

SECTION 1.0

INTRODUCTION



**GOLDBORO
LNG**

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1-1
1.1 BACKGROUND AND HISTORY	1-1
1.2 NAME, ADDRESS AND IDENTIFICATION OF THE PROPONENT	1-2
1.3 CORPORATE INFORMATION AND ORGANIZATION	1-2
1.4 DEFINITION OF THE UNDERTAKING	1-3
1.5 PROJECT SCHEDULE.....	1-4
1.6 PURPOSE OF THE UNDERTAKING	1-4
1.7 LOCATION OF THE UNDERTAKING	1-5
1.7.1 Site Overview	1-5
1.7.2 Land Ownership	1-6

1.0 INTRODUCTION

Pieridae Energy (Canada) Ltd. (Pieridae) (the Proponent) is proposing to develop and operate a natural gas liquefaction plant, liquefied natural gas (LNG) tanker terminal, and associated marine facilities in Goldboro, Guysborough County, Nova Scotia (NS). Pieridae is a Canadian energy infrastructure development company with extensive LNG experience and deep connections to the LNG industry worldwide (more information at: www.pieridaeenergy.com and www.GolddoroLNG.com). This Environmental Assessment (EA) report has been prepared pursuant to obtaining approval for a Class II undertaking, in accordance with the NS *Environmental Assessment Regulations (Environment Act)*.

The Goldboro LNG Project (the Project) encompasses the development and operation of a natural gas liquefaction facility and marine terminal with a capacity of 10 million tonnes per annum (Mtpa) and a gross LNG storage capacity of about 690,000 cubic metres (m³) in three 230,000 m³ tanks. The Project proposal includes the development of a 180 megawatt (MW) on-site gas-fired power plant.

1.1 Background and History

The Project location is identical to the site that was proposed for the LNG facility component of the Keltic Petrochemicals and LNG Facility Project (the Keltic Project). The Keltic Project underwent provincial and federal EAs and obtained EA approvals in 2007 (provincial) and 2008 (federal). The Keltic Project, however, was never executed and all approvals obtained have expired.

It is of note that the LNG component of the Keltic Project was purchased by MapleLNG Limited (MapleLNG) in 2006; however, the federal and provincial assessment processes continued under the Keltic Project title. MapleLNG subsequently obtained a provincial Permit to Construct for a Gas Plant (June 2008) and a Send Out Pipeline (September, 2009). MapleLNG formally terminated the permits in March, 2011 following a decision not to proceed with the Project.

Given the similarities between the Goldboro LNG Project and the Keltic Project LNG component, some of the information on existing environment conditions presented in this EA Report has been referenced from the previous Keltic Project EA. The local environment has experienced little, if any, change since the Keltic Project assessment was completed. This was verified via several site visits and a series of ecological surveys by AMEC Environment & Infrastructure, a division of AMEC Americas Limited (AMEC) in September 2012 and 2013. The purpose of these field surveys was to confirm previously reported ecological conditions. The surveys also aimed at providing complementary information on environmental components that had not been addressed before (e.g., significance of abandoned mine openings (AMOs) for bats), or, for example, on species for which the conservation status had changed since the Keltic Project EA.

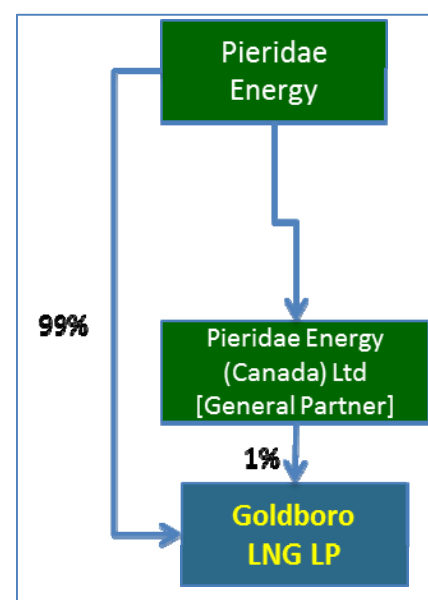
1.2 Name, Address and Identification of the Proponent

Name of Proponent:	Pieridae Energy (Canada) Ltd.
Address:	Pieridae Energy (Canada) Ltd. 1718 Argyle Street, Suite 730 Halifax, NS, B3J 3N6 Telephone: 902-492-4044 Fax: 902-492-5211
Goldboro LNG President:	Alfred Sorensen
E-mail:	Alfred.Sorensen@pieridaeenergy.com
Principal Contact:	Mark Brown – Director of Project Development
E-mail:	Mark.Brown@pieridaeenergy.com

1.3 Corporate Information and Organization

Pieridae Energy (Canada) Ltd. (Pieridae) is a wholly owned subsidiary of Pieridae Energy Ltd. Pieridae is a Canadian energy infrastructure development company focused on LNG infrastructure opportunities in Canada. Pieridae is the general partner for the Goldboro LNG Limited Partnership financing the construction of the LNG Project.

