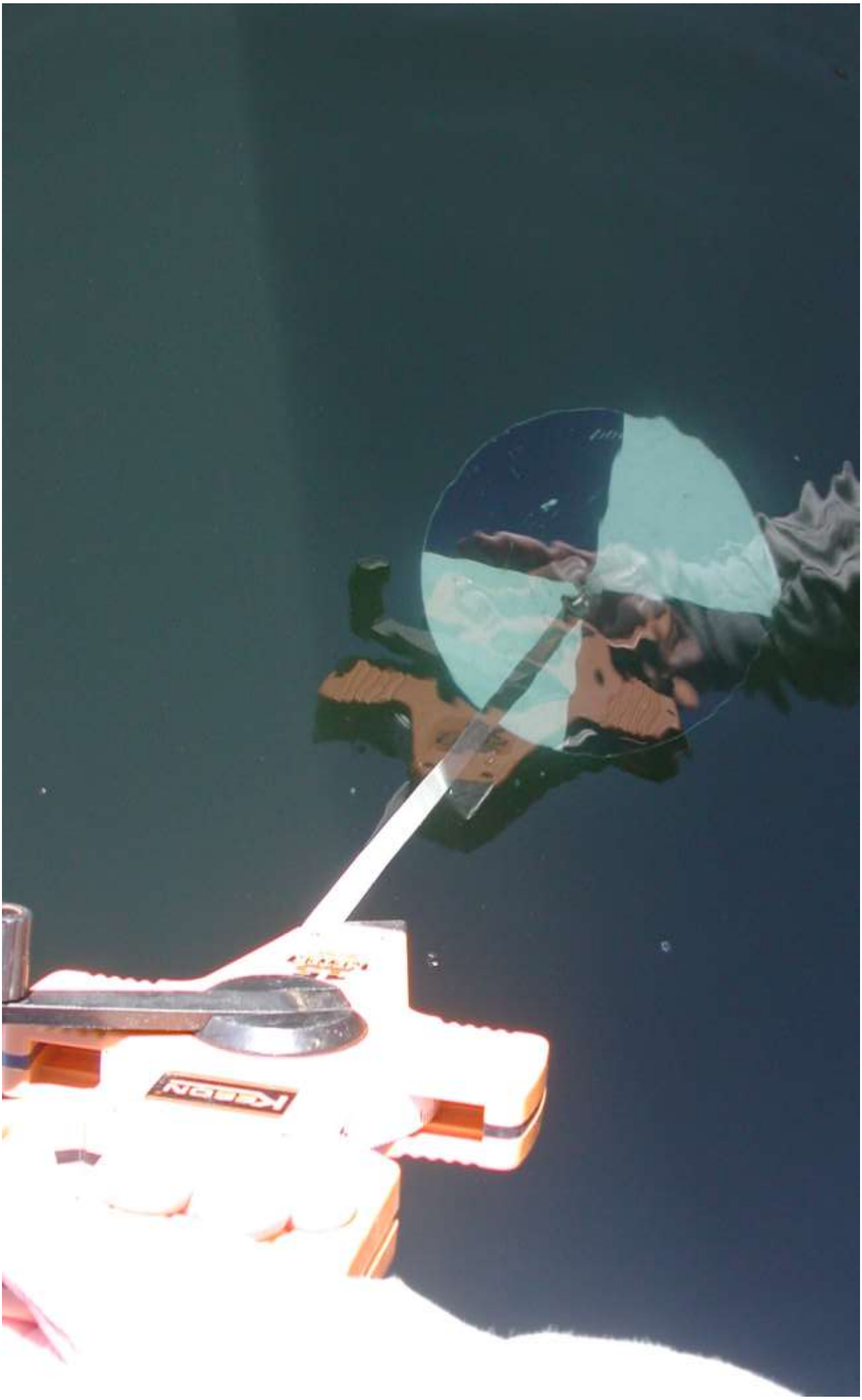
The Three R's of Protecting Lakes

Rules, Resources, and Relationships

Colin Holme, Lakes Environmental Association

Garrison Beck, Midcoast Conservancy


KODAK


KEBON
30
LEGO


VWR


09 16 2015


FOR SALE


CAUTION
PESTICIDE APPLICATION
APPLICATION DATE
APPLICATION TIME
REMOVE SIGN:
DATE
TIME
KEEP OFF UNTIL DRY
7294
O NOT REMOVE
FOR 48 HOURS


?
Rules, Resources, and Relationships

Rules…


Regulations
Guidelines


GOVERNMENT
REGULATIONS


RULES
REGULATIONS

Detailed and intricate regulations are difficult to apply!

APPENDIX C

Phosphorus Control Standards for Sweden's Watershed Areas

The following chart details the phosphorus control buffer area requirements for all lots except those being reviewed under the Subdivision Law. Buffer treatment is being used to protect water quality by limiting phosphorus export in stormwater runoff from new construction and land uses.

