



TREASURY METALS

INCORPORATED

November 26, 2012

Amiel Blajchman
Canadian Environmental Assessment Agency
55 St. Clair Av East, Suite 907
Toronto, Ontario
M4T 1M2 Canada

Patrick Barnes
Ministry of Northern Development and Mines
B002 Basement
435 James St. South
Thunder Bay, Ontario
P7A 7J9 Canada

Subject: Project Description – Goliath Gold Project

Dear Sirs:

Treasury Metals Limited is pleased to present you with the attached Project Description (PD) for the Goliath Gold Project.

As requested, we have enclosed both hard copy and electronic (CD) versions of the report.

Treasury has also sent a hard copy of the report to Wabigoon Lake Ojibway Nation, Eagle Lake First Nation and the Métis Nation of Ontario for consultation purposes. Treasury has also sent a hard copy to Lac Seul First Nation, Wabauskang First Nation, Whitefish Bay First Nation and Grassy Narrows First Nation as notification of submittal of the PD.

Treasury very much appreciates the assistance that you have provided in the completion of this report and looks forward to working constructively together as we advance this project to production.

Sincerely,

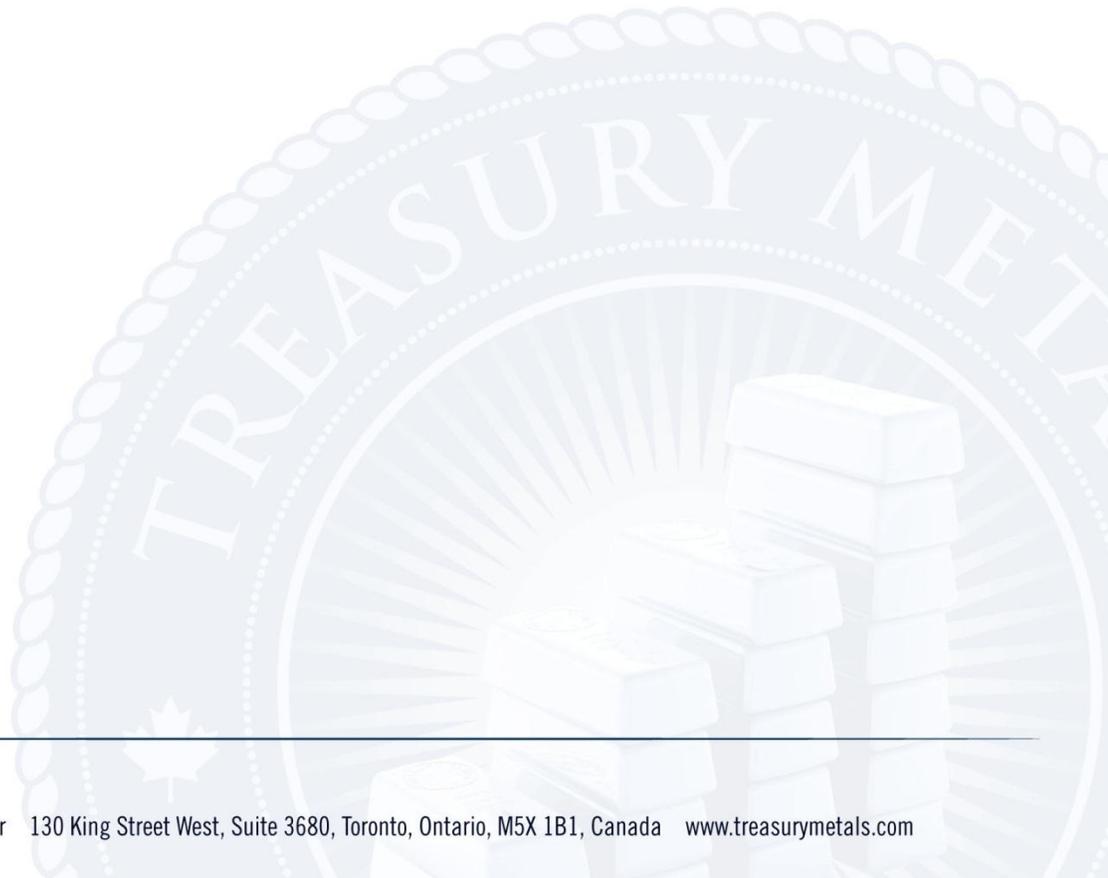
TREASURY METALS INCORPORATED

Mark Wheeler
Senior Mining Engineer
Phone: (416) 214-4654
mark@treasurymetals.com



TREASURY METALS

INCORPORATED





TREASURY METALS

INCORPORATED

PROJECT DESCRIPTION

GOLIATH GOLD PROJECT, TREASURY METALS INCORPORATED

NOVEMBER 26, 2012

Submitted to:

Canadian Environmental Assessment Agency

Ministry of Northern Development and Mines



TREASURY METALS

INCORPORATED



TREASURY METALS

INCORPORATED

1 EXECUTIVE SUMMARY

Treasury Metals Incorporated (Treasury) is proposing to develop the Goliath Gold Project (the Project) into an operating mine. This Project Description (PD) is being submitted to both the Canadian Environmental Assessment Agency (CEAA) and the Ministry of Northern Development and Mines (MNDM) for review and approval to initiate the Environmental Assessment (EA) and permitting processes. A separate, standalone Detailed Executive Summary has also been submitted with the PD for consultation purposes. It is anticipated by Treasury that a Federal EA may be required.

This Project Description (PD) outlines the proposed Project development plan. The Project is located approximately 8 kilometres west of the village of Wabigoon, Ontario, or 20 kilometres east of the city of Dryden. The Project Area is located partially within both the Hartman and Zealand townships and includes a total area of approximately 4,976 hectares, comprising 4,064 hectares of 137 unpatented mining claims and 20 patented mining claims for the remainder. Treasury holds the entire project area, subject to specific royalties on 13 of the patented land parcels.

The scope of the Project commences with an open pit mine, with an expected mine life of 5 years. During years 3 to 5, underground development and mining will commence and continue to the end of the total 10-12 year mine life. The underground and open pit mines will be running simultaneously during years 3 to 5. The project will employ approximately 200 people over the 2-year construction and development period. Treasury Metals will employ approximately 150 full time people over the 10 to 12 years of mine life. It is anticipated that no on-site housing facilities will be established for either the temporary construction workforce or the permanent mine employees.

The most recent Preliminary Economic Assessment completed by ACA Howe indicates that the initial capital expenditure for construction will be in the order of \$90 million, with another \$100 million for sustaining capital over the life of the mine. The proposed open pit will be 1.5 km east



TREASURY METALS

INCORPORATED

to west on strike length with a final depth of approximately 180 metres and will contain a total of 46 million tonnes of both ore and waste rock with a large portion of the waste rock to be backfilled into the completed pit.

Underground operations will be accessed by a portal and ramp to an estimated depth of 600 metres. Underground mining development in the main zone ore body will generally use the transverse long-hole open stoping method with cemented backfill. Other methods may be used in specific areas of the mine.

Ore will be processed onsite to produce a final doré bar that will be shipped off-site for further refining and upgrading. Processing will be done using a Gravity separation circuit followed by a Carbon in Leach (CIL) process with direct cyanidation. Approximately 2,500 tonnes per day (tpd) of ore will be processed fed from both the mining operations and a low grade stock.

Baseline environmental studies relevant to the proposed development were initiated by Treasury in 2010 and carried out by Klohn Crippen Berger (KCB). The environmental baseline studies started by KCB are on-going through to the present day with input from various consultants. The objective of these studies is to establish a comprehensive understanding of all aspects of the environment in which the proposed project will be built. These baseline studies will provide the information necessary to ensure the Project minimizes its environmental impact and balances the needs of the Project with those of the communities and other stakeholders. The baseline study work will also support the development of an Environmental Impact Statement (EIS) for submission to the government as part of the EA process. To date, the baseline studies have not uncovered any issues that would prevent the Project going forward.

Consultation and information meetings with local communities and First Nations groups have been ongoing. The Project has very good relations with the communities of Wabigoon and Dryden. Both communities have also provided excellent support to the Project. Treasury Metals has a policy of hiring and purchasing goods and services locally. This is a demonstration of the company's commitment to support the communities in which it operates. In 2011 alone, Treasury used the support of over 60 businesses in the Wabigoon and Dryden area.



TREASURY METALS

INCORPORATED

The First Nations communities in closest proximity to the Project are Wabigoon Lake Ojibway Nation (WLON) and Eagle Lake First Nation (ELFN). The majority of Treasury's efforts with First Nations to date have been with WLON as they are nearest to the mine site. Treasury will be engaging in ongoing discussions and consultation with WLON, ELFN and the Métis Nation of Ontario (MNO) as the Project progresses. Treasury has also worked closely with the MNDM in this area.

Treasury has presented information to the surrounding communities in a transparent fashion through such mediums as Television, radio and presenting Project updates to both Wabigoon and Dryden town councils. On October 30, 2012, Treasury gave two presentations to the general public at the Dryden Centre outlining the Project and the path going forward. Both presentations had a strong community presence with a total of over 200 community members attending.

Upon completion of the mining process, the site will be closed and the land reclaimed and returned to a natural state per the site closure plan.



TREASURY METALS

INCORPORATED

TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	i
2	GENERAL INFORMATION.....	1
2.1	PROJECT OVERVIEW.....	1
2.2	CONTACT INFORMATION	6
2.2.1	Name of Proponent	6
2.2.2	Corporate Address of Proponent.....	7
2.2.3	Contact for E.A. purpose	7
2.3	OTHER RELEVANT INFORMATION	7
3	PROJECT INFORMATION.....	8
3.1	PROJECT LOCATION.....	8
3.2	PROJECT HISTORY.....	10
3.3	MAJOR PHYSICAL FEATURES OF THE UNDERTAKING	10
3.3.1	Open Pit	14
3.3.2	Underground Mine.....	15
3.3.3	Ore Stockpiles.....	18
3.3.4	Waste Rock Storage Area (WRSA).....	20
3.3.5	Processing Plant Site.....	20
3.3.6	Tailings Storage Facility	22
3.3.7	Overburden and Biomass Storage.....	24
3.3.8	Mine Mobile Equipment Maintenance Shop	25
3.3.9	Warehouse and Laydown Facilities	25
3.3.10	Fuel Farm	26
3.3.11	Natural Gas Pipeline	26
3.3.12	Makeup water pipeline.....	26
3.3.13	Administrative Offices.....	28
3.3.14	Project Roads	28
3.3.15	Final Product transport.....	29
3.3.16	Site Power	29



TREASURY METALS

INCORPORATED

3.3.17	Explosive Plant and Magazine.....	30
3.3.18	Site Security	30
3.3.19	Mine Dewatering during Mining activities.....	30
3.3.20	Dykes, Dams and Diversions.....	31
3.4	AREAS TO BE AFFECTED BY THE UNDERTAKING.....	32
3.5	MINE AND PROCESS PRODUCTION RATES	32
3.6	PREVIOUS OPERATIONS	32
3.7	PIPELINES AND POWER TRANSMISSION	32
3.8	AIRFIELDS AND RUNWAYS.....	32
3.9	EMISSIONS, DISCHARGES AND WASTE	34
3.9.1	Sources of Atmospheric Emissions	34
3.9.2	Sources of Liquid Discharge.....	35
3.9.3	Types of Waste and Disposal Methods.....	39
3.10	SITE DEVELOPMENT SCHEDULE AND ACTIVITIES.....	40
3.10.1	Site Preparation.....	42
3.10.2	Project Construction.....	43
3.10.3	Production/Operation.....	47
3.10.4	Decommissioning and Reclamation	50
3.11	ALTERNATIVES	51
3.11.1	Mining Method and Location	52
3.11.2	Tailings Storage Facility.....	52
3.11.3	Process Plant Site Location and Associated Infrastructure.....	57
3.11.4	Waste Rock Storage Area	57
3.11.5	Project Access Roads.....	57
4	PHYSICAL, BIOLOGICAL AND HUMAN ENVIRONMENT	58
4.1	METEOROLOGY	60
4.2	AIR QUALITY	62
4.3	NOISE	62
4.4	GEOLOGY.....	63
4.4.1	Geological Setting.....	63



TREASURY METALS

INCORPORATED

4.4.2	Deposit Geology	64
4.4.3	Geochemistry	65
4.5	TERRAIN AND SOILS	67
4.6	VEGETATION	70
4.7	HYDROLOGY	75
4.8	HYDROGEOLOGY	79
4.9	AQUATIC RESOURCES	79
4.9.1	Water Quality	80
4.9.2	Benthic Invertebrates	86
4.9.3	Sediment Quality	88
4.9.4	Fish and Fish Habitat	90
4.10	TERRESTRIAL BIOLOGY	99
4.10.1	Mammals	100
4.10.2	Birds	101
4.10.3	Amphibians and Reptiles	104
4.10.4	Invertebrates	104
4.11	SPECIES AT RISK AND CONCERN	106
4.12	SOCIO-ECONOMICS	111
4.13	TRADITIONAL KNOWLEDGE (TK)	114
4.14	ARCHEOLOGY	115
5	LAND AND WATER USE	118
5.1	ZONING DESIGNATIONS	118
5.2	LEGAL DEFINITION OF LAND LOT AND PROJECT SITE	118
5.3	APPLICABLE LAND OR WATER USE, RESOURCE MANAGEMENT AND CONSERVATION PLANS NEAR PROJECT SITE	122
5.3.1	General Land Use	122
5.3.2	Thunder Lake	122
5.3.3	Wabigoon Lake	126
5.3.4	Aaron Provincial Park	126
5.3.5	Lola Lake Provincial Nature Reserve	126



TREASURY METALS

INCORPORATED

5.3.6	Butler Lake Provincial Nature Reserve	127
5.3.7	Dryden Regional Airport	127
5.3.8	Wabigoon and Dryden Landfill Facilities.....	127
5.3.9	Highway 17 and associated roadways	128
5.3.10	Natural Gas Pipeline	128
5.3.11	Railway	128
5.3.12	Dryden Pulp Mill	130
5.3.13	Dryden Forestry Industry	132
5.3.14	Farming	132
5.3.15	Archaeological or Traditional Use Sites	133
5.3.16	Timber Rights	133
5.3.17	Neighbouring Private Land.....	133
5.3.18	Federal Lands	133
5.3.19	Other Easements for the Property	133
5.4	MARINE TERMINAL	135
5.5	CANADIAN PORT AUTHORITY	135
5.6	GRANTING OF INTEREST IN FEDERAL LAND.....	135
5.7	ABORIGINAL LAND AND RESOURCE REQUIREMENTS	135
5.8	FEDERAL FUNDING.....	135
6	COMPANY ENGAGEMENT/CONSULTATION.....	136
6.1	COMPANY ENGAGEMENT/CONSULTATION WITH ABORIGINAL GROUPS	136
6.1.1	List of Potentially Impacted Aboriginal Groups.....	138
6.1.2	Engagement/Consultation Activities to Date.....	139
6.1.3	Summary of Traditional Use or Knowledge.....	146
6.1.4	Proposed Plan for Ongoing Consultation	146
6.2	COMPANY ENGAGEMENT/CONSULTATION WITH STAKEHOLDERS	147
6.2.1	Engagement/Consultation Activities to Date.....	150
6.2.2	Summary of Key Comments and Concerns.....	153
6.2.3	Proposed Plan for Ongoing Consultation	154
7	Regulatory Process.....	156



TREASURY METALS

INCORPORATED

7.1 FEDERAL ENVIRONMENTAL ASSESSMENT REGULATORY TRIGGERS 156

7.2 PROVINCIAL ENVIRONMENTAL REQUIREMENTS 158

8 REFERENCE LIST 163

APPENDIX A..... 165

Photos of Project Site..... 166

APPENDIX B 191

APPENDIX C 193

LIST OF FIGURES

Figure 1 - Regional Map 2

Figure 2 - Area map of Project 9

Figure 3 - Major Physical Features of Project 11

Figure 4 - 3D Aspect of Pit..... 13

Figure 5 - Typical Long-hole Stopping method of mining 16

Figure 6 - Initial and Final WRSA..... 19

Figure 7 - TSF Option #1 23

Figure 8 - Project Utilities..... 27

Figure 9 - Local and Regional Study Areas..... 33

Figure 10 - Site Water Network..... 36

Figure 11 - Regional Water Course 37

Figure 12 - Project Development Schedule 41

Figure 13 - TSF Options 54

Figure 14 - TSF Option #2..... 55

Figure 15 - TSF Option #3..... 56

Figure 16 – Dryden Regional Meteorological Station Temperature 2011 60

Figure 17 - Dryden Regional Meteorological Station Precipitation 2011 61

Figure 18 - Ecosites of the Project Area 72

Figure 19 - Flow Depth Monitoring..... 75

Figure 20 - Hydro Station Locations 76

Figure 21 - Water Sampling Locations..... 82

Figure 22 - Benthic Invertebrates 87

Figure 23 - Sediment sampling locations..... 89

Figure 24 - Fish Sampling Locations..... 92

Figure 25 - Goliath Claims - Detailed..... 119



TREASURY METALS

INCORPORATED

Figure 26 - Goliath Project Claims 121

Figure 27 - Thunder Lake Residents..... 123

Figure 28 - Environmentally Sensitive Areas..... 124

Figure 29 - Regional Points of Interest 129

Figure 30 - Dryden Forest Management..... 131

Figure 31 - Wild Rice Harvesting Areas..... 134

Figure 32 - Local First Nations..... 137

LIST OF TABLES

Table 1 - Major Physical Features of the Project..... 12

Table 2 -Potential Effects..... 59

Table 3 - 2011 Geochemistry Results..... 66

Table 4 - Physical and Chemical Results of Soil Sampling 2011..... 69

Table 5 – Overview and Ecological Land Classification of Project Site..... 71

Table 6 - Water Quality Parameters..... 80

Table 7 - Water Quality Values TL1, TL2, TL3..... 83

Table 8 - Water Quality Values JCTa, SW1, SW2, SW3..... 84

Table 9 - Benthic Species Proportions..... 86

Table 10 – Benthic Species Richness of Blackwater Creek 88

Table 11 – Blackwater Creek Fish Captures..... 94

Table 12 - Hughes Creek Fish Captures 95

Table 13 - Thunder Lake Tributaries Fish Captures 96

Table 14 - Thunder Creek Fish Captures 97

Table 15 - Wabigoon Lake Fish Captures 98

Table 16 - Thunder Lake Fish Captures 98

Table 17 - Terrestrial Field Sampling Efforts..... 99

Table 18 - Mammal Species Observed in the Project Area 101

Table 19 - Bird Species (Most Common)..... 102

Table 20 - Migratory Birds 103

Table 21 - Amphibian Species..... 104

Table 22 - Invertebrates 105

Table 23 - Species at Risk Provincially 106

Table 24 - Species at Risk Federally..... 107

Table 25 - Confirmation of Species at Risk in Project Area..... 108

Table 26 - Rare Plant Species possible in LSA 110

Table 27 - Census data for Surrounding Communities..... 111

Table 28 - Archeological History of Surrounding and Project Area 116



TREASURY METALS

INCORPORATED

Table 29 - Goliath Project Claims	120
Table 30 - Record of Consultation (WLON)	142
Table 31 - Record of Consultation (ELFN)	145
Table 32- Record of Consultation (MNO).....	146
Table 33 -Stakeholder List (Other than Aboriginal).....	149
Table 34 – Consultation (General Public)	150
Table 35 - Consultation (Ministry of Natural Resources)	150
Table 36 - Consultation (Department of Fisheries and Oceans).....	151
Table 37 - Consultation (Canadian Environmental Assessment Agency).....	151
Table 38 - Consultation (MNDM)	152
Table 39 - Consultation (Ministry of Environment).....	152
Table 40 - Probable Federal Permit Requirements for Goliath Gold Project	157
Table 41 - Probable Provincial Permit Requirements for Goliath Gold Project.....	159



TREASURY METALS

INCORPORATED

LIST OF ACRONYMS AND ABBREVIATIONS

Act	–	Canadian Environmental Assessment Act, 2012
ANFO	–	Ammonium Nitrate Fuel Oil
ABA	–	Acid Base Accounting
AP	–	Acid Potential
ARD	–	Acid Rock Drainage
BMS	–	Biotite-Muscovite Schist
BS	–	Biotite Schist
C	–	degrees Celsius
CWS	–	Canada-Wide Standard
CEAA	–	Canadian Environmental Assessment Agency
CIL	–	Carbon In Leach
CO	–	Carbon Monoxide
CO ₂	–	Carbon Dioxide
COSEWIC	–	Committee on the Status of Endangered Wildlife in Canada
dB	–	Decibel
DFO	–	Department of Fisheries and Oceans
DST	–	DST Consulting Engineers
EA	–	Environmental Assessment
ECA	–	Environmental Compliance Approval
EIS	–	Environmental Impact Statement
ELFN	–	Eagle Lake First Nation
EPT	–	Ephemeroptera, Plecoptera and Tricoptera
FA	–	Fisheries Act
FN	–	First Nation
HADD	–	Harmful Alteration, Disruption or Destruction
Howe	–	ACA Howe Consultants
KCB	–	Klohn Crippen Berger Ltd.
kg	–	kilogram
LEL	–	Low Effect Level
LGS	–	Low Grade Stockpile
LSA	–	Local Study Area
MBCA	–	Migratory Bird Convention Act
MCTS	–	Ontario Ministry of Culture Tourism and Sport
ML	–	Metal Leaching
m	–	metre
mm	–	millimetre
MMER	–	Metal Mining Effluent Regulations
MNDM	–	Ministry of Northern Development and Mines
MNO	–	Métis Nation of Ontario
MNR	–	Ministry of Natural Resources
MOE	–	Ministry of Environment
MOU	–	Memorandum of Understanding
MSED	–	Metasediment



TREASURY METALS

INCORPORATED

MSS	–	Muscovite Sericite Schist
MTO	–	Ontario Ministry of Transportation
NAAQO	–	National Ambient Air Quality Objectives
NAR	–	NAR Environmental Consultants
NEB	–	National Energy Board
NO ₂	–	Nitrogen Dioxide
NO _x	–	Nitrogen Oxides
NO	–	Nitrogen Monoxide
NP	–	Neutralizing Potential
NPR	–	Neutralizing Potential Ratio
NRCan	–	Natural Resources Canada
NSR	–	Net Smelter Royalty
OPSQS	–	Ontario Provincial Sediment Quality Standards
PAG	–	Potentially Acid Generating
PAH	–	Polycyclic Aromatic Hydrocarbons
PD	–	Project Description
PTTW	–	Permit To Take Water
PWQO	–	Provincial Water Quality Objectives
ROM	–	Run Of Mine
RSA	–	Regional Study Area
RWDI	–	RWDI Consultants
SAG Mill	–	Semi-Autogenous Grinding Mill
SAR	–	Species At Risk
SEL	–	Sever Effect Level
SLAAMB	–	Sioux Lookout Area Aboriginal Management Board
SO ₂	–	Sulphur Dioxide
Tbt	–	Tbt Engineering
TEK	–	Traditional Ecological Knowledge
TK	–	Traditional Knowledge
TML	–	Treasury Metals Incorporated
TOC	–	Total Organic Compound
tpd	–	tonnes per day
TSF	–	Tailings Storage Facility
UG	–	Underground
VEC	–	Valued Ecosystem Components
VG	–	Visible Gold
WLON	–	Wabigoon Lake Ojibway Nation
WRSA	–	Waste Rock Storage Area



TREASURY METALS

INCORPORATED

2 GENERAL INFORMATION

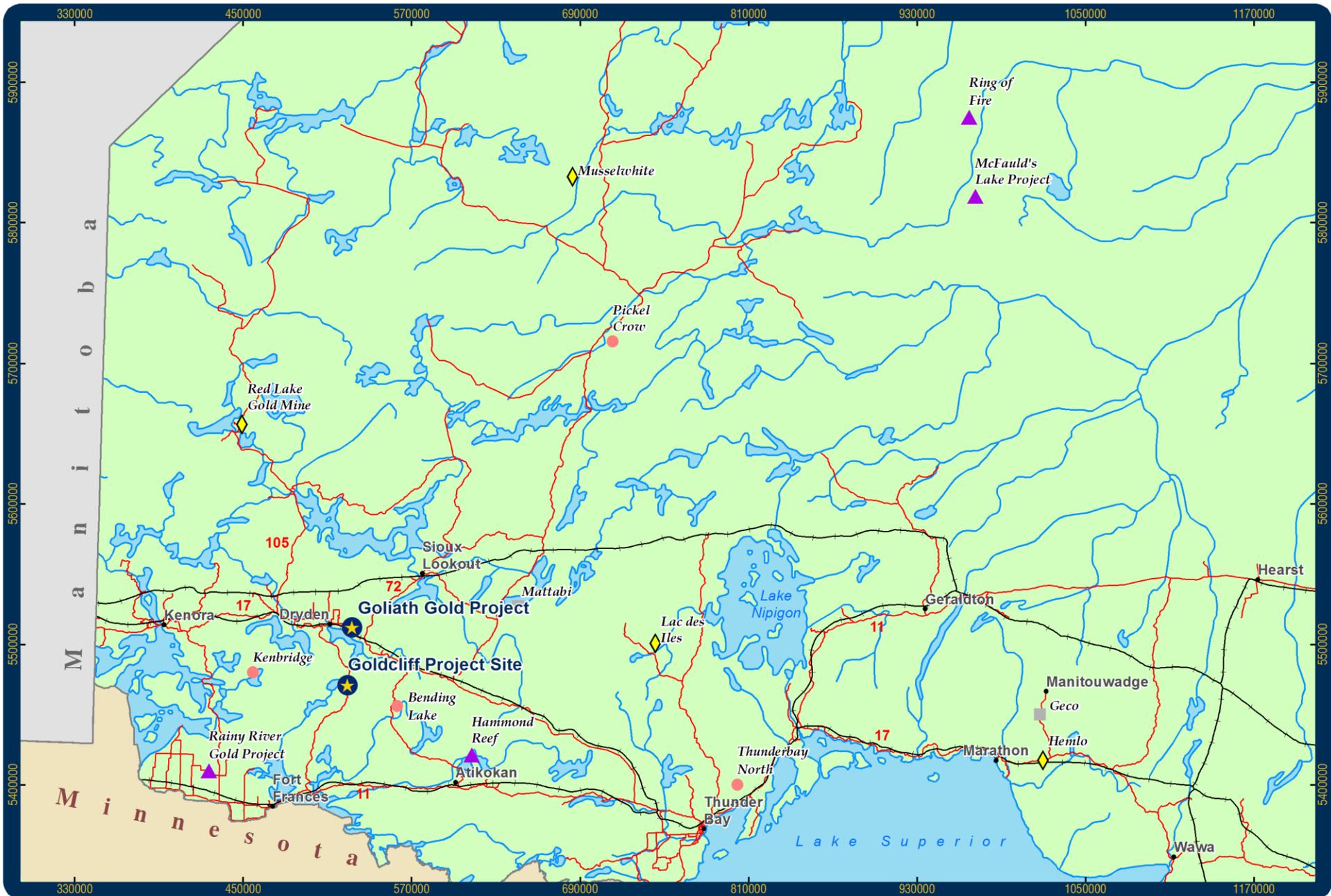
Treasury Metals Incorporated (Treasury or TML) proposes the development of the Goliath Gold Project (the Project) which will be a gold mining project with associated infrastructure.

In accordance with the Canadian Environmental Assessment Act of 2012 (the Act) Treasury is submitting this Project Description (PD) to the Canadian Environmental Assessment Agency (CEAA) to initiate the environmental assessment (EA) process under the Act. This PD will also be submitted to the Ministry of Northern Development and Mines (MNDM) to initiate the Provincial environmental and permitting requirements.

This PD will be a valuable tool that will serve several purposes. The main purpose of which will be to provide the appropriate agencies and authorities, both federal and provincial, an understanding of the scope of the Project. This will allow for the determination of the need for an EA, and subsequently to define the type of EA within Federal and Provincial regulations, any permitting requirements and the roles of designated representatives from applicable agencies. The PD will also act as a means of conveying accurate information regarding the project to both Aboriginal groups and the General Public in an effort to continue consultation.

2.1 PROJECT OVERVIEW

The Treasury Metals Incorporated Goliath Gold Project (Project) is located adjacent to the village of Wabigoon, Ontario, approximately 20 km east of the city center of Dryden or 330 km west of the city of Thunder Bay (*Figure 1 - Regional Map*).



Treasury Metals Regional Location with Surrounding Mine Projects

0 25 50 100
Kilometers
1:3,500,000

- ★ Treasury Metals
- ◆ Operating
- ▲ Development
- Exploration
- Closed
- Populated Area
- +— Rail
- Major Roadway

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke,
Dryden Office, Treasury Metals Inc.

October 2012

Not for navigational purposes.



Figure 1 - Regional Map



TREASURY METALS

INCORPORATED

The Project Area consists largely of two historic properties, the “Thunder Lake Property”, previously owned by Teck-Corona and the “Laramide Property”. These properties are both within the Kenora Mining Division. The Project Area is located partially within both the Hartman and Zealand townships and includes a total area of approximately 4,976 hectares, comprised of 4,064 hectares of 137 unpatented mining claims and 20 patented mining claims for the remainder. Treasury holds the entire project subject to specific royalties on 13 of the patented land parcels. The site can be readily accessed year round from Highway 17 and multiple public secondary roads that extend north from the highway, including Anderson Road, Maggrah Road and Tree Nursery Road.

The Project is proposing a new mining operation. An underground ramp was developed for advanced exploration purposes by a previous owner, but no past production mining has occurred on this site.

The total resource, as outlined in the November 2011 National Instrument 43-101 (NI 43-101) Mineral Resource report by A.C.A. Howe (Howe) is approximately 1.6 million ounces of gold including an additional 5 million ounce silver by-product. Future drilling could identify additional ounces that would be available to be mined. The most recent August 2012 Preliminary Economic Assessment completed by Howe indicated that a total of approximately \$90 million would be required in the initial capital expenditure phase with another approximately \$100 million in sustaining capital costs.

This Project Description (PD) outlines the proposed Project development plan. Treasury is in the process of completing a Feasibility Study for the Project, which is anticipated to include an initial open pit mine, with a mine life of 5 years and subsequent underground development starting during year 1 with underground mining to commence in year 3. Total mine life is expected to be 10 to 12 years, with the current resource estimate.

The open pit consists of three distinct pit bottoms over a 1.5 km east to west strike length. The deepest pit bottom will have a final depth of approximately 180 metres. Underground operations



TREASURY METALS

INCORPORATED

will be accessed by a portal and ramp development to an estimated depth of 600 metres. The estimated underground depth has been defined by the limit of exploration drilling to date as deeper drilling has shown to be cost prohibitive.

Underground mining will generally use the transverse long-hole open stoping method with development in the main zone ore body. Other methods may be used in specific areas of the mine. Mining Operations will be ongoing in the three main ore chutes at the same time. During years 3 to 5, mining will occur simultaneously in both open pit and underground. It is expected that underground mining only will take place after year 5.

Ore will be processed onsite to produce a final concentrate that will be shipped off-site for further refining and upgrading. The project will employ approximately 200 people over the 2-year construction and development period. Treasury Metals will employ approximately 150 full-time people over the 10 to 12 years of mine life. It is anticipated that no on-site housing facilities will be established for either the temporary construction workforce or the permanent mine employees. The workforce will reside in surrounding communities such as Wabigoon and Dryden.

The ore processing plant will process approximately 2,500 tonnes per day over the mine life using gravity concentration of free gold followed by Carbon In Leach (CIL) cyanidation. A low-grade stockpile will be maintained over the mine life to allow blending of lower grade and higher grade ores to ensure a more even grade concentration to the processing plant. The low-grade stockpile will have a maximum volume of 900,000 m³ or 1.8 million tonnes. Approximately 46 million tonnes of waste rock will be generated from both underground and open pit operations over the course of the mine life. Approximately 26 million tonnes of waste rock will be permanently stored in a dedicated facility to the north of the main pit, while the remaining 20 million tonnes will be backfilled to the pit to aid in reclamation activities. Process solids will be placed and stored in a Tailings Storage Facility (TSF). An alternatives assessment is ongoing to determine the preferred location of the TSF.



TREASURY METALS

INCORPORATED

Consultation and information meetings with local communities and First Nations groups have been ongoing. Treasury Metals made a presentation to the Dryden Mayor and Council on March 19, 2012, updating them on the status of the Project. On March 20, 2012, a front page newspaper article appeared in a local newspaper, The Dryden Observer, in regards to a meeting between Treasury and the City of Dryden. The presentation to Mayor and council was also broadcast multiple times on the local public information TV channel. On March 21, 2012, Treasury made a presentation to the Dryden Chamber of Commerce on the proposed Gold Mine. On May 9, 2012, Treasury made a presentation to the Wabigoon Local Services Board, updating them on the status of the project. All meetings included a question and answer period.

The primary focus of consultation to date with First Nations has been with Wabigoon Lake Ojibway Nation (WLON). WLON is the First Nation band that is in closest proximity to the Project site. Treasury Metals and WLON have met on numerous occasions since 2010 with respect to putting a working relationship agreement together i.e. Memorandum of Understanding (MOU). The majority of the terms in the draft MOU have been largely agreed to, however, there is one item remaining around which the respective parties are not aligned. This has prevented the signing of the agreement. Treasury has worked closely with the provincial Ministry of Northern Development and Mines (MNDM) to continue to move discussions forward and remains committed to constructive consultation efforts with WLON other local First Nations groups.

Consultation began with Eagle Lake First Nation in August of 2011 and has been positive to date. Eagle Lake First Nation has been very receptive to the development of training programs as well as various other initiatives to boost community involvement in the mining industry. Several recent meetings have been held between Treasury and ELFN, including a visit of ELFN representatives and elders to the Project site and a visit by Treasury to the ELFN roundhouse to present an overview of the Project to additional elders and council.

Treasury has met with the MNO for the introductory of a series of meetings in the consultation process. At this meeting, MNO gave a brief presentation on the history, values and governing



TREASURY METALS

INCORPORATED

structure of the MNO and Treasury partook in the opportunity to give an overview of the Project. Treasury has continued interest in meeting with MNO and will continue to accommodate meetings between the parties.

In addition, Treasury participated in an aboriginal job fair organized by the Lac Seul First Nation on April 12th, 2012. Norm Bush of Treasury will be the luncheon speaker at two conferences held by SLAAMB (Sioux Lookout Area Aboriginal Management Board) in Dryden and Thunder Bay on September 18 and 20, 2012. Continued First Nations consultations are planned over the course of the environmental assessment process. A summary of First Nations contact records is attached and can be found in *Section 6.1*.

Treasury Metals supports the communities in which it operates, recognizing that spending in a non-revenue generating environment such as early exploration must fit within the scope and scale of its operations. To that end, Treasury Metals has supported ELFN in its funding application for a jobs training program through a letter of support requested by the community and has given various donations to community non-profit organizations. (See summary in APPENDIX B attached).

As part of the mine permitting process, a certified Closure Plan will be developed that will meet or exceed requirements as per the Ontario Regulation (O.Reg.) 240/00 as amended by O.Reg. 194/06 "Mine Development and Closure under Part VII of the Mining Act" and "Mine Rehabilitation Code of Ontario".

2.2 CONTACT INFORMATION

2.2.1 Name of Proponent

Treasury Metals is the sole Project Proponent and holds 100% of the exploration leases that make up the project area.



TREASURY METALS

INCORPORATED

2.2.2 Corporate Address of Proponent

Treasury Metals Incorporated
Mr. Martin Walter, President and Chief Executive Officer
130 King St West, Suite 3680, P.O. Box 99
Toronto, Ontario
M5X 1B1
Tel: (416) 214-4654
E-mail: martin@treasurymetals.com

2.2.3 Contact for E.A. purpose

Treasury Metals Incorporated – Goliath Project
Mr. Norm Bush, Vice President, Goliath Project
P.O. Box 783
Dryden, Ontario
Canada, P8N 2Z4
Tel: (807) 938-6961
E-mail: norm@treasurymetals.com

2.3 OTHER RELEVANT INFORMATION

In the preparation of this PD, Treasury has engaged several government agencies, First Nations and local residents. They are as follows: CEAA, MNDM, MOE, MNR, Ontario Ministry of Transport (MTO), Ontario Ministry of Culture Tourism and Sport (MCTS), Wabigoon Lake Ojibway Nation, Eagle Lake First Nation, Métis Nation of Ontario, Municipalities of Dryden and Wabigoon and local residents at two community information sessions.

Treasury understands that the Project will be subject to Class EAs at the provincial level. There will also be permits required at the provincial level. These EAs and permits are detailed in *Section 7.2 – PROVINCIAL ENVIRONMENTAL REQUIREMENTS*.

The project will be taking place in an area that is part of the Dryden Forest Management Plan. Through consultation with CEAA, MOE and MNR it was found that there are no other regional environmental studies within the Project area.



TREASURY METALS

INCORPORATED

3 PROJECT INFORMATION

3.1 PROJECT LOCATION

The Goliath Gold Project is located in northwestern Ontario, approximately 8 km northwest of the village of Wabigoon or 20 kilometres east of the city centre of Dryden and 2 kilometres north of Trans-Canada Highway 17, within the Kenora Mining Division. The Project Area includes sections of both Hartman and Zealand townships.

The coordinates of the proposed Project are approximately centered on 49°45'25" N by 92°36'30" W. Please see *Figure 2 - Area map of Project*.

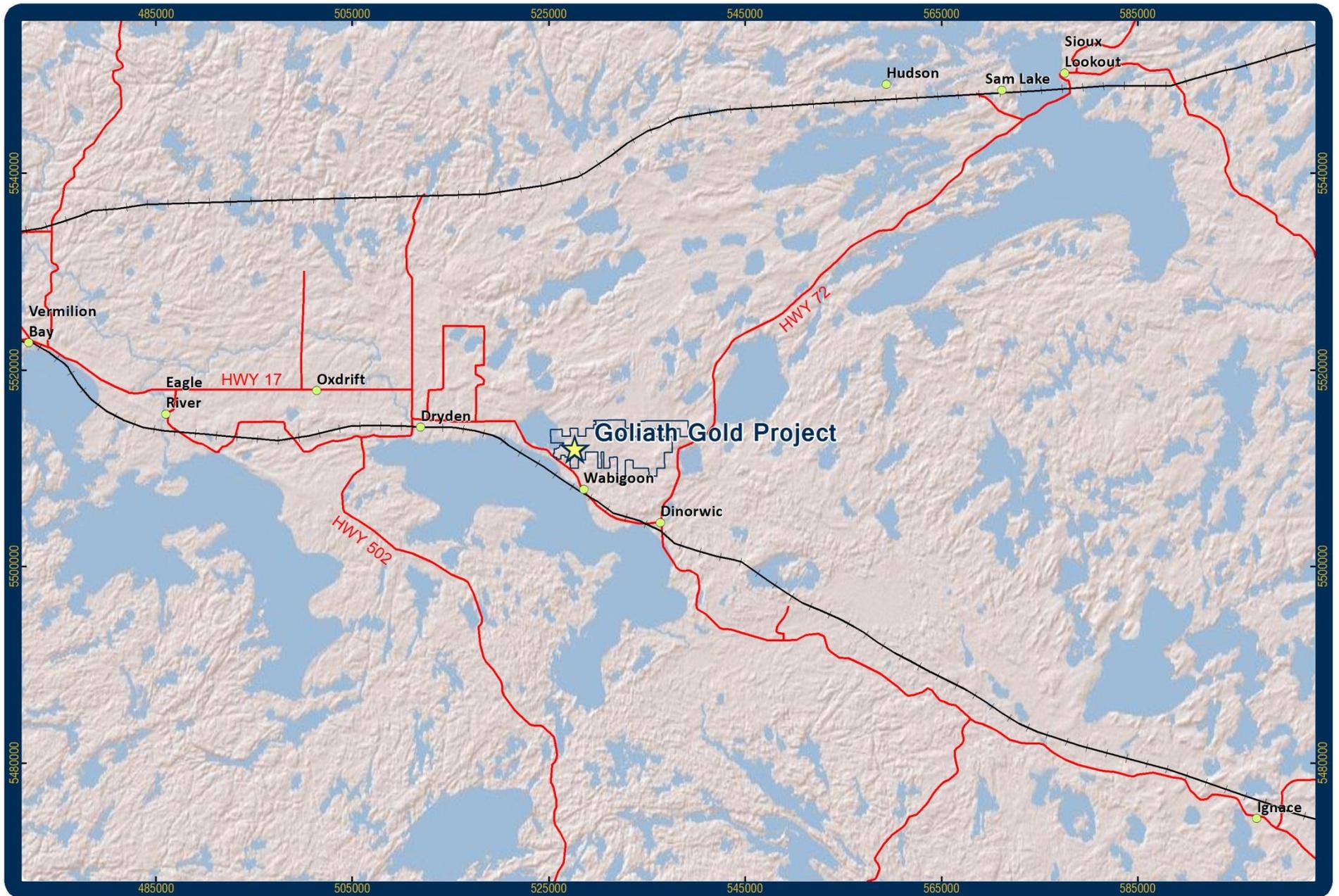
The physical address of the Project Office is:

Treasury Metals Incorporated

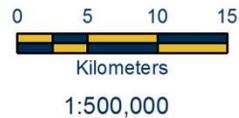
899 Tree Nursery Road.

Wabigoon, Ontario

Canada, P0V 2W0



**Treasury Metals Regional
Location with
Nearby Townships**



- Populated Area
- Rail
- Goliath Property
- Major Roadway

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke,
Dryden Office, Treasury Metals Inc.

October 2012

Not for navigational purposes.



Service Layer Credits: Copyright © 2009 ESRI

Figure 2 - Area map of Project



3.2 PROJECT HISTORY

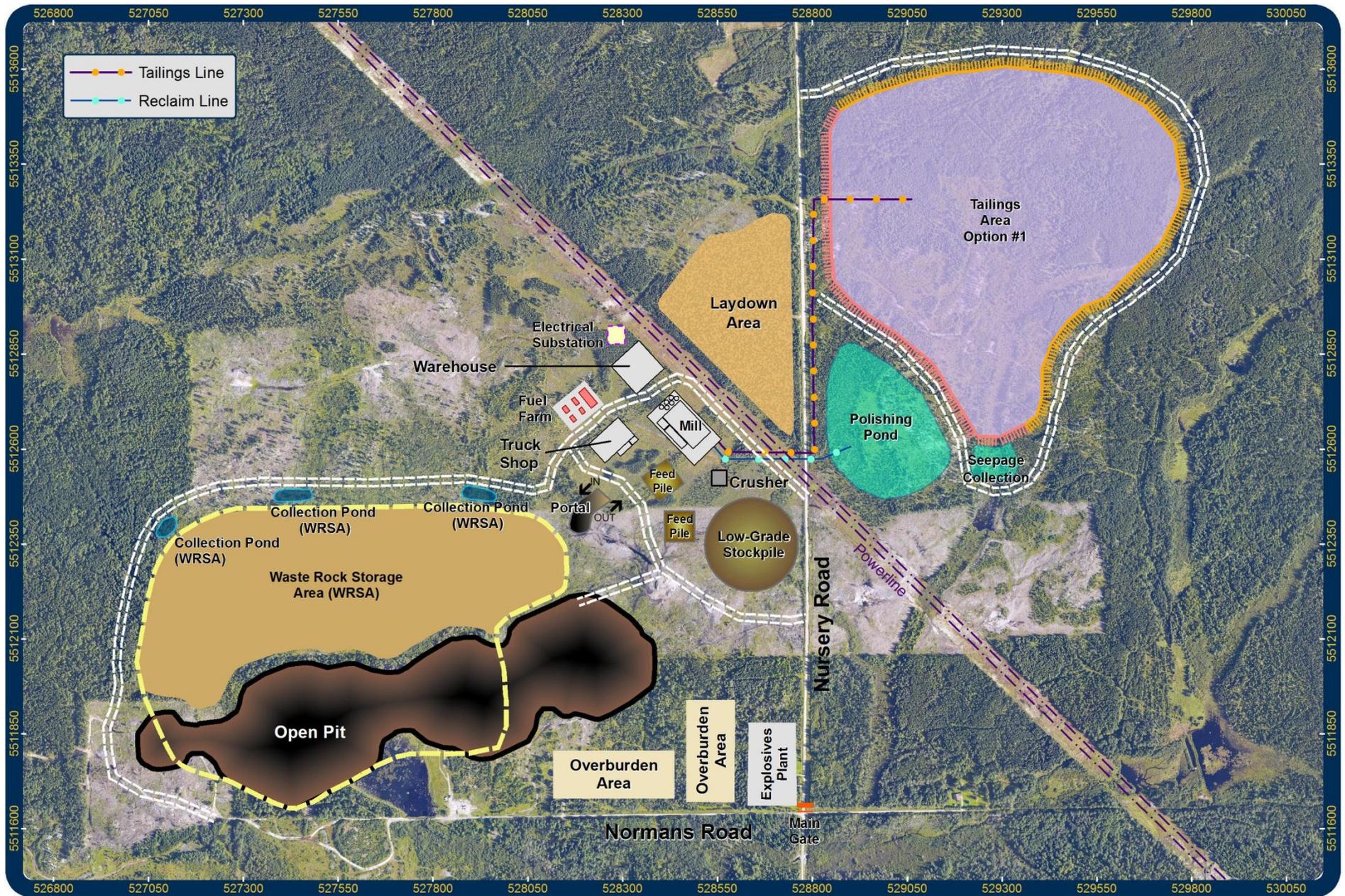
There is only limited documentation of the prospecting and early exploration activity conducted on the Project properties prior to 1989. After 1989, early exploration by Teck Exploration Ltd. (now Teck Resources Limited) identified a poorly exposed, broad area of weak mineralisation and anomalous gold extending through parts of lots 3 through 8 of Concession IV of Zealand Township. Drilling began in 1990 and ended in 1998, during which time some 78,000 metres of diamond drilling was completed prior to the “Thunder Lake” project being put on hold by Teck Resources Limited.

In 1998, a 2,375 tonne bulk sample was collected from an underground drift (see section 3.6 – *Previous Operations*). This, approximately 250 m, underground ramp runs north into the main zone of the ore body and splits off in the east-west direction (on strike) for approximately 100-150 metres in either direction. The portal to the underground ramp was closed as per a closure plan by Teck in 1998. The proposed pit will breakthrough into the previously mined drift and will be covered by a “Previous Workings Management Plan”. It should be noted that the closure area in Teck’s closure plan as noted above is outside of Treasury’s proposed pit limit and will not be affected.

As noted previously, the Project currently consists primarily of two historic properties: One, the aforementioned Thunder Lake Property previously owned by Teck-Corona; and, the Laramide Property. Treasury Metals took ownership in 2008 and has continued exploration drilling through to present day.

3.3 MAJOR PHYSICAL FEATURES OF THE UNDERTAKING

The major physical features of this project are shown in the following *Figure 3 - Major Physical Features of Project*. The major physical features are summarized in *Table 1 - Major Physical Features of the Project* and described in more detail in this section and possible alternatives described in *Section 3.11*. It should be noted that Treasury will, as a minimum, adhere to all Federal and Provincial regulations in regards to all aspects of the development and operation of the project including each of the physical features described in this section.



**Goliath Gold Project
Detailed Site Map
with TSF Option #1**



1:13,000 November, 2012

	Dam (Primary)		Waste Rock Before Backfill
	Dam (Secondary)		Waste Rock After Backfill
	Proposed Access Road		Waste Rock Collection Pond
	Local Road		

Projection: Nad83 UTM ZONE 15N

Map Produced by Adam Tocholke,
Dryden Office,
Treasury Metals Inc.

Not For Navigational Purposes



Figure 3 - Major Physical Features of Project



TREASURY METALS

INCORPORATED

Project Component	Comments	Included in Regulations Designating Physical Activities by CEAA	Alternatives	Applicable Section
Open Pit Mining	One primary pit , approx. 130-180m in depth, 1.5 km on strike, 46 million tonnes	Yes - Section 15(c) - The construction, operation, decommissioning and abandonment of a gold mine with a production of 600 t/d or more	None	3.3.1
Underground Mining	Ramp access with portal location to minimize footprint, truck haulage to surface, longhole stoping	Yes - Section 15(c) - The construction, operation, decommissioning and abandonment of a gold mine with a production of 600 t/d or more	None	3.3.2
Ore Stockpiles	Adjacent to Processing Plant to minimize footprint, 1.8 million tonnes, 62,500 m ² footprint	No	None	3.3.3
Waste Rock Storage Area	Directly north of open pit, 25 million tonnes with 675,000 m ² footprint	No	None	3.3.4
Processing Plant Site	South of open pit, 18,000 m ² footprint, 2,500 tpd, Gravity C.I.L.	Yes - Section 15(c) - The construction, operation, decommissioning and abandonment of a gold mine with a production of 600 t/d or more	None	3.3.5
Tailings Storage Facility	600,000 m ² , Blackwater Creek Tributary #3	Yes - Section 15(c) - The construction, operation, decommissioning and abandonment of a gold mine with a production of 600 t/d or more	Yes - Several Options detailed in Alternatives Section of report	3.3.6 and 3.11.2
Explosives Manufacturing and Storage Facility	Intersection of Norman's and Tree Nursery Roads	Uncertain	Yes - Location to be confirmed	3.3.1 and 3.3.17
Makeup Water Intake and Pipeline	Insulated pipeline from Thunder Lake	No	None	3.3.12
Site Power	Electrical Substation from HydroOne M2D line	No	None	3.3.16
Project Access Roads	Tree Nursery Rd. via Anderson Rd.	No	None	3.3.14

Table 1 - Major Physical Features of the Project



TREASURY METALS

INCORPORATED

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke, Dryden Office, Treasury Metals Inc.

Not intended for navigational purposes. View of pit depths looking South to North. Northern ridge of pit slightly elevated for 3D demonstration

October 2012

Goliath Gold Proposed Pit Location and Depth

*3D view of pit shows proportional depths with reference to itself only and should not be used as a reference of scale

Service Layer Credits: Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Legend

- Open Pit
- Powerline
- Road
- Proposed Access Road

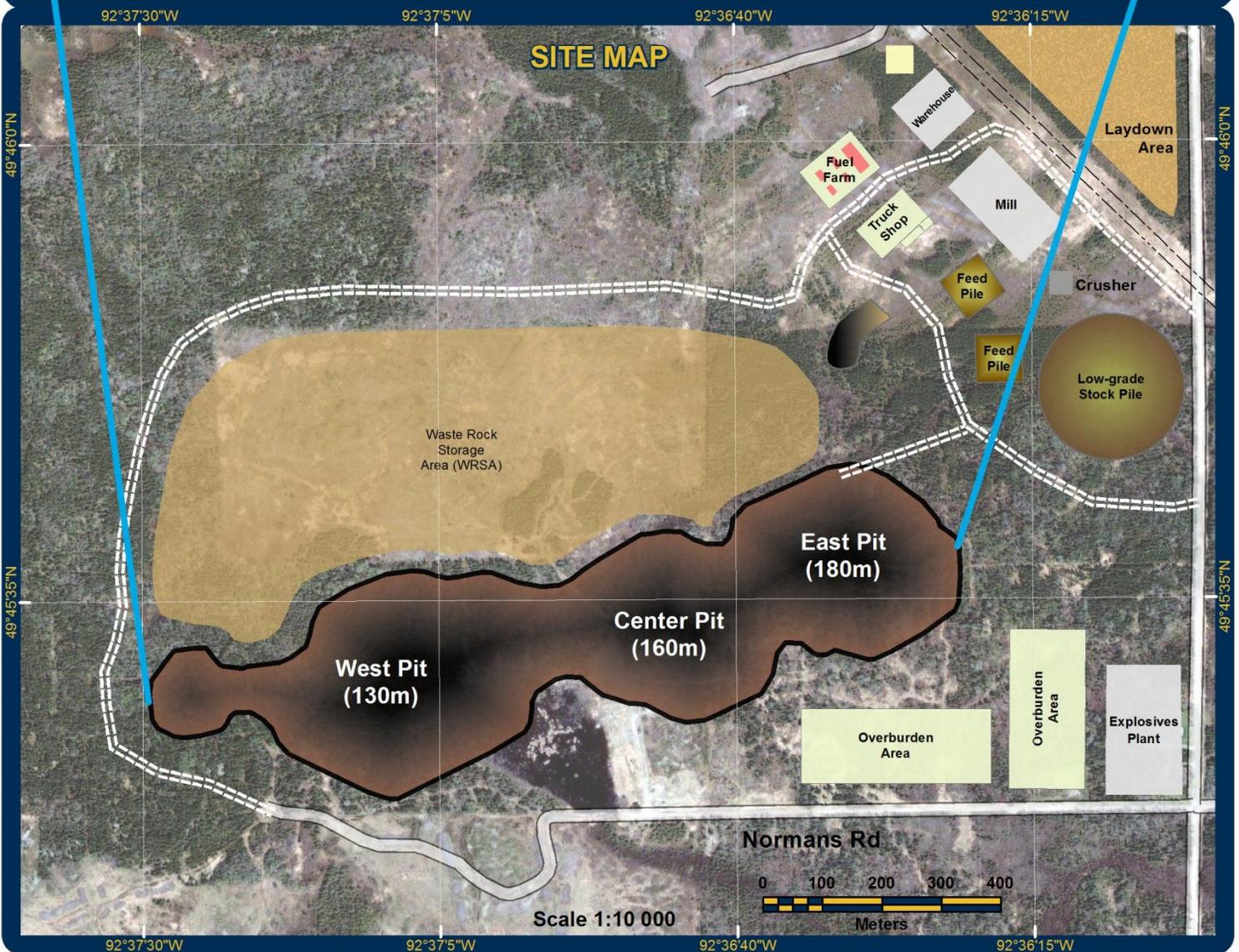
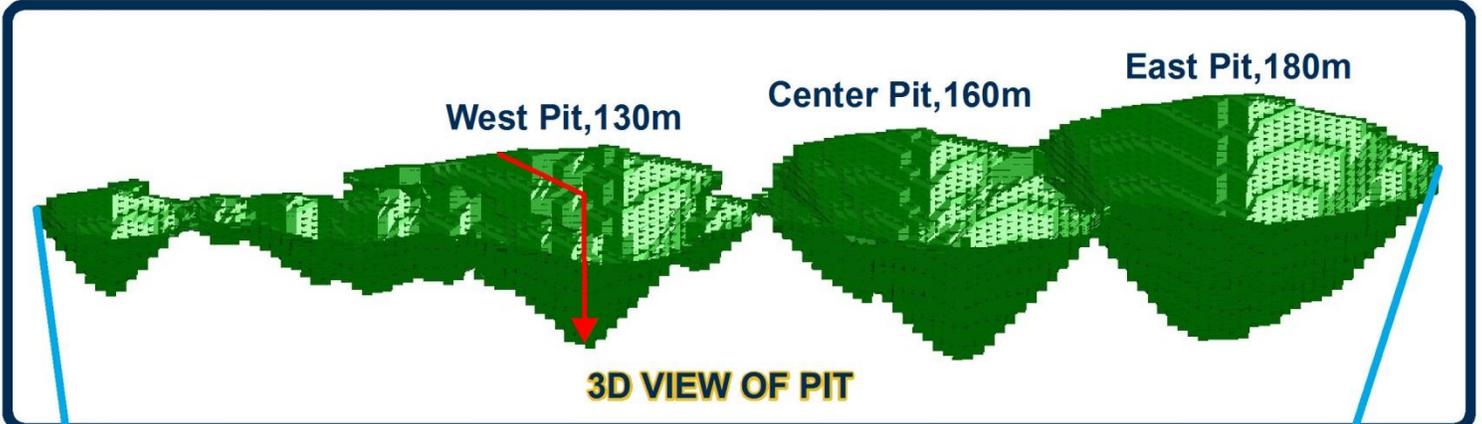


Figure 4 - 3D Aspect of Pit



3.3.1 Open Pit

One open pit will be constructed and will fall under Section 15(c) of the Regulations Designating Physical Activities (CEAA 2012). The pit will have three distinct pit bottoms which will be mined in sequence over an approximate 5 year period. The combined pits will cover a total area of approximately 400,000 m² and generate 46 million tonnes of rock. The overall stripping ratio will be approximately 9:1 of waste rock and overburden to ore rock extracted. The depths of the three pit bottoms are expected to be between 130 and 180 metres, and where possible, separate access roads will be constructed for each distinct pit bottom. The pit bottoms will be mined in sequence to create opportunities for the backfill of waste material from previous pit material once the final pit bottom has been reached. However, mining in the respective pit areas may be completed in parallel to ensure a consistent head grade is fed to the process plant.

