

Phosphorous Buffer Restoration Plan of 3 Escott Way, Naples, Maine

Location & Owners:

Joanne C. Jordan, Project at 27 Property Escott Way, Naples, Maine

TOWN OF NAPLES TAX MAP R-7 LOT 38-7

Cumberland County Registry References:

Town listed reference: Deed Book 28398, Page 289

Nadeau Survey MLI reference: Deed Book 28445, Page 237 (Refer to Exhibit A for Deed)

'OLD SONGO LOCKS ESTATES' SUBDIVISION - LOT 7

Cumberland Registry Plan Book 204 Page 231 (See Exhibit B for Subdivision Plan)

Proposed 'Phosphorus Buffer Restoration Plan':

- This a 'Phosphorus Buffer Restoration Plan' presented by Joanne C. Jordan, Owner and developer of 27 Escott Way in Naples. The new home constructed for sale on the lot by Ms. Jordan was built into the original subdivision plan approved Phosphorus Buffer area designated on this lot.
- The Naples Planning Board on 4/6/2004 approved the 'Old Songo Locks Estates' Stormwater Control Plan. It designated an allowable 10,000 sq. ft. building envelope on each subdivision lot and a designated phosphorus buffer line. *(See Exhibit B Subdivision Plan)*
- The Owner was aware of the Building Envelope and the Phosphorus Buffer requirement. The problem resulted when the construction contractor failed to adhere to her site instructions about this buffer requirement resulting in the impact back of the house being built into the buffer. *(See Exhibit D for Nadeau MLI Survey)*
- The resulting Phosphorus Buffer impact of 3000 sq. ft. is caused by the intrusion of 60% portion of this new 28-ft W x 32-ft L home. This area includes a portion of the septic system field and associated clearing of vegetation necessary for construction and the minimal surrounding lawn area. *(See Exhibit D for Nadeau MLI Survey)*
- The owner proposes to mitigate this 3000 Sq. Ft. Phosphorous Buffer impact by re-designating the same amount toon the front of the lot to the easterly and westerly boundaries. This will process roadside and area toward the subdivision detention pond. Also proposed is a Rain Garden installation. *(See Exhibit H Buffer Restoration Plan)*

- It has become clear from previous lot building foot print issues is that the original Stormwater Protection Plan laid out by the engineers were not site specific to each lot's unique constrictions for home, driveway, and septic layout. The 10,000 sq. ft. building envelopes were site specifically designated on each lot. *(See Exhibit B Subdivision Plan)*
- Ms. Jordan recognizes that this is an opportunity to restore the environmental protection goals of the Phosphorus Buffer Plan intended for this lot. This Plan proposes to balance the current residence layout, restore natural perimeter buffers for treatment and capture and treating stormwater drainage run-off with rain gardens.

THE OWNERS ARE REQUESTING THE PLANNING BOARD TO:

1) To Re-position the building envelope and phosphorus buffers on her lot to include the existing built upon area, including house, driveway, septic system and surrounding side and back-yards. *(See Exhibit D MLI as-built survey)*

