



The following fact sheet includes many of the issues that will be addressed in Nordic Aquafarms Inc.'s (NAF) upcoming permit applications to the DEP. The topics are presented in alphabetical order.

Air Emissions

Nordic Aquafarms Inc. (NAF) will file an application for a minor source air emissions permit under chapter 115 of the DEP Regulations. Air emission sources on the project include back-up electrical generation systems and the campus boiler system that will be used for heating the buildings.

NAF will operate its electrical generators in back-up cases when power from the grid is interrupted, as well as other targeted times when reduction of load on the grid is desired by the utility provider. Certified tier 4 (lowest emissions commercially available) diesel generators with underground fuel storage will be utilized. It is anticipated that natural gas will become available at the site in the future, and NAF will take advantage of that fuel source for generators once available, further reducing air emissions.

The emissions from these sources independently or combined will be completely in compliance with state and federal air quality regulations and will in no way diminish the air quality of the site or adjacent properties.

By-Products

Recycling organic waste resources represent opportunities to add value and make full use of the resources we have. We have been in dialog with a variety of companies that specialize in upcycling of organic materials. During both Phase 1 and 2 operations, there are three fish-related organic waste resource streams that NAF will leverage. We have off-take partners for all in Maine, but we will always pursue the opportunities that give the most value and jobs in Maine.

Cut-off and fish trimmings: The by-product from fish processing will include salmon heads, viscera, bones, carcasses and smaller cut-off pieces. NAF estimates that approximately 5,000 metric tons per year (mt/yr) of cut-off and trimmings will be generated in Phase 1, and approx. 12,000 mt/yr in Phase 2. NAF is seeking regulatory changes to allow use of these by-products as lobster bait.

This approach is supported by many in the lobster industry and the administration. In addition, we have available options for composting, biogas and biotech use.

RAS tank water filtration material: Excess feed particles and fish feces are continuously filtered and removed from the RAS tanks. After initial dewatering, the composition of RAS tank filtration material (filtrate) is expected to be approximately 10-20% solids. This material is high in nutrients and energy. The options in Maine are currently composting and biogas. NAF is also pursuing long-term options with higher value and jobs creating opportunities.

Whole fish mortalities: Despite careful monitoring and environmental controls, mortalities occur in all fish production, as in nature. We have documented low mortality levels in our systems. Any dead fish are removed from the tanks every day. We estimate that fish mortality will generate between 200 - 300 mt/yr in solid waste during Phase 1 and between 500 - 600 mt/yr during Phase 2. Dead fish will be ground and stored in a weak acid. Composting and biogas are confirmed options in Maine.

NAF is committed to pursuing down-stream opportunities that have the highest economic development effects in Maine.

Discharge / wastewater disposal

NAF's facility will utilize the latest and most advanced recirculating aquaculture system (RAS) technology, and it will be surpassing existing facilities in environmental standards. All fish production will take place indoors. Fresh water and a larger component of ocean water from Penobscot Bay will be used in the production of the salmon. The water will be continually recirculated, with a small continuous water exchange

The discharge will go through a pipe that runs from the facility approximately one kilometer (.62 miles) into the bay. All pipes will be buried below the surface in the intertidal area and will not be visible or noticeable to project neighbors or the community.

The discharge consists of residual nutrients from fish feed particles and fish feces. Below is information about key discharge components.

Total suspended solids (TSS)

What it is:	TSS represents undissolved particles in the water
Why it matters:	High particle concentrations can reduce water quality and impair marine life.
Reduction:	99%
Background levels:	6.9 to 11 mg/l
NAF discharge:	Maximum level of 185 kg per day with a concentration of 6.33 mg/l
Noteworthy:	Our discharge is lower than the background values of existing water in the bay.