Mining will use conventional industry techniques of drilling and blasting using Ammonium Nitrate Fuel Oil (ANFO) type explosives or a similar substitute. Treasury has been in discussion with an external contractor, qualified and experienced in blasting, for the supply, delivery, storage and firing of explosives. It is not confirmed at this time whether such a contractor, or Treasury itself, will be responsible for any or all parts of the supply, delivery, storage and firing of explosives. This will be decided as development progresses at which point the appropriate party can obtain the necessary permits and approvals as outlined in *Section 7* of this report. It is anticipated that drilling will be completed by one or two small mobile rotational drill rigs.

Haulage will be done with a fleet of 6-12 off-highway trucks. Material will be delivered to the process plant, the low-grade stockpile or the Waste Rock Storage Area (WRSA) as described below in Sections 3.3.3 and 3.3.4 respectively. Maintenance of the mine roads will be done by Treasury using specialized equipment such as motor graders and water trucks. Once the open pit mine life is complete, the fleet of trucks and auxiliary equipment will be transported off-site for sale or disposition by other means.

The open pit mine design will adhere to all legal and regulatory mine requirements. These regulatory requirements will be incorporated in the project from the initial mine design. The



TREASURY METALS

INCORPORATED

open pit operations will adhere to a spill management plan that will be created during the EA process that will include any hazardous substances used in the open pit area such as diesel fuel and hydraulic fluid.

The mine will require pit dewatering during mine operations from surface and ground water inflows. This will require the construction of sumps with which to collect and pump the water to a collection facility outside the pit. Where possible, this water will be used for Plant processing. If pit dewatering volumes exceed plant process water requirements, the excess water will be pumped to the Tailings Storage Facility (TSF) (*See Section 3.3.6 - Tailings Storage Facility*) where it will be treated prior to being discharged into the environment. All efforts will be made to avoid excessive inflow of surface water to the pits by means of diversion ditches surrounding the pit crest.

It is anticipated that both the centre and west pit will be filled with backfill either to surface level or above surface level as an extension of the WRSA. As mining progresses and the pits become filled, overburden material — that has been previously stored — will be placed on the backfilled material and trees will be planted on the cap to create a natural setting. The east (final) pit bottom will remain excavated to its ultimate bottom. At the time of mine closure, the remaining pit will be left to fill naturally with water. A security fence will be constructed for safety reasons around the perimeter to prevent inadvertent access while the pit is filling. It is expected that the fencing will be removed at such time as the pit has filled to its final level and in fact has become a recreational lake.

It should be noted that open pit mining will be completed well in advance of the cessation of underground mining, most if not all of the open pit mine reclamation will be complete before the end of the underground mine life.

3.3.2 Underground Mine

An underground (UG) mine will be developed during the initial years of Open Pit operations and once in operation will have a mine life of approximately 7 years. This UG mine will fall under Section 15(c) of the Regulations Designating Physical Activities (CEAA 2012). It is intended



TREASURY METALS

INCORPORATED

that all mobile equipment access will be via the portal and ramp. The portal will be constructed just to the west of the processing plant site to minimize surface travel distance (and road construction) for the underground mobile fleet. At the present time mineralized material has been defined to a maximum of 600 m below surface. It is anticipated that the final depth of UG mining will occur at 600 m below surface.

Mining will be done by conventional mining methods using drilling and blasting with ANFO or similar type emulsion explosives. At this time, the preferred mining method is long-hole stoping (a typical long-hole stoping operation is shown in *Figure 5 - Typical Long-hole Stopping method of mining.*) with cemented backfill. To a lesser extent, other conventional methods may also be used in specific areas.

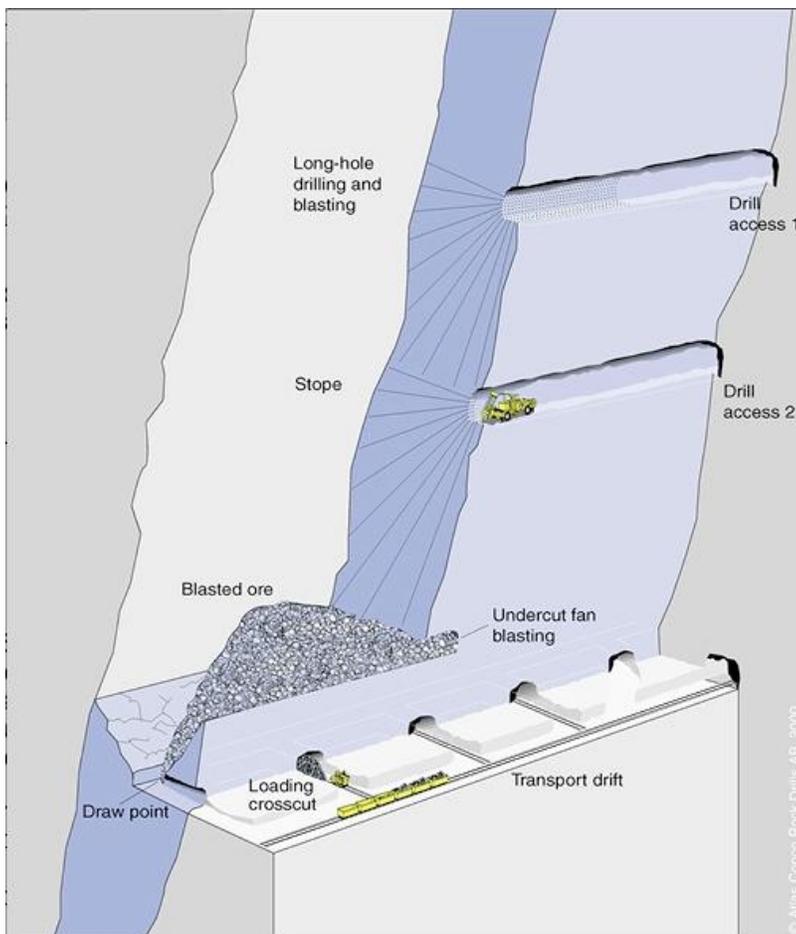


Figure 5 - Typical Long-hole Stopping method of mining.



TREASURY METALS

INCORPORATED

Ventilation raises will also be driven during the mine development with the associated fans and fixed equipment on surface to support the underground operations. Included in the fan and ventilation infrastructure will be natural gas fired mine air heaters, which will be used to heat the incoming mine air during the winter months to avoid frozen piping underground and create a reasonable work environment for the operations personnel.

Safety and a safe work environment will be designed into underground portion of the mine, as well as the open pits and ore processing facility. The underground operations will adhere to a spill management plan that will be created during the EA process that will included any hazardous substances used in the underground area such as diesel fuel and hydraulic fluid.

All ore material generated underground will be hauled to surface using a fleet of UG specific haul trucks and will be deposited in the temporary ore stockpiles (as described below in *Section 3.3.3 – Ore Stockpiles*) for feed to the processing plant. While most underground development will be done in the main ore bodies, some waste may also be hauled to surface. This waste rock will be stored temporarily in a location nearby to the portal and will be transferred periodically to the Waste Rock Storage Area by the larger open pit trucks. Where necessary, mine waste rock may be hauled back into the underground for backfill or used for road construction/maintenance purposes.

Dewatering will also be required for underground operations. A system of sumps, piping and pumps will be developed to transport excess water to surface. This water will be combined with the pit dewatering system for any reclaim, storage or treatment purposes. It is unknown at the present time the total volumes of dewatering that will be required. Studies are currently underway to more clearly define these volumes.

At the end of underground mine operations, the mine will be closed as per the closure plan that will be developed. This will include removal of all hazardous materials and mine equipment (including mine dewatering equipment), at which point the underground portion of the mine will be left to flood with water. The portal will then be blocked as per an engineered closure plan to prevent all access.



At closure, all underground mobile equipment and stationary infrastructure such as ventilation fans and mine air heaters will be disassembled and either sold or transferred offsite for disposal.

3.3.3 Ore Stockpiles

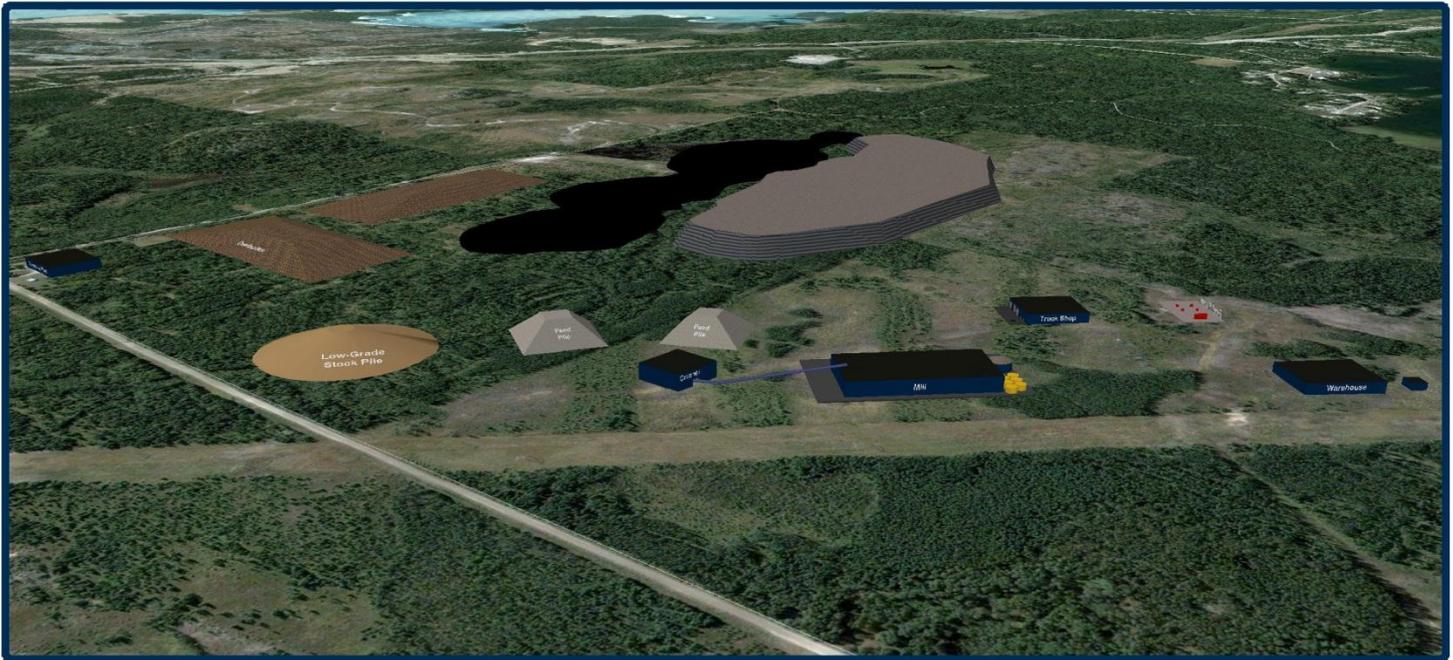
In order to maintain a consistent Run of Mine (ROM) feed to the process plant, a low-grade stockpile (LGS) will be created. The LGS will have an approximate total volume of 900,000 m³ or 1.8 million tonnes and an approximate footprint of 62,500 m² and will be located adjacent to the processing plant site for easy transport to the facility. The total height will be kept to a minimum to lessen visual concern of neighboring residents. It is anticipated that 25 metres in height should be sufficient. The LGS will be maintained throughout the initial years of mining and will be used to blend with underground material until it is wholly consumed and fed to the process plant in year 10.

Up to three separate temporary stockpiles of varying grade will also be used to feed the process plant. These will be located in a radial form surrounding the primary crusher and will be used primarily to create a consistent plant feed but also act as temporary storage in the case of an unexpected mine stoppage. As noted, these stockpiles will be temporary in nature with constant replacement/turnover. They will collectively have a total capacity of approximately 15-30 days or 37,500 tonnes.

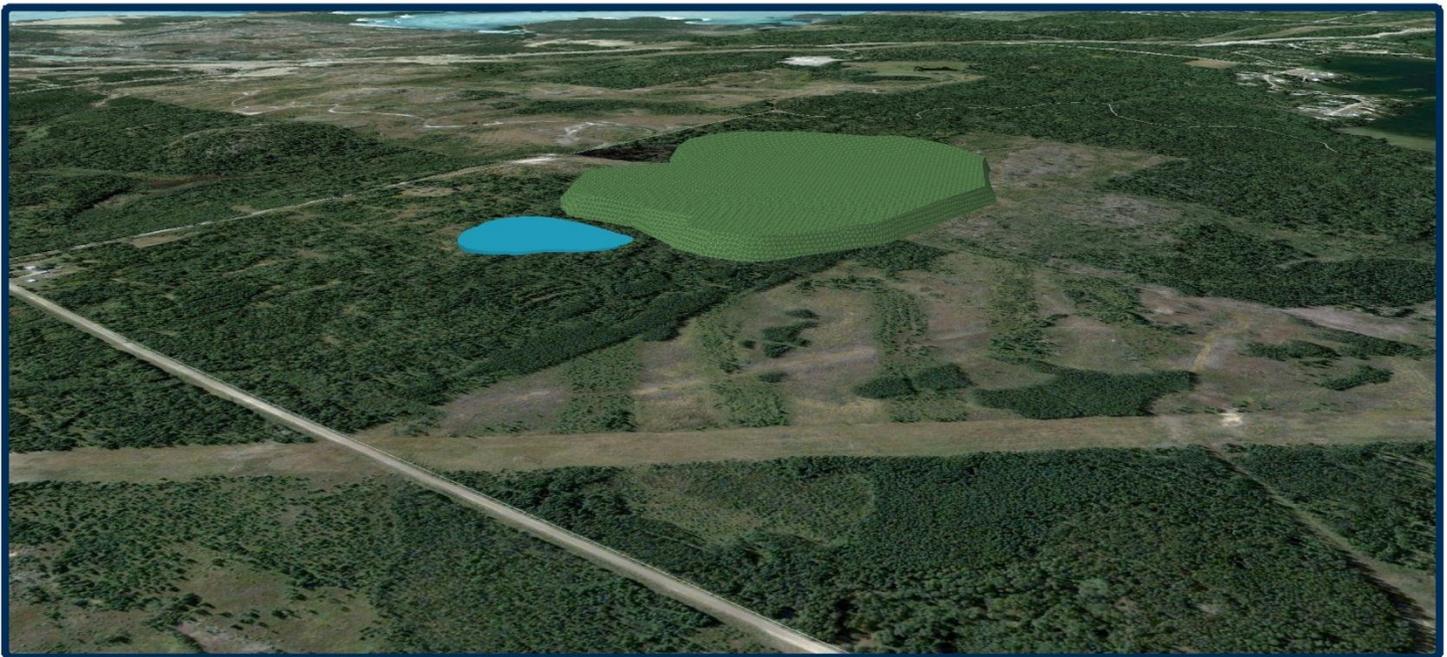
At the end of mining operations, the footprint of the LGS will be left with no mine rock in place and will be returned to a natural state as per the closure plan to be developed. A geochemical evaluation of low grade ore is currently being undertaken to determine if there is any potential for acid rock drainage or metal leaching that may require preventative or mitigation measures while the low-grade ore is stockpiled during the life of mine. Any runoff from the low-grade ore will be directed into the pit for eventual treatment or use within the dewatering process.

3D Overview of the Goliath Gold Project Proposed Mine Infrastructure

Waste Rock Storage Area (Grey) During West and Center Pit Mining



Waste Rock Storage Area (Green) after Reclamation,
East Pit Shown as Recreational Lake



TREASURY METALS
INCORPORATED



Structures are of approximate scale

Map created by Treasury Metals,
Dryden Office, 2012

Imagery provided by DigitalGlobe,
Google, Cnes/Spot, and Geoeye
via Google Earth Pro, 2012

Figure 6 - Initial and Final WRSA



3.3.4 Waste Rock Storage Area (WRSA)

A waste rock storage area is anticipated to be built directly to the north of the proposed open pit. It will have a capacity of approximately 12.8 million m³ or 26 million tonnes and have a footprint of 675,000 m² with a height of approximately 20 m. This will account for approximately 60% of the waste rock produced during mining in the initial phase of the WRSA. The additional 40% of waste rock removed will be backfilled to the open pit area to complete the final WRSA. The initial and final phases of the WRSA can be seen in *Figure 6 - Initial and Final WRSA* or in a simple plan view in *Figure 3 - Major Physical Features of Project*. It should be noted that a portion of the footprint of the WRSA will also lie above the completed and filled open pit. Waste rock will be removed in the same manner as ore material, e.g. drilled, blasted and hauled outside of the pit using off-highway trucks.

Geochemical testing is ongoing at this time to determine the Acid Rock Drainage (ARD) and neutralizing potential of the waste rock. Results from this study will be available in the near future. A summary of the Acid Base Accounting (ABA) and neutralizing potential is being compiled and humidity cell testing is underway with initial results expected in 10-15 weeks from the date of the submittal of this report. If high potential for ARD is found, run-off water from the WRSA will be collected as per the water management plan and sent to the process plant for treatment prior to being discharged to the environment. Design of the WRSA will be modified accordingly when the final geochemical results are received..

Design slopes are anticipated to be set at 3:1 ratios to create a more natural appearance and total heights will be kept as low as possible to reduce the potential visual impact for neighboring residents, in particular, the residents on the west side of Thunder Lake. Progressive reclamation will also commence as early as possible in the development of the WRSA. This will not only be an advantage from an environmental perspective, but will also help to create a natural looking landscape.

3.3.5 Processing Plant Site

The plant site is to include ore processing plant and ancillary support facilities such as an electrical substation, an assay laboratory, a small warehouse, mine dry facilities and



TREASURY METALS

INCORPORATED

administrative offices. The daily production rate of the Processing Plant will be in the order of 2,500 t/d. This rate will exceed the rate of 600 t/d for a gold mine as per Section 15(c) of the Regulations Designating Physical Activities by CEEA (2012).

Crushing and grinding will use conventional techniques. A Jaw crusher including associated ore bin will act as the primary crusher followed by a Semi-Autogenous Grinding Mill (SAG Mill) and a Ball Mill. Present investigations will determine the feasibility of replacing the SAG Mill with a series of cone crushers and the associated conveyor systems. All of the crushing systems will include adequate enclosures and dust suppression systems.

The succeeding plant process is anticipated to be an initial front end gravity circuit to recover free gold followed by a standard Carbon In Leach (CIL) system using direct cyanidation. Initial testing results suggest low reagent levels for both sodium cyanide and lime in the process as well as low leach times which will lead to a smaller plant footprint. The general footprint of the plant site will be approximately 18,000 m². In general, the processing plant will be housed inside of a steel type insulated building. The insulation will provide an acceptable work environment for the winter as well as sound insulation to limit the outside exposure to loud mill equipment. All necessary safety precautions will be taken in regards to the storage and handling of cyanide. Such precautionary measures will be detailed in a Cyanide Management plan that will accompany the EIS. This plan will also include the process for cyanide destruction.

As a final product, a gold and silver concentrate will be smelted to produce a doré bar and shipped off-site for further refining. The location of the off-site facility will be determined at a later date and will not be owned, operated or for the exclusive use of Treasury Metals Incorporated

The process plant will also include office space for administrative purposes such as a mill control room and mill foreman office. It will also include a mine and mill dry area for both plant and mine operations personnel.

Upon mine closure and the implementation of the mine closure plan, all unnecessary infrastructure including process plant equipment, buildings, electrical substations and equipment,



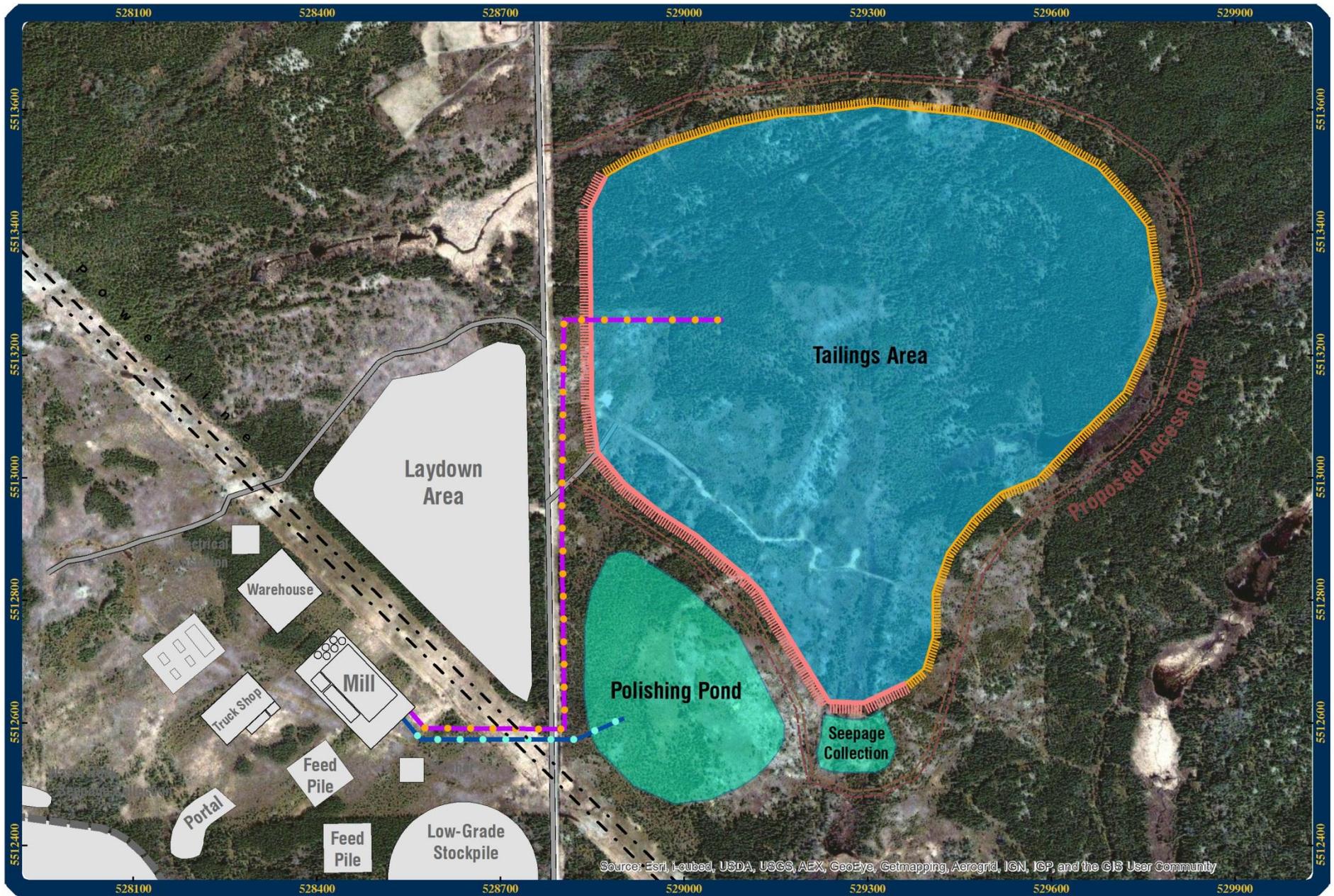
fuel farm and security infrastructure will be disassembled or demolished and transported offsite for sale where possible or disposal. The closure plan of said areas will also include testing for and rehabilitation of any contaminated ground material, should it be necessary.

3.3.6 Tailings Storage Facility

The Tailings Storage Facility (TSF) will be built on property that Treasury owns or property that Treasury is working towards bringing the mining claims to lease for surface work. The TSF will have an approximate total volume of 10 million m³ and an approximate final footprint of 600,000 m². Due to the flat nature of the terrain, a compound style dam – one which will have a primary dam structure on the downstream side with a secondary dam containing the upstream flooding to create a deeper TSF with a subsequently smaller footprint – will be constructed with the area gradually sloping to the south. The base case location of the TSF is in the water shed of Blackwater Creek Tributary #2 (*Figure 3 - Major Physical Features of Project and Figure 7 - TSF Option #1*). There is one watercourse that crosses the TSF, a small creek where only seasonal flow occurs. Management of water in the TSF will be included in the overall water management plan. This will include the construction of a polishing pond and seepage pond with applicable pumping stations and water treatment facilities for any reclaim water and the treatment and discharge of mine effluent. The deposition method for the tailings is yet to be decided, but will be included in the alternatives assessment.

Geochemical testing is ongoing to determine the potential ARD characteristics of the rock and the optimal treatment of process material should it be necessary. This study will also help to define any mitigation measures, should they be needed, in the storage and treatment of tailings material.

As a measure to limit wildlife access to the TSF, it is anticipated that a fence will be built surrounding the TSF. This fence would be designed and built using consultation with the MNR using standards directed in particular at large mammals such as moose, deer and wolves.



Source: Esri, DeLorme, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Goliath Gold Project, TSF Option #1



1:8,000

- Dam (Primary)
- Dam (Secondary)
- Road
- Powerline
- Reclaim Line
- Tailings Line

Projection: NAD83 UTM ZONE 15N

Map Produced by Adam Tocholke,
Dryden Office,
Treasury Metals Inc.

Not for Navigational Purposes



Figure 7 - TSF Option #1



TREASURY METALS

INCORPORATED

A pipeline will also be constructed for the transport of Process tailings from the Plant site to the TSF. The pipeline will be approximately 1.3 km in length. Due to temperature, slurry composition and additional heat generated by friction when pumping, it is not anticipated that this pipeline will be required to be buried, but will be insulated to ensure reliable operation year round. The pipe will be constructed generally parallel to the current Tree Nursery Road. Where the pipeline crosses Tree Nursery Road, it will do so via an underground engineered crossing. The pipeline design will incorporate proactive spill mitigation measures such as containment ditches or channels.

A water return pipeline will also be constructed using the same routing back to the plant site for the purposes of recycling and reusing any reclaim water. The pipeline may require burial to prevent freezing in the winter months. This water will be collected and stored in a settling/seepage pond at the TSF prior to transport back to the plant area.

Any timber resources within the TSF area will be cleared prior to any TSF construction or use. Where possible, any suitable timber material will be stored for future use for reclamation purposes, otherwise, material will be sold for processing at an offsite facility.

An alternatives assessment for the location of the TSF is being undertaken according to the Guidelines for the Assessment for Alternatives of Mine Waste Disposal (Environment Canada, 2011). Several alternatives, including the Base Case described above are being evaluated within the environmental assessment process.

3.3.7 Overburden and Biomass Storage

Any material that is suitable and could be used for future mine reclamation work or possible TSF construction will be stored at a site adjacent to the respective clearing area. The most likely location for this area would be directly southeast of the open pit site, which is the most convenient location for storage between the mine, plant and TSF sites. This site would have an anticipated footprint of approximately 90,000 m³ with a maximum height of 15 m. It is also anticipated that additional, smaller, temporary storage sites will be maintained. These sites would be located for convenient access, such as the western edge of the open pit and WRSA or



the northern limit of the TSF. The sites and possible alternatives will be detailed in the EA process.

3.3.8 Mine Mobile Equipment Maintenance Shop

A facility of appropriate size will be constructed to accommodate the maintenance facilities for mobile mine equipment such as trucks and front end loaders. The maintenance shop will be located directly adjacent to the process plant facilities. It is expected that this shop will be constructed with 5 separate bays: three bays will be of sufficient size to perform regular maintenance on mine trucks and two bays will be sized appropriately for light vehicles or underground equipment. The shop will also include office space for administrative purposes such as housing a shop foreman. The approximate footprint of the maintenance shop will be in the order of 5,000 m². The general facility will be housed in a steel type building with large bay doors. This facility will be insulated and heated for winter use.

Treasury also proposes that the maintenance shop include a water filling station for vehicles such as a water truck. The maintenance shop will be included in the hazardous waste management plan as it will have a waste oils and lubricants storage area. The environmental management plan will incorporate the proper procedures for the safe handling of waste oils and lubricants, including spill mitigation.

3.3.9 Warehouse and Laydown Facilities

A warehouse will be built adjacent to the plant site with road access to Tree Nursery Road. An additional outdoor materials laydown area will also be located in close proximity for supplementary storage. This warehouse and laydown area will be relatively small in size – in the order of 3,000 m² – and be used for storage of large items only. All other warehouse facilities will make use of the existing project infrastructure or be located within the process plant or Maintenance Shop facilities. The existing project infrastructure consists of both office and warehouse facilities that were acquired by Treasury in the 2010 purchase of a former Ministry of Natural Resources (MNR) tree nursery. No dewatering measures will be necessary for the warehouse and laydown areas.



3.3.10 Fuel Farm

A fuel farm will be constructed for the fueling of the mine's mobile equipment fleet. The fuel farm will be located adjacent to the Mine Mobile Equipment Shop with access to both the mine operations and to Tree Nursery Road for delivery purposes. The facility will include storage and pumps for both diesel fuel and gasoline. Large diesel fuel delivery equipment will be in place for heavy equipment. A smaller gasoline and diesel facility for light vehicles such as pickup trucks or underground mine equipment will sit adjacent to the large pumps. Other equipment with less mobility, such as loaders or bull dozers, will be refuelled in the open pit using a mobile fuel delivery truck. The fuel farm will be designed and constructed on top of a concrete pad. The facility will have a spill management plan that meets all regulatory requirements and best management practices. The fuel depot design will also incorporate spill containment facilities.

3.3.11 Natural Gas Pipeline

A pipeline will be constructed to supply natural gas to the plant. It is anticipated that Union Gas, which is the sole local provider of natural gas in the Dryden area, will wholly own, construct, permit and operate the pipeline. Treasury is currently studying the potential pipeline routes, and it is anticipated that the pipeline may parallel Anderson Road and Tree Nursery Road. The potential routing of this pipeline can be seen in *Figure 8 - Project Utilities*.

3.3.12 Makeup water pipeline

Where possible, plant process water will be sourced from recycled water or taken from mine dewatering operations. However, it is possible that additional water will be required for continued operation of the process plant. A detailed water balance is currently underway to determine if fresh water is required, and the volume of said makeup. If makeup water is required, it will be obtained from either ground water wells close to the plant site or via a pipeline that will be constructed for the transport of this water from Thunder Lake to the process plant. Due to low winter temperatures, this pipeline will be buried to prevent freezing. The potential routing of the makeup water pipeline can be seen in *Figure 8 - Project Utilities*. Treasury is currently completing the hydrogeological study and anticipates having this information and a detailed water balance in the first quarter of 2013.



**Goliath Gold Project
Utility Map Showing
Proposed Water and
Gas Lines**



1:23 000

- Proposed Makeup Water Pipeline
- - - Existing Gas Line
- - - Proposed Powerline
- Dam (Secondary)
- - - Proposed Gas Line
- Existing Powerline

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke, Dryden Office,
Treasury Metals Inc.

Not intended for navigational purposes

September 2012



Figure 8 - Project Utilities



3.3.13 Administrative Offices

Project management and mine administration duties will be conducted out of the current Project Office (former Tree Nursery Office). No new administration facilities — save the internal mill and shop administration offices noted above in Sections 3.3.5 and 3.3.8 respectively — will be constructed. Photos of these offices can be seen in APPENDIX A.

3.3.14 Project Roads

The Project site will be accessed by the municipally controlled Tree Nursery Road (via Anderson Road). The final 2.5 km section of Tree Nursery Road will be terminated for public use at the mine entrance. However, the terminated section of Tree Nursery Road will have continued use by mine personnel between the office and mine site. The Project access roads have previously been used for industrial purposes and the intersection of Anderson Road and Highway 17 is currently set-up for industrial use and as a snow plough turnaround. The Ontario Ministry of Transportation (MTO) has indicated that a traffic study will be required to assess the operational integrity of the Highway 17.

Tree Nursery Road will be considered the main mine site access point and will have a security checkpoint to monitor and control all personnel entering the mine site.

There will be two on-site access roads that will be constructed and will last for the duration of the mine life; these can be seen in *Figure 3 - Major Physical Features of Project*. The first road will be a mine operations “ring road”. This road will encircle the process plant, waste rock storage facility and the open pit mine operation area and will be approximately 2.5 km in total length. The second road to be constructed will also be a “ring road” for access to the TSF and will be approximately 2.4 km in length. Both will be operational in nature and will be designed with light access vehicles in mind for the purpose of monitoring the project perimeter. It is anticipated that the aggregate for these roads and the associated infrastructure will be composed of local non-acid generating waste rock that will be stripped from the open pit area in advance of any production mining. It is expected this rock will be blasted and crushed onsite by portable crushing machinery. Any additional aggregate required will be obtained from an approved



outside source. If the waste rock is found to be unsuitable for road aggregate (found to be acid generating for instance) all necessary aggregate will be obtained from an approved outside source.

While both roads will be considered in the project water management plan and will include possible culverts for operational drainage purposes (i.e. site runoff), no water crossings are involved in the construction of these two roads.

Mine access roads will be constructed to accommodate heavy off highway trucks. These roads will provide access to the mine maintenance shop, WRSA and ore stockpiles. All other roads within the open pit will be considered temporary and may change with mine design and sequencing.

3.3.15 Final Product transport

The final gold doré bars will be shipped by road to the designated refining facility. The doré bars will be shipped by light vehicles; therefore, no road upgrades are necessary for their transport.

3.3.16 Site Power

Power will be taken from the Hydro One “M2D” 115 kV power line near the crossing of Tree Nursery Road. A substation will be created at the Project site and the power transmission line will be approximately 400m (less than 2 km in length) as seen in *Figure 8 - Project Utilities*. It must be noted, that included in the construction of the electrical substation will be the construction of an electrical power distribution center to supply the plant. An initial estimate of 10 MW of required power was made for both the Process Plant and Underground operations. An assessment of the power requirements has been initiated with Hydro One.

A Provincial Class EA is not expected to be required as per Ontario Regulation 161/99 in Section 92 of the Ontario Energy Board Act as any new transmission line to be constructed will be less than 2 km.



As the entire mine site is expected to rely on the “grid” for electrical power, minimal backup power generation is being considered. The emergency power requirements for the site will be determined in studies to be conducted in the future. Diesel generators will be used as a backup power supply for critical operations only. The amount of backup power required is currently undefined and Treasury will define this in the near future to ascertain the permitting requirements.

3.3.17 Explosive Plant and Magazine

An explosives manufacturing facility will be constructed for the purpose of supporting production mining. A license from Natural Resources Canada (NRCan) will be required under paragraph 7(1) of the Explosives Act. The magazine will also require consent of the Director of Operations of the Canadian Transportation Agency under the Canada Transportation Act - Section 6(1) for the construction of a storage facility with a capacity of less than 200 tons. It is unclear at this time whether this will be the responsibility of Treasury or the responsibility of an external contractor that will be in charge of supply, delivery, storage and firing of explosives.

3.3.18 Site Security

A control point will be set up at the main site entrance on Tree Nursery Road. This control point will serve as access control for all workers onsite and will continue through to the mine operations phase. Perimeter fencing and access gates may also be needed to regulate entry in any other areas of the mine site. The main concern for controlled access will be for recreational users by the power line corridor. It will be decided using consultation with local groups on the ideal manner by which to limit access to the mine site while leaving access corridors open for continued use.

3.3.19 Mine Dewatering during Mining activities

During construction, the small beaver pond located within the footprint of the pit will be dewatered. During mining operations, the open pit and eventually the underground workings will be dewatered. A hydrogeological study and preliminary water balance model are being



developed to determine dewatering volumes during the life of mine. This study is currently ongoing and includes “packer” testing to determine the permeability of the mine rock and any fault structures that may conduct additional volumes of water into the mine operations area. The future program will also include a series of shallow well holes to test and monitor ground water flows of both the bedrock and overburden material. At the present time, the current understanding is that the good rock characteristics suggest a low permeability with minimal faulting and low transmission of ground water will regulate the drawdown of ground water in surrounding areas. However, Treasury is uncertain of whether any portion of the Project will fall under Section 8 of the Regulations Designating Physical Activities for “The construction, operation, decommissioning and abandonment of a facility for the extraction of 200 000 m³/a or more of ground water”. Upon mine closure, dewatering operations will cease and the open pit and underground structures will be flooded to return the water table in the mined area to natural levels. While it is anticipated that a large portion of the processing plant water will come from Recycled/reclaimed water or water from mine dewatering, some water may be needed from outside sources. This is described in *Section 3.3.12–Makeup Water Pipeline*. It is expected that a Category 3 Permit to Take Water (PTTW) will be required by the provincial authorities.

3.3.20 Dykes, Dams and Diversions

There will be two principal water management systems for the Project. The first will be that of the TSF which will require a dam structure to be constructed on Blackwater Creek Tributary #2. In general the TSF will encompass the entire headwaters of this small watershed, therefore, no additional dykes or diversions will be required. Water flow will continue as normal at points below the proposed tailings dam. The second area of water management will be for the general mine and processing plant site. The main principle in creating any dykes, dams or diversions will be ensuring that any surface runoff will be directed towards Wabigoon Lake as opposed to allowing any surface runoff on the west side of the project to flow to Thunder Lake. As the topography is relatively flat in this area, no dams will be required and dykes and diversions will be minimal. These will most likely be in the form of culverts, ditches and small containment ponds surrounding the perimeter of the project. These can be seen in *Figure 3 - Major Physical Features of Project*.



3.4 AREAS TO BE AFFECTED BY THE UNDERTAKING

The total combined footprint of the mine, mill, TSF and office facilities will be approximately 300 hectares. The total potentially affected area of the project will consist of Thunder Lake to the east, Hughes Creek, Black Water Creek, Thunder Creek and Wabigoon Lake to the south. This area can be seen in *Figure 9 - Local and Regional Study Areas*.

3.5 MINE AND PROCESS PRODUCTION RATES

Average daily production will be in the order of 2,500 tonnes per day (tpd).

3.6 PREVIOUS OPERATIONS

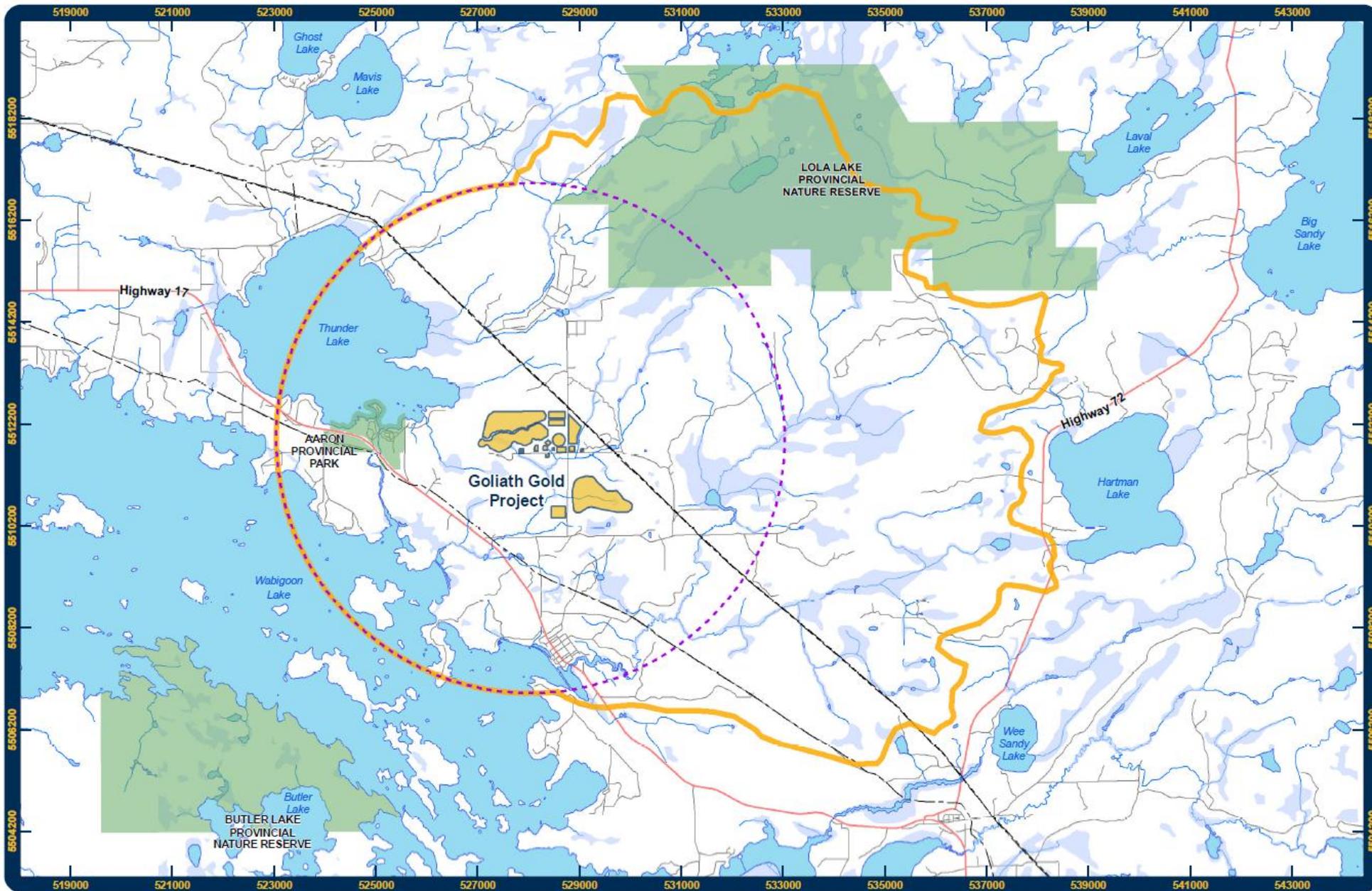
No previous mining has been done on the Goliath Site and, the Goliath project is not an expansion. To date, Treasury has conducted early exploration work, although a previous underground development drift was constructed by Teck Resources as part of an advanced exploration project on part of the current property. The drift was subsequently closed in 1998 as per a defined closure plan. The main access to this drift will not be re-opened. However, during mine operations the open pit will intersect the UG portion of the drift. Access to the open drift during open pit mining will be limited and controlled by an underground workings management plan. The underground drift will subsequently be covered in mine waste as part of the backfill plan, and will be included in the closure plan.

3.7 PIPELINES AND POWER TRANSMISSION

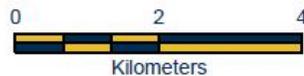
No pipeline or international power transmission line greater than 40 km, which fall under the regulations of the National Energy Board (NEB), will be constructed. Transmission lines and pipelines are described in sections above.

3.8 AIRFIELDS AND RUNWAYS

The Project is located within 15 km to the Dryden Regional airport. The airport is sufficient for any needs that may arise in relation to the Project and no new airfield or runway facilities will be constructed as a direct result of the project.



**Goliath Gold Project
Local and Regional
Study Areas**



1:100 000

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke, Dryden Office,
Treasury Metals Inc.

Not intended for navigational purposes

September 2012



Figure 9 - Local and Regional Study Areas



3.9 EMISSIONS, DISCHARGES AND WASTE

3.9.1 Sources of Atmospheric Emissions

There will be two primary types of atmospheric emissions due to the development of the Project. All of these emissions will be produced on the project site.

- Dust will be created by construction activities such as material transportation, drilling and blasting. Dust will also be raised by wind blowing across the mine site.
- Atmospheric emissions will be produced by the combustion of fossil fuels in engines associated with mining equipment, light vehicles and stationary surface equipment. Stationary sources will include the process plant equipment, mine blasting as well as natural gas heaters for mine or plant air among others.

The main gases that will be produced by combustion will include nitrogen oxides (NO_x), nitrous oxide (N_2O), carbon monoxide (CO), carbon dioxide (CO_2) and sulphur dioxide (SO_2). Both CO_2 and N_2O fall under reporting criteria for greenhouse gases, however at this time it is unclear if the gases produced will exceed the threshold for reporting.

Treasury recognizes the importance of air quality in the health and safety of employees, neighbouring communities and wildlife, and as such will create a dust management plan. This dust management plan will adhere to industry best practises. Some of these methods used are dust suppression using water trucks in the open pit mine and using controlled blasting techniques to limit dust thrown when blasting the rock. In regards to stationary equipment, housing and dust collection will be constructed surrounding dust producing components such as the crushing and milling facilities.

The control of combustion emissions will be done by several methods. CO and NO_x produced during blasting operations will be limited by proper blasting techniques. Inadequate mixing of the explosive proportions or leaving the explosive in a blast hole for extended periods of time



TREASURY METALS

INCORPORATED

can create instances of incomplete combustion during the blasting process. Treasury will take all endeavours to regulate the quality control of blasting techniques.

The majority of other combustion emissions will be generated by internal combustion of fuels – such as diesel or gasoline – for mobile equipment or stationary equipment in the form of NO_x, N₂O, CO, CO₂ and SO₂. In general these emissions will be controlled by use of standard techniques such as catalytic convertors, scrubbers and dust collectors.

An air dispersion model will be developed for both the Environmental Assessment and for any applicable Environmental Compliance Approval (ECA) applications for air emissions through the Ontario Ministry of Environment (MOE). The air dispersion model will more clearly define the sources and types of atmospheric contaminants produced by the Project, and model their dispersion into the environment. The release of contaminants into the atmosphere will be carried out in compliance with the federal National Ambient Air Quality Objectives (NAAQO) and the Ontario Environmental Protection Act, R.R.O. 1990.

3.9.2 Sources of Liquid Discharge

3.9.2.1 Site Runoff

Water from site runoff will be collected and managed as per a surface water management plan. This plan will be designed and implemented for all phases of the project. Water will be collected in particular from the TSF, mine roads, the process plant site, ore stockpiles and waste rock storage areas. In this regard, a series of catchments, ditches and culvert drainages will be constructed to separate site-affected water from any natural sources proximate to the mine site. This water management plan will be developed to meet required storm event conditions for the area. Also incorporated into the plan will be a series of catchment or settling ponds for storage of water, prior to treatment, which may not meet designated criteria for the safe release into the natural environment.

The water bodies/courses that fall within the watershed for the site runoff management plan are as follows and shown in *Figure 10 - Site Water Network* and *Figure 11 - Regional Water Course*

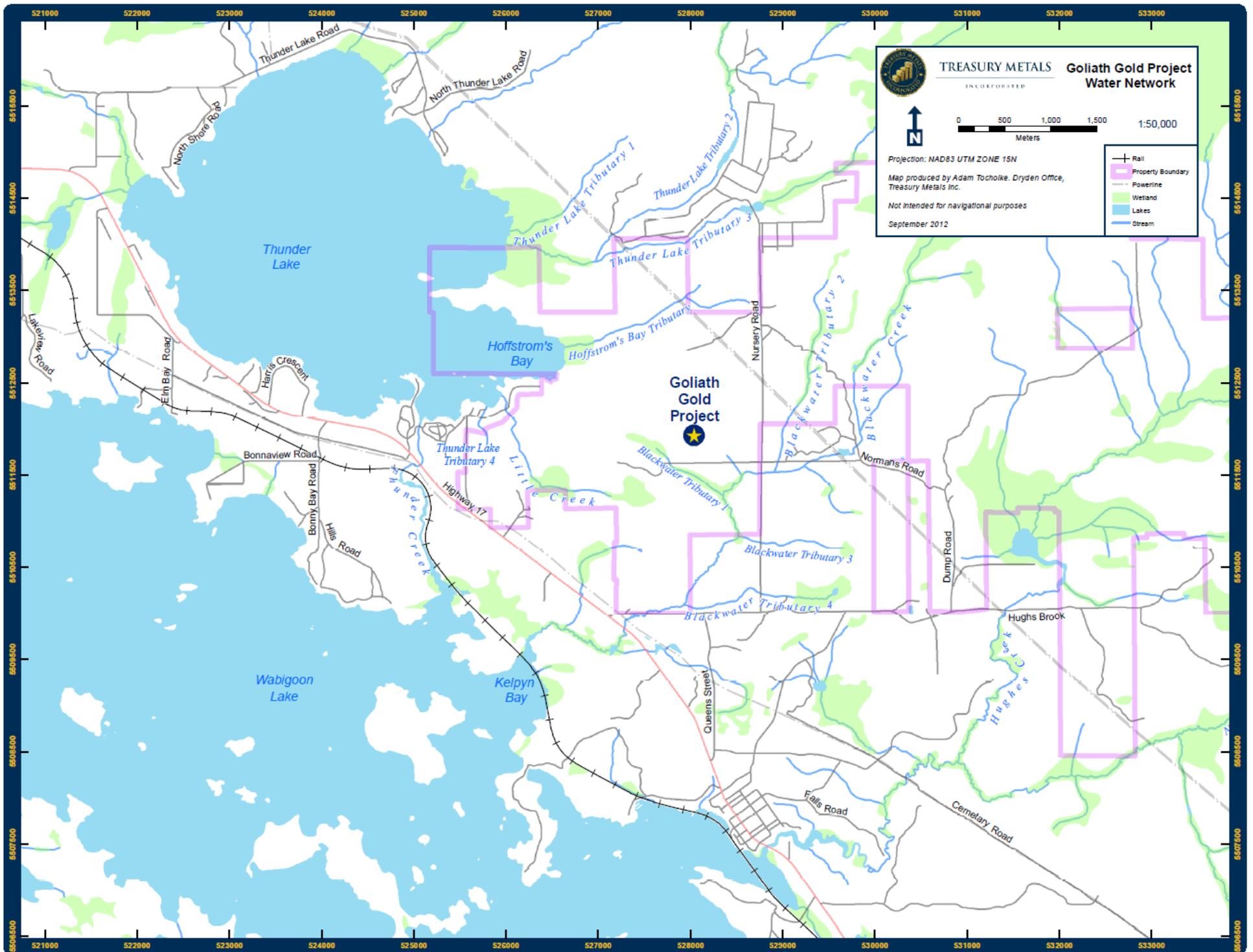


Figure 10 - Site Water Network

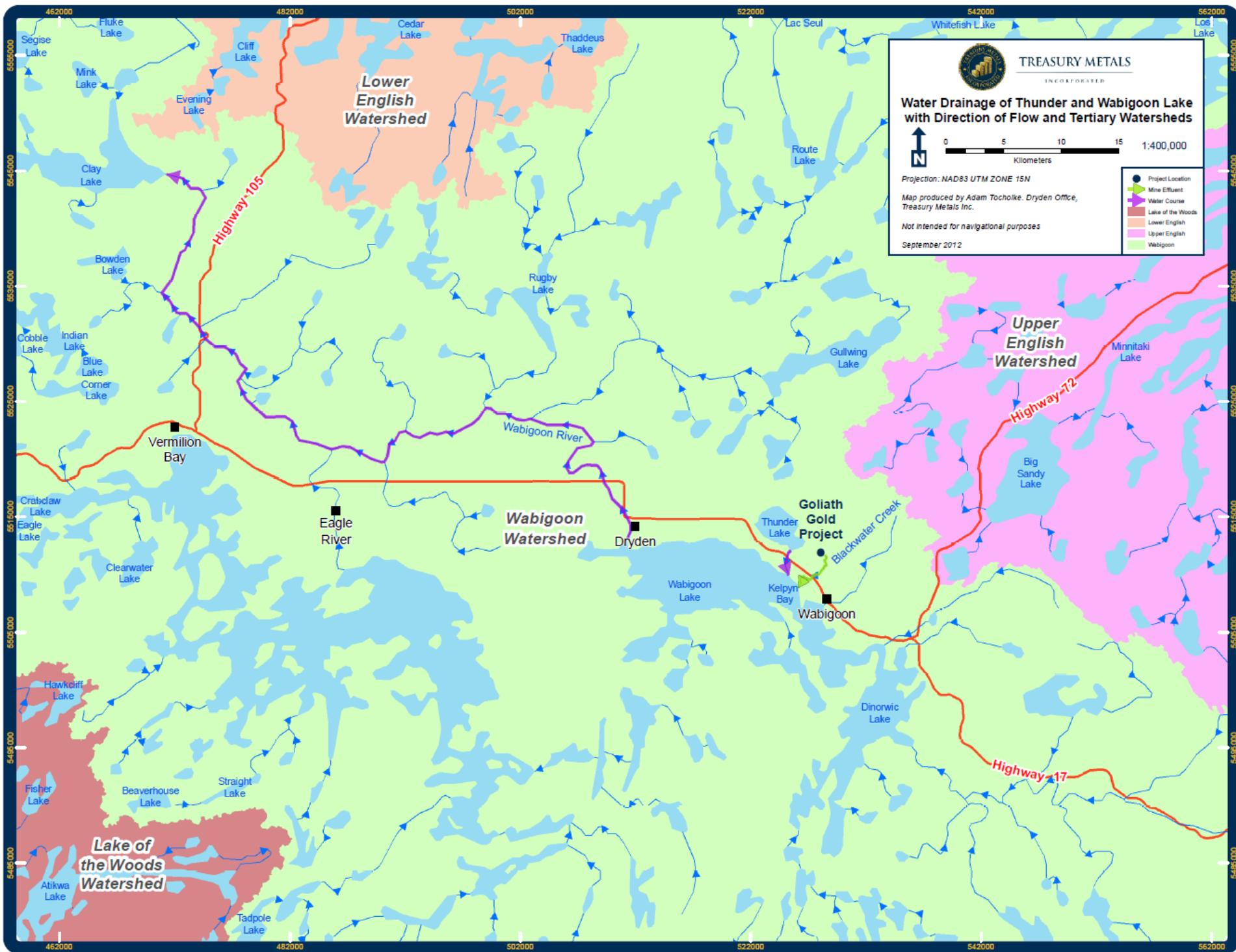


Figure 11 - Regional Water Course



TREASURY METALS

INCORPORATED

The **Blackwater Creek** area is the main drainage basin for the Project as the majority of the site plan falls within this watershed and is draining into either, Tributary #1, Tributary #2 or Tributary #3 of Blackwater Creek. The proposed mine site components in the watershed include the open pit, the underground portal, the TSF, the process plant site, the explosives magazine, the low grade stockpile and to a large extent the WRSA. Blackwater Creek drains to Wabigoon Lake at Kelpyn Bay.

