

Testimony on behalf of the Moosehead Region Futures Committee

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Topic of testimony:

Evaluation of "Plum Creek Land Company / Soils Mapping and Evaluation / Concept Plan for Plum Creek's Land in the Moosehead Lake Region, Maine", prepared by S.W. Cole Engineering, Inc. and dated July 23, 2007

Professional qualifications:

Lived and worked in Piscataquis and Somerset County since 1982
Maine Licensed Soil Scientist #230
Maine Licensed Site Evaluation #250
ARC-PACS Certified Soil Scientist 03190
ARC-PACS Certified Agronomist 03190
M.S. Pennsylvania State University 1986
B.S. Pennsylvania State University 1977
Self Employed Environmental Consultant 1989 to present
Alder Stream Preserve (12,000 acres) Sweet Water Trust Land Steward 1999 to present
USDA Soil Conservation Service District Conservationist Somerset County Maine 1987-1989
USDA Soil Conservation Service District Conservationist Piscataquis County Maine 1982-1987
USDA Soil Conservation Service Soil Conservationist, Pennsylvania 1977-1982

A. Definition of Soil Suitability

The report prepared by S.W. Cole discusses the fact that the proposed development will be evaluated using the following two parameters:

"Is the area in question generally suitable for development? Put another way is the area dominated by more than 50% suitable soils for development? Suitable being defined as soils with medium or better potential for development as rated by NRCS (See Exhibit 3)."

"If the zone is not dominated by suitable soils, then what other specific information will the applicant provide to overcome the soil limitations?"

The report uses a soil suitability rating system based on the NRCS Soil Potential Ratings for low density development in the Unorganized Area of Maine, April 2004. The report uses the categories

of generally suitable, limited suitability, generally unsuitable, unsuitable because of wetness and unsuitable because of steep slopes.

The following exhibit is taken from the S.W. Cole Report:

EXHIBIT 3

SOIL SUITABILITY CRITERIA TABLE	
NRCS Soil Potential Ratings	S. W. COLE ENGINEERING, INC. Soils Suitability Ratings
Map Units Dominated by High and Medium Potential Soils	Feasible for Development (Generally Suitable)
Map Units Dominated by Medium with Some Low or with Equal Amounts of Medium and Low Potential Soils	Potentially Feasible for Development (Limited Suitability)
Map Units Dominated by Low Potential Soils	Marginally Feasible for Development (Generally Unsuitable)
Map Units Dominated by Very Low Potential Soils	Unsuitable for Development

As outlined in S.W. Cole's Exhibit 3, areas generally unsuitable for development are dominated by soils with low soil potentials and areas unsuitable for development are dominated by soils with very low soil potentials. I think this is a reasonable system and I would agree with the general concept.

I have reviewed the soil map units developed by S.W. Cole and outlined in their Exhibit 6 in the report and I have found the following inconsistencies with their rating scheme:

S.W. Cole Unit	%	Component	Soil Potential Rating	Dominant Rating	Reference USDA Unit	Correct Suitability	S.W.Cole Suitability
CdB Colonel –Dixfield complex 1-1-8%	40 30	Colonel Dixfield	Low High	Low	54B 1-8%	Generally unsuitable	Limited Suitability
CdC Colonel –Dixfield complex 15%	40 35	Colonel Dixfield	Very Low Medium	Very Low	54C 3-15%	Unsuitable	Limited Suitability
ChD Chesuncook very stony loa 15-30%	75	Chesuncook	Very Low	Very Low	76 D 5-30%	Unsuitable	Generally Unsuitable
DpB Daigle-Perham complex 1-8%	50 25	Daigle Perham	Low Medium	Low	374B 0-8%	Generally Unsuitable	Limited Suitability
DpC Daigle-Perham complex 8-15%	50 25	Daigle Perham	Low Medium	Low	376C 8-15%	Generally Unsuitable	Limited Suitability
DxD Dixfield stoney fine sandy loam, 15-30%	75	Dixfield	Very Low	Very Low	53D 12-30%	Unsuitable	Generally Unsuitable
EcD Elliottsville-Chesuncook complex, 15-30% slope	45 30	Elliottsville Chesuncook	Very Low Very Low	Very Low	76D 5-30%	Unsuitable	Generally Unsuitable
EmD Elliottsville -Monson complex, 15-30% slope	55 25	Elliottsville Monson	Very Low Very Low	Very Low	89D 15-30%	Unsuitable	Generally Unsuitable
MeB Monson-Elliottsville complex, 1-8% slopes	50 30	Monson Elliottsville	Low Medium	Low	74B 1-12% slopes	Generally Unsuitable	Limited Suitability
MeC Monson-Elliottsville complex, 8-15% slopes	50 30	Monson Elliottsville	Low Medium	Low	76C 3-15% slopes, 89C 5-15% slopes	Generally Unsuitable	Limited Suitability
MeD Monson-Elliottsville complex, 15-30% slopes	35 35	Monson Elliottsville	Very Low Very Low	Very Low	89D 10-30% slopes	Unsuitable	Generally Unsuitable
MvB Monson-Elliottsville-Knob Lock complex, 1-8% slopes	30 30 15	Monson Elliottsville Knob Lock	Low Medium Very Low	Low/Very Low	74B 1-12% slopes, & 93B 1-12% slopes	Generally Unsuitable	Limited Suitability
MvC Monson-Elliottsville-Knob Lock complex, 8-15% slopes	30 30 15	Monson Elliottsville Knob Lock	Low Medium Very Low	Low/Very Low	89C 5-15% slopes, 93B 1-12% slopes	Generally Unsuitable	Limited Suitability
MxB Monson-Elliottsville-Knob Lock complex, 1-8% slopes	30 30 15	Monson Elliottsville Knob Lock	Low Medium Very Low	Low/Very Low	74B 1-12% slopes, 93B 1- 1-12% Slopes	Generally Unsuitable	Limited Suitability
MxC Monson-Elliottsville-Knob Lock complex, 8-15% slopes	30 30 15	Monson Elliottsville Knob Lock	Low Medium Very Low	Low/Very Low	74B 1-12% slopes, 93B 1- 1-12% Slopes	Generally Unsuitable	Limited Suitability
TcB Telos-Chesuncook complex 1-1-8% slopes	50 30	Telos Chesuncook	Low Medium	Low	74B 1-12% slopes	Generally Unsuitable	Limited Suitability
TcC Telos-Chesuncook complex 8-15% slopes	40 35	Telos Chesuncook	Low Medium	Low	76C & 77C, 3-15% slopes	Generally Unsuitable	Limited Suitability
TeB Telos-Elliottsville complex, 8% slopes	40 30	Telos Elliottsville	Low Medium	Low	74B, 1-12% slopes	Generally Unsuitable	Limited Suitability
TeC Telos-Elliottsville complex, 15% slopes	40 30	Telos Elliottsville	Low Medium	Low	76C, 3-15% slope	Generally Unsuitable	Limited Suitability
ThD Telos-Chesuncook-Elliottsville complex, 15-30% slopes	40 20 20	Telos Chesuncook Elliott	Very Low VeryLow Very Low	Very Low	76D, 5-30% slope	Unsuitable	Generally Unsuitable
TsB Telos stony silt loam, 1-8% slopes	75	Telos	Low	Low	74B , 1-8% slopes	Generally Unsuitable	Limited Suitability
TxB Telos-Chesuncook complex 1-8% slopes, extremely stony	45 30	Telos Chesuncook	Low Medium	Low	74B, 1-12% & 76C 3-15%	Generally Unsuitable	Limited Suitability
TxC Telos-Chesuncook complex 8-15% slopes, extremely stony	45 30	Telos Chesuncook	Low Medium	Low	76C 3-15% Slopes	Generally Unsuitable	Limited Suitqability
CtC Chesuncook-Telos complex 15-30% slopes	45 30	Chesuncook Telos	Very Low Very Low	Very Low	76dD 5-30% slopes	Unsuitable	Generally Unsuitable

Based on the above table and the rating system developed by S.W. Cole, the Soil Suitability maps developed by S.W. Cole should be modified to show the correct soil suitability rating for all soils.