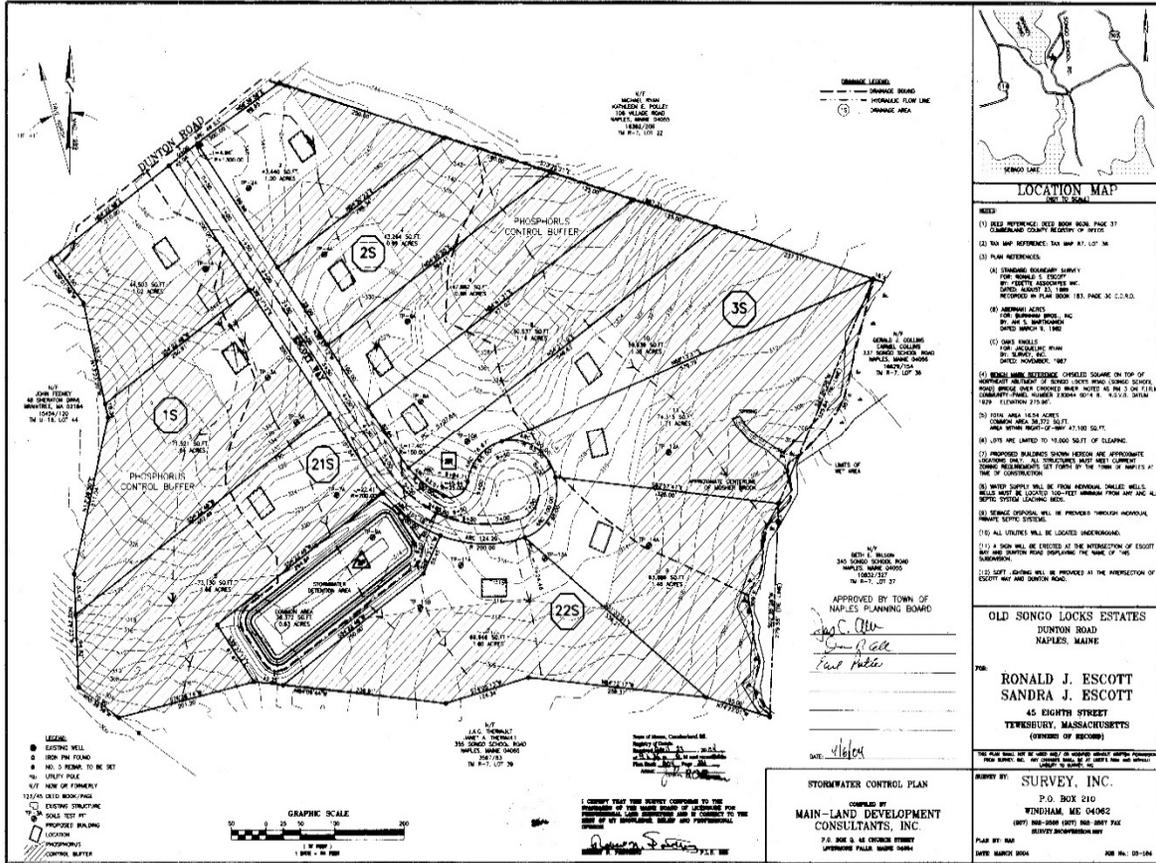
2) Review and accept the Phosphorus Buffer Restoration Plan including maintaining native plants, shrubs, and tree saplings along the front yard sidelines and installation of a Rain-Garden* to capture and process stormwater run-off within the lot at the back of the house below the walkout basement. This will also process roof and gutter run off from the home. *(See Exhibit H Buffer Restoration Plan)*

3) To grant a waiver that the original 10,000 sq. ft.* building clearing envelope be increased up to 12,000 sq. ft. to reasonably accommodate a typical residence footprint. The side and backyard areas are kept to a minimum to preserve the existing natural vegetation, ground shrub and treed buffer to the sides and rear of lot.

4) This proposal environmentally mitigates the encroachment of the house area into the designated Phosphorous Buffer. To approve this Subdivision Application Amendment request will mitigate this issue and allow the Ms. Jordan to sell this new house.

**Note that the original 10,000 sq. ft. relied solely on vegetative buffer treatment and did not take advantage of additional run-off capacity of stormwater structures, such as rain gardens, that are specific located at the base of the drainage contours on the lot.*

'Old Songo Locks Estates' Approved Subdivision Plan:



(Refer to Exhibit B for full 8.5" x 11" map plan)

Town of Naples Planning Board Subdivision Phosphorus Plan:

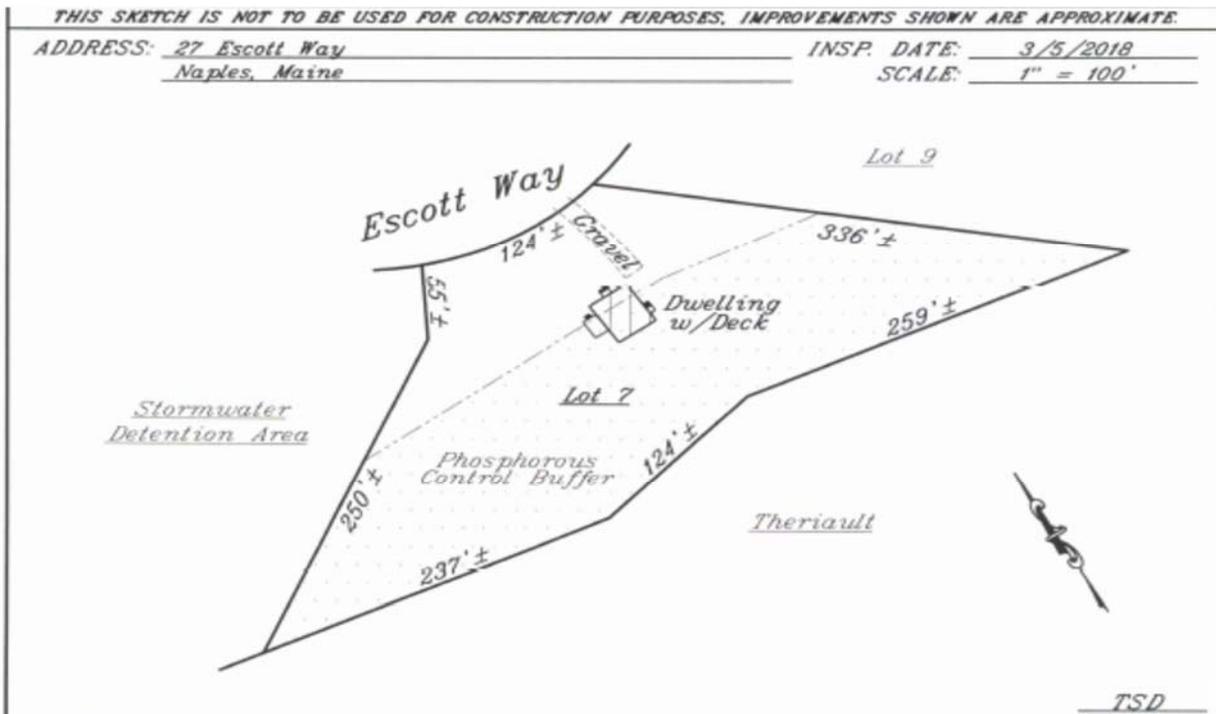
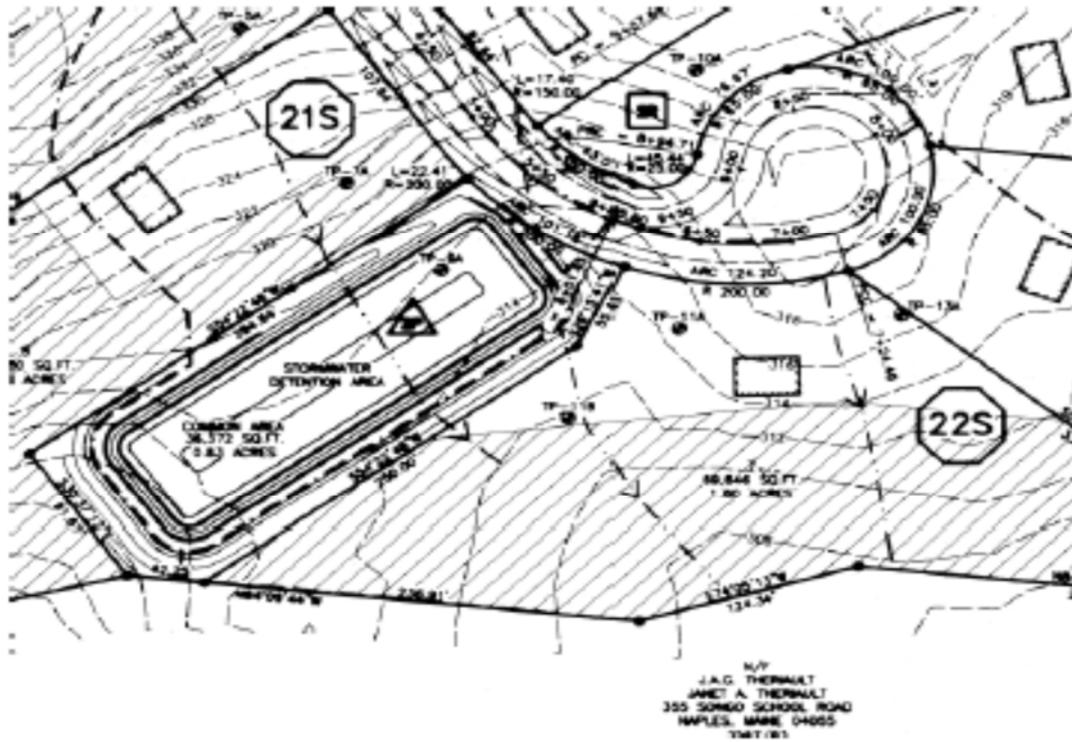
The approval of the 11-lot subdivision Stormwater Plan 'Old Songo Locks Estates' by the Naples Planning Board on April 6, 2004 required utilizing the remaining natural vegetation on the lots as a phosphorus treatment buffer.