Thunder Lake Tributary #3 may receive potential surface run-off from the Project office area. This creek also accepts water from the ponds that were manufactured for the former MNR tree nursery. The potential for surface runoff in this creek will be minimal and will essentially be unchanged from the current pre-mine condition. The site offices will remain as they are currently, and aside from an increase in traffic flow, will see very little change from the current arrangement. Thunder Lake Tributary #3 drains into Thunder Lake to an unnamed bay to the north of Hoffstrom's Bay.

Hoffstrom's Bay Tributary may also receive potential site runoff. This creek's watershed captures the north side of the WRSA. The drainage for the Hoffstrom's Bay Tributary will be included in the water management plan. Hoffstrom's Bay Tributary drains into Thunder Lake at Hoffstrom's Bay.

3.9.2.2 Potential Acid Rock Drainage from Waste Rock Storage Area

Treasury is currently studying the acid generating and neutralizing potential of the mine waste rock. If the waste rock is found to be acid generating, a separate section within the water management plan will be developed for the WRSA and the surrounding area. This water will be collected – using a series of ditches, catchments and collection ponds surrounding the WRSA as seen in *Figure 3 - Major Physical Features of Project* – and sent to the TSF for further treatment before being released to the environment. This water will meet all required criteria as described below in *Section 3.9.2.3*.



3.9.2.3 Discharge from the TSF

Work is ongoing to predict water quality and volumes to be discharged into the environment from the TSF. A water management plan to be developed will include the management of TSF discharge. It is expected that a portion of the water that enters the TSF may be reclaimed for process water. Excess water that must be discharged to the environment will be treated as necessary. This may be done through use of a polishing pond and treatment facility, and discharged to the environment in compliance with the expected ECA for discharge of mine effluent from the Ontario MOE, and Metal Mining Effluent Regulations (MMER). A compliance monitoring program will also be included in the water management plan.

3.9.3 Types of Waste and Disposal Methods

3.9.3.1 Sewage Management Facility

It is expected that the Project will have two separate sewage management facilities. One system will manage sewage waste generated at the current Project offices and the second will manage sewage waste generated at other locations at the Project site (the main locations being the process plant and mine operations during both construction and operation). All sewage generated at the Project office will be disposed of using the current septic system. During the site preparation and construction phase of the project, sewage generated away from the existing Project Offices will be collected and stored in portable infrastructure and transferred for disposal at a provincially approved location. During the operational/production phase of the project, sewage waste generated away from the Project office (i.e. at the mine and process plant) will be disposed of at an onsite disposal facility that will be designed and built to meet all provincial requirements.

3.9.3.2 Solid Non-recyclable/Non-Hazardous Waste

All solid, non-recyclable and non-hazardous waste will be transported by road to an offsite provincially permitted landfill. A small temporary storage will be used to store this waste onsite while awaiting collection. There are several options that are being investigated at the current



time including the Dryden Municipal landfill site and the Wabigoon landfill site. Initial discussion with the local municipal boards has shown that the Wabigoon landfill site has a limited capacity; therefore, it is likely that all landfill will be transported to the Dryden facilities.

3.9.3.3 Recyclable Material

All recyclable waste generated will be transported by road to Dryden's recycling facility. A rigorous effort will be maintained throughout all phases of the project to maximize recycling waste. A small temporary storage will be used to store this recyclable waste onsite while awaiting collection.

3.9.3.4 Hazardous Waste

The main sources of hazardous waste will be diesel fuel for mobile equipment, lubricants and oils, including used/waste lubricants, oils and hydraulic fluids. Spent cyanide products used in the Process plant may also be designated as hazardous waste. All of the above mentioned hazardous materials as well as any other incidental hazardous waste will be stored in respective temporary storage facilities that will be designed and built to meet all regulatory requirements and industry best management practices. At regular intervals all hazardous waste will be transported offsite to a provincially approved facility for disposal.

As required by the Toxics Reduction Act, O. Reg. 455/09, a certified toxic substance reduction plan will be developed for the mine. This plan will identify the toxic substances used and created by the mine and introduce plans for the reduction of toxic materials used and produced during the mining process.

3.10 SITE DEVELOPMENT SCHEDULE AND ACTIVITIES

The site development schedule is broken down into four phases: Site Preparation, Project Construction, Production/Operation and Reclamation. In total Site Preparation should be completed over a four to six month period, Project Construction will be completed over a twelve to sixteen month period, Mine Operations are currently scheduled for a ten to twelve year mine life and the Reclamation phase should take no more than two years to complete, but will be



further defined in the closure plan. The proposed timelines of these activities will be subject to receipt of applicable permitting and approval of the Environmental Impact Statement. It should be noted that Treasury intends to have a closure plan prepared and submitted for approval to be in a position to begin site preparations in twelve months' time. It should be noted, some of these activities may overlap with others. A general Project schedule is detailed in *Figure 12 - Project Development Schedule*. It should also be mentioned that all phases of the schedule will be detailed in, and adhere to an environmental management plan under corporate development. This environmental management plan, which will include the water management plan, will be prepared and submitted as part of the EIS.

The EA process that is included in the Project Development Schedule is considered to be 18 months of total time. This includes 365 days of government time, which is the Standard Environmental Assessment Process policy timeline set out by the Act, and an additional six months of time when the EA process is managed by Treasury. This six month period is not included in the 365 days.

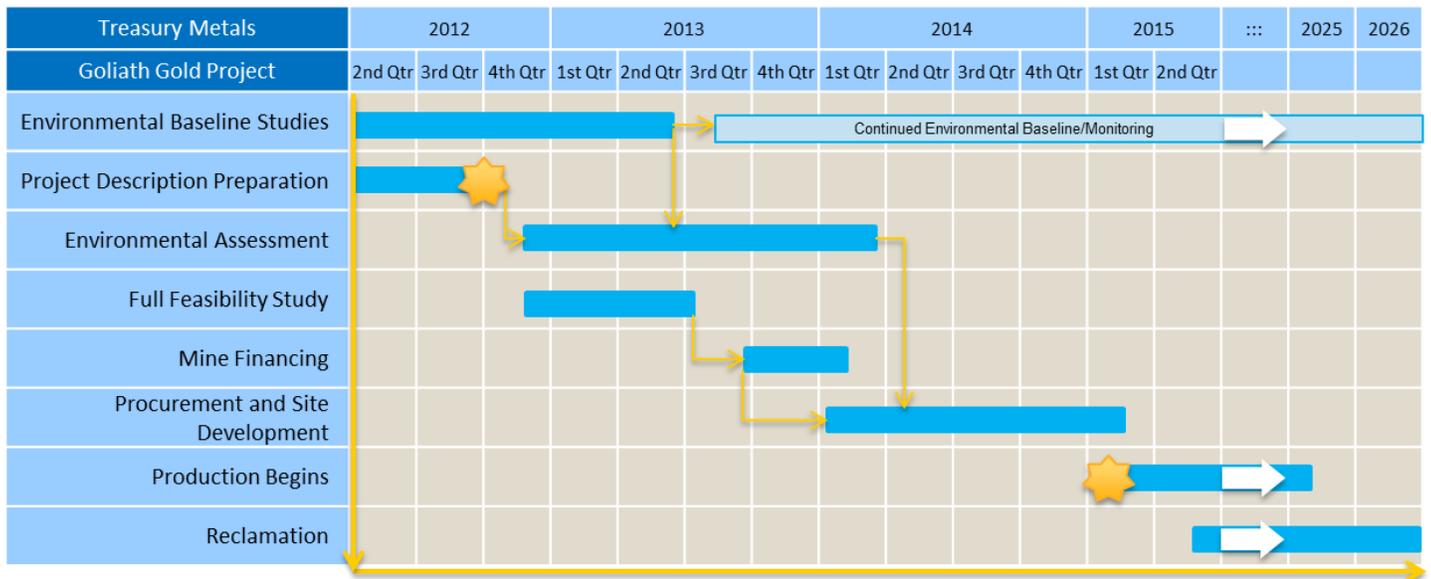


Figure 12 - Project Development Schedule



TREASURY METALS

INCORPORATED

3.10.1 Site Preparation

For the site preparation phase, all access will be via Tree Nursery Road; therefore limited access roads will need to be constructed. No electrical power upgrades will be required for the site preparation phase.

The site preparation phase will also include the final stages of detailed engineering design and procurement of long lead time items. Several components of the site preparation phase may begin before the EA has been approved. Treasury is currently conducting analysis to determine which components will be allowable to commence prior to the completion of the EA process.

A large portion of the Mine and Processing Plant site has been previously cleared of trees. There will be a small amount of clearing on this portion of the site. Clearing will also be required on the area to be used for the TSF. All trees will be felled, skidded and piled within the respective areas and where possible sold to an outside source. Where sale is not possible, disposal will be by means of chipping or burning. Once clearing is complete, grubbing will be required across Mine, Processing Plant and TSF sites. Large specialty equipment will be used for the removal of stumps, roots and logs. This material will be placed and stored in a separate location for the possible future use in site reclamation. Several rudimentary access roads will be constructed to allow access of the heavy forestry machinery in this phase. It is anticipated at this time that these roads will not require any water crossings.

The stripping of overburden will be required across the open pit mine site. This work will be done using bulldozers and excavators to gain a clear access to the bedrock for mining purposes. Grading may be required for the processing plant area and TSF. This work will also be done using specialized equipment such as bulldozers or grading machines. All excess useable overburden or grading material will be stored in a separate location for future use in TSF construction, road construction, mill site construction or site reclamation. If any of said material is found to be unsuitable for any future use due to material characteristics, it will be disposed of at a designated disposal area.

Due to the flat nature of the site very little drilling and blasting will be needed during the site preparation phase. Some blasting may be required for preparation of the plant site. Where



TREASURY METALS

INCORPORATED

possible, blasted material will be crushed on site for use in roads or plant construction surfaces. If the blasted rock is found to be acid generating it will be placed in the WRSA as the initial phase of waste rock storage. Initial blasting of the open pit mine site will be considered during the construction phase.

Any consolidated material needed for the Processing Plant site will be transported from the previously mentioned blasting and crushing process to create the required construction surfaces for any buildings, plant structures, electrical service structures, pipe transport corridors (i.e. tailings material from plant to TSF) or mine service structures. If blasted material is not suitable for use in these circumstances, aggregates will be transported to site from an approved source and provider from the local area.

As mentioned in *Section 3.9.3 – Types of Waste and Disposal Methods*, sewage will either be disposed of by current methods as established at the project office or stored in temporary or portable infrastructure and transported offsite for disposal. All other wastes, such as recyclable, hazardous or industrial will be collected and stored in a temporary facility to be sent offsite for disposal at the appropriate location.

All activities during the site preparation phase will be carried out with a high attention to appropriate environmental practises as defined by an environmental management plan. Environmental monitoring will continue throughout the site preparation phase to ensure best practises are being maintained.

3.10.2 Project Construction

Directly following the respective activities of Site Preparation, TML will begin the Project Construction phase of the Goliath Project. Some of the activities of the Construction Phase may overlap with activities described in the Site Preparation phase.

Access to the Project office will be via Tree Nursery Road in its current form. Two small “ring” access roads will be required to be built during the construction phase. The first of these two roads is the “mine ring road”. This will serve as a permanent road throughout all subsequent phases. This road will start at Tree Nursery Road approximately at the crossing of the electrical



TREASURY METALS

INCORPORATED

power lines and proceed westerly surrounding the pit and finally joining with the current western portion of Norman's Road. It will be approximately 2.5 km in length and will require no water crossing or bridges. As this road surrounds the eventual WRSA, culverts may be required to facilitate collection of surface runoff in regards to the Water Management plan. The second road to be constructed will be an access road for TSF construction. This access road will be approximately 2.4 km in length and will completely encircle the proposed TSF. No navigable waters will be crossed and no bridges will be built. In the same regard to the mine ring road, culverts may be necessary to facilitate surface runoff collection to comply with the water management plan. Both roads will be included in a site road network plan.

The access point to Highway 17 at Anderson Road is currently used as a snow plow turnaround, and was constructed to meet MNR industrial requirements while the Tree Nursery was in operation. This access point to Highway 17 will be subject to a traffic study to determine the sufficiency for the Goliath Project. During the Project Construction Phase an increased traffic flow as compared to the current traffic flow will be seen on the unpaved municipal road. As part of the EA process, Treasury will undertake a Traffic Impact Study to assess effect that the traffic will have on the operational integrity of the highway and compare this to the original design and capacity of the access roads. This study will be conducted by a specialized consultant with the proper qualifications as directed by the Ontario Ministry of Transport (MTO).

An electrical substation will be built adjacent to the proposed plant site. Electrical power will be taken directly from the 115kV Hydro One "M2D" line that runs parallel to the plant access road. A substation will be established near the intersection of Tree Nursery and Norman's Roads. The substation will be approximately 400 metres from the main power source; it is therefore considered that no transmission line greater than 2 km will be required to be constructed. The construction of the electrical substation will also include associated electrical power distribution network for the site.

The current Project office site has sufficient space to serve as a construction office and laydown area. Therefore office and laydown facilities will not be needed for the construction phase of the project. Several buildings will be constructed in regards to the plant and mining operations. All



TREASURY METALS

INCORPORATED

will be located within the general area defined as the process plant site, and will include: structures to house mine crusher system, ball mill and associated conveyor systems; truck shop for mine mobile equipment; warehouse; mine rescue/ambulance station; and, a cold storage/laydown area. The mine and plant dry areas will also be housed within the process plant or truck shop building.

An initial dam structure will be built for the TSF during the construction phase of the project. This dam will be located to the east of Tree Nursery Road and South of Norman's Road. The dam will consist of one length of dam structure on the south, north and west sides of the TSF and will be approximately 500 meters in length and 7.0 meters in height. At this time, the dam will cut off any natural water flow from the Blackwater Creek Tributary #2. The dam will be constructed in a location that has only seasonal flow. Material for the construction of the TSF will come from either overburden material stockpiled during the preparation phase or blasted mine waste rock as needed. The TSF will also include the construction of an overland insulated pipeline for the purposes of transporting processed material from the plant site to the TSF. This will cross under Norman's Road and Tree Nursery Road via engineer designed underpasses.

It is the goal of Treasury Metals to have a minimum stockpile of approximately 150,000 tonnes prior to the commissioning of the process plant. It will be necessary to start the open pit mine a short period of time in advance of the production phase. Excavation will be by off-road mining trucks and mine excavator and blasting is anticipated to be done by an outside contractor. This contractor would take care of all explosives storage, transport, delivery to open pit holes and the firing of the blasts. The stockpiled material will be split between the LGS and the mill feed stockpiles, as described in *Section 3.3.3 – Ore Stockpiles*, which will be directly adjacent the plant site. This part of the project will fall within the guidelines of the proposed water management system and will not commence until sufficient work has been done to ensure that any acid rock drainage will be contained and controlled within the site.

A Portal will be constructed for access to the underground mine ramp system. This portal will be located adjacent to the process plant. Only construction of the portal will be considered for work with the project construction phase as all further UG mine development will be considered



TREASURY METALS

INCORPORATED

within the production phase of the project. Blasting will be required for portal construction and will be done using typical drilling and blasting techniques. This mine portal will also include provisions for mine air and services during the development period, including several high-powered fans.

During the construction phase, a sewage waste management plan will be designed and built to meet all provincial requirements for onsite disposal. This onsite sewage disposal site will be built early in the process to minimize haulage of waste for disposal at an offsite location. As mentioned in *Section 3.9.3.1 – Types of Waste and Disposal Methods*, sewage generated during the construction phase will either be disposed of by current methods as are established at the project office or stored in temporary or portable infrastructure and transported offsite for disposal. All other wastes including hazardous, recyclable and non-hazardous waste will be sent offsite for disposal at the appropriate location.

Any potable water required during the construction phase will be provided by an offsite source. Most likely this will be in the form of recyclable containers.

A series of catchment ditches, berms and settling ponds will be built for the purpose of adhering to the proposed water management plan. The material for these items will be used from the overburden stockpiles or mine waste material as needed. This water management plan will be complete before any acid generating rock will be stockpiled on the site to prevent any acid rock drainage from entering the uncontrolled environment.

A fuel farm for mobile equipment as described in *Section 3.3.10 – Fuel Farm*, will be built adjacent to the Maintenance shop.

A natural gas pipeline as described in *Section 3.3.11 – Natural Gas Pipeline*, will be constructed for use in future production operations. The main use of this natural gas will be for underground mine air heating. This pipeline will be overland and Treasury is working with Union Gas, who is the sole provider of natural gas in the Dryden area, to determine responsibilities for design and construction of this component. The gas line will be taken from the main Trans-Canada pipeline



that runs parallel to Highway 17 in the Dryden area. This pipeline will not require a crossing of Highway 17.

All activities during the site construction phase will be carried out with a high attention to appropriate environmental practises as defined by an environmental management plan. Environmental monitoring will continue throughout the site preparation phase to ensure best practises are being maintained.

3.10.3 Production/Operation

Directly following the Construction and Commissioning Phase, Production/Operation will begin. Initial mining will be by open pit methods with underground development activities starting immediately. Ore will begin to be produced immediately by processing incoming material from the open pit as well as the material that was stockpiled during the construction phase. The process plant will run at approximately 2,500 tpd to process a total of approximately 4,500,000 tonnes of open pit material and an additional 4,500,000 tonnes of UG material over the 10+ year mine life. The specific activities are as follows:

Mining of the open pit will begin immediately and be a continuation of the construction activities described above. The three pits will be mined in sequence to allow for maximum backfill to be placed within the final pit bottoms. The sequence, in general, will be centre pit, west pit and finally, the east pit. Some mining may be performed within the pits in parallel to ensure a consistent head grade to the process plant.

Mining will be done using conventional drilling and blasting techniques. Blasting will be performed by an outside contractor who specializes in the supply, storage, delivery and firing of explosives.

Blasted material will be hauled from the pit to a permanent storage area using a fleet of 6-12 Off-Highway Mining trucks with a capacity of approximately 65 tonnes.

Throughout the open pit mine life, the 1.8 million tonne low grade stockpile, as described in *Section 3.3.3 – Ore Stockpiles*, will remain active for both storage and a blend material for the



TREASURY METALS

INCORPORATED

process plant. Once open pit operations have finished, the low-grade stockpile will be used as a blend with underground material to feed the mill until the stockpile has been completely exhausted.

Pit dewatering activities will continue throughout the open pit mine life as described in *Section 3.3.1 – Open Pit*. Once the final pit bottom has been reached in each respective pit bottom, dewatering activities will cease and the pit will be left to fill with water as backfilling occurs. All piping and pumping equipment associated with pit dewatering will be removed and re-used or disposed of before backfilling of the pit will begin.

Road maintenance will be done with specialized equipment owned by the company such as motor graders and water trucks for dust suppression. This will include all mine and plant site access roads and access road to the Project Office.

Underground development activities will begin immediately following the start of open pit production or shortly thereafter. The portal will have been established in the construction phase and the UG access will be via ramp decline from the portal. Ramp development and the subsequent level development will be done by conventional methods using mechanized equipment such as jumbos, LHDs and trucks. It is assumed that initial ramp and lateral development will last approximately 2 years. Underground development will also include vertical raises to be used for a combined purpose of ventilation and emergency egress. These ventilation raises will be complete with all associated high horsepower ventilation fans and natural gas mine air heaters as described in *Section 3.3.2 – Underground Mine*.

In general, all underground development will be completed in waste rock. This will be hauled to surface using underground specific haul trucks of approximately 35-40 tonnes. This waste material will be stored at a temporary surface location adjacent to the portal that will be managed under the site water management plan to avoid any harmful water discharge to the environment. This material will be regularly transferred to the permanent WRSA using the larger open pit haulage equipment or crushed using a portable crushing unit and hauled back underground for use in road construction or road maintenance. During the production phase of mining, waste



TREASURY METALS

INCORPORATED

rock may also be used in combination with cement to create a cemented backfill for the backfill of completed mine stopes.

Underground production will begin in approximately year 3 immediately following ramp and lateral development for access to the ore body and continue for the subsequent 7 years until the end of the mine life.

The waste rock storage pile will be maintained throughout the mine life. As mentioned in previous *Section 3.3.4 – Waste Rock Storage Area*, approximately 60% of the total waste rock will be stored at a surface facility, while the remaining 40% will be backfilled to the completed pits.

The WRSA will have a final height of 20 meters tall with a final footprint of 675,000 m². Any surface water from the waste rock storage area will be collected via a system of drainage ditches and collection ponds for testing and possible treatment before release to the environment or use as plant process water.

Reclamation of the WRSA will be ongoing throughout the mine life and will start as soon as possible. The plan for progressive reclamation will be to start at the western edge and work east to make an aesthetically natural feature for neighboring residents on Thunder Lake while working towards the objectives of the final closure plan.

As described in *Section 3.3.5 – Processing Plant Site*, the mine process will be an initial gravity circuit followed by a standard Carbon In Leach (CIL) circuit using direct cyanidation. All precautions will be taken as per industry standards or better in regards to the storage, handling and destruction of Cyanide. These will be detailed in a Cyanide Management plan.

The process plant will be maintained for the duration of the mine life. It is proposed that the plant will process approximately 2,500 tpd.

As described in *Section 3.9.3.1 – Sewage Management Facility*, during the production phase of the mine, sewage generated by mine operations will be stored and treated at the onsite sewage



waste facility. All sewage generated at the Project Office will be processed by the current system.

As described in *Section 3.9.3.4 – Hazardous Waste*, hazardous waste will be collected and stored as per a waste management plan. At regular intervals all hazardous waste will be transported offsite to a provincially approved facility for further treatment or storage. All other wastes, non-hazardous or recyclable, will be transported off-site to a provincially approved facility for further treatment or storage.

All activities during the mine operation phase will be carried out with a high attention to appropriate environmental practises as defined by an environmental management plan. Environmental monitoring will continue throughout the mine operation phase to ensure best practises are being maintained.

3.10.4 Decommissioning and Reclamation

Mine reclamation will be ongoing where possible throughout the mine operations phase. The goal of such reclamation will be to return the area as much as possible to a natural state. Prior to construction and operation, a closure plan will be defined and certified as per Ontario Regulation (O.Reg.) 240/00 as amended by O.Reg. 194/06 “Mine Development and Closure under Part VII of the Mining Act” and “Mine Rehabilitation Code of Ontario”. The activities included in the closure plan will include, but not be limited, to the following:

It is anticipated that both the centre and west pit will be filled with backfill either level to surface or being filled above surface as an extension of the WRSA. As mining progresses and the pits become filled, overburden material – that has been previously stored – will be placed on the backfilled material and trees will be planted to create a natural setting. The east and final pit will remain excavated to its pit bottom. At the time of closure, the pit will be left to fill naturally with water and a security fence will be constructed around the perimeter to prevent inadvertent access.

All mobile mine equipment will be disassembled and either sold or transported offsite for disposal.



TREASURY METALS

INCORPORATED

It should be noted that with the early completion of the open pits compared to the underground mine life, most if not all of the open pit mine reclamation will be complete at the end of the underground mine life.

At the end of underground mine operations, the mine will be closed as per the closure plan that will be developed. This will include removal of all hazardous materials and equipment including mine dewatering equipment, at which point the underground portion of the mine will be left to flood with water. The portal will be blocked as per an engineered closure plan to prevent all access.

All underground mobile equipment and stationary infrastructure such as ventilation fans and mine air heaters will be disassembled and either sold or transferred offsite for disposal.

Progressive reclamation of the WRSA will already be well underway or fully completed at the conclusion of the underground mine life. Overburden material will be placed on top of all waste rock with natural vegetation being planted to maintain a natural appearance.

Surface drainage from the waste rock storage will continue to be collected and monitored with any necessary treatment before being discharged to the environment.

3.11 ALTERNATIVES

An iterative process was used to determine the mine design and site layout for the Goliath Project. The main objectives used for evaluation of various alternative options are to minimize negative environmental effects and risk to sensitive environmental features, minimize negative effects to surrounding residents, neighbors and communities, minimize negative effects to any aboriginal lands, maximize land use on property of which Treasury owns, ensure safe operations and maximize operational efficiency and maintain operational viability. The EA process will be used as a valuable tool to evaluate any options for the development of the Project and transform the components as required. Several alternatives are discussed below.



3.11.1 Mining Method and Location

During the initial assessment of the Project, it was discovered that mining by underground methods only is not an economically feasible option due to the high initial capital costs of development and the lowered recoveries of minable resources. In a similar manner, it was found that mining exclusively by open pit methods was not economically feasible due to the geometry of the ore body and high stripping ratios. The open pit-only method for mining would also create a larger WRSA, larger footprint in general and a shorter total mine life which would lessen the socioeconomic benefit arising from the Project. Therefore, mining will be conducted by a mix of open pit and underground methods. No further alternatives will be considered for the mining method. The pit was optimized by several iterations using differing factors for development such as gold price, pit depth and wall slope angles. Due to the near vertical orientation and geometry of the ore body, the footprint of pit did not change significantly. It was determined that no alternatives to pit location are viable or need further consideration.

For the underground portion of the mine, various locations for the portal and ramp access were considered. It is Treasury's conclusion that the main factor in portal location will be proximity to the process plant. This will not only minimize operating cost, but will also maintain a smaller footprint for the area affected by the project and hence lower environmental impact. The portal is proposed to be located on the east side of the WRSA adjacent to the process plant, taking into consideration a sufficient distance from the ore body itself.

3.11.2 Tailings Storage Facility

Several options for the TSF have been evaluated. Due to the flat nature of the site area selected, most of the TSF options have similar characteristics, being that tailings will be controlled by a "compound" style dam, as described in *Section 3.3.6 - Tailings Storage Facility* that contains the tailings material on all sides. The main factors in the TSF location are as follows: a location with minimal or no fish habitat; proximity to the Processing Plant to minimize pipeline distance; ability to utilize topography and minimize dam construction/magnitude; ease of access for monitoring purposes and overall minimization of the total footprint of the mining operations. The location chosen as Option #1 represents the option as having the least environmental impact



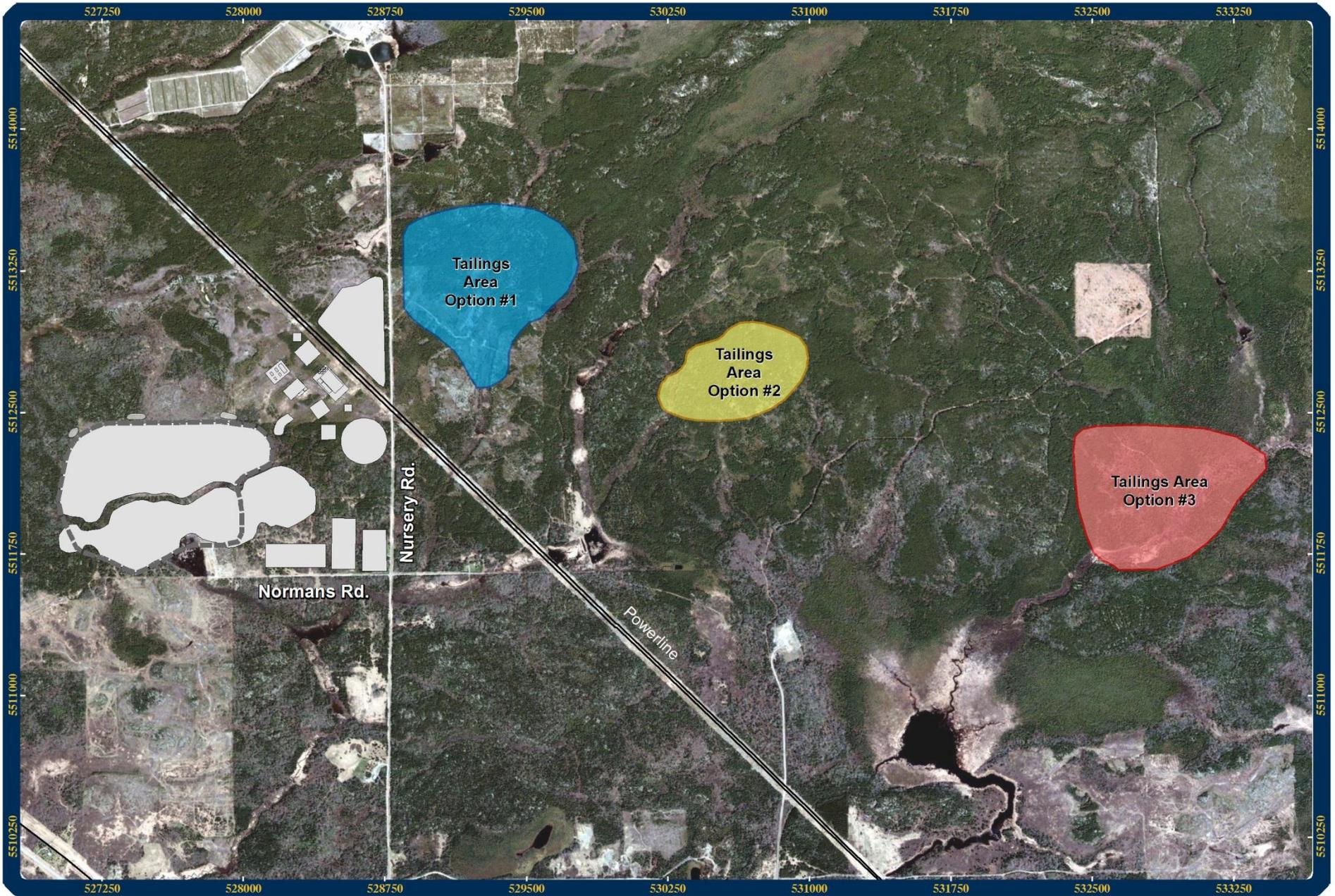
TREASURY METALS

INCORPORATED

of the locations that were evaluated. This location has minimal fish habitat within the footprint and very little water flow (Seasonal – spring flood as described in *Section 4*), satisfactory topography, exceptionally close location to process plant (<500 m) and minimal access roads to be built. As the TSF is constructed directly adjacent to the project access road (Tree Nursery Road), it would ensure constant and uncomplicated monitoring of the TSF. Option #1 will have fish habitat directly downstream of the TSF and it is Treasury's assessment that any incident related to alternative options may be, to a small extent, more complex to mitigate.

Option #2 is similar to Option #1 in that the footprint has minimal fish habitat and little water flow, is very close to the process plant (<500 m), few roads will need to be built and the topography is similar. It is also Treasury's evaluation that both Option #1 and #2 are very similar in nature and the company would be confident constructing and operating a mine with either option.

A third option has been assessed by Treasury for a possible location for the TSF as shown in *Figure 13 - TSF Options*. Option #3 has ideal topography for the site of the TSF – a large flood plain that will be easily accessed and an ideal topography that would minimize dam construction and costs. However, this option involves the destruction of fish habitat within the Hughes Creek system. This not only widens the affected area and watershed impacts of the project, but also substantially spreads out the project footprint. Option #3 also would require a tailings pipeline of greater length (>2,500 m) with associated road construction for monitoring purposes. While this distance would not be considered long by industry standards, there are added risks involved versus options 1 and 2. Treasury will continue to look at this alternative study option for the Environmental Impact Statement.



Goliath Gold Project, Proposed Tailings Options and Locations



1:26,000

- Proposed Mine Infrastructure
- Tailings Area Option #1
- Tailings Area Option #2
- Tailings Area Option #3

Projection: NAD83 UTM ZONE 15N

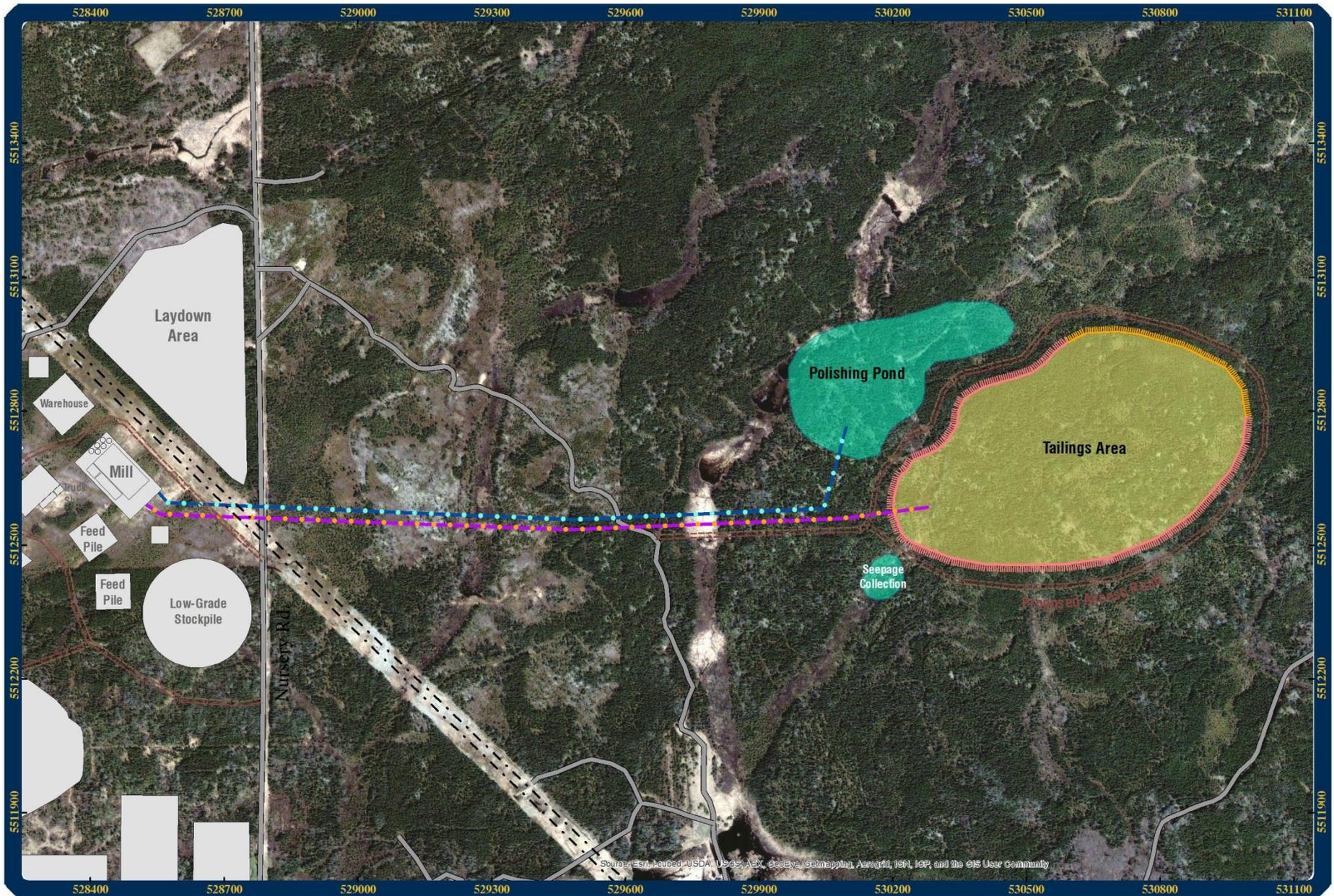
Map Produced by Adam Tocholke, Dryden Office,
Treasury Metals Inc.

Service Layer Credits: Source: Esri, i-cubed, USDA,
USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN,
IGP, and the GIS User Community

Not for Navigational Purposes

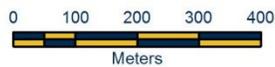


Figure 13 - TSF Options



Source: Esri, Imagery, USDA, USGS, AEX, GeoEye, Geomapping, AeroGRID, IGN, IGP, and the GIS User Community

Goliath Gold Project, TSF Option #2



1:11,000

- Dam (Primary)
- Dam (Secondary)
- Road
- Powerline
- Reclaim Line
- Tailings Line

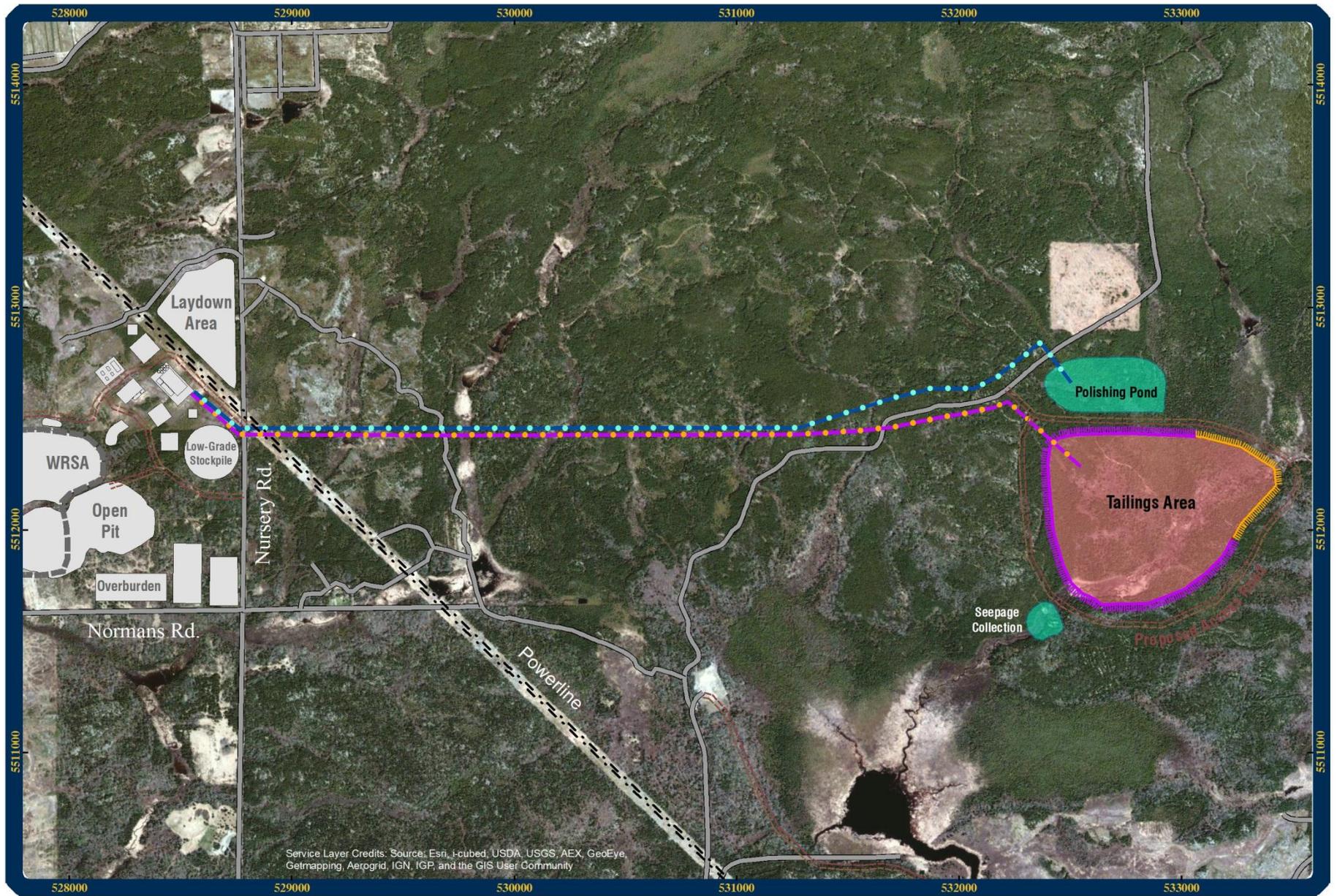
Projection: NAD83 UTM ZONE 15N

Map Produced by Adam Tochoike, Dryden
Office,
Treasury Metals Inc.

Not for Navigational Purposes



Figure 14 - TSF Option #2



Service Layer Credits: Source, Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Goliath Gold Project, TSF Option #3



1:22,000

- Dam (Primary)
- Dam (Secondary)
- Road
- Powerline
- Reclaim Line
- Tailings Line

Projection: NAD83 UTM ZONE 15N

Map Produced by Adam Tocholke,
Dryden Office,
Treasury Metals Inc.

Not for Navigational Purposes



Figure 15 - TSF Option #3



3.11.3 Process Plant Site Location and Associated Infrastructure

The main factors and considerations in determining the location of the processing plant are proximity to the mining operation, minimized project footprint, minimal impact on fish habitat, proximity to sensitive environmental features, land ownership issues, compact site footprint, access issues from main access roads and topography for construction.

The location and geometry of the open pit provides an ideal location for the placement of the site infrastructure. Having the processing plant situated adjacent to the pit will minimize the affected footprint. Minimal fish habitat will be affected by the proposed location as there is no known water flow in this area. Additionally, varying the location or configuration of the site infrastructure will not substantially minimize environmental risk or reduce the extent of the environmental assessment.

3.11.4 Waste Rock Storage Area

The location of the WRSA was carefully evaluated and several options were considered. Locating the WRSA as close to the open pit as possible will allow for minimized road construction, minimized footprint and maximized ability to easily backfill completed pit bottoms. An estimated 20 metre maximum dump height was used in order to limit aesthetic influence for neighboring residents. This low dump will consequently create a larger footprint. However, said footprint remains relatively small by the backfilling of the completed pit bottom. In this scenario, no destruction of fish habitat will be required as there is no known water flow associated with this area. No additional options are anticipated for the WRSA.

3.11.5 Project Access Roads

The Goliath Project has the fortunate circumstance to be in close proximity to main access roads. With the proposed configuration of the site and associated infrastructure, no additional options are being considered for site access.



4 PHYSICAL, BIOLOGICAL AND HUMAN ENVIRONMENT

Baseline environmental studies relevant to the proposed development were initiated by Treasury Metals Incorporated (TML) in 2010 and carried out by Klohn Crippen Berger (KCB). These studies are on-going, albeit with different consultants. The objective of these studies is to establish a comprehensive understanding of all aspects of the environment in which the proposed project will be built. These baseline studies will provide the information necessary to ensure the Project minimizes its environmental impact and balances the needs of the Project with those of the communities and other stakeholders. The baseline study work will also support the development of an EIS for submission to the government as part of the EA process. To date, the baseline studies have not uncovered any issues that would prevent the Project going forward. Please note that the naming convention of sample points (such as TL or SW) do not necessarily follow a specific naming convention or signify a point of importance.

The following *Table 2 -Potential Effects* shows the potential effects that may be caused by each of the main project components.



TREASURY METALS

INCORPORATED

Physical Activity / Infrastructure	Anticipated Effect of Development
Open Pit	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential of discharge to Blackwater Creek Tributary #1. - Potential of HADD of fish and fish habitat as associated with changes to Blackwater Tributary #1. - Potential of water quality changes associated with discharge to Blackwater Creek Tributary #1. - Potential emissions, dust and noise effects.
Underground Mining	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential emissions, dust and noise effects.
Ore Stockpiles	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA.
Waste Rock Stockpiles	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential of discharge to Blackwater Tributary #1, and Blackwater Creek. - Potential of HADD of fish and fish habitat as associated with changes to Blackwater Tributary #1 and Blackwater Creek.
Overburden Stockpiles	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA.
Processing Plant	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential emissions, dust and noise effects.
Tailings Storage Option Area #1	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential loss and change to Blackwater Tributary #2 and Blackwater Creek. - Potential of HADD of fish and fish habitat as associated with changes to Blackwater Tributary #2 and Blackwater Creek. - Potential of water quality changes associated with discharge to Blackwater Tributary #2 and Blackwater Creek. - Potential for HADD events as defined by the FA entering Wabigoon Lake.
Mobile Equipment Storage Area	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA.
Warehouse and Inventory Storage Area	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA.
Fuel Farm	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential for HADD of fish and fish habitat as defined by the FA to Blackwater Creek, and Blackwater Creek Tributaries.
Natural Gas Pipeline	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential for HADD of fish and fish habitat as defined by the FA to Blackwater Creek, and Blackwater Creek Tributaries.
Makeup Water Pipeline	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential for HADD of fish and fish habitat as defined by the FA to Thunder Lake.
Project Roads	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA. - Potential for HADD of fish and fish habitat as defined by the FA to Hughes Creek, Blackwater Creek, Blackwater Creek Tributaries and Hoffstrom's Bay Creek.
Explosives Plant	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA.
Electrical Substation	<ul style="list-style-type: none"> - Potential loss of habitat and habitat suitability for potential species within area. - Potential loss of suitable habitat for potential SAR and migratory species as defined in MBCA.
MBCA – Migratory Bird Convention Act, FA – Fisheries Act, SAR – Species at Risk, HADD – Harmful, Alteration, Disruption or Destruction	

Table 2 -Potential Effects



4.1 METEOROLOGY

The project site is surrounded by a number of Environment Canada meteorological stations, which provide data to support meteorological conditions at the project site. The meteorological stations closest to the Project, used to determine baseline conditions, is the Dryden Regional Meteorological Station, and Dryden ‘A’ (AUT) located approximately 20 km west of the Project. In addition to the above Treasury Metals has also installed its own meteorological station. It is located at Treasury’s offices (the former MNR Tree Nursery facility) and collects wind, precipitation, barometric and humidity data. The station became operational as of July 18, 2012. Data will be uploaded with direct download software, and analyzed as needed.

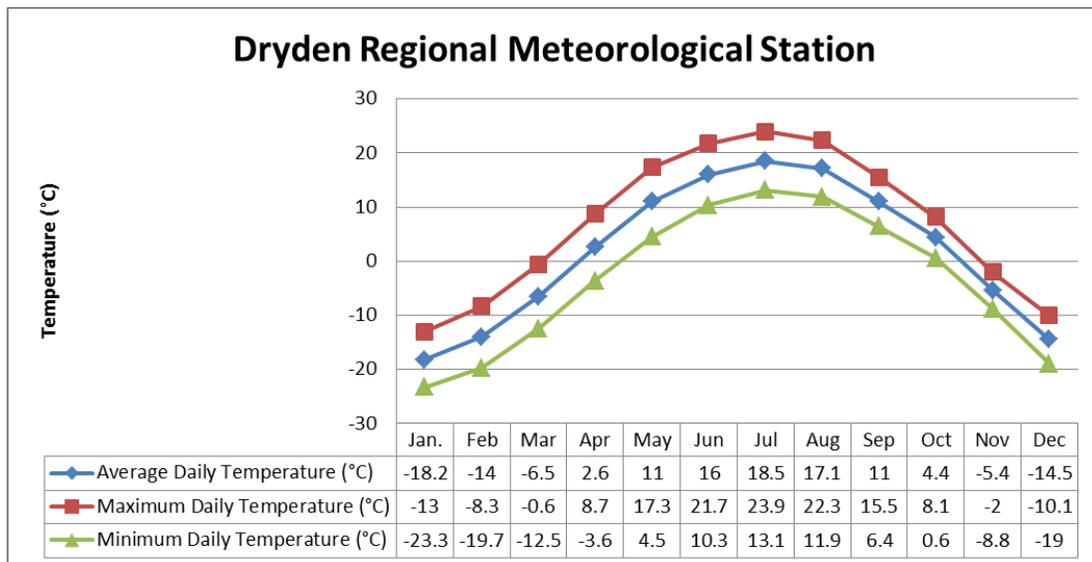


Figure 16 – Dryden Regional Meteorological Station Temperature 2011

Average, maximum and minimum monthly temperatures at the Dryden Meteorological Station are provided above in *Figure 16 – Dryden Regional Meteorological Station Temperature 2011* for the 2011 year. The temperature profile follows an annual sinusoidal pattern with the minimum average daily average temperature occurring in January (-18.2°C) and the maximum



daily average temperature occurring in July (18.5°C). The average yearly temperature at the Dryden Regional Meteorological Station is 1.83 °C. Temperatures recorded at the Dryden, and Dryden ‘A’ (AUT) Regional Stations can be considered representative of the site due to the relative close proximity of the Project site and the local topography. Data from these stations will be compared to the on-site data.

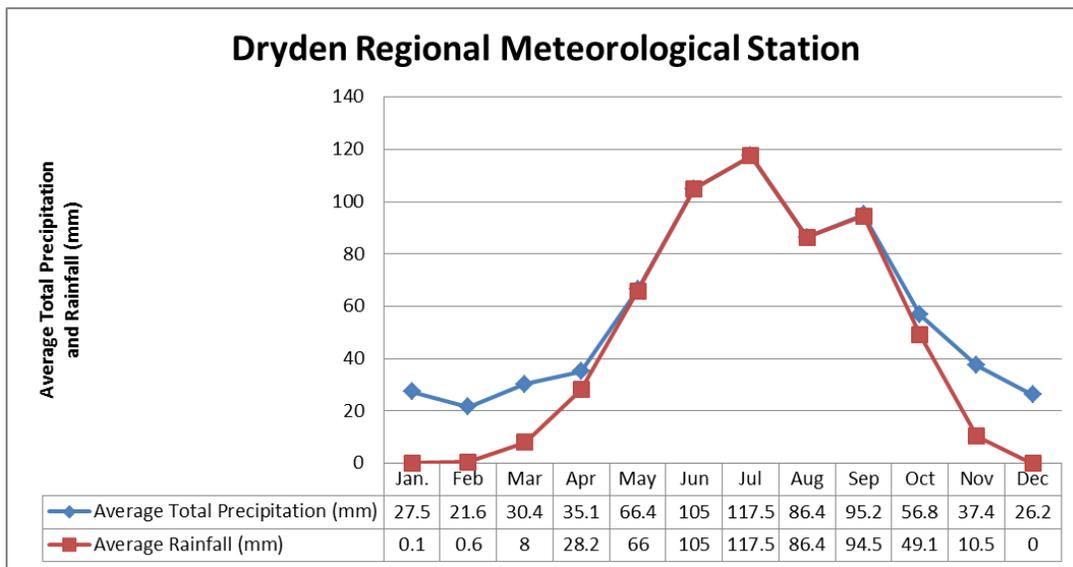


Figure 17 - Dryden Regional Meteorological Station Precipitation 2011

Monthly patterns in precipitation are shown in *Figure 17 - Dryden Regional Meteorological Station Precipitation 2011*. This data is derived from the Environment Canada records for the Dryden Regional Meteorological Station in 2011. Estimates from this study indicate that the average annual precipitation at the project site will be approximately 706 mm. Of this amount, 80 % would be rainfall and the rest snowfall. On average, the maximum monthly precipitation would occur in June/July (over 100 mm), and the minimum monthly precipitation in February (less than 25 mm). Also, precipitation at the site is expected to be predominantly in the form of rainfall between April and October and snow in the remaining portion of the year.



Lastly, annual lake and pond evaporation at the site was estimated to be in the range of 500 to 600 mm for the 2011 year. The annual potential evapotranspiration (evaporation from the land surface) and transpiration from vegetation loss was estimated to be in the range of 510 to 5360 mm.

4.2 AIR QUALITY

Treasury Metals intends to begin a field study of the background air quality at the project site in 2013. This will include particulate matter monitoring, and local air quality monitoring. These studies will continue over the course of mine development and through to mine closure. The design of the monitoring network will be harmonized with the air dispersion model that will be completed in regard to the emissions and air quality effects of the project.

Regional air emissions data from the MOE Thunder Bay monitoring station was assessed by RWDI Consultants (RWDI) in 2011 to characterize air quality. Based on the baseline database analyses, only PM_{2.5} (respirable particulate matter) was found to exceed the standard (i.e. a Canada-Wide Standard (CWS)). However, it was also noted in RWDI's report that particulate matter concentrations exceed the standard across all Ontario stations from time to time.

4.3 NOISE

Within the environmental assessment process, noise is evaluated within the context of worker health, as well as noise receptors within the wider community. Noise generated by the project may potentially be perceived as a nuisance by neighbouring communities. Wildlife populations may also avoid areas having certain noise levels and/or frequencies. Background sound levels at the project site will be further determined by the measurement of sound from stationary sources and steady state impulsive sounds at the point of reception of the dwellings outside the property boundaries. Noise monitoring locations will be chosen based on proximity and coverage of site, and will be monitored continuously for a minimum of 48 hours to assess any daily variation of noise patterns.

RWDI conducted a noise assessment from December 5 to 7, 2011 at the Project Area, using Sound Level Metres mounted on tripods with the microphone located approximately 1.5 metres



above ground. The measured ambient sound levels were faint and quieter than the NCP-232 guideline minima of 45 dBA during the day, and 40 dBA during the evening and night.

4.4 GEOLOGY

4.4.1 Geological Setting

Treasury Metals' Goliath property is situated within the volcano-plutonic Eagle-Wabigoon-Manitou Greenstone belt in the Wabigoon Subprovince, just north of the large-scale regional Wabigoon fault. This Subprovince is part of the Archean Superior Province and located in northwestern, Ontario. The greenstone belt is 150 kilometres wide, with an exposed strike length of 700 kilometres. The full extent of the Greenstone belt is unknown because much of it is overlain by Palaeozoic strata at both ends. As mentioned earlier, the Wabigoon fault is a large-scale regional structure that is separated into a northern and southern domain. The northern domain generally consists of southward-facing panels of alternating metavolcanic and metasedimentary rocks. North of the Wabigoon fault, in the Wabigoon/Dryden area, the geology primarily consists of metasedimentary rocks, which seem to be predominant. The southern domain is generally composed of northward-facing, volcanic rocks. The Wabigoon fault is observed at surface just north of the village of Wabigoon.

Much of the Project area is underlain by the Thunder Lake Assemblage, an upper greenschist to lower amphibolite metamorphic grade volcanogenic-sedimentary complex of felsic metavolcanic rocks and clastic metasedimentary rocks. The assemblage comprises quartz-porphyrific felsic to intermediate metavolcanic rocks represented by biotite gneiss, mica schist, quartz-porphyrific mica schist, a variety of metasedimentary rocks and minor amphibolites. Compositional layering in metasedimentary rocks strikes $\sim 70^\circ$ to 90° and dips from 70° to 80° south-southeast. The Thunder River Mafic Metavolcanic rocks underlie the south part of the Property. The mafic rocks are generally massive flows but are pillowed locally and include amphibolite and mafic dykes, which are characterised as chlorite schists. Some rocks have been described as ultramafic in character.