Use this chart to find the required depth of vegetated buffer area which must be retained on each lot downslope from disturbances caused by construction or earth-moving activities which modify existing soil horizons and/or existing vegetative ground cover:

Minimum Buffer Area Depth ↘	Total maximum disturbed area on each lot (square feet)					
Lot Size	10,000	15,000	20,000	25,000	30,000	30,000+
Less than 70,000 sq. ft.	50 feet	55 feet	60 feet	65 feet	70 feet	75 feet
70,000 sq. ft. or more and less than 3 acres	75 feet	85 feet	95 feet	125 feet	150 feet	175 feet
3 acres or more and less than 4 acres	75 feet	85 feet	95 feet	105 feet	115 feet	125 feet
4 acres or more	50 feet	50 feet	50 feet	50 feet	50 feet	50 feet

Notes:

1. Depths applicable to all lots except those to be reviewed under the Subdivision Law.
2. It is assumed that 1 acre equals 40,000 square feet.
3. This chart is applicable to shoreland areas but shoreland vegetative cutting and other buffer provisions apply.
4. Buffers in wetland areas shall not be considered.
5. If an applicant demonstrates that the soil type on the site of the proposed activity is predominantly hydrologic group A or B, buffer depths can be reduced by 50%.
6. Buffer areas must be maintained in a natural state except that 20% of the trees measuring 6 inches in diameter at a height of 4 feet may be cut in a 10-year period. Stumps shall not be removed and there shall be no disturbance to the existing ground cover and soils.
7. Buffers shall be naturally vegetated, forested sites with undisturbed understory and ground cover. Fully vegetated fields and revegetated areas fully covered with vegetation may serve as buffers but chart buffer depths must be increased by 100%.
8. In cases of building additions, buffers shall only be required to treat runoff from the new construction.

RULES:

1. Under the provisions of this Ordinance, any activity which must comply with the provisions of this section shall require the completion of a phosphorus control plan by the landowner or his authorized agent. The Town shall provide forms for this purpose. Information contained on the form shall include: property boundaries, approximate boundaries of disturbed areas, topography, general pre and post-development drainage patterns, boundaries of buffer areas, and provisions for re-vegetation, stabilization and erosion control. Photograph(s) showing pre-development conditions shall also be required.
2. A letter of agreement shall also be required (on a form supplied by the Town) in which the lot owner shall agree to retain buffer areas in their described vegetated state. Letters of agreement shall be binding upon all future owners, and a copy will be maintained in official Town records.
3. Further subdivision of a lot and/or expansion of the disturbed area beyond that which was approved under the provisions of this section shall require full compliance with the provisions of this section and the submission of a phosphorus control plan.
4. The Code Enforcement Officer shall accept and review phosphorus control plans and may act on behalf of the Town in witnessing, signing, and receiving letters of agreement.
5. In cases where lots of record cannot meet these standards, the Planning Board shall review phosphorus control plans and shall require the applicant to demonstrate that the proposal complies with these standards to the maximum extent possible (a determination made by the Planning Board based upon evidence provided and a positive finding that the applicant has, considering naturally-existing land use conditions and common and generally-accepted construction practices and land use, made a proposal which utilizes to the greatest extent possible the standards contained in this Ordinance to control phosphorus export.)

STANDARDS:

1. Areas of disturbance for roads and driveways shall not exceed 15 feet in width when passing through buffer areas. Only one such access shall be allowed through any contiguous buffer area, and the total area of disturbance shall be minimized.
2. When road or driveway length through a buffer area exceeds 150 feet, required buffer width shall be increased by 10%. When length exceeds 200 feet, required buffer width shall be increased by 20%.
3. Buffer areas shall be located downslope from all disturbed areas.
4. All disturbed areas which are not utilized for vehicular access or structures shall be adequately stabilized or revegetated within four months of the start of disturbance to prevent erosion and sedimentation.
5. Culvert outlets and other sources conveying runoff towards buffer areas shall be constructed and maintained so as to evenly distribute and disperse runoff and to minimize channelization.
6. Ditches shall be stabilized or revegetated as required above and culvert inlets and outlets shall be riprapped within three weeks of their placement.

EXAMPLE: The Phosphorus Control Plan Process

Step 1:

Review your lot or proposed lot to determine size in acres. For example, if you are looking at a 3 acre lot, you will need to provide a buffer area of 75 to 125 feet in depth depending on how much disturbance you are going to create. See the chart on page 51.

For this example, assume a 20,000 square foot total of all disturbed areas, including areas for driveway, parking, septic system, buildings and lawn. According to the chart, you need to provide a 95-foot deep buffer strip of natural ground cover and vegetation downslope from these disturbances. You cannot count wetland areas as buffer.

Step 2:

Get several forms for the phosphorus plan from the Code Enforcement Officer and begin to pencil in a plan of your lot. Usually a quick look around will allow you to determine the topography and drainage above and below the construction areas. Draw in the approximate location of the disturbed areas mentioned in step #2 and make sure that a 95 foot deep buffer will fit downslope on the property. Juggle the disturbed area to fit in on the lot along with the required buffer. If it does not fit, you will have to think of other layouts or reduce the total amount of disturbed area.

Don't forget to consider the length of the driveway. If it is more than 150 feet, you'll have to add to the buffer. Add 10% if the driveway is 150-200 feet long and make it 20% deeper if longer than 200 feet.

Step 3:

Decide on a final layout and finish the form. Be sure to include all of the information required in Rule 1. The plan does not have to be to exact scale and need not be prepared by a surveyor or engineer. The important points are to be accurate in figuring disturbed areas and where runoff flows and to make sure that buffers are the proper depth. The plan is intended only to describe the basic lot layout, not to be a survey.

Step 4:

The Town Office or Code Enforcement Officer will have pamphlets available to describe the best ways to stabilize and re-vegetate areas and how to rip-rap culverts. Indicate on your plan that you will follow those guidelines. As an alternative, you can have your contractor draw up a simple drainage and erosion control plan and attach that. The brochures are not mandatory, but were developed to help landowners.

