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 ATS # \_\_\_\_\_  
 Fees Paid \_\_\_\_\_  
 Date Received \_\_\_\_\_

**CONDITION COMPLIANCE APPLICATION**

This form shall be used to comply with a condition(s) on an Order that require approval from the Board or Department of Environmental Protection (Department).

Current fee schedule information can be found by contacting the Department or on the Department's website at: <http://www.maine.gov/dep/feeschedule.pdf>. The fee schedule is updated every November 1. Fees are payable to "Treasurer, State of Maine", and **MUST** accompany the application.

**Please type or print in black ink only**

<b>1. Name of Applicant:</b>	Nordic Aquafarms c/o Ed Cotter	<b>5. Name of Agent:</b>	Elizabeth Ransom, Ransom Consulting, LLC
<b>2. Applicant's Mailing Address:</b>	159 High St., PO Box 283, Portland, ME 04101	<b>6. Agent's Mailing Address:</b>	400 Commercial St., Portland, ME 04101
<b>3. Applicant's Daytime Phone #:</b>	860-625-1908	<b>7. Agent's Daytime Phone #:</b>	207-772-2891
<b>4. Applicant e-mail address (REQUIRED):</b>	ec@nordicaquafarms.com	<b>8. Agent e-mail address (REQUIRED):</b>	elizabeth.ransom@ransomenv.com
<b>LOCATION OF ACTIVITY</b>			
<b>9. Name of Project:</b>	Land-Based Aquaculture Facility, 285 Northport Ave., Belfast, Maine		
<b>10. Name of Town where project is located:</b>	Belfast	<b>11. County:</b>	Waldo
<b>REQUIRED INFORMATION</b>			
<b>12. Existing Department Order number:</b>	L-28319-26-A-N	<b>13. Order condition number(s):</b>	30
<b>14. Summary of the information being provided:</b>	Updated Water Resouce Monitoring Plan		
<b>15. Project Manager, if known:</b>	Beth Callahan		

This completed application form, fee, and all supporting documents summarized above shall be sent to the appropriate Department Office in Augusta, Portland, or Bangor.

Department of Environmental Protection 17 State House Station Augusta, ME 04333 Tel: (207) 287-7688	Department of Environmental Protection 312 Canco Road Portland, ME 04103 Tel: (207) 822-6300	Department of Environmental Protection 106 Hogan Road Bangor, ME 04401 (207) 941-4570
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**CERTIFICATIONS / SIGNATURES on PAGE 2**

**IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.**

**By signing below, the applicant (or authorized agent), certifies that he or she has read and understood the following:**

**CERTIFICATIONS / SIGNATURES**

**"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.**

**Further, I hereby authorize the Department to send me an electronically signed decision on the license I am applying for with this application by e-mailing the decision to the electronic address located on the front page of this application (see #4 and #8)"**

**Signed:** *Elizabeth M. Ransom* Digitally signed by Elizabeth M. Ransom, P.G. Title: Principal, Sr. Geologist Date: 8/31/21  
Date: 2021.09.01 07:36:41 -04'00'



400 Commercial Street, Suite 404  
Portland, ME 04101  
207.772.2891

August 24, 2021

Project 171.05027.009

Ms. Beth Callahan  
Project Manager  
Maine Department of Environmental Protection  
Bureau of Land & Water Quality  
17 State House Station  
Augusta, Maine 04333-0017

Re: Updated Water Resources Monitoring Plan  
Nordic Aquafarms, Inc., Land-based Aquaculture Facility  
Belfast, Maine  
L-28319-26-A-N

Dear Ms. Callahan:

Please find Nordic Aquafarms, Inc. (Nordic) updated Water Resources Monitoring Plan (WRMP) included with the letter. Included with the WRMP are one table, three figures, and three appendices.

The WRMP has been updated from its original submittal (dated April 16, 2019), which was provided in Nordic’s Maine Site Location of Development Act (SLODA) permit application and Nordic’s application to the City of Belfast Planning Board. Updates to the WRMP are based on communication with the Maine Department of Environmental Protection (MEDEP) and their review of the above-referenced applications, the final MEDEP Finding of Fact and Order, and the City of Belfast Planning Board Findings of Fact.

For ease of review, we have summarized the relevant comments from John Hopeck, Ph.D., MEDEP, and indicated where those comments have been addressed in the WRMP text below.

Comments from *Review Memorandum* written by John Hopeck, Ph.D. of MEDEP, dated September 17, 2019

Comment Number	Comment Summary	Reference Section in WRMP
1.(a)	Data download frequency during monitoring should be flexible with the ability to provide data in near real time. Reporting to MEDEP should occur no less often than monthly during initial operation and after significant changes in water usage, with the possibility of more frequent reporting if significant impacts are possible.	Section 2.2 and subsections
1.(b)	The bedrock-overburden interface may be an important area to monitor and should be included in the monitoring program.	Section 2.2.2
1.(c)	Shallow and deep piezometers should be located as close as possible to any wetland monitoring tract.	Section 2.2.8

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Ms. Beth Callahan  
Project Manager

Comment Number	Comment Summary	Reference Section in WRMP
1.(d)	Due to the rapid changes that occur in surface water flow, streamflow should be measured in near real time.	Section 2.2.4
1.(e)	Water intake data from all sources, including the water utility, should be recorded no less often than daily.	Section 2.2.3
1.(f)	Changes to the monitoring program should not be made without prior approval from MEDEP	Section 5
1.(g)	On-Site climatic data should be collected by Nordic.	Section 2.2.6
1.(h)	Specific performance criteria should not be established until adequate background data is collected and should be established such that significant impacts are detected before they occur.	Section 3.0
5.(a)	A minimum flow and suitable warning level above this flow should be established for the reach of the Little River between the Upper Reservoir and Lower Reservoir.	Sections 3.4 and 3.5.2

Comments from Review Memorandum written by John Hopeck, Ph.D. of MEDEP, dated January 14, 2020, revised January 27, 2020

Comment Number	Comment Summary	Reference Section in WRMP
1.(a)	<p>Primary Comments Include:</p> <p>Nordic should, prior to construction, submit a plan for review and approval detailing specific monitoring locations, instrumentation to be installed and data recording and download frequencies.</p> <p>Monitoring points should be installed prior to construction where possible.</p> <p>Surface water levels should be monitored in near real time.</p> <p>Data reporting intervals should be flexible, particularly during ramp-up in water usage by the facility.</p> <p>It may be reasonable to reduce data reporting frequency after sufficient data has been collected to demonstrate to the MEDEP that this is reasonable.</p> <p>Data must be submitted to the MEDEP within 14 days of its receipt by Nordic unless MEDEP requires more frequent reporting.</p> <p>Data should be submitted using the most recent EDD format.</p>	<p>- Section 2</p> <p>- Section 2.4</p> <p>- Section 2.2.4</p> <p>- Section 2</p> <p>- Section 5</p> <p>- Sections 4 and 4.3</p> <p>- Section 4.3</p>

Ms. Beth Callahan  
Project Manager

Comment Number	Comment Summary	Reference Section in WRMP
1.(b)	Should groundwater be below the depth of the targeted screen intervals for shallow/deep overburden well pairings, sampling procedures can be adjusted if needed.	Section 2.2.2
1.(c)	Wetland piezometers should be located as close as possible to wetland monitoring tracts, and pressure transducers should be used wherever possible for more frequent measurements.	Sections 2.4.4 and 2.2.8
1.(d)	Equipment should be installed in the Little River to collect data on river stage/flow in near real time.	Section 2.2.4
1.(e)	Intake data from water sources should be recorded at least daily and can normally be reported to the MEDEP monthly. Flexibility should be maintained to provide more detailed data (i.e., more frequently than daily) and may be required to be reported more frequently than monthly.	Section 2.2.3
1.(f)	Any monitoring locations lost due to damage must be replaced as soon as possible and as closely as possible in location and design.	Section 5
1.(g)	Nordic should establish an on-Site weather station.	Section 2.2.6
1.(h)	Warning and action levels should be established after analysis of background data is completed.	Section 3

Ms. Beth Callahan  
Project Manager

If you have any questions or comments regarding the updated WRMP please do not hesitate to contact me.

Sincerely,

RANSOM CONSULTING, LLC

Elizabeth M. Ransom, P.G.  
Principal, Senior Geologist

EMR:jar

**UPDATED WATER RESOURCE MONITORING PLAN  
LAND-BASED AQUACULTURE FACILITY  
BELFAST WATER DISTRICT, CASSIDA BACK LOT AND  
MATHEWS BROTHERS WEST FIELD PROPERTIES  
285 NORTHPORT AVENUE  
BELFAST, MAINE**

Prepared for:

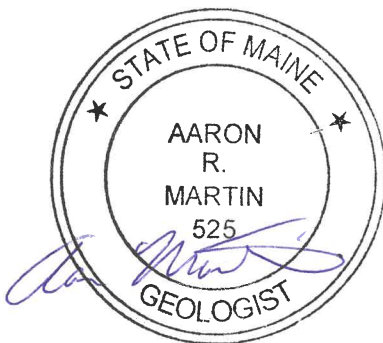
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Project 171.05027.009  
August 24, 2021



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Aaron R. Martin, L.G.  
Project Manager /  
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Associate Project Manager /  
Project Geologist

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Elizabeth M. Ransom, P.G.  
Principal, Senior Geologist

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Appendix B. StreamStats Report – Little River above the Lower Reservoir

Appendix C. City of Belfast Planning Board Adopted Findings of Fact, Significant Ground Water Wells Permit

## **LIST OF ABBREVIATIONS**

WRMP – Water Resource Monitoring Plan

SLODA – Site Location of Development Act

MEDEP – Maine Department of Environmental Protection

BWD – Belfast Water District

NRPA – Natural Resource Protection Act

gpm – gallons per minute

USGS – United States Geological Survey

QA/QC – Quality Assurance/Quality Control

NAVD88 – North American Vertical Datum of 1988

SOP – Standard Operating Procedure

SCADA – Supervisory Control And Data Acquisition

PVC – polyvinyl chloride

TDS - Total Dissolved Solids

QHEI – Qualitive Habitat Evaluation Index

GPS – global positioning system

dbh – diameter at breast height

TDH – total dynamic head

RAG – Remedial Action Guidelines

U.S. EPA – United States Environmental Protection Agency

SMCLs – Secondary Maximum Contaminant Levels

cfs – cubic feet per second

## 1.0 INTRODUCTION

Ransom Consulting, LLC (Ransom) has prepared this Water Resource Monitoring Plan (WRMP) on behalf of Nordic Aquafarms Inc. (Nordic) to support the planning, development, and operation of a land-based Atlantic salmon aquaculture facility to be located off Northport Avenue in the City of Belfast, Maine.

This WRMP has been updated from its original submittal (dated April 16, 2019), which was provided in Nordic's Maine Site Location of Development Act (SLODA) permit application and Nordic's application to the City of Belfast Planning Board. Revisions to the WRMP are based on communication with the Maine Department of Environmental Protection (MEDEP) and their review of the above-referenced applications, the final MEDEP Finding of Fact and Order, and the City of Belfast Planning Board Findings of Fact. This WRMP includes updates addressing the comments and requirements set forth in the following documents:

1. *Review Memorandum* written by John Hopeck, Ph.D. of MEDEP, dated September 17, 2019;
2. Review response memorandum, *Nordic Aquafarms Inc., Land-based Aquaculture Facility, Belfast, Maine L-28319-26-A-N, Review Comments*, written by Ransom, dated November 4, 2019;
3. *Review Memorandum* written by John Hopeck, Ph.D. of MEDEP, dated January 14, 2020, revised January 27, 2020;
4. Review response memorandum, *Nordic Aquafarms Inc., Land-based Aquaculture Facility, Belfast, Maine L-28319-26-A-N, Review Comments*, written by Ransom, dated February 18, 2020;
5. *MEDEP Findings of Fact and Order L-28319-26-A-N/L-28319-TG-B-N/L-28319-4E-C-N/L-28319-L6-D-N/L-28319-TW-E-N*, signed November 19, 2020, referred to in this document as the "MEDEP Order"; and
6. City of Belfast Planning Board Adopted Findings of Fact, Significant Ground Water Wells Permit, referred to in this document as the "City Significant Groundwater Well Permit."

### 1.1 Site Description

Nordic obtained all permits necessary for the construction of an aquaculture facility on portions of land owned by the Belfast Water District (BWD), Samuel Cassida, and Goldenrod Properties, LLC (referred to as Mathews Brothers) in the City of Belfast. The facility is located outside of the 250-foot wide shoreland buffer zone of the Little River and Lower Reservoir (also referred to as Belfast Reservoir 1). In addition to the primary development parcel, the development includes pipeline access to Belfast Bay via a City of Belfast owned parcel located on the eastern side of US Route 1 from the development. Collectively, these portions of properties comprise the "Site" and are shown in Figure 1.

The Site encompasses approximately 54 acres of gently-sloping terrain, incised by several steep gullies. These gullies serve as drainage features for the Site, and some have been identified as Natural Resource

Protection Act (NRPA) jurisdictional streams. Most of the Site is currently undeveloped forest or field, with scattered wetlands. Limited areas of development are located along Northport Avenue, which are currently improved with BWD's offices, former surface water intake and pumphouse, and maintenance garages. The Site is located north of the Little River and the Lower Reservoir (also called Belfast Reservoir No. 1), which is impounded by a 30-foot high concrete and masonry dam, which is constructed at the confluence of the Little River and Belfast Bay. The Lower Reservoir served as the public water supply for the City of Belfast from approximately 1887 to 1956, and then as a backup supply until 1980 when the BWD completely transitioned its water supply to groundwater sourced from the Goose River Aquifer. The current BWD public water supply wells are located approximately 6.5 miles north of the Site in a separate and distinct surface water and groundwater system.

## 1.2 Project Development

The aquaculture facility will include the construction of salmon grow-out modules (buildings 1 and 2), smolt hatcheries (building 3), a fish processing facility (building 4), central utility plant (building 5), oxygen generation infrastructure (building 6), office and maintenance space (building 7), water treatment and wastewater treatment plant (building 8), gate house (building 9), visitor center (building 10), and necessary driveways and parking lots, as shown in Figure 2. Additional water and utility lines, stormwater management features, and ocean pipelines for seawater intake and wastewater discharge will run throughout the Site.

Based on the biological importance of freshwater for salmon rearing, the project design will incorporate a constant supply of freshwater based on available resources. The freshwater resources available include the bedrock aquifer underlying the Site, surface water from the Lower Reservoir, and municipal water purchased from the BWD. The project design incorporates the extraction of up to 455 gallons per minute (gpm) from an on-Site bedrock production well network, surface water withdrawal from the Lower Reservoir, and purchase of up to 500 gpm from the BWD municipal supply. Surface water withdrawal rates will be variable, dependent on demand and inflow to the Lower Reservoir from the Little River. Withdrawal rates will range from 70 gpm up to the instantaneous inflow from the Little River or the maximum intake design rate, whichever is lower. The surface water withdrawal is based on rules set forth in MEDEP Chapter 587, allowing for a withdrawal of 70 gpm plus inflows to the Lower Reservoir. These rates of groundwater extraction and surface water withdrawal have been authorized by the MEDEP Order. For a detailed discussion of the hydrology of the Little River watershed, the surface water withdrawal, the BWD resources, and the groundwater withdrawal please refer to the Site-specific Hydrogeologic Investigation Report by Ransom<sup>1</sup> and the MEDEP Order.

Development and operation will be conducted in two phases. Phase 1 will involve the installation of project infrastructure and grow-out modules to support operation of the project at approximately 50% production capacity. Phase 2 will involve construction of remaining grow-out modules for operation at 100% production capacity.

## 1.3 Existing Groundwater Users, Natural Resources, and Waters of the State

As part of the hydrogeologic investigations conducted at the Site to date, existing groundwater users, natural resources, and waters of the State sensitive to groundwater extraction and surface water withdrawal were identified. These features include nearby private water supply wells, Site streams,

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<sup>1</sup> "Hydrogeologic Investigation Report, Proposed Commercial Land-Based Aquaculture Facility, 285 Northport Ave, Belfast, Maine" by Ransom Consulting, Inc., dated April 2019.

wetlands, the Little River, and the Lower Reservoir. As described in the hydrogeologic report and the MEDEP Order, available data indicate that there may be a limited hydraulic connection between the production well locations and some nearby private water supply wells and a limited hydraulic connection between the bedrock aquifer system and surface water features including the Little River, Lower Reservoir, and intermittent streams. While adverse impacts are not anticipated, monitoring points for each resource have been included in the monitoring plan described herein.

#### 1.4 Purpose

This monitoring plan has been assembled to evaluate conditions of the local groundwater and surface water resources that may be impacted from the development, groundwater extraction and surface water withdrawal at the Site. Proper execution of this monitoring plan will accomplish the following objectives:

1. Continue baseline data collection to document the range of pre-development background conditions influenced by natural variability and existing watershed and aquifer use.
2. Collect a robust dataset able to capture changes in conditions due to the development, groundwater extraction, surface water withdrawal, and natural variations that may occur.
3. Allow for efficient evaluation of a regularly updated dataset to assess potential impacts to existing groundwater users, natural resources, and waters of the State that may occur from Nordic's operations.
4. Establish performance criteria and warning levels to serve as thresholds prior to adverse impacts occurring.
5. Trigger the implementation of an action plan to immediately address significant impacts caused by Nordic's operations, should they be at imminent risk of occurring.