4.4.2 Deposit Geology

The main zones of mineralisation project to surface at approximately 250-300 metres north of Norman Road. The Main Zone, Footwall Zone (B, C, and D subzones), and Hangingwall Zone (H and H1 subzones) strike approximately east-west, varying between 090° and 072°, with dips that are consistently 72°-78° toward the south or southeast. The main area of gold, silver and sulphide mineralisation and alteration occurs up to a maximum drill-tested depth of ~805 metres (TL135) below the surface, over a strike-length of approximately 2,300 metres within the current defined resource area. The historic drilling of Teck and its various partners confirmed that anomalous gold mineralisation extends over a strike length of at least 3,500 metres and work by Treasury has shown this anomalous gold mineralisation and alteration to extend over a strike length of +5,000 metres.

The mineralised zones are tabular composite units defined on the basis of anomalous to strongly elevated gold concentrations, increased sulphide content and distinctive altered rock units and are concordant to the local stratigraphic units. Stratigraphically, gold mineralisation is contained in an approximately 100 to 150 metre wide central zone composed of intensely altered felsic metavolcanic rocks (quartz-sericite and biotite-muscovite schist) with minor metasedimentary rocks. Overlying hangingwall rocks consist of altered felsic metavolcanic rocks (sericite schist, biotite-muscovite schist and metasedimentary rocks), with the footwall comprising metasedimentary rocks with minor porphyries, felsic gneiss and schist. Gold within the central unit is concentrated in a pyritic (phyllic) alteration zone, consisting of quartz-sericite schist (MSS), quartz-eye gneiss and quartz-feldspar gneiss.

From 2008 to 2012, Treasury completed 282 drill holes totalling 94,078 metres. The drilling programs primarily targeted the Main Zone, but the Hangingwall Zone was intersected as was the Footwall Zone by deeper drill holes. Drilling has intersected the Main Zone over a strike length of approximately 2,300 metres and a thickness of 5 to 30 metres. The Main Zone is composed of well-defined pyritic quartz-sericite schist (MSS) separated by less-altered biotite-feldspar schist (BMS). Sulphide mineralisation and local visible gold (VG) occurs mainly within the leucocratic bands, but occasionally it is localized in the melanocratic bands enriched with biotite and chlorite. The sulphide content of the mineralised zone is generally 3-5% but locally is



up to 15%. Highest gold and silver values are associated with very strong pervasive quartz-sericite alteration. It appears that gold content does not directly correlate with pyrite content, but generally an increase in the gold and silver correlates with an increase in the pyrite and more specifically, the sphalerite content. An increase in chalcopyrite and galena content has a lower correlation to an increase in gold values. Low grade Au-Ag mineralisation is pervasive in the Main Zone, Hangingwall Zone and in the Footwall Zone, whereas high-grade gold mineralisation (>3 g/tonne) is concentrated in several steeply dipping, steep west-plunging shoots with relatively short strike-lengths (up to 50 metres) and considerable down-plunge continuity. These higher-grade shoots are separated by rock containing lower grade gold mineralisation.

The high-grade shoots are interpreted to be the result of tight folding of the mineralised horizon (gold concentrated in fold noses) and appear to occur at regular intervals (Corona, 1998). Very rare flakes of aquamarine green mica (fuchsite: Cr muscovite) occur in the strongly altered sericite alteration with high-grade gold. Usually, mineralised intervals are narrow (up to 0.5 metres) zones enriched with 3-10% visible sulphides (pyrite, sphalerite, galena, chalcopyrite ± arsenopyrite, ± dark grey needles of stibnite) within a wider quartz-sericite or biotite-feldspar sections with fine-grained disseminated pyrite located in the foliation planes.

4.4.3 Geochemistry

In a mining operation in-situ rock is normally broken by blasting and subsequently transported to surface storage facility such as the WSRSA for this Project. Once the rock is broken and exposed to elevated levels of air and water, there is a potential for the rock to generate acid or leach metals which could be flushed into the surrounding surface water flows. It is therefore very important to conduct geochemical testing to confirm the levels of Acid Potential (AP) and Neutralizing Potential (NP). The resulting Neutralization Potential Ratio (NPR) will generally indicate the acid generating characteristics of the rock. An NPR of greater than 1 will suggest that the rock is not acid generating while an NPR less than 1 suggests the opposite. Treasury will focus the study on waste rock to be stored in the WSRSA as most of the mineralized rock will be stored on surface for a shorter period of time before being sent to the processing plant.



TREASURY METALS

INCORPORATED

Geochemical testing began under the direction of NAR Environmental Consultants (NAR) as part of a closure plan for the advanced exploration program in 1998. At this time 5 samples were collected and subjected to Acid Base Accounting (ABA) analyses. The results were found to have total Sulphur contents ranging from 0.1% to 1.1%. An additional 25 supplementary samples were subjected to ABA testing for the 1998 program. In general the NPR values were found to be less than 2, indicating that these samples would be classified as Potentially Acid Generating (PAG) and further testing would be required to confirm.

In 2011 KCB continued with a geochemistry program as part of the 2010-2011 baseline programs. An additional 50 samples were tested as part of this program and separated by rock types. (BMS, MSS, MSED and BS). The results of the mean values found from this testing are shown in *Table 3 - 2011 Geochemistry Results*.

Sample	Paste pH	S(T) (%)	S(SO ₄) (%)	S(S ⁻²) (%)	ISOLUBLE SO ₄ (%)	NPR
BMS (mean value)	8.7	0.74	0.013	0.51	0.23	0.9
MSS (mean value)	7.4	1.1	0.013	0.82	0.25	3.0
MSED (mean value)	8.7	0.52	0.013	0.25	0.26	3.2
BS (mean value)	8.8	0.55	0.0063	0.11	0.43	4.2

Table 3 - 2011 Geochemistry Results

These results show that in general the potential for acid generating rock is in the mineralized unit of MSS and BMS and that there is potential for the non-ore containing units MSED and BS to be not-PAG.

Treasury is currently undertaking additional geochemistry studies that will confirm these values and define the Metal Leaching (ML) characteristics of the rock. An additional 80 samples were taken by EcoMetrix Incorporated (EcoMetrix) of Mississauga. This testing will include additional ABA testing, humidity cell testing and field humidity cell testing. The results from this testing are currently not complete and not available for inclusion in this PD but initial results are expected within the first quarter of 2013 and will be included in the EIS.



4.5 TERRAIN AND SOILS

The objective of the terrain and soil studies conducted by Treasury Metals is to identify the existing baseline conditions on site. These conditions may identify environmental considerations with respect to mine development. These studies will have a direct effect in the development of construction plans, soil management plans, salvage efforts, storage and final closure and reclamation of the project site. The studies will include desktop-based research efforts and comprehensive field studies.

The desktop study collection process and efforts have focused on obtaining and analysing existing published data from government agencies, libraries, and private sector sources. The Ontario Institute of Pedology regional scale documents allowed for creation of suitable identification of sites to characterize the chemical makeup of the soil. In 2010, local soil test pits were excavated over the defined soil study areas, and local soils were identified and sampled accordingly. This sampling program was conducted to visually identify, chemically classify, and determine the productivity of the soil. Visual sampling observation included soil structure, texture, and color. Current land use of the logged area was observed and recorded. The land use classification adopted was based upon the Canada Land Inventory agricultural capability classification. The purpose of the nutrient testing was to determine the productivity level of current surface soils and to predict the potential productivity of the soils for reclamation. The analyses completed included testing for nitrogen, phosphorus, sulphur, conductivity, pH, texture, cation exchange capacity, exchangeable calcium, exchangeable magnesium, and exchangeable sodium. The chemical baseline sampling was intended to measure the metal concentrations and measure potential for large stockpiled soil to produce metal leaching. This analysis was conducted using a total metals analysis, and a shake flask extraction.

The project site is characterized by low slopes, rolling hills and is marked by a low occurrence of streams, ponds, and marsh lands. Vegetation in the area is sparse to dense and consists primarily of conifer stands, with mixed forest as well as muskeg areas or bogs, which are common to the region (*Table 5 – Overview and Ecological Land Classification of Project Site*). Relatively flat, silt clay glaciolacustrine deposits from postglacial Lake Agassiz make up over 60% of the Local



TREASURY METALS

INCORPORATED

Study Area (LSA) and 45% of the Regional Study Area (RSA). Glaciofluvial outwash deposits with sandy soils occur at a higher elevation east of Thunder Lake and make up 25% of the LSA and 24% of the RSA. Bedrock knob landforms (7%) with shallow silty clay soil are found along an east to west band near Highway 17. A predominant kame deposit (3%) in the southeast of the property has led to the number of active gravel pits being formed. Organic deposits are associated with the Lola Lake peat land at the northeast of the LSA.

On a regional level, gray luvisols, gleysols, and podzols are the dominant soil types. Area gray luvisols are characterized by an illuviated Bt horizon that has an accumulation of silica-clay. The typical gray luvisols in the Dryden-Kenora area have a clay, clay loam, sand loam, or silt loam texture. These soils are often well drained and have moderate agricultural capability. Regional gleysols are characterized by their saturated nature and reducing conditions that occur either continuously or seasonally. Gleysols can be identified by hue and mottling in lower horizons associated with saturation. The gleysols of the Dryden-Kenora area are poorly drained and are silt loam to medium coarse in texture. They are underlain by outwash that is calcareous and lacustrine in origin. Podzols within the regional area are characterized by the dominate accumulation product of amorphous material composed mainly of organic matter combined in varying degrees with Aluminum and Iron. Typically these soils occur in coarse to medium textured, acidic parent material, under forest or heath vegetation in cool to very cool humid to per humid climates. The podzols of the Dryden-Kenora area are well drained and overlay fine outwash materials that are non-calcareous in origin. The results of the preliminary soil baseline field program indicate the soils are characterized regionally by the Broadtail and Deception humo-ferric Podzols, the Minnitaki orthic Gleysol, and the Sioux grey Luvisol. Each of these soil types were determined to be present locally, however the difference in drainage and variable elevation allowed for more local variation in soil type.

Chemical and physical features of the surficial soils were collected on the project site in 2010 and are summarized in *Table 4 - Physical and Chemical Results of Soil Sampling 2011*.



TREASURY METALS
INCORPORATED

Soil Sample ID	TP11-01-25	TP11-01-85	TP11-02-40	TP11-02-45	TP11-03-5	TP11-03-25	TP11-04-55	TP11-04-100	TP11-05-G	TP11-05-25	TP11-06-10	TP11-06-G	TP11-07-G	TP11-07-10	TP11-08-05	TP11-08-15	TP11-09-G	TP11-09-10	TP11-10-10	TP11-10-G1	TP11-10-G2	TP11-11-10	TP11-11-10	TP11-12-15	TP11-12-30		
Date Sampled	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11	Jul-11		
Grouping	Analyte																										
Particle Size	% Sand (2.0 mm - 0.5 mm) (%)																										
	% Silt (0.05 mm - 2 um) (%)																										
	% Clay (<2 um) (%)																										
Plant Available Nutrients	Texture	Silt Loam	Silty Clay	Loamy Sand	Sandy Loam	Silt Loam	Silt Loam	Silt Loam	Sandy Loam	Silty Clay Loam	Silt	Silt Loam	Silty Clay	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay	Silt	Sandy Loam	Silty Clay Loam	Silty clay	Silt Loam	Silt Loam	Sandy Loam	Loam		
	Calcium (meq/100g)	3.6	10.4	-1	-1	12	5.7	7.5	7	11.5	55	30.8	22.2	24.2	5	11.6	5.9	42.5	61.9	9.3	38.7	37.3	49.1	14.2	3.1	2.5	
	Cation Exchange Capacity (meq/100g)	4.52	15.1	17.6	17.8	22.3	5.15	11.7	5.92	17	71.8	18.3	19.4	11.1	10.9	29.1	14	13.9	81.6	17.4	13.2	12.4	43.7	21.5	17.2	7.92	
	Magnesium (meq/100g)	1.2	4.6	-1	-12	1.8	-1	4.6	3.7	3.9	8.8	3	5.7	3.9	2.6	3.1	1.7	4.5	15.4	1.6	4.4	4.1	7.2	3.6	1	1.1	
	Available Nitrate (mg/kg)	-2	-2	-2	-2	-2	-2	-2	-2	-2	15.4	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
	Available Phosphorus (mg/kg)	3.6	-2	4.9	4.7	3.8	-2	-2	-2	-2	20.1	-2	-2	-2	7	5.7	2.6	-2	16	7.5	-2	-2	3.3	5.2	6.1	-2	
	Potassium (meq/100g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Sodium (meq/100g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		
Saturated Paste Extractables	Calcium (mg/L)	54	27.1	-2	2.3	50.4	17.7	7.8	9.1	20.1	38.1	77.6	41	43.8	23.5	28	10.8	24.5	69.5	72.3	31.5	28.4	103	72.7	10.6	3.8	
	Chloride (mg/L)	-10	-10	-10	-10	-10	-10	15	-10	11	-10	11	-10	-10	-10	13	-10	-10	-10	13	17	17	-10	-10	-10	-10	
	Conductivity	0.42	0.27	-0.1	-0.1	0.32	0.14	0.12	0.14	0.2	0.27	0.45	0.35	0.33	0.27	0.21	0.11	0.23	0.51	0.47	0.27	0.27	0.66	0.49	0.11	-0.1	
	Magnesium (mg/L)	17.8	11	-2	-2	10.7	4.7	7.5	7.5	6.6	9.1	11.7	13	13.3	11.9	9.7	5.9	6.7	26.2	20.4	9.5	8.8	27	22	4.2	2.4	
	pH	6.59	6.88	5.85	5.8	5.8	6.66	6.51	6.53	6.9	6.93	7.73	7.66	7.61	6.18	5.53	5.62	8.09	6.43	5.89	8.1	8.05	6.77	6.1	5.03	5.27	
	Potassium (mg/L)	2.5	1.3	1.8	2.4	6	2.4	5.3	5.1	2.3	5.5	4.5	1.8	2.2	5.6	6.4	6	1.8	7.4	9.5	1.8	1.5	4.7	5.9	7	4.9	
	Sodium (mg/L)	14.8	13.2	7.8	9.8	6.6	8.6	17.8	13.8	9.2	8.9	7.5	16.8	10.3	12.9	12.5	11	12.5	6.1	7.5	10.1	12.3	5.7	10.7	5.2	8.3	
	Sulfur (as SO4) (mg/L)	10.3	7.1	9.1	11.4	21.8	18.1	10.4	17.6	11.6	23.1	21	10.1	9.5	11	21.9	9.9	6.8	10.8	27.6	9	9.8	13.2	18.3	14.5	8	
	Aluminum (ug/g)	13900	28400	9000	9160	16400	8900	20800	37900	28500	9570	27100	28800	23700	23600	22500	23000	23000	10700	7650	14700	17000	6020	18900	12400	22000	
	Antimony (ug/g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	Arsenic (ug/g)	1.8	3.4	5.9	3.4	2.5	1.6	3.2	7.9	3	2.2	3.4	3.5	3	2.3	2.6	2.2	2.5	2.8	2.4	1.9	2.2	2.7	2.6	1.4	2	
	Barium (ug/g)	55	153	28.6	29.5	100	39.4	97.2	135	129	181	182	160	124	94.5	96.3	89.2	124	78.6	45.7	84.1	102	43.5	96.2	42.4	83.5	
	Beryllium (ug/g)	-0.5	0.52	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	0.58	0.63	-0.5	-0.5	0.55	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	
	Bismuth (ug/g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Boron (ug/g)	-5	-5	-5	-5	-5	-5	-5	-5	5.2	6.5	6.6	5.3	-5	-5	-5	-5	6.1	5.4	-5	5.1	6	-5	-5	-5	-5		
Cadmium (ug/g)	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	1.39	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5		
Calcium (ug/g)	4340	9980	1370	1210	5920	2850	6360	11700	7290	14300	18300	11200	25900	6860	7430	6190	51200	13800	4130	44600	44900	6630	6390	1710	4990		
Chromium (ug/g)	43.2	77.9	24.7	24.1	43.7	30.8	66.3	65.2	68.6	23.9	69.9	76.2	66.6	65.3	53.5	57.9	59.2	21.8	21.7	43.7	48.9	16	48.4	24.2	53.6		
Cobalt (ug/g)	8.8	15.4	5.3	4.8	9.5	5.3	11.4	13.8	13.1	5.6	15.7	15.3	14.2	13.5	13.3	12.7	12.6	3.8	4.4	9.2	10.6	3.5	11.7	3.9	10.8		
Copper (ug/g)	10	35.7	10.3	8	21	9	31.9	57.3	26	14.3	35.1	37.1	28.9	19.2	17.7	14.3	25.9	10.6	8.7	21.2	26.4	7	14.6	7.3	12.8		
Iron (ug/g)	21100	37400	13100	11400	19400	13100	28900	32500	34000	11900	35100	37500	32500	31000	26600	28900	30600	12100	11600	22000	25200	9440	24400	14200	27900		
Lead (ug/g)	6.2	8.4	4.5	4	8.3	3.9	5.4	13.8	8.4	17.5	9.6	9.6	7.4	8	12.8	9.4	7.2	14.4	5.8	4.6	4.9	6	10.2	5.6	7.4		
Lithium (ug/g)	14.2	27.7	7.3	7.4	16.3	10.5	19.7	49.5	28.7	8.1	29.7	32.4	24	24.4	20.3	23.9	26.4	7.2	7.7	16.8	20.5	5.7	20.8	9.8	21		
Magnesium (ug/g)	6400	13200	3200	3100	5780	3850	9520	15600	10900	4530	15000	14100	18500	10900	8450	9510	18800	3930	2790	17700	18900	2280	7880	3090	8160		
Manganese (ug/g)	366	696	133	111	385	157	422	688	536	726	852	697	661	601	808	637	620	236	247	382	420	197	637	139	409		
Mercury (ug/g)	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	0.095	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	0.117	-0.05	-0.05	-0.05	-0.05	-0.05		
Molybdenum (ug/g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1.2	-1	-1	-1	-1	-1	-1	-1		
Nickel (ug/g)	21.1	45.1	12.5	12.3	22.9	14.7	35.4	52.1	37.9	14	41.3	44.3	37.1	34.4	28.6	29.8	33.8	11.5	10.8	24.6	28.7	8	26.2	11	27.3		
Phosphorus (ug/g)	470	744	242	202	272	200	687	564	565	579	713	685	729	487	468	362	607	618	451	673	621	384	481	201	243		
Potassium (ug/g)	1620	3160	570	500	1290	760	1560	3250	4240	1380	4610	3660	3420	3050	2780	3190	3380	1140	620	1900	2240	380	2490	1180	2610		
Selenium (ug/g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		
Silver (ug/g)	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.26	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2		
Sodium (ug/g)	310	1050	-100	-100	260	190	600	1100	530	200	800	920	1050	640	400	470	1020	150	160	780	850	120	360	110	430		
Strontium (ug/g)	28.6	51.5	9	9.2	26.3	14.8	33.8	48.8	36.6	38.4	43.8	45	52.6	42.5	37.5	34	68.1	41.4	15.3	60.1	61.3	16.9	32.1	13.9	30.7		
Thallium (ug/g)	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5		
Tin (ug/g)	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5		
Titanium (ug/g)	1240	2160	528	532	1040	781	1440	1770	1840	575	1890	2050	2030	1980	1590	1920	2010	426	599	1480	1480	1540	420	1420	808		
Uranium (ug/g)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		
Vanadium (ug/g)	47.1	75.7	25	23.4	39.7	29.3	58.3	63	66.1	25.3	70.1	74.5	69.3	66.8	55.1	64.2	65.4	19.8	23.1	49.1	54.3	17.5	51.1	31.7	61.1		
Zinc (ug/g)	35.3	67.8	20.2	18.1	59.2	22.1	46.2	120																			



4.6 VEGETATION

The vegetation baseline study conducted to date is a combination of desktop analysis and field studies. The desktop study included a review of publicly available sources to identify plant communities, wetland communities, significant ecological features, Natural Heritage Areas, Ecological Land Classification scales, and, federal/provincial Species at Risk that may be known to be in the Project and regional Project area. Field studies included targeted vegetation surveys that were conducted in the LSA in June, July and August 2011. General vegetation observations such as vegetation community identification, ecosite verification and vegetation species inventories were also recorded in conjunction with other baseline studies such as the aquatic field program, and wildlife field program throughout 2010 and 2011.

Species inventory, vegetation community identification, and ecosite classifications were collected and recorded at over 300 stations. Field stations include targeted vegetation sampling sites, rare plant and Species at Risk survey locations, forest songbird and waterfowl point survey stations, and wetland survey locations.

The project site is located within the Lake Wabigoon Ecoregion (Ecoregion 4S) which extends from the northern portion of the Lake of the Woods east to Lac Seul and Dryden. The climate in ecoregion 4S is cool and dry with warm, moist summers and cold winters. The vegetation of ecoregion 4S is predominantly mixed forest (25%), sparse forest including peat lands (24%), and coniferous forest (14%). Water makes up about 24%. This ecoregion is within the Lower English River Section in the Boreal Forest Region. Mixed stands of boreal forest species, such as trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), and white spruce (*Picea glauca*) make up much of the forest cover, on well drained sites. Jack pine (*Pinus banksiana*), balsam fir (*Abies balsamea*), and white birch (*Betula papyrifera*) are common typically on well-drained soils but are also prevalent on and around bogs and other wetlands. Extensive peat lands with black spruce (*Picea mariana*), tamarack (*Larix laricina*), eastern white cedar (*Thuja occidentalis*), willow (*Salix spp.*), and speckled alder occupy low lying, poorly drained sites. Red and white pine (*P. resinosa* and *P. strobus*) communities are restricted to warmer than average sites.



TREASURY METALS

INCORPORATED

The following *Table 5 – Overview and Ecological Land Classification of Project Site* shows the numerical break down of the Ecoregions in the project area, while the distribution can be seen in *Figure 18 - Ecosites of the Project Area*.

Ecosite		Regional Study Area		Local Study Area	
Number	Description	(km ²)	%	(km ²)	%
	Agricultura/Developed	7.6	5	6.81	9
	Open Water	19.97	14	16.13	21
ES7	Rock Barren	0.06	-	0.06	-
ES9	Sand Barren	0.38	-	0.38	-
ES11	Red Pine-White Pine-Jack Pine: Very Shallow Soil	0.18	-		-
ES12	Black Spruce-Jack Pine: Very Shallow Soil	2.63	2	1.9	2
ES13	Jack Pine-Conifer: Dry-Moderately Fresh, Sandy Soil	9.95	7	4.92	6
ES14	Pine-Spruce Mixedwood: Sandy Soil	1.26	1	0.81	1
ES16	Hardwood-Fir-Spruce Mixedwood: Sandy Soil	0.51	-	0.51	-
ES17	White Cedar: Fresh-Moist, Coarse-Fine Loamy Soil	0.18	-	0.12	-
ES19	Hardwood-Fir-Spruce Mixedwood: Fresh, Sandy-Coarse Loamy Soil	2.75	2	1.05	1
ES20	Spruce-Pine/Feathermoss: Fresh, Sandy-Coarse Loamy Soil	11.13	8	4.17	5
ES21	Fir-Spruce Mixedwood: Fresh, Coarse Loamy Soil	6.14	4	1.78	2
ES22	Spruce-Pine/Ledum/Feathermoss: Moist Sand-Coarse Loamy Soil	1.72	1	1.27	2
ES24	Red Pine-White Pine: Fresh, Fine Loamy Soil	0.05	-	0.05	-
ES25	Pine-Spruce/Feathermoss: Fresh, Silty Soil	8.1	6	3.03	4
ES26	Spruce-Pine/Feathermoss: Fresh, Fine Loamy-Clayey Soil	12.34	8	5.95	8
ES27	Fir-Spruce Mixedwood: Fresh, Fine Loamy Soil	1.69	1	1.19	2
ES29	Hardwood-Fir-Spruce Mixedwood: Fresh, Fine Loamey-Clayey Soil	22.12	15	14.34	18
ES30	Black Ash Harwood: Fresh, Silty-Clayey Soil	0.41	-	0.41	-
ES31	Spruce-Pine/Feathermoss: Moist, Silty-Clayey Soil	2.59	2	1.32	2
ES32	Fir-Spruce Mixedwood: Moist, Silty-Clayey Soil	1.73	1	0.94	1
ES33	Hardwood-Fir-Spruce Mixedwood: Moist, Silty-Clayey Soil	3.28	2	1.71	2
ES34	Treed Bog: Black Spruce, Organic Soil	0.54	-	0.09	-
ES35	Poor Swamp: Black Spruce, Organic Soil	3.5	2	0.4	1
ES36	Intermediate Swamp: Black Spruce (Tamarack), Organic Soil	7.82	5	2.19	3
ES37	Rich Swamp: Cedar (Conifers), Organic Soil	1.55	1	0.46	1
ES38	Rich Swamp: Black Ash (Hardwoods), Organic-Mineral Soil	0.32	-	0.24	-
ES40	Treed Fen: Tamarack-Black Spruce/Sphagnum, Organic Soil	2.86	2	1.69	2
ES41	Open Poor Fen Ericaceous Shrub/Sedge/Sphagnum: Organic Soil	0.08	-	0.05	-
ES42	Open Moderate Rich Fen, Ericaceous Shrub/Sedge/Sphagnum: Organic Soil	3.33	2	0.26	-
ES43	Open Moderate Rich Fen, Ericaceous Shrub/Sedge/Brown Moss: Organic Soil	1.19	1	0.41	1
ES44	Thicket Swamp: Mineral Soil	3.62	2	1.83	2
ES45	Shore Fen: Organic Soil	1.94	1	1.01	1
ES46	Meadow Marsh: Organic-Mineral Soil	2.17	2	0.84	1
ES47	Sheltered Marsh: Emergent, Sedimentary Peat Substrate	0.04	-	0.04	-
		145.3	100	79.17	100
Ecosites Identified in 2011 Field Season					
ES48	Exposed Marsh: Emergent, Mineral Substrate	+		+	
ES49	Open Water Marsh: Submergent, Floating-leaved, Sedimentary Peat Substrate	+		+	
ES50	Open Water Marsh: Submergent, Mineral Substrate	+		+	

Table 5 – Overview and Ecological Land Classification of Project Site

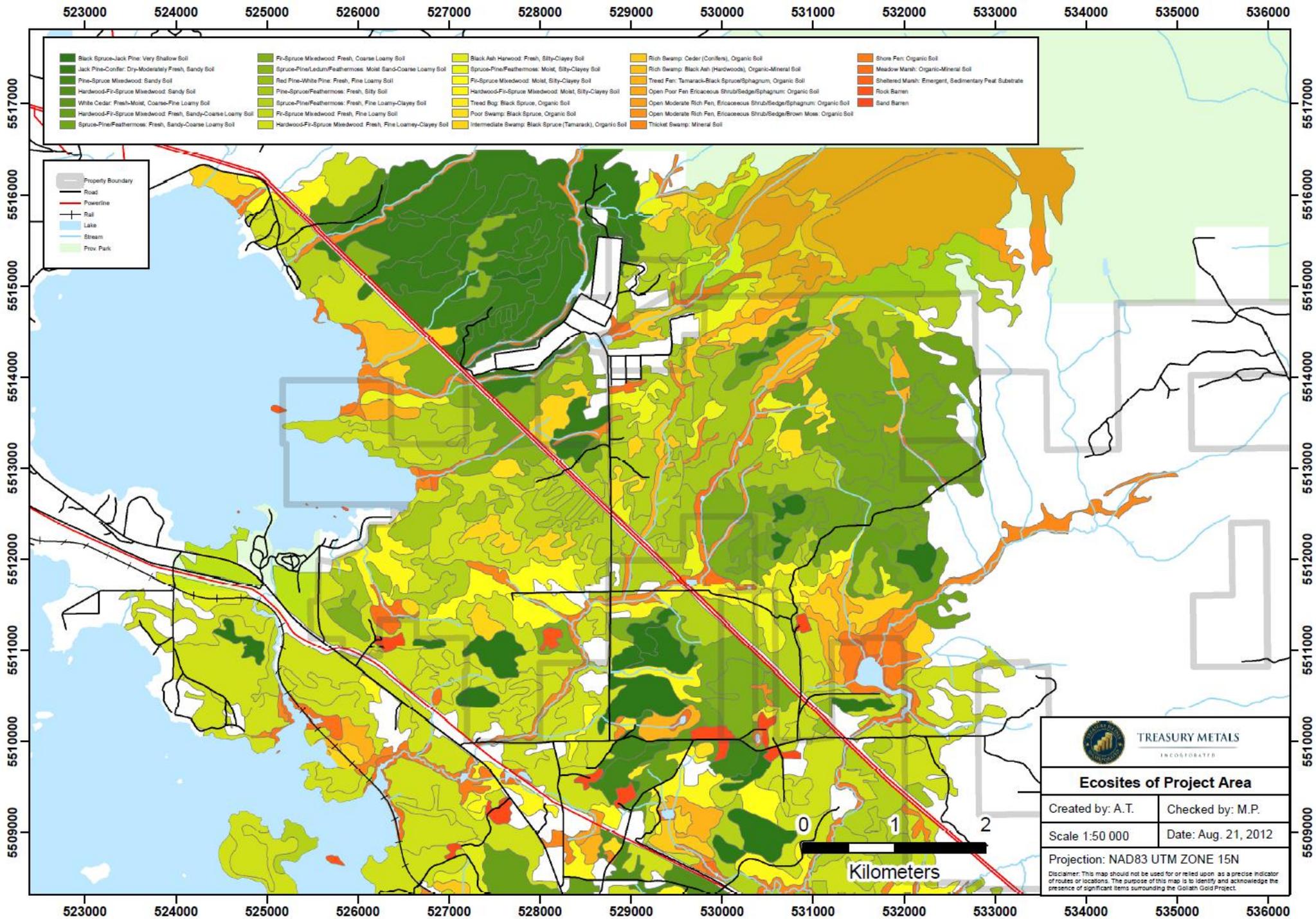


Figure 18 - Ecosites of the Project Area



TREASURY METALS

INCORPORATED

The wide range of soil conditions associated with the glaciolacustrine, glaciofluvial, and organic deposits contribute to the relatively diverse range of ecosites. Ecosites on moist to fresh clay soils (ES26 to ES33) make up approximately 29% of the regional study area (RSA) and 34% of the local study area (LSA), particularly to the south of the project. Most of these ecosites are mixed wood stands with trembling aspen (ES27, ES29, ES32, ES33) or black spruce (ES26, ES31) being the predominant species. These stands are herb and shrub rich with a dense understory of mountain maple (*Acer spicatum*) and hazel (*Corylus sp.*) and include a wide diversity of grasses, sedges, and forbs.

Sandy soils with jack pine, black spruce and trembling aspen forest (ES13 to ES16) control the glaciofluvial deposits at the north of the LSA and make up 8% of the LSA and RSA. These ecosites are moderately species-rich with blueberries (*Vaccinium spp.*), pin cherry (*Prunus pensylvanica*), lichens, and feather moss.

Conifer swamp forest dominated by black spruce and tamarack (ES34 to ES38) makes up approximately 9% of the RSA and 6% of the LSA, is primarily seen within the Lola Lake area at the northeast edge of the LSA. Conifer swamp often occurs in conjunction with open peatlands (ES34, ES39 –ES43) on organic soils over glaciolacustrine clay. Ericaceous shrubs, speckled alder, sedges, and *Sphagnum* mosses are typically present. Stands of rich conifer swamp dominated by eastern white cedar are restricted to a few small stands where there is a higher flow of nutrient rich water.

The forest age class distribution of the LSA is generally between 60 to 100 years old (70%). Logging and land clearing for agricultural activities rather than fire are the probable and most significant factors influencing forest age classes in the LSA. Some of the forest in the 61-80 age class may reflect the abandonment of farms and subsequent succession to poplar forest in the 1930s. The oldest age classes consist of black spruce in the Lola Lake wetlands and other peat lands in the LSA as they are inaccessible to logging and agriculture. Multiple stands of the LSA have been logged within the past 5 years for economic reasons. These stands have been centred on the hydro lines running through development and the Goliath resource base.



TREASURY METALS

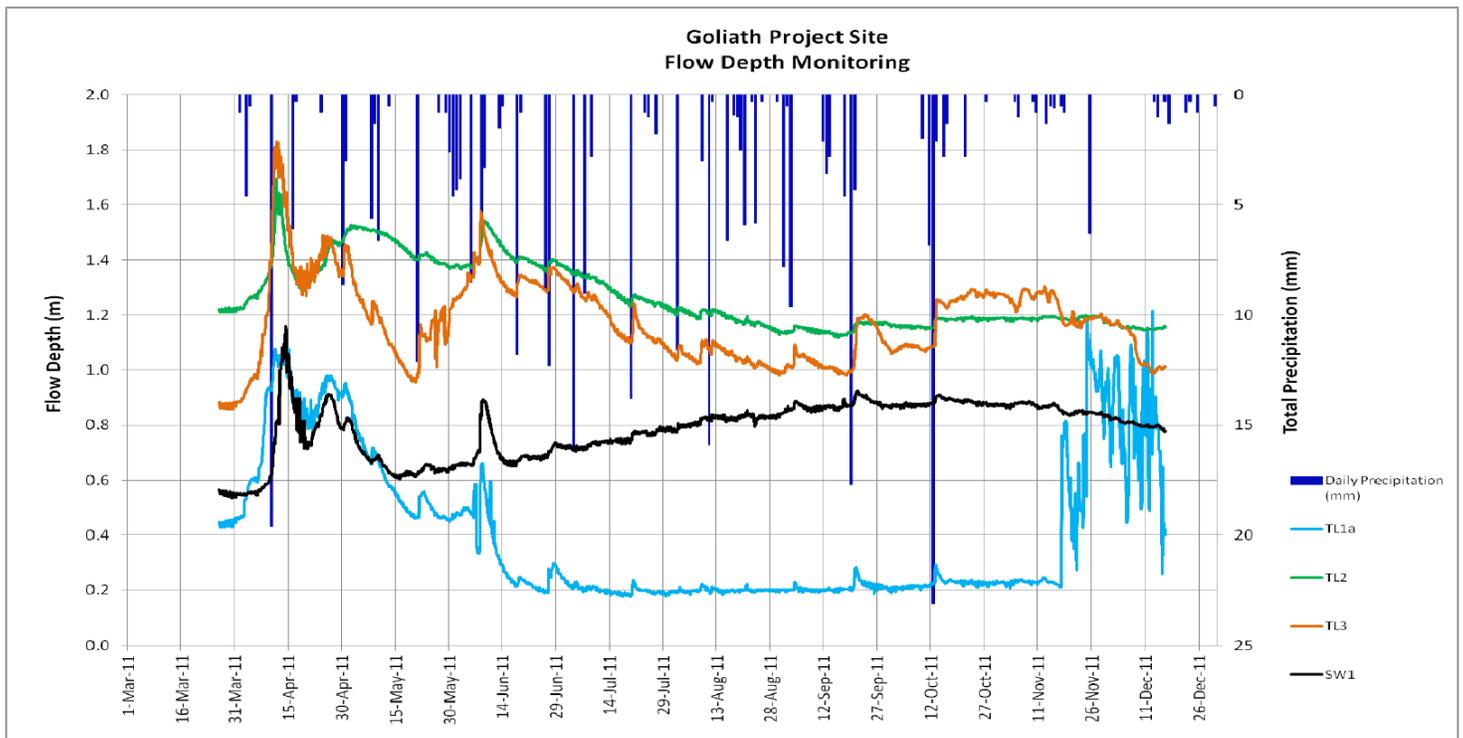
INCORPORATED

A total of 270 vascular plant species were observed in the LSA in 2010 and 2011. The species were typically associated with the boreal and Great Lake-St. Lawrence Forest Regions. Twenty-five species were non-native introduced weeds, mostly associated with roadsides, pastures, and other disturbed habitats. No provincially rare vegetation communities or other vegetation communities of significance were observed during the 2010 and 2011 fieldwork or are documented to occur within the LSA and RSA.



4.7 HYDROLOGY

The hydrology program and assessment encompasses all aspects of surface water quantity and quality within the project area. A flow monitoring network has been established on the project as of November 2010 and upgraded in July 2012. Flow data from these monitoring stations is collected monthly through the open water season. These stations are serviced by an automated pressure transducing logger (with local barometric compensation) and staff gauge. The staff gauge is a semi-permanent installation and provides a visual key in conjunction to the pressure transducer records. In addition to monitoring during surveying and collection, manual flow measurements are now being conducted. The flow monitoring stations can be seen in *Figure 20 - Hydro Station Locations*. It should be noted that no flow meters have been placed in the upper reaches of the TSF options #1 and #2 as ground truthing has found no suitable location with sufficient measurable flow. Treasury intends to continue monitoring the lower reaches. *Figure 19 - Flow Depth Monitoring* shows the low flow depth measurements of site TL1a on the downstream reach of Blackwater Creek.



NOTE: Daily precipitation based on data from Dryden Regional Climate Station (ID 6032125)

Figure 19 - Flow Depth Monitoring

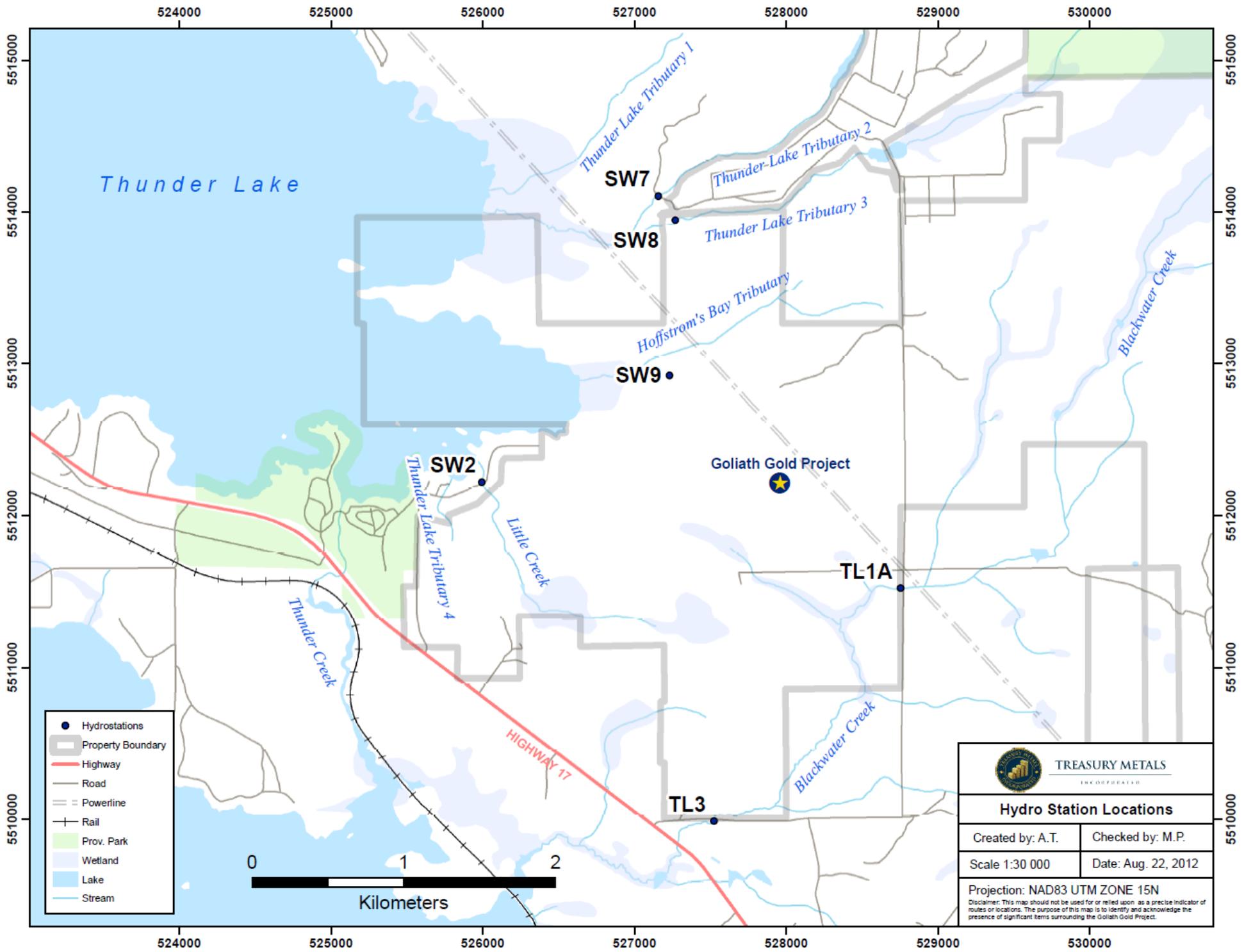


Figure 20 - Hydro Station Locations



TREASURY METALS

INCORPORATED

Surface water quality has been conducted concurrently since November 2010. This process has occurred monthly from that date, and was upgraded significantly in January 2012, to cover a larger range of the Project area. The network currently includes 15 stations including 3 lake stations.

Surface water on the project site drains either to Wabigoon Lake (South) via a series of tributary creeks or to Thunder Lake (West) in the same manner. The primary watershed encompasses much of the project site, and the Lola Lake wetland system. The Project area is located in a catchment with an area of approximately 122 km² located within the Wabigoon watershed. The average slope within the Project area is approximately 4% and the elevations vary from 370 m to 495 m.

Thunder Lake is a large, clear lake, bound by stable rocky banks. Inflow to this lake within the Project area is accomplished via 6 separate tributary systems, unnamed creeks herein named Thunder Lake Tributary #1, #2, #3, #4, Hoffstrom's Bay Creek, and Little Creek. Wabigoon Lake is highly turbid, and carries a high sediment load characterized by its perennial brown coloration. Wabigoon Lake is recharged by 2 separate systems within the Project area; Blackwater Creek, and Hughes Creek. Based on regional analysis and site stream flow measurements, it is expected that on average the peak flows in these creeks occur in April to May, and the low flows occur in December to March.

There are a total of 4 water courses that drain the project site to Wabigoon Lake and Thunder Lake that have been identified as potential concerns. These systems have a small catchment, and have flows that are largely dependent on the natural system of rainfall and snowmelt. In accordance, as stated, water quality sampling has been compiled from November 2010 with a significant upgrade in the program in 2012.

See *Table 7 - Water Quality Values TL1, TL2, TL3*, and *Table 8 - Water Quality Values JCTa, SW1, SW2, SW3*, regarding concentration values (Up to November 2011). The following is a brief description of the creeks that pertain to the project drainage, and the sampling sites associated with them:



TREASURY METALS

INCORPORATED

The Blackwater Creek sub-catchment is part of the LSA and ranges in elevation from approximately 394 m at its confluence to approximately 370 m at its confluence with Wabigoon Lake. Blackwater Creek has several small intermittent tributaries and wetlands that contribute flow into the system. Over the course of Blackwater, three tributaries enter the system. The flow in this system is highly dependent on natural rainfall and snow. The landscape throughout the watershed consists of flat, silty clay glaciolacustrine plain with low relief and very little bedrock, gravel, cobble, or boulder material. Water quality stations TL1/TL1A, TL2/TL2A, TL3, JCT/JCTA, and SW11 are located on Blackwater Creek. Also in proximity to this is SW4 which serves to sample the confluence of Blackwater Creek to Wabigoon Lake.

Flow monitoring data on Blackwater Creek is collected at 2 stations. These are TL1a, and TL3. A significant upgrade of the monitoring has occurred at both sites. Flow monitoring data will be collected monthly, and additionally after significant precipitation events.

The Thunder Lake tributaries include creek tributaries #1, #2, #3, #4, Little Creek, and Hoffstorm's Bay Creek. Tributary #2 and #3 were selected as the system encompasses the altered system that was created during the formation of the MNR Tree Nursery. Water quality at sites SW7 and SW8 are collected approximately 500 m before their confluence into a singular channel and have been collected since January 2012. Hoffstorm's Bay Creek serves as a small catchment and runs west into Thunder Lake. SW9 services this site. Tributaries #1 and #4 are currently not monitored as they fall farthest from the project site. The final creek that is gathered into Thunder Lake from the Project area is that of Little Creek. Water quality data for Little Creek has been compiled from November 2010 onwards.

Flow monitoring on the Thunder Lake Tributaries and creeks is currently being upgraded. Collection will occur on Little Creek, Hoffstrom's Bay Creek, Tributary #2, and Tributary #3. Flow monitoring data will be collected monthly, and after significant precipitation events.

Hughes Creek subcatchment lies to the east of Blackwater Creek and drains into Wabigoon Lake approximately 5 km southeast of the Blackwater Creek-Wabigoon Lake confluence at water quality station SW2. Hydrostation data has been collected, however the site has been decommissioned.



McHugh Creek, located at Highway 17, was chosen to represent far field conditions unlikely to be impacted by the Goliath project and was selected as a reference area for the baseline water quality. Water quality station SW3 is located at this site.

4.8 HYDROGEOLOGY

A hydrogeological field program is being executed comprising a deep and shallow investigation. The deep drilling program is investigating the hydrogeologic properties of the bedrock. Currently three existing boreholes have been packer tested and results indicate the possibility of a moderately permeable zone (up to E-06 m/s) within the ore zone at depth, maybe associated with a larger-scale fault zone. Three new boreholes will be drilled to further assess the occurrence of this more permeable zone along the strike of the ore body. Two of these new boreholes will be used to install multi-level piezometers to assess vertical head gradients.

The shallow drilling program will primarily investigate the overburden sediments and shallow bedrock at three locations. This part of the program will focus on areas close to existing water bodies to investigate the role of the overburden sediments in creating possible perched conditions for surface water features. As part of this work monitoring wells will be installed in each of the main stratigraphic units with slug testing of these wells to provide hydraulic data on both the aquifer and aquitard units that were encountered.

A numerical groundwater model will be constructed based on the preliminary site conceptual hydrogeological model. The model will be constructed based on existing data and data collected from the field program described above. It will be calibrated to field data for the pre-mining situation. The dewatering requirements and a zone of influence of the dewatering will be calculated with the calibrated model using the mine plans available for the open pit and the underground mine. A sensitivity analysis will be undertaken with the model for those model parameters that are considered most uncertain.

4.9 AQUATIC RESOURCES

The characterization of the water bodies of the LSA and project area forms the core of the aquatic resource study program. The program focuses on a number of components in



determining the biophysical characteristics of the aquatic environment. Included are physical and chemical properties of water and sediment, and biological components such as benthic invertebrates, and fish. The primary objective therefore of the baseline program is: to characterize the water quality of the key water bodies within the project area, quantify the sediment quality of key water bodies in the project area, quantify the species composition, abundance distribution and biological characteristics of the fish and benthic population within the LSA’s aquatic ecosystem, and identify the characteristics of the aquatic habitat of the project area.

The Project has the advantageous characteristic of having very little in the way of water bodies to avoid. Very little dewatering or water diversion will be necessary to develop the Project. Keeping this in mind, it will be straightforward for Treasury to maintain a no net loss of aquatic resources through both proper water diversion in the main creeks and outside projects in support of local aquatic resources as will be specified by the MNR. The main area of concern for the aquatic resources associated with the Project is that of the quality of mine effluent discharge from the TSF. As noted in previous sections, this water quality will be controlled by a tailings management plan.

4.9.1 Water Quality

A thorough network of water quality monitoring stations has been established on the project site that captures the headwaters and downstream areas that traverse the Goliath property. The network currently consists of 15 stations which include 3 lake stations, and the tributaries entering Thunder and Wabigoon lakes. Sampling occurs on a monthly basis, the parameters for the sampling is shown in *Table 6 - Water Quality Parameters*.

Parameter	Analysis
Physical Tests	pH, Conductivity, Hardness (as CaCO3), TSS
Anions and Nutrients	Alkalinity (as CaCO3), Acidity (as CaCO3), Dissolved Chloride, Dissolved Sulphate, Total Ammonia, Nitrate - N, Nitrite - N, Total Phosphorus
Metals	Total Metals (including Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Ni, K, Se, Si, Ag, Na, Sr, Te, Tl, Sn, Ti, W, U, V, Zn), Dissolved Metals (including Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Ni, K, Se, Si, Ag, Na, Sr, Te, Tl, Sn, Ti, W, U, V, Zn), Total Mercury, Dissolved Mercury, Total Cyanide, Weak Acid Dissociable Cyanide
Aggregate Organics	Oils and Grease

Table 6 - Water Quality Parameters



TREASURY METALS

INCORPORATED

All water quality data is stored in house in a database format. The sampling program also includes a significant quality control and quality assurance program that assesses the integrity of both field collection (field blanks, trip blanks, field duplicates) and laboratory analysis (laboratory blanks, laboratory duplicates, concentration standards). All samples are analyzed by an accredited lab, ALS Environmental, in Thunder Bay, ON.

The water quality objectives applicable to the current baseline water sampling program for the Goliath project are the Ontario Provincial Water Quality Objectives (PWQO) for the protection of freshwater aquatic life. The baseline water quality is used to assess receiving water status as it compares to PWQO. Surface water quality data was assessed in the context of available PWQO guidelines which are accepted to be protective of freshwater aquatic life. Parameters that exceeded provincial guidelines are discussed below. Site sampling locations are also shown below in *Figure 21 - Water Sampling Locations*.

See *Table 7 - Water Quality Values TL1, TL2, TL3*, and *Table 8 - Water Quality Values JCTa, SW1, SW2, SW3*, regarding concentration values (Up to November 2011).

