

Town of Windham
Env. & Sustainability Department

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Holliday Keen
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

RE: Draft Model Ordinance in Compliance with Requirements of the Final MEPDES Permit Modification (MER041000) and Town of Windham Stormwater Management Plan - Measurable Goal 5.2a

Dear Ms. Keen,

In compliance with Town of Windham's Stormwater Management Plan Measurable Goal 5.2a, the Town is submitting the attached evaluation of current standards & ordinance language in place that achieve the LID Measures contained in Table 1 of Appendix F of the Permit Modification. The Town of Windham has robust land use regulations that include requirements for stormwater management that exceed the MS4 requirements both in geographic area and developed area. (Urbanized area is 30.12% of Windham. Site plan review [Chapter 120 Land Use - Article 8] is required in all town for non-residential development >1,000 sq ft gross floor area, or 25,000 sf of disturbance). Also, Chapter 201 Stormwater Management - Article I has stormwater standards that achieve LID Measures for activities that do not require site plan or subdivision review.

Additionally, the Town proposes to adopt the language/concepts listed in the 'Amendments / Additional Performance Standards' section in the attached table into the Town's land use ordinance to further comply with the MEPDES Permit.

If you have any questions regarding this submission, please do not hesitate to contact the Town.

Sincerely,

Gretchen Anderson

Gretchen Anderson
Environmental & Sustainability Coordinator

Cc: Barry Tibbetts, Town Manager
Robert Burns, Assistant Town Manager
Amanda Lessard, Planning Director
Steve Puleo, Town Planner
Mark Arienti, Town Engineer

