Rules and Regulations Governing the Subdivision of Land

The most recent revision (February 2015) of the Rules and Regulations for the Submission of Petitions and Plans of Subdivision for the Town of Southampton, Massachusetts (Subdivision Rules and Regulations) set forward street layout and design standards that regulate the location, alignment, intersections, drainage, widths, and access of the streets of Southampton.

Relevant stormwater references within the Subdivision Rules and Regulations are contained within Section 4.0 Procedure for Submission and Review of Plans under subsection 4.3.3 outlining the required contents of the Definitive Plan:

- Wherever possible the proposed drainage system shall be designed to utilize, and be compatible with, the existing drainage patterns and existing natural features of the site
- Detention ponds shall be utilized wherever possible, although other methods will be entertained where detention ponds are determined, by the Board, not to be feasible

Section 5, Design Standards, subsection 5.5 also references compliance with the Town of Southampton Stormwater Management Bylaw.

The Subdivision Rules and Regulations contain no direct references to green infrastructure, LID, green roofs, porous/pervious pavement, water harvesting devices such as rain barrels or cisterns, non-potable use of stormwater, or allowance of features such as rain gardens.

Ground Water Protection Regulation Southampton Board of Health

The Ground Water Protection Regulation of the Southampton Board of Health applies to all applicable facilities within the water supply wellhead protection areas referred to as Zone IIs (areas of an aquifer which contribute water to a well under the most severe pumping conditions that can be realistically anticipated) and/or Interim Wellhead Protection Areas (IWPAs, applied by MassDEP for public water supply wells that do not have an approved Zone II) and watershed areas as mapped on the 2005 "Southampton Massachusetts Water Resource Map".

Per the Ground Water Protection Regulation, land uses that result in impervious cover, of any lot or parcel, more than 15% of the lot area or 2,500 feet (whichever is greater) are prohibited in Zone II and IWPA, unless a system of artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality. The Ground Water Protection Regulation does not provide guidance or recommendations regarding potential methods for artificial recharge of precipitation, and does not contain explicit references to green infrastructure, LID, green roofs, porous/pervious pavement, water harvesting devices such as rain barrels or cisterns, non-potable use of stormwater, or allowance of features such as rain gardens.

Revised Stormwater Management & Erosion and Sediment Control Bylaw and Regulations

Revisions to the Stormwater Management & Erosion and Sediment Control Bylaw and associated Regulations as approved at Annual Town Meeting on June 13, 2021 for compliance with the requirements of the 2016 Small MS4 General Permit include the addition of a definition of LID, which includes specific references to bioretention, swales, porous pavement, cisterns, and green roofs.

The Regulations now include a recommendation for a pre-application meeting between applicants and the Planning Board, which will provide an opportunity for the Planning Board to discuss feasible LID approaches to stormwater management on-site.

Section H of the revised Regulations includes a section outlining requirements relative to Low Impact Development Strategies that states, "All projects subject to these Regulations must use Low Impact Development (LID) strategies to the maximum extent practicable in order to reduce runoff from both new and redevelopment projects. If full compliance is not provided, an applicant must document why key steps in the process could not be met and what is proposed for mitigation."

Relevant requirements related to the analysis of LID strategies include:

- Identifying, mapping, and preserving the site's natural features and environmentally sensitive areas to the greatest extent possible.
- Delineating potential building envelopes, avoiding environmental resource areas and appropriate buffers by clustering buildings and reducing building footprints.
- Minimizing impervious surfaces and protecting and preserving open space.
- Reducing impervious surfaces wherever possible through alternative street design, such as omission of curbs and use of narrower streets, shared driveways, and through use of shared parking areas where allowed by the Zoning Bylaw;
- Integrating the following techniques into the site design to create a hydrologically functional lot or development site, based on soil, groundwater level, and topographic conditions:
    - Reduction of impervious surface
    - On-site infiltration, flow attenuation, and pollutant removal of runoff on-site to existing areas with grass, trees, and similar vegetation and through the use of open vegetated swales and natural depressions, and amended soils that will store, filter, and infiltrate runoff
    - Bioretention (rain gardens)
    - Open vegetated swales and natural depressions
    - Use of permeable pavement;
    - Use of roof gardens where practicable;
    - Re-use of stormwater to replace water used for irrigation, toilet flushing, or industrial processes.