Nordic will implement this monitoring plan under the guidance of a Maine Licensed Geologist or Professional Engineer with environmental monitoring experience. Data collection and interpretation will be conducted by qualified personnel under methods and protocols approved by the qualified environmental professional and MEDEP.

It is important to note that this document only presents preliminary "alert" and "action" criteria for monitoring points. Final "action" and "alert" criteria will be updated after the background data collection period is complete through an update to this WRMP to be submitted to the MEDEP and City for review and approval.

## 2.0 DATA COLLECTION

### 2.1 Monitoring Network

A comprehensive network of on- and off-Site monitoring locations was developed during the site-specific hydrogeologic investigations, and this monitoring plan will leverage the existing monitoring locations wherever possible in addition to newly installed or established monitoring locations. The monitoring network will consist of a core network of 32 monitoring locations, including three production wells, 10 monitoring wells installed in the bedrock aquifer, 12 monitoring wells or piezometers installed in overburden, six surface water monitoring points, and one weather station. In addition, a network of private water supply wells located in the vicinity of the project will be included the monitoring network. The final number of private monitoring wells included in the monitoring program will be dependent on access being granted by well owners. As of the date of this updated WRMP, 13 private well owners have been identified to be approached for inclusion in the monitoring program (See Section 2.1.1 below for requirements specific to the City of Belfast Significant Groundwater Well Permit).

Figure 1 shows the existing conditions and monitoring locations at the site. Due to the design of the facility, six monitoring locations are expected to be decommissioned during construction (DRX-101, DRX-103, PSD-101, PSD-102, PZ-1S, PZ-1D). Prior to or during construction, these monitoring locations will be replaced by three triplets of overburden/bedrock monitoring wells that will each include a shallow overburden, deep overburden, and bedrock well. Nine additional monitoring points will also be installed prior to or during construction, including two production wells, two wetland piezometers, four surface water monitoring locations, and one weather station. The final monitoring network, including proposed wells, are shown in Figure 3. The timing of monitoring location decommissioning and installation will be dictated by the construction schedule so that new monitoring points will be accessible and not subject to damage during work. Monitoring will continue in the locations planned for decommissioning until they are decommissioned. All new monitoring locations will be installed prior to the start of operations.

#### 2.1.1 City of Belfast Permit Requirements

The City of Belfast has also requested water resource monitoring as part of the Adopted Findings of Fact, Significant Ground Water Wells Permit. A copy of the City Significant Groundwater Well Permit is included in Appendix C.

### 2.2 Monitoring Locations and Equipment

Nordic intends to employ pressure transducers with integrated temperature sensors, conductivity sensors, a United States Geological Survey (USGS) “bubble-style” stream stage measuring station, and a fully featured weather station to collect data from the monitoring network. Sensors will be integrated into a remote monitoring networks that records data internally and uses a cellular network to transmit data from the datalogger to a cloud-based database for quality assurance/quality control (QA/QC) review and analysis. Equipment and networking functionality will be provided by Leaf Analytical (Leaf) of Turner, Maine. Manual data will also be collected at regular intervals to confirm automated dataloggers are functioning properly. This system provides redundancy to limit data loss, flexibility in data collection intervals, and will also allow Nordic to rapidly provide data updates to regulators should the need arise.

The details of the monitoring equipment planned to be installed in the variety of monitoring locations are provided below.



All reference points at monitoring locations where water level is recorded will be surveyed to the nearest hundredth of a foot horizontally and vertically and referenced as referenced to the North American Vertical Datum of 1988 (NAVD88).

### 2.2.1 Groundwater Monitoring Wells

Overburden and bedrock monitoring wells (not including private wells) will be monitored using vented or unvented pressure transducers installed directly in the well casing. Transducers will monitor water pressure, which can be converted to groundwater elevation, and temperature as standard parameters. Four wells will also include a conductivity sensor (see Table 1). The transducers will be installed below the lowest anticipated drawdown in the well. Transducers will be directly connected to a datalogger, and cellular modem located at the well head (either in the casing or mounted externally) that is capable of both storing data internally and pushing data out to the cloud-based server. Power will be hard-wired where possible or will be provided by a battery and/or solar panel system to power the sensors, datalogger, and telemetry system. Data from these wells will be collected on an hourly basis and uploaded daily.

### 2.2.2 Overburden Water Quality

Installation of two paired overburden monitoring wells (OVB-101S/D and OVB-102S/D) are proposed to monitor overburden groundwater quality at locations considered to be downgradient from the Site and adjacent to the 250-foot wide shoreland buffer zone adjacent to the Little River and Lower Reservoir. Another overburden monitoring well pair (OVB-103S/D) is proposed to be installed at a location considered to be upgradient from the Site to monitor background conditions that may change over time. Groundwater samples will be collected semiannually in the spring and fall, when sufficient overburden groundwater is present to sample, and analyzed for total nitrogen and total phosphorus.

All paired overburden monitoring wells will be constructed with a shallow well to be screened within the fine-grained glaciomarine unit and a deep well to be screened at the interface between the glacial till unit (or glaciomarine unit if till is not present) and weathered bedrock surface. It should be noted that groundwater may not be naturally present within either of these units, or groundwater within the glaciomarine unit may be perched. If groundwater is not naturally present within the overburden units where the proposed wells are installed groundwater samples and water level measurements will not be collected.

Water quality samples from overburden monitoring wells will be collected in accordance with MEDEP's Standard Operating Procedure (SOP) DR#003, *Groundwater Sampling Using Low Flow Purging and Sampling for Long-Term Monitoring* unless groundwater conditions (e.g., low saturated thickness or insufficient recharge) require modifications to this SOP. Continuous chain of custody of all samples will be maintained in accordance with MEDEP SOP DR#012, *Chain of Custody Protocol*, from the point of collection until the sample is delivered to the contracting laboratory for analysis. Compliance with sample container requirements, preservation methods and maximum holding times for each parameter will be administered during sample collection. Samples will be analyzed by an environmental laboratory certified or accredited under MEDEP's rules, 06-096 CMR 263 (effective December 19, 2018). Appendix A contains a list of relevant SOPs.

Groundwater elevation data in these wells will be collected as described in Section 2.2.1 above.

### 2.2.3 Production Wells and Surface Water Intake

Production wells will be monitored using vented or unvented pressure transducers installed directly in the well casing. Transducers will monitor water pressure, which can be converted to groundwater elevation, and temperature as standard parameters. Transducers will be installed below the lowest anticipated drawdown in the well and are planned to be contained within a stilling well to prevent entanglement with electrical wiring and piping. Transducers will be directly connected to a datalogger, and cellular modem located at the well head (either in the casing or mounted externally) that is capable of both storing data internally and pushing data out to the cloud-based server. Power will be hard-wired to power the sensors, datalogger, and telemetry system. Data from these wells will be collected on an hourly basis and uploaded daily. Flow rate and total flow will also be monitored from these wells on an hourly basis; however, this monitoring will be performed as part of the supervisory control and data acquisition (SCADA) system for facility operations and will be integrated into the monitoring program post-hoc.

The surface water intake to be constructed near the Lower Dam on the Lower Reservoir will be equipped with a flow meter and totalizer and flow rate and total flow will be recorded on an hourly basis. Data collected from the intake will be integrated into the SCADA system established for facility operations and integrated into the monitoring program.

Flow rate and total flow delivered from the BWD will be recorded on an hourly basis through the SCADA system and integrated into monitoring program.

### 2.2.4 Surface Water Monitoring

There are six total surface water monitoring locations (SG-2, SG-3, SG-MID, S3, S5, and S6), included in this monitoring plan. This includes two monitoring locations in impounded reservoirs (SG-2 and SG-3 in the Upper and Lower Reservoirs, respectively); SG-MID in the free-flowing portion of the Little River between the Upper and Lower Reservoirs; and three on-site ephemeral streams (S3, S5, and S6).

SG-2 and SG-3 will be equipped with stilling wells secured to existing infrastructure associated with the upper and lower dams and the same instrumentation as used for standard groundwater monitoring wells will be employed. Measurements will be recorded on an hourly basis and uploaded daily from these monitoring locations.

SG-MID will be equipped with a USGS “bubbler-style” pressure sensor that is expected to provide more reliable year-round operation at all flows than a stilling well and transducer. SG-MID will be co-located with a surveyed channel cross section where discharge measurements can be made. This sensor will measure the stage height of the Little River at 15-minute intervals and will be uploaded to the cloud server no less often than daily. During the construction period monthly (or more frequent) manual streamflow measurements will be made at the location of the bubbler using standard wading staff six-tenths or two-point gaging methods.<sup>2</sup> Every effort will be made to measure streamflow at a variety of stage heights and hydrologic conditions assuming the stream can safely be waded, and particular emphasis will be put on measurements during very

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<sup>2</sup> See “Measurement and Computation of Streamflow: Volume 1, Measurement of Stage and Discharge” by Saul Edward Rantz, USGS Water Supply Paper 2175, 1982 pages 134-134 for discussion of these two velocity measurement methods.



low-flow conditions. If possible, indirect measurements of discharge will be made during high and extremely high-flow events by estimating stream velocity to calculate discharge from the surveyed cross-section of the Little River.

Given the anticipated two-year construction timeline, this should provide approximately 24 manual streamflow measurements prior to beginning operations. Based on the relatively stable bedrock channel cross section in this reach of the Little River, Nordic anticipates 24 measurements will be sufficient to develop an appropriate stage-discharge relationship for the Little River that can be used to calculate discharge from stage height. Periodic manual discharge measurements will continue after the initial stage-discharge relationship is developed to continue to evaluate and update the stage-discharge relationship. The data and analytical methods used to develop the stage-discharge relationship will be provided to the MEDEP for approval prior to the commencement of Nordic's operations.

Ephemeral streams S3, S5, and S6 will be equipped with commercially available flumes or weirs with a known stage-discharge relationship (provided by the manufacturer) and stilling wells in the recommended locations. The stilling wells will be equipped with the same or similar equipment to standard groundwater monitoring wells. Water elevation within the stilling well will be used to gauge the depth of water flowing through the flume. In turn, this information will allow discharge to be calculated using the manufacturer stage-discharge relationship. When elevation in the stilling well is equal to or below the elevation of the flume control structure, flow in the stream will be zero. Water level and temperature data will be recorded at 15-minute intervals and data will be uploaded daily. Nordic will coordinate with MEDEP to ensure that control structures installed in these streams are sufficiently accurate at the flows of interest to the MEDEP (i.e., low flows and high flows are captured appropriately). These control structures were sized during early summer 2021.

### 2.2.5 Private Water Supply Wells

The total number of private water supply wells included in the monitoring network will be finalized as formal access and monitoring consent agreements are made between well owners and Nordic. Nordic has made contact with all private well owners as required by the City of Belfast (See Section 2.1.1 and Appendix C for more information) as well as the 13 private well owners identified in this WRMP as candidates for monitoring. Agreements with private well owners are expected to be finalized in the fourth quarter of 2021. Each private water supply well entered in the program will be evaluated by a Maine-licensed pump installer to determine the feasibility of installing monitoring equipment and collect baseline information on the well and pump equipment. Most private wells are expected to meet the standards required to install monitoring equipment (e.g., sufficient room within the well casing to install a transducer, appropriate pump equipment, suitable access, etc.). It is possible that in unique circumstances it may not be feasible to monitor certain private wells due to the equipment within the well or construction of the well.

Private water supply wells included in the monitoring program will be equipped with a 1" polyvinyl chloride (PVC) pipe stilling well mounted to the well casing, inside which a pressure transducer will be installed. A datalogger, cellular transmitter, and battery will be located either beneath the well cap or in a protective case outside the well casing, and an antennae and solar panel may also be located outside the well casing. Water level data and temperature will be recorded at 15-minute intervals and data will be uploaded at least daily. Combined pressure,

temperature, and conductivity sensors are proposed to be installed in three private water supply wells (see Table 1).

Water quality monitoring will be conducted for all private water supply wells in the monitoring program on a quarterly basis. Parameters to be analyzed include coliform bacteria and *E. coli* (presence/absence), nitrate, nitrite, chloride, copper, iron, pH, manganese, turbidity, sodium, lead, arsenic, magnesium, and bromide. At the time of sample collection pH, temperature, and total dissolved solids (TDS) will be recorded with field sensors.

Private well water quality sampling will be conducted in accordance with MEDEP SOP DR#001, *Water Sample Collection from Water Supply Wells*. Continuous chain of custody of all samples will be maintained in accordance with MEDEP SOP DR#012, *Chain of Custody Protocol*, from the point of collection until the sample is delivered to the contracting laboratory for analysis. Compliance with sample container requirements, preservation methods and maximum holding times for each parameter will be maintained.

Samples will be analyzed by an environmental laboratory certified or accredited under the rules of the Maine Department of Health and Human Services, 10-144 CMR 263 (effective December 19, 2018).

#### 2.2.6 Weather Station

Nordic will install a weather station that records precipitation (both liquid and frozen), wind speed and direction, and barometric pressure at hourly intervals and data will be uploaded daily. The station is planned to be installed in the grass area approximately 50 feet east of the current BWD pumphouse/office complex and will be powered by a solar panel and battery or hard-wired.

The weather station will include a cellular transmitter and be integrated into the Leaf cloud-based service that is used for the groundwater and surface water data. Data will be collected on an hourly basis and uploaded to the server no less often than daily.

#### 2.2.7 Macroinvertebrate and Qualitative Habitat Evaluation Index Surveys

Macroinvertebrate and Qualitative Habitat Evaluation Index (QHEI) surveys will be completed in Streams 3, 5, 6, and 9 prior to the start of construction and annually until five years following the full build-out of Nordic's facility. The surveys in Streams 3, 5, and 6 will occur in the downstream reaches of these streams (below the areas to be impacted). Based on communications with Beth Callahan, the MEDEP project manager, these surveys are to be conducted in June of each year. The purpose of the surveys is to ensure the functions of the surveyed stream reaches are improved (Stream 9) or maintained (Streams 3, 5, and 6). If MEDEP determines that the physical and biological characteristics of the surveyed stream reaches are not meeting these criteria, a plan for enhancing these characteristics or otherwise compensating for the impacts will be required.

The QHEI assessments will utilize the "Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)." The macroinvertebrate surveys will include use of a D-net to collect invertebrates via kick-netting where flowing water occurs within the stream reaches. In stream reaches without flowing water, dip-netting and visual observations will

be conducted as feasible based on water levels. Observed macroinvertebrates will be identified to the order or similar taxonomic level.

Following each annual survey, a monitoring report will be prepared that includes QHEI survey data, observed macroinvertebrates, photographic documentation, and a narrative of the observed condition of the subject streams. The initial, pre-construction survey report will be submitted to MEDEP prior to the start of construction. Data will continue to be submitted to MEDEP on an annual basis.

#### 2.2.8 Wetland Biomonitoring

Two proposed wetland monitoring plots (MP-1 and MP-2) will be established at the Site within wetlands W9 and W7, respectively. The vegetative community within these plots will be assessed annually during the growing season between July 15 and September 30. Wetland plots will be established within the wetland boundary and will measure 5 meters (m) by 5 m. Each corner of the plot will be permanently marked with rebar and located with a global positioning system (GPS) receiver. If possible, one reference plot (RP-1) will be established off-site, in a wetland area outside of the direct, water supply production well network's zone of contribution. The final plot locations will be determined by a qualified wetland scientist prior to the start of construction. Piezometers PZ-4S and PZ-4D are already installed within wetland W9 and shallow and deep piezometers (PZ-5S and PZ-5D) will be installed within the boundaries of wetland W7 and equipped with standard groundwater monitoring equipment.

Wetland plot data will be recorded on a data form and will include a quantitative inventory of vascular plant species and an approximation of their absolute areal coverage within the plot. Trees (i.e. woody vegetation over 5 inches in diameter at breast height [dbh]) will be identified to species and percent areal cover will be visually estimated for species rooted and overhanging the plot. Saplings and shrubs (i.e., woody vegetation greater than 3 feet tall and less than 5 inches dbh) rooted in the plot will be identified to species and percent areal cover will be visually estimated for each species. Herbaceous plants, including woody plants less than 3 feet tall, will be identified to species, when possible, and percent areal cover for each species will be visually estimated. The data form will include the corresponding wetland rating for each species, as available from the U.S. Army Corps of Engineers National Wetland Plant List. Evidence of stressed or dying vegetation will be recorded as appropriate on the data forms. Evidence of wetland hydrology will also be recorded at the time of biomonitoring. Photographs will be taken from fixed locations to allow annual comparisons.

### 2.3 Baseline Monitoring

The period prior to and during Nordic's construction will be used to collect baseline data at available monitoring locations (see Section 2.4 below regarding timing). Certain monitoring points are currently equipped with equipment used during the initial hydrogeologic investigation; however, this equipment will be replaced with long-term monitoring equipment once available. Long-term monitoring equipment, to be supplied by Leaf, is expected to be installed during summer and fall 2021 in most monitoring locations and in remaining locations as they are constructed, or access is authorized. As soon as monitoring equipment is installed it will begin recording data on the prescribed timeline. During baseline monitoring, monitoring staff will visit the site at least monthly to measure discharge of the Little River, collect manual measurements from monitoring locations that are not private water supply wells, install monitoring equipment, and perform maintenance to the monitoring equipment/stations, as necessary.