Biochemical oxygen demand (BOD)

What it is:	BOD represents the oxygen required to decompose the organic material in the discharge water.
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Why it matters: High levels of BOD indicate that water quality has been compromised, and generally results in lowering the dissolved oxygen content of the water.
Reduction: 99%
Background levels: At or near the laboratory detection limit of **2.0 mg/l**
NAF discharge: Maximum level of **162 kg** per day with a concentration of **5.55 mg/l**
Noteworthy: Dilution will quickly bring BOD to background level.

Phosphorus (P)

What it is: Phosphorus is a chemical element and a nutrient.
Why it matters: Too much phosphorus in the water can cause algae to grow, which can harm water quality and decrease the oxygen level that fish and other aquatic life need to survive.
Reduction: 99%
Background levels: **0.012 to 0.024 mg/l.**
NAF discharge: Maximum level of **5.8 kg** per day with a concentration of **0.20 mg/l**
Noteworthy: Dilution will quickly bring P to background level. This discharge level is equivalent to the amount of natural run-off from about 20 average lawns.

Total Nitrogen (N)

What it is: Nitrogen is a chemical element and a nutrient.
Why it matters: Like phosphorus, Nitrogen (and in particular, NH₃ or ammonia) is another key nutrient that is important to control because of its potential to overstimulate the growth of aquatic plants and algae.
Reduction: 85%
Background levels: **0.17 to 0.48 mg/l**
NAF discharge: Maximum level of **673 kg** per day with a concentration of **23 mg/l**. This is the highest removal rate in the international land-based farming industry.
Noteworthy: Dilution will bring N to background level. Modeling of the discharge over time shows that N is reduced to 0.3 mg/l, a concentration that is protective of eelgrass beds and the most sensitive sea life in the immediate vicinity of the proposed discharge.

According to a 2011 study of Penobscot Bay, approximately 11.6% of Total Nitrogen in the bay comes from agricultural runoff, 17.7% comes from other development (including business parks, strip malls, housing developments), 4.3% comes from point source discharges, such as sewage treatment plants and businesses, and the majority of the remainder comes from atmospheric deposition. Nordic's discharge is anticipated to add about 0.75% to the point source discharge figure.

The portion of the NH₃ (Ammonia) in the Total Nitrogen discharge is low. The amount of Ammonia that will be discharged is 0.07 kg per day with a concentration of 0.003 mg/l. This is significantly lower than background levels, which range from below 0.024 to 0.045 mg/l.

Prevention of disease is a high priority, and the primary risk for disease is the intake water from the bay. The intake water is treated in three steps with a final strong UV light dose for disinfection to create bio-secure water.

With robust biosecurity and quarantine measures the risk of disease is greatly reduced in land-based systems like ours. Despite this, we are taking extra contingency measures for our discharge to protect the receiving water body. The combination of fine mesh microfiltration, followed by a strong UV light dose, will neutralize any potential bacteria and virus in the discharge.

NAF will implement and support water quality monitoring programs in the bay. This is partly because many variables unrelated to our operation can influence water quality in the bay. We, like others, want clean water in the bay. Secondly, such monitoring will be used to document compliance with our permits, and also assess any impacts and opportunities for improvement.

The effluent water will be discharged into a water-body with more than 10 trillion gallons of water.

Fish escape Prevention

The risk of unintentional escape of fish from the rearing facility into natural water bodies is eliminated at NAF's Belfast facility. The fish are raised in indoor tanks and are further separated from the environment by a range of physical barriers. The following barriers will prevent the escape of fish through water transport lines:

- All fish growing areas will be located in enclosed buildings.
- Distance between buildings housing fish and natural waterways will be at least 300 feet.
- Tank drains and central wells preceding the route to the individual RAS systems will be sized to prevent fish passage, and floor drains in all fish holding and handling areas will be sized to prevent the passage of fish and eggs.
- Filtration equipment associated with each RAS system, preceding the route to the waste water treatment plant, namely rotating drum filters that trap matter larger than 50 µm.
- Filtration equipment at the Waste Water treatment Plant, namely a Membrane Bioreactor that traps all matter larger than 0.5 µm. This is fine-meshed enough to remove bacteria.