Step 5:

Submit the plan and photographs to the Code Enforcement Officer and sign a letter of agreement to maintain the buffer area.

In rural areas: Simple is better

P. Phosphorous Loading Rates

All land uses requiring a permit from the Code Enforcement Officer and located in the direct watershed of a Great Pond shall limit phosphorus export from the site based on approval of one of the following methods of phosphorus control:

1. Point System

The Code Enforcement Officer may issue a permit if the development site meets or exceeds thirty (30) points based on the following schedule. This standard is considered to be an incentive to avoid conducting a technical analysis as required in Section 8.P.2 below.

a. 10 points for clearing 15,000 square feet and less of existing vegetation.
b. 15 points for clearing 10,000 square feet and less of existing vegetation.
c. 15 points for the installment of rock-lined drip edges or other infiltration systems to serve the new construction
d. 20 points for a 50-foot wide buffer located downslope of the developed area
e. 25 points for a 75-foot wide buffer located downslope of the developed area
f. 30 points for a 100-foot wide buffer located downslope of the developed area

2. Technical Analysis

The development site shall not exceed the allotted phosphorus export to the water body based on the phosphorus loading schedules established in Table 1, Section 5 of Waterford's Site Plan Review and is calculated in accordance with *Stormwater Management for Maine* (Maine Department of Environmental Protection et al., January 2006 with revisions as amended). All costs associated with the preparation of the technical analysis shall be the responsibility of the applicant.