Baseline monitoring data will be compiled and provided to the MEDEP and City of Belfast monthly during the baseline monitoring period.

In addition to baseline data collection, key information about private monitoring wells will also be collected. This is planned to include total well depth, pump depth, pump and water system specifications, and pump and water system condition. This information will be collected after authorization from the well owner to monitor their well.

## 2.4 Monitoring Network Installation Schedule

The existing monitoring network at the Site includes most of the core monitoring points, however, certain monitoring locations will be decommissioned during construction, new locations are planned to be installed, and private wells will be added to the network as well owners authorize access. As a result, the monitoring network will likely evolve over time from the existing network to the final network as shown in Figure 3 and Table 1 herein. The planned schedule for the monitoring network evolution has been broken up into four phases based on installation priority and construction timing and is described below.

### 2.4.1 Wells to be Decommissioned

A total of six existing monitoring points will be decommissioned due to interference with Nordic’s buildings or other infrastructure to be constructed at the Site. The monitoring points to be decommissioned are summarized below.

Monitoring Point ID	Monitoring Point Type	Replacement Monitoring Point ID
DRX-101	Bedrock Monitoring Well	BRK-202
DRX-103	Bedrock Monitoring Well	BRK-201
PSD-101	Bedrock Monitoring Well	BRK-203
PSD-102	Bedrock Monitoring Well	BRK-203
PZ-1S	Wetland Piezometer	None
PZ-1D	Wetland Piezometer	None

Monitoring points to be decommissioned are currently being monitored by transducer and will continue to be monitored until they are decommissioned. Replacement locations, if applicable, will be planned to be installed before decommissioning if possible. If this is not possible, replacement wells will be installed as soon as possible after decommissioning.

Data collected from decommissioned monitoring points will be integrated into the monitoring database for potential use during future analysis.

### 2.4.2 Installation Phase I – Weather Station and Major Surface Water Monitoring Locations

Installation Phase I is planned to occur during late summer/fall 2021, or as soon as this plan is approved, and equipment can be procured from suppliers. This phase will include several key steps, as detailed below.

The first activity will be to install permanent stilling wells at SG-2, SG-3, and SG-4. After the stilling wells are installed, SG-3 and SG-3 will be equipped with pressure transducers and

communications equipment provided by Leaf. The stilling well at SG-4 will be instrumented with a non-networked pressure transducer (Van Essen Diver) and will be maintained as a backup to the stream gauging station at SG-MID. SG-MID will be equipped with a USGS “bubbler-style” stage recording unit and communications equipment and the channel cross-section will be surveyed. SG-4 will not be a primary component of the monitoring program; however, data will be correlated to SG-MID and archived in the event of damage to the bubbler at SG-MID occurs during flooding, vandalism, or other events.

The initial baseline QHEI survey was completed in June 2021.

Nordic will begin assessing private water supply wells where owners have agreed to voluntarily join the monitoring program during Phase I. This will continue throughout the installation phases detailed below as new wells are incorporated into the monitoring network until all private water supply wells have been evaluated.

#### 2.4.3 Installation Phase II – Existing Groundwater Wells, On-Site Streams, and Existing Private Wells

Installation Phase II is planned to occur during fall 2021, or as soon feasible after this plan is approved and equipment can be procured from suppliers. Activities in this phase will include installing monitoring equipment provided by Leaf into all existing groundwater monitoring points at the Site, except for those points planned for decommissioning. Wells to be decommissioned will be monitored as noted in Section 2.4.1.

Installation Phase II will also include installation of monitoring equipment provided by Leaf in the six private water supply wells where Nordic already has voluntary agreements with the well owners.

Wells included in this phase are currently monitored with non-networked transducers (Van Essen Divers or CTD-Diver®), which will be replaced with Leaf equipment. Data collected prior to the installation of networked equipment will be incorporated into the monitoring database.

Control structures for on-Site streams S3, S5, and S6 will be installed during this phase as well to take advantage of anticipated lower stream flows during late summer to install the structures. These structures will be equipped with equipment from Leaf after installation.

Planning and/or drilling of new monitoring points will also occur during this phase.

#### 2.4.4 Installation Phase III – New Monitoring Wells and Piezometers

Installation Phase III is planned to occur late summer/fall 2021, or as soon feasible after this plan is approved and equipment can be procured from suppliers. This phase will include all new on-site piezometers, overburden monitoring wells, and bedrock monitoring wells. Drilling for these monitoring points is planned to be completed when drill rig access is feasible for the planned locations. Due to this, the construction schedule may result in minor changes to the installation schedule for Phase III monitoring points.

#### 2.4.5 Installation Phase IV – Private Water Supply Wells and Production Wells

Installation Phase IV includes private water supply wells where Nordic does not have an existing voluntary agreement with the well owner, which will be instrumented as they are authorized, and the two remaining on-Site production wells (PW-2 and PW-3), which will be drilled, constructed, and instrumented during Nordic's construction process.

Efforts are currently underway to offer private water supply well owners who are eligible the opportunity to be included in the voluntary monitoring program. As well owners agree to monitoring, their well will be assessed as described above and instrumentation will be installed.

To limit the risk of damage to the wells, and to allow for access to well sites to be improved to allow for drilling, production wells PW-2 and PW-3 will not be installed until part-way through Nordic's construction.

Phase IV will also include the decommissioning of the following monitoring locations, which will be required due to the layout of Nordic's buildings and other infrastructure to be constructed at the Site: DRX-101, DRX-103, PSD-101, PSD-102, PZ-1D, and PZ-1S. Decommissioning will take place immediately prior to or during Nordic's construction.

### 3.0 PERFORMANCE CRITERIA

In order to understand whether groundwater extraction, surface water withdrawal, or site development causes unreasonable adverse impacts to existing groundwater users, natural resources, or waters of the State, monitoring data collected will be compared to performance criteria. The performance criteria described below have been developed based on the hydrogeologic setting of the Site, which is located at the terminus of the Little River watershed immediately prior to groundwater and surface water discharge to Belfast Bay, hydrogeologic modeling created and calibrated from data collected during four aquifer pumping tests, and input from regulatory authorities.

#### 3.1 Private Water Supply Wells

Each private water supply well has a unique set of considerations that need to be characterized to adequately understand the existing condition of the well, any potential future changes due to natural fluctuations or the development, and what should be considered an adverse impact. These considerations include:

1. Total depth of the well;
2. Depth of water-bearing fractures within the well bore;
3. Overall yield of the well;
4. Average static (i.e., non-pumping) water level of the well through the course of a year;
5. Depth of the pump within the well bore;
6. Well usage; and
7. Drawdown of the well during pumping.

Not all these considerations can be known or ascertained for each private water supply well; however, Nordic will evaluate the key criteria that can be known or ascertained for each private water supply well included in the voluntary monitoring program, which will include the following:

1. A water quality sample will be collected prior to beginning an assessment and then quarterly thereafter, as described in Section 2.2.5;
2. Pump type, condition, and depth setting will be determined, either via down-well camera (preferred) or removing the pump from the well;
3. Pressure tank and pressure setting for the well;
4. Information about the well bore, including diameter, casing type and depth, fractures (if visible), and total well depth will be recorded by down-well camera and/or other tools (e.g., sounding line, water level meter, etc.); and
5. Monitoring equipment, as described above, will be installed as soon as feasible to maximize the length of time for the collection of background data.

The information collected during the initial well assessment and the background data collection period will be used to determine the total dynamic head (TDH) of the well pump system under normal baseline (prior to Nordic's operations beginning) conditions. The TDH of the system can then be compared to the well pump performance specifications to determine the baseline operation of the well-pump system. This information can then be used to determine the specific warning and action levels for groundwater elevation in each private water supply well in the network as described in Section 3.5 below. Should water levels drop below the warning level for the specific private water supply well, data review and reporting frequency to the MEDEP and City of Belfast will be increased to weekly or greater as needed. Should water levels drop below the action level for the private water supply well, Nordic will immediately begin acting as described in Section 3.6 below.

Water quality results from private water supply wells will be compared against baseline conditions and be qualitatively and quantitatively assessed for undesirable trends. Water quality parameters will be compared to MEDEP's Residential Groundwater Remedial Action Guidelines (RAGs) for drinking water. Where no RAGs are set, United States Environmental Protection Agency (U.S. EPA) Secondary Maximum Contaminant Levels (SMCLs) which are non-mandatory water quality standards established by the U.S. EPA as drinking water guidelines for aesthetic considerations will be considered.

It is possible that some water quality in some private wells may already fail to meet the RAGs and/or SMCLs prior to any of Nordic's operations beginning. Instances where baseline (pre-operational) water quality data indicate standards are not currently met will be identified during background data collection and before operations begin. An alternative well-specific plan will also be proposed to establish a data-based approach to monitor for possible further degradation of water quality due to Nordic's operations. Nordic will not be held responsible for correcting pre-existing water quality issues that have been identified during background data collection. Should Nordic's operations cause water quality to decline below the RAGs or SMCLs, Nordic will, in consultation with the well owner and MEDEP, or other regulating authority, plan and implement corrective actions as described in Section 3.6 below.

### 3.2 Wetlands

Wetland monitoring plot vegetation data will be analyzed to identify potential shifts in species diversity and abundance over time in relation to Site development and groundwater extraction. Water levels in shallow piezometers installed in each wetland plot to monitor hydrology within the approximate root zone of the associated wetland vegetation will be compared to baseline conditions and evaluated for declining trends. Wetland biomonitoring and piezometer data will be analyzed on an annual basis to assess changes in wetlands over time. If data indicate that Nordic's operations are resulting in clear trends toward unreasonable adverse impacts recommendations will be made to mitigate these impacts through consultation with MEDEP.

### 3.3 Streams

If the QHEI ratings in the monitored reaches of streams S3, S5, S6, or S9 decline from the baseline QHEI ratings, Nordic will consult with MEDEP to develop a plan to improve the QHEI rating to meet the baseline rate or better.

### 3.4 Lower Reservoir and Little River

Water levels recorded in the Lower Reservoir and discharge from the Little River will be assessed based on the minimum level or flow. In accordance with MEDEP Chapter 587, the water level within the



Lower Reservoir will not be allowed to be drawn down beyond one acre-foot per acre of the reservoir (i.e., one foot of drawdown) from the normal high-water level between April 1 and July 31 and two acre-feet per acre of the reservoir (i.e., two feet of drawdown) from the normal high-water level between August 1 and March 31.

Flow within the Little River will be compared with the minimum flow, as generally established below and refined after further background data collection. Should flow drop below the warning flow, as defined in Section 3.5 below, data review frequency and reporting to the MEDEP and City of Belfast will be increased to weekly or greater if needed. Should the flow drop below the minimum flow, Nordic will take action as specified in Section 3.6 below.

### 3.5 Action and Warning Levels

Warning and action levels have been established to avoid the potential risk of adverse impacts. When a monitoring parameter exceeds a warning level, as described below, this will trigger a notice to MEDEP and the City of Belfast and increase the data review and reporting frequency at least weekly until the condition has abated, or the action level is exceeded. Action levels recommended below are intended to be reached prior to any adverse impact to the resource, and warning levels generally recommended to be some percentage greater than the action level. Functionally, this means that when warning levels are reached, data review and reporting frequencies can be increased, and plans can be formulated in the event the action level is exceeded. If the action level is exceeded, then Nordic will immediately begin taking steps outlined in Section 3.6 below to address the issue.

Action and warning levels have been defined by as follows:

#### 3.5.1 Private Water Supply Wells

As discussed above, the action and warning levels for each private water supply well must be set based on the specifics of each well. Given this, a general formula is provided for setting warning and action levels in private water supply wells.

There are two ways in which adverse impacts to water quantity may manifest in a private water supply well. The first is via drawdown of the aquifer below the well pump, which would cause immediate loss of water to the well owner. The second is through drawdown of the aquifer that is sufficient to increase the TDH of the well-pump system beyond the operational range of the well pump. TDH is calculated based on the settings of the pressure tank, pump depth, pump piping distance, and the measured water level. Increasing TDH beyond the operational range of the pump could cause premature failure of the well pump and/or immediate loss of water to the well owner.

#### Warning Level

If the warning level is triggered, Nordic will increase data review and reporting, and will prepare for possible additional response. The warning level is proposed to be set as the more conservative of the two following criteria:

1. The maximum daily TDH of the well-pump system is greater than or equal to 75% of the maximum TDH for the well pump; or

2. The minimum daily water level observed in the well is less than or equal to the elevation of the well pump plus 30 feet.

#### Action Level

To avoid adverse impact, the action level for a private water supply well is proposed to be set as the more conservative of the two following criteria:

1. The maximum daily TDH of the well-pump system is greater than or equal to 90% of the maximum head for the well pump; or
2. The minimum daily water level observed in the well is less than or equal to the elevation of the well pump plus 15 feet.

Because the private well systems to be included in the monitoring program have not yet been fully evaluated, these recommended warning and action levels may require modification. If the existing water supply well-pump system already exceeds one or more of these criteria, it will be necessary to establish alternative warning and action levels for that private water supply well. In such instances, Nordic will provide an alternative plan for warning and action levels that is supported by the baseline data and existing well-pump system installed in the well.

Prior to the start of operations, Nordic will provide a written summary that specifies exactly what TDH or water levels will be used for warning and action levels at each private water supply well. These criteria will also be provided to the private well owners for their records.

### 3.5.2 Little River Flow

#### Warning Level

The warning levels for each hydrologic season are proposed to be equal to 120% of the action level (also referred to as minimum base flow) set for that season.

#### Action Level

The action level, or minimum base flow, for the reach of the Little River between the Upper Dam and the Lower Reservoir, is intended to represent the “seasonal aquatic base flow” as defined by MEDEP Chapter 587 rules. Chapter 587 defines seasonal aquatic base flow based on six hydrologic seasons, which include winter (January 1 to March 15), spring (March 16 to May 15), early summer (May 16 to June 30), summer (July 1 to September 15), fall (September 16 to November 15), and early winter (November 16 to December 31).

The reach of the Little River that flows adjacent to the Site is approximately 0.25 miles long and begins at the Upper Dam and ends at the Lower Reservoir. Because of the short length of this reach, limited tributaries, and attenuating effects of the Upper Dam, the flow characteristics for this reach are expected to differ slightly from what might be expected in a natural system.

Therefore, proposed ranges for minimum base flow are provided below and are based on guidance from Chapter 587 and output from the USGS modeling program StreamStats, included as Appendix B. In order to account for the area that drains into the Lower Reservoir below the

reach in question, StreamStats was set to estimate flow statistics for the Little River watershed at the head of the Lower Reservoir.

Hydrologic Season	Date Range	5% Duration Flow for Season (cfs)	50% Duration Flow for Season (cfs)	Proposed Minimum Base Flow Range (cfs)
Winter	January 1 to March 15	4.85	12.9	4.85 to 12.9
Spring	March 16 to May 15	19.7	51.9	19.7 to 51.9
Early Summer	May 16 to June 30	2.42	8.65	2.42 to 8.65
Summer	July 1 to September 15	0.087	1.24	0.087 to 1.24
Fall	September 16 to November 15	0.272	6.31	0.272 to 6.31
Early Winter	November 16 to December 31	4.22	22.8	4.22 to 22.8

**Notes:** cfs = cubic feet per second

Proposed flow ranges are intended to cover a relatively broad range of reasonable estimates for median flow during the hydrologic seasons defined in Chapter 587. Nordic proposes updating these minimum flow values after background data have been collected from the stream gage planned to be installed in the Little River. These data will allow for minimum base flow values to be more accurately estimated and minimize risk of adverse impacts or natural conditions causing warning and action levels to be triggered regularly. Updated minimum base flow values, along with proposed durations at which streamflow must remain at or below the warning or action level to trigger the warning or action, will be provided prior to beginning operations.

### 3.6 Action Plan

In the event that Nordic’s operations cause action levels to be reached in one or more private water supply wells, the Lower Reservoir, of the Little River, Nordic will immediately undertake the following actions.

#### 3.6.1 Private Water Supply Wells

In the event that Nordic’s operations cause water levels drop below the specific action level set for a water supply well, as discussed above in Section 3.5.1, Nordic will take the following actions in consultation with MEDEP and the well owner:

1. If water loss has occurred or the water supply well is not usable, Nordic will immediately provide an alternative temporary source of clean and safe water to the affected water supply well owner. Examples of this include bottled water or other means of potable water delivery. The purpose of this measure is to provide for the affected parties everyday water needs while a permanent solution is enacted.
2. Take appropriate steps to provide a permanent solution to the issue. This may include one or more of the following actions, as applicable to the specific situation. Note that actions are not necessarily listed in the order in which they might be implemented:

- a. Replacing the well pump and/or system with one capable of greater TDH.
- b. Lowering the existing pump in the well.
- c. Altering water usage at the facility to reduce demand on the aquifer in question.
- d. Drilling the existing well deeper.
- e. Drilling a new well.
- f. Connecting the well owner to the municipal water supply system.

