PRELIMINARY ENVIRONMENTAL ASSESSMENT REGISTRATION

SAINTE-CÉCILE LOBSTER AND CRAB PLANT

SAINTE-CÉCILE, NB

Our File No.: 506-17-C

February 2018

Prepared for:

Pecheries Ste-Cécile Inc.

Prepared by:

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ACRONYMS

ACCDC – Atlantic Canada Conservation Data Centre
ASU – Archeological Services Unit
CoA – Certificate of Approval
CoD – Certificate of Determination
COSEWIC – Committee on the Status of Endangered Wildlife in Canada
DELG – NB Department of Environment and Local Government
DTI – NB Department of Transportation and Infrastructure
DFO – Department of Fisheries and Oceans Canada
EIA – Environmental Impact Assessment
ESA – Environmentally Significant Area
EMP – Environmental Management Plan
IBA – Important Bird Areas
LAT – Latitude
LONG – Longitude
MBCA – Migratory Birds Convention Act
OWLS – Online Well Log System
PID – Real Property Parcel Identification Number
ROW – Right-Of-Way
SAR – Species at Risk
SARA – Species at Risk Act
SOCC – Species of Conservation Concern
TRC – Technical Review Committee
VEC – Valued Environmental Component

EXECUTIVE SUMMARY

Pecheries Ste-Cécile Inc. recently purchased the M&N Seafood Plant in Sainte-Cécile, NB, located at 136 rue de la Croix, and is proposing to expand the existing facility with the addition of a separate building which will house a lobster and crab processing line. The expansion will be a separate building but will share water supplies and a domestic tank and leach field septic system. Fish waste will be filtered, and liquid waste will discharge to the Baie de Chaleur via the existing 10" discharge pipe. Solids will be screened, removed and disposed of at an approved landfill/composting facility. The water supply consists of two (2) deep, saltwater wells and one (1) shallow freshwater well.

As per Item s of Schedule A of the *Environmental Impact Assessment Regulation* "all waterworks with a capacity greater than fifty cubic metres of water daily," must undergo review to identify and if necessary, mitigate potential environmental impacts. Based on the current and estimated additional water consumption for the lobster and crab plant, the water supply requirements exceed 50 cubic metres daily; therefore, a Water Supply Source Assessment will be conducted as part of this Environmental Impact Assessment.

In addition to the Water Supply Source Assessment, the report assessed the potential environmental impacts of the construction of the fish plant expansion. No significant adverse environmental impacts were identified.

1. THE PROPONENT

1.1 NAME OF PROPONENT

The proponent is Pecheries Ste-Cecile Inc.

1.2 ADDRESS OF PROPONENT

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1.3 CHIEF EXECUTIVE OFFICERS

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1.4 PRINCIPAL CONTACT PERSONS FOR THE PURPOSES OF THE ENVIRONMENTAL IMPACT ASSESSMENT

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1.5 PROPERTY OWNERSHIP

The project is located on private property owned by the proponent.

2. THE UNDERTAKING

2.1 NAME OF THE UNDERTAKING

The name of the undertaking is the *Sainte-Cécile Lobster and Crab Plant*.

2.2 BACKGROUND

Pecheries Ste-Cécile Inc. operates multiple fish processing plants throughout Atlantic Canada. In 2017, they purchased the M&N Seafood herring processing plant in Sainte-Cécile, on Lamèque Island, with the purpose of expanding the existing plant and adding lobster and crab processing capacity. The existing plant operates under an Approval to Operate (I-8628) issued by the NB Department of Environment and Local Government.

The existing plant is located at 136 rue de la Croix, a cul-de-sac which ends at the Baie de Chaleur. The site is relatively isolated, with only four (4) neighbouring seasonal dwellings. The existing plant has a water supply(s) which will be used for the proposed expansion, as well as an existing discharge pipe for liquid effluent.

Figure No. 1: Project Location

Photo No. 1: Existing Fish Plant

2.3 PROJECT OVERVIEW

Pecheries Ste-Cécile Inc. is conducting an environmental assessment of their proposed fish plant expansion as required by the *Environmental Impact Assessment Regulation*, to determine the potential environmental impacts from the proposed development. The proposed expansion includes the construction of a separate building which will be adjacent to, and south of, the existing plant. When completed, both plants will share the existing water supplies, the waste treatment system, and a domestic septic system.

The current plant will remain dedicated to herring roe processing during the herring season, namely August to October. The proposed expansion plant will be dedicated to processing snow crab and lobster during the respective seasons (late April to late July, and May to June). As such, the water supply can be used alternately between the two processing plants during different seasons. This will increase the annual water consumption of the site, but will not impact the maximum instantaneous water use.

Photo No. 2: Site of Proposed Expansion

Herring Roe Processing Plant:
The existing fish plant is a herring roe processing plant, which includes:

- Herring Roe Line: Where herring are butchered; the roe and meat are removed and sent for packaging and freezing, and the fish waste is sent for solids removal. Saltwater from the two deep saltwater wells is used to push the product along the processing line.
- Saltwater Supply: Saltwater used in the cleaning and processing of the herring is obtained from two on-site saltwater wells. Each well is approximately 80m (200 feet) deep. For detailed information, refer to the attached WSSA Step 1 Application (Appendix E).
- Freshwater Supply: Fresh water is supplied to the plant from an on-site potable well approximately 40 feet deep, and is used for domestic use only, namely employee washrooms, showers, cooking in the staff kitchen, and cleaning the plant.
- Waste treatment system: Fish waste generated on the herring roe line is processed through a 0.2mm screen to separate the solid waste from the liquid. Liquid waste (effluent) is discharged to the Baie de Chaleur via a 10" pipe (Figure 4). Solids are collected and transferred to the Christian Larocque Services Ltée. composting site, a DELG-approved site.

Plant Expansion:
The new building will be constructed adjacent to, but separate from the existing building, and will process snow crab and lobster, and will consist of the following:

- Snow crab and lobster processing line (receiving, sorting, butchering, collection, cooking, cooling, freezing and packing);
- Packaging and maintenance room;
- Brine room (brine, desalting, glazing, packing);
- Freezer room;
- Weighing and packaging;
- Shipping room.
- Raw product staff facilities: closet, restroom & breakroom;
- Cooked product staff facilities: closet, restroom and breakroom;
- SAS room;
- Full-service kitchen, and
- Chemical storage room (cleaner and disinfectants)

Figure No. 2: Project Overview (GeoNB)

Figure No. 3: Property Overview (GeoNB)

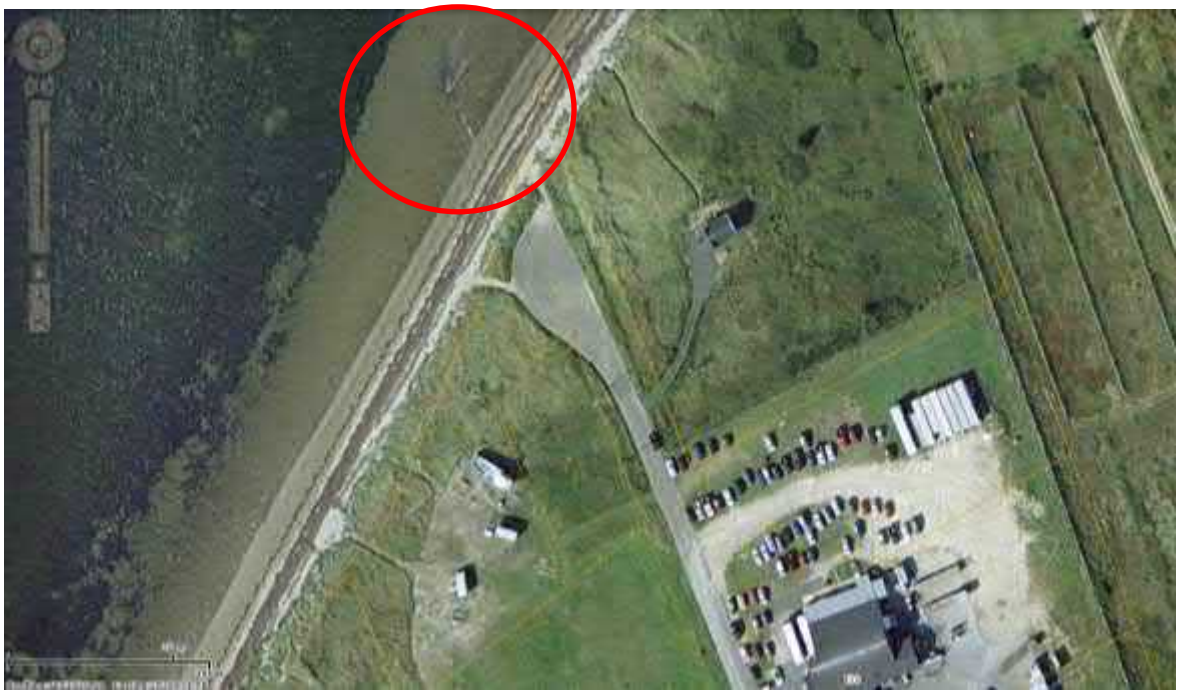

Figure No. 4: Effluent Discharge Location (GeoNB)

2.4 PURPOSE/RATIONALE/NEED FOR THE UNDERTAKING

Pecheries Ste-Cécile Inc. is a private company that employs approximately 100 staff at its Miscou fish plant location, and is seeking another site to expand its operations in Northern New Brunswick. The purchase and expansion of the Sainte-Cécile plant will achieve that goal while providing long-term employment to the Lamèque region.

2.5 PROJECT LOCATION

The proposed project is located at civic address 136 rue de la Croix, Sainte-Cécile, NB (Gloucester County). The plant consists of three parcels owned by the proponent, identified by Service New Brunswick PID Nos. 20134086, 20106852 and 20892733.

The parcel is located within the Acadian Peninsula Regional Service Commission (RSC no. 4)'s planning area, and is zoned as "M3 – Mixed" which permits commercial/industrial uses.

The centre of the site is geo-referenced at LAT 47°51'38.35"N, LONG 64°40'14.36"W.

According to Service New Brunswick, the subject properties consist of a total area of 3.22 hectares:

- PID no. 20134086: 0.5 ha (5,000m^2);
- PID no. 20106852: 0.52 ha (5,195m^2), and
- PID no. 20892733: 2.2 ha (22,000m^2).

The property is bordered to the north by a private cottage and beyond, the Baie de Chaleur. To the east by a large parcel, partially wooded, which contains a cottage and open pasture. To the south by the [redacted] and a permanent residence ([redacted], and to the west by two properties, a seasonal cottage ([redacted] and an open lot with 2 seasonal RVs.

Rue de la Croix ends at the beach in a cul-de-sac; the beach is relatively flat with a sandy beach and low coastal sand dunes along its fringe.

A coastal Provincially Significant Wetland (PSW) is located approximately 100m to the west of the subject site. A second PSW coastal wetland is located approximately 230m north of the site (200m to the buffer), along the coast. No other regulated wetlands are located in the area, and none are identified within the subject site (Figure 5).

Figure No. 5: Regulated Wetlands in Proximity to the Subject Site (GeoNB)

2.6 SITING CONSIDERATIONS

The site is beneficial from a business standpoint as there is an existing fish plant on site with suitable infrastructure already in place. Additionally, the project site has a number of favourable elements:

a. The subject properties are owned by the proponent;
b. The property is correctly zoned for the intended use;
c. The existing water supplies are sufficient for the proposed project;
d. The site is outside of any municipal water supply area, and
e. The site contains no unique environmental features (Environmentally Significant Areas, Species at Risk critical habitat, etc.).

2.7 PHYSICAL COMPONENTS AND DIMENSIONS OF THE UNDERTAKING

The following sections describe the existing, as well as the proposed, components of the project and projected timelines for construction.

2.7.1 Existing Fish Plant

A. Building – The existing building consists of a single-story, wood-framed structure approximately 900m^2 in size on a concrete slab. The building consists of offices, employee area, washrooms, utility rooms, the herring processing line, and shipping/receiving area.
B. Parking Lot: The existing plant has an asphalt parking lot surrounding the structure, with additional gravel area.
C. Water Supplies: Table 1 provides information on the existing water wells:

Table No. 1: Existing Water Wells

WELL #	TYPE	DEPTH	DIAMETER	PUMPS	APPROXIMATE PUMPING CAPACITY*
1	Freshwater	40 feet		• 7.5 HP	140 IGPM
2	Saltwater	~260 feet		• 7.5 HP • 5 HP	150 IGPM
3	Saltwater (low salt content)	~260 feet		• 5HP • 5HP	120 IGPM

* Rates based on the current pump capacities in each well.

D. Waste Treatment/Effluent Discharge: Fish waste from the processing line is separated into liquid and solids; large solids are first removed by hand on the processing line, and then liquid and smaller pieces are sent to the screen which removes the smaller solids down to 0.2mm in size.

Liquid waste is then discharged to the Baie via a ten inch underground pipe. The pipe extends west from the fish plant to a manhole located 30m across rue de la Croix, then north to the Baie. The discharge point is visible on GeoNB's MapViewer (Figure 4).

Solids are collected and disposed of at an approved composting site.

2.7.2 Proposed Expansion

The proposed expansion of the plant includes the construction of a 160 x 200ft, steel-framed lobster and snow crab processing building. The new plant will be adjacent (south) to, and will share water supplies, domestic septic system, and waste effluent pipe with the existing plant.

The new plant will consist of the following:

- Steel-framed building on a concrete slab and frost wall foundation;
- Snow crab and lobster processing line (receiving, sorting, butchering, collection, cooking, cooling, freezing and packing);
- Packaging and maintenance room;
- Brine room (brine, desalting, glazing, packing);
- Freezer room;
- Weighing and packaging;
- Shipping room.
- Raw product staff facilities: closet, restroom & breakroom;
- Cooked product staff facilities: closet, restroom and breakroom;
- SAS room;
- Full-service kitchen, and
- Chemical storage room.

2.8 CONSTRUCTION, OPERATION AND MAINTENANCE DETAILS

The proposed construction of the lobster and snow crab building will take place as soon as weather permits, in spring of 2018, and will consist of the following activities:

2.8.1 Water Supply Source Assessment

The existing water supplies will be assessed prior to initiating construction of the new building, as the pump test must be completed outside of the groundwater regeneration period. The Water Supply Source Assessment, consisting of drilling two (2) shallow and two (2) deep observation wells and conducting a 3-step Step-test and 72-hour pump test as per the requirements of the NB Department of Environment and Local Government *Water Supply Source Assessment Guidelines*, is scheduled to take place during the month of February, upon approval of the Step-1 Application, by a licensed well driller under the supervision of Roy Consultants.

A detailed description and schedule of the WSSA is included the Step 1 WSSA application in Appendix E.

2.8.2 Site Preparation

- Site excavation and grading;
- Pouring of concrete foundation and frost walls, and
- Installation of underground infrastructure.

No vegetation clearing is required – the site was previously cleared to prepare for the construction of the lobster and snow crab plant, prior to the proponent becoming aware of the requirement for an EIA review.

2.8.3 Building Construction

The structure will consist of a slab-on-grade concrete foundation (including frost wall), Steelway modular steel frame, steel siding and roof, and the necessary equipment for snow crab/lobster processing. The following areas will be included in the new building:

- Pouring of concrete slab and frostwall;
- Framing of building (wood frame) – to be joined to existing structure;
- Steel siding and steel roof to be installed;
- Insulation and windows/doors, etc;
- Installation of electrical, plumbing, painting, and all other additional construction materials;
- Installation of snow crab / lobster processing equipment.

The proponent will contract local, certified and insured contractors to complete the construction work.

Refer to Appendix C for building details.

2.8.4 Operation and Maintenance

The new lobster and snow crab processing plant will share water and waste resources and infrastructure with the existing herring roe plant. During the Snow Crab and Lobster season, namely late April through late July, the herring plant will be inactive, and the Snow Crab and Lobster plant will be processing fish

using the existing water supplies, and discharging liquid waste to the Baie de Chaleur using the existing 10" waste pipe.

Similar to the Miscou Fish Plant project, the proposed construction will contain separate areas and setbacks to ensure that raw product and finished/cooked product staff are kept separated to avoid potential food contamination. These separate areas and various setbacks are necessary to meet the criteria of the Canadian Food Inspection Agency (CFIA) and the BRC Global Standards © food health and safety standards.

No significant air emissions will be created as a result of this addition, with the exception of steam generated from the cooking of the lobster/crab. Some odours may be generated as a result of the operation of the fish plant; however, mitigation is in place to minimize or prevent nuisance odours.

Operation and monitoring of the facility will be conducted as per the DELG Approval to Operate (refer to Appendix F).

The new building, processing equipment and waste treatment/filtration system will be maintained as necessary to ensure continuous and uninterrupted operation during the processing seasons.

Interior surfaces will consist of easy-to-clean sanitary surfaces which will be cleaned and maintained regularly, as per Health Canada, CFIA and BRC Global Standards© requirements.

2.8.5 Hazardous Materials Handling/Storage

With the exception of cleaning and disinfecting the herring roe lines, herring roe, snow crab and lobster processing requires no chemicals – it is a process that is performed manually by staff. However, to meet CFIA and BFC Global Standards food health and safety standards, disinfection of the processing line, equipment and the facility is required on a regular basis.

The following Sani-Marc© cleaning products are stored in a locked room with signage that identifies the area as chemical storage, and which contains a concrete secondary containment in the event of a spill (refer to photo #8):

- Blizzard © degreaser (code 05-1005);
- Power Quat © germicide and disinfectant (code 09-10073);
- Colinon-WW© germicide and disinfectant (code 09-12020);
- Eliminator © acid product (code 07-10043);
- Boomerang © acid product (code 07-10100), and
- Dexterra© antimicrobial foaming hand soap (code 13-12375).

For more information on the Sani-Marc disinfection program, please refer to http://b2b.sanimarc.com/home.aspx?&catid=1141&page=1.

No petroleum products are stored on site.

2.9 REGULATORY APPROVALS

i. Item s, Schedule A of the *Environmental Impact Assessment (EIA) Regulation* states: "*all waterworks with a capacity greater than fifty cubic metres of water daily*". The existing M&N Seafood plant had never undergone an assessment of its water supply. With the purchase of the existing plant and the proposed expansion, the water supply and fish plant(s) requires registration and review under the EIA process.

ii. The existing fish plant operates under a certificate of Approval to Operate from the NB DELG, issued under the Clean Environment Act. The proponent will require an amended *Approval to Construct and Operate* the proposed lobster and crab plant, as well as the existing one.

iii. The development of a fish plant is a permitted use within the M3 "Mixed" zone (mixed residential/commercial) of the Acadian Peninsula's Regional Service Commission no. 4. A building permit will be required for the proposed new fish plant construction.

iv. The project does not require federal authorizations or permits.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT

The subject site consists of three (3) parcels:

1. 20134086 – existing parking lot and temporary storage containers;
2. 20106852 – existing plant, water supply wells and infrastructure, and
3. 20892733 – new building construction and septic system

The site is located on a cul-de-sac near the coast, with two (2) cottages and a seasonal RV on adjacent properties. The proposed expansion will be primarily located on parcel 20892733.

3.1 PHYSICAL AND NATURAL FEATURES

3.1.1 GENERAL

The proposed new construction will be partially within the existing gravel and asphalt parking lot area south of the existing fish plant, and partially within an adjacent agricultural field containing immature tree and shrubs, grasses and wildflower species. The field area was cleared by the proponent prior to discussions with the DELG regarding the requirement for an assessment. Figure No. 6 shows the proposed project's approximate footprint, and Photo No. 3 shows the field vegetation prior to clearing.

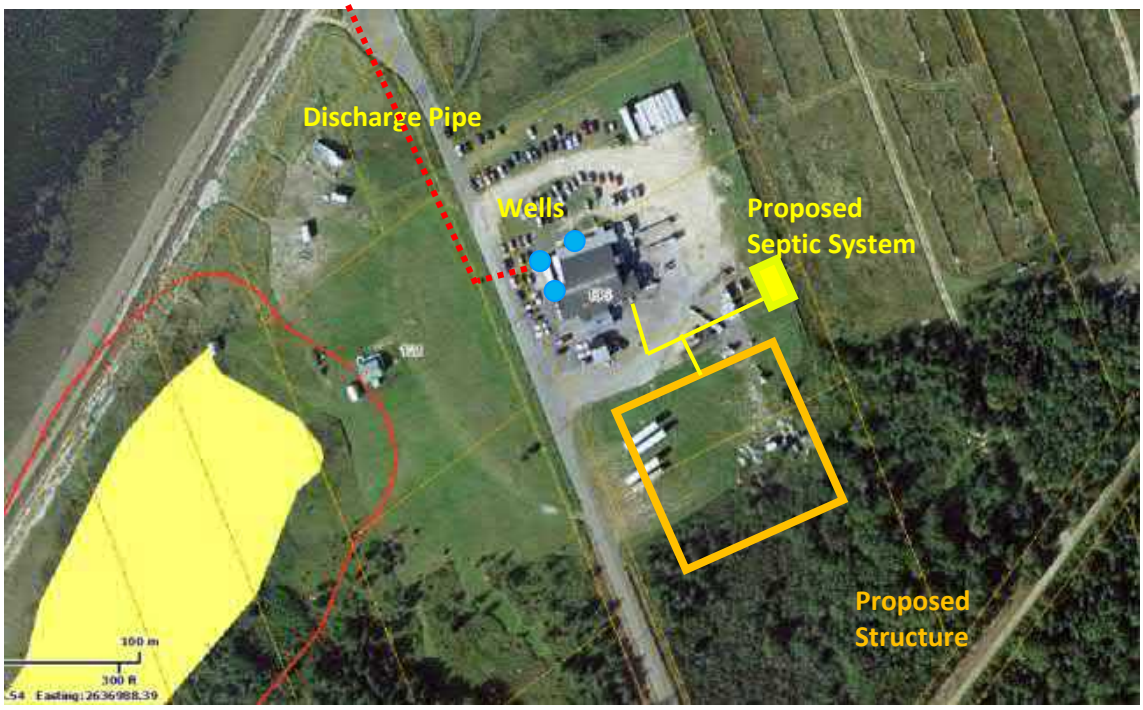

Figure No. 6: Site Overview (GeoNB)

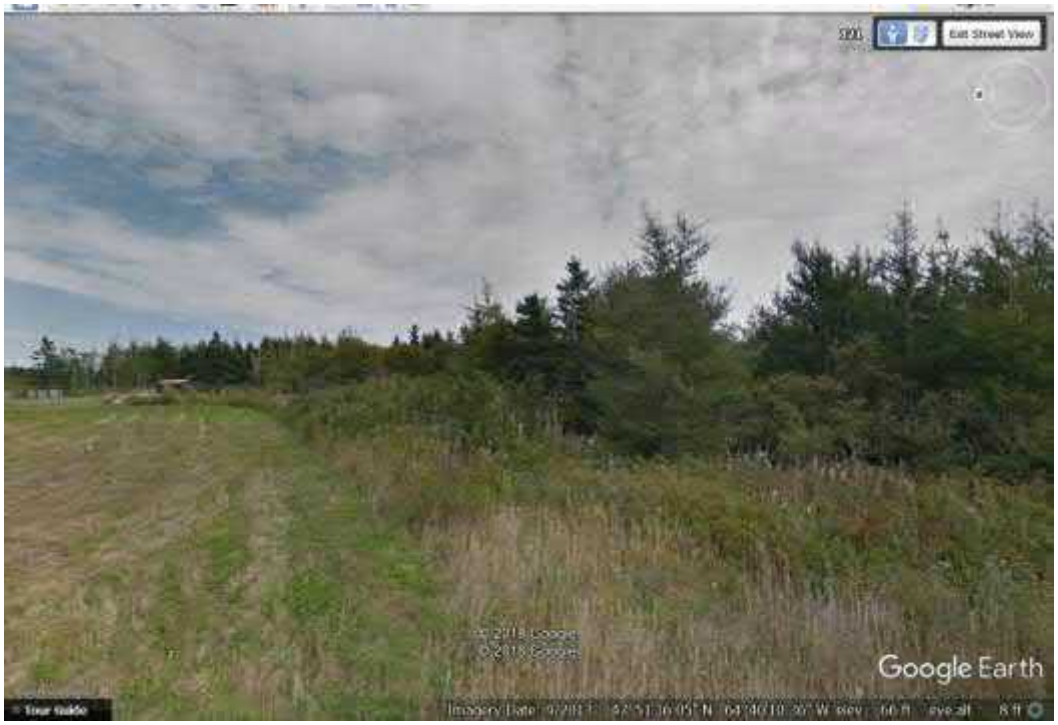

Photo No. 3: Google Earth Street View of Proposed Project Location (2013)

3.1.2 TOPOGRAPHY

The area in question is, in general terms, flat. The nearby coastal area consists of low sand dunes before dropping approximately 2 metres to a flat sandy beach and Chaleur Bay. Based on aerial photos, the region was primarily agricultural fields as early as the 1940's (Appendix B). Surface water is assumed to flow north along the rue de la Croix towards the Bay, or pond and infiltrate into the ground in situ.

3.1.3 GEOLOGY

The subject site is underlain by Late Carboniferous-aged sedimentary rocks of the Pictou Group consisting of red to grey sandstone, conglomerate and siltstone (NBDNR, 2008). Surficial geology of the site is comprised of Late Wisconsinan and/or Early Holocene-aged marine sediments consisting of sand, silt, some gravel and clay; generally 0.5 to 3 m thick (Rampton, 1984). Based on a well log search of the area within 1000 metres of PID 20106852, the local aquifer is comprised of fractured sandstone bedrock. From a review of nine (9) well logs, well depths range between 19 and 60 feet. Well yields ranged from 4 to 200 Igpm (26 to 1309 m^3/day).

3.1.4 GROUNDWATER

There are no municipal or industrial water supplies in proximity to the subject site. Residences in the region obtain their potable water from individual private wells. A review of the DELG Online Well Log System (OWLS) identified 7 domestic water supplies, 1 industrial non-drinking water well and 1 non-drinking water (abandoned) well within 1,000 m of the subject site. For more detailed information, please refer to the Step 1 Water Supply Source Assessment application in Appendix E.

3.1.5 SURFACE WATER - WATERCOURSES

There are no unmapped or mapped watercourses within the project area. The nearest surface water feature is Chaleur Bay, approximately 160m north of the project site. No freshwater watercourses are within 500m of the project site.

3.1.6 SURFACE WATER – WETLANDS

As shown in Figure 5, there are two Provincially Significant Wetlands (PSWs) in proximity to the project site. A coastal wetland is located approximately 100m west of the project site, and a second coastal wetland is approximately 170m northwest of the project site.

No regulated wetlands are located within the project footprint, as per GeoNB.

As the footprint of the proposed construction had been cleared prior to initiating this environmental assessment, the identification of unmapped wetlands herein relies on soil profiles and aerial photo-interpretation.

A site visit was conducted on November 29th, 2017 to identify and record environmental features. According to Environment and Climate Change Canada, the area had received over 87mm of rain during

the 14 days prior to the site visit, followed by a drop in temperature. As such, the ground on site was frozen with areas of standing water, but no snow cover (Photo No. 4).

An attempt to dig test pits by hand within the proposed project footprint was not possible due to the frozen ground; however, two pits were able to be dug by hand along the eastern property boundary. Soil horizons in each pit were identical.

Photo No. 4: Cleared Area Looking North (note standing water/ice)

ERD aerial photos from 1944, 1955, 1963, 1974, 1985, 2002 and 2012 were reviewed. Based on this review, the area consisted of agricultural fields with some forest patches dating back to at least 1944. In all photos, forest patches not cleared for agriculture can be observed which correspond to wetland areas mapped on GeoNB or observed in the field. Figure 7 highlights such an area in PID 20892733.

The 1963 photo shows plough lines, evidence that the project footprint field area was still being actively farmed; however, the following photo (1974) shows the field in the process of revegetating. Subsequent aerial photos show the field area further revegetating to its state prior to being cleared in 2017.

Based on this review and the results of the limited soil profiles obtained, it is reasonable to conclude that a portion of the cleared field on PID 20892733 is an unmapped wetland approximately 300 square metres in size. Given the physical distance and separation from the coast, it is unlikely this wetland would be considered a coastal wetland (i.e. a PSW).

Figure No. 7: 1944 Aerial Photo of Site (Wetland Area in Green)

Photo No. 5: Soil Test Pit

3.1.7 VEGETATION

PID 20134086, the northernmost parcel, contains little/no vegetation except for areas of lawn in and around the existing building and parking area.

PID 20106852, the middle property containing the existing fish plant, contains a small portion of lawn near its eastern property boundary.

PID 20892733 is the southernmost parcel consisting of a paved parking area, mowed lawn, and the former field and forest patch, which was cleared prior to initiating the EIA review.

3.1.8 WILDLIFE AND WILDLIFE HABITAT

The PIDs 20134086, 20106852 and a portion of 20892733 comprise a commercial/industrial site which is active throughout the year, and which does not contain suitable wildlife habitat. Small mammals such as rodents, and birds are assumed to transit the site or forage within the lawn areas; however, the project site is generally not considered quality wildlife habitat.

The field and forest patch area of PID 20892733 was cleared in October of 2017; prior to this, it can be assumed that the shrub and immature trees in this area was suitable habitat for small and medium-sized mammals and migratory birds. No wildlife signs such as scat or tracks were observed on site during the November 29th site visit.

3.1.9 MIGRATORY BIRDS

697370 NB Inc. recognizes that migratory birds are an important consideration in any project. Environment Canada regulates the protection of migratory birds through the Migratory Birds Convention Act (MBCA), which protects migratory birds, their eggs, nests and their young through the *Migratory Birds Regulations* (MBR).

"Under Section 6 of the *Migratory Birds Regulations* (MBR), no person shall disturb, destroy or take a nest or egg of a migratory bird; or to be in possession of a live migratory bird, or its carcass, skin, nest or egg, except under authority of a permit. It is important to note that under the current MBR, no permits can be issued for the incidental take of migratory birds caused by development projects or other economic activities. Furthermore, Section 5.1 of the MBCA describes prohibitions related to deposit of substances harmful to migratory birds:

Migratory birds protected by the MBCA include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). Most of these birds are specifically named in the Environment Canada publication, *Birds Protected in Canada under the Migratory Birds Convention Act*, Canadian Wildlife Service Occasional Paper No. 1.

"5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds."

No migratory birds were observed on site during the November 29th, 2017 site visit. No evidence of Barn Swallow nests was observed within the eaves of the permanent or temporary structures on site. Seagull species are known to frequent the roof of the existing fish plant.

3.1.10 SPECIES AT RISK

Canada's Species at Risk Act (SARA) is one of three major components in the Government of Canada Strategy for the Protection of Species at Risk. It is designed as a key tool for the conservation and protection of Canada's biological diversity and fulfills an important commitment under the United

Nations Convention on Biological Diversity. New Brunswick also has a Species at Risk Act, which complements the federal Act.

The purpose of **SARA** is to:

- Prevent wildlife species from becoming extinct or extirpated (lost from the wild in Canada);
- Help in the recovery of extirpated, endangered or threatened species; and
- Ensure that species of special concern do not become endangered or threatened.

Information was requested from the Atlantic Canada Data Conservation Centre (ACCDC) for observations of rare and/or endangered wildlife species within a 5 km radius of the subject site (Tables 2, 3 and 4). Refer to Table 1 for S-Rank Definitions.

A review of each species' habitat requirements was completed and compared with site observations. A summary of this analysis is presented in section 4.

Table 2: ACCDC S-rank and Rarity Definitions

Atlantic Canada Conservation Data Centre (ACCDC) S-Rank **www.accdc.com/en/rank-definitions.html**	
S-RANK DEFINITIONS	
SX	Extinct or extirpated in province.
SH	Historically occurring but currently undetected in province.
S1	Extremely rare in province.
S2	Rare in province.
S3	Uncommon in province.
S4	Widespread, common and apparently secure in province.
S5	Widespread, abundant and demonstrably secure in province.
SE	Exotic in province.
SA	Accidental, infrequent and outside of range within province.
SNA	Ranking not applicable in province.
SNR	Not yet assessed in province.
BREEDING STATUS QUALIFIERS	

N	**Nonbreeding** - Conservation status refers to the non-breeding population of the species in the province.
B	**Breeding** - Conservation status refers to the breeding population of the species in the province.
M	**Migrant** - Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
?	**Inexact or uncertain:** Denotes inexact or uncertain numeric rank.
SPECIES AT RISK (SARA) (CANADA AND NEW BRUNSWICK)	
Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC)	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
NBERD GENERAL STATUS OF WILDLIFE	
At risk	Species for which a formal assessment has been completed, and determined to be at risk of extirpation or extinction. To be described by this category, a species must be either listed as endangered or threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or the New Brunswick equivalent.
May be at risk	Species or populations that may be at risk of extirpation or extinction, and are therefore candidates for a detailed risk assessment by COSEWIC or the New Brunswick equivalent.
Sensitive	Species which are not believed to be at risk of extirpation or extinction, but which may require special attention or protection to prevent them from becoming at risk.
Secure	Species that are not believed to be at risk, may be at risk, or sensitive. These are generally species that are widespread and/or abundant. Although some secure species may be declining, their level of decline is not felt to be a threat to their status in the province.
COSEWIC	
X	Extinct in Canada and elsewhere.
XT	Extirpated in Canada but surviving elsewhere.
E	Endangered in Canada.
T	Threatened in Canada.
V	Vulnerable in Canada.
SC	Special Concern in Canada.
DD	Data Deficient: data inadequate for assessment.
NAR	Not At Risk in Canada.

3.1.10.1 Species at Risk - Flora

No listed flora Species at Risk were identified within the 5km search radius. The following five (5) species of rare flora were identified by the ACCDC scan as being present within a 5 km radius of the project site (Table 2). A comparison of the site characteristics with each species' habitat requirements was completed and the results detailed in section 4.

Table No. 2: Flora Species of Conservation Concern Observed Within a 5 km Radius of Site

Scientific Name	Common Name	COSEWIC Status	SARA Status	Provincial Legal Prot.	Prov. Rarity Rank	Prov. GS Rank	# Recs.	Distance from Site
Species of Conservation Concern								
Carex glareosa var. amphigena	Gravel Sedge	-	-	-	S1	2 May Be At Risk	1	0.3+/-1.0
Atriplex franktonii	Frankton's Saltbush	-	-	-	S2	4 Secure	1	4.6+/-0.0
Carex salina	Saltmarsh Sedge	-	-	-	S2	3 Sensitive	1	1.1+/-0.0
Betula pumila	Bog Birch	-	-	-	S3	4 Secure	1	4.2+/-1.0
Sanguisorba Canadensis	Canada Burnet	-	-	-	S3	4 Secure	1	3.6+/-0.0

Carex glaerosa var. amphigena, commonly known as Gravel Sedge, is a large perennial sedge typically observed in clusters between 15 and 40 cm tall. Typically found in saline marshes. Based on its habitat requirements, the project is not anticipated to adversely impact this species.

Atriplex franktonii commonly known as Frankton's Saltbush, is an annual salt-tolerant plant typically found in nutrient-rich saline coastal wetlands and along salt water shorelines. Based on the habitat requirements of this species, the project is not anticipated to adversely impact the Frankton's Saltbush.

Carex salina, commonly known as saltmarsh sedge, which is typically found in brackish or saltwater marshes. Based on its habitat requirements, the project is not anticipated to adversely impact this species.

Betula pumila, commonly known Bog Birch, is a small tree which typically is found in fens, river and lake shores, and swamps (wetland indicator code FACW). Based on the habitat requirements of this species, the project is not anticipated to adversely impact the Bog Birch.

Sanguisorba Canadensis, commonly known Canada Burnet, is typically found in brackish or salt marshes and flats, as well as river and stream floodplains. Based on its habitat requirements, the project is not anticipated to adversely impact this species.

3.1.10.2 Species at Risk – Fauna

The ACCDC scan returned a list of 36 birds observed within a 5 km radius of the subject site, including waterfowl, shorebird and songbird species, among others. Each species' breeding/nesting windows and

habitat requirements were reviewed and compared to the characteristics of the subject site. Table 3 provides details of the 36 birds identified in the ACCDC report.

Table No. 3: Vertebrate Species of Conservation Concern within a 5 Km Radius of Site (ACCDC)

	Scientific Name	Common Name	COSEWIC	SARA	Provincial Legal Prot.	Provincial Rarity Rank	Provincial GS Rank	# of Recs.	Distance (km)
	Legally Listed Taxa								
1	*Calidris canutus rufa*	Red Knot rufa ssp	Endangered	-	Endangered	S2M	1 At Risk	9	4.2±0.0
2	*Hylocichla mustelina*	Wood Thrush	Threatened	-	Threatened	S1S2B, S1S2M	2 May Be At Risk	1	4.2±1.0
3	*Hirundo rustica*	Barn Swallow	Threatened	-	Threatened	S2B, S2M	3 Sensitive	1	2.8±7.0
4	*Riparia riparia*	Bank Swallow	Threatened	-	-	S2S3B, S2S3M	3 Sensitive	1	2.8±7.0
5	*Dolichonyx oryzivorus*	Bobolink	Threatened	-	Threatened	S3B, S3M	3 Sensitive	2	2.8±7.0
6	*Asio flammeus*	Short-eared Owl	Special Concern	Special Concern	Special Concern	S2B, S2M	3 Sensitive	1	2.8±7.0
7	*Sterna hirundo*	Common Tern	Not at Risk	-	-	S3B, SUM	3 Sensitive	7	1.4±0.0
	Species of Conservation Concern								
8	*Tringa melanoleuca*	Greater Yellowlegs	-	-	-	S1?B, S5M	4 Secure	11	4.2±0.0
9	*Aythya affinis*	Lesser Scaup	-	-	-	S1B, S4M	4 Secure	1	4.9±65.0
10	*Chroicocephalus ridibundus*	Black-headed Gull	-	-	-	S1N, S2M	3 Sensitive	1	4.9±65.0
11	*Nycticorax nycticorax*	Black-crowned Night-heron	-	-	-	S1S2B, S1S2M	3 Sensitive	2	2.2±0.0
12	*Empidonax traillii*	Willow Flycatcher	-	-	-	S1S2B, S1S2M	3 Sensitive	3	1.0±0.0
13	*Calidris bairdii*	Baird's Sandpiper	-	-	-	S1S2M	3 Sensitive	1	4.9±65.0
14	*Pooecetes gramineus*	Vesper Sparrow	-	-	-	S2B, S2M	2 May Be At Risk	3	2.3±0.0
15	*Petrochelidon Pyrrhonota*	Cliff Swallow	-	-	-	S2S3B, S2S3M	3 Sensitive	1	2.8±7.0
16	*Pluvialis dominica*	American Golden-Plover	-	-	-	S2S3M	3 Sensitive	1	4.2±0.0
17	*Charadrius vociferus*	Killdeer	-	-	-	S3B, S3M	3 Sensitive	10	2.8±7.0

18	*Passerina cyanea*	Indigo Bunting	-	-	-	S3B, S3M	4 Secure	1	4.2±1.0
19	*Molothrus ater*	Brown-headed Cowbird	-	-	-	S3B, S3M	2 May Be At Risk	2	2.8±7.0
20	*Dendroica tigrina*	Cape May Warbler	-	-	-	S3B, S4S5M	4 Secure	1	2.8±7.0
21	*Anas acuta*	Northern Pintail	-	-	-	S3B, S5M	3 Sensitive	6	0.8±7.0
22	*Mergus serrator*	Red-breasted Merganser	-	-	-	S3B, S5M, S4S5N	4 Secure	1	4.9±50.0
23	*Arenaria interpres*	Ruddy Turnstone	-	-	-	S3M	4 Secure	10	4.2±0.0
24	*Melanitta nigra*	Black Scoter	-	-	-	S3M, S1S2N	3 Sensitive	1	4.9±50.0
25	*Calidris maritima*	Purple Sandpiper	-	-	-	S3M, S3N	4 Secure	1	4.2±0.0
26	*Tyrannus tyrannus*	Eastern Kingbird	-	-	-	S3S4B, S3S4M	3 Sensitive	1	2.8±7.0
27	*Actitis macularius*	Spotted Sandpiper	-	-	-	S3S4B, S5M	4 Secure	5	2.8±7.0
28	*Gallinago delicate*	Wilson's Snipe	-	-	-	S3S4B, S5M	4 Secure	1	2.8±7.0
29	*Larus delawarensis*	Ring-billed Gull	-	-	-	S3S4B, S5M	4 Secure	1	0.2±0.0
30	*Dendroica striata*	Blackpoll Warbler	-	-	-	S3S4B, S5M	4 Secure	1	2.8±7.0
31	*Pluvialis squatarola*	Black-bellied Plover	-	-	-	S3S4M	4 Secure	9	4.2±0.0
32	*Limosa haemastica*	Hudsonian Godwit	-	-	-	S3S4M	4 Secure	5	4.2±0.0
33	*Calidris pusilla*	Semipalmated Sandpiper	-	-	-	S3S4M	4 Secure	17	4.2±0.0
34	*Calidris melanotos*	Pectoral Sandpiper	-	-	-	S3S4M	4 Secure	1	4.9±65.0
35	*Calidris alba*	Sanderling	-	-	-	S3S4M, S1N	3 Sensitive	1	4.2±0.0
36	*Morus bassanus*	Northern Gannet	-	-	-	SHB, S5M	4 Secure	5	0.2±0.0

Red Knot *(Calidris canutus rufa)* has a COSEWIC and Provincial Status of Endangered. The Red knot rufa ssp is generally found in shoreline habitats. They breed in drier tundra areas such as sparsely vegetated hillsides. Outside of the breeding season, they are found in intertidal, marine habitats especially near coastal inlets, estuaries and bays. The project site does not have suitable habitat and is not anticipated to adversely impact this species.

Wood Thrush *(Hylocichla mustelina)* has a COSEWIC and Provincial Status of Threatened. Wood thrushes prefer forest habitats and breed in deciduous and mixed forests where there are large trees. Ideal habitat includes trees over 50 feet tall, a moderate understory of saplings and shrubs, an open floor with moist soil and decaying leaf litter, and water nearby. The project site does not have suitable habitat and is not anticipated to adversely impact this species.

Barn Swallow *(Hirundo rustica*) has a COSEWIC and Provincial Status of Threatened. Barn Swallows typically require open areas such as fields and grassland for feeding and nest under the eaves of structures like barns and in trees. The project site is suitable for Barn Swallows to forage on flying insects in the open fields adjacent to the fish plant. No Barn Swallow nests were observed in the eaves of the existing project site. The project is not anticipated to adversely impact this species.

Bank Swallow (*Riparia riparia)* has a COSEWIC status of Threatened, and is now listed on Schedule 1 under the federal Species at Risk Act. Bank Swallows typically require steep banks, such as riverbanks or ocean bluffs, stockpiled soil or gravel pits as nesting habitat, preferably near open terrestrial habitat for hunting flying insects (grassland, meadows, pastures, etc.). The proposed project area does not contain suitable nesting habitat for Bank Swallows, and therefore is not anticipated to adversely impact this species.

Bobolink (*Dolichonyx oryzivorus)* has a COSEWIC and Provincial status of Threatened. Bobolinks prefer to nest in tall grasslands and hayfields, particularly field remnants reverting back to taller vegetation/shrubs. The project site does not have suitable Bobolink habitat and therefore is not anticipated to adversely impact this species.

Short-Eared Owl *(Asio flammeus)* has a COSEWIC, SARA and Provincial Status of Special Concern. Short-eared Owls prefer grassland habitats and live in large, open areas with low vegetation. They nest on the ground amid grasses and low plants. The project site does not have suitable habitat for Short-eared Owls and therefore is not anticipated to adversely impact this species.

Common Tern *(Sterna hirundo)* has a COSEWIC status of "Not at Risk". The Common Tern is a small water bird that nests on the ground in shoreline habitats. Common terns do not typically venture over land, even for water, since they drink salt water from the ocean. The project site does not have suitable nesting habitat for the Common Tern and is therefore not anticipated to adversely impact this species.

Greater Yellowlegs (*Tringa melanoleuca)* has a provincial rarity rank of S1?B, S5M and an S-rank of 4-Secure. Greater Yellowlegs are shorebirds that nest on the ground and prefer marsh habitats such as muskeg, wet bogs with small wooded islands, and forests (usually coniferous) with abundant clearings. The project site does not have suitable habitat for Greater Yellowlegs and is not anticipated to adversely impact this species.

Lesser Scaup (*Aythya affinis)* has a provincial rarity rank of S1B, S4M and an S-rank of 4-Secure. Lesser Scaups prefer freshwater lake/pond habitats and nest on the ground or in mound of vegetation over water. The project site does not have suitable habitat for Lesser Scaup and is not anticipated to adversely impact this species.

Black-Headed Gull (*Chroicocephalus ridibundus)* has a provincial rarity rank of S1N, S2M and an S-rank of 3-Sensitive. Black-headed Gulls prefer lake/pond habitats and nest on the ground in low vegetation found along rivers, bogs, moors, grasslands, swamps and coastal marshes. The project site does not have suitable nesting habitat for Black-headed Gulls and is not anticipated to adversely impact this species.

Black-Crowned Night Heron (*Nycticorax nycticorax)* has a provincial rarity rank of S1S2B, S1S2M and an S-rank of 3-Sensitive. Black-crowned Night-herons prefer marsh habitats and live in wetlands including saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, ponds, lagoons, tidal mudflats, canals, reservoirs, and wet agricultural field. They build stick nests usually over water. The project site does not have suitable habitat for Black-crowned Night-herons and is not anticipated to adversely impact this species.

Willow Flycatcher (*Empidonax traillii)* has a provincial rarity rank of S1S2B, S1S2M and an S-rank of 3-Sensitive. Willow Flycatchers prefer marsh habitats and occupy areas with willows or other shrubs near standing or running water. They nest in low shrubs and bushes. While the project site contained low shrubs and immature tree species prior to clearing, the site is over 300m from the nearest open water area, and therefore is not suitable habitat for Willow Flycatchers; and is not anticipated to adversely impact this species.

Baird's Sandpiper (*Calidris bairdii*) has a provincial rarity rank of S1S2M and an S-rank of 3-Sensitive. They are shoreline birds that nest on the ground, breeding in the arctic. They migrate and winter along mudflats, estuaries, grassy marshes and dry grassy areas near lakes and ponds – rarely dry pastures and prairies away from water. The project does not contain suitable habitat for Baird's Sandpiper, and is therefore not anticipated to adversely impact this species.

Vesper Sparrow (*Pooecetes gramineus*) has a provincial rarity rank of S2B, S2M and an S-rank of 2 May be at Risk. This species prefers open habitats with grass, including prairie, sagebrush steppe, meadows, pastures and roadsides. The project site does not contain suitable nesting habitat for this species; however surrounding properties do. As such, the project is not anticipated to adversely impact this species.

Cliff Swallow (*Petrochelidon pyrrhonota*) has a provincial rarity rank of S2S3B, S2S3M and an S-rank of 3-Sensitive. The Cliff Swallow typically builds its nest along cliff sides, caves, buildings or bridges, and the nest is usually located at the juncture between a vertical wall and a horizontal overhang. Cliff Swallows generally forage over or near water, in open fields or grassland. No swallow nests were observed in the eaves of the existing fish plant. As the project site does not contain swallow nests within the existing structure, and there is no natural suitable Cliff Swallow habitat, the project is not anticipated to adversely impact this species.

American Golden-Plover (*Pluvialis dominica*) has a provincial rarity rank of S2S3M and a S-rank of 3-Sensitive. American Golden-Plovers are large shorebirds that prefer a grassland habitat. They breed on Arctic tundra and migrate in prairie pastures, tilled farmland, golf courses, airports, mudflats, shorelines and beaches. The project site does not contain suitable habitat and therefore is not anticipated to adversely impact this species.

Killdeer (*Charadius vociferus*) has a provincial rarity rank of S3B, S3M and an S-rank of 3-Sensitive. The Killdeer prefers open areas with low vegetation (or none) such as golf courses, lawns, parking lots, pastures, fields, sandbars and mudflats. The Killdeer nest is a small scraped-out depression on the ground. The project site may contain limited area of potential nesting habitat for the Killdeer. Refer to section 4 for more information.