United States Department of Agriculture

Natural Resources Conservation Service

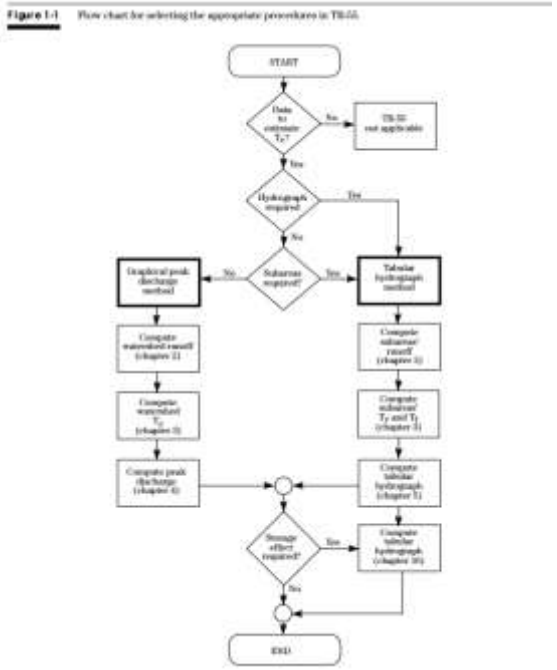
Conservation Engineering Division

Technical Release 55

June 1986

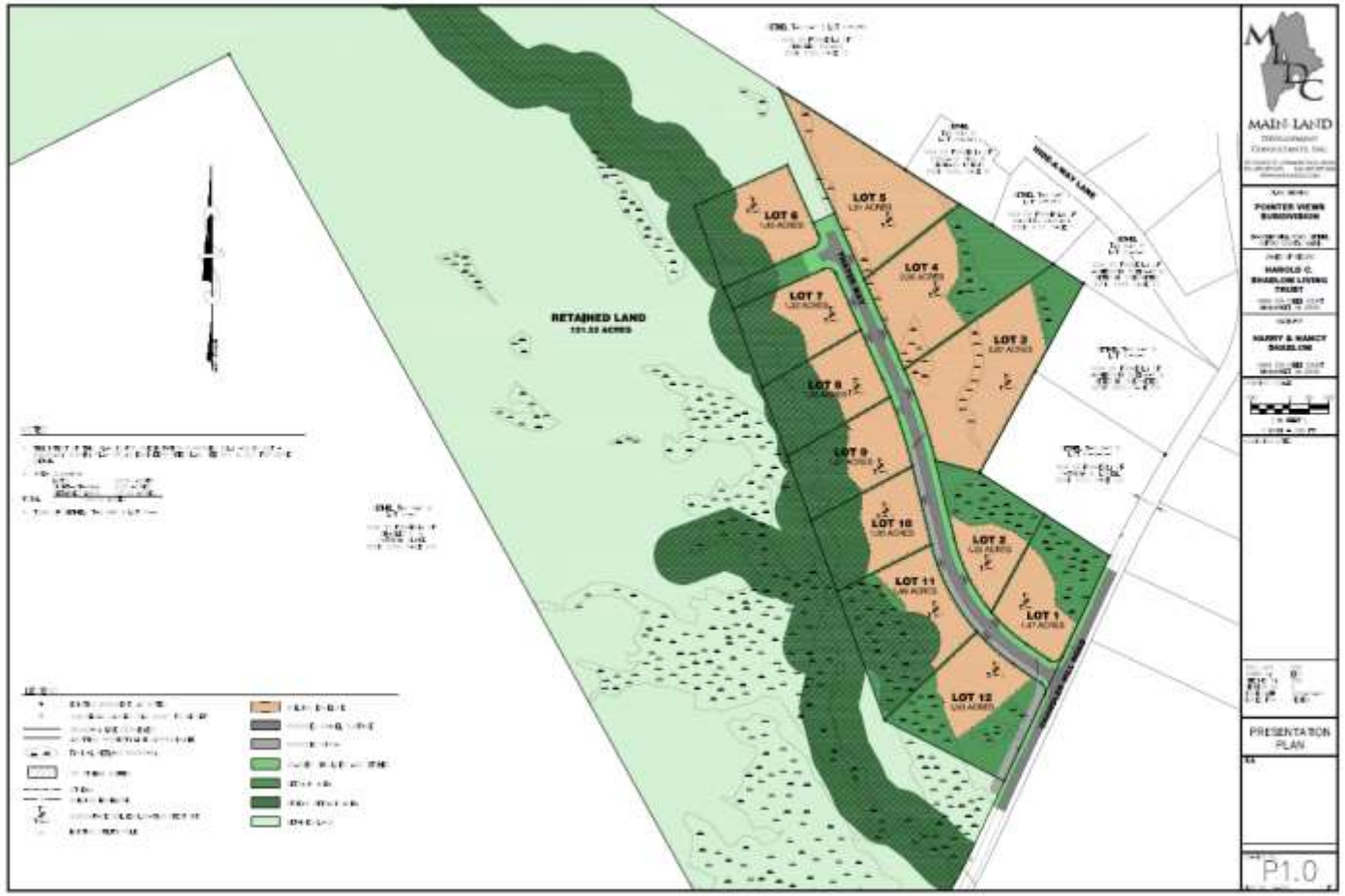
Urban Hydrology for Small Watersheds

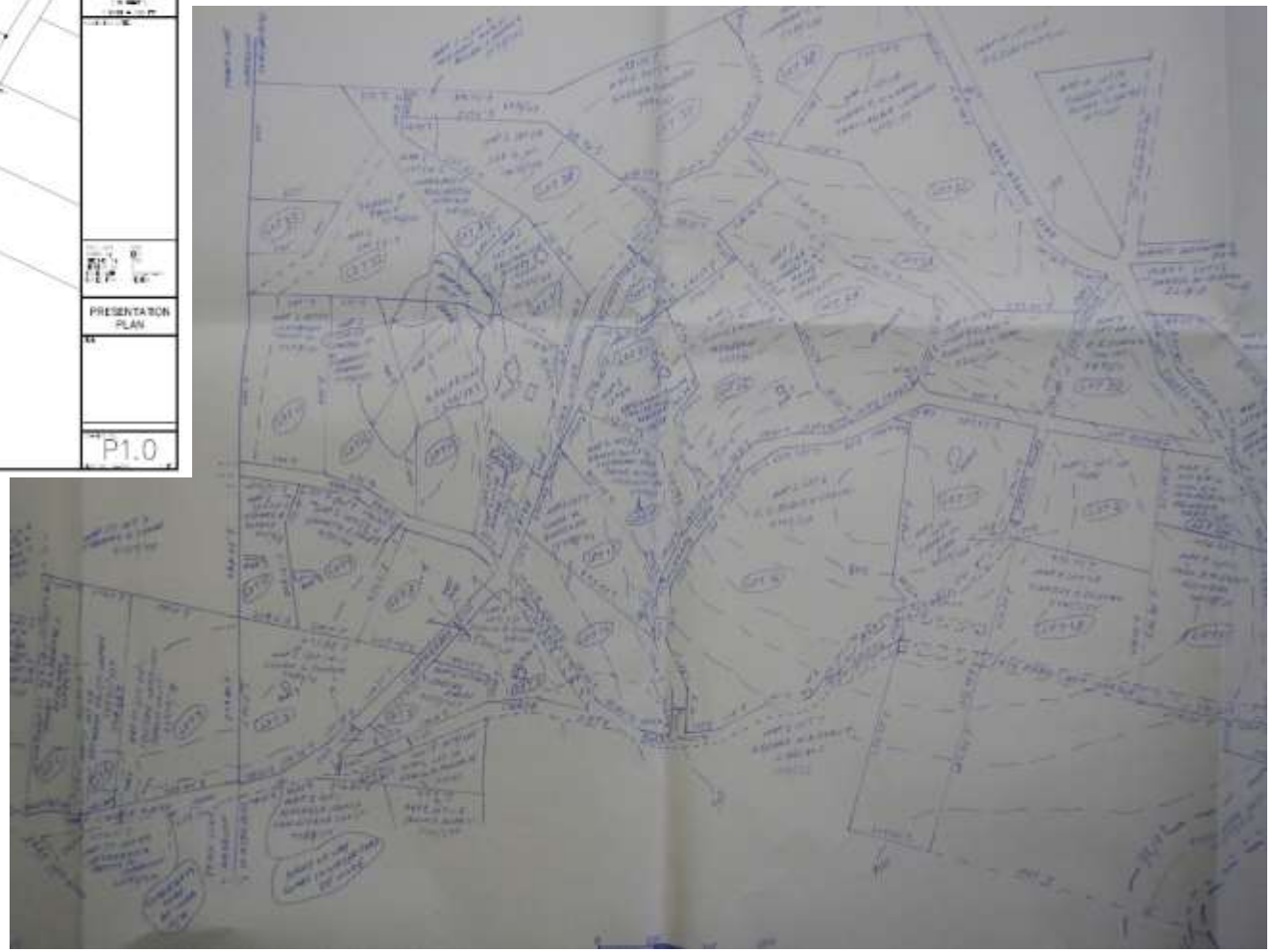
TR-55



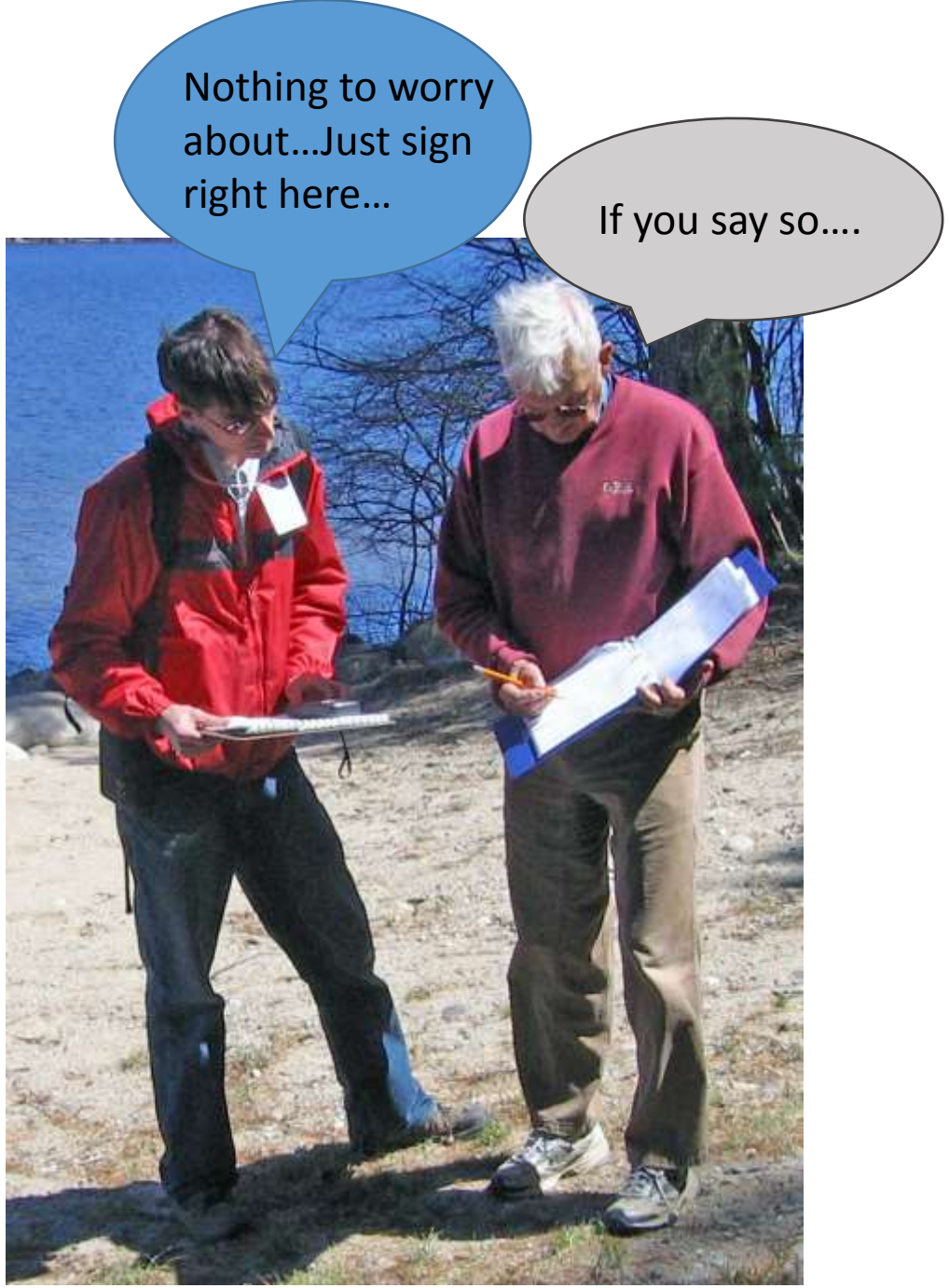
VS

b. Infiltration systems shall be installed and maintained to infiltrate storm water runoff from all man-made impervious surfaces on the property. Systems shall be sized to accommodate all runoff from a two inch precipitation event of 24-hour duration and shall be located at least 50 feet from the normal high water mark of any river or tributary stream regulated by this Ordinance.





- Complicated plans should be broken into parts
- Color makes plans easier to read!



KNOWLEDGMENT OF SHORELAND ZONING BUFFER STANDARDS

This form summarizes some of the key requirements of the Harrison Shoreland Zoning Ordinance to ensure protection of the shoreland buffer. By signing this form, the landowner(s) acknowledges understanding of the standards and agrees to comply with them and to notify all others associated with the proposed project of these restrictions. Violation of any of these standards will require the landowners) to fully restore any site conditions not in compliance with their pre-construction condition. NOTE: Other shoreland zoning restrictions, other ordinances provisions, as well as Maine DEP requirements may also apply. Approval of a DEP permit under the Natural Resources Protection Act does not supersede these standards which in some cases are more restrictive.

These standards apply within the shoreland buffer area which is defined as the area within 100 feet of "the normal high water mark of all great ponds, rivers that flow to great ponds, other water bodies, tributary streams and the upland edge of a wetland. Within the Limited Commercial District the buffer area is established as 25 feet.