In the event that Nordic's operations have caused water quality in a private supply well to decline below the RAGs, SMCLs, or other benchmark based on baseline data (i.e., the water quality in the well did not meet the RAGs or SMCLs prior to Nordic's operations beginning and therefore another benchmark has been set), Nordic will undertake the following actions in consultation with the MEDEP and well owner:

1. If water is no longer deemed potable or safe to consume, Nordic will immediately provide a safe and sufficient temporary alternative water supply source while a permanent solution is enacted.
2. Take appropriate steps to provide a permanent solution to the issue. This may include one or more of the following actions. Note that actions are not necessarily listed in the order that they might be implemented:
  - a. Installing a water filtration or treatment system.
  - b. Isolating certain water bearing zones within the well bore.
  - c. Altering water usage at the facility to adjust groundwater flow patterns.
  - d. Altering the existing well construction to exclude areas that are causing the undesirable water quality condition.
  - e. Drilling a new well.
  - f. Connecting the well owner to the municipal water supply system.

Nordic shall not be held responsible for correcting water quality or quantity issues in private water supply wells within the monitoring program that have been documented to be present prior to Nordic beginning operations (i.e., through baseline monitoring). Should private water supply well owners enter the program after operations have begun, it will be the responsibility of those private well owners to provide documentation of water quantity and quality conditions prior to Nordic's operations. Similarly, should water quality and/or quantity issues occur in wells owned by individuals or entities that elected not to participate in the monitoring program it will be the responsibility of the well owner to provide documentation that the issue occurred as a result of Nordic's operations.

### 3.6.2 Lower Reservoir Action Plan

In the event that the action level is reached in the Lower Reservoir, Nordic will address the condition in consultation with MEDEP as needed. The first anticipated action is to cease withdrawal of surface water from the Lower Reservoir. If this does not result in the condition abating and it is determined that Nordic's operations are the cause for the condition not abating (i.e., the cause is not due to drought or other natural occurrence), Nordic may adjust other operational parameters to address the issue in consultation with MEDEP. This may include

adjusting the distribution of groundwater withdrawal from the Site, the overall volume of groundwater withdrawn from the Site, shifting freshwater usage to rely more heavily on municipal water within permissible limits, or other changes.

### 3.6.3 Little River Action Plan

In the event that the Little River flow drops below the action level due to Nordic's operations, Nordic will adjust on-Site operations in consultation with MEDEP to address the issue. This may include adjusting the distribution of groundwater withdrawal on Site, reducing the overall volume of groundwater withdrawn from on-Site wells by shifting freshwater use from on-Site groundwater to surface water or municipal water, or adjusting other operational parameters that might reduce overall fresh water demand.

## 4.0 REPORTING

### 4.1 Data Review and Quality Assurance/Quality Control

Data collected during the monitoring described above will be reviewed for QA/QC purposes prior to submission to MEDEP or the City of Belfast. Data found to be erroneous or inaccurate will be removed from the dataset prior to submission. If a significant portion of data collected is found to be inaccurate or erroneous, Nordic will provide a written explanation describing the data that did not meet QA/QC standards, the cause(s) of the data quality issue, the action(s) taken to correct the issue, and the impact of the QA/QC failure on data usability and analysis.

### 4.2 Annual Reporting

Nordic will submit an annual report to the MEDEP, City of Belfast, and Town of Northport for each year ending December 31. Reports will be submitted by March 31 of the following year and will include detailed discussion and findings from the prior year, a summary of all monitoring activities completed as part of this WRMP, a discussion of QA/QC issues identified during monitoring, and a discussion of any warning or action levels that were identified throughout the year, as well as action(s) taken to address such occurrences.

### 4.3 Monthly Reporting

Nordic will submit monthly data reports to the MEDEP and the City of Belfast beginning after the first full month this WRMP has been in place. Data reports will be submitted by the 14<sup>th</sup> of the following month and will continue until at least 12 months following full build-out of the facility.

Monthly data submittals will be provided in the most recent electronic format accepted by MEDEP and in hard copy and will be accompanied by a brief letter describing progress made toward monitoring network build-out as described above (during the background data collection period only), as well as any QA/QC issues identified in the data.

### 4.4 Private Water Supply Well Data Reporting

Data collected from private water supply wells included in the monitoring program will be provided to the water supply well owner on a semi-annual basis. Data collected from January through June will be provided by the end of August of the same year, and data collected from July through December will be provided by the end of February of the following year. Data provided shall include groundwater level and quarterly water quality data. The City of Belfast's Code and Planning Department will be provided a copy of test results provided to water supply well owners.

### 4.5 Qualitative Habitat Evaluation Index Surveys of Streams S3, S5, S6, and S9

QHEI surveys will be completed annually in June for streams S3, S5, S6, and S9 and submitted to the MEDEP and the City of Belfast on an annual basis for review. The initial, pre-construction survey report will be submitted to MEDEP and the City of Belfast prior to the start of construction. Data will continue to be submitted to MEDEP and the City of Belfast on an annual basis in the annual report. Surveys began in June 2021 and will continue until five years following full build-out of the facility.

#### 4.6 Instream Flow Monitoring of Streams S3, S5, and S6

Continuous instream flow monitoring of the downstream reaches of streams S3, S5, and S6 will be submitted to the MEDEP semiannually. Instream flow data from January to June of each year shall be submitted by July 15 of the same year, and flow data from July to December of each year shall be submitted by February 15 of the following year. Data submissions are required to begin within 1 year of the beginning of Phase I operation and will continue for a minimum of five years after full build-out of the project. However, as noted above, Nordic anticipates beginning data collection prior to the start of construction for Phase I operation.

## **5.0 CHANGES TO THE MONITORING PROGRAM**

Changes to the monitoring program will not be made without prior approval from the MEDEP, except in cases where private well owners decide to withdraw from or join the monitoring program. If any monitoring point malfunctions or is lost due to damage, vandalism, or otherwise, the MEDEP will be notified as soon as possible, including a plan for replacement of the monitoring point. The replacement monitoring location will be the same or similar design as the original and will be installed at the same location or as close as possible to the missing, malfunctioning, or damaged monitoring location.



**TABLE 1. Monitoring Points Summary Table**  
**Belfast Water District, Cassida, and Matthews Brothers Properties**  
**285 Northport Avenue**  
**Belfast, Maine**

Monitoring Point ID	Type	Status	Installation Priority	Installation Timing	Instrument Type	Measurement Frequency	Measurement Parameters	Location
SG-2	Surface Water	Installed	1	Early Summer 2021	Transducer	Hourly	Water Level, Temp	Off Site
SG-3	Surface Water	Installed	1	Early Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
SG-MID	Surface Water	Proposed	1	Early Summer 2021	Bubbler	15 minute	Stage Height (Discharge)	Off Site
Weather Station	Weather	Proposed	1	Early Summer 2021	Weather Station	15 minute	Precipitation, Barometric Pressure, Wind Speed, Wind Direction	On Site
NTB-101	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Conductivity, Temp	On Site
NTB-102	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
NTB-103	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
GWW-101	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Conductivity, Temp	On Site
GWW-102	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
GWW-103	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Conductivity, Temp	On Site
DRX-102	GW - Bedrock	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Conductivity, Temp	On Site
PZ-2	GW - Overburden	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
PZ-3	GW - Overburden	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
PZ-4S	GW - Overburden	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
PZ-4D	GW - Overburden	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
PW-1	Production Well	Installed	2	Summer 2021	Transducer	Hourly	Water Level, Temp	On Site
S3	Surface Water	Proposed	2	Summer 2021	Transducer	15 minute	Water Level, Temp	On Site
S5	Surface Water	Proposed	2	Summer 2021	Transducer	15 minute	Water Level, Temp	On Site
S6	Surface Water	Proposed	2	Summer 2021	Transducer	15 minute	Water Level, Temp	On Site
WSW-1	Private Supply Well	Installed	2	Summer 2021	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-2	Private Supply Well	Installed	2	Summer 2021	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-3	Private Supply Well	Installed	2	Summer 2021	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-4	Private Supply Well	Installed	2	Summer 2021	Transducer	15 minute	Water Level, Conductivity, Temp, mod. TSFHA	Off Site
WSW-5	Private Supply Well	Installed	2	Summer 2021	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-6	Private Supply Well	Installed	2	Summer 2021	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
PZ-5S	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp	On Site
PZ-5D	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp	On Site
OVB-101S	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp, Total N, Total P	On Site
OVB-101D	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp, Total N, Total P	On Site
OVB-102S	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp, Total N, Total P	On Site
OVB-102D	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp, Total N, Total P	On Site
OVB-103S	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp, Total N, Total P	On Site
OVB-103D	GW - Overburden	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp, Total N, Total P	On Site
BRK-201	GW - Bedrock	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp	On Site
BRK-202	GW - Bedrock	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp	On Site
BRK-203	GW - Bedrock	Proposed	3	Late Summer/Fall 2021	Transducer	Hourly	Water Level, Temp	On Site
WSW-7	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-8	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-9	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-10	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-11	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Conductivity, Temp, mod. TSFHA	Off Site
WSW-12	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Conductivity, Temp, mod. TSFHA	Off Site
WSW-13	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site










**TABLE 1. Monitoring Points Summary Table**  
**Belfast Water District, Cassida, and Matthews Brothers Properties**  
**285 Northport Avenue**  
**Belfast, Maine**

Monitoring Point ID	Type	Status	Installation Priority	Installation Timing	Insturment Type	Measurment Frequency	Measurement Parameters	Location
WSW-14	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-15	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-16	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-17	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-18	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-19	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-20	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-21	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-22	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-23	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-24	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-25	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-26	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-27	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-28	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-29	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
WSW-30	Private Supply Well	Proposed	4	As Authorized	Transducer	15 minute	Water Level, Temp, mod. TSFHA	Off Site
PW-2	Production Well	Proposed	4	During Construction	Transducer	Hourly	Water Level, Temp, mod. TSFHA	On site
PW-3	Production Well	Proposed	4	During Construction	Transducer	Hourly	Water Level, Temp, mod. TSFHA	On site
<b><i>Wells to be Decomissioned</i></b>								
DRX-101	GW - Bedrock	Installed	To Be Decomissioned	N/A	Transducer	Hourly	Water Level, Temp	On Site
DRX-103	GW - Bedrock	Installed	To Be Decomissioned	N/A	Transducer	Hourly	Water Level, Temp	On Site
PSD-101	GW - Bedrock	Installed	To Be Decomissioned	N/A	Transducer	Hourly	Water Level, Temp	On Site
PSD-102	GW - Bedrock	Installed	To Be Decomissioned	N/A	Transducer	Hourly	Water Level, Temp	On Site
PZ-1S	GW - Overburden	Installed	To Be Decomissioned	N/A	Transducer	Hourly	Water Level, Temp	On Site
PZ-1D	GW - Overburden	Installed	To Be Decomissioned	N/A	Transducer	Hourly	Water Level, Temp	On Site

**Notes:**

1. Mod. TSFHA refers to Maine CDC routine water test code for "Residential Home Sales" that is modified to include bromide.
2. Total Number of private water supply wells to be included in the monitoring network has not been finalized. 30 wells are shown here as an estimate of the total number
3. Wells to be decomissioned will continue to be monitored using existing monitoring equipment until they are decomissioned.

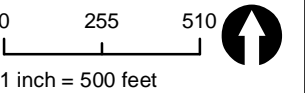
*Legend & Notes*

-  Piezometer
-  Active
-  Removed
-  Stream
-  Private Well - Assumed Loc.
-  Private Well - Monitored
-  Private Well - Not Located
-  Monitoring Well
-  Decommissioned

Notes

1. Site Plan based on data from the Maine Office of GIS and The National Map.
2. Some features are approximate in location and scale
3. This plan has been prepared for Nordic Aquafarms, Inc. All other uses are not authorized unless written permission is obtained from Ransom Consulting, LLC.

*Scale & Orientation*



*Prepared For*

Nordic Aquafarms, Inc.  
159 High Street  
Belfast, Maine

*Site Address*

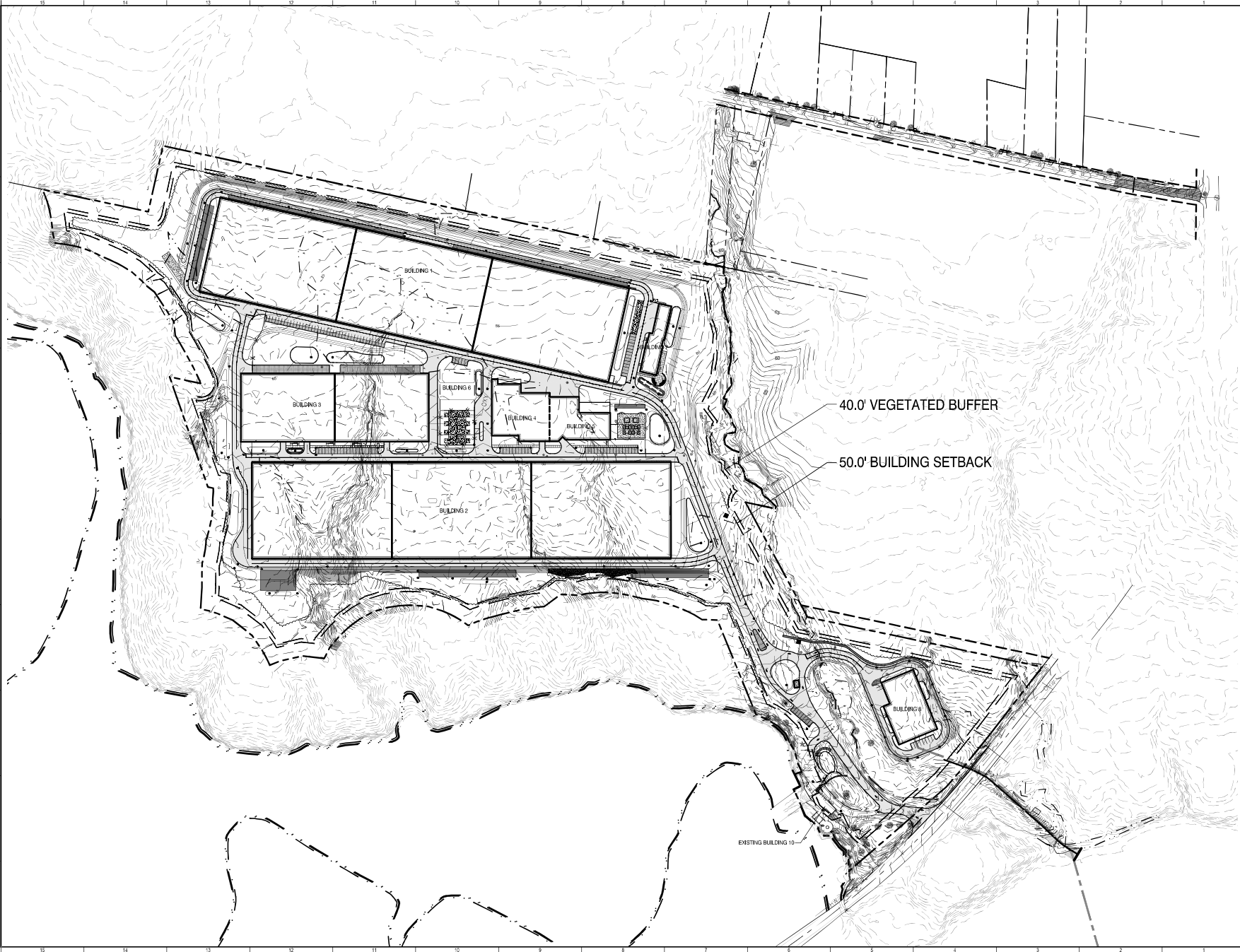
Proposed Land-Based  
Aquaculture Facility  
285 Northport Avenue  
Belfast, Maine

201.06079.001 | May 2021

**Figure 1**  
**Existing Monitoring**  
**Network**



Figure 2



REV	DESCRIPTION	DATE

ISSUED FOR PERMIT - DRAFT  
3-15-19

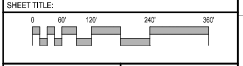
TRUE NORTH

SMRT Architects and Engineers  
144 Fore Street P.O. BOX 918  
Portland, Maine 04104  
1-877-700-7678  
www.smrtinc.com

**RANSOM** Consulting Engineers and Scientists  
Plus-om Consulting Engineers and Scientists  
400 Commercial Street, Suite 400  
Portland, Maine 04103

**NORDIQ AQUAFARMS**  
285 NORTHPORT AVENUE  
BELFAST, MAINE

**SITE CONTEXT PLAN**



PROJECT MANAGER: ADB	PROJECT NO: 18078
DATE OF RECORD:	
JOB CAPTAIN: SP	
DRAWN BY: WSM	
SMRT FILE: C-102-18078	SHEET No: <b>C-102</b>

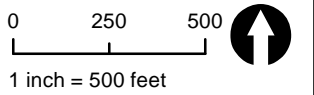
NOT FOR CONSTRUCTION

*Legend & Notes*

- Site Boundary
- Wetland Piezometers**
  - Decomissioned
  - Existing
  - Proposed
- Surface Water Gages**
  - Decomissioned
  - Existing
  - Proposed
- Private Wells**
  - Proposed
- Monitoring/Prod. Wells**
  - Monitoring Well
  - Production Well
  - Decomissioned Well
  - Prop. Monitoring Well
  - Prop. Production Well
- Wetlands**
  - Palustrine Wetlands
  - Salt Marsh
  - Cobble Beach
- Streams**
  - Culvert
  - Intermittent Stream

- Notes**
1. Site Plan based on data from the Maine Office of GIS and The National Map.
  2. Some features are approximate in location and scale
  3. This plan has been prepared for Nordic Aquafarms, Inc. All other uses are not authorized unless written permission is obtained from Ransom Consulting, LLC.