With these combined measures in place we can guarantee no fish escape. Our design team has designed and realized a number of land-based facilities – these have never experienced fish escape. Maine regulators will review these measures as a part of the permitting process.

Fish harvesting and processing

NAF will process its fish onsite in a modern indoor facility. Live fish will be transported from the holding tanks into the processing building via underground pipes.

At full capacity, NAF will process approximately 66 million pounds per year. Fish will be harvested and processed 5-6 days per week. The fish will be processed into several consumer ready products, packaged and shipped on refrigerated trucks to markets in the Northeast.

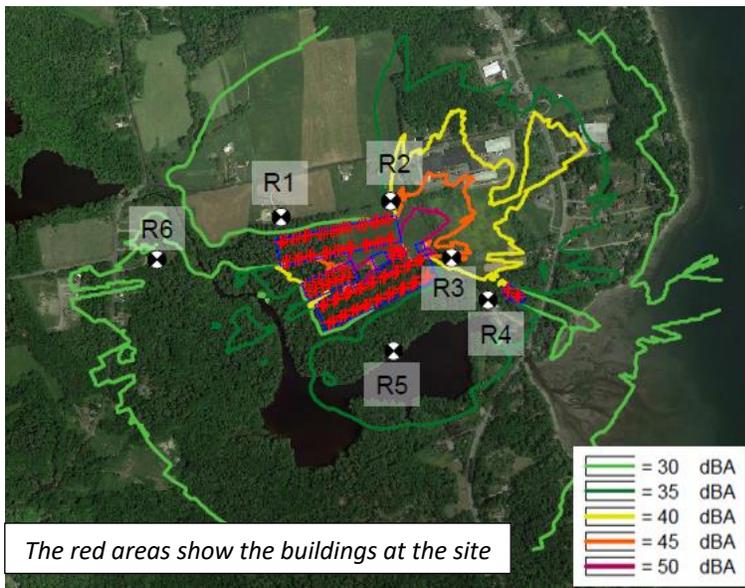
The water used in processing will be filtered and disinfected. The treated water will be blended with other waste water at the waste water treatment plant where it will be disinfected a second time with a 300 mj/cm³ UV dose.

Lipids accumulating during processing will not be discharged. Lipids will be removed by a fat separator and regularly removed from the site, as is common for seafood and food processing facilities. This material has multiple commercial uses.

The processing facility is expected to employ approx. 30 of the 100 employees at full production capacity.

Noise

State and local laws regulate the sound produced at NAF’s facility in Belfast. Federal regulations also set limits on the noise produced from construction related equipment. As is commonly required for large commercial developments, a noise study was conducted by an established acoustical consulting firm.



This study indicated that sounds produced during construction and operation will be within all applicable. Neighbors may at times hear sounds associated with construction, operation, or maintenance of the farm, but sound levels will be modest.

The figure and the table to the left show that the sound levels will not be exceeded during routine operation of both Phase 1 and Phase 2

Abutters will be consulted regarding high noise activities and all efforts will be made to eliminate and reduce any potential impacts. NAF will maintain a regular and open channel of communication as the facility progresses through the various phases.

Nearby Protected Locations and Distance From Project Center	Project Sound Levels Not to be Exceeded	
	Daytime	Nighttime
1 Northwest 975 ft.	< 55 dBA	< 45 dBA
2 North 585 ft.	< 55 dBA	< 45 dBA
3 Southeast 790 ft.	< 55 dBA	< 45 dBA
4 Southeast 1,230 ft.	< 55 dBA	< 45 dBA
5 South 950 ft.	< 55 dBA	< 45 dBA
6 West 2,115 ft.	< 55 dBA	< 45 dBA

Odor Prevention

The fish farm will not generate noticeable odors. NAF will install equipment and implement procedures to manage organic waste streams. We seek to capture the value of the resources, and therefore store them in a manner that does not allow for fermentation and odors. Procedures will include storage of waste materials in sealed containers, freezing of waste material, and regular removal in tank trucks. Additional equipment includes ventilation components that treat and filter air using carbon and ozone to remove odor causing bacteria.