A general 10,000 square foot clearing limit was established for the building area on each of the 1-2 acre lots.

Lot 7 is 1.60 acres or 69,646 total sq. ft. Stormwater run-off from road drainage is treated by a stormwater retention pond on common land toward the cul-de-sac terminus of the subdivision and abutting Lot 7.

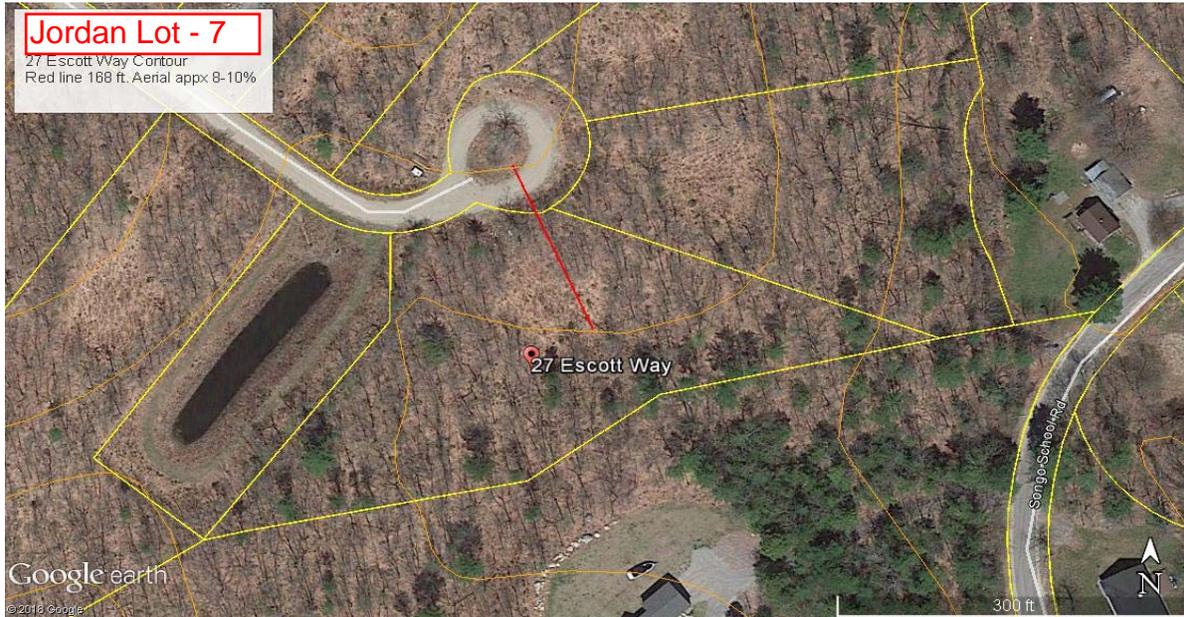
The contours on Lot 7 tend downslope to the lots back and side property lines. It is generally averages 3-8% slopes.

'27 Escott Way' Lot Detail from Subdivision Plan & Nadeau Mortgage Loan Inspection:



(Refer to Exhibit D for full 8.5" x 11" MLI Survey)