Recommendations and Next Steps

Southampton's recent amendments to Bylaws and Regulations have incorporated language regarding LID practices, infiltration, and using existing drainage patterns and vegetation. Opportunities and suggestions to enhance green infrastructure and LID standards for potential addition to Town bylaws and rules and regulations are provided below.

Zoning Bylaw and Site Plan Review Standards

Dimensional Requirements:

- Permit the location of bioretention areas, rain gardens, filter strips, swales, and constructed wetlands in required setback areas and in buffer strips when feasible based on site-specific conditions such as depth to groundwater table and slope.

- In rural, low-density areas, establish limits on impervious lot coverage (e.g., 15%) and permit use of pervious or porous pavement for off-street parking areas and sidewalks. Limiting impervious lot coverage is not appropriate for town centers, transit-oriented districts, and moderate density neighborhoods, where compact development should be encouraged.
- Bylaw should establish regulatory controls over tree clearance and removal of mature trees/forest stands.

Open Space Developments:

- Permit cluster residential developments (open space development or conservation subdivision design) as a "by right" form of development (no special permit required.) Permit flexible site design criteria such as reduced setbacks and smaller lot sizes.
- Permit construction of LID stormwater management techniques (e.g., bioretention, swales, filter strips) on land held in common.

Parking Requirements:

- Permit use of permeable paving for parking stalls and spillover parking areas.
- Establish landscaping requirements for parking areas that include vegetated islands with bioretention functions.

Site Plan Requirements

- Allow bioretention areas, filter strips, swales, and constructed wetlands to count towards fulfillment of site landscaping/open space requirements.
- Permit use of pervious material for single family driveways (porous pavers, paving stones, pervious asphalt or concrete), and/or use of 'two-track' design for residential driveways.
- Allow discharge of uncontaminated rooftop runoff to lawn areas and buffers, with level spreader or other velocity reduction mechnaism.
- Allow temporary (72 hour) ponding of stormwater prior to infiltration.
- Consider allowing use of harvested rainwater and stormwater for non-potable uses, such as lawn watering.

Subdivision Rules and Regulations/Roadway Design Standards

Street Cross Sections

- Permit use of permeable paving for road shoulders/parking lanes in residential neighborhoods.
- Sidewalks should be designed so that the runoff is disconnected from the stormwater system (e.g., place a green strip).

Site Work

- Require contractors to re-establish permeability of soils that have been compacted by construction vehicles. For example, contractor can rototill lawn areas prior to seeding to re-establish void space (hence permeability and infiltration) of the soils.

Dead Ends

- Allow the creation of landscaped island (and bioretention cells or rain gardens) within cul-de-sacs.

Board of Health/Highway Department/Building Inspector

- Determine if local building codes prohibit use of permeable paving, narrow driveways, green roofs, and other LID techniques.

- Local plumbing codes should permit the use of harvested rainwater for interior non-potable uses such as toilet flushing.
- Consider revising the Ground Water Protection Regulation to incorporate more design guidance relative to articifical recharge of precipitation.
- Provide opportunities for staff participation in LID workshops or conferences.
- Implement an LID or green infrastructure demonstration project on Town-owned property.
- Coordinate with the Pioneer Valley Planning Commission (PVPC) Connecticut River Stormwater Committee to develop and distribute public education materials regarding design, uses, and approprite site conditions for green infrastructure such as rain gardens and porous pavement.
- Participate in a rain barrel sale and distribution program such as those offered by the Great American Rain Barrel company (https://www.greatamericanrainbarrel.com/).

A joint meeting of relevant boards and commissions is recommended, including the Conservation Commission, Highway Department, Planning Board, Board of Health, and Selectboard, to discuss public education opportunities related to green infrastructure, such as development of outreach materials or installation of a demonstration project like a rain garden with educational signage, and potential revisions to bylaws and rules and regulations to incorporate language defining green infrastructure and site conditions under which the use of green infrastructure would be allowable. The joint meeting should also include development of a schedule of implementation of proposed revisions and recommended actions.

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