NAF will take the following steps to properly manage these materials to avoid odor:

- Dead fish are ground and stored in air-tight weak organic acid tanks to maintain a pH below 4.
- Processing by-products will be removed regularly for upcycling purposes by a third party specializing in upcycling these materials. These materials will be refrigerated as needed and stored and transported in insulated food grade containers.
- Filtrate will be removed regularly by third party professionals with expertise in removing similar materials while controlling odors. This will be stored in air-tight underground tanks.
- Air filtration equipment will be installed in connection with our ventilation systems.

Pipe Routes and Discharge/ Intake points

The primary goal of the intake/discharge pipes is to obtain clean, cold salt water from below the natural thermocline, and discharge treated effluent to an area where the Bay currents will quickly dissipate residual nutrients. In achieving these goals, environmental impacts were mitigated by eliminating unnecessarily long routes. Regulatory agencies require a full consideration of alternatives to ensure the preferred alternative meets these objectives. The permit applications for the project will include a robust discussion of the alternatives considered, the basis for selection of the preferred route, and a complete package of materials responding in full to all agency requests clarification regarding application requirements such as establishing right, title, and interest.

The discharge location has not changed. The discharge location has been thoroughly studied and documented not to impact sensitive eelgrass beds, or other special marine resource areas or habitats. Furthermore, it has been documented that the currents at the discharge location will disperse any nutrients in the effluent to below background levels within 30 feet of the discharge point.

Project Phasing

The proposed facility located in Belfast, Maine will be built in phases. The intent of the project phasing is to have a fully operational facility at the conclusion of Phase 1, with further expansion in a Phase 2. This construction approach offers several distinct benefits, including but not limited to, earlier facility startup, allowing for system refinement and monitoring before full scale buildout, and gradual increase of sales volumes in the market. Our designs are completely modular, so we will essentially be scaling up by replicating independent, yet identical tank systems.