- ❑ One winding footpath of no more than six feet in width is allowed for each lot or for each 200 feet of shoreline frontage. The footpath must allow for runoff to disperse into the buffer, and shall not be constructed so as to create a view corridor.
- ❑ Structures are not allowed within the buffer area, with the exception of those structures in existence in the buffer area prior to June 20, 1992. This prohibition includes storage buildings, boat houses, patios, decks, tents and any portion of a dock extending above the normal high water line.
- ❑ In the off-season, docks should be stacked on the footpath to avoid damage to buffer vegetation.
- ❑ Fill cannot be brought into the buffer except for path construction or to re-vegetate bare ground as part of an approved re-vegetation plan.
- ❑ Openings or view corridors in existence prior to June 20B $_{B}$1992 can be maintained but not enlarged.
- ❑ Openings that have "closed" with growth of woody vegetation cannot be "re-opened".
- ❑ Before any construction begins a silt fence must be properly installed at the upland extent of the buffer area below any construction. Pre-construction photos should be taken.
- ❑ No unnecessary disturbance of the ground cover, including the duff and leaf layer, or vegetation shall be allowed within the buffer, or between the lake and a grandfathered structure.
- ❑ Equipment movement and excavation disturbance must be carefully controlled to avoid any impact on the buffer. For example, it is not legal to locate a foundation at the buffer limit if that placement causes any disturbance within the buffer. The placement of a silt fence at the buffer limit is intended to prevent this problem and satisfy state and local laws.
- ❑ Selective cutting of trees is permitted provided a well distributed stand of trees and other vegetation is maintained (point system). In no case shall more than 30% of the volume of trees in a great pond buffer or more than 40% of the volume of trees hi any other water body buffer, be removed. Within the Resource Protection District there shall be no cutting of vegetation, except to remove safety hazards.
- ❑ There shall be no cleared opening greater than 250 square feet in the forest canopy as measured from the outer limits of the tree crown.
- ❑ Vegetation under 3 feet in height and other ground cover shall not be removed, except to provide a Footpath.
- ❑ Branches may be pruned on the bottom 1/3 of a tree.

Date	Signature of Landowner_____	Permit#:

EXPANSION OF NONCONFORMING STRUCTURE	
27. HAS THIS STRUCTURE EVER BEEN EXPANDED BEFORE? ( ) YES ( ) NO IF YES, WHEN? _____ BY WHAT PERCENTAGE? _____	28. FOOTPRINT (in sq ft) OF EXISTING STRUCTURE WHICH IS LESS THAN REQUIRED SETBACK AS OF 1/1/89: _____ FOOTPRINT (in sq ft) OF PROPOSED EXPANSION OF PORTION OF STRUCTURE WHICH IS LESS THAN REQUIRED SETBACK: _____ TOTAL FOOTPRINT (in sq ft) OF EXISTING AND PROPOSED STRUCTURE THAT IS WITHIN THE SETBACK: _____
29. IS THIS PROPERTY LOCATED IN A SUBDIVISION? ( ) YES ( ) NO IF YES, WHAT IS THE NAME? _____ 30. HOW IS THIS PROPERTY CURRENTLY ZONED? ( ) SP (Stream Protection) ( ) RP (Resource Protection) ( ) RS (Rural Shoreland)	31. SIGNAGE WILL SIGN(S) BE LOCATED ON THE PROPERTY? ( ) YES ( ) NO IF YES, DO THEY COMPLY WITH LOCAL/STATE ORDINANCE REQUIREMENTS? ( ) YES ( ) NO
32. TYPE OF CONSTRUCTION: ☐SINGLE FAMILY ☐MULTI-FAMILY ☐GARAGE (check all that apply): ☐MOBILE HOME ☐MODULAR ☐OTHER:_____	
33. DIMENSIONS OF PROPOSED STRUCTURE: LENGTH _____ WIDTH _____ HEIGHT _____	

REQUIRED		
PLUMBING PERMIT ATTACHED ( ) YES ( ) NO	DEED ATTACHED ( ) YES ( ) NO	PHOTOGRAPHS OF LOT, BUILDING AREA AND BUFFER AREAS

Section 12. Non-conformance (*Waterford Shoreland Zoning Ordinance - page 3*)

A. Purpose

It is the intent of this Ordinance to promote land-use conformities, except that non-conforming conditions that existed before the effective date of this Ordinance or amendments thereto shall be allowed to continue, subject to the requirements set forth in this section. Except as otherwise provided in this Ordinance, a non-conforming condition shall not be permitted to become more non-conforming.

SHORELAND AND PROPERTY INFORMATION

16. LOT AREA	17. FRONTAGE ON ROAD (FT.)
18. SQ. FT. OF LOT TO BE COVERED BY NON-VEGETATED SURFACES (buildings, driveway, patios)	19. ELEVATION ABOVE 100 YR. FLOOD (FT.)
20. FRONTAGE ON WATER BODY (FT.)	21. HEIGHT OF PROPOSED STRUCTURE
22. PROPOSED USE OF PROPERTY	23. CLOSEST POINT OF EXISTING/PROPOSED STRUCTURE TO NORMAL HIGH WATER LINE
24. SETBACKS (ROADS & SIDELINES)	25. SQUARE FT OF ALL CLEARED OPENINGS (FOR ANY PURPOSE) IN SHORELAND ZONE
26. WILL THIS PROJECT INVOLVE MOVEMENT OF MORE THAN 1 CUBIC YARD OF MATERIAL? ☐ YES ☐ NO IF YES, PROVIDE EXCAVATION CONTRACTOR'S NAME AND DEP CERTIFICATION NUMBER _____	

