

**STATE OF MAINE
LAND USE PLANNING COMMISSION**

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| IN THE MATTER OF |) | |
| FISH RIVER CHAIN OF LAKES |) | Pre-Filed Direct Testimony of |
| CONCEPT PLAN |) | Patrick L. Clark, PE, CPESC, CPSWQ |
| ZONING PETITION ZP 768 |) | |

On behalf of Aroostook Timberlands LP, Allagash Timberlands LLC, and Maine Woodlands Realty Company, and their operating affiliate of Irving Woodlands, LLC (collectively, Irving), Patrick L. Clark is submitting this pre-filed direct testimony in support of Fish River Chain of Lakes Concept Plan.

I. QUALIFICATIONS AND BACKGROUND

My name is Patrick L. Clark. I am employed as a Senior Civil Engineer with Stantec Consulting Ltd. in Scarborough, Maine. I received a Bachelors in Civil Engineering (BSCE) in 1978 from the University of Maryland, College of Engineering, in College Park, Maryland. I am licensed by the Maine State Board of Licensure for Engineers (PE #5749). I am also registered as an engineer in the State of Pennsylvania (PE #084160), and am nationally certified as a Certified Professional in Erosion and Sediment Controls (CPESC #2071) and as a Certified Professional in Storm Water Quality (CPSWQ #874).

I have 40 years of engineering experience involving civil and site design principles and practices. I have been employed by Stantec for 25 years and currently have the position of Associate/Technical Lead Stormwater. My current areas of focus and design responsibilities include stormwater facilities design and permitting, Low Impact Development (LID) design, storm water quality and lake phosphorus management systems. Prior to, and currently with Stantec, I have worked on dozens of major projects in Maine as well as throughout the United States and several International projects. I participated from 1995 to 2014 on technical committees/Task Force with the Maine Department of Environmental Protection in the development of, and revisions to,

the Maine storm water management rules currently known as Chapter 500 (Storm Water Management Rules).

My direct experience in large storm water management and water quality includes 9 school campuses, 20 elderly housing/multi-unit facilities, 6 industrial power plants, 8 golf courses, 8 major airports, and numerous residential and commercial site developments, including wind power, medical facilities, highway, rail, and government projects, all of which required stormwater management design and permitting, and many of which involved water quality protection of lakes and environmental resources.

II. INVOLVEMENT WITH THE FISH RIVER CHAIN OF LAKES PROJECT

I was responsible for evaluating the export of phosphorus from all potential development sites within the Concept Plan to assess whether and how development activities authorized by the Concept Plan would be protective of water quality in the lakes.

III. SUMMARY OF PHOSPHORUS ASSESSMENT

The Fish River Chain of Lakes Concept Plan encompasses approximately 51,015 acres, within 6 unorganized townships: and includes approximately 34.5 miles of frontage on Long Lake, Mud Lake, Cross Lake, and Square Lake, and along the thoroughfares that connect the lakes. The Land Use Planning Commission (LUPC) is encouraging meaningful long-range planning, based on resource characteristics and site suitability to prevent random or unplanned incremental development in the Unorganized Territories. The Concept Plan proposes rezoning a few small areas or parcels that specifically include limited development potential within the lake watersheds. By implementing a comprehensive planning approach, the level of development allowed will ensure that development pursuant to the Concept Plan will not have any undue adverse impact on the Plan area or natural resources within the Chain of Lakes.

The adoption of the Concept Plan will be subject to the requirements and standards provided in the existing Chapter 10 of LUPC's rules, *Land Use Districts and Standards for Areas Within the Jurisdiction of the Maine Land Use Planning Commission* manual, and as included in proposed amendments within the Concept Plan. Specifically the development regulated by LUPC must continue to meet the standards for Surface Water Quality (Chapter 10.25.K) and Phosphorus Control (Chapter 10.25.L), while development subject to DEP's Site Location of Development Act will have to meet applicable Chapter 500 standards for stormwater. These standards require all development to cause no undue adverse impact to the surface water quality of the affected lakes and to limit the export of phosphorus to allowable sustainable levels which may result from the development sites following completion of any community development or residential subdivision.