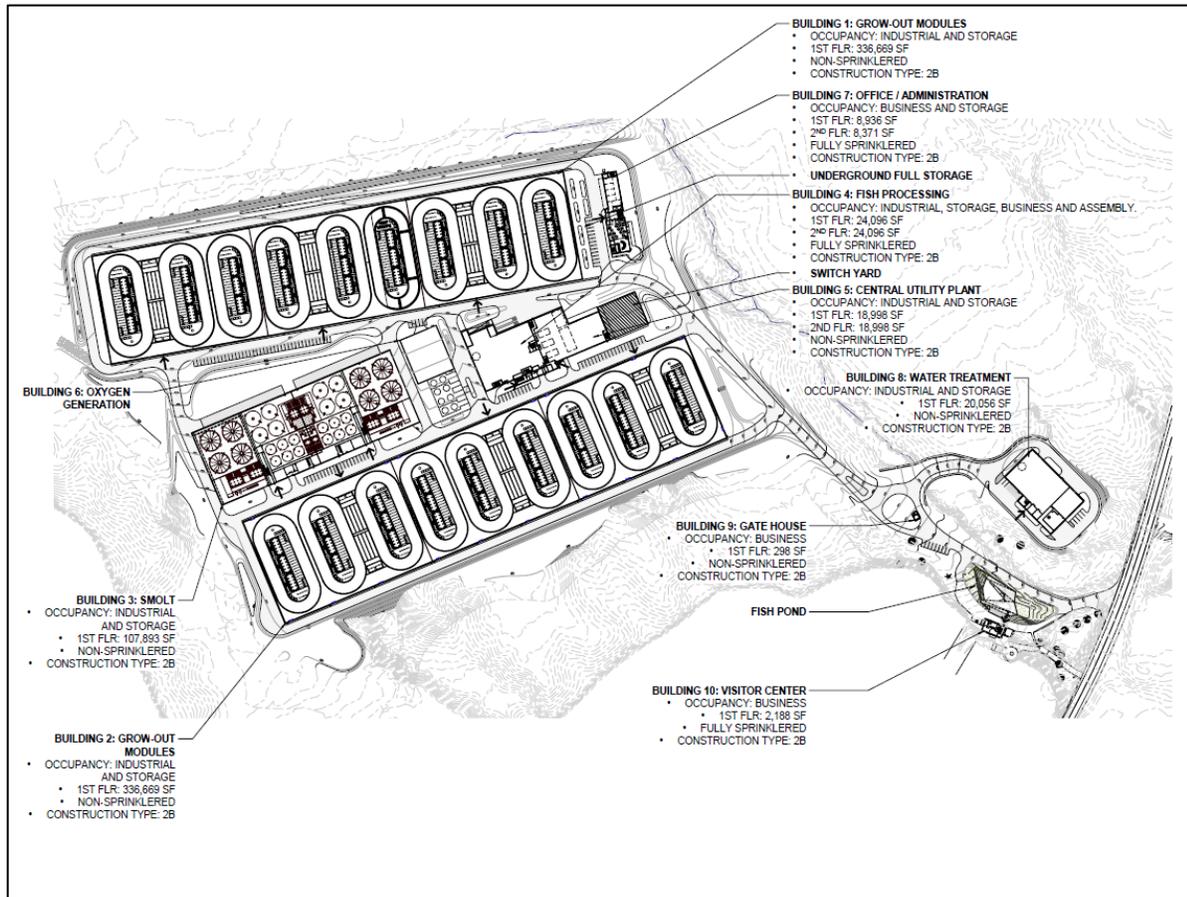
Phase 1 focuses on the construction of the smolt 1 facility, along with operational support facilities such as the seawater intake/discharge system, water treatment plant (WTP), central utility plant (CUP), oxygen generation and administrative offices. Phase 1 construction will also include supporting infrastructure such as roadways, storm-water management systems, the fish processing facility and the utilities. Grow-out module construction will also begin during phase 1, with the goal of 2-3 modules completed and in operation before a phase 2 build-out.

Phase 2 will commence after the phase 1 facility is commissioned and operational. During this second phase, the remainder of the modules will be constructed. Once phase 2 construction is completed, full build-out and process capacity will be achieved.

Project Site

The facility will consist of 10 key structures at full build-out and are listed as follows:

Grow-out modules – building 1 will be located on the Northern end of the site and will contain modules 1-3, building 2 will be located South of the smolt facilities and will contain modules 4-6. The fish grow to harvest size in these modules.



Smolt – this building will contain two identical units, smolt 1 and smolt 2, with the number indicating the project phase in which they will be constructed. The smolt building is planned to be located in between buildings 1 & 2, and its purpose will be to raise the salmon from egg to the smolt stage before transfer to the grow-out modules.

Fish Processing – Located towards the center of the site between buildings 1 & 2, this facility will receive the harvest size salmon from the grow-out modules for processing into the desired final product.

Central Utility Plant (CUP) – this structure is to be located immediately adjacent to fish processing and will contain the critical utilities, such as heating and cooling, needed for proper facility operation.

Oxygen Generation – this is a basic structure that will generate and store the oxygen needed for facility operation.

Offices / Administration building – The office building will be located in the Northeast corner of the site and will contain all supporting and administrative functions not directly needed within the production facilities.

Water Treatment Plant (WTP) – located in the Southeast corner of the site, the WTP receives and treats all incoming fresh and salt water, as well as all of the effluent from the process units.

Gate House – This small structure will be located near the entrance to the site. The purpose of this building will be to control access to the facility itself. It will not affect access to the walking trail system along the site perimeter.