B. Soil limitations

The soil survey's purpose is to locate soils that are best suited for development as well as to locate soils that are not suitable for development. Ideally, the soil survey is used to determine the appropriate areas for development while protecting those areas not suitable for development. Although limitations can be overcome with various practices, overcoming these limitations comes with an increased and significant environmental cost. Table 1 of the S.W. Cole soil report outlines the soil limitations and how they could be overcome. I will briefly discuss some of these limitations and the practices that are commonly used to overcome them, as well as the impacts of those practices.

Shallow to bedrock soils would likely require additional fill and blasting. Increased use of fill will lead to significant increases in the amount of gravel/fill extraction as well as transport. This means more acres of land affected by gravel/fill extraction, more trucks transporting the fill across public highways, more traffic hazards, more damage to public roadways, and increased noise and air pollution. The use of blasting will increase the amount of noise, and will potentially damage ground water supplies and nearby water structures.

Soils on steep slopes will necessitate larger cut/fill slopes, which will lead to increased scarring of the landscape, potentially unstable side-slopes, and the need for the installation and maintenance of erosion and sedimentation controls. If these measures are not properly installed and maintained, they will lead to increased erosion and sedimentation and subsequent negative impacts on water quality. This is especially a concern in soils within the Chesuncook Catena, which are very prevalent in the Concept Plan area. These soils have a relatively high clay content (10-18%) and are therefore more prone to causing water turbidity and soil slumping. Cut slopes on these soils are often not stable and will slump during wet seasons, causing increased erosion and sedimentation. The clay particles within the soil stay suspended in the water column for long periods and can travel long distances causing water turbidity in the water bodies they are transported to. The clay particles also transport phosphorus and other pollutants.

Wet soils would require additional filling and ditching. Increased use of fill will lead to significant increase in the amount of gravel and fill extraction and transport. This means more acres of land affected by gravel/fill extraction, more trucks transporting the fill across public highways, more traffic hazards, more damage to public roadways, and increased noise and air pollution. Additional ditching will lead to increased erosion and sedimentation and water quality issues. The ditching will also lead to disruption of surface water and shallow ground water flowage. Also, the use of wet soils will very likely lead to filling and other alterations of wetlands.

Use of somewhat poorly drained and/or shallow to bedrock soils for subsurface waste water disposal areas will require the use of more of the required gravelly coarse sand fill which is generally in short supply. The excessive use of this material on poorly suited soil will diminish this limited resource and generally make it less available and more expensive for other people who need to install new systems or replace malfunctioning systems.

The point of this discussion is that, if the objective is to minimize environmental impacts and protect the natural resource values of the Moosehead Lake Region, the use of poorly suited soils

should only be considered when there is no other alternative. However, in this case there is no need to use the poorly suited soils.

As outlined in Plum Creek's traffic permit application, the proposed development is for 975 residential dwelling units, 1050 resort accommodations with housing for 190 employees, 100 affordable housing units and a 90-acre sawmill. That equals 2315 housing units. If an area of 1 acre is assumed for each housing unit, the total development area would add up to 2315 acres. The proposed sawmill would require an additional area of 90 acres, which would increase the total acreage of the area actually needed for development to approximately 2405 acres.

The total area of generally suitable soils according to the attribute table in S.W. Cole's Soil GIS Data is 3,105 acres. This alone would provide more than enough area for the proposed development as stated. Therefore, the areas that are unsuitable and generally unsuitable for development should be withdrawn from consideration for rezoning.

C. Revised soil suitabilities by area

Attached are soil suitability maps (Exhibits 1-18) based on the information provided by S.W. Cole. For each area proposed for development, there are two maps, the first showing soil suitability for the entire area, the second eliminating lands that are unsuitable for development. These maps are based on the higher soil suitability standard that I have outlined above.

