



1	ISSUED	4/4/18	M.F.	J.A.	J.L	C.M.
0	FINAL	7/21/16	M.F.	J.A.	J.L	C.M.
REV.	DESCRIPTION	DATE	PROJ.	EXEC.	CHECK.	APPR.

 Pure Fonte Ltée	PURE FONTE LTÉE PIG IRON PRODUCTION PLANT – FEASIBILITY STUDY CUSTOMER N°: 1821
--	--

 	TENOVA TECHINT ENGINEERING & CONSTRUCTION FEASIBILITY STUDY SECTION 14 CAPITAL COST
--	---

TENOVA RESERVES OWNERSHIP OF THIS DOCUMENT, WITH THE PROHIBITION TO REPRODUCE, MODIFY OR TRANSFER TO OTHER COMPANY OR PERSON, IN WHOLE OR IN PART, WITHOUT PREVIOUS WRITTEN PERMISSION.			REVISION 1 <small>REVISION</small>
	ESC.: N/A	JOB: CD-335	

NOTE

The content of this Section has been developed by SNC Lavalin under direct mandate of NAIC.

This document contains the basis of estimate done for the Feasibility Study of 2016 and the document issued by SNC Lavalin on April 17th 2018 that explains the escalation of capex to 2018.

Capital Estimate details are included in Appendix I



SNC • LAVALIN

Mining & Metallurgy
195 The West Mall
Etobicoke, Ontario, Canada M9C 5K1
☎ 416.252.5315

April 17th, 2018

By email to:

Mr. Francis MacKenzie,
CEO
Pure Fonte Ltee

Our ref.: 635089-33RA-Update

Subject: Pig Iron Plant Basis of Estimate Refresh

Dear Mr. MacKenzie,

In response to your request for an update to our 2016 Estimate Basis for your Pig Iron Plant project located in Saguenay Quebec, please find attached herein the relevant updated documentation.

Based on the information received from Tenova and the general conditions in the Saguenay area our current cost (2nd Quarter 2018) for the project is \$376.9M USD, an increase of \$8.1M USD from the estimate presented in 2016.

The new cost reflects escalated costs of bulks, labor and Tenova supplied equipment. No modifications to the scope, quantities, schedule or indirects were made. Find attached to this letter the basis for the update as well as summary comparison between the 2016 estimate and today's estimate

We trust that this fulfills the requirements of Pure Fonte, and we look forward to continuing our relationship on this very interesting project.

Sincerely,

Navin Gangadin, P.Eng.
Vice-President, Studies & Technology
North America, Mining and Metallurgy

Attachments: Refresh Basis
Estimate Summary Refresh



PIG IRON PLANT - 2018 High-Level Refresh

Basis for 2018 Capex Refresh

BASIS OF REFRESH
Mandate
The following provides a brief description of the basis and qualifications for the refresh to the 2016 Pig Iron Capex prepared in June of 2016: SNC was mandated by Tenova in early 2016 to prepare the Capex and basis of estimate for the Pig Iron Plant in Saguenay Quebec. SNC's deliverables were inputs to the Capex section of the report prepared by Tenova on behalf of their client North Atlantic Iron Corporation (NAIC) Tenova has requested SNC prepare a <u>high-level</u> refresh of the Capex, focusing on an update of labour crew rates and currency exchange rates
Scope & Quantities
This refresh makes no opinion as to the validity of the previous estimate in terms of scope, quantities or tenova equipment pricing The original project scope has been retained in it's entirety. The refresh reflects the same quantities reflected in the 2016 Capex
Labour Crew Rates & Productivity
<ul style="list-style-type: none">- Labour crew rates were updated to reflect April 2018 Quebec Collective Agreement published rates for the Industrial sector- The same assumptions were retained with respect to construction work week, casual overtime, and percentage of local versus non-local craft- The construction equipment portion of the crew rates was updated to reflect 2018 pricing as per the Quebec Government publication entitled "Taux de Location de Machinerie Lourde"- The installation hours reflect the 2016 Capex- The average hourly "all-in" crew rates has increased from \$123 to \$129 Cad per hour, representing an annual increase of 2.4%
Equipment Pricing
<ul style="list-style-type: none">- Tenova provided the value of \$142M for the supply of their equipment and bulk material pricing in 2016- Tenova pricing has been increased by 1% based on an email received by Tenova on April 8th, 2018- It is assumed that the original qualifications with respect to inclusions / exclusions and or validity of Tenova pricing apply- Electrical equipment pricing has been escalated 2%
Bulk Material Pricing
<ul style="list-style-type: none">- Concrete material pricing has been increased 4% compared to June 2016 Capex- Fabricated steel pricing has been increased 5% compared to June 2016 Capex- Architectural pricing has been increased 4% compared to June 2016 Capex- Piping material pricing has been increased 3% compared to June 2016 Capex- Electrical material pricing has been increased 3% compared to June 2016 Capex
Indirect Costs
<ul style="list-style-type: none">- Construction Field Indirects based on 3% of direct costs - same as 2016 Capex- EPCM services based on 8% of direct costs - same as 2016 Capex- Value for heavy lift cranes - same as 2016 Capex- Freight costs based on 7% of the value of equipment, excluding Tenova supply - same as 2016 Capex- Value for vendor representative and spare parts based on the same percentages of equipment supply as in June 2016 Capex- Contingency based on 9% of direct & indirect costs - same as 2016 Capex
QUALIFICATIONS & EXCLUSIONS
<ul style="list-style-type: none">- The 2018 refresh assumes the same qualification and exclusions list as the 2016 Capex



Capital Cost Estimate

Revision

#

Date

635089-0000-33RA-0001

PB

2016/06/23


PIG IRON PLANT - 2018 High-Level Refresh

Capex Summary by Discipline

USD to CAD
EURO to CAD

2018 Fx	2016 Fx	2016 Fx
1.26	1.301	1.301
1.56	1.455	1.455

Discipline	Description	Direct Labour Hours	Avg. Crew Rate	Labour	Permanent Equipment	Permanent Material	Permanent Fabrication	Sub-Contract	TOTAL Apr 2018 (CAD)		2018 Fx	2016 Fx	2016 Fx
											TOTAL Apr 2018 (USD)	TOTAL Apr 2018 (USD)	TOTAL Jul 2016 (CAD)
DIRECT COSTS													
41	Civil	33,765	\$176	\$5,937,639	\$0	\$2,744,452	\$0	\$0	\$8,682,091	107%	\$6,890,548	\$6,672,424	\$8,146,891
	Dome technology	15,450	\$160	\$2,472,000	\$0	\$1,456,000	\$0	\$2,293,200	\$6,221,200	101%	\$4,937,460	\$4,838,775	\$6,149,083
42	Concrete	121,484	\$115	\$13,970,661	\$0	\$7,426,478	\$0	\$0	\$21,397,139	105%	\$16,981,856	\$16,444,285	\$20,382,601
43	Structural Steel	83,588	\$145	\$12,120,304	\$0	\$16,274,899	\$0	\$0	\$28,395,203	109%	\$22,535,876	\$21,027,017	\$25,965,732
	Technological Steel (supplied by Tenova)	28,705	\$145	\$4,162,241	\$0	\$0	\$0	\$0	\$4,162,241	106%	\$3,303,366	\$3,198,796	\$3,932,600
44	Architectural	60,093	\$125	\$7,524,328	\$0	\$5,902,852	\$0	\$0	\$13,427,180	104%	\$10,656,492	\$10,319,154	\$12,863,826
45	Mechanical	218,798	\$129	\$28,298,881	\$2,880,172	\$564,126	\$0	\$0	\$31,743,179	104%	\$25,192,999	\$24,395,499	\$30,595,718
	Mechanical (Tenova Supply) - Allowance	0		\$0	\$180,709,200	\$0	\$0	\$0	\$180,709,200	98%	\$143,420,000	\$143,420,000	\$184,768,980
46	Piping	166,514	\$130	\$21,643,840	\$0	\$7,180,769	\$3,361,701	\$2,478,169	\$34,664,479	106%	\$27,511,492	\$26,640,598	\$32,785,856
47	Electrical	96,664	\$118	\$11,454,125	\$32,577,144	\$4,880,227	\$0	\$0	\$48,911,496	103%	\$38,818,647	\$37,592,114	\$47,716,429
48	Automation	39,000	\$110	\$4,290,000	\$100,000	\$2,750,000	\$0	\$0	\$7,140,000	103%	\$5,666,667	\$5,487,285	\$6,948,000
TOTAL DIRECT COSTS		864,062	\$129	\$111,874,019	\$216,266,516	\$49,179,803	\$3,361,701	\$4,771,369	\$385,453,408	101%	\$305,915,403	\$300,035,946	\$380,255,714
INDIRECT COSTS													
	Construction Field Indirects		3.0%	% of direct costs					\$11,564,000		\$9,177,778	\$8,887,249	\$11,407,671
	warranty management- 1 person 1 year @ \$150/hour			included in EPCM					\$0		\$0	\$0	\$0
	Heavy Lift & Heavy Haul from Port								\$4,107,332		\$3,259,787	\$3,156,597	\$4,107,332
	Engineering, Procurement & Construction Management		8.0%	of direct costs					\$30,836,000		\$24,473,016	\$23,698,307	\$30,420,457
	Norda Stelo Engineering & Construction Management			included in Construction Field Directs					\$0		\$0	\$0	\$0
	Geotechnical Survey			included in Construction Field Directs					\$0		\$0	\$0	\$0
	Survey subcontract			included in Construction Field Directs					\$0		\$0	\$0	\$0
	External Laboratory Testing			included in Construction Field Directs					\$0		\$0	\$0	\$0
	Freight		7.0%	of balance of equipment (Tenova freight included in their supply price of \$143.4M USD)					\$1,093,252		\$867,660	\$840,194	\$1,047,927
	Freight's Insurance								\$0		\$0	\$0	\$0
	Vendor's Representative		2.0%	of balance of equipment (vendor rep for Tenova equipment included in \$143.4M USD)					\$312,358		\$247,903	\$240,056	\$299,408
	Initial First Fills and Oils			included in Tenova \$142M USD					\$0		\$0	\$0	\$0
	Commissioning Spares		0.5%	of balance of equipment (spares for Tenova equipment included in \$143.4M USD)					\$78,089		\$61,975	\$60,014	\$74,852
	Capital Spares		3.0%	of balance of equipment (spares for Tenova equipment included in \$143.4M USD)					\$468,537		\$371,855	\$360,083	\$449,112
	Operating Spares (2 years)			Included in OPEX					\$0		\$0	\$0	\$0
	Pre-Commissioning Support (Trades assistance by sub-cont.)			of mechanical and electrical hours (15 men x 6 months x 4.3 weeks/month x 40 hrs/wk x \$115)					\$1,780,200		\$1,412,857	\$1,368,132	\$1,780,200
	Contingency		9.0%	of directs + indirects excluding escalation					\$39,212,000		\$31,120,635	\$30,135,491	\$38,685,841
TOTAL INDIRECT COSTS									\$89,451,768		\$70,993,467	\$68,746,123	\$88,272,800
TOTAL DIRECTS + INDIRECT COSTS									\$474,905,176		\$376,908,870	\$368,782,069	\$468,528,514
OTHER COSTS													
	NAIC Owner's Costs								\$0		\$0	\$0	\$0
	Escalation		0.0%	excluded					\$0		\$0	\$0	\$0
TOTAL OTHER COSTS									\$0		\$0	\$0	\$0
TOTAL DIRECTS + INDIRECTS + OTHER COSTS									\$474,905,176		\$376,908,870	\$368,782,069	\$468,528,514

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 635089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

CLIENT: NORTH ATLANTIC IRON CORPORATION (NAIC)


PROJECT: PIG IRON PLANT

Prepared by : Mark Fontaine, Lead Estimator

Reviewed by : James Alarcon, Chief Estimator

Approved by : Joe Leone , SLI Study Manager

Approved by : Chris McKinney, NAIC Study Manager

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 635089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

DOCUMENT REVISION INDEX

Rev.	Purpose of Issue	Revised pages	By	Date
PA	For team review and comments	ALL	MF	2016-06-15.
PB	For Internal Review	ALL	MF	2016-06-16
PC	For Client Review	ALL	MF	2016-06-27
00	Client Comments Incorporated	ALL	MF	2016-07-05
01				



	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

TABLE OF CONTENTS

14.1	INTRODUCTION	4
14.2	MANDATE	4
14.3	TYPE OF ESTIMATE	5
14.4	SCOPE OF WORK OVERVIEW	5
14.5	ESTIMATE MILESTONE DATES	5
14.6	ESTIMATE STRUCTURE	6
14.6.1.	<i>Base Currency and Exchange Rates</i>	6
14.6.2.	<i>Base Date of Estimate</i>	6
14.6.3.	<i>Construction Work Week</i>	6
14.6.4.	<i>Units of Measure</i>	6
14.6.5.	<i>Work Breakdown Structure (WBS)</i>	7
14.7	COST AND QUANTITY BASIS	7
14.7.1	<i>Labor Crew Rates</i>	7
14.7.2	<i>Labor Man-hours</i>	10
14.7.3	<i>Quantity Development</i>	10
14.7.4	<i>Pricing Development</i>	19
14.8	INDIRECT COSTS	23
14.8.1	<i>EPCM Services Costs</i>	23
14.8.2	<i>Site Services and Temporary Facilities</i>	23
14.8.3	<i>Vendor Site Representation</i>	24
14.8.4	<i>Freight Costs</i>	24
14.8.5	<i>Taxes</i>	24
14.8.6	<i>Spare Parts</i>	24
14.8.7	<i>First Fills</i>	24
14.8.8	<i>Heavy Lift Cranes</i>	24
14.8.9	<i>Contingency</i>	25
14.8.10	<i>Escalation</i>	26
14.8.11	<i>Risk Analysis</i>	26
14.9	OWNER'S COST	26
14.10	CUSTOMS AND DUTIES	27
14.11	EXCLUSIONS	27
14.12	ESTIMATE CHANGES AFTER PDC REVIEW	29
14.13	CAPITAL COST ESTIMATE	30

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.1 Introduction

North Atlantic Iron Corporation (NAIC) has commissioned Tenova Core to conduct a pre-feasibility study for the production of pig iron from iron oxide. The facility will produce 425,000 tons per year of saleable pig iron.

The plant will be located 2.4 km from the Port of Saguenay, in Quebec.

14.2 Mandate


SNC Lavalin's has developed a feasibility estimate which includes the following:

- The direct labor costs for civil, concrete, steel, architecture, building services, mechanical, piping, electrical and instrumentation based on the quantity development by Tenova-Techint;
- The direct supply costs for civil, concrete, architecture, and the balance of steel, mechanical, piping, electrical and instrumentation based on the quantity development by Tenova-Techint;
- The indirect costs completing the Capital Cost estimate.

The cost of all the technological and auxiliary equipment was provided by Tenova Core Inc. of Pittsburgh, USA in cooperation with Tenova S.p.A. of Milan, Italy.

The engineering and quantity development was done by Techint Engineering and Construction with its team of engineers and project managers of Techint Compañía Técnica Internacional S.A.C.I. of Buenos Aires, Argentina. SNC Lavalin did not validate the Techint quantity development.

This Basis of Estimate documents the criteria, assumptions and methodology used to develop the Prefeasibility Phase capital cost estimate.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.3 Type of Estimate

The Pig Iron Plant estimate is intended to form the basis for budget authorization or funding.

14.4 Scope of Work Overview


The Saguenay Pig Iron Production Plant of North Atlantic Iron Corporation is divided into the following main operating areas:

- A. Iron Ore Pellets Receiving Area;
- B. Iron Ore Pellets Storage Area;
- C. Material Handling Area;
- D. Briquetting Plant;
- E. DRI Area;
- F. EAF Area;
- G. Continuous Pig Casting Plant;
- H. Auxiliary Services Utilities;
- I. Administration and Ancillary Facilities.

14.5 Estimate Milestone Dates

An estimate review was held on June 28th with NAIC and Tenova. The changes resulting from the estimate review meeting were incorporated in the estimate.

Construction work is planned to start in May 2017 and construction will end December 2018.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.6 Estimate Structure

14.6.1. Base Currency and Exchange Rates

The estimate base currency is Canadian dollars (CAD\$ 2Q2016). All pricing has been entered in native (quoted) currency based on the following exchange rates:

Currency Code	Currency Name	Exchange Rate*	% Content
CAD	Canadian Dollar	1	57.2%
EUR	Euro	1.45497	2.9%
USD	US Dollar	1.30119	39.9%

Table 14.6-1.: Rates based on Oanda June 1, 2016

Currency fluctuation is excluded from the estimate.

PM+ allows for the reporting of the estimate in various currencies. The PM+ estimate details are reported in American dollars (USD) based on the above exchange rates.

14.6.2. Base Date of Estimate


The base date of the estimate is June 15, 2016 (2Q2016).

14.6.3. Construction Work Week

The construction work week is 8 hours per day, 5 days per week, for a total of 40 hours per week.

14.6.4. Units of Measure

The main units are stated in SI metric system.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.6.5. Work Breakdown Structure (WBS)

A project Work Breakdown Structure (WBS) has been developed. The WBS indicates the division of the project into all its physical elements followed by sub-elements and items. The capital cost estimate is based on the WBS.

See Appendix A for details.


14.7 Cost and Quantity Basis

14.7.1 Labor Crew Rates

The craft labor wage rates for Quebec have been developed using the Convention Collective du Secteur Industriel Lourd de l'Industrie de la Construction dated 2013-2017.

The composite crew rates include the following costs:

- Craft base rates, fringe benefits and overtime;
- Mobilization & demobilization of contractor items;
- Non-manual labor (general foreman, superintendent, project manager etc.);
- Indirect manual labor;
- Small tools;
- Consumables;
- Ownership and operational costs of construction equipment;
- construction cranes up to 80 metric tons;
- Health, safety and environmental requirements;
- Site supervision and administration;
- Contractor temporary site facilities;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- Contractor Overhead and Profit;

Labor rates are based on straight time for an 8-hour day and 40-hour week.

Double time is considered after 8 hours per day and weekends. Hours worked in excess of 40 hours per week are paid at double time.

An allowance for casual overtime is included in the rates and equivalent to 3 hours per week, paid at double time across all activities.

The collective agreement contains provision for travel and accommodation allowances which vary according to the distance of residence to the construction site.


The full room and board allowance of \$137.50 CAD per day is for worker's whose principal residence is 120km or more from the job site.

For this estimate it is assumed that all workers reside within a 120km radius from site.

Daily travel allowances are included in the crew rates and have been established as per the following criteria:


- All civil workers are assumed to live within 0-48 km of the site and therefore receive no allowances;
- For the balance of craft, the following assumptions were used:
 - 10% live within 0-48 km of the site and therefore receive no travel allowance;
 - 25% live within 48 km to 72 km from the site and receive a travel allowance of \$19.64 CAD/work day
 - 25% live within 72 km to 88 km from the site and receive a travel allowance of \$33.97 CAD/work day
 - 40% live within 88 km to 120 km from the site and receive a travel allowance of \$38.43 CAD/work day;

The following table summarizes the various composite crew rates.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

Crew Code	Description	Hourly Rate CAD	Hourly Rate USD
41A	Civil Works = Minor Works = Hand Excavation / Underpinning / Landscaping	\$97	\$75
41B	Civil Works = Light Works = U/G Utilities / Fencing / Bollards / Security Guards / Sel. Demol. / Tree Cutting	\$122	\$94
41C	Civil Works = Standard Works = Excavation / Backfill / Compaction / Hauling / Small Tramac (Building / Structure / Trenching / Culvert / Asphalt)	\$151	\$116
41D	Civil Works = Heavy Works = Excavation / Backfill / Compaction / Hauling / Large Tramac (Site Prep / Ditch / Heavy Demol / Access Roads / Parking)	\$190	\$146
41E	Civil Works = Rock Excavation = Blasting + Excavation + Hauling	\$204	\$157
42A	Concrete Works = Formworks + Reinforcement + Concrete	\$109	\$84
43A	Structural Works = Unload + Shake out / Erect + Plumb	\$137	\$105
44A	Heavy Architectural Works = Metallic Roofing / Cladding with Cranes	\$128	\$98
44B	Light Architectural Works = Gypsum Board / Flooring / Painting	\$100	\$77
44C	Architectural Works = Masonry / Roofing / Cladding (no cranes)	\$111	\$85
45A	Heavy Mechanical Works	\$123	\$95
45B	Light Mechanical Works	\$115	\$88
45C	Field Erected Tanks and Silos Works	\$135	\$104
45I	Mechanical Insulation Works	\$103	\$79
46A	Piping	\$123	\$95
46I	Piping Insulation Works	\$102	\$78
47A	Electrical	\$108	\$83
48A	Automation	\$104	\$80

Table 14.7-1.: The average weighted crew rate is \$123 CAD/hour. (\$95 USD/hour)

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.7.2 Labor Man-hours

Direct field labor is the skilled and unskilled labor required to install the permanent plant equipment and bulk materials at the project site. Direct field installation man-hours have been developed using estimated unit man-hours for each commodity multiplied by the quantity.

Installation hours have been adjusted to reflect local conditions which include: effective hour, weather conditions, overcrowded/tight work area, availability of skilled workers, inspection QA/QC and safety on a worker's performance.

14.7.3 Quantity Development


Civil, Concrete, Steel and Architectural Works

The Battery Limit of the estimate is the Plant fence. All services and facilities beyond the plant fence are excluded.

Quantity Development

Tenova-Techint provided neat quantities, with no factors or growth added to quantities, for the following items:

- Gravel paved surfaces, hydraulic seeding, mass granular backfill;
- Trench excavation and backfill for the firewater loop;
- Underground piping for the firewater loop;
- Precast concrete trenches, manholes and concrete reinforced pipe for the rainwater drainage system;
- Detailed platform and rock excavation and backfill for foundations of buildings, facilities, pipe racks, equipment, bag house etc.
- Rock anchors for foundations;
- Fencing and gates;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			


- gravel roads only (no concrete or asphalted roads);
- Gravel paved surfaces;
- Concrete for walls, footings, piers, slab on grade, elevated slabs, equipment pads beams, rafts, sump pits, and lean concrete;
- Rigid insulation and concrete surface hardener;
- Light steel, medium steel, heavy steel, x-heavy steel, plates, platforms, stairs, guardrails, ladders, grating, checker plate, for EAF/Pig Casting building, screening tower, day bin tower, DRI tower, pipe rack etc.;
- steel wall and roof cladding, gutters, downspouts and snow guards.

SNC Lavalin estimation provided quantities for:

- the potable water pipe, within the plant fence, it is assumed to be installed on top of Norda Stelo's sanitary drain pipe;
- Fire hydrants, PIV and bollards (protection posts);
- Head house siding and roofing;
- Rock excavation, lean concrete and granular backfill under the dome tunnel;
- Added concrete to the dome ring beam to go to the frost level;
- Administration Building;
- The truck scale foundations.


The following adjustments were added to Tenova-Techint's neat quantities:

- 10% for civil growth allowance (for waste, overlap);
- 3% for concrete growth allowance;
- 10% for steel growth allowance (for connections);
- 5% for architectural growth allowance (for loss and overlap).

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

Civil estimate clarifications:

- The estimate has been updated as per Techint's MTO dated June 22;
- Natural gas is all aboveground;
- There are no buried duct banks for electrical;
- The civil work for the Transfer tower TT-105, the pipe conveyor, the port Transfer Tower and E-houses are excluded;
- There is only one dome. Dome Technology's list of exclusions and qualifications are assumed to be included except for those previously mentioned. As per the internal estimate review meeting, Dome Technology's exclusions/qualifications are assumed to be included by virtue of a future buy down;
- There are no concrete sidewalks;
- The Briquetting plant excludes for civil, concrete, steel and architectural work;
- The Gas Treatment wall siding, miscellaneous architectural work and building services have been removed;
- there is no elevator at DRI tower;
- The temporary foundations for the construction of the top part of the DRI tower structure above the reactor have been removed;
- The EAF architectural and building services have been reduced to 2 small areas
- The Pig Casting wall siding, architectural work, and the building services have been removed as well as the slab on grade at the stockpile;
- The control room and CE-04 have been removed;
- A fence and gates have been added to the main substation since it was an ABB exclusion;
- There are no civil scope items or quantities for the Slag Handling Plant;
- The boundary limit for the potable water and fire water is at the plant fence;
- The existing platform assumptions are:

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- The existing platform is assumed to be compactable to 95% proctor and is adequate to support the new roads, gravel paved areas, slag handling and the Briquetting operations and the new concrete foundations.
- The excavated existing platform material is assumed adequate and can be to be reused as compactable backfill for foundations and underground services.

Mechanical and Piping

The mechanical material take-off has been based mainly on the equipment list provided by Tenova dated 2016-04-25. Since the equipment list changes were not identified it was difficult to capture all the changes.

Due to the lack of time for the review of the last equipment list received, this final list has not been reviewed totally. It is expected that the last review was done on 90% of the line items but is still not completed.

Engineering did not provide a list of equipment that is to be refractory lined. Therefore, estimating has provided an allowance for refractory lining.

A list of equipment to be thermally insulated has not been provided. Therefore, estimating has provided an allowance for equipment insulation.

Wherever technical information was not provided to estimating, an allowance has been provided.


Since PFDs and P&IDs were not issued, estimation could not verify if the equipment list is complete. Therefore, the latest equipment list is assumed to capture all of the mechanical work for the project.

Piping

The piping MTO is based on document 3786-TARG-P-MT-000-001 and the Techint MTO of June 26. This list includes piping lines for the Water Treatment area, the EAF area, the Pig Casting area and for the pipe rack.

The piping MTO provided the following information:

- Piping Fluid Code;
- Piping Insulation requirement (without thickness and material);

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- Diameter;
- Length in meters (M);
- Fittings (elbows, tees, flanges, caps)

Information regarding pipe wall thickness, pickling, PWHT requirement and electrical heat tracing was not provided.


An allowance for piping insulation, for all areas, has been included in the piping estimate.

Allowances have been provided for the supply and installation of the following items.

- Utility stations U.S. (30 each);
- Instrument Air Manifolds (IAM) (30 each);
- Manual valves 4.5" Ø AVG (800 each);
- In-line instrument or control valves handling (300 each);
- Special items (1 lot for all areas);
- PRVs, PSVs, TSVs (1 lot for all areas);
- Hydraulic SS Tubing (1 lot for all areas);
- Autonomous safety showers (4).


Electrical

- As per the review meeting held with Tenova last June 6th, Techint's MTO for grounding was replaced for peripheral grounding loops for all buildings listed in the building list, grounding cables along the pipe-rack and main conveyors, grounding cables inside the cable trays runs, a grounding cable along the peripheral fence near the overhead power lines and a grounding cable along the Substation Yard peripheral fence. An allowance has been included for the grounding of the process equipment;
- The Plant Lighting has been estimated as per the Techint's MTO #3786-TARG-E-MT-000-0003-0. As per the estimating review with Tenova, the 22 high mast poles have been removed, the street lights have been reduced to 40 from 90 units and the steel poles replaced with wood poles. An allowance per square meter has been added to

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

each building, listed in building list, for lighting bulks, the cabling of the fixtures and receptacles and the feeders for the distribution panels and transformers.


- All major MV & LV electrical equipment such as transformers, switchgears, MCCs, MV VFD, cut-out switches and emergency generators have been included as per the Electrical Equipment List #3786-TARG-E-EL-000-0001-A.
- An allowance has been included for the E-Rooms and the E-Houses for small equipment such as distribution & lighting transformers and panels, UPS, Batteries and battery chargers, etc.;
- The cable tray MTO is based on the layout #3786-TARG-E-LY-000-0005-0. Allowances have been included for cable trays installed in the Water Treatment Plant and the E-houses.;
- The MV cable estimate is based on the Techint's MTO #3786-TARG-E-CL-000-0001-A;
- The LV cables have been estimated based on the Mechanical Equipment List #3786-TARG-X-EL-000-001-B. A total count of 126 electrical loads has been identified with an average length of 160 meters for each load. An average of 30 meters of cable was added for the cables installed between LV switchgears, transformers, MCCs and other equipment in E-Rooms or E-Houses;
- Control Cables have been added in E-Rooms and E-Houses for measuring and for protection between the MV and LV equipment such as Transformers, Switchgears, MCCs and other power equipment. Control cables have also been added to control and protect the MV and LV motors in the field;
- A total of five (5) electrical E-houses will be prefabricated:
 - CE-04;
 - CE-05;
 - CE-WTP;
 - CE-DR-B;
- The E-houses CE-06 for the Administration Building, CE-02 and CE-10-EAF are stick-built and are included in the civil/concrete/structure/architecture estimate.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			


- The E-house CE-01 for the Main Substation is included in the Substation turnkey package.
- An allowance has been included for the electrical installation of the gate and the road weight scale.
- As per the piping estimate, an allowance for 4,500 meters of electrical heat tracing cables has been included for freeze protection plant wide.
- Estimate updated as per Techint MTOs of June 22;
- Ravagnan (WTP) will supply all of the necessary equipment and material as needed, such as junction boxes, cables, cable trays, push-button stations, etc., to perform a functional and operational system;
- The battery limit of this estimate is the gantry for HV Line Arrival in Substation Yard.

Instrumentation

- The instrumentation estimate is factored based on 50% of the electrical estimate, less the Substation Yard Turnkey package. This amount covers all bulk materials such as supports, cables terminations, instrumentation tubing and all other items needed for a complete and functional installation not supplied by Technological packages;
- It was assumed than the majority of the instruments will be delivery on site, already mounted on skids and won't need additional handling;
- Tenova will supply all of the necessary equipment and material such as DCS/PLC, hardware, software, control room furniture, junction boxes, instruments, bulk such as cables, provide licenses and perform the system programming;
- Ravagnan (WTP) will supply all of the necessary equipment and material such as DCS/PLC, hardware, software, control room furniture, junction boxes, instruments, bulk such as cables, provide licenses and perform the system programming;
- An allowance has been included for the Telecommunication estimate based on a previous project with a similar footprint;
- As per the estimate review meeting with Tenova, it was decided that the majority


	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

of the communication will be done wireless and a PA/GA system is not required. The aforementioned allowance covers for the backbone supply, cables terminations, control access and all other items needed for a complete and functional installation. It is assumed that Tenova will supply all the necessary equipment and will perform the programming of the system.

	Basis of Estimate		Revision		Page
			#	Date	
	SLI 6235089-0000-33KA-0001		00		
		-			
Client:	North Atlantic Iron Corporation (NAIC)				
Project:	Pig Iron Plant, Port Saguenay				

Discipline	UoM	Tenova MTO(neat quantity)	Growth Allowance added by Estimating	MTO added by Estimating	Total Quantity
excavation					
detailed excavation	m ³	43,071	4,307	3,920	51,298
trench excavation	m ³	9,812	982		10,794
detailed rock excavation	m ³	6,975	697		7,672
trench rock excavation	m ³	743	74		817
backfill					
detailed granular backfill	m ³	46,755	4,675	336	51,766
trench granular backfill	m ³	5,148	515		5,663
mass granular backfill	m ³	27,595	2,760		30,355
concrete	m ³	12,287	369	223	12,879
lean concrete	m ³	529	16	118	663
structural steel					
building or facility steel	T	4,891	489		5,380
technological steel	T	817	82		907
steel wall & roof cladding					
insulated pre painted steel roof cladding	m ²	10,390	520	1,413	12,323
uninsulated pre painted steel roof cladding	m ²	14.3	0.7		15
insulated pre painted steel siding	m ²	23,404	1,170	1,048	25,622
uninsulated pre painted steel siding	m ²	1,476	74		1,550
Process Piping					
CS piping - unit	m	10,586			10,586
SS piping - unit	m	75			75
CS piping – Pipe rack	m	4,713			4,713
SS piping – Pipe rack	m	50			50
HDPE FW pipe (see civil estimate)	m	1,986			1,986
Total Piping	m	17,410			17,410
Piping Insulation	m	2,684		3,517	6,201
electrical					
MV Cables	m	13,370			13,370
LV Cables	m	7,700		23,350	31,050
Control Cables	m	0		37,510	37,510

Table 14.7-2.: summary of the MTOs

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.7.4 Pricing Development

Civil, Concrete, Steel and Architectural Works

Pricing Development

Pricing is based on standard unit hours multiplied by crew rates for labor and recent in-house data for materials.

Norda Stelo provided NAIC an estimate for the rainwater and sanitary sewer system. See Norda Stelo quotation for scope details. It is assumed the treated effluent can be discharged to a stream at the south end of the plant.

Building services such as heating, plumbing, sprinklers and ventilation were applied on a cost per square meter basis. (plant wide cost \$3,008,383CAD)

Miscellaneous architectural scope items, besides the Administration Building, were added on a square meter basis. (plant wide cost \$292,506CAD)

The EAF CE-02 control room was estimated as a modular unit (\$311,154CAD)

The Fire Water Pump house was estimated on a cost per square meter basis (\$272,378 CAD)


Tenova provided the Italian supply cost for hot rolled structural steel profiles for light steel, medium steel, heavy steel, x-heavy steel stairs, guardrails, ladders and grating delivered to Port Saguenay. The painting of all steel is System 2 as per 3786-TARG-S-DC-000-001.

It has been assumed the local steelworker's union will install the Italian steel.

Dome Technology provided a budgetary quotation to supply and install 1 dome and a precast concrete tunnel.

Budgetary requests for quotations were received for the following

- Structural steel for the EAF/Pig Casting building;
- Concrete works for the EAF/Pig Casting building;
- Wall and roof siding for the EAF/Pig Casting building;
- The Administration Building;
- Supply of 30MPa and 15MPa ready-mix concrete and granular backfill delivered to site;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- Precast concrete elements such as duct banks and WTP wall panels.

Mechanical

All of the items listed on the latest mechanical equipment list are assumed to be supplied and shipped to Port Saguenay by Tenova. Tenova's supply cost for all the items listed on the equipment list is considered a firm bid quoted in American dollars (USD). The source currency for the Tenova cost was entered in PM+ entirely as American dollars (USD).

Tenova to provide all documentation required.

Tenova did not provide technical and commercial recommendations for supply packages therefore estimating was unable to identify if the supply packages were complete.

The mechanical equipment installation man hours are based on the information provided by Tenova.


Building Services is included in discipline 44 Architecture.

Piping

Piping lines and insulation have been evaluated parametrically based on projects of comparable complexity. The pricing has been based on a certain productivity by linear meter of pipe installation. Material and fabrication costs are factored based on the resulting labor value.

Electrical


- NECA, Manual of Labor Units recommended for Heavy Industrial works, was used for the base labor units' rates for bulk material and small equipment installation;
- The labor units used for major equipment and E-Houses are based on recent in-house historical data;
- The costs for major equipment are based on ABB's bid #16Q2924958 R1 including an add-on for freight;
- The cost for the emergency generator is based on recent in-house historical data;
- The cost for small equipment and bulk material are based on recent in-house data;
- Budgetary quotations were received for the E-Houses (5,000\$ CAD/M2);

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- It is assumed that all equipment and bulk materials will be free issue from the WTP technological supplier Ravagnan;
- ABB provided a turnkey quote for the Main Substation. (bid #SYS-J012, dated the 19th of May, 2016).


Instrumentation

- The instrumentation estimate is factored based on 50% of the electrical estimate, less the Substation Yard Turnkey package. This amount covers all bulk materials such as supports, cables terminations, instrumentation tubing and all other items needed for a complete and functional installation not supplied by Technological packages;
- Tenova will supply all equipment and bulk material such as the DCS/PLC, HMI stations, hardware, software, control room furniture, junction boxes, instruments, cables, etc. and to provide licenses and perform system programming as well;
- Ravagnan will supply all equipment and bulk material such as the DCS/PLC, HMI stations, hardware, software, control room furniture, junction boxes, instruments, cables, etc. and to provide licenses and perform system programming as well;
- An allowance has been included for the Telecommunication estimate based on a previous project with a similar footprint;
- As per the estimate review meeting with Tenova, it was decided that the majority of the communication will be done wireless and a PA/GA system is not required. The above mentioned allowance will cover for the backbone supply, cable terminations, control access and all other items needed for a complete and functional installation. It is assumed that Tenova will supply all the necessary equipment and perform programming on the system.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

Discipline	UoM	Qty	Unit MH	Total Unit Cost (CAD)
Excavation				
detailed excavation	m ³	51,298	0.12	\$18.66
trench excavation	m ³	10,794	0.10	\$15.55
detailed rock excavation	m ³	7,672	0.52	\$105.66
trench rock excavation	m ³	817	0.55	\$112.62
Backfill				
detailed granular backfill	m ³	51,766	0.15	\$23.33
trench granular backfill	m ³	5,663	0.16	\$24.88
mass granular backfill	m ³	30,355	0.08	\$51.46
Concrete	m ³	12,879	8.8	\$1,422
lean concrete	m ³	663	0.82	\$249
Structural Steel				
building or facility steel	T	5,380	14.3	\$4,515
technological steel installation	T	907	31.6	\$4,335
Steel Wall & Roof Cladding				
insulated pre painted steel roof cladding	m ²	12,323	0.89	\$204.24
uninsulated pre painted steel roof cladding	m ²	15	0.42	\$138.76
insulated pre painted steel siding	m ²	25,622	0.74	\$164.08
uninsulated pre painted steel siding	m ²	1,550	0.37	\$117.04
Process Piping				
CS piping - unit	m	10,586	11.3	\$2,080
SS piping - unit	m	75	12.5	\$2,747
CS piping – Pipe rack	m	4,713	4.1	\$1,087
SS piping – Pipe rack	m	50	2.2	\$666
HDPE FW pipe (see civil estimate)	m	1,986	in civil	in civil
Total process piping	m	15,424	9.1	\$1,775
Piping Insulation	m	6,201	2.2	332
Electrical				
MV Cables	m	13,370	0.39	\$200.00
LV Cables	m	31,050	0.22	\$34.70
Control Cables	m	37,510	0.15	\$17.98

Table 14.7-3.: Unit rates table

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.8 Indirect costs

14.8.1 EPCM Services Costs

Costs of management, engineering, procurement and construction supervision is 8% of the direct costs.

The costs include all salaries, payroll burdens, overheads and direct costs associated with an EPCM's home and field office operations but exclude escalation.


14.8.2 Site Services and Temporary Facilities

The site services and temporary facilities is 3% of the direct costs.

The site services and temporary facilities includes the following costs:

- Initial facilities such as fencing, gates, lay down areas, signage and parking;
- Temporary buildings such as trailers and portable toilets;
- Temporary utilities such as potable water supply pipe and sewage drainage pipe;
- Furniture and equipment such as computers, office furniture, network installation, photocopiers and kitchenette equipment;
- Site services such as temporary electrical installation, office phones, cell phones, janitorial service, security, medical, surveying services and courier services
- Site maintenance such as snow removal, heating during winter, road and parking maintenance, temporary enclosures and site maintenance labor
- Site operation such as stationary and office supplies, first aid, security supplies and material handling on site
- Vehicles and construction equipment such as pickup trucks and material handling equipment
- Other construction indirect such as intermediate and final clean up and containers (recycling, garbage, and construction materials)

Electrical consumption costs during construction are excluded.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.8.3 Vendor Site Representation

Vendor representative support costs, for commissioning and start-up, are included in the Tenova-Techint firm bid of \$142M USD.

2% of the equipment costs developed by SNC-Lavalin has been applied to cover the cost of vendor representatives.

14.8.4 Freight Costs

The equipment and bulk material costs, provided by Tenova-Techint, include freight costs to Port Saguenay.

7% of the equipment costs developed by SNC-Lavalin has been applied to cover the cost freight to the job site.

14.8.5 Taxes

All taxes are excluded from the estimate.

14.8.6 Spare Parts

Commissioning and capital spare parts, shipped to Port Saguenay, are included in the Tenova-Techint firm bid.

.5% of the equipment costs developed by SNC-Lavalin has been applied to cover the cost of Commissioning spare parts.


3% of the equipment costs developed by SNC-Lavalin has been applied to cover the cost of Capital spare parts.

14.8.7 First Fills

First fills are assumed to be included in the Tenova-Techint firm bid.

14.8.8 Heavy Lift Cranes

The cost for heavy lift and heavy haul include for the following;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- 200 MT crane for 2 months;
- 600 MT crane for 3 weeks;
- Self-propelled modular trailers: 1 for the reactor and 1 for all other equipment and bulks;
- 1,250 metric ton crane on crawlers for 1 month for the Reactor installation;
- granular platform for the crane set up;
- police, escort, lifting wires etc.;
- an additional month has been added for heavy haul for equipment and bulks delivered to Port Saguenay.

Modifications to the existing road from the Port to the site are excluded. It is assumed that the heavy haul is feasible on the existing road for transportation of equipment and bulks from the port to site.

It is assumed the Tenova supplied equipment is delivered in two shiploads and that the ships have the capability to off load the equipment and bulks onto the self-propelled modular trailers.


14.8.9 Contingency

Contingency is an integral part of the estimate and can best be described as an allowance for undefined items or cost elements that will be incurred, within the defined project scope, but that cannot be explicitly foreseen due to a lack of detailed or accurate information.

It should not be considered as a compensation for estimating inaccuracy nor is it intended to cover any costs due to potential scope changes, "Acts of God", labor strikes, labor disruptions outside the control of the project manager, fluctuations in currency or cost escalation beyond the predicted rates.

Contingency has been evaluated using a deterministic approach. Contingency has been assessed at 9% of the direct and indirect costs excluding escalation.

The contingency analysis and recommended amount is independent of all potential risks.

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.8.10 Escalation

The estimate is expressed in second quarter 2016 Canadian dollars (CAD\$ 2Q2016).

Escalation has been excluded.


14.8.11 Risk Analysis

The estimate excludes for all costs associated with risk and costs associated with risk mitigation.

14.9 Owner's Cost

The following owner's costs are not included in the estimate:

- Construction and environmental permits;
- Operating costs;
- Licenses and fees;
- Operations workforce required for commissioning and start-up activities;
- Operational safety equipment supplies;
- Owner's team;
- Environmental monitoring, water analysis etc.;
- Deferred or sunk costs (spent study costs);
- Interest during construction;
- Capitalized Interest;
- Cost of Working Capital;
- Owner's Project Office (other than space provided by the EPC Contractor's site construction office) including rent, communications, furniture and equipment, and office supplies;
- Public Relations;
- Owner's travel, legal and other Corporate Office charges to the Project;
- Owner's consultants (legal, environmental etc.);
- Temporary electrical power and water consumption cost during construction;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			


- Relationship with Government Authorities;
- Project insurance including Comprehensive general liability and insurance for construction equipment & tools, builder's all risk insurance;
- Performance bond premiums;
- Allowance for the upgrade of any offsite facilities;
- Removal and disposal of hazardous materials;
- Remediation of soils;
- Training of plant operating personnel;
- Owner's Contingency or Project Reserve.

14.10 Customs and duties


The cost of customs and duties are excluded and are to be reimbursed by the Owner

14.11 Exclusions

- Soil decontamination;
- Site Preparation;
- Validation of Techint's MTO;
- Rail track and associated work;
- Replacing the existing granular backfill platform;
- Future installations;
- All Programming of systems such as DCS/PLC, HMI, Telecommunication, etc.;
- Site and building access control;
- Hydro Quebec high voltage supply power and connection to the HV substation;
- Costs associated with the gas suppliers' installations, such as natural gas, compressed air, nitrogen, argon etc. This includes the tanks and facilities for these services inside the plant;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- Transfer Tower TT-105, the Pipe conveyor, transfer tower at the Port and the E-houses at the Port;
- Supply of maintenance or mobile equipment unless specified in the estimate;
- Escalation;
- Delays caused by local community public relations;
- Delays caused by labor disputes;
- Costs associated with schedule acceleration or deceleration;
- Escalation on costs beyond project completion;
- Taxes (GST & PST);
- Currency fluctuations with the Canadian dollar;
- Legal services;
- Financial analysis;
- Allowance for industrial dispute or lost time arising from industrial actions;
- Project financing and interest during construction;
- The cost of Working Capital;
- Owner's Costs are excluded;
- Temporary electrical power and water consumption costs during construction;
- Window coverings such as blinds, furniture, fixtures, appliances, laboratory equipment, tools, shelving;
- Acoustical treatment of equipment to achieve a certain dBA level at the plant fence;
- Briquetting and the Slag Handling Service equipment and piping. This service is an OPEX cost;
- Relocation of existing underground services and other buried obstacles;
- The cost for current and future studies prior to project execution.


	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

14.12 Estimate Changes after pdc review

An estimate review was held on June 28th with NAIC and Tenova. The review meetings resulted in a combination of minor adjustments to quantities and or small changes to project scope. Additionally, there was a shared sentiment between the client and SNC Lavalin Management that labor costs were slightly overstated. To that end it was decided to reduce overall direct construction hours by 10% and reduce contractor “Mark-up and Profit on Manpower” from 12.5% to 7.5% in the composite crew rates.

The following provides a list of all other changes:

- The value of EPCM costs reduced from 9% to 8% of direct costs;
- The value of Construction Field Indirect costs reduced from 4% to 3% of direct costs;
- Contingency was reduced from 10% to 9% of the direct costs and indirect costs;
- The Administration building services cost was reduced by \$239,000 CAD;
- The supply cost for detailed and trench granular backfill was removed since it is assumed the excavated existing platform material can be reused as granular compactable backfill;
- The Briquetting Plant Substation work was removed;
- The supply and installation of the exhaust system ducts to the bag house was added;
- The plant wide miscellaneous architectural costs: for masonry, painting, doors, windows on a cost per square meter basis was reduced from \$1,290,468 CAD to \$292,506CAD
- The quantity of piping was reduced to match Tenova’s piping MTO of 17,410 meters;
- All process equipment insulation was removed;
- The firewater pump house was reduced to 236 m²;
- The instrumentation estimate was reduced by not applying 50% of the electrical estimate to the Substation Yard Turnkey package;
- There is only one dome;
- Escalation was excluded;
- The equipment requiring refractory work and the refractory weight was provided by Tenova and the refractory estimate was updated;

	Basis of Estimate	Revision		Page
		#	Date	
	SLI 6235089-0000-33KA-0001	00		
		-		
Client:	North Atlantic Iron Corporation (NAIC)			
Project:	Pig Iron Plant, Port Saguenay			

- The MCCs for the Pig Casting was relocated such that the average length of cables was shortened. The electrical estimate was updated;

14.13 Capital Cost Estimate

- Find in the following page the summary table by discipline with the Capital Cost Estimate for this project. The details of the estimate are available in the Appendix I at the end of the BFS.