LID Measure ¹	Example Technique ¹	Current Town Compliance	Amendments / Additional Performance Standards
Minimize Site Clearing	<ul style="list-style-type: none"> Promote compact development on the site. Place parking underneath or inside structures. Avoid developing in areas with high-permeable soils to retain natural filtration. Align development layout with conservation of sensitive areas. 	<ul style="list-style-type: none"> §120-541 Net residential area or acreage: The performance standard requires subtraction from the gross acreage of the lot such as “very poorly drained” soil and boundaries of areas containing significant wildlife habitat etc. §120-911K Conservation subdivisions: Set aside a significant portion of the site as open space that is permanently protected while allowing the homes to be grouped on smaller lots on the portions of the site. §120-911E(1)(a) Preservation of natural beauty and aesthetics: Not allow the clearing of trees in areas where tree cover is depicted on the plan for a period of at least five years from the date of Planning Board approval. Mandatory buffers for stormwater or other reasons depicted on the plan shall not be cleared of vegetation unless the Planning Board grants an amendment to the subdivision or for maintenance that does not alter the purpose for which the buffer was required. 	<ul style="list-style-type: none"> Amend §120-811(2)(h) and §120-910 Submission requirement: “Construction documents shall depict limits of disturbance”. Amend §120-812E or F, §120-911J or C: “Limits of disturbance shall be established on-site prior to disturbance using flagging, fencing, signs or other means to provide a clear indication”. Amend §120-911E to replace no tree clearing in 5 years to no alteration of vegetation outside of disturbed area limits.
Protect Natural Drainage System	<ul style="list-style-type: none"> Maintain a minimum 25-foot buffer on all natural water resources including intermittent channels. Do not divert stormwater from its natural sub-watershed. 	<ul style="list-style-type: none"> §120-812A Utilization of the site: The plan for the development shall reflect the natural capabilities of the site to support development. Buildings, lots, and support facilities shall be clustered in those portions of the site that have the most suitable conditions for development. Chapter 185 Shoreland Zoning: To protect freshwater wetlands; to control building sites, placement of structures and land uses. §120-910A(2)(j)[7] Subdivision Submission Requirements (natural features) §120-81A(2)(h)[5] Site Plan Submission Requirements (natural features) §120-911K Conservation subdivision primary conservation areas included in open space, building envelopes 100 or 50 ft from resource 	<ul style="list-style-type: none"> Amend §120-812E & §120-911J: Stream Crossings for Waters of the State shall use Maine Stream Smart Principles to preserve natural pre-development drainage pathways.
Minimize the Decrease in Time of Concentration	<ul style="list-style-type: none"> Break up or disconnect the flow of runoff over impervious surfaces. Sheet flow over pavement that is less than 100 feet. 	<ul style="list-style-type: none"> §201-11 Stormwater runoff: Construction: The development shall minimize stormwater runoff from the site in excess of the natural predevelopment conditions. 	<ul style="list-style-type: none"> Amend §120-812E & §120-911J to require LID BMPs as identified in Maine DEP Stormwater Best Management Practices Manual, Volume III, Chapter 10 (LID Design Practices & Techniques)
Minimize Impervious Area or the Effect of Impervious Area	<ul style="list-style-type: none"> Build vertically with multi-story buildings and parking garages. More than 25% of pavement area (overflow) in pervious pavement. All pedestrian walkways are pavers or pervious pavement. Runoff from paved surfaces should be directed to stabilized, vegetated areas. Disperse LID techniques throughout development and incorporate into the landscaping. Infiltrate as much roof runoff as standards allow. Minimize the use of paved areas (sidewalks, driveways, and streets). Minimize the use of hardscaped areas. 	<ul style="list-style-type: none"> §120-414E(8) Enterprise Development (ED) District: Max impervious area 75%. §120-417E(2) Aquifer Protection Overlay District Zone B (APB): Nonresidential max impervious area 50%. §120-410E(7) Commercial I (C1) District: No height limit §120-812C(2) No minimum off-street parking requirement §120 - Article 4 Conservation Subdivision (required in F/FR) allows reduction in road frontage/length of road §120-301 Sidewalk Definition: A paved way for pedestrian traffic which is constructed parallel to a road. §120 Attachment 2 Appendix B Street (sidewalk) Design and Construction Standards: §120-511C Buffer strip, Landscaped: The buffer strip may be interrupted/crossed by driveways, access roads or pedestrian-ways, but shall otherwise be maintained in a landscaped state. May include Low-impact development (LID) systems as identified in the September 21, 2007, report, “LID Guidance Manual for Maine Communities,” as amended. §201-7 Parking areas and driveways: Parking areas shall be adequately sized for the proposed use and shall be designed to prevent stormwater runoff from flowing directly into a water body. §201-8 Roadway drainage: Road surface drainage which is directed to an unscarified buffer strip shall be diffused or spread out to promote infiltration. §120-813C(5) Snow Storage Areas designated. Required C1, C2, C3 and VC 	<ul style="list-style-type: none"> Strike §120-813B(8) (Commercial District Design Standards: Optional in C1, C2, C3, and VC) and amend §120-812E to require LID BMPs as identified in Maine DEP Stormwater Best Management Practices Manual, Volume III, Chapter 10 (LID Design Practices & Techniques) Amend §120-555D(8) & §120-911M to include LID BMPs in the street standards. Amend §120-812 and §120-911 to include the requirement: “the location of snow storage areas in Stormwater Treatment Measures and Shoreland Zoning Setback Buffers shall be prohibited.”

¹ The first & second columns are from Table 1 in Appendix F of the [MS4 Stormwater Permit Modification](#). Both the ‘Amendments / Additional Performance Standards’ column will be incorporated into the Town’s Code.