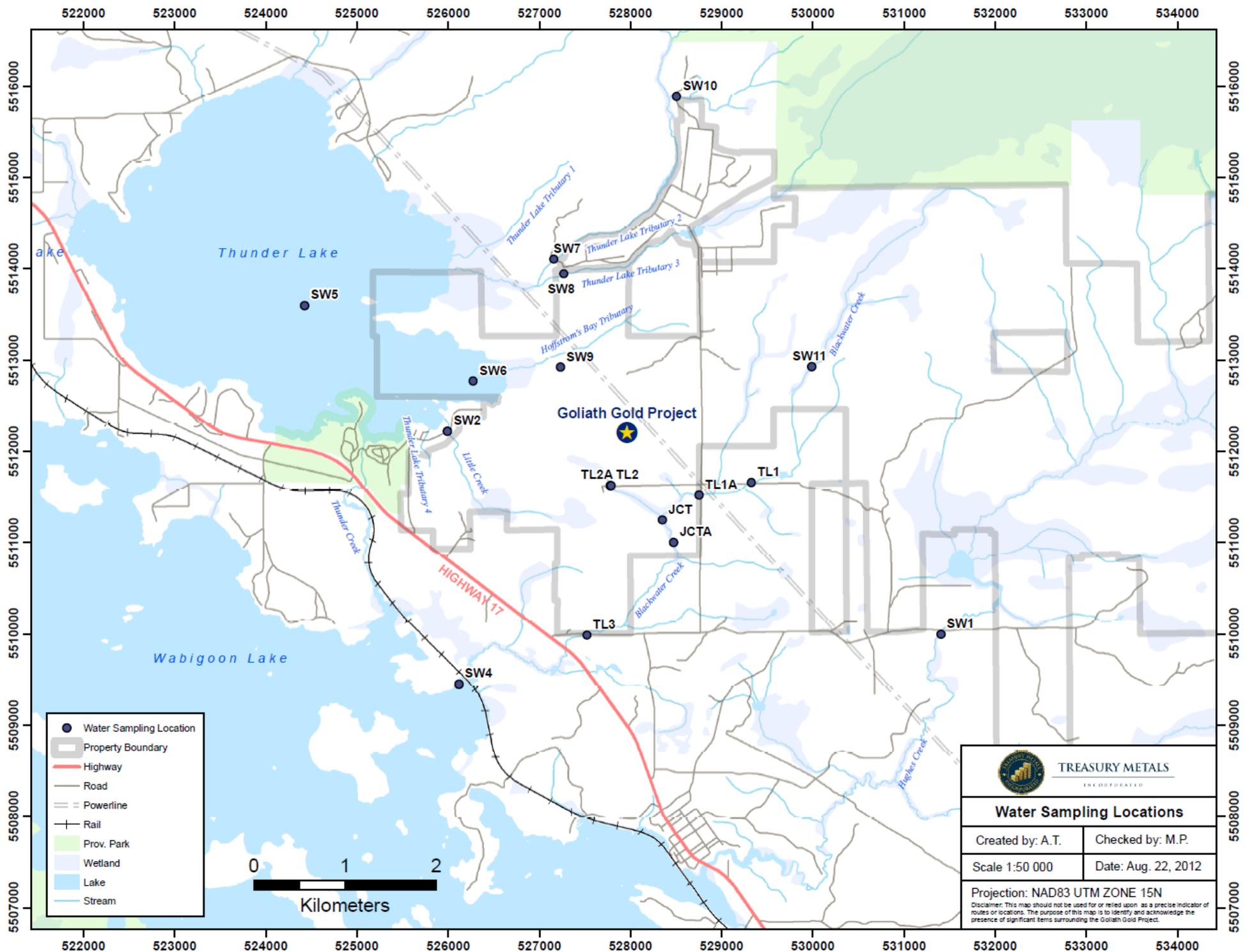


Figure 21 - Water Sampling Locations



TREASURY METALS
INCORPORATED

PARAMETER	UNITS	IPWQO	PWQO	TL1							TL2							TL3						
				MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT	MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT	MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT
Conductivity (EC)	uS/cm			33	47	73	75	86	121	13	60	140	165	164	184	264	13	68	109	143	158	168	318	13
Hardness (as CaCO3)	mg/L			15	27	37	37	41	56	13	25	67	83	80	92	123	13	29	55	71	78	77	176	13
pH	pH	6.5-8.5		6.2	6.6	6.8	6.7	6.9	7.1	13	6.6	7	7.3	7.2	7.4	7.8	13	7	7.3	7.4	7.4	7.7	7.7	13
Total Suspended Solids	mg/L			4.1	12	17	21	23	83	13	3.1	5.6	6.3	42	13	347	13	2.7	5.1	8.6	18	14	123	13
Acidity (as CaCO3)	mg/L			3.6	6.4	7.8	8.7	10	16	13	2.4	3	4.2	9	9.2	32	13	2.6	3.6	4.6	4.5	5.4	6.2	13
Alkalinity(T)(as CaCO3)	mg/L			9.6	19	28	31	37	52	13	24	64	82	79	89	122	13	28	49	69	75	77	163	13
Ammonia-N, Total	mg/L			0.01	0.03	0.05	0.17	0.22	0.73	12	0.01	0.023	0.057	0.21	0.18	1.1	11	0.01	0.01	0.01	0.042	0.062	0.18	6
Chloride	mg/L			0.05	0.29	0.63	0.93	1.4	2.7	10	0.16	0.41	1	0.95	1.2	2.3	10	0.99	1.3	1.7	1.7	2.2	2.8	12
Nitrate-N	mg/L			0.015	0.015	0.05	0.05	0.057	0.15	8	0.015	0.015	0.015	0.022	0.015	0.05	1	0.015	0.015	0.05	0.089	0.14	0.26	7
Phosphorus-Total	mg/L			0.026	0.039	0.059	0.059	0.075	0.11	13	0.016	0.042	0.048	0.064	0.071	0.22	13	0.018	0.021	0.03	0.035	0.034	0.098	13
Sulphate	mg/L			0.15	0.97	1.3	1.8	2.2	6.4	9	0.6	1	1.2	1.3	1.6	2.3	11	0.86	1.1	1.4	1.6	1.9	2.9	11
Aluminum-Total	mg/L			0.3	0.54	0.74	0.74	0.84	1.5	13	0.046	0.081	0.26	0.59	0.58	2.2	13	0.096	0.23	0.25	0.49	0.33	2.7	13
Arsenic-Total	mg/L	0.005	0.1	0.0005	0.0005	0.0005	0.00085	0.001	0.0023	4	0.0005	0.0005	0.0005	0.0011	0.0012	0.0028	6	0.0005	0.0005	0.0005	0.00062	0.0005	0.0014	2
Barium-Total	mg/L			0.005	0.01	0.013	0.013	0.017	0.024	10	0.005	0.011	0.017	0.021	0.031	0.039	11	0.005	0.005	0.011	0.011	0.013	0.028	9
Cadmium-Total	mg/L	0.0002		0.000045	0.000045	0.000045	0.000049	0.000045	0.000095	1	0.000045	0.000045	0.000045	0.000045	0.000045	0.00005	0	0.000045	0.000045	0.000045	0.000045	0.000045	0.00005	0
Calcium-Total	mg/L			4.2	7.3	9.6	10	12	17	13	6.8	18	22	21	25	36	13	9.4	14	20	21	22	46	13
Chromium-Total	mg/L	0.0089		0.0005	0.0014	0.0016	0.0017	0.0022	0.0032	12	0.0005	0.0005	0.0005	0.0014	0.0016	0.0046	6	0.0005	0.0005	0.0005	0.0011	0.0015	0.0052	4
Colbalt-Total	mg/L	0.0009		0.00025	0.0008	0.0011	0.0015	0.0021	0.003	12	0.00025	0.00025	0.00064	0.0021	0.0051	0.006	7	0.00025	0.00025	0.00025	0.00037	0.00025	0.0016	2
Copper-Total	mg/L	0.001	0.005	0.0005	0.0012	0.0019	0.0026	0.0024	0.015	10	0.0005	0.0005	0.0005	0.0013	0.0012	0.0038	6	0.0005	0.0005	0.0011	0.0012	0.0014	0.0034	7
Iron-Total	mg/L		0.3	0.9	2.2	2.9	3.2	4.3	6.1	13	0.23	0.74	1.2	3	2.9	10	13	0.57	0.77	1.3	1.3	1.7	3	13
Lead-Total	mg/L	0.005		0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.00049	0.0005	0.0012	2	0.0005	0.0005	0.0005	0.00054	0.0005	0.001	1
Magnesium-Total	mg/L			1.3	2.1	2.8	2.8	2.9	4.7	13	2.3	5.8	6.4	6.3	7.1	9.6	13	3.5	4.1	5.8	6	6.3	12	13
Manganese-Total	mg/L			0.021	0.099	0.19	0.33	0.44	1.1	13	0.029	0.049	0.12	0.79	2.1	2.7	13	0.037	0.089	0.14	0.15	0.17	0.51	13
Molybdenum-Total	mg/L	0.04		0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0
Nickel-Total	mg/L	0.025		0.001	0.001	0.001	0.0017	0.0022	0.005	5	0.01	0.001	0.001	0.0014	0.001	0.0036	2	0.001	0.001	0.001	0.0013	0.001	0.0037	2
Potassium-Total	mg/L			0.5	0.5	0.5	0.74	1	1.5	4	1.1	1.7	2.7	2.6	3.1	4.8	13	0.5	1.1	1.1	1.2	1.5	1.8	10
Silicon-Total	mg/L			5.6	5.7	5.8	5.9	6	6.2	3	0.5	2.1	3.6	3.2	4.5	5.5	3	4.3	4.4	4.5	4.6	4.8	5.1	3
Sodium-Total	mg/L			0.76	1.1	1.3	1.5	2	2.6	13	1	2.7	3.1	3.1	3.5	4.2	13	1.4	2	2.8	2.7	3.2	4.3	13
Strontium-Total	mg/L			0.0095	0.018	0.025	0.023	0.028	0.037	13	0.016	0.046	0.05	0.05	0.059	0.077	13	0.022	0.031	0.042	0.046	0.046	0.095	13
Titanium-Total	mg/L			0.0068	0.018	0.028	0.027	0.033	0.059	13	0.0024	0.0039	0.0096	0.026	0.021	0.1	13	0.0044	0.009	0.012	0.02	0.015	0.11	13
Vanadium-Total	mg/L	0.006		0.0011	0.0016	0.0021	0.0025	0.0031	0.0047	13	0.0005	0.0005	0.0013	0.0019	0.0032	0.0042	13	0.0005	0.0005	0.0005	0.0011	0.0013	0.005	13
Zinc-Total	mg/L	0.02	0.03	0.0032	0.0035	0.0044	0.0054	0.0056	0.011	13	0.0015	0.0015	0.0033	0.0044	0.0065	0.011	13	0.0015	0.0015	0.0015	0.0035	0.006	0.0099	13
Aluminum-Dissolved	mg/L		0.075	0.072	0.093	0.11	0.14	0.19	0.24	13	0.005	0.011	0.059	0.072	0.12	0.19	13	0.005	0.016	0.027	0.037	0.053	0.11	13

Table 7 - Water Quality Values TL1, TL2, TL3



TREASURY METALS
INCORPORATED

PARAMETER	UNITS	IPWQO	PWQO	JCTa							SW1						SW2						SW3								
				MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT	MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT	MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT	MIN	P25	MEDIAN	MEAN	P75	MAX	COUNT
Conductivity (EC)	uS/cm			52	92	116	131	129	291	13	52	106	139	128	147	180	13	105	145	155	156	175	194	11	91	124	141	264	218	1140	13
Hardness (as CaCO3)	mg/L			22	46	56	66	64	158	13	22	48	66	61	71	90	13	55	74	83	81	91	98	11	31	47	59	93	74	377	13
pH	pH		6.5-8.5	6.8	7.2	7.3	7.3	7.4	7.8	13	6.7	7.1	7.2	7.2	7.4	7.6	13	7	7.4	7.6	7.5	7.8	7.9	11	6.9	7.2	7.2	7.3	7.4	7.7	13
Total Suspended Solids	mg/L			1	3.3	5.2	30	11	268	13	1	2.4	3	4.2	4	20	13	1	3.5	10	13	13	41	11	1	1	2.6	4.5	4.5	15	13
Acidity (as CaCO3)	mg/L			2.6	3.8	4.4	4.7	5	9	13	2.6	3.8	4.4	4.5	5	6.4	13	3	3.6	4.4	5.5	5.8	15	11	2.4	3.6	4.4	4.9	6.6	8.4	13
Alkalinity(T)(as CaCO3)	mg/L			20	41	54	62	58	148	13	21	50	68	61	69	89	13	50	71	76	77	85	104	11	28	41	54	79	69	305	13
Ammonia-N, Total	mg/L			0.01	0.01	0.043	0.056	0.081	0.17	8	0.01	0.01	0.01	0.022	0.035	0.059	4	0.01	0.01	0.01	0.017	0.025	0.041	4	0.01	0.01	0.022	0.033	0.057	0.083	8
Chloride	mg/L			0.43	0.74	1.3	1.3	1.7	2.3	12	0.25	0.41	0.72	0.67	0.98	1	11	0.22	0.29	0.52	0.59	0.86	1.3	9	6.1	7.8	10	31	18	176	13
Nitrate-N	mg/L			0.015	0.05	0.054	0.08	0.12	0.18	9	0.015	0.015	0.04	0.035	0.05	0.067	5	0.015	0.015	0.015	0.029	0.049	0.066	2	0.015	0.015	0.062	0.066	0.12	0.14	7
Phosphorus-Total	mg/L			0.017	0.022	0.024	0.032	0.026	0.11	13	0.0025	0.0056	0.0063	0.0091	0.0099	0.026	13	0.024	0.032	0.04	0.042	0.05	0.064	11	0.0089	0.017	0.019	0.018	0.02	0.025	13
Sulphate	mg/L			0.6	1	1.4	1.4	1.7	2.6	11	1	1.4	2.1	2	2.6	3.4	11	0.48	1	1.3	1.3	1.5	1.8	10	1	2.2	3.1	5	3.8	21	12
Aluminum-Total	mg/L			0.1	0.13	0.18	0.47	0.23	2	13	0.034	0.04	0.09	0.14	0.11	0.67	13	0.28	0.35	0.54	0.54	0.65	0.95	11	0.021	0.11	0.12	0.31	0.13	2.8	13
Arsenic-Total	mg/L	0.005	0.1	0.0005	0.0005	0.0005	0.0006	0.0005	0.0013	2	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0
Barium-Total	mg/L			0.005	0.005	0.005	0.0095	0.012	0.022	5	0.005	0.005	0.005	0.0088	0.012	0.021	6	0.005	0.011	0.014	0.014	0.016	0.021	10	0.005	0.005	0.005	0.014	0.024	0.052	5
Cadmium-Total	mg/L		0.0002	0.000045	0.000045	0.000045	0.000045	0.000045	0.00005	0	0.000045	0.000045	0.000045	0.000045	0.000045	0.00005	0	0.000045	0.000045	0.000045	0.000045	0.000045	0.00005	0	0.000045	0.000045	0.000045	0.000045	0.000045	0.00005	0
Calcium-Total	mg/L			6.5	12	15	18	17	43	13	6.6	15	23	20	24	29	13	15	20	23	22	25	28	11	9.5	14	17	27	26	104	13
Chromium-Total	mg/L		0.0089	0.0005	0.0005	0.0005	0.0011	0.0005	0.004	3	0.0005	0.0005	0.0005	0.00057	0.0005	0.0014	1	0.0005	0.0005	0.001	0.00097	0.0013	0.0021	6	0.0005	0.0005	0.0005	0.00086	0.0005	0.0052	1
Colbalt-Total	mg/L		0.0009	0.00025	0.00025	0.00025	0.0006	0.00054	0.0018	6	0.00025	0.00025	0.00025	0.00029	0.00025	0.00074	1	0.00025	0.00025	0.00025	0.00043	0.00041	0.0015	3	0.00025	0.00025	0.00025	0.00035	0.00025	0.0016	1
Copper-Total	mg/L	0.001	0.005	0.0005	0.0005	0.0005	0.00085	0.0005	0.0029	3	0.0005	0.0005	0.0005	0.0006	0.0005	0.0018	1	0.0005	0.0011	0.0012	0.0014	0.0015	0.0025	10	0.0005	0.0005	0.0012	0.0014	0.0017	0.0034	9
Iron-Total	mg/L		0.3	0.59	1.2	1.3	1.5	1.6	3.7	13	0.21	0.39	0.45	0.57	0.72	1.3	13	0.62	0.8	1.1	1.4	1.7	3.4	11	0.064	0.23	0.28	0.52	0.5	3	13
Lead-Total	mg/L		0.005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0006	0.0005	0.0012	2
Magnesium-Total	mg/L			2.3	3.3	4.3	4.9	5	11	13	1.5	2.5	3.5	3.5	3.8	7.7	13	4.2	5.6	6.1	6.2	7	7.7	11	2.7	3.5	4	6.5	6.3	28	13
Manganese-Total	mg/L			0.026	0.13	0.17	0.36	0.27	2.1	13	0.033	0.04	0.11	0.12	0.13	0.39	13	0.017	0.031	0.047	0.074	0.084	0.26	11	0.012	0.022	0.056	0.057	0.059	0.17	13
Molybdenum-Total	mg/L	0.04		0.0005	0.0005	0.0005	0.00055	0.0005	0.0011	1	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.00054	0.0005	0.001	1
Nickel-Total	mg/L		0.025	0.001	0.001	0.001	0.0014	0.001	0.0032	3	0.001	0.001	0.001	0.0011	0.001	0.0021	1	0.001	0.001	0.001	0.0012	0.001	0.0022	2	0.001	0.001	0.001	0.0012	0.001	0.0036	1
Potassium-Total	mg/L			0.5	0.5	1.1	0.98	1.4	1.7	7	0.5	0.5	1	0.97	1.3	1.9	7	0.5	0.75	1.4	1.4	2.1	2.2	8	0.5	0.5	1.1	1.2	1.5	3.8	8
Silicon-Total	mg/L			4	4.2	4.3	4.2	4.4	4.4	3	4.2	4.4	4.6	4.5	4.7	4.7	3	3.4	3.5	3.6	3.6	3.7	3.7	3	2.7	2.9	3.2	3	3.2	3.2	3
Sodium-Total	mg/L			1.1	1.8	2.3	2.2	2.5	3.6	13	0.9	1.4	1.7	1.7	1.9	2.5	13	1.8	2.1	2.3	2.2	2.4	2.8	11	1.4	5	6.7	18	11	82	13
Strontium-Total	mg/L			0.016	0.026	0.031	0.038	0.039	0.088	13	0.012	0.03	0.037	0.037	0.046	0.055	13	0.028	0.035	0.04	0.039	0.042	0.052	11	0.023	0.032	0.036	0.084	0.077	0.44	13
Titanium-Total	mg/L			0.0036	0.0056	0.0061	0.019	0.01	0.09	13	0.001	0.001	0.0041	0.0057	0.0056	0.026	13	0.0025	0.012	0.017	0.02	0.026	0.046	11	0.001	0.0032	0.0038	0.012	0.0047	0.11	13
Vanadium-Total	mg/L	0.006		0.0005	0.0005	0.0005	0.0011	0.0005	0.0039	13	0.0005	0.0005	0.0005	0.00058	0.0005	0.0015	13	0.0005	0.0008	0.0012	0.0013	0.0017	0.0023	11	0.0005	0.0005	0.0005	0.00085	0.0005	0.005	13
Zinc-Total	mg/L	0.02	0.03	0.0015	0.0015	0.0015	0.0027	0.0015	0.0098	13	0.0015	0.0015	0.0015	0.0022	0.0015	0.0087	13	0.0015	0.0015	0.0015	0.0032	0.0026	0.016	11	0.0015	0.0015	0.0015	0.0024	0.0015	0.0098	13
Aluminum-Dissolved	mg/L		0.075	0.0098	0.024	0.029	0.042	0.064	0.11	13	0.0025	0.005	0.005	0.011	0.014	0.046	13	0.033	0.046	0.069	0.078	0.1	0.15	11	0.005	0.016	0.047	0.035	0.052	0.068	13

Table 8 - Water Quality Values JCTa, SW1, SW2, SW3



TREASURY METALS

INCORPORATED

Results for parameters above illustrate water bodies that are consistent with the boreal forest and Canadian Shield waters. The pH of the surface water measured in the field was generally near neutral with the occasional value measuring below PWQO of 6.5. Conductivities are consistent with what would be expected in the boreal forest environment, with the highest conductive waters appearing generally at TL2 and SW3 stations.

Surface waters in the Project site area have been sampled and analyzed for the key water quality parameters from November 2010 to July 2012. Based on the 2011 sampling season (November 2010 – November 2011) Blackwater Creek has been identified as a receiver of aluminium, cobalt (Co), and iron (Fe). The naturally occurring concentration of dissolved aluminum exceeds the PWQO for stations TL1, TL2, and SW2. These stations generally exhibit low flow and contain finer sediment beds. Larger catchments and areas downstream of Blackwater Creek do not show exceedance of the PWQO for dissolved aluminum. The concentration of total cobalt is in exceedance of the PWQO at stations TL1 and TL2. These stations generally exhibit lower flow due to the smaller upstream catchment in Blackwater Creek. The station at TL2 is immediately downstream of an area disturbed by previous advance exploration work in the LSA. It is anticipated that the Co concentrations in TL2 are related to the loadings from existing and developed areas of geological outcrops to surface from cobalt bearing minerals. Total concentrations of iron exceed the PWQO at all sampling locations including the far reference station. Iron therefore will be a Policy 2 parameter for all potential discharge locations in the LSA. Total iron concentrations are often found elevated with respect to the PWQO in the boreal forest and Canadian Shield region of Ontario due to the high iron presence in the bedrock and soils. The highest concentration of iron is present at TL2. Iron can be present however, as a fraction of the sediment load.



4.9.2 Benthic Invertebrates

Benthic invertebrate samples were collected within the project area streams in October, 2011 and the study will be continued in fall of 2012. All invertebrates have been and will be continue to be identified to the lowest taxonomical level by qualified taxonomists using geographically appropriate taxonomic keys.

Benthic Invertebrate community data that has been currently attained for locations in the project area is summarized in *Table 9 - Benthic Species Proportions*, and *Figure 22 - Benthic Invertebrates*.

SPECIES	PROPORTION OF ALL LOCATIONS
Amphipoda	0.2
Araneae	0.4
Basommatophora	0.4
Coleoptera	0.3
Collembola	0.4
Diptera	61.7
Ephemeroptera	2.4
Hirudinea	0.5
Homoptera	0.1
Neotaenioglossa	2.6
Oligochaeta	26.1
Plecoptera	0.1
Prosobranchia	0.1
Trichoptera	0.7
Trombidiformes	0.6
Veneroida	3.6

Table 9 - Benthic Species Proportions

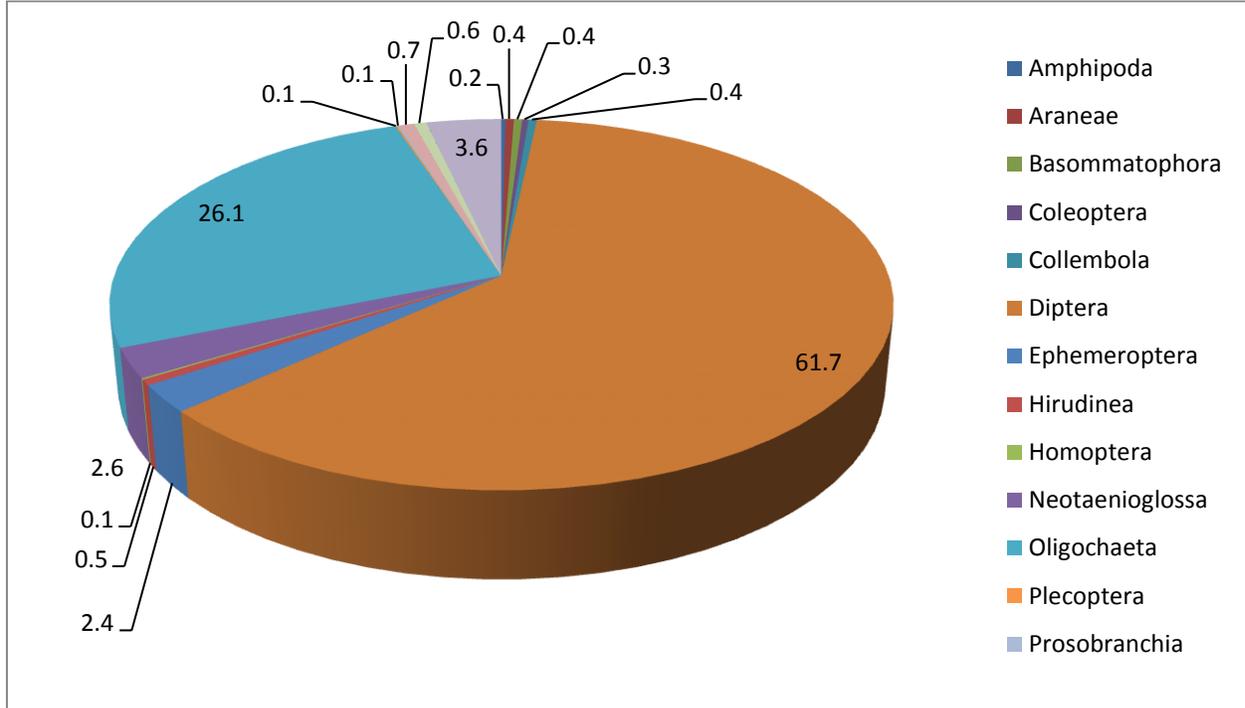


Figure 22 - Benthic Invertebrates

The benthic invertebrate fauna of Blackwater Creek was comprised of aquatic insects, crustaceans, molluscs, and various other invertebrate taxa. Mean number of taxa, and taxa richness generally increased in downstream sites with the greatest species diversity and richness showing up at the confluence of Blackwater Creek and Wabigoon Lake.

Approximately 61% of the total specimens within all samples consisted of chironomids (non-biting midges) with the family Diptera. Oligochaeta worms comprised 26% of total specimens while the remaining 13% was comprised of freshwater bivalves, snails, scuds and terrestrial insects. The percentage of Ephemeroptera, Plecoptera, and Tricoptera (EPT) including mayflies, stoneflies, and caddisflies is highest in clean, well oxygenated, rocky streams. In general, percentages of EPT taxa in Blackwater Creek were extremely low, reflecting the slow moving, turbid, and soft bottomed nature of the stream. EPT were notably higher at the confluence of Blackwater Creek and Wabigoon Lake (13.57%) than at any upstream location.



METRIC	SITE 65	SITE 23	SITE 13	SITE 6	SITE 28
Mean # specimens	200	94.3	26.3	107.3	141.3
Mean # Taxa	11	14.7	4.3	7	12.3
Range # Taxa	8 to 15	11 to 20	1 to 6	5 to 9	11 to 13
% Chironomids	65%	54%	59%	19%	60%
Mean %EPT	1.37	13.57	0	0.14	1.03
Richness Index	4.65	6.93	3.52	3.42	5.68
Simpson's Index	0.537	0.667	0.586	0.673	0.588
Bray-Curtis Index	0.519 JCTA & BC		0.620 TL1 & TL2		0.660 TL3 & TL1

Table 10 – Benthic Species Richness of Blackwater Creek

The taxa richness of the Blackwater Creek system is relatively low (7 to 15 taxa) and is likely related to the slow moving, turbid, and soft bottomed nature of the stream. Over the course of the project area, the family Diptera were numerically dominant, and the Oligochaeta worms reflected the majority of the remaining taxa (Table 10 – Benthic Species Richness of Blackwater Creek).

4.9.3 Sediment Quality

In conjunction with the benthic invertebrate sampling program conducted in 2011, sediment samples have been collected for chemical and physical analysis of metals, including grain size, and nutrient content. This program will be continued in 2012 with samples to be sent to an accredited lab, e.g. ALS Environmental in Thunder Bay.

A literature review of previous development work yielded the findings completed in 1997 by NAR Environmental Consultants Inc., for Teck Corporation and Corona Gold Corporation. This program sampled three stations on Blackwater Creek. The 1997 program identified that the mean levels of chromium, copper, manganese, nickel, zinc, and iron exceeded the Ontario Provincial Sediment Quality Standards (OPSQS) lowest effect level at sampling sites TL1, TL2, and TL3 (shown in *Figure 23 - Sediment sampling locations*).

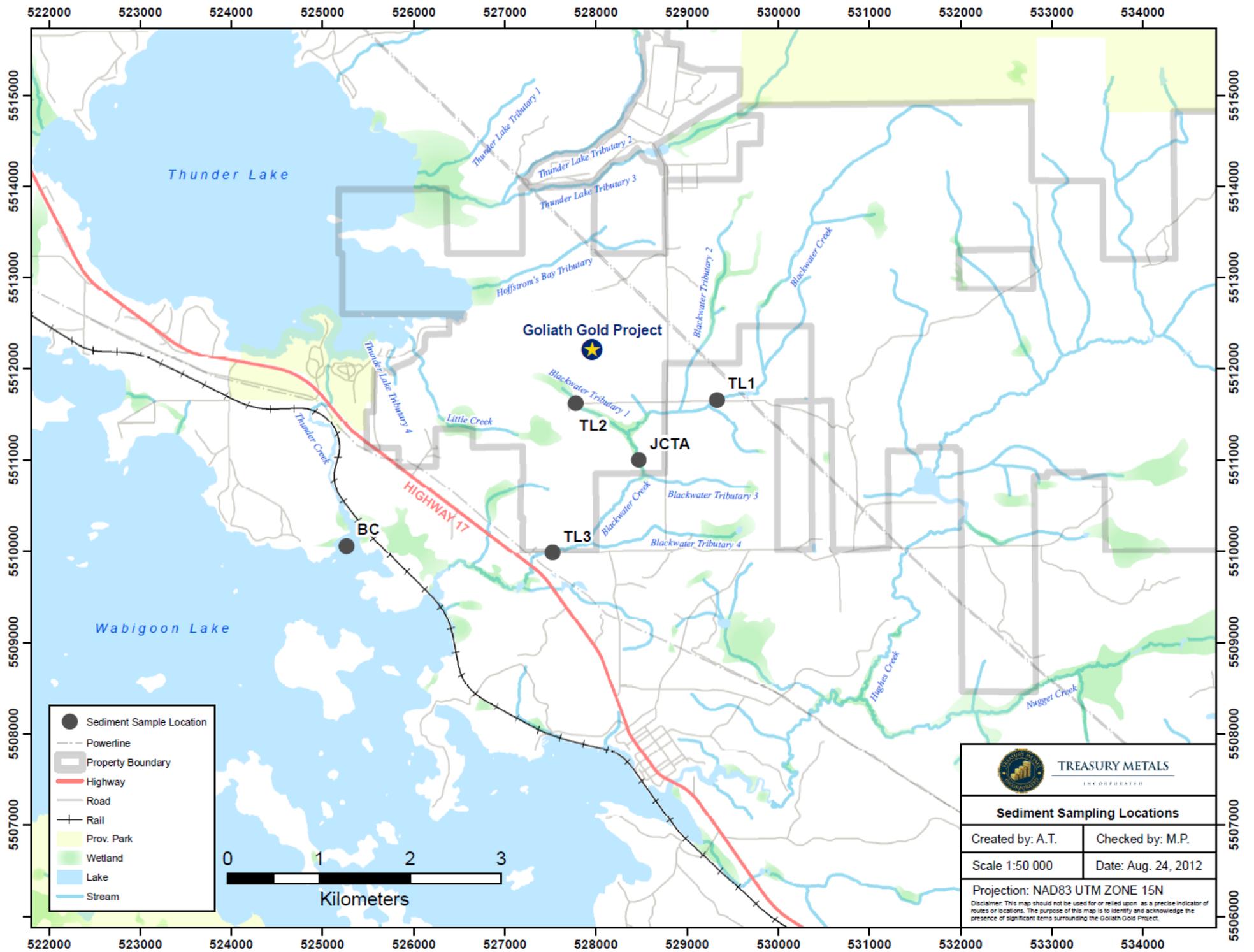


Figure 23 - Sediment sampling locations



TREASURY METALS

INCORPORATED

Levels of arsenic, cadmium, and lead did not exceed the Low Effect Level (LEL) or Severe Effect Level (SEL) in any of the sites in the 2011 field program. The following parameters exceeded the LEL at the identified sites; chromium at all sites, copper at TL2, TL3, and BC; iron and nickel at all sites except TL1; manganese at TL2, TL3, and JCTa; and zinc at BC. The only parameter to exceed the SEL was manganese at site JCTa where levels were observed at 1260 ug/g or 160 ug/g over the SEL. Polycyclic Aromatic Hydrocarbons (PAHs) were generally not detected at the site, and those which were detected are not present at levels of concern for benthic organisms. Overall PAHs are not expected to be currently affecting the health or survival of benthic organisms. The reasoning for the higher levels of some metals at station BC is unknown. All sediment samples exceed the LEL of 1% total organic compound (TOC) level. The TOC at sampling site BC was the only TOC site with a result over the 10% TOC SEL by the OPSQS for Metals and Nutrients. However, higher levels of TOC at sampling site BC are likely related to the wetland environment surrounding the station, the influence of backwaters from Wabigoon Lake, and its proximity to the rail line.

The 2011 sediment sampling and analysis program helped further characterization of the sediment baseline conditions of the LSA. With further development of the mine plan, a re-evaluation of regulatory requirements will occur in respect to sampling locations for 2012 field efforts in the fall season.

4.9.4 Fish and Fish Habitat

Fish and fish habitat characterization was conducted within the project area and water bodies in which on site water courses drain. Within the current program, studies have been completed within each of the water bodies within the project footprint area. The fish communities within the project area have been sampled with a wide range of gear types, including trap nets, gill nets, minnow traps and electro-fisher appropriate to the habitat presented and the expected species composition. The chemical composition of fish tissue has been completed at stations that are downstream of the mines expected effluent discharge area. Classification of fish habitat will be an ongoing process to ensure the Project satisfies regulatory guidelines. On-site sample



TREASURY METALS

INCORPORATED

collection has been supplemented by the work of both the MNR office in Dryden, and the local MOE office. Further work will be completed throughout 2012. In general, the effects to commercial fisheries will be limited to the collection of bait fish for sale. The quantities of fish caught in the LSA can be seen in the following section. It should also be noted that Wabigoon Lake has a large sport fishing community. This may be considered as part of commercial fisheries due to the economic contribution that this provides to the surrounding communities.

As indicated in *Section 4.7 – Hydrology*, the water courses that occur within the Project area drain into two water bodies. Generally, the watercourses to the west flow in Thunder Lake, while those to the south and east flow into Wabigoon Lake. Within each of these two larger watersheds, sub-watersheds can be seen. It is within these sub-watershed areas that the fisheries and aquatic habitat resources are described. A tabulation of found species for each sub-watershed can be seen in the following respective segments.

Effect of the project to fish will be loss of habitat. Specifically for the areas encompassing the open pit and TSF. As stated in *Section 3.3.12*, a complete water balance is not known at this time. It may be found that water will be required to be discharged into Blackwater creek, creating a larger flow in that system, which DFO has indicated may help to offset the Harmful Alteration, Disruption or Destruction of fish habitat caused by Project components.

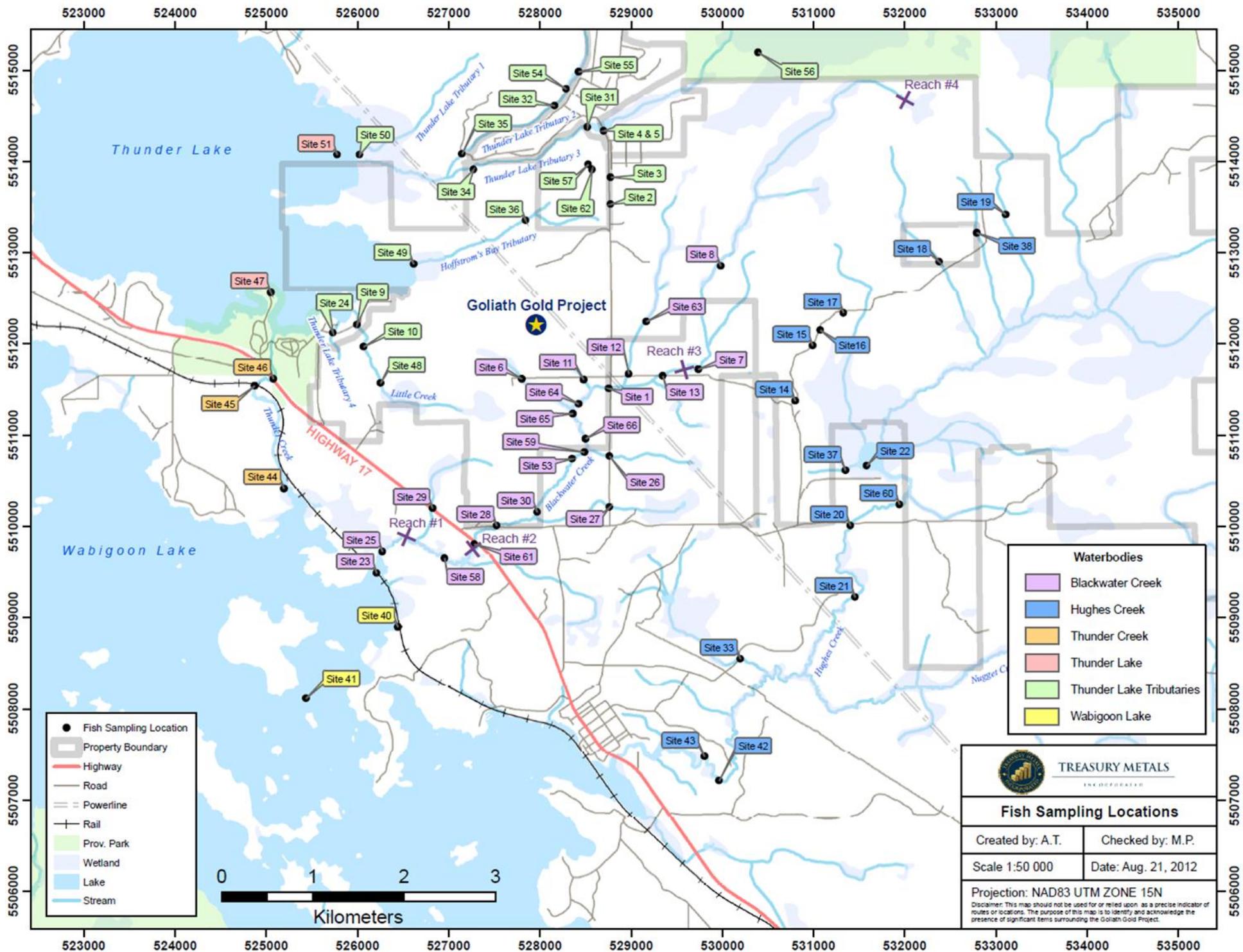


Figure 24 - Fish Sampling Locations



TREASURY METALS

INCORPORATED

The **Blackwater Creek** watershed encompasses the central portion of the LSA and RSA. The landscape throughout the watershed consists of a flat, silty clay glaciolacustrine plain with low relief and very little bedrock, gravel, cobble, or boulder material. The maximum water temperature recorded in the 2011 field season was 23.5°C on July 1, 2011 at hydrology location TL3 and averaged 17°C over the course of the summer (June 1, 2011 to August 31, 2011).

Blackwater Creek fish habitat was assessed in 4 separate reaches by dividing the creeks upstream and downstream of the Project as seen in *Figure 24 - Fish Sampling Locations*. In summary, habitat assessed downstream of the Project was uniform, with a dominance of clay and silt substrate, extensive beaver ponds, dense riparian vegetation, with areas of open grassland. The main feature prevalent upstream of the Project is the dense riparian vegetation and the narrow width of the creek, (< 1 m in width). Blackwater Creek also provides good overwintering habitat with the extensive beaver ponds and deep pools. No permanent barriers to fish migration have been observed but beaver dams may act as temporary barriers.

During the fish sampling activities, a total of 5791 fish were captured from Blackwater Creek (*Table 11 – Blackwater Creek Fish Captures*). Fish were captured from all Blackwater Creek sampling locations with the exception of Site 26 and Site 27 which had very low water levels during the May 2011 sampling period and were dry during the other sampling periods. Nine identified species and three unidentified species (*Notropis sp.*, *Centrarchid sp.*, *Cyprinid sp.*) were captured during sampling. A total of 4229 fine scale dace were captured, accounting for 73% of the total capture. Other species captured included brook stickleback, northern pearl dace, fathead minnow, and white sucker.



TREASURY METALS

INCORPORATED

SITE NO.	METHOD	START	SPECIES												NUMBER OF FISH CAUGHT	NUMBER OF TRAPS
		DATE	Brook Stickle back	Finescale Dace	Northern Pearl Dace	Yellow Perch	Pumpkin Seed	Fathead Minnow	White Sucker	Northern Pike	Burbot	Shiner sp.	Centrarchid sp.	Cyprinid sp.		
1	MT	15/11/2010	1												1	2
		10/05/2011	31	135	5			17	1						189	2
		03/08/2011	51	50	116										217	2
	KS	10/05/2011							2						0	N/A
	SS-V	11/05/2011													0	N/A
V	11/05/2011								1					0	N/A	
6	MT	15/11/2010	12	51	3			18							84	1
		10/05/2010	108	194	28							11			341	2
		12/05/2011	75	75				1							151	2
		03/08/2011	7	1480	2			31							1520	9
		08/08/2011		99	19										118	6
7	MT	16/11/2010	8	168	18									194	2	
8	MT	16/11/2010	3											3	2	
11	MT	16/11/2010	3												3	2
		10/05/2011													0	2
		03/08/2011													0	2
12	MT	16/11/2010	41	25	7										73	2
		10/05/2011	38	53	2										93	2
		03/08/2011	44	78	5										127	2
	SN	10/05/2011							2					2	N/A	
	KS	10/05/2011							10					0	N/A	
SS-V	11/05/2011												0	N/A		
13	MT	17/11/2010	10												10	2
		10/05/2010	168	238	1										407	2
		03/08/2011	3	158											161	2
23	MT	05/08/2011	1										2	3	3	
	GN	07/08/2011					1			1				2	N/A	
25	GN	07/08/2011				1								1	N/A	
26	MT	10/05/2011												0	1	
27	MT	10/05/2011												N/A	N/A	
28	MT	10/05/2011	8	10	1							3			22	2
		03/08/2011		57	28				1						86	2
		08/08/2011		38	23			17	3						81	1
	EF	03/08/2011	4		27						1			32	N/A	
29	MT	10/05/2011	33	2	1									36	2	
30	MT	08/08/2011	11	339	30			33	1			2		414	6	
53	MT	07/08/2011	1	13	10				1					25	2	
58	EF	04/08/2011	24						2					26	N/A	
59	MT	07/08/2011	2	9				1						12	2	
61	EF	04/08/2011	67	1	35				7			1	25	136	N/A	
63	MT	06/08/2011	25	49	12									86	2	
64	MT	07/08/2011	27	186	7			27	1					248	2	
65	MT	08/08/2011	73	715	58			32						878	5	
66	MT	07/08/2011	2	6	1									9	3	
Total Fish			881	4229	439	1	1	177	20	1	1	17	2	25	5791	81

MT-Minnow Trapping; GN-Gill Netting; EF-Electrofishing; SN- Seine Netting; V-Visual observation; SS-V- Spotlight Spawning Survey; KS- Kick and Sweep; A-Angling; YOY- Young of Year

Table 11 – Blackwater Creek Fish Captures

The **Hughes Creek** watershed is located in the eastern portion of the LSA and RSA. The lower two thirds of the watershed consists of flat, silty clay glaciolacustrine plain with low relief. The upper reaches are in glacial outwash deposits and the headwaters are an extensive wetland, the Lola Lake peat land, covering over 1200 ha. of organic soils. Extensive organic deposits are also found at Site 22 (Hughes Pond), which is a widening of the creek forming an 85 km² pond.



TREASURY METALS

INCORPORATED

A total of 1239 fish were captured from Hughes Creek (Table 12 - Hughes Creek Fish Captures). Nine identified and three unidentified fish species (*Notropis sp.*, *Centrarchid sp.*, *Cyprinid sp.*) were captured. Of the captures, fine scale dace were the most plentiful with 321 captures or 50% of the total captures. Other species captured include brook stickleback, northern pearl dace, and white suckers. The dominant fish species were comparable to Blackwater Creek however more white suckers were captured from Hughes Creek than those captured in Blackwater Creek.

SITE NO.	METHOD	START	SPECIES											NUMBER OF FISH CAUGHT	NUMBER OF TRAPS	
		DATE	Brook Stickleback	Fine Scale Dace	Nothern Pearl Dace	White Sucker	Walleye	Johnny Darter	Common Shiner	Shiner sp.	Blacknose Shiner	Mimic Shiner	Cyprinid sp.			Centrarchid sp.
14	MT	Nov-10													0	2
15	MT	Nov-10													0	2
16	MT	Nov-10													0	2
17	MT	Nov-10													0	2
		May-11													0	1
18	MT	Nov-10													0	2
		May-10													0	1
		Aug-11				2									2	2
19	MT	Nov-10													0	2
		May-11													0	2
20	MT	Nov-10	27	69	13					1					109	4
		May-11	158	46		1									205	2
	EF	Aug-11	2	5		2			1		1			1	12	N/A
		Oct-11	1	1					1						2	N/A
	SN	Nov-10	5	15	1				1			7	30		59	N/A
		May-11	7	33					18	15					73	5
		May-11													0	N/A
	KS	Aug-11	23	16	1	38								7	85	N/A
		May-11				58	12								0	N/A
	SS-V	Oct-11													0	N/A
		May-11				75									0	N/A
	A	Jun-11								1					0	N/A
21	MT	Aug-11	1	9	73	1				3				87	4	
22	GN	Aug-11				2								2	N/A	
33	MT	May-11	87	270	51	1			4					413	2	
37	MT	May-11	24	142	2									168	2	
38	MT	Aug-11												0	2	
42	MT	Aug-11											1	1	3	
43	MT	Aug-11												0	2	
	GN	Aug-11												0	N/A	
	A	Oct-11												0	N/A	
60	GN	Aug-11		15	1	4								20	N/A	
Total Caught			334	621	142	126	0	20	21	5	7	30	8	1	1239	41

* Does not include visual surveys

SN - Seine Netting, A - Angling, V - Visual Observations, GN - Gill Netting, YOY - Young of Year, EF - Electrofisher

Table 12 - Hughes Creek Fish Captures

There are six main streams that drain into **Thunder Lake**: Tributary #1, Tributary #2, Tributary #3, Tributary #4, Little Creek, and Hoffstorm's Bay Creek. Thunder Lake Tributary #1, #2, #3 flow through the sandy soils of the outwash plain. Iron precipitates were observed at several



TREASURY METALS

INCORPORATED

points in both watersheds, indicating groundwater discharges. The outlet for the 3 tributaries to Thunder Lake is densely vegetated with marsh vegetation and provides rearing areas for lake fish. As with the previous sites, the Hoffstorm's Bay Tributary flows through a similar soil profile. The outlet to Thunder Lake is densely vegetated with marsh vegetation, and also provides rearing areas for lake fish. The outlet of Little Creek is south of Hoffstorm's Bay on Thunder Lake. Upstream of the outlet intense beaver activity is evident. Approximately 1.25 km upstream, a large beaver pond and marsh area with dense reeds >2 m in height was observed.

A total of 957 fish were captured from the Thunder Lake tributaries and Project Office area. A total of 13 species were captured in this area with three additional unidentified fish (*Notropis sp.*, *Centrarchid sp.*, *Cyprinid sp.*). The most abundant species captured were finescale dace, fathead minnow, and northern pearl dace, yellow perch, and brook stickleback (*Table 13 - Thunder Lake Tributaries Fish Captures*).

Site No.	Method	Start	Species															Number of Fish Caught	Number of Traps	
		Date	Brook Stickleback	Finescale Dace	Northern Pearl Dace	Fathead Minnow	White Sucker	Trout-Perch	Yellow Perch	Mottled Sculpin	Central Mudminnow	Rock Bass	Iowa Darter	Shiner sp.	Cottidae sp.	Cyprinidae sp.	Northern Pike			
2	MT	Nov-10	-															0	2	
		Nov-11	10	28														38	2	
3	MT	Nov-10	3															3	2	
		Nov-10			26	1													27	2
4 & 5	MT	Oct-10	42	5		77												124	2	
		Nov-11	75										2					77	2	
		Mar-11	1	34	22													57	2	
		Mar-11			38														38	2
9	MT	Nov-10	8	41		106												155	2	
		May-11	4	20														24	10	
10	MT	Nov-10																0	2	
24	MT	Nov-11																0	2	
31	MT	Oct-11			2													2	1	
32	MT	Oct-11			11									1				12	1	
		A	Jun-11															0	2	
34	MT	Nov-11		2			3											5	2	
		May-11	3	12	32		1			1								49	5	
	EF	May-11	1	5	7	5				4								22	2	
35	MT	Nov-11	20		1				1	2								24	2	
		May-11	2	10	4		5	2					1					24	4	
	EF	May-11			6		5			9				1	1			22	2	
36	MT	Dec-11	1															1	2	
48	MT	Nov-10																0	2	
		Jun-11							6	1		1		20				28	5	
		SN	Jun-11			1				27									28	2
		Jun-11			7					39		1							47	2
50	V	Jun-11															*10	0	2	
		MT	Jun-11	1					36		5			11				53	5	
		V	Jun-11						*1									0	2	
54	MT	May-11	5	66	98	24	2											195	5	
		GN	May-11																0	2
55	A	May-11																0	2	
		Jun-11																0	2	
62	MT	Jun-11		52														52	2	
Number of Fish Caught			176	275	255	213	16	2	108	2	21	2	3	32	1	1	0	1107	66	

* Does not include visual surveys

SN - Seine Netting, A - Angling, V - Visual Observations, GN - Gill Netting, YOY - Young of Year, EF - Electrofisher

Table 13 - Thunder Lake Tributaries Fish Captures



Thunder Creek flows from Thunder Lake to Wabigoon Lake over a distance of about 2.4 km. A dam just north of the Highway 17 crossing prevents the upstream migration of fish from Wabigoon Lake. Below the dam, there is an extensive section of boulder based rapids about 75 m long, below which the stream is slow moving and muddy. The outlet to Wabigoon Lake is similar to the Blackwater and Hughes Creek outlets. The area is dense with submerged and emergent vegetation.

A total of 31 fish were captured in Thunder Creek. The dominant species captured were yellow perch and mimic shiner. All 31 fish were captured by seine netting under the Highway 17 crossing (*Table 14 - Thunder Creek Fish Captures*).

Site No.	Method	Start Date	Species			Number of Fish Caught	Number of Traps
			Mimic Shiner	Yellow Perch	Northern Pike		
44	MT	May-11				0	4
45		May-11				0	1
46	SN	May-11	5	26	0	31	-
	EF	May-11				0	-
	SS	May-11				0	-
		May-11				0	-
V	May-11			1	0	-	
Total Fish Caught			5	26	*0	31	5

*Does not include visual surveys

SN - Seine Netting, A - Angling, V - Visual Observations, GN - Gill Netting, YOY - Young of Year, EF - Electrofisher

Table 14 - Thunder Creek Fish Captures

Wabigoon Lake is a large, relatively shallow and productive lake for a number of fish species. Waters are relatively warm and turbid compared to many other lakes in northwestern Ontario. Limited fish habitat was recorded for Wabigoon Lake. Keplyn Bay, in Wabigoon Lake, is south of the Blackwater Creek outlet and provides calm littoral water for juvenile fish. This bay has limited vegetation cover.

A total of 246 fish were caught in Wabigoon Lake. The dominant species caught were yellow perch, rock bass, and emerald shiner (*Table 15 - Wabigoon Lake Fish Captures*).



TREASURY METALS

INCORPORATED

Site No.	Method	Start	Species								Number of Fish Caught	
		Date	Log Perch	Shorthead Redhorse	Rock Bass	Black Crappie	Smallmouth Bass	Emerald Shiner	Yellow Perch	Northern Pike		
40	SN	Dec-11		2	50				13	73		138
		May-11	20			11	1	13	63		108	
41	A	Jul-11									0	
	V	Jul-11								15	0*	
Total Fish Caught			20	2	50	11	1	26	136	0*	246	

* Does not include visual surveys
 SN - Seine Netting, A - Angling, V - Visual Observations, GN - Gill Netting, YOY - Young of Year, EF - Electrofisher

Table 15 - Wabigoon Lake Fish Captures

Thunder Lake is oligotrophic with cool, clear, nutrient poor waters. The east end of Thunder Lake consists of two shallow sandy bays separated by a bedrock point. The area is a high wave energy shore with sparse aquatic plants. Marsh vegetation is denser inside a barrier beach near the north end. This marsh vegetation serves as a potential spawning ground to northern pike. Cobble and boulder shoals extending out from the bedrock point and island on the east end of Thunder Lake are potential spawning habitat for lake trout, whitefish, and walleye.

Only one white sucker was caught in Thunder Lake, off of Aaron Provincial Park, by gill netting. No northern pike were captured; however; adults and young of the year were observed in the marsh on the east end of Thunder Lake in Hoffstorm’s Bay and in the bay near the outlet of Thunder Lake Tributaries #1, #2, and #3 (*Table 16 - Thunder Lake Fish Captures*).

Site No.	Method	Start		End		Species		Number of Fish Caught
		Date	Time	Date	Time	White Sucker	Northern Pike	
47	GN	08/07/2011	9:50	08/07/2011	11:05	1		1
51		08/07/2011	11:38	08/07/2011	12:50			0
	V	7/13/2011	8:45	7/13/2011			2*	0
Total Fish Caught						1	0*	1*

* Does not include visual observations
 SN - Seine Netting, A - Angling, V - Visual Observations, GN - Gill Netting, YOY - Young of Year, EF - Electrofisher

Table 16 - Thunder Lake Fish Captures



4.10 TERRESTRIAL BIOLOGY

The terrestrial biology program is designed to identify terrestrial wildlife and critical wildlife habitat within the project area. Identification of speciation among mammals, birds, amphibians, reptiles, invertebrates, and wildlife habitat is an important step in determining any mitigation plans, and meeting the regulatory requirements of the federal and provincial agencies. The terrestrial biology study is a two part program: A desktop review of existing data on potential wildlife species in the area, wildlife habitat information (including published journals, MNR Heritage Information Centre, MNR Dryden, Ontario Parks, Ontario Breeding Bird Atlas, Ontario Peatland Inventory, and Forest Management Plan for Dryden Forest), and field work across the LSA and RSA. These programs are currently in progress. Field Work currently completed and in development is summarized in *Table 17 - Terrestrial Field Sampling Efforts*.

Personal	Surveys Completed	Methodology
Klohn Crippen Berger	Desktop Review	Source: Dryden Forest Management Company (DFMC 2010) Forest Management Plan for Dryden Forest. Data on wildlife species including rare and as-risk species, important wildlife habitat and the location of moose aquatic feeding areas, calving sites, mineral licks, denning sites etc. in the LSA and RSA.
Klohn Crippen Berger	Desktop Review	Source: Breeding Bird Survey of Ontario website, Dryden Christmas Bird Count website, Ontario Breeding Bird Atlas website. Bird data in the LSA and RSA.
Klohn Crippen Berger	Desktop Review	Source: OMNR Natural Heritage Information Center website. Species at risk and rare wildlife species and wildlife habitat in the grid squares that encompass the LSA and RSA.
Klohn Crippen Berger	Desktop Review	Odonata data in the LSA and RSA.
Klohn Crippen Berger	Reconnaissance Survey 2010	Encounter transects and visual encounter surveys.
Klohn Crippen Berger	Forest Bird Survey	Forest Bird Monitoring Program Protocol
Klohn Crippen Berger	Migratory Bird Survey	Hawk Migration Association of North America Protocol
Klohn Crippen Berger	Marsh Bird and waterfowl survey	Marsh Monitoring Program Protocol, and Inventory Methods for Waterfowl and Allied Species
Klohn Crippen Berger	SAR survey - whip-poor-will and common nighthawks	Whip-poor-will Roadside Survey Protocol
Klohn Crippen Berger	SAR survey - bobolink	Forest Bird Monitoring Program Protocol
Klohn Crippen Berger	SAR survey - songbirds	Forest Bird Monitoring Program Protocol
Klohn Crippen Berger	SAR survey - marsh birds	Forest Bird Monitoring Program Protocol, and Marsh Monitoring Program Protocol
Klohn Crippen Berger	SAR survey - bald eagle	Stick nest survey
Klohn Crippen Berger	Amphibian Survey	Amphibian Roadside Call Survey
Klohn Crippen Berger	Reptile Survey	Visual encounter survey, Wildlife Monitoring Programs and Inventory Techniques for Ontario Protocol
Klohn Crippen Berger	SAR survey - snapping turtle	Visual encounter survey, Wildlife Monitoring Programs and Inventory Techniques for Ontario Protocol
Klohn Crippen Berger	Mammal encounters	Encounter transects and visual encounter surveys.
Klohn Crippen Berger	Bat survey	Sound recording at frequency range able to detect and record ultrasonic bat calls
Klohn Crippen Berger	Significant wildlife habitat assessment	Encounter transects

Table 17 - Terrestrial Field Sampling Efforts



TREASURY METALS

INCORPORATED

4.10.1 Mammals

Twenty mammal species were observed in the LSA during the 2010-2011 field seasons. These sightings were the result of incidental observations rather than dedicated mammal surveys. The most visible species recorded in and around the LSA were moose, white-tailed deer, black bear, grey wolf, and small furbearers. No Species at Risk mammals were seen within the Project area (*Table 18 - Mammal Species Observed in the Project Area*). The result of the Project will cause a loss of habitat for both small and large mammals. Noise and dust may cause mammals to avoid the project area and may affect travel corridors.

Treasury will commence the 2012 field program within the fall season. This program will consist of a concentrated effort to confirm and identify local species. This will be completed with the use of multiple trap lines within varying habitat areas of the property.



TREASURY METALS

INCORPORATED

COMMON NAME	FAMILY	SCIENTIFIC NAME
Shrews		
Water shrew	Soricidae	Sorex palustris
Moles		
Star-nosed mole	Talpidae	Condylura cristata
Smooth-faced bats		
Hoary bat	Vespertilionidae	Lasiurus cinereus
Big brown bat/silver haired bat	Vespertilionidae	Eptesicus fuscus/Lasionycteris noctivagans
Little brown myotis	Vespertilionidae	Myotis lucifugus
Rabbits and Hares		
Snowshoe hare	Leporidae	Lepus americanus
Squirrels		
Woodchuck	Sciuridae	Marmota monax
Red squirrel	Sciuridae	Tamiasciurus hudsonicus
Beavers		
Beaver	Castoridae	Castor canadensis
Rats, Mice and Voles		
Meadow vole	Muridae	Microtus pennsylvanicus
Muskrat	Muridae	Ondatra zibethicus
New world Porcupines		
Porcupine	Erithizontidae	Erethizon dorsatum
Dogs		
Grey wolf	Canidae	Canis lupus
Red fox	Canidae	Vulpes vulpes
Bears		
Black bear	Ursidae	Ursus americanus
Weasels and Their Allies		
River otter	Mustelidae	Lutra canadensis
Striped skunk	Mustelidae	Mephitis mephitis
Mink	Mustelidae	Mustela vison
Deer		
Moose	Cervidae	Alces alces
White-tailed deer	Cervidae	Odocoileus virginianus

Table 18 - Mammal Species Observed in the Project Area

4.10.2 Birds

A comprehensive bird study has been conducted in and around the Project area. A total of 120 bird species were observed in the LSA in 2010-2011. The most common of these can be seen in *Table 19 - Bird Species (Most Common)*. Of these, 101 are known to nest, or suspected to nest in the LSA. The breeding species variety and density reflects the LSA's varied habitats and vegetation made up of of deciduous forest, mixed forest, and coniferous forests. Mixed forest nesting species including red-eyed vireo, white throated sparrow and American robin, which were the most common species observed during the 2011 field season. Ruby-crowned kinglet, red-breasted nuthatch, and hermit thrush were found primarily within coniferous forest environments. Boreal species such as the Palm warbler, Connecticut warbler, and Gray jay were largely restricted to the Lola Lake wetland complex and in conifer swamp forest habitat.