During the preparation of the Plan, the DEP identified specific concerns about phosphorus in runoff within the Cross Lake watershed due to its greater vulnerability to development pressure, limited lake phosphorus budget, existing trophic status, and influences from contributing land areas where these unregulated activities, such as agriculture, contribute associated phosphorus exports that may be detrimental to the water quality status.

In response to this concern, Terrence DeWan & Associates (TJD&A), The Musson Group, Irving, and Stantec have worked with the LUPC and DEP staff to develop additional protections for the areas to be rezoned for development specifically located within the Cross Lake watershed to balance the phosphorus budget and ensure that water quality in Cross Lake will be protected. This includes consideration of potential influences from these unregulated non-Concept Plan activities, such as agriculture at the northern end of the watershed, which contributes significant levels of phosphorus to the lake, as well as potential future uncontrolled sources, such as timber harvesting and development beyond the life of the Plan.

The results of the phosphorus assessment indicate that the export of phosphorus from all potential development sites within the Concept Plan, including

those within the more sensitive Cross Lake watershed, will not exceed the allowable lake phosphorus budgets and will still allow a reasonable reserve budget for unregulated and future non-Concept Plan activities for each of the lakes. The Fish River Chain of Lakes will be protected and will meet Maine water quality standards for non-point stormwater discharge and phosphorus export to receiving waterbodies that must maintain a stable or decreasing trophic state.

III.A OVERALL APPROACH

DEP evaluated the Concept Plan to assess the feasibility of developing all commercial and economic development lots and all of the residential units within the development areas identified in the Fish River Concept Plan, without exceeding the overall phosphorus budgets determined for each lake. The DEP issued a memo that addressed potential phosphorus export from each of the proposed development areas in the Concept Plan and concluded that the development areas that may be allowed within the Concept Plan are feasible without long term impacts to the lakes, but identified some concerns specifically within the Cross Lake watershed. The Concept Plan areas not rezoned for development and existing contributing land areas around Cross Lake, such as agriculture and forestry management practices would remain as unregulated activities. Due to the relatively limited available Cross Lake phosphorus budget, these otherwise unregulated activities may need to be considered for impacts to future lake quality, according to the DEP, since they continue to contribute phosphorus exports that could also impact the water quality status. Since these activities are not regulated or managed with regards to phosphorus export they are not normally required to be included in the assessment of the development impacts, but are carefully considered for the Cross Lake watershed in this Plan.

The DEP memo expressed the need to manage potential development within the Cross Lake watershed by establishing a total phosphorus budget for each lake that it determined would be protective of water quality and then conservatively estimating the potential increase in phosphorus loading due to development from the Concept Plan.

The export of phosphorus from all potential development sites on the four lakes within the Concept Plan was calculated using methodology approved by DEP and LUPC to ensure that the total export from all allowable residential and community/economic development areas in the Concept Plan will not exceed the allocated lake phosphorus budgets for the lakes, after considering any residential unit caps, while still allowing some reserve budget capacity for off-site and unregulated activities not associated with the development areas.

While a per acre phosphorus allocation is the standard method for determining a development project's phosphorus budget when assessing impacts to Maine lakes, the DEP recommended using an overall combined phosphorus budget for each lake to evaluate the Concept Plan. Rather than evaluating each development area in the Concept Plan based on the per acre phosphorus allocation factors associated with the actual project areas, the DEP determined that it is reasonable and more practical to establish an overall combined phosphorus budget for each lake. The DEP provided the budgets for each of the lakes in the Concept Plan. Because of the unique character of this Concept Plan, which involves extremely large landholding parcels with widely distributed development areas, this approach will allow Irving to manage how these overall lake phosphorus budgets should be applied or distributed for each lake and associated development areas.