Route 6/15 (3021 acres) is predominantly generally unsuitable (1968 acres) and unsuitable (837 acres) for development with only 152 acres generally suitable and 64 acres with limited suitability. There is no generally suitable land on the east side of Rte 6/15; there is an area of limited suitability that cannot be accessed without crossing large areas of hydric soils. Almost all of the shorefront associated with this site is generally unsuitable or unsuitable for development. The portion of the site on the east side of Route 6/15, along with other areas on the west side of Rte. 6/15 with unsuitable or generally unsuitable soils should be completely excluded from development due to poor soil conditions.

Lily Bay (4405 acres) is made up of predominantly unsuitable (955 acres) and generally unsuitable soils (1409 acres). These poor soil areas as well as other areas that are not accessible without crossing hydric soils or soils unsuitable due to steepness should be excluded from development. The area also includes 1021 acres of generally suitable soil and 1022 acres of limited suitability soils that could potentially be developed.

Blue Ridge (3895 acres) includes 965 acres of generally suitable soil and 644 acres of limited suitability soils. The remainder is made up of generally unsuitable soils (1758), unsuitable soils due to steep slopes (275 acres) and unsuitable soils due to wetness (262 acres). These poor soil areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development.

Big Moose (4710 acres) includes 86 acres of generally suitable soil and 1092 acres of limited suitability soils. The remainder is made up of generally unsuitable soils (2195 acres), unsuitable soils due to steep slopes (348 acres) and unsuitable soils due to wetness (990 acres). These poor soil

areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development.

There is presently no access to the proposed development zone of Indian Pond. The proposed method of access and soil maps of the access route should be provided before this area is considered for rezoning.

Likewise, the only existing access to the proposed development area on the north side of Burnham Pond is along an unimproved road over unknown soils. This area should be excluded from rezoning consideration due to poor or unknown access. More information regarding access is needed before this area should be considered for rezoning.

Long Pond (1499 acres) includes 104 acres of generally suitable soil and 161 acres of limited suitability soils. The remainder is made up of generally unsuitable soils (1060 acres), unsuitable soils due to steep slopes (12 acres) and unsuitable soils due to wetness (161 acres). These poor soil areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development.

Moose Bay (1199 acres) includes 307 acres of generally suitable soil and 311 acres of limited suitability soils. The remainder is made up of generally unsuitable soils (141 acres), unsuitable soils due to steep slopes (284 acres) and unsuitable soils due to wetness (157 acres). These poor soil areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development.

Brassua (2876 acres) includes 279 acres of generally suitable soil and 739 acres of limited suitability soils. The remainder is made up of generally unsuitable soils (1170 acres), unsuitable soils due to steep slopes (159 acres) and unsuitable soils due to wetness (529 acres). These poor soil areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development. Specifically, the small area on the north side of Brassua Lake does not have suitable soils or shore frontage and should not be considered for rezoning.

Upper Wilson (184 acres) includes 100 acres of generally suitable soil and 30 acres of limited suitability soils. The remainder is made up of generally unsuitable soils (7 acres), unsuitable soils due to steep slopes (33 acres) and unsuitable soils due to wetness and other factors (12 acres). These poor soil areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development. I would also like to note that lake access in much of this area is across steep slopes or wetlands. If development is approved in this area, lake access across steep slopes or wetlands needs to be carefully controlled and restricted.

Beaver Cove (116 acres) includes 99 acres of generally suitable soil and 7 acres of limited suitability soils. The remainder is made up of unsuitable soils due to steep slopes (10). These poor soil areas as well as other areas that cannot be accessed without crossing hydric soils and/or soils unsuitable due to steepness should be excluded from development.

D. Review Standards

It appears that the proposal rewrites LURC's standards of review specifically for this development. This makes it unclear whether LURC's standards or the applicant's standards for review will be used in evaluating specific subdivision or development plans. While LURC's review criteria are generally adequate, the review criteria submitted as part of this proposal are not adequate and should be withdrawn. As an example, Plum Creek in the "Amended Architecture" (submitted

August 13, 2007) proposes the review of the “Resort Master Plan” using their standards. The proposal states that the purpose “is to provide the Commission with the framework for the proposed resort development, and to provide the applicant with certainty of Commission approval of future phases of the proposed resort development which are consistent with the resort master plan approved by the Commission....The information submitted to support the resort master plan shall be at a conceptual level or, at the option of the applicant, may be more detailed.” This could allow the potential resort to be approved only to find out later, when more information is available, that the site is unsuitable for the development that is proposed.

Also, in the “Amended Architecture” are criteria for “Site-Specific Resort Development Phase Applications”. These standards are not adequate in regards to the contour interval of 10 feet as opposed to the normal 2 foot interval. The term medium intensity soil survey is used, while a high intensity survey is what would actually be needed to adequately determine the suitability of the soils on site for development.

In conclusion, all language inserted regarding review standards should be removed and all proposed development should meet the normal LURC review standards which have been proven to be effective and adequate to meet the needs of the public, the review agencies and the developers.

E. Soils and Forestry Practices Under Plum Creek’s Current Forest Management

In my opinion, current Plum Creek forestry operations and procedures cause excessive soil erosion, sedimentation, and soil damage and degrade water quality within the Moosehead Lake Region. I do not consider Plum Creek’s forest harvesting procedures as acceptable in general and they certainly should not be considered acceptable for conservation easement lands. A tour of Plum Creek’s lands in the Moosehead Region would show that road ditches are generally not seeded or otherwise stabilized, cross drainage is inadequate and does not meet standards outlined in publications such as the USDA-NRCS Technical Guide, USDA Woodlands of the Northeast Erosion and Sedimentation Control Guide, or LURC’s Chapter 15 of the Commission’s Rules—Guidelines for Private Roads or Ways in LURC’s Management Districts. Likewise, roads that are not currently being used are not maintained in a way to prevent soil erosion and sedimentation. Also, forestry operations are at times carried out when soil conditions are not suitable. This leads to soil rutting, soil compaction, and alteration of surface and ground water flows. This soil damage has a negative impact on water quality, soil productivity and water course base flow. I have attached as Exhibit 19 pictures taken during the Fall of 2006 and Summer 2007 that show examples of the consequences of Plum Creek’s current forest management practices. These pictures show a few of the many situations that I have personally observed on Plum Creek’s lands and should not be considered as out of the ordinary. With proper planning and management, the soil erosion, soil damage, sedimentation and negative water quality impacts depicted in these images would not have occurred. A Conservation Easement should be developed that sets standards that will prevent or at least minimize these negative impacts

F. Summary

In summary, based on the soil mapping provided by S.W. Cole, there are approximately 3113 acres of generally suitable soils and 4070 acres of limited suitability soils. This total of 7183 acres is

more than an adequate amount of land for the development proposed in Plum Creek's Concept Plan. If all the mapping units dominated by soils with low or very low soil potentials are excluded, as outlined above (Section A), there is a total of 4956 acres of generally suitable and limited suitability soils available. This again should be more than enough land for the development proposed by Plum Creek. It may be necessary to cross some generally unsuitable soils in order to access the more suitable land. However, with proper planning now, the use of the generally unsuitable soil areas can be minimized and the need to use areas currently mapped as unsuitable can be completely avoided. It is my opinion that the soil suitability maps should be used as framework to redesign an area to be rezoned that allows for the development that Plum Creek currently proposes while permanently protecting and preserving the areas with poorly suited soils.

However, before any land is rezoned for development, site specific details regarding the development proposal should be submitted for each site by Plum Creek.

The other unsuitable lands should not be considered for rezoning because the additional area is not needed to meet Plum Creek's stated development objectives. Also, rezoning and development of the unsuitable lands would lead to negative economic and environmental consequences.

Plum Creek's current forest harvesting techniques cause significant soil erosion, soil damage, sedimentation, and water turbidity and negatively affect watercourse base flow. A conservation easement with standards that minimize these negative environmental impacts should be developed.

OATH

State of Maine

County of _____

I, _____, being first duly sworn on oath, affirm that the foregoing pre-filed testimony is true, accurate, and correct to the best of my knowledge, information, and belief.

Signature

Name (printed)

Sworn to and subscribed before me this ____ day of August, 2007.

Notary Public (signature)

Notary Public (printed name)