*Scale & Orientation*



*Prepared For*

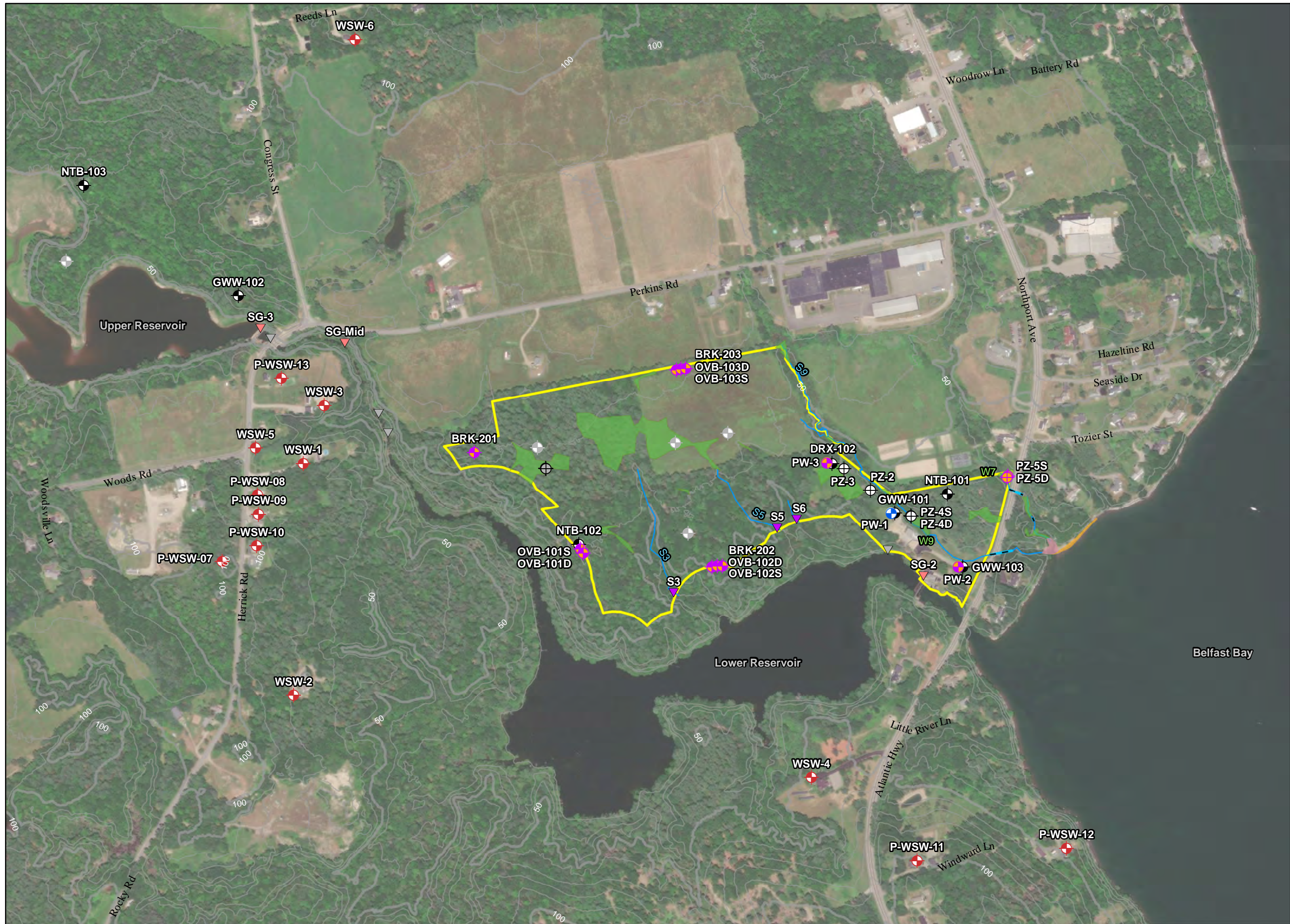
Nordic Aquafarms, Inc.  
159 High Street  
Belfast, Maine

*Site Address*

Proposed Land-Based  
Aquaculture Facility  
285 Northport Avenue  
Belfast, Maine

201.06079.001 | Aug 2021

**Figure 3**  
**Proposed Monitoring Network**



## **APPENDIX A**

Standard Operating Procedures

Updated Water Resource Monitoring Plan

Land-Based Aquaculture Facility

Belfast Water District, Cassida Back Lot and Mathews Brothers West Field Properties

285 Northport Avenue

Belfast, Maine



Project 171.05027.009

### MEDEP Standard Operation Procedures

SOP ID #	SOP Title
RWM-DR-001	Water Sample Collection from Water Supply Wells
RWM-DR-003	Groundwater Sampling Using Low Flow Purging and Sampling for Long-term Monitoring
RWM-DR-012	Chain of Custody Protocol
RWM-DR-028	Monitoring Well Maintenance and Development

Well installation and decommissioning shall be conducted in accordance with the Maine Well Drillers and Pump Installers Rules (144 CMR 232). Monitoring wells shall be maintained in accordance with MEDEP SOP DR#028, *Monitoring Well Maintenance and Development*.

**APPENDIX B**

StreamStats Report – Little River above the Lower Reservoir

Updated Water Resource Monitoring Plan  
Land-Based Aquaculture Facility  
Belfast Water District, Cassida Back Lot and Mathews Brothers West Field Properties  
285 Northport Avenue  
Belfast, Maine



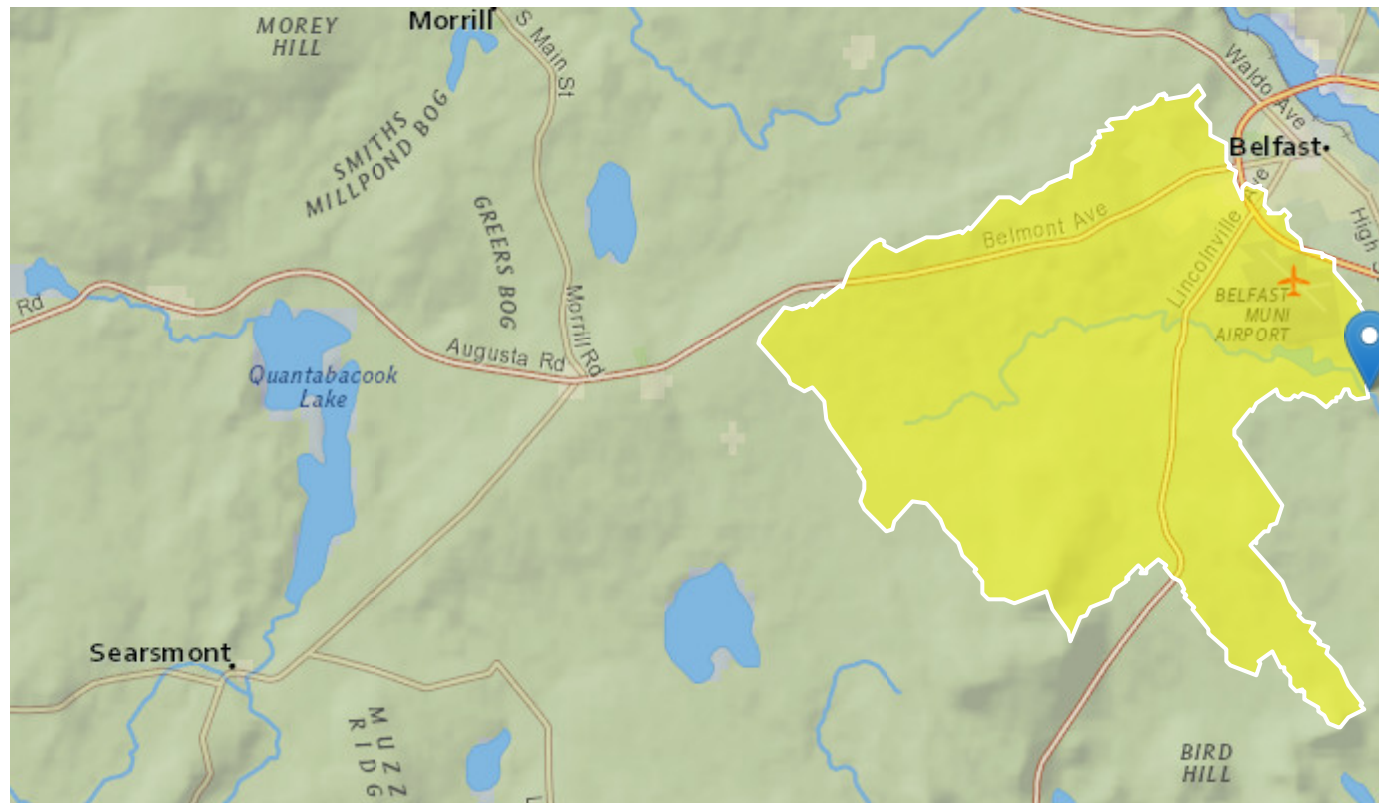
# StreamStats Report: Little River above the Lower Reservoir

Region ID: ME

Workspace ID: ME20210517175002496000

Clicked Point (Latitude, Longitude): 44.39585, -68.99925

Time: 2021-05-17 13:50:23 -0400



## Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	14	square miles
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	0.86	percent
COASTDIST	Shortest distance from the coastline to the basin centroid	48	miles
BSLDEM10M	Mean basin slope computed from 10 m DEM	5.97	percent

Parameter Code	Parameter Description	Value	Unit
LC06WATER	Percent of open water, class 11, from NLCD 2006	0.16	percent
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0.021	dimensionless
ELEV	Mean Basin Elevation	276.2	feet
ELEVMAX	Maximum basin elevation	747.5	feet

Monthly Flow Statistics Parameters [Statewide January SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
STATSGOA	STATSGO Percent Hydrologic Soil Type A	0.86	percent	0	31.5

Monthly Flow Statistics Parameters [Statewide February SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	48	miles	46.6	193
BSLDEM10M	Mean Basin Slope from 10m DEM	5.97	percent	1.5	26.6

Monthly Flow Statistics Parameters [Statewide March SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	48	miles	46.6	193
LC06WATER	Percent_Water_from_NLCD2006	0.16	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide April SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	48	miles	46.6	193
LC06WATER	Percent_Water_from_NLCD2006	0.16	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide May SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
BSLDEM10M	Mean Basin Slope from 10m DEM	5.97	percent	1.5	26.6
LC06WATER	Percent_Water_from_NLCD2006	0.16	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide June SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
BSLDEM10M	Mean Basin Slope from 10m DEM	5.97	percent	1.5	26.6
LC06WATER	Percent_Water_from_NLCD2006	0.16	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide July SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

Monthly Flow Statistics Parameters [Statewide August SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

## Monthly Flow Statistics Parameters [Statewide September SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

## Monthly Flow Statistics Parameters [Statewide October SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

## Monthly Flow Statistics Parameters [Statewide November SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
ELEVMAX	Maximum Basin Elevation	747.5	feet	633	6290

## Monthly Flow Statistics Parameters [Statewide December SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
STATSGOA	STATSGO Percent Hydrologic Soil Type A	0.86	percent	0	31.5

## Monthly Flow Statistics Disclaimers [Statewide January SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide January SIR 2015 5151]

Statistic	Value	Unit
January Mean Flow	24.8	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide February SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide February SIR 2015 5151]

Statistic	Value	Unit
February Mean Flow	24	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide March SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide March SIR 2015 5151]

Statistic	Value	Unit
March Mean Flow	78.9	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide April SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide April SIR 2015 5151]

Statistic	Value	Unit
April Mean Flow	88.8	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide May SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Monthly Flow Statistics Flow Report [Statewide May SIR 2015 5151]

Statistic	Value	Unit
May Mean Flow	25.1	ft <sup>3</sup> /s

Monthly Flow Statistics Disclaimers [Statewide June SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Monthly Flow Statistics Flow Report [Statewide June SIR 2015 5151]

Statistic	Value	Unit
June Mean Flow	22.8	ft <sup>3</sup> /s

Monthly Flow Statistics Disclaimers [Statewide July SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Monthly Flow Statistics Flow Report [Statewide July SIR 2015 5151]

Statistic	Value	Unit
July Mean Flow	8.31	ft <sup>3</sup> /s

Monthly Flow Statistics Disclaimers [Statewide August SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Monthly Flow Statistics Flow Report [Statewide August SIR 2015 5151]

Statistic	Value	Unit
August Mean Flow	4.71	ft <sup>3</sup> /s

Monthly Flow Statistics Disclaimers [Statewide September SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide September SIR 2015 5151]

<b>Statistic</b>	<b>Value</b>	<b>Unit</b>
September Mean Flow	5.2	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide October SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide October SIR 2015 5151]

<b>Statistic</b>	<b>Value</b>	<b>Unit</b>
October Mean Flow	22.5	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide November SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide November SIR 2015 5151]

<b>Statistic</b>	<b>Value</b>	<b>Unit</b>
November Mean Flow	39.7	ft <sup>3</sup> /s

## Monthly Flow Statistics Disclaimers [Statewide December SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## Monthly Flow Statistics Flow Report [Statewide December SIR 2015 5151]

<b>Statistic</b>	<b>Value</b>	<b>Unit</b>
December Mean Flow	36.2	ft <sup>3</sup> /s

## Monthly Flow Statistics Flow Report [Area-Averaged]

<b>Statistic</b>	<b>Value</b>	<b>Unit</b>
January Mean Flow	24.8	ft <sup>3</sup> /s
February Mean Flow	24	ft <sup>3</sup> /s
March Mean Flow	78.9	ft <sup>3</sup> /s

Statistic	Value	Unit
April Mean Flow	88.8	ft <sup>3</sup> /s
May Mean Flow	25.1	ft <sup>3</sup> /s
June Mean Flow	22.8	ft <sup>3</sup> /s
July Mean Flow	8.31	ft <sup>3</sup> /s
August Mean Flow	4.71	ft <sup>3</sup> /s
September Mean Flow	5.2	ft <sup>3</sup> /s
October Mean Flow	22.5	ft <sup>3</sup> /s
November Mean Flow	39.7	ft <sup>3</sup> /s
December Mean Flow	36.2	ft <sup>3</sup> /s

#### Monthly Flow Statistics Citations

**Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

#### February Flow-Duration Statistics Parameters [Statewide February SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	48	miles	46.6	193
BSLDEM10M	Mean Basin Slope from 10m DEM	5.97	percent	1.5	26.6

#### February Flow-Duration Statistics Disclaimers [Statewide February SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

#### February Flow-Duration Statistics Flow Report [Statewide February SIR 2015 5151]

Statistic	Value	Unit
February 1 Percent Duration	4.03	ft <sup>3</sup> /s
February 5 Percent Duration	4.85	ft <sup>3</sup> /s



Statistic	Value	Unit
February 10 Percent Duration	6.23	ft <sup>3</sup> /s
February 25 Percent Duration	8.76	ft <sup>3</sup> /s
February 50 Percent Duration	12.9	ft <sup>3</sup> /s
February 75 Percent Duration	24.2	ft <sup>3</sup> /s
February 90 Percent Duration	45.2	ft <sup>3</sup> /s
February 95 Percent Duration	87.9	ft <sup>3</sup> /s
February 99 Percent Duration	217	ft <sup>3</sup> /s

*February Flow-Duration Statistics Citations*

**Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

April Flow-Duration Statistics Parameters [Statewide April SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	48	miles	46.6	193
LC06WATER	Percent_Water_from_NLCD2006	0.16	percent	0	6.2

April Flow-Duration Statistics Disclaimers [Statewide April SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

April Flow-Duration Statistics Flow Report [Statewide April SIR 2015 5151]

Statistic	Value	Unit
April 1 Percent Duration	13.9	ft <sup>3</sup> /s
April 5 Percent Duration	19.7	ft <sup>3</sup> /s
April 10 Percent Duration	24.7	ft <sup>3</sup> /s
April 25 Percent Duration	36.1	ft <sup>3</sup> /s

Statistic	Value	Unit
April 50 Percent Duration	51.9	ft <sup>3</sup> /s
April 75 Percent Duration	97.8	ft <sup>3</sup> /s
April 90 Percent Duration	189	ft <sup>3</sup> /s
April 95 Percent Duration	284	ft <sup>3</sup> /s
April 99 Percent Duration	655	ft <sup>3</sup> /s

*April Flow-Duration Statistics Citations*

**Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

June Flow-Duration Statistics Parameters [Statewide June SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
BSLDEM10M	Mean Basin Slope from 10m DEM	5.97	percent	1.5	26.6
LC06WATER	Percent_Water_from_NLCD2006	0.16	percent	0	6.2

June Flow-Duration Statistics Disclaimers [Statewide June SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

June Flow-Duration Statistics Flow Report [Statewide June SIR 2015 5151]

Statistic	Value	Unit
June 1 Percent Duration	1.84	ft <sup>3</sup> /s
June 5 Percent Duration	2.42	ft <sup>3</sup> /s
June 10 Percent Duration	2.93	ft <sup>3</sup> /s
June 25 Percent Duration	4.79	ft <sup>3</sup> /s
June 50 Percent Duration	8.65	ft <sup>3</sup> /s
June 75 Percent Duration	20.3	ft <sup>3</sup> /s