Pieridae is the Project leader in the initial phase of development. Given the extensive capital requirements for LNG liquefaction projects, ownership becomes more diversified as the Project moves from development to permitting, to construction and finally operation. Typically final ownership of similar LNG projects includes the LNG buyers, natural gas feed stock producers and financial entities such as pension funds and insurance companies.



Pieridae's management team has extensive experience in the energy industry and with permitting and developing LNG infrastructure projects in Canada and internationally. The team developed and permitted the Kitimat LNG project and the associated pipeline in British Columbia. The Project was begun in 2004 and was fully permitted in 2009. The Project was the first LNG project approved in Canada in over 30 years. It also set a first with the location of the Project being on First Nation lands, and to date is the largest industrial project to be sited on First Nation's land in Canada. Both the LNG project and the pipeline received EA approvals - with integrated extensive environmental, health, and safety features into the design, construction and operation plans. This includes comprehensive environmental management / mitigation as well as monitoring programs.

Pieridae is headed by President and Chief Executive Officer (CEO) Alfred Sorensen with Thom Dawson as Chief Operating Officer (COO). For more information regarding Pieridae's management structure and organizational accountability as well as other corporate information please refer to: www.pieridaeenergy.com and www.GoldboroLNG.com.

Pieridae is committed to sustainable development program. Company values include a commitment to the protection of the environment and dedication in making Pieridae an exemplary corporate citizen with local communities, First Nation communities, regulators and government. Pieridae's environmental policy includes:

- A commitment to a safe, healthy workplace which ensures all personnel are educated, trained and have the necessary safety equipment in place.
- A commitment to the communities in which we are engaged. Any incidents are reported to authorities immediately so corrective action takes place to ensure health, safety and protection of the environment.
- A commitment to recycling and reusing materials.
- A commitment to the conservation and stewardship of natural resources.

Pieridae has retained Chicago Bridge & Iron UK Ltd. (CB&I) Front End Engineering Design (Pre-FEED) Contractor to assist in the engineering, design and approvals for the Goldboro LNG. CB&I is the most complete energy infrastructure focused company in the world. CB&I have served the LNG industry since its inception and have over 100 years of experience in Canada.

1.4 Definition of the Undertaking

The Project encompasses the development and operation of a natural gas liquefaction facility and marine terminal with a capacity of 10 Mtpa of LNG (equivalent to approximately 1575 million cubic feet of non-liquefied natural gas per day) and a gross LNG storage capacity of about 690,000 m³ in three 230,000 m³ tanks. The Project proposal includes the development of a 180 MW on-site gas-fired power plant.

The Project is designed with two independent production "trains"; each capable of producing approximately 5 Mtpa of LNG. It is possible that Pieridae may decide to build only one train ("Phase 1"), or may construct the second train ("Phase 2") at a later time. For the purpose of this EA, it is assumed that the Project will include both trains.

The Project will use LNG tankers for shipment of the liquefied gas. Vessels will arrive every three to four days, take on LNG at the jetty for 12 to 24 hours, and leave. The tankers will carry up to 266,000 m³.

During the five-year construction period the Project will require up to 3500 on-site workers. The operation of the facility will provide direct employment for up to about 200 people. Current estimations value the capital expenditures of the Project during construction at approximately Canadian (CDN) \$8.32 billion. During operation, the estimated total expenditures amount to CDN \$ 34.8 million per annum (excluding property taxes).

1.5 Project Schedule

The preliminary schedule for Project development is presented below:

Year	Major Activity
2012	Initial Consultation with Stakeholders
	Commencement of the EA: <ul style="list-style-type: none"> Province of NS.
	Consultation and Engagement Process: <ul style="list-style-type: none"> engagement of First Nations communities; meetings with local communities; meetings with interested stakeholders; and agency consultation.
2013	PRE-FEED Completion
	Completion of EA
	Permits and Approvals
	Consultation and Engagement (Cont'd)
2014	Commencement of FEED
	Permits and Approvals (Cont'd)
	Consultation and Engagement (Cont'd)
2015	Final Investment Decision for the Project
	Consultation and Engagement (Cont'd)
	Commencement of Construction
2019	Testing (3-4 Months)
	Commencement of Operations

The schedule is preliminary and updates will be communicated via the Project website and through the Project's various consultation and engagement activities (Section 13.0).

1.6 Purpose of the Undertaking

The increasing demand for natural gas in the world markets, particularly in Asia, has fostered the exploration of new gas supplies. In North America, there is an increasing supply of natural gas, much of it from shale gas developments. The Goldboro LNG Facility is intended for the export of North American natural gas supplies to consumers in Europe, Asia, and other developing markets.

The Goldboro LNG Facility is proposed for a coastal location with direct access to off-shore gas production sites and the Maritimes & Northeast Pipeline (M&NP) pipeline, which is connected to multiple United States (US) and Canadian pipelines. The facility's objective is to receive gas from off- and on-shore production sites in Goldboro, liquefy, store, and load the LNG onto LNG vessels for export to markets in Europe and Asia.

1.7 Location of the Undertaking

The Project is located at the Atlantic Ocean coast, approximately 2 kilometres (km) each way from the communities of Goldboro in the west, and Drum Head and Seal Harbour in the east (Figure 1.7-1).

The centre of the Project site is located approximately at:

- Latitude: 45°10'N; and
- Longitude: 61°38'W.

1.7.1 Site Overview

A preliminary site layout for the Project is presented in Figures 1.7-2 and 1.7-3. The Project will be located in the Goldboro Industrial Park near the existing Sable Offshore Energy Inc. (SOEI) gas plant. The SOEI and Deep Panuke Pipelines run along the eastern boundary of the industrial park and Project site. This figure also includes the proposed pipeline connection from the Project site to the M&NP pipeline as well as a 7 km freshwater supply pipeline from the site to a new intake facility at Meadow Lake. For reasons of safety, the Province will relocate Highway 316 around the Project site.

There are no railroad tracks, airports, or airstrips in the vicinity of the Project. A helicopter landing pad is located outside of the northern boundary of the Project site area was operated by SOEI but has been abandoned. Numerous logging roads of various ages crisscross most of the Project site. There are no major ports near the Project area. The nearest small fishing ports are Isaac's Harbour in the west and Drum Head in the east, each approximately 2 km distant from the Project site.

The Project site boundaries extend to include the southern section of the Red Head peninsula, with Betty's Cove located at southern base of the peninsula, and Webb's Cove located the northern base, off the Project site. An area for use as a temporary work camp abuts the northern site boundary and, for the duration of the construction phase, is part of the Project footprint.