Visitor Center – This will be a renovation of the existing BWD building located next to the lower dam. This facility will be used for public visitor activities and educational purposes.

Throughout the planning and design of this project, the visual impact has been a key point of consideration. While some of the buildings must encompass a large footprint to house all of the necessary equipment, significant measures have been taken to reduce their visibility and reduce interruption of the surrounding scenery. From the limits of the site a 40 feet vegetated buffer region will be maintained, with all buildings set back at least 50 feet from said limits. A minimum of a 300 feet buffer will be maintained towards the reservoir.

Removal of trees and replanting of the site

Our buildings will displace approx. 30 acres of forest that have been logged on a regular basis. Over 10 acres of this was private land that was logged by the previous owner as recently as last year. We are also replanting areas to create green, visual buffers.

A planting design is being developed to provide visual buffering from surrounding vantage points and integrate the site into the surrounding landscape. The slope along the northern property line will be revegetated with a mix of evergreen and deciduous trees to enhance the buffer between the site and the neighboring properties. Additional planted screening is proposed at the southeast corner of the site between the most eastward buildings and U.S. Route 1 / Northport Avenue.

In addition to the planting of trees, a mix of smaller plants will be used to emulate existing species diversity and return as much space as possible to predevelopment vegetated conditions. Other highly visible areas will be planted with flowering accent trees, low shrubs, and ornamental grasses. Plant species will be selected to respond positively to existing fauna, help define scale, and provide seasonal interest. A restoration seed mix will be used to stabilize the immediate ground surface and allow larger species to take hold. All proposed plant materials will be native or adaptive-native, and tolerant of weather conditions in mid-coast Maine.

Firewood quality wood generated from site work will be donated to a local non-profit organization. Waldo County Wood Shed has committed to accept it. Wood that is not suitable for traditional burning will be processed for various beneficial reuses.

Stormwater Management

Prevention of runoff from the site both during and after facility construction is required. In order to mitigate the impact on the surrounding environment, a multifaceted approach has been engineered to control, collect and treat the storm water from the site. Key points are:

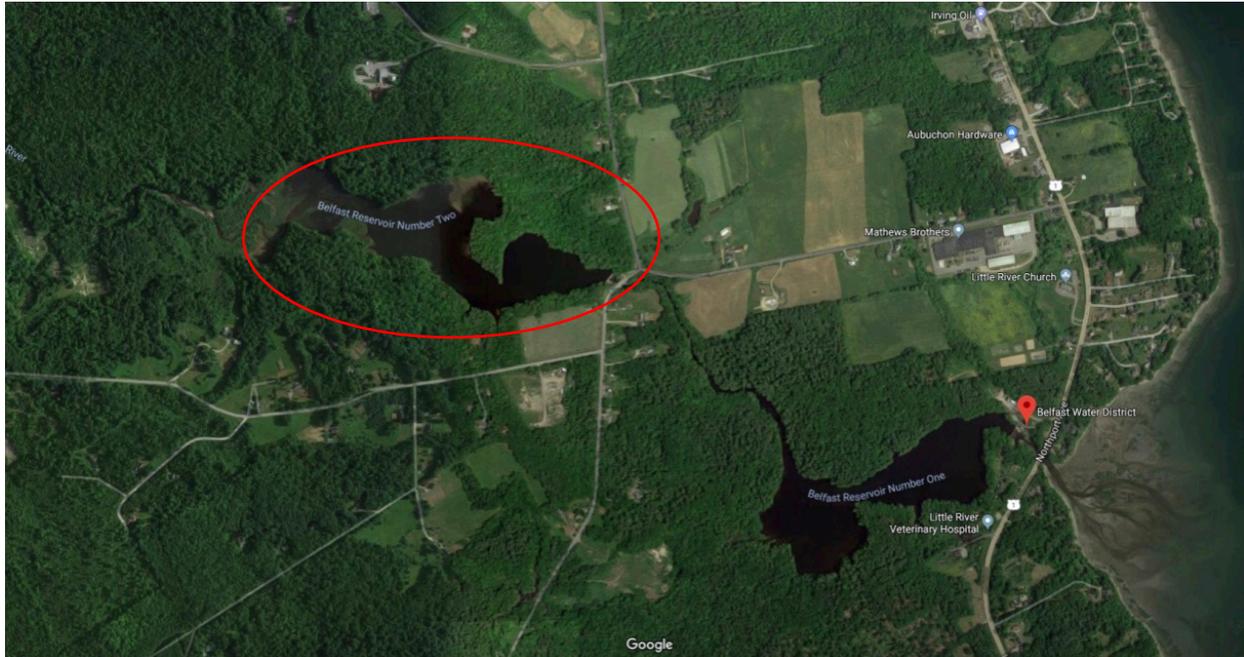
- 95.5 percent treatment of run-off from new impervious surfaces
- 86 percent treatment of all developed areas