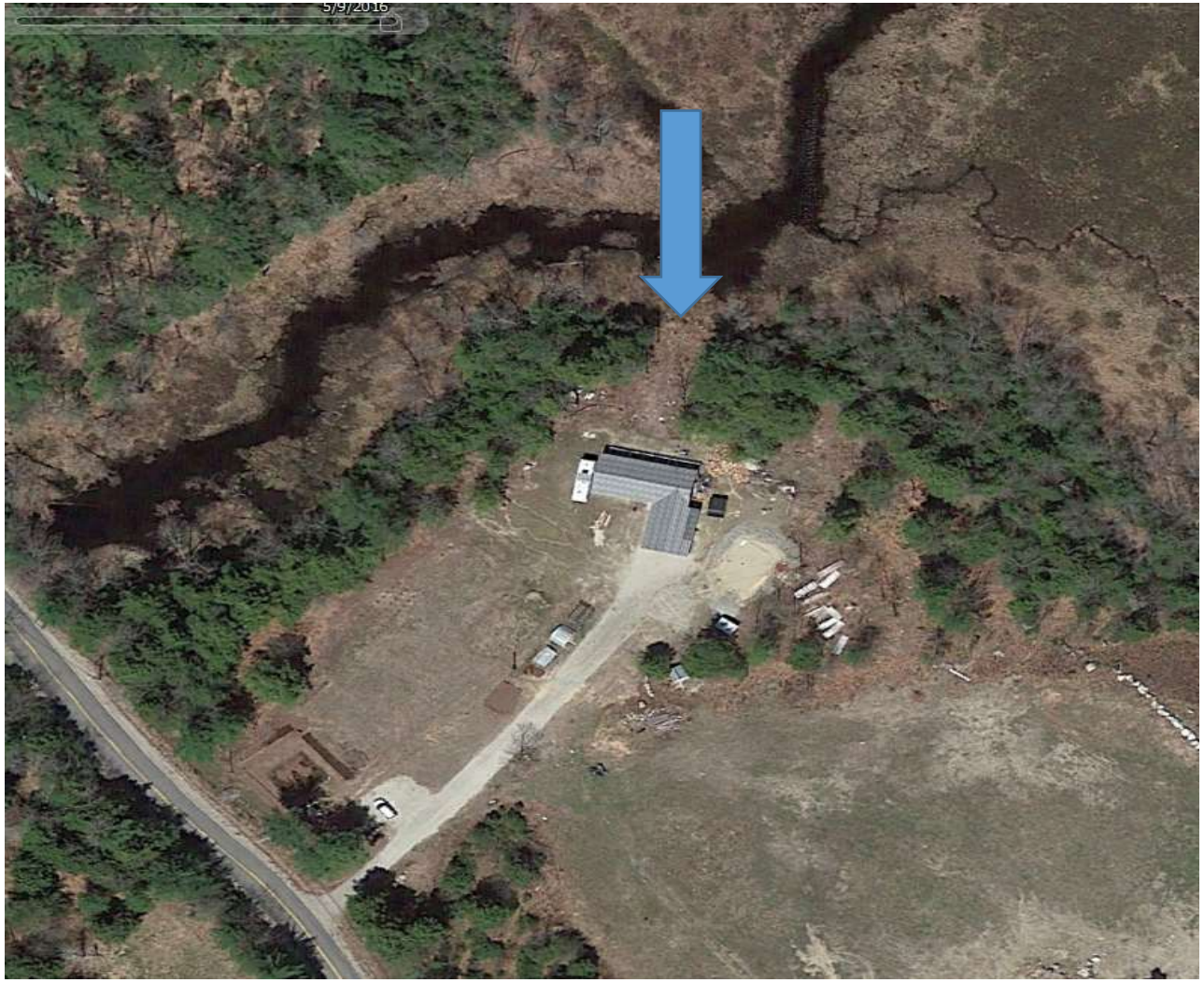
Resources…

Photo inventories: The radar guns of shoreland zoning

2010

2011

Google Earth: The land use professionals best friend




2006


2010


Relationships…

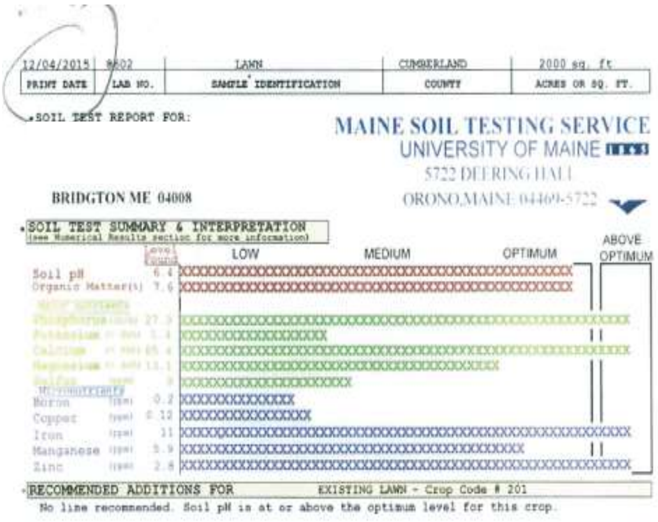
Who are the players?