2016 Aerial GIS Plans of Lot with 20-ft USGS Contours & Abutting Aquifer w/ Waterbody:

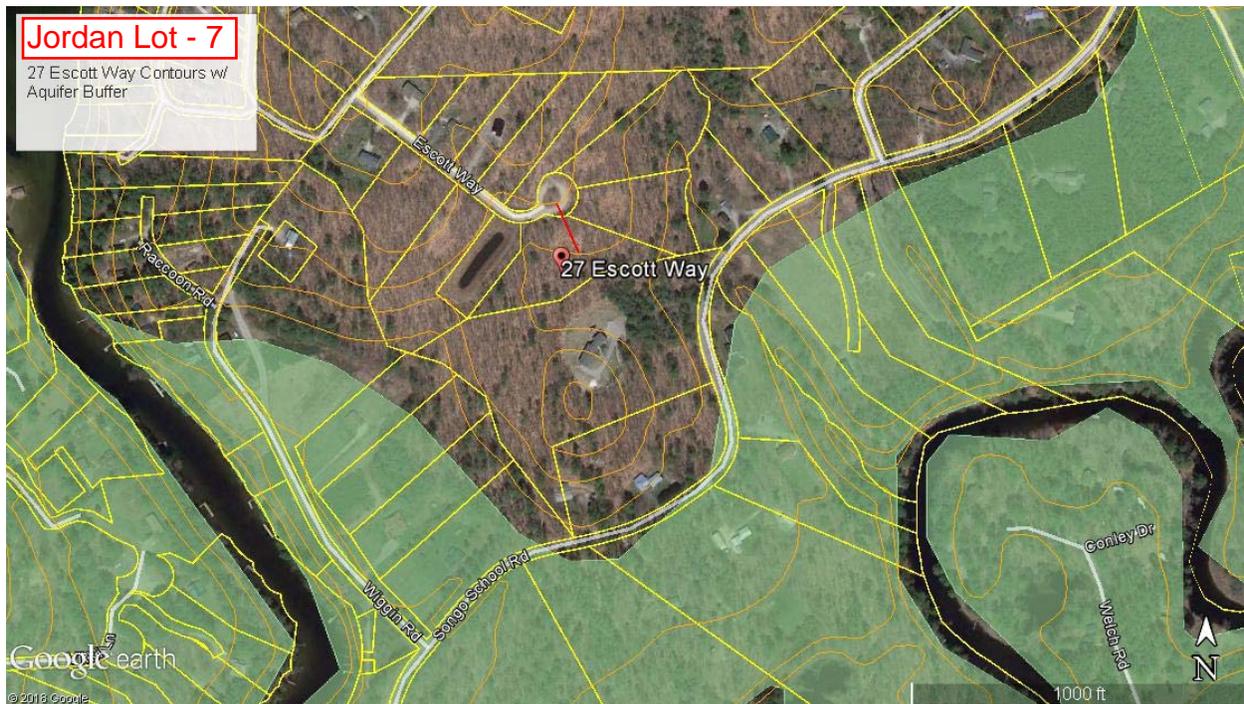


(Refer to Exhibit G for full 8.5" x 11" map plan)

The yellow lines are appx tax map locations, the rust colored lines are USGS 20-ft topo. (Also See Exhibit B Subdivision Plan for 2-ft contours). The red line indicates a 168-ft horizontal length at the 20-ft interval.

Note that 27 Escott Way is appx. 1400-feet downslope to waterbody. The green shading is the Aquifer.

(Refer to Exhibit F for full 8.5" x 11" map plan)



Photos of Lot & House for Reference – March 2018



Above & below photos of driveway entrance and towards house front.



Photos of Lot for Reference (cont.):



Photo above Side-yard photos: Above is the westerly side and easterly below.



Photos of Rain Garden and relocated Phosphorous Buffer Locations:



Above view shows location of Rain Garden downslope of house to process storm run-off.
Below is side yard proposed for the added Phosphorus Buffer Area to compensate for impact.



Soils Designation on Lot:

Soils Site Evaluator Jim Mancini designed the septic system for the new house. His soil profile analysis for the State HHE-200 form verifies the County Soils Map designation on this property.

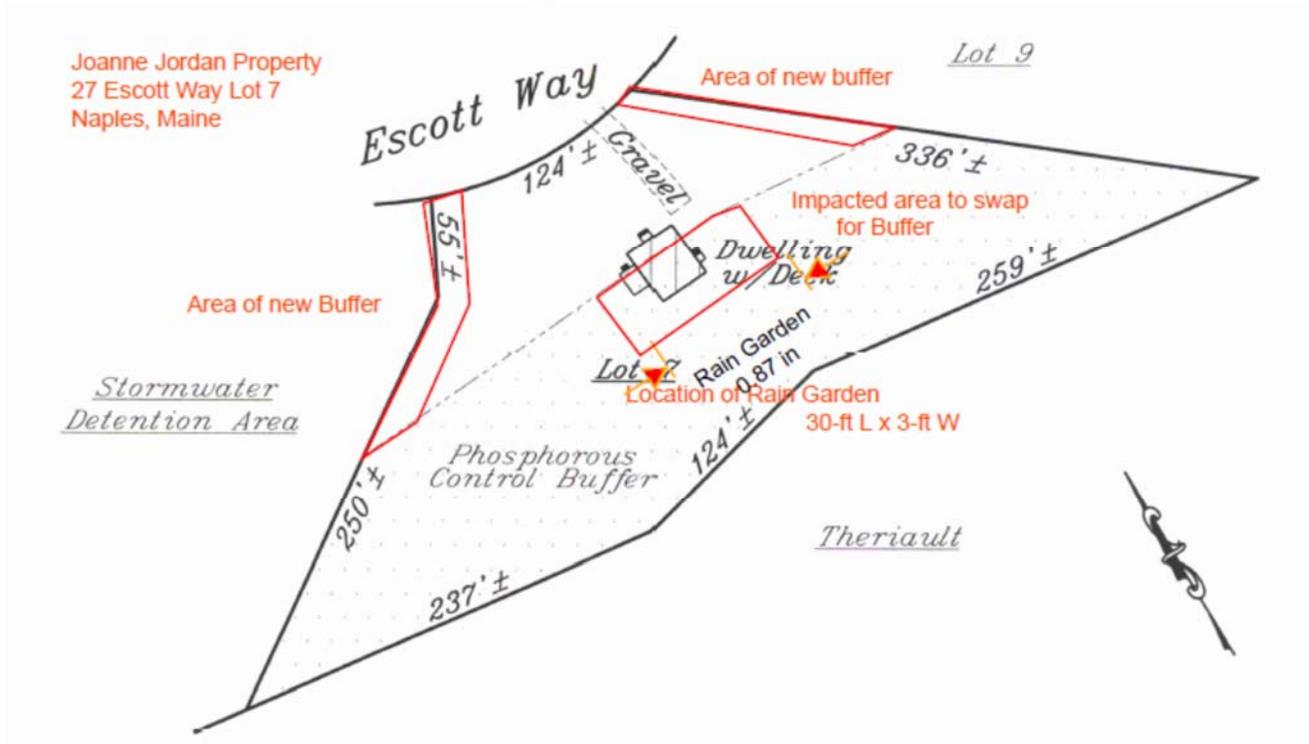
(See Exhibit I Septic System Plan HHE-200)

This soils investigation concurs with USDA Cumberland County Soil Survey mapped Hermon soil type. This sandy loam type of native soil on the lot and at back property line is rated as mostly excessively drained and show soils in this area absorb run-off. The slope averages 3-8%



(Refer to Exhibit H for full 8.5" x 11" map plan)

Restoration Plan with locations for Buffer & Rain Gardens on Lot:



(Refer to Exhibit J for full 8.5" x 11" map plan)

Restoration Planting Plan Area Calculations:

- Total Lot Area = 69,646 square feet or 1.60 acre
- Owner cleared 13,000 sq. ft. for construction
- Proposed relocated Buffer 3000 sq. ft divided along easterly and westerly the front portions of the sidelines that are not designated buffer by maintaining *Tree and Shrubs natural areas to property lines and ground Vegetation and Shrubs understory area from clearing replanted*
- Plant/Shrub Buffer Area surrounds set appx 140 feet along easterly property line and 180 feet along westerly property line. Width of added buffer appx 15-ft to 20-ft.
- Proposed extent of new cleared Building Envelope area up to 12,000 sq. ft. as needed.

Buffer Restoration Designation Plan:

The Restoration Plan uses native trees, shrubs, and ground vegetation to meet the run-off treatment requirements of Maine Department of Environmental Protection, Chapter 500: Stormwater Management.

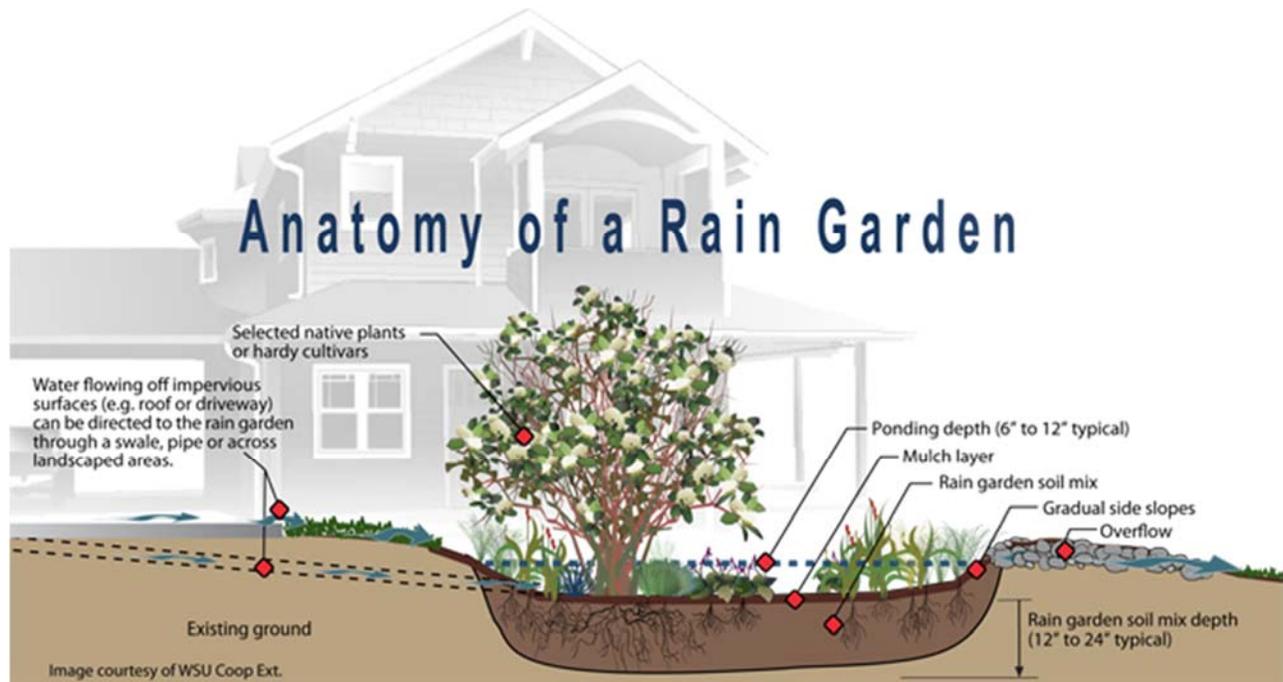
- This enhanced buffer pan prevents unnecessary cutting of existing vegetation in the undeveloped new designated area. This plan uses a two-zone approach with ground vegetation and shrubs transitioning to trees, shrubs and saplings to the existing wooded boundaries. Buffer areas that are sparse now will infill due to the increase sunlight for lot work.
- Native plants shall be maintained in buffer and prevention of encroachment by invasive plants species noted on the ME DEP list.
- Existing natural species are typical oak and maple with mixed evergreens. Transition shrubs include natural berry-types and laurel and fern species.
- The ground vegetation and shrubs are used with the rain gardens soil filtration to treat stormwater run-off containing phosphorus.
- Trees and shrubs can have mixed heights from seedling to sapling. This encourages a developed understory.
- The Plantings will follow the best typical seasonal timing. The requirement is that the plantings in this re-established must be maintained. Tree and shrubs that die would need to be replaced.

Erosion & Sedimentation Control Plan:

- Prior to any soil disturbance, particularly for the Rain Gardens construction, proper Erosion & Sedimentation (E&S) Control measures shall be in place downslope of soil disturbance activity.
- This proposed work areas' E&S control measures may include silt fence, hay bale, or berms of bark mulch.
- Such Erosion & Sedimentation Control measures for this project shall follow the Maine Department of Environmental Protection's Best Management Practices as published.
- The intent of E&S Control measures on this project for replanting the tree, shrub, and vegetation buffer is to prevent any erosion of soils from washing away from the buffer restoration area.
- Proper DEP installation of a combination of silt fence, bark mulch and staked hay bales will be utilized to contain any sediment run-off from disturbed area.
- They shall remain in place during construction and until disturbed soil has been re-stabilized with vegetation.

Rain Garden as Stormwater Structures for Phosphorous Treatment:

The Stormwater Law provides for structures to process phosphorus run-off, such as rain run-off retention ponds and rain gardens, in addition to natural vegetative buffers. Rain-gardens acting as collection sumps are located at the base of a lots drainage swales multiplies the capture and treatment of phosphorus and nitrates in the run-off.