Indigo Bunting (*Passerina cyanea*) has a provincial rarity rank of S3B, S3M and an S-rank of 4-Secure. Indigo buntings prefer open woodland habitats. They can be found in weedy fields and shrubby areas near trees on the edges of woods and fields; along roads, streams, rivers and powerline cuts; in logged forest plots, brushy canyons, and abandoned fields where shrubby growth is returning. They nest in

shrubs or other low vegetation. The project site is outside this species' breeding range, and therefore the project is not anticipated to adversely impact this species.

Brown-headed Cowbird (*Molothrus ater*) has a provincial rarity rank of S3B, S3M and an S-rank of 2-May Be At Risk. Brown-headed Cowbirds nest in trees and prefer grassland habitats with low and scattered trees as well as woodland edges, brushy thickets, prairies, fields, pastures, orchards and residential areas. Although the surrounding area may contain suitable Brown-headed Cowbird habitat, the project site does not; therefore the project is not anticipated to adversely impact this species.

Cape May Warbler (*Dendroica tigrina*) has a provincial rarity rank of S3B, S4S5M and an S-rank of 4-Secure. A small songbird of the boreal forest, this species requires dense coniferous forest habitat. The project site does not contain suitable nesting habitat and is therefore not anticipated to adversely impact this species.

Northern Pintail (*Anas acuta*) has a provincial rarity rank of S3B, S5M and an S-rank of 3-Sensitive. Northern Pintails prefer lake/pond habitats and nest on the ground in open country with shallow, seasonal wetlands and low vegetation. The project site does not have suitable habitat for Northern Pintails and is not anticipated to adversely impact this species.

Red-Breasted Merganser (*Mergus serrator*) has a provincial rarity rank of S3B, S5M, S4S5N and an S-rank of 4-Secure. This diving fish-eater can be found in fresh and saltwater waterbodies and prefers lake/pond habitat. They nest in a depression on the ground, often under a boulder or in dense shrubs. The project site does not have suitable nesting habitat and is therefore not anticipated to adversely impact this species.

Ruddy Turnstone (*Arenaria interpres*) has a provincial rarity rank of S3M and an S-rank of 4-Secure. Ruddy Turnstones prefer nesting on the ground in rocky shoreline and sandy beach habitats and breed in sparsely vegetated tundra near marshes, streams, and ponds. The project site does not have suitable habitat and is therefore not anticipated to adversely impact this species.

Black Scoter (*Melanitta nigra*) has a provincial rarity rank of S3M, S1S2N and an S-rank of 3-Sensitive. Black Scoters prefer ocean habitat and breed on small lakes. They nest in hollows on the ground near water. The project site does not have suitable habitat for Black Scoters and is not anticipated to adversely impact this species.

Purple Sandpiper (*Calidris maritima*) has a provincial rarity rank of S3M, S3N and an S-rank of 4-Secure. Purple Sandpipers prefer rocky shoreline habitats and breed along low tundra near shorelines as well as gravel beaches along rivers. They nest in depressions in the ground. The project site does not have suitable habitat for Purple Sandpipers and is not anticipated to adversely impact this species.

Eastern Kingbird (*Tyrannus tyrannus*) has a provincial rarity rank of S3S4B, S3S4M and an S-rank of 3-Sensitive. Eastern Kingbirds prefer open habitats with patchy shrubs and trees such as yards, fields, wetlands and orchards for breeding and nest in trees or large shrubs. The project site does not have suitable Eastern Kingbird habitat and is therefore not anticipated to adversely impact this species.

Spotted Sandpiper (*Actitus macularius*) has a provincial rarity rank of S3S4B, S5M and an S-rank of 4-Secure. This species is commonly found near fresh and salt water shorelines and requires an open area near a dense vegetation edge. They nest on the ground under the shade of a broad-leafed plant near the edge of a body of water, usually within 100 yards of the shore. The shoreline adjacent to the project site

is suitable for the Spotted Sandpiper; however, the project site does not contain suitable habitat and therefore is not anticipated to adversely impact this species.

Wilson's snipe (*Gallinago delicata*) has a provincial rarity rank of S3S4B, S5M and an S-rank of 4-Secure. Wilson's Snipes prefer marsh habitats and are found in bogs, fens, alder and willow swamps, wet meadows, and along rivers and ponds. They nest on the ground, close to or even surrounded, by water. The project site does not have suitable nesting habitat for Wilson's Snipes and is not anticipated to adversely impact this species.

Ring-Billed Gull (*Larus delawarensis*) has a provincial rarity rank of S3S4B, S5M and an S-rank of 4-Secure. This medium-sized gull can be found in estuaries, beaches, mudflats, coastal waters, inland agricultural land and urban areas. They build nests on the ground near freshwater, usually on low sparsely vegetated terrain. The project is over 300m from the nearest open freshwater area, and is therefore not considered suitable nesting habitat and is not anticipated to adversely impact this species.

Blackpoll Warbler (*Dendroica striata*) has a provincial rarity rank of S3S4B, S5M and an S-rank of 4-Secure. Blackpoll Warblers prefer moist thickets or forested wetlands for breeding and nest in spruce and fir trees. The project field area may have contained suitable Blackpoll Warbler habitat prior to clearing. Refer to section 4 for additional information.

Black-bellied Plover (*Pluvialis squatarola*) has a provincial rarity rank of S3S4M and an S-rank of 4-Secure. Black-bellied Plovers are large shorebirds of coastal beaches that prefer shoreline habitats. They nest on the ground in the arctic, and migrates/winters on coastal beaches and estuaries, and may use flooded pasture and agricultural land. The project site does not contain suitable Black-bellied Plover habitat and is therefore not anticipated to adversely impact this species.

Hudsonian Godwit (*Limosa haemastica*) has a provincial rarity rank of S3S4M and an S-rank of 4-Secure. Hudsonian Godwits prefer shoreline habitats and breed on arctic tundra near water. During migration they prefer marshes, beaches, flooded fields and tidal mudflats. The project site does not have suitable habitat for Hudsonian Godwits and is therefore not anticipated to adversely impact this species.

Semipalmated Sandpiper (*Calidris pusilla*) has a provincial rarity rank of S3S4M and an S-rank of 4-Secure. Semipalmated Sandpipers are small shorebirds that prefer shoreline habitats. They nest on the ground, breed on open arctic tundra near water, and during migration are found along mudflats, sandy beaches, shores of lakes, ponds and wet meadows. The project site does not have suitable habitat for Semipalmated Sandpipers and is therefore not anticipated to adversely impact this species.

Pectoral Sandpiper (*Calidris melanotos*) has a provincial rarity rank of S3S4M and an S-rank of 4-Secure. Pectoral Sandpipers are a medium-sized shorebird that prefer grassland habitats. They nest in the arctic and prefer mudflats with short grass or weedy vegetation. The project site does not have suitable Pectoral Sandpiper habitat and is therefore not anticipated to adversely impact this species.

Sanderling (*Calidris alba*) has a provincial rarity rank of S3S4M, S1N and an S-rank of 3-Sensitive. Sanderlings prefer shoreline habitats and can be found on hard-packed sand beaches, tidal mudflats, rocky coastlines, and inland bodies of water (ponds, streams, reservoirs, etc.). They nest in the arctic near the shores of a freshwater lake or pond. The project site does not have suitable Sanderling habitat and is therefore not anticipated to adversely impact this species.

Northern Gannet (*Morus bassanus*) has a provincial rarity rank of SHB, S5M and an S-rank of 4-Secure. This shorebird nests in a few offshore island colonies on inaccessible cliffs and forages offshore. The project site is not anticipated to adversely impact this species.

3.1.10.3 Species of Conservation Concern – Invertebrate

One invertebrate SOCC (butterfly) was identified in the ACCDC scan. The species' breeding/nesting windows and habitat requirements were reviewed and compared to the characteristics of the subject site. Table 4 provides details of the butterfly species identified in the ACCDC report.

Table No. 4: Invertebrate Species of Conservation Concern within a 5 Km Radius of Site (ACCDC)

	Scientific Name	Common Name	COSEWIC	SARA	Provincial Legal Prot.	Provincial Rarity Rank	Provincial GS Rank	# of Recs.	Distance (km)
	Species of Conservation Concern								
1	*Lycaena dospassosi*	Salt Marsh Copper	-	-	-	S3	4 Secure	2	2.9±0.0

Salt Marsh Copper (Lycaena dospassosi) has a provincial rarity rank of S3 and an S-rank of 4-Secure. Salt Marsh Coppers, also known as Maritime Coppers, are found in salt marshes in the Bay of Chaleur, Quebec/New Brunswick and the Gaspé Peninsula, Quebec which contain Sea-lavender. The project site does not contain, nor is anticipated to impact, salt marsh habitat and therefore is not anticipated to adversely impact this species.

3.1.10.4 Location Sensitive Species of Conservation Concern

In addition to the species identified by ACCDC as occurring within a 5 km radius of the subject site, the following species are location-sensitive, meaning that they are known to occur within the *region* and therefore may occur within proximity to the project (Table 5).

Table 5: Location-Sensitive Species of Conservation Concern

Scientific Name	Common Name	COSEWIC Status	SARA Status	Provincial Legal Protection	Known within the Study Site?
Species of Conservation Concern					
Falco peregrinus pop. 1	Peregrine Falcon – anatum/tundrius pop.	-	Special Concern	Endangered	Yes

Peregrine Falcon – anatum/tundrius pop. (*Falco peregrinus pop. 1*) typically nests on cliffs along rivers and coastlines or other high sites including electricity transmission towers, quarries, silos, skyscrapers, churches and bridges. Peregrine Falcons can also be found hunting in open habitats such as mudflats, coastlines, lake edges and mountain chains. No suitable Peregrine Falcon nesting habitat is located within the project site, or on surrounding properties. The proposed project is therefore not anticipated to adversely impact this species.

3.1.11 Atmospheric

No ambient air quality monitoring stations or industrial emitters are located in the Lamèque region. The nearest potential atmospheric impacts are noise from the Lamèque/Acciona windfarm, and dust from the peat bog industry in Lamèque. Lamèque is an isolated, rural area with very low population density, and persistent winds.

Wood-burning fireplaces, campfires and peat bog operations are the most likely contributors of particulate matter, and vehicle emissions are likely the main sources of VOCs in the region; however based on the low population density of the area and overall lack of significant air emissions, the ambient air quality can be reasonably assumed as very good/excellent.

According to www.windfinder.com, the prevailing wind direction at the nearest measuring station (Bas-Caraquet/Shippagan) is primarily from the west. Refer to the wind rose diagram in figure 8.

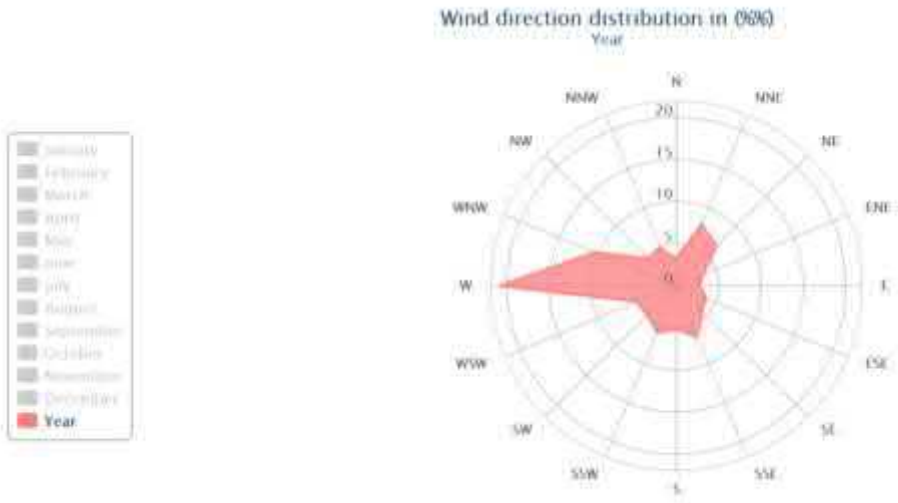

Figure No. 8: Wind Rose Diagram for Bas-Caraquet/Shippagan, NB

3.1.12.1Environmentally Significant Areas

A review of the Nature Trust NB Environmentally Significant Area (ESA) database found one (1) ESA within a 5 km radius of the subject site:

- **ESA #101 Skait Point/Ste Cécile, Lamèque:**

This ESA, located approximately 1.4 kilometres southwest of the project site, is located on the west shore of Lamèque Island. This ESA is identified as a biologically significant site for flora. The site includes interior wetlands, salt marsh and peatlands, a well-drained backshore, low coastal plain and sandstone cliffs. There is a dense growth of marine algae and clam beds, and the area is used as a migratory bird stopover point. Given the distance from the project site, the project is not anticipated to impact this ESA.

Figure No. 9: ESA Location Map. Subject site is shown in red (GeoNB, 2018)

3.1.12.2Important Bird Areas

IBACanada.ca was consulted to determine which, if any, Important Bird Areas (IBA) were located near the proposed project. The site is not located within an IBA; the nearest in proximity to the project is Miscou Island. Due to the nature of the potential environmental impacts and the distance to Miscou Island, the project is not anticipated to adversely impact this area.

3.1.13 Archaeological Resources

At this time, no information on archaeological resources at this site has been gathered. A request for archaeological resources information and probability mapping will be submitted to the Dept. of Tourism, Heritage and Culture's Archaeological Services Unit and provided to DELG upon receipt.

3.1.14 Land Use

The project is on private land owned by the proponent. The site is zoned as "M3 – Mixed Use" and a fish processing plant is a permitted use in this area:

No Land Gazette environmental property flags exist for the subject properties.

3.2 SOCIOECONOMIC CONDITIONS

3.2.1 Population and Economy

According to the Canada Census Bureau, the 2016 population of the Town of Lamèque was 1,285, down from 1,432 in 2011. No census data was available for the entire Lamèque Island.

The primary economic drivers on Lamèque Island are agriculture (blueberry production), peat bog harvesting operations, and the commercial fishery. The service industries follow and are centred in the Town of Lamèque, the island's only incorporated municipality. Many workers travel off the island to the Acadian Peninsula for work. The majority of residential development is ribbon development along major roadways, and within the Town of Lamèque. Sainte Cécile itself consists of a rural, residential area at the junction of Route 313 and rue de la Croix.

At present, M&N Seafoods (the existing fish plant purchased in 2017 by the proponent) creates seasonal employment for approximately 40 staff during the herring season.

3.2.2 Heritage Sites

A review of information provided by www.Historicplaces.ca and the New Brunswick Register of Historic Sites' website shows there are no heritage sites in proximity to the proposed project.

3.2.3 Transportation

The project site is located on rue de la Croix, a dead-end rural street off of provincial route number 313, a Local Numbered Highway with an Annual Average Daily Traffic of 2690 (as per the NB DTI 2015 Traffic Map).

The project site will be immediately adjacent to the existing fish plant, which is near the end of the cul-de-sac, and will use the existing driveway entrance/exit to rue de la Croix.

Figure No. 10: Rue de la Croix at Existing Fish Plant Site

4. ENVIRONMENTAL ASSESSMENT OF POTENTIAL IMPACTS

Based on the project description and the existing environment, the following potential Valued Environmental Components (VECs) were identified and assessed for the proposed project:

a) Groundwater Quality;
b) Surface Water Quality;
c) Wetlands;
d) Marine Water Quality;
e) Wildlife;
f) Migratory Birds;
g) Species at Risk;
h) Atmospheric Quality;
i) Environmentally Significant Areas;
j) Archaeological and Heritage Resources, Aboriginal Traditional Land Use;
k) Land Use;
l) Economy and Employment, and
m) Transportation.

A qualitative rating system is used to evaluate the potential for interactions between the project and the VECs above. A rating was given to each Valued Environmental Component (VEC) based on the potential interaction between the project and the each VEC, and a rating was applied to each according to the information gathered and the professional judgment and experience of the consultant.

> 0 = No interaction anticipated.
> 1 = Interaction occurs; however, it is unlikely to result in a significant environmental effect even without mitigation, or it is unlikely to be significant because of mitigation measures.
> 2 = Interaction could potentially result in an environmental effect.

Where there is a potential for project-VEC interaction (ratings of 1 or 2), further discussion is provided in the following sections. For issues where there is limited interaction (ratings 0 or 1), a rationale is provided and the issue is not discussed further in the present report. Potential project-environment interactions are presented in Table 6.

The potential VECs that have a rating of zero for all activities indicate that particular VEC is not present within or in proximity to the project's footprint. The rationales for excluding these VECs from further assessment are discussed in the following sections.

Significance of potential environmental effects is also evaluated in this section, based on a consideration of four (4) characteristics of the project-VEC interaction:

> Likelihood: what is the likelihood of the impact on the VEC?
> Severity of the impact (spatial and temporal scale), and
> Mitigation: What mitigation measures can be employed to minimize the impact, and how efficient?

Table No. 6: Potential Project-Environment Interactions Matrix

Activities / Potential VEC	Construction / Installation of the Physical Work	Operation / Maintenance of the Physical Work	Decommissioning / Abandonment of the Physical Work	Accidents and Unplanned Events
Biophysical				
Groundwater	1	1	0	0
Surface Water	0	0	0	0
Wetlands	1	0	0	0
Marine Water Quality				
Wildlife	0	0	0	0
Migratory Birds	0	0	0	0
Species at Risk	0	0	0	0
Atmospheric Quality	0	1	0	0
Environmentally Significant Areas	0	0	0	0
Socio-Economic				
Archaeology and Heritage Resources				
Land Use	0	0	0	0
Economy and Jobs	1	1	0	0
Transportation	0	0	0	0

4.1 GROUNDWATER

Existing Conditions:
The existing M&N Fish Plant has a groundwater supply consisting of three (3) wells, two saltwater wells and one freshwater well. A well log was found for the freshwater well (refer to Appendix E).

Well details are as follows:

- **Well #1**: Production well #1; freshwater for general/domestic uses, such as staff kitchen, showers, washrooms and regular cleaning of the plant.
- **Well #2**: Production well #2; saltwater for use in the processing of herring roe, crab and lobster, including water for pushing the product through the processing line, cooking crab/lobster.
- **Well #3**: Production well #3; saltwater for use in the processing of herring roe, crab and lobster, including water for pushing the product through the processing line, cooking crab and lobster.

The purpose of this water supply assessment is to evaluate the current fresh- and saltwater supplies that were used by the previous proprietor. The fresh and saltwater wells will supply the water to the existing herring plant and a proposed (expansion) lobster and crab plant for both the processing and cooking of the fish, as well as for domestic use.

There are four domestic water supplies in proximity to the subject site, which supply seasonal dwellings (cottages):

- [redacted] 80m west of site;
- 105m north of site;
- [redacted] 200m north of site, and
- 260m northeast of site.

All properties in the area are serviced by private wells. There is no municipal water system for Sainte-Cécile. The nearest municipal supply is in Lamèque, approximately 6km south of the site. From a review of nine (9) well logs, well depths range between 19 and 60 feet. Well yields ranged from 4 to 200 Igpm (26 to 1309 m^3/day).

Refer to Appendix E for the well log search results (within 1000m of PID No. 20106852).

The site also contains a domestic tank and a leaching field system, which treats the sewage and grey water from the facility.

Project-VEC Interactions, Potential Environmental Effects:
A production well can adversely impact nearby water supplies' quality and quantity if pumped at an unsustainable rate. Additionally, a wastewater treatment system can adversely impact groundwater (and surface water) quality if not functioning or designed properly.

The proponent has submitted a Step 1 application to conduct a Water Supply Source Assessment (Appendix E) this winter. Upon approval by the DELG, the WSSA will be conducted under the supervision of Roy Consultant's hydrogeologist and will adhere to the DELG's WSSA guidelines and requirements.

Upon completion, the results of the WSSA will be submitted to the DELG for review and approval. In addition to a recommended maximum sustainable pumping rate for each well, the proponent will adhere to any conditions in the EIA or Approval to Operate.

4.2 SURFACE WATER

There are no watercourses within 100m of the project development area. The Chaleur Bay is located approximately 150m north of the fish plant. The site topography is very flat, and surrounded by vegetated area. Due to the flat topography, during precipitation events, surface runoff is assumed to infiltrate into the ground or slowly flow to the Bay via ditching adjacent to rue de la Croix.

Ground disturbing activities will include excavation of the building footprint, to a depth of approximately 4-6 feet for the installation of frost wall, footings and concrete slab. Additional minor excavation will include installing the septic system and trenching for the water and sewer service pipes. Soil will be temporarily stockpiled on site for re-use, or will be trucked off-site.

Due to the lack of environmental receptors, the temporary nature of the construction, and the flat topography of the site, the project is not considered likely to adversely impact surface water quality, and is therefore no longer discussed in this report.

4.3 WETLANDS

Existing Conditions:
The project site contains an unmapped wetland area approximately 300m^2 in size. This is an approximate area based on soil test pits and aerial photo-interpretation. This area was previously clear cut prior to being cleared for the proposed project. Due to its size, this wetland area is an unregulated wetland.

Project-VEC Interactions, Potential Environmental Effects:

The unmapped wetland was cleared for the proposed construction using a chipper head. As such, the functions of this wetland are difficult to assess. A portion of this area may be permitted to revegetate naturally, restoring some wildlife habitat and water retention function, but the area directly in the project footprint will be permanently lost due to the building and surrounding parking area.

Description of Potential Impact 1: Loss of 150m^2 of wetland
The development of the new fish plant building will occupy a portion of the unmapped wetland area, resulting in a permanent loss of approximately 150m^2 of wetland.

Recommended Mitigation 1:
The proposed project layout impinges on a portion of the unmapped wetland; however, the placement of the new structure's footprint will avoid the wetland area as much as practical; any wetland area remaining after construction is completed will remain.

Significance of Potential Impacts
The unmapped wetland, at approximately 300m^2 in size, is an unregulated wetland – impacts to wetlands less than 1ha in size do not require a permit under the *Watercourse and Wetland Alteration Regulation*. Furthermore, the wetland had, in the past, been impacted by timber harvesting. Given the fact that the wetland is not regulated by the province due to its size, and the proponent will minimize direct loss of wetland area as much as practical, the impacts to this wetland area are considered not significant.

4.4 MARINE WATER QUALITY

The existing facility currently operates as per the NB DELG Approval to Operate no. I-8628, a category 3 Approval that permits the facility to discharge processing wastewater into the Chaleur Bay after physically removing the solids. This wastewater is discharged via a pipe which extends approximately 30m beyond the normal low water mark. The Approval requires that the screen remove solids down to

3mm, that the end of pipe remain submerged at all times, and be visually inspected regularly as per the Approval (refer to items 5 through 9 of Appendix F).

The proposed facility expansion and will not increase the discharge volumes during any one particular season. Rather, wastewater will be discharged the spring/summer lobster and snow crab processing season in addition to the fall herring season. Herring season effluent will remain as per the past operation of M&N Seafood. As lobster/snow crab processing requires less water overall, it is estimated that the proposed expansion represents an annual increase of up to 10% total effluent volume (not instantaneous).

Fish plants are permitted to discharge wastewater subject to Approval to Operate conditions issued by the DELG. From a federal perspective, no Environmental Effects Monitoring is required for fish plant effluents. Nevertheless, Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and nutrient-loading can become environmental concerns at the outfall locations if the end-of-pipe is not properly located and flushing does not occur. This can result in localized changes to flora/fauna, sediment appearance, and bacterial growth.

Existing Conditions:

At present, M&N Seafood possesses an Approval to Operate which permits the discharge of fish processing wastewater into Chaleur Bay. DELG is not aware of any complaints related to the wastewater discharge. No other fish processing plants discharge wastewater into the Bay at this location – the nearest fish plants are at Miscou (8km northwest of the site), the Bas-Caraquet Industrial Park (15km west), and at Shippagan (14km southwest).

Project – VEC Interactions, Potential Environmental Effects and Mitigation Measures:

Section 35(1) of the Fisheries Act states: *No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery*.

Description of Potential Effect 1:

Fish processing wastewater can create localized, adverse environmental impacts if the end-of-pipe is not properly located and regular flushing of the mixing zone does not occur. These can include localized sediment deposition, floral/faunal changes, nutrient loading and bacterial growth.

Description of Recommended Mitigation 1:

1. Pecheries Ste-Cécile Inc. will adhere to the requirements of an amended Approval to Operate for the facility (refer to Appendix F);
2. The fish plant expansion will include the installation of a new screen/filter which will more efficiently remove solids;
3. Pecheries Ste-Cécile Inc. will maintain its waste filtration system in good working order at all times;
4. MFP will minimize, to the extent practical, the amount of water used in processing at the facility, thereby minimizing waste water effluent volumes;
5. The discharge end-of-pipe location will be visually monitored as per the Approval to Operate, and any changes to the localized discharge environment will be reported to DELG;
6. The end-of-pipe will be monitored and repaired/replaced as needed, and
7. Any debris will be removed from the end-of-pipe area and properly disposed of, as necessary.

Significance of Potential Impacts
Based on the improved removal of solids proposed, the mitigation measures noted above, and the off-set of the applicable fishing seasons, adverse environmental impacts to marine water quality are considered not significant.

4.5 WILDLIFE & WILDLIFE HABITAT

Existing Conditions:
The project site contains two general areas: the existing fish plant, surrounded by asphalt and gravel parking lots and grass along the property perimeter; and the former field area which was cleared prior to initiating the environmental assessment.

The grass area surrounding the existing fish plant is approximately 0.8 ha, and consists of lawn and at the property edge, native grass species. Much of the grassed area is used periodically as temporary storage of vehicles, storage bins and equipment. This area may be used by small mammals, but is not considered significant wildlife habitat.

The former field portion of the site, an area approximately 1.3 hectares in size, appeared to consist of thick, emergent vegetation such as speckled alder (*Alnus rugosa*), balsam fir (*Abies balsamea*), pin cherry (*Prunus pensylvanica*), white birch (*Betula papyrifera*), red maple (*Acer rubrum*), and tamarack (*Larix laricina*), as well as shrub and wildflower species (from Google earth street view).

Project-VEC Interactions, Potential Environmental Effects:
The field area of the site, prior to clearing, can be reasonably assumed to have been suitable wildlife habitat for migratory birds and small-to-medium-sized mammals. The site was completely cleared prior to undertaking the EIA; therefore the project represents a loss of 1.3 ha of wildlife habitat.

Description of Potential Impact 1: Loss of 1.3 ha wildlife habitat
The clearing of the field portion of the site has permanently removed approximately 1.3 hectares of wildlife habitat.

Significance of Potential Impacts
Lamèque Island is primarily considered significant bird, butterfly and plant habitat, due to its location in the migration paths of many migratory bird species, its abundance of beach, estuary and salt water / coastal marshes and peat bogs. Large mammals are not common on Lamèque Island; however, typical New Brunswick small and medium mammals can be year-round residents. During the site reconnaissance in late November, no signs of wildlife were identified on site – although due to the frozen ground and recent disturbance (clearing of the site), this was not unexpected.

Based on site observations, adjacent properties to the subject site contain similar habitat types for wildlife use. Furthermore, the loss of 1.3 ha of potentially suitable wildlife habitat is not considered significant when considering the overall region surrounding the site. A review of aerial photography shows that, within a 1km radius of the subject site, there is +/- 150 ha of additional, similar habitat.

Based on this, the loss of 1.3 ha of wildlife habitat (or 0.8 if the site is revegetated) is considered not significant.

4.6 SPECIES AT RISK

Existing Conditions:
A scan of available information on Species at Risk (SAR) and Species of Conservation Concern (SOCC) of the area identified three (3) rare plant species, 37 bird species, and one (1) invertebrate species, which may have been observed and which may be found within a 5km radius of the subject property.

Project-VEC Interactions, Potential Environmental Effects:
Each species of conservation concern's critical habitat requirements was reviewed and compared with the project site, including the "field" area prior to its clearing the fall of 2017. Based on this comparison, including the breeding range of each species, it was determined that the project site may (or may have) contain suitable habitat for two (2) migratory bird species.

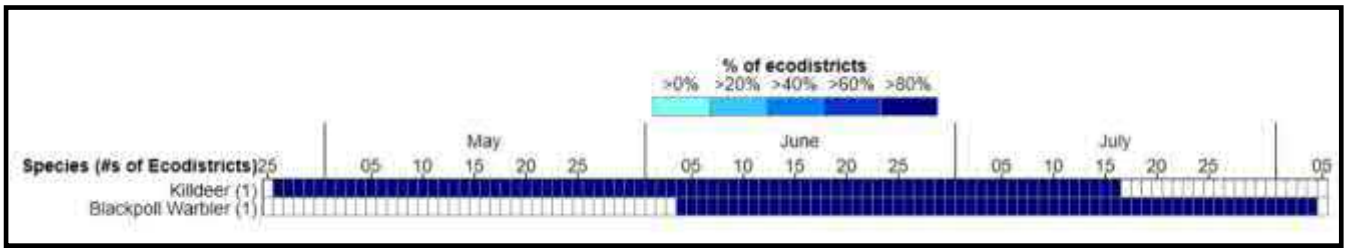

Figure No. 10: Killdeer and Blackpoll Warbler Nesting Calendar for Northumberland Shore Eco-district

Potential Environmental Impact 1 – Killdeer:
The project site may comprise suitable habitat for Killdeer (the grassed and asphalted areas along the property perimeter.

The project is an industrial fish processing plant, and while the processing takes place inside the facility, the exterior parking lots are active throughout the day. The lobster/snow crab season (April-July) coincides with the Killdeer nesting season. Any nesting Killdeer on site may be disturbed or displaced, or their eggs destroyed by this traffic.

Potential Environmental Impact 2 – Blackpoll Warbler
The proposed location for the new fish plant building was cleared in October, 2017 prior to the initiation of the EIA. The cleared area was approximately 1.3 ha in size, and consisted of thick trees and shrubs, which was potential Blackpoll Warbler nesting habitat. As the clearing took place in late fall of 2017, the clearing would not have directly impacted warbler nests; however, this is a permanent loss of potential habitat.

Recommended Mitigation:
Project operational activities on site are anticipated to discourage Killdeer from establishing nests on the site. The project site becomes active in the early spring, in preparation for the early lobster/crab fishing season. This includes preparing the site for fishing season (clearing snow, moving equipment/trailers in the yard, and conducting other general maintenance activities). Construction of the new plant expansion will include typical construction noise and equipment which will also discourage Killdeer from nesting on site.

Significance of Potential Impacts

Killdeer: Given the timing of the Killdeer nesting season and the activities at the fish plant during this time, it is unlikely that Killdeer would establish nests within the project site, an active commercial/industrial site.

Blackpoll Warbler: Given the small area impacted (1.3 ha) and the availability of similar habitat on adjacent properties and in the area, the clearing of the field area is not considered a significant impact.

Based on the above, the impact to Species at Risk is therefore considered **not likely or significant**.

4.7 ATMOSPHERIC QUALITY

Existing Conditions:
The current fish processing plant does not have an air emission, with the possible exception of odours.

Project-VEC Interactions, Potential Environmental Effects:
The processing of fish and the storage of fish solid waste may create odours, which may be a source of annoyance for the neighbouring landowners.

The plant does not have any air emissions or use chemicals that could pose health threats to neighbouring land owners.

Recommended Mitigation:

- The fish processing takes place within the enclosed building, providing a barrier to fish odours escaping to neighbouring properties;
- Solid fish waste is transported off site regularly, to ensure it does not attract wildlife or create a nuisance odour.

Likelihood of Impacts:
It is generally accepted that the Lamèque region is one of the windier places in New Brunswick. According to DNR, 2008, the Caraquet eco-district "…summer wind velocity is nearly twice the speed of the inland breezes." The Acciona Lamèque wind farm has been taking advantage of this resource since 2010.

According to Windfinder.com, prevailing winds on Lamèque Island are primarily from the west, and as such, the majority of any odours created on site would be dissipated to the east, where there are no nearby receptors.

Significance of Potential Impacts

Given the recommended mitigation that will be implemented by the proponent, and the prevailing wind conditions, the atmospheric impacts of the project are anticipated to be **not significant.**

4.8 ENVIRONMENTALLY SIGNIFICANT AREAS

Existing Conditions:

The nearest environmentally significant area (ESA), Skait Point, is located over 1.4 km to the west of the project site. This site is primarily a coastal marsh area known for rare plants and use by wildlife. Given this distance and the lack of potential environmental impacts from the project site, it is unlikely that the project would impact this ESA, and is therefore no longer discussed in this report.

4.9 LAND USE

The project is located in an area zoned "M3-Mixed", which permits the use of land for residential, commercial, industrial and institutional developments, including fish plants. A development/building permit will be required for the construction of the new building. Ste-Cecile Seafood Inc. has already contacted the planning commission and will obtain the necessary permits prior to initiating construction.

Given that the site is an existing fish plant, and the zoning of the area permits the intended use of the property, land use is no longer discussed in this report.

4.10 TRANSPORTATION

Existing Conditions:

The project site is located on rue de la Croix, a dead-end, completely straight rural street off of provincial route number 313, a Local Numbered Highway with an Annual Average Daily Traffic of 2690 (as per the NB DTI 2015 Traffic Map).

The proposed expansion will be immediately adjacent to the existing fish plant, which is near the end of the cul-de-sac, and will use the existing driveway entrance/exit to rue de la Croix.

As there is no overlap in the fishing/processing seasons, there is no anticipated simultaneous increase in vehicular traffic compared to existing conditions. All truck traffic to and from the site will adhere to local DTI vehicle weight restrictions and speeds. As there is no significant increase in traffic at this site, transportation is not discussed further in this report.

4.11 ECONOMY/JOBS

The existing fish plant currently employs approximately 50 seasonal workers during the herring season, and 3 full-time employees at the plant during the off-season. The addition of the new plant, operating

throughout April – July, will result in the direct increased employment of these workers for a longer period of time. Additionally, this will result in employment for approximately 20 more employees.

Construction of the new building and infrastructure will result in direct, temporary employment for contractors and labourers during the construction period, approximately 2-3 months, as well as septic system and water system installers, electricians, plumbers, etc.

The project will result in an increase in full-time seasonal, as well as temporary, employment for the area. As this is a net positive economic impact, no mitigation is required and this is no longer discussed in this report.

4.12 ARCHAEOLOGY AND HERITAGE RESOURCES

A request has been made to the Archaeological Services Unit of the Department of Tourism, Heritage and Culture for any known archaeological resources in proximity to the subject site. The information will be forwarded to DELG upon receipt.

5. ACCIDENTS AND UNPLANNED EVENTS

The project does not store or require large quantities of chemicals or hazardous materials for its operation. Domestic quantities of petroleum and cleaning products are stored in locked rooms with secondary containment (concrete berm at the doorway and spill trays) to ensure no cross-contamination.

Based on the minimal amount of chemicals stored on site and the absence of industrial or chemical processes, accidents and unplanned events are not anticipated to be significant during the operation of the fish plants, and therefore the impacts from such events are considered **unlikely and not significant**.

Mitigation addressing accidents and unplanned events during the construction will be addressed in a separate EMP document.

6. CUMULATIVE EFFECTS

The development of this project will result in two primary environment impacts; loss of 1.3ha of migratory bird habitat, impacts to marine water quality from process water, and odours. These impacts are considered *not significant* given the mitigation and project details herein. However, the cumulative impacts of these were considered on the immediate area and the region.

6.1 Groundwater

The proposed development will utilize the existing water supplies on site. The WSSA proposed herein will identify the maximum sustainable yield for these wells, taking into proximity to the coast and neighbouring water supplies, and will recommend a safe pumping rate for each. The results of the WSSA, and potential cumulative impacts to the aquifer, will be submitted under separate cover upon completion of the pump test report.

6.2 Loss of habitat

A portion of the project footprint, referred to herein as the "field area", was cleared of all vegetation prior to initiating the environmental impact assessment. Based on Google Earth street view and aerial photography, the clearing of this area represents a loss of 1.3 ha of dense, immature tree and shrub vegetation, which is considered suitable wildlife and migratory bird habitat.

Upon completion of the project, a portion of the field area will be allowed to revert to natural vegetation; therefore, the amount of habitat permanently lost by the project will be approximately 0.8 hectares.

No future development projects are known or reasonably assumed to be planned for the foreseeable future within the region which would permanently remove similar habitat.

Within a 1km radius, aerial photography shows over 150 ha of similar (forested) habitat. Given this amount of suitable habitat on surrounding properties, the permanent loss of 0.8 ha (~0.5%) is not considered a significant cumulative impact.

6.3 Marine Water Quality

The fish plant effluent may contribute BOD and nutrients to the marine water quality at the pipe outfall. Given the general direction of currents from west to east along the Bay, the mixing and dilution which occur at fish plant effluent outfalls, the lack of other outfalls within the vicinity of the plant, and the mitigation to be implemented by the proponent, no cumulative impacts to marine water quality are anticipated.

6.4 Odours

No other sources of odour or air emissions are in the vicinity of the proposed project. Given the lack of additional emitters, the prevailing wind direction and the mitigation to be employed by the proponent to control odours, no cumulative impacts are anticipated.

7. IMPACT OF THE ENVIRONMENT ON THE PROJECT

The Future Projected Climate information for the area (AR5 climate projections based on the International Panel on Climate Change (IPCC)th Assessment Report) were accessed and reviewed for this site (meteorological station 8103050: "Miscou Island).

The project is located adjacent to the Chaleur Bay, approximately 3 m above sea level (exact elevation to be determined during the WSSA pump test). The project's proximity to the coast means the project property may be susceptible to flooding during storm surges or extreme weather events in the future, given the climate change sea-level rise predictions.

The Updated Sea-Level Rise and Flooding Estimates for New Brunswick Coastal Sections were reviewed. The proposed project is within Zone 3 – Gloucester County, Grande-Anse to Pointe-Sauvage, which indicate a plausible upper bound water level (metres above CGVD28) of 1.48m (2100+error bar) and a 100-year Return Period Storm Surge + error bar of 1.54m (table 17, R. J. Daigle Enviro, 2014). As such, the

The site in question is not known to flood from extreme rainfall events or storm surges, and based on the information in the RJ Daigle report, these are not considered a likely potential impact on the project.

8. PUBLIC INVOLVEMENT

The public involvement activities proposed for this project registration will be conducted as per the requirements of Schedule C of the *Guide to Environmental Impact Assessment in New Brunswick (2012)*, and will involve the following public involvement activities, based on a program submitted to and approved by DELG:

1. The proponent shall communicate directly with elected officials (i.e. the MLA and mayor), local service districts, community groups, environmental groups, and other key stakeholder groups (companies, agencies, interest groups, etc.) and First Nations as appropriate, enabling them to become familiar with the proposed project and ask questions and/or raise concerns.

2. The proponent shall provide direct, written notification (letter, information flyer, etc.) about the project and its location to potentially affected area residents, landowners and individuals (to be determined in consultation with Sustainable Development, Planning and Impact Evaluation Branch). The notification must include the following:
    a. A brief description of the proposed project;
    b. Information on how to view the Registration Document;
    c. A description of proposed location (map is desirable);
    d. The status of the Provincial approvals process (i.e.: "The project is currently registered for review with the Department of Environment and Local Government under the Environmental Impact Assessment Regulation, Clean Environment Act");
    e. A statement indicating that people can ask questions or raise concerns with the proponent regarding the environmental impacts; • Proponent contact information (name, address, phone number, E-mail); and
    f. The date by which comments must be received (See Section 6.0 of the Registration Guide).

3. When the EIA report is finished, it will be submitted to DELG and placed on the DELG Website at http://www.gnb.ca/0009/0377/0002/0016-e.pdf and shall make the Registration Document (and any subsequent submissions in response to issues raised by the Technical Review Committee) available for public review at 20 McGloin Street, 2nd Floor, Fredericton, N.B.

4. The proponent shall make copies of the project registration document (and any subsequent submissions in response to issues raised by the Technical Review Committee) available to any interested member of the public, stakeholder or First Nation and shall deposit a copy of this document along with any subsequent revision with the appropriate DELG regional office, where it will be available for public review.

5. The proponent shall make the project registration document (and any subsequent submissions in response to issues raised by the Technical Review Committee) available in at least two locations local to the project area (e.g.: the proponent's offices, a public library, a municipal office, another public location).

6. Within 60 days of project registration, the proponent shall prepare and submit to the Department of Environment and Local Government a report documenting the above public involvement activities, and shall make this report available for public review.

The public involvement strategy will be submitted separately to the DELG Project Manager for approval, and a summary report outlining the strategy and its results will be submitted for review within 60 days of the date of registration.

9. FIRST NATIONS

The project is the expansion of an existing fish processing plant located on privately owned land and is funded by the proponent. The nearest First Nations are both located approximately 80km from the site, the M'ikmaq First Nation at Burnt Church and the M'ikmaq First Nation at Pabineau.

Based on the ownership and current use of the site, and the anticipated lack of adverse environmental impacts both on and off-site, it is not anticipated that the project will infringe on Aboriginal Rights or traditional land use by a First Nation.

If any additional information on the potential for archaeological resources or First Nations Traditional Use in the area of the project, that information will be forwarded to DELG at that time.

10. APPROVAL OF THE UNDERTAKING

The following permits, approvals and authorizations are anticipated for the project to include but not be limited to:

Provincial

- Certificate of Determination – DELG
- Building Permit – Regional Service Commission 4
- Approval to Construct and Operate – DELG

Federal

No federal approval or authorization is anticipated for this project.

11. FUNDING

The project is a privately funded venture by the proponent, Pecherie Ste-Cécile Inc.

12. CLOSING STATEMENT

This environmental impact assessment identified Valued Environmental Components which may potentially be impacted by the operation and expansion of the Pecheries Ste-Cécile Inc. fish plant. Significance was determined based on the criteria of *likelihood*, *scale*, *duration* and proposed *mitigation*.

Potential VECs were identified and assessed as either not potentially impacted by the project, or potential impacts were not considered significant based on the above criteria.

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APPENDIX A:

Site Photos

Photo No. 1: Existing Fish Plant Looking North

Photo No. 2: Existing Fish Plant Looking East

Photo No. 3: South Edge of Parking Area and Site of Proposed Expansion

Photo No. 4: Rear of Existing Fish Plant

Photo No. 5: Location of Proposed Expansion

Photo No. 6: Location of Proposed Expansion Looking North

Photo No. 7: Well No. 1

Photo No. 8: Well No 2

Photo No. 9: Well No. 3

Photo No. 10: Soil Test Pit (Nov. 30, 2017)

APPENDIX B:

Aerial Photos

Aerial Photo No. 1: 1944 DNR aerial photo 1944-A7407-16 (subject site indicated by red circle)

Aerial Photo No. 2: 1955 DNR aerial photo 1955-3772-221

Aerial Photo No. 3: 1963 DNR aerial photo 1963-6304-107

Aerial Photo No. 4: 1974 DNR aerial photo 1974-0507-115

Aerial Photo No. 5: 1985 DNR aerial photo 1985-0502-135

Aerial Photo No. 6: 2002 DNR aerial photo 2002-0514-213

Aerial Photo No. 7: 2012 DNR aerial photo 2012-509-149-0600

APPENDIX C:

Technical Figures

Certificate of Design and Manufacturing Conformance

This Certificate is to affirm that all components of the steel building system described below, to be supplied by the named Manufacturer certified in accordance with CSA A660, have been or will be designed and fabricated in accordance with the following Standards to carry the loads and load combinations specified.

1. DESCRIPTION

Manufacturer's Name and Address: **Steelway Building Systems, Springwater Rd., Aylmer, ON, Canada**
Manufacturer's Certificate No. under CSA A660: **STEEL0**
Customer Order Number: **75285**
Building Type and Size: **Allsteel [48768Wx60960Lx8534/8534H]** (mm)
Intended Use and Occupancy: **Industrial**
Importance Category (NBC, Sentence 4.1.2.1.(3)): **II - Normal**
Site Location: **SHIPPIGAN, New Brunswick, Canada**
Applicable Building Code: **NBC 2010**
Builder's Name and Address: **Alliance Building Contractors Ltd., 608 Pine Glen Road, Riverview, NB**
Owner's Name and Address: **STEC Building, Shippigan, NB**

Engineer's Initials *

2. DESIGN STANDARDS — DB

National Building Code of Canada, 2010, Part 4: *Structural Design*
CAN/CSA-S16-09, *Limit States Design of Steel Structures*
CAN/CSA-S136-07, *North American Specification for the Design of Cold-Formed Steel Structural Members*
Other (specify): ..... dated .....

3. MANUFACTURING STANDARDS — DB

(a) Fabrication has been or will be in accordance with CAN/CSA-S16 and CAN/CSA-S136, as applicable.
(b) Welding has been or will be performed in accordance with CSA W59 and CAN/CSA-S136, as applicable.
(c) The Manufacturer has been certified in accordance with CSA W47.1, for Division 1 or Division 2, and/or CSA W55.3, if applicable.
(d) Welders have been qualified in accordance with CSA-W47.1.

4. PURLIN STABILITY — DB

Purlin braces are provided in accordance with CAN/CSA-S136, Clause D3 and Appendix B, Clause D3.2.2. In particular, for a standing seam roof supported on movable clips, braces providing lateral support to both top and bottom purlin flange have been or will be provided. The number of rows is determined by analysis but in no case is less than 1 for spans up to 7m inclusive or less than 2 for spans greater than 7m.

5. LOADS

(a) Snow, Ice, and Rain Load — DB
1-in-50 year ground snow load, Ss, **3.40** (kPa)
1-in-50 year associated rain load, Sr, **0.60** (kPa)
Wind exposure factor, Cw, **1.00**
Importance factor, Is, **1.00**
Roof snow load, S, **3.322** (kPa)
Drift load considered (*NBC* Sub-section 4.1.6.2.8) refer to drawing of specific building
Specified rain load (*NBC*, Article 4.1.6.4) **18** (mm).

(b) Full and Partial Snow Load — DB
(i) Applied on any one and any two adjacent spans of continuous purlins
(ii) Applied on any one and any two adjacent spans of modular rigid frames with continuous roof beams
(iii) Applied as described for the building geometry in *NBC*, Part 4, and in the User's Guide - NBC 2010 Structural Commentaries (Part 4), *Commentary G: Snow Loads*

(c) Wind Load — DB
1-in-50 year reference velocity pressure **0.63** (kPa)
Importance factor, Iw **1.00**

(d) Wind Load Application — DB
(i) Applied as per *NBC*, Part 4, Section 4.1.7
(ii) Pressure coefficients as per User's Guide – *NBC* 2010 Structural Commentaries (Part 4 of Dvision B), *Commentary I: Wind Loads*, Figures I7 through I14
(iii) Building internal pressure Category **2** per User's Guide – *NBC* 2010 Structural Commentaries (Part 4 of Division B), *Commentary I: Wind Loads*

(e) Crane Loads (where applicable) — N/A
Type: ..... (top running)(under-running)(jib)
Capacity: ..... (tonnes)
Wheel base: ..... (m)
Maximum static, vertical wheel load: ..... (kN)
Vertical impact factor: ..... %
Lateral factor: ..... % Lateral wheel load: ..... (kN)
Longitudinal factor: ..... % Maximum longitudinal load: ..... (kN/side)

(f) Mezzanine Live Load: 4.8 (future) (kPa) — DB

(g) Seismic Load: — DB
(Applied as per *NBC*, Part 4, Sub-section 4.1.8 $S_a(0.2)$ **0.290**, S_a (0.5) **0.180**, S_a (1.0) **0.090**, S_a (2.0) **0.031**, F_a **1.28**, F_v **1.40**, I_E **1.00**

(h) Other Live Loads — N/A
(Specify): .....

(i) Dead Loads — DB
Dead load of building components is incorporated in the design
Collateral load (mechanical, electrical, ceiling, sprinklers, etc.): **0.19** (kPa)
Mezzanine: **2.4 (future)** (kPa)
Other (specify): **0.96 kPa** (future mezzanine partition load)

(j) Load Combinations — DB
Applied in accordance with *NBC*, Part 4, Section 4.1.

6. GENERAL REVIEW DURING CONSTRUCTION

The Manufacturer does not provide general review during construction for regulatory purposes.

7. CERTIFICATION BY ENGINEER

I **Dennis Bak**, a Professional Engineer registered or licensed to practice in the Province or Territory of **New Brunswick**, hereby certify that I have reviewed the design and manufacturing process for the steel building system described. I certify that the foregoing statements, initialed by me, are true.

Name: **Dennis Bak**
Title: **P. Eng.**
Affiliation: **Steelway Building Systems**
Date: **Nov 22, 2017**

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

*** Initial each true statement. Mark N/A if statement does not apply.**

DESIGN RESPONSIBILITY

STEELWAY'S ENGINEER IS NOT THE DESIGN PROFESSIONAL OR ENGINEER OF RECORD FOR THE CONSTRUCTION PROJECT. STEELWAY IS NOT RESPONSIBLE FOR THE DESIGN OF ANY COMPONENT OR MATERIALS NOT SOLD BY IT, OR THEIR INTERFACE AND CONNECTION WITH THE STEEL BUILDING SYSTEM, UNLESS SUCH DESIGN RESPONSIBILITY IS SPECIFICALLY REQUIRED BY THE CONTRACT DOCUMENTS. STEELWAY IS ONLY RESPONSIBLE FOR ENSURING THAT THE COMPONENTS SUPPLIED BY IT ARE DESIGNED IN ACCORDANCE WITH THE APPLICABLE BUILDING CODES AND OTHER CRITERIA, ALL AS SPECIFIED BY THE OWNER, THE PROFESSIONAL ENGINEER AND/OR ARCHITECT OF RECORD RETAINED BY THE OWNER, OR THE DESIGN–BUILDER. THE DESIGNER (OF THE STRUCTURE) WHETHER DESIGN–BUILDER, ARCHITECT AND/OR PROFESSIONAL ENGINEER OF RECORD, IS RESPONSIBLE FOR SPECIFYING TO STEELWAY THE CODES AND STANDARDS TO GOVERN DESIGN, ALL DESIGN LOADS SUCH AS SNOW LOADS (INCLUDING COEFFICIENTS AND DRIFT CONDITIONS), WIND LOADS, COLLATERAL LOADS, SITE CONDITIONS FOR SEISMIC DESIGN, AND ANY OTHER SUPERIMPOSED LOADS WHICH THE STRUCTURE IS REQUIRED TO SUSTAIN. IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS HE/SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER ANY ITEM ON THESE PLANS IN ANY WAY. IF ANY ITEM ON THESE PLANS IS ALTERED, THE ALTERING ENGINEER MUST AFFIX TO THE ITEM HIS/HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS/HER SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION. STEELWAY ASSUMES THAT ALL WINDOWS AND DOORS WILL BE DESIGNED TO WITHSTAND THE WIND LOADS SHOWN AND WILL REMAIN CLOSED DURING PERIODS OF SEVERE WINDS (THIS DOES NOT APPLY TO BUILDINGS DESIGNED AS CATEGORY 3).
FOR FURTHER CLARIFICATION OF DESIGN RESPONSIBILITY, REFER TO CSSBI B8–06 – BUILDINGS INCORPORATING STEEL BUILDING SYSTEMS: RESPONSIBILITIES OF THE PARTIES INVOLVED.

FOUNDATION DESIGN

STEELWAY IS NOT RESPONSIBLE FOR THE DESIGN, MATERIALS, AND WORKMANSHIP OF THE FOUNDATION. ANCHOR BOLT PLANS PREPARED BY STEELWAY ARE INTENDED TO SHOW ONLY LOCATION, DIAMETER, AND PROJECTION OF ANCHOR RODS REQUIRED TO ATTACH THE STEEL BUILDING SYSTEM TO THE FOUNDATION. IT IS THE RESPONSIBILITY OF THE END CUSTOMER AND/OR THEIR DESIGN PROFESSIONAL TO ENSURE THAT ADEQUATE PROVISIONS ARE MADE FOR SPECIFYING BOLT EMBEDMENT, BEARING ANGLES, TIE RODS, AND/OR OTHER ASSOCIATED ITEMS EMBEDDED IN THE CONCRETE FOUNDATION, AS WELL AS FOUNDATION DESIGN FOR THE LOADS IMPOSED BY THE STEEL BUILDING SYSTEM, OTHER IMPOSED LOADS, AND THE BEARING CAPACITY OF THE SOIL AND OTHER CONDITIONS OF THE BUILDING SITE.
STEELWAY DOES NOT SPECIFY GROUT REQUIREMENTS – THIS IS THE RESPONSIBILITY OF THE FOUNDATION DESIGNER. THE CHART PROVIDED WITH THE ANCHOR PLANS/DETAILS IS INTENDED TO DEMONSTRATE THAT GROUT SHALL BE TAKEN INTO ACCOUNT WHEN DETERMINING ANCHOR BOLT PROJECTION, IT DOES NOT CONSTITUTE THE SPECIFICATION OF GROUT BY THE STEELWAY ENGINEER.

SERVICEABILITY

UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, STEELWAY USES INDUSTRY STANDARD DEFLECTION LIMITS AS SPECIFIED IN CSSBI B15B–15. IN GENERAL, WE DO NOT USE THE RECOMMENDED LIMITS SPECIFIED IN ANNEX D OF CSA S16, WHICH IS A NON–MANDATORY PART OF THIS STANDARD.

SITE INSPECTIONS

STEELWAY DOES NOT PERFORM GENERAL REVIEW OF CONSTRUCTION (SITE INSPECTIONS) FOR COMPONENTS SUPPLIED BY IT. THIS RESPONSIBILITY IS EXPLICITLY EXCLUDED FROM STEELWAY'S SCOPE OF WORK, UNLESS SPECIFIED IN THE CONTRACT DOCUMENTS FOR AN AGREED FEE.

EXISTING BUILDINGS

STEELWAY DOES NOT INVESTIGATE THE INFLUENCE OF THE STEEL BUILDING SYSTEM ON EXISTING BUILDINGS OR STRUCTURES. THE END CUSTOMER AND/OR THEIR DESIGN PROFESSIONAL MUST ENSURE THAT SUCH BUILDINGS AND STRUCTURES ARE ADEQUATE TO RESIST SNOW LOADS OR OTHER CONDITIONS AS A RESULT OF THE PRESENCE OF THE STEEL BUILDING SYSTEM.

INDEPENDENT/SELF–SUPPORTING COMPONENTS

MEZZANINES, BLOCK WALLS, OR ANY OTHER COMPONENTS BY OTHERS THAT ARE IDENTIFIED AS INDEPENDENT OR SELF–SUPPORTING, MUST BE DESIGNED BY A PROFESSIONAL ENGINEER. THE ENGINEER MUST ENSURE THAT PROPER ISOLATION FROM THE STEELWAY BUILDING HAS BEEN PROVIDED TO AVOID STRUCTURAL DAMAGE DUE TO DIFFERENTIAL MOVEMENTS, OR INADVERTENTLY APPLYING LOADS TO THE STEELWAY STRUCTURE. STEELWAY ACCEPTS NO RESPONSIBILITY FOR THE DESIGN OF ANY INDEPENDENT/SELF–SUPPORTING COMPONENTS.

FIRE CODE COMPLIANCE

IT IS THE RESPONSIBILITY OF THE PROJECT DESIGN PROFESSIONAL AND BUILDER TO COMPLY WITH LOCAL FIRE CODE REGULATIONS INCLUDING CONSIDERATION OF, BUT NOT LIMITED TO, BUILDING USE AND OCCUPANCY, ALL BUILDING CONSTRUCTION MATERIALS, SEPARATION REQUIREMENTS, EGRESS REQUIREMENTS, FIRE PROTECTION SYSTEMS, ETC. THE BUILDER SHALL ADVISE STEELWAY OF ANY SPECIAL REQUIREMENTS TO BE FURNISHED BY STEELWAY.

PRELIMINARY DRAWINGS

STEELWAY ISSUES PRELIMINARY DRAWINGS MARKED 'ISSUED FOR INFORMATION' FOR EACH PROJECT. INFORMATION PRESENTED ON PRELIMINARY DRAWINGS MAY DIFFER FROM DRAWINGS/DOCUMENTS PROVIDED BY OTHER FIRMS, AND ALSO FROM PREVIOUS STEELWAY DRAWINGS/DOCUMENTS. THE DEVIATIONS MAY BE DUE TO INTERPRETATIONS OF THE CONTRACT REQUIREMENTS, OR NECESSARY PROVISIONS FOR STRUCTURAL PERFORMANCE AND MANUFACTURING ABILITY. THE MOST RECENT SET OF DRAWINGS THAT IS SEALED BY A STEELWAY ENGINEER SHALL TAKE PRECEDENCE OVER ANY PREVIOUS DRAWINGS/DOCUMENTS. THE CUSTOMER SHALL PERFORM A THOROUGH REVIEW OF ALL ITEMS SHOWN ON EACH DRAWING SET RECEIVED, IN ORDER TO CONFIRM ADHERENCE TO THE CONTRACT REQUIREMENTS.
APPROVAL IS REQUIRED IN ORDER TO PROCEED WITH MANUFACTURING. WHEN THE APPROVAL STAMP IS PRESENT, PLEASE SIGN AND DATE EACH DRAWING, AND CLEARLY INDICATE ANY CHANGES REQUIRED. FAILURE TO DO SO IN A TIMELY MANNER MAY RESULT IN PROJECT DELAYS. NOTE THAT CHANGES REQUESTED ON THE DRAWINGS ARE NOT BINDING UNLESS SUBSEQUENTLY ACKNOWLEDGED AND AGREED TO IN WRITING. APPROVAL OF STEELWAY DRAWINGS CONSTITUTES ACCEPTANCE OF OUR INTERPRETATION, AND FURTHER CONSTITUTES AGREEMENT THAT THE BUILDING AS SHOWN REPRESENTS THE TOTAL OF THE MATERIALS TO BE SUPPLIED. ANY CHANGE REQUESTS THAT OCCUR AFTER APPROVAL MAY RESULT IN ADDITIONAL COSTS AND DELAYS.
BUILDER/CUSTOMER MUST SECURE ALL REQUIRED APPROVALS AND PERMITS FROM THE APPROPRIATE AGENCIES AS REQUIRED.

BOLT TIGHTENING

PROPER INSTALLATION AND INSPECTION OF ALL FASTENERS IS THE RESPONSIBILITY OF THE ERECTOR. ALL HIGH STRENGTH (A325, A490) BOLTS AND NUTS MUST BE TIGHTENED BY THE 'TURN–OF–NUT' METHOD AS SPECIFIED IN THE 'INSTALLATION AND INSPECTION OF BOLTED JOINTS' CLAUSE OF CSA S16. INSPECTION OF HIGH STRENGTH BOLTED JOINTS BY OTHER THAN THE ERECTOR MUST BE SPECIFIED IN THE CONTRACT DOCUMENTS, AND THE ERECTOR IS RESPONSIBLE FOR ENSURING THAT INSTALLATION AND INSPECTION PROCEDURES ARE COMPATIBLE PRIOR TO THE START OF ERECTION.

TABLE 8: NUT ROTATION FROM SNUG–TIGHT CONDITION

BOLT LENGTH**	TURN
UP TO AND INCLUDING 4 BOLT DIAMETERS	1/3
OVER 4 DIAMETERS AND NOT EXCEEDING 8 DIAMETERS OR 8 INCHES	1/2
EXCEEDING 8 DIAMETERS OR 8 INCHES	2/3

** BOLT LENGTH IS MEASURED FROM THE UNDERSIDE OF THE HEAD TO THE EXTREME END OF POINT

CWB CERTIFIED CSA A660 · ISO 9001:2008 QUASAR REGISTERED · CSSBI Canadian Sheet Steel Building Institute

ERECTION–GENERAL

STEELWAY IS NOT RESPONSIBLE FOR THE ERECTION OF THE STEEL BUILDING SYSTEM, THE SUPPLY OF ANY TOOLS OR EQUIPMENT, SUPERVISION FOR THE ERECTION OF THE STRUCTURE, OR ANY OTHER FIELD WORK. FIELD ERECTION OF A STEEL BUILDING, AS IN ALL CONSTRUCTION PROJECTS, INVOLVES HAZARDS TO PERSONS WITHIN THE AREA OF THE CONSTRUCTION AND RISK OF DAMAGE TO THE PROPERTY ITSELF. STEELWAY DOES FURNISH A GENERAL ERECTION MANUAL, HOWEVER FIELD ERECTION PROCEDURES CAN VARY BECAUSE OF MANY ITEMS INCLUDING LOCAL CONDITIONS, EQUIPMENT AVAILABILITY, THE TYPE OF BUILDING BEING ERECTED, AND THE EXPERTISE OF THE PARTICULAR ERECTOR. THE ERECTOR, BY ENTERING INTO A CONTRACT TO ERECT THE BUILDING, HOLDS ITSELF OUT AS SKILLED IN THE ERECTION OF STEEL BUILDING SYSTEMS, AND IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, PROVINCIAL, AND FEDERAL CONSTRUCTION AND SAFETY REGULATIONS AS WELL AS ANY APPLICABLE REQUIREMENTS OF MUNICIPAL, PROVINCIAL, FEDERAL, OR INTERNATIONAL UNION RULES OR PRACTICES. THE ERECTION DRAWINGS FURNISHED BY STEELWAY ARE NOT INTENDED TO SPECIFY ANY PARTICULAR METHOD OF ERECTION TO BE FOLLOWED BY THE ERECTOR. THE ERECTOR REMAINS SOLELY RESPONSIBLE FOR THE SAFETY AND APPROPRIATENESS OF ALL TECHNIQUES AND ALL METHODS UTILIZED BY ITS CREWS IN THE ERECTION OF THE STEEL BUILDING SYSTEM. THE ERECTOR IS ALSO RESPONSIBLE FOR SUPPLYING ANY SAFETY DEVICES SUCH AS FALL ARREST SYSTEMS, MAN–LIFTS, AND ANCHOR POINTS ETC., WHICH MAY BE REQUIRED TO SAFELY ERECT THE STEEL BUILDING SYSTEM. STEELWAY EXPRESSLY DISCLAIMS ANY RESPONSIBILITY FOR INJURY TO PERSONS IN THE COURSE OF ERECTION OR DAMAGE TO THE PRODUCT ITSELF. ONLY EXPERIENCED PERSONS WHO ARE SKILLED AND QUALIFIED IN THE ERECTION OF STEEL BUILDINGS SHOULD BE PERMITTED TO FIELD–ERECT A BUILDING DUE TO THE HAZARDS OF THIS CONSTRUCTION ACTIVITY. ALL ERECTION EQUIPMENT AND DETAILED ERECTING PROCEDURES WILL BE DETERMINED BY AN INDEPENDENT QUALIFIED PROFESSIONAL ENGINEER RETAINED BY THE BUILDER AS REQUIRED.

ERECTION TOLERANCES

ERECTION TOLERANCES ARE THOSE SET FORTH IN THE "DESIGN OF STEEL STRUCTURES" (CSA S16 LATEST EDITION).

TEMPORARY BRACING DURING CONSTRUCTION

THE ERECTOR SHALL FURNISH TEMPORARY GUYS AND BRACING WHERE NEEDED FOR SQUARING, PLUMBING, AND SECURING THE STRUCTURAL FRAMING AGAINST LOADS, SUCH AS WIND LOADS ACTING ON THE EXPOSED FRAMING, AS WELL AS LOADS DUE TO ERECTION EQUIPMENT AND OPERATION. THESE CONSTRUCTION LOADS CAN BE SIGNIFICANTLY HIGHER THAN LOADS WHICH WILL BE APPLIED ONCE THE BUILDING IS COMPLETELY ERECTED, AND ACCORDINGLY, BRACING FURNISHED BY STEELWAY FOR THE STEEL BUILDING SYSTEM CANNOT BE ASSUMED TO BE ADEQUATE DURING ERECTION. COLUMN BASEPLATES ARE TYPICALLY 'PIN' CONNECTIONS, AND IT IS THEREFORE EXTREMELY DANGEROUS TO LEAVE ANY COLUMN AS 'FREE STANDING' (NO LATERAL SUPPORT AT THE TOP) FOR ANY LENGTH OF TIME. SPECIAL CARE MUST BE TAKEN WHEN COLUMNS ARE GROUTED, AS THEY TEND TO BE UNSTABLE UNTIL THE GROUT IS IN PLACE. TEMPORARY SUPPORTS SUCH AS TEMPORARY GUYS, BRACING, FALSEWORK, CRIBBLING OR OTHER ELEMENTS REQUIRED FOR THE ERECTION OPERATION SHALL BE DETERMINED AND FURNISHED AND INSTALLED BY THE ERECTOR.

FABRICATION/DRAWING ERRORS

THE BUILDER/CUSTOMER IS RESPONSIBLE FOR CONTACTING STEELWAY'S PROJECT MANAGEMENT TEAM TO ADVISE STEELWAY OF FABRICATION/DRAWING PROBLEMS AND CORRESPONDING FIELD CORRECTION COST ESTIMATES. STEELWAY WILL THEN BE RESPONSIBLE FOR PROVIDING THE BUILDER WITH WRITTEN APPROVAL TO PROCEED WITH APPROPRIATE FIELD CORRECTIONS. THIS WILL BE DONE IN A TIMELY MANNER. NOTE: IF THE BUILDER PROCEEDS WITH CORRECTIVE WORK WITHOUT STEELWAY'S APPROVAL, THEY ARE DOING SO AT THEIR OWN RISK AND COST. STEELWAY WILL ONLY BE RESPONSIBLE FOR CLAIMS WHERE THE BUILDER/CUSTOMER DOCUMENTS THE PROBLEM, ITS CORRECTION, AND REASONABLE COSTS FOR REPAIR AND SUBMITS SAME FOR PAYMENT WITHIN 15 DAYS OF THE OCCURRENCE.

DRAWING DISCREPANCIES

IN CASE OF DISCREPANCIES BETWEEN STEELWAY'S DRAWINGS AND DETAILS VERSUS THE PLANS FOR OTHER TRADES, THE STEELWAY STEEL PLANS GOVERN (CISC CODE OF STANDARD PRACTICE).

CORRECTION OF ERRORS AND REPAIRS

THE CORRECTION OF MINOR MISALIGNMENTS BY THE USE OF DRIFTPINS TO DRAW THE COMPONENTS INTO LINE, SHIMMING, MODERATE AMOUNTS OF REAMING, CHIPPING, WELDING, OR CUTTING AND THE REPLACEMENT OF MINOR SHORTAGES OF MATERIAL ARE A NORMAL PART OF ERECTION AND ARE NOT SUBJECT TO CLAIM. (CISC CODE OF STANDARD PRACTICE 10th ed.)

FIELD WELDING

ALL FIELD WELDING SHALL BE DONE AT THE DIRECTION OF A DESIGN PROFESSIONAL, AND DONE IN ACCORDANCE WITH CWB REQUIREMENTS BY WELDERS QUALIFIED TO PERFORM THE APPLICABLE WELDING PROCEDURE. USE MINIMUM 70ksi ELECTRODES. FIELD INSPECTION IS NOT BY STEELWAY.

DELIVERIES AND SHORTAGES

(A) UNLESS OTHERWISE SPECIFIED, TERMS SHALL BE F.O.B. STEELWAY POINT OF MANUFACTURE. IF TRANSPORTATION CHARGES ARE INCORPORATED IN THE PRICE QUOTED, SUCH CHARGES ARE FREIGHT PREPAID UNLESS OTHERWISE SPECIFIED.
B) DELIVERY SHALL BE DEEMED TO OCCUR WHEN THE GOODS ARE SHIPPED FROM THE POINT OF MANUFACTURE.
C) STEELWAY IS AUTHORIZED TO SHIP IN INSTALLMENTS. IF FOR ANY REASON THE DELIVERY IS DELAYED BY THE PURCHASER, STORAGE OR DEMURRAGE COSTS WILL BE BORNE BY THE PURCHASER.
D) DELIVERY DATES ARE APPROXIMATE ONLY, AND ANY ESTIMATED DELIVERY SCHEDULE, IF STATED, SHALL BE DETERMINED FROM THE DATE STEELWAY RECEIVES COMPLETE AND SATISFACTORY INFORMATION NECESSARY TO MANUFACTURE THE GOODS. STEELWAY SHALL NOT, HOWEVER, BE LIABLE FOR ANY DELAY IN DELIVERY CAUSED BY CONDITIONS BEYOND STEELWAYS REASONABLE CONTROL. IN ADDITION, THERE MAY BE DELAYS IN DELIVERY OF GOODS NOT NORMALLY CARRIED BY STEELWAY. ANY SUCH CAUSES OF DELAY EVEN THOUGH EXISTING ON THE DATE OF ORDER OR ON THE DATE OF STARTING OF MANUFACTURE SHALL EXTEND THE TIME OF STEELWAY PERFORMANCE BY THE LENGTH OF DELAYS OCCASIONED THEREBY, INCLUDING DELAYS REASONABLY INCIDENT TO THE RESUMPTION OF NORMAL PROCEDURES.
E) UNDER NO CIRCUMSTANCES SHALL STEELWAY BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES WHATSOEVER.
F) STEELWAY WILL ENDEAVOR TO DELIVER THE GOODS ON THE REQUIRED DELIVERY DATE. THE STEELWAY TRUCK IS NOT CONSIDERED LATE IF DELIVERIES ARE WITHIN ONE HOUR OF THE SCHEDULED DELIVERY DATE. IF THE SHIPMENT IS BY CONTRACT CARRIER (FOB DESTINATION) IT IS THE RESPONSIBILITY OF THE CUSTOMER TO FILE CLAIMS WITH THE CARRIER. STEELWAY CANNOT ASSUME ANY LIABILITY FOR THE CLAIM.
G) IN THE EVENT THAT ANY SERVICES TO BE PERFORMED BY STEELWAY SHALL BE DELAYED BY MORE THAN THIRTY (30) DAYS ON ACCOUNT OF FACTORS BEYOND STEELWAY'S CONTROL, THEN UPON NOTICE FROM STEELWAY, PURCHASER SHALL PAY STEELWAY THE COST OF ALL WORK, SERVICES AND MATERIALS TO THE DATE OF SUCH NOTICE.
H) THE PURCHASER SHALL BE RESPONSIBLE TO INSPECT ALL GOODS RECEIVED PURSUANT HERETO. IF THE PURCHASER IS OF THE VIEW THAT PART OF THE GOODS ARE DAMAGED PREVENTING USE OF SAME, SUCH GOODS SHALL BE NOTED AS DAMAGED AND THE STEELWAY PROJECT MANAGEMENT TEAM SHALL BE NOTIFIED IMMEDIATELY TO DETERMINE WHAT RECTIFICATION IN STEELWAYS SOLE ABSOLUTE DISCRETION IS NECESSARY. STEELWAY SHALL NOT ACCEPT CLAIMS FOR DAMAGE AFTER LOADING AT THE STEELWAY PLANT OR CAUSED DURING TRANSIT, UNLOADING OR HANDLING AT THE JOBSITE. FURTHER, STEELWAY SHALL NOT ACCEPT CLAIMS FOR VISIBLE SHORTAGES UNLESS STEELWAY IS NOTIFIED, WITHIN 48 HOURS OF TAKING DELIVERY AND ONE COPY OF THE PACKING LIST, WITH SHORTAGES PROPERLY NOTED, IS RETURNED TO STEELWAY WITHIN THE SAID 48 HOURS. STEELWAY SHALL NOT ACCEPT CLAIMS FOR SHORTAGES THAT ARE NOT VISIBLE UNLESS STEELWAY IS NOTIFIED WITHIN FIFTEEN (15) DAYS OF TAKING DELIVERY AND ONE COPY OF THE PACKING LIST, WITH SHORTAGES PROPERLY NOTED, IS RETURNED TO STEELWAY WITHIN THE SAID FIFTEEN (15) DAYS. STEELWAY SHALL NOT BE RESPONSIBLE FOR ANY COST, EXPENSE, OR DAMAGE OF ANY KIND ARISING FROM THE USE OF DAMAGED OR OTHERWISE DEFECTIVE GOODS. STEELWAY WILL NOT ACCEPT THE COST OF EQUIPMENT (RENTAL OR DEPRECIATION), SMALL TOOLS, SUPERVISION, OVERHEAD OR PROFIT SUBJECT TO ANY CLAIM. ANY CLAIM MUST BE APPROVED BY THE STEELWAY PROJECT MANAGEMENT TEAM.

INVOICE PAYMENT

BY ACCEPTANCE OF THE MATERIALS OR SERVICES, THE BUILDER AND/OR CUSTOMER AGREES TO STEELWAY'S TERMS & CONDITIONS. AT NO TIME IS IT ACCEPTABLE TO DEDUCT A BACK CHARGE OR SHORTAGE FROM AN INVOICE. EACH CLAIM WILL BE ADJUDICATED ON ITS OWN MERIT AND SETTLED ACCORDINGLY.

MATERIAL SPECIFICATIONS

PART	MATERIAL	FINISH
WIDEFLANGE, ANGLE, CHANNEL	G40.21 350W, A529 GR50, A572 GR50, A992 GR50	GREY PRIMER
HSS	G40.21 350W CLASS C	GREY PRIMER
PLATE/FLATBAR	G40.21 380W, A653 SS GR55, A653 HSLAS GR55 CLASS 1 or 2	GREY PRIMER
WEB PLATE	G40.21 380W, A653 SS GR55, A653 HSLAS GR55 CLASS 1 or 2	GREY PRIMER
COLD FORMED ZEE & CEE	G40.21 380W, A653 SS GR55, A653 HSLAS GR55 CLASS 1 or 2 A1011 SS GR55, A101 HSLAS GR55 CLASS 1 or 2	GREY PRIMER
COLD FORMED NOTCHED ZEE & HAT/CHAIR STAND–OFF,PURLIN STABILIZER,FLANGE BRACE	G40.21 380W, A653 SS GR55, A653 HSLAS GR55 CLASS 1 or 2 A1011 SS GR55, A101 HSLAS GR55 CLASS 1 or 2	Z275(G90) PRE–GALV
ROD BRACING	G40.21 350W, A529 GR50, A572 GR50	GREY PRIMER
CABLE BRACING	A475 EHS 7 WIRE	CLASS A ZINC COATING
HIGH STRENGTH BOLTS <= 1"	A325 type 1, A490 type 1	PLAIN
HIGH STRENGTH BOLTS > 1"	A354, GRADE BD	PLAIN
SECONDARY STRUCTURAL MEMBER BOLTS	SAE J429, GRADE 8.2	JS500
ANCHOR RODS	G40.21 350W, A529 GR50, A572 GR50	PLAIN
EYE BOLTS	1030 CARBON STEEL	HOT DIP GALVANIZED
HILLSIDE/SLOPED WASHER	A47	GALVANIZED A153
BRACER HILLSIDE WASHER	A536 GR65	GREY ENAMEL
RTL PANEL	A792 SS GR50 CLASS 1 or 4	AZ50/AZM150 FOR PAINTED GALVALUME AZ55/AZM165 FOR BARE GALVALUME
STORMSEAL	A792 SS GR50 CLASS 1 or 4	SAME AS RTL
STRUCSEAL	A792 SS GR50 CLASS 1 or 4	SAME AS RTL
ROOF AND FLOOR DECK	A653 SS GR33, A653 HSLAS GR33, A792 SS GR33	ZF75/Z275 FOR A653,AZM150 FOR A792
VERSASEAL, DIAMOND SEAL	A792 SS GR33, A792 SS GR50 CLASS 1 or 4, A792 SS GR80 CLASS 1 or 2	SAME AS RTL
TECHLOC	A653 SS GR37, A653 HSLAS GR37	SAME AS RTL
LINERSEAL	A653 SS GR33, A653 HSLAS GR33	ZF75/Z275
PRIMER FOR PRIMARY STRUCTURAL	FAST DRY 4180/DEVGUARD 4180 GREY PRIMER	GREY, OTHER COLOURS UPON REQUEST
PRIMER FOR COLD FORMED	PROTECH HYBRID GREY POWDER PRIMER, HS522A731	GREY, OTHER COLOURS UPON REQUEST
TAPE CAULKING	TREMCO GENERAL PURPOSE AND PREFORMED BUTYL TAPE	OFF–WHITE TO GREY

COLD FORMED ZEE/CEE MEMBER SIZES

DESIGNATION EXAMPLES: 08Z16; where 08=section depth, Z=zee section, 16=16GA
10C12; where 10=section depth, C=cee section, 12=12GA

PART	DEPTH in(mm)	FLANGE WIDTH in(mm)	LIP LENGTH in(mm)	LIP ANGLE deg
06Z	6(152)	2.50(64)	0.95(24)	45
08Z	8(203)	2.80(71)	1.08(27)	45
09Z	09(229)	2.88(73)	1.08(27)	45
10Z	10(254)	3.02(77)	1.18(30)	45
12Z	12(305)	3.14(80)	1.18(30)	45
14Z	14(356)	3.14(80)	1.18(30)	45

PART	DEPTH in(mm)	FLANGE WIDTH in(mm)	LIP LENGTH in(mm)	LIP ANGLE deg
06C	6(152)	2.26(57)	0.94(24)	90
08C	8(203)	2.94(75)	0.94(24)	90
09C	09(229)	3.08(78)	0.94(24)	90
10C	10(254)	3.26(83)	0.94(24)	90
12C	12(305)	3.38(86)	0.94(24)	90
14C	14(356)	3.50(89)	0.94(24)	90

PART GAUGE	THICKNESS in(mm)
16	0.060(1.52)
14	0.075(1.90)
13	0.090(2.28)
12	0.105(2.66)
11	0.120(3.04)
10	0.135(3.42)

SHOP PRIMED STEEL

ALL STRUCTURAL MEMBERS OF THE STEEL BUILDING SYSTEM NOT FABRICATED OF CORROSION RESISTANT MATERIAL OR PROTECTED BY A CORROSION RESISTANT COATING ARE PAINTED WITH ONE COAT OF SHOP PRIMER MEETING THE PERFORMANCE REQUIREMENTS OF CISC/CPMA 2–75 (EXCLUDING CLAUSE 4.1.2). PRIOR TO PAINTING, ALL SURFACES TO RECEIVE SHOP PRIMER ARE CLEANED OF GREASE AND OILS USING SSPC CLEANING METHOD SP1, SP2 OR SP3 AS REQUIRED. THE COAT OF SHOP PRIMER IS INTENDED TO PROTECT THE STEEL FRAMING FOR ONLY A SHORT PERIOD OF EXPOSURE TO ORDINARY ATMOSPHERIC CONDITIONS. IT PROVIDES TEMPORARY PROTECTION AGAINST RUST DURING TRANSPORTATION AND WHILE THE BUILDING IS BEING ERECTED, NOT TO EXCEED 90 DAYS AS PER CISC CODE OF STANDARD PRACTICE. SHOP PRIMED STEEL WHICH IS STORED IN THE FIELD PENDING ERECTION SHOULD BE KEPT FREE FROM THE GROUND AND POSITIONED TO ELIMINATE WATER–HOLDING POCKETS, DUST, MUD, AND OTHER CONTAMINATION OF THE PRIMER FILM. PURLINS AND GIRTS SHOULD BE COVERED AND SLOPED TO ALLOW WATER TO DRAIN OFF. PRIMARY STEEL SHOULD BE COVERED AND SAFELY STACKED IN AN UPRIGHT POSITION. WATER THAT IS ALLOWED TO POND ON FLANGES OR WEBS CAN CAUSE THE PRIMER TO LIFT AND/OR FLAKE OFF THE STEEL OVER TIME. STEELWAY WILL NOT BE HELD RESPONSIBLE FOR PAINT DAMAGED BY PONDING WATER, FOREIGN MATERIAL, OR EXPOSURE TO ATMOSPHERIC/ ENVIRONMENTAL CONDITIONS, AS A RESULT OF IMPROPER FIELD STORAGE. FIELD–APPLIED COATINGS MAY NOT BE COMPATIBLE WITH STEELWAY PRIMER, AND ANY DAMAGE RESULTING FROM SUCH COATINGS IS NOT THE RESPONSIBILITY OF STEELWAY.

DAMAGE TO MATERIAL FINISHES

MINOR ABRASIONS TO THE PAINTED OR GALVANIZED FINISH, CAUSED BY HANDLING, LOADING, SHIPPING, UNLOADING, AND ERECTION, ARE UNAVOIDABLE, AND ARE NOT SUBJECT TO CLAIM. TOUCHUP OF THESE MINOR ABRASIONS IS THE RESPONSIBILITY OF THE ERECTOR AND/OR THE END CUSTOMER.

CLADDING PROFILES AND COLOURS

☐ ROOF CLADDING STORM–SEAL
☐ COLOUR GALVALUME
☐ DIRECTION NARROW RIB OUT
☐ ROOF LINER
☐ COLOUR
☐ DIRECTION

☐ EXT ROOF RIDGE TRIM COLOUR GALVALUME
☒ EXT ROOF GABLE TRIM COLOUR
☒ EXT ROOF EAVE TRIM COLOUR
☐ STANDARD GUTTER COLOUR
☐ EXT ROOF OPENING TRIM COLOUR
☐ EXT HIP/VALLEY TRIM COLOUR
☐ DOWNSPOUT COLOUR
☐ INT ROOF RIDGE TRIM COLOUR
☐ INT ROOF EAVE TRIM COLOUR
☐ INT ROOF GABLE TRIM COLOUR
☐ INT ROOF OPENING TRIM COLOUR
☐ INT HIP/VALLEY TRIM COLOUR
☐ PARAPET COLOUR
☐ PARAPET TRIM COLOUR

☐ WALL CLADDING STRUC–SEAL
☐ COLOUR QC8250 DARK RED
☐ DIRECTION WIDE RIB OUT
☐ WALL LINER
☐ COLOUR
☐ DIRECTION

☒ EXT WALL BASE TRIM COLOUR
☒ EXT WALL OPENING TRIM COLOUR
☒ EXT WALL CORNER TRIM COLOUR
☐ TRANSITION TRIM COLOUR
☐ INT WALL BASE TRIM COLOUR
☐ INT WALL OPENING TRIM COLOUR
☐ INT WALL CORNER TRIM COLOUR
☐ EDGE TRIM COLOUR
☐ ACCENT BAND COLOUR
☐ RIDGE END CAP COLOUR
☐ SOFFIT COLOUR

PLEASE CONFIRM INFORMATION SHOWN AND PROVIDE INFO WHERE MARKED WITH ☒
REFER TO COLOUR CHART AT http://www.steelway.com/content/sell–sheets
EXTRA CHARGES MAY APPLY FOR SELECTIONS OTHER THAN STEELWAY STANDARD COLOURS.

DRAWING SCHEDULE

DWG#	DRAWING NAME
–G1	GENERAL INFORMATION SHEET
–R1	REACTIONS
–R2	REACTIONS
–R3	REACTIONS
–R4	REACTIONS
–S1	ANCHOR BOLT PLAN & DETAILS
–S2	ROOF FRAMING PLAN
–S3	FRAME CROSS SECTION
–S4	FRAME CROSS SECTION
–S5	FRAME CROSS SECTION
–S6	ENDWALL FRAMING LINES 1 & 9
–S7	SIDEWALL FRAMING LINES A & I

APPROVAL REQUIRED

THIS DRAWING REPRESENTS STEELWAY'S INTERPRETATION OF THE CONTRACT REQUIREMENTS FOR THIS PROJECT. PLEASE PERFORM A THOROUGH REVIEW OF ALL ITEMS SHOWN. APPROVAL OF THIS DRAWING CONSTITUTES ACCEPTANCE OF OUR INTERPRETATION. SEE "PRELIMINARY DRAWINGS" ON PAGE G1 FOR MORE INFORMATION ON OUR APPROVAL PROCESS.

☐ APPROVED FOR FABRICATION – NO CHANGES
☐ APPROVED FOR FABRICATION AS NOTED
NO FURTHER APPROVAL REQUIRED
☐ REVISE AND RESUBMIT

THE BUILDING ORDER'S DELIVERY SCHEDULE WILL BE DETERMINED ONCE FINAL APPROVALS ARE RETURNED TO STEELWAY WITH NO FURTHER CHANGES.

BY_____ DATE: _____

Rev.	Date	By	Description
0	11/21/2017	JDC	ISSUED FOR INFORMATION

CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
GENERAL INFORMATION SHEET

DRAWING No.
75285–G1

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau–Brunswick

STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

GENERAL NOTES

1. INFORMATION ON THIS DRAWING IS INTENDED FOR CONSTRUCTION ONLY WHEN BEARING A STEELWAY ENGINEERS SIGNED PROFESSIONAL SEAL AND WHEN FREE OF ANY NOTATIONS STATING OTHERWISE.
2. FOUNDATION DESIGN AND CONSTRUCTION IS NOT THE RESPONSIBILITY OF STEELWAY BUILDING SYSTEMS.
3. THE EMBEDMENT OF THE ANCHOR BOLTS IN THE CONCRETE IS THE RESPONSIBILITY OF THE FOUNDATION DESIGNER. THE FRAME REACTIONS LISTED ARE THE MINIMUM LOADS TO BE DEVELOPED.
4. THE BUILDING REACTION DATA REPORTS THE LOADS WHICH THIS BUILDING PLACES ON THE FOUNDATIONS.
5. THE ENDWALL WIND LOAD REACTIONS INCLUDE REACTIONS FROM ENDWALL BRACING.
6. COLUMN BASE PLATES ARE DESIGNED ASSUMING A MINIMUM SPECIFIED COMPRESSIVE STRENGTH (fc') OF CONCRETE OF 2,900 P.S.I. (20 MPA) AT 28 DAYS.
7. ANCHOR BOLT DIAMETER, QUANTITY AND PLACEMENT SHOULD BE AS SHOWN.
8. ALL ANCHOR BOLTS ARE TO BE ASTM A307 OR EQUAL.
9. ALL REACTIONS ARE IN KIPS OR KIP–FEET.
10. MAXIMUM RIGID FRAME REACTIONS INCLUDE WIND AND SEISMIC REACTIONS FROM SIDEWALL BRACING.
11. SEISMIC REACTIONS HAVE NOT BEEN AMPLIFIED BY Rd, Ro

BASIC LOAD DEFINITIONS FOR RIGID FRAMES

DEAD – SELFWEIGHT OF THE BUILDING SYSTEM.
COLLATERAL – MECHANICAL, ELECTRICAL, CEILINGS, SPRINKLERS, ETC.
ROOF_LIVE – MINIMUM ROOF LIVE LOAD (NOT COMBINED WITH SNOW LOAD).
FLOOR_LIVE – LOADS INDUCED DUE TO INTENDED USE AND OCCUPANCY.
CRANE – LOADS INDUCED FROM CRANES IN BUILDING.
SNOW – GRAVITY LOADS DUE TO SNOW.
WIND_LEFT1 – WIND FROM LEFT TO RIGHT COMBINED WITH POSITIVE INTERNAL PRESSURE.
WIND_RIGHT1 – WIND FROM RIGHT TO LEFT COMBINED WITH POSITIVE INTERNAL PRESSURE.
WIND_LEFT2 – WIND FROM LEFT TO RIGHT COMBINED WITH NEGATIVE INTERNAL PRESSURE.
WIND_RIGHT2 – WIND FROM RIGHT TO LEFT COMBINED WITH NEGATIVE INTERNAL PRESSURE.
WIND_LONG1 – WIND NORMAL TO THE RIGID FRAME COMBINED WITH POSITIVE INTERNAL PRESSURE.
WIND_LONG2 – WIND DIRECTION REVERSED FROM LNWIND_1 COMBINED WITH POSITIVE INTERNAL PRESSURE.
SEISMIC_LEFT – SEISMIC FORCE IN DIRECTION FROM LEFT TO RIGHT.
SEISMIC_RIGHT – SEISMIC FORCE IN DIRECTION FROM RIGHT TO LEFT.
SEISMIC_LONG – SEISMIC FORCE NORMAL TO THE RIGID FRAME.
FIUNB_SL_L – GRAVITY LOADS DUE TO PATTERNED SNOW LOAD FOR RAFTER DESIGN.
FIUNB_SL_R – GRAVITY LOADS DUE TO PATTERNED SNOW LOAD FOR RAFTER DESIGN.
FIPAT_SL – GRAVITY LOADS DUE TO UNBALANCED SNOW LOAD.

BASIC LOAD DEFINITIONS FOR ENDWALL FRAMES

DEAD – SELFWEIGHT OF THE BUILDING SYSTEM.
COLLATERAL – MECHANICAL, ELECTRICAL, CEILINGS, SPRINKLERS, ETC.
ROOF_LIVE – MINIMUM ROOF LIVE LOAD (NOT COMBINED WITH SNOW LOAD).
FLOOR_LIVE – LOADS INDUCED DUE TO INTENDED USE AND OCCUPANCY.
CRANE – LOADS INDUCED FROM CRANES IN BUILDING.
SNOW – GRAVITY LOADS DUE TO SNOW.
WIND_LEFT1 – WIND FROM LEFT TO RIGHT COMBINED WITH POSITIVE INTERNAL PRESSURE (RAFTER).
WIND_RIGHT1 – WIND FROM RIGHT TO LEFT COMBINED WITH POSITIVE INTERNAL PRESSURE (RAFTER).
WIND_LEFT2 – WIND FROM LEFT TO RIGHT COMBINED WITH POSITIVE INTERNAL PRESSURE (WITH BRACING).
WIND_RIGHT2 – WIND FROM RIGHT TO LEFT COMBINED WITH POSITIVE INTERNAL PRESSURE (WITH BRACING).
WIND_P – WIND PRESSURE (NORMAL (INWARD) TO ENDWALL).
WIND_S – WIND SUCTION (NORMAL (OUTWARD) TO ENDWALL).
WIND_LONG1 – WIND NORMAL TO THE RIGID FRAME COMBINED WITH POSITIVE INTERNAL PRESSURE.
WIND_LONG2 – WIND DIRECTION REVERSED FROM LNWIND_1 COMBINED WITH POSITIVE INTERNAL PRESSURE.
SEISMIC_LEFT – SEISMIC FORCE IN DIRECTION FROM LEFT TO RIGHT.
SEISMIC_RIGHT – SEISMIC FORCE IN DIRECTION FROM RIGHT TO LEFT.
SEISMIC_LONG – SEISMIC FORCE NORMAL TO THE RIGID FRAME.
FIUNB_SL_L – GRAVITY LOADS DUE TO PATTERNED SNOW LOAD FOR RAFTER DESIGN.
FIUNB_SL_R – GRAVITY LOADS DUE TO PATTERNED SNOW LOAD FOR RAFTER DESIGN.
FIPAT_SL – GRAVITY LOADS DUE TO UNBALANCED SNOW LOAD.

DESIGN PARAMETERS:

1. A. CLIMATIC DESIGN DATA BASED ON THE FOLLOWING

Design Code		= NBC 10 (NBC 10)
Province		= New Brunswick
Location*		= Shippagan
Snow Load	Ss (1/50)	= 71.06 psf
Rain Load	Sr (1/50)	= 12.54 psf
Wind Pressure	q (1/50)	= 13.17 psf
Seismic Data:	Sa(0.2)	= 0.290
	Sa(0.5)	= 0.180
	Sa(1.0)	= 0.090
	Sa(2.0)	= 0.031
	PGA	= 0.170

*Actual Site Location May Differ.

B. Building Importance Category = II – Normal

C. SEISMIC INFORMATION

Importance Seismic	Ie	= 1.00
Structural Configuration		= Regular
Fundamental Lateral Period	Ta	= 0.4244 seconds (Moment Frames)
Fundamental Lateral Period	Ta	= 0.2134 seconds (Braced Frames)
Site Class		= D
Acceleration Coefficient	Fa	= 1.28
Velocity Coefficient	Fv	= 1.40
Seismic Hazard Index		= 0.372
Design Method		= Equivalent Static Force Method
SFRS		= Conventional Steel Moment Frames, Conventional Steel Braced Frames
	Rd	= 1.5
	Ro	= 1.3
Restrictions		= None

Steelway Building Systems confirms that the seismic force resisting system, diaphragms, and all connections within the SFRS have been designed in accordance with the 2010 National Building Code, Part 4, Clause 4.1.8 and CSA S16–09, Clause 27.11 for Conventional Construction.

D. ROOF

Roof Dead Load		= 4.0 psf (Excluding Self–Weight of Rigid Frames)
Collateral Load		= 4 psf
Roof Live Load		= 20.90 psf
Importance Snow (ULS)	Is	= 1.00
Importance Snow (SLS)	Is	= 0.9
Exposure Factor	Cw	= 1.00
Slope Factor	Cs	= 1.00
Basic Roof Snow Load Factor	Cb	= 0.80
Shape Factor	Ca	= 1.00
Specified Roof Snow Load	S	= Is[Ss(CbCwCsCa)+Sr]
	S	= 69.39 psf

E. WIND

Importance Wind (ULS)	Iw	= 1.00
Importance Wind (SLS)	Iw	= 0.75
Internal Pressure Category		= 2
Exposure		= O

R – Rough Terrain >= 1.0km,
R1 – 0.75km rough
R2 – 0.50km rough
R3 – 0.25km rough
O – Open terrain

2. Positive reactions are as shown in the sketch. Foundation loads are in opposite directions.
3. Bracing reactions are in the plane of the brace with the H pointing away from the braced bay. The vertical reaction is downward.
4. All load combinations are examined and only maximum/minmum H or V and the corresponding H or V are reported.
   Governing load combinations are:
   1 1.4Dead+1.4Collateral
   2 1.25Dead+1.25Collateral+Snow/2+1.5Floor_Live
   3 1.25Dead+1.25Collateral+1.5Snow
   4 1.25Dead+1.25Collateral+1.5Snow+Floor_Live/2
   5 1.25Dead+1.25Collateral+1.5Snow+0.4Wind_Right2
   6 0.9Dead+1.4Wind_Left1
   7 0.9Dead+1.4Wind_Right1
   8 0.9Dead+1.4Wind_Left2
   9 0.9Dead+1.4Wind_Right2
   10 0.9Dead+1.4Wind_Long1
   11 0.9Dead+1.4Wind_Long2
   12 1.25Dead+1.25Collateral+Snow/2+1.4Wind_Left1
   13 1.25Dead+1.25Collateral+Snow/2+1.4Wind_Right1
   14 Dead+Seismic_Left
   15 Dead+Seismic_Right
   16 Dead+Seismic_Long
   17 Dead+Collateral+0.25Snow+Seismic_Left+Floor_Live/2
   18 Dead+Collateral+0.25Snow+Seismic_Right+Floor_Live/2
   19 1.25Dead+1.25Collateral+0.75Snow+1.5F1PAT_SL_5
   20 1.25Dead+1.25Collateral+0.75Snow+1.5F1PAT_SL_7
   21 1.25Dead+1.25Collateral+1.5F3UNB_SL_R
   22 1.25Dead+1.25Collateral+0.75Snow+1.5F3PAT_SL_5
   23 1.25Dead+1.25Collateral+0.75Snow+1.5F3PAT_SL_6
   24 0.9Dead+1.4Wind_Suction+1.4Wind_Long2
   25 0.9Dead+1.4Wind_Pressure+1.4Wind_Long2
   26 0.9Dead+1.4Wind_Left2+1.4Wind_Suction
   27 0.9Dead+1.4Wind_Left2+1.4Wind_Pressure
   28 1.25Dead+1.25Collateral+1.5E1UNB_SL_L
   29 0.9Dead+1.4Wind_Right2+1.4Wind_Suction
   30 0.9Dead+1.4Wind_Right2+1.4Wind_Pressure
   31 1.25Dead+1.25Collateral+1.5E1UNB_SL_R
   32 0.9Dead+Snow/2+1.4Wind_Left2+1.4Wind_Suction
   33 0.9Dead+Snow/2+1.4Wind_Right2+1.4Wind_Pressure
   34 1.25Dead+1.25Collateral+0.4Wind_Pressure+0.4Wind_Long2+1.5Floor_Live

5. MEZZANINE LOADING FLOOR 1 & 2

DEAD LOAD	= 50 psf
LIVE LOAD	= 100.25 psf
PARTITION LOAD	= 20 psf
USED FOR STORAGE	= NO

FLOOR CONSTRUCTION:
4" POURED CONCRETE
22 Ga. COMPOSITE DECK
O.W.S.J. AND SUPPORT BEAMS

6. MEZZANINE GRAVITY & SEISMIC LOADS ARE INCLUDED IN REACTIONS & COLUMNS CAPACITY. FUTURE MEZZANINE SEISMIC LATERAL BRACINGS ARE NOT INCLUDED.
7. ALL COLUMNS ARE ASSUMED TO BE BRACED IN BOTH DIRECTIONS WITH FUTURE MEZZANINE BEAM & JOIST. TIE JOIST ARE ASSUMED TO BRACE ALL INTERIOR COLUMNS.
8. ALL MEZZANINE JOIST ARE ASSUMED TO SPAN 40'–0" ALONG BUILDING WIDTH. ALL MEZZANINE BEAMS TO SPAN 25'–0" ALONG BUILDING LENGTH.

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CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
ANCHOR BOLT REACTIONS

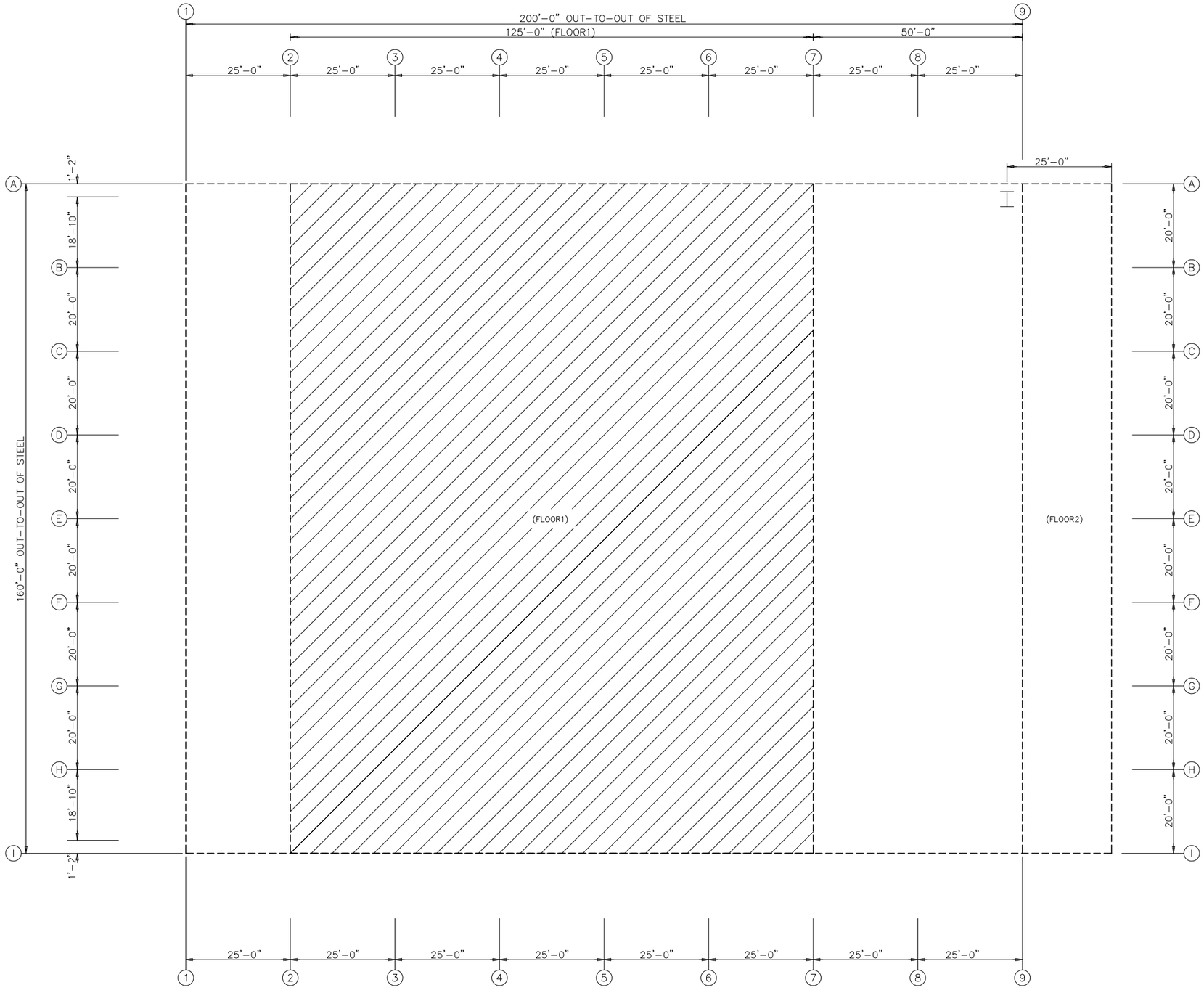
DRAWING No.
75285–R1

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com



FLOOR KEY PLAN

FLOOR HEIGHT = 16'-0"

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ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
FLOOR KEY PLAN

DRAWING No.
75285-R2

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
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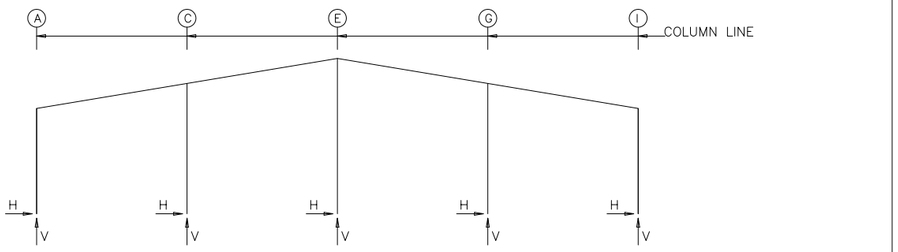
FRAME LINES: 2 3 4 5 6 7 8 9



ENDWALL COLUMN: BASIC COLUMN REACTIONS (UNFACTORED) (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
1	A	1.1	0.4	2.2	7.3	0.0	−3.5	0.0	−3.0	0.0	−3.5	0.0	−3.0	−2.8
1	B	2.2	1.2	6.0	20.1	1.7	−13.2	0.0	−3.3	1.7	−13.2	0.0	−3.3	−6.1
1	C	2.1	1.0	5.3	17.6	0.0	−5.6	1.4	−8.2	0.0	−5.6	1.4	−8.2	−6.9
1	D	2.2	1.1	5.5	18.2	0.0	−9.5	0.0	−5.8	0.0	−9.5	0.0	−5.8	−7.7
1	E	2.3	1.1	5.4	18.0	0.0	−7.1	0.0	−7.1	0.0	−7.1	0.0	−7.1	−8.4
1	F	2.2	1.1	5.5	18.2	0.0	−5.8	0.0	−9.5	0.0	−5.8	0.0	−9.5	−7.7
1	G	2.1	1.0	5.3	17.7	1.7	−8.9	0.0	−6.2	1.7	−8.9	0.0	−6.2	−6.9
1	H	2.1	1.2	5.9	19.6	0.0	−2.3	1.4	−12.3	0.0	−2.3	1.4	−12.3	−6.1
1	I	1.6	0.4	3.1	10.3	0.0	−5.4	0.0	−5.8	0.0	−5.4	0.0	−5.8	−2.8

Frm Line	Col Line	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	E1UNB_SL_L Horz	E1UNB_SL_L Vert	E1UNB_SL_R Horz	E1UNB_SL_R Vert
1	A	2.0	−3.7	−3.7	0.0	0.1	0.0	−0.1	0.0	7.3	0.0	3.7
1	B	4.2	−10.3	−10.3	4.4	−7.1	0.0	7.8	0.0	20.2	0.1	9.9
1	C	4.8	−9.0	−9.0	0.0	6.7	4.4	−7.5	0.1	17.3	0.0	9.0
1	D	5.3	−9.3	−9.3	0.0	0.2	0.0	−0.2	0.0	18.8	0.0	8.5
1	E	5.8	−7.2	−7.2	0.0	0.2	0.0	0.2	0.0	13.5	0.0	13.5
1	F	5.3	−9.3	−9.3	0.0	−0.2	0.0	0.2	0.0	8.5	0.0	18.8
1	G	4.8	−9.0	−9.0	4.4	−7.5	0.0	6.7	0.0	9.0	0.1	17.3
1	H	4.2	−10.3	−10.3	0.0	7.8	4.4	−7.1	0.1	9.9	0.0	20.2
1	I	2.0	−3.7	−3.7	0.0	−0.1	0.0	0.1	0.0	3.7	0.0	7.3

Frm Line	Col Line	Dead Vert	Floor Live Vert	Wind Press Horz	Wind Suct Horz
9	H	18.9	26.1	−6.0	4.2
9	G	1.6	0.0	−6.6	4.6
9	F	19.1	26.1	−7.6	5.3
9	E	2.1	0.0	−8.0	5.6
9	D	19.1	26.1	−7.6	5.3
9	C	1.6	0.0	−6.6	4.6
9	B	18.9	26.1	−6.0	4.2

ENDWALL COLUMN: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
1	A	24	2.8	−4.2	25	−4.0	−4.2
		3	0.0	12.9			
1	B	26	5.9	−16.5	27	−8.5	−16.5
		28	0.0	34.5			
1	C	24	6.7	−10.7	25	−9.7	−10.7
		3	0.0	30.2			
1	D	26	7.5	−11.4	27	−10.7	−11.4
		28	0.0	32.3			
1	E	24	8.2	−8.1	25	−11.7	−8.1
		3	0.0	31.1			
1	F	29	7.5	−11.4	30	−10.7	−11.4
		31	0.0	32.3			
1	G	24	6.7	−10.7	25	−9.7	−10.7
		3	0.0	30.4			
1	H	29	5.9	−15.2	30	−8.5	−15.2
		31	0.0	34.4			
1	I	29	2.8	−6.8	30	−4.0	−6.8
		3	0.0	17.9			
9	H	32	5.8	17.0	33	−8.4	17.0
		34	−2.4	62.8			
9	G	32	6.4	1.4	33	−9.3	1.4
		1	0.0	2.2			
9	F	32	7.4	17.2	33	−10.6	17.2
		34	−3.0	63.0			
9	E	32	7.8	1.9	33	−11.2	1.9
		1	0.0	3.0			
9	D	32	7.4	17.2	33	−10.6	17.2
		34	−3.0	63.0			
9	C	32	6.4	1.4	33	−9.3	1.4
		1	0.0	2.2			
9	B	32	5.8	17.0	33	−8.4	17.0
		34	−2.4	62.8			

RIGID FRAME: BASIC COLUMN REACTIONS (UNFACTORED) (k)

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Floor Horiz	Floor Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert
2*	A	−0.5	27.1	0.1	2.1	0.3	10.7	−0.9	30.5	1.1	35.4	−4.6	−14.7
2*	I	0.5	27.5	−0.1	2.4	−0.3	12.4	0.9	30.5	−1.1	41.2	−5.6	−12.7
2*	C	0.0	51.3	0.0	4.1	0.0	21.1	0.0	59.2	0.1	70.2	−0.2	−25.1
2*	E	0.0	52.6	0.0	3.9	0.0	20.1	0.0	60.8	0.0	66.6	−0.4	−18.4
2*	G	0.0	51.2	0.0	4.1	0.0	20.9	0.0	59.2	0.0	69.5	−0.1	−20.0

Frame Line	Column Line	Wind_Right1 Horiz	Wind_Right1 Vert	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert
2*	A	5.0	−8.8	−7.3	−3.4	2.3	2.6	3.8	−24.7	1.3	−24.3	−23.9	−14.0
2*	I	4.0	−18.7	−2.9	−1.4	6.7	−7.4	−1.3	−24.3	−3.8	−24.7	−23.9	14.0
2*	C	0.1	−19.9	−0.2	−4.3	0.1	0.9	0.0	−28.7	0.0	−15.6	−0.9	16.5
2*	E	0.3	−18.4	−0.4	−2.7	0.3	−2.7	0.1	−16.9	−0.1	−16.9	−2.5	0.0
2*	G	0.2	−25.2	−0.1	0.7	0.1	−4.4	0.0	−15.6	0.0	−28.7	−0.9	−16.5

Frame Line	Column Line	Seismic_Right Horiz	Seismic_Right Vert	Seismic_Long Horiz	Seismic_Long Vert	F1PAT_SL_1 Horiz	F1PAT_SL_1 Vert	F1PAT_SL_2 Horiz	F1PAT_SL_2 Vert	F1PAT_SL_3 Horiz	F1PAT_SL_3 Vert	F1PAT_SL_4 Horiz	F1PAT_SL_4 Vert
2*	A	23.9	14.0	0.6	−49.8	0.3	15.2	−0.4	−3.1	0.2	2.6	0.7	2.2
2*	I	23.9	−14.0	−0.6	−50.3	−0.2	2.6	0.5	0.5	−0.3	15.2	−0.7	18.4
2*	C	0.9	−16.5	0.0	−28.4	0.0	39.7	−0.2	20.6	0.0	−4.7	−0.1	−1.2
2*	E	2.5	0.0	0.0	−28.9	0.1	16.6	0.3	20.2	−0.1	16.6	0.2	−3.6
2*	G	0.9	16.5	0.0	−28.4	0.0	−4.7	−0.1	−3.5	0.0	39.7	−0.2	19.0

Frame Line	Column Line	F1PAT_SL_5 Horiz	F1PAT_SL_5 Vert	F1PAT_SL_6 Horiz	F1PAT_SL_6 Vert	F1PAT_SL_7 Horiz	F1PAT_SL_7 Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
2*	A	−0.1	12.1	−0.1	−0.5	1.0	4.8	0.9	33.1	0.8	20.5
2*	I	0.2	3.1	0.2	15.7	−1.0	33.6	−0.8	20.5	−0.9	33.1
2*	C	−0.2	60.3	−0.2	15.9	−0.1	−6.0	0.1	74.7	0.0	30.2
2*	E	0.4	36.9	0.2	36.9	0.1	13.0	0.1	49.9	−0.1	49.9
2*	G	−0.1	−8.2	−0.1	36.2	−0.3	58.7	0.0	30.2	−0.1	74.7

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Floor Horiz	Floor Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert
3*	A	−1.2	41.5	0.4	2.0	1.9	10.3	−2.5	51.3	6.3	34.3	−5.5	−14.7
3*	I	1.2	41.7	−0.4	2.2	−1.9	11.2	2.5	51.3	−6.3	37.2	−5.2	−10.8
3*	C	0.0	78.3	0.0	4.1	0.0	21.0	0.0	98.5	0.0	69.8	0.0	−24.9
3*	E	0.0	80.9	0.0	4.1	0.0	20.9	0.0	101.4	0.0	69.4	0.0	−18.9
3*	G	0.0	78.3	0.0	4.1	0.0	20.9	0.0	98.5	0.0	69.5	0.0	−19.7

Frame Line	Column Line	Wind_Right1 Horiz	Wind_Right1 Vert	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert
3*	A	4.8	−8.8	−8.9	−2.6	1.4	3.2	4.5	−25.4	1.8	−24.9	−28.5	−20.8
3*	I	5.1	−16.7	−1.7	1.2	8.6	−4.6	−1.8	−24.9	−4.5	−25.4	−28.5	20.8
3*	C	0.0	−19.6	0.0	−4.7	0.0	0.5	0.0	−27.9	0.0	−15.2	−8.1	23.7
3*	E	0.0	−18.9	0.0	−3.3	0.0	−3.3	0.0	−16.9	0.0	−16.9	−9.6	0.0
3*	G	0.0	−24.9	0.0	0.5	0.0	−4.8	0.0	−15.2	0.0	−27.9	−8.1	−23.7

Frame Line	Column Line	Seismic_Right Horiz	Seismic_Right Vert	Seismic_Long Horiz	Seismic_Long Vert	F2PAT_SL_1 Horiz	F2PAT_SL_1 Vert	F2PAT_SL_2 Horiz	F2PAT_SL_2 Vert	F2PAT_SL_3 Horiz	F2PAT_SL_3 Vert	F2PAT_SL_4 Horiz	F2PAT_SL_4 Vert
3*	A	28.5	20.8	0.7	−49.9	1.7	15.1	−0.4	−2.9	1.5	2.1	2.0	1.7
3*	I	28.5	−20.8	−0.7	−50.4	−1.5	2.1	0.6	0.4	−1.7	15.1	−2.1	18.0
3*	C	8.1	−23.7	0.0	−28.3	0.0	39.2	0.0	20.2	0.0	−4.4	0.0	−1.1
3*	E	9.6	0.0	0.0	−28.8	0.0	17.4	0.0	20.3	0.0	17.4	0.0	−2.9
3*	G	8.1	23.7	0.0	−28.3	0.0	−4.4	0.0	−3.2	0.0	39.2	0.0	19.0

Frame Line	Column Line	F2PAT_SL_5 Horiz	F2PAT_SL_5 Vert	F2PAT_SL_6 Horiz	F2PAT_SL_6 Vert	F2PAT_SL_7 Horiz	F2PAT_SL_7 Vert	F2UNB_SL_L Horiz	F2UNB_SL_L Vert	F2UNB_SL_R Horiz	F2UNB_SL_R Vert
3*	A	1.3	12.3	1.0	−0.8	3.5	3.8	4.9	32.3	4.7	19.3
3*	I	−0.9	2.5	−1.2	15.5	−3.9	33.1	−4.7	19.3	−4.9	32.3
3*	C	0.0	59.4	0.0	15.8	0.0	−5.5	0.0	74.1	0.0	30.5
3*	E	0.0	37.6	0.0	37.6	0.0	14.5	0.0	52.1	0.0	52.1
3*	G	0.0	−7.6	0.0	36.0	0.0	58.2	0.0	30.5	0.0	74.1

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
8	A	0.4	3.3	0.3	1.9	1.3	9.6	4.4	31.8	−5.1	−14.2	5.2	−8.2
8	I	−0.4	3.7	−0.3	2.2	−1.3	11.3	−4.4	37.5	−5.9	−12.2	4.4	−18.1
8	C	0.0	7.6	0.0	4.3	0.0	21.9	0.0	72.7	0.0	−25.2	0.0	−20.3
8	E	0.0	7.8	0.0	4.0	0.0	20.7	0.0	68.6	0.0	−18.8	0.0	−18.8
8	G	0.0	7.6	0.0	4.2	0.0	21.7	0.0	72.1	0.0	−20.5	0.0	−25.5

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
8	A	−8.9	−2.6	1.4	3.4	4.9	−12.4	2.2	−12.0	−7.5	−6.0	7.5	6.0
8	I	−2.1	−0.5	8.2	−6.5	−2.2	−12.0	−4.9	−12.4	−7.5	6.0	7.5	−6.0
8	C	0.0	−4.8	0.0	0.1	0.0	−28.4	0.0	−15.4	0.0	7.3	0.0	−7.3
8	E	0.0	−3.0	0.0	−3.0	0.0	−17.1	0.0	−17.1	0.0	0.0	0.0	0.0
8	G	0.0	−0.1	0.0	−5.0	0.0	−15.4	0.0	−28.4	0.0	−7.3	0.0	7.3

Frame Line	Column Line	F3PAT_SL_1 Horiz	F3PAT_SL_1 Vert	F3PAT_SL_2 Horiz	F3PAT_SL_2 Vert	F3PAT_SL_3 Horiz	F3PAT_SL_3 Vert	F3PAT_SL_4 Horiz	F3PAT_SL_4 Vert	F3PAT_SL_5 Horiz	F3PAT_SL_5 Vert	F3PAT_SL_6 Horiz	F3PAT_SL_6 Vert
8	A	1.5	16.5	−0.3	−2.0	−0.4	0.4	1.4	1.2	1.2	14.5	−0.6	−1.6
8	I	−1.4	1.2	0.4	0.4	0.3	−2.0	−1.5	16.5	−1.0	1.5	0.6	−1.6
8	C	0.0	21.6	0.0	18.4	0.0	−3.4	0.0	−0.3	0.0	40.0	0.0	15.0
8	E	0.0	−4.2	0.0	21.3	0.0	21.3	0.0	−4.2	0.0	17.1	0.0	42.6
8	G	0.0	−0.3	0.0	−3.4	0.0	18.4	0.0	21.6	0.0	−3.7	0.0	15.0

Frame Line	Column Line	F3PAT_SL_7 Horiz	F3PAT_SL_7 Vert	F3UNB_SL_L Horiz	F3UNB_SL_L Vert	F3UNB_SL_R Horiz	F3UNB_SL_R Vert
8	A	1.0	1.5	3.5	30.4	3.3	17.5
8	I	−1.2	14.5	−3.3	17.5	−3.5	30.4
8	C	0.0	−3.7	0.0	76.3	0.0	32.6
8	E	0.0	17.1	0.0	51.4	0.0	51.4
8	G	0.0	40.0	0.0	32.6	0.0	76.3

2* Frame lines: 2 7 9
3* Frame lines: 3 4 5 6

BUILDING BRACING REACTIONS (UNFACTORED)

Wall Loc	Wall Line	Col Line	± Reactions (k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Note
L_EW	1	B,C	1.7	2.9	4.4	7.3	
		G,H	1.7	2.9	4.4	7.3	
F_SW	I	3,4	12.7	12.5	81.0	51.5	
		6,7	12.7	12.5	81.0	51.5	
R_EW	9						(h)
B_SW	A	7,6	12.7	12.5	81.0	51.5	
		4,3	12.7	12.5	81.0	51.5	

(h)Rigid frame at endwall

RIGID FRAME: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
2*	A	15	23.4	41.2	17	−24.6	39.2
		4	0.6	104.8	16	0.1	−22.7
2*	I	18	24.6	41.4	14	−23.4	41.6
		20	−1.7	118.7	16	−0.1	−22.8
2*	C	18	1.0	86.0	14	−0.9	67.8
		19	−0.2	212.4			
2*	E	15	2.5	52.6	17	−2.5	103.5
		4	0.0	200.9			
2*	G	15	0.9	67.7	17	−0.9	85.8
		20	−0.5	209.3			
2*	Frame lines: 2 7 9						

RIGID FRAME: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
3*	A	18	27.9	98.5	14	−29.7	20.6
		2	−1.7	148.4	16	−0.6	−8.4
3*	I	15	29.7	20.8	17	−27.9	99.6
		2	1.7	150.4	16	0.6	−8.7
3*	C	18	8.1	125.4	14	−8.1	102.0
		2	0.0	285.7			
3*	E	18	9.6	153.0	14	−9.6	80.9
		2	0.0	293.0			
3*	G	18	8.1	172.7	14	−8.1	54.6
		2	0.0	285.4			
3*	Frame lines: 3 4 5 6						

RIGID FRAME: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
8	A	13	10.2	10.8	8	−12.1	−0.6
		5	7.9	55.5	6	−6.8	−16.9
8	I	9	11.2	−5.7	12	−11.2	9.1
		3	−7.4	63.7	7	5.9	−22.0
8	C	10	0.0	−32.9	10	0.0	−32.9
		22	0.0	129.4			
8	E	7	0.0	−19.4	7	0.0	−19.4
		23	0.0	130.1			
8	G	11	0.0	−32.9	11	0.0	−32.9
		21	0.0	129.2			

APPROVAL REQUIRED

THIS DRAWING REPRESENTS STEELWAY'S INTERPRETATION OF THE CONTRACT REQUIREMENTS FOR THIS PROJECT. PLEASE PERFORM A THOROUGH REVIEW OF ALL ITEMS SHOWN. APPROVAL OF THIS DRAWING CONSTITUTES ACCEPTANCE OF OUR INTERPRETATION. SEE 'PRELIMINARY DRAWINGS' ON PAGE G1 FOR MORE INFORMATION ON OUR APPROVAL PROCESS.

☐ APPROVED FOR FABRICATION – NO CHANGES

☐ APPROVED FOR FABRICATION AS NOTED
NO FURTHER APPROVAL REQUIRED

☐ REVISE AND RESUBMIT

THE BUILDING ORDER'S DELIVERY SCHEDULE WILL BE DETERMINED ONCE FINAL APPROVALS ARE RETURNED TO STEELWAY WITH NO FURTHER CHANGES.

BY_____ DATE:_____

Rev.	Date	By	Description
0	11/21/2017	JDC	ISSUED FOR INFORMATION

CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
ANCHOR BOLT REACTIONS (WITH MEZZANINE)

DRAWING No.
75285–R3

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
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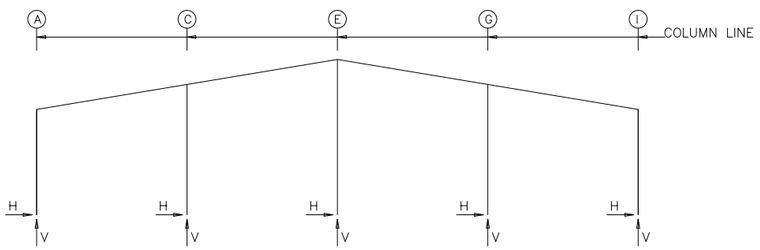
FRAME LINES: 2 3 4 5 6 7 8 9



ENDWALL COLUMN: BASIC COLUMN REACTIONS (UNFACTORED) (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
1	A	1.1	0.4	2.2	7.3	0.0	−3.5	0.0	−3.0	0.0	−3.5	0.0	−3.0	−2.8
1	B	2.2	1.2	6.0	20.1	1.7	−13.2	0.0	−3.3	1.7	−13.2	0.0	−3.3	−6.1
1	C	2.1	1.0	5.3	17.6	0.0	−5.6	1.4	−8.2	0.0	−5.6	1.4	−8.2	−6.9
1	D	2.2	1.1	5.5	18.2	0.0	−9.5	0.0	−5.8	0.0	−9.5	0.0	−5.8	−7.7
1	E	2.3	1.1	5.4	18.0	0.0	−7.1	0.0	−7.1	0.0	−7.1	0.0	−7.1	−8.4
1	F	2.2	1.1	5.5	18.2	0.0	−5.8	0.0	−9.5	0.0	−5.8	0.0	−9.5	−7.7
1	G	2.1	1.0	5.3	17.7	1.7	−8.9	0.0	−6.2	1.7	−8.9	0.0	−6.2	−6.9
1	H	2.1	1.2	5.9	19.6	0.0	−2.3	1.4	−12.3	0.0	−2.3	1.4	−12.3	−6.1
1	I	1.6	0.4	3.1	10.3	0.0	−5.4	0.0	−5.8	0.0	−5.4	0.0	−5.8	−2.8

Frm Line	Col Line	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	E1UNB_SL_L Horz	E1UNB_SL_L Vert	E1UNB_SL_R Horz	E1UNB_SL_R Vert
1	A	2.0	−3.7	−3.7	0.0	0.1	0.0	−0.1	0.0	7.3	0.0	3.7
1	B	4.2	−10.3	−10.3	4.4	−7.1	0.0	7.8	0.0	20.2	0.1	9.9
1	C	4.8	−9.0	−9.0	0.0	6.7	4.4	−7.5	0.1	17.3	0.0	9.0
1	D	5.3	−9.3	−9.3	0.0	0.2	0.0	−0.2	0.0	18.8	0.0	8.5
1	E	5.8	−7.2	−7.2	0.0	0.2	0.0	0.2	0.0	13.5	0.0	13.5
1	F	5.3	−9.3	−9.3	0.0	−0.2	0.0	0.2	0.0	8.5	0.0	18.8
1	G	4.8	−9.0	−9.0	4.4	−7.5	0.0	6.7	0.0	9.0	0.1	17.3
1	H	4.2	−10.3	−10.3	0.0	7.8	4.4	−7.1	0.1	9.9	0.0	20.2
1	I	2.0	−3.7	−3.7	0.0	−0.1	0.0	0.1	0.0	3.7	0.0	7.3

Frm Line	Col Line	Dead Vert	Wind Press Horz	Wind Suct Horz
9	H	0.6	−6.1	4.2
9	G	0.7	−6.6	4.6
9	F	0.8	−7.8	5.4
9	E	0.8	−8.1	5.6
9	D	0.8	−7.8	5.5
9	C	0.7	−6.6	4.6
9	B	0.6	−6.0	4.2

ENDWALL COLUMN: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
1	A	35	2.8	−4.2	36	−4.0	−4.2
		2	0.0	12.9			
1	B	37	5.9	−16.5	38	−8.5	−16.5
		39	0.0	34.5			
1	C	35	6.7	−10.7	36	−9.7	−10.7
		2	0.0	30.2			
1	D	37	7.5	−11.4	38	−10.7	−11.4
		39	0.0	32.3			
1	E	35	8.2	−8.1	36	−11.7	−8.1
		2	0.0	31.1			
1	F	40	7.5	−11.4	41	−10.7	−11.4
		42	0.0	32.3			
1	G	35	6.7	−10.7	36	−9.7	−10.7
		2	0.0	30.4			
1	H	40	5.9	−15.2	41	−8.5	−15.2
		42	0.0	34.4			
1	I	40	2.8	−6.8	41	−4.0	−6.8
		2	0.0	17.9			
9	H	43	5.9	0.5	44	−8.5	0.5
		1	0.0	0.8			
9	G	43	6.5	0.6	44	−9.3	0.6
		1	0.0	0.9			
9	F	43	7.6	0.7	44	−10.9	0.7
		1	0.0	1.1			
9	E	43	7.9	0.7	44	−11.4	0.7
		1	0.0	1.1			
9	D	43	7.6	0.7	44	−11.0	0.7
		1	0.0	1.1			
9	C	43	6.5	0.6	44	−9.3	0.6
		1	0.0	0.9			
9	B	43	5.9	0.5	44	−8.4	0.5
		1	0.0	0.8			

RIGID FRAME: BASIC COLUMN REACTIONS (UNFACTORED) (k)

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
2*	A	0.5	4.4	0.4	2.0	1.8	10.2	6.0	33.7	−5.1	−14.3	4.6	−8.8
2*	I	−0.5	4.8	−0.3	2.3	−1.8	11.9	−6.0	39.5	−5.2	−12.8	4.4	−18.3
2*	C	0.0	7.7	0.0	4.1	0.0	21.3	0.0	70.9	−0.3	−25.6	0.3	−19.6
2*	E	0.0	8.0	0.0	4.0	0.0	20.6	0.0	68.5	0.0	−18.6	0.0	−18.6
2*	G	0.0	7.6	0.0	4.1	0.0	21.2	−0.1	70.3	−0.3	−19.7	0.3	−25.6

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
2*	A	−8.8	−2.6	0.8	2.9	4.5	−25.1	2.4	−24.4	−6.8	−5.6	6.8	5.6
2*	I	−1.5	−1.2	8.2	−6.7	−2.4	−24.4	−4.5	−25.1	−6.8	5.6	6.8	−5.6
2*	C	−0.3	−4.9	0.3	1.0	0.2	−28.2	−0.2	−15.9	−1.0	6.0	1.0	−6.0
2*	E	0.0	−3.2	0.0	−3.2	0.2	−16.6	−0.2	−16.6	−0.4	0.0	0.4	0.0
2*	G	−0.3	0.9	0.3	−5.0	0.2	−15.9	−0.2	−28.2	−1.0	−6.0	1.0	6.0

Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	F1PAT_SL_1 Horiz	F1PAT_SL_1 Vert	F1PAT_SL_2 Horiz	F1PAT_SL_2 Vert	F1PAT_SL_3 Horiz	F1PAT_SL_3 Vert	F1PAT_SL_4 Horiz	F1PAT_SL_4 Vert	F1PAT_SL_5 Horiz	F1PAT_SL_5 Vert
2*	A	0.0	−29.4	2.5	18.0	−0.6	−2.9	−0.3	0.5	1.6	1.4	1.9	15.1
2*	I	0.0	−29.8	−1.6	1.4	0.3	0.5	0.6	−2.9	−2.5	18.0	−1.2	1.9
2*	C	0.0	0.0	−0.6	18.9	0.6	20.4	−0.3	−3.3	0.3	−0.7	0.0	39.3
2*	E	0.0	0.0	0.0	−2.9	−0.4	20.0	0.4	20.0	0.0	−2.9	−0.4	17.1
2*	G	0.0	0.0	−0.3	−0.7	0.3	−3.3	−0.6	20.4	0.6	18.9	0.0	−4.0

Frame Line	Column Line	F1PAT_SL_6 Horiz	F1PAT_SL_6 Vert	F1PAT_SL_7 Horiz	F1PAT_SL_7 Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
2*	A	−0.9	−2.5	1.2	1.9	5.0	32.0	4.4	18.9
2*	I	0.9	−2.5	−1.9	15.1	−4.4	18.9	−5.0	32.0
2*	C	0.3	17.2	0.0	−4.0	0.0	74.7	0.0	31.4
2*	E	0.0	40.0	0.4	17.1	−0.4	51.4	0.4	51.4
2*	G	−0.3	17.2	0.0	39.3	0.0	31.4	0.0	74.7

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
3*	A	0.6	4.4	0.4	2.0	1.9	10.3	6.2	34.3	−5.2	−14.5	4.6	−8.9
3*	I	−0.5	4.6	−0.4	2.2	−1.9	11.2	−6.2	37.1	−4.9	−10.9	4.9	−16.5
3*	C	0.0	7.7	0.0	4.1	0.0	21.1	0.0	69.9	−0.3	−25.2	0.2	−19.4
3*	E	0.0	8.2	0.0	4.0	0.0	20.9	0.0	69.3	0.0	−18.8	0.0	−18.8
3*	G	0.0	7.7	0.0	4.1	0.0	21.0	−0.1	69.6	−0.3	−19.4	0.3	−25.2

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
3*	A	−8.6	−2.5	1.2	3.1	4.3	−25.6	2.0	−24.7	−6.6	−5.1	6.6	5.1
3*	I	−1.5	1.1	8.3	−4.5	−2.0	−24.7	−4.3	−25.6	−6.6	5.1	6.6	−5.1
3*	C	−0.3	−5.0	0.2	0.8	0.1	−27.6	−0.1	−15.5	−0.7	5.5	0.7	−5.5
3*	E	0.0	−3.3	0.0	−3.3	0.1	−16.8	−0.1	−16.8	−0.3	0.0	0.3	0.0
3*	G	−0.3	0.7	0.2	−5.0	0.1	−15.5	−0.1	−27.6	−0.7	−5.5	0.7	5.5

Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	F2PAT_SL_1 Horiz	F2PAT_SL_1 Vert	F2PAT_SL_2 Horiz	F2PAT_SL_2 Vert	F2PAT_SL_3 Horiz	F2PAT_SL_3 Vert	F2PAT_SL_4 Horiz	F2PAT_SL_4 Vert	F2PAT_SL_5 Horiz	F2PAT_SL_5 Vert
3*	A	0.0	−29.4	2.4	18.1	−0.5	−2.7	−0.4	0.4	1.6	1.5	1.9	15.3
3*	I	0.0	−29.8	−1.6	1.5	0.4	0.4	0.5	−2.7	−2.4	18.1	−1.3	1.8
3*	C	0.0	0.0	−0.4	18.6	0.5	20.1	−0.2	−3.0	0.2	−0.8	0.0	38.7
3*	E	0.0	0.0	0.0	−2.6	−0.4	20.0	0.4	20.0	0.0	−2.6	−0.4	17.3
3*	G	0.0	0.0	−0.2	−0.8	0.2	−3.0	−0.5	20.1	0.4	18.6	0.0	−3.8

Frame Line	Column Line	F2PAT_SL_6 Horiz	F2PAT_SL_6 Vert	F2PAT_SL_7 Horiz	F2PAT_SL_7 Vert	F2UNB_SL_L Horiz	F2UNB_SL_L Vert	F2UNB_SL_R Horiz	F2UNB_SL_R Vert
3*	A	−0.9	−2.4	1.3	1.8	5.0	32.5	4.4	19.0
3*	I	0.9	−2.4	−1.9	15.3	−4.4	19.0	−5.0	32.5
3*	C	0.3	17.1	0.0	−3.8	0.0	73.7	0.0	31.1
3*	E	0.0	39.9	0.4	17.3	−0.4	52.0	0.4	52.0
3*	G	−0.3	17.1	0.0	38.7	0.0	31.1	0.0	73.7

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
8	A	0.4	3.3	0.3	1.9	1.3	9.6	4.4	31.8	−4.4	−13.6	4.6	−8.7
8	I	−0.4	3.7	−0.3	2.2	−1.3	11.3	−4.3	37.5	−5.1	−12.7	3.8	−17.7
8	C	0.0	7.5	0.0	4.2	0.0	21.9	−0.1	72.6	−0.6	−26.3	0.6	−19.3
8	E	0.0	7.7	0.0	4.0	0.0	20.7	0.0	68.8	−0.2	−18.9	0.2	−18.9
8	G	0.0	7.5	0.0	4.2	0.0	21.7	0.0	72.1	−0.6	−19.4	0.5	−26.3

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
8	A	−8.2	−2.0	0.8	2.9	4.4	−12.8	2.7	−11.6	−5.4	−4.4	5.4	4.4
8	I	−1.3	−1.1	7.6	−6.0	−2.7	−11.6	−4.4	−12.8	−5.4	4.4	5.4	−4.4
8	C	−0.6	−5.9	0.6	1.1	0.3	−27.6	−0.3	−16.1	−1.7	4.1	1.7	−4.1
8	E	−0.2	−3.0	0.2	−3.0	0.3	−17.1	−0.3	−17.1	−0.8	0.0	0.8	0.0
8	G	−0.7	1.0	0.5	−5.9	0.3	−16.1	−0.3	−27.6	−1.7	−4.1	1.7	4.1

Frame Line	Column Line	F3PAT_SL_1 Horiz	F3PAT_SL_1 Vert	F3PAT_SL_2 Horiz	F3PAT_SL_2 Vert	F3PAT_SL_3 Horiz	F3PAT_SL_3 Vert	F3PAT_SL_4 Horiz	F3PAT_SL_4 Vert	F3PAT_SL_5 Horiz	F3PAT_SL_5 Vert	F3PAT_SL_6 Horiz	F3PAT_SL_6 Vert
8	A	2.1	16.7	−0.6	−1.9	0.0	0.5	0.8	0.7	1.5	14.8	−0.6	−1.4
8	I	−0.8	0.7	0.0	0.5	0.6	−1.9	−2.1	16.7	−0.8	1.2	0.6	−1.4
8	C	−0.9	20.7	0.9	18.6	−0.4	−3.3	0.3	0.3	0.0	39.3	0.5	15.3
8	E	0.0	−3.6	−0.6	20.8	0.6	20.8	0.0	−3.6	−0.6	17.2	0.0	41.7
8	G	−0.3	0.3	0.4	−3.3	−0.9	18.6	0.9	20.7	0.1	−3.1	−0.5	15.3

Frame Line	Column Line	F3PAT_SL_7 Horiz	F3PAT_SL_7 Vert	F3UNB_SL_L Horiz	F3UNB_SL_L Vert	F3UNB_SL_R Horiz	F3UNB_SL_R Vert
8	A	0.8	1.2	3.8	30.7	3.0	17.1
8	I	−1.5	14.8	−3.0	17.1	−3.8	30.7
8	C	−0.1	−3.1	0.0	75.6	−0.1	33.2
8	E	0.6	17.2	−0.6	51.6	0.6	51.6
8	G	0.0	39.3	0.1	33.2	0.0	75.6

2* Frame lines: 2 7 9
3* Frame lines: 3 4 5 6

BUILDING BRACING REACTIONS (UNFACTORED)

Wall Loc	Wall Line	Col Line	± Reactions (k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Note
L_EW	1	B,C	1.7	2.9	4.4	7.3	
		G,H	1.7	2.9	4.4	7.3	
F_SW	I	3,4	12.7	12.5	30.3	29.8	
		6,7	12.7	12.5	30.3	29.8	
R_EW	9						(h)
B_SW	A	7,6	12.7	12.5	29.9	29.4	
		4,3	12.7	12.5	29.9	29.4	

(h)Rigid frame at endwall

RIGID FRAME: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
2*	A	6	12.1	58.4	9	−11.9	0.2
		20	9.4	60.2	11	6.8	−31.3
2*	I	10	11.0	−5.0	3	−12.1	63.0
		6	−11.1	68.3	12	−6.8	−30.9
2*	C	18	1.0	23.6	15	−1.0	13.7
		21	0.0	126.9	11	0.2	−32.5
2*	E	19	0.7	92.0	21	−0.7	92.0
		22	0.0	126.4	8	0.0	−18.8
2*	G	16	1.0	13.6	17	−1.1	23.3
		19	−0.1	126.7	12	−0.2	−32.6
2*	Frame lines: 2 7 9						

RIGID FRAME: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
3*	A	4	12.3	55.8	9	−11.6	0.5
		24	9.4	60.8	11	6.5	−31.8
3*	I	10	11.1	−2.1	3	−12.4	59.8
		5	−11.0	64.6	12	−6.5	−31.6
3*	C	18	0.7	23.8	15	−0.7	13.2
		27	0.1	125.3	11	0.2	−31.7
3*	E	23	0.6	93.3	25	−0.6	97.1
		28	0.0	127.1	8	0.0	−19.0
3*	G	16	0.7	13.1	26	−0.7	97.1
		23	−0.1	125.2	12	−0.2	−31.7
3*	Frame lines: 3 4 5 6						

RIGID FRAME: MAXIMUM REACTIONS (FACTORED)

Frm Line	Col Line	Column Reactions (k) Load ID	Hmax H	V Vmax	Load ID	Hmin H	V Vmin
8	A	14	9.4	10.2	9	−11.1	0.2
		30	7.2	55.4	7	−5.8	−16.1
8	I	10	10.3	−5.1	13	−10.1	8.3
		2	−7.2	63.6	8	5.0	−21.4
8	C	16	1.7	3.5	17	−1.7	34.0
		33	−0.1	128.1	11	0.4	−31.9
8	E	32	0.9	97.5	31	−1.0	97.5
		34	0.0	128.8	8	0.2	−19.5
8	G	18	1.7	33.8	15	−1.7	3.4
		29	0.0	128.0	12	0.3	33.1

APPROVAL REQUIRED

THIS DRAWING REPRESENTS STEELWAY'S INTERPRETATION OF THE CONTRACT REQUIREMENTS FOR THIS PROJECT. PLEASE PERFORM A THOROUGH REVIEW OF ALL ITEMS SHOWN. APPROVAL OF THIS DRAWING CONSTITUTES ACCEPTANCE OF OUR INTERPRETATION. SEE "PRELIMINARY DRAWINGS" ON PAGE G1 FOR MORE INFORMATION ON OUR APPROVAL PROCESS.

☐ APPROVED FOR FABRICATION – NO CHANGES
☐ APPROVED FOR FABRICATION AS NOTED NO FURTHER APPROVAL REQUIRED
☐ REVISE AND RESUBMIT

THE BUILDING ORDER'S DELIVERY SCHEDULE WILL BE DETERMINED ONCE FINAL APPROVALS ARE RETURNED TO STEELWAY WITH NO FURTHER CHANGES.

BY_____ DATE:_____

Rev.	Date	By	Description
0	11/21/2017	JDC	ISSUED FOR INFORMATION

CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
ANCHOR BOLT REACTIONS (W/O MEZZANINE)

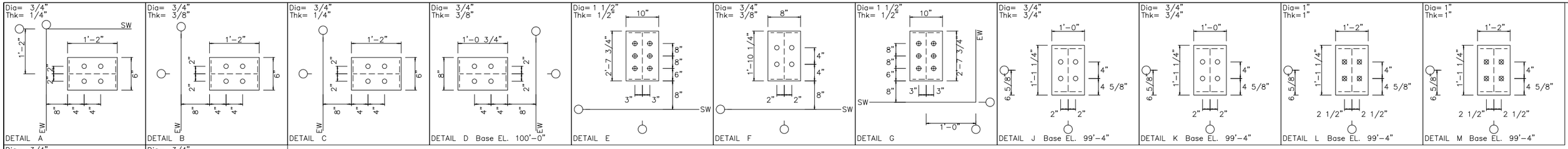
DRAWING No.
75285–R4

DRAWN BY TDV | CHECKED BY

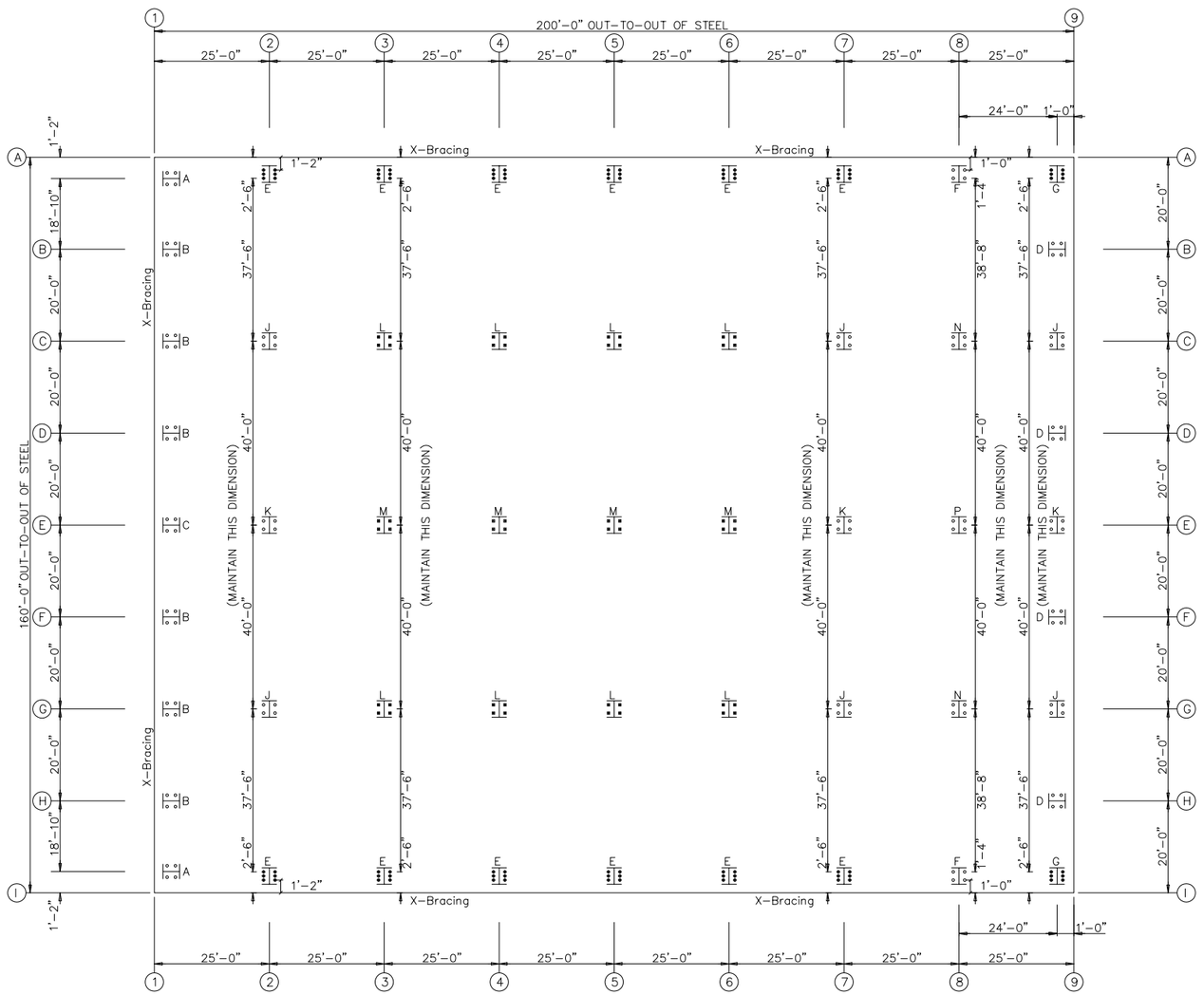
SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com



LEGEND:
Dia=Anchor Bolt Diameter
Thk=Base Plate Thickness



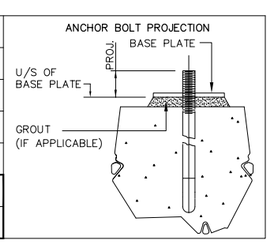
EXPANDABLE
FOR 25'-0" BAY

ANCHOR BOLT PLAN

NOTE: Underside of All Base Plates @ 101'-7 1/2" (U.N.)
Finished Floor @ 100'-0"

DETAIL NOTE:
EW=ENDWALL
SW=SIDEWALL
DIA=ANCHOR BOLT DIAMETER

BOLT DIAMETER	PLATE THICKNESS						
	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"
3/4"ø	2"Min-3"Max.	2"Min-3"Max.	2"Min-3"Max.	2"Min-3"Max.	3"Min-4"Max.	-NA-	-NA-
7/8"ø	2"Min-3"Max.	2"Min-3"Max.	2"Min-3"Max.	3"Min-4"Max.	3"Min-4"Max.	-NA-	-NA-
1"ø	2"Min-3"Max.	2"Min-3"Max.	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	-NA-
1 1/4"ø	-NA-	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	4"Min-5"Max.
1 1/2"ø	-NA-	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	3"Min-4"Max.	4"Min-5"Max.	4"Min-5"Max.



NOTES:
1: ALL ANCHOR BOLT DIMENSIONS ARE CENTER TO CENTER OF BOLTS IN INCHES U.N. X'-XX".
2: ANCHOR BOLT PLACEMENT MUST MEET CAN/CSA S16.1 TOLERANCES.
3: REFER TO CHART TO DETERMINE REQUIRED ANCHOR BOLT PROJECTION FROM U/S BASE PLATE.

APPROVAL REQUIRED

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- ☐ APPROVED FOR FABRICATION – NO CHANGES
- ☐ APPROVED FOR FABRICATION AS NOTED NO FURTHER APPROVAL REQUIRED
- ☐ REVISE AND RESUBMIT

THE BUILDING ORDER'S DELIVERY SCHEDULE WILL BE DETERMINED ONCE FINAL APPROVALS ARE RETURNED TO STEELWAY WITH NO FURTHER CHANGES.

BY_____ DATE: _____

Rev.	Date	By	Description
0	11/21/2017	JDC	ISSUED FOR INFORMATION

CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
ANCHOR BOLT PLAN & DETAILS

DRAWING No.
75285-S1

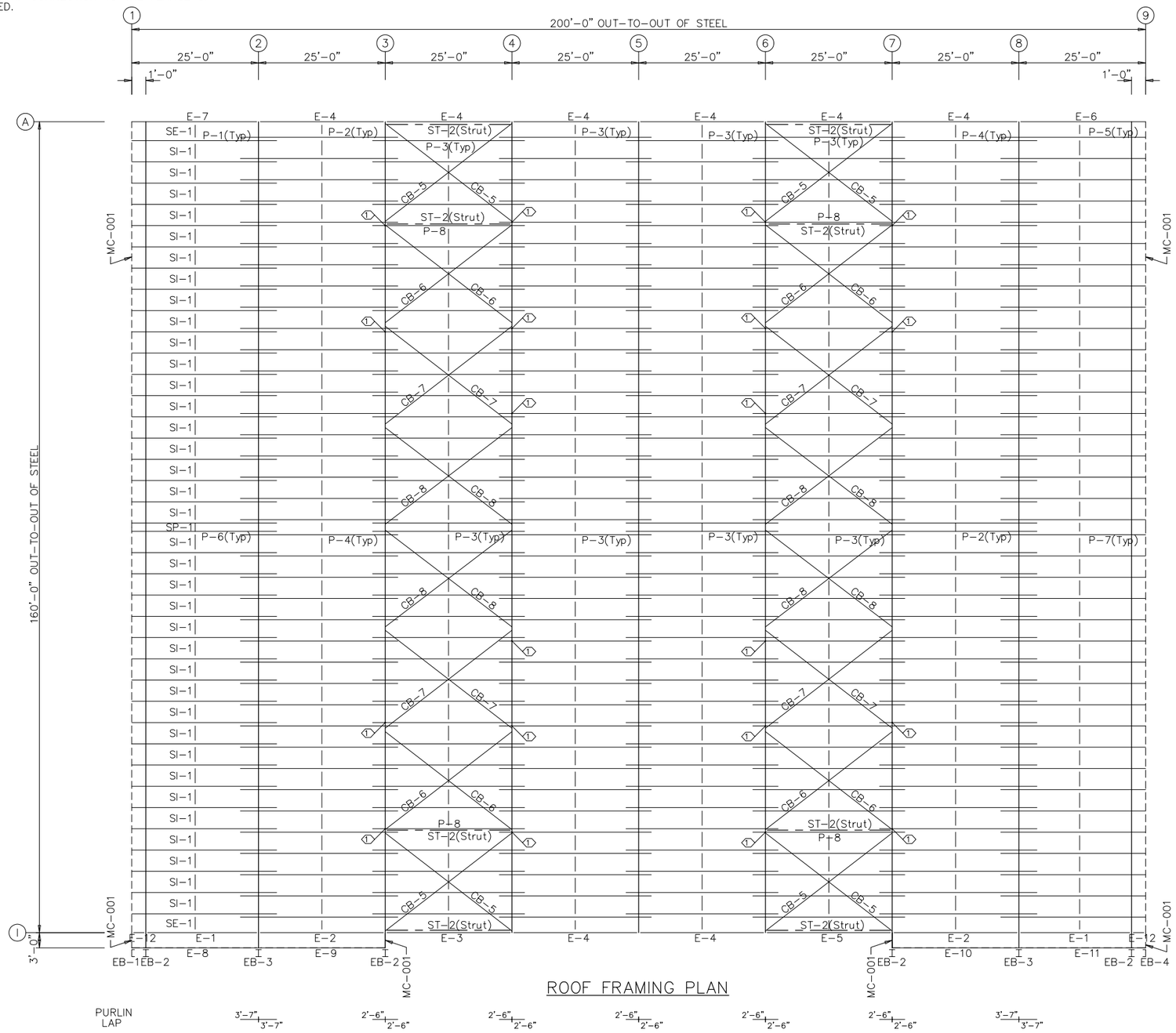
DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

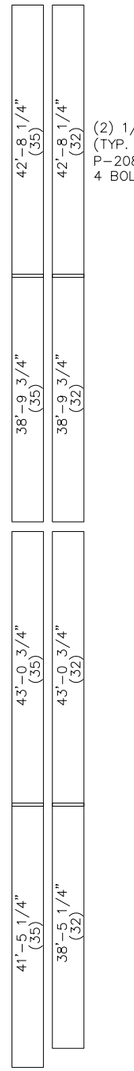
LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

NOTE:
ALL CONNECTIONS TO PURLINS FOR ANY COMPONENT WITH A LOAD IS TO BE CONNECTED TO THE WEB OF THE PURLIN. PLEASE CONSULT WITH STEELWAY BUILDING SYSTEMS OR A PROFESSIONAL ENGINEER IF CONNECTION TO THE FLANGE OF THE PURLIN IS REQUIRED.



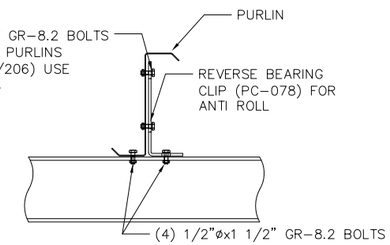
ROOF FRAMING PLAN



ROOF SHEETING

PANELS: 24 Ga. STORM SEAL – NRO – GALVALUME

(2) 1/2"øx1 1/2" GR-8.2 BOLTS (TYP. EXCEPT AT PURLINS P-208/207/204/206) USE 4 BOLTS TO WEB.



DET-1

EXTENSION/CANOPY BOLTS
ROOF PLAN

MARK	QUAN	TYPE	DIA	LENGTH
EB-2	8	A325	1/2"	2"
EB-3	8	A325	1/2"	2"

SPECIAL BOLTS
ROOF PLAN

ID	QUAN	TYPE	DIA	LENGTH	WASH
1	4	G10.9	1/2"	1 1/2"	2

MEMBER TABLE
ROOF PLAN

MARK	PART
EB-1	12C14
EB-2	W12@026
EB-3	W12@026
EB-4	12C14
P-1	12Z11
P-2	12Z13
P-3	12Z13
P-4	12Z13
P-5	12Z11
P-6	12Z11
P-7	12Z11
P-8	12Z12
E-1	12V13
E-2	12V13
E-3	12V13
E-4	12V13
E-5	12V13
E-6	12V13
E-7	12V13
E-8	12Z13
E-9	12Z12
E-10	12Z12
E-11	12Z13
E-12	12V13
ST-2	H0505188
CB-5	R114
CB-6	R10
CB-7	R78
CB-8	R34
SP-1	PC-063
SI-1	PS6
SE-1	PS6

APPROVAL REQUIRED

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- ☐ APPROVED FOR FABRICATION AS NOTED NO FURTHER APPROVAL REQUIRED
- ☐ REVISE AND RESUBMIT

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BY_____ DATE:_____

Rev.	Date	By	Description
0	11/21/2017	JDC	ISSUED FOR INFORMATION

CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
ROOF FRAMING

DRAWING No.
75285-S2

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

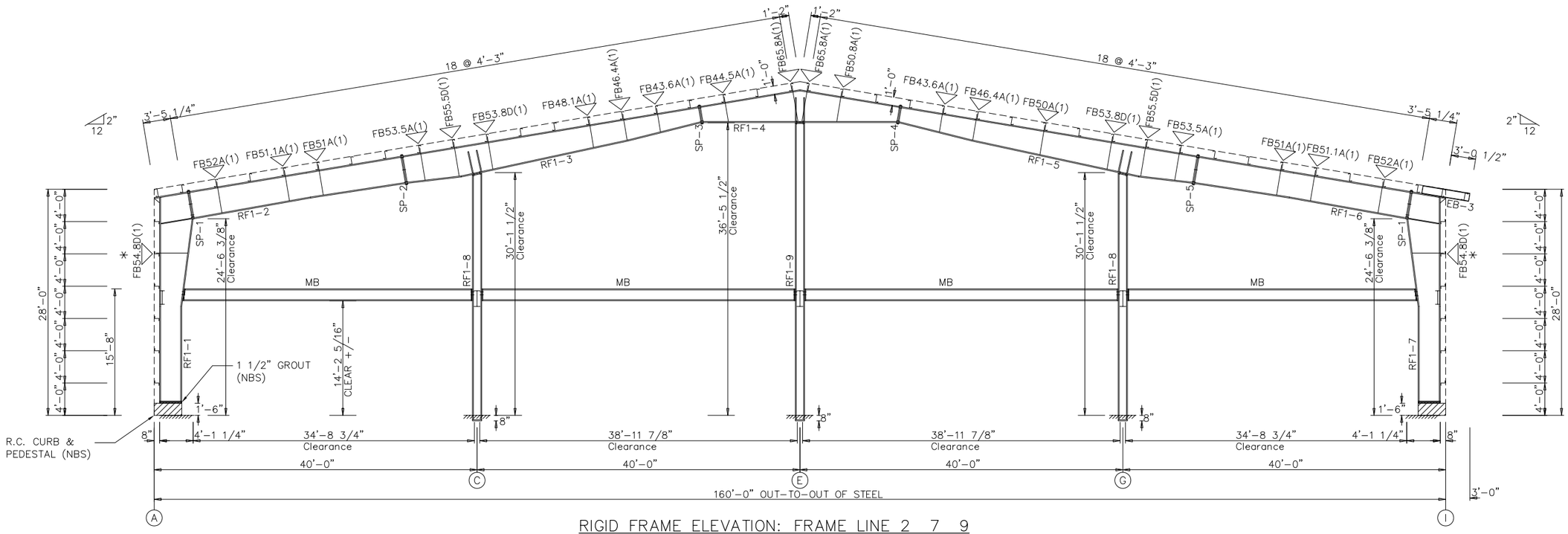
STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	2	A325	1.000	3.50	8"	1"	3'-7 3/4"
SP-2	4	4	2	A325	0.750	2.25	6"	1/2"	3'-11 1/2"
SP-3	4	4	0	A325	0.750	2.50	6"	5/8"	2'-6 1/2"
SP-4	4	4	0	A325	0.750	2.25	6"	1/2"	2'-6 1/2"
SP-5	4	4	2	A325	0.750	2.00	6"	3/8"	3'-11 1/2"

CAP PLATE BOLTS				
Mark	Qty	Type	Dia	Length
RF1-8	4	A325	0.750	2.25
RF1-9	4	A325	0.750	2.00

▽FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxD(1): xx=length(in)
D – L3X11GA
A – L2X13GA
*2-1/2" DIA. BOLTS TO GIRTS

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF1-1	30.0/30.0	0.200	142.0	8 x 1/2" x 304.8	8 x 3/4" x 141.9
	30.0/48.0	0.250	169.8	6 x 5/16" x 43.2	8 x 3/4" x 132.7
RF1-2	38.0/36.0	0.313	176.5	6 x 5/16" x 320.0	6 x 5/16" x 176.5
	36.0/38.0	0.250	143.5		6 x 5/16" x 143.5
RF1-3	38.0/42.0	0.313	81.5	6 x 5/16" x 335.5	6 x 1/2" x 81.5
	42.0/40.3	0.313	36.0	6 x 3/8" x 111.8	6 x 1/2" x 254.3
	40.3/30.0	0.313	218.0		6 x 5/16" x 112.1
	30.0/21.1	0.180	111.8		
RF1-4	21.1/45.0	0.313	148.8	6 x 5/16" x 150.9	6 x 5/16" x 290.8
	45.0/21.1	0.313	149.0	6 x 5/16" x 151.0	
RF1-5	21.0/30.0	0.180	111.9	6 x 3/8" x 111.9	6 x 5/16" x 112.3
	30.0/40.3	0.313	218.0	6 x 5/16" x 335.6	6 x 1/2" x 254.3
	40.3/42.0	0.313	36.0		6 x 1/2" x 81.7
	42.0/38.0	0.313	81.6		
RF1-6	38.0/36.0	0.250	143.6	6 x 5/16" x 320.1	6 x 5/16" x 143.6
	36.0/38.0	0.313	176.5		6 x 5/16" x 176.5
RF1-7	48.0/30.0	0.250	169.8	6 x 5/16" x 43.2	8 x 3/4" x 132.7
	30.0/30.0	0.200	142.0	8 x 1/2" x 304.8	8 x 3/4" x 141.9
RF1-8	W12@053				
RF1-9	W12@058				



RIGID FRAME ELEVATION: FRAME LINE 2 7 9

(FLOOR BEAMS SHOWN AT FRAME LINE 2 7)
NOTE: MB – FUTURE MEZZANINE BEAMS – (NBS)

APPROVAL REQUIRED

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CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
RIGID FRAME ELEVATION

DRAWING No.
75285-S3

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

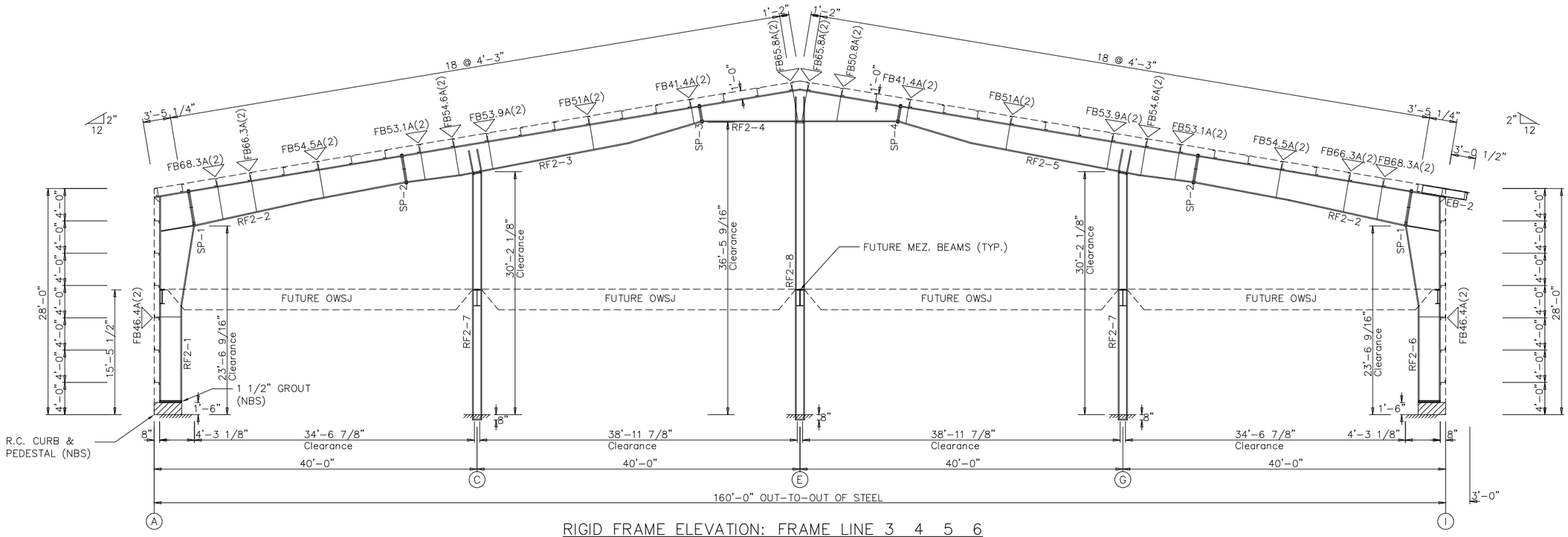
STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	2	A325	1.000	3.50	8"	1"	4'-7 3/4"
SP-2	4	4	2	A325	0.750	2.00	6"	3/8"	3'-11 1/2"
SP-3	4	4	0	A325	0.750	2.50	6"	5/8"	2'-6 1/2"
SP-4	4	4	0	A325	0.750	2.25	6"	1/2"	2'-6 1/2"

CAP PLATE BOLTS				
Mark	Qty	Type	Dia	Length
RF2-7	4	A325	0.750	2.00
RF2-8	4	A325	0.750	2.00

▽FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A – L2X13GA

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF2-1	30.0/30.0	0.200	142.0	8 x 1/2" x 304.9	8 x 5/8" x 141.9
	30.0/50.0	0.250	169.9	6 x 5/16" x 43.2	8 x 5/8" x 121.4
RF2-2	50.0/41.0	0.313	176.5	6 x 5/16" x 320.1	6 x 5/16" x 176.7
	41.0/38.0	0.250	143.6		6 x 5/16" x 143.6
RF2-3	38.0/41.0	0.313	81.8	6 x 5/16" x 447.4	6 x 3/8" x 81.8
	41.0/40.1	0.313	36.0		6 x 3/8" x 253.9
	40.1/35.0	0.313	217.9		6 x 3/8" x 112.6
	35.0/21.1	0.200	111.8		
RF2-4	21.1/45.0	0.313	148.9	6 x 5/16" x 150.9	6 x 5/16" x 290.8
	45.0/21.1	0.313	149.0	6 x 5/16" x 151.0	
RF2-5	21.1/35.0	0.200	111.9	6 x 5/16" x 447.5	6 x 3/8" x 112.7
	35.0/40.1	0.313	217.9		6 x 3/8" x 253.9
	40.1/41.0	0.313	36.0		6 x 3/8" x 81.8
	41.0/38.0	0.313	81.8		
RF2-6	50.0/30.0	0.250	169.9	6 x 5/16" x 43.2	8 x 5/8" x 121.4
	30.0/30.0	0.200	142.0	8 x 1/2" x 304.9	8 x 5/8" x 141.9
RF2-7	W12@053				
RF2-8	W12@058				



RIGID FRAME ELEVATION: FRAME LINE 3 4 5 6

APPROVAL REQUIRED

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CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
RIGID FRAME ELEVATION

DRAWING No.
75285-S4

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick L2670 Dennis J. Bak 2017 Signature Nov 23 2017 Date INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

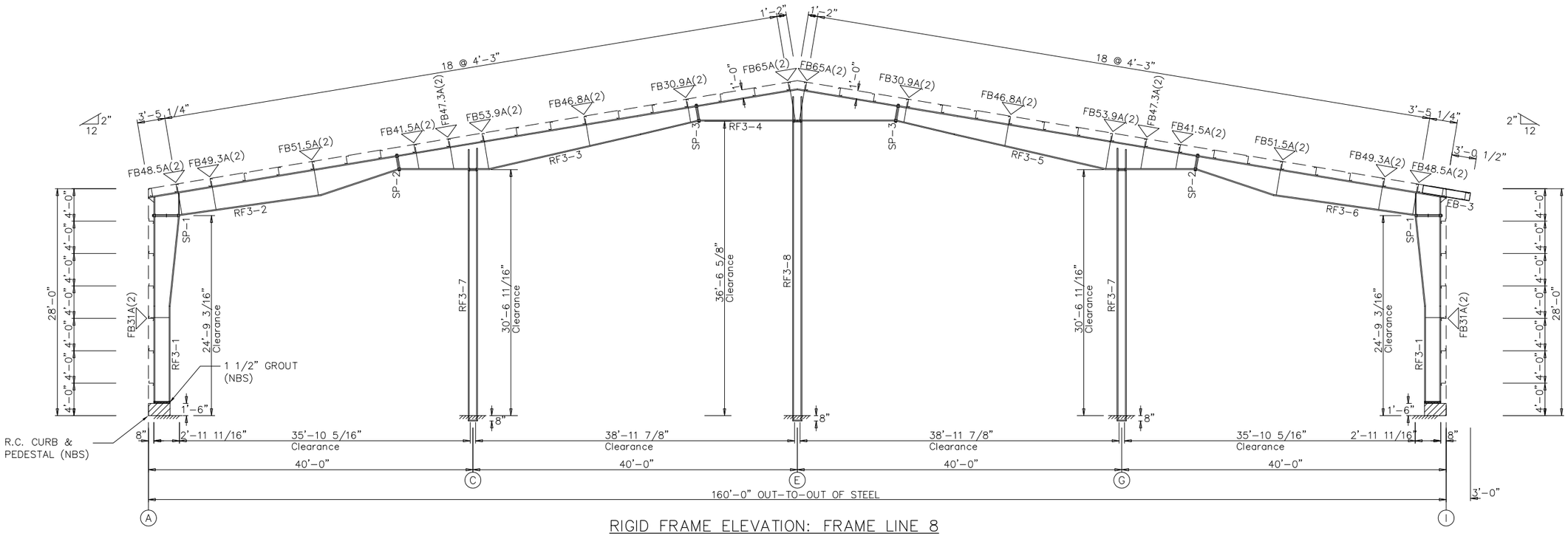
STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

SPLICE PLATE & BOLT TABLE								
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	2	2	A325	1.000	3.00	8"	3/4"	3'-5"
SP-2	4	4	0	A325	0.750	2.25	6"	1/2"	2'-3 1/2"
SP-3	4	4	0	A325	0.750	2.25	6"	1/2"	2'-5 1/2"

CAP PLATE BOLTS				
Mark	Qty	Type	Dia	Length
RF3-7	4	A325	0.750	2.00
RF3-8	4	A325	0.750	2.00

▽FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A – L2X13GA

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF3-1	21.0/21.0	0.160	142.1	8 x 5/16" x 276.1	8 x 3/8" x 142.1
	21.0/35.0	0.160	133.9		8 x 3/8" x 134.7
RF3-2	33.0/36.3	0.250	212.3	8 x 5/16" x 27.4	6 x 1/4" x 212.9
	36.3/37.0	0.250	36.0	6 x 1/4" x 364.5	6 x 1/4" x 121.4
	37.0/18.1	0.200	120.0		
RF3-3	18.1/40.0	0.313	131.1	6 x 5/16" x 448.2	6 x 5/16" x 132.9
	40.0/26.0	0.313	229.0		6 x 5/16" x 229.4
	26.0/20.0	0.180	88.1		6 x 5/16" x 88.3
RF3-4	20.1/44.0	0.313	148.8	6 x 5/16" x 150.8	6 x 5/16" x 290.9
	44.0/20.1	0.313	148.8	6 x 5/16" x 150.8	
RF3-5	20.0/26.0	0.180	88.1	6 x 5/16" x 448.2	6 x 5/16" x 88.3
	26.0/40.0	0.313	229.0		6 x 5/16" x 229.4
	40.0/18.1	0.313	131.1		6 x 5/16" x 132.9
RF3-6	18.1/37.0	0.200	120.0	6 x 1/4" x 364.5	6 x 1/4" x 121.4
	37.0/36.3	0.250	36.0	8 x 5/16" x 27.4	6 x 1/4" x 212.9
	36.3/33.0	0.250	212.3		
RF3-7	W12@053				
RF3-8	W12@058				



RIGID FRAME ELEVATION: FRAME LINE 8

APPROVAL REQUIRED

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BY_____ DATE:_____

Rev.	Date	By	Description
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CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
RIGID FRAME ELEVATION

DRAWING No.
75285-S5

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Dennis J. Bak
Nov 23 2017
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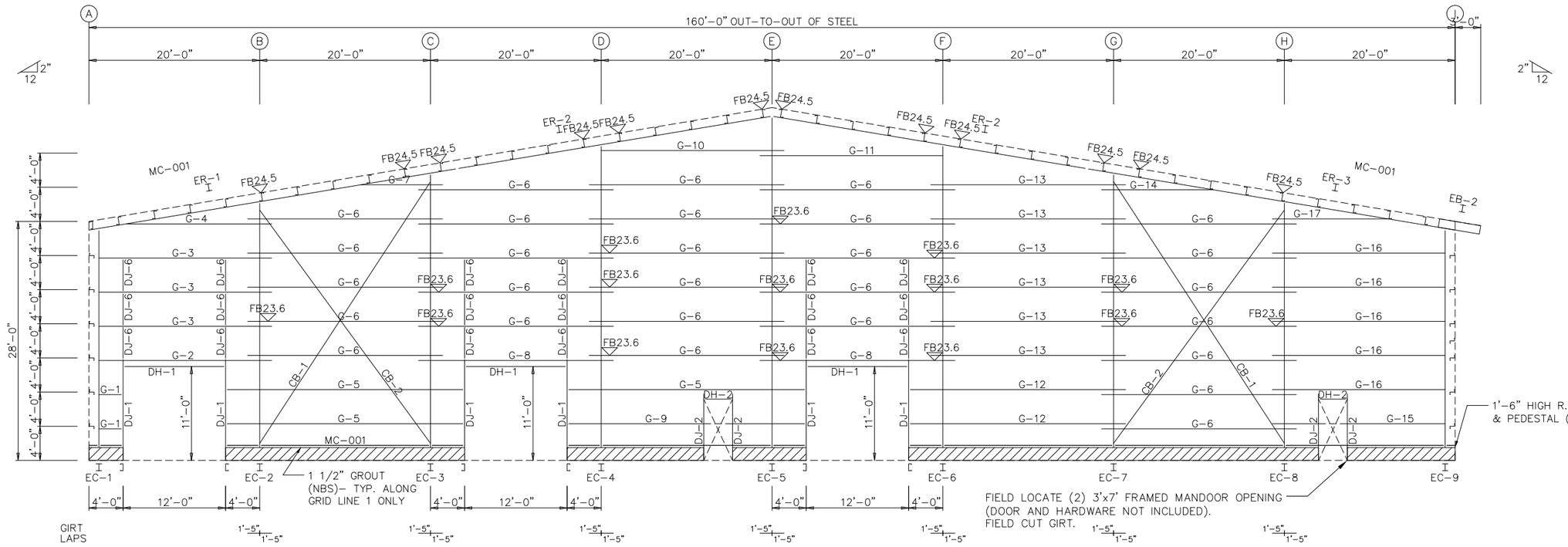
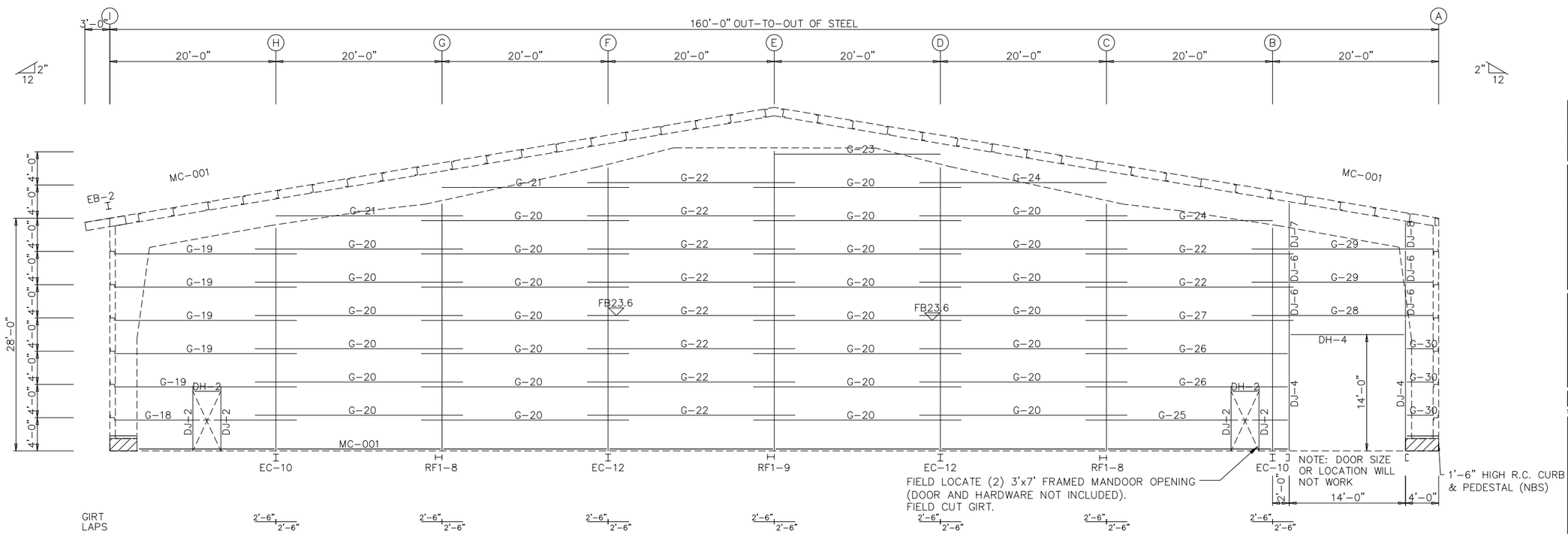


ENDWALL FRAMING: FRAME LINE 1



ENDWALL FRAMING: FRAME LINE 9

BOLT TABLE
FRAME LINE 1 & 9

LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	8	A325	3/4"	2 1/2"
ER-2/ER-2	6	A325	3/4"	2 1/2"
ER-2/ER-3	8	A325	3/4"	2 1/2"
Columns/Raf	4	A325	3/4"	2"
Columns/Raf	6	A325	3/4"	2"

FLANGE BRACE TABLE
FRAME LINE 1 & 9

∇ID	MARK	LENGTH
1	FB24.5	2'-0 1/2"
2	FB23.6	1'-11 5/8"

MEMBER TABLE
FRAME LINE 1 & 9

MARK	PART	MARK	PART
EB-2	W12@026	G-13	08Z16
EC-1	W14@022	G-14	08Z16
EC-2	W14@022	G-15	08Z16
EC-3	W14@022	G-16	08Z14
EC-4	W14@022	G-17	08Z14
EC-5	W14@022	G-18	08Z16
EC-6	W14@022	G-19	08Z13
EC-7	W14@022	G-20	08Z16
EC-8	W14@022	G-21	08Z16
EC-9	W14@022	G-22	08Z14
EC-10	W12@026	G-23	08Z16
RF1-8	W12@053	G-24	08Z16
EC-12	W12@026	G-25	08Z16
RF1-9	W12@058	G-26	08Z14
ER-1	W08@018	G-27	08Z14
ER-2	W08@018	G-28	08Z12
ER-3	W08@018	G-29	08Z12
DJ-1	10CD16	G-30	08Z16
DJ-2	08CD16	CB-1	R34
DJ-4	10CD12	CB-2	R34
DH-1	10CD16	DJ-6	10CD16
DH-2	08CD16	DJ-7	10CD16
DH-4	10CD16	DJ-8	10CD16
G-1	08Z16		
G-2	08Z13		
G-3	08Z13		
G-4	08Z13		
G-5	08Z14		
G-6	08Z14		
G-7	08Z16		
G-8	08Z14		
G-9	08Z16		
G-10	08Z14		
G-11	08Z14		
G-12	08Z16		

APPROVAL REQUIRED

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CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
ENDWALL FRAMING

DRAWING No.
75285-S6

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick L2670 2017 Dennis J. Bak Signature Nov 23 2017 INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

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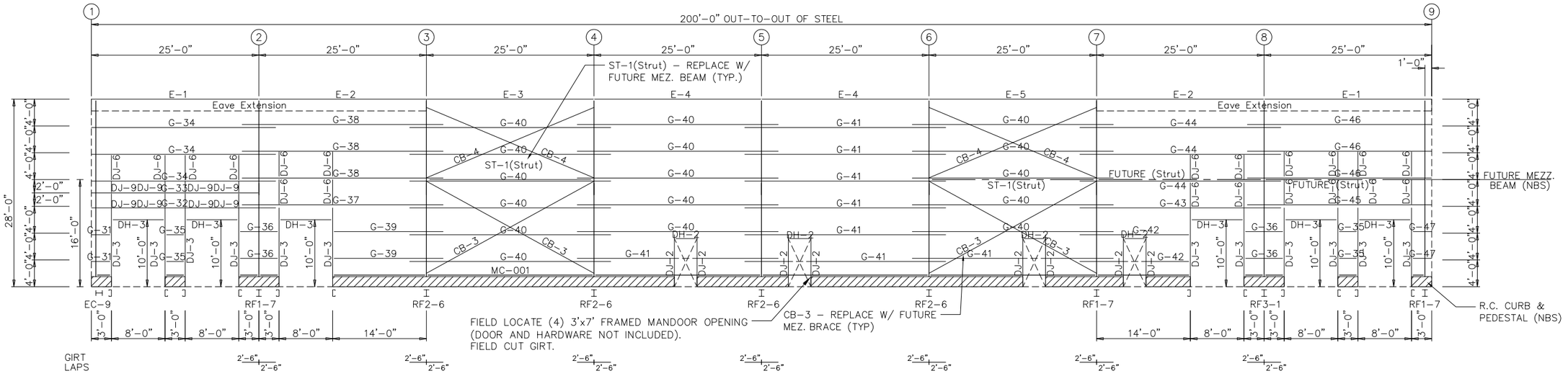
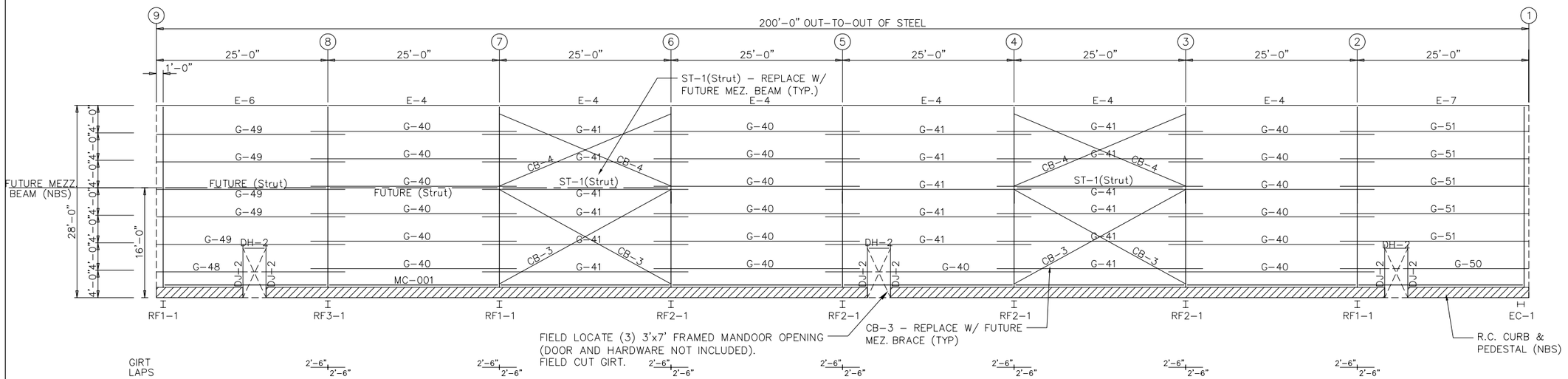
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

BOLT TABLE FRAME LINE I & A				
LOCATION	QUAN	TYPE	DIA	LENGTH
Strut	4	A325	3/4"	1 3/4"

MEMBER TABLE FRAME LINE I & A	
MARK	PART
DJ-2	08CD16
DJ-3	10CD16
DH-2	08CD16
DH-3	10CD16
E-1	12V13
E-2	12V13
E-3	12V13
E-4	12V13
E-5	12V13
E-6	12V13
E-7	12V13
ST-1	H0606188
G-31	08Z16
G-32	08Z10
G-33	08Z10
G-34	08Z10
G-35	08Z16
G-36	08Z16
G-37	08Z13
G-38	08Z13
G-39	08Z16
G-40	08Z14
G-41	08Z16
G-42	08Z16
G-43	08Z12
G-44	08Z12
G-45	08Z10
G-46	08Z10
G-47	08Z16
G-48	08Z16
G-49	08Z12
G-50	08Z14
G-51	08Z13
CB-3	R112
CB-4	R112
DJ-6	10CD16
DJ-9	10CD16



SIDEWALL FRAMING: FRAME LINE I



SIDEWALL FRAMING: FRAME LINE A

NOTE: MB – FUTURE MEZZANINE BEAMS – (NBS)

APPROVAL REQUIRED

THIS DRAWING REPRESENTS STEELWAY'S INTERPRETATION OF THE CONTRACT REQUIREMENTS FOR THIS PROJECT. PLEASE PERFORM A THOROUGH REVIEW OF ALL ITEMS SHOWN. APPROVAL OF THIS DRAWING CONSTITUTES ACCEPTANCE OF OUR INTERPRETATION. SEE "PRELIMINARY DRAWINGS" ON PAGE G1 FOR MORE INFORMATION ON OUR APPROVAL PROCESS.

- ☐ APPROVED FOR FABRICATION – NO CHANGES
- ☐ APPROVED FOR FABRICATION AS NOTED NO FURTHER APPROVAL REQUIRED
- ☐ REVISE AND RESUBMIT

THE BUILDING ORDER'S DELIVERY SCHEDULE WILL BE DETERMINED ONCE FINAL APPROVALS ARE RETURNED TO STEELWAY WITH NO FURTHER CHANGES.

BY_____ DATE:_____

Rev.	Date	By	Description
0	11/21/2017	JDC	ISSUED FOR INFORMATION

CLIENT
ALLIANCE BUILDING CONTRACTORS LTD.

PROJECT
STEC BUILDING

PROJECT LOCATION
SHIPPIGAN, NEW BRUNSWICK

DRAWING NAME
SIDEWALL FRAMING

DRAWING No.
75285-S7

DRAWN BY TDV | CHECKED BY

SHEET: ANSI D (22"x34") ENGINEER'S SEAL APPLIES ONLY TO STEELWAY PRODUCTS

LICENCED PROFESSIONAL ENGINEER Province of New Brunswick
L2670 2017
Denis J. Bak
Signature
Nov 23 2017
Date
INGÉNIEUR TITULAIRE DE PERMIS Province du Nouveau-Brunswick

STEELWAY BUILDING SYSTEMS
7825 Springwater Road
Aylmer, Ontario N5H 2R4
519.765.2244
steelway.com

APPENDIX D:

Atlantic Canada Conservation Data Centre Report

Atlantic Canada Conservation Data Centre
Centre de données sur la conservation du Canada atlantique

DATA REPORT 5980: Sainte Cecile, NB

Prepared 6 December 2017
by J. Churchill, Data Manager

CONTENTS OF REPORT

Map 1. A 100 km buffer around the study area

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (ACCDC) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The ACCDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Although a non-governmental agency, the ACCDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees. URL: www.ACCDC.com.

Upon request and for a fee, the ACCDC queries its database and produces customized reports of the rare and endangered flora and fauna known to occur in or near a specified study area. As a supplement to that data, the ACCDC includes locations of managed areas with some level of protection, and known sites of ecological interest or sensitivity.

1.1 DATA LIST

Included datasets:

Filename	Contents
StCecileNB_5980ob.xls	All Rare and legally protected *Flora and Fauna* in your study area
StCecileNB_5980ob100km.xls	A list of Rare and legally protected *Flora and Fauna* within 100 km of your study area
StCecileNB_5980sa.xls	All *Significant Natural Areas* in your study area
StCecileNB_5980bc.xls	Rare and common *Colonial Birds* in your study area

1.2 RESTRICTIONS

The ACCDC makes a strong effort to verify the accuracy of all the data that it manages, but it shall not be held responsible for any inaccuracies in data that it provides. By accepting ACCDC data, recipients assent to the following limits of use:

a) Data is restricted to use by trained personnel who are sensitive to landowner interests and to potential threats to rare and/or endangered flora and fauna posed by the information provided.
b) Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
c) The ACCDC requires Data Users to cease using and delete data 12 months after receipt, and to make a new request for updated data if necessary at that time.
d) ACCDC data responses are restricted to the data in our Data System at the time of the data request.
e) Each record has an estimate of locational uncertainty, which must be referenced in order to understand the record's relevance to a particular location. Please see attached Data Dictionary for details.
f) ACCDC data responses are not to be construed as exhaustive inventories of taxa in an area.
g) The absence of a taxon cannot be inferred by its absence in an ACCDC data response.

1.3 ADDITIONAL INFORMATION

The attached file DataDictionary 2.1.pdf provides metadata for the data provided.

Please direct any additional questions about ACCDC data to the following individuals:

Plants, Lichens, Ranking Methods, All other Inquiries
Sean Blaney, Senior Scientist, Executive Director
Tel: (506) 364-2658
sblaney@mta.ca

Animals (Fauna)
John Klymko, Zoologist
Tel: (506) 364-2660
jklymko@mta.ca

Plant Communities
Sarah Robinson, Community Ecologist
Tel: (506) 364-2664
srobinson@mta.ca

Data Management, GIS
James Churchill, Data Manager
Tel: (902) 679-6146
jlchurchill@mta.ca

Billing
Jean Breau
Tel: (506) 364-2657
jrbreau@mta.ca

Questions on the biology of Federal Species at Risk can be directed to ACCDC: (506) 364-2658, with questions on Species at Risk regulations to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in New Brunswick, please contact Stewart Lusk, Natural Resources: (506) 453-7110.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in Nova Scotia, please contact Sherman Boates, NSDNR: (902) 679-6146. To determine if location-sensitive species (section 4.3) occur near your study site please contact a NSDNR Regional Biologist:

Western: Duncan Bayne
(902) 648-3536
Duncan.Bayne@novascotia.ca

Western: Jason Power
(902) 634-7555
Jason.Power@novascotia.ca

Central: Shavonne Meyer
(902) 893-6353
Shavonne.Meyer@novascotia.ca

Central: Kimberly George
(902) 893-5630
Kimberly.George@novascotia.ca

Eastern: Lisa Doucette
(902) 863-7523
Lisa.Doucette@novascotia.ca

Eastern: Terry Power
(902) 563-3370
Terrance.Power@novascotia.ca

For provincial information about rare taxa and protected areas, or information about game animals, fish habitat etc., in Prince Edward Island, please contact Garry Gregory, PEI Dept. of Communities, Land and Environment: (902) 569-7595.

2.0 RARE AND ENDANGERED SPECIES

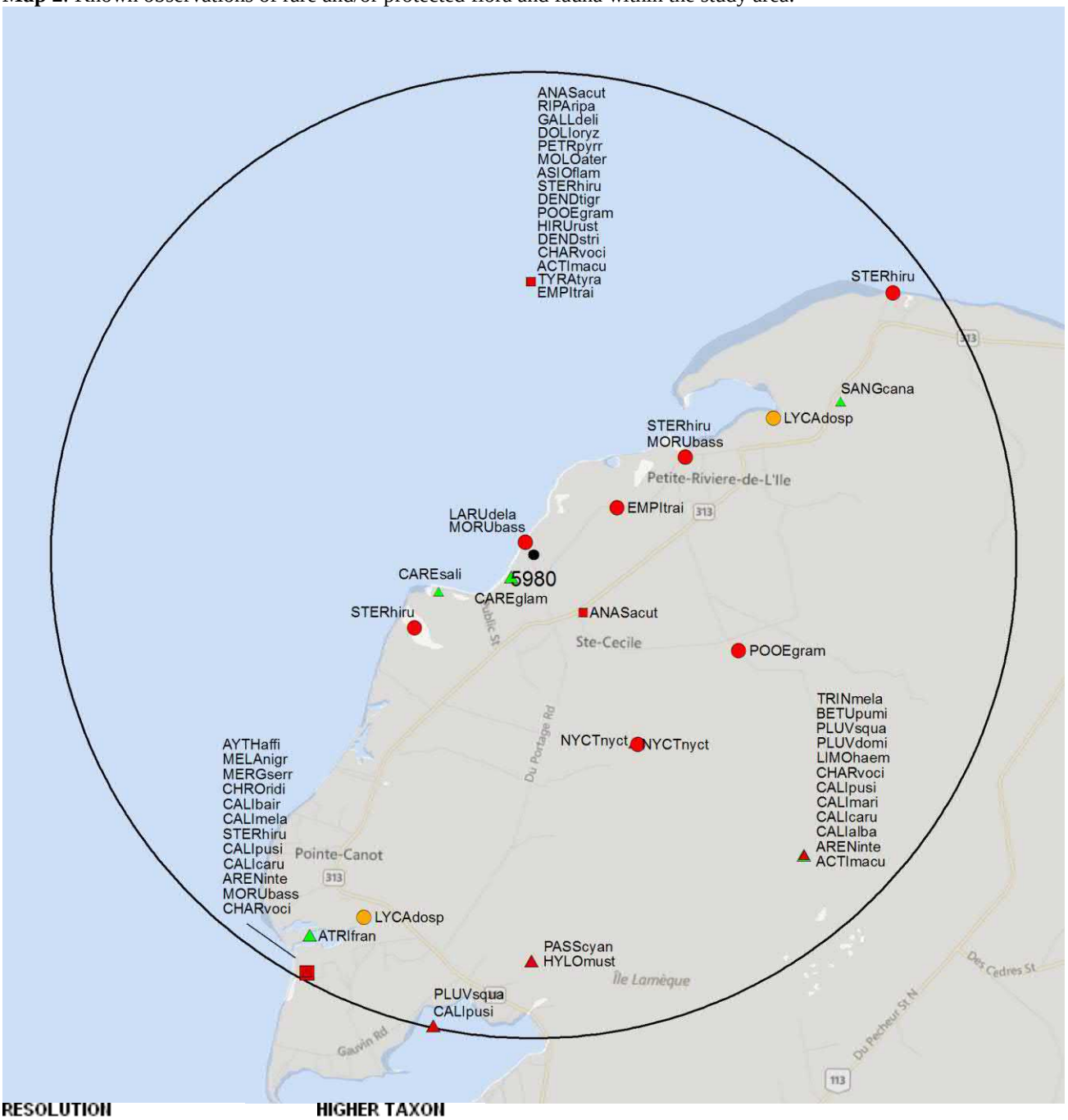
2.1 FLORA

The study area contains 5 records of 5 vascular, no records of nonvascular flora (Map 2 and attached: *ob.xls).

2.2 FAUNA

The study area contains 126 records of 36 vertebrate, 2 records of 1 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List). Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.

Map 2: Known observations of rare and/or protected flora and fauna within the study area.

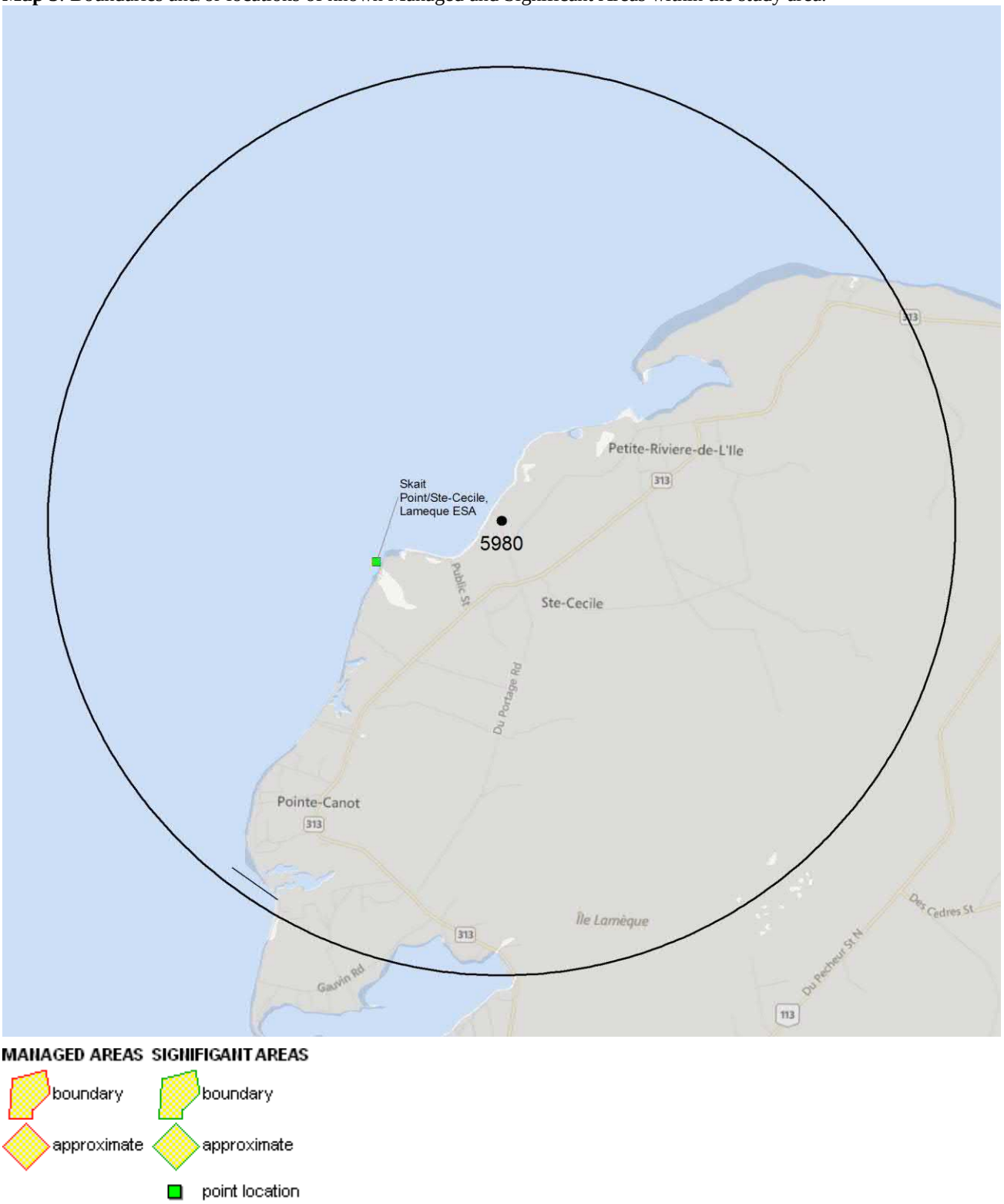


3.0 SPECIAL AREAS

3.1 MANAGED AREAS
The GIS scan identified no managed areas in the vicinity of the study area (Map 3).

3.2 SIGNIFICANT AREAS
The GIS scan identified 1 biologically significant site in the vicinity of the study area (Map 3 and attached file: *sa*.xls).

Map 3: Boundaries and/or locations of known Managed and Significant Areas within the study area.



4.0 RARE SPECIES LISTS

Rare and/or endangered taxa (excluding "location-sensitive" species, section 4.3) within the study area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± the precision, in km, of the record). [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community. Note: records are from attached files *ob.xls/*ob.shp only.

4.1 FLORA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
P	*Carex glareosa var. amphigena*	Gravel Sedge				S1	2 May Be At Risk	1	0.3 ± 1.0
P	*Atriplex franktonii*	Frankton's Saltbush				S2	4 Secure	1	4.6 ± 0.0
P	*Carex salina*	Saltmarsh Sedge				S2	3 Sensitive	1	1.1 ± 0.0
P	*Betula pumila*	Bog Birch				S3	4 Secure	1	4.2 ± 1.0
P	*Sanguisorba canadensis*	Canada Burnet				S3	4 Secure	1	3.6 ± 0.0

4.2 FAUNA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	*Calidris canutus rufa*	Red Knot rufa ssp	Endangered		Endangered	S2M	1 At Risk	9	4.2 ± 0.0
A	*Hylocichla mustelina*	Wood Thrush	Threatened		Threatened	S1S2B,S1S2M	2 May Be At Risk	1	4.2 ± 1.0
A	*Hirundo rustica*	Barn Swallow	Threatened		Threatened	S2B,S2M	3 Sensitive	1	2.8 ± 7.0
A	*Riparia riparia*	Bank Swallow	Threatened			S2S3B,S2S3M	3 Sensitive	1	2.8 ± 7.0
A	*Dolichonyx oryzivorus*	Bobolink	Threatened		Threatened	S3B,S3M	3 Sensitive	2	2.8 ± 7.0
A	*Asio flammeus*	Short-eared Owl	Special Concern	Special Concern	Special Concern	S2B,S2M	3 Sensitive	1	2.8 ± 7.0
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B,SUM	3 Sensitive	7	1.4 ± 0.0
A	*Tringa melanoleuca*	Greater Yellowlegs				S1?B,S5M	4 Secure	11	4.2 ± 0.0
A	*Aythya affinis*	Lesser Scaup				S1B,S4M	4 Secure	1	4.9 ± 65.0
A	*Chroicocephalus ridibundus*	Black-headed Gull				S1N,S2M	3 Sensitive	1	4.9 ± 65.0
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1S2B,S1S2M	3 Sensitive	2	2.2 ± 0.0
A	*Empidonax traillii*	Willow Flycatcher				S1S2B,S1S2M	3 Sensitive	3	1.0 ± 0.0
A	*Calidris bairdii*	Baird's Sandpiper				S1S2M	3 Sensitive	1	4.9 ± 65.0
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	3	2.3 ± 0.0
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	1	2.8 ± 7.0
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	3 Sensitive	1	4.2 ± 0.0
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	10	2.8 ± 7.0
A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	4 Secure	1	4.2 ± 1.0
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	2 May Be At Risk	2	2.8 ± 7.0
A	*Dendroica tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	1	2.8 ± 7.0
A	*Anas acuta*	Northern Pintail				S3B,S5M	3 Sensitive	6	0.8 ± 7.0
A	*Mergus serrator*	Red-breasted Merganser				S3B,S5M,S4S5N	4 Secure	1	4.9 ± 50.0
A	*Arenaria interpres*	Ruddy Turnstone				S3M	4 Secure	10	4.2 ± 0.0
A	*Melanitta nigra*	Black Scoter				S3M,S1S2N	3 Sensitive	1	4.9 ± 50.0
A	*Calidris maritima*	Purple Sandpiper				S3M,S3N	4 Secure	1	4.2 ± 0.0
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	1	2.8 ± 7.0
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	5	2.8 ± 7.0
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	1	2.8 ± 7.0
A	*Larus delawarensis*	Ring-billed Gull				S3S4B,S5M	4 Secure	1	0.2 ± 0.0
A	*Dendroica striata*	Blackpoll Warbler				S3S4B,S5M	4 Secure	1	2.8 ± 7.0
A	*Pluvialis squatarola*	Black-bellied Plover				S3S4M	4 Secure	9	4.2 ± 0.0
A	*Limosa haemastica*	Hudsonian Godwit				S3S4M	4 Secure	5	4.2 ± 0.0
A	*Calidris pusilla*	Semipalmated Sandpiper				S3S4M	4 Secure	17	4.2 ± 0.0
A	*Calidris melanotos*	Pectoral Sandpiper				S3S4M	4 Secure	1	4.9 ± 65.0
A	*Calidris alba*	Sanderling				S3S4M,S1N	3 Sensitive	1	4.2 ± 0.0
A	*Morus bassanus*	Northern Gannet				SHB,S5M	4 Secure	5	0.2 ± 0.0

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
I	*Lycaena dospassosi*	Salt Marsh Copper				S3	4 Secure	2	2.9 ± 0.0

4.3 LOCATION SENSITIVE SPECIES

The Department of Natural Resources in each Maritimes province considers a number of species "location sensitive". Concern about exploitation of location-sensitive species precludes inclusion of precise coordinates in this report. Those intersecting your study area are indicated below with "YES".

New Brunswick

Scientific *Name*	Common Name	SARA	Prov Legal Prot	Known within the Study Site?
Chrysemys picta picta	Eastern Painted Turtle			No
Chelydra serpentina	Snapping Turtle	Special Concern	Special Concern	No
Glyptemys insculpta	Wood Turtle	Threatened	Threatened	No
Haliaeetus leucocephalus	Bald Eagle		Endangered	No
Falco peregrinus pop. 1	**Peregrine Falcon - anatum/tundrius pop.**	**Special Concern**	**Endangered**	**YES**
Cicindela marginipennis	Cobblestone Tiger Beetle	Endangered	Endangered	No
Coenonympha nipisiquit	Maritime Ringlet	Endangered	Endangered	No
Bat Hibernaculum		[Endangered][1]	[Endangered][1]	No

1 *Myotis lucifugus* (Little Brown Myotis), *Myotis septentrionalis* (Long-eared Myotis), and *Perimyotis subflavus* (Tri-colored Bat or Eastern Pipistrelle) are all Endangered under the Federal Species at Risk Act and the NB Species at Risk Act.

4.4 SOURCE BIBLIOGRAPHY

The recipient of these data shall acknowledge the ACCDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

# recs	CITATION
62	Morrison, Guy. 2011. Maritime Shorebird Survey (MSS) database. Canadian Wildlife Service, Ottawa, 15939 surveys. 86171 recs.
23	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.
18	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
17	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
3	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2003.
2	David, M. 2000. CNPA website. Club de naturalistes de la Peninsule acadienne (CNPA), www.francophone.net/cnpa/rares. 16 recs.
2	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs.
2	Webster, R.P. & Edsall, J. 2007. 2005 New Brunswick Rare Butterfly Survey. Environmental Trust Fund, unpublished report, 232 recs.
1	Amirault, D.L. 1997-2000. Unpublished files. Canadian Wildlife Service, Sackville, 470 recs.
1	Clayden, S.R. 1998. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, 19759 recs.
1	Hilaire Chiasson Rare vascular plant specimens in the Hilaire Chiasson Herabarium. 2015.
1	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc.
1	Wilhelm, S.I. et al. 2011. Colonial Waterbird Database.
1	Wilhelm, S.I. et al. 2011. Colonial Waterbird Database. Canadian Wildlife Service, Sackville, 2698 sites, 9718 recs (8192 obs).

5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 11729 records of 116 vertebrate and 349 records of 37 invertebrate fauna; 2096 records of 173 vascular, 22 records of 22 nonvascular flora (attached: *ob100km.xls).

Taxa within 100 km of the study site that are rare and/or endangered in the province in which the study site occurs. All ranks correspond to the province in which the study site falls, even for out-of-province records. Taxa are listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± the precision, in km, of the record).

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Charadrius melodus melodus*	Piping Plover melodus ssp	Endangered	Endangered	Endangered	S1B,S1M	1 At Risk	1639	6.9 ± 0.0	NB
A	*Dermochelys coriacea (Atlantic pop.)*	Leatherback Sea Turtle - Atlantic pop.	Endangered	Endangered	Endangered	S1S2N	1 At Risk	1	75.1 ± 1.0	NB
A	*Calidris canutus rufa*	Red Knot rufa ssp	Endangered		Endangered	S2M	1 At Risk	374	4.2 ± 0.0	NB
A	*Delphinapterus leucas*	Beluga Whale - St Lawrence Estuary pop.	Endangered	Threatened		SNA		3	18.2 ± 1.0	NB
A	*Rangifer tarandus pop. 2*	Woodland Caribou (Atlantic-Gasp├⌐sie pop.)	Endangered	Endangered	Extirpated	SX	0.1 Extirpated	1	63.1 ± 1.0	NB
A	*Sturnella magna*	Eastern Meadowlark	Threatened		Threatened	S1B,S1M	2 May Be At Risk	2	39.6 ± 0.0	NB
A	*Hylocichla mustelina*	Wood Thrush	Threatened		Threatened	S1S2B,S1S2M	2 May Be At Risk	22	4.2 ± 1.0	NB
A	*Caprimulgus vociferus*	Whip-Poor-Will	Threatened	Threatened	Threatened	S2B,S2M	1 At Risk	5	28.2 ± 0.0	NB
A	*Hirundo rustica*	Barn Swallow	Threatened		Threatened	S2B,S2M	3 Sensitive	202	2.8 ± 7.0	NB
A	*Catharus bicknelli*	Bicknell's Thrush	Threatened	Special Concern	Threatened	S2B,S2M	1 At Risk	1	87.7 ± 7.0	NB
A	*Glyptemys insculpta*	Wood Turtle	Threatened	Threatened	Threatened	S2S3	1 At Risk	10	71.4 ± 1.0	NB
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	83	21.3 ± 7.0	NB
A	*Riparia riparia*	Bank Swallow	Threatened			S2S3B,S2S3M	3 Sensitive	284	2.8 ± 7.0	NB
A	*Contopus cooperi*	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	80	7.2 ± 7.0	NB
A	*Wilsonia canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	137	9.5 ± 0.0	NB
A	*Dolichonyx oryzivorus*	Bobolink	Threatened		Threatened	S3B,S3M	3 Sensitive	318	2.8 ± 7.0	NB
A	*Chordeiles minor*	Common Nighthawk	Threatened	Threatened	Threatened	S3B,S4M	1 At Risk	75	23.4 ± 24.0	NB
A	*Anguilla rostrata*	American Eel	Threatened		Threatened	S4	4 Secure	3	97.1 ± 1.0	NB
A	*Vermivora chrysoptera*	Golden-winged Warbler	Threatened	Threatened		SNA	8 Accidental	1	41.9 ± 1.0	NB
A	*Histrionicus histrionicus pop. 1*	Harlequin Duck - Eastern pop.	Special Concern	Special Concern	Endangered	S1B,S1S2N,S2M	1 At Risk	3	11.4 ± 0.0	NB
A	*Falco peregrinus pop. 1*	Peregrine Falcon - anatum/tundrius	Special Concern	Special Concern	Endangered	S1B,S3M	1 At Risk	4	4.9 ± 65.0	NB
A	*Asio flammeus*	Short-eared Owl	Special Concern	Special Concern	Special Concern	S2B,S2M	3 Sensitive	17	2.8 ± 7.0	NB
A	*Bucephala islandica (Eastern pop.)*	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2M,S2N	3 Sensitive	31	23.5 ± 0.0	NB
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B,S3M	2 May Be At Risk	24	16.3 ± 7.0	NB
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern			S3B,S3S4N,SUM	3 Sensitive	103	10.6 ± 0.0	NB
A	*Phalaropus lobatus*	Red-necked Phalarope	Special Concern			S3M	3 Sensitive	6	18.1 ± 0.0	NB
A	*Phocoena phocoena (NW Atlantic pop.)*	Harbour Porpoise - Northwest Atlantic pop.	Special Concern	Threatened		S4		2	14.5 ± 1.0	NB
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern		Special Concern	S4B,S4M	4 Secure	124	10.4 ± 7.0	NB
A	*Podiceps auritus*	Horned Grebe	Special Concern		Special Concern	S4N,S4M	4 Secure	2	20.3 ± 1.0	NB
A	*Tryngites subruficollis*	Buff-breasted Sandpiper	Special Concern			SNA	8 Accidental	22	7.3 ± 1.0	NB
A	*Odobenus rosmarus rosmarus*	Atlantic Walrus	Special Concern		Extirpated	SX		6	9.4 ± 1.0	NB
A	*Bubo scandiacus*	Snowy Owl	Not At Risk			S1N,S2S3M	4 Secure	14	7.3 ± 1.0	NB
A	*Fulica americana*	American Coot	Not At Risk			S1S2B,S1S2M	3 Sensitive	4	17.2 ± 7.0	NB
A	*Aegolius funereus*	Boreal Owl	Not At Risk			S1S2B,SUM	2 May Be At Risk	7	10.4 ± 7.0	NB
A	*Buteo lineatus*	Red-shouldered Hawk	Not At Risk	Special Concern		S2B,S2M	2 May Be At Risk	4	22.8 ± 0.0	NB
A	*Globicephala melas*	Long-finned Pilot Whale	Not At Risk			S2S3		1	81.8 ± 1.0	NB
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	9	62.7 ± 1.0	NB
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B,SUM	3 Sensitive	420	1.4 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Podiceps grisegena*	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive	3	42.7 ± 1.0	NB
A	*Haliaeetus leucocephalus*	Bald Eagle	Not At Risk		Endangered	S4	1 At Risk	155	13.2 ± 2.0	NB
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SU	5 Undetermined	9	68.0 ± 1.0	NB
A	*Morone saxatilis*	Striped Bass	E,E,SC			S3	2 May Be At Risk	6	23.8 ± 10.0	NB
A	*Tringa melanoleuca*	Greater Yellowlegs				S1?B,S5M	4 Secure	537	4.2 ± 0.0	NB
A	*Aythya americana*	Redhead				S1B,S1M	8 Accidental	1	41.9 ± 1.0	NB
A	*Grus canadensis*	Sandhill Crane				S1B,S1M	8 Accidental	1	98.9 ± 1.0	NB
A	*Bartramia longicauda*	Upland Sandpiper				S1B,S1M	3 Sensitive	6	40.7 ± 1.0	NB
A	*Phalaropus tricolor*	Wilson's Phalarope				S1B,S1M	3 Sensitive	19	11.3 ± 1.0	NB
A	*Oxyura jamaicensis*	Ruddy Duck				S1B,S2S3M	4 Secure	11	14.3 ± 1.0	NB
A	*Uria aalge*	Common Murre				S1B,S3N,S3M	4 Secure	6	21.0 ± 1.0	NB
A	*Aythya affinis*	Lesser Scaup				S1B,S4M	4 Secure	31	4.9 ± 65.0	NB
A	*Aythya marila*	Greater Scaup				S1B,S4M,S2N	4 Secure	20	13.4 ± 39.0	NB
A	*Eremophila alpestris*	Horned Lark				S1B,S4N,S5M	2 May Be At Risk	104	7.2 ± 7.0	NB
A	*Sterna paradisaea*	Arctic Tern				S1B,SUM	2 May Be At Risk	22	21.3 ± 7.0	NB
A	*Branta bernicla*	Brant				S1N, S2S3M	4 Secure	60	17.3 ± 10.0	NB
A	*Chroicocephalus ridibundus*	Black-headed Gull				S1N,S2M	3 Sensitive	6	4.9 ± 65.0	NB
A	*Butorides virescens*	Green Heron				S1S2B,S1S2M	3 Sensitive	2	40.6 ± 0.0	NB
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1S2B,S1S2M	3 Sensitive	243	2.2 ± 0.0	NB
A	*Empidonax traillii*	Willow Flycatcher				S1S2B,S1S2M	3 Sensitive	9	1.0 ± 0.0	NB
A	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow				S1S2B,S1S2M	2 May Be At Risk	2	39.6 ± 0.0	NB
A	*Troglodytes aedon*	House Wren				S1S2B,S1S2M	5 Undetermined	2	45.4 ± 0.0	NB
A	*Rissa tridactyla*	Black-legged Kittiwake				S1S2B,S4N,S5M	4 Secure	24	21.0 ± 1.0	NB
A	*Calidris bairdii*	Baird's Sandpiper				S1S2M	3 Sensitive	26	4.9 ± 65.0	NB
A	*Mimus polyglottos*	Northern Mockingbird				S2B,S2M	3 Sensitive	41	11.3 ± 1.0	NB
A	*Toxostoma rufum*	Brown Thrasher				S2B,S2M	3 Sensitive	14	17.6 ± 7.0	NB
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	36	2.3 ± 0.0	NB
A	*Anas strepera*	Gadwall				S2B,S3M	4 Secure	48	5.1 ± 0.0	NB
A	*Alca torda*	Razorbill				S2B,S3N,S3M	4 Secure	7	40.7 ± 7.0	NB
A	*Pinicola enucleator*	Pine Grosbeak				S2B,S4S5N,S4S5M	3 Sensitive	10	42.6 ± 7.0	NB
A	*Tringa solitaria*	Solitary Sandpiper				S2B,S5M	4 Secure	28	7.5 ± 0.0	NB
A	*Oceanodroma leucorhoa*	Leach's Storm-Petrel				S2B,SUM	3 Sensitive	1	11.3 ± 0.0	NB
A	*Chen caerulescens*	Snow Goose				S2M	4 Secure	3	42.7 ± 1.0	NB
A	*Phalacrocorax carbo*	Great Cormorant				S2N,S2M	4 Secure	4	12.6 ± 4.0	NB
A	*Somateria spectabilis*	King Eider				S2N,S2M	4 Secure	2	42.7 ± 1.0	NB
A	*Larus hyperboreus*	Glaucous Gull				S2N,S2M	4 Secure	12	7.0 ± 0.0	NB
A	*Asio otus*	Long-eared Owl				S2S3	5 Undetermined	7	10.4 ± 7.0	NB
A	*Picoides dorsalis*	American Three-toed Woodpecker				S2S3	3 Sensitive	10	24.2 ± 1.0	NB
A	*Salmo salar*	Atlantic Salmon				S2S3	2 May Be At Risk	116	23.6 ± 1.0	NB
A	*Anas clypeata*	Northern Shoveler				S2S3B,S2S3M	4 Secure	56	5.1 ± 0.0	NB
A	*Myiarchus crinitus*	Great Crested Flycatcher				S2S3B,S2S3M	3 Sensitive	3	81.8 ± 7.0	NB
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	148	2.8 ± 7.0	NB
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	3 Sensitive	84	4.2 ± 0.0	NB
A	*Calcarius lapponicus*	Lapland Longspur				S2S3N,SUM	3 Sensitive	4	20.6 ± 1.0	NB
A	*Cepphus grylle*	Black Guillemot				S3	4 Secure	41	21.0 ± 1.0	NB
A	*Loxia curvirostra*	Red Crossbill				S3	4 Secure	18	7.2 ± 7.0	NB
A	*Carduelis pinus*	Pine Siskin				S3	4 Secure	92	7.2 ± 7.0	NB
A	*Sorex maritimensis*	Maritime Shrew				S3	4 Secure	1	89.1 ± 0.0	NB
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	4 Secure	2	44.7 ± 0.0	NB
A	*Rallus limicola*	Virginia Rail				S3B,S3M	3 Sensitive	9	11.4 ± 0.0	NB
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	496	2.8 ± 7.0	NB
A	*Tringa semipalmata*	Willet				S3B,S3M	3 Sensitive	344	7.2 ± 7.0	NB
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B,S3M	4 Secure	48	16.3 ± 7.0	NB
A	*Vireo gilvus*	Warbling Vireo				S3B,S3M	4 Secure	30	16.3 ± 7.0	NB
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	4 Secure	12	40.5 ± 7.0	NB

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A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	4 Secure	5	4.2 ± 1.0	NB
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	2 May Be At Risk	86	2.8 ± 7.0	NB
A	*Icterus galbula*	Baltimore Oriole				S3B,S3M	4 Secure	11	20.3 ± 1.0	NB
A	*Somateria mollissima*	Common Eider				S3B,S4M,S3N	4 Secure	120	10.5 ± 16.0	NB
A	*Dendroica tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	96	2.8 ± 7.0	NB
A	*Anas acuta*	Northern Pintail				S3B,S5M	3 Sensitive	182	0.8 ± 7.0	NB
A	*Mergus serrator*	Red-breasted Merganser				S3B,S5M,S4S5N	4 Secure	163	4.9 ± 50.0	NB
A	*Arenaria interpres*	Ruddy Turnstone				S3M	4 Secure	513	4.2 ± 0.0	NB
A	*Phalaropus fulicarius*	Red Phalarope				S3M	3 Sensitive	2	61.5 ± 0.0	NB
A	*Melanitta nigra*	Black Scoter				S3M,S1S2N	3 Sensitive	122	4.9 ± 50.0	NB
A	*Bucephala albeola*	Bufflehead				S3M,S2N	3 Sensitive	17	20.3 ± 1.0	NB
A	*Calidris maritima*	Purple Sandpiper				S3M,S3N	4 Secure	19	4.2 ± 0.0	NB
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	100	2.8 ± 7.0	NB
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	629	2.8 ± 7.0	NB
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	154	2.8 ± 7.0	NB
A	*Larus delawarensis*	Ring-billed Gull				S3S4B,S5M	4 Secure	324	0.2 ± 0.0	NB
A	*Dendroica striata*	Blackpoll Warbler				S3S4B,S5M	4 Secure	37	2.8 ± 7.0	NB
A	*Pluvialis squatarola*	Black-bellied Plover				S3S4M	4 Secure	487	4.2 ± 0.0	NB
A	*Limosa haemastica*	Hudsonian Godwit				S3S4M	4 Secure	296	4.2 ± 0.0	NB
A	*Calidris pusilla*	Semipalmated Sandpiper				S3S4M	4 Secure	626	4.2 ± 0.0	NB
A	*Calidris melanotos*	Pectoral Sandpiper				S3S4M	4 Secure	120	4.9 ± 65.0	NB
A	*Calidris alba*	Sanderling				S3S4M,S1N	3 Sensitive	366	4.2 ± 0.0	NB
A	*Morus bassanus*	Northern Gannet				SHB,S5M	4 Secure	178	0.2 ± 0.0	NB
I	*Coenonympha nipisiquit*	Maritime Ringlet	Endangered	Endangered	Endangered	S1	1 At Risk	38	72.1 ± 7.0	NB
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	3 Sensitive	2	88.1 ± 0.0	NB
I	*Bombus terricola*	Yellow-banded Bumblebee	Special Concern			S3?	3 Sensitive	7	82.0 ± 0.0	NB
I	*Leucorrhinia patricia*	Canada Whiteface				S1	2 May Be At Risk	1	49.2 ± 1.0	NB
I	*Plebejus saepiolus*	Greenish Blue				S1S2	4 Secure	24	21.3 ± 7.0	NB
I	*Strymon melinus*	Grey Hairstreak				S2	4 Secure	8	18.3 ± 0.0	NB
I	*Coenagrion interrogatum*	Subarctic Bluet				S2	3 Sensitive	1	86.5 ± 1.0	NB
I	*Callophrys henrici*	Henry's Elfin				S2S3	4 Secure	3	81.5 ± 1.0	NB
I	*Desmocerus palliatus*	Elderberry Borer				S3		2	76.5 ± 5.0	NB
I	*Carabus maeander*	a Ground Beetle				S3	5 Undetermined	1	13.3 ± 1.0	NB
I	*Xylotrechus quadrimaculatus*	a Longhorned Beetle				S3		1	42.3 ± 1.0	NB
I	*Xylotrechus undulatus*	a Longhorned Beetle				S3		2	7.7 ± 1.0	NB
I	*Calathus gregarius*	a Ground Beetle				S3	4 Secure	1	79.3 ± 1.0	NB
I	*Hyperaspis disconotata*	a Ladybird Beetle				S3	5 Undetermined	1	82.4 ± 5.0	NB
I	*Euphyes bimacula*	Two-spotted Skipper				S3	4 Secure	2	77.0 ± 10.0	NB
I	*Papilio brevicauda*	Short-tailed Swallowtail				S3	4 Secure	43	11.9 ± 0.0	NB
I	*Papilio brevicauda bretonensis*	Short-tailed Swallowtail				S3	4 Secure	12	44.2 ± 0.0	NB
I	*Lycaena hyllus*	Bronze Copper				S3	3 Sensitive	1	97.3 ± 0.0	NB
I	*Lycaena dospassosi*	Salt Marsh Copper				S3	4 Secure	100	2.9 ± 0.0	NB
I	*Satyrium acadica*	Acadian Hairstreak				S3	4 Secure	3	75.1 ± 7.0	NB
I	*Callophrys polios*	Hoary Elfin				S3	4 Secure	3	18.8 ± 0.0	NB
I	*Callophrys eryphon*	Western Pine Elfin				S3	4 Secure	4	81.5 ± 1.0	NB
I	*Plebejus idas*	Northern Blue				S3	4 Secure	28	6.6 ± 0.0	NB
I	*Plebejus idas empetri*	Crowberry Blue				S3	4 Secure	8	13.2 ± 10.0	NB
I	*Speyeria aphrodite*	Aphrodite Fritillary				S3	4 Secure	2	37.7 ± 1.0	NB
I	*Boloria eunomia*	Bog Fritillary				S3	5 Undetermined	5	79.5 ± 0.0	NB
I	*Boloria chariclea*	Arctic Fritillary				S3	4 Secure	7	70.6 ± 7.0	NB
I	*Boloria chariclea grandis*	Purple Lesser Fritillary				S3	4 Secure	4	78.1 ± 10.0	NB
I	*Polygonia satyrus*	Satyr Comma				S3	4 Secure	1	82.9 ± 7.0	NB
I	*Polygonia gracilis*	Hoary Comma				S3	4 Secure	10	75.1 ± 7.0	NB
I	*Somatochlora albicincta*	Ringed Emerald				S3	4 Secure	1	99.0 ± 1.0	NB
I	*Somatochlora cingulata*	Lake Emerald				S3	4 Secure	2	78.6 ± 1.0	NB

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I	*Somatochlora forcipata*	Forcipate Emerald				S3	4 Secure	3	64.6 ± 1.0	NB
I	*Lestes eurinus*	Amber-Winged Spreadwing				S3	4 Secure	1	78.6 ± 1.0	NB
I	*Satyrium liparops*	Striped Hairstreak				S3S4	4 Secure	9	24.1 ± 0.0	NB
I	*Satyrium liparops strigosum*	Striped Hairstreak				S3S4	4 Secure	2	74.4 ± 0.0	NB
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle				SH	2 May Be At Risk	6	13.3 ± 1.0	NB
N	*Bryum blindii*	a Moss				S1?	2 May Be At Risk	1	99.5 ± 1.0	NB
N	*Cinclidium stygium*	Sooty Cupola Moss				S1?	2 May Be At Risk	1	81.2 ± 0.0	NB
N	*Tortula cernua*	Narrow-Leafed Chain-Teeth Moss				S1?	2 May Be At Risk	1	99.5 ± 1.0	NB
N	*Dicranum bonjeanii*	Bonjean's Broom Moss				S1?	2 May Be At Risk	1	88.4 ± 1.0	NB
N	*Paludella squarrosa*	Tufted Fen Moss				S1?	2 May Be At Risk	1	81.2 ± 0.0	NB
N	*Distichium inclinatum*	Inclined Iris Moss				S1S2	2 May Be At Risk	1	99.5 ± 1.0	NB
N	*Calypogeia neesiana*	Nees' Pouchwort				S1S3	6 Not Assessed	1	50.3 ± 1.0	NB
N	*Cephalozia connivens*	Forcipated Pincerwort				S1S3	6 Not Assessed	1	14.9 ± 10.0	NB
N	*Lophozia badensis*	Dwarf Notchwort				S1S3	6 Not Assessed	1	99.5 ± 1.0	NB
N	*Meesia triquetra*	Three-ranked Cold Moss				S2	2 May Be At Risk	1	55.2 ± 10.0	NB
N	*Sphagnum lindbergii*	Lindberg's Peat Moss				S2	3 Sensitive	1	79.7 ± 0.0	NB
N	*Tortula mucronifolia*	Mucronate Screw Moss				S2	3 Sensitive	1	99.5 ± 1.0	NB
N	*Anomobryum filiforme*	a moss				S2	5 Undetermined	1	99.5 ± 1.0	NB
N	*Bryum uliginosum*	a Moss				S2S3	3 Sensitive	1	93.5 ± 9.0	NB
N	*Orthotrichum speciosum*	Showy Bristle Moss				S2S3	5 Undetermined	1	93.5 ± 9.0	NB
N	*Scorpidium scorpioides*	Hooked Scorpion Moss				S2S3	3 Sensitive	1	81.2 ± 0.0	NB
N	*Dicranella rufescens*	Red Forklet Moss				S3?	5 Undetermined	1	50.4 ± 7.0	NB
N	*Dicranella varia*	a Moss				S3S4	4 Secure	1	93.5 ± 9.0	NB
N	*Dicranum leioneuron*	a Dicranum Moss				S3S4	4 Secure	1	89.8 ± 10.0	NB
N	*Fissidens bryoides*	Lesser Pocket Moss				S3S4	4 Secure	1	93.5 ± 9.0	NB
N	*Abietinella abietina*	Wiry Fern Moss				S3S4	4 Secure	1	93.5 ± 9.0	NB
N	*Stereocaulon paschale*	Easter Foam Lichen				S3S4	5 Undetermined	1	91.3 ± 1.0	NB
P	*Symphyotrichum laurentianum*	Gulf of St Lawrence Aster	Threatened	Threatened	Endangered	S1	1 At Risk	85	17.9 ± 0.0	NB
P	*Symphyotrichum subulatum (Bathurst pop)*	Bathurst Aster - Bathurst pop.	Special Concern	Special Concern	Endangered	S2	1 At Risk	159	61.4 ± 0.0	NB
P	*Lechea maritima var. subcylindrica*	Beach Pinweed	Special Concern			S2	3 Sensitive	20	80.4 ± 0.0	NB
P	*Pseudognaphalium obtusifolium*	Eastern Cudweed				S1	2 May Be At Risk	1	83.4 ± 0.0	NB
P	*Betula michauxii*	Michaux's Dwarf Birch				S1	2 May Be At Risk	3	98.9 ± 0.0	NB
P	*Draba glabella*	Rock Whitlow-Grass				S1	2 May Be At Risk	7	87.0 ± 0.0	NB
P	*Draba incana*	Twisted Whitlow-grass				S1	2 May Be At Risk	5	18.3 ± 1.0	NB
P	*Stellaria crassifolia*	Fleshy Stitchwort				S1	2 May Be At Risk	1	99.5 ± 10.0	NB
P	*Stellaria longipes*	Long-stalked Starwort				S1	2 May Be At Risk	17	15.8 ± 0.0	NB
P	*Vaccinium boreale*	Northern Blueberry				S1	2 May Be At Risk	1	12.2 ± 1.0	NB
P	*Vaccinium uliginosum*	Alpine Bilberry				S1	2 May Be At Risk	4	17.9 ± 2.0	NB
P	*Chamaesyce polygonifolia*	Seaside Spurge				S1	2 May Be At Risk	3	30.4 ± 1.0	NB
P	*Bartonia virginica*	Yellow Bartonia				S1	2 May Be At Risk	3	88.2 ± 0.0	NB
P	*Ranunculus lapponicus*	Lapland Buttercup				S1	2 May Be At Risk	1	84.5 ± 0.0	NB
P	*Ranunculus sceleratus*	Cursed Buttercup				S1	2 May Be At Risk	2	17.7 ± 2.0	NB
P	*Salix serissima*	Autumn Willow				S1	2 May Be At Risk	4	79.6 ± 0.0	NB
P	*Carex glareosa var. amphigena*	Gravel Sedge				S1	2 May Be At Risk	3	0.3 ± 1.0	NB
P	*Carex rariflora*	Loose-flowered Alpine Sedge				S1	2 May Be At Risk	9	11.0 ± 1.0	NB
P	*Carex viridula var. elatior*	Greenish Sedge				S1	2 May Be At Risk	11	79.6 ± 0.0	NB
P	*Cyperus bipartitus*	Shining Flatsedge				S1	2 May Be At Risk	3	98.2 ± 0.0	NB
P	*Zigadenus elegans ssp. glaucus*	Mountain Death Camas				S1	2 May Be At Risk	7	87.0 ± 0.0	NB

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P	*Malaxis brachypoda*	White Adder's-Mouth				S1	2 May Be At Risk	2	79.6 ± 0.0	NB
P	*Catabrosa aquatica var. laurentiana*	Water Whorl Grass				S1	2 May Be At Risk	2	21.2 ± 0.0	NB
P	*Dichanthelium xanthophysum*	Slender Panic Grass				S1	2 May Be At Risk	3	84.9 ± 0.0	NB
P	*Puccinellia ambigua*	Dwarf Alkali Grass				S1	5 Undetermined	2	8.8 ± 0.0	NB
P	*Zizania aquatica var. brevis*	Indian Wild Rice				S1	2 May Be At Risk	3	98.2 ± 0.0	NB
P	*Cystopteris laurentiana*	Laurentian Bladder Fern				S1	2 May Be At Risk	1	90.7 ± 0.0	NB
P	*Bidens heterodoxa*	Connecticut Beggar-Ticks				S1?	2 May Be At Risk	1	12.1 ± 1.0	NB
P	*Carex crawei*	Crawe's Sedge				S1S2	2 May Be At Risk	1	54.0 ± 0.0	NB
P	*Cuscuta cephalanthi*	Buttonbush Dodder				S1S3	2 May Be At Risk	19	76.5 ± 1.0	NB
P	*Osmorhiza depauperata*	Blunt Sweet Cicely				S2	3 Sensitive	1	80.5 ± 1.0	NB
P	*Ionactis linariifolius*	Stiff Aster				S2	3 Sensitive	38	81.1 ± 0.0	NB
P	*Symphyotrichum subulatum*	Annual Saltmarsh Aster				S2	1 At Risk	42	61.4 ± 0.0	NB
P	*Arabis drummondii*	Drummond's Rockcress				S2	3 Sensitive	3	85.1 ± 1.0	NB
P	*Sagina nodosa*	Knotted Pearlwort				S2	3 Sensitive	6	20.3 ± 1.0	NB
P	*Atriplex franktonii*	Frankton's Saltbush				S2	4 Secure	6	4.6 ± 0.0	NB
P	*Chenopodium rubrum*	Red Pigweed				S2	3 Sensitive	6	80.2 ± 0.0	NB
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	3 Sensitive	1	89.2 ± 10.0	NB
P	*Nuphar lutea ssp. rubrodisca*	Red-disked Yellow Pond-lily				S2	3 Sensitive	1	98.9 ± 0.0	NB
P	*Crataegus scabrida*	Rough Hawthorn				S2	3 Sensitive	2	85.0 ± 1.0	NB
P	*Rosa acicularis ssp. sayi*	Prickly Rose				S2	2 May Be At Risk	63	81.1 ± 0.0	NB
P	*Salix candida*	Sage Willow				S2	3 Sensitive	54	9.2 ± 0.0	NB
P	*Sagittaria calycina var. spongiosa*	Long-lobed Arrowhead				S2	4 Secure	8	98.2 ± 0.0	NB
P	*Carex gynocrates*	Northern Bog Sedge				S2	3 Sensitive	11	79.6 ± 0.0	NB
P	*Carex livida var. radicaulis*	Livid Sedge				S2	3 Sensitive	5	16.5 ± 0.0	NB
P	*Carex salina*	Saltmarsh Sedge				S2	3 Sensitive	14	1.1 ± 0.0	NB
P	*Carex sprengelii*	Longbeak Sedge				S2	3 Sensitive	1	90.2 ± 0.0	NB
P	*Carex tenuiflora*	Sparse-Flowered Sedge				S2	2 May Be At Risk	2	32.8 ± 10.0	NB
P	*Carex albicans var. emmonsii*	White-tinged Sedge				S2	3 Sensitive	7	80.4 ± 0.0	NB
P	*Eriophorum gracile*	Slender Cottongrass				S2	2 May Be At Risk	8	10.3 ± 0.0	NB
P	*Blysmus rufus*	Red Bulrush				S2	3 Sensitive	40	8.8 ± 0.0	NB
P	*Juncus vaseyi*	Vasey Rush				S2	3 Sensitive	29	17.7 ± 0.0	NB
P	*Amerorchis rotundifolia*	Small Round-leaved Orchis				S2	2 May Be At Risk	12	23.0 ± 3.0	NB
P	*Calypso bulbosa var. americana*	Calypso				S2	2 May Be At Risk	2	21.3 ± 0.0	NB
P	*Coeloglossum viride var. virescens*	Long-bracted Frog Orchid				S2	2 May Be At Risk	1	93.5 ± 1.0	NB
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	1	87.4 ± 2.0	NB
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain				S2	3 Sensitive	18	39.4 ± 5.0	NB
P	*Agrostis mertensii*	Northern Bent Grass				S2	2 May Be At Risk	15	81.7 ± 1.0	NB
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S2	3 Sensitive	1	97.3 ± 0.0	NB
P	*Piptatherum canadense*	Canada Rice Grass				S2	3 Sensitive	1	85.2 ± 0.0	NB
P	*Poa glauca*	Glaucous Blue Grass				S2	4 Secure	3	90.7 ± 0.0	NB
P	*Puccinellia laurentiana*	Nootka Alkali Grass				S2	3 Sensitive	17	9.0 ± 0.0	NB
P	*Puccinellia phryganodes*	Creeping Alkali Grass				S2	3 Sensitive	2	9.2 ± 0.0	NB
P	*Piptatherum pungens*	Slender Rice Grass				S2	2 May Be At Risk	6	74.9 ± 0.0	NB
P	*Woodwardia virginica*	Virginia Chain Fern				S2	3 Sensitive	7	88.5 ± 0.0	NB
P	*Selaginella selaginoides*	Low Spikemoss				S2	3 Sensitive	14	79.6 ± 0.0	NB
P	*Symphyotrichum novi-*	New York Aster				S2?	5 Undetermined	1	21.0 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
	belgii var. crenifolium									
P	*Crataegus macrosperma*	Big-Fruit Hawthorn				S2?	5 Undetermined	1	85.0 ± 0.0	NB
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2?	4 Secure	3	20.8 ± 0.0	NB
P	*Salix myricoides*	Bayberry Willow				S2?	3 Sensitive	3	42.2 ± 5.0	NB
P	*Platanthera huronensis*	Fragrant Green Orchid				S2?	5 Undetermined	1	87.0 ± 0.0	NB
P	*Callitriche hermaphroditica*	Northern Water-starwort				S2S3	4 Secure	4	29.5 ± 2.0	NB
P	*Lonicera oblongifolia*	Swamp Fly Honeysuckle				S2S3	3 Sensitive	1	17.9 ± 2.0	NB
P	*Elatine americana*	American Waterwort				S2S3	3 Sensitive	6	68.8 ± 0.0	NB
P	*Rumex maritimus var. persicarioides*	Peach-leaved Dock				S2S3	5 Undetermined	2	12.2 ± 4.0	NB
P	*Rumex pallidus*	Seabeach Dock				S2S3	3 Sensitive	5	20.7 ± 0.0	NB
P	*Rubus pensilvanicus*	Pennsylvania Blackberry				S2S3	4 Secure	2	39.1 ± 2.0	NB
P	*Galium labradoricum*	Labrador Bedstraw				S2S3	3 Sensitive	23	9.2 ± 0.0	NB
P	*Valeriana uliginosa*	Swamp Valerian				S2S3	3 Sensitive	8	79.6 ± 0.0	NB
P	*Carex adusta*	Lesser Brown Sedge				S2S3	4 Secure	4	64.4 ± 3.0	NB
P	*Juncus brachycephalus*	Small-Head Rush				S2S3	3 Sensitive	2	79.6 ± 0.0	NB
P	*Corallorhiza maculata var. maculata*	Spotted Coralroot				S2S3	3 Sensitive	1	89.6 ± 10.0	NB
P	*Listera auriculata*	Auricled Twayblade				S2S3	3 Sensitive	11	54.5 ± 0.0	NB
P	*Stuckenia filiformis*	Thread-leaved Pondweed				S2S3	3 Sensitive	2	18.3 ± 0.0	NB
P	*Stuckenia filiformis ssp. alpina*	Thread-leaved Pondweed				S2S3	3 Sensitive	2	18.0 ± 1.0	NB
P	*Potamogeton praelongus*	White-stemmed Pondweed				S2S3	4 Secure	1	35.9 ± 0.0	NB
P	*Ophioglossum pusillum*	Northern Adder's-tongue				S2S3	3 Sensitive	4	17.9 ± 2.0	NB
P	*Panax trifolius*	Dwarf Ginseng				S3	3 Sensitive	1	7.5 ± 3.0	NB
P	*Arnica lanceolata*	Lance-leaved Arnica				S3	4 Secure	3	85.0 ± 50.0	NB
P	*Artemisia campestris ssp. caudata*	Field Wormwood				S3	4 Secure	5	64.1 ± 5.0	NB
P	*Bidens hyperborea*	Estuary Beggarticks				S3	4 Secure	13	34.5 ± 0.0	NB
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3	4 Secure	4	82.2 ± 0.0	NB
P	*Symphyotrichum boreale*	Boreal Aster				S3	3 Sensitive	4	52.4 ± 1.0	NB
P	*Betula pumila*	Bog Birch				S3	4 Secure	114	4.2 ± 1.0	NB
P	*Arabis glabra*	Tower Mustard				S3	5 Undetermined	7	90.7 ± 0.0	NB
P	*Stellaria humifusa*	Saltmarsh Starwort				S3	4 Secure	11	7.9 ± 1.0	NB
P	*Hudsonia tomentosa*	Woolly Beach-heath				S3	4 Secure	93	15.4 ± 0.0	NB
P	*Crassula aquatica*	Water Pygmyweed				S3	4 Secure	8	68.8 ± 0.0	NB
P	*Elatine minima*	Small Waterwort				S3	4 Secure	1	97.9 ± 1.0	NB
P	*Hedysarum alpinum*	Alpine Sweet-vetch				S3	4 Secure	5	89.1 ± 0.0	NB
P	*Gentianella amarella ssp. acuta*	Northern Gentian				S3	4 Secure	6	18.7 ± 1.0	NB
P	*Geranium bicknellii*	Bicknell's Crane's-bill				S3	4 Secure	3	55.0 ± 5.0	NB
P	*Myriophyllum verticillatum*	Whorled Water Milfoil				S3	4 Secure	5	11.3 ± 0.0	NB
P	*Teucrium canadense*	Canada Germander				S3	3 Sensitive	18	72.8 ± 0.0	NB
P	*Nuphar lutea ssp. pumila*	Small Yellow Pond-lily				S3	4 Secure	4	34.5 ± 0.0	NB
P	*Epilobium strictum*	Downy Willowherb				S3	4 Secure	3	10.2 ± 0.0	NB
P	*Polygonum arifolium*	Halberd-leaved Tearthumb				S3	4 Secure	5	88.6 ± 0.0	NB
P	*Polygonum punctatum var. confertiflorum*	Dotted Smartweed				S3	4 Secure	3	69.4 ± 0.0	NB
P	*Polygonum scandens*	Climbing False Buckwheat				S3	4 Secure	3	86.2 ± 0.0	NB
P	*Samolus valerandi ssp. parviflorus*	Seaside Brookweed				S3	4 Secure	42	65.7 ± 9.0	NB
P	*Pyrola minor*	Lesser Pyrola				S3	4 Secure	4	52.4 ± 0.0	NB
P	*Ranunculus gmelinii*	Gmelin's Water Buttercup				S3	4 Secure	15	17.6 ± 2.0	NB
P	*Rosa palustris*	Swamp Rose				S3	4 Secure	1	88.1 ± 1.0	NB
P	*Sanguisorba canadensis*	Canada Burnet				S3	4 Secure	75	3.6 ± 0.0	NB
P	*Galium boreale*	Northern Bedstraw				S3	4 Secure	2	50.1 ± 1.0	NB
P	*Salix pedicellaris*	Bog Willow				S3	4 Secure	8	18.2 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Comandra umbellata*	Bastard's Toadflax				S3	4 Secure	64	13.8 ± 0.0	NB
P	*Comandra umbellata ssp. umbellata*	Bastard's Toadflax				S3	4 Secure	6	22.6 ± 0.0	NB
P	*Parnassia glauca*	Fen Grass-of-Parnassus				S3	4 Secure	11	79.6 ± 0.0	NB
P	*Limosella australis*	Southern Mudwort				S3	4 Secure	19	48.0 ± 1.0	NB
P	*Veronica serpyllifolia ssp. humifusa*	Thyme-Leaved Speedwell				S3	4 Secure	4	7.5 ± 3.0	NB
P	*Viola adunca*	Hooked Violet				S3	4 Secure	3	17.9 ± 2.0	NB
P	*Viola nephrophylla*	Northern Bog Violet				S3	4 Secure	5	79.6 ± 0.0	NB
P	*Carex capillaris*	Hairlike Sedge				S3	4 Secure	1	81.6 ± 0.0	NB
P	*Carex chordorrhiza*	Creeping Sedge				S3	4 Secure	5	11.6 ± 0.0	NB
P	*Carex conoidea*	Field Sedge				S3	4 Secure	1	71.4 ± 10.0	NB
P	*Carex garberi*	Garber's Sedge				S3	3 Sensitive	8	85.1 ± 0.0	NB
P	*Carex haydenii*	Hayden's Sedge				S3	4 Secure	1	68.9 ± 0.0	NB
P	*Carex ormostachya*	Necklace Spike Sedge				S3	4 Secure	2	47.2 ± 0.0	NB
P	*Carex tenera*	Tender Sedge				S3	4 Secure	1	82.9 ± 0.0	NB
P	*Carex tuckermanii*	Tuckerman's Sedge				S3	4 Secure	3	58.0 ± 10.0	NB
P	*Carex vaginata*	Sheathed Sedge				S3	3 Sensitive	8	79.6 ± 0.0	NB
P	*Carex wiegandii*	Wiegand's Sedge				S3	4 Secure	3	84.9 ± 1.0	NB
P	*Carex recta*	Estuary Sedge				S3	4 Secure	8	9.2 ± 0.0	NB
P	*Eleocharis intermedia*	Matted Spikerush				S3	4 Secure	2	47.8 ± 2.0	NB
P	*Rhynchospora capitellata*	Small-headed Beakrush				S3	4 Secure	18	81.8 ± 0.0	NB
P	*Trichophorum clintonii*	Clinton's Clubrush				S3	4 Secure	10	81.2 ± 0.0	NB
P	*Lemna trisulca*	Star Duckweed				S3	4 Secure	1	29.5 ± 2.0	NB
P	*Cypripedium reginae*	Showy Lady's-Slipper				S3	3 Sensitive	10	24.2 ± 2.0	NB
P	*Liparis loeselii*	Loesel's Twayblade				S3	4 Secure	5	8.2 ± 1.0	NB
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	4 Secure	33	12.9 ± 2.0	NB
P	*Platanthera grandiflora*	Large Purple Fringed Orchid				S3	3 Sensitive	3	22.5 ± 5.0	NB
P	*Dichanthelium depauperatum*	Starved Panic Grass				S3	4 Secure	20	80.3 ± 0.0	NB
P	*Potamogeton obtusifolius*	Blunt-leaved Pondweed				S3	4 Secure	6	34.5 ± 0.0	NB
P	*Potamogeton richardsonii*	Richardson's Pondweed				S3	3 Sensitive	2	27.1 ± 1.0	NB
P	*Xyris montana*	Northern Yellow-Eyed-Grass				S3	4 Secure	30	7.7 ± 0.0	NB
P	*Zannichellia palustris*	Horned Pondweed				S3	4 Secure	30	26.6 ± 1.0	NB
P	*Cryptogramma stelleri*	Steller's Rockbrake				S3	4 Secure	1	90.8 ± 0.0	NB
P	*Asplenium trichomanes-ramosum*	Green Spleenwort				S3	4 Secure	1	90.7 ± 0.0	NB
P	*Lycopodium sabinifolium*	Ground-Fir				S3	4 Secure	4	17.7 ± 0.0	NB
P	*Huperzia appalachiana*	Appalachian Fir-Clubmoss				S3	3 Sensitive	1	82.0 ± 1.0	NB
P	*Botrychium lanceolatum var. angustisegmentum*	Lance-Leaf Grape-Fern				S3	3 Sensitive	3	92.1 ± 0.0	NB
P	*Botrychium simplex*	Least Moonwort				S3	4 Secure	5	16.4 ± 1.0	NB
P	*Mertensia maritima*	Sea Lungwort				S3S4	4 Secure	5	5.9 ± 1.0	NB
P	*Lobelia kalmii*	Brook Lobelia				S3S4	4 Secure	2	82.1 ± 1.0	NB
P	*Suaeda calceoliformis*	Horned Sea-blite				S3S4	4 Secure	28	19.0 ± 0.0	NB
P	*Myriophyllum sibiricum*	Siberian Water Milfoil				S3S4	4 Secure	7	25.2 ± 6.0	NB
P	*Stachys pilosa*	Hairy Hedge-Nettle				S3S4	5 Undetermined	1	96.7 ± 0.0	NB
P	*Utricularia gibba*	Humped Bladderwort				S3S4	4 Secure	1	94.3 ± 1.0	NB
P	*Rumex maritimus*	Sea-Side Dock				S3S4	4 Secure	25	7.6 ± 0.0	NB
P	*Rumex maritimus var. fueginus*	Tierra del Fuego Dock				S3S4	4 Secure	4	11.0 ± 0.0	NB
P	*Potentilla arguta*	Tall Cinquefoil				S3S4	4 Secure	1	97.0 ± 0.0	NB
P	*Rubus chamaemorus*	Cloudberry				S3S4	4 Secure	80	7.5 ± 3.0	NB
P	*Geocaulon lividum*	Northern Comandra				S3S4	4 Secure	52	7.8 ± 0.0	NB
P	*Juniperus horizontalis*	Creeping Juniper				S3S4	4 Secure	10	10.2 ± 0.0	NB
P	*Eriophorum russeolum*	Russet Cottongrass				S3S4	4 Secure	59	10.2 ± 0.0	NB
P	*Triglochin gaspensis*	Gasp├⌐ Arrowgrass				S3S4	4 Secure	36	8.8 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Corallorhiza maculata*	Spotted Coralroot				S3S4	3 Sensitive	6	24.2 ± 2.0	NB
P	*Calamagrostis stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	14	10.1 ± 0.0	NB
P	*Distichlis spicata*	Salt Grass				S3S4	4 Secure	32	16.6 ± 3.0	NB
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	1	99.1 ± 0.0	NB
P	*Polygonum raii*	Sharp-fruited Knotweed				SH	0.1 Extirpated	9	8.0 ± 1.0	NB
P	*Botrychium campestre*	Prairie Moonwort				SH	2 May Be At Risk	1	87.0 ± 0.0	NB

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The recipient of these data shall acknowledge the ACCDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

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APPENDIX E:

Water Supply Source Assessment Step 1 Application

WSSA STEP 1 APPLICATION

506-17 Sainte-Cécile Herring, Crab and Lobster Plant, Sainte-Cécile, NB

1. ***Name of proponent***

   Mr. Hiro Inoue, Proprietor
   Canapak Seafood Inc.

2. ***Location of drill targets (including property PID) and purposes of the proposed water supply***

   The drill targets are located on PID No. 20106852, located at 136 Rue de la Croix, Sainte-Cécile, NB (on Lamèque Island). It is proposed to drill and install four (4) observation wells with two wells completed to depths of 40 feet (same depth at Well #1) and two wells completed to depths of 260 feet (approximate depths of Well #2 and Well #3). Wells are to be installed in clusters (one shallow and one deep well) in two areas of the subject site. Refer to Figure 1 below.

   The area is located within the Local Service District of Sainte-Cécile, in the planning area of the Regional Service District Commission 4, and is zoned M3 (mixed residential, commercial, industrial). Refer to attached zoning map and detail.

   There are three production wells already drilled, which were used for the operation of the previous fish plant, M&N Seafood. Two of the three wells are saltwater, and one is freshwater. A well log was found for the freshwater well, see Appendix A.

   Wells will be referred to as follows:

   - **Well #1**: Production well #1; freshwater for general/domestic uses, such as staff kitchen, showers, washrooms and regular cleaning of the plant.
   - **Well #2**: Production well #2; saltwater for use in the processing of herring roe, crab and lobster, including water for pushing the product through the processing line, cooking crab/lobster.
   - **Well #3**: Production well #3; saltwater for use in the processing of herring roe, crab and lobster, including water for pushing the product through the processing line, cooking crab and lobster.

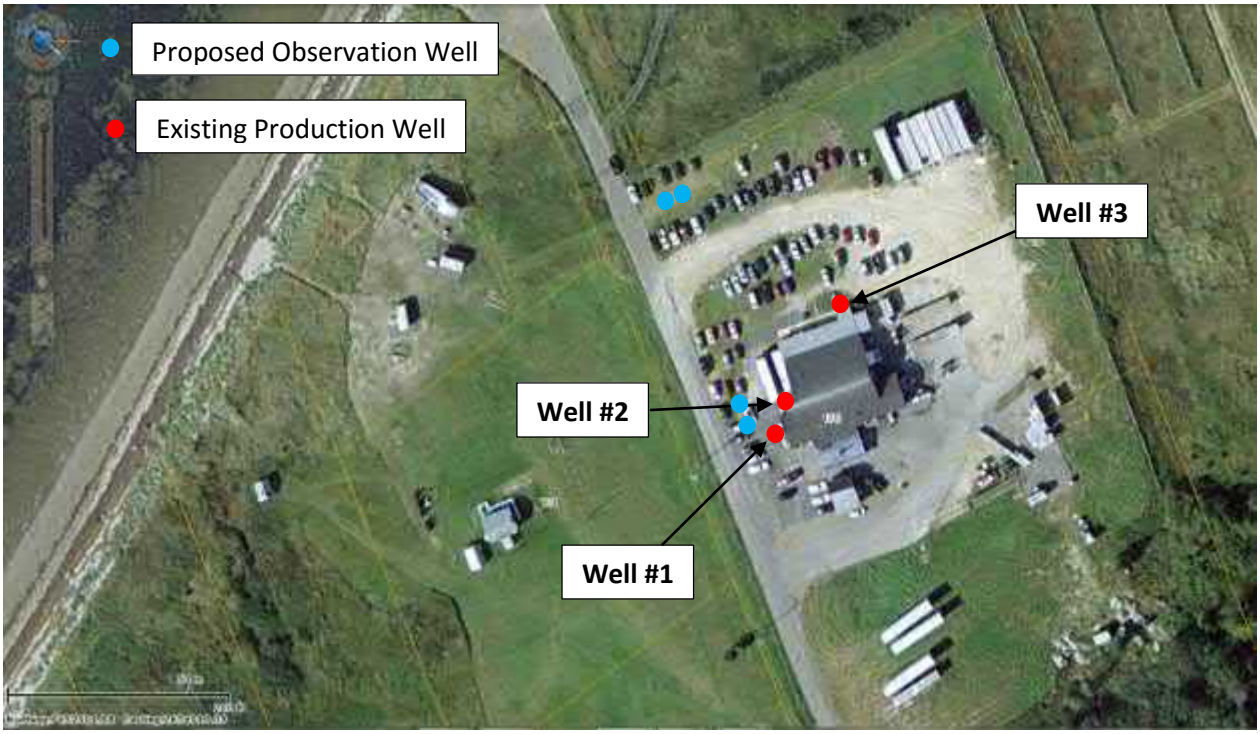


Figure 1: Existing Production Well and Proposed Observation Well Locations

The purpose of this water supply assessment is to evaluate the current fresh- and saltwater supplies that were used by the previous proprietor. The fresh and saltwater wells will supply the water to the existing herring plant and a proposed (expansion) lobster and crab plant for both the processing and cooking of the fish, as well as for domestic use.

3. *Required water quantity (in m^3/day) and/or required pumping rate*

Freshwater: Well #1 is anticipated to be pumped at a maximum pumping rate of approximately 140 IGPM (~916 m^3/day). This is based on the current pump capacity (7.5 HP pump) of the well.

Saltwater: Well #2 and #3 are anticipated to be pumped at a maximum rates of approximately 150 IGPM (~982 m^3/day) and 120 IGPM (~785 m^3/day), respectively. These rates are based on the current pump capacities in each well. Well #2 is equipped with two pumps (7.5 HP and 5 HP). Well #3 is equipped with two 5HP pumps.

4. *List alternate water supply sources in area (including municipal systems)*

The site is on a cul-de-sac north of Sainte-Cécile with four adjacent domestic water supplies, which supply seasonal dwellings (cottages):

- [redacted] 80m west of site;
- [redacted] 105m north of site;
- [redacted] 200m north of site, and
- [redacted] 260m northeast of site.

All properties in the area are serviced by private wells. There is no municipal water system for Sainte-Cécile. The nearest municipal supply is in Lamèque, approximately 6km south of the site.

5. Discuss area hydrogeology as it relates to the project requirements

The bedrock underlying the subject property is comprised of Late Carboniferous-aged rocks comprised of the Pictou Group and consisting of red to grey sandstone, conglomerate and siltstone (NBDNR, 2008). From a review of nine (9) well logs, well depths range between 19 and 60 feet. Well yields ranged from 4 to 200 Igpm (26 to 1309 m^3/day).

Refer to Appendix B: well log search results (within 1000m of PID No. 20106852).

6. Outline the proposed hydrogeological testing and work schedule

It is proposed to drill four (4) observation wells for the purposes of the investigation during the week of December 18th, 2017. A three-step step test, 72-hour pump test with 36-hour recovery period is planned in January 2017. **As all three wells are typically used at the same time, the three production wells (Wells #1, #2 and #3) will be pumped simultaneously at rates to be determined following completion of the step test.** Manual and digital water level measurements will be taken from all 3 production wells and 4 observation wells throughout the duration of the pumping and recovery portions of the pump test. During the pumping portion of the test, discharged water will be directed to the Baie de Chaleur via the existing processing plant discharge pipe, a 10-inch underground pipe used which extends approximately 20m into the bay, below the normal low tide water mark. A pump test report is anticipated for submission by February 2017.

7. Identify any existing pollution or contamination hazards within a minimum radius of 500 m from the proposed drill targets. Historical land use that might pose a contamination hazard (i.e. tannery, industrial, waste disposal, etc.) should also be discussed.

No existing pollution has been identified within 500 m of the wells. Surrounding land use is cottage/residential buildings. Potential contamination hazards include private septic systems, household quantities of petroleum and chemical products, and the existence of the ocean (saltwater intrusion) approximately 150 northwest of the site.

The current fish plant has a domestic septic system approximately 60m south and upgradient of the production wells, which will be kept and shared with the new building.

8. Identify any groundwater use problems (quantity or quality) that have occurred in the area.

No groundwater quantity or quality problems were identified. A review of well water quality data from seven (7) wells within 1000 m of the subject site was completed. Iron and manganese exceeded the NB Drinking Water Guidelines in two wells. Both of these parameters exceeded an aesthetic guideline and are not considered to pose a health risk. Elevated iron and manganese may stain plumbing and laundry. Commercial treatment systems may be installed to reduce iron and manganese to within acceptable levels. One well had a lead concentration (12 µg/L) slightly above the NB Drinking Water Guideline of 10 µg/L. This exceedance may be more associated with

plumbing materials as opposed to aquifer water quality as lead was below laboratory reporting limits in most other wells. Three wells exceeded the NB Drinking Water Guideline for turbidity. Elevated turbidity may be related to new well construction and is a parameter that is expected to decrease with increased well use. If elevated turbidity levels persist, commercial treatment systems may be installed reduce turbidity levels to below the acceptable guideline.

Overall, water quality in the surrounding area is good with most parameters meeting NB Drinking Water Guidelines.

Refer to Appendix B: Well log search results within 1000 m of PID 20106852.

9. Identify any watercourses (stream, brook, river, wetland, etc.) within 60 m of the proposed drill targets.

No watercourses are located within 60 m of the wells. The nearest wetland is a Provincially Significant Wetland (PSW), a saltwater marsh approximately 100m west of the site, and the Bay de Chaleur is 170m north of the production well.

10. Identify site supervisory personnel involved in the source development (municipal officials, consultants, drillers).

Modern Well Drilling (1993) Ltd. will complete the well drilling and pump testing under the supervision of Roy Consultants' personnel.

11. Attach a 1:10 000 map and/or recent air photo clearly identifying the following:

- ***Proposed location of drill targets and property PID***
- ***Domestic or production wells within a 500 m radius from the drill target (s)***
- ***Any potential hazards identify in question 7.***

Figure No. 2: Neighbouring Water Wells.

12. Attach a land use/zoning map of the area (if any). Superimpose drill targets on this map.

Please refer to attached zoning map and map detail.

13. Contingency plan for open loop earth energy systems (see Section 2.3).

Not applicable to this project.

References:

- New Brunswick Department of Natural Resources. 2008. Bedrock Geology of New Brunswick. Minerals, Policy and Planning Division. Map NR-1 (2008 Edition). Scale 1:500 000 (Revised, December 2008).

Attachments:

A. Subject site production well log;
B. Well logs within 1000m of subject site;
C. CAPA Rural Plan Zoning Map
D. CAPA Rural Plan Zoning Map Detail

Attachment A:

Subject site production well log

New Nouveau Brunswick

Environment

Report Number
Well Tag ID
PID

Well Driller's Report

Date printed **2017/11/01**

Drilled by **MODERN WELL DRILLING (1993) LTD.**

Well Use	Work Type	Drill Method	Work Completed
Non-Drinking Water, Industrial	**New Well**	**Rotary**	**07/28/2008**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
4743	**Steel**	**6 inch**	**0ft**	**18ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**10ft**	**0 igpm**	**2hrs**	**10ft**	**200 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
N/A

Qty **0 ig**

Pump Installed
Submersible
Intake Setting (BTC)
27ft

Driller's Log

Well Log	From	End	Colour	Rock Type
4743	**0ft**	**3ft**	**Green**	**Fill**
4743	**3ft**	**17ft**	**Green**	**Medium Sandstone**
4743	**17ft**	**19ft**	**Green**	**Sandstone**
4743	**19ft**	**27ft**	**Grey and black**	**Medium Sandstone**
4743	**27ft**	**28ft**	**Green**	**Sandstone**
4743	**28ft**	**33ft**	**Grey**	**Medium Sandstone**
4743	**33ft**	**41ft**	**Brown**	**Clay**

Overall Well Depth
41ft

Bedrock Level
0ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
4743	**17ft**	**25 igpm**
4743	**24ft**	**15 igpm**
4743	**27ft**	**175 igpm**

Setbacks

Well Log	Distance	Setback From
4743	**150ft**	**Septic Tank**
4743	**200ft**	**Leach Field**
4743	**64ft**	**Right of any Public Way Road**

Driller's Comments

Puits pour refegeration besoin beaucoup d'eau

Sample Information

ALK_T(mg/L)	Al(mg/L)	As(µg/L)	B(mg/L)	Ba(mg/L)	Br(mg/L)	COND(uS/E/cm)	Ca(mg/L)	Cd(µg/L)	Cl(mg/L)	Cr(µg/L)	Cu(µg/L)	E.coli P/A(P/A)	F(mg/L)	Fe(mg/L)	HARD(mg/L)	K(mg/L)	Mg(mg/L)	Mn(mg/L)	NO2(mg/L)	NO3(mg/L)	NOX(mg/L)	Na(mg/L)	P$(µg/L)	SO4(mg/L)	Sb(µg/L)	Se(µg/L)	TC-P/A(P/A)	TURB(NTU)	T(µg/L)	U(µg/L)	Zn(µg/L)	pH(pH)	Þ =COND(uS/E/cm)	Þ =TDS(mg/L)	Þ (2B)no units)	Þ (2C)no units)	Þ AN(Epm)	Þ CAT(Epm)	Þ CO3(mg/L)	Þ DIFB(%)	Þ DIFC(%)	Þ HCO3(mg/L)	Þ OH(mg/L)	Þ SIN(no units)
24.50	< 0.0250	< 1.50	0.0160	0.1370	0.2950	345	9.96	< 0.50	73.60	< 10	< 10	Ab	< 0.10	* 2.70	38	1.20	3.19	0.68	< 0.05	0.18	0.23	44.80	< 1	18.90	< 1	< 1.50	Ab	* 2.80	< 1	< 0.50	23	6.55	310.4890	171.2030	0.51	1.9690	2.99	2.9130	0	1.3170	5.2650	24.50	0	-2.3510

Attachment B:

Well logs within 1000m of subject site

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well**	**Rotary**	**06/12/2008**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
3346	Steel	8 inch	0ft	20ft	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Pump	**8ft**	**4 igpm**	**1hr**	**8ft**	**4 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

Well Log	Grout Type	From	End
3346	Clay(cuttings)	8ft	19ft

Drilling Fluids Used
None

Disinfectant
Bleach (Javex)

Qty **1.0 ig**

Pump Installed
Submersible
Intake Setting (BTC)
28ft

Driller's Log

Well Log	From	End	Colour	Rock Type
3346	0ft	5ft	Brown	Topsoil
3346	5ft	8ft	Yellow	Sandstone
3346	8ft	16ft	Brown	Clay
3346	16ft	18ft	Brown	Clay and Sandstone
3346	18ft	27ft	Brown	Clay
3346	27ft	31ft	Grey	Clay and Sandstone

Overall Well Depth
31ft

Bedrock Level
0ft

Water Bearing Fracture Zone

There is no water bearing fracture zone information.

Setbacks

Well Log	Distance	Setback From
3346	60ft	Septic Tank
3346	90ft	Leach Field
3346	750ft	Right of any Public Way Road

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well**	**Rotary**	**06/12/2008**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
3346	**Steel**	**8 inch**	**0ft**	**20ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Pump	**8ft**	**4 igpm**	**1hr**	**8ft**	**4 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

Well Log	Grout Type	From	End
3346	**Clay(cuttings)**	**8ft**	**19ft**

Drilling Fluids Used
None

Disinfectant
Bleach (Javex)

Qty **1.0 ig**

Pump Installed
Submersible
Intake Setting (BTC)
28ft

Driller's Log

Well Log	From	End	Colour	Rock Type
3346	**0ft**	**5ft**	**Brown**	**Topsoil**
3346	**5ft**	**8ft**	**Yellow**	**Sandstone**
3346	**8ft**	**16ft**	**Brown**	**Clay**
3346	**16ft**	**18ft**	**Brown**	**Clay and Sandstone**
3346	**18ft**	**27ft**	**Brown**	**Clay**
3346	**27ft**	**31ft**	**Grey**	**Clay and Sandstone**

Overall Well Depth
31ft

Bedrock Level
0ft

Water Bearing Fracture Zone

There is no water bearing fracture zone information.

Setbacks

Well Log	Distance	Setback From
3346	**60ft**	**Septic Tank**
3346	**90ft**	**Leach Field**
3346	**750ft**	**Right of any Public Way Road**

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well**	**Rotary**	**10/07/2002**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
3570	**Steel**	**6 inch**	**0ft**	**20ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**1ft 6in** *(BTC - Below top of casing)*	**8 igpm**	**0hr 30min**	**15ft**	**8 igpm**	**No**	**0 igpm**

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Bleach (Javex)

Qty **0 ig**

Pump Installed
N/A

Intake Setting (BTC)
0ft

Driller's Log

Well Log	From	End	Colour	Rock Type
3570	**0ft**	**4ft**	**Brown**	**Fill**
3570	**4ft**	**33ft**	**Brown**	**Medium Sandstone**

Overall Well Depth
33ft

Bedrock Level
0ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
3570	**29ft**	**2 igpm**
3570	**32ft**	**6 igpm**

Setbacks

There is no Setback information.

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well**	**Rotary**	**10/21/2002**

Casing Information

Casing above ground **1ft 6in** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
3965	**Steel**	**6 inch**	**0ft**	**16ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**6ft**	**15 igpm**	**0hr**	**6ft**	**0 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Bleach (Javex)

Qty **1.0 ig**

Pump Installed
N/A

Intake Setting (BTC)
0ft

Driller's Log

Well Log	From	End	Colour	Rock Type
3965	**0ft**	**3ft**	**Brown**	**Topsoil**
3965	**3ft**	**10ft**	**Brown**	**Sand and Sandstone**
3965	**10ft**	**19ft**	**Grey**	**Medium Sandstone**

Overall Well Depth
19ft

Bedrock Level
0ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
3965	**17ft**	**5 igpm**
3965	**18ft**	**10 igpm**

Setbacks

Well Log	Distance	Setback From
3965	**60ft**	**Septic Tank**
3965	**85ft**	**Leach Field**
3965	**200ft**	**Right of any Public Way Road**

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Non-Drinking Water, Industrial	**New Well**	**Rotary**	**07/28/2008**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
4743	**Steel**	**6 inch**	**0ft**	**18ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**10ft**	**0 igpm**	**2hrs**	**10ft**	**200 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
N/A

Qty **0 ig**

Pump Installed
Submersible
Intake Setting (BTC)
27ft

Driller's Log

Well Log	From	End	Colour	Rock Type
4743	**19ft**	**27ft**	**Grey and black**	**Medium Sandstone**
4743	**0ft**	**3ft**	**Green**	**Fill**
4743	**3ft**	**17ft**	**Green**	**Medium Sandstone**
4743	**17ft**	**19ft**	**Green**	**Sandstone**
4743	**27ft**	**28ft**	**Green**	**Sandstone**
4743	**28ft**	**33ft**	**Grey**	**Medium Sandstone**
4743	**33ft**	**41ft**	**Brown**	**Clay**

Overall Well Depth
41ft

Bedrock Level
0ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
4743	**17ft**	**25 igpm**
4743	**24ft**	**15 igpm**
4743	**27ft**	**175 igpm**

Setbacks

Well Log	Distance	Setback From
4743	**150ft**	**Septic Tank**
4743	**200ft**	**Leach Field**
4743	**64ft**	**Right of any Public Way Road**

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well**	**Rotary**	**10/15/2008**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
19739	Steel	6 inch	0ft	20ft	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**12ft**	**25 igpm**	**0hr 30min**	**25ft**	**25 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

There is no Grout information.

Drilling Fluids Used
Water

Disinfectant
Bleach (Javex)

Qty **1.0 ig**

Pump Installed
Jet

Intake Setting (BTC)
34ft

Driller's Log

Well Log	From	End	Colour	Rock Type
19739	31ft	37ft	Grey	Medium Sandstone
19739	0ft	6ft	Brown	Sand and Gravel
19739	6ft	27ft	Green	Medium Sandstone
19739	27ft	31ft	Grey	Clay

Overall Well Depth
37ft

Bedrock Level
6ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
19739	26ft	2 igpm
19739	35ft	25 igpm

Setbacks

Well Log	Distance	Setback From
19739	90ft	Right of any Public Way Road
19739	53ft	Septic Tank
19739	80ft	Leach Field

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Non-Drinking Water, Other	**Abandoned**	**Rotary**	**09/28/2012**

Casing Information

Casing above ground **6in** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
34418	**Steel**	**6 inch**	**0ft**	**18ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**13ft**	**25 igpm**	**0hr 30min**	**13ft**	**25 igpm**	**No**	**0 igpm**
	(BTC - Below top of casing)						

Well Grouting

There is no Grout information.

Drilling Fluids Used
Water

Disinfectant
Bleach (Javex)

Qty **1.0 ig**

Pump Installed
Jet

Intake Setting (BTC)
19ft

Driller's Log

Well Log	From	End	Colour	Rock Type
34418	**16ft**	**18ft**	**Brown**	**Coarse Sandstone**
34418	**0ft**	**6ft**	**Brown**	**Sand and Gravel**
34418	**6ft**	**12ft**	**Brown**	**Coarse Sandstone**
34418	**12ft**	**16ft**	**Brown**	**Sand and Shale**
34418	**18ft**	**19ft**	**Grey**	**Medium Sandstone**
34418	**19ft**	**21ft**	**Grey**	**Coarse Sandstone**

Overall Well Depth
21ft

Bedrock Level
6ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
34418	**21ft**	**25 igpm**

Setbacks

Well Log	Distance	Setback From
34418	**170ft**	**Septic Tank**
34418	**180ft**	**Leach Field**
34418	**58ft**	**Center of road**

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well (NEW WELL)**	**Rotary (ROTARY)**	**06/21/1995**

Casing Information

Casing above ground **1ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
90324000	**Steel**	**6 inch**	**0ft**	**22ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	**11ft**	**15 igpm**	**1hr**	**11ft**	**7 igpm**	**No**	**0 igpm**

(BTC - Below top of casing)

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
N/A

Qty **0 ig**

Pump Installed
N/A

Intake Setting (BTC)
0ft

Driller's Log

Well Log	From	End	Colour	Rock Type
90324000	**12ft**	**14ft**	**Brown**	**Sand**
90324000	**0ft**	**1ft**	**Brown**	**Topsoil**
90324000	**1ft**	**6ft**	**Brown**	**Sand and Gravel Mix**
90324000	**6ft**	**12ft**	**Brown**	**Medium Sandstone**
90324000	**14ft**	**19ft**	**Brown**	**Medium Sandstone**
90324000	**19ft**	**27ft**	**Brown and grey**	**Medium Sandstone**
90324000	**27ft**	**60ft**	**Grey**	**Medium Sandstone**

Overall Well Depth
60ft

Bedrock Level
0ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
90324000	**27ft**	**1 igpm**
90324000	**45ft**	**1 igpm**
90324000	**42ft**	**1 igpm**
90324000	**59ft**	**3 igpm**

Setbacks

There is no Setback information.

New Nouveau Brunswick

Environment

Report Number

Well Driller's Report

Date printed **11/24/2017**

Drilled by

Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	**New Well (NEW WELL)**	**Rotary (ROTARY)**	**09/27/2000**

Casing Information

Casing above ground **2ft** Drive Shoe Used? **Yes**

Well Log	Casing Type	Diameter	From	End	Slotted?
92078300	**Steel**	**6 inch**	**0ft**	**22ft**	

Aquifer Test/Yield

Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
	17ft	**15 igpm**	**1hr**	**17ft**	**10 igpm**	**No**	**0 igpm**

(BTC - Below top of casing)

Well Grouting

There is no Grout information.

Drilling Fluids Used
Water

Disinfectant
Bleach (Javex)

Qty **1.0 ig**

Pump Installed
N/A

Intake Setting (BTC)
0ft

Driller's Log

Well Log	From	End	Colour	Rock Type
92078300	**0ft**	**3ft**	**Brown**	**Fill Sandstone**
92078300	**3ft**	**4ft**	**Brown**	**Sand**
92078300	**4ft**	**15ft**	**Brown**	**Sand and Sandstone**
92078300	**15ft**	**28ft**	**Grey**	**Medium Sandstone**
92078300	**28ft**	**29ft**	**Grey**	**Shale**

Overall Well Depth
29ft

Bedrock Level
15ft

Water Bearing Fracture Zone

Well Log	Depth	Rate
92078300	**25ft**	**10 igpm**
92078300	**24ft**	**10 igpm**

Setbacks

There is no Setback information.

Sample Information

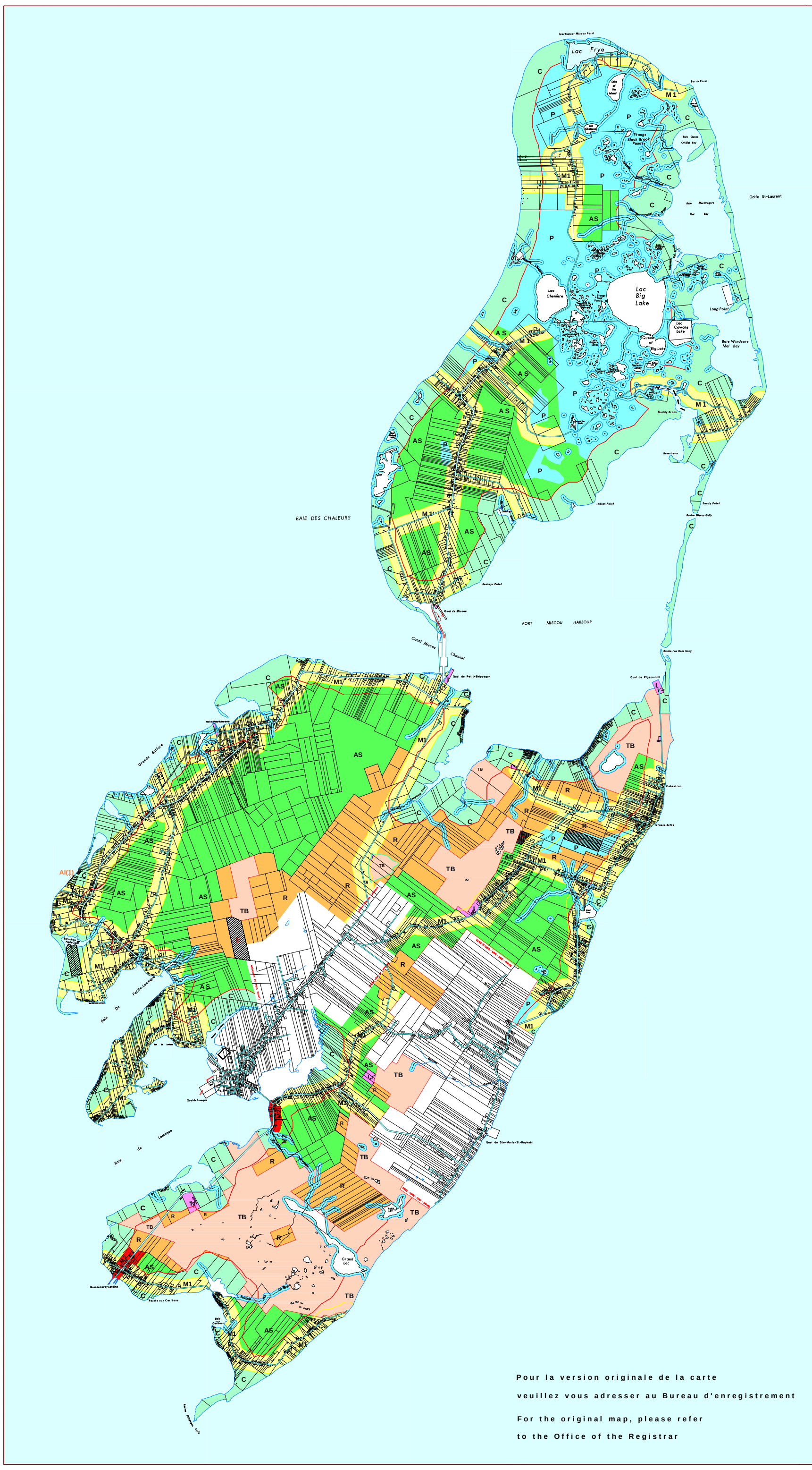
ALK. T(mg/L)	Al(mg/L)	As(µg/L)	B(mg/L)	Ba(mg/L)	Br(mg/L)	CONDG(SIEm)	Ca(mg/L)	Cd(µg/L)	Cl(mg/L)	Cr(µg/L)	Cu(µg/L)	E.coli PA(/PA)	F(mg/L)	Fe(mg/L)	HARD(mg/L)	K(mg/L)	Mg(mg/L)	Mn(mg/L)	NO2(mg/L)	NO3(mg/L)	NOX(mg/L)	Na(mg/L)	P(µg/L)	SO4(mg/L)	Si(µg/L)	Se(µg/L)	TC-PA(/PA)	TURB(NTU)	Ti(µg/L)	U(µg/L)	Zn(µg/L)	pH(pH)	Þ =CONDG(SIE/cm)	Þ =TDS(mg/L)	Þ (SB)no units)	Þ (CDno units)	Þ AN(Eqm)	Þ CAT(Eqm)	Þ CO3(mg/L)	Þ DIFB(%)	Þ DIFC(%)	Þ HCO3(mg/L)	Þ OH(mg/L)	Þ SIN(no units)	Þ DIFTDS(%)	ALK. G(mg/L)
81.30	< 0.0250	< 1.50	0.0230	0.0140	< 0.10	261	30.10	< 0.50	25.70	< 10	< 10	Ab	< 0.10	0.0930	95.20	2.10	4.91	< 0.0050	< 0.05	0.06	0.11	13.40	< 1	6.20	< 1	< 1.50	Ab	* 1.10	< 1	< 0.50	< 5	8.11	240.0110	132.0160	-0.38	1.4990	2.4960	2.5510	1	-1.10	4.1890	80.30	0.10	0.2090			
21.10	< 0.0250	< 1.50	0.01	0.0430	< 0.10	137	8.48	< 0.50	21.40	< 10	< 10	Ab	< 0.10	0.0160	39.60	0.62	3.51	< 0.0050	< 0.05	0.72	0.77	12.30	1.30	4.20	< 1	< 1.50	Ab	0.34	< 1	< 0.50	< 5	8.68	128.4710	66.7450	-0.76	1.0130	1.1720	1.2670	0	-3.91	3.2130	21.10	0	-2.5290	-100		
	0.0510	< 1.50	0.0190	0.21	0.3080	404	9.36	< 0.50	104	< 10	59	Ab	< 0.10	* 0.6430	55.20	2.46	7.74	0.28	< 0.05	2.75	2.80	50	* 12	8.92	< 1	< 1.50	Ab	0.32	< 1	< 0.50	457	5.93	363.1330	199.9040	0.20	2.0270	3.4410	3.4090	0	0.47	5.3270	5.68	0	-3.8070	-100	5.68	
24.50	< 0.0250	< 1.50	0.0160	0.1370	0.2950	345	9.96	< 0.50	73.60	< 10	< 10	Ab	< 0.10	* 2.70	38	1.20	3.19	0.68	< 0.05	0.18	0.23	44.80	< 1	18.90	< 1	< 1.50	Ab	* 2.80	< 1	< 0.50	23	6.55	310.4890	171.2030	0.51	1.9690	2.99	2.9130	0	1.3170	5.2650	24.50	0	-2.3510			
54.90	0.16	< 1.50	0.0250	0.0980	< 0.10	314	19	< 0.50	49.40	< 10	< 10	Ab	< 0.10	0.19	75.60	1.60	6.84	0.0080	< 0.05	1.60	1.60	30.40	< 1	10.60	< 1	< 1.50	Ab	* 6.10	< 1	< 0.50	< 5	7.34	283.2230	158.4420	-0.21	1.9040	2.8710	2.9030	0.10	-0.55	5.1530	54.80	0	-0.9340			
												Ab															Ab																				
21.50	< 0.0250	< 1.50	0.0240	0.0180	< 0.10	232	11.40	< 0.50	42.80	< 10	< 10		< 0.10	0.08	46.30	0.7310	4.33	< 0.0050	< 0.05	1.87	1.87	22.20	< 1	6.62	< 1	< 1.50		1	< 1	< 0.50	< 5	7.18	202.1160	109.4910	-0.01	2.4690	1.9160	1.9170	0	-0.02	6.8840	21.50	0	-1.8930	-100		

Attachment C:

CAPA Rural Plan Zoning Map

Carte de zonage des secteurs non constitués en municipalité des iles Lamcque et Miscou

Lameque and Miscou Islands Unincorporated Areas Zoning Map



Pour la version originale de la carte veuillez vous adresser au Bureau d'enregistrement

For the original map, please refer to the Office of the Registrar

Légende - Legend

Zones

protection	P	protection
coticres	C	coastal
agricoles et sylvicoles	AS	agricultural and forestry
rurales	R	rural
industrielles	I	industrial
mixtes 1 (res., com., ind., inst.)	M1	mixed 1 (res., com., ind., inst.)
mixtes 2 (com., ind.)	M2	mixed 2 (com., ind.)
tourbicres	TB	peatland area
marge de recul 500m		set-back 500m
marge de recul 200m		set-back 200m
bail de la couronne		crown lease
limite de la tourbicre		limit of bog

Utilisation du sol — Land use

Utilisation du sol		Land use
Résidentiel unifamiliale		Single Dwellling
Résidentiel bifamiliale		Two family dwelling
Maison mobile		Mobile Home
Batiment commercial		Commercial building
Batiment institutionnel		Institutionnal building
Batiment agricole		Agricultural building
Batiment industriel		Industrial building
Chalet		Recreational building
Batiment accessoire		Accessory building
Batiment abandonné	*	Abandoned building

Commission d'aménagement de la Péninsule acadienne

149 boul. St-Pierre o., Caraquet, N.-B., tel : 727 7979 - fax : 727 7990

Annexe	B	Annex
Analyste en géomatique	Richard Servant	GIS Analyst
Vérifié et approuvé par:	Michel Lang	Verified and approved by
Date	05/02/97	Date

échelle = 1:60000 scale

1 0 Kilometres 5

Attachment D:

CAPA Rural Plan Zoning Map Detail

Figure No. 1: Detail of CAPA Rural Plan (Subject Site in Red)

APPENDIX F:

M&N Seafood Approval to Operate

AGRÉMENT D'EXPLOITATION

I-8628

Conformément au paragraphe 8(1) ***du Règlement sur la qualité de l'eau établi en vertu de la Loi sur l'assainissement de l'environnement,*** **cet agrément d'exploitation est par les présentes émis à:**

M & N SEA PRODUCTS LTD

pour l'exploitation de l'

Usine de transformation de poisson de Ste-Cécile

Description de la source:	**Usine de transformation de poisson**
Classification de la source:	**Règlement sur les droits relatifs aux agréments industriels - Loi sur l'assainissement de l'eau** **Catégorie 3**
Numéro d'identification de la parcelle:	**20106852, 20134086, 20583761, 20583779**
Adresse postale:	**10-11 rue Portage** **Caraquet, NB E1W 1B6**
Conditions de l'agrément:	**Se référer à l'annexe "A" du présent agrément**
Remplace l'agrément:	**I-6599**
Valide à partir du:	**12 mars, 2014**
Date d'expiration:	**11 mars, 2019**

Recommandé par: Gaetan Landry
Division de l'environnement

Émis par: _____ Le 5 mars 2014
pour Ministre de l'Environnement et Gouvernements locaux Date

ANNEXE "A"

INFORMATION GÉNÉRALE

APPLICABILITÉ:

Cette norme s'applique à toutes les usines de transformation de poisson en exploitation au Nouveau-Brunswick et peut être citée sous le titre "Norme sectorielle des usines de transformation de poisson".

DÉFINITIONS

"titulaire de l'agrément" désigne la personne ou l'entité à qui l'agrément est accordé, dont le nom est indiqué à la page certificat de cet agrément.

"ministère" désigne le ministère de l'Environnement et Gouvernements locaux du Nouveau Brunswick.

"installation" désigne le bien-fonds, les bâtiments et l'équipement localisé sur le terrain identifié par le(s) numéro(s) d'identification de parcelle inscrit sur la page certificat de cet agrément et tous les bien-fonds contigus compris dans le titre que le titulaire de l'agrément possède à cet endroit.

"eau de procédé" désigne toute eau utilisée par l'installation qui a été en contact avec le poisson/crustacé cru, le poisson/crustacé transformé ou les déchets de poisson/crustacé, et comprend l'eau utilisée pour le déchargement du poisson/crustacé des bateaux et son transport à la ligne de transformation.

"exutoire" désigne le point de rejet où l'eau de procédé provenant de l'installation est déversée dans les eaux réceptrices.

"jour férié" désigne le Jour de l'an, le Vendredi saint, le lundi de Pâques, l'anniversaire ou la journée fixée pour souligner la naissance de la souveraine en titre (la Fête de la Reine), la Fête du Canada, la Fête du Nouveau-Brunswick, la Fête du travail, le Jour de l'action de grâces, le Jour du souvenir, Noël et le lendemain de Noël. Si le jour férié coïncide avec un dimanche, le jour suivant doit être considéré comme un jour de congé.

"heures normales" désigne les heures pendant lesquelles les bureaux du ministère sont ouverts. Il s'agit de la période entre 8 h 15 et 16 h 30, du lundi au vendredi, sauf les jours fériés.

"après les heures" désigne les heures durant lesquelles les bureaux du ministère sont fermés. Il s'agit des jours fériés, des fins de semaine et de la période précédant 8 h 15 et suivant 16 h 30 du lundi au vendredi.

"urgence environnementale" désigne une situation où il y a eu ou il risque d'y avoir un rejet, un déversement ou un dépôt d'un ou de plusieurs polluants dans l'atmosphère, le sol, l'eau de surface et/ou l'eau souterraine qui sont d'une ampleur ou d'une durée telle qu'ils peuvent causer des dommages considérables au milieu ambiant ou compromettre la santé du public.

MODALITÉS ET CONDITIONS

Le titulaire de l'agrément doit exploiter l'installation conformément aux modalités et conditions suivantes :

RAPPORTS DES URGENCES

1a. Dès qu'une urgence environnementale est constatée, le titulaire de l'agrément doit aviser immédiatement le ministère en suivant les étapes indiquées ci-dessous.

Durant les heures normales, il faut téléphoner au bureau régional du ministère jusqu'à ce qu'on arrive à joindre un agent (aucun message dans la boîte vocale ne sera accepté) et fournir tous les renseignements disponibles concernant l'urgence environnementale. Les numéros de téléphone des six bureaux régionaux du ministère figurent dans le tableau ci-dessous.
Après les heures normales, il faut téléphoner à la Garde côtière canadienne **jusqu'à ce qu'on arrive à joindre un agent** et fournir le plus de renseignements possible concernant l'urgence environnementale. Le numéro de téléphone de la **Garde côtière canadienne est le 1-800-565-1633.**

1b. Dans les 24 heures suivant le premier avis, le titulaire de l'agrément doit transmettre, par télécopieur, une copie du **rapport préliminaire de l'urgence** au bureau régional qui convient au numéro approprié indiqué ci-dessous. Le rapport préliminaire de l'urgence doit faire état, de façon précise, de tous les renseignements disponibles à ce moment-là concernant l'urgence environnementale.

Dans les cinq (5) jours suivant le premier avis, le titulaire de l'agrément doit transmettre, par télécopieur, une copie du **rapport détaillé de l'urgence** au bureau régional au numéro approprié indiqué ci-dessous. Le rapport détaillé de l'urgence doit comprendre au moins les éléments suivants : i) une description du problème qui est survenu; ii) une description de l'effet qui est causé; iii) une description des mesures qui ont été prises pour atténuer l'effet; et iv) une description des mesures qui ont été prises pour prévenir la répétition de ce problème.

Emplacement des bureaux	Téléphone	Télécopieur
Bureau régional de Bathurst	(506) 547-2092	(506) 547-7655
Bureau régional de Fredericton	(506) 444-5149	(506) 453-2893
Bureau régional de Grand-Sault	(506) 473-7744	(506) 475-2510
Bureau régional de Miramichi	(506) 778-6032	(506) 778-6796
Bureau régional de Moncton	(506) 856-2374	(506) 856-2370
Bureau régional de Saint John	(506) 658-2558	(506) 658-3046

LIMITES

2. Le titulaire de l'agrément doit recueillir et traiter toutes les eaux de procédé dans un système de façon à s'assurer que toutes les particules supérieures à 3 mm (1/8 de pouce) sont extraites de l'eau de procédé avant que celle-ci soit déversée.

3. Si la capacité de pompage d'un (des) puits est ou sera plus de cinquante mètres cubes d'eau par jour, le titulaire de l'agrément doit s'assurer que tout projet qui est susceptible d'augmenter la consommation d'eau ou la capacité de pompage est enregistré auprès de la section d'évaluation environnementale du ministère.

4. Le titulaire de l'agrément doit s'assurer que les émissions d'odeurs, de poussières et de bruit ainsi que les eaux de ruissellement sur le site à partir de l'installation n'ont aucun effet néfaste sur un récepteur hors site. Si le ministère soupçonne que des effets néfastes sont causés sur un récepteur hors site, le titulaire de l'agrément pourrait être tenu de vérifier et de déterminer l'ampleur des effets ou d'élaborer, de soumettre et de mettre en oeuvre un plan de lutte et de prévention selon un calendrier d'exécution établi par le ministère. Le plan doit être présenté, par écrit, au ministère pour être examiné et approuvé avant sa mise en oeuvre.

GESTION DE L'INSTALLATION

5. Sauf s'il a été autorisé par le ministère de faire autrement, l'eau de procédé épurée doit être évacuée au moyen d'un tuyau muni d'un exutoire qui s'étend sous la laisse des basses eaux. Le tuyau, y compris l'exutoire connexe, peut uniquement être enlevé lorsque des conditions climatiques sévères le justifient, comme des tempêtes ou l'accumulation de glace. Le tuyau doit être réinstallé ou réparé dès que les conditions le permettent. Le titulaire de l'agrément doit immédiatement signaler tout incident de cette nature au bureau régional qui convient en suivant les directives énoncées dans la Section des rapports des urgences du présent agrément.

6. Sauf s'il est dangereux ou si l'eau de procédé est évacuée au moyen d'un exutoire partagé avec autrui, le titulaire de l'agrément doit vérifier le rivage autour de l'exutoire le midi et en fin de journée lorsque les eaux de procédé sont évacuées. Le titulaire de l'agrément doit effectuer la collecte de tous les déchets solides qui ont été déposés sur le rivage à la suite du déversement de l'exutoire.

7. Le titulaire de l'agrément doit s'assurer d'employer de bonnes méthodes d'entretien à l'installation pour assurer un stockage convenable des déchets de poisson ou de crustacé. Tous les bacs utilisés pour stocker les déchets de poisson ou crustacé doivent, au moins, être étanches afin de réduire les nuisances causées par l'odeur et la présence de goélands.

8. Le titulaire de l'agrément doit éliminer tous les déchets solides de poisson ou de crustacé dans une installation de production de farine de poisson ou dans une installation de compostage approuvée par le ministère ou d'une autre manière approuvée par le ministère.

9. Le titulaire de l'agrément doit s'assurer que tous les produits chimiques utilisés à l'installation sont stockés dans une installation de stockage de produits chimiques désignée à cet effet. L'installation doit être aménagée de sorte que tous les produits chimiques sont :

   a) déposés dans des récipients scellés et résistants aux produits chimiques;
   b) éloignés des zones de trafic intense et protégés des impacts avec des véhicules;
   c) éloignés des panneaux électriques;
   d) placés dans une zone de confinement munie d'un confinement secondaire adéquat de façon à contenir 110 % du volume nominal du plus grand récipient dans la zone de confinement;
   e) placés dans une zone de confinement qui est conçue pour prévenir tout contact entre les produits chimiques incompatibles; et
   f) placés dans une zone de confinement conçue pour prévenir le déversement ou le rejet de produits chimiques dans l'environnement à la suite d'une fuite.

10. **Dans les deux ans suivant la délivrance de cet agrément**, le titulaire de l'agrément doit s'assurer qu'un compteur d'eau cumulatif est installé et fonctionnel sur chaque puits utilisé par l'installation.

ESSAI ET SURVEILLANCE

11. Le titulaire de l'agrément doit mener les essais et la surveillance dans les délais et selon les méthodes émises par écrit par le ministère.

12. Lorsque les compteurs d'eau seront installés, le titulaire de l'agrément doit inscrire dans des registres la quantité d'eau prélevée de chaque puits et l'heure de la lecture de façon quotidienne. Ces registres doivent être conservés à l'installation pour une durée d'au moins deux (2) ans et mis à la disposition du ministère sur demande.

RAPPORTS

13. Dans le cas d'une fuite ou d'un déversement mineur de matières liquides, le titulaire de l'agrément doit en premier lieu contenir le liquide déversé, puis nettoyer ce dernier. Tout impact potentiel résultant doit être atténué dès la détection de la fuite ou du déversement. Si la fuite ou le déversement représente une "urgence environnementale" telle que définie dans le présent agrément, le titulaire de l'agrément doit signaler l'évènement de la façon décrite dans la section des rapports des urgences du présent agrément. Si la fuite ou le déversement ne représente pas une "urgence environnementale", le titulaire de l'agrément doit signaler l'événement par télécopieur au bureau régional approprié du Ministère dans la journée ouvrable suivant l'événement en identifiant les matières déversées, la quantité approximative de liquide déversé, l'endroit de la fuite et la méthode utilisée pour enlever le liquide.

14. **Avant le 15 février de chaque année,** le titulaire de l'agrément doit soumettre au ministère un rapport environnemental contenant les renseignements suivants pour l'année précédente :

a) le nombre de jours de transformation par saison et par espèce (y compris la moyenne d'heures par jour);
b) le débit d'écoulement volumétrique de l'eau de procédé en mètres cubes par jour (m^3/jour);
c) une description de la méthode utilisée pour déterminer le débit volumétrique de l'eau de procédé;
d) lorsque les compteurs d'eau seront installés, un sommaire de la quantité d'eau prélevée de chaque puits;
e) les endroits où les déchets solides de poisson ou de crustacé furent éliminés; et
f) un résumé de tous les incidents de fuite ou de déversement mineur à l'installation, y compris la date, l'emplacement, le volume approximatif, et la méthode de nettoyage utilisée pour chaque fuite ou déversement.

APPENDIX G:

Geotechnical Report

GEMTEC
www.gemtec.ca

Geotechnical Investigation
New Fish Plant Building
Chemin de la Croix
Sainte-Cecile, New Brunswick

experience • knowledge • integrity expérience • connaissance • intégrité

GEMTEC
www.gemtec.ca

Submitted to:

Alliance Building Contractors Limited
P.O. Box 70
Moncton, New Brunswick
E1C 8R9

Geotechnical Investigation
New Fish Plant Building
Chemin de la Croix
Sainte-Cecile, New Brunswick

November 20, 2017
Project: 7800.01

experience • knowledge • integrity

GEMTEC Consulting Engineers & Scientists Limited
77 Rooney Crescent
Moncton, NB, Canada
E1E 4M4

November 20, 2017

File: 7800.01 – R01

Alliance Building Contractors Limited
P.O. Box 70
Moncton, New Brunswick
E1C 8R9

Attention: Philip Jones

Re: Geotechnical Investigation, New Fish Plant Building
Chemin de la Croix, Saint-Cecile, NB

Enclosed is our geotechnical report for the above noted project based on the scope of work presented in our email proposal. This report was prepared by Anna Shafiq, M.A.Sc., P.Eng. with a senior review performed by Serge Bourque, M.Sc.E., P.Eng.

Do not hesitate to contact the undersigned if you have any questions or require additional information.

REGISTERED PROFESSIONAL ENGINEER
Province of New Brunswick
M7662
Anna E. Shafiq
Signature
Nov. 20, 2017
Date
Province du Nouveau-Brunswick
INGÉNIEURE IMMATRICULÉE

Anna Shafiq, M.A.Sc., P.Eng.

Serge Bourque, M.Sc.E., P.Eng.

Enclosures
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EXECUTIVE SUMMARY

The following geotechnical report pertains to the proposed development on Chemin de la Croix located in Sainte-Cecile, New Brunswick. The proposed development consists of an industrial fish plant and associated driveway / parking areas. The geotechnical investigation determined the subsurface conditions at the site generally consist of rootmat and topsoil or grubbings underlain by gravelly sand underlain by native glacial till. Inferred sandstone bedrock was encountered underlying the native glacial till.

It is assumed that the design finished floor elevation of the new building will closely match the existing site grades and current building floor slab. In our opinion, the subsurface conditions at the site are generally suitable for the proposed development. Geotechnical recommendations for design and construction of the proposed industrial building that are of particular importance include:

- Foundations may be sized using a net geotechnical bearing reaction at Serviceability Limit States (SLS) of 150 kPa;
- Should portions of the foundations bear on different strata, we recommend that a 300 mm thick lift of structural fill be placed underneath the foundations in order to minimize differential conditions;
- For frost protection, exterior footings should be founded at least 1.8 metres and 2.1 metres below final grade for a heated and unheated structure, respectively;
- Within the proposed building footprint, unsuitable soils should be excavated to expose a native glacial till subgrade;
- The existing gravelly sand may remain underneath the slab-on-grade portion of the building provided it is assessed and approved by a Geotechnical Engineer;
- The excavated gravelly sand is suitable for re-use as backfill along perimeter foundation walls and for mass filling operations, provided that no particles greater than 150 mm are present, and that all organics, construction debris and otherwise deleterious materials are removed; and
- Placing frozen fill or engineered fill on frozen subgrade is not recommended.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Alliance Building Contractors Limited (Alliance) to undertake a geotechnical investigation in support of the proposed redevelopment and construction of a new fish plant building, located Chemin de la Croix in Sainte-Cecile, New Brunswick. Based on preliminary drawings and correspondence with Alliance, we understand that the proposed development will consist of a warehouse / plant facility and associated driveway / parking areas. We further understand that the new building will occupy a footprint of approximately 3,000 metres^2 and be founded on conventional spread footings with a slab-on-grade.

The purpose of this investigation was to identify the general subsurface conditions at the site and to provide engineering guidelines on the geotechnical design aspects of the project based on the factual information obtained. This report presents our findings for geotechnical purposes only; the investigation outlined in this report is strictly geotechnical in nature and should not be viewed as an environmental assessment of the site.

2.0 PROJECT AND SITE DESCRIPTION

The site is located on the east side of Chemin de la Croix in Sainte-Cecile, New Brunswick. The site is bordered to the north by the Baie des Chaleurs and to the east and south by unoccupied farmlands and tree covered land, respectively.

The site is relatively flat with a slight slope from north to south.

A test pit location plan showing site features is presented in Figure 3.1.

3.0 REVIEW OF GEOLOGY MAPS

Digital surficial geology mapping of New Brunswick indicates that the area of the site generally consists of Late Wisconsinan and / or Early Holocene aged marine sediments of sand, silt, some gravel and clay generally in a blanket or plain 0.5 to 3.0 metres thick.

Digital bedrock geology mapping of New Brunswick indicates that these overburden soils rest on Late Carboniferous aged terrestrial sediments (red to grey sandstone, conglomerate, siltstone) of the Pictou Group formation.

Legend

TEST PIT

Note

1. COORDINATE SYSTEM: NEW BRUNSWICK; STEREOGRAPHIC PROJECTION, NAD83 (CSRS) DATUM.
2. THIS SURVEY REFERENCED NBMON 22019 WITH A PUBLISHED ELEVATION OF 7.048m.

Drawn By	Checked By
CHG	AES
Calculations By	Checked By
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Date: NOVEMBER 2017

Project

GEOTECHNICAL INVESTIGATION
NEW FISH PLANT BUILDING
RUE DE LA CROIX, SAINTE-CECILE, NB.

Drawing

TEST PIT LOCATION PLAN

Scale

1:1000

0 20 40 60m

File No.	Drawing	Revision No.
78000101	FIGURE 1	0

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

N:\DRAWINGS\78000\78000.01\78000101.DWG

4.0 SUBSURFACE INVESTIGATION

The purpose of this geotechnical investigation was to assess the soil, bedrock and groundwater conditions at the site. This report contains a general description of the area under investigation, a summary of the field work carried out, and project specific geotechnical recommendations for design and construction.

Six test pits (TP17-01 to TP17-06) were excavated at the site on November 14, 2017 in the presence of one of GEMTEC's geotechnical engineers. Test pits were excavated at locations determined by the proposed building footprint.

The test pits were excavated to depths ranging from 2.6 to 3.2 metres below existing surface grade. The work was carried out using a DX225 excavator provided and operated by Christian Larocque Services Limitée.

During test pit excavations, overburden soil samples were collected by GEMTEC personnel and local soil stratigraphy and groundwater seepage were visually catalogued throughout the investigation. Laboratory index testing was performed on select samples for the purpose of verifying field observations.

The test pit locations and elevations were surveyed by GEMTEC using our high precision GPS equipment. Elevations referenced in this report and on the attached logs are based on a geodetic datum, and reference New Brunswick Monument (NBMON) 22019 with a published elevation of +7.048 metres.

Descriptive terms and detailed test pit logs are appended (Appendix A). Laboratory testing results are included in Appendix B and select site photos are presented in Appendix C.

5.0 SUBSURFACE CONDITIONS

5.1 General

The soil stratigraphy presented in the test pit logs are representative of subsurface conditions at the specific test pit locations only. Boundaries between soil and bedrock zones on the logs are often not distinct, but rather are transitional and have been interpreted. Subsurface conditions at locations other than the test pit locations may vary from the conditions reported in the test pit logs. The soil descriptions in this report are based on commonly accepted methods of classification and identification employed in geotechnical practice. Classification and identification of soil involves judgement and GEMTEC does not guarantee descriptions as exact, but infers accuracy to the extent that is common in current geotechnical practice.

The subsurface conditions encountered during this geotechnical investigation generally consist of rootmat and topsoil or grubbings underlain by gravelly sand underlain by native glacial till.

Inferred sandstone bedrock was encountered below the native glacial till at four test pit locations. Minor groundwater seepage was observed at one of the six test pit locations.

Laboratory testing was undertaken on select samples and the results are presented in Appendix B.

A summary of the subsurface conditions encountered at the site are presented in Table 5.1.

Table 5.1 – Summary of Subsurface Conditions

Test Pit	Test Pit Elevation[1]	Test Pit Depth	Depth to Glacial Till	Glacial Till Elevation[1]	Inferred Bedrock Elevation[1]
	(metres)				
17-01	3.2	2.7	--	--	--
17-02	2.8	2.6	0.5	2.3	0.4
17-03	2.8	2.7	0.8	2.0	0.2
17-04	3.1	3.2	0.6	2.5	--
17-05	3.0	3.2	1.2	1.8	0.0
17-06	3.3	2.9	1.4	1.9	0.6

Notes: 1. Elevations reference a geodetic datum.

5.2 Surficial Rootmat / Grubbings

Grass and associated rootlets mixed with brown sand and trace silt was encountered at the surface of two test pit locations (TP17-01 and TP17-06). The rootmat thickness varies from 100 (TP17-06) to 300 mm (TP17-01). Due to the proximity of a gravel driveway to TP17-06, approximately 400 mm of sandstone fill underlies the thin organic layer at this test pit location while 500 mm of brown sand with trace silt and gravel with organics (topsoil) underlies the rootmat at TP17-01.

The remainder of the investigated area has been recently cleared of vegetation leaving behind a thick mat of grubbings mixed with brown sand and some gravel. Construction debris and garbage was encountered in TP17-05 and observed on the ground surface in the surrounding area. The grubbings vary in thickness from 500 to 600 mm.

5.3 Gravelly Sand

A layer of orange-brown to reddish-brown gravelly sand with trace to some silt was encountered underlying the topsoil / sandstone fill or grubbings in all test pit locations except TP17-02. The thickness of the gravelly sand varies from 0.1 (TP17-04) to 0.9 metres (TP17-06). TP17-01 was

terminated within the gravelly sand layer, therefore the full extent of the gravelly sand was not determined. The location of this test pit is close to the existing septic field and could be fill material. Based on a visual assessment and the effort required during excavation advancement, it is our opinion that gravelly sand can be described as loose to compact.

5.4 Glacial Till

Glacial till was encountered underlying the gravelly sand in all test pit locations except TP17-01 where glacial till was not encountered and TP17-02 where glacial till was encountered directly below the grubbings. Glacial till is a heterogeneous mixture of all grain sizes, but for this site may generally be described as reddish-brown silty sand with some gravel to greenish-brown silty sandy gravel. Sandstone cobbles were also encountered throughout the native glacial till. Based on a visual assessment and the effort required during excavation advancement, it is our opinion the glacial till can be described as compact. The glacial till was encountered at depths ranging from 0.5 to 1.4 metres below existing surface grade.

Laboratory index testing undertaken on three representative samples of the native glacial till shows an in-situ moisture content ranging between 9.3 and 12.1%. Grain size distribution analysis indicates the glacial till comprises approximately 35 to 53% gravel, 20 to 30% sand, and 27 to 38% silt and clay sized particles.

5.5 Inferred Bedrock

Inferred grey sandstone bedrock was encountered below the native glacial till at four test pit locations, at depths ranging from 2.4 to 3.0 metres below existing surface grades, or an average elevation of +0.3 metres, based on geodetic datum. The surface of the inferred sandstone bedrock can be described as fractured and weathered.

5.6 Groundwater Seepage

Minor groundwater seepage was encountered at one of the six test pit locations (TP17-05), at a depth of about 3 metres below existing surface grade. Groundwater conditions may vary seasonally, or as a consequence of precipitation and construction activities in the area. Shallow groundwater seepage may also be locally affected by the presence of underground utility corridors, bedrock conditions, building foundations and / or fill materials.

6.0 DISCUSSION AND RECOMMENDATIONS

This section of the report provides engineering guidelines on the geotechnical design and construction aspects of the project based on our interpretation of the test pit information and the project requirements. The information in the following sections is provided for the guidance of the designers and is intended for this project only. Contractors bidding on or undertaking the works should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction, and make their own interpretation of the factual data as it affects their construction techniques, schedule, safety, and equipment capabilities.

The test pits excavated at the site are scattered; therefore soil and bedrock conditions may vary from those determined at the test pit locations. GEMTEC personnel should be contacted immediately if the subsurface conditions encountered during excavations are different than those encountered during the completion of our geotechnical investigation.

The investigation outlined in this report is strictly geotechnical in nature and should not be viewed as an environmental assessment of the site.

6.1 General

We understand that the proposed development consists of the construction of a new fish plant. Based on preliminary drawings and correspondence with Alliance, we understand that the proposed development will consist of a warehouse / plant facility and associated driveway / parking areas. We understand that the new building will occupy a footprint of approximately 3,000 metres^2 and will be founded on conventional spread footings with a slab-on-grade.

At the time of this investigation, the finished floor elevation of the proposed building was not known. We have assumed that the finished floor elevation will closely match the existing surface grades and the existing building floor slab. Should the finished floor elevation deviate from this assumption by more than 0.5 metres, GEMTEC should be consulted to revise our recommendations, if required.

Based on the subsurface conditions encountered, the site is currently suitable for the proposed industrial building.

It is recommended that the design drawings be reviewed by the Geotechnical Engineer as the design progresses to ensure that the guidelines provided in this report have been interpreted as intended.

6.2 Foundations

- The proposed structure may be supported on conventional spread footings founded on native, undisturbed glacial till, sandstone bedrock or structural fill built up from these strata. Foundations may be sized using a net geotechnical bearing reaction at Serviceability Limit

States (SLS) of 150 kPa, for anticipated post-construction total and differential settlements of 25 mm and 19 mm, respectively. For design purposes, a factored net geotechnical bearing resistance at Ultimate Limit States (ULS) of 300 kPa may be used. This includes a geotechnical resistance factor of 0.5.

- Should portions of the foundations bear on different strata, we recommend that a 300 mm thick lift of structural fill be placed underneath the foundations in order to minimize differential conditions. Structural fill should meet the requirements of Subsection 6.3.2.
- A Geotechnical Engineer, or their representative, should assess the bottom of the foundation excavation to ensure that satisfactory bearing soils have been reached prior to constructing footings or placing structural fill material.
- For frost protection, exterior footings should be founded at least 1.8 metres and 2.1 metres below final grade for a heated and unheated structure, respectively. Isolated, unheated exterior footings should be provided with a minimum of 2.1 metres of earth cover. Additionally, as per the 2010 National Building Code of Canada (NBCC 2010), if the slab and foundation walls are internally insulated to reduce heat loss, a minimum of 2.1 metres of earth cover should be provided. Alternatively, foundation depths may be reduced if an external insulation detail is incorporated in the design. GEMTEC would be pleased to establish an insulation detail upon request.
- A design freezing index of 1,400 Degree C-days may be used for the area.
- Foundations may be designed using a Seismic Site Class C as per Table 4.1.8.4.A in the National Building Code of Canada (NBCC 2010)

6.3 Earthworks

Earthworks for this project will involve the removal of surface organics and construction debris as well as the gravelly sand and any otherwise deleterious materials from within the building footprint, placement and compaction of fill materials, and general site grading. Proof-rolling should be conducted in the presence of the Engineer at subgrade elevations. Loose or weak zones identified in the proof-roll should be replaced with materials approved by the Engineer.

6.3.1 Excavations and Dewatering

- Prior to excavating, surface water drainage controls should be provided to minimize run-off onto exposed soils. Suitable erosion and sedimentation control measures should be employed. These may include silt fences, check dams in ditches, and granular working pads.
- Minor groundwater seepage was observed at one test pit location, therefore dewatering may be required during excavation and backfilling operations. Dewatering can likely be achieved with the use of trenches and / or a sump and pump system. Sumps should be located so as not to interfere with the future placement of structural fill material and / or foundations. Groundwater is expected to fluctuate depending on the season, rainfall events, adjacent site use, and construction activities.

- Within the proposed building footprint, unsuitable soils should be excavated to expose the native glacial till subgrade. Excavations shall extend beyond the edge of the footings at a minimum distance of 0.5 metres before sloping down at one vertical to one horizontal (1V:1H) to suitable bearing soils (i.e. approved subgrade).
- The existing gravelly sand may remain underneath the slab-on-grade portion of the building provided it is assessed and approved by a Geotechnical Engineer.
- Excavated material that is planned for re-use should be compacted directly in the intended areas or placed in stockpiles for later use. It is noted that the investigation was for geotechnical purposes only; the presence of possible surface and / or subsurface contamination are outside the terms of reference for this report.
- Excavation work for the service trenches should be carried out in dry weather using a smooth ditching bucket in order to minimize the disturbance of the sensitive subgrade soils.
- Trenches should be excavated in accordance with the requirements of WorkSafe NB. Trench slopes should be no steeper that WorkSafe NB requirements of one horizontal to one vertical (1H:1V) within the first 1.2 metres from the bottom of the trench.
- Should zones of sandier material or elevated groundwater levels be encountered, trench slopes may need to be flattened in order to mitigate sloughing of excavation walls.
- Finished surface grades adjacent to foundations should be sloped away from the foundations at a 2% grade for a minimum distance of 3.0 metres. These areas should be capped with an impervious material, such as asphaltic concrete or impermeable soil.
- We recommend that properly installed perimeter footing drain tiles be used along the exterior foundation walls. This will prevent water from building up within the granular backfill material, which will minimize moisture problems within the building and differential frost heaving between the granular backfill and undisturbed native soils. Perimeter drains should be positively discharged away from the buildings into nearby catch basins or low-lying areas.

6.3.2 Fill Placement and Compaction

- Perimeter frost walls should be backfilled with a clean granular material having less than 10% fines (% passing the 0.080 mm sieve size) in order to prevent adfreezing. Material meeting Class “A” Backfill for Structures (NBDTI Standard Specifications for Highway Construction, Table 167-1), would be suitable backfill material. Alternative materials may be presented to the Engineer for consideration.
- **Structural fill** should consist of an approved clean, well-graded, granular material meeting the requirements of the latest version of the NBDTI Standard Specifications for Highway Construction. Structural fill required for the foundation and concrete slab-on-grade areas should consist of 75 mm minus crushed rock meeting NBDTI subbase specification, or approved alternate. A Geotechnical Engineer should approve the structural fill material before being placed on the site.

- Where fill is required below foundations, **structural fill** placement limits should extend beyond the edge of the footings a minimum distance of 0.5 metres before sloping down at 1H:1V to suitable bearing soils (i.e. approved native glacial till subgrade).
- The excavated gravelly sand is suitable for re-use as backfill along perimeter foundation walls and for mass filling operations, provided that no particles greater than 150 mm are present, and that all organics, construction debris and otherwise deleterious materials are removed. The re-use of excavated soils should be monitored and approved by a Geotechnical Engineer.
- The lift thickness used during placement of fill must be compatible with the compaction equipment and the material type to ensure the specified density throughout. Typically, lift thicknesses should not exceed 450 mm in loose thickness for mass filling, and 300 mm in loose thickness for fill used within foundation, concrete slab-on-grade, and trench areas. Structural fill should be compacted to the appropriate percentages of the maximum dry density as determined by the latest version of ASTM D698 (Standard Proctor), presented in Table 6.1 below. Compaction should be verified in the field with a nuclear density gauge on a regular basis. The maximum particle size should be no larger than ⅔ of the lift thickness.

Table 6.1 – Summary of Compaction Requirements

Structural Fill Use	Required Percentage of Compaction
Fill underneath footings and concrete slab-on-grade	98%
Fill placed for foundation wall backfill	95%
Imported fill below asphaltic and exterior concrete areas	98%
Landscape areas	93%

6.4 Concrete Slab-on-Grade

The concrete slab-on-grade areas should be excavated down to native glacial till or native compact gravelly sand. The subgrade should be proof-rolled with an eight tonne or larger vibratory smooth drum roller during dry weather in the presence of a Geotechnical Engineer, or their representative. Any soft areas detected shall be repaired as per the Engineer's recommendations. All fill required to raise the grade within the concrete slab-on-grade areas should be structural fill placed and compacted as per Subsection 6.3.2.

Sidewalks or exterior slabs, if any, next to the building should be protected from frost heaving by installing rigid insulation at the subgrade level, especially in doorway areas. GEMTEC would be pleased to provide an insulation design detail upon request.

The concrete slab-on-grade make-up should be as follows:

- Concrete slab
- Vapour barrier in accordance with CSA A23.1-14, Clause 6.2.5
- 150 mm thick layer of NBDTI 31.5 mm crushed rock base
- Approved structural fill (if required)
- Approved subgrade (i.e. native glacial till or gravelly sand)

Note that the above make-up does not account for radon gas mitigation measures that may be required by NBCC 2010. If this is a requirement, this make-up should be modified accordingly.

6.5 Pavement Structure

Should additional asphaltic concrete parking / driveway areas be added as part of this development, the subgrade should be prepared as per Subsection 6.2. Table 6.2 presents pavement structure options based on typical industrial / commercial asphaltic concrete surfaces. GEMTEC would be pleased to reassess our recommendations if the anticipated traffic type and volumes are provided.

Table 6.2 – Summary of Pavement Structure Options

Material	Heavy Duty[1]	Light Duty[2]
Asphalt Surface Course (Type D)	40 mm	75 mm
Asphalt Base Course (Type B)	60 mm	N/A
Base Course (NBDTI 31.5 mm crushed rock)	150 mm	150 mm
Subbase Course (NBDTI 75 mm crushed rock)	450 mm	300 mm

Notes: 1. Routine truck / delivery vehicle traffic or main traffic routes
2. Routine light passenger vehicles

All aggregate and asphaltic concrete materials should meet the NBDTI Standard Specifications. The pavement structure base and subbase materials should be compacted to 98% of the maximum dry density, as determined by the latest version of ASTM D698 (Standard Proctor). Compaction should be verified in the field with a nuclear density gauge on a regular basis.

6.6 Construction Inspection and Monitoring

The engagement of the services of the geotechnical consultant during construction is recommended to confirm that the subsurface conditions throughout the proposed excavations do not materially differ from those given in the report and that the construction activities do not adversely affect the intent of the design. The subgrade surfaces for the proposed industrial building should be inspected by experienced geotechnical personnel to ensure that suitable

materials have been reached and properly prepared. The placing and compaction of earth fill and imported granular materials should be inspected to ensure that the materials used conform to the grading and compaction specifications. Once the design has been finalized, GEMTEC should be retained to review the drawings to ensure that our recommendations have been interpreted correctly.

6.7 Winter Construction

Placing frozen fill or engineered fill on frozen subgrade is not recommended. If work is to be undertaken during freezing conditions, care should be taken to heat and / or insulate the fill prior to and after placement so as to keep it from freezing (some typical measures include heated box trucks, insulated tarps, or bales of hay). Frozen subgrade soil and / or previously placed fill must be thawed or removed prior to placement of any engineered fill. Winter concrete work should be carried out in accordance with CSA A23.

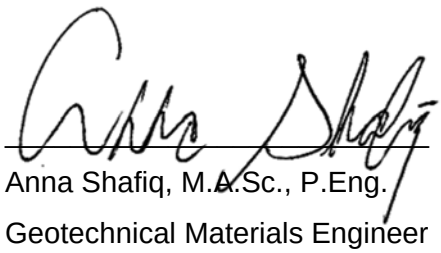
Any service trenches should be opened for as short a time as practicable and the excavations should be carried out only in lengths which allow the construction operations, including backfilling, to be fully completed in one working day.

7.0 CLOSURE

This report has been prepared for the sole benefit of our client, Alliance. The report may not be relied upon by any other person or entity without the express written consent of both GEMTEC and our client, Alliance.

Any use that a third party makes of this report, or any reliance or decisions made based on it, is the responsibility of such third parties. GEMTEC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.



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Geotechnical Materials Engineer
GEMTEC

Serge Bourque, M.Sc.E., P.Eng.
VP Operations – Atlantic East
GEMTEC

APPENDIX A

Descriptive Terms and Test Pit Logs

GEMTEC
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DESCRIPTIVE TERMS
BOREHOLE / TEST PIT LOGS

SOILS

GRAIN SIZE

0.01	0.1	1.0	10	100	1000 mm
SILT CLAY	SAND (F / M / C)		GRAVEL	COBBLE	BOULDER
	0.08	0.4 2	5	80	200

DESCRIPTIVE TERMINOLOGY

0%	10%	20%	35%	weight % of material
TRACE	SOME	ADJECTIVE	and > 35% noun > 35% and main fraction	
trace clay, etc.	some gravel, etc.	silty, etc.	sand and gravel, etc.	

COMPACTNESS GRANULAR SOILS

SPT N-VALUES	0 - 4	4 - 10	10 - 30	30 - 50	> 50
DESCRIPTION	VERY LOOSE	LOOSE	COMPACT	DENSE	VERY DENSE

CONSISTENCY COHESIVE SOILS

Cu, kPa	0 - 12	12 - 25	25 - 50	50 - 100	100 - 200	> 200
SPT N-VALUES	0 - 2	2 - 4	4 - 8	8 - 15	15 - 30	> 30
DESCRIPTION	VERY SOFT	SOFT	FIRM	STIFF	VERY STIFF	HARD

ROCK

RQD	OVERALL QUALITY	FRACTURE SPACING
0 - 25	VERY POOR, VERY SEVERELY FRACTURED	VERY CLOSE 20 - 60 mm
25 - 50	POOR, SEVERELY FRACTURED	CLOSE 60 - 200 mm
50 - 75	FAIR, FRACTURED	MODERATE 200 - 600 mm
75 - 90	GOOD, MODERATELY JOINTED	WIDE 600 - 2000 mm
90 - 100	EXCELLENT, INTACT	VERY WIDE 2 - 6 m

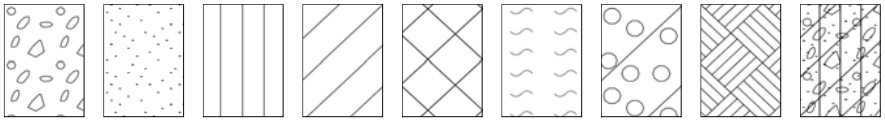
COMP.STRENGTH, MPa	1 - 5	5 - 25	25 - 50	50 - 100	100 - 250	> 250
DESCRIPTION	VERY WEAK	WEAK	MODERATE	STRONG	VERY STRONG	EXTREMELY STRONG

SAMPLE TYPES (location to scale on log)

S	SPLIT TUBE	G	GRAB / SHOVEL
T	SHELBY TUBE	H	CARVED BLOCK
P	PISTON	K	SLOTTED
F	AUGER	V	IN-SITU VANE
W	WASH	NR	NO RECOVERY

ROCK CORES A (30 mm); B (41 mm); N (54 mm); H (63 mm)

LOG SYMBOLS



WELL SYMBOLS

N - standard penetration test; blows by 475 J drop hammer to advance standard 50 mm O.D. split tube sampler 0.3 m ●

RQD - percent of core consisting of hard, sound pieces in excess of 100 mm long (excluding machine breaks)

RECOVERY - sample recovery expressed as percentage or length

Cu - shear strength, kPa; vane Φ; penetrometer ■; unconfined ⊙; Uc unconfined compressive strength

Sr - shear strength, remoulded; vane ⊗; penetrometer □

Dd - dry density; t/m^3

W - natural moisture content, percent *

PL - plastic limit; percent ⊢

LL - liquid limit; percent ⊣

ND - non-detect, total petroleum hydrocarbons (TPH) not detected in soil

GROUNDWATER LEVEL ▼ SEEPAGE ▽

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

TEST PIT LOG

Client	Alliance Building Contractors Ltd.	Proj No. 7800.01	Test pit TP17-01
Project	New Fish Plant Building	Date End 14.Nov.2017	Page 1 of 1
Location	136 Chemin de la Croix, Sainte-Cecile, New Brunswick		
Ground Level, m 3.20	Datum: Geodetic	Logged By AES	

Undrained Shear Strength - kPa
0 25 50 75 100
□ Pocket Penetrometer <225 ■ Pocket Penetrometer
⊕ Field Vane Test ⊗ Remoulded
Water Content & Atterberg Limits w_P w w_L
Dynamic Penetration Test, blows/0.3m
Standard Penetration Test, blows/0.3m
0 10 20 30 40 50 60 70 80 90 100

DEPTH m	SAMPLE No	TYPE	N (RQD)	REC mm	LOG	DESCRIPTION
0						**ROOTMAT / TOPSOIL** Grass and rootlets in sand with trace silt, some gravel Brown sand, trace silt and gravel - moist and loose to compact
						0.80 2.40
1						**GRAVELLY SAND FILL** Orange-brown gravelly sand with frequent sandstone cobbles throughout - moist and loose to compact
						1.40 1.80
						GRAVELLY SAND FILL Brown gravelly sand, trace silt - moist and compact
2						2.70 0.50
						End of Test Pit at 2.7 metres below existing surface grade Groundwater seepage not observed during the investigation

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TEST PIT LOG

Client	Alliance Building Contractors Ltd.	Proj No. 7800.01	Test pit TP17-02
Project	New Fish Plant Building	Date End 14.Nov.2017	Page 1 of 1
Location	136 Chemin de la Croix, Sainte-Cecile, New Brunswick		
Ground Level, m 2.80	Datum: Geodetic	Logged By AES	

Undrained Shear Strength - kPa
0 25 50 75 100
☐ Pocket Penetrometer <225 ■ Pocket Penetrometer
⊕ Field Vane Test ⊗ Remoulded
Water Content & Atterberg Limits w_P w w_L
Dynamic Penetration Test, blows/0.3m
Standard Penetration Test, blows/0.3m
0 10 20 30 40 50 60 70 80 90 100

DEPTH m	SAMPLE No	SAMPLE TYPE	SAMPLE N (RQD)	SAMPLE REC mm	LOG	DESCRIPTION
0						**GRUBBINGS** Organic grubbings with brown sand, some silt and gravel
						0.50 — 2.30
						GLACIAL TILL Reddish-brown silty sand, some gravel with frequent sandstone cobbles throughout - moist and compact
1						
	1	G				
2						2.40 — 0.40
						INFERRED BEDROCK Inferred grey weathered sandstone bedrock
						2.60 — 0.20
						End of Test Pit at 2.6 metres below existing surface grade
						Groundwater seepage not observed during the investigation

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

TEST PIT LOG

Client	Alliance Building Contractors Ltd.	Proj No. 7800.01	Test pit TP17-03
Project	New Fish Plant Building	Date End 14.Nov.2017	Page 1 of 1
Location	136 Chemin de la Croix, Sainte-Cecile, New Brunswick		
Ground Level, m 2.80	Datum: Geodetic	Logged By AES	

Undrained Shear Strength - kPa
0 25 50 75 100
☐ Pocket Penetrometer <225 ■ Pocket Penetrometer
⊕ Field Vane Test ⊗ Remoulded
Water Content & Atterberg Limits w_P w w_L
Dynamic Penetration Test, blows/0.3m ★
Standard Penetration Test, blows/0.3m ●
0 10 20 30 40 50 60 70 80 90 100

DEPTH m	SAMPLE No	TYPE	N (RQD)	REC mm	LOG	DESCRIPTION
0						**GRUBBINGS** Organic grubbings in brown sand, some gravelly, trace silt
						0.60 — 2.20 **GRAVELLY SAND** Orange-brown gravelly sand, trace silt - moist and loose
						0.80 — 2.00 **GLACIAL TILL** Reddish-brown silty gravelly sand with infrequent sandstone cobbles - moist and loose to compact
1						
2						2.60 — 0.20
						2.70 **INFERRED BEDROCK** 0.10 Inferred grey weathered sandstone bedrock
						End of Test Pit at 2.7 metres below existing surface grade
						Groundwater seepage not observed during the investigation

TEST PIT WITH GRAPH 7800.01.GPJ GEMTEC 2004.GDT 17/11/20

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

TEST PIT LOG

Client	Alliance Building Contractors Ltd.	Proj No. 7800.01	Test pit TP17-04
Project	New Fish Plant Building	Date End 14.Nov.2017	Page 1 of 1
Location	136 Chemin de la Croix, Sainte-Cecile, New Brunswick		
Ground Level, m 3.10	Datum: Geodetic	Logged By AES	

Undrained Shear Strength - kPa
0 25 50 75 100
☐ Pocket Penetrometer <225 ■ Pocket Penetrometer
⊕ Field Vane Test ⊗ Remoulded
Water Content & Atterberg Limits w_P w w_L
Dynamic Penetration Test, blows/0.3m ★
Standard Penetration Test, blows/0.3m ●
0 10 20 30 40 50 60 70 80 90 100

DEPTH m	SAMPLE No	TYPE	N (RQD)	REC mm	LOG	DESCRIPTION
0						**GRUBBINGS** Grubbings and rootlets in brown gravelly sand
						0.50 2.60
						0.60 **GRAVELLY SAND** 2.50 Orange-brown gravelly sand
1						**GLACIAL TILL** Reddish-brown silty gravel, some sand with infrequent sandstone cobbles - moist and loose to compact
	1	G				- Sandy silt and gravel
2						
3	2	G				- Silty gravel, some sand
						3.20 -0.10
						End of Test Pit at 3.2 metres below existing surface grade Groundwater seepage not observed during the investigation

TEST PIT WITH GRAPH 7800.01.GPJ GEMTEC 2004.GDT 17/11/20

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

TEST PIT LOG

Client	Alliance Building Contractors Ltd.	Proj No. 7800.01	Test pit TP17-05
Project	New Fish Plant Building	Date End 14.Nov.2017	Page 1 of 1
Location	136 Chemin de la Croix, Sainte-Cecile, New Brunswick		
Ground Level, m 3.00	Datum: Geodetic	Logged By AES	

Undrained Shear Strength - kPa
0 25 50 75 100
☐ Pocket Penetrometer <225 ■ Pocket Penetrometer
⊕ Field Vane Test ⊗ Remoulded
Water Content & Atterberg Limits (w_P w w_L)
Dynamic Penetration Test, blows/0.3m
Standard Penetration Test, blows/0.3m
0 10 20 30 40 50 60 70 80 90 100

DEPTH m	SAMPLE No	SAMPLE TYPE	SAMPLE N (RQD)	SAMPLE REC mm	LOG	DESCRIPTION
0						**GRUBBINGS** Grubbings, construction debris, garbage, groundcover and rootlets in brown sand, some gravel
0.60						
1						**GRAVELLY SAND** Orange-brown to reddish-brown gravelly sand, some silt - moist and loose to compact
1.20						
1.80	1	G				**GLACIAL TILL** Greyish-brown to greenish-brown silty gravelly sand with frequent sandstone cobbles throughout - moist and compact
2						- sandstone cobbles increasing with depth
3.00						0.00 ▽
3						**INFERRED BEDROCK** Inferred grey weathered sandstone bedrock
3.20						-0.20
						End of Test Pit at 3.2 metres below existing surface grade Groundwater seepage observed at 3.0 mbsg during the investigation

TEST PIT WITH GRAPH 7800.01.GPJ GEMTEC 2004.GDT 17/11/20

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

TEST PIT LOG

Client	Alliance Building Contractors Ltd.	Proj No. 7800.01	Test pit TP17-06
Project	New Fish Plant Building	Date End 14.Nov.2017	Page 1 of 1
Location	136 Chemin de la Croix, Sainte-Cecile, New Brunswick		
Ground Level, m 3.30	Datum: Geodetic	Logged By AES	

Undrained Shear Strength - kPa
0 25 50 75 100
□ Pocket Penetrometer <225 ■ Pocket Penetrometer
⊕ Field Vane Test ⊗ Remoulded
Water Content & Atterberg Limits w_P w w_L
Dynamic Penetration Test, blows/0.3m
Standard Penetration Test, blows/0.3m
0 10 20 30 40 50 60 70 80 90 100

DEPTH m	SAMPLE No	SAMPLE TYPE	SAMPLE N (RQD)	SAMPLE REC mm	LOG	DESCRIPTION
0					0.10	**ROOTMAT** 3.20 Thin layer of grass and rootlets at the surface
						SANDSTONE FILL Greyish-brown sandstone fill - gravel, some sand and cobbles
					0.50	2.80
						GRAVELLY SAND Orange-brown to reddish-brown gravelly sand, some silt
1					1.40	1.90
						GLACIAL TILL Greyish-brown to greenish-brown silty sandy gravel with frequent sandstone cobbles throughout - moist and compact
2	1	G				- Silt and gravel, some sand
					2.70	0.60
					2.90	**INFERRED BEDROCK** 0.40 Inferred grey weathered sandstone bedrock
						End of Test Pit at 2.9 metres below existing surface grade Groundwater seepage not observed during the investigation

APPENDIX B

Lab Testing Results

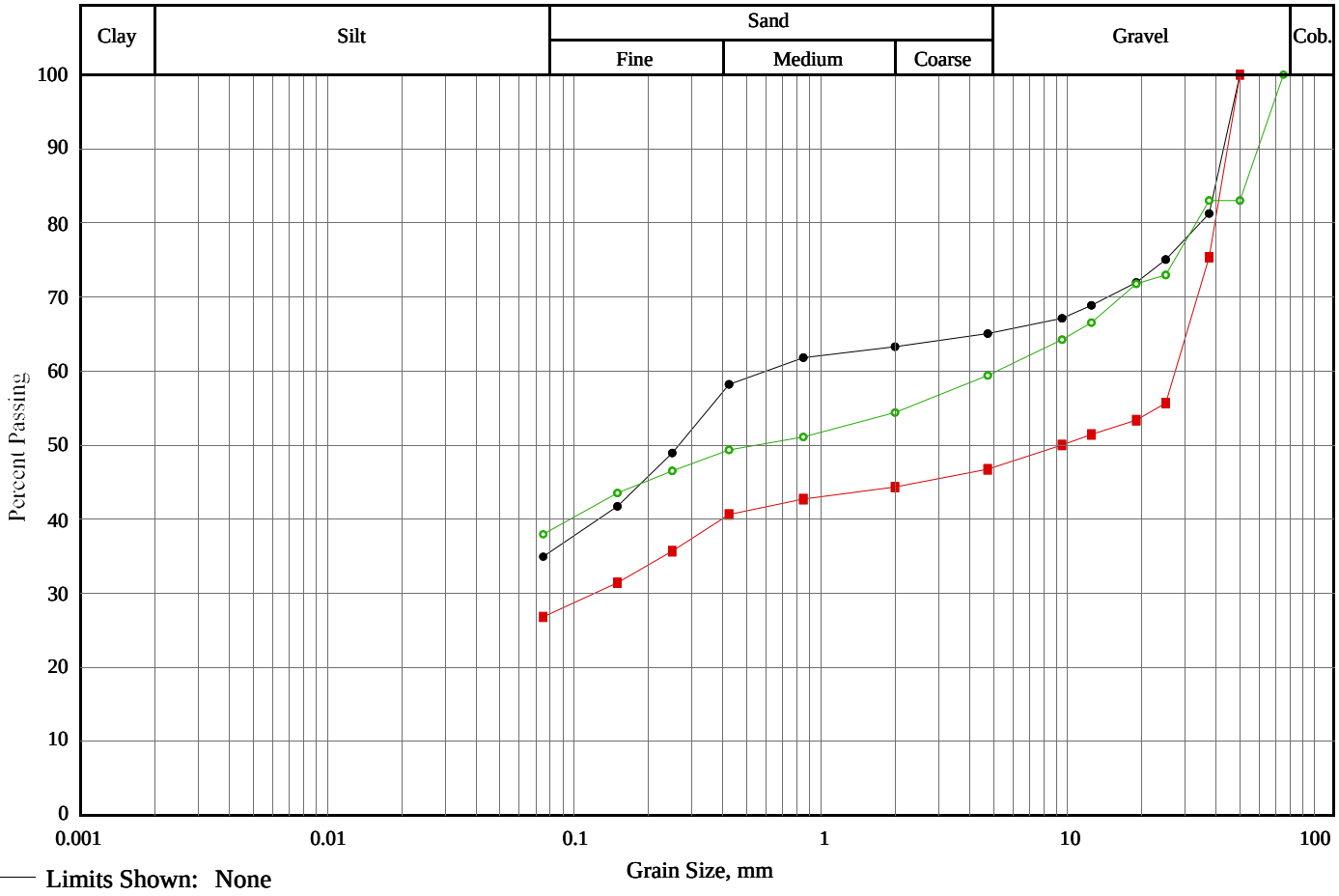
GEMTEC
Consulting Engineers and Scientists

Client: Alliance Building Contractors Ltd.

Project: Geotechnical Investigation, New Fish Plant Building, Ru

Project #: 0780001

Soils Grading Chart



Limits Shown: None

Line Symbol	Description	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay	Date Sampled
●	GLACIAL TILL	TP17-04	G1	1.4m	35.0	30.1	34.9		17/11/14
■	GLACIAL TILL	TP17-04	G2	3.0m	53.3	19.9	26.8		17/11/14
○	GLACIAL TILL	TP17-06	G1	2.1m	40.6	21.4	37.9		17/11/14

Line Symbol	Sample Description	AASHTO	D_{10}	D_{15}	D_{50}	D_{85}	% 5-75µm
●	Gravel and sand and silt	A-2-4	---	---	0.27	39.72	---
■	Silty gravel , some sand	A-2-4	---	---	9.53	41.97	---
○	Sandy gravel and silt	A-4 to A-7	---	---	0.55	52.44	---

GEMTEC
Consulting Engineers and Scientists

Client	Alliance Building Contractors Ltd.
Project:	Geotechnical Investigation, New Fish Plant Building, Ru
Project #:	0780001

Moisture Content and Density

Test Pit:	TP17-04	Date/Time Sampled:	17/11/14 3:40:00 PM	Mass of Cont. + Wet Soil, g:	1355.60
Depth:	1.4m	Date/Time Tested:	17/11/16 3:41:08 PM	Mass of Cont. + Dry Soil, g:	1230.50
Sample:	G1			Mass of Container, g:	165.10
Description:	GLACIAL TILL			Moisture Content, %:	11.74
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Test Pit:	TP17-04	Date/Time Sampled:	17/11/14 3:42:00 PM	Mass of Cont. + Wet Soil, g:	970.40
Depth:	3.0m	Date/Time Tested:	17/11/16 3:43:08 PM	Mass of Cont. + Dry Soil, g:	904.80
Sample:	G2			Mass of Container, g:	202.40
Description:	GLACIAL TILL			Moisture Content, %:	9.34
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Test Pit:	TP17-06	Date/Time Sampled:	17/11/14 3:45:00 PM	Mass of Cont. + Wet Soil, g:	1403.70
Depth:	2.1m	Date/Time Tested:	17/11/16 3:46:38 PM	Mass of Cont. + Dry Soil, g:	1270.00
Sample:	G1			Mass of Container, g:	167.00
Description:	GLACIAL TILL			Moisture Content, %:	12.12
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

APPENDIX C

Select Site Photos

View of the site looking north.

View of the site looking southeast.

Backfilling TP17-04 following the investigation at this location.

Construction debris at the surface of TP17-05.

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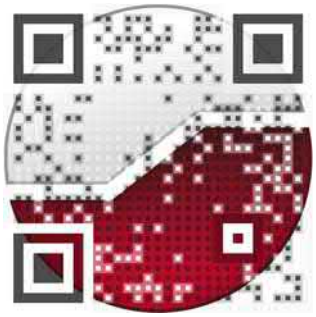

civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité