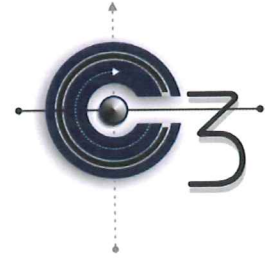


Appendix 5.1

Mine Closure Estimate



Lisheen Mine
Mine Closure Estimate Update

Prepared for:

Lisheen Mine

March 2016

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Appendices

Appendix A – Estimate Summary

Appendix B – Detailed Estimate Breakdown

Project Name:	Lisheen Mine Closure Estimate	Client Name:	Lisheen Mine
Document Name:	Lisheen Mine Closure Estimate Update March 2016	Revision Number:	Revision B
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1. Executive Summary

The objective of this Mine Closure Estimate is to provide a comprehensive and robust cost estimate that covers the scope of the mine closure to fulfil Lisheen Mine's on-going obligations under their planning conditions.

This section presents a summary of the Estimate Update, undertaken for the required works during the Active Management and Passive Validation Periods. The Aftercare Period is excluded from this Report and the costs are provided for separately.

1.1 Pricing Summary

DESCRIPTION	AMOUNT 2012	Amount Jan 2014	Amount March 2015	Amount March 2016
Active Management and Passive Validation	€20,448,014.48	€25,037,059.64	€24,771,419.87	€23,233,667.15

Notes:

Amount 2012 to Amount Jan 2014

The main reasons for the increase in costs are due to the inclusion of the Lisheen Project Management Team, IPC Licence, Insurances and Commercial Rates and Buffer amount.

Amount Jan 2014 to Amount March 2015

A detailed review to re-assess the scope of the Mine Closure Project and updating of all the BOQ estimates was carried out over a 5 week duration for the 2014/2015 period. This review entailed the following;

- a detailed analysis of the scope of work for the entire mine closure project,
- updating of bills of quantities to align with the scope of work,
- site survey, as built and design drawing review,
- man hour estimate benchmarking,
- existing contract rates review and benchmarking (imported rock fill/capping/top soiling)
- demolition contract market sounding update,
- updating of sale of scrap policy in line with EPA guidelines,
- rate review and updating of the BOQ's,
- and a detailed risk workshop and updating of risk based contingency.

The main adjustments for the period includes a reduction for the sourcing of rock from the Carrick Hill borrow pit and an increase for the inclusion of the Killoran Wetland Rehabilitation and the Carrick Hill Borrow Pit Rehabilitation.

Amount March 2015 to March 2016

A detailed review to re-assess the scope of the Mine Closure Project and updating of all the BOQ estimates was carried out over the period. This review entailed the following;

- a detailed analysis of the scope of work for the entire mine closure project,
- updating of bills of quantities to align with the scope of work,
- site survey, as built and design drawing review,
- and a detailed risk workshop and updating of risk based contingency.

The main adjustments for the period includes an additional cost for the planning fees for the Carrick Hill borrow pit, a change in scope for filling perimeter drains around TMF, filling of the additional void space below geotextile layer on TMF and rehabilitation of stockpile yard B. Reductions were made on cleaning of the plant following the sale of the assets.

Refer to the Mine Closure Estimate BOQ for the details of the specific reasons for the variances.

1.2 Mine Closure Estimate

Lisheen Mine ceased operations in December 2015 and Mine Closure Project is carrying out the rehabilitation process as defined in the CRAMP. A range of rehabilitation activities will need to be carried out during the Active and Passive Management periods, including, tailings management facility remediation and restoration of land affected by the mining operation. **Aftercare costs are not covered in the scope and budget of this document.**

The Mine Closure Estimate takes cognisance of the Lisheen Mine Closure, Restoration and Aftercare Management Plan (CRAMP) dated 1st January 2009 and subsequent CRAMP updates.

2 MINE CLOSURE ESTIMATE

2.1 Estimated Costs for Decommissioning, Demolition and Rehabilitation

REF.	DESCRIPTION	March 2016
Active Management Period		
I	Plant Site	
1	Tepee (Course Ore Storage)	€22,040.00
2	Workshop and Surface Storage	€0.00
3	Mine Water Treatment Plant	€144,794.00
4	Mill Building	€82,986.80
5	Backfill Plant	€10,470.20
6	ESB Sub-Station	€0.00
7	Conditioning Ponds	€176,23.00
8	Other Infrastructure	€372,689.82
9	Roads and Fencing	€109,585.54
10	Buried Services	€370,925.48
II	Mine Facilities	
11	Fixed Plant	€0.00
12	Mobile Plant	€0.00
13	Mine Portal	€201,289,62
14	Cleaning & Disposal of Contaminated Material	€531,206.50
III	TMF	
15	Demolition of Structures & Equipment in TMF	€12,100.00
16	Dry Closure of TMF	€8,999,402.63
IV	Other Surface Facilities	
17	Buildings & Structures	€1,078,845.09
18	Land Holdings	€350,000.00
V	Shipping Yard Cork	
19	Dredging of River	€100,000.00
20	Cleaning of all Facilities	€385,522.00
VI	Miscellaneous	
21	Landscaping	€196,945.00
22	Water discharge & power requirements	€1,899,181.00
23	Site Security During Continued Water Discharge	€517,892.00
24	TMF Water Treatment & Post Closure Wetland Treatment	€974,707.22
25	Consultants Fees	€930,277.00
26	Allow for Sampling and Monitoring of Project	€187,387.00
27	Mine Closure Project Team	€3,292,738.00
28	Insurances	€801,521.81
29	IPC Licence	€135,000.00
30	Commercial rates	€0.00
31	Escalation	€0.00
VII	Passive Validation Period	
32	Passive Validation Costs	€347,519.94
ESTIMATED MINE CLOSURE TOTAL		€22,231,260.15
33	Contingency	€1,002,407.00
34	Total	€23,233,667.15

2.2 Clarifications and Assumptions

1. All figures quoted exclude VAT.
2. The base date for all figures forming the basis of the updated Mine Closure Estimate is 01st April 2014. A provision for escalation/inflation is excluded from the Estimate as the provision has been made in the Lisheen Financial model.
3. No allowance has been made for any sale of land.
4. No allowance has been made for the proceeds from the disposal of assets and sale of scrap.
5. Roads and fencing required to access the Lisheen Wind Farm will be retained.
6. The removal of the Drish River outfall pipeline is omitted from the scope of work. A concrete plug will be inserted at each end of the pipe with the pipeline remaining in the ground as per the CRAMP Volume B - Physical Decommissioning - " Discharge pipelines to the Drish and Rossestown will remain in place, due to the potential adverse disruptive effects that the removal of such pipelines could have on farmland."
7. Mobile plant cleaning and disposal costs are catered for in the mine operational costs.
8. It is assumed that all building materials on surface will be cleaned and disposed of as uncontaminated material and will not require specialist treatment.
9. This Estimate includes allowances for the Lisheen Mine Project Closure Team costs, IPC Licence Fees, Rates and Insurances and Buffer amount.
10. The Clogheen Pond is to be retained post Mine Closure.
11. Moyne Group Water Scheme costs do not form part of the Mine Closure Estimate.

3 SCOPE OF WORK

3.1 Tepee (Coarse ore storage facility)

The following elements of work are no longer required under the estimate due to the sale of the asset;

- Removal and disposal of the cladding.
- Dismantling structural steelwork and cutting into manageable lengths for removal as scrap.
- Remove of vibrating feeders and disposal as scrap.
- Removal of conveyor (including support steel) and disposal as scrap.

The following elements of work are covered in the estimate;

Demolition of supporting reinforced concrete rising walls, crushing to remove steel reinforcement, reinforcement removed for scrap and crushed concrete disposed as fill.

Demolition of reinforced concrete foundations, crushing to remove reinforcement, reinforcement removed for scrap and crushed concrete disposed as fill.

Demolition of reinforced concrete tunnels (to a depth of 1.5m below ground level), crushing to remove steel reinforcement, reinforcement removed for scrap and crushed concrete disposed as fill.

3.2 Workshop and Surface Storage

The workshops and surface storage buildings are being retained as part of the Green Energy Project and as such no cost will be required for the dismantling of same.

3.3 Mine Water Treatment Plant

Removing steel tanks, cutting into manageable sections for removal as scrap.

Dismantling structural steelwork and cutting into manageable lengths for removal as scrap.

Dismantling steel piping, cutting into manageable lengths for removal as scrap.

Removal and disposal of all other piping and electrical services.

Removal of pumps for resale.

Demolition of reinforced concrete in clarifier, overflow and conditioning tanks, foundations, floor slab, plinths and rising walls, crushing to remove reinforcement, reinforcement removed for scrap and crushed concrete disposed as fill.

3.4 Mill Building

The following elements of work are no longer required under the estimate due to the sale of the asset;

- Dismantling, removal and disposal of structural steelwork, support steelwork, cladding, walkways, sanitary fittings, services and the like.
- Removal and disposal of the following:
 - Transformer and generator housings
 - Overhead cranes
 - Steel tanks
 - Steel piping
 - Pumps
 - All other piping and electrical services
 - Slag, ball and vertical Mills and associated plant
 - Filter press and associated plant
 - Conveyors
 - Electrical plant (MCC's, transformers, generator)
 - Electrics, cable trays and instrumentation

The following elements of work are covered in the estimate;

Demolition of all reinforced concrete walls, floors, ceilings, foundations, slabs, crushing to remove steel reinforcement, reinforcement removed for scrap and crushed concrete disposed as fill.

3.5 Backfill Plant

The following elements of work are no longer required under the estimate due to the sale of the asset;

- Removal and disposal of cladding.
- Removing steel tanks and cutting into manageable sections for removal as scrap.
- Dismantling structural steelwork and cutting into manageable lengths for removal as scrap.
- Dismantling of all support steelwork and walkways and cutting into manageable sections for removal as scrap.
- Removal of 2 tonne crane.
- Dismantling steel piping and cutting into manageable lengths for removal as scrap.
- Removal and disposal of all other piping and electrical services.
- Removal of pumps.

The following elements of work are covered in the estimate;

Demolition of reinforced concrete foundations, floor slabs, plinths and rising walls, crushing to remove reinforcement, reinforcement removed for scrap and crushed concrete disposed as fill.

3.6 ESB Sub-station

The ESB Sub-station will remain in place as required by the Lisheen Wind Farm.

3.7 Conditioning Ponds (Plant Site and Killoran Ponds)

Demolition and removal of all pump houses.

Removal of all pumps for resale.

Taking up and removal of all pipe work for scrap.

Removing sludge from ponds and removal and shredding of liner.

Levelling of embankments and floor of ponds and placement of material to the TMF.

Return footprints to brown field conditions.

3.8 Other Infrastructure

Demolition and removal of all small surface facilities such as canteen, sewage water treatment plant, weighbridge and drive house and the disposal of the different building materials.

3.9 Roads and Fencing

Existing roads and fencing items will be retained as required for access to the Lisheen Wind Farm. This element includes minor allowance for repairs and making good to public roads as required.

3.10 Buried Services

Excavating, removal and backfilling of pipe and duct runs above plough level.

3.11 Mine Facilities – Fixed Plant

Following the retreat and closure of the underground workings the recovered fixed plant has been relocated to the secured surface storage area for sale or scrap. All assets will be disposed through the Lisheen Asset Disposal Project.

3.12 Mine Facilities – Mobile Plant

The underground mobile plant has been recovered and relocated to the secured surface storage area. All assets will be disposed through the Lisheen Asset Disposal Project.

3.13 Mine Portal

Installation of a composite rock fill and grout plug to the top of the decline is now complete.

Filling portal with hardcore material, and returning the area to brown field site conditions.

3.14 Mine Facilities – Cleaning and Disposal of Mineral Residue and Contaminated Material

A site wide excavation allowance of 500mm depth has been made less a deduction for retained paved roads and grassed landscaped areas. This includes an allowance for the disposal of the contaminated material into the TMF.

3.15 Demolition of Structures and Equipment on TMF

The March 2016 estimate makes provision for demolition of all structures and equipment on the TMF including the New Cell extension.

3.16 Dry Closure of TMF

The March 2016 estimate makes provision for full scope of works required to rehabilitate and restore the TMF and New Cell extension. It also includes for the rehabilitation of Carrick Hill borrow pit.

3.17 Buildings and Structures

Included in this Item is the demolition and disposal of the following:

Drish Outfall including concrete plug to outfall pipeline.

Rossetown Outfall including outfall pipe work.

Magazine and All Vent Shafts.

The Administration Building is being retained as part of the Green Energy Project and as such no cost will be required for the dismantling of same.

3.18 Land Holdings

This is an allowance for the demolition or refurbishment of all old farmhouses and properties that exist on various areas of the mine property.

3.19 Shipping Yard Cork – Dredging of River

An allowance is included in the Estimate for localised dredging of the river adjacent to the jetty.

3.20 Shipping Yard Cork – Cleaning of Facilities

Due to the fact that the shipping facility belongs to the Port of Cork (POC) and Lisheen is leasing it for the duration of the active life of the mine, there is an obligation to return the facility in the same condition as it was handed to the mine. The POC and Lisheen Mine have jointly agree to have the facility dismantled and return the area to just a concrete hardstand.

3.21 Landscaping

This section allows for returning the site to a brown field site for further industrial use.

3.22 Water discharge & power requirements

The allowance for water discharge and monitoring includes for pumping and all related costs.

3.23 Site Security

An allowance for site security has been catered for during the closure period.

3.24 TMF Water Treatment & Disposal

An allowance has been included for the removal, treatment and disposal of the TMF water which includes the construction of spillways, wetland attenuation system and associated works.

3.25 Engineering Fees

Engineering fees include for annual TMF Audits and inspections, Water Reviews, Independent Financial Reviews/Certification, Legal Requirements, Environmental Reviews and Certification.

3.26 Allow for Sampling and Monitoring of Closure

An allowance has been included for sampling and monitoring of areas affected by the Mine Closure activities.

3.27 Project Management Team

The Project Management team costs have been determined on a resource allocation basis over the duration of the Mine Closure Project.

3.28 Insurances

The insurance costs have been based on estimates received by Lisheen Finance Department.

3.29 IPC Licence

An allowance has been included for the IPC licence based on historical costs and future requirements of the mine closure programme.

3.30 Commercial Rates

The commercial rates have been excluded following a review completed by the Lisheen Finance Department.

3.31 Escalation

No provision is made in the Mine Closure Estimate as escalation has been allowed and provided for in the Lisheen Mine Financial Closure model, with a base date of 1st April 2014.

3.32 Passive Validation Period

These works will be carried out over the passive validation period after cessation of mining operations and full implementation of the active closure activities. Activities to be executed within the Passive Monitoring Period are Water Sampling & Monitoring, Emissions Limit Verification, Verification of CRAMP objectives, Mine Closure Completion Certificate, Administration of Mine Closure Provision and on-going water discharge to be undertaken by Lisheen Mine.

BILL 1
TEPEE - (Course Ore Storage)

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
1.1 Cladding											
1.1.1 Walls		m2	6022	10.00	60,220.00	8.90	53,595.80	8.90	53,595.80	-	-
1.1.2 Roof		m2	52	10.00	520.00	8.90	462.80	8.90	462.80	-	-
1.2 Steelwork											
1.2.1 UC Columns @ 817 metres		t	34	50.00	1,700.00	44.50	1,513.00	44.50	1,513.00	-	-
1.2.2 UC Beams @ 2163 metres		t	214	50.00	10,700.00	44.50	9,523.00	44.50	9,523.00	-	-
1.3 Hack/Crush Concrete											
1.3.1 Walls, Columns, Beams, Slabs, Foundations etc		m3	1040	13.00	13,520.00	11.57	12,032.80	11.57	12,032.80	-	-
	Dec-15	m3	1580	13.00				11.57		13.00	20,540.00
1.4 Removal of Plant											
1.4.1 Coarse Ore Reclaim		Sum	1	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
TOTAL					88,160.00		78,627.40		78,627.40		22,040.00

BILL 2
TRUCK SHOP AND SURFACE STORAGE

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar 15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
2.1 Cladding											
2.1.1	Walls	m2	1467	10.00	14,670.00	8.90	13,056.30	8.90	13,056.30	-	-
2.1.2	Roof	m2	1277	10.00	12,770.00	8.90	11,365.30	8.90	11,365.30	-	-
2.2 Steelwork											
2.2.1	UC Columns @ 216 metres	t	20	50.00	1,000.00	44.50	890.00	44.50	890.00	-	-
2.2.2	UC Beams @ 514 metres	t	30	50.00	1,500.00	44.50	1,335.00	44.50	1,335.00	-	-
2.3 Hack/Crush Concrete											
2.3.1	Walls, Columns, Beams, Slabs, Foundations etc	m3	589	13.00	7,657.00	11.57	6,814.73	13.00	7,657.00	-	-
2.4 Blockwork											
2.4.1	Walls	m2	491	3.90	1,914.90	3.47	1,704.26	3.90	1,914.90	-	-
2.5 Doors											
2.5.1	Average; 1.6 x 2.52	No.	36	20.00	720.00	17.80	640.80	17.80	640.80	-	-
2.6 Windows											
2.6.1	Average; 1.9 x 1.2	No.	16	20.00	320.00	17.80	284.80	17.80	284.80	-	-
TOTAL					40,551.90		36,091.19		37,144.59		-

BILL 3
MINE WATER TREATMENT PLANT

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
3.1 Steelwork											
3.1.1	Walkways, Bridges, Stairs, etc	t	28	50.00	1,400.00	44.50	1,246.00	44.50	1246.00	44.50	1246.00
3.2 Hack/Crush Concrete											
3.2.1	Walls, Columns, Beams, Slabs, Foundations etc	m3	1196	13.00	15,548.00	11.57	13,837.72	11.57	13837.72	13.00	15548.00
3.3 Remove, Dispose Services, Plant, etc											
3.3.1	Associated Plant	Item	1	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1500.00	3000.00	3000.00
3.4 Modifications to electrical reticulation for post closure water treatment											
3.4.1	Civils works (concrete slab, hut and ducting)	Sum	1							20000.00	20000.00
3.4.2	Installation of electrical supply	Sum	1							50000.00	50000.00
3.4.3	New dosing pumps (floc etc)	Sum	1							20000.00	20000.00
3.4.4	Control system and commissioning	Sum	1							10000.00	10000.00
3.4.5	Contingency @ 15%	Sum	1							15000.00	15000.00
3.5 Remove, Dispose Additional Services, Plant as per 3.4											
3.5.1	Civils	Sum	1							4500.00	4500.00
3.5.2	Mechanical and Electrical	Sum	1							5500.00	5500.00
TOTAL					18,448.00		16,583.72		16,583.72		144,794.00

**BILL 4
MILL BUILDING**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
4.1 Cladding											
4.1.1	Walls	m2	6792	10.00	67,920.00	-	-	10.00	67,920.00	-	-
4.1.2	Roof	m2	5571	10.00	55,710.00	-	-	10.00	55,710.00	-	-
4.2 Steelwork											
4.2.1	UC Columns @ 3918 metres	t	473	50.00	23,650.00	-	-	50.00	23,650.00	-	-
4.3 Hack/Crush Concrete											
4.3.1	Walls, Columns, Beams, Slabs, Foundations etc	m3	5906	13.00	76,778.00	-	-	13.00	76,778.00	13.00	76,778.00
4.4 Blockwork											
4.4.1	Walls	m2	1592	3.90	6,208.80	-	-	3.90	6,208.80	3.90	6,208.80
4.5 Miscellaneous											
4.5.1	Remove Pipes, Electrical Fittings, Ducts, etc	Item	1	1,500.00	1,500.00	-	-	1,500.00	1,500.00	-	-
4.6 Remove and Dispose of Plant, Services, etc											
4.6.1	Primary Grinding	Item	1	900.00	900.00	-	-	900.00	900.00	-	-
4.6.2	Zinc Floatation	Item	1	900.00	900.00	-	-	900.00	900.00	-	-
4.6.3	Zinc Concentrate/De Water	Item	1	900.00	900.00	-	-	900.00	900.00	-	-
4.6.4	Lead Concentrate/De Water	Item	1	900.00	900.00	-	-	900.00	900.00	-	-
4.6.5	Concentrator Building	Item	1	900.00	900.00	-	-	900.00	900.00	-	-
4.6.6	Reagent Store, Mix, Distribution	Item	1	900.00	900.00	-	-	900.00	900.00	-	-
	Sub-total - Demolitions										
									237,166.80		
4.7	Sale of scrap steelwork and rebar	t	945.48	-	-	-	-	-	-	-	-
4.8	Sale of scrap cladding	t	87	-	-	-	-	-	-	-	-
	Sub-total - Scrap										
TOTAL					237,166.80				237,166.80		82,986.80

**BILL 5
BACKFILL PLANT**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
5.1 Demolitions											
5.1.1 Cladding											
5.1.1.1 Walls		m2	1792	10.00	17,920.00	-	-	10.00	17,920.00	0	0
5.1.1.2 Roof		m2	643	10.00	6,430.00	-	-	10.00	6,430.00	0	0
5.2 Steelwork											
5.2.1 UC Columns @ 288 metres		t	50	50.00	2,500.00	-	-	50.00	2,500.00	0	0
5.2 Platework											
5.2.1 Tanks		t	78.9	-	-	-	-	250.00	19,731.76	0	0
5.3 Hack/Crush Concrete											
5.3.1 Walls, Columns, Beams, Slabs, Foundations etc		m3	605	13.00	7,865.00	-	-	13.00	7,865.00	13	7,865.00
5.4 Blockwork											
5.4.1 Walls		m2	668	3.90	2,605.20	-	-	3.90	2,605.20	3.9	2,605.20
5.4.2 Allow for removal of plant, services, etc		Item	1	1,500.00	1,500.00	-	-	1,500.00	1,500.00	0	-
	Sub-total - Demolition								58,551.96		10,470.20
5.5 Sale of scrap steelwork, platework and rebar		t	177.3	-	-	-	-	-	-		
5.6 Sale of scrap cladding		t	17	-	-	-	-	-	-		
	Sub-total - Scrap								-		-
TOTAL					38,820.20		-		58,551.96		10,470.20

**BILL 6
ESB SUBSTATION**

REF	DESCRIPTION	Amount (Mar15)	Rate (Dec15)	Amount (Dec 15)	Rate (March 16)	Amount (March 16)
6.1	CLADDING					
6.2	STEELWORK					
6.3	CONCRETE WORKS					
6.4	BLOCKWORK					
6.5	DOORS INCL. LINTOLS & IRONMONGERY					
6.6	REMOVAL OF ELECTRICAL PLANT/EQUIPMENT					
	Note: Demolition and Decommissioning of Substation is excluded. Existing Substation to be retained for Windfarm					
	TOTAL	-		-		

**BILL 7
CONDITIONING PONDS**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
7.1	Conditioning Ponds - Earth Works to Ponds										
7.1.1	Remove and Shread Liner	m2	17000	1.00	17,000.00	0.89	15,130.00	0.89	15,130.00	0.89	15,130.00
7.1.2	Level embankment Walls	m3	13000	4.00	52,000.00	3.56	46,280.00	3.56	46,280.00	-	-
7.1.2.1	Excavate embankment walls and floors	m3	33100							1.20	39,720.00
7.1.2.2	Haul and dispose material to TMF	m3	33100							2.25	74,475.00
7.1.3	Allow for removal of Plant and Services	Item	1	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
	Sub-total - Conditioning Ponds										130,825.00
7.2	Killoran Pond										
7.2.1	Remove and Shread Liner	m2	8000	1.00	8,000.00	0.89	7,120.00	0.89	7,120.00	0.89	7,120.00
7.2.2	Level embankment Walls	m3	5000	4.00	20,000.00	3.56	17,800.00	3.56	17,800.00	-	-
7.2.2.1	Excavate embankment walls and floor	m3	7930							1.20	9,516.00
7.2.2.2	Haul and dispose material to TMF	m3	7930							3.25	25,772.50
7.2.3	Allow for removal of Plant and Services	Item	1	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
7.2.4	Top Soil 300mm thick	m2	9600			1.68	16,128.00	2.24	21,504.00		
7.2.5	Seeding	m2	9600	0.30	2,880.00	0.28	2,688.00	0.28	2,688.00		
7.3	Miscellaneous										
7.3.1	Demolish and remove other related structures and plant	Item	1	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
	Sub-total - Killoran Pond										45,408.50
	TOTAL				104,380.00		109,646.00		115,022.00		176,233.50

**BILL 8
OTHER INFRASTRUCTURE
SUMMARY**

REF	DESCRIPTION	Amount (09)	Amount (12)	Amount (Mar15)	Amount (March 16)
8.1	DRIVE HOUSE	55,205.08	49,132.53	16,780.61	16,845.12
8.2	OTHER INFRASTRUCTURE - MISC. ITEMS	90,499.50	82,195.05	98,477.00	100,977.00
8.3	WEIGHBRIDGE	12,603.58	12,427.19	11,281.60	11,281.60
8.4	BOREHOLES	78,742.55	77,588.37	73,894.47	73,894.47
8.5	WELLFIELD PIPEWORK	201,563.25	179,391.29	118,761.60	118,761.60
8.6	ORE STORAGE PAD	-	76,969.73	16,232.38	39,976.43
8.7	ORE SAMPLING UNIT	-	1,764.54	7,854.13	5,250.00
8.8	OVERFLOW CARPARK	-	2,702.18	2,573.50	4,426.50
8.9	HELIPAD	-	1,163.95	916.43	1,277.10
	TOTAL	438,613.96	483,334.81	346,771.72	372,689.82

BILL 8.1
OTHER INFRASTRUCTURE - DRIVE HOUSE

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.1.1	Concrete										
	Concrete Pads	m3	39	50.00	1,950.00	44.50	1,735.50	12.50	487.50	13.00	507.00
	Concrete Pads	m3	11.52	50.00	576.00	44.50	512.64	12.50	144.00	13.00	149.76
	Concrete Slabs	m3	58.5	50.00	2,925.00	44.50	2,603.25	12.50	731.25	13.00	760.50
	Concrete Slabs	m3	20	50.00	1,000.00	44.50	890.00	12.50	250.00	13.00	260.00
			129.02								
8.1.2	Steel										
	Columns	t	10	750.00	7,500.00	667.50	6,677.34	125.00	1,250.00	125.00	1,250.00
	Columns	t	2.74	750.00	2,055.00	667.50	1,826.28	125.00	342.50	125.00	342.50
	Beams	t	6.7	750.00	5,025.00	667.50	4,472.25	125.00	837.50	125.00	837.50
	Beams	t	4.56	750.00	3,420.00	667.50	3,041.13	125.00	570.00	125.00	570.00
	Bracing	t	1.68	750.00	1,260.00	667.50	1,118.73	125.00	210.00	125.00	210.00
8.1.3	Cladding										
	Sides	m2	599.04	20.00	11,980.80	17.80	10,662.91	8.90	5,331.46	8.90	5,331.46
	Ends	m2	412.54	20.00	8,250.80	17.80	7,343.25	8.90	3,671.61	8.90	3,671.61
	Roof	m2	252	20.00	5,040.00	17.80	4,485.60	8.90	2,242.80	8.90	2,242.80
	Other	m2	80	20.00	1,600.00	17.80	1,424.00	8.90	712.00	8.90	712.00
	Sub - Total				52,582.60		46,792.88		16,780.61		16,845.12
	Contingency 5%				2,629.13		2,339.64		-		
	TOTAL				55,211.73		49,132.53		16,780.61		16,845.12

BILL 12.2
OTHER INFRASTRUCTURE

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.2.1	Valve Cover Shed for valves (V104 - V106) Cladded steel structure 2.5 x 2.5 x 2.5m high	No.	1	10,000.00	10,000.00	10,000.00	10,000.00	5,000.00	5,000.00	5,000.00	5,000.00
8.2.2	Temporary ESB substation (A6) Steel container (6 x 2.50m)	No.	1	7,000.00	7,000.00	7,000.00	7,000.00	3,500.00	3,500.00	3,500.00	3,500.00
8.2.3	Cargo container North of mill, east of esb substation, 2 cargo containers used as sheds (12m x 2.5m x 2.5m)	No.	2	1,500.00	3,000.00	1,500.00	3,000.00	750.00	1,500.00	750.00	1,500.00
8.2.4	Sewage water treatment Aeration pool (B7) - 12 x 4m, steel tank & 2 No unknown concrete structures - 4 x 4 x 2m high surrounded by fence	Sum	1	20,000.00	20,000.00	20,000.00	20,000.00	10,000.00	10,000.00	10,000.00	10,000.00
8.2.5	Well E (listed together with other 18 wells in Group IV other surface facilities 17.5-21) Small, steel, cladded shed north	No.	1	4,000.00	4,000.00	4,000.00	4,000.00	2,000.00	2,000.00	2,000.00	2,000.00
8.2.6	Weightbridge (D3)	No.	1	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
8.2.7	Septic tank (E7)	No.	1	500.00	500.00	500.00	500.00	250.00	250.00	250.00	250.00
8.2.8	Canteen (D7) Container building 1 floor, 6m x 22m on concrete slab	No.	1	15,000.00	15,000.00	15,000.00	15,000.00	3,750.00	3,750.00	3,750.00	3,750.00
8.2.9	Unknown (D7) 2 gas tanks (cylinder dia. 1, 3m length 3,5m foundation 5.5m x 3m)	No.	2	1,250.00	2,500.00	1,250.00	2,500.00	625	1,250.00	625.00	1,250.00
8.2.10	Unknown shed beside canteen Electrical facility 2.5 x 2.5m high	No.	1	1,000.00	1,000.00	890.00	890.00	445	445.00	445.00	445.00
8.2.11	Unknown shed south west of canteen Simple steel structure on concrete slab extending to road 3 x 4.5 x 2.5m high	No.	1	1,500.00	1,500.00	1,335.00	1,335.00	668	668.00	668.00	668.00
8.2.12	Storm water pump house (C6) Steel cladded structure 2 x 2 x 3m high	No.	1	4,000.00	4,000.00	3,560.00	3,560.00	1,780	1,780.00	1,780.00	1,780.00
8.2.13	Pump station Storm water pumping station 6 x 8.5 x 2m high	No.	1	15,000.00	15,000.00	13,350.00	13,350.00	6675	6,675.00	6,675.00	6,675.00
8.2.14	Valves Storm7 valves at south fence between tepee and canteen, covered	No.	7	857.00	5,999.00	857.00	5,999.00	430	3,010.00	430.00	3,010.00
8.2.15	DC1 (C7) Cladded steel shed on concrete slab 1	No.	1	5,000.00	5,000.00	4,450.00	4,450.00	2,225	2,225.00	2,225.00	2,225.00
8.2.16	DC2 (B8) Cladded steel shed on concrete slab 1	No.	1	2,000.00	2,000.00	1,780.00	1,780.00	890	890.00	890.00	890.00
8.2.17	DC3 (D9) Cladded steel shed on concrete slab 1	No.	1	2,000.00	2,000.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00
8.2.18	Drive house (C4) (for underground conveyor 2)	No.	1	-	-	-	-	-	-	2,500.00	2,500.00
8.2.19	3 diesel generators	No.	1	-	-	-	-	-	-	-	-
8.2.20	Diesel Tank Cylinder (dia. 2m length 4.5m) in steel tank (5m x 3m) on foundation	No.	1	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
8.2.21	laydown area beside drive house Steel fence 2.7m, concrete floor (12m x 20m)	No.	1	2,000.00	2,000.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00
8.2.22	Matrix station Beside diesel generators (steel fence 2m foundation 8.5 x 1.6m)	No.	1	3,500.00	3,500.00	3,115.00	3,115.00	3,115.00	3,115.00	3,115.00	3,115.00
8.2.23	Safety Ramp before mine entry Slopes are each 5.3m long, concrete, on top with steel handrails	No.	1	700.00	700.00	623.00	623.00	623.00	623.00	623.00	623.00
8.2.24	Car wash area Concrete flooring with electrical shed (steel, cladded, 2m x 2m x 3m)	No.	1	2,000.00	2,000.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00
8.2.25	Cargo container On laydown site next to drive house 6	No.	6	250.00	1,500.00	250.00	1,500.00	250.00	1,500.00	250.00	1,500.00
8.2.26	Possibly underground tank 2.5 x 2.5	No.	1	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
8.2.27	Container offices East and south of matrix station 3 x 3	No.	2	1,250.00	2,500.00	1,250.00	2,500.00	1,250.00	2,500.00	1,250.00	2,500.00
8.2.28	Steel Shed East of matrix station 3 x 3 x 3m high #	No.	1	3,000.00	3,000.00	2,670.00	2,670.00	2,670.00	2,670.00	2,670.00	2,670.00
8.2.29	Transformer station Fenced on concrete slab (south of drive house and west of diesel generators) 4 x 3m wide #	No.	2	1,000.00	2,000.00	890.00	1,780.00	445	890.00	445	890.00
8.2.30	Garage (C3) Cladded steel structure with concrete	No.	1	10,000.00	10,000.00	8,900.00	8,900.00	4,450	4,450.00	4,450	4,450.00
8.2.31	Electrical workshop (D3) Cladded steel structure with concrete	No.	1	7,000.00	7,000.00	6,230.00	6,230.00	3,115	3,115.00	3,115	3,115.00
8.2.32	Unknown structure (D3) 2 transformers, cargo container.	No.	1	5,000.00	5,000.00	5,000.00	5,000.00	2,500.00	2,500.00	2,500.00	2,500.00
8.2.33	Concrete ramp b5 (C3) 4m x 1.2m x 1.5m (width x length x height) volume estimated #	No.	1	700.00	700.00	623.00	623.00	311	311.00	311	311.00
8.2.34	Shed with concrete floor (C3) Cladded steel structure with concrete.	No.	1	7,000.00	7,000.00	6,230.00	6,230.00	3,115	3,115.00	3,115	3,115.00
8.2.35	Container office At entrance to lay down yard 3 x 3 x 2.4m high	No.	1	2,000.00	2,000.00	2,000.00	2,000.00	1,000.00	1,000.00	1,000.00	1,000.00
8.2.36	Analytical office / lab Buildings, brick wall	No.	1	3,500.00	3,500.00	3,115.00	3,115.00	3,115.00	3,115.00	3,115.00	3,115.00
8.2.37	Valuable equipment estimated value ICP (Elsewhere measured) No. 1 - 30,000.00 - 30,000.00 - 30,000.00 - 30,000.00 - - - Dioxin IC (Elsewhere measured) No. 1 - 10,000.00 - 10,000.00 - 10,000.00 - 10,000.00 - - - Metrohm IC (Elsewhere measured) No. 1 - 10,000.00 - 10,000.00 - 10,000.00 - 10,000.00 - - - 5 Vibration monitors (Elsewhere measured) No. 1 - 10,000.00 - 10,000.00 - 10,000.00 - 10,000.00 - - - 5 Noise monitors (Elsewhere measured) No. 1 - 5,000.00 - 5,000.00 - 5,000.00 - 5,000.00 - - - Water deionizer (Elsewhere measured) No. 1 - 1,000.00 - 1,000.00 - 1,000.00 - 1,000.00 - - - Small lab items balance, oven, furnace, spectrophotometer etc (Elsewhere measured) No. 1 - 3,000.00 - 3,000.00 - 3,000.00 - 3,000.00 - - - Ambient air monitors 6 (3 new) (Elsewhere measured) No. 1 - 10,000.00 - 10,000.00 - 10,000.00 - 10,000.00 - - - Flue gas analyser (Elsewhere measured) No. 1 - 500.00 - 500.00 - 500.00 - 500.00 - - - ISO Kinetic sampler (Elsewhere measured) No. 1 - 500.00 - 500.00 - 500.00 - 500.00 - - - Composite samplers 6 (owned by SHE dept, 9 on site) (Elsewhere measured) No. 1 - 3,000.00 - 3,000.00 - 3,000.00 - 3,000.00 - - -										
	Sondes 6 (owned by SHE dept)	No.	1	3,000.00	3,000.00	3,000.00	3,000.00	-	-	-	-
	Environment Jeep (Elsewhere measured)	No.	1	5,000.00	5,000.00	5,000.00	5,000.00	-	-	-	-
	Light posts	No.	27	300.00	8,100.00	300.00	8,100.00	300.00	8,100.00	300.00	8,100.00
	All fire hydrants	No.	17	70.00	1,190.00	70.00	1,190.00	70.00	1,190.00	70.00	1,190.00
	Pipeline from backfill plant mine portal	No.	600	10.00	5,000.00	10.00	5,000.00	10.00	5,000.00	10.00	5,000.00
	Mobile Phone Mast	No.	1	5,000.00	5,000.00	5,000.00	5,000.00	-	-	-	-
	Sub - Total				85,189.00		78,280.00		98,477.00		100,977.00
	Contingency 5%				4,309.45		3,914.00				
	TOTAL				89,498.45		82,194.00		98,477.00		100,977.00

**BILL 8.3
OTHER INFRASTRUCTURE - WEIGHBRIDGE**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.3.1	Weighbridge										
	Concrete Pads @ centre	m3	8	40.00	320.00	35.60	296.37	35.60	284.80	35.60	284.80
	Concrete Pads @ ends	m3	15	40.00	600.00	35.60	526.88	35.60	534.00	35.60	534.00
	Precast slabs #	m3	13	40.00	520.00	35.60	474.19	35.60	462.80	35.60	462.80
			36								
8.3.2	Allow for taking up of services	SUM	1		10,000.00		10,000.00		10,000.00	10,000.00	10,000.00
	Sub - Total				11,440.00		11,297.44		11,281.60		11,281.60
	Contingency 10%				1,144.00		1,129.74				
	TOTAL				12,584.00		12,427.19		11,281.60		11,281.60

**BILL 8.4
OTHER INFRASTRUCTURE - BOREHOLES (WELLFIELD)**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.4.1	Breaking up concrete	m3	20	50.00	1,000.00	44.50	890.00	44.50	890.00	44.50	890.00
8.4.2	Clause 804	m3	78	6.50	507.00	5.79	451.23	5.79	451.62	5.79	451.62
8.4.3	Imported Topsoil	m3	150	19.67	2,950.50	17.51	2,625.95	17.51	2,626.50	17.51	2,626.50
8.4.4	Planting	m2	520	1.27	660.40	1.13	587.76	1.13	587.60	1.13	587.60
8.4.5	Electrical Equipment Enclosure Steel Cladded Building	No.	13	5,000.00	65,000.00	5,000.00	65,000.00	5,000.00	65,000.00	5,000.00	65,000.00
8.4.6	Removal of fencing at boreholes	m	325	15.00	4,875.00	13.35	4,338.75	13.35	4,338.75	13.35	4,338.75
	Sub - Total				74,992.90		73,893.69		73,894.47		73,894.47
	Contingency 5%				3,749.65		3,694.68				
	TOTAL				78,742.55		77,588.37		73,894.47		73,894.47

**BILL 8.5
OTHER INFRASTRUCTURE - WELLFIELDS**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.5.1	Removal of uPPC pipes	m	12000	2.50	30,000.00	2.23	26,700.00	2.23	26,760.00	2.23	26,760.00
8.5.2	Backfilling trench	m	12000	7.00	84,000.00	6.23	74,760.00	4.50	54,000.00	4.50	54,000.00
8.5.3	Demolition of valve chambers	No.	30	750.00	22,500.00	667.50	20,025.00	300.00	9,000.00	300.00	9,000.00
8.5.4	Backfill valve chambers	No.	45	20.00	900.00	17.80	801.00	10.00	450.00	10.00	450.00
8.5.5	Backfill canal	m	1250	20.00	25,000.00	17.80	22,250.00		-		
	Backfill canal	m3	2500					4.50	11,250.00	4.50	11,250.00
8.5.6	Remove & shred liner to canal	m2	2750	5.50	15,125.00	4.90	13,461.25		-		
	Remove & shred liner to canal	m2	5000					0.89	4,450.00	0.89	4,450.00
8.5.7	Remove fence to canal	m	970	2.00	1,940.00	1.78	1,726.60	1.78	1,726.60	1.78	1,726.60
8.5.8	Demolish weir	No.	1	5,000.00	5,000.00	4,450.00	4,450.00	4,450.00	4,450.00	4,450.00	4,450.00
8.5.9	Demolish pump chamber / sump	No.	1	7,500.00	7,500.00	6,675.00	6,675.00	6,675.00	6,675.00	6,675.00	6,675.00
	Sub - Total				191,965.00		170,848.85		118,761.60		118,761.60
	Contingency 5%				9,598.25		8,542.44				
	TOTAL				201,563.25		179,391.29		118,761.60		118,761.60

BILL 8.6
OTHER INFRASTRUCTURE - ORE STORAGE PAD

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar 15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.6.1	Hack/crush concrete										
	Concrete slab; approx 325 mm deep	m3	6,123	-	-	11.07	67,780.58	5.00	9,168.50	8.00	14,669.60
	Concrete slab; approx 100mm deep - Unreinforced	m3	1,834	-	-						
8.6.2	Sundry Allowance										
	Removing crushed material to agreed location	m3	7,536	-	-	0.67	5,023.92	-	-	-	-
	Allow for taking up services	SUM	1	-	-	500.00	500.00	-	-	-	-
8.6.3	1000 gauge DPC - lift and dispose off site	m2	18,837					0.15	2,825.55	0.50	9,418.50
8.6.4	Excavate compacted 804 layer 150mm thick	m3	2,826					1.50	4,238.33	1.50	4,238.33
8.6.5	Disposal of excavated material - Concrete to TMF	m3	1,834							2.50	4,585.00
8.6.6	Disposal of excavated material - 804 To TMF	m3	2,826							2.50	7,065.00
	Sub - Total				-		73,304.50		16,232.38		39,976.43
	Contingency 5%				-		3,665.23		-		
	TOTAL				-		76,969.73		16,232.38		39,976.43

**BILL 8.7
OTHER INFRASTRUCTURE - ORE SAMPLING UNIT**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.7.1 Footing											
	Concrete pads and retaining wall	Sum	1	-	-		104.13		104.13	5,000.00	5,000.00
8.7.2 Remove, Dispose, Plant, etc											
	Associated Plant	SUM	1	-	-	1,250.00	1,250.00	7,500.00	7,500.00	-	-
8.7.3 Sundry Allowance											
	Allow for taking up of services	SUM	1	-	-	250.00	250.00	250.00	250.00	250.00	250.00
	Sub - Total				-		1,604.13		7,854.13		5,250.00
	Contingency 10%				-		160.41				
	TOTAL				-		1,764.54		7,854.13		5,250.00

BILL 8.8.
OTHER INFRA STRUCTURE - OVERFLOW CARPARK

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.8.1	Hack/crush concrete Carpark base slab	m ³	393	-	-	5.50	2,161.50	5.50	2,161.50	8.00	3,144.00
8.8.2	Sundry Allowance Removing crushed material to agreed location Allow for taking up of services	m ³ SUM	393 1	- -	- -	0.67 150.00	263.31 150.00	0.67 150.00	262.00 150.00	2.50 300.00	982.50 300.00
	Sub-Total						2,573.50		2,573.50		4,426.50
	Contingency - 5%						128.68				
	TOTAL						2,702.18		2,573.50		4,426.50

**BILL 8.9
OTHER INFRASTRUCTURE - HELIPAD**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
8.9.1	Hack/crush concrete Helipad base slab	m ³	86.7	-	-	5.50	476.85	5.50	476.85	8.00	693.60
8.9.2	Sundry Allowance Removing crushed material to agreed location Allow for taking up of services	m ³ Sum	173.4 1	- -	- -	1.67 150.00	481.67 150.00	1.67 150.00	289.58 150.00	2.50 150.00	433.50 150.00
	Sub-Total						1,108.52		916.43		1,277.10
	Contingency						55.43				
	TOTAL						1,163.95		916.43		1,277.10

**BILL 9
ROADS & FENCING**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
9.1 Haul roads											
9.1.1	Gravel, excavate & dispose to TMF	m ³	7489	4.00	29,956.00	-	-	Incl. Elsewhere	-	4.50	33,700.50
9.1.2	Lay Top Soil	m ³	7,489	4.00	29,956.00	-	-	7.20	33,629.04	7.20	33,629.04
	Lay Top Soil	m ³	4,671					Incl. in Topsoil	-		
9.1.3	Seeding	m ³	29960	0.30	8,988.00	-	-				
	Sub-total - Haul Roads								33,629.04		67,329.54
9.2 Access Roads (car parks - outside of Plant site area)											
9.2.1	Bitumen macadam wearing, base course,	m ³	428	4.00	1,712.00	-	-	4.00	3,308.80	-	-
	Bitumen macadam wearing, base course,	m ³	827								
9.2.2	Clause 804	m ³	919	30.00	27,570.00	-	-	4.50	7,444.80	-	-
	Clause 804	m ³	1654					0	0	0	0
9.2.3	Rockfill	m ³	3146	30.00	94,380.00	-	-				
9.2.4	Spread Topsoil/peat over area	m ³	6293	4.00	25,172.00	-	-	7.20	17,867.52	-	-
	Spread Topsoil/peat over area	m ³	2482								
	Sub-total - Access Roads and Carpark								28,621.12		
9.3 Other Tarmac Surfaces and Hard Standing											
9.3.1	Car Parks, Foot Paths, etc	m ³	12041	4.00	48,164.00	-	-	Incl. in 14.4	0	Incl. in 14.4	
9.3.2	Gravel Hard Standing	m ³	9000	4.00	36,000.00	-	-	10,000.00	10,000.00	10,000.00	10,000.00
9.3.3	Allowance for repairs & making good to public roads	Item	1	-	-	10,000.00	10,000.00				
	Sub-total - Haul Roads								10,000.00		10,000.00
9.4 Fencing											
9.4.1	Chain Link Fence	m	9632	4.00	38,528.00	-	-	4.00	19,308.00	4.00	19,308.00
	Chain Link Fence	m	4827								
	Chain Link Fence (minus external fence retained for GE)	m	3237								
	Sub-total - Fencing								19,308.00		32,256.00
	TOTAL				340,426.00		10,000.00		91,558.16		109,585.54

**BILL 10
BURIED SERVICES**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
10.1.1	Electric cables, ducts and draw pits	m3	12,250.00	12.00	147,000.00	10.68	130,830.00	10.68	130,830.00	10.68	130,830.00
10.1.2	Pipes including manholes and Chambers	m3	25,095.00	12.00	301,140.00	10.68	268,014.60	10.68	268,014.60	10.68	268,014.60
10.1.3	Omission: Reduction of 2009 allowance. Partial services to be retained for Lisheen Windfarm	Item	1.00	-	-	-27,919.12	-27,919.12	-27,919.12	-27,919.12	-27,919.12	-27,919.12
TOTAL					448,140.00		370,925.48		370,925.48		370,925.48

SUMMARY BILL 11, 12 & 13
MINE FACILITIES: UNDERGROUND

REF	DESCRIPTION	AMOUNT (2009)	AMOUNT (2012)	AMOUNT (Mar15)	AMOUNT (March 16)
11	Cleaning of Fixed Plant	€ 167,475.00	€ 232,181.25	€ 85,750.00	€ 0.00
12	Cleaning of Mobile Plant			0	0
13	Ramp Portal (Including Derryville Extension)	€ 62,034.74	€ 49,571.63	€ 54,747.13	€ 201,289.62
	TOTAL	€ 229,509.74	€ 281,752.88	€ 140,497.13	€ 201,289.62

BILL 11
MINE FACILITIES: UNDERGROUND
CLEANING OF FIXED PLANT

Item	Description	Unit	Qty	Hours	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
11.01	Alimak Hoist	Hrs	1	20.00	25.00	500.00	25.00	500.00	-	-
11.02	U/ground conveyor no1	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.03	U/ground conveyor no2	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.04	U/ground conveyor no3	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.05	U'ground magnet conveyor	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.06	Main zone clean water pump	Hrs	6	20.00	25.00	3,000.00	25.00	-	-	-
11.07	Decline clean water pump	Hrs	2	20.00	25.00	1,000.00	25.00	-	-	-
11.08	Decline clean water pump	Hrs	3	20.00	25.00	1,500.00	25.00	-	-	-
11.09	Main Zone Dirty Water Pump	Hrs	9	20.00	25.00	4,500.00	25.00	-	-	-
11.1	Decline Dirty Water Pump 1a	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.11	Main Zone Dirty Water Pump	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.12	Decline Dirty Water Pump 1b	Hrs	6	20.00	25.00	3,000.00	25.00	-	-	-
11.13	Vent Fan 90 kW	Hrs	1	10.00	25.00	250.00	25.00	-	-	-
11.14	Auxiliary Vent Fan 42kW	Hrs	24	10.00	25.00	6,000.00	25.00	-	-	-
11.15	Auxiliary Vent Fan 100kW	Hrs	2	10.00	25.00	500.00	25.00	-	-	-
11.16	Underground Fuel Bay	Hrs	1	200.00	25.00	5,000.00	25.00	5,000.00	-	-
11.17	Vent Raise Fan	Hrs	4	10.00	25.00	1,000.00	25.00	-	-	-
11.18	Gate End Box	Hrs	140	-	25.00	-	25.00	-	-	-
11.19	Grizzley	Hrs	1	-	25.00	-	25.00	-	-	-
11.2	Hydrostroke No 1	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.21	Hydrostroke No 2	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.22	Jaw Crusher	Hrs	1	1,000.00	25.00	25,000.00	25.00	-	-	-
11.23	Leaky Feeder System	Hrs	1	50.00	25.00	1,250.00	25.00	-	-	-
11.24	Motor Control Centre	Hrs	1	-	25.00	-	25.00	-	-	-
11.25	Mobile Portable Substation	Hrs	15	-	25.00	-	25.00	-	-	-
11.26	Mobile Winding System	Hrs	1	-	25.00	-	25.00	-	-	-
11.27	20Kw Submersible Flygt Pump 660 v	Hrs	12	20.00	25.00	6,000.00	25.00	-	-	-
11.28	37Kw Submersible Flygt Pump	Hrs	2	20.00	25.00	1,000.00	25.00	-	-	-
11.29	5Kw Submersible Flygt Pump	Hrs	6	20.00	25.00	3,000.00	25.00	-	-	-
11.3	54Kw Submersible Flygt Pump	Hrs	11	20.00	25.00	5,500.00	25.00	-	-	-
11.31	8Kw Submersible Flygt Pump 660v	Hrs	31	20.00	25.00	15,500.00	25.00	-	-	-
11.32	Rockbreaker	Hrs	1	500.00	25.00	12,500.00	25.00	-	-	-
11.33	Vibrator Screen	Hrs	1	100.00	25.00	2,500.00	25.00	-	-	-
11.34	Transformer	Hrs	31	-	25.00	-	25.00	-	-	-
11.35	U/ground Mechanical Workshop	Hrs	1	1,000.00	25.00	25,000.00	25.00	25,000.00	-	-
11.36	U/ground Electrical Workshop	Hrs	1	1,000.00	25.00	25,000.00	25.00	25,000.00	-	-
11.37	Fuel Handling System Surface	Hrs	1	15.00	25.00	375.00	25.00	375.00	-	-
11.38	U/ground Workshop IT	Hrs	1	300.00	25.00	7,500.00	25.00	-	-	-
11.39	U/ground Workshop Ventilation	Hrs	1	100.00	25.00	2,500.00	25.00	-	-	-
11.4	Suspended Solids Abatement	Hrs	2	20.00	25.00	1,000.00	25.00	1,000.00	-	-
11.41	Refuge Station Face Mask & Scrubb	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.42	Fire Suppression conv belt UPS For Underground Refuge Chamber	Hrs	1	25.00	25.00	625.00	25.00	625.00	-	-
11.43	Refuge Station Dioxiscrub Replace	Hrs	1	20.00	25.00	500.00	25.00	500.00	-	-
11.44	500kv Transformer	Hrs	1	20.00	25.00	500.00	25.00	500.00	-	-
11.46	Aux Pump	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.47	Flygt Pumps no. 01	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.48	Flygt Pumps no. 02	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.49	Aux Pumps	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.5	Aux Vent Fans	Hrs	1	25.00	25.00	625.00	25.00	-	-	-
11.51	Mine Water Treatment Outflow	Hrs	1	50.00	25.00	1,250.00	25.00	1,250.00	-	-
11.52	Spillage Pumps	Hrs	1	20.00	25.00	500.00	25.00	500.00	-	-
11.53	Reagent Mixing and Dosage System	Hrs	1	50.00	25.00	1,250.00	25.00	1,250.00	-	-
11.54	Spare Diesel Pump	Hrs	1	20.00	25.00	500.00	25.00	500.00	-	-
11.55	Ug Workshop Cranes	Hrs	1	125.00	25.00	3,125.00	25.00	3,125.00	-	-
11.56	Ug Workshop Reticulation	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
11.57	Ug Workshop Electrical	Hrs	1	100.00	25.00	2,500.00	25.00	-	-	-
11.58	Ug Workshop Civils	Hrs	1	250.00	25.00	6,250.00	25.00	-	-	-
11.59	Supavac Pump and Compressor	Hrs	1	50.00	25.00	1,250.00	25.00	-	-	-
11.6	Sinks Chemical Wash	Hrs	1	10.00	25.00	250.00	25.00	250.00	-	-
11.61	Riffle Splitter	Hrs	1	15.00	25.00	375.00	25.00	375.00	-	-
11.62	Chemical Fire Suppression System	Hrs	1	100.00	25.00	2,500.00	25.00	2,500.00	-	-
	Surface Plant Cleaning - items 11.63 - 11.75 covered under bill 14.3								-	-
11.63	Vent Fan Upgrade - load out	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.64	Courier Sample Pump System	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.65	Filter Press Scada	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.66	Ringed Ladderway	Hrs	1	10.00	25.00	250.00	25.00	-	-	-
11.67	External Modifications to Plant	Hrs	1	100.00	25.00	2,500.00	25.00	-	-	-
11.68	Acid Facility	Hrs	1	250.00	25.00	6,250.00	25.00	-	-	-
11.69	Trommel Screen	Hrs	1	50.00	25.00	1,250.00	25.00	-	-	-
11.7	Zinc Concentrate Stock Tank	Hrs	1	250.00	25.00	6,250.00	25.00	-	-	-
11.71	Xrf Unit Laboratory	Hrs	1	50.00	25.00	1,250.00	25.00	-	-	-
11.72	Vertimill Bypass System	Hrs	1	50.00	25.00	1,250.00	25.00	-	-	-
11.73	Courier Sample Pump System	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.74	Pulp Lifters	Hrs	1	20.00	25.00	500.00	25.00	-	-	-
11.75	Flotation Cells Agitation	Hrs	1	50.00	25.00	1,250.00	25.00	-	-	-
	Sub-Total					226,125.00		85,750.00		-
	Contingency				5%	11,306.25				-
	TOTAL					237,431.25		85,750.00		-

BILL 12
MINE FACILITIES: UNDERGROUND
CLEANING OF MOBILE PLANT

Item	Description	Unit	Qty	Hours	Rate (12)	Amount (12)	Rate (NOV14)	Amount (NOV14)	Rate (March 16)	Amount (March 16)
12.01	Normet Himec 9805B(233)	Hrs	4			-		-	0	0
12.02	BOBCAT (Mine)	Hrs	4			-		-	0	0
12.03	Volvo BM A20 6X6 C/W Crane	Hrs	1			-		-	0	0
12.04	Explosives Transport Cassette	Hrs	1			-		-	0	0
12.05	Remix Cassette (Mulhouser)	Hrs	1			-		-	0	0
12.06	Flat Bed Cassette With Crane	Hrs	1			-		-	0	0
12.07	Flat Bed Cassette	Hrs	1			-		-	0	0
12.08	Fuel and Lubrication Cassette	Hrs	1			-		-	0	0
12.09	Maintenance Cassette	Hrs	1			-		-	0	0
12.1	Mob Compressor XAS175 A.COPCO	Hrs	1			-		-	0	0
12.11	Drill Rig A/Copco M2D Rocket Boomer	Hrs	1			-		-	0	0
12.12	Drill Rig A/Copco 322	Hrs	1			-		-	0	0
12.13	Roof Bolter	Hrs	1			-		-	0	0
12.14	Drill Rig A/Copco 322S Rocket Boomer	Hrs	1			-		-	0	0
12.15	Drill Rig Model L2C18	Hrs	2			-		-	0	0
12.16	Drill Rig A/Copco M2D Rocket Boomer	Hrs	2			-		-	0	0
12.17	Atlas Copco Long Hole Drill Rig	Hrs	2			-		-	0	0
12.18	Dumptruck 40 ton number 003 Toro 40D	Hrs	7			-		-	0	0
12.19	Forklift (Powder Magazine)	Hrs	1			-		-	0	0
12.2	Grader Veeckmas OY - NV15C	Hrs	1			-		-	0	0
12.21	JCB 3CX SM4 Sitemaster	Hrs	2			-		-	0	0
12.22	Manitou's	Hrs	8			-		-	0	0
12.23	Toyota 2.4 Hilux	Hrs	23			-		-	0	0
12.24	Land Rover 110 - Reg. NO. 62 KJ 15	Hrs	1			-		-	0	0
12.25	LHD 7.0 3 cubic meter Toro 650	Hrs	5			-		-	0	0
12.26	LHD 5.4 3 cubic meter Toro 1400	Hrs	7			-		-	0	0
12.27	Mini Digger	Hrs	1			-		-	0	0
12.28	Mini Digger - 3.5 Tonne	Hrs	2			-		-	0	0
12.29	Porter (cassette machine) DUX P1-Porter	Hrs	3			-		-	0	0
12.3	DUX P1-Porter (IIE - EXPLOSIVES)	Hrs	1			-		-	0	0
12.31	Roofbolter Model Boltec 335 SH	Hrs	2			-		-	0	0
12.32	Dux P1 Scissor Lift	Hrs	2			-		-	0	0
12.33	Scissor lift (hi-ab) DUX P1-SL6000	Hrs	1			-		-	0	0
12.34	Scaler DUX DS30RB	Hrs	1			-		-	0	0
12.35	Jama SBU800 Mechanical Scaler	Hrs	1			-		-	0	0
12.36	Mobile Remix Unit Normet Multimec	Hrs	4			-		-	0	0
12.37	Mobile Shotcrete unit Normet Spraymec	Hrs	3			-		-	0	0
12.38	Dux P1 Maintenance Truck	Hrs	1			-		-	0	0
12.39	DIECI - PEGASUS - TELEPORTER	Hrs	1			-		-	0	0
12.4	BOBCAT KP04.8	Hrs	1			-		-	0	0
12.41	CABLE BOLTER KP027	Hrs	2			-		-	0	0
12.42	ELECTRO HYDR. TWIN BOOM JUMBO	Hrs	2			-		-	0	0
12.43	66DG0105 DRILL RIG CX07	Hrs	1			-		-	0	0
12.44	Overhaul DRILL RIG KP005	Hrs	1			-		-	0	0
12.45	SOLO 7-7S CABIN	Hrs	2			-		-	0	0
12.46	MOBEQ: REPAIR 650 NO. 39 & INSTALL REM. (40 TON DUMPTRUCK TORO 40D)	Hrs	1			-		-	0	0
12.47	NO 54 DUMP TRUCK	Hrs	1			-		-	0	0
12.48	TORO 50D AS PER SPEC CT008.05	Hrs	1			-		-	0	0
12.49	OVERHAUL 66DT290 CX04 & CX05 (50 TONDUMPTRUCK TORO 50D)	Hrs	2			-		-	0	0
12.5	TORO 50D AS PER SPEC	Hrs	5			-		-	0	0
12.51	TORO 0010 AS PER SPEC	Hrs	2			-		-	0	0
12.52	OVERHAUL - 66DT293 UG33 (50 TON DUMPTRUCK TORO 50D)	Hrs	1			-		-	0	0
12.53	MOBEQ: 6 TON HITACHI EX 60 MINI DGRCA112	Hrs	1			-		-	0	0
12.54	66EH104 DRILL RIG CX06	Hrs	1			-		-	0	0
12.55	MOBEQ: CABLEBOLTER A/COPCO 322 KP012	Hrs	1			-		-	0	0
12.56	MOBEQ: KUBOTA KH 61 3 TON MINI DG REVIMP	Hrs	1			-		-	0	0
12.57	MOBEQ: 66FK119 FORKLIFT CX23.1	Hrs	1			-		-	0	0
12.58	MOBEQ: 2ND HAND VEEKMAS GRADERCTS13A	Hrs	1			-		-	0	0
12.59	MOBEQ: DIGGER CU04.1	Hrs	2			-		-	0	0
12.6	MOBEQ: DIGGER CU04.2	Hrs	1			-		-	0	0
12.61	MOBEQ: DIGGER CX15	Hrs	1			-		-	0	0
12.62	MOBEQ: JCB TELEPORTER CP436	Hrs	1			-		-	0	0
12.63	MOBEQ: SCISSORS LIFT INS PLATFORMCA110	Hrs	1			-		-	0	0
12.64	MOBEQ: 4 X 4 PICK UP CP337	Hrs	1			-		-	0	0
12.65	MOBEQ: 66LDV421 CX18.02 to 66LDV453 (TOYOTA HILUX)	Hrs	31			-		-	0	0
12.66	TORO 0010 AS PER QUOTE	Hrs	2			-		-	0	0
12.67	RUBBER TYRED DIGGER/LOADERCP424	Hrs	1			-		-	0	0
12.68	MOBEQ: DIGGER CU04.2 REVIMP	Hrs	1			-		-	0	0
12.69	MOBEQ: DUXS1SLP6000SISRLIFTRK:C REVIMP	Hrs	1			-		-	0	0
12.7	MOBEQ: JAMA SBU SCALER ANDCX131	Hrs	1			-		-	0	0
12.71	MOBEQ: JAMA SBU800 MECH SCALER CTS24.3	Hrs	1			-		-	0	0
12.72	MOBEQ: OVERHAUL 66SL097 SCALER CX08	Hrs	1			-		-	0	0
12.73	BULLET - ULTIMEC 1500 TRANSFORMER	Hrs	1			-		-	0	0
12.74	MOBEQ: CHARGERS CU03	Hrs	1			-		-	0	0
12.75	TELEPORTER CK005.10 Revimp	Hrs	1			-		-	0	0
12.76	TOYOTA LANDCRUISER 90 SERIES	Hrs	1			-		-	0	0
12.77	MOBEQ: 67LDV036 CX18.04 (TOYOTA HILUX)	Hrs	1			-		-	0	0
12.78	MOBEQ: 67LDV037 CX18.05 (TOYOTA HILUX)	Hrs	1			-		-	0	0
12.79	Drill Rig Overhaul CP018.01	Hrs	1			-		-	0	0
12.8	MOBEQ: 2nd Hand (Solo 606) Long Holer Revimp	Hrs	1			-		-	0	0
12.81	MOBEQ: Long Hole Rig Revimp	Hrs	1			-		-	0	0
12.82	MOBEQ: Truck CP017.05 Revimp	Hrs	1			-		-	0	0
12.83	MOBEQ: Purchase M2D on site CP339 (DRILL RIGROCKET BOOMER)	Hrs	1			-		-	0	0
12.84	Grader Overhaul CP018.03 Revimp	Hrs	1			-		-	0	0
12.85	Purchase of Mini Digger for CP01 Revimp	Hrs	1			-		-	0	0
12.86	MOBEQ: LHD 7.0 3 Cubicmeter Toro 0010CA111	Hrs	1			-		-	0	0
12.87	MOBEQ: LHD 7.0 M3 CM Toro 0010 CP017.04	Hrs	1			-		-	0	0
	Sub-Total					-		-		
	Contingency				5%					
	TOTAL					-		-		

BILL 13
MINE FACILITIES: UNDERGROUND
RAMP PORTAL

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
13.1	Formwork - Permanent	m ²	98	50.00	4,900.00	44.50	4,361.00	-	0.00	0.00	0.00
	Formwork – Permanent	m ²	35.75	0.00	0.00		0.00	44.50	1,590.88	0.00	0.00
	Backfill bulkhead (no shotcrete)	m ²	31.5							0.00	0.00
13.2	Concrete in Wall	m ³	49	250.00	12,250.00	222.50	10,902.50	-	0.00	0.00	0.00
	Concrete in Wall (Plug)	m ³	232		0.00			150.00	34,856.25	0.00	0.00
13.3	Fill with hardcore	m ³	1,155	35.00	40,425.00	26.50	30,607.50	-	0.00	0.00	0.00
	Fill with hardcore imported from Galmoy orepad (5824m3)	m ³	4,320				0.00	2.50	10,800.00	0.00	0.00
	Fill with clean imported rock fill	t	8,969							6.53	58,610.73
	Shotcrete	m ³	129							144.52	18,642.89
	Fill with foam grout above rock fill	m ³	799							90.00	71,910.00
13.4	Landscaping (Included in overall site landscaping)	m	210	7.17	1,505.70	6.38	1,340.07	0	0.00	0.00	0.00
13.5	Demolition works to portal	No	1					7,500.00	7,500.00	7,500.00	7,500.00
13.6	Misc. Costs (Stock items from stores/diesel etc)										44,626.00
	Sub-Total				59,080.70		47,211.07		54,747.13		201,289.62
	Contingency			5%	2,954.04	5%	2,360.55				
	TOTAL				62,034.74		49,571.63		54,747.13		201,289.62

**BILL 14
CLEANING & DISPOSAL OF MINERAL RESIDUE AND CONTAMINATED MATERIAL**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
14.1	Allowance for treatment and disposal of oily ground to be treated and/or disposed of by a licensed treatment contractor. * This rate is based on NRA Unit Rate Database dated May 2011 "Disposal - u2 (Contaminated Material)" upper rate range for conservative purposes. (refer to Item 14.4)	m ³	1000	300,000.00	300,000.00	285.00	285,000.00	0	0	0	
14.2	Decommissioning of Structures and Plant (Included in general areas) (complete)	Item	1	30,000.00	30,000.00	30,000.00	30,000.00	6000.00	6000.00	6000.00	6,000.00
14.3	Cleaning of structures and Disposal of Residue Extra: Allow for Cleaning and disposal of mineral residue and contaminated material - exc. Trafigura buildings - includes disposal of nuclear sources	Item	1	600,000.00	600,000.00	534,000.00	534,000.00	528,000.00	528,000.00	100,000.00	100,000.00
Sub-total - Cleaning of Residue											
									534,000.00		106,000.00
14.4	Site Clearance Plant area - Site clearance and disposal of 500mm layer in TMF	m3	76972					3.25	250,159.00	3.25	250,159.00
Sub-total - Site Clearance											
									250,159.00		250,159.00
14.5	Killoran Wetland Rehabilitation										
14.5.1	Tree Felling Cut and present timber for extraction & disposal	ha	2.5					3285	8,212.50	3,285.00	8,212.50
	Replanting and Maintenance Cost 2.25 ha	ha	2.5					5110	12,775.00	5,110.00	12,775.00
14.5.2	Soil Testing XRF Soil	Item	1					4000	4,000.00	4,000.00	4,000.00
14.5.3	Removal of Pipework Removal of Mackleys pipework system	Item	1					7500	7,500.00	7,500.00	7,500.00
14.5.4	Wetland Area Contaminated material, excavate & dispose in TMF (600mm depth as per Tobin Report)	m3	27000					4.78	129,060.00	-	-
	Contaminated material, excavate & dispose in TMF (300mm depth as per Tobin Report)	m3	13500					4.78	64,530.00	4.78	64,530.00
14.5.5	Filling of entire area with 300mm till and 300mm topsoil sourced from Carrighill stockpiles. Filling of entire area with 300mm topsoil sourced from Carrighill stockpiles (300mm depth as per Tobin Report).	m3	27000					4.78	129,060.00	-	-
		m3	13500					4.78	64,530.00	4.78	64,530.00
14.5.6	Seeding to 4.5 hectares	m2	45000					0.30	13,500.00	0.30	13,500.00
Sub-total Killoran Wetland											
									433,167.50		175,047.50
TOTAL							849,000.00	990,000.00	1,217,326.50		531,206.50

**BILL 15
STRUCTURES AND EQUIPMENT**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
15.1	Demolition Other Structures Rail track										
15.1.1	Removal of plain welded track, 91.5lb German rails; including fish plates and Gantrex fastenings	m	3050	15.00	45,750.00	-	-	-	0.00	-	0.00
15.1.2	Removal of reinforced concrete sleepers	No.	2350	15.00	35,250.00	-	-	-	0.00	-	0.00
15.1.3	Credit for scrappage value of rails	t	135	-150.00	-20,250.00	0.00	0.00	0.00	0.00	0.00	0.00
15.1.4	Remove and dispose of tailings distribution system	Item	1	15,000.00	15,000.00	0.00	0.00	0.00	0.00	0.00	0.00
15.1.5	Remove and dispose of rail trolley stopblock	No.	4	1,500.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
15.1.6	Removal of reclaim water pontoon	Item	1	15,000.00	15,000.00	0.00	0.00	0.00	0.00	0.00	0.00
15.1.7	Removal of rail trolleys	No.	2	10,000.00	20,000.00	0.00	0.00	0.00	0.00	0.00	0.00
15.1.8	Remove and dispose of tailings spigot system (2 No.)	Item	1	0.00	0.00	2,500.00	2,500.00	5,000.00	5,000.00	5,000.00	5,000.00
15.1.9	Removal of spigot heads (6 No. 2014)	Item	3	0.00	0.00	250.00	750.00	500.00	1,500.00	500.00	1,500.00
15.1.10	Removal of reclaim pumps	No.	2					0.00	0.00	0.00	0.00
15.1.11	Removal of MCC Building	No.	1					2,800.00	2,800.00	2,800.00	2,800.00
15.1.12	Removal of dirty water sump	No.	1					2,800.00	2,800.00	2,800.00	2,800.00
15.1.13	Removal of sprinkler system	No.	1					0.00	0.00	0.00	0.00
	TOTAL				116,750.00		3,250.00		12,100.00		12,100.00

BILL 16
 DRY CLOSURE OF TMF

TMF SUMMARY

ITEM	CLASS/DIV	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (12)	Costs to end Q2 (30/09/14)	Costs from 01/10/14 - 31/12/14	Cost from 01/04/15 to completion	AMOUNT (March 15)	Costs to 30/09/2015 (start date 01/04/2014)	Actual cost 01/10/15 to 31/12/15	Cost from 01/01/16 to completion	AMOUNT (March 16)
16.1	Earthworks					8,455,005.00	2,088,604.00	582,329.00	4,623,521.89	7,294,454.89	3,942,967.00	1,002,418.00	2,734,532.45	7,679,917.45
16.2	Liners					275,000.00	148,473.00	0.00	169,884.00	318,357.00	202,935.00	0.00	130,650.00	333,585.00
16.3	Fencing					63,200.00		2,000.00	61,200.00	63,200.00	€49,280.00	€0.00	0.00	49,280.00
16.4	Completion Works								201,229.89	201,229.89		0.00	515,398.89	515,398.89
16.5	Carrick Hill Restoration Works								202,471.29	202,471.29		0.00	202,471.29	202,471.29
16.6	Carrick Hill Planning										109,375.00		109,375.00	218,750.00
CARRIED FORWARD TO MINE CLOSURE ESTIMATE						8,793,205.00				8,079,713.07				8,999,402.63

Bill 16.1
TMF EARTHWORKS

ITEM	CLASS/DIV	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	UNIT	RATE	QTY (Mar 15)	RATE (Mar 15)	AMOUNT (Mar 15)	UNIT	RATE	QTY (March 16)	AMOUNT (March 16)
		SCHEDULE NO. 1 EARTHWORKS													
	Class E	Earthworks													
	16.1	Filling													
	16.1.1	General filling to top of Tailings Dam													
A		Supply of 100,000 tonnes of limestone backfill material	tonne	100,000	4.8	480,000.00	tonne		0	0	0.00	m3	1.50	192,240	288,360.00
A1		Filling of void up to tailings level 1m below crest height in main TMF													
A1.1		Filling of void up to tailings level 1m below crest height in TMF Cell													
B		Allow for the additional supply of 747,000 tonnes of limestone backfill material	tonne	747,000	4.7	3,510,900.00	tonne		580,000	4.181924138	2,425,516.00				
B1		Allow for the stockpile management of the limestone backfill material	Item				Item		1	16027.5	16,027.50				
B2		Supply of 146,119 tonnes of limestone backfill material										tonne	4.18	146,119.34	611,059.99
C		Extra over for sourcing of rock	Item	0	20%	0	Item		0	0	0				
D		Capping of TMF with granular rock material to temporary thickness of 1000mm, including laying of geotextile membrane with acceptable overlap	m ²	385,000	6.6	2,541,000.00	m ²		254,100	3.94	1,001,154.00				
D1		Capping of TMF with rock material to a thickness of 700mm, including laying of geotextile membrane with acceptable overlap													
E		Extra over for Grading of Capping to reduce levels to 700mm thick	m ²	0	incl	0	m ²		0	incl	0				
G		Extra over for increase in haul distance on TMF	m ³	448,000	incl	0	m ³		0	incl	0				
F		Topsoiling: Mixing gleba till and peat to specified ratio and placing to thickness of 350mm on granular rock fill (elsewhere measured)	m ²	215,250	4.02	865,305.00	m ²		126,700	7.2	912,240.00				
		Screening, hauling and stockpiling till and peat to clear area for rock fill								SUM	51,242.00				
		Screening, hauling and stockpiling till							22000.502	6.35	139,708.19	m ³	6.35	67,033.50	425,662.73
		Hauling and stockpiling peat							7473.087	4.1	30,639.70	m ³	4.10	47,739.50	195,731.95
		<i>Actual peat hauled in Feb 2016</i>									17,592.45	m ³	1.95	17,592.45	34,305.28
	16.2	Filling Ancillaries													
	16.2.1	Trimming of filled surfaces													
H		Topsoil: placing and levelling	m ²	615,000	0.45	276,750.00	m ²		35,000	1.1	38,500.00	m ²	1.10	145,250.00	159,775.00
	16.3	Landscaping													
	16.3.1	Hydraulic mulch grass seeding													
I		Grass seeding to topsoil	m ²	615,000	1.27	781,050.00	m ²		35,000	0.1837	6,499.50	m ²	0.19	415,000.00	77,085.50
		Completion of seeding for Phase 2 and 3								SUM	2,000.00				
		CARRIED FORWARD TO FINAL SUMMARY				8,455,005.00					4,623,521.89				2,734,532.45

BILL 16.2
TMF LINERS

ITEM	CLASS/DIV	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	UNIT	QTY (Nov 2014)	RATE (Nov 2014)	AMOUNT (Nov 2014)	UNIT	QTY (Dec 15)	Rate (March 16)	Amount (March 16)
		SCHEDULE NO. 2 LINERS												
	Class E	Earthworks												
	16.2	Geotextiles												
		Woven Geotextile												
A	16.2.1	Mine to procure and free issue to contractor (Installation included in rates for contractor)	m2	550,000	0.5	275,000.00	m2	435,600.00	0.39	169,884.00	m2	335,000.00	0.39	130,650.00
		CARRIED FORWARD TO FINAL SUMMARY				275,000.00				169,884.00				130,650.00

BILL 16.3
TMF FENCING

ITEM	CLASS/DIV	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	RATE	AMOUNT(Mar15)	Rate (March 16)	Amount (March 16)
		SCHEDULE NO. 3 FENCING								
	16.3	Fences								
		Chainlink fencing with metal posts								
A	16.3.1	Chainlink fence with metal posts; including concrete post foundations; 3 strands of barbed wire; including excavation of foundation bases; erected near base of TMF embankment	m	2,000	30	60,000.00	29.00	58,000.00	0	0
		Gates and stiles								
B	16.3.2	4m wide double leaf gate	No	2	1,600.00	3,200.00	1,600.00	3,200.00	0	0
		CARRIED FORWARD TO FINAL SUMMARY				63,200.00		61,200.00		0

BILL 16.4
TMF COMPLETION WORKS

ITEM	CLASS/DIV	DESCRIPTION	UNIT	QTY (Mar 2014)	RATE (Mar15)	AMOUNT (Mar15)	QTY (Dec 15)	Rate (March 16)	Amount (March 16)
		SCHEDULE NO. 4 Additional Works							
A		Perimeter Road and drainage							
16.4.1		Supply 2000 tonnes CL 804 material to create a cross fall from the outer edge of the TMF for the entire 3900 metres of its perimeter	t	1,950	8.00	15,600.00		8.00	15,600.00
16.4.2		Supply 3000 tonnes 3" clean drainage stone for the entire 3900 metres of the TMF perimeter	t	2808	10.00	28,080.00		10.00	28,080.00
16.4.3		Excavate, shape and fill for the 3000 tonnes clean drainage stone	m3	1404	4.50	6,318.00		4.50	6,318.00
16.4.4		Prep, shape and fill for the 2000 tonnes of CL 804	m3	975	4.50	4,387.50		4.50	4,387.50
B		Remove Outer Rock Fill Bund							
16.4.5		Remove 2200m of an outer rock fill bund and place in the TMF	m3	792	4.03	3,191.76		4.03	3,191.76
C		Topsoil to Outer Embankment							
16.4.6		Mixing glacial till and peat to specified 50/50 ratio and placing to a thickness of 300mm along the 2200 metres of the raised section of the main TMF	m3	2953.5	7.20	21,265.20		7.20	21,265.20
16.4.7		Grass seeding to the topsoiled embankment	m2	9845	0.00	0.00		0.00	0.00
D		Topsoil bund to Outer Embankment							
16.4.8		Mixing glacial till and peat to specified 50/50 ratio and placing a bund of 700 mm high along the 2200 metres of the raised section of the main TMF	m3	1232	7.20	8,870.40		7.20	8,870.40
16.4.9		Grass seeding to the topsoiled embankment	m2	4523.2	0.00	0.00		0.00	0.00
E		Topsoil to south wall embankment							
16.4.10		Mixing glacial till and peat to specified 50/50 ratio and placing to a thickness of 500mm along the 850 metres of the raised section of the south wall	m3	6885	7.20	49,572.00		7.20	49,572.00
16.4.11		Grass seeding to the topsoiled embankment	m2	13770	0.00	0.00		0.00	0.00
F		Remove till bunds to the Phase 1 paddocks							
16.4.12		Excavate, haul, and place into the TMF	m3	800	4.03	3,224.00		4.03	3,224.00
G		Remove Demo Wetland Cell							
16.4.13		Excavate, haul, and place into the TMF	m3	135	4.03	544.05		4.03	544.05
H		Topsoil between existing TMF paddocks and areas on Phase 1							
16.4.14		Mixing glacial till and peat to specified 50/50 ratio and placing to a thickness of 350mm between the existing TMF paddocks along Phase 1	m3	6969.025	7.20	50,176.98		7.20	50,176.98
16.4.15		Grass seeding to the topsoiled area	m2	19911.5	0.00	0.00		0.00	0.00
I		Hedge row planting							
16.4.16		Planting of native species to the TMF bunds	m	10000	1.00	10,000.00		0.00	0.00
		Planting of native species to the TMF bunds	m				8,800.00	3.60	31,680.00
J		Filling to perimeter drains							
16.4.17		Filling perimeter drains to TMF with peat	m3				80,000.00	2.75	220,000.00
K		Rehabilitate to Stockpile Yard B							
16.4.18		Landscape area with peat	m2				30,000.00	1.50	45,000.00
L		Seeding to TMF Cell							
		Subsoil to face of embankments	m2				8,330.00	2.50	20,825.00
		Hydro to subsoil	m2				8,330.00	0.80	6,664.00
		Total				201,229.89			515,398.89

BILL 16.5

16.5 Carrick Hill Restoration

Item	Description	Unit	Qty	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
1	Service Road						
1.1	Service road area to be raised to a minimum of 123.5m AOD with fill from borrow pit	m3	2340	19.50	45,630.00	19.50	45,630.00
1.2	Berm protection to service road - 195 linear metres at each side of the road	m3	195	7.50	1,462.50	7.50	1,462.50
1.3	Culvert 2 x 900mm pipes	Item	1	5,000.00	5,000.00	5,000.00	5,000.00
2	Storm Outlet Structure						
	Excavate and profile	Item	1	30,000.00	30,000.00	30,000.00	30,000.00
3	Borrow Area Bund Crest at 123.5 m AOD						
	Bund to low lying areas around the borrow pit perimeter - 840 linear metres	m3	420	7.50	3,150.00	7.50	3,150.00
3.2	Bund to low lying area around T21 perimeter - 156 linear metres	m3	78	7.50	585.00	7.50	585.00
4	Swale to low lying area						
	Excavate and profile 2 No. swale drains each @ 180 mts longs	m3	1260	7.50	9,450.00	7.50	9,450.00
4.2	Supply and place 150mm depth of pea gravel to base of 2 No. swale drains	m3	54	12.00	648.00	12.00	648.00
5	Lake area slopes						
5.1	Profile, grade and shape slopes	m2	10836	0.75	8,127.00	0.75	8,127.00
6	Woodland with native species						
6.1	Planting and maintenance cost 1.3383 ha (Net VAT €5110 per hectare)	ha	1.3383	5,110.00	6,838.71	5,110.00	6,838.71
7	Service Track to Perimeter						
7.1	Install perimeter service track with 500 mm of hardcore	m3	6000	7.50	45,000.00	7.50	45,000.00
8	Planted Slopes						
8.1	Top soil to slopes	m2	10836	2.00	21,672.00	2.00	21,672.00
8.2	Planting and maintenance cost	m2	10836	0.60	6,501.60	0.60	6,501.60
	Subtotal				184,064.81		184,064.81
9	Prelims						
9.1	Prelims at 10%	%	10%	184,064.81	18,406.48	184,064.81	18,406.48
	Total				202,471.29		202,471.29

BILL 16.6
Planning Contribution

ITEM	CLASS/DIV	DESCRIPTION	UNIT	QTY	RATE	Amount (March 16)
		Planning Fees for Carrick Hill				
16.6.1		Planning contribution paid 2015	Sum	1	109,375.00	109,375.00
16.6.2		Planning contribution instalment 2016	Sum	1	54,687.50	54,687.50
16.6.3		Planning contribution instalment 2017	Sum	1	54,687.50	54,687.50
		CARRIED FORWARD TO FINAL SUMMARY				218,750.00

BILL 17
BUILDINGS AND STRUCTURES - SUMMARY

REF	DESCRIPTION	Amount (09)	Amount (Mar15)	Amount (March 16)
17.1	CORESHEDS	44,590.68	176,179.30	503,998.14
17.2	FRESH AIR SHAFT	35,935.66	71,653.00	224,095.76
17.3	MAGAZINE	48,127.91	45,836.10	45,836.10
17.4	ROSSESTOWN DISCHARGE	65,287.07	62,178.16	62,178.16
17.5	DRISH DISCHARGE	30,298.97	28,856.16	28,856.16
17.6	CLOGHEEN POND DISCHARGE	2,625.00	2,500.00	2,500.00
17.7	DRISH POND DISCHARGE	29,935.67	63,847.00	63,847.00
17.8	VENT SHAFT (DERRYVILLE)	37,528.59	42,565.00	120,195.63
17.9	CHAMBER SUMP	2,273.78	2,165.50	2,165.50
17.10	UNDERGROUND STRUCTURES	36,750.00	35,000.00	25,172.65
17.11	IMPROVEMENTS TO DISCHARGE	140,569.80	0.00	0.00
17.12	DEMOLITION OF ADMINISTRATION BUILDING	-	30,000.00	0.00
	TOTAL	471,831.62	560,780.22	1,078,845.09

BILL 17.1
BUILDINGS AND STRUCTURES
SUMMARY - CORESHED AND VENTSHAFT

REF	DESCRIPTION	Amount (09)	Amount (Mar15)	Rate (Dec15)	Amount (March 16)
17.1.1	CORESHED	27,500.00	15,000.00	15,000.00	15,000.00
17.1.2	VENTSHAFTS - STEEL	4,038.38	18,337.50	18,337.50	18,337.50
17.1.3	VENTSHAFTS - CONCRETE WORKS	13,052.30	142,841.80	470,660.64	470,660.64
	TOTAL	44,590.68	176,179.30		503,998.14

**BILL 17.1.1.1
BUILDINGS AND STRUCTURES
CORE SHEDS**

Item	Description	Unit	Number	QTY	Rate	Amount (12)	Amount (Mar15)	Amount (March 16)
17.1.1.1.1	78 X 26m 6-span blockwork sheds with galvanised roofs on steel rafters and concrete floors (Off site @ Kilclonagh)	SUM	1	25,000.00	1.00	25,000.00		
17.1.1.2	Clean out and make good the facility for occupation by VEIL.						15,000	15,000
	Sub-Total					25,000.00	15,000	15,000
	Contingency				10%	2,500.00		
	TOTAL					27,500.00	15,000	15,000

**BILL 17.1.2
BUILDINGS AND STRUCTURES
VENTSHAFTS (10 No.) - STEEL**

Item	Description	Unit	QTY	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
17.1.2.1	Steel lining (Exhaust Vents) 10mm thick x 4350mm x 4500 high steel lining	t	5	750.00	3,750.00	667.50	3,337.50	667.50	3,337.50	667.50	3,337.50
17.1.2.2	Demolition of 3 No. vent raise buildings	Item	3					5,000.00	15,000.00	5,000.00	15,000.00
	Sub-Total				3,750.00		3,337.50		18,337.50		18,337.50
	Plates, fittings etc			10%	375.00	10%	333.75				
	Sub- Total				4,125.00		3,671.25		18,337.50		18,337.50
	Contingency			10%	412.50	0.10	367.13				
	TOTAL				4,537.50		4,038.38		18,337.50		18,337.50

BILL 17.1.3
BUILDINGS AND STRUCTURES
VENTSHAFTS - CONCRETE WORKS (10 No.)

Item	Description	Unit	QTY	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
17.1.3.1	Break up concrete In foundations	m3	63	50.00	3,150.00	44.50	2,803.50	44.50	8,900.00	44.50	8,900.00
	In foundations	m3	200								
17.1.3.2	Pour Concrete in plug incl formwork Plugs top of raise with 2m deep mass concrete.	m3	33	250	8297.14	222.5	7384.46	222.50	55,625.00	-	-
		m3	250								
17.1.3.3	Fence 2.5m high fence at perimeter	m	168	15.00	2,520.00	13.35	2,242.80	13.35	2,242.80	13.35	2,242.80
	2.5m high fence at perimeter	m	500						6,675.00	13.35	6,675.00
17.1.3.4	Backfill of vent raise with selected demolition hardcore material from plant site.	m3	12618					5.5	69,399.00	0	-
	Topsoil	m3	29.61							3.5	103.63
	Overburden	m3	302.42							3.5	1,058.46
	Concrete Plug	m3	234.64							160	37,542.00
	Clean rock fill	m3	10,888.36							21	228,655.52
	Concrete Plug	m3	227.57							160	36,411.03
	Clean rock fill to collar	m3	77.40							21	1,625.42
	Clean rock fill below collar	m3	1,558.16							21	32,721.30
	Large clean rock fill below collar	m3	4,353.74							25	108,843.46
17.1.3.5	Grout fill to 3No 300mm diameter pipes at I31	m3	45.25							130	5,882.01
	Sub-Total				13,967.14		12,430.76		142,841.80		470,660.64
	Contingency			5%	698.36		621.54				
	TOTAL				14,665.50		13,052.30		142,841.80		470,660.64

BILL 17.2
BUILDINGS AND STRUCTURES
FRESH AIR SHAFT- SUMMARY

REF	DESCRIPTION	Amount (09)	Amount (NOV14)	Amount (MAR 16)
17.2.1	FRESH AIR SHAFT - CLADDING	10,376.55	9,879.00	9,879.00
17.2.2	FRESH AIR SHAFT - STEEL	17,041.82	14,685.00	14,685.00
17.2.3	FRESH AIR SHAFT - CONCRETE WORKS	8,517.29	47,089.00	199,531.76
17.2.4	PLANT - AIR SUPPLY	-	-	
	TOTAL	35,935.66	71,653.00	224,095.76

BILL 17.2.1
BUILDINGS AND STRUCTURES
FRESH AIR SHAFT - CLADDING

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)	
17.2.1.1	Walls									
		Ends	m2	117	17.80	2,089.00	17.80	2,082.60	17.80	2,082.60
		Sides	m2	204	17.80	3,625.82	17.80	3,631.20	17.80	3,631.20
		Small adjacent structure	m2	20	17.80	357.34	17.80	356.00	17.80	356.00
17.2.1.2	Roof									
		Main building	m2	208	17.80	3,698.13	17.80	3,702.40	17.80	3,702.40
		Sides	m2	6	17.80	112.14	17.80	106.80	17.80	106.80
	Sub-Total				9,882.43		9,879.00		9,879.00	
	Contingency			5%	494.12					
	TOTAL				10,376.55		9,879.00		9,879.00	

BILL 17.2.2
BUILDINGS AND STRUCTURES
FRESH AIR SHAFT - STEEL

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.2.2.1	Columns	t	3	667.50	2,162.70	667.50	2,002.50	667.50	2,002.50
	Perimeter								
17.2.2.2	Beams	t	2	667.50	1,441.80	667.50	1,335.00	667.50	1,335.00
	Rafters	t	6	667.50	4,281.56	667.50	4,005.00	667.50	4,005.00
	Sides	t	3	667.50	1,916.53	667.50	2,002.50	667.50	2,002.50
	Ends	t	6	667.50	4,281.56	667.50	4,005.00	667.50	4,005.00
	Purlins								
	Sub-Total				14,084.15		13,350.00		13,350.00
	Plates, fittings etc			10%	1,408.42	10%	1,335.00		1,335.00
	Sub-Total				15,492.57		14,685.00		14,685.00
	Contingency			10%	1,549.26				
	TOTAL				17,041.82		14,685.00		14,685.00

BILL 17.2.3
BUILDINGS AND STRUCTURES
FRESH AIR SHAFT - CONCRETE

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.2.3.1	Stub Wall	m3	15	44.50	658.74	44.50	667.50	44.50	667.50
	Perimeter								
17.2.3.2	Slab	m3	83	44.50	3,692.37	44.50	3,693.50	83.00	6,889.00
	Entire building								
17.2.3.3	Strip Under wall	m3	32	44.50	1,441.00	44.50	1,424.00	32.00	1,024.00
17.2.3.4	Pads	m3	9	44.50	384.48	44.50	400.50	9.00	81.00
	under columns								
17.2.3.5	Walls of shaft	m3	35	44.50	1,566.40	44.50	1,557.50	35.00	1,225.00
17.2.3.6	Backfill of Fresh Air shaft with selected demolition hardcore from the plant site	m3	5,212.00			5.50	28,666.00	-	-
	Large clean rock fill to base of shaft	m3	1,357.85					25.00	33,946.30
	Large clean rock fill to collar	m3	118.79					25.00	2,969.78
	Concrete Plug	m3	137.80					160.00	22,047.68
	Clean rock fill	m3	4,435.67					21.00	93,149.07
17.2.3.7	Plug top of vent shaft with 2m deep mass concrete.	m3	48			222.50	10,680.00		-
	Concrete Plug	m3	130.67					160.00	20,907.28
	Overburden	m3	133.05					3.50	465.66
	Topsoil	m3	9.50					3.50	33.26
17.2.3.8	Grout fill to 8No. 300 diameter pipes left in-situ at FAS	m3	124.05					130.00	16,126.22
	Sub-Total				7,742.99		47,089.00		199,531.76
	Contingency			10%	774.30				
	TOTAL				8,517.29		47,089.00		199,531.76

BILL 17.2.4
BUILDINGS AND STRUCTURES
PLANT - AIR SUPPLY

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.2.4.1	AIR SUPPLY										
AR-004	Instrument Air Receiver	Hrs	10	30.00	300.00	-	0.00	-	0.00	-	0
AR-005	Plant Air Receiver	Hrs	16	30.00	480.00	-	0.00	-	0.00	-	0
AR-010	Coarse Plant Air Filter	Hrs	8	30.00	240.00	-	0.00	-	0.00	-	0
AR-011	Fine Plant Air Filter	Hrs	8	30.00	240.00	-	0.00	-	0.00	-	0
BL-010	Flotation Cell Blower No 1	Hrs	30	30.00	900.00	-	0.00	-	0.00	-	0
BL-020	Flotation Cell Blower No 2	Hrs	30	30.00	900.00	-	0.00	-	0.00	-	0
BL-030	Flotation Cell Blower No 3	Hrs	30	30.00	900.00	-	0.00	-	0.00	-	0
CM-010	Plant Air Compressor No 1	Hrs	60	30.00	1,800.00	-	0.00	-	0.00	-	0
CM-011	No 1 Compressor Vent Fan	Hrs	0	30.00	0.00	-	0.00	-	0.00	-	0
CM-020	Plant Air Compressor No 2	Hrs	60	30.00	1,800.00	-	0.00	-	0.00	-	0
CM-021	No 2 Compressor Vent Fan	Hrs	0	30.00	0.00	-	0.00	-	0.00	-	0
CM-030	Instrument Air Compressor	Hrs	20	30.00	600.00	-	0.00	-	0.00	-	0
CM-040	Instrument Air Aftercooler	Hrs	8	30.00	240.00	-	0.00	-	0.00	-	0
CM-050	Instrument Air Dryer	Hrs	10	30.00	300.00	-	0.00	-	0.00	-	0
CM-060	Plant Air Compressor No 3	Hrs	60	30.00	1,800.00	-	0.00	-	0.00	-	0
CM-061	No 3 Compressor Vent Fan	Hrs	0	30.00	0.00	-	0.00	-	0.00	-	0
CM-070	Plant Air Compressor No 4	Hrs	60	30.00	1,800.00	-	0.00	-	0.00	-	0
CM-071	No 4 Compressor Vent Fan	Hrs	0	30.00	0.00	-	0.00	-	0.00	-	0
	Sub-Total			10%	12,300.00	10%	0.00	10%	0.00		0
	Contingency				1,230.00		0.00		0.00		0
	TOTAL				13,530.00		0.00		0.00		-

**BILL 17.3
BUILDINGS AND STRUCTURES
MAGAZINE - SUMMARY**

REF	DESCRIPTION	Amount (09)	Amount (Mar15)	Amount (Mar 16)
17.3.1	MAGAZINE - CLADDING	5,149.10	4,903.90	4,903.90
17.3.2	MAGAZINE - BLOCKWORK	4,588.40	4,369.90	4,369.90
17.3.3	MAGAZINE - CONCRETE WORKS	4,485.60	4,272.00	4,272.00
17.3.4	MAGAZINE - EXTERNAL WORKS	33,904.82	32,290.30	32,290.30
	TOTAL	48,127.91	45,836.10	45,836.10

**BILL 17.3.1
BUILDINGS AND STRUCTURES
MAGAZINE - CLADDING**

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.3.1.1	Roof								
	Magazine	m2	175	17.80	3,115.00	17.80	3,115.00	17.80	3,115.00
	Security	m2	63	17.80	1,121.40	17.80	1,121.40	17.80	1,121.40
17.3.1.2	Level Earth mounds	m3	150	4.45	667.50	4.45	667.50	4.45	667.50
	Sub-Total				4,903.90		4,903.90		4,903.90
	Contingency			5%	245.20				
	TOTAL				5,149.10		4,903.90		4,903.90

BILL 17.3.2
BUILDINGS AND STRUCTURES
MAGAZINE - BLOCKWORK

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.3.2.1	Walls								
	Magazines	m2	324	8.90	2,883.60	8.90	2,883.60	8.90	2,883.60
	Security - perimeter	m2	101	8.90	898.90	8.90	898.90	8.90	898.90
	Security - internal	m2	66	8.90	587.40	8.90	587.40	8.90	587.40
	Sub-Total				4,369.90		4,369.90		4,369.90
	Contingency			5%	218.50				
	TOTAL				4,588.40		4,369.90		4,369.90

BILL 17.3.3
BUILDINGS AND STRUCTURES
MAGAZINE - CONCRETE WORKS

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.3.3.1	Foundations								
	Magazines	m3	19	44.50	845.50	44.50	845.50	44.50	845.50
	Security building	m3	5	44.50	222.50	44.50	222.50	44.50	222.50
17.3.3.2	Floor Slabs								
	Magazines	m3	53	44.50	2,358.50	44.50	2,358.50	44.50	2,358.50
	Security building	m3	19	44.50	845.50	44.50	845.50	44.50	845.50
	Sub-Total				4,272.00		4,272.00		4,272.00
	Contingency			5%	213.60				
	TOTAL				4,485.60		4,272.00		4,272.00

BILL 17.3
BUILDINGS AND STRUCTURES
MAGAZINE - EXTERNAL WORKS

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.3.4.1	Light Posts	No.	15	70.00	1,050.00	70.00	1,050.00	70.00	1,050.00
17.3.4.2	Radio Masts	No.	2	1,000.00	2,000.00	1,000.00	2,000.00	1,000.00	2,000.00
17.3.4.3	Infra-red poles	No.	20	90.00	1,800.00	90.00	1,800.00	90.00	1,800.00
17.3.4.4	Cameras	No.	5	100.00	500.00	100.00	500.00	100.00	500.00
17.3.4.5	4000mm high fence	m	546	17.80	9,718.80	17.80	9,718.80	17.80	9,718.80
17.3.4.6	3000mm high fence	m	250	13.35	3,337.50	13.35	3,337.50	13.35	3,337.50
17.3.4.7	Roads and hardstandings	m ²	1360	8.90	12,104.00	8.90	12,104.00	8.90	12,104.00
17.3.4.8	Removal of septic tank	No.	1	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00	1,780.00
	Sub-Total				32,290.30		32,290.30		32,290.30
	Contingency			5%	1,614.52				
	TOTAL				33,904.82		32,290.30		32,290.30

BILL 17.4
BUILDINGS AND STRUCTURES
ROSSESTOWN DISCHARGE

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.4.1.1	Removal of HDPE pipes (or option to leave in situ and plug same)	m	4800	3.50	16,800.00	3.12	14,976.00	3.12	14,976.00	3.12	14,976.00
17.4.1.2	Backfilling trench	m	4800	7.00	33,600.00	6.23	29,904.00	6.23	29,904.00	6.23	29,904.00
17.4.1.3	Demolition of valve chambers	No.	10	750.00	7,500.00	667.50	6,675.00	667.50	6,675.00	667.50	6,675.00
17.4.1.4	Backfill valve chambers	No.	15	20.00	300.00	17.80	267.00	17.80	267.00	17.80	267.00
17.4.1.5	Demolition of Outfall Building	No.	1	7,500.00	7,500.00	7,500.00	7,500.00	7,500.00	7,500.00	7,500.00	7,500.00
17.4.1.6	Removal of outfall building fencing	m	32	12.50	400.00	11.13	356.16	11.13	356.16	11.13	356.16
17.4.1.7	Landscaping outfall	Sum	1	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
17.4.1.8	Composite Item; Allowance for decommissioning of modified mine water discharge system included within section 17.1	Note									
	Sub-Total				68,600.00		62,178.16		62,178.16		62,178.16
	Contingency			5%	3,430.00	5%	3,108.91				
	TOTAL				72,030.00		65,287.07		62,178.16		62,178.16

**BILL 17.5
BUILDINGS AND STRUCTURES
DRISH RIVER OUTFALL PIPEWORK**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.5.1.1.1	Removal of 600 diam concrete pipes	m	0	15.00	0.00	15.00	0.00	15.00	0.00	15.00	0.00
17.5.1.1.2	Backfilling trench	m	0	15.00	0.00	15.00	0.00	15.00	0.00	15.00	0.00
17.5.1.1.3	Demolition of valve chambers	No.	10	750.00	7,500.00	650.00	6,500.00	650.00	6,500.00	650.00	6,500.00
17.4.1.1.4	Backfill valve chambers	No.	10	500.00	5,000.00	450.00	4,500.00	450.00	4,500.00	450.00	4,500.00
17.4.1.1.5	Demolition of Outfall Building	No.	1	7,500.00	7,500.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
17.4.1.1.6	Removal of outfall building fencing	m	32	12.50	400.00	11.13	356.16	11.13	356.16	11.13	356.16
17.4.1.1.7	Concrete plugging to pipe	No.	2	5,000.00	10,000.00	5,000.00	10,000.00	5,000.00	10,000.00	5,000.00	10,000.00
17.5.1.1.8	Landscaping outfall	Sum	1	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
17.5.1.1.9	Composite Item; Allowance for modified mine water discharge system, included within section 17.11	Note									
	Sub-Total				32,900.00		28,856.16		28,856.16		28,856.16
	Contingency			5%	1,645.00	5%	1,442.81				
	TOTAL				34,545.00		30,298.97		28,856.16		28,856.16

**BILL 17.6
BUILDINGS AND STRUCTURES
CLOGHEEN POND**

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.6.1	Allow for cleaning out of inlet and discharge to pond at the end Closure Project.	Item	1	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
	Sub-Total				2,500.00		2,500.00		2,500.00
	Contingency			5%	125.00				
	TOTAL				2,625.00		2,500.00		2,500.00

**BILL 17.7
BUILDINGS AND STRUCTURES
DRISH POND**

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.7.1.1	Removal of concrete pipes	m	15	15.00	225.00	Included elsewhere	Included elsewhere		
17.7.1.2	Backfilling open trench	m	150	15.00	2,250.00	Included elsewhere	Included elsewhere		
17.7.1.3	Demolition of valve chambers	No.	4	750.00	3,000.00	750.00	3,000.00	750.00	3,000.00
17.7.1.4	Backfill valve chambers	No.	4	500.00	2,000.00	500.00	2,000.00	500.00	2,000.00
17.7.1.5	Demolition of Outfall Building	No.	1	5,000.00	5,000.00	Included elsewhere	Included elsewhere		
17.7.1.6	Removal of outfall building fencing	m	32	11.13	356.16	Included elsewhere	Included elsewhere		
17.7.1.7	Concrete plugging to pipe	No.	2	4,000.00	8,000.00	Included elsewhere	Included elsewhere		
17.7.1.8	Remove and Shred Liner	m2	2000	0.89	1,780.00	0.89	1780	0.89	1,780.00
17.6.1.9	Level Embankment Walls	m3	575	3.56	2,047.00	3.56	2,047.00	3.56	2,047.00
17.6.1.10	Top Soil 300mm thick	m2	1200	1.68	2,016.00	7.20	6,480.00	7.20	6,480.00
17.6.1.11	Importing and placing of Top Soil 300mm thick	m2	900						
17.6.1.11	Seeding	m2	1200	0.28	336.00	0.28	840.00	0.28	840.00
	Seeding	m2	3000						
17.6.1.12	Landscaping outfall	Sum	1	1,500.00	1,500.00	Included elsewhere	Included elsewhere		
17.6.1.12	Excavation of unacceptable material at base of pond and tip to TMF	m3	600			4.50	2,700.00	4.50	2,700.00
17.6.1.13	Importing of fill material and placing in pond	m3	4500			10.00	45,000.00	10.00	45,000.00
	Sub-Total				28,510.16		63,847.00		63,847.00
	Contingency			5%	1,425.51		63,847.00		63,847.00
	TOTAL				29,935.67		63,847.00		63,847.00

BILL 17.8
BUILDINGS AND STRUCTURES
DERRYVILLE ISLAND (VR9) VENT SHAFT DECOMMISSIONING

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.8.1.1	Filling Fill with hardcore or equivalent (mine Zone average 240m deep). It is assumed that fill will be obtained from site.	m3	2702	3.56	9,619.12	5.50	14,861.00	-	-
	Spread Peat over area	m3	302	3.56	1,075.12	0	0	0	-
	Concrete Cap 600mm deep (Assumed)	m3	8	79.00	632.00	0	0	0	-
	Concrete Cap 2m deep	m3	25	79.00	1,975.00	222.50	5,562.50	-	-
	Top soil reinstated area	m2	100	3.56	356.00	3.56	356.00	3.56	356.00
	Large clean rock fill	m3	914.43					25.00	22,860.80
	Large clean rock fill to collar	m3	62.83					25.00	1,570.80
	Concrete Plug	m3	50.27					160.00	8,042.47
	Clean rock fill	m3	2,734.44					21.00	57,423.24
	Concrete Plug	m3	50.27					160.00	8,042.47
	Overburden	m3	32.67					3.50	114.35
17.8.1.2	Landscaping Landscaping	m2	100	6.38	638.00	6.38	638.00	6.38	638.00
17.8.1.3	Vent Raise and Allimak Facility Equipment								
	Decommissioning of lift equipment	Item	1	500.00	500.00	500.00	500.00	500.00	500.00
	Decommissioning of Allimak housing and generator	Item	1	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
17.8.1.4	Ventilation Raise (VR9) and Allimak Facility Approx. 6.70m wide x 10.31m long by 6.41 Allimak facility with sides and roofs on structure frame	Item	1	12,500.00	12,500.00	12,500.00	12,500.00	12,500.00	12,500.00
17.8.1.5	Break-Up Concrete In-situ ground floor slab and thickening	m3	125	44.50	5,562.50	44.50	5,562.50	44.50	5,562.50
17.8.1.6	Fence Remove 2.5 m high fencing	m	100	13.35	1,335.00	13.35	1,335.00	13.35	1,335.00
17.8.1.7	Reinstatement of Ventilation Raise (VR1)								
	Composite Sum; Make allowance for potential decommissioning costs associated with the reinstatement of vent raise (VR1)	Item	1	1,000.00	1,000.00	Elsewhere Measured	Elsewhere Measured	Elsewhere Measured	Elsewhere Measured
	Composite Sum; Make allowances for decommissioning of new ventilation fan installed within reinstated vent raise (VR1) (elsewhere measured).	Item	1	350.00	350.00	Elsewhere Measured	Elsewhere Measured	Elsewhere Measured	Elsewhere Measured
	Sub-Total			36,792.74			42,565.00		120,195.63
	Contingency			2%	735.85				120,195.63
	TOTAL			37,528.59			42,565.00		120,195.63

**BILL 17.9 BUILDINGS AND STRUCTURES
CHAMBER SUMP DECOMMISSIONING - ROSSESTOWN**

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.9.1	Hack/cruch concrete Concrete slab approx 350mm deep	m3	50	26.50	1,325.00	26.50	1,325.00	26.50	1,325.00
17.9.2	Filling Fill with hardcore or equivalent Spread Top soil (Peat/Till) over area	m3 m2	25 50	26.50 3.56	662.50 178.00	26.50 3.56	662.50 178.00	26.50 3.56	662.50 178.00
	Sub-Total				2,165.50		2,165.50		2,165.50
	Contingency			5%	108.28				
	TOTAL				2,273.78		2,165.50		2,165.50

BILL 17.10
BUILDINGS AND STRUCTURES
UNDERGROUND STRUCTURES

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.10.1	Underground Structures								
	Decommissioning, demolition and rehabilitation of underground workshop (complete)	Item	1	35,000.00	35,000.00	35,000.00	35,000.00	25,172.65	25,172.65
	Sub-Total				35,000.00		35,000.00		25,172.65
	Contingency			5%	1,750.00				
	TOTAL				36,750.00		35,000.00		25,172.65

**BILL 17.11 BUILDINGS AND STRUCTURES
DECOMMISSIONING AND REHABILITATION OF IMPROVEMENTS TO DISCHARGE (Drish)**

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.11.1.1.1	Rip out and remove off site, backfill, make good etc; Connection to existing 750mm pipework	Item	1	-	0.00	1,250.00	1,250.00	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
17.11.1.1.2	Rip out and remove off site; backfill, make good, etc; Concrete pipe; 1000mm dia	m	1100	-	0.00	21.36	23,496.00	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
17.11.1.1.3	Wetland Inlet Works & Pond	Item	1	-	0.00	24.03	24.03	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
17.11.1.1.4	Wetland Channel size 4000mm wide; Include for filling up and re-grading of existing channel as required	m	1100	-	0.00	32.50	35,750.00	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
17.11.1.1.5	Wetland Outlet Works & Pond	Item	1	-	0.00	1,500.00	1,500.00	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
17.11.1.1.6	Rip out and remove off site; backfill, make good, etc.; Concrete pipe 1000mm dia	m	1850	-	0.00	24.03	44,455.50	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
17.11.1.1.7	Composite Item; include supply and fit of Lanscaping as required to above works	Item	1	-	0.00	30,000.00	30,000.00	Elsewhere measured	Elsewhere measured	Elsewhere measured	Elsewhere measured
	Sub-Total				0.00		136,475.53		0.00		0.00
	Contingency			3%	0.00	3%	4,094.27				
	TOTAL				0.00		140,569.80		0.00		0.00

BILL 17.12
BUILDINGS AND STRUCTURES
DEMOLITION OF ADMINISTRATION BUILDING

Item	Description	Unit	QTY	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
17.10.1	Demolition of Administration Building	Item	1			30,000.00	30,000.00	-	-
	Sub-Total				-		-		
	Contingency			5%	-				
	TOTAL				0.00		30,000.00		0.00

**BILL 18
LAND HOLDINGS**

REF	DESCRIPTION	AMOUNT (12)	AMOUNT (Mar15)	Amount (Mar 16)
18	Demolition/remedial work to existing structures on Lisheen Land Holdings	250,000.00		
18.1	S. Fogarty's Property - Remedial		25,000.00	14,662.13
18.2	K. Moore's Property - remedial		20,000.00	15,450.00
18.3	M. Esmonde's Property - Remedial		10,000.00	12,750.00
18.4	Killoran House - remedial		220,000.00	220,000.00
18.5	P. Moore's Property - Demolition		15,000.00	15,000.00
18.6	D. Moore's Property - Demolition		20,000.00	20,000.00
18.7	Environmental House - Remedial		15,000.00	11,550.00
18.8	Healy's Property - Demolition		25,000.00	25,000.00
18.9	Planning fees for demolition of 3 dwellings (complete)			15,587.87
	TOTAL ESTIMATE FOR LAND HOLDINGS	250,000.00	350,000.00	350,000.00

**BILL 19
DREDGING OF RIVER - CORK HARBOUR**

REF	DESCRIPTION	AMOUNT (12)	AMOUNT (Mar15)	Amount (Mar 16)
19.1	Allowance for dredging of the river for a period of two months at €50,000 per month	100,000.00	100,000.00	100,000.00
	TOTAL ESTIMATE FOR DREDGING OF RIVER	100,000.00	100,000.00	100,000.00

BILL 20

Port of Cork - Cleaning of all Facilities

REF	DESCRIPTION	AMOUNT (12)	AMOUNT (Mar15)	UNIT	QTY	RATE	Amount (Mar 16)
19.1	Cleaning of Port of Cork warehouse facilities	448,000.00	-				
19.1.1	Cleaning						
	Dry Clean (stage 1)		148,750.00				-
	Wet Clean (stage 2)		119,250.00				-
19.1.2	Painting						
	All external steel work		118,750.00				-
19.1.3	Electrical						
	Misc. repairs/maint.		21,500.00				-
19.1.4	Roofing/Cladding						
	Misc. repairs/maint.		23,250.00				-
19.1.5	General Labour		16,500.00				-
19.1.6	Warehouse rental for the duration of the cleaning		233,956.00	SUM	1.00	1,000.00	1,000.00
19.1.7	Enviroglan report		233,956.00	SUM	1.00	1,000.00	3,250.00
19.2	Demolition Work						
	Site Services						
19.2.1	Car Park - Repairs			Lot	1.00	5,000.00	5,000.00
19.2.2	Access roads - Repairs			Lot	1.00	8,000.00	8,000.00
19.2.3	Electrical connection -			Lot	1.00	3,000.00	3,000.00
19.2.4	Gas connection			Lot	1.00	3,000.00	3,000.00
19.2.5	Water connection			Lot	1.00	2,500.00	2,500.00
19.2.6	Washdown of steelwork			Lot	15.00	1,500.00	22,500.00
19.3	Warehouse building						
19.3.1	Cladding						
	Roof			M2	4,312.00	10.00	43,120.00
	Side			M2	3,570.00	10.00	35,700.00
19.3.2	Steelwork			Tons	107.80	150.00	16,170.00
19.3.3	Concrete structure						
	Walls			M3	571.20	50.00	28,560.00
	Int walls			M3	80.00	50.00	4,000.00
	Allowance for backfilling of sumps and pits			SUM	1.00	10,000.00	10,000.00
19.3.4	Concrete slab						
	Slab			M3	1,724.80	-	-
	Pile Caps - type 1 (26No)			M3	48.75	-	-
	Pile Caps - type 2(27 No)			M3	20.25	-	-
	Trim Piles to slab				330.00	-	-
19.3.5	Building work						
	General demolition to admin section			Item	1.00	41,750.00	41,750.00
19.3.6	Rehabilitation work						
	Transport of recovered zinc material to Lisheen						-
	Transport of demolished/contaminated concrete to Lisheen TMF			M3	951.20	35.00	33,292.00
	Wash down to all conveyor units			Item	1.00	60,000.00	60,000.00
19.3.7	Rehabilitation work						
	Backfill of the excavations with hardcore material and compact. Grade 804			M3	2,156.00	-	-
19.3.8	Shotblasting/planing of concrete			m2	4,312.00	15.00	64,680.00
TOTAL ESTIMATE FOR CLEANING OF FACILITIES		448,000.00	915,912.00				385,522.00

BILL 21
LANDSCAPING

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (Mar 16)	Amount (Mar 16)
21.1	Topsoil over entire plant site	m3	54000	4.00	216,000.00	3.56	192,240.00				
	Topsoil and seeding over entire plant site	m2	171945					2.16	371,401.20	2.16	-
	Topsoil and seeding over entire plant site	m2	0								
	Profiling of site to brown field conditions	m2	171945							1.00	171,945.00
21.2	Seeding of topsoil	m2	180000	0.30	54,000.00	0.28	50,400.00				
21.3	Composite Item; Allowance for trees, shrubs and the like. Scope and extent to be confirmed	Item	1	-	-	15,000.00	15,000.00	15,000.00	15,000.00		
	Composite Item; Allowance for trees, shrubs and the like. Scope and extent to be confirmed	Item	1	-	-					25000	25,000.00
	TOTAL				270,000.00		257,640.00		386,401.20		196,945.00

BILL 22
Water discharge & power requirements

Item	Description	Unit	Qty	Rate (09)	Amount (09)	Rate (12)	Amount (12)	Rate (Mar15)	Amount (Mar15)	Rate (March 16)	Amount (March 16)
22.1	CONTINUED WATER DISCHARGE TO ROSSESTOWN AND DRISH RIVERS	Item	1	-	-	1,430,896.55	1,430,896.55	-	-	-	-
22.1.1	Pumping costs Drish (1 Year)	Item	1					306,528.00	306,528.00	-	-
	Drish (0.5 Year)	Item	0.5								
	Rossestown (5 Years)	Item	1					879,746.88	879,746.88	-	-
	Rossestown (4 Years)	Item	1								
22.1.2	Power Requirements (all site power incl. pumping costs to Drish and Rossestown)	Item	1								1,376,885.00
22.2	Installation and maintenance costs										
	Piping installation cost	Item	1					150,000.00	150,000.00	47,000.00	47,000.00
	Installation pumping costs	Item	1					239,837.00	239,837.00	199,837.00	199,837.00
	Maintenance	Item	1					82,790.72	82,790.72	51,379.00	51,379.00
	Civils - incl. electrical ducting supply	Item	1							15,000.00	15,000.00
22.2.1	Removal of TMF water inventory F2F3 Pumping incl. labour Water Treatment Plant	Item	1							-	-
		Item	1							44,080.00	44,080.00
22.3	Continued Water Discharge to Rossestown River; Years 1 - 8	Item	1	2,425,000.00	2,425,000.00	-	-	-	-	-	-
22.4	Dredging of Drish and Rossestown Rivers	Item	1					160,000.00	160,000.00	110,000.00	110,000.00
23.4.1	Dredging of Clogheen Stream	Item	1							55,000.00	55,000.00
	TOTAL				2,425,000.00		1,430,896.55		1,818,902.60		1,899,181.00

**BILL 23
SITE SECURITY**

REF	DESCRIPTION	Unit	AMOUNT (12)	AMOUNT (Mar15)	Amount (Mar 16)
23.1	Site security for the duration of the Mine Closure Project (2016/2017 and 2017/2018)	Sum	250,000.00	-	
23.1.1	Onsite security			400,000.00	400,000.00
23.1.2	Site monitoring and detection			117,892.00	117,892.00
	TOTAL ESTIMATE FOR SECURITY		250,000.00	517,892.00	517,892.00

BILL 24
TMF WATER TREATMENT & POST CLOSURE WETLAND TREATMENT

REF	DESCRIPTION	UNIT	QTY	RATE	TOTAL (12)	TOTAL AMOUNT(Mar15)	UNIT	QTY	Rate (Mar 16)	Amount (Mar 16)
24.1	Allow the provisional sum for the development of the pilot cell and main cell.				1,000,000.00					
24.1.1.1	Development of post closure wetland <i>Main 1 - TMF to Wetland Cell</i> Gabion baskets or similar at mouth of spillway Spillway	No. m m	1 30	Lot 165		54,480.00 4,950.00	m3 m3	50.00 25.81	105.00 215.00	5,250.00 5,549.37
	Open channel drain Concrete channel - 284 m long Build up of ground at spillway for ramps Overflow swale to wetland	m m					No m	284.00 1.00 50.00	215.00 Sum 115.00	61,060.00 10,000.00 5,750.00
24.1.1.2	<i>Main 2 - TMF to Wetland Cell</i> Gabion baskets or similar at mouth of spillway Spillway	No. m	1 25	Lot 165		25,000.00 4,125.00	m3 m3	150.00 104.48	105.00 215.00	15,750.00 22,463.47
	Open channel drain Concrete channel - 48 m long	m					m3	115.00	215.00	24,725.00
24.1.1.3	<i>New - TMF to Wetland Cell</i> Gabion baskets or similar at mouth of spillway Spillway	No. m	1 260	Lot 165		25,000.00 42,900.00	m3 m3	60.00 14.70	105.00 215.00	6,300.00 3,160.50
	Open channel drain Concrete channel - 128 m long Build up of ground at spillway	m					m3 No	110.00 1.00	215.00 Sum	23,650.00 16,000.00
24.1.3.1	Transfer Box Transfer Box Structure Gabion baskets at junction to wetland						m3 m3	42.90 35.00	215.00 105.00	9,224.04 3,675.00
24.1.4	<i>Wetland</i> Civil Works Landscaping Fencing Pond works	m3 m2 m Item	24000 20000 800 1	2 10 30		48,000.00 200,000.00 24,000.00 541,045.00	m3 m2 m Item	32,000.00 20,000.00 1,000.00 1.00	2.00 6.50 30.00 397,500.00	64,000.00 130,000.00 30,000.00 397,500.00
24.1.4.1	Wetland outfall Wetland outfall concrete structure Gabion baskets						m3 m3	10.79 25.00	215.00 105.00	2,319.85 2,625.00
24.1.5	<i>Wetland to Clogheen Pond</i> Discharge pipe Break into existing line and make good Remove existing pipe Open channel drain to Clogheen Pond Gabion baskets		1	Existing Lot		0.00 6,500.00	Sum m m3	1.00 255.00 256.00	6,750.00 165.00 105.00	6,750.00 42,075.00 26,880.00
24.1.6	Pipe culverts	m					m	120.00	300.00	36,000.00
	Sub-Total - Post Closure Wetland					976,000.00				950,707.22
24.1.7	Pilot Wetland cell (complete)					24,000.00				24,000.00
	TOTAL ESTIMATE FOR TMF WATER TREATMENT				1,000,000.00	1,000,000.00				974,707.22

**BILL 25
ENGINEERING FEES**

REF	DESCRIPTION	RATE	AMOUNT(Jan 14)	AMOUNT(Mar15)	Costs to 29/02/16 (start date 01/04/2014)	Costs to completion	Amount (March 16)
	Engineering and Consultants Fees						
25.1	Annual TMF Audit and CQA Inspection Costs		350,000.00	355,000.00	108,411.00	230,718.00	339,129.00
25.2	Annual Water Review		100,000.00	100,000.00	58,066.00	160,000.00	218,066.00
25.3	Annual Independent Financial Review		100,000.00	114,253.00	57,645.00	81,600.00	139,245.00
25.4	Annual Legal		100,000.00	100,000.00	10,299.00	75,000.00	85,299.00
25.5	Annual Environmental Review		100,000.00	100,000.00	32,064.00	54,974.00	87,038.00
25.5.1	Subsidence monitoring					61,500.00	61,500.00
	TOTAL ESTIMATE FOR CONSULTANTS		750,000.00	769,253.00			930,277.00

**BILL 26
SAMPLE AND MONITORING**

REF	DESCRIPTION	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Costs to 29/02/16 (start date 01/04/2014)	Costs to completion	Amount (March 16)
26.1	Sampling and monitoring activities associated with the mine closure project	Item	200,000.00	-	-	-	-
26.1.1	Livestock			32,500.00	4,570.00	1,400.00	5,970.00
26.1.2	Plant and Soil Analysis			27,500.00	5,263.00	9,257.00	14,520.00
26.1.3	Type B Rock Fill PSD analysis			5,250.00	1,278.00	775.00	2,053.00
26.1.4	Geotextile conformance sampling			6,750.00	3,701.00	5,755.00	9,456.00
26.1.5	Growth Medium sampling and analysis			12,250.00	6,125.00	22,513.00	28,638.00
26.1.6	Water sampling and analysis			15,750.00	-	-	-
26.1.7	Additional Sampling and Monitoring			100,000.00	-	105,750.00	105,750.00
26.1.8	Grass management on the TMF			-	-	21,000.00	21,000.00
TOTAL ESTIMATE FOR SAMPLING AND MONITORING			200,000.00	200,000.00			187,387.00

**BILL 27
MINE CLOSURE PROJECT TEAM**

REF	DESCRIPTION	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Amount (March 16)
27.1	Lisheen Mine Project Team Costs	Item	3,894,000.00	3,286,117.00	€3,023,374.00
27.2	Labour costs associated with barricades, decline plugging and portal works	Item	-	-	€269,364.00
TOTAL ESTIMATE FOR PROJECT TEAM			3,894,000.00	3,286,117.00	3,292,738.00

**BILL 28
INSURANCES**

REF	DESCRIPTION	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Amount (Mar 16)
28.1	Insurances for closure		800,000.00		
28.1.1	Property Damage & Business Interruption (PD/BI)			262,373.74	262,373.81
28.1.1.1	Employers Liability			80,000.00	80,000.00
28.1.1.2	Public Liability			200,000.00	200,000.00
28.1.1.3	Environmental Liability Policy			239,250.00	239,250.00
28.1.1.4	Motor Fleet Policy			16,800.00	16,800.00
28.1.1.5	Pension Trustees Policy			2,798.00	2,798.00
28.1.1.6	Group Travel Policy			300.00	300.00
28.1.1.7	Mine policy			-	-
28.1.1.8					
	TOTAL ESTIMATE FOR INSURANCES (Excluding VAT)		800,000.00	801,521.74	801,521.81

**BILL 29
IPC LICENCE**

REF	DESCRIPTION	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Rate (Mar 16)	Amount (Mar 16)
29.1	Provisional sum for IPC Licence - Licence for from 2016 to 2020		270,000.00	270,000.00	27,000.00	135,000.00
	TOTAL ESTIMATE FOR IPC LICENCE		270,000.00	270,000.00		135,000.00

**BILL 30
COMMERCIAL RATES**

REF	DESCRIPTION	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Amount (Mar 16)
30.1	Provisional sum for commercial rates		250,000.00	-	-
	TOTAL ESTIMATE FOR COMMERCIAL RATES		250,000.00	-	-

BILL 31

Escalation

REF	DESCRIPTION	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Amount (March 16)
31.1	Pre-contract escalation on all construction related activities		374,817.00	-	-
	TOTAL ESTIMATE FOR ESCALATION		374,817.00	-	-

**BILL 32
PASSIVE VALIDATION**

REF	DESCRIPTION	QTY	UNIT	RATE	ALLOWANCE (Jan 14)	ALLOWANCE (Mar15)	Rate (Mar 16)	Amount (Mar 16)
32	Passive Validation Period							
32.1	External Water Sampling & Monitoring	1	Item	7,500	7,500.00	7,500.00	7,500	7,500.00
32.2	Emissions Limit Verification (IPCL Tech Amendments, Etc)	1	Item	7,500	7,500.00	7,500.00	17,529.94	17,529.94
32.3	Verification of CRAMP objectives	1	Item	25,000	25,000.00	25,000.00	25,000	25,000.00
32.4	Mine Closure Completion Certificate	1	Item	20,000	20,000.00	20,000.00	20,000	20,000.00
32.5	Administration of Mine Closure Provision	1	Item	25,000	25,000.00	25,000.00	25,000	25,000.00
	Decommissioning, Demolition and Rehabilitation (To be carried at end of Passive Validation Period)							
32.6	Laboratories	1	Item	10,030	10,029.94	10,029.94	0.00	-
32.7	Administration Building Run-On Costs	1	Item	47,778	47,778.05	-	0	-
32.8	Allowance for running costs Laboratory Building running costs etc	1	Item	70,000	250,000.00	252,490.00	252,490.00	252,490.00
	TOTAL ESTIMATE FOR PASSIVE VALIDATION COSTS				392,807.99	347,519.94		347,519.94

**BILL 33
CONTINGENCY**

REF	DESCRIPTION	QTY	RATE	AMOUNT (Jan 14)	AMOUNT (Mar15)	Amount (Mar 16)
33.1	Contingency allowance from Risk Assessment	1	ITEM	1,564,650.00	1,234,007.00	1,002,407.00
	TOTAL ESTIMATE FOR CONTINGENCY			1,564,650.00	1,234,007.00	1,002,407.00

Appendix 5.2

Mine Closure Risk Management Report

**Risk Management Report
for Mine Closure Estimate**

Prepared for
Vedanta Lisheen Holdings Ltd
22nd March 2016

Prepared By
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Project Name:	Lisheen Mine Closure Project	Client Name:	Vedanta Lisheen Holdings Ltd
Document Name:	Risk Management Report	Revision Number:	R0
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Checked by:	Paraic Maher	Date:	25/03/2106
Authorised by:	Stephen Smith	Date:	25/03/2016
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1. Introduction

In accordance with the Mine Closure and Rehabilitation Project Continuous Risk Management Process (refer Appendix E), a Risk Focus Group workshop was held on 03/02/2016 at Lisheen Mine.

The aim of the workshop was to review the January 2015 Risk Report and identify the current risks associated with the Mine Closure Estimate, then to rank and quantify these risks, develop a risk based contingency and to put in place a mitigation plan for the monitoring and control of the identified risks.

2. The Executive Summary

2.1 The Aims and Objectives

The aims and objectives of the Risk Management workshop were to identify assess and plan the management of the risks inherent in the project by:

- Agreeing the aims and objectives of the project;
- Identifying the potential risks that may impact upon the project;
- Prioritisation by qualitative analysis of the high level risks;
- Identifying major risks with cost implications;
- Quantitative analysis of cost plan and major risks;
- Developing risk management gap template action plans to mitigate the major risks including the allocation of risk champions

The AIMS and OBJECTIVES of the project have been defined as follows:

“The primary aim of the Lisheen Mine Closure Project is to facilitate the orderly closure and of the Lisheen Mine, whilst ensuring a sustainable long-term stewardship of the mined land is implemented and maintained and the socio-economic impacts of the mine closure are minimised.

The secondary aim is to minimise the cost of closure and maximise the return on the sale of the existing assets.”

In order to achieve these aims, a set of objectives were defined and ranked in order of importance. The objectives and their ranked scores are:

<u>Objectives</u>	<u>Score</u>
Environment	23
Health & Safety	20
Quality	18
Communications/Stakeholders	18
Budget	13
Time	8

2.2 Risk Identification

There were a total of 34 risks identified, of which 21 were classified as cost related risks to be quantified to develop a risk based contingency.

Risk Champions have been assigned to these high-level risks and the Impact and Mitigation practices are documented in the Gap Templates.

The risks and the Gap Templates are shown in sections 3.6 and 4.3 of the Report.

2.3 Cost Results

Based on the C3 Risk Manager cost-modelling programme, the percentage inclusion for risk currently works out at 3.9 % of the Realistic Outturn Cost, while the percentage inclusion for contingency stands at 0.42 % of the Realistic Outturn Cost.

Thus the cumulative risk contingency figure is € 1,002,407.00.

Section 4 of the Report contains the assessment made and the breakdown of the costs.

3. The Workshop

3.1. Introductions

3.1.1. The Workshop

Mr Stephen Smith of C3 Projects, in his role of independent facilitator, gave an introduction to the risk management process. He discussed the agenda with the workshop and then gave a brief introduction to the deliverables of the exercise and the process to be followed. The deliverables of the exercise were:

- Agreeing the aims and objectives of the project;
- Identify all the potential risks that may impact upon the project;
- Prioritise by qualitative analysis of the high level risks;
- Identify major risks with cost implications;
- Quantitative Analysis of the cost estimate and major risks;
- Develop risk management gap template action plans to mitigate the major risks including the allocation of risk champions.

3.2. Project Manager's Update

The Mine Closure Engineer provided a status on the updating of the Mine Closure Estimate and presented the summary of the Mine Closure Estimate.

3.3. The Aims and Objectives of the Project

The first activity undertaken by the workshop was to discuss and agree the aims and objectives of the project. The aims provide the structure in which to expand, develop and focus the workshop, whilst the objectives are the measurable goals that, if met, achieve the aims. The objectives therefore provide the framework within which the risks to the project are judged. If a risk does not impact on the objectives then it is not a risk to the project. It is vital that the objectives are measurable, clear and meaningful and understood by the whole of the workshop. This can be summarised by the acronym SMART:

- Simple
- Measurable
- Achievable
- Reliable
- Time Bound

The workshop agreed the following aims and objectives of the project.

The **AIM** of the project is as follows:

The primary aim of the Lisheen Mine Closure Project is to facilitate the orderly closure of the Lisheen Mine, whilst ensuring a sustainable long-term stewardship of the mined land is implemented and maintained and the socio-economic impacts of the mine closure are minimised.

The secondary aim is to minimise the cost of closure and maximise the return on the sale of the existing assets.

The **OBJECTIVES** for the project had already been established in the initial workshop and were defined and confirmed. A scoring exercise was now carried out by the workshop members on the agreed objectives, to identify the major project drivers and to create a hierarchy and weighting for the objectives, which may be needed at some future stage in the workshop process.

Following a discussion, the objectives of the project were discussed and scored to reflect their level of priority as follows:

<u>Objectives</u>	<u>Score</u>
Environment	23
Health & Safety	20
Quality	18
Communications/Stakeholders	18
Budget	13
Time	8

3.4. Risk Identification

Having set up a structure of identifying risks by setting measurable objectives, the workshop was able to commence the identification of the potential risks to the project that could jeopardise the achievement of these objectives.

A review of typical “standard” project risks was undertaken to establish their validity as a risk for the project. Following this review additional project specific risks were identified and included on the risk register.

3.5. Identifying the Major Risks to the Project

The result at this stage of the workshop was a long list of risks, covering all aspects of the project. The following process was followed in the workshop to reduce the long list of risks identified to a short list of major risks:

3.5.1. Prioritisation of Risks

The workshop members on the agreed risks carried out a scoring exercise in order to create a hierarchy from which to select the major project risks. The risks were scored on a consensus basis following debate on the scores of each individual items scoring, using the SWIFT analysis, on the probability of occurrence (on a scale of 1-6) and its impact upon cost should it occur (on a scale 1-4). (See Appendix B SWIFT Analysis)

3.6. The Cost Risks

The risks in the following schedule were identified by the ranking exercise as the cost related risks. This ranking was done by taking the assigned Impact and assigned Probability for each risk, and multiplying the respective scores giving a total Risk Score, as noted below.

The workshop again reviewed the list of risks and agreed the selected major risks should be taken to the next stage and 3 point estimates developed and gap template action plans prepared to mitigate each of these individual risks.

2	Increase in Mine facilities costs	1	Mr. Paraic Maher
3	TMF overall increase in quantities of rock fill	1	Mr. Paraic Maher
4	TMF increase in quantities due to settlement	9	Mr. Paraic Maher
5	TMF Increase in the cost of imported material	1	Mr. Paraic Maher
6	TMF Increase in contractor costs	18	Mr. Paraic Maher
7	TMF Claims from contractors due to inclement weather	15	Mr. Paraic Maher
8	Cork Harbour sediment deposits alongside jetty	9	Mr. Paraic Maher
9	Cork Harbour Dredging of river beyond jetty limits	4	Mr. Paraic Maher
10	Cork Harbour Cleaning of facilities	9	Mr. Stephen Smith
13	Cleaning and disposal of contaminated material	9	Mr. Paraic Maher
21	TMF water treatment and disposal	6	Mr. Paraic Maher
22	Consultants Fees	12	Mr. Paraic Maher
23	Sampling and monitoring of the facilities	9	Mr. Paraic Maher
24	Passive validation costs	15	Mr. Paraic Maher
27	Pre closure inflation - Fuel	2	Mr Paraic Maher
Mr	Pre closure inflation - Labour	6	Mr Paraic Maher
30	ESB Sub-station	18	Mr. Paraic Maher
31	Decommissioning of Overhead Power Lines	18	Mr. Paraic Maher
33	TMF Rock Capping	1	Mr. Paraic Maher
34	TMF - Additional fertiliser to fields due to lack of nutrients	15	Mr. Paraic Maher
35	Settlement of topsoil on TMF	15	Mr. Paraic Maher

3.7. Dart Board

The Dart Board is a visual representation of the current state of the risks as ranked.

RED – High level risk scoring over 12 on SWIFT Analysis and potential ‘show stopper’

AMBER – Medium level risk scoring 5-10 on SWIFT Analysis and at higher scores potential serious risk

GREEN – Low level risk scoring 0-4 on SWIFT Analysis and must be closely monitored on a continuous basis

Impact Probability	4 - Catastrophic	3 - Critical	2 - Marginal	1 - Minor
6 - Frequent		006 030 031		
5 - Probable		001 007 024 034 035		
4 - Occasional		022		
3 - Remote		004 008 010 013 023	028	
2 - Improbable		017 021 025	009 014 015 019 020 026 029	016 018 027
1 - Incredible				002 003 005 011 012 033

The Cost Implications

3.8. The Cost Assessments

3.8.1. Cost Modelling Process

- The base cost and risk assessments are modelled by using a quantitative risk tool, which is built into the C3 Risk Manager software.
- C3 Risk Manager utilises the Monte Carlo sampling method.
- The process combines multiple seed values with one simulation running at a specified number of iterations. For example, the 50% percentile project cost (usually taken as most likely cost) is the cost which 2500 of the project samples exceeded and 2500 did not exceed.
- In order that a contingency can be developed for a project most clients take the difference between the 50% and 90% percentiles. The resultant figure is normally the realistic outturn cost for the project including risk and contingency.
- **NOTE: All currency figures noted in this document, unless otherwise specified, are to be taken in Euros.**

3.8.2. The Results

The results of the cost modelling are included in the following cost assessments.

The sampling attempts to simulate probable outcomes. As a large number of scenarios were sampled it can be concluded that the sampling results are an adequate reflection of the probable outcomes, based on the original information being reasonable.

The three point estimates brainstormed by the workshop for the base costs and major risks were fed into the software with the results as follows:

Base Costs	€22,231,260.15
Risk Inclusion	<u>€ 904,904.00</u>
Most Likely Cost 50% Percentile	€23,136,164.15
Modelled Contingency 90-50% Percentiles	<u>€ 97,503.00</u>
Realistic Outturn Cost 90% Percentile	<u>€23,233,667.15</u>

The percentage for risk inclusion currently stands at 3.9 % of the Realistic Outturn Cost.

The percentage inclusion for contingency currently stands at 0.42% of the Realistic Outturn Cost.

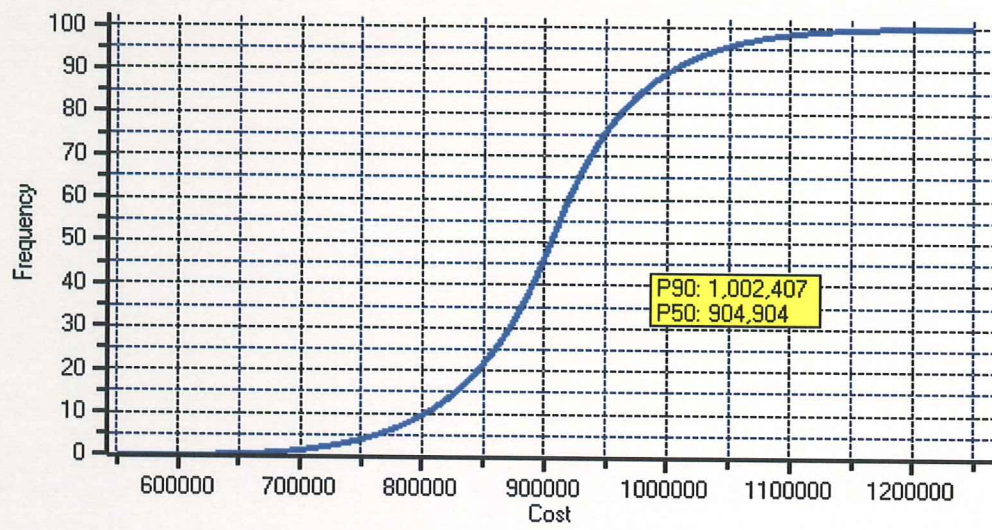
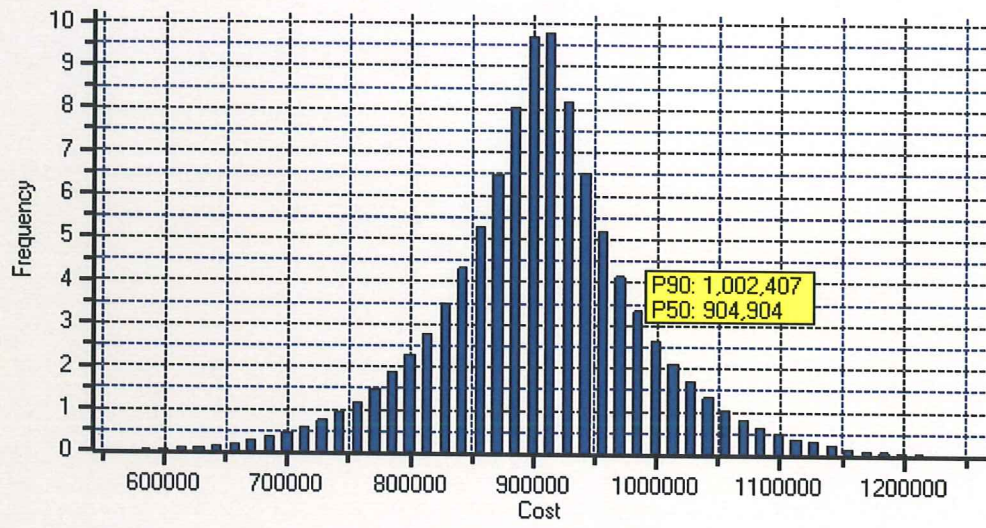
Normally we would recommend the 90% percentile as being the realistic outturn cost on the project.

The cumulative risk/contingency amount stands at € 1,002,407.00.

The modelled Contingency figure on this basis is € 97,503.00.

The cumulative risk contingency is therefore as follows:

•	Modelled risk	€ 904,904.00
•	Modelled contingency	<u>€ 97,503.00</u>
	Total risk/contingency	<u>€ 1,002,407.00</u>



3.9. Gap Templates for the Major Risks

RISK NO.	RISK NAME		RISK GROUP	
002	Increase in Mine facilities costs		Cost	
RISK DESCRIPTION				
Increase in the cost associated with the Mine Facilities costs - Cleaning of fixed plant				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	1/4 - Minor	Minimum:	€ 0.00	Mr. Paraic Maher
<i>Probability:</i>	1/6 - Incredible	Most Likely:	€ 0.00	
<i>Risk Score:</i>	1/24 (4%)	Maximum:	€ 0.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 0.00	
RISK IMPACT				
Costs considered to be suitable for the works to be carried out.				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Updating of the asset registers for the underground works.				
Step	Date Due	Done	Status	
Develop Plan for decommissioning the underground works	30/11/2014	False		
2 - Compare updated asset registers with Estimate allowances				
Step	Date Due	Done	Status	
Get copy of asset registers	14/11/2014	False		

RISK NO.	RISK NAME	RISK GROUP	
003	TMF overall increase in quantities of rock fill	Cost	
RISK DESCRIPTION			
Increase in quantities between 'as- measured versus as-placed'			
RISK SCORE	COST OF RISK		RISK CHAMPION
<i>Impact:</i> 1/4 - Minor	Minimum:	€ 0