During construction the perimeter of the areas being impacted will be encompassed by a silt fence to prevent any runoff of sediment from the site. Within this perimeter a network of both temporary and permanent stormwater management systems will be utilized. In addition to the more traditional methods such as culverts and catch basins. The project will include porous pavers with underdrains, bio retention filters, green roofs and grassed under-drained soil filters.



Upper reservoir land purchase

NAF and the Belfast Water District (BWD) have agreed to develop a plan to preserve for perpetuity approximately 80 acres land around the Little River upper reservoir.



Area is located within the red circle (exact property lines are not shown)

The City of Belfast will also take ownership of the lower portion of the Little River trail. The conservation of the upper reservoir land would guarantee that approximately 2.8 miles of the overall Little River trail system along the river are permanently protected.

Water Supply

The freshwater supply for the planned facility will come from multiple sources. To meet the demands of the facility, freshwater will be provided by the Belfast Water District, and a ground well-system. As a back-up system, freshwater capacity would be supplied by surface water withdrawal from the lower reservoir, at less than 50% percent of the historical withdrawal by the Water District.

An extensive hydrogeologic study has been performed to assess the groundwater capacity of the site, along with the potential impact to the bedrock aquifer to reach the needed freshwater demand. A series of test wells were drilled and tested for productivity, during which the water levels at the test locations were measured and modelled to assess the behavior of the aquifer.

In addition to this, several private wells in close proximity to the site were monitored during well testing to determine if there would be any risk of impact. Multiple studies were conducted between April of 2018 and January of 2019. The results of the groundwater study and predictive model indicated that

using a system of 3 wells, a groundwater pumping capacity of sufficient volume, in conjunction with the other freshwater sources, could be achieved sustainably.

It should be noted that all freshwater entering the facility, including the municipal water, will undergo extensive filtering and treatment before being introduced to the process. It is further proposed that NAF, in agreement with neighboring well owners, will continue to monitor nearby wells.

Wetlands

The project has been designed to be as compact and efficient as possible in order to mitigate impacts to the neighboring property owners. NAF designs are the most efficient in the industry in terms of footprint – each module produces 5400 metric tons per year per 112,000 square feet module.

Impact avoidance of all wetlands on the site is not possible. Thus, as with any large development project, mitigation of wetland impacts is provided through a combination of the in-lieu fees as administered by the State of Maine and the Army Corps of Engineers, onsite wetland improvements, and creative site-specific measures for local benefit including assessment and addressing of issues at the upper dam and reservoir, and improvements of adjacent culverts to address current issues.

Included in the wetland impact study is the identification of ME DEP jurisdictional streams on the site. Proposed impacts to intermittent streams have been reviewed and mitigated through DEP requested procedures. Furthermore, the stream bed of most significant biological value, located along the eastern edge of the property, will be enhanced as part of the wetland mitigation proposal. Several other smaller intermittent streams on the western portion of the site will also be avoided and enhanced as part of the final site design.