Each lake was assessed according to combined export totals calculated for each residential and community/ economic development area within the direct watershed of the associated lake units (except Mud Lake, which has no proposed residential development areas). Each lake will also be subject to area caps for residential units. The phosphorus export from all development areas must meet the allocated project phosphorus budget for the individual development site and such that the cumulative export will not exceed the overall phosphorus budget for each lake. Based on this approach of providing a total combined phosphorus budget for each lake, the individual project phosphorus budget allocations for all development areas within each lake watershed can be determined. The budget for each area is assigned so that the

aggregate sum of all phosphorus budgets allocated to each development area will not exceed the overall budget for each lake and the phosphorus export associated with each site cannot exceed the assigned budget. The budget for each site is assigned to include all potential export, such that each development area can be fully developed based on the “full-build” potential and maximum number of allowable lots. The assigned project budget need not be fully used up at a site, but will be applied as proposed development occurs up until the maximum level of development is implemented for the site, or the lake’s unit cap is reached, after which, no further residential development can occur, unless other measures are taken to mitigate the development or reduce export from other activities in the watershed.

Although not anticipated, or necessary to meet the assigned full-build project phosphorus budgets, some of the development areas could have lots with treatment measures and/or lot restrictions. If treatment measures are proposed for development activities, the many potential issues associated with such restrictions, treatment BMPs, or stormwater management structures that may be proposed need to be considered. The DEP and LUPC have stressed that requirements for design, construction, long-term maintenance, and responsibility for maintenance would need to be worked out or provided for in deed covenants and/or applicable permits.

Therefore, the export associated with potential lot development for each development area has been evaluated without any such restrictions. This has been done to conservatively fit within the assigned project phosphorus budgets for each of these development areas to assure that the levels of development anticipated in the Concept Plan can be achieved. The export/budget comparisons for each site and cumulative lake impacts are made after considering development limitations based on residential unit caps within each lake watershed. Any excess phosphorus budget not used at a development site may be transferred to other developments, upon review and approval by LURC, within the same lake watershed, providing that the overall lake budget is not exceeded for cumulative export from all sites. No portion of any lakes phosphorus budget can be transferred to a different lake. Each project’s allocated phosphorus

budget will be tracked, as development occurs within the Plan area, along with the total unit count, to assure that each lakes phosphorus budget and/or residential unit cap will not be exceeded.

As a result, the proposed levels of development are reasonable and the Fish River Chain of Lakes will be protected and will meet Maine water quality standards for non-point stormwater discharge and phosphorus export to receiving waterbodies that must maintain a stable or decreasing trophic state.

III.B PHOSPHORUS CALCULATIONS

Phosphorus export calculations and overall lake assessments were performed for each lake in a study by Stantec, entitled *EVALUATION of PHOSPHORUS EXPORT and ALLOCATIONS for FISH RIVER CHAIN of LAKES CONCEPT PLAN*, dated April 12, 2018, and submitted to the DEP for review. This report provides detailed analyses for each of the four lakes to assess the potential phosphorus export from future uses within the area encompassed by the Fish River Lakes Concept Plan. For all lakes we evaluated the phosphorus export that could be generated from two sources within each watershed. The main focus of the study was to evaluate the primary sources of phosphorus export from the anticipated development that would be permitted within areas identified as appropriate for future development within the plan area development zones. The second source of potential phosphorus export is from future unregulated, non-Concept Plan or off-site activities (e.g. new logging roads, upgrades to existing roads, and additional house lots within the watershed after the Plan expires).

Each of the residential and community/economic development areas within each lake's watershed was evaluated to assess the phosphorus export associated with the maximum levels of development that would be possible according to rezoning and conservative assumptions made regarding typical development densities and road access requirements for each area. These assumptions included estimated areas of typical lot coverage from roofs, driveways, tree clearing for septic systems and lawns, individual house lots, new access roads, upgrades to existing roads, common areas,

number of potential lots, soils, and limitations due to maximum potential development based on an overall residential unit cap for each lake. The community/economic development areas included conservative assumptions beyond the zoning allowances for the maximum developed area of buildings and impervious coverage that would likely occur on each lot.