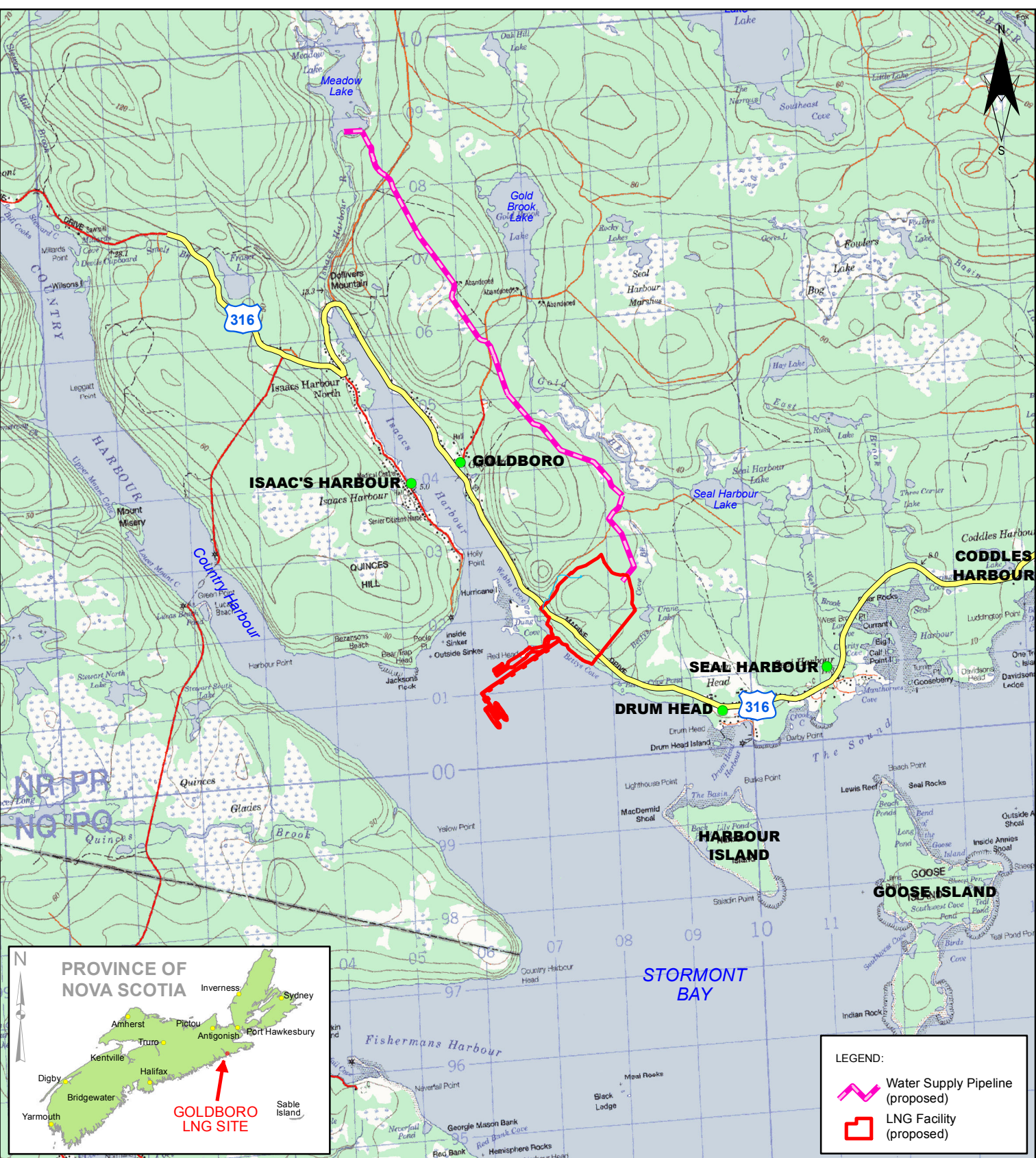
There are several small, unnamed streams at the Project site, of which only one is large enough to be included in a NS government topographical map. In addition, there are three ponds located in the Project area on the Red Head peninsula. They are separated from the ocean by barrier beaches. The largest, Dung Cove Pond, is freshwater and is fed by the above mentioned stream. The smaller ponds are brackish or saline. Crane Lake is located along Betty's Cove Brook, about 200 metres (m) east of the Project boundary (Figure 1.7-1).



A number of heritage resources were detected during an Archaeological Resource Impact Study carried out in 2004, most of them associated with mining activities that were abandoned about 100 years ago. In addition, numerous abandoned mine workings are spread across the Project area, consisting of tailings, open shafts, and pits. There are no residences or seasonal

residences on the Project site. The nearest residence with its associated drive way is located about 200 m north of the Project boundary on Route 316 near Webb's Cove. Three 50 kilowatt (kW) wind turbines have been recently constructed north of the Project site (Figure 1.7-2) and are being operated by the Municipality of the District of Guysborough (MODG).