ENVIRONMENTAL LAWS

Majority Believe Environmental Laws Work and Should Not Be Weakened

DRI/Critical Insights cross-section survey of Maine registered voters. From NRCM

Landowners…



12/04/2015	8602	LAWN	CUMBERLAND	2000 sq. ft
PRINT DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

SOIL TEST REPORT FOR:

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO, MAINE 04469-5722

BRIDGTON ME 04008

SOIL TEST SUMMARY & INTERPRETATION
(see Numerical Results section for more information)

	Level Found	LOW	MEDIUM	OPTIMUM	ABOVE OPTIMUM
Soil pH	6.4				
Organic Matter(%)	7.6				
Phosphorus	27.3				
Potassium	3.4				
Calcium	65.4				
Magnesium	13.1				
Sulfur	9				
Boron (ppm)	0.2				
Copper (ppm)	0.12				
Iron (ppm)	11				
Manganese (ppm)	5.9				
Zinc (ppm)	2.8				

RECOMMENDED ADDITIONS FOR EXISTING LAWN - Crop Code # 201

No lime recommended. Soil pH is at or above the optimum level for this crop.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NRPA PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resources Protection Act-Permit by Rule Standards, Chapter 305)

PLEASE TYPE OR PRINT IN BLACK INK ONLY

Name of Applicant (owner)		Name of Agent	
Applicant Mailing Address		Agent Phone # (include area code)	
Town/City		PROJECT information Name of Town/City	
State and Zip code		Name of Wetland or Waterbody	
Daytime Phone # (include area code)		Map # / Lot #	
Detailed Directions to Site			
		UTM Northing (if known)	UTM Easting (if known)
Description of Project:	Rip-rap 30-35 feet of eroding shoreline. Rip rap will have crushed stone and filter fabric behind as shown in attached cross section. Rip Rap will extend ~6" above Normal High Water Line		
Part of a larger project? (check one) ☐ Yes ● No	After the Fact? (check one) ☐ Yes ● No		

NRPA PERMIT BY RULE (PBR) SECTIONS: (Check at least one)

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, have read and will comply with all of the standards in the Sections checked below.

☐ Sec. (2) Act. Adj. to Protected Natural Res.
☐ Sec. (3) Intake Pipes
☐ Sec. (4) Replacement of Structures
☐ Sec. (5) REPEALED
☐ Sec. (6) Movement of Rocks or Vegetation
☐ Sec. (7) Outfall Pipes
■ Sec. (8) Shoreline stabilization
☐ Sec. (9) Utility Crossing
☐ Sec. (10) Stream Crossing
☐ Sec. (11) State Transportation Facil.
☐ Sec. (12) Restoration of Natural Areas
☐ Sec. (13) F&W Creation/Enhance/Water Quality Improvement
☐ Sec. (14) REPEALED
☐ Sec. (15) Public Boat Ramps
☐ Sec. (16) Coastal Sand Dune Projects
☐ Sec. (17) Transfers/Permit Extension
☐ Sec. (18) Maintenance Dredging
☐ Sec. (19) Activities in/on/over significant vernal pool habitat
☐ Sec. (20) Activities located in/on/over high or moderate value inland water fowl & wading bird habitat or shore bird feeding & roosting areas

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:

☐ Attach a check for the correct fee, payable to: "Treasurer, State of Maine". The current fee for NRPA PBR Notifications can be found at the Department's website:
☐ Attach a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
☐ Attach Proof of Legal Name if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's registration information. Individuals and municipalities are not required to provide any proof of identity.
☐ Attach photos of the proposed site where activity will take place as required in PBR Sections checked above.
☐ Attach all other required submissions as outlined in the PBR Sections checked above.

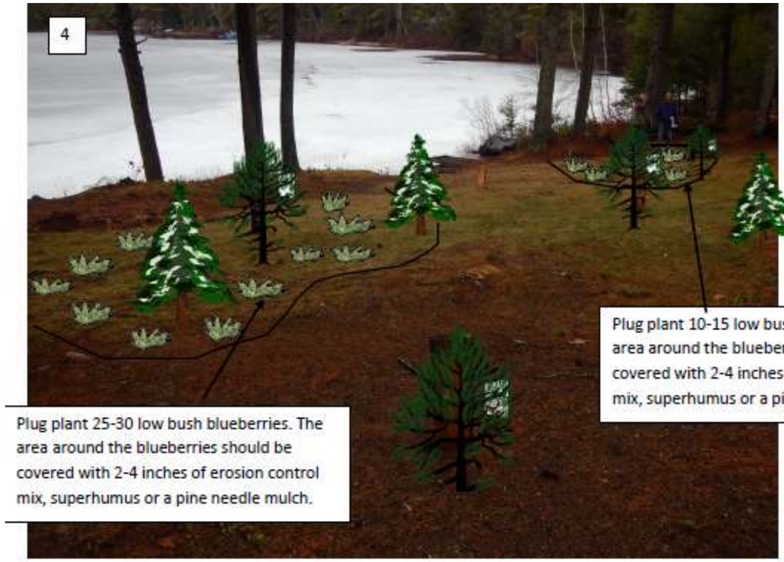
I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant		Date:	

AUGUSTA DEP
PORTLAND DEP
BANGOR DEP
PRESQUE ISLE DEP

OFFICE USE ONLY	Ck.#	Date	Staff	Staff	After Photos
PBR #	FP		Acc. Date	Def. Date	



Plug plant 10-15 low bush blueberries. The area around the blueberries should be covered with 2-4 inches of erosion control mix, superhumus or a pine needle mulch.

Plug plant 25-30 low bush blueberries. The area around the blueberries should be covered with 2-4 inches of erosion control mix, superhumus or a pine needle mulch.

Municipal Board members and Code Officers

Students

Communicating with elected officials:

Public perception and interaction

Local and Regional Media

THE CONTRACTOR

Questions?