Phosphorus export values were determined using methodology approved by DEP and LUPC, and are based on the assumed lot coverages for each site using the most conservative values and assumptions with no requirements for treatment BMPs or mitigation. For example, although it is reasonable to assume that residential lots in this part of Maine would most likely be described as smaller “camp lots,” rather than the much larger development footprints of a typical “single family” house lot that may occur elsewhere in the state, it was determined that the use of the higher values for house lots would be used to conservatively calculate the export from all residential lots. This was done to assure that each area will have a sufficient phosphorus budget so that the total export from all allowable residential and community development areas in the Concept Plan can be developed without exceeding any of the lake phosphorus budgets, after considering residential unit caps, while still allowing some reserve budget capacity for off-site and unregulated activities not associated with the development areas.

Each lake has an overall allocated Lake Phosphorus Budget as determined by the DEP. The allocations (lb P/yr) for each lake are 208.55 (Long Lake), 103.75 (Mud Lake), 82.19 (Cross Lake), and 458.14 (Square Lake). These were developed based on the total land areas within each township draining to a lake, according to how much the lake's phosphorus concentration can be increased without risking a perceivable increase in its algal production or a decline in its healthy, natural fish community. As our analysis showed, and as DEP concurred, development associated with the Concept Plan – even under the conservative assumptions outlined above – will not export sufficient phosphorus to threaten the water quality of Long, Mud, or Square Lakes. Therefore, nothing beyond the usual stormwater requirements in Chapter 10 (or, for projects

regulated by DEP, Chapter 500) is required. Further review, however, was required for Cross Lake.

Cross Lake

Phosphorus export calculations and overall lake assessments were performed specifically for Cross Lake in a study by Stantec, entitled *CROSS LAKE PHOSPHORUS EXPORT ASSESSMENT*, dated April 9, 2018, and submitted to the DEP for review. This report provides detailed analyses for Cross Lake to assess the potential phosphorus export from future uses within the Cross Lake watershed for the Fish River Lakes Concept Plan.

For this assessment, each of the residential and community/economic development areas within the Cross Lake watershed were initially evaluated to assess the export associated with the levels of development that would be possible. Assumptions were made regarding typical camp lot development based on sketches and descriptions for each area. These assumptions included estimated areas of typical lot coverage from roofs, driveways, septic systems and lawns, new access roads, upgrades to existing roads, common areas, and number of potential lots, soils, and limitations due to maximum potential development based on an overall unit cap for Cross Lake of 125 units. This initial approach was later revised based on DEP recommendation that all export from residential house lots should be based on the more conservative export values provided in Table 3.2 of DEP's *Maine Stormwater Design Manual* for single family residential lots. As a result, the house lot exports increased by approximately 65%, which resulted in larger phosphorus budgets for each of the residential development areas.

Since the higher export values associated with the residential areas have the effect of reducing the available project budgets for the community/economic development areas, it was necessary to reconsider the development potential for these areas.

Three commercial areas were initially included in the May 2017 submittal for the Concept Plan identified as “CD-3a”, “CD-3b” and “CD-3c. Areas CD-3b and CD-3c have since been eliminated and the remaining area (CD-3a) has been renamed as CD-3.

In order to reduce the export to acceptable levels from CD-3 to meet the overall lake budget, the number of lots allowed has been significantly reduced from 12 lots to only 2 lots. The area included in the Concept Plan identified as “CD-4,” has been re-sized and reduced to approximately 62 acres and the number of lots for this area has been substantially reduced from 30 to 6 lots. The net effect is a reduction in the number of community/economic development lots in the Cross Lake watershed from 42 potential lots to only 8 lots. This reduction will significantly reduce the phosphorus export and greatly improve the ability to meet the budget for Cross Lake.