TREASURY METALS

INCORPORATED

Canada seasonally hosts over 500 species of migratory birds, and it is the responsibility of Environment Canada and the Migratory Birds Convention Act to regulate actions and to ensure the protection of migratory birds, their eggs and their nests. The Goliath Gold Project currently has identified over 100 birds on the property. Of the currently compiled species a number are identified as part of this Act (*Table 20 - Migratory Birds*). Due to the relatively close location to Dryden and Wabigoon as well as other industrial infrastructure, Treasury Metals currently does not believe the Project will have a significant effect on the local and regional migrations of these select bird species. Investigation is continuing on the part of Treasury Metals to identify all possible species, possible effects from the development, and the possible steps to preserve significant habitat within the local area.

Species	Number	Frequency
Red-eyed Vireo	184	79
White-throated Sparrow	161	86
American Robin	127	68
Nashville Warbler	67	51
Mourning Warbler	62	43
Swainson's Thrush	60	35
Ruby-crowned Kinglet	51	39
Common Raven	45	36
Ovenbird	44	26
Hermit Thrush	43	32
Chestnut-sided Warbler	43	30
American Crow	37	35
Magnolia Warbler	34	32
Song Sparrow	28	29
Red-breasted Nuthatch	27	29
Least Flycatcher	26	20
Gray Jay	26	19
Common Yellowthroat	24	20
Red-winged Blackbird	24	8
Alder Flycatcher	23	21
Chipping Sparrow	20	18

Table 19 - Bird Species (Most Common)



TREASURY METALS

INCORPORATED

Migratory Bird Species Convention Act: Species within Project Area			
Species		Species	
Family Name	Common Name	Family Name	Common Name
Gaviidae	Common Loon	Turdidae	Hermit Thrush
Podicipedidae	Red-necked Grebe	Turdidae	American Robin
Podicipedidae	Pied-billed Grebe	Turdidae	Swainson's Thrush
Ardeidae	American Bittern	Mimidae	Gray Catbird
Ardeidae	Great Blue Heron	Bombycillidae	Cedar Waxwing
Anatidae	Canada Goose	Certhiidae	Brown Creeper
Anatidae	Cackling Goose	Laniidae	Northern Shrike
Anatidae	Mallard	Vireonidae	Red-eyed Vireo
Anatidae	Wood Duck	Vireonidae	Philadelphia Vireo
Anatidae	Ring-necked Duck	Vireonidae	Blue-headed Vireo
Anatidae	Greater Scaup	Parulidae	Canada Warbler
Anatidae	Bufflehead	Parulidae	Mourning Warbler
Anatidae	Hooded Merganser	Parulidae	Common Yellowthroat
Anatidae	Red-breasted Merganser	Parulidae	Black-and-white Warbler
Anatidae	Common Merganser	Parulidae	Connecticut Warbler
Gruidae	Sandhill Crane	Parulidae	Tennessee Warbler
Charadriidae	Killdeer	Parulidae	Nashville Warbler
Scolopacidae	Greater Yellowlegs	Parulidae	Ovenbird
Scolopacidae	Lesser Yellowlegs	Parulidae	Black-throated Blue Warbler
Scolopacidae	Spotted Sandpiper	Parulidae	Bay-breasted Warbler
Scolopacidae	Wilson's Snipe	Parulidae	Yellow-rumped Warbler
Scolopacidae	American Woodcock	Parulidae	Blackburnian Warbler
Laridae	Common Tern	Parulidae	Magnolia Warbler
Laridae	Herring Gull	Parulidae	Palm Warbler
Laridae	Ring-billed Gull	Parulidae	Chestnut-sided Warbler
Columbidae	Mourning Dove	Parulidae	Yellow Warbler
Caprimulgidae	Common Nighthawk	Parulidae	Pine Warbler
Trochilidae	Ruby-throated Hummingbird	Parulidae	American Redstart
Picidae	Black-backed Woodpecker	Cardinalidae	Scarlet Tanager
Picidae	Pileated Woodpecker	Cardinalidae	Rose-breasted Grosbeak
Picidae	Northern Flicker	Emberizidae	White-crowned Sparrow
Picidae	Downy Woodpecker	Emberizidae	Harris's Sparrow
Picidae	Hairy Woodpecker	Emberizidae	Clay-colored Sparrow
Picidae	Yellow-bellied Sapsucker	Emberizidae	Chipping Sparrow
Tyrannidae	Olive-sided Flycatcher	Emberizidae	White-throated Sparrow
Tyrannidae	Alder Flycatcher	Emberizidae	Vesper Sparrow
Tyrannidae	Least Flycatcher	Emberizidae	American Tree Sparrow
Tyrannidae	Great Crested Flycatcher	Emberizidae	Dark-eyed Junco
Tyrannidae	Eastern Phoebe	Emberizidae	Swamp Sparrow
Tyrannidae	Eastern Kingbird	Emberizidae	Lincoln's Sparrow
Tyrannidae	Yellow-bellied Flycatcher	Emberizidae	Song Sparrow
irundinidae	Barn Swallow	Emberizidae	Savannah Sparrow
Hirundinidae	Cliff Swallow	Emberizidae	Fox Sparrow
Hirundinidae	Tree Swallow	Calcaridae	Lapland Longspur
Hirundinidae	Northern Rough-winged Swallow	Calcaridae	Snow Bunting
Paridae	Black-capped Chickadee	Icteridae	Baltimore Oriole
Paridae	Boreal Chickadee	Fringillidae	Pine Grosbeak
Sittidae	Red-breasted Nuthatch	Fringillidae	Purple Finch
Sittidae	White-breasted Nuthatch	Fringillidae	White-winged Crossbill
Regulidae	Ruby-crowned Kinglet	Fringillidae	Pine Siskin
Regulidae	Golden-crowned Kinglet	Fringillidae	American Goldfinch
Turdidae	Veery	Fringillidae	Evening Grosbeak

Table 20 - Migratory Birds



4.10.3 Amphibians and Reptiles

A total of seven species of amphibians were observed, and five were recorded during the 2011 field season as shown in *Table 21 - Amphibian Species*. Species observed include one toad, three tree frogs, two true frogs and one mole salamander. The tetraploid gray tree frog and eastern American toad were observed in most of the suitable habitats and were heard calling throughout the season. Mink frogs were frequently seen and heard on larger ponds and streams in late summer. Woodland breeding ponds are common in the LSA, given the poorly drained terrain and clay soils. These fish-free habitats are used particularly by wood frog, boreal chorus frog, and tetraploid gray tree frog. Development of the Project will cause a loss of habitat for amphibians and reptiles.

Two reptile species, the western painted turtle and the eastern garter snake, were observed during the 2011 field program. These two species were seen frequently during the 2011 field program.

SPECIES	ABUNDANCE RANK	FREQUENCY (%)
Tetraploid gray treefrog	1	95
Northern spring peeper	2	76
Wood frog	3	48
Eastern American toad	4	86
Boreal chorus frog	5	33

Table 21 - Amphibian Species

4.10.4 Invertebrates

Four species of butterflies and eighteen species of dragonflies and damselflies (Odonates) have been observed in the study area. Two of the species, the Pronghorn Clubtail and Horned Clubtail are provincially rare. (*Table 22 - Invertebrates*). These species were recorded incidentally in the LSA over the field program and targeted surveys were not conducted. The development of the Project will cause a loss of habitat for invertebrate species.



TREASURY METALS

INCORPORATED

	COMMON NAME	FAMILY	SCIENTIFIC NAME
Dragonflies			
Darners	Canada Darner	Aeshnidae	Aeshna canadensis
	Variable Darner		Aeshna interrupta
	Ocellated Darner		Boyeria grafiana
Emeralds	Racket-tailed Emerald	Corduliidae	Dorocordulia libera
	Common Baskettail		Epitheca
Clubtails	Horned Clubtail*	Gomphidae	Arigomphus cornutus
	Black-shouldered Spinyleg		Dromogomphus spinosus
	Pronghorn Clubtail*		Gomphus graslinellus
	Ashy Clubtail		Gomphus lividus
	Dragonhunter		Hagenius brevistylus
Skimmers	Hudsonian Whiteface	Libellulidae	Leucorrhinia hudsonica
	Common Whitetail		Libellula lydia
	Twelve-spotted Skimmer		Libellula pulchella
	Four-spotted Skimmer		Libellula quadrimaculata
	Black Meadowfly		Sympetrum danae
Cruisers	Swift River Cruiser	Macromiidae	Macromia illinoiensis
Damselflies			
Jewelwings	River Jewelwing	Calopterygidae	Calopteryx aequabilis
Bluets	Sedge Sprite	Coenagrionidae	Nehalennia irene
Butterflies			
Swallow tails	Canadian Tiger Swallowtail	Papilionidae	Papilio glaucus canadensis
Whites and Sulphurs	Orange Sulpher	Pieridae	Colias eurytheme
Coppers, Hairstreaks and Blues	Spring Azure	Lycaenidae	Celastrina ladon
Brushfoots	Mourning Cloak	Nymphalidae	Nymphalis antiopa

*provincially rare

Table 22 - Invertebrates



4.11 SPECIES AT RISK AND CONCERN

This section will outline the current understanding of any species at risk associated with the project site. The following tables summarize the results to date (*Table 23 - Species at Risk Provincially, Table 24 - Species at Risk Federally, Table 25 - Confirmation of Species at Risk in Project Area*).

Species		Location of Closest Record	Status
Common Name	Scientific Name		
Birds			
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Dryden Forest	Featured Species
Black-backed Woodpecker	<i>Picoides arcticus</i>	Dryden Forest	Featured Species
Red-necked Grebe	<i>Podiceps grisegena</i>	Provincially rare, but widely distributed nesting in NW Ontario	Provincially Rare (S3)
Black-billed Magpie	<i>Pica hudsonia</i>	Provincially rare, but common nesting species in agricultural land around Dryden	Provincially Rare (S3)
Mammals			
American marten	<i>Martes americana</i>	Dryden Forest	Featured Species
Moose	<i>Alces alces</i>	Dryden Forest	Featured Species
White-tailed deer	<i>Odocoileus virginianus</i>	Dryden Forest	Featured Species
Black bear	<i>Ursus americanus</i>	Dryden Forest	Featured Species
Invertebrates			
Laurentian tiger beetle	<i>Cicindela deniki</i>	Historical record of rare species in Dryden Forest	Provincially Rare (S3)
Horned club tail	<i>Arigomphus cornutus</i>	Provincially rare, but wide distribution in NW Ontario	Provincially Rare (S3)
Pronghorn club tail	<i>Gomphus graslinellus</i>	Provincially rare; distribution unknown	Provincially Rare (S3)

S3 - usually 20-100 occurrences in the province or with many individuals in fewer occurrences

Table 23 - Species at Risk Provincially



TREASURY METALS

INCORPORATED

Species		Conservation Status			Location of Closest Record	Relevant Habitat Use
Common Name	Scientific Name	SARA	COSEWIC	SARO		
Birds						
American White Pelican	<i>Pelecanus erythrorhynchos</i>	NAR	NAR	T	Currently nests at Lake of the Woods - 130 km SW	Nests in large lakes. Feeds in lakes, marshes, and ponds.
Rusty Blackbird	<i>Euphagus carolinus</i>	SC	NAR	SC	Within BBA grid square 15WR11	Boreal forest near wetlands.
Short-eared Owl	<i>Asio flammeus</i>	SC	SC	SC	Currently using Dryden Forest within the LSA. With BBA grid square 15WR11	Marshes, pastures, and hayfields.
Whip-poor-will	<i>Caprimulgus vociferus</i>	T	T	T	Near the northern range at the RSA. Nearest record is west of the City of Dryden.	Open mixed pine and deciduous woodland with developed understory; rocky outcrops and gravel pits. In NW Ontario, habitat often includes pure white birch or trembling aspen on mesic sites.
Common Nighthawk	<i>Chordeiles minor</i>	T	T	SC	Currently using Dryden Forest.	Forest clearings, ponds, pasture, rocky outcrops, and peat bogs.
Olive-sided Flycatcher	<i>Contopus cooperi</i>	T	T	SC	Currently using Dryden Forest. Within BBA grid square 15WR21.	Boreal, coniferous or mixed forest edges adjacent to open foraging grounds such as old burns, meadows, rivers, peatlands, swamps, and ponds.
Barn Swallow	<i>Hirundo rustica</i>	NAR	T	NAR	Currently using Dryden Forest.	Nests in structures and cliffs, aerial feeder of open country.
Canada Warbler	<i>Wilsonia canadensis</i>	T	T	SC	Currently using Dryden Forest. Within BBA grid square 15WR31.	Mixed forest with a dense shrub layer.
Bobolink	<i>Dolichonyx oryzivorus</i>	NAR	T	T	Within BBA grid square 15WR30.	Hayfields and pasture.
Bald Eagle	<i>Haliaeetus leucocephalus</i>	NAR	SC	SC	Currently using Dryden Forest. Within BBA grid square 15WR21.	Lakes, rivers, and trees.
Peregrine Falcon	<i>Falco peregrinus</i>	SC	T	T	Migrant in the LSA and RSA	Open areas near water.
Black Tern	<i>Chlidonias niger</i>	NAR	NAR	SC	Currently using Dryden Forest. Within BBA grid square 15WR11	Large marshes.
Yellow Rail	<i>Coturnicops noveboracensis</i>	SC	SC	SC	Currently using Dryden Forest, within BBA grid squares 15WR21 and 15WR22.	Grassy meadows and sedge marsh.
Least Bittern	<i>Ixobrychus exilis</i>	T	T	T	Rare and local breeder in Ontario. Within BBA grid square 15WR11.	Marsh.
Chimney Swift	<i>Chaetura pelagica</i>	T	T	T	The RSA and LSA is within Ontario range, mostly in urban environments.	Nests in chimneys.
Reptiles						
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	SC	Currently using Dryden Forest and LSA.	Wetlands
Mammals						
American Badger	<i>Taxidea taxus</i>	E	E	E	Near Emo - 145 km SE in 1960's.	Open areas; grasslands, parkland and prairie.
Grey Fox	<i>Urocyon cinereoargenteus</i>	T	T	T	Recorded in Rainy River District. Non-breeder in the local area.	Forests, woodland and open grasslands.
Cougar	<i>Puma concolor</i>	NAR	NAR	E	Occasional reports, but no confirmed records.	Remote woodland and rocky terrain.
Eastern Timber Wolf	<i>Canis lupus lycaon</i>	SC	SC	SC	Unknown range and abundance in Ontario.	Forests and woodlands.
Invertebrates						
Monarch Butterfly	<i>Danaus plexippus</i>	SC	SC	SC	Widespread and common in Ontario.	Farmland and roadsides.

SC - Special Concern, T - Threatened, E - Endangered, NAR - Not at Risk or data deficient
 BBA - Breeding Bird Atlas

Table 24 - Species at Risk Federally



TREASURY METALS

INCORPORATED

Species		Confirmed in LSA
Common Name	Scientific Name	
Birds		
American White Pelican	<i>Pelecanus erythrorhynchos</i>	No
Rusty Blackbird	<i>Euphagus carolinus</i>	Yes
Short-eared Owl	<i>Asio flammeus</i>	No
Whip-poor-will	<i>Caprimulgus vociferus</i>	No
Common Nighthawk	<i>Chordeiles minor</i>	Yes
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Yes
Barn Swallow	<i>Hirundo rustica</i>	Yes
Canada Warbler	<i>Wilsonia canadensis</i>	No*
Bobolink	<i>Dolichonyx oryzivorus</i>	No
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Yes
Peregrine Falcon	<i>Falco peregrinus</i>	Yes**
Black Tern	<i>Chlidonias niger</i>	Yes
Yellow Rail	<i>Coturnicops noveboracensis</i>	No
Least Bittern	<i>Ixobrychus exilis</i>	No
Chimney Swift	<i>Chaetura pelagica</i>	No
Reptiles		
Snapping Turtle	<i>Chelydra serpentine</i>	No
Mammals		
American Badger	<i>Taxidea taxus</i>	No
Grey Fox	<i>Urocyon cinereoargentus</i>	No
Cougar	<i>Puma concolor</i>	No
Eastern Timber Wolf	<i>Canis lupus lycaon</i>	No
Invertebrates		
Monarch Butterfly	<i>Danaus plexippus</i>	No
* No evidence but known to breed within RSA		
** Migrant flyover, no suitable habitat exists in LSA or RSA		

Table 25 - Confirmation of Species at Risk in Project Area

Bat recordings detected at least three bat species in the LSA: these included the hoary bat, little brown myotis, and big brown bat, and/or silver-haired bat. The big brown bat/silver-haired bat was recorded over a variety of habitats including ponds, roads, and other clearings. The little brown myotis is one of the most common bat species in Canada. However as of February 3, 2012 it was assessed by COSEWIC as being Endangered and may be placed on Schedule 1 of the Species at Risk Act.



TREASURY METALS

INCORPORATED

A flock of three migrating Rusty Blackbirds was observed in October 2011. No evidence of nesting was observed within the LSA.

A Common nighthawk was detected by nocturnal sound recordings at two locations on the Project Office grounds in June 2011. Given the close proximity of the recorded sounds, they may represent a single breeding pair, or a single individual. Although nest evidence was not observed in the LSA, suitable habitat occurs in the sandy opening at the Project Office grounds as well as the cutover to the north, and the power line cuts across the LSA.

One Olive-sided Flycatcher sound was recorded in suitable nest habitat on the shores of Thunder Lake in July of 2011. The habitat was shoreline peat land with tall standing snags. The presence of a singing male during the nesting season suggests that Olive-sided Flycatchers may nest in the LSA.

Barn swallows are plentiful and were observed foraging over ponds, lakes, fields, and other open habitat in the LSA and were commonly seen along roads. Active nests are seen in the Project Office storage sheds and building.

Bald Eagles were frequently seen in the LSA, but no stick nests were observed. Potential nesting habitat occurs in mature trees along Wabigoon and Thunder Lakes.

A single Peregrine falcon was observed at the mouth of Nugget Creek in October 2011. This was likely a migrating bird, rather than one from a local nest. There is no suitable habitat in the LSA.

A single black tern was observed flying over forest habitat near Wabigoon Lake in June 2011. No nesting habitat evidence suggests the species does not reside in the LSA. It is likely that nesting habitat occurs on Wabigoon Lake within the RSA and may reside in the confluences to Wabigoon Lake at Blackwater, Hughes, and Nugget Creeks.

A pair of Red-necked Grebes was seen throughout the 2011 field season on a pond on Hughes Creek, where they probably nested. The pond was shallow and densely vegetated with pondweeds and surrounded by shore fen.



Black-billed magpies were frequently seen throughout the LSA. It is probable that nesting locations, although not observed, are present within the LSA.

Two provincially rare invertebrate species were recorded in the LSA: these were the horned club tail and pronghorn club tail. Horned club tail exuvia (larval skin) was collected from Hughes Creek within the 2011 field season. Suitable habitat is found within the creek and the presence of the larval skin indicates that the species successfully reproduces in the environment. Horned club tail is ranked as a venerable species (S3) in Ontario; however it is common to the Rainy Lake and Lake of the Woods regions. An adult pronghorn club tail was collected on the east side of Thunder Lake. Suitable larval habitat exists in Thunder Lake. Pronghorn club tail is ranked as a venerable species (S3) in Ontario; however, it is common to the Rainy Lake and Lake of the Woods regions.

Species		Status	Location	Habitat Use
Common Name	Scientific Name			
Floating marsh marigold	<i>Caltha natans</i>	S1	Keplins Bay, Thunder Creek mouth into Wabigoon Lake	Shallow water in creeks, pools, ditches, and sheltered lake margins
Heart-leaved Alexander	<i>Zizia aptera</i>	S2	Record in Dryden Forest	Rail lines. Possibly a non-native occurrence
Vasey's rush	<i>Juncus vaseyi</i>	Rare	Record in Dryden Forest	Wetlands
Yellow birch	<i>Betula alleghaniensis</i>	Locally Rare	Record in Dryden Forest	Deciduous and mixed forests
Bur oak	<i>Quercus macrocarpa</i>	Locally Rare	Record in Dryden Forest	Deciduous and mixed forests
White elm	<i>Ulmus laevis</i>	Locally Rare	Record in Dryden Forest	Deciduous and mixed forests

Table 26 - Rare Plant Species possible in LSA

Floating marsh marigold, a provincially rare plant species was observed in the Thunder Creek wetland at the mouth of Thunder Creek in October 2011. Approximately 12 plants were rooted in shallow water along the railroad tracks (Table 26 - Rare Plant Species possible in LSA). The Ontario range of this species is restricted to a narrow band from Red Lake to the Minnesota border. Two other provincially rare plants, Heart-leaved Alexander and Vasey's Rush have been recorded within the Dryden Forest by the Dryden Forest Management Company. Locally rare tree species include yellow birch, bur oak, and white elms that occur in the Dryden Forest but were not observed during the 2010-2011 field program.



4.12 SOCIO-ECONOMICS

The development of the Goliath project and operation of the mine will have a number of potentially significant effects upon the local communities, and local First Nation peoples. Knowledge of community profiles and infrastructure capacities are critical aspects to understanding the baseline social, economic, cultural, and health aspects of the surrounding communities and the potential changes to them.

Basic socio-economic data for the communities proximal to the project site is available from the 2011 and 2006 national census. Community profiles for the village of Wabigoon and City of Dryden along with the City of Thunder Bay (which serves as the major regional centre to which the project is most closely identified) are provided within *Table 27 - Census data for Surrounding Communities*.

Census Measure	Dryden	Wabigoon	Kenora Unorganized	Thunder Bay
Population Characteristics				
2011 Population (total)	7617	427	7031	108359
2011 Population (male)	3660	210	3650	52475
2011 Population (female)	3965	215	3380	55885
Population Change 2006-20011 (%)	-7.1	2.4	-0.1	-0.07
Land Area (km ²)	65.84	51.25	400771.80	328.24
Population Density (no/km ²)	115.69	8.33	0.02	330.12
% of Population > 15 years	84.2	78.90	86.4	85.2
Aboriginal Population*	780	**400	910	8845
Family Characteristics				
Total Number of Census Families	2240	125	2295	30350
Number of Married-Couple Families	1580	95	1825	20180
Number of Lone-Parent Families	345	20	205	5990
Average Number of Persons in all Census Families	2.8	2.9	2.8	2.7
Visible Minority Population*	140	**0	20	3175
Language				
English - Mother Tongue*	7375	370	6225	89065
French - Mother Tongue*	200	0	190	2805
Other - Mother Tongue*	490	30	625	15260
Canadian Citizens*	7945	390	6870	105130
Education				
High school or Equivalent*	2020	130	1730	22710
Apprenticeship or Trades Certification*	700	15	720	9630
College or similar Certificate or Diploma*	1375	30	1135	18055
University Diploma or Degree*	660	10	680	13560
Income				
Median Income (> 15 years) (\$)*	26640	**27258	28041	27395
Earnings as % of Income*	75.5	**77.4	73.8	71.2
Government Transfer as % of Income*	10.9	**9.8	11.8	14.1
Other as % of Income*	13.5	**12.9	14.4	14.8
Labour Force				
Total Labour Force*	4290	170	3895	56550
Employed*	4040	175	3610	52470
Unemployed*	255	0	285	4075
* Cited from 2006 Canada Census				
** Cited from Wabigoon Lake 27, 2006 Canada Census				

Table 27 - Census data for Surrounding Communities



TREASURY METALS

INCORPORATED

The Goliath Gold Project is located adjacent to the village of Wabigoon and 20 km east of the city of Dryden. The site is accessible from the Trans-Canada Highway 17 and various secondary roads that extend North of the highway, including Tree Nursery Road, along the north-south boundary of Zealand and Hartman townships, and Anderson Road which runs east-west between Concession III and IV in Zealand Township.

The project site is located less than 10 km northeast of the village of Wabigoon and is accessible from the Trans-Canada Highway 17, and secondary back roads of Maggrah Road, and Johnson Road. Based on the 2011 census data the village of Wabigoon has a population of 427 people. 78.90% of the population is greater than 15 years old. In 2006, the labor force comprised 170 individuals.

Based on the 2011 census data the City of Dryden has a population of 7617 people, which represents a 7.1% drop in population from the 2006 data. The median age of the population is 45 years old and 82.4% of the population is greater than 15 years old. Based on the 2006 census, the labor force comprises 4290 individuals. The median income for individuals over 15 years of age is reported to be \$26,640, whereas the median income for all families is \$77,439. The downturn of the forest industry and the significant scaling back of the operations at the then pulp and paper mill has likely reduced the permanent population numbers.

Most major industrial services and supplies are available in Dryden. The Dryden Airport services the community and local area. The local economy is largely based on the forestry and tourism industries. The Domtar pulp mill is the major employer of the area with approximately 330 mill employees and 250 woodland contractors. Due to the reliance upon resource-based industries, Dryden has taken proactive measures to strengthen and diversify its local economy. This includes the development of strategies that promote continued recreational activities and tourism opportunities, and investment and attractive incentives for new businesses. In addition, the city offers continued encouragement and enhancements to primary sector industries through infrastructure, and services.



TREASURY METALS

INCORPORATED

Currently available programs and services the City of Dryden offers to businesses include:

- Mayor's Committee for Children & Youth
- Partnership with the Dryden District Chamber of Commerce
- City-owned Visitor Information Centre
- The Dryden Development Corporation (DDC) will facilitate businesses in working with or making inquiries of the various City Departments
- Marketing and sponsorship opportunities
- Free business on-line listing end-user customizable
- Confidential business advisor (partnership between the DDC and Northwest Business Centre)
- Referral network utilizing local and regional contacts in business and government
- Assistance with grant and funding applications
- Assistance with First Nation consultation
- Offers amongst the lowest commercial tax rates in Northern Ontario
- Low land costs with a good variety of sizes and locations
- Two City industrial parks – Norwill and Centennial
- Fully-serviced regional airport with Instrument Landing System
- Available property at Airport's Business Park East
- No development fees
- Flexible tax options for new development

The project is located about 325 km west-northwest of the City of Thunder Bay, which is a major economic centre on the Trans-Canada Highway. The city is a port at the northwest head of the St. Lawrence Seaway. Thunder Bay serves as a secondary supply source to the project when materials or services are not attainable through a local provider in Wabigoon or Dryden.

It is anticipated that the project will employ approximately 200 people over the 2-year construction and development period. During the subsequent 10 year operational mine life, Treasury Metals will employ approximately 150 full time people. It is anticipated that no on-site housing facilities will be established for either temporary construction workforce or the permanent mine employees. The workforce will reside in surrounding communities such as Wabigoon or Dryden.



4.13 TRADITIONAL KNOWLEDGE (TK)

Treasury Metals is sensitive to any possible changes to the environment and the effects that may have on Aboriginal peoples as a result of carrying out the designated project. No adverse health effects from the project are expected on either the general local population or Aboriginal communities or members of the Métis Nation of Ontario. Ongoing environmental baseline work and other studies such as for noise and dust will either continue or be done to determine the impact of the mining activities in the area and ensure the design of the mine meets all Federal and Provincial health, safety and environmental regulations. It is expected that should the project evolve into an operating mine, that the socio-economic conditions of Aboriginal and other local people will improve substantially as a result of the jobs and other business opportunities created.

An archeological study has been completed as part of the ongoing environmental baseline work being done by Treasury. No areas of historic, paleontological or archeological significance have been found on the sites of interest to Treasury's exploration and mining activities.

Having said that, Treasury believes that there may still be an opportunity to further engage local Aboriginal peoples to seek out Traditional Knowledge (TK) and Traditional Ecological Knowledge (TEK) to ensure that areas of social or cultural significance within the project area are thoroughly discussed and understood by all interested parties. TK and TEK can be significant to help identify any valued ecosystem components (VEC) within the local First Nations communities that may not already be identified or understood. TEK can be used to assist in verifying that the local wildlife communities identified through the environmental baseline studies already conducted are complete, including the presence or absence of species. The understanding of traditional lands and traditional knowledge will be gained through TML's consultation with local First Nations, and the communities of Wabigoon and Dryden as part of the Environmental Assessment process.

Although most of the land upon which Treasury will be conducting its mining activities is privately owned, there may be some lands and resources that are or have been used for traditional purposes. Future consultation with the local Aboriginal peoples is expected to better



define if and what activities have been carried out on these lands from a traditional land use perspective.

4.14 ARCHEOLOGY

Projects that have the potential to disturb archeological sites require an archeological site assessment prior to development of the project. Several cultural traditions are represented in the prehistory of Northwestern Ontario extending from about 10,000 years ago to the present (*Table 28 - Archeological History of Surrounding and Project Area*).

Period	Time	Description
Palaeo-Indian Period	10,000 B.P. - 7,000 B.P.	<p>These people were the first inhabitants of the area. Most likely they arrived by following herds of caribou across the tundra/parkland environment of newly opened lands left by the retreating glaciers. Within a few hundred years encroachment of the boreal forest led to an adaptation to a forest environment and the concentration of peoples on the lakes and river systems. Several types of spear points, made of different types of material indicate that different groups of these early hunters moved in at various times. However, because of the later retreat of the glaciers in the northern part of the province and subsequent flooding of the glacially compressed landscape by pro and post glacial lakes there was a time delay in the settlement of the land by colonizing vegetation, animals and people. It appears that people may have entered the Thunder Bay area about 10,000 years ago, while archaeological work in the Hudson's Bay Lowland suggests that human occupation maybe limited to about the last 7000 years.</p>
Archaic Period	7,000 B.P. - 2,500 B.P.	<p>A change in the environment to warmer, drier conditions (ca. 7,000 B.P.) brought about a change in plant and animal communities which resulted in a change in the subsistence patterns of humans in this area. These changes are reflected in the artifact assemblages. In response to the hunting of smaller game, large spear points were replaced by smaller notched projectile points and smaller stone knives. A new technology involving the production of stone tools by grinding rather than chipping was also utilized. About 5000 years ago people started</p>



TREASURY METALS

INCORPORATED

		making use of copper, which was cold hammered to form spear points, knives and gaff hooks. One of the most complete copper artifact assemblages for Northwestern Ontario was found at a burial site south of Lake Nipigon that dated to about 3,500 years ago. The Lac Seul area has produced an abundance of copper artifacts reflecting many tool types
Initial Woodland Period	2,500 B.P. - 900 A.D.	This tradition is marked by the introduction of fired clay pottery vessels. These were made using the coil method and had conical bases. They were smooth with the exception of the neck and rim which were decorated with distinctive toothed or sinuous edged tools. The makers of these vessels are known as the Laurel people. They practiced a way of life similar to the region's Archaic people – fishing, hunting, and collecting wild plants on the major waterways. There are two major theories concerning the origin of the Laurel culture in the area. One is that it arose out of an Archaic base differing only by the adoption of pottery. The other is that the people of the Laurel culture moved into the area following the expansion of wild rice into the area about 2,500 B.P.
Terminal Woodland Period	900 A.D. - 1600 A.D.	Two distinctive cultures, both of which appear to have developed from a Laurel base are present in the Terminal Woodland Period. One of these is the Black Duck culture. This is characterized by globular pottery vessels. The body is textured by cord wrapped paddle and the rim is decorated with cord wrapped object impressions. Most Archaeologists believe them to be ancestral to the modern day Ojibway or Anishnabeg Aboriginal Peoples and First Nations. Another is the Selkirk tradition with fabric-impressed vessels. They are found farther north. These people are thought to be ancestral to the Cree Aboriginal Peoples and First Nations.
Contact Period	1650 A.D. - Present	This tradition starts with the arrival of Non-Aboriginal Peoples into the area, first the French then English traders bringing with them trade goods such as axes, guns, beads and metal and woollen goods.

Table 28 - Archeological History of Surrounding and Project Area



TREASURY METALS

INCORPORATED

The current understanding of the project on the local archaeology was determined through investigations initiated as the Goliath Gold Advanced Exploration Program Project proposal was being constructed. This program was not implemented and has been dropped from the current timeline. However, an archeological study was conducted as part of that work, supporting the permitting requirements. The scope allowed for a reduced survey around potential features. The advance exploration site was 600 metres from a primary water source. The Project site is located on similar geography and the results of the archeological study conducted are largely transferrable to the major project. Intermittent water courses are present but are bounded by thick impenetrable alders and are inaccessible now as they would have been in the past. Given the abundance of easily accessible water sources in the immediate region these intermittent water courses would have been of little consequence in the past. The heavy wet clay soils do not exhibit archaeological potential. The property does not contain an esker, drumlin large knoll or plateau.

There is no known prior use of this property for settlement or any other reason and it is not in proximity to any historic transportation routes. The property was not a source of resource extraction in the past, related to archaeological potential (foods, raw materials, logging, fur trade, etc.). Present wood harvesting is related to current mineral exploration activities. There is no local knowledge that this area contains any archaeological sites.

There is no intersection between the Project area and a zone of potential requiring Stage 2 testing, therefore the assumption of archaeological potential for the property is not supported by the property survey and no further testing is required. The archaeological potential of this property is revised to low potential. Should Treasury Metals discover previously undocumented archaeological resources, these resources may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.



5 LAND AND WATER USE

5.1 ZONING DESIGNATIONS

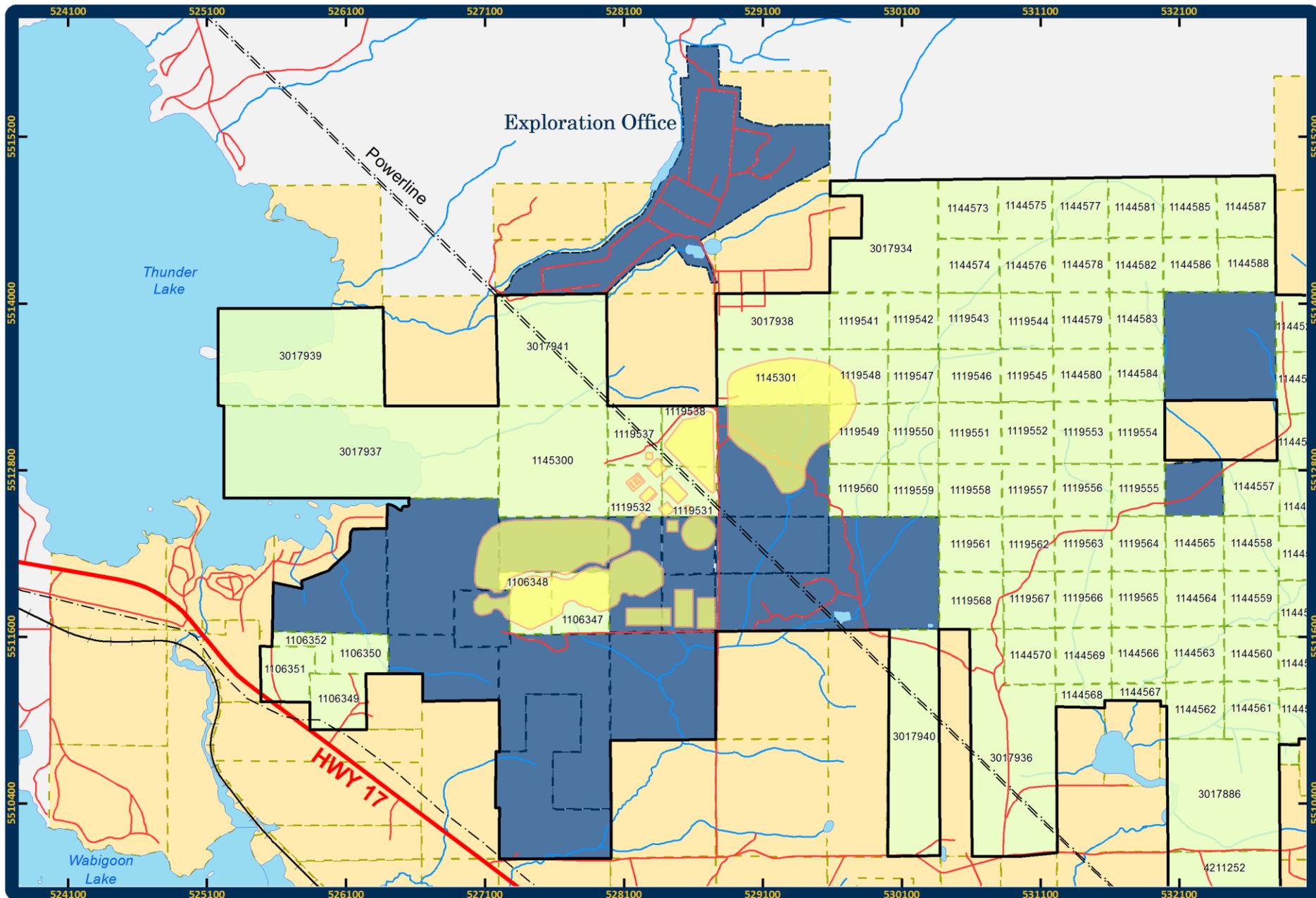
The project falls within the unorganized townships of Hartman and Zealand. In regards to the mine site of the project, the zoning designation is rural or unorganized.

A summary of the zoning designations and present claims and patents can be found in *Sections 5.1 and 5.2 and Figure 25 - Goliath Claims - Detailed*.

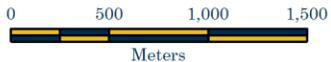
5.2 LEGAL DEFINITION OF LAND LOT AND PROJECT SITE

The Goliath Gold Project Area consists of two historic properties, the “Thunder Lake Property” and the “Laramide Property”, both within the Kenora Mining Division. The Goliath Gold Project area is located partially within both the Hartman and Zealand townships and includes a total area of approximately 4976 hectares, comprising 4064 hectares of 137 unpatented mining claims and 20 patented mining claims for the remainder. Treasury holds the entire project subject to specific royalties on 13 of the patented land parcels. These specific royalties are generally in the form of a Net Smelter Royalty (NSR), with some of the patented land parcels receiving an advanced royalty. Treasury also owns the former MNR tree nursery property.

A summary of the present claims and patents can be found in *Table 29 - Goliath Project Claims* and is shown in *Figure 25 - Goliath Claims - Detailed* and *Figure 26 - Goliath Project Claims*.



Treasury Metals
Claims Map,
2012



1:35,000

- | | | |
|--------------------------------------|-----------|-------|
| Goliath Property Boundary | Utilities | Lake |
| Proposed Project Infrastructure | Railway | River |
| Mining Claim (Crown) within Property | Highway | |
| TML Patented Land | Road | |

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke,
Dryden Office, Treasury Metals Inc.

October 2012

Not for navigational purposes.



Figure 25 - Goliath Claims - Detailed



TREASURY METALS
INCORPORATED

Township	Claim #	Recorded									
HARTMAN	1144513	26-Feb-91	HARTMAN	1144548	26-Feb-91	ZEALAND	1119541	26-Oct-89	ZEALAND	1144563	26-Feb-91
HARTMAN	1144514	26-Feb-91	HARTMAN	1144549	26-Feb-91	ZEALAND	1119542	26-Oct-89	ZEALAND	1144564	26-Feb-91
HARTMAN	1144515	26-Feb-91	HARTMAN	1144550	26-Feb-91	ZEALAND	1119543	26-Oct-89	ZEALAND	1144565	26-Feb-91
HARTMAN	1144516	26-Feb-91	HARTMAN	1144551	26-Feb-91	ZEALAND	1119544	26-Oct-89	ZEALAND	1144566	26-Feb-91
HARTMAN	1144517	26-Feb-91	HARTMAN	1144552	26-Feb-91	ZEALAND	1119545	26-Oct-89	ZEALAND	1144567	26-Feb-91
HARTMAN	1144518	26-Feb-91	HARTMAN	1144553	26-Feb-91	ZEALAND	1119546	26-Oct-89	ZEALAND	1144568	26-Feb-91
HARTMAN	1144519	26-Feb-91	HARTMAN	1144554	26-Feb-91	ZEALAND	1119547	26-Oct-89	ZEALAND	1144569	26-Feb-91
HARTMAN	1144520	26-Feb-91	HARTMAN	1144555	26-Jan-91	ZEALAND	1119548	26-Oct-89	ZEALAND	1144570	26-Feb-91
HARTMAN	1144521	26-Feb-91	HARTMAN	1144556	26-Feb-91	ZEALAND	1119549	26-Oct-89	ZEALAND	1144573	26-Feb-91
HARTMAN	1144522	26-Feb-91	HARTMAN	1210898	02-Apr-96	ZEALAND	1119550	26-Oct-89	ZEALAND	1144574	26-Feb-91
HARTMAN	1144523	26-Feb-91	HARTMAN	1211082	02-Apr-96	ZEALAND	1119551	26-Oct-89	ZEALAND	1144575	26-Feb-91
HARTMAN	1144524	26-Feb-91	HARTMAN	1247442	21-Aug-07	ZEALAND	1119552	26-Oct-89	ZEALAND	1144576	26-Feb-91
HARTMAN	1144525	26-Feb-91	HARTMAN	3017886	10-Jul-09	ZEALAND	1119553	26-Oct-89	ZEALAND	1144577	26-Feb-91
HARTMAN	1144526	26-Feb-91	HARTMAN	3017887	10-Jul-09	ZEALAND	1119554	26-Oct-89	ZEALAND	1144578	26-Feb-91
HARTMAN	1144527	26-Feb-91	HARTMAN	3017888	10-Jul-09	ZEALAND	1119555	26-Oct-89	ZEALAND	1144579	26-Feb-91
HARTMAN	1144528	26-Feb-91	HARTMAN	3017889	10-Jul-09	ZEALAND	1119556	26-Oct-89	ZEALAND	1144580	26-Feb-91
HARTMAN	1144529	26-Feb-91	HARTMAN	3017890	10-Jul-09	ZEALAND	1119557	26-Oct-89	ZEALAND	1144581	26-Feb-91
HARTMAN	1144530	26-Feb-91	HARTMAN	4211247	21-Aug-07	ZEALAND	1119558	26-Oct-89	ZEALAND	1144582	26-Feb-91
HARTMAN	1144531	26-Feb-91	HARTMAN	4211248	21-Aug-07	ZEALAND	1119559	26-Oct-89	ZEALAND	1144583	26-Feb-91
HARTMAN	1144532	26-Feb-91	HARTMAN	4211249	21-Aug-07	ZEALAND	1119560	26-Oct-89	ZEALAND	1144584	26-Feb-91
HARTMAN	1144533	26-Feb-91	HARTMAN	4211250	21-Aug-07	ZEALAND	1119561	26-Oct-89	ZEALAND	1144585	26-Feb-91
HARTMAN	1144534	26-Feb-91	HARTMAN	4245003	28-Feb-11	ZEALAND	1119562	26-Oct-89	ZEALAND	1144586	26-Feb-91
HARTMAN	1144535	26-Feb-91	HARTMAN	4245004	28-Feb-11	ZEALAND	1119563	26-Oct-89	ZEALAND	1144587	26-Feb-91
HARTMAN	1144536	26-Feb-91	HARTMAN	4245005	28-Feb-11	ZEALAND	1119564	26-Oct-89	ZEALAND	1144588	26-Feb-91
HARTMAN	1144537	26-Feb-91	ZEALAND	1106347	13-Oct-89	ZEALAND	1119565	26-Oct-89	ZEALAND	1145300	23-Jun-92
HARTMAN	1144538	26-Feb-91	ZEALAND	1106348	13-Oct-89	ZEALAND	1119566	26-Oct-89	ZEALAND	1145301	23-Jun-92
HARTMAN	1144539	26-Feb-91	ZEALAND	1106349	13-Oct-89	ZEALAND	1119567	26-Oct-89	ZEALAND	3017934	21-May-08
HARTMAN	1144540	26-Feb-91	ZEALAND	1106350	13-Oct-89	ZEALAND	1119568	26-Oct-89	ZEALAND	3017936	21-May-08
HARTMAN	1144541	26-Feb-91	ZEALAND	1106351	13-Oct-89	ZEALAND	1144557	26-Feb-91	ZEALAND	3017937	21-May-08
HARTMAN	1144542	26-Feb-91	ZEALAND	1106352	13-Oct-89	ZEALAND	1144558	26-Feb-91	ZEALAND	3017938	26-May-08
HARTMAN	1144543	26-Feb-91	ZEALAND	1119531	26-Oct-89	ZEALAND	1144559	26-Feb-91	ZEALAND	3017939	04-Jul-08
HARTMAN	1144544	26-Feb-91	ZEALAND	1119532	26-Oct-89	ZEALAND	1144560	26-Feb-91	ZEALAND	3017940	10-Sep-08
HARTMAN	1144545	26-Feb-91	ZEALAND	1119537	26-Oct-89	ZEALAND	1144561	26-Feb-91	ZEALAND	3017941	10-Oct-08
HARTMAN	1144546	26-Feb-91	ZEALAND	1119538	26-Oct-89	ZEALAND	1144562	26-Feb-91	ZEALAND	4211252	06-Sep-07
HARTMAN	1144547	26-Feb-91									

Table 29 - Goliath Project Claims



5.3 APPLICABLE LAND OR WATER USE, RESOURCE MANAGEMENT AND CONSERVATION PLANS NEAR PROJECT SITE

5.3.1 General Land Use

The general surrounding area in which the Goliath Project is located sees a varied use of the land. As the Project site is located in close proximity to the village of Wabigoon and the city of Dryden, snowmobiling, hunting, fishing and camping are popular recreational activities in the area, and both forestry and the pulp industries have played a large part in the local economy.

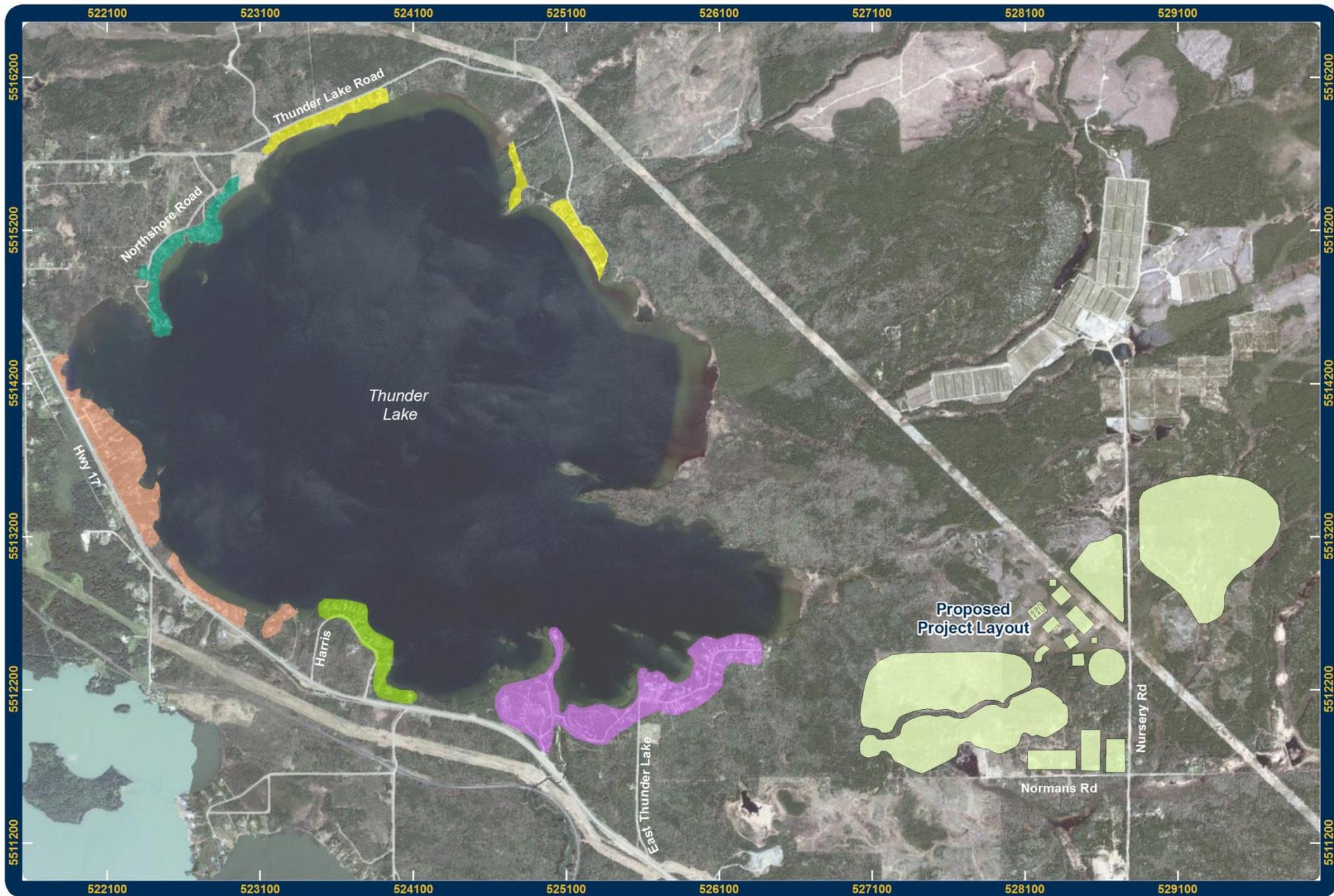
Currently, mining and mineral exploration is also playing a large part in the area's economy. The Red Lake camp of mines is the nearest example of operating mines while several mineral exploration companies are presently working in the vicinity. Bending Lake Iron Group, Tamaka Gold, Manitou Gold, Osisko Hammond Reef and Rainy River Resources are several examples.

Highway 17 is the main access road, lying some 2.5 km to the west of the project site. Running approximately parallel to Highway 17 are both the CP Railway and the TransCanada natural gas pipeline. An electrical power corridor runs through the Goliath Property towards Dryden.

Environmentally sensitive areas can be seen in *Figure 28 - Environmentally Sensitive Areas*.

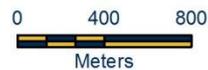
5.3.2 Thunder Lake

Thunder Lake is the closest water body to the project site. The proposed open pit extends to within approximately 800 m from the lake boundary. About 30 seasonal and fulltime residents are located on the eastern side of Thunder Lake on East Thunder Lake Road, with the closest being approximately 800 m from the proposed open pit, and an additional 20 residents on Harris Crescent. The closest Harris Crescent residents are approximately 3,000 m from the proposed open pit. These residents currently use wells or the lake as a water source. The residential areas of Thunder Lake can be seen in *Figure 27 - Thunder Lake Residents*.



**Residents Surrounding
Thunder Lake with Proximity
to the Project Location**

- East Thunder Lake Road
- Harris Crescent
- Highway 17
- Northshore Road
- Thunder Lake Road



1:32,000

Projection: NAD83 UTM ZONE 15N

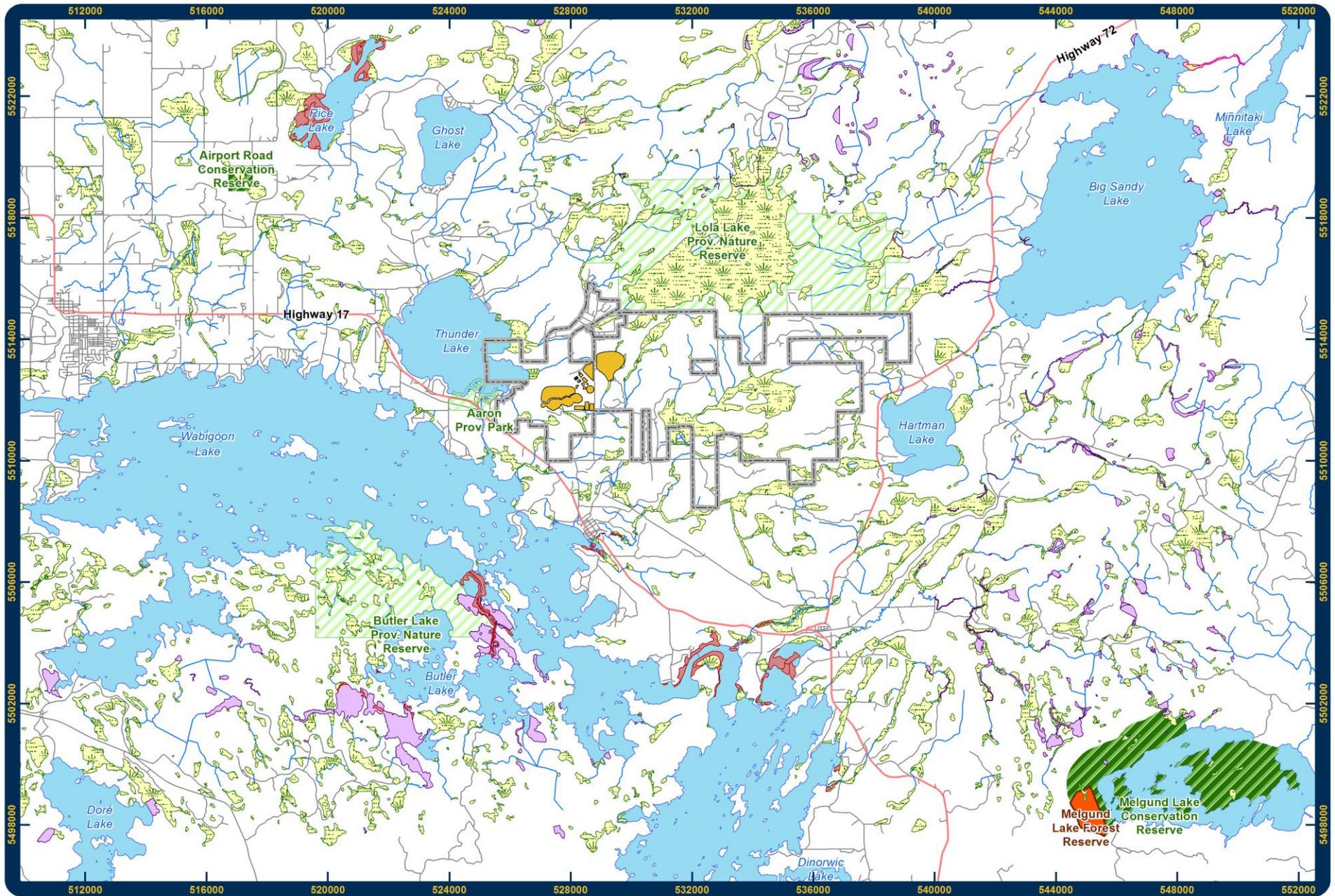
Map produced by Adam Tochoike, Dryden Office,
Treasury Metals Inc.

