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To: Amy Manzelli, Esq.
BCM Environmental & Land Law, PLLC
3 Maple Street
Concord, NH 03301

From: Rick Van de Poll, Ph.D.
Ecosystem Management Consultants

Re: NHDES Wetland Application 2020-02239 (Casella), WQC & Indirect Impacts

Amy;

Granite State Landfill's (GSL) proposed landfill in Dalton is perhaps one of the worst potential environmental disasters in the Granite State in recent memory. A project of this size and scope boggles the mind, and certainly tests the review capacity of the NH Department of Environmental Services (DES) when permitting an impact that will affect the entirety of northern New England.¹ The paucity of data with which to review and properly evaluate such a project points to the abject insufficiency of the wetland permit application:

- No comprehensive wetland evaluation has been completed
- Minimal hydrogeologic studies have been completed
- No secondary or indirect impact studies have been completed
- No onsite mitigation has been proposed even though some is currently required
- No comprehensive wildlife habitat impact studies have been completed

Whereas I have already addressed in a previous letter some of the inadequacies of the permit application relative to direct impacts to wetlands, the following includes comments that address the **indirect impacts** to wetlands and other waters of the state.

To date, I have been in touch with the U.S. Army Corps of Engineers (ACOE) and the Environmental Protection Agency (EPA) about their review of indirect impacts to the proposed GSL site in Dalton and Bethlehem, NH. As you know, both the ACOE and EPA have review authority under the Clean Water Act to review any potential upstream impacts to navigable waters of the United States. In addition, under the Statewide Programmatic General Permit, they also have an obligation to weigh in on large water resource impact projects with regards to

¹ For comparison purposes, this project will permanently impact seven times more wetlands than the failed Northern Pass Transmission Project and twice as many vernal pools in an area 23 times smaller!

the state’s authority to establish conditions and meet surface water quality standards according to the Clean Water Act’s Water Quality Certification Section 401 (40 CFR 124.53-124.55).

In reviewing the “19045_Wetland Impact Plans” prepared by Horizons Engineering and dated August 2020, I note the following:

1. The project footprint totals +/- 250 acres within the +/- 1940-acre property and falls entirely within the Upper Ammonoosuc River watershed (HUC 0108010304)
2. The 35 plan sheets indicate nine sheets with temporary impacts that total 18,420 s.f. (.42 acres), 18 sheets with permanent wetland impacts of 743,702 s.f. (17.07 acres), and three sheets with stream impacts that total 1333 l.f.
3. The plan set indicates three sheets that include the removal and destruction of five vernal pools that total 6,612 s.f. and the entirety of their 750-foot buffer areas
4. Indirect impacts to aquatic resource buffers within 100 feet of the marked edge of wet on the 35 plan sheets are as follows:

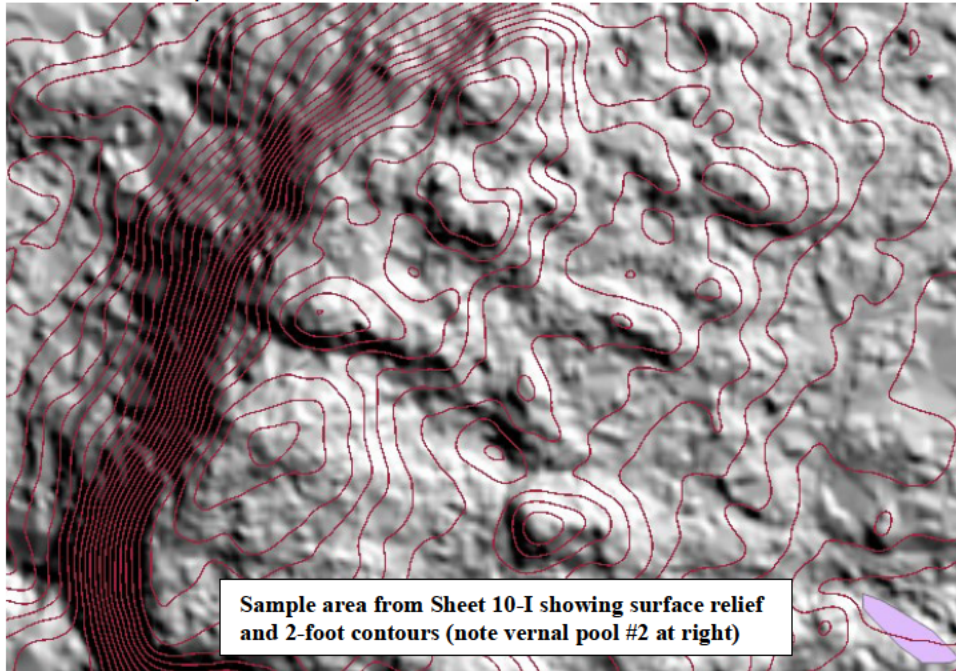
NWI Class	# of Plan Sheets	Total Impact (s.f.)	Notes
R3	5	2605	Also access rd impacts from salt
R4	4	1410	
PFO	22	18,000	Some wetland edges not delineated on maps beyond 25 ft
PFO/SS	13	10,760	Some impacts off property
PSS	11	7,170	Some near beaver dams
PEM	11	4,220	Some areas not delineated near Douglas Drive
PUB (OW)	3	1550	Old NWI codes used
TOTAL	25	45,715	= 8.66 miles, 104.95 acres

Neither the “19045 Existing Wetland Plan” nor the “19045_Wetland Impact Plans” indicates where the double-lined landfill area will be; therefore indirect impacts due to run-off versus those attributed to liner installation and landfilling are difficult to calculate. The “GSL January 2021 Response to Wetlands Bureau RMI Cover Letter” reveals a little more detail in this regard, stating on Page 9 that the total footprint of the landfill will be 137 acres, or roughly one half the size of the overall project area. It is assumed that the remainder of the non-landfill area will involve site grading, pond construction, roadway construction, and other variably pervious soil disturbance surfaces. This is very difficult to ascertain since none of the wetland impact plan sheets show any of the final disposition conditions for any of these areas.

Other indirect impact concerns that have not been adequately addressed by the application, nor by the above-cited RFMI response (aka “Response”) include the following:

1. On Page 3, the Response indicates that the landfill base liner “is to be set 6 feet above the seasonal high groundwater table,” yet there are no indications where the seasonal high groundwater table is throughout the site, nor are there any assurances that any

blasting that is required will alter or destroy the existing pattern of run-off and/or infiltration. I include the following sample site map showing Lidar-based relief and 2-foot contours from Sheet 10-I to illustrate how challenging it will be to achieve landfill liner consistency that lies six feet above a SHWT:



One of the concerns mentioned in the direct impacts letter to NHDES that is worth repeating here, is the potential for subsurface water flows to be changed as a result of blasting, notably in the watershed divide area above Forest Lake. The lack of suitable hydrologic studies that clearly demonstrates an impossibility of altering such subsurface flows has been noted by myself and Calex Environmental in several emails and letters to you.

2. On Page 4 of the Response, the applicant made the statement in regards to LAC comments that "Wetland Impacts have been minimized and the disturbance to the well functioning wetland complex has been avoided." With over eight miles of land clearing immediately adjacent to the upper Alder Brook wetland complex, over two miles of which will be along paved and salted roadways, this statement defies all logic and cannot be taken at face value by DES. With the exception of those few areas of prior disturbance that overlap with the landfill project site, several dozen acres of naturally vegetated wetland buffers will be eliminated and thereby reduce wetland functioning. This is especially critical for the five vernal pools and their buffers that will be destroyed by this project.
3. On Page 6 of the Response, the applicant states the following:
"Given all the standards established by the Federal Government and in this case the New Hampshire Department of Environmental Services (NHDES) the proposed GSL landfill will have no impact the Ammonoosuc River or any drinking water source."