LID Measure ¹	Example Technique ¹	Current Town Compliance	Amendments / Additional Performance Standards
		<ul style="list-style-type: none"> • §120-813B(7) Parking Lot Landscaping. Optional C1, C2, C3 and VC 	
Minimize Soil Compaction	<ul style="list-style-type: none"> • Minimize the construction window and target the development area. • Rototilling all areas to be revegetated. 	<ul style="list-style-type: none"> • §120-911K(3)(b) Conservation Subdivision Open Space Design: Open space should be a part of a larger contiguous and integrated open space in the parcel. Natural features should be maintained. Open space shall be marked. 	<ul style="list-style-type: none"> • Amend §120-911C & §120-812F to incorporate soil reclamation standards. • Amend §120-911C & §120-812F to include the requirement “Construction equipment movement, laydown areas and parking shall be restricted to the disturbed area.” • Amend §120-812 & §120-911 to include narrative on where construction equipment will be located on site.
		<ul style="list-style-type: none"> • §120-911K(c) Location of Building Sites: Location of the building site proposed open space and/or the primary and secondary conservation areas. 	
Minimize Lawns and Maximize Landscaping that Encourages Runoff Retention	<ul style="list-style-type: none"> • Low maintenance Maine Native plants. • No invasive plants. • Limit the use of pesticides and biocides. • Fertilizer application only during initial planting and repair of damaged areas. 	<ul style="list-style-type: none"> • §120-406F(9)(b)[1] Farm (F) District standard; landscape buffer yard design and materials: Existing native plant material. The use of existing plant material is strongly encouraged in landscape buffer yards. Existing natural ground cover should be retained where possible by avoiding scraping, grading, and sodding within the landscape buffer yard. Where the planting requirements require additional trees or shrubs to be installed in an existing natural area, installation should minimize disturbance to native species. 	<ul style="list-style-type: none"> • Amend §120-500, 800, 900 to add language: “prohibit runoff from being discharged into water bodies and discharge roadway drainage in a manner that to diffuses and spreads it out to promote infiltration.” • Amend §120-813C Landscaping Plant Variety, Suitability standards to include the techniques from table 10.2 in Maine DEP Stormwater Best Management Practices Manual, Volume III, Chapter 10 (LID Design Practices & Techniques).
		<ul style="list-style-type: none"> • §120-407F(8)(b)[1] Farm-Residential (FR) District Standard; landscape buffer yard design and materials. 	
		<ul style="list-style-type: none"> • §120-911J Stormwater Management: All development is included in stormwater management plan (no exclusions of lots to be developed by others). 	
Provide Vegetated Open-Channel Conveyance Systems	<ul style="list-style-type: none"> • Evaluate road gutters and roof gutters to determine effective means to direct runoff to treatment BMPs. • Level spreaders to buffers where possible. • Underdrained swales. 	<ul style="list-style-type: none"> • §181-25A & B Stormwater and unpolluted drainage: No person(s) shall discharge or cause to be discharged any polluted waters such as stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary sewer. Stormwater and all other unpolluted drainage shall be discharged to storm drains or to natural outlets approved by the Superintendent... 	<ul style="list-style-type: none"> • Amend §120-812E & §120-911J to reference to Maine DEP Stormwater Best Management Practices Manual, Volume III, Chapter 10 (LID Design Practices & Techniques) and require different LID stormwater treatment measure types.
		<ul style="list-style-type: none"> • Chapter 201 - Article I Surface Water Protection Applicability: All activities which involve filling, grading, excavation, or other similar activities which result in unstabilized soil conditions, and a permit shall be required and a written soil erosion and sedimentation control plan. 	
		<ul style="list-style-type: none"> • Chapter 201 – Article II Post-Construction Stormwater Management: The article applies to all new development and redevelopment within the urbanized area that discharges stormwater to the municipality's MS4 and to associated stormwater management facilities. 	
Rainwater Capture and Reuse	<ul style="list-style-type: none"> • Rain Collection Cisterns 		<ul style="list-style-type: none"> • Amend §120-813 to include as an optional standard: “the implementation of precipitation storage (e.g., cisterns or rain barrels) for later reuse for landscaping.”
Stormwater Quality Treatment and Retention Requirements	<ul style="list-style-type: none"> • Buffers • Infiltration (basins, trenches, dry wells, etc.) • Underdrained grass filters • Underdrained filter bioretention • Roofline filtration • Roof Greening • Pervious Pavement 	<ul style="list-style-type: none"> • §120-511E(1) Buffer strip, landscaped: ... The following stormwater infrastructure shall be allowed within the landscaped buffer strip: Low Impact Development (LID) systems as identified in the September 21, 2007, report, “LID Guidance Manual for Maine Communities,” as amended. 	<ul style="list-style-type: none"> • Amend §120-812E & §120-911J to reference to Maine DEP Stormwater Best Management Practices Manual, Volume III, Chapter 10 (LID Design Practices & Techniques) and require appropriate LID stormwater treatment measure types.
		<ul style="list-style-type: none"> • §120-812E(1)(a) Stormwater Management 	

Other Amendments:

- Amend [§120-802](#) to not exempt some activities that otherwise are in the urbanized area that will disturb > 1 acre.
- Add the following definitions to [Chapter 120 – Article 3](#):
 - **Best Management Practice (BMP)** - Means the same as “BMP” defined in Maine Stormwater BMP Manual, Volume I. “A BMP is a structure or Practice designed to minimize the flushing by stormwater and the discharge of pollutants to waterbodies by temporarily storing and treating urban runoff.”
 - **Discharge** - Means any spilling, leaking, pumping, pouring, emptying, dumping, disposing or other addition of pollutants to the Waters of the State, other than groundwater.