Based on the concept of providing a total combined phosphorus budget for Cross Lake (82.19 lb P/yr), the individual project phosphorus allocations (budgets) for all development areas were determined. The budget to be allocated for each area will be assigned in the Concept Plan so that the aggregate sum of all project phosphorus budgets given to each development area will not exceed the overall lake budget for Cross Lake, after considering any development limitations based on the residential unit cap. Each development area will have a project budget so that the site can be developed based on the “full-build” of all lots, until the unit cap is reached. Once that occurs, no further residential development can occur within the lake watershed, unless other measures are taken to reduce export from the site or other activities in the watershed. In this manner the export from residential areas will be consistent with the overall unit cap for Cross Lake of 125 lots, without any need for BMP treatment or mitigation measures for reduction of phosphorus export. Community/economic development areas are evaluated based on export values for Commercial Development with no restrictions on fertilizer use, no buffers, and no restrictions on impervious surfaces or ditch design, and using the High Export Option according to DEP’s *Maine Stormwater Design Manual*.

The DEP has requested that the plan also consider potential existing and future export sources not associated with development activities within the Concept Plan area for Cross Lake, including unregulated forestry management road construction. LUPC has also suggested that a portion of the budget should be reserved to allow for exempt residential lots that may be constructed in the future, after the Concept Plan expires. In order to assess these other sources, we evaluated the potential for the construction of about 8 miles of new logging roads and upgrades to about 2 miles of roads that are included in Irving's long-term forest management plan for the Cross Lake watershed. In addition we assumed the development of 8 future house lots that could be developed after the Concept Plan expires. While Irving has no plans to sell parcels of land outside of the residential development areas, we identified these locations on existing roads that are either within 0.5 mile of the lake, on the thoroughfare, or in other desirable locations, and thus are a reasonable prediction of future development potential.

The overall Cross Lake budget for Irving's land allocated to all of these combined activities is 82.19 lb/year. Approximately 55.5 lb/year export has been allocated to be distributed to all of the Cross Lake development areas for residential and community/economic development areas. By limiting the combined total of project budgets available for Concept Plan developments to the maximum phosphorus exports calculated for the developed areas, a reserve budget of 26.7 lb/year is set aside for any unregulated activities for long term protection of the Cross lake watershed for all potential sources of export anticipated for the life of the Concept plan and beyond. The potential unregulated sources of export have been estimated to be 26.4 lb/year, which is less than the reserve allowance. The total combined export calculated from all sources is 81.9 lb/year, which meets the overall budget for Cross Lake.

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| Cross Lake P Budget for Irving Land (PPB): | 82.19 lb/year |
| – <u>P Export from Residential / Community Development:</u> | <u>55.50 lb/year</u> |
| Reserved PB for unregulated activities: | 26.70 lb/year |
| Anticipated P export from unregulated roads / house lots = | 26.40 lb/year |

Based upon the calculations, the level of development envisioned in the Concept Plan appears to be feasible and protective of water quality in Cross Lake. The total export from all residential and community development within the Cross Lake watershed, after considering the residential unit cap, will not exceed the overall phosphorus budget for the lake while still allowing a reasonable reserve budget for off-site and unregulated activities not associated with the development areas. As a result, the water quality of the lake will be protected.

The Concept Plan for Cross Lake development meets the goal of the phosphorus methodology to provide protection from degradation of the lake water quality by limiting all potential development in the watershed sufficient to avoid increase in the lake's trophic state, with no visible effects, and distribute the burden of this protection over the watershed and over time.

III.C CONCLUSION

We have evaluated the maximum phosphorus export that could be generated from all anticipated development that may be allowed within the Concept Plan. The overall lake budgets for all of the four lakes can be met with at least one third of the total lake phosphorus budgets reserved for potential unregulated non-Concept Plan sources.

For acceptable site development(s) to meet applicable regulations, the project phosphorus export after development needs to be smaller than the assigned or allocated project phosphorus budget for all of the development parcels. Based upon the phosphorus export calculations, the level of development envisioned in the Concept

Plan is feasible and allows for a reasonable level of development that will be protective of water quality in all of the Fish River Chain of Lakes.

The Concept Plan meets the goal of the phosphorus methodology for all lakes to provide protection from degradation of the lake water quality by limiting all potential development in the watershed sufficient to avoid increase in the lake's trophic state, with no visible effects, and distribute the burden of this protection over the watershed and over time.