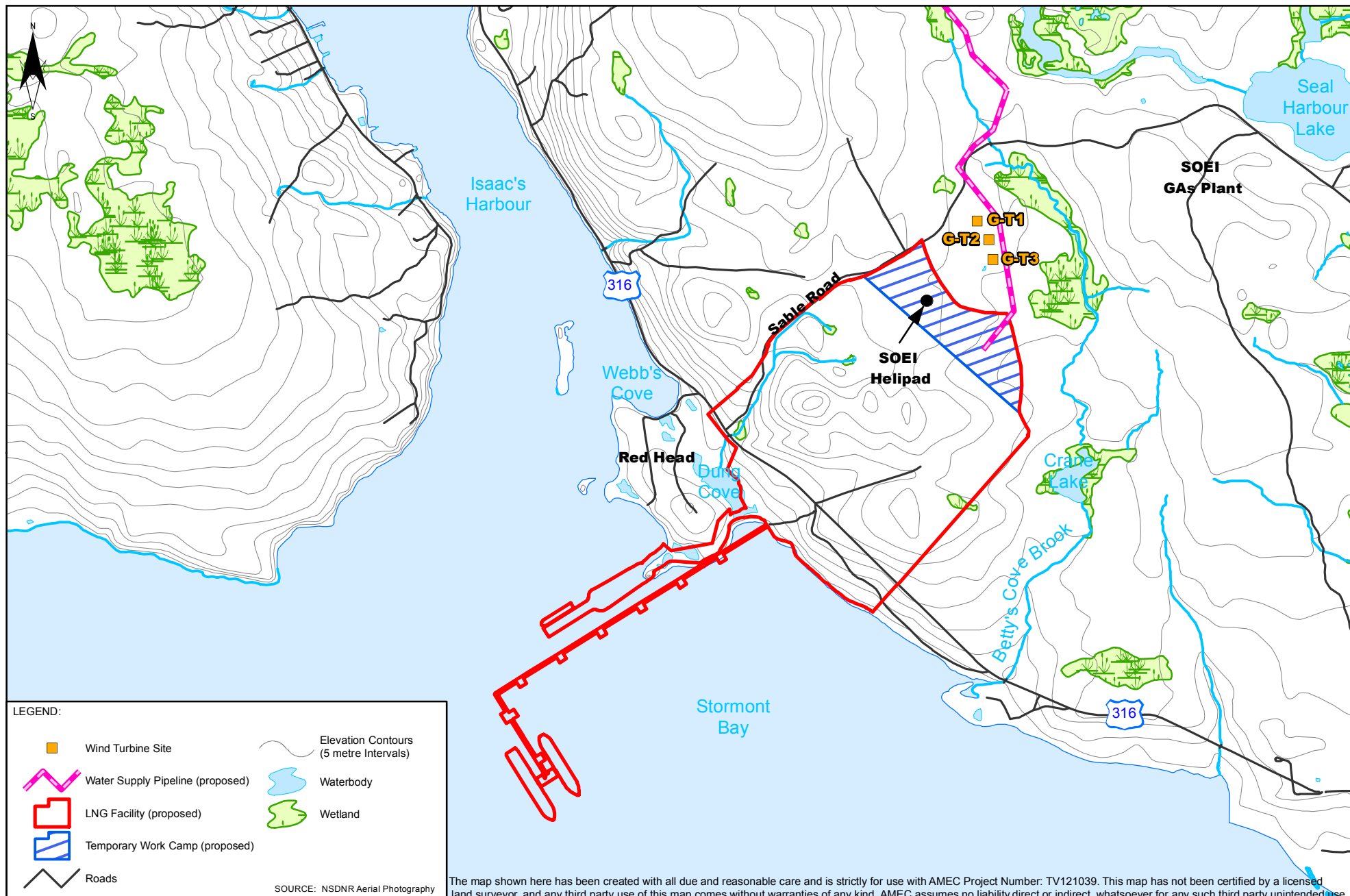
1.7.2 Land Ownership

The Project site is currently owned by the MODG. The site is located in the Goldboro Industrial Park which is zoned Industrial Heavy I-3 (MODG, Land Use By-law, 2011). I-3 zoning allows for uses such as natural gas processing, including liquefaction and gasification facilities as well as marine terminals, including wharfs and storage facilities. The land required for the water pipeline and water intake structure at Meadow Lake is a combination of private and crown land. Negotiations will need to be undertaken for the pipeline easement and water intake structure.