Statistic	Value	Unit
June 90 Percent Duration	52.1	ft <sup>3</sup> /s
June 95 Percent Duration	105	ft <sup>3</sup> /s
June 99 Percent Duration	348	ft <sup>3</sup> /s

*June Flow-Duration Statistics Citations*

**Dudley, R.W., 2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015-5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

August Flow-Duration Statistics Parameters [Statewide August SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

August Flow-Duration Statistics Disclaimers [Statewide August SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

August Flow-Duration Statistics Flow Report [Statewide August SIR 2015 5151]

Statistic	Value	Unit
August 1 Percent Duration	0.0275	ft <sup>3</sup> /s
August 5 Percent Duration	0.087	ft <sup>3</sup> /s
August 10 Percent Duration	0.133	ft <sup>3</sup> /s
August 25 Percent Duration	0.536	ft <sup>3</sup> /s
August 50 Percent Duration	1.24	ft <sup>3</sup> /s
August 75 Percent Duration	4.09	ft <sup>3</sup> /s
August 90 Percent Duration	11	ft <sup>3</sup> /s
August 95 Percent Duration	18.9	ft <sup>3</sup> /s
August 99 Percent Duration	60	ft <sup>3</sup> /s

*August Flow-Duration Statistics Citations*

**Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

## October Flow-Duration Statistics Parameters [Statewide October SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

## October Flow-Duration Statistics Disclaimers [Statewide October SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## October Flow-Duration Statistics Flow Report [Statewide October SIR 2015 5151]

Statistic	Value	Unit
October 1 Percent Duration	0.173	ft <sup>3</sup> /s
October 5 Percent Duration	0.272	ft <sup>3</sup> /s
October 10 Percent Duration	0.583	ft <sup>3</sup> /s
October 25 Percent Duration	1.93	ft <sup>3</sup> /s
October 50 Percent Duration	6.31	ft <sup>3</sup> /s
October 75 Percent Duration	20.6	ft <sup>3</sup> /s
October 90 Percent Duration	53	ft <sup>3</sup> /s
October 95 Percent Duration	95.2	ft <sup>3</sup> /s
October 99 Percent Duration	270	ft <sup>3</sup> /s

*October Flow-Duration Statistics Citations*

**Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

## December Flow-Duration Statistics Parameters [Statewide December SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419
STATSGOA	STATSGO Percent Hydrologic Soil Type A	0.86	percent	0	31.5

## December Flow-Duration Statistics Disclaimers [Statewide December SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

## December Flow-Duration Statistics Flow Report [Statewide December SIR 2015 5151]

Statistic	Value	Unit
December 1 Percent Duration	1.55	ft <sup>3</sup> /s
December 5 Percent Duration	4.22	ft <sup>3</sup> /s
December 10 Percent Duration	7.8	ft <sup>3</sup> /s
December 25 Percent Duration	13.3	ft <sup>3</sup> /s
December 50 Percent Duration	22.8	ft <sup>3</sup> /s
December 75 Percent Duration	36.3	ft <sup>3</sup> /s
December 90 Percent Duration	66.3	ft <sup>3</sup> /s
December 95 Percent Duration	113	ft <sup>3</sup> /s
December 99 Percent Duration	267	ft <sup>3</sup> /s

*December Flow-Duration Statistics Citations*

**Dudley, R.W., 2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

## Annual Flow Statistics Parameters [Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14	square miles	14.9	1419

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.021	dimensionless	0	0.212
ELEV	Mean Basin Elevation	276.2	feet	239	2120

Annual Flow Statistics Disclaimers [Statewide Annual SIR 2015 5151]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Annual Flow Statistics Flow Report [Statewide Annual SIR 2015 5151]

Statistic	Value	Unit
Mean Annual Flow	29.3	ft <sup>3</sup> /s

#### *Annual Flow Statistics Citations*

**Dudley, R.W., 2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (<http://dx.doi.org/10.3133/sir20155151>)**

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Application Version: 4.5.3

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

## **APPENDIX C**

City of Belfast Planning Board  
Adopted Findings of Fact  
Significant Ground Water Wells Permit

Updated Water Resource Monitoring Plan  
Land-Based Aquaculture Facility  
Belfast Water District, Cassida Back Lot and Mathews Brothers West Field Properties  
285 Northport Avenue  
Belfast, Maine

**CITY OF BELFAST PLANNING BOARD  
ADOPTED FINDINGS OF FACT  
SIGNIFICANT GROUND WATER WELLS PERMIT**

**APPLICANT: NORDIC AQUAFARMS, INC.  
PROJECT: LAND BASED SALMON FARM  
LOCATION: ROUTE ONE SOUTH  
(BELFAST WATER DISTRICT & ADJACENT  
PROPERTIES)**

**1. APPLICANT:**

Owner: Nordic Aquafarms, Inc.  
Attn: Ed Cotter  
Belfast, ME 04915

Principal Engineer: Ransom Consulting (lead engineer)  
Attn: Elizabeth Ransom  
Portland, ME 04101

Legal Counsel: Joanna Tourangeau  
Drummond Woodson  
84 Marginal Way Suite 600  
Portland, ME 04011

**2. OVERALL DESCRIPTION OF NORDIC PROJECT**

Nordic Aquafarms, Inc (hereinafter Nordic), in June 2019, submitted an application to the Belfast Planning Board to develop a land-based salmon aquaculture facility on a 56 acre site located on the northwesterly side of Route One near the lower reservoir of the Little River. Nordic proposes to develop the project in two phases over 5 or more years. Total production capacity at build-out is estimated to be 72,732,000 pounds (33,000 metric tons) of salmon per year. Phase 1 involves the construction of about 414,450 square feet of buildings, and Phase 2 involves the construction of about 392,804 square feet of buildings; each phase involves rearing and processing a similar amount of salmon.

The facility would use a Recirculating Aquaculture System (RAS) to process water used in rearing the salmon in land-based tanks. At full build-out, the facility is projected to use up to 1,205 gallons of freshwater per minute (gpm) and about 3,925 gallons of saltwater per minute. The freshwater is proposed to be obtained from three sources: the Belfast Water District (up to 500 gpm), on-site groundwater wells (up to 455 gpm) and the extraction of surficial water from Reservoir 1 on the Little River (up to 250 gpm). Saltwater will be obtained from Belfast Bay via two new off-shore water intake pipes that extend about 6,300 feet from the High Annual Tide into the Bay. The RAS system also involves Nordic



Aquafarms treating and regularly discharging the freshwater and saltwater (wastewater/effluent) used to rear salmon back into Belfast Bay via a discharge pipe that extends offshore about 3,400 feet from the High Annual Tide.

The 56 acre site that Nordic Aquafarms, Inc. proposes to develop includes parts of all of the following properties, as such are identified on the City of Belfast Tax Assessor maps:

- Map 29, Lot 39, located at 285 Northport Avenue that is owned by the Belfast Water District (about 29 acres):
- Map 4, Lot 104, located off of Northport Avenue that is owned by Sam Cassida (about 12.5 acres):
- Map 4, Lot 12A, located at 22 Perkins Road that is owned by Goldenrod Properties, LLC; [dba Mathews Brothers] (about 14.5 acres): and
- Map 29, Lot 36, located at 282 Northport Ave, that is owned by Richard Eckrote (easement for construction of water intake/wastewater discharge pipes).

### 3. OVERALL DESCRIPTION OF NORDIC’S GROUNDWATER USE.

At full build-out, Nordic proposes to extract and use up to 455 gpm (gallons per minute) of freshwater supplied from 3 on-site groundwater wells that it will operate, and has indicated that it mostly will use groundwater to support the rearing of salmon. The location of proposed production wells are labeled PW-1, DRX-102 and GWW-103 on Attachment 23 in the Nordic Site Plan application. Proposed pumping rates are 250 gpm for PW-1, 175 gpm for GWW-103, and 30 GPM for DRX-102. The total maximum quantity to be extracted for all wells operated on the property will be as follows:

<b>Well Name:</b>	<b>PW-1</b>	<b>GWW-103</b>	<b>DRX-102</b>	<b>Total</b>
<b>Gallons per minute</b>	250	175	30	455
<b>Gallons per day</b>	360,000	252,000	43,200	655,200
<b>Gallons per week</b>	2,520,000	1,764,000	302,400	4,586,400
<b>Gallons per month</b>	10,950,000	7,665,000	1,314,000	19,929,000
<b>Gallons per year</b>	131,400,000	91,980,000	15,768,000	239,148,100

### 4. CITY PERMIT REQUIREMENTS FOR GROUNDWATER EXTRACTION.

The City of Belfast, in October 2018, adopted amendments to the City Code of Ordinances, including Chapter 102, Zoning, Chapter 82, Shoreland, and Chapter 66, General Provisions, (Definitions) to establish specific regulations for a significant groundwater well. The main provisions of the adopted amendments include the following:

- Identified a definition for a significant groundwater well, including the size of well that qualifies as a significant groundwater well;
- Identified the Zoning and Shoreland districts in which a significant groundwater well is a permitted use;
- Identified the permitting process for a significant groundwater well, including a provision that an application for a Significant Groundwater Well Permit could be considered in conjunction with other permits that an applicant may submit, such as a

Site Plan, Zoning Use or Shoreland Permit, and that the public hearing process for any of the above permits could serve as a public hearing on the Significant Groundwater Well Permit;

- Identified the required submissions for a Significant Groundwater Well Permit; and
- Identified the standards that a significant groundwater well must satisfy and that must be considered by the Belfast Planning Board in approving a Significant Groundwater Well Permit.

**5. NORDIC APPLICATION FOR SIGNIFICANT GROUNDWATER WELL PERMIT AND PLANNING BOARD PROCESS ASSOCIATED WITH REVIEW OF THE GROUNDWATER PERMIT REQUIREMENTS.**

Nordic Aquafarms submitted its Site Plan application to the Belfast Planning Board on June 11, 2019. The Site Plan application, as is allowed by City Ordinances, included information required by the Planning Board to consider a Significant Groundwater Well Permit; reference Attachment 23, Hydrogeologic Study and Proposed Monitoring Plan.

The Planning Board, at its meeting of June 26, 2019, initiated its review of the Nordic Site Plan application. The Site Plan process is a two-step process, Preliminary Plan and Final Plan, thus the Board's review first involved Preliminary Plan requirements. The initial meetings of the Board focused on the Board gaining a better understanding of the project and addressing certain procedural requirements identified in City Ordinances. In June – August 2019 the Board did the following:

- Conducted a site visit on July 10;
- Established the process the Board would use to review the application and conduct accompanying public hearings (July 11)
- Determined which Board members would vote on the Nordic applications (August 5);
- Determined the persons/organizations that qualified as 'Parties-in-Interest (August 5 and 19); and
- Determined that Nordic had provided sufficient evidence of Right, Title and Interest to allow the Board to consider the Nordic applications (August 5).
- Approved certain third-party reviewers for the City on the Nordic application, including William Kelly, City Attorney, Mandy Olver, Olver Associates (City Engineer), and Matt Reynolds, Drumlin Environmental, who specifically was engaged to review Nordic's groundwater and water use proposals.

Beginning in August 2019 and continuing through January 2020, the Planning Board heard presentations from Nordic representatives on individual elements of its Site Plan application, including information relevant to other Permits that the Board had to consider, heard testimony from Parties-in-Interest and the general public at the numerous public hearings that the Board conducted on the specific issues presented by Nordic, and heard testimony from third-party experts engaged by the City and from the City Code and Planning Department staff. The Board also conducted initial deliberations on many of the issues considered at the respective meetings, and provided direction to Nordic and City representatives regarding additional information needed on the Nordic application.

Nordic representatives, at the Planning Board meeting of September 23, 2019, made a specific presentation to the Board on Attachment 23, the Hydrogeologic Study and Proposed Monitoring Plan. The Planning Board, at this same meeting, conducted a specific public hearing on Nordic's Groundwater proposal and accepted public testimony from both Parties-in-Interest and the general public. The Board also heard testimony from Matt Reynolds, Drumlin Environmental and had an opportunity to ask questions of all parties.

The Planning Board, at its meetings of January 8, January 15 and January 22, 2020, conducted public hearings to accept public testimony from both Parties-in-Interest and the general public on all elements of the Nordic application. These hearings presented an additional opportunity for the Board to receive comment on the issues of groundwater and overall water use prior to the Board engaging in significant deliberations regarding the Preliminary Site Plan and other Permit applications.

The Board, at its meeting of May 27, 2020 (Note- All Board meetings between May 6, 2020 and December 21, 2020 were conducted via a ZOOM webinar because of COVID), conducted a specific meeting on groundwater and water use. Matt Reynolds, Drumlin Environmental, presented his assessment of Nordic's application, including his assessment of the Department of Environmental Protection's review of Nordic's groundwater proposals.

The Planning Board conducted its review of draft Findings of Fact for Nordic's Preliminary Site Plan Permit application, including standards related to groundwater, at its meetings of June 17, July 8 and July 15, 2020. The Board, at its meeting of July 15, approved Nordic's Preliminary Site Plan application and adopted Findings of Fact that describe its decision. This action allowed Nordic to submit a Final Site Plan application and also led to the process whereby the Board would review the specific requirements of the other 4 Permits the Nordic project requires from the Planning Board, including this Significant Groundwater Well Permit.

The Planning Board, prior to Nordic's submittal of its Final Site Plan application, conducted a meeting on August 5, 2020 to further discuss the issues of groundwater and overall water use. Much of this meeting focused on a monitoring program for groundwater use.

Nordic submitted its Final Site Plan application in late August. The Board initiated its review of this application on September 30, 2020, including conducting a public hearing for Parties-in-Interest on October 7, 2020, and a public hearing for the general public on October 8. The public hearing notice for the above hearings specifically referenced the Board's interest in receiving public comment on the Nordic Significant Groundwater Permit. These were the final overall hearings conducted on the Nordic application.

The Board initiated its review of specific requirements of the Significant Groundwater Well Permit at its meeting of October 21, 2020, and continued its discussion of this Permit and potential Conditions of Approval at the subsequent Board meetings of October 28, November 4, November 12, and November 19, 2020. The Board also reviewed the draft

and final Orders from the Board/Department of Environmental Protection on the Nordic project, permits that specifically addressed Nordic's use of groundwater wells, as well as overall water use concerns.

The Planning Board, through-out all stages of its review of the Nordic application, considered issues associated with Nordic's installation and operation of 3 on-site groundwater wells and how said wells may adversely impact property owners in Belfast, particularly property owners near the site that use a private well. The Board, in its deliberations, considered the following: information in the Nordic application, particularly Attachment 23; additional information provided at Planning Board meetings by Nordic and its consultants; public testimony offered by all Parties-in-Interest and by the general public (oral and written comment); information in the DEP Site Location of Development Act/Natural Resources Protection Act Permit regarding groundwater and water use; the assessment of the Nordic application provided by Matt Reynolds, Drumlin Environmental and Mandy Olver, Olver Associates (City third-party review experts); comments offered by William Kelly, City Attorney, and Wayne Marshall, Project Planner, Code and Planning Department; and comments offered by individual Board members during the public review process.

**6. SPECIFIC FINDINGS OF THE BELFAST PLANNING BOARD ON OVERALL SIGNIFICANT GROUNDWATER WELL PERMIT REQUIREMENTS.**

The Planning Board made the following findings regarding the applicability of certain zoning standards for the Nordic application for a Significant Groundwater Well Permit:

- a) The Board determined that all 3 groundwater wells proposed by Nordic qualify as significant groundwater wells. The City definition of a significant groundwater well is one which uses at least 75,000 gallons in any week or at least 50,000 gallons on any day. The smallest of the 3 Nordic wells is estimated to use about 302,400 gallons per week.
- b) All 3 groundwater wells proposed by Nordic are located on the main Nordic site and are in the Route One South Business Park zoning district. Although some of the Nordic site is in areas subject to Shoreland Zoning, none of the groundwater wells are located in the Shoreland Zone. Thus, the Planning Board only considered requirements of Chapter 102, Zoning in acting on Nordic's request for a Significant Groundwater Well Permit.
- c) The Board found that a significant groundwater well is a permitted use in the Route One South Business Park zoning district; reference Chapter 102, Zoning, Article V, District Regulations, Division 19, Route One South Business Park, Section 102-682, Permitted Uses Requiring Planning Board Review, (9), Significant Groundwater Well.
- d) The Board found that Nordic's Permit submission, reference Attachment 23, and subsequent information provided by Nordic to the Board satisfied the application

submission requirements identified in Chapter 102, Zoning, Article VIII, Supplementary District Regulations, Section 102-1077, Application and Information Requirements, Subsection c), Application Requirements, clauses 1) through 6). The Board particularly noted that Nordic submitted the required hydrogeologic report [clause 4)] from a licensed Maine professional geologist, and that it submitted a proposed monitoring program. Further, the City obtained the DEP Permit Orders and Findings, and these Orders identified conditions that the DEP will implement with respect to Nordic's monitoring of groundwater use.

- e) The Board determined that Nordic's use of groundwater will comply with the City Performance Standards identified in Chapter 102, Zoning, Article VIII, Supplementary District Regulations, Division 7, Significant Groundwater Well Permits, Section 102-1079, Performance Standards, subject to Nordic's compliance with the Conditions of Approval established by the Board as requirements of this Permit. The Board's Findings regarding the Section 102-1079 Performance Standards are described in Section 7 of these Findings, see below.

**7. SPECIFIC FINDINGS OF THE BELFAST PLANNING BOARD ON THE SECTION 102-1079 PERFORMANCE STANDARDS FOR A SIGNIFICANT GROUNDWATER WELL PERMIT.**

Chapter 102, Zoning, Article VIII, Supplementary District Regulations, Division 7, Significant Groundwater Well Permit, establishes specific Performance Standards that all applicants for a Significant Groundwater Well Permit must satisfy; reference Section 102-1079, Performance Standards. The Belfast Planning Board conducted a specific review of these standards at its meetings of October 28 and November 4, 2020, and found that Nordic satisfied all of the City requirements, subject to Nordic compliance with Conditions of Approval established by the Board. The Board made the following specific Findings regarding the respective Performance Standards.

- 1. The quantity of water to be taken from a ground water source will not substantially lower the water table beyond the property lines, cause saltwater intrusion that would affect groundwater located on a property not owned by the applicant, cause unreasonable impacts to ground water flow patterns, or cause unreasonable ground subsidence beyond the property lines.*

The Board reviewed Attachment 23, the Hydrogeologic Assessment prepared by Ransom Consulting which concluded that a system of 3 wells, drawing a combined maximum rate of 455 gallons per minutes (gpm) of groundwater, could be continually operated without unreasonable adverse impacts to the bedrock aquifer or groundwater flow patterns, surrounding private wells including from saltwater intrusion, or cause ground subsidence. Ransom Consulting's conclusion is based on the collection of data from site and neighborhood wells and surface water bodies, multiple pumping tests, and a computational model to simulate aquifer and water resource impacts under longer time intervals and varied conditions.

The main potential concern identified by the Planning Board is that Nordic's extraction of groundwater could have an adverse impact on the quality and/or quantity of groundwater on adjacent private wells. The Board addresses this issue in the Conditions of Approval it has adopted that require Nordic to implement a rigorous groundwater quality monitoring program, and to regularly report information from this program to City representatives and to area homeowners who are participating in Nordic's monitoring program. Further, the Board required Nordic to address impacts to the extent that they may arise with specific steps, including reducing the rate and amount of water withdrawal and requiring that Nordic make any property owner whose private well has been adversely impacted by Nordic's use of groundwater 'whole' by measures such as but not necessarily limited to connecting the property to public water, the installation of a water quality treatment system, or the drilling of a new well.

The Board also considered the issue of saltwater intrusion of a private well. While the Nordic hydrogeologic assessment identified saltwater intrusion as a potential concern in a limited area near Route One, the Board noted that properties in this area are connected to public water, thus, there is limited concern with potential adverse impacts to a private well from saltwater intrusion.

Matt Reynolds, Drumlin Environmental, assisted the Board in identifying the parameters of the City's groundwater quality monitoring program.

2. ***Any proposed use shall not cause unreasonable adverse diminution in water quality or quantity of the aquifer or surrounding surface/ground water. This includes any impacts to the upwelling of a natural spring, ground water source, aquifer recharge area, or wetlands.***

The Planning Board found that the Nordic Project will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater in the area or any public or private water source, provided that Nordic conducts project operations as proposed and complies with all conditions of approval established by the DEP and the City Planning Board. The Board specifically noted that the hydrogeologic assessment prepared for Nordic by Ransom Consulting dated April 18, 2019, identifies potential impacts associated with Nordic's use of on-site groundwater wells, and that Nordic has chosen to use an array of wells that minimize the likelihood of potential impacts on off-site private wells or the quantity of groundwater in the surrounding area. Further, the monitoring program that both the DEP and the City require Nordic to implement will provide an effective tool for either party to use to regulate Nordic's use of groundwater if adverse impacts are detected to the area's groundwater resources.

The Board, in conducting its review, noted that the Belfast Water District does not use or rely upon any groundwater or surface water supplies in the area as a public water source, and that many of the surrounding properties on Route 1 and on Perkins Road are served by public water. An area near the site that is served by private wells is Herrick Road. Nordic's Water Resource Monitoring Plan includes provisions to monitor, protect and/or compensate private well owners.

- 3. Safe and healthful conditions shall be maintained at all times within and about the proposed use and structures.***

The Board found that the wells will not be accessible by the public, nor will they include a surface structure that would present a health or safety issue.

- 4. The proposed use shall require the applicant to provide a storm water management plan prepared and stamped by a professional engineer registered in the State of Maine that details both construction and long-term controls associated with the groundwater wells. The Planning Board may accept a storm water management plan submitted for its review as a component of a Site Plan Permit, Shoreland Permit or Use Permit that satisfactorily addresses this requirement.***

The Board reviewed and approved Nordic's stormwater management plan as a component of the Site Plan Permit and Zoning Use Permit review. On July 15, 2020, the Board found Nordic's approach to storm water management adequate for compliance with the Chapter 98, Technical Standard requirements in City Ordinances; reference Preliminary Site Plan Permit, Finding of Facts. The Board made a similar Finding for the Final Site Plan Permit and the Zoning Use Permit. The Board found that Nordic provided a stormwater management plan that was developed and stamped by a professional engineer (Maureen McGlone) from Ransom Consulting and that this stormwater management plan includes adequate controls associated with the significant groundwater wells. Mandy Olver, Olver Associates, reviewed Ransom Consulting's stormwater management plan on behalf of the City, and stated to the Planning Board that it is consistent with requirements of the Chapter 98, Technical Standards.

- 5. The proposed extraction site is not within the defined aquifer or groundwater recharge area of a public water supply, unless public notice is provided to the operator thereof, and the Planning Board has considered any information supplied by the operator and finds that no adverse affect on a public water supply will result.***

The Board found that Nordic's extraction site is not located within a defined aquifer or groundwater recharge area for a public water supply. The Belfast Water District provides public water to property owners in both Belfast and Northport. The Belfast Water District abandoned its use of surface flows from the existing dam impoundments on the Little River about 50 years ago when it chose to use water from deep water wells in the Goose River aquifer to provide water to its Belfast and Northport customers. There is no connection between the Little River watershed and the Goose River watershed, and the District's use of water from deep water wells in the Goose River aquifer will not be impacted by Nordic's use of groundwater from its property.

- 6. The operator shall keep monthly operating records of the quantity of water extracted and shall make said operating records available to representatives of the City Code and Planning Department or a designee upon request.***

The Conditions of Approval adopted by the Planning Board for this Groundwater Well Permit and the Site Plan Permit require Nordic to provide reports on its monitoring program and the amount of water use to the City, and to provide semi-annual reports to area property owners who are participating in the monitoring program. Pursuant to Conditions of Approval established for the City Site Plan Permit, Nordic shall report on average daily flows from its groundwater wells.

7. *The City Planning Board, based on its review of all information submitted and considered as part of a permit application, shall have the authority to establish the maximum daily, weekly, monthly and annual quantity of groundwater that may be extracted; said amount shall not exceed the amount specified by the Applicant in its application. If an Applicant exceeds said amounts, the City shall have the authority to require the Applicant to reduce the volume of water it is using to the maximum amounts established in the City Permit.*

Pursuant to its authority under this subsection, the Planning Board has established a maximum daily, weekly, monthly and annual groundwater extraction rate for the Nordic project. The Board, in Condition of Approval 9 of this Permit, determined that Nordic must report on the extraction rate based on the daily amount of water extraction for the 3 combined wells, a rate of 655,200 gallons per day. As such, the City shall use this rate to determine if Nordic is in compliance with the requirements of Condition 9. This following table is identified in the Nordic Site Plan Permit application.

Well Name:	PW-1	GWW-103	DRX-102	Total
Gallons per minute	250	175	30	455
Gallons per day	360,000	252,000	43,200	655,200
Gallons per week	2,520,000	1,764,000	302,400	4,586,400
Gallons per month	10,950,000	7,665,000	1,314,000	19,929,000
Gallons per year	131,400,000	91,980,000	15,768,000	239,148,100

8. *The applicant shall demonstrate that it possesses the expertise and financial resources to construct and operate the requested significant groundwater wells and to adhere to the conditions of approval adopted by the City Planning Board.*

The Planning Board found that Nordic has both the financial ability and technical expertise to construct and operate the requested significant groundwater wells and to adhere to the Conditions of Approval adopted by the Planning Board. The Board, in the Conditions of Approval it established for the City Site Plan Permit, identified specific standards that Nordic must satisfy regarding project financing before it can commence any project construction; reference Condition 35, Evidence of Financial Capacity. Further, the Board, in Condition 12 of this Significant Groundwater Permit, established a requirement that Nordic provide a long-term performance guarantee of \$250,000 (initial amount) to pay costs associated with the restoration of good quality water service to a private property owner if Nordic's operations adversely affects their well. Continuing, Nordic, in their Site Plan application, has provided background



information regarding their project team, demonstrating that they have the qualifications and experience to develop, construct, manage and operate a land-based salmon aquaculture farm that involves the use of groundwater extraction wells.

9. ***The City Planning Board shall consider conditions of approval established by a state or federal agency that has jurisdiction to regulate a significant groundwater well and the extraction of groundwater resources and how said permit conditions may interact with the City Significant Groundwater Well Permit. The Planning Board may choose to use conditions enacted by a state or federal agency as a method to identify and obtain applicant compliance with conditions identified by the Planning Board.***

The State Department of Environmental Protection (DEP) has adopted specific regulatory standards for the installation and operation of all significant groundwater wells in the State. The DEP, in the Site Location of Development Act/Natural Resources Protection Act (SLODA/NRPA) Permit it issued on November 19, 2020, established specific conditions of approval regarding Nordic's use of on-site groundwater wells. The Planning Board specifically notes that it decided not to take final action on the City Significant Groundwater Well Permit or other permits the Board is responsible for issuing until it had an opportunity to review and fully consider requirements established by the DEP.

The DEP conditions include a requirement for Nordic to develop and implement a monitoring program for the 3 on-site groundwater wells. Matt Reynolds, Drumlin Environmental, reviewed the DEP monitoring program and offered recommendations to the Board regarding monitoring provisions that the City should require. The Planning Board chose to identify monitoring requirements that Nordic must satisfy, and how the City program would interface with the program required by the DEP. The Board also notes that it chose to enact conditions that were not required by the DEP, such as those identified in Board Conditions 6, 11 and 12. This approach reflects the Board's position that the City should take a lead role in ensuring that the interests of local property owners who may be adversely affected by Nordic's operations are considered at the local permitting and enforcement level.

10. ***The City Planning Board shall have the authority to require an applicant to prepare and implement a monitoring program of wells located within 1,000 feet of the boundary line of the applicant property, and to require that said monitoring program be in effect for the time period that any significant groundwater well is in operation. The monitoring program shall consider the rate and total amount of groundwater being extracted, and shall monitor potential adverse impacts on private or public wells located in the above identified area. The Board, in establishing the monitoring program, shall, at a minimum, consider the following: recommendations from a hydro-geologist engaged by the City, recommendations from a hydrogeologist engaged by the applicant, recommendations identified by a state or federal permitting authority, and information provided by the public. The Planning Board may consider requiring the applicant to implement a monitoring program for private or public wells located more than 1,000 feet of the boundary line of a property on which one or***

*more wells is operating, if information identified in a hydro-geologic assessment establishes the value of requiring a larger area to be subject to monitoring. All information obtained from a monitoring program shall regularly be provided to the City Code and Planning Department and all such information shall be considered public records.*

The Planning Board established Condition of Approval 5 in this Permit that requires Nordic to implement and manage a groundwater monitoring program. The heart of this program involves Nordic monitoring private property owner's wells in areas identified in the Nordic application as most likely experiencing some potential impact associated with the amount and rate of Nordic's groundwater extraction. This area also includes properties that are located at distances of greater than 1,000 feet, including properties in both Belfast and Northport.

The monitoring program established by the Board reflects information in the Nordic application (Attachment 23), the review of this information by Matt Reynolds, Drumlin Environmental (City third-party peer review), requirements in the DEP SLODA/NRPA Permit, and testimony offered by both Parties-in-Interest and the general public. Nordic is required to provide regular reports on this information to the Code and Planning Department and to property owners who are participating in Nordic's private well monitoring program.

### **DECISIONS OF BELFAST PLANNING BOARD**

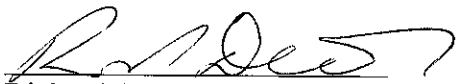
The City of Belfast Planning Board, at its meeting of December 22, 2020, took the following actions on Nordic's Significant Groundwater Wells Permit application:

- a) The Board found that Nordic submitted its Significant Groundwater Wells Permit application on June 11, 2019. This application was included as part of Nordic's Site Plan Permit application, as is allowed by the City's Significant Groundwater Well(s) standards.
- b) The Board conducted several duly noticed public hearings for the purpose of accepting public testimony from both Parties-in-Interest and the general public regarding Nordic's proposal to establish groundwater wells on its property. The dates of these hearings were September 23, 2019, January 8, 15 and 22, 2020, and October 7 and 8, 2020.
- c) The Board determined that the proposed groundwater wells are permitted uses in the Route One South Business Park zoning district, and that said wells require the Planning Board to review and consider a permit for Nordic to establish and operate significant groundwater wells.
- d) The Board determined that the Nordic application satisfied all submission requirements for a Significant Groundwater Well(s) Permit, reference Section 102-1077, and that the application complied with all Performance Standards identified in Section 102-1079, subject to Nordic's compliance with Conditions of Approval for this Permit that were established by the Board.

Therefore, the Belfast Planning Board, at its meeting of December 22, 2020, voted to approve (Motion by Geoff Gilchrist, second by David Bond, vote 5-0) the issuance of a Significant Groundwater Well Permit to Nordic, and voted to approve the Conditions of Approval [Conditions are attached to these Findings] (Motion by Wayne Corey, second by Geoff Gilchrist, vote 5-0) that Nordic must satisfy to comply with terms of the City Significant Groundwater Well Permit. Further, the Board voted to adopt these Findings of Fact (Motion by Geoff Gilchrist, second by Wayne Corey, vote 5-0) that describe why the Board determined that the Nordic project complies with requirements identified in Chapter 102, Zoning, Article VIII, Supplementary District Regulations, Division 7, Significant Groundwater Well Permit.

The Board authorized Declan O'Connor, its Acting Chair on the Nordic project to sign these Findings and Conditions on its behalf.

On behalf of the Belfast Planning Board



Richard (Declan) O'Connor  
Acting Chair on Nordic application

This decision of the Planning Board is subject to an administrative appeal to the City of Belfast Zoning Board of Appeals pursuant to standards identified in the City Code of Ordinances, Chapter 102, Zoning, Article II, Administration, Division 4, Appeals and Variances.

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**CITY OF BELFAST  
ADOPTED CONDITIONS OF APPROVAL  
SIGNIFICANT GROUNDWATER WELLS PERMIT  
ISSUED TO NORDIC AQUAFARMS, INC.**

The City of Belfast Planning Board approved the issuance of a Significant Groundwater Well Permit to Nordic Aquafarms (hereinafter Nordic) subject to Nordic's compliance with the following Conditions of Approval adopted by the Board. This Permit will allow Nordic to construct and operate the three proposed groundwater wells identified in their application to the City. All of the groundwater wells are located on property that is in the Route One South Business Park zoning district, and none of the groundwater wells are located in the Shoreland Zone.

1. **Compliance with DEP Permit Requirements.**

Nordic shall comply with the Conditions of Approval required by the Board of Environmental Protection in Natural Resource Protection Act Permit L-28319, and shall provide the City a copy of said permit and any amendments to said permit, as well as any orders issued by the Department of Environmental Protection associated with the above Permit regarding the operation of the significant groundwater wells.

2. **Location of Groundwater Wells.**

The significant groundwater wells shall generally be established in the locations identified in the Nordic Site Plan application. Any proposal from Nordic to change the location of any of the wells shall require the review and approval of the Planning Board as an amendment to this City Significant Groundwater Well Permit.

3. **Revisions to Water Resource Monitoring Plan.**

Prior to construction, Nordic shall revise the Water Resource Monitoring Plan (WRMP) dated April 16, 2019 to incorporate appropriate revisions proposed in subsequent testimony and submittals to the City and the Maine Department of Environmental Protection (MEDEP). The revised WRMP shall be submitted to the City Planning Board for review regarding consistency with City requirements by the Belfast Planning Board at the same time it is submitted to the MEDEP. Planning Board review of the revised WRMP must occur prior to the extraction of any water for facility operations from any on-site groundwater well. Any subsequent amendments to the WRMP shall similarly require the review of the Planning Board.

4. **Installation and Monitoring of Well BRK-203.**

Nordic shall install and monitor bedrock well BRK-203 adjacent to OVB-103 as a background well that is completed and monitored similarly to proposed bedrock monitoring wells BRK-201 and BRK-202.