Not intended for navigational purposes

November 2012



Figure 27 - Thunder Lake Residents



**Treasury Metals
Environmentally Sensitive
Areas Surrounding Proposed
Project Site**



- | | |
|---|--|
|  Walleye Spawning Area |  Forest Reserve |
|  Wild Rice Stand |  Regulated Conservation Reserve |
|  Aquatic Feeding Area |  Fisheries Area |
|  Wetland Area, Permanent |  Proposed Mine Infrastructure |



Kilometers

1:100 000

Source: Data provided by Ontario
Ministry of Natural Resources, Copyright:
2012, Queen's Printer for Ontario

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke, Dryden Office,
Treasury Metals Inc.

Not intended for navigational purposes

November 2012



Figure 28 - Environmentally Sensitive Areas



TREASURY METALS

INCORPORATED

Thunder Lake also accommodates approximately 150-200 residential properties – both seasonal and full time – on Thunder Lake Road that lies approximately 5,500 m from the proposed open pit. Aaron Provincial Park and Johnsons Beach Park are also located on the shores of Thunder Lake. It is anticipated that residents on Thunder Lake may be affected both visually and audibly. The visual effects will be in the form of the WRSA lying about the tree line. As mentioned in previous sections, Treasury intends to limit the final height of the WRSA and create low angles slopes to form a more natural looking feature. This visual result will also be aided by the progressive reclamation planned by Treasury as the WRSA will be covered with vegetation as soon as possible to further reduce the visual impact on neighbouring residents.

The audible effects of the mine will generally be associated with off-highway trucks. This effect will be noticed in particular during the evening and night time hours. Treasury intends to reduce this effect using measures such as sound berming on the WRSA and limiting the back-up alarm on the mining trucks during night time hours. Blasting is not anticipated to be the cause of an appreciable effect due to both the distance to the majority of residents and the limited blasting schedule. Treasury anticipates that blasting in the open pit will occur 3 times per week during weekday daylight hours.

No visual or audible effects are anticipated due to underground mining.

Residents on the eastern shore of Thunder Lake (East Thunder Lake Road) may be affected by dust created by the Project. As mentioned in *Section 3.9.1 - Sources of Atmospheric Emissions*, Treasury will create a dust dispersion model and will use this as a means of determining mitigation measures to limit dust effects on neighbouring residents.

Along with the parks and residents, the lake is also popular for boating, fishing and swimming and is used by the residents of neighboring communities such as Wabigoon and Dryden.

The outflow of Thunder Lake is at Thunder Creek, which flows south into Wabigoon Lake.



5.3.3 Wabigoon Lake

Wabigoon Lake is the largest lake in the immediate vicinity of the Goliath Project. It is Treasury's intention to direct any process effluent discharge into the Blackwater Creek system, which ultimately flows into Wabigoon Lake at Kelpyn Bay.

The village of Wabigoon and city of Dryden are located on the shores of Wabigoon Lake, as is Dinorwic and the Wabigoon Lake Ojibway Nation Reserve to the southeast of the Project.

Use of the lake is varied and includes: fulltime and seasonal residents living on its shores, commercial and sport fishing, tourist camps and lodges, recreational boating and camping. The Butler Lake Provincial Nature Reserve is also located on the shores of Wabigoon Lake. Wild rice harvesting has also been done on Wabigoon Lake by the local First Nation community. The lake is also the main water supply for Domtar's pulp mill operations and the city of Dryden's drinking water.

It is not anticipated that residents or users of Wabigoon Lake will be affected visually, audibly or by dust from the Project.

5.3.4 Aaron Provincial Park

Aaron Provincial Park is a recreational class park located on the shores of Thunder Lake. As described by the Ontario Parks website, the 117 ha. park includes 98 camp sites with 24 electrically serviced sites. Main uses of the park include day use and picnic area, swimming, fishing and overnight seasonal camping. Aaron Park is located approximately 1.5 km from the eventual open pit perimeter.

The visual and audible and dust effects on Aaron Provincial Park will be similar to those of Thunder Lake residents as mentioned above.

5.3.5 Lola Lake Provincial Nature Reserve

The Lola Lake Provincial Nature Reserve is located at the north end of the Goliath Project boundary or approximated 3.5 km upstream from the proposed open pit boundary. Lola Lake is



TREASURY METALS

INCORPORATED

part of the headwaters that form Thunder Lake Tributary #2 that flows past the Project Office towards Thunder Lake.

The 6,572 ha Reserve has an extensive peat plain resting upon a sedimentary sand plain. As described by Ontario Parks, the Reserve features terraces and clays from two vanished, post glacial lakes, a moraine outwash, and a variety of bogs.

There are currently no visitor facilities at the reserve. It is not anticipated that the Project will have adverse effects on Lola Lake Provincial Nature Reserve.

5.3.6 Butler Lake Provincial Nature Reserve

The 3,400 ha Nature Reserve is located on the shores of Wabigoon Lake, 10 km southeast of the City of Dryden. Butler Lake Nature Reserve features an eight-metre section of varved clays deposited by the postglacial Lake Agassiz. It is not anticipated that the Project will have adverse effects on Butler Lake Provincial Nature Reserve.

5.3.7 Dryden Regional Airport

The Dryden Regional Airport is located approximately 11 km to the northwest of the Goliath Project Site. This airport serves regional flights principally from Bearskin Airlines. The airport is also used extensively by the MNR in fire prevention during the summer fire season. The airport authorities will be required to give input when Treasury will create blasting procedures for the open pit mining.

5.3.8 Wabigoon and Dryden Landfill Facilities

The Wabigoon Municipal landfill site is approximately 2 km to the east of the proposed pit outline and Process Plant facility. This landfill is accessed by "Dump Road" via Anderson Road.

The City of Dryden currently has two operating landfill facilities. One being the Highway 502 landfill, located approximately 8 km south west of the city center of Dryden and the other landfill site being the Barclay Hall Road Landfill Site, approximately 10 km to the west of the Goliath Project site.



TREASURY METALS

INCORPORATED

It will be confirmed during the EIS preparation which landfill facility will be used for the Project and approximate volumes of waste that will be deposited over the mine life.

5.3.9 Highway 17 and associated roadways

The Project limit is located approximately 1.5 km (by direct line) from the Trans-Canada Highway (designated as Highway 17 in this area). There are also various secondary roadways surrounding the Project.

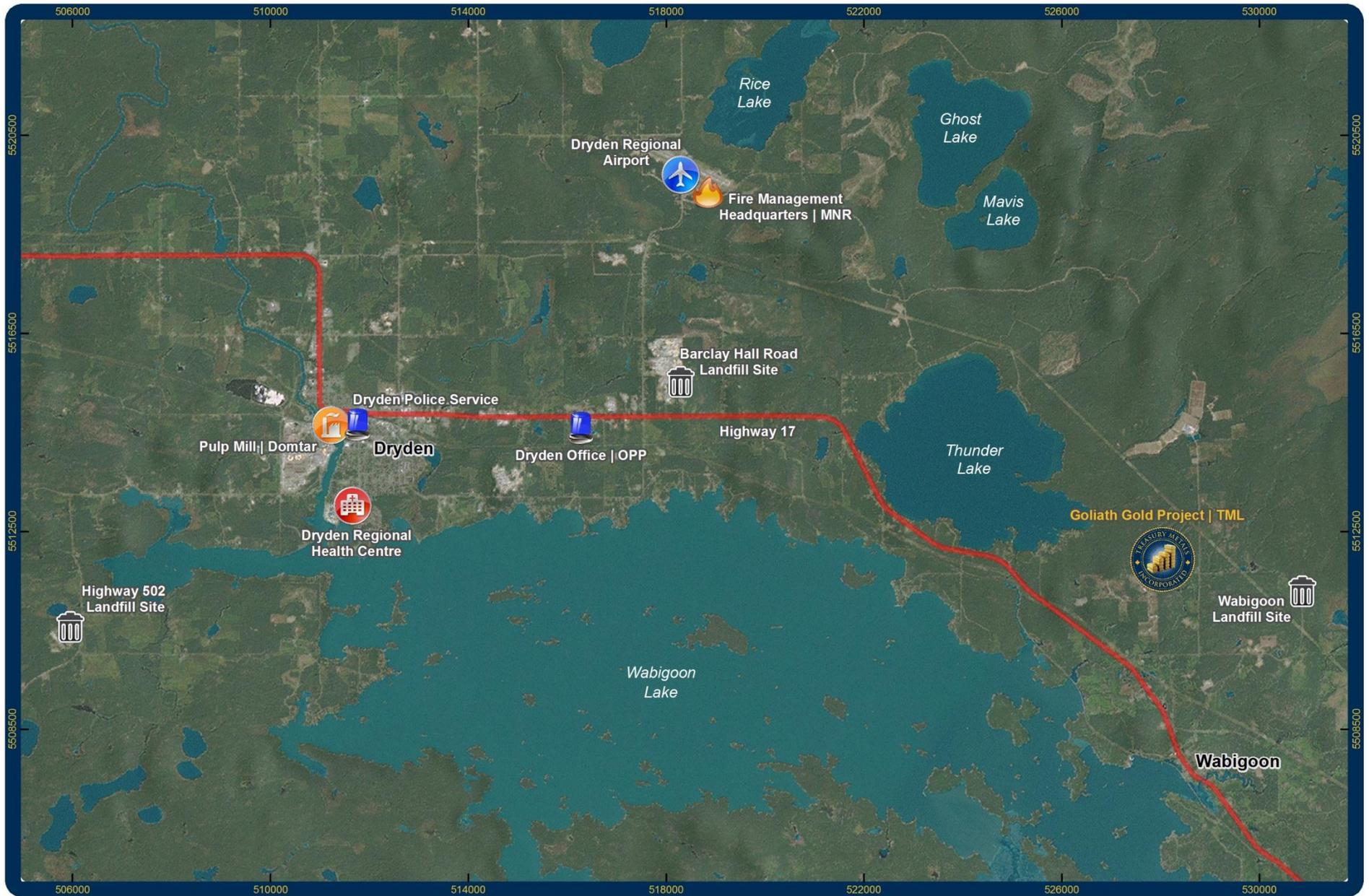
It is anticipated that effects on the surrounding highways and roads will be limited to dust dispersion during blasting operations. As part of the dust dispersion model, Treasury will develop blasting procedures that will avoid large amounts of dust from drifting across the highway directly following a blast. This may mean that the Project suspends large blasts when the wind direction is toward the highway.

5.3.10 Natural Gas Pipeline

TransCanada Corporation operates a Natural Gas Pipeline that runs adjacent to and approximately parallel with Highway 17 in this area. As such, the pipeline is located approximately 1.5 km by direct line to the project site. It is expected that natural gas from this pipeline system will be supplied to the Project's processing facility. Treasury intends to take Natural Gas from this pipeline. No other effects are anticipated for the natural gas pipeline due to the Project.

5.3.11 Railway

Canadian Pacific Railway (CP Rail) operates a rail line that runs approximately parallel with Highway 17 in this area. The rail line is located approximately 2.5 km by direct line to the project. No effects are anticipated for the railway due to the Project.



Points of Interest & Industry Surrounding Goliath Gold Project



0 1 2 3 4
Kilometers
1:100,000 September 2012

Projection: NAD83 UTM ZONE 15N
Map produced by Adam Tochoilke, Dryden Office,
Treasury Metals Inc.
Not for navigational purposes.

Service Layer Credits: Source: Esri, i-cubed, USDA, USGS,
AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS
User Community



TREASURY METALS

INCORPORATED

Figure 29 - Regional Points of Interest



5.3.12 Dryden Pulp Mill

The major industrial facility in Dryden is the market pulp mill currently owned by Domtar Corporation. The mill has been the primary employer in the community for many years, dating back to 1911 when Dryden Power and Timber Company first commenced operations on the site. The first paper machine was installed in 1918. The mill has had numerous owners over the years and it was acquired by Avenor in 1994 from Reed Paper. Under Avenor the mill was substantially rebuilt with a new pulping line and paper machine in 1983, followed by the addition of a second new paper machine in 1989. The mill changed ownership again in 1998 when it was purchased by Weyerhaeuser. The mill became part of Domtar, the current owners in 2007.

Up to the recent past, the mill produced a combination of various grades of fine paper and market pulp for sale primarily in North America. Annual paper production capacity in 2005 was 487,000 tonnes/year. With the decline in demand for fine papers in North America, paper operations started scaling back in 2005 with the shutdown of one paper machine, followed by the shutdown of the second paper machine in 2008, at which time paper production permanently ceased at the facility. Simultaneous to this, the lumber operations at the mill were permanently shut down in 2004. Over that period, between the years 2001 through to the present, employment at the mill declined from approximately 1200 employees to the present base of 330 employees and approximately 250 employees of contractors supplying wood to the mill. The direct and indirect drop in employment and production at the mill has had a significant negative economic impact on the City of Dryden and the surrounding area.

Today the mill is a modern single line pulp mill which has recently completed the installation of a new turbine that will improve the mill's electricity self-sufficiency. The capital investment of CDN\$22.7 million was entirely funded by credits received under the Government of Canada's Pulp and Paper Green Transformation Program. The 330 mill employees together with the 250 contractor employees produce approximately 319,000 air dry metric tons per annum of fully bleached paper grade softwood market pulp.

No effects are anticipated for the Dryden Pulp Mill due to the Project.

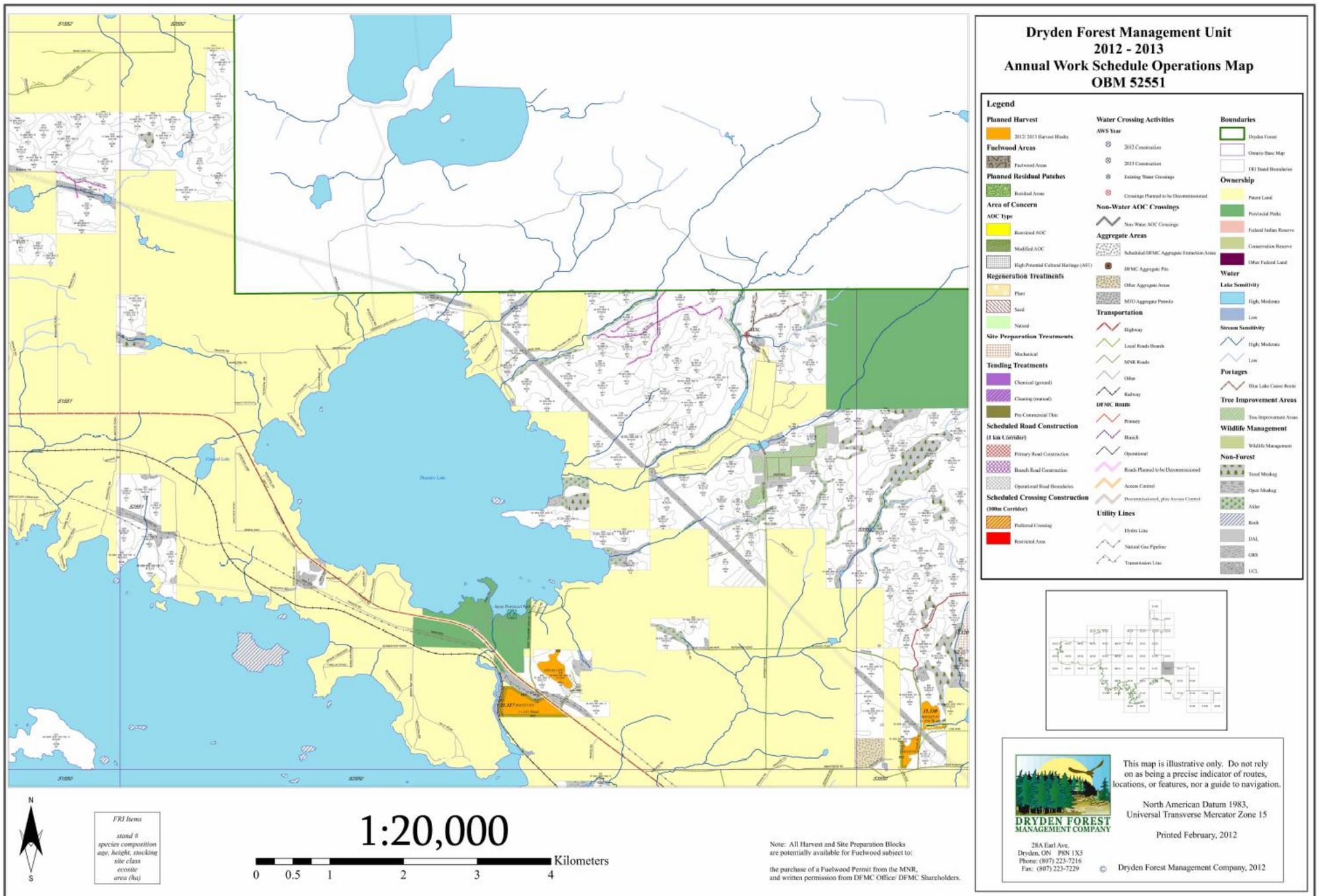


Figure 30 - Dryden Forest Management



5.3.13 Dryden Forestry Industry

In addition to the aforementioned Domtar pulp mill operations, the forestry industry in the local area is now mainly involved in harvesting wood. The wood that is harvested in close proximity to Wabigoon and Dryden is destined primarily for the pulp mill in Dryden. Wood also flows from these local forests to paper mills in Thunder Bay and Fort Frances as well as several sawmills in the region. Two oriented strand board mills, in Kenora and Barwick, also source some fibre from the Wabigoon/Dryden area.

The local forestry operations are conducted primarily on crown land, which is divided up into three major areas. These three Crown forest areas are administered and managed in accordance with the *Crown Forest Sustainability Act* and as such any harvesting in these areas is subject to approval from the provincial government through a well-defined approval and permitting process. The three sustainable forest licences in the area are: the Wabigoon Forest, the Trout Lake, and the Dryden Forest. There is a small amount of privately owned wood that is harvested each year by local land owners, but this volume is small in comparison to the wood harvested from the three sustainable forest licences in the region.

The forestry operations in the area directly employ approximately 300 people. The proposed mining operations at the Treasury Metals site are not expected to have any negative impact on the forestry industry.

No effects to the Dryden Forestry Industry are anticipated due to the Project.

5.3.14 Farming

There is minimal farming in the immediate area. A nearby neighbour has a small family operated farm. There is some minimal farming in the adjacent area, however, due to the short growing season it is limited to local consumption only. The primary production markets are hay and cattle. No effects to the local farming community are anticipated.



TREASURY METALS

INCORPORATED

5.3.15 Archaeological or Traditional Use Sites

Currently Treasury Metals is not aware of any archaeological or traditional use sites within the project area. Wabigoon Lake Ojibway Nation is known to harvest wild rice in the areas shown in *Figure 31 - Wild Rice Harvesting Areas*. The closest known wild rice harvesting site is located near the shores of the village of Wabigoon and is approximately 4,500 m from the proposed Project site. Treasury is not aware of any other traditional land use issues on the properties the project is located on, but if anyone has knowledge or information of any such use, Treasury would appreciate learning more about it.

5.3.16 Timber Rights

The Project is situated within the Dryden Forest Management Plan. Treasury will cooperate to allow the Dryden Forest Management Plan to continue. Any harvesting of timber within the project site will be conducted through consultation with the Dryden Forest Management Company.

5.3.17 Neighbouring Private Land

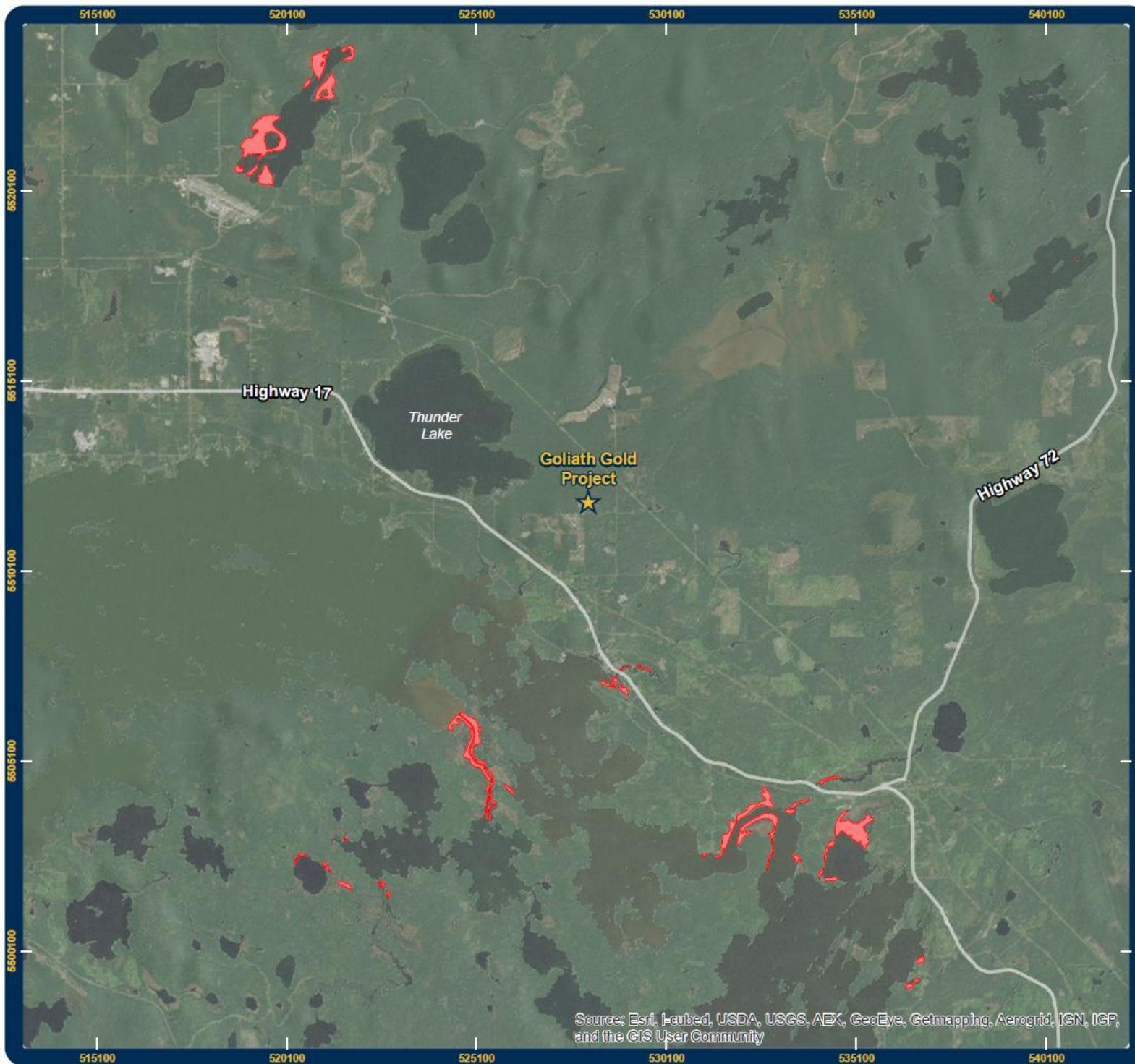
There are several land parcels that are privately owned in proximity to the Project site, the closest of which lies some 800 m to the south of the proposed Project. Treasury will work in consultation with these neighboring land owners as the Project is developed.

5.3.18 Federal Lands

The nearest federal lands to the Project are the First Nation reserves of WLON and ELFN. They are approximately 10 km and 30 km from the project to the extents of the respective reserve. It is anticipated that no other federal lands are applicable to this project.

5.3.19 Other Easements for the Property

There are currently no known easements on the Project site.



Wabigoon Lake Ojibway Nation Wild Rice Harvesting Locations

Legend

- ★ Project_Location
- Rice Harvesting Area
- Highway



1:135 000

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tocholke,
Dryden Office, Treasury Metals Inc.

Source: Wild Rice data provided by Ontario
Ministry of Natural Resources, Copyright:
2012, Queen's Printer for Ontario

Not intended for navigational purposes

September 2012



Figure 31 - Wild Rice Harvesting Areas



TREASURY METALS

INCORPORATED

5.4 MARINE TERMINAL

No Marine Terminal is being considered for the Project. This section is considered not applicable for the project description purposes.

5.5 CANADIAN PORT AUTHORITY

The project is not taking place within the waters or lands administered by a Canadian Port Authority under the Canada Marine Act Regulations.

5.6 GRANTING OF INTEREST IN FEDERAL LAND

The project does not require any granting of interest in federal land. This section is considered not applicable.

5.7 ABORIGINAL LAND AND RESOURCE REQUIREMENTS

The project does not require access to, use or occupation of, or the exploration, development and production of, Aboriginal lands and/or resources. Treasury is not currently aware of any use by aboriginal peoples of the lands it intends to use for mining purposes. Having said that, Treasury knows that the Métis Nation of Ontario and both the Wabigoon Lake Ojibway Nation and Eagle Lake First Nation are interested in the project and its possible impact on traditional harvesting and traditional land use activities. We look forward to future consultation meetings to further explore their concerns and expressed interests. It is Treasury's expectation that the consultations that will take place in the Environmental Assessment process will discuss the possible past use of the proposed mining site by Aboriginal peoples for traditional purposes.

5.8 FEDERAL FUNDING

There is no proposed or anticipated federal funding associated with the project at this time. However, it should be noted that Treasury is investigating the prospects of Federal Funding in regards to various training programs in the area.



6 COMPANY ENGAGEMENT/CONSULTATION

6.1 COMPANY ENGAGEMENT/CONSULTATION WITH ABORIGINAL GROUPS

Treasury understands that Aboriginal consultation represents not only a requirement in the permitting and EA process but also a great opportunity to engage and prepare the local Aboriginal communities as potential future employees and business associates. It is also important to understand any potential impacts the project may have on traditional uses of the land and areas of cultural significance. In this regard Treasury began the discussion and consultation process as early as 2008 and is presently continuing to reach out to the various local Aboriginal groups.

In an effort to aid in these discussions, Treasury has attempted to focus the development of the project from the local level. Treasury has found this to be a great asset as the team in the Dryden is easily accessible locally for meetings and discussions.

Treasury will be actively engaged in the consultation process throughout all phases of the mine life from development to closure and reclamation. It is seen as a great benefit for all parties to engage in training programs that will allow for development of Aboriginal youth and others to develop skills that will enable them to participate directly in the project as employees.

This section will outline the Aboriginal groups with interests in the Project, consultation activities to date, some key comments and concerns and the strategy proposed by Treasury to continue to build the relationship with local Aboriginal groups. A map showing the local First Nations can be seen in *Figure 32 - Local First Nations*.

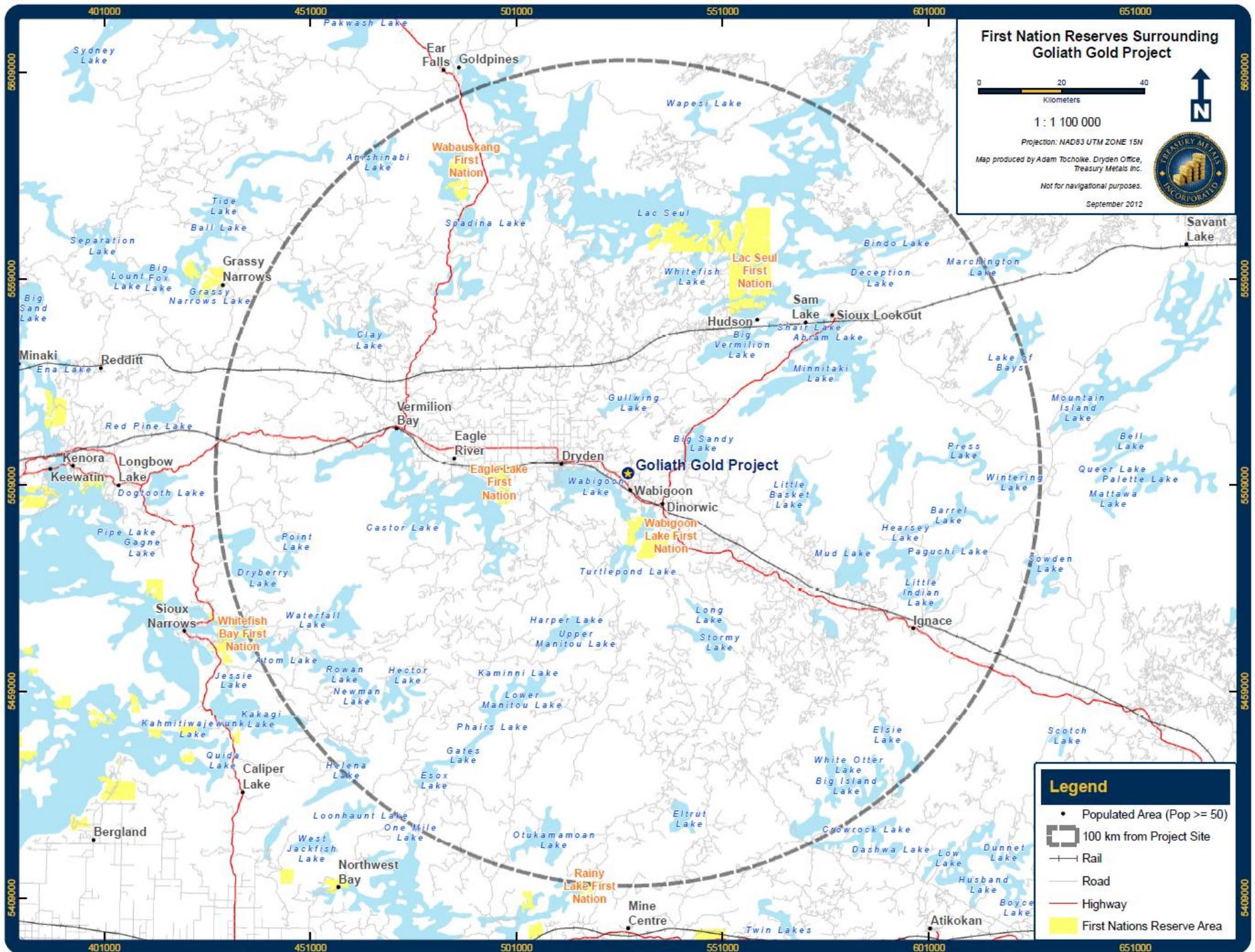


Figure 32 - Local First Nations



TREASURY METALS

INCORPORATED

6.1.1 List of Potentially Impacted Aboriginal Groups

There are several Aboriginal Groups in the immediate area of the Project. Treasury Metals has identified what are believed to be the key First Nations communities in the local area. The criteria used to identify the First Nations groups with whom consultation is desired and necessary have to date included: First Nations bands or groups that are in closest proximity to the proposed mine site, attend school in the Wabigoon/Dryden area, do their primary shopping in the immediate area and use Wabigoon and Dryden as their primary source of medical and other services. Using these criteria, Wabigoon Lake Ojibway Nation, Eagle Lake First Nation and the local Métis Nation of Ontario have been identified as the groups with which Treasury Metals will hold formal consultation discussions.

The contact information for these First Nations is, as follows:

Wabigoon Lake Ojibway Nation

Chief Ruben Cantin Sr.

R.R. #1, Site 115

P.O. Box 100

Dryden, Ontario

P8N 2Y4

Phone: 807-938-6684

Website: www.wabigoonlakeon.ca

Eagle Lake First Nation

Chief Arnold Gardner

P.O. Box 1001

Migisi Sahgaigan, Ontario

P0V 3H0

Phone: 807-755-5526

Fax: 807-755-5696

Website: www.eaglelakefirstnation.ca



TREASURY METALS

INCORPORATED

Métis Nation of Ontario

James Wagar

226 South May Street

Thunder Bay, Ontario

P7E 1B7

Phone: 807-624-5024

Fax: 807-626-9030

Website: <http://www.metisnation.org>

The other First Nations communities considered were Lac Seul First Nation and Wabauskang First Nation. The Wabauskang First Nation was not included due to their relative distance from the Project and closer proximity to other communities such as Red Lake.

In the case of Lac Seul, it would appear that this band is more closely associated with the community and area of Sioux Lookout. Treasury Metals did participate in a career fair on the Frenchmen's Head reserve at the request of Lac Seul First Nation on April 12, 2012. Given their expressed interest in possible future employment at the mine site, Treasury Metals would intend to keep them informed of job opportunities as they arise.

6.1.2 Engagement/Consultation Activities to Date

A brief description is provided in this section of the consultation that has occurred to date. Treasury has engaged with Wabigoon Lake Ojibway Nation, Eagle Lake First Nation and the Métis Nation of Ontario. Contact and Consultation logs are attached respective to each group to demonstrate the level of engagement to date. In depth consultation with respect to traditional land use and harvesting, hunting, fishing and other rights as defined in the local Treaties will be done in the near future as part of the environmental assessment process.

6.1.2.1 Wabigoon Lake Ojibway Nation

Consultation and discussions aimed at relationship building have been ongoing with the Wabigoon Lake Ojibway Nation (WLON) since an initial contact on June 2, 2008. WLON is the closest First Nation to the Goliath Project. Discussions regarding a Memorandum of



TREASURY METALS

INCORPORATED

Understanding (MOU) between the parties to establish a working relationship were started early on after the initial contacts between the two groups.

After many meetings and attempts at putting an agreement together, the talks became somewhat stalled in the spring and summer of 2011 as a result of one particular demand by WLON that Treasury cannot agree with. During 2012, several meetings between Treasury and WLON have been held in further attempts to break the impasse. The contact log attached documents these meetings. Although the parties have not yet come to agreement on a final document, discussions are ongoing and to date both Treasury and WLON continue to look for a way to come to a mutually beneficial agreement.

Recently, on October 18, 2012, the Mayor of Dryden facilitated a meeting between Treasury and WLON at the municipal offices of Dryden. Treasury representatives and several members of the WLON council discussed the Project and how to maintain communication between the two groups. This meeting was productive and gave Treasury an opportunity to communicate with several members of the WLON including Chief Ruben Cantin. At the end of this meeting Treasury and WLON agreed to meet again for discussions on reaching an MOU.

On November 2, 2012, Treasury and WLON met at the Best Western conference centre in Dryden as a follow up to the meeting with the Mayor on October 18. Several members of the WLON council were in attendance including Chief Ruben Cantin, the WLON Economic Development Officer Terry Favelle, several other members of WLON council and two technical advisors from the Bimose Tribal Council in Kenora. Both Norm Bush and Mark Wheeler attended on the part of Treasury. This meeting was productive and several points of the MOU were discussed. A significant issue remains between the parties, which needs resolution, before an agreement can be reached that would allow an MOU to be signed. The group agreed that further discussions are required. WLON maintains its assertion that the Project will take place on traditional lands. No specific information was provided to Treasury in regards to the traditional uses and knowledge of the project area. Efforts were focused on creating a relationship between the two parties that would allow for meaningful future discussions. We expect this will be one of the subjects of future meetings.



TREASURY METALS

INCORPORATED

Work is ongoing with WLON to initiate contracts for goods and services to be provided to Treasury, where possible. For example, Treasury was approached by the former Resource Director for WLON to provide exploration drilling services to the company. As a follow up to this request, Treasury had requested a proposal for exploration drilling to be provided by WLON personnel. This initiative is on hold with the departure of this individual from the band leadership team.

On Friday November 9, Norm Bush and Chief Cantin discussed how to move forward and the parties agreed to have a discussion in early December 2012 to organize a future meeting.

The project is in its early stages and although significant issues remain, the company expects that these will be resolved through the consultation discussions with Wabigoon Lake Ojibway Nation and government agencies in the EA process. Treasury will continue to reach out and be proactive in the consultation process in an attempt to fully understand all issues and concerns that WLON may have regarding the project and find solutions that are mutually beneficial to both parties. The Ministry of Northern Development and Mines has facilitated meetings between Treasury and WLON in the past and Treasury expects that to continue in the future.

Documented attempts at contact using mail, email and telephone are documented in *Table 30 - Record of Consultation (WLON)*.



TREASURY METALS

INCORPORATED

Date, Location	Activity,Event	Participants
06/02/2008 Wabigoon Lk Ojibway Nation	Initial introduction to TML and work program	Terry Loney (TML) Terry Favelle, Even Favelle and Ron Williams (WLON)
07/02/2008 - 10/11/10	Emails exchanged. Discussions included FN Values, statement of intent to build good working relationship, project description, work program, MOU and WLON cleaning products.	Terry Loney (TML) and Terry Favelle (WLON)
07/16/2009	Letter sent to Chief Pitchenese with update of 2009 Summer Program	Chief Pitchenese, Terry Loney
01/15/2011	Meeting to provide update	Terry Favelle, Terry Loney - Project Update
01/18/2011	Meeting on training initiative	Terry Favelle, Brian Mclvor and Terry Loney
20/01/2011 - 14/02/2011	Email/telephone conversations regarding draft of MOU's	Terry Favelle, Terry Loney
15/02/2011 meeting in Terry Favelles office at WLON	Meeting with dicussions on MOU, Employment Opportunities, with introduction to Seven Generations classroom and staff	Terry Favelle, Brian Mclvor, Andrew Cheatle, Terry Loney
15/02/11 - 19/02/11	Email communication discussions included MOU and Training	Terry Favelle, Terry Loney
02-21-11 Valhalla Inn Meeting room	Meeting included GN MOU discussion, training, code of conduct, exploration process, Mineral Resouces and mining stages, Drup & Alcohol policy, FN values, archaeological significance, project description.	Terry Favelle, Mike Strickland (legal rep Buset and Partners, Andrew Cheatle, Terry Loney
03/02/11	Emails exchanged regarding MOU and Training Program	Terry Favelle, Terry Loney
06/04/2011 NWOPA Thunder bay	Informational meeting with discussions on project development and MOU progress	Terry Favelle, Terry Loney, Andrew Cheatle, Rory Krocker
10/04/11 - 20/04/11	Emails exchanged regarding MOU, Training and Education	Terry Favelle and Terry Loney
20/04/2011 at WLON	Meeting included discussion on Training Program, schedule site visit to Treasury Metals.	Terry Favelle and Kyle Loney
21/04/2011 at TML site	Tour visit and included review of surplus Tree Nursery Equipment that WLON Tree Nursery could potentially use.	Terry Favelle, Misc. WLON representatives, Kyle Loney and Rory Krocker
21/04/2011 - 26/04/2011	Email communication regarding MOU and Equipment Rentals	Terry Favelle, Tyson Gardner, Deana, Kyle Loney
27/04/2011 Riverview Lodge	Meeting; discussions around Potential Training program, MOU progress	Terry Favelle, Tyson Gardner, Seven Generations Representatives, Kyle Loney and Andrew Cheatle
28/04/2011 - 25/05/2011	Email and Telephone correspondence. Topics included MOU, and the draft collaboration agreement for training program	Terry Favelle, Tyson Gardner, Andrew Cheatle, and Kyle Loney
27/05/2011 WLON	Meeting/tour of WLON - Brief discussions on MOU and interest in WLON products	Terry Favelle, Tyson Gardner, Andrew Cheatle
31/05/2011 & 01/06/2011	Tour Visit/Meeting at TML - Tree Nursery site - review of equipment of interest to WLON	Tyson Gardner, Kyle Loney
14/06/2011 at Ontario Mining Forum	Brief meeting with discussion on MOU, access fees and an introduction to Chief Ruben Cantin	Tyson Gardner, Chief Ruben Cantin, Andrew Cheatle

Table 30 - Record of Consultation (WLON)



TREASURY METALS

INCORPORATED

Date, Location	Activity,Event	Participants
16/06/2011 - 27/06/2011	Email and Telephone conversations regarding Training, Training funding deadline and MOU	Terry Favelle, Tyson Gardner, Terry Loney, Kyle Loney
07/07/2011 Dryden	Meeting with general discussion on project and MOU process	Tyson Gardner, Andrew Cheatle
07/07/2011 - 20/07/2011	Email and telephone conversations involving the MOU	Terry Favelle, Tyson Gardner, Andrew Cheatle
02/08/2011 WLON	Meeting. Discussions on MOU, other mining company practices.	Chief Cantin, Council(Terry Favelle, Tom Favelle, Ron Williams, Tyson Gardner(Director) Andrew Cheatle, Rory Krockner
03/08/2011 - 13/08/2011	Email, Telephone conversations regarding Employment Opportunities, Elder Honorarium and Heavy Equipment Rentals	Tyson Gardner, Terry Favelle, Andrew Cheatle, Rory Krockner, Adam Larsen,
15/08/2011 WLON	Meeting to introduce Martin Walter CEO TML to Chief	Tyson Gardner, Andrew Cheatle and Martin Walter
15/08/2011 - 02/09/2011	Various Email and Telephone correspondence regarding MOU, heavy Equipment rentals, Scheduled meeting	Tyson Gardner, Andrew Cheatle, Martin Walter
09/09/2011 WLON	Meeting to discuss MOU and cease operation request	Chief Cantin, Council, Tyson Gardner, Louie Seymour, Martin Walter, Andrew Cheatle, Adam Larsen
06/09/2011- 19/09/2011	Letters exchanged regarding MOU and Breach of Conditions	Chief Ruben Cantin & Martin Walter CEO
12/16/2011 WLON	Meeting introducing Norm Bush as TML new V.P. of Operations. Discussions around Outstanding Issues	Norm Bush, Chief Cantin, 2 Councillors
01/12/2012 meeting	Meeting which discussed current company history and reviewed MOU demands	Chief Cantin, Ian Johnson (MNDM), L. Seyman, Norman Busn, Adam Larsen
13/01/12 - 03/02/2012	Telephone, email correspondence regarding communication attempts of both parties.	Melanie Mathieson, Norman Bush, Tyson Gardner, Adam Larsen, John Chulick, Tracy Rottler
09/02/2012	Letter received from WLON regarding impasse and other corporate agreements	Chief Cantin and Martin Walter
05/03/2012 - 06/03/2012	Telephone conversations and voice messages - scheduling meeting	Tyson Gardner, Ian Johnson and Norman Bush
06/03/2012 Sheriton Hotel Toronto	Meeting held to discuss MOU and outstanding issues	Chief Cantin, Tyson Gardner, Ian Johnson, Norman Bush, Greg Ferron, Mike Grant, Partick Barnes, Bryce Barker
09/05/2012 Best Western Dryden	Meeting regarding opportunities for WLON. (Drilling, Road building, core boxes, sale of surplus tree nursery equip.)	Tyson Gardner, John from 3C Drilling, Norman Bush, Rory Krockner, Mark Wheeler
11/05/2012	Telephone conversation regarding MNDM negotiator, Ring of Fire, Treaty 3	Chief Cantin, Norman Bush
09/05/2012 Best Western	Meeting to discuss opportunity for WLON with TML	Tyson Gardner, John from 3C Drilling, Norman Bush, Rory Krockner, Mark Wheeler
03/07/2012 - 30/09/2012	Various Telephone conversations regarding drilling contract	Tyson Gardner, Norman Bush
18/10/2012, Dryden	Meeting between WLON and TML facilitated by Mayor of Dryden	Chief Cantin, Various member of WLON council, Norm Bush, Mark Wheeler, Craig Nuttall
02/11/2012, Best Western	Meeting between WLON and TML to discuss MOU	Chief Cantin, Terry Favelle, Louis Seymor, Various members of council, Norm Bush, Mark Wheeler

Table 30 - Record of Consultation (WLON) (continued)



TREASURY METALS

INCORPORATED

6.1.2.2 *Eagle Lake First Nation*

Contact and consultation began with Eagle Lake First Nation in August of 2011 and has been positive to date. Eagle Lake First Nation has been proactive in the development of training programs as well as various other initiatives to increase capacity in their band and boost community involvement in industry.

A request was made by ELFN in March of 2012 to discuss a possible Memorandum of Understanding (MOU). Several recent meetings have been held between Treasury and ELFN. On October 26, 2012, the Vice President of Treasury Metals travelled to ELFN to meet with their Lands and Resources group and two elders. This was an introductory meeting as new people were in these positions for both ELFN and Treasury since the groups last met. This visit was followed up by a site visit to Treasury's project property by the Lands and Resources group and several elders on October 29, 2012. A third recent meeting was held at the invitation of ELFN on November 1, 2012, where Treasury was requested to make a presentation on the status of the project and Treasury's hiring criteria to the Lands and Resources group and the band's elders. Of interest to ELFN are the potential job opportunities with Treasury Metals now and when a mine may open. Also of interest is an understanding of the hiring and educational requirements associated with these jobs so ELFN can get its members prepared to be successful candidates for these jobs. There are approximately 30 members of the ELFN band that live off reserve in the municipality of Wabigoon that the band would like to have updated on the status of the project and its possible impact on them. Treasury has agreed to work with ELFN to make a presentation to these band members in the future. No other concerns regarding the project have been expressed to Treasury from ELFN. A meeting between Treasury and the Chief and Council at ELFN to provide a status report on the project and get their feedback will be set up over the next few months.

Other contacts with ELFN have been made over time on various occasions using telephone, emails and mail.

A summary of contacts to date can be found in *Table 31 - Record of Consultation (ELFN)*.



TREASURY METALS

INCORPORATED

Date, Location	Activity,Event	Participants
15/08/2012	email, telephone correspondence - re community meeting	Maggie Parker/
23/12/2011 - 29/12/2011	letters exchanged regarding community consultation process, Training and future discussions	Chief Pitchenese/N.Bush
12/03/2012 - 26/03/2012	Telephone conversations regarding Relationship agreement, project update, community meeting	Chief Pitchenese/N.Bush
26/03/2012	Letter from Eagle Lake First Nation requesting MOU discussions	Chief Pamela Pitchenese/Martin Walters
26/03/2012	email from Norm - Meeting setup	Edwina Walmsley, Norman Bush
28/03/12 - 20/06/12	email, telephone conversations regarding attempts to schedule meeting, new band appointments,(chief)	Devin McKinnon Ottertail, Norman Bush
03/08/2012, ELFN	Visit Pow-wow	Mac Potter
26/10/2012, ELFN	Visit with Lands and Resources Group and Elders	Norm Bush, Various representatives of ELFN
29/10/2012, Goliath Project Offices	Lands and Resources Group and Elders visit to site	Various representatives of ELFN and Elders, Norm Bush, Mark Wheeler, Rory Krockner, Mac Potter
01/11/2012, ELFN	Project Update and Treasury's hiring criteria	Various Elders and representatives from the Lands and Resources group, Norm Bush, Mark Wheeler

Table 31 - Record of Consultation (ELFN)

6.1.2.3 Métis Nation of Ontario

Initial contact was made by Treasury in March of 2012 to the Métis Nation of Ontario (MNO). This initial contact was made to discuss the consultation process and a possible meeting between Treasury and MNO representatives. After a number of attempts to meet, by both Treasury Metals and the Métis Nation of Ontario, a meeting between the parties was held in Kenora, Ontario on October 11, 2012. This meeting was the first meeting in the official consultation process between the parties. The Métis Nation of Ontario made presentations to Treasury on who the Métis are and the local history of the Métis in the Kenora, Dryden, Fort Frances area. Treasury made a presentation on the status of the project. Attending the meeting were seven representatives of the Métis Nation of Ontario and two representatives of Treasury. It was noted that in the environmental assessment process, the MNO would be notified about the project from the government. This would trigger the official consultation process from the government. MNO



TREASURY METALS

INCORPORATED

was particularly interested in the jobs that may be associated with this project and the training that may be required for the employment of MNO members. The meeting ended on a positive note and future meetings will be held as part of the proponent consultation process.

A list of contact dates is shown in *Table 32- Record of Consultation (MNO)*.

Date, Location	Activity,Event	Participants
12/03/12 - 23/03/12	Telephone messages to schedule meeting	Norm Bush, Joe Daze
30/03/2012	Email - consultation process	Joe Daze, Norm Bush
20/06/2012	Advised of office change - Joe Daze leaving	marcus, Norm Bush
20/06/2012	Conversation - meeting schedule	Kevin Muloin, Norman Bush
20/06/2012 - 22/06/2012	Emails- Meeting schedule and scope	James Wager, Norman Bush
11/10/2012	Introductory Meeting	James Wager, Regional representatives of MNO, Norm Bush, Mark Wheeler

Table 32- Record of Consultation (MNO)

6.1.3 Summary of Traditional Use or Knowledge

It is Treasury's intention to continue to request consultation meetings to advance the level of understanding in the Traditional Knowledge and Land Use for the Project area. This will be one of the key focus areas that Treasury will address in future consultation.

6.1.4 Proposed Plan for Ongoing Consultation

Treasury Metals will continue to be active in its attempts for consultation with the associated First Nations and the Métis Nation of Ontario. It is recognized that an effective relationship will benefit all parties in going forward with the Project.

In terms of further consultation several activities are planned by Treasury.



TREASURY METALS

INCORPORATED

6.1.4.1 Continued Consultation Meetings

It is the intention of Treasury to continue to build the relationships between the company and Aboriginal groups. As the project progresses it will be imperative that consultation continues and Aboriginal groups are kept up to date with ongoing project updates and the company receives their feedback. Treasury would like to initiate a regular meeting schedule to conduct these updates with the various groups and will be open and available to schedule these meetings at the convenience of the First Nations.

6.1.4.2 Information Sessions

To date, most Aboriginal consultation has been directly with Chiefs and Council of Wabigoon Lake Ojibway Nation, the Lands and Resource group of ELFN and the leadership of the Métis Nation of Ontario. Treasury presented project updates and information on educational requirements for prospective employees at two symposiums in Dryden and Thunder Bay on September 18th and 20th at the request of the Sioux Lookout Area Aboriginal Management Board (SLAAMB). The company received very positive feedback from people attending the conferences.

It will be Treasury's intention to hold general meetings for the public to attend and express any concerns they may have. Treasury held two public meetings in October, 2012 in Dryden and one public meeting in Wabigoon in May of 2012 and will hold more public meetings as part of the EA process.

6.2 COMPANY ENGAGEMENT/CONSULTATION WITH STAKEHOLDERS

There are key groups of people with whom consultation must occur. For the purposes of the Project, three principle groups have been identified. These include government (federal, provincial, municipal), local communities (local community groups, local First Nations, Métis Nation of Ontario, land owners, natural resource users) and the public in general (interested individuals and non-governmental organizations).



TREASURY METALS

INCORPORATED

Treasury Metals has begun a full analysis into each group, identifying key agencies, organizations, and communities. The list of stakeholders can be seen in *Table 33 -Stakeholder List (Other than Aboriginal)*. At the current stage of the Project development, consultation efforts have been focused on government, local communities, and First Nations. As an example of working closely with a government agency, a Data Sharing Agreement has been signed with the Ontario Ministry of Natural Resources providing Treasury with local natural resource user's data. It should be noted that nearby towns such as Ignace, Sioux Lookout and Vermillion Bay, while not included in the official stakeholder list, are included as communities that Treasury will keep apprised of the current Project progress. These communities will also be invited and welcomed to any public forums that may take place.

Treasury Metals has been and will continue to be proactive in its public consultation approach through media outlets such as local newspapers and radio. In addition to this, as Treasury Metals is a publicly traded company, information is available on the company's website. This can be found at the following link: www.treasurymetals.com. All reports can also be found on the Canadian Securities Administrators website: www.sedar.com.



TREASURY METALS

INCORPORATED

Stakeholder List	
Government	Canadian Environmental Assessment Agency
	Department of Fisheries and Oceans
	Natural Resources Canada
	Ministry Northern Development and Mines
	Ontario Ministry of Environment
	Ontario Ministry of Natural Resources
	Ontario Ministry of Labour
	Ministry of Transportation Ontario
Wabigoon	Local Services Board
Dryden	Chamber of Commerce
	Economic Development Corporation
	Tourism Groups
	Recreational Sports
	City Council
Residents	Thunder Lake Rd.
	East Thunder Lake Rd.
	Harris Crescent
	North Shore Rd.
	Lakeview Rd.
	Hwy. 17
	Maggrah Rd.
	Other associated roadways
	Wabigoon
	Dryden
Hydro	HydroOne
Gas	Union Gas
Local Vendors	Restaurants
	Hotels
	Hardware etc.
	Repair Shops
	Banking
	Realtors
Provincial Park	Aaron Provincial Park
	Butler Provincial Park
	Lola Lake Provincial Park
Airports	Dryden Airport
	Sioux Lookout Airport
Emergency Services	MNR Fire Management Headquarters
	Municipal Fire Department
	OPP
	Dryden Police Department
	EMS Services
	Dryden Regional Health Centre
Industry	Domtar
	Dryden Forest Management
	Traplins
Tourism	Fishing and Hunting Camps
	Bear Management Area
	Commercial Boat Cache

Table 33 -Stakeholder List (Other than Aboriginal)



TREASURY METALS

INCORPORATED

6.2.1 Engagement/Consultation Activities to Date

Consultation has taken place on various occasions. A summary of these can be found in the following tables.

Group	Date	Location of Consultation Activity	Name(s) of Specific Representative(s)	Key Issues Raised/Subjects Discussed
City of Dryden	23/02/2012	Treasury Metals Goliath Project	Greg Rickford, Mayor Nuttal, Norm Bush	Project Update and question period.
	06/03/2012	Treasury Metals Goliath Project	Howard Hampton, Norm Bush	Project Update and question period.
	19/03/2012	City Council Meeting, Dryden, ON	City of Dryden Council, Norm Bush, Rory Krockner, Mark Wheeler	Project Update and question period.
	21/03/2012	Chamber of Commerce Meeting, Dryden, ON	Dryden District Chamber of Commerce, Norm Bush, Mac Potter, Adam Larsen	Project Update and question period.
	28/03/2012	Best Western, Dryden, ON	Dryden Development Corporation, Norm Bush	Local business workshop.
	03/05/2012	Nuttal Residence, Dryden, ON	Mayor Nuttal, Norm Bush	Project Update and question period.
	24/10/2012	TML Site	Martin Walter, Greg Ferron, Norm Bush, Rory Krockner, Mac Potter, Mark Wheeler	Gave representatives of local businesses tour of site with an overview of the Project
	30/10/2012	Dryden Learning Centre	Norm Bush, Mark Wheeler, Mac Potter	Community Presentation outlining Project
Village of Wabigoon	09/05/2012	Wabigoon Hall, Wabigoon, ON	Wabigoon Local Services Board, Norm Bush	Project update and question period.
	19/07/2012	Goliath Project Site	Rory Krockner, Wabigoon Local Fire Services	Gave overview of the Project office and site layout.
Educational	13/02/2011	Confederation College, Dryden, ON	Norm Bush, President of Confederation College	Discuss future plans and program possibilities.
	23/04/2012	The Center, Dryden, ON	Norm Bush, Keewain Patricia District School Board	Discuss future plans and program possibilities.
Utilities	20/04/2012 - 15/08/2012	Email, Telephone	Hydro One, Mark Wheeler	Received initial highlevel support for a possible 10 MW hookup to the M2D line.
	09/11/2012	TML Corporate Offices	Ontario Power Authority, Mark Wheeler	Gave overview of the Project for long term electricity planners
	28/06/2012 - 24/08/2012	Email, Telephone	Union Gas, Mark Wheeler	Received info on permitting for natural gas connection and sales.