This claim is tantamount to complete hyperbole given that virtually no baseline study of water quality has been conducted in the Alder Brook sub-watershed by the applicant. No water chemistry, habitat assessment or biomonitoring studies have been conducted

in any of the wetland being impacted, and therefore it is not clear how the applicant will prove that there will be no water quality impacts in the future.

4. On Page 8 of the Response, the applicant states that “Run off from roads at the GSL will provide more treatment than most roads and highways across the State of New Hampshire,” yet there are no specifics about how salt-laden run-off from the paved road surfaces will be treated or prevented from entering the Alder Brook wetlands when several thousand feet of roadside wetlands exist within a few feet of the edge of the roadways. Whereas there are 30 stormwater ponds planned for the landfill site to address run-off in other areas, *none* of these address the direct, roadside run-off and salt spray from plowing the roadways.
5. In a comprehensive assessment of wetland function, the ecological integrity of a wetland is typically measured by its landscape context, which is often gauged by the amount of undisturbed upland buffer around each evaluation unit.² The absence of any comprehensive wetland functional analysis at the GSL project site, and the absence of any serious calculation of upland buffer integrity pre and post-construction renders statements like they made on Page 9 unsupportable and provably false: “The Project avoids the higher functioning wetlands associated with Alder and Hatch Brooks.”
6. The U.S. Army Corps of Engineers *requires* an assessment of wetland functions in order to properly provide guidance on mitigating wetland losses, yet this is extremely difficult (if not impossible) to do when all of the site’s wetlands have not only been subject to a cursory wetland evaluation (i.e. the Federal Highways Method), they have also been lumped into five areas irrespective of the vast differences in function between them. This type of baseline inadequacy will make it impossible for the ACOE to accurately calculate “mitigation credits” for permit condition purposes.
7. On Page 15 of the Response the applicant indicates almost as an afterthought the concern over stormwater detention ponds being created *below* the elevation of adjacent wetlands: “the effects of hydrology of surrounding wetlands are being evaluated.” How is this being done, and how will the applicant demonstrate that these stormwater ponds will in fact have no impact on the hydrology of the nearby wetlands?

In sum, it appears that besides the primary case that the applicant fails to make relative to “reasonable alternative locations” as stated in the ACOE criteria for permit approval, they have failed to demonstrate that surface water quality standards will be upheld according to state and federal law. The amount of indirect impacts in the 100-foot buffer zone of the project site’s wetland exponentially increases the amount of loss to wetland and stream function. Drinking water quality, groundwater infiltration and recharge to surface waters down-gradient, and wetland-dependent wildlife species are being compromised by the project plans, irrespective of the direct impacts to wetlands, which are incalculably greater than what is stated by the applicant.

The noted insufficiencies in both the wetland permit application and the applicant’s response to the RFMI commands that the following be completed:

² See for example, *Ecological Integrity Assessment Model* (NHNHB 2014), *Planner’s Guide to Wetland Buffers for Local Governments* (Environmental Law Institute 2008), and *Method for Inventorying and Evaluating Freshwater Wetlands in New Hampshire* (Stone et al 2015).

- An alternative site in New England with less wetland impacts and no vernal pools should be found (at least one of the other three non-preferred alternatives actually had less wetland impacts and no vernal pools)
- Minimization of wetland impacts must include adequate buffers to all high functioning wetlands as determined by a thorough, comparative analysis of the wetland units on site
- Careful hydrologic studies must be completed to prove beyond a shadow of a doubt that the stormwater detention basins will not dewater existing wetlands or cause an interruption in the natural hydrology of these systems; these studies must also be able to prove that any bedrock blasting will not irreparably harm or alter the natural flowpaths of surface and groundwater above the wetland systems
- Accommodations must be made for roadside wetlands so that they do not suffer the fate of salt-laden aquatic resources that serve as treatment basins rather than functioning wetland systems

I would therefore strongly recommend that NHDES and its federal review partners either require the applicant to demonstrably prove their case for “no indirect impacts” or (preferably) deny, based on the detrimental environmental evidence already presented to date, the applicant a permit for dredge and fill in waters of the state and waters of the United States.

Respectfully submitted;



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