5. **Monitoring of Private Wells.**

Nordic shall include a comprehensive inventory identifying the source of the water supply for each developed parcel along the following roads and, if there is a private well, whether it will be actively monitored in its revised WRMP:

- Perkins Road;
- Herrick Road between Perkins Road and the Northport Town line, and Rocky Road, until its intersection with Peacedale Drive (in the Town of Northport);
- Woods Road to its intersection with Lincolnville Avenue, including properties that have road frontage on Woodsville Lane, properties that have road frontage on the first 900 feet of Cobb Road, and properties that have road frontage on the first 800 feet of Bowling Green Lane;

- (Lower) Congress Street from Route One to its intersection with Perkins Road, including properties that have road frontage on Reeds Lane, and excluding properties in the Seacoast Village Park and in the Belfast Business Park; and
  - US Route 1 from the intersection of Battery Rd to Fire Road 46 (which is located in the Town of Northport), including properties that have road frontage on Hazeltine Road, Seaside Drive, and Tozier Street in Belfast, and Fire Roads 46, 47 and 48 in Northport.
- This information shall be provided in tabular and map form, and the overall area shall be divided into two areas, Area 1 and Area 2, as such are described below.

In Area 1, Nordic, within 180 days of issuance of a City Groundwater Permit, shall contact all owners of a developed property, and if the property has one or more private wells, request that the owner allow Nordic to install equipment to monitor their private well(s), including agricultural wells. Nordic shall install monitoring equipment on all wells on which they receive permission, unless it is impractical to install such equipment, and shall identify property owners who choose not to allow monitoring equipment. Nordic shall actively monitor these private wells for both water quantity and quality consistent with requirements established in the WRMP (water levels in private wells shall be measured with transducers at 15 minute intervals and water quality samples shall be collected quarterly).

Area 1 shall include the developed properties identified below:

- All developed properties located within the 5 foot drawdown area depicted on the map prepared by McDonald & Morrisey entitled "Simulated Maximum drawdown for scenario 1 within model layer 3." This map is attached to these Conditions of Approval.
- All developed properties on Perkins Road. This specifically includes the active agricultural wells for the Good Karma Farm.
- All developed properties on Reed Lane. Nordic shall take all reasonable efforts to monitor at least one of the private wells on Reeds Lane.
- Route One (from Battery Road intersection to Northport/Belfast Town), Hazeltine Road, Tozier Street and Seaside Drive.
- Any properties that are not located within this area and that are now (as of December 16, 2020) actively being monitored by Nordic.

Area 2 shall include all other developed properties that are located outside of the 5' drawdown area identified on the above referenced McDonald & Morrisey map, or that have road frontage on one of the roads identified in this Condition that are not included in Area 1. In Area 2, Nordic, within 180 days of issuance of a City Groundwater Permit, shall complete an inventory of all properties, and shall include such inventory in the revised WRMP.

## 6. Monitoring Information to Property Owners

During construction and operation of the facility, Nordic shall report water level and quality data collected at the individual private wells located in Area 1 and Area 2 (reference Condition #5) to the respective owners of those wells on no less than a semi-annual basis, and shall provide the Code and Planning Department a copy of all test results provided to

property owners. Post establishment of the initial monitoring program, Nordic shall accept new requests from owners in the monitoring area to add their wells to the monitoring program. These practices shall be described in the revised WRMP.

**7. Specific Monitoring Requirements During Project Construction.**

During project construction, Nordic shall implement the monitoring program in the DEP approved revised WRMP to collect baseline data and use that baseline data to develop alert and action criteria which Nordic, in consultation with the City Code and Planning Department and compliant with DEP specifications, shall evaluate to modify its operations to preserve the baseline quality and quantity of water available to existing private wells. Nordic shall also use the collected baseline monitoring data to establish minimum flows in the Little River and to develop warning levels above the minimum flows as specified by the DEP.

**8. Requirements Regarding Action Alerts.**

Prior to the start of facility operations, Nordic shall submit, for review and approval by the City Planning Board, documentation that specifies alert and action criteria for private wells and proposes specific actions that Nordic will take if alert or action criteria occur to correct the condition so that domestic water is available at baseline levels for the affected properties. This documentation shall also identify minimum flow for the Little River, a warning level above this flow, a plan to determine whether Nordic operations are influencing flows in the River and if so, a plan to maintain minimum flows within the affected reach of the River. Further, if the results of this monitoring program identify the need to expand the size of the monitoring area or enhance the quality of the monitoring program, the Belfast Planning Board shall have the authority to require Nordic to submit additional documentation to address these concerns for the review and approval of the Belfast Planning Board.

**9. Maximum Amount of Water Use from Groundwater Wells.**

The Planning Board reviewed maximum daily, weekly, monthly and annual groundwater extraction rate for the Nordic project. The maximum rate of extraction shall be consistent with the following table identified in Attachment 23 of the Nordic Site Plan application. The Planning Board requires Nordic to provide daily reports to the Code and Planning Department on the rate of extraction based on the daily amount of water extraction for the 3 combined wells, a maximum rate of 655,200 gallons per day. The City shall use the weekly rate of extraction to determine Nordic's compliance with this Condition.

<b>Well Name:</b>	<b>PW-1</b>	<b>GWW-103</b>	<b>DRX-102</b>	<b>Total</b>
<b>Gallons per minute</b>	250	175	30	455
<b>Gallons per day</b>	360,000	252,000	43,200	655,200
<b>Gallons per week</b>	2,520,000	1,764,000	302,400	4,586,400
<b>Gallons per month</b>	10,950,000	7,665,000	1,314,000	19,929,000
<b>Gallons per year</b>	131,400,000	91,980,000	15,768,000	239,148,100

**10. Nordic Payment to City for Independent Expert Review Services.**

Nordic shall pay City costs to engage the services of an independent expert to review and assess data collected through the revised WRMP and/or pursuant to conditions to this Permit and to provide professional advice to the Code and Planning Department and Belfast Planning Board. Nordic's initial payment to the City shall occur prior to the submission of the revised WRMP identified in Condition of Approval # 3, and shall subsequently occur by January 15 of each year that the facility is in operation. The City Code and Planning Department shall determine the amount of the professional service fee that must be paid on an annual basis, and shall provide Nordic an annual report on how the City expended the fee it collected. Any unused portion of this professional service fee shall be refunded or applied to reduce the fee amount for the following year as agreed by Nordic and the City.

**11. Nordic Requirement to Ensure Private Property Owners are 'Whole'.**

Nordic shall be responsible for ensuring the integrity of the quantity and quality of water in private wells in the surrounding area with respect to any short-term or long-term degradation in water quantity and quality that is attributable to Nordic's operations. If the City Code and Planning Department determines that a property owner's private well has been adversely impacted by Nordic's use of its on-site groundwater wells or Nordic's extraction of surface water from the Little River, Nordic shall be responsible for making the private property owner 'whole' by measures such as but not necessarily limited to connecting the property to public water, the drilling of a new well, installation of a water quality treatment system or other measures as may be identified by the City. Nordic shall be responsible for implementing the restorative measures identified by the City within 60 days of receiving written Notice from the Code and Planning Department. If Nordic fails to comply with terms of the City Notice, the City can pursue the failure as a Notice of Violation pursuant to Chapter 102, Zoning, Article II, Administration, Division 5, Enforcement. The Code and Planning Department, working in conjunction with City Attorney, also can choose to use funds in the Performance Guarantee stipulated in Condition of Approval # 12 of this Permit to implement restorative measures if Nordic fails to act.

The terms of this Condition, however, shall not preclude a private property owner's right to pursue legal action against Nordic to resolve concerns regarding the alleged degradation of their private well.

**12. Nordic Requirement to Provide Performance Guarantee.**

Nordic, prior to the operation of any on-site significant groundwater well, shall post a performance guarantee with the City that the City can use to complete restorative measures to a property owner's private well if Nordic fails to complete the restorative measures identified by the City within the time period stipulated by the City. The performance

guarantee must be in a form found acceptable to the Belfast City Attorney, and may include any of the following:

- a) A certified check payable to the City or a savings account or certificate of deposit naming the City as owner for the establishment of an escrow account.
- (b) A performance bond payable to the City issued by a surety company, approved by the City attorney.
- (c) An irrevocable letter of credit from a financial institution to the City in a form satisfactory to the City attorney.

The initial amount of the performance guarantee shall be \$250,000. The Code and Planning Department shall examine the amount of the guarantee annually to determine if the amount of the guarantee is appropriate based on the amount of risk to private wells associated with Nordic's operations, and shall make recommendations to the City Attorney regarding any proposed change in the amount of the guarantee. Said performance guarantee shall remain in place for a minimum of three years after Nordic ceases to extract and use groundwater from its on-site groundwater wells.

**13. Board Consideration of Information in Issuance of Permit.**

In granting this permit approval, the Planning Board has relied upon the oral and written representations of Nordic, its agents, experts and officers, including representations on the record and as part of the application process, such as clarifying emails and communications to the Code and Planning Department. Material deviations or violations of the filings and representations may cause the approval to be subject to review by the Planning Board regarding compliance with its findings of fact, conclusions of law and conditions of approval.

**14. City Enforcement of Permit Conditions.**

Failure to comply with any Condition of Approval identified in this Permit may result in any or all of the following actions:

- a. Issuance of a Stop Work Order;
- b. Denial or revocation of any Building Permit;
- c. Review, modification or revocation, after hearing, of any permit or approval issued to this project by the Planning Board or Code Enforcement Officer;
- d. A requirement that the Applicant conform with all performance standards and review criteria of all ordinances within the Belfast Code of Ordinances within a definite time period; and/or
- e. Referral to the Belfast Code Enforcement officer, or any State of Maine or Federal permitting agency or enforcement authority.



## Area 1- Owners Contacted and monitoring offered

Map/Lot	Address	Dates Contact Efforts Made (phone, email, home visit, mail)	Acknowledgement	Unable to contact/ Letter mailed
004-068-A	7 Reeds Ln	6/2/2021; 6/8/2021	✓	
004-068-B	15 Reeds Ln	6/2/2021; 6/4/2021; 6/7/2021	✓	
004-023	10 Herrick Rd	6/2/2021; 6/9/2021	✓	
004-023-D	14 Herrick Rd	6/2/2021	✓	
004-023-B	16 Herrick Rd	6/7/2021	✓	
004-023-A	20 Herrick Rd	6/7/2021	✓	
004-026	24 Herrick Rd	6/2/2021; 6/9/2021	✓	
004-027	26 Herrick Rd	5/19/2021; 6/9/2021	✓	
004-028	30 Herrick Rd	5/17/2021; 6/9/2021	✓	
004-025-D	31 Herrick Rd	5/10/2021; 6/9/2021	✓	
004-039-C	101 Woods Rd	6/3/2021; 6/7/2021	✓	
004-040	104 Woods Rd	5/20/2021	✓	
004-040-B	110 Woods Rd	5/20/2021	✓	
004-024	112 Woods Rd 112-A	5/14/2021; 6/9/2021	✓	
004-040-A	112 Woods Rd	5/14/2021; 6/9/2021	✓	
004-032	117 Woods Rd	5/10/2021; 6/11/2021	✓	
004-024-B	122 Woods Rd	5/18/2021; 5/19/2021; 6/7/2021		*
004-025	135 Woods Rd	5/18/2021	✓	
004-025-A	135 Woods Rd	5/18/2021; 6/7/2021	✓	
004-025-C	141 Woods Rd	5/18/2021; 6/9/2021	✓	
004-031-A	1 Woodsville Ln	5/19/2021; 6/9/2021; 6/11/2021	✓	
004-031-B	2 Woodsville Ln	5/19/2021; 6/9/2021	✓	
004-031-C	3 Woodsville Ln	5/20/2021; 6/9/2021	✓	
004-031-D	4 Woodsville Ln	5/19/2021; 6/7/2021	✓	
U1-09	1442 Atlantic Hwy	5/13/2021	✓	
U1-02	1447 Atlantic Hwy	6/7/2021	✓	
U1-05	1485 Atlantic Hwy	6/7/2021	✓	
U1-12	22 Windward Ln	5/14/2021; 5/19/2021; 6/7/2021; 6/11/2021	✓	
U1-10	35 Windward Lane	5/20/2021; 6/9/2021	✓	
U1-08-B	7 Little River Lane	6/1/2021; 6/2/2021	✓	
004-009	67 Perkins Rd	6/1/2021; 6/2/2021	✓	
004-039	3 Cobb Rd	5/20/2021; 6/9/2021; 6/15/2021	✓	
004-033-A	4 Cobb Rd	5/20/2021; 6/9/2021	✓	
004-033	6 Cobb Rd	5/13/2021; 5/14/2021; 6/9/2021	✓	
004-035-A	8 Cobb Rd	6/4/2021	✓	
004-034	11 Cobb Rd	6/3/2021; 6/7/2021	✓	
004-035-B	14 Cobb Rd	5/20/2021; 6/9/2021	✓	
		<b>* Non-well / Confirmed city water residents *</b>		
030-037-A	231 NORTHPORT AVE	6/1/2021	✓	
030-037	237 NORTHPORT AVE	6/8/2021	✓	
030-036-A	239 NORTHPORT AVE	6/7/2021	✓	
030-035	240 NORTHPORT AVE	6/1/2021	✓	
029-043	245 NORTHPORT AVE	6/1/2021; 6/2/2021	✓	
029-002	248 NORTHPORT AVE	5/19/2021	✓	
029-042	253 Northport Ave	no well	✓	
029-004	256 NORTHPORT AVE	6/1/2021	✓	
029-005	258 NORTHPORT AVE	6/2/2021	✓	
029-040	259 NORTHPORT AVE	6/1/2021; 6/2/2021	✓	
029-039	271 NORTHPORT AVE	5/19/2021	✓	
029-036	282 NORTHPORT AVE	6/2/2021	✓	
029-037	286 NORTHPORT AVE	6/1/2021	✓	
029-038	290 NORTHPORT AVE	6/1/2021	✓	

Map/Lot	Address	Dates Contact Efforts Made (phone, email, home visit, mail)	Acknowledgement	Unable to contact/ Letter mailed
004-009-A	PERKINS ROAD	6/7/2021	✓	
004-021	7 PERKINS ROAD	6/2/2021	✓	
004-020	9 PERKINS ROAD	6/3/2021	✓	
004-019	11 PERKINS ROAD	6/3/2021; 6/7/2021		x
004-016	17 PERKINS ROAD	6/2/2021	✓	
004-015	19 PERKINS ROAD	6/2/2021 ; 6/7 /2021	✓	
004-014	21 PERKINS ROAD	6/2/2021	✓	
004-018	PERKINS ROAD	6/1 /2021	✓	
004-012-A	22 PERKINS ROAD	6/1/2021	✓	
004-013	25 PERKINS ROAD	6/7 /2021	✓	
004-012-D	26 PERKINS ROAD	5/20/2021	✓	
004-011	31 PERKINS ROAD	6/3/2021	✓	
004-012	34 PERKINS ROAD	5/16/2021	✓	
004-010-A	38 PERKINS ROAD	6/1/2021	✓	
004-010	52 PERKINS ROAD	6/3/2021	✓	
U1-08	23 Little River Lane	5/14/2021	✓	
U1-07	1496 ATLANTIC HIGHWAY	5/20/2021; 6/3/2021	✓	
U1-04	1485 ATLANTIC HIGHWAY	no well on lot	✓	
U1-03	1481 ATLANTIC HIGHWAY	no well on lot	✓	
029-035	1 TOZIER ST	6/4/2021	✓	
029-027	2 TOZIER ST	6/4/2021	✓	
029-028	4 TOZIER ST	6/4/2021	✓	
029-034	5 TOZIER ST	6/2/2021	✓	
029-033	11 TOZIER ST	6/4/2021	✓	
029-029	12 TOZIER ST	6/2/2021	✓	
029-032	15 TOZIER ST	5/6/2021	✓	
029-031	17 TOZIER ST	6/7/2021	✓	
029-030	21 TOZIER ST	6/4/2021	✓	
029-026	1 SEASIDE DR	6/4/2021	✓	
029-025	5 SEASIDE DR	6/2/2021	✓	
029-015	6 SEASIDE DR	6/2/2021; 6/4/2021	✓	
029-024	7 SEASIDE DR	6/2/2021	✓	
029-016	8 SEASIDE DR	6/4/2021; 6/7/2021		x
029-023	9 SEASIDE DR	6/2/2021	✓	
029-017	12 SEASIDE DR	6/4/2021	✓	
029-022	15 SEASIDE DR	6/4/2021	✓	
029-021	17 SEASIDE DR	6/4/2021	✓	
029-018	16 SEASIDE DR	6/4/2021	✓	
029-019	18 SEASIDE DR	no well	✓	
029-020	19 SEASIDE DR	6/7/2021	✓	
029-006	4 HAZELTINE RD	6/2/2021	✓	
029-014	5 HAZELTINE RD	6/2/2021	✓	
029-007	10 HAZELTINE RD	6/4/2021	✓	
029-008	22 HAZELTINE RD	6/2/2021; 6/4/2021; 6/7/2021		x
029-009	30 HAZELTINE RD	6/3/2021	✓	
029-010	34 HAZELTINE RD	6/4/2021; 6/7/2021; 6/16/2021	✓	
029-013	37 HAZELTINE RD	6/2/2021	✓	
029-012	38 HAZELTINE RD	6/4/2021; 6/7/2021	✓	
029-011	39 HAZELTINE RD	6/4/2021; 6/7/2021	✓	
004-102	116 WOODS RD	6/7/2021	✓	
004-029-A	37 HERRICK ROAD	6/3/2021	✓	
004-028-A	HERRICK ROAD	6/7/2021 (no well)	✓	
004-024-A	HERRICK ROAD	6/7/2021 (no well)	✓	
004-066	3 REEDS LANE	6/9/2021	✓	
004-068	REEDS LANE (REAR LAND)		✓	