Table 34 – Consultation (General Public)

Date of Consultation Activity	Location of Consultation Activity	Name(s) of Specific Representative(s) for TML	Primary Department/Agency Involved	Department/Agency and Names Involved in Consultation Activity	Type of Consultation Activity	Purpose of Consultation Activity	Key Issues Raised/Subjects Discussed
20/01/2012 - Current		Mac Potter, Norm Bush, Rory Krockner, Mark Wheeler	MNR	MNR - Dorothy Brunner, MNR - Lisa Eddy, MNR - Matt Bensen, MNR - Marlene Rhyner, MNR - Colin Langford, MNR - Wanda Thickner	Email	Information sharing and details	Data sharing agreement details, scheduling, baseline review, and information requests.
31/01/2012	MNR Office, Dryden, ON	Mac Potter	MNR	MNR - Dorothy Brunner	Meeting - in person	Information request	Requested the lake files for the area, and looked over the details the MNR has of the project area.
23/03/2012	MNR Office, Dryden, ON	Mac Potter, Norm Bush	MNR	MNR - Dorothy Brunner, MNR - Matt Bensen	Meeting - in person	Data sharing Agreement	Met to discuss Data Sharing Agreement, and sign accordingly.
04/09/2012	MNR Office, Dryden, ON	Mac Potter, Kyle Rodgers	MNR	MNR - Lisa Eddy	Meeting - in person	Fisheries Program	Met to discuss needed components of fisheries work and plan details in accordance with MNR needs.

Table 35 - Consultation (Ministry of Natural Resources)



TREASURY METALS

INCORPORATED

Date	Name(s) of Specific Representative(s) for TML	Department/Agency and Names Involved	Type of Consultation Activity	Purpose of Consultation Activity	Key Issues Raised/Subjects Discussed
11/07/2012	Mark Wheeler, Mac Potter, Norm Bush	DFO - Neville Ward	Email	Introduction	Name raised in MNDM meetings, email to correspond and introduce company to DFO.
11/07/2012 - Current	Mark Wheeler, Mac Potter, Norm Bush	DFO - Neville Ward, DFO - Tom Kleinboeck	Email	Information, Baseline Overview	Draft KCB baseline data passed on and reviewed for content.
16/07/2012	Mark Wheeler (TML)	DFO - Neville Ward	Phone Call	Information regarding changes to Fisheries Act	
14/08/2012	Mac Potter, Rory Krockner, Norm Bush, Mark Wheeler	DFO - Neville Ward, Tom Kleinboeck, MNR - Dorothy Brunner	Site Visit	Site Visit	Email correspondence regarding permitting and rehabilitation plan details. Discussion of Fisheries Act Changes. Visual inspection of facilities and areas.

Table 36 - Consultation (Department of Fisheries and Oceans)

Date of Consultation Activity	Name(s) of Specific Representative(s) for TML	Primary Department/Agency Involved	Department/Agency and Names Involved in Consultation Activity	Type of Consultation Activity	Purpose of Consultation Activity	Key Issues Raised/Subjects Discussed
20/01/2012	Mac Potter (TML), Ashley Martin (TML), Laura Ritchie (DST Consulting)	CEAA	CEAA - Steve Woolfenden	Teleconference	Information regarding permitting process	Discussed the stages of permitting in regards to project description, and future permitting needs.
13/07/2012	Mark Wheeler (TML)	CEAA	CEAA - Steve Woolfenden	Meeting - in person	Information Regarding EA	Discussed the stages of permitting in regards to project description, and future permitting needs.
07/08/2012	Mac Potter, Mark Wheeler (TML), Laura Ritchie	CEAA	CEAA	Teleconference	Information regarding new regulations	Teleconference with Ontario representatives regarding new regulations and changes to CEAA Act.
10/08/2012	Mac Potter, Mark Wheeler, Norm Bush	CEAA	CEAA - Steve Woolfenden, CEAA - Amiel Blajchman	Teleconference	Project Description and future permitting requirements	Teleconference with CEAA representatives regarding information and details of PD, and future EIS requirements.
27/08/2012	Mark Wheeler, Norm Bush, Mac Potter, Martin Walter	CEAA	CEAA - Amiel Blajchman, CEAA - Anjala Puvananathan	Email	Draft PD	Draft PD delivered for preliminary comments.
04/09/2012	Mark Wheeler, Norm Bush, Mac Potter	CEAA	CEAA - Amiel Blajchman, CEAA - Stephanie Davis, Patick Barnes (MNDM)	Email	Draft PD comments	Draft PD comments received.
04/09/2012	Mark Wheeler (TML)	CEAA	CEAA - Amiel Blajchman	Phone Call	Draft PD comments	Update on Draft PD
14/09/2012	Mark Wheeler, Norm Bush	CEAA	CEAA - Amiel Blajchman	Teleconference	Draft PD comments	Clarification on Aboriginal Consultation
24/09/2012	Mark Wheeler (TML)	CEAA	CEAA - Amiel Blajchman	Phone Call	Draft PD comments	Update on Draft PD
24//2012	Norm Bush, Mark Wheeler (TML)	CEAA	CEAA - Amiel Blajchman	Phone Call	Draft PD comments	Clarification on comments

Table 37 - Consultation (Canadian Environmental Assessment Agency)



TREASURY METALS

INCORPORATED

Date	Location of Consultation Activity	Name(s) of Specific Representative(s) for TML	Department/Agency and Names Involved in Consultation Activity	Type of Consultation Activity	Purpose of Consultation Activity	Key Issues Raised/Subjects Discussed
03/03/2011 - Current		Various	Mike Grant (MNDM), Patrick Barnes (MNDM), Bryce Barker (MNDM), Melanie Mathieson (MNDM), Ian Johnson (MNDM)	Email	Correspondence	Emails have been exchanged in various capacities regarding current events, and questions regarding the MOU discussions and meetings, the one-window approach, and current issues affecting the project.
03/03/2011		Scott Jobin-Bevans (TML)	Melanie Mathieson (MNDM)	Letter		MNDM recognizing that TML has been engaging WLON in a positive manner.
12/01/2012	WLON	Adam Larsen (TML), Norm Bush (TML)	Ian Johnson (MNDM), Melanie Mathieson (MNDM)	Meeting - in person and teleconference	Agenda	Information shared regarding agenda and consultation demands. Prior correspondence with MNDM in regards to consultation.
06/03/2012	Sheraton Hotel, Toronto, ON	Norm Bush, Greg Ferron (TML), Chief Ruben Cantin (WLON), Tyson Gardner (WLON)	Mike Grant (MNDM), Patrick Barnes (MNDM), Bryce Barker (MNDM)	Meeting - in person	MOU Discussion	MNDM aided Treasury in the scheduling and meeting to discuss the MOU and its consultations
03/05/2012	TML Goliath Project Site	Mark Wheeler, Norm Bush, Bryce Barker, Pat Barnes	Pat Barnes (MNDM), Bryce Barker (MNDM)	Meeting - in person	Current happenings and MOU discussion	MNDM visited site for a tour of the project and a meeting to discuss current events and consultation with the First Nations
10/07/2012	MNDM Offices, Thunder Bay, ON	Mac Potter (TML), Mark Wheeler (TML), Norm Bush, Doug Steele (TBT), Laura Ritchie (DST), Kris Tuuttila (DST)	Mike Grant (MNDM), Patrick Barnes (MNDM), Bryce Barker (MNDM)	Meeting - in person and teleconference	Introduction to project	Introduction to the Goliath Project and environmental baseline.
11/07/2012		Mac Potter, Mark Wheeler, Norm Bush, John Chulick, Rory Krockner, Martin Walter	Mike Grant (MNDM), Patrick Barnes (MNDM), Bryce Barker (MNDM)	Email	Letter of intent to enter one-window process	Letter to MNDM to enter letter of intent.
25/10/2012	Teleconference from Various Ontario Government offices	Norm Bush, Mac Potter, Mark Wheeler	Pat Barnes (MNDM), Bryce Barker (MNDM), Amiel Blajchman (CEAA), Shawn Burr (MOE), Carrie Hutchison (MOE), Cory Argue (MNR), Dorothy Brunner (MNR), Michelle Whitmore (MOE), Kelly Russel (MNR), Joseph Muller (MTCS), Penny Young (MTCS), Brad Dragan (MNDM)	One Window meeting	Provincial EA discussion	Treasury Project presentation, Discussion over Class vs Individual EA

Table 38 - Consultation (MNDM)

Date of Consultation Activity	Location of Consultation Activity	Name(s) of Specific Representative(s) for TML	Department/Agency and Names Involved in Consultation Activity	Type of Consultation Activity	Purpose of Consultation Activity	Key Issues Raised/Subjects Discussed
22/03/2012	Dryden Project Office	Mark Wheeler, Norm Bush, Mac Potter	Shawn Burr	Meeting - in person	Introduction	Site visit by Shawn Burr to explain Treasury and show him the site.
02/05/2012	Dryden Project Office	Mark Wheeler, Norm Bush, Mac Potter	Shawn Burr, Paula Spencer, Heather Nelson, Aisdair Brown	Meeting - in person	Pre-Consultation for Advanced Exploration	Meeting between Treasury and MOE to discuss permitting going forward. Ministry given water quality data for review.
25/08/2012	N/A	Mark Wheeler	Shawn Burr	Letter	Cancellation of Advanced Exploration	Due to positive metallurgy results, Treasury formally rescinds Adv Ex permit.
28/06/2012	N/A	Mark Wheeler	Shawn Burr	Letter	Request for consultation meeting.	Treasury requests consultation meeting for EA, MOE responds by helping to coordinate a meeting between parties, including MNDM.
09/08/2012	N/A	Mark Wheeler	Shawn Burr	Phone Call	Questions regarding EA	Phone call to discuss specific questions regarding provincial EA.
05/09/2012	N/A	Mark Wheeler	Shawn Burr	Email	Guidance	MOE sends Ground Water Monitoring Guidance documents for help in continuing baseline.
05/09/2012	N/A	Mark Wheeler	Shawn Burr, Michelle Whitmore	Email	Environmental Studies	Question regarding any Regional Environmental studies associated with the Project area.

Table 39 - Consultation (Ministry of Environment)



6.2.2 Summary of Key Comments and Concerns

The ongoing consultation with government agencies has been focused on providing accurate detail of the project parameters and ongoing baseline studies. Both the MNR and MOE have been consulted on applicable sections of the environmental baseline. The MNR in specific has been consulted on the level of sufficiency for the biological baseline and was requested to, and subsequently contributed suggestions for the 2012 continuing baseline studies. The MOE in particular has been consulted for help in the interpretation of water quality results. MOE technical support staff has reviewed the associated sections of the baseline report. This information has been well received in terms of sufficiency of data and Treasury will continue in this regard.

To date, the general community has been positive about the project. Treasury has received limited formal written comments or concerns and is hoping to receive more formal input as the EA progresses. In the verbal public forums that Treasury has used to update local residents on the Project, the main concerns to date have been associated with the possible environmental changes. In specific, neighbouring residents have shown concern for surface water quality and changes to ground water flow; and, any visual or audible effects on the residents of Thunder Lake. Several neighboring residents have submitted formal concerns due to the development of the Project. These concerns include dust control, well water availability, noise and effects from blasting. Treasury has provided initial responses to these concerns and how they will be addressed more thoroughly in the EA process. Treasury has also arranged for distinct meetings with these individuals to discuss their concerns in person. These meetings are scheduled for a future date and results are not available for inclusion into this PD. The municipal council of Dryden has shown concern for the responsible growth of the city in regards to increased housing requirements. The municipal council of Dryden has also shown very strong interest in the economic development prospects of the project, with a particular interest in growing the job base of the area and how the City may assist in the development of the Project. Treasury has maintained a very open policy towards its relationship with the general community and will



continue to do so. Answers to any questions will be fielded in a timely manner once sufficient information is available to properly address any concerns or comments.

6.2.3 Proposed Plan for Ongoing Consultation

It is Treasury's objective to continue to maintain a positive and open relationship with government agencies, municipalities and the community. As a means of accomplishing this, Treasury intends to continue with the activities noted below and to develop a full, formal consultation and communication plan in conjunction with the Environmental Assessment process. It should be noted that Treasury has an open door policy with respect to public interest or questions. These are handled primarily through the Project office.

6.2.3.1 Consultation Meetings with Agencies/Authorities

Treasury has seen very productive results by meeting with agency representatives in a proactive manner. In the course of these meetings, open information sharing has been demonstrated to be the best way to foster good relations. Treasury has also seen valuable results in the consultation process by using applicable agencies as a resource where possible. In regards to environmental baselines and procedures, while no formal timeline is set up at this present time, Treasury will continue to take an active role in soliciting input from the applicable agencies in an effort to create a more complete Environmental Assessment.

In addition, it is of great benefit to engage the local municipal councils on a periodic basis to share information and updates on the project and answer questions. Treasury has found that presentations at local town council meetings have proven to be an effective method of distributing information to the community. Not only does the information get passed directly to municipal councillors and other elected officials, but the proceedings are also broadcast over Television to the surrounding area. The company will continue to utilize these effective methods of communication. Treasury plans to provide an update to the municipal councils of Wabigoon and Dryden in the first quarter of 2013.



TREASURY METALS

INCORPORATED

6.2.3.2 Community Information Sessions

Treasury recognizes that the Project will be of great benefit to the company and the surrounding communities and stakeholders. It is essential that the general public is aware of the Project scope, the benefits to the community, any risks that may be present and how the Project will be designed in order to mitigate these risks. As the project progresses, Treasury intends to sustain a good flow of communication to the general public by means of information sessions held at regular intervals or when additional new information warrants a public update. Treasury held two public update meetings on October 30, 2012 at the Learning Center in Dryden. Over 200 people attended these meetings. The focus of the meetings was to provide a status report on the project, including the work that has been done to develop the environmental baselines for the project and to answer any questions people had and to get early feedback from the public on any concerns they might have. In general, people were very positive and looking forward to the potential job opportunities a mine could provide. Concerns raised included questions on possible ground water contamination, potential changes in the water table, noise, dust and disturbances due to blasting. Treasury has heard these concerns and will be addressing them through its environmental work it is doing, hydrogeology studies, other studies and public education. The public was made aware that Treasury would meet all of the applicable government rules and regulations for mine operations. Through the Environmental assessment process, more formal public meetings will be held to get feedback from the public, communicate what the company is doing and the measures being taken to minimize the impact of the mine on the people and the environment.

6.2.3.3 General Distribution of Project Updates

It is imperative that information is made available to the general public in a clear and easy-to-understand fashion. Treasury will convey information through such means as newspaper articles, ads or brochures to community members at large. This information will be distributed on a periodic basis or when new information is available. Recently the Project has been featured in a story in the Dryden Observer. Treasury has also recently participated in an interview by the Dryden Observer regarding the involvement in the Sioux Lookout Area Aboriginal Management Board's Aboriginal Trade Symposium.



7 Regulatory Process

The decision to develop the Goliath Gold Project is dependent upon a number of approvals and permits, as described below. Treasury Metals Incorporated expects that the regulatory permitting process will be a coordinated effort between Treasury, CEAA and other Federal and Provincial government agencies. It is anticipated that the complete Environmental Assessment and permitting process will take up to 1.5 years for final approvals to be granted to Treasury Metals Incorporated

7.1 FEDERAL ENVIRONMENTAL ASSESSMENT REGULATORY TRIGGERS

In July, 2012, the Government of Canada introduced the Canadian Environmental Assessment Act 2012. Under Section 15(c) of SOR/2012-147 of this Act, a gold mine producing more than 600t/day is designated as a project to which the Act prescribes an Environmental Assessment. The acceptance of this Project Description by CEAA will likely initiate an Environmental Assessment under this Act.

Other regulations which fall under federal authority and may be applicable to the Goliath Gold Project are presented in *Table 40 - Probable Federal Permit Requirements for Goliath Gold Project*.



TREASURY METALS

INCORPORATED

Agency	Act / Regulation	Permit / Approval	Applicability to Project (Trigger)	Anticipated Requirement for the Project (Yes/No/Uncertain)
Canadian Environmental Assessment Agency	Canadian Environmental Assessment Act	EA approval	gold mine producing >600t/day is 'designated project'	Yes
Environment Canada	Metal Mining Effluent Regualtions		regulatory requirements	Yes
Governor in Council	Metal Mining Effluent Regualtions	Regulatory Amendment to Schedule 2	disposal of tailings or waste rock in fish-bearing waters	No
Fisheries and Oceans Canada	Fisheries Act, Sec.35(2)	Harmful Alteration, Disruption or Destruction (HADD) Authorization	destruction/alteration of fish or fish-bearing waters - lake dewatering, water crossings	Uncertain
Environment Canada	Species at Risk Act, Sec.73	SARA Permit	if SAR present/potentially present; for activities which may affect SAR, including monitoring	Uncertain
Environment Canada	Migratory Birds Convention Act, Sec.5, Migratory Birds Regulations Sec.4	Authorization under Sec.5 of MBCA; Permit under Sec.4 MBR; Prohibition on harm or disturbance to migratory birds	works and activities affecting migratory birds, nests and eggs	Uncertain
Indian and Northern Affairs Canada	Indian Act	Permit to Construct Facilities on First Nations Land	project components located on First Nations land	No
Natural Resources Canada	Explosives Act, Sec.7	Explosives Permit - Purchase and Possession	transport, storage, use of explosives	Uncertain
Canadian Transportation Agency	Canada Transportation Act Pt II: Air Transportation	Airstrip	construction/upgrading airstrip	No
Canadian Transportation Agency	Canada Transportation Act Pt III: Railway Transportation	Railway	construction/upgrading railway	No
Transport Canada	Navigable Waters Protection Act Pt I: Navigable Waters Works Regulations	Approval of Works	water crossings; realignment of watercourses; lake dewatering; bridges; dams	Uncertain
Fisheries and Oceans Canada	Fisheries Act	Fisheries Compensation Agreement	replacement of lost fish habitat	Yes
Fisheries and Oceans Canada	Fisheries Act	Fisheries Act Authorization	fish habitat disturbance	Yes
Fisheries and Oceans Canada; Environment Canada	Fisheries Act	Deposition of a Deleterious Substance to Natural Waters Frequented by Fish	effluent disposal to waterbodies	Yes
Environment Canada		Alternatives Assessment for Mine Waste Disposal	selection of tailings facility	Yes
Transport Canada	Transportation of Dangerous Goods Act Sec.31, TDG Regs Pt 14	Permits of Equivalent Level of Safety	compliance; transportation of dangerous goods	Yes
Canadian Coast Guard		Navigable Waters Authorization	disturbance of navigable waterway	No
Transport Canada		Requirements for Railway Crossings - road / utility	permit to gain access across railways	No
Canadian Coast Guard		Approval of Bridge Crossings	bridge construction	No
Fisheries and Oceans Canada	Fisheries Act	Authorization for Works Affecting Fish - Creeks, Lakes, culvert/bridge crossings	bridge / drainage construction	Uncertain
Natural Resources Canada	Explosives Act	Licence for an Explosive Factory	fabrication of explosives	Uncertain
Natural Resources Canada	Explosives Act	Licence for Explosive Magazine	storage of explosives	Uncertain
TSSA		Technical and Safety Standards	fuel handling and storage	Yes

Table 40 - Probable Federal Permit Requirements for Goliath Gold Project



TREASURY METALS

INCORPORATED

The Project will likely be subject to:

- Section 32 and Section 35(2) of the Fisheries Act, which controls the Harmful Alteration, Disruption or Destruction Authorization which may be required for any water bodies considered fish habitat. Specifically, this may include a beaver pond located within the footprint of the open pit and/or streams and wetlands which may be diverted or destroyed due to mine infrastructures. Changes to the Fisheries Act may be implemented in the near future and may have implications for the Project that are beyond the current scope.
- Section 36 of the Fisheries Act which prescribes the Metal Mining Effluent Regulations for which the mine operations will require Project compliance.
- Section 7(1) of the Explosive Act for the on-site storage and or fabrication of explosives, if this alternative is selected for this Project. Treasury may elect to employ an external contractor for the supply, delivery, storage and firing of explosives, in which case, the contractor would be responsible for this section.

CEAA will be responsible for the Environmental Assessment process with input from other associated Federal authorities. These authorities will determine the level of assessment required to meet the federal EA and permit requirements within the EA document.

7.2 PROVINCIAL ENVIRONMENTAL REQUIREMENTS

The Project will be subject to several regulatory and permitting requirements under the Province of Ontario. The final permitting requirements will be, in part, dependent on the final site plan that will become apparent through the Environmental Assessment process. Provincial permits and approvals currently anticipated can be seen in *Table 41 - Probable Provincial Permit Requirements for Goliath Gold Project*.



TREASURY METALS

INCORPORATED

Agency	Act / Regulation	Permit / Approval	Applicability to Project (Trigger)	Anticipated Requirement for the Project (Yes/No/Uncertain)
Hazardous Waste Inventory Network	Environmental Protection Act, O.Reg. 347/90	Generator Registration Number	storage, disposal of hazardous wastes	Yes
Ministry of Finance; MMDM	Mining Tax Act, Sec.3-8	Certification of a Remote Mine	not applicable if project has year-round road access	No
Ministry of Health		Notice of Camp Opening	opening of camp/accommodations complex	No
Ministry of Labour	Occupational Health and Safety Act, O.Reg. 854/90	Pre-development review process	Safety and procedures review prior to project development	Yes
Ministry of Labour	Occupational Health and Safety Act, O.Reg. 213/91, Sec 23(2)	Notice of Project	required to operate	Yes
Ministry of Labour		Regulations for Mines and Mining Plants	mine and processing site; compliance	Yes
Ministry of Labour		Common Core Training	mine employees; compliance	Yes
Ministry of Labour		Notification of Explosives Use	use of explosives	Yes
Ministry of Labour		Regulations for Substances Designated under the OH&S Act	use of designated substances	Yes
Ministry of Labour		Diamond Drilling - Notice	any diamond drilling operations	Yes
Ministry of Labour		Reportable Incident/Accident	workplace accident	Yes
Ministry of Labour		WSIB Requirements	labour	Yes
Ministry of Labour		Notice of Installation of Portable Crusher	crushing rock for construction	Uncertain
Ministry of Labour		Registration and Notice of Construction Projects	construction operations	Yes
Ministry of Tourism & Culture	Ontario Heritage Act Pt IV: Conservation of Resources of Archaeological Value	Archaeological assessment	part of EA process; required for all areas of surface disturbance	Yes
Ministry of Tourism & Culture		Permit for disturbance of property of historical/archaeological value	surface disturbance of sites identified by archaeological assessment	Uncertain
MNDM	Mining Act, Sec.91(1,3)	Domestic Processing Exemption	not applicable if all processing in Canada	No
MNDM	Mining Act Sec. 140,141, O.Reg. 240/00	Mine Closure Plan with financial assurance	advanced exploration or mining; required for permit approval; involves FN & public consultation; financial assurance; progressive rehabilitation	Yes
MNDM	Mining Act	Mining Tenure - Lease or Patent	mining lease; mining patent; surface rights lease	Yes
MNDM	Mining Act	Licence of Occupation - Mining	authorization to occupy tenured land for mining	Yes
MNDM	Mining Act	Notice of Project Status	mine opening; closure	Yes
MNDM	Mining Act	Public Notice	required prior to commencement of new mining project	Yes
MNDM		Progressive Rehabilitation Report	report required for progressive rehabilitation of site	Yes
MNDM		Minister's Consent - Destruction of Rehabilitation Works	alteration/destruction of mine rehabilitation works	Yes
MNDM		Requirement of Annually Update Mine Plans	underground mines; compliance	Yes

Table 41 - Probable Provincial Permit Requirements for Goliath Gold Project



TREASURY METALS

INCORPORATED

Agency	Act / Regulation	Permit / Approval	Applicability to Project (Trigger)	Anticipated Requirement for the Project (Yes/No/Uncertain)
MNDM		Domestic Processing	processing and PK management	Yes
MNDM		ML / ARD Assessment	included in EA	Yes
MNR	Public Lands Act, O.Reg.973/00	Land Use Permit; also Easement Permit	use/occupation of Crown land for project	Uncertain
MNR	Public Lands Act, Sec.20	Licence of Occupation	occupation of Crown land for project	Uncertain
MNR	Parks and Conservation Reserves Act Sec.13-14; Provincial Parks Act	Approval to Develop Project within Provincial Park	project or access road located in Provincial Park	No
MNR	Public Lands Act, O.Reg.975/90, 453/96	Work Permit	infrastructures constructed on Crown land - roads, water crossings, buildings, camp; surface disturbance (including mining); dredging, filling; airstrip	Uncertain
MNR	Lake and Rivers Improvement Act, Sec.14,16	Authorization for Water Crossings	water crossings; realignment of watercourses; lake dewatering	Yes
MNR	Lake and Rivers Improvement Act,	Work Permit	bridge construction over waterway; work on / near shoreline	Uncertain
MNR	Lake and Rivers Improvement Act, Sec.14,16	Location Approval and Plans and Specifications Approval	retaining dams; tailings dams	Yes
MNR	Ontario Aggregate Resources Act Pt V, O.Reg.244/97	Permit for Aggregate Pit/Quarry	aggregate/esker quarrying for construction	No
MNR	Crown Forest Sustainability Act Pt III	Forest Resource Licence - Cutting Permit for Timber	clearing Crown timber for construction	Yes
MNR	Endangered Species Act Sec.16-20	Permits and Agreements	presence or potential for listed species	Uncertain
MNR	Fish and Wildlife Conservation Act Pt VI	Authorization	requirements determined by consultation with MNR and by baseline study results	Uncertain
MNR	Forest Fires Prevention Act, O.Reg. 207/96	Burn Permit	for burning of wood debris	Uncertain
MNR	Environmental Assessment Act Pt II.1: Class EAs	Class EA for MNR Resource Stewardship and Facility Development Projects	project infrastructures constructed on Crown land; disposition of Crown lands	Uncertain
MNR	Far North Act Sec.6-7	Varies - according to community-based land use plans	if project falls within jurisdiction of Far North Act	No
MNR	Lake and Rivers Improvement Act, Sec.14,16	Structures Approval - Tailings Dam	construction of tailings dam	Yes
MNR		Licence to Collect Fish for Scientific Purposes (Scientific Collector's Permit)	collection of fish specimens for environmental monitoring	Yes
MOE	Ontario Water Resources Act, Sec.34, O.Reg 387/04	Permit to Take Water	Taking >50 000 L/day- for domestic water; dewatering; construction/process water; pond dewatering	Yes
MOE	Environmental Assessment Act, O.Reg. 116/01	Screening Level EA - Power Generation	power generation facility 1-5 MW	Uncertain
MOE	Environmental Assessment Act, O.Reg. 116/01	Electricity Projects Regulation - Individual EA for Power Generation Facilities	On-site diesel generation >5MW; new transmission lines also fall under this reg	No
MOE	Environmental Assessment Act, O.Reg. 116/01	Class EA for Minor Transmission Facilities	transmission line projects with >2 km of line	No
MOE	Environmental Assessment Act, O.Reg. 101/07	Waste Management Projects Regulation - Individual EA	Landfill and/or incinerator	No
MOE	Environmental Protection Act, O.Reg. 346/90, 337/90	Environmental Compliance Approval - Air and Noise	air and noise emissions, dust, exhaust	Yes
MOE	Environmental Protection Act Sec.27, O.Reg. 347/90	Environmental Compliance Approval - Waste Management	construction of landfill or incinerator	Yes

Table 41 - Probable Provincial Permit Requirements for Goliath Gold Project (continued)



TREASURY METALS

INCORPORATED

Agency	Act / Regulation	Permit / Approval	Applicability to Project (Trigger)	Anticipated Requirement for the Project (Yes/No/Uncertain)
MOE		Sewage Works Operator Licence	operation of domestic sewage plant; discharge to surface water	No
MOE	Environmental Protection Act Sec.47(3), Ontario Water Resources Act Sec.53	Environmental Compliance Approval - Industrial Sewage Works	sewage treatment, tailings management; dewatering; settling ponds	Yes
MOE	Environmental Protection Act, O.Reg. 560/90,561/94; Clean Water Regulation	Metal Mining Effluent Monitoring and Effluent Limits	>50 000 L/day effluent discharged	Yes
MOE	Environmental Protection Act, O.Reg. 222/07,224/07	Environmental Penalties and Spill Prevention and Contingency Plans	required spill identification and response plans; requires approval	Yes
MOE	Safe Drinking Water Act, O.Reg. 170/03,248/03	Approval of Works - Potable Water Supplies	potable water system for camp complex	Yes
MOE	Safe Drinking Water Act, O.Reg. 170/03,248/03	Environmental Compliance Approval - Municipal and Non-municipal Drinking-water Systems (Drinking Water Works Permit)	potable water system for camp complex	Yes
MOE		Environmental Compliance Approval - Industrial Works	fuel farm for operations; oil/water separators	Yes
MOE		Water - Wells Regulation	construction, maintenance, abandonment of water wells	Yes
MOE		Spills - Requirement to Notify and to Clean Up	abnormal discharge into natural environment (spills, leaks)	Yes
MOE		Approval of a Waste Management System	incinerator / landfill construction	No
MOE		Approval of Air Emissions	incinerator use; portable crushers for quarry operations	Uncertain
MOE + MNR + Conservation Authority of Ontario		Cut and Fill Permit	alteration of waterways, shoreline stabilization	Yes
MTO	Environmental Assessment Act Pt II.1: Class EAs	Class EA for Provincial Transportation Facilities	for provincial road upgrades; not applicable to on-site roads	Uncertain
MTO	Public Transportation and Highway Improvement Act Sec.31,34,38	Encroachment Permit	for highway connections; activities within 45m of highway	No
MTO	Public Transportation and Highway Improvement Act	Building / Land Use Permit	construction near highway	No
MTO	Public Transportation and Highway Improvement Act	Commercial Signage Permit	signage for mine within 400m of highway	Yes
MTO	Public Transportation and Highway Improvement Act Sec.31,34,38	Entrance Permit	for highway connections; access road intersection with highway	No
Ontario Energy Board		Approval of Pipelines and Transmission Lines	pipeline or transmission line installation; water/tailings/effluent pipeline	Yes
Ontario Energy Board		Leave to Construct a Transportation Line	road / conveyor construction	Uncertain
Ontario Parks	Environmental Assessment Act Pt II.1: Class EAs	Class EA for Provincial Parks and Conservation Reserves	If project / access road crosses park lands	No
Ontario Parks	Parks and Conservation Reserves Act Sec.13-14: Provincial Parks Act	Land Tenure and Work Permits	If project / access road crosses park lands	No
Local Municipality	Fire Protection and Prevention Act, Sec.12	Fire Code Requirements	required to meet fire code	Yes
Local Municipality	Planning Act, Sec.34(10)	Changes to Zoning By-laws	if project falls within jurisdiction of municipal zoning	Uncertain
Local Municipality	Building Code Act, Sec.8	Building Permit - Municipality	construction of buildings	Uncertain
Regional Health Unit	Health Protection and Promotion Act, O.Reg. 554/90	Notice of Camp Opening	opening of camp/accommodations complex	Yes
Regional Health Unit		Small Sewage System Approval	camp sewage	Uncertain

Table 41 - Probable Provincial Permit Requirements for Goliath Gold Project (continued)



TREASURY METALS

INCORPORATED

It is anticipated that the Project will be subject to Class EAs at the provincial level. Treasury has consulted with provincial authorities and anticipates that a Class EA will be required for the construction of the makeup water pipeline and the removal of trees from any crown lands. These Class EAs will fall under the realm of the MNR. At this time, MNR was not able to provide a definitive answer on the category that these Class EAs will be screened to. However, The MNR has anticipated that they will be screened to low or moderate categories.



8 REFERENCE LIST

- "Atlas of the Breeding Bird of Ontario." Atlas of the Breeding Bird of Ontario. N.p., n.d. Web. 14 Aug. 2012. <<http://www.birdsontario.org/atlas/>>.
- "BBS - USGS Patuxent Wildlife Research Center." BBS - USGS Patuxent Wildlife Research Center. U.S. Geological Survey, 31 Nov. 2011. Web. 14 Aug. 2012. <<https://www.pwrc.usgs.gov/bbs/>>.
- Beakhouse, G.P., Blackburn, C.E., Breaks, F.W., Ayer, J., Stone, D. and Stott, G.M. (1995) Western Superior Province, Fieldtrip Guidebook for Precambrian '95, Ontario Geological Survey, Open File Report 5924, 102p.
- Beakhouse, G.P. (2000) Precambrian geology of the Wabigoon Area; in Summary of Field Work and Other Activities 2000, Ontario Geological Survey, Open File Report 6032, page 20-1 to 20-8.
- Beakhouse, G.P. (2001) Precambrian geology of the Thunder Lake segment, Wabigoon Area; in Summary of Field Work and Other Activities 2001, Ontario Geological Survey, Open File Report 6100, page 15-1 to 15-6.
- Beakhouse, G.P. (2002) Field Trip Guide, Wabigoon Region, Gold Mineralisation Occurring North and South of the Wabigoon Fault, 6p.
- Beakhouse, G.P. and Pigeon, L. (2003) Precambrian geology of the Thunder Lake area; Ontario Geological Survey, Preliminary Map P.3529, scale 1:20 000.
- Beakhouse, G.P. and Idziszek, M. (2006) Precambrian geology of the Butler Lake – Dinorwic Lake area; Ontario Geological Survey, Preliminary Map P.3582, scale 1:20 000.
- Berger, B.R. (1990) Precambrian Geology, Laval and Hartman townships; Ontario Geological Survey, Report 272, 74p (with Map 2534, scale 1:20,000).
- Burnham, C.W., 1979, Magma and hydrothermal fluids, in Barnes, H.L., ed., Geochemistry of Hydrothermal Ore Deposits, 2nd edition: Wiley Interscience, New York, p. 71-136.
- Census of Canada, Statistics of Canada, 16 Mar. 2006. Web, 17 Aug. 2012. <<http://www12.statcan.gc.ca/census-recensement/2006/index-eng.cfm>>.
- Corona (2001) Corona Gold Corporation (2001) Annual Information Form, dated May 11, 2001.
- Corona (1998) Corona Gold Corporation (1998) Annual Report 1997.



TREASURY METALS

INCORPORATED

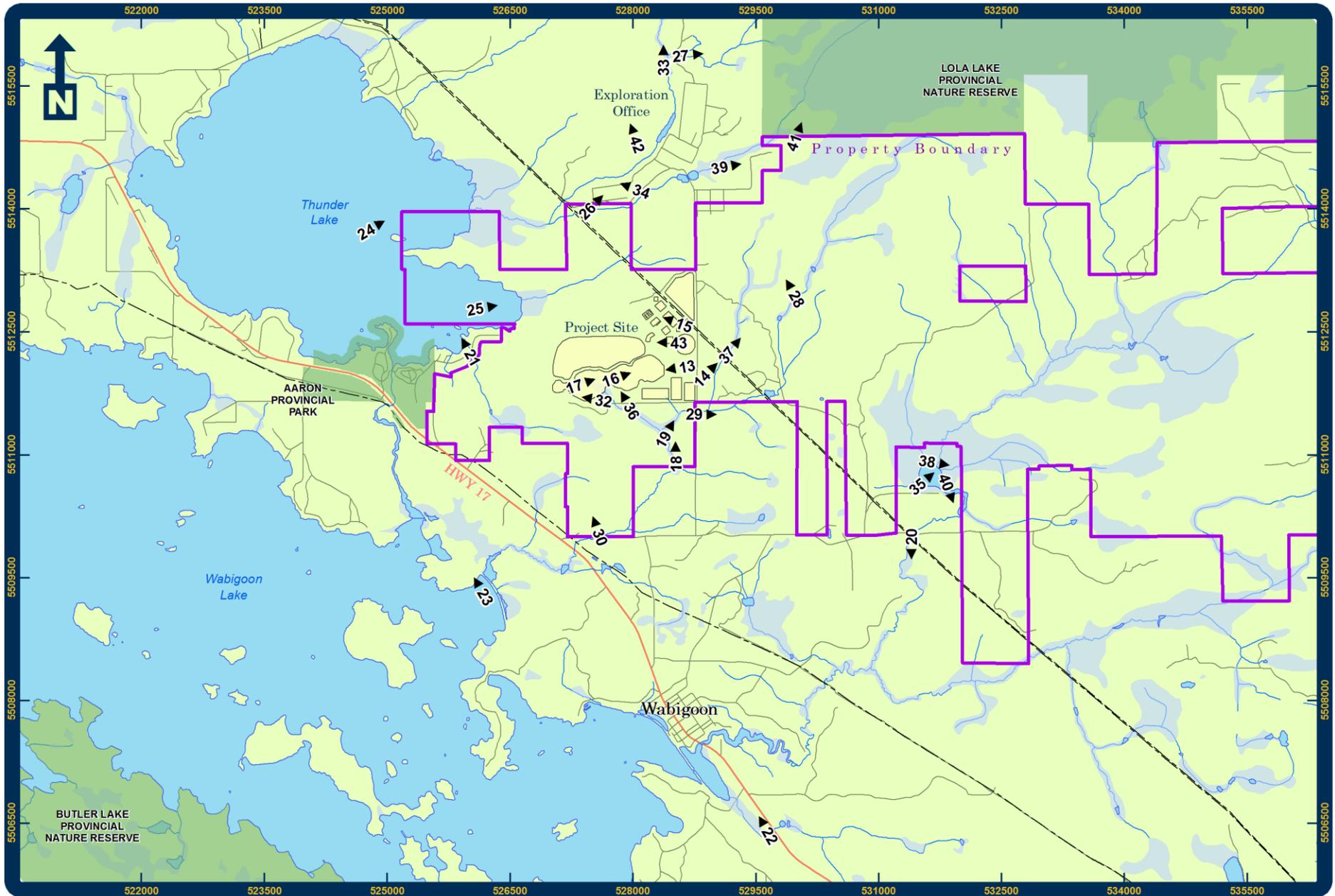
- Dryden Forest Management Plan (DFMP). 2010.2011-2021 Forest Management Plan for the Dryden Forest.
- Hogg, G.M. (1996) A Report on the Zealand Twp. Gold Property of Laramide Resources Ltd., District of Kenora,
Ontario, G.M. Hogg & Associates Ltd., July 9, 1996, 14p. (plus Appendix and Map).
- Hogg, G.M. (2002) A Report on the Goliath Project of Laramide Resources Ltd., Zealand Twp., Ontario, G.M. Hogg & Associates Ltd., June 17, 2002, 26p. (plus Appendix and Map).
- Klohn Crippen Berger (KCB). 2011. Environmental Baseline Studies Draft Vegetation Baseline. Unpublished report.
- Klohn Crippen Berger (KCB). 2011. Environmental Baseline Studies Draft Soil Baseline. Unpublished report.
- Klohn Crippen Berger. 2011. Environmental Baseline Studies Draft Hydrology Baseline. Unpublished report.
- Klohn Crippen Berger. 2011. Environmental Baseline Studies Draft Surface Water Baseline. Unpublished report.
- Klohn Crippen Berger. 2011. Environmental Baseline Studies Draft Wildlife Baseline. Unpublished report.
- Klohn Crippen Berger. 2011. Environmental Baseline Studies Draft Aquatics Baseline. Unpublished report.
- "Natural Heritage Information Centre." -- Tracks and Maintains Data on Rare Species in Ontario. Queens Printer of Ontario, 2 Nov. 2009. Web. 14 Aug. 2012. <<http://nhic.mnr.gov.on.ca/>>.
- "Ontario Ministry of Natural Resources." Queens Printer of Ontario, 20 Nov. 2010. Web. 14 Aug. 2012. <<http://www.mnr.gov.on.ca/en/index.html>>.
- "Ontario Odonata Atlas." Ontario Odonata Summary Atlas. Queens Printer of Ontario, 9 Nov. 2002. Web. 14 Aug. 2012. <<http://nhic.mnr.gov.on.ca/MNR/nhic/odonates/atlas.html>>.
- "Ontario Parks." Queens Printer of Ontario, 16 June 2012. Web. 14 Aug. 2012. <<http://www.ontarioparks.com/>>.

APPENDIX A

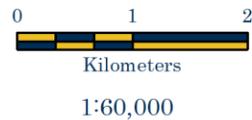
PHOTOS OF SELECTED PROJECT COMPONENTS

Photos of Project Site

APPENDIX A - 1 - Project Office, Core Logging Area	169
APPENDIX A - 2 - Entrance to Project Office - South Facing Photo	169
APPENDIX A - 3 - Project Office.....	170
APPENDIX A - 4 - Warehouse 1	170
APPENDIX A - 5 - Warehouse 2	171
APPENDIX A - 6 - Warehouse 3	171
APPENDIX A - 7 - Warehouse 4 and 5	172
APPENDIX A - 8 - Core cutting building.....	172
APPENDIX A - 9 - Office #1	173
APPENDIX A - 10 - Office #2.....	173
APPENDIX A - 11 - Core Storage Warehouse 3	174
APPENDIX A - 12 - Geochemical Field Cells.....	174
APPENDIX A - 13 - Proposed East Pit Area	175
APPENDIX A - 14 - HydroOne "M2D" Power Lines	175
APPENDIX A - 15 - Proposed Processing Plant Area.....	176
APPENDIX A - 16 - Proposed Center Pit.....	176
APPENDIX A - 17 - Proposed Western Pit Area.....	177
APPENDIX A - 18 - Water Quality Site JCTa.....	177
APPENDIX A - 19 - Water Quality Site JCTa.....	178
APPENDIX A - 20 - Water Quality Site SW1	178
APPENDIX A - 21 - Water Quality Site SW2	179
APPENDIX A - 22 - Water Quality Site SW3	179
APPENDIX A - 23 - Water Quality Site SW4	180
APPENDIX A - 24 - Water Quality Site SW5	180
APPENDIX A - 25 - Water Quality Site SW6	181
APPENDIX A - 26 - Water Quality Site SW8	181
APPENDIX A - 27 - Water Quality Site SW10	182
APPENDIX A - 28 - Water Quality Site SW11	182
APPENDIX A - 29 - Water Quality Site TL1a	183
APPENDIX A - 30 - Water Quality Site TL3	183
APPENDIX A - 31 - Treasury Metals Weather Station	184
APPENDIX A - 32 - Moose on Project Site.....	184
APPENDIX A - 33 - Pearl Dace, Fisheries Studies 2012	185
APPENDIX A - 34 - Red Squirrel on Project Site	185
APPENDIX A - 35 - Red-necked Grebe in Hughes Creek Marsh	186
APPENDIX A - 36 - Red-winged Blackbird on Project Site	186
APPENDIX A - 37 - Salamander on Project Site.....	187
APPENDIX A - 38 - Virginia Rail in Hughes Creek Marsh	187
APPENDIX A - 39 - Frog on Project Site	188
APPENDIX A - 40 - Hughes Creek Marsh	188
APPENDIX A - 41 - Lola Lake Nature Reserve	189
APPENDIX A - 42 - Tree Stand North of Project Site	189
APPENDIX A - 43 - Drill Rig on Site.....	190



**Treasury Metals Photo Locations
Taken Throughout Project Region
(Appendix: A)**

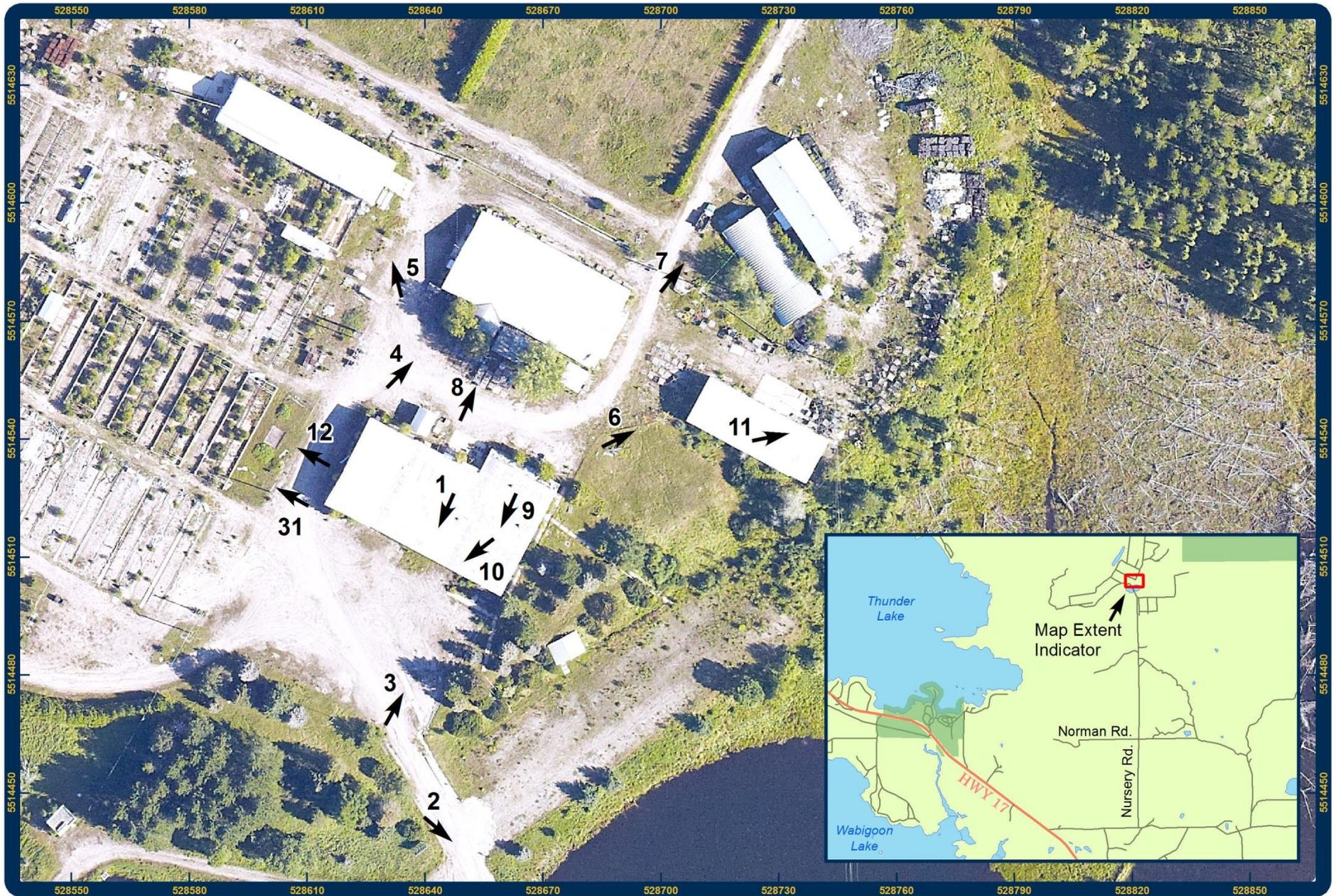


**Photo Numbers 1-12 and 31 are clustered in the Exploration Office Area, the locations of these photos can be found on a related map titled "Treasury Metals Photo Locations Taken Around Project Office"*

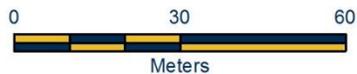
- Mine Infrastructure
- Powerline
- Lake
- Wetland
- # Photo Number & Look Direction

Projection: NAD83 UTM ZONE 15N
 Map produced by Adam Tocholke,
 Dryden Office, Treasury Metals Inc.
 Not intended for navigational purposes
 September 2012





Treasury Metals Photo Locations
Taken Around Project Office
(Appendix: A)



1:1,250

Projection: NAD83 UTM ZONE 15N

Map produced by Adam Tochojke, Dryden Office,
Treasury Metals Inc.

Not intended for navigational purposes

November 2012



TREASURY METALS
INCORPORATED



APPENDIX A - 1 - Project Office, Core Logging Area



APPENDIX A - 2 - Entrance to Project Office - South Facing Photo



APPENDIX A - 3 - Project Office



APPENDIX A - 4 - Warehouse 1



APPENDIX A - 5 - Warehouse 2



APPENDIX A - 6 - Warehouse 3



APPENDIX A - 7 - Warehouse 4 and 5



APPENDIX A - 8 - Core cutting building



APPENDIX A - 9 - Office #1



APPENDIX A - 10 - Office #2



APPENDIX A - 11 - Core Storage Warehouse 3



APPENDIX A - 12 - Geochemical Field Cells



APPENDIX A - 13 - Proposed East Pit Area



APPENDIX A - 14 - HydroOne "M2D" Power Lines



APPENDIX A - 15 - Proposed Processing Plant Area



APPENDIX A - 16 - Proposed Center Pit



APPENDIX A - 17 - Proposed Western Pit Area



APPENDIX A - 18 - Water Quality Site JCTa



APPENDIX A - 19 - Water Quality Site JCTa



APPENDIX A - 20 - Water Quality Site SW1



APPENDIX A - 21 - Water Quality Site SW2



APPENDIX A - 22 - Water Quality Site SW3



APPENDIX A - 23 - Water Quality Site SW4



APPENDIX A - 24 - Water Quality Site SW5



APPENDIX A - 25 - Water Quality Site SW6



APPENDIX A - 26 - Water Quality Site SW8



APPENDIX A - 27 - Water Quality Site SW10



APPENDIX A - 28 - Water Quality Site SW11



APPENDIX A - 29 - Water Quality Site TL1a



APPENDIX A - 30 - Water Quality Site TL3



APPENDIX A - 31 - Treasury Metals Weather Station



APPENDIX A - 32 - Moose on Project Site



APPENDIX A - 33 - Pearl Dace, Fisheries Studies 2012



APPENDIX A - 34 - Red Squirrel on Project Site



APPENDIX A - 35 - Red-necked Grebe in Hughes Creek Marsh



APPENDIX A - 36 - Red-winged Blackbird on Project Site



APPENDIX A - 37 - Salamander on Project Site



APPENDIX A - 38 - Virginia Rail in Hughes Creek Marsh



APPENDIX A - 39 - Frog on Project Site



APPENDIX A - 40 - Hughes Creek Marsh



APPENDIX A - 41 - Lola Lake Nature Reserve



APPENDIX A - 42 - Tree Stand North of Project Site



APPENDIX A - 43 - Drill Rig on Site

APPENDIX B

RECORD OF COMMUNITY INVOLVEMENT

TREASURY METALS - INVESTING IN COMMUNITY

SPORTS			
2010	Shane Langlais	Sponsorship 2010 Hockey season	\$ 1,000.00
2010	Dryden Mixed Slo-Pitch Team	RML Jock and Jills	\$ 400.00
2010	PDAC Mining Matters	PDAC Hockey Sponsorship	\$ 3,800.00
2011	Dryden Ice Dogs Junior A team	Bronze level sponsorship 2011/12 season	\$ 1,500.00
2011	Dryden Men's Hockey League	Treasury Metals Canadians 1011/12 season	\$ 2,000.00
2011	PDAC	S-IMEW 2011 Bronze Level Sponsorship	\$ 1,500.00
2011	Dryden Ball Diamonds Committee	Light our Ball Diamonds Project	\$ 3,000.00
2011	Sew What Printwear	Jerseys & Hats for TML Softball team - Dryden	\$ 881.80
2011	Ontario Australian Football League	Sponsorship	\$ 1,000.00
2011	PDAC Mining Matters	Diamond in the Rough Golf Classic sponsorship	\$ 2,200.00
2012	Dryden Ice Dogs Junior A team	Mixed sponsorship 2012/13 season	\$ 1,299.50
2012	Walleye Masters	Sponsorship	\$ 500.00
2012	Mixed Slo-Pitch Team	2012 Sponsor	\$ 600.00
COMMUNITY			
2010	Dryden Small Business Week	Support	\$ 1,000.00
2010	Dryden Development Corporation	Sponsorship for Enterprise Grand Opening	\$ 500.00
2011	Thunder Bay Charity		\$ 73.85
2011	Festival of Trees	Grace Haven Organization Dryden	\$ 300.00
2011	Dryden and Area Mining Symposium 2011	Participation	
2012	Community of Wabigoon	Outside Rink Sponsorship	\$ 1,500.00
POW WOW/FIRST NATIONS			
2011	Migisi Sahgaigan Land & Resources Dept.	Mining Matters Youth Program catered lunch - cost reimbursement	\$ 1,176.00
2011	Eagle lake First Nation	Pow-Wow 2011	\$ 500.00
2012	Lac Seul First Nation	Career Fair (participation)	\$ 500.00
2012	Sioux Lookout Area Aboriginal Board	Aboriginal Trades & Employment Symposium (participation)	\$ 750.00
2012	Eagle Lake First Nation	Pow-Wow 2012 (participation)	
EDUCATION & TRAINING			
2010	Prospectors & Developers Association of Ontario	PDAC Student-Industry mineral Exploration workshop	\$ 1,000.00
2010	Outside Looking In	Sponsor	unknown
2010	Ontario Exploration & Geo-Science Symposium	OEGS Dinner sponsorship	\$ 1,000.00
2011	Confederation College		\$ 225.00
2011	Superior Science		\$ 500.00
2011	Ontario Prospectors Association	OEGS Sponsorship	\$ 800.00
2012	Ontario prospectors Association	Host Tour and Lunch (participation)	
MINING MATTERS EVENTS			
2011	PDAC	S-IMEW Dinner tickets	\$ 525.00

APPENDIX C

FURTHER 2012 BASELINE FIELD WORK TO BE COMPLETED

Item	Date	Field Work	Description
Meteorology	July, 2012	Station Upgrade	Site installed on TML Property
Aquatic Resources	August, 2012	Netting, Fishing	Tissue sampling effort
	June, July, August 2012	Electrofishing, Minnow Trapping, Habitat Mapping	Fisheries collection and analysis
	Monthly, 2012	Surface Water Sampling	Program upgraded from previous effort
	August, 2012	Hydrology	Program upgraded from previous effort
	October, 2012	Sediment and Benthic Sampling	Collection and Analysis
Terrestrial Biology	August, 2012	Wetland Assessment	Assessment conducted of Project area wetlands
	June, July, August 2012	Bird Counts and Surveys	Counts and surveys of bird populus and wetland species
	June, July, August 2012	Amphibians and Reptiles	Counts and surveys of local populus
	September, 2012	Small Mammals	Counts and surveys of local populus
	Monthly, 2012	Large Mammals	Incidental contact record, and counts
Geochemistry	Ongoing, 2012	Field cells	Ongoing program to be completed in Q1 2013
Hydrogeology	December, 2012	Drill hole testing	Completion of ongoing ground water program

Note: This data was not completed or compiled in time for inclusion in this report.