- **Disturbed Area** - Means all land areas of a Site that are stripped, graded, grubbed, filled, or excavated at any time during the site preparation or removing vegetation for, or construction of, a Project. Cutting of trees, without grubbing, stump removal, disturbance, or exposure of soil is not considered Disturbed Area. Disturbed Area does not include routine maintenance but does include Redevelopment and new Impervious Areas. "Routine maintenance" is maintenance performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility. Paving impervious gravel surfaces provided that an applicant or permittee can prove the original line and grade and hydraulic capacity shall be maintained and original purpose of the gravel surface remains the same is considered routine maintenance. Replacement of a building is not considered routine maintenance of the building and is therefore considered Disturbed Area.
- **Drainageway** – Means the same as "Drainageway" defined in Chapter 500
- **High Intensity Soil Survey** – Means a Class A survey defined by the March 2009 Guidelines for Maine Certified Soil Scientist for Soil Identification and Mapping, prepared by the Maine Association of Professional Soil Scientists.
- **High Permeability Soils** – Means hydrologic soil groups A or B as determined by on-site soil testing by a certified soil scientist using a High Intensity Soil Survey.
- **Low Impact Development (LID)** - Means a broad approach to site planning that preserves natural resources, processes, and habitat, defines what portions of the Site are suitable for development and then utilizes Stormwater Treatment Measures to manage Runoff from the proposed developed impervious areas. In LID, Stormwater Treatment Measures using natural processes such as vegetated buffers are given preference over constructed treatment Stormwater Treatment Measures. The goals of LID are to minimize the environmental impacts of the development.
- **Maine Native Vegetation** – Means vegetation including grass seed mixtures, identified as native to Maine from lists maintained by: US Department of Agriculture Hardiness Zones by the Maine Cooperative Extension, Wild Seed Project, Regional Soil and Water Conservation District, Maine YardScaping Program, or a Maine Licensed Landscape Architect.
- **Protected Natural Resource** - Means coastal sand dunes, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, community public water system primary protection areas, great ponds, or rivers, streams or brooks as defined in the Natural Resources Protection Act at 38 M.R.S. §480-B.
- **Stream Crossing designed in accordance with Maine Stream Smart Principles** – Means a Stream Crossing designed by a Maine Professional Engineer who has completed the Maine Audubon Society Stream Smart Workshops (Parts I and II), which includes the standards recommended by that program's stream span, elevation, slope and skew and substrate to promote passage of fish and other organisms and to limit road-damaging flows from extreme weather.
- **Stormwater Treatment Measure** – Means a Stormwater management system or innovative treatment measure as described in Chapter 500 4.c.(3) Types of treatment measures allowed. These measures include wet ponds, vegetated soil filters, infiltration, buffers, or innovative treatment measures. For purposes of this Ordinance these are cumulatively referred to as Stormwater Treatment Measures, or individually referred to as Stormwater Treatment Wet Pond, Stormwater Treatment Vegetated Soil Filter, Stormwater Treatment Infiltration Measure, Stormwater Treatment Buffer, or Stormwater Treatment Innovative Measure.
- **Urbanized Area** – Means the areas of the Municipality so defined by the inclusive sum of the 2000 and 2010 decennial census by the U.S. Census Bureau.
- Amend the following definitions in [Chapter 120 – Article 3](#) to the following:
 - **Impervious Area** - ~~The ratio of the horizontal area of all impervious surfaces on a lot to the total lot area.~~ Means the total area of a Parcel covered with a low-permeability material that is highly resistant to infiltration by water, such as asphalt, concrete, or rooftop, and areas such as gravel roads and unpaved parking areas that will be compacted through design or use to reduce their permeability. Common Impervious Areas include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and macadam or other surfaces which similarly impede the natural infiltration of stormwater. Pervious pavement, pervious pavers, pervious concrete, and under drained artificial turf fields are all considered impervious. For the purpose of determining whether a Site exceeds the Impervious Area thresholds requiring conformance to LID performance standards, the municipality may exclude these from calculation of Impervious Area if these are designed to be infiltration Stormwater Treatment Measures.