POST SCRIPT (RESPONSE TO DEP RESPONSE MEMO, APRIL 30, 2018)

Stantec recently received a memo, on May 1, 2018, from DEP in response to submittal of a phosphorus assessment by Stantec. DEP provided responses and comments to the submittal in this memo. This memo addresses the details of the phosphorus calculations for the development areas and the assumptions for non-concept plan unregulated activities. As an initial matter, the DEP again confirms that the Cross Lake watershed is the only lake watershed within the proposed Concept Plan area where the annual phosphorus budget (the acceptable increase in annual phosphorus load to Cross Lake) from land within the Concept Plan area of 82.19 lb. P/yr could potentially be exceeded for the lake since this amount is considerably less than the very generous annual phosphorus budgets than the other lakes.

With regard to Cross Lake, the phosphorus assessment by Stantec concluded that, since the sum of the phosphorus export from development and non-plan sources ($55.46 \text{ lb P/yr} + 26.35 \text{ lb P/yr} = 81.81 \text{ lb P/yr}$) is less than the phosphorus budget allocated to the watershed by DEP (82.19 lb P/yr), that the phosphorus budget for the Concept Plan area will not be exceeded by planned and anticipated development. The DEP agreed that the assumptions on which the export from residential lots are based are conservatively high and that much of the development that occurs in the Concept Plan is likely to be less intense and that the export associated with development of the proposed 125 house lots in the five residential development areas will, if anything, be less than the amount estimated.

The DEP comments suggest, however, that the assumptions about the level of development for the community and economic development areas are low, based on the assumption of 5,000 sq. ft. of roof, 5,000 sq. ft. of parking, and 7,000 sq. ft. of lawn for each lot. The DEP indicates that a typical convenience store, for example, would likely have more roof area and parking and any kind of light industry would likely have even more developed area.

Stantec asserts that the original estimates of lot coverage is appropriate, and in fact, may be somewhat generous, given the proposed zoning restrictions in the Concept Plan that DEP may not have considered. The proposed zoning for the D-FRL-GN district only allows 2,500 square foot buildings, with the ability to go higher only available as a special exception. This amount was *doubled* for Stantec's phosphorus export calculations to allow for all lots to be developed under special exception for a "worst case scenario". The LUPC regulations, Chapter 10.25.D for Vehicular Circulation, Access and Parking, provides that sufficient parking shall be provided to meet the parking needs of the development and the minimum number of parking spaces required shall be based on parking generation rates determined in accordance with standard engineering practices. Even when using parking requirements for the City of Portland, which is an urban setting that might be conservative here, the minimum parking likely to be required is on the order of the following:

Retail stores: One (1) parking space for each two hundred (200) square feet of first floor area in excess of two thousand (2,000) square feet;

Restaurants or establishments constructed and intended for the dispensing of food and drink as the principal activity: One (1) parking space for each one hundred fifty (150) square feet;

Offices; professional and public buildings: One (1) parking space for each four hundred (400) square feet;

Business, manufacturing, and industrial building not catering to retail trade and with floor area over three thousand (3,000) square feet: One (1) parking space for each one thousand (1,000) square feet of floor area

Even assuming that each site may be developed as a special exception for up to 5,000 s.f. of building, the parking demand for each of these uses would be 20 parking spaces for retail, 13 spaces for office, less than 5 spaces for business/manufacturing and up to 33 spaces for restaurant. A parking lot of 5,000 s.f. will accommodate up to 20 spaces, which will be suitable for most uses except restaurants. On average, considering not all sites will be special exceptions, 5,000 s.f. for parking seems more than reasonable. A 7,000 sf lawn area would accommodate up to a 70 foot x 100 foot lawn, which also seems quite reasonable.