RAIN GARDENS

~managing roof runoff in your backyard~



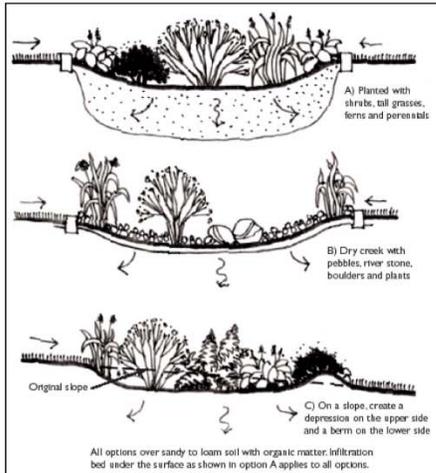
Portland Water District



<http://clean-water.uwex.edu/pubs/raingarden/gardens.pdf>

Purpose: Rain gardens are attractive and functional landscaped areas that are designed to capture and filter stormwater from roofs, driveways, and other hard surfaces. They collect water in bowl-shaped, vegetated areas, and allow it to slowly soak into the ground. This reduces the potential for erosion and minimizes the amount of pollutants flowing from your lawn into a storm drain, and eventually into our streams and lakes.

Installation: Rain gardens can vary in size, but are most effective when built to 20-30% of the drainage area. Rain gardens for single-family homes will typically range from 150 to 300 square feet, but even a smaller one will help reduce water pollution problems.



- ❖ The garden should be bowl-shaped, with the lowest point of the garden no more than 6" below the surrounding land.
- ❖ The sides should be gently sloping towards the center to prevent sudden drop-offs that could lead to erosion problems or walking hazards.
- ❖ Rain gardens are often placed in a preexisting or created depression within a lawn, or in a location that receives roof runoff from a downspout.
- ❖ To avoid flooding improperly sealed foundations, build your rain garden 10' away from existing structures, and direct water into the garden with a grassy swale, French drain, gutter extension or other device.

Rain gardens can be placed in sunny or shady regions of your lawn, but plants should be chosen accordingly, with the lowest point planted with wet tolerant species, the sides closest to the center planted with moist tolerant species, and the edges of the rain garden should be planted with sub-xeric (moist to dry) or xeric (dry) tolerant plants. It is also important to check the permeability of your soil. Sandy soils only need compost added, but clay soils should be replaced with a mix (50-60% sand, 20-30% topsoil, 20-30% compost). After construction of the garden is complete, the entire area should be covered with a thick layer of mulch, preferably Erosion Control Mix.

Materials: Replacement Soil mixes and Erosion Control Mix are available from local garden centers. Native plants can be purchased from your local nursery. Please see *Native Plant Lists* from this series for plant descriptions based on specific sun and soil conditions.

Maintenance: Overall, once plants mature, the maintenance of a rain garden is very low. Watering is important during the first growing season, and some weeding is necessary after planting. As the garden matures, some of the perennials may need to be divided if plantings become too crowded.

Part of the **Conservation Practices for Homeowners** Factsheet Series, available at: Maine DEP (800.452.1942); <http://www.maine.gov/dep/blwq/docwatershed/materials.htm> Portland Water District (207.774.5961); <http://www.pwd.org/news/publications.php>

May 2006 DEPLW0784

Conclusion:

- The Owner recognizes that this proposed mitigation action on the lot is necessary to resolve any legal ambiguity necessary for an upcoming lot and house sale to a new owner. This Subdivision Application Amendment approval from the Planning Board will resolve this issue.
- This lot Phosphorus Buffer Restoration Plan *narrative* reviews the current site conditions, original planning Board requirements, topographic area and lot site maps, a site soils investigation, lot photos, a map of proposed plantings and the proposed Rain Garden structures to treat stormwater run-off, a planting schedule.
(See Exhibits B & H for Subdivision and Buffer Restoration Plans)
- The requested waiver to increase the building clearing lot area up to 12,000 sq. ft. rather than the original 10,000 sq. ft. is offset by the vegetation buffers being maintained and a rain gardens to process drainage run-off.
- The larger building envelope is not excessive for such a typical residence with driveway, septic system and reasonable yard.
- Expanding the building envelope functionally and environmentally accommodates the area required for a house, driveway, septic system, and reasonable surrounding yard graded for drainage.
- The designation and maintaining the natural buffer along the front property lines and the rain garden catching the roof and yard run-off downslope behind the house complies with the intent of originally approved subdivision stormwater plan.
- The well drained sandy loam Herman soils It is an environmentally sound opportunity to restore the subdivision's stormwater management plan.
- The Owner requests this consideration for this waiver by the Planning Board which will meet the goals of the stormwater control plan to process the phosphorous and nitrates.

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