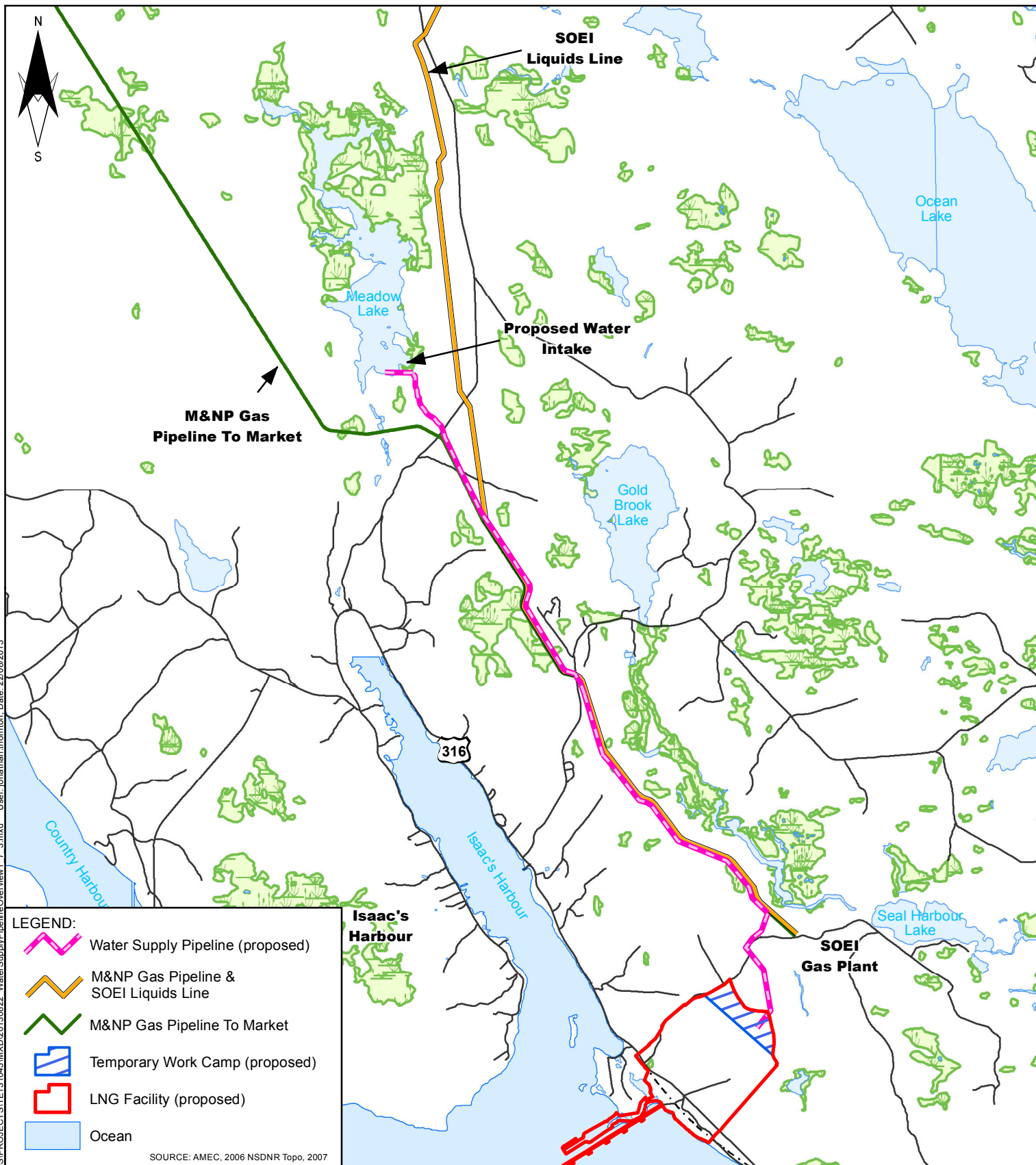
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AMEC Environment and Infrastructure A Division of AMEC Americas Ltd. 50 Troop Avenue, Unit 300 Dartmouth, N.S., B3B 1Z1 (P) 902-468-2848 (F) 902-468-1314 	DATUM: UTM Zone 20 PROJECTION: NAD83 PROJECT NO: TV121039	TITLE: PROJECT LOCATION	DATE: June 2013 REV. NO: N/A FIGURE NO: 1.7-1



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	Pieridae Energy (Canada) Limited	DATUM:	ENVIRONMENTAL ASSESSMENT		TM	Aug 2013
AMEC Environment and Infrastructure A Division of AMEC Americas Ltd. <div>50 Troop Avenue, Unit 300 Dartmouth, N.S., B3B 1Z1 (P) 902-468-2848 (F) 602-468-1314</div> <div><div>amec</div><div></div></div>	PROJECTION:	NAD83	TITLE:	CHK'D BY:	REV. NO:	
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			CHK'D BY: TM/GB
AMEC Environment and Infrastructure A Division of AMEC Americas Ltd. 50 Troop Avenue, Unit 300 Dartmouth, N.S. B3B 1Z1 (P) 902-468-2848 (F) 902-468-1314 	DATUM: UTM Zone 20	TITLE: WATER SUPPLY PIPELINE OVERVIEW	DATE: Aug 2013
	PROJECTION: NAD83		REV. NO: N/A
	PROJECT NO: TV121039		FIGURE NO: 1.7-3

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