The DEP memo also expressed concern over the unregulated non-Concept Plan activities. Stantec based its phosphorus export calculation of the amount of phosphorus allocation to be reserved for non-plan activities on Irving's long-range harvesting road plan, which projects that a maximum of 7.9 miles of new harvesting road will be created and 2.1 miles of harvesting road will be upgraded. DEP's concern is that the estimate of export from new and upgraded harvesting roads includes a reduction of export of 25% from the road surface and 50% from the cleared area on either side of the road. This assumption is based on the fact that the logging roads are all located in managed forestry areas that do not have any other associated developments, driveways or connected impervious areas, and are considered as "linear" projects. In addition, since they traverse undeveloped land that is often several thousand feet, and even miles, from the lake, and are surrounded by naturally vegetated or revegetated terrain that will provide significant buffering from export to the lake, it is reasonable to assume that only 75% of the road surface and 50% of the cleared area will, in fact, export phosphorus to the lake. This is based on a similar DEP Chapter 500 standard for linear

portions of a project and is generally in accordance with LUPC Chapter 10.25.3.d. (quoted below):

d. Exception for Linear Portions of a Project. *For a linear portion(s) of a project, runoff control may be reduced to no less than 75 percent of the impervious area and no less than 50 percent of the developed area that is impervious, landscaped or otherwise disturbed.*

Accordingly, we continue to believe that it is reasonable here.

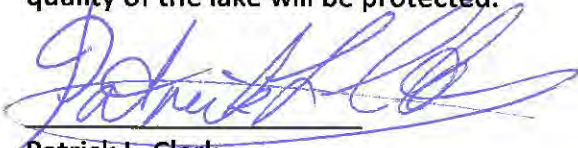
As DEP recognizes, Irving also intends to decommission and revegetate 2.0 miles of existing harvesting roads. Although no mitigation or credit is taken for these, it is important to note that they will no longer continue to export phosphorus once they have revegetated. If this occurs, it could result in as much as 5.21 lb. P/yr. of phosphorus export mitigation credit, which is not accounted for in the calculations, and therefore provides yet another level of conservatism to our calculations.

In addition, we have assumed the addition of 8 future exempt house lots that could be developed after the Concept Plan expires. While Irving has no plans to sell parcels of land outside of the residential development areas, these potential locations were identified on existing roads that are either within 0.5 mile of the lake, on the thoroughfare, or in other desirable locations, and thus are a reasonable prediction of future development potential. Considering that the calculations assume that no measures that would mitigate phosphorus export from these lots and the associated roads will be incorporated in the development of these areas (e.g., clearing restrictions or stormwater treatment buffers), there is an opportunity for developers of these lots someday to incorporate such measures as appropriate, resulting in potentially significant reduction in the export from the development areas.

The goal of the DEP methodology for calculating export is to address long-term phosphorus loading to lakes by setting standards to limit phosphorus contributions from new developments, with the focus on limiting, but not preventing, phosphorus contributions from new developments to lake watersheds. It is our conclusion that all of

the assumptions for phosphorus export are reasonable and generously conservative. It is only speculative that the Concept Plan will be developed to 100% of the zoning allowances, but the calculations are based on this assumption for full build of all areas.

The Petitioner has in effect provided approximately 33% of the total lake budget for non-Concept Plan and unregulated off-site activities. This is equivalent to relinquishing one third of development rights in the Cross Lake watershed to provide for other non-development activities. We conclude that the total export from all residential and community/economic development within the Cross Lake watershed, after considering the residential unit cap, will not exceed the allocated phosphorus budget for the lake while still allowing sufficient reserve budget capacity for off-site and unregulated activities not associated with the development areas. As a result, the water quality of the lake will be protected.



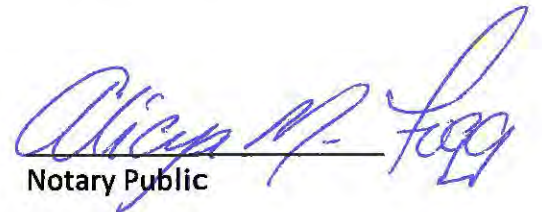
Patrick L. Clark

Date: May 2, 2018

STATE OF MAINE
COUNTY OF CUMBERLAND

Personally appeared before me the above-named Patrick L. Clark and made oath that the foregoing is true and accurate to the best of his knowledge and belief.

Dated: May 2, 2018



Notary Public

ALICIA M. FOGG
NOTARY PUBLIC
State of Maine
My Commission Expires
October 12, 2024

My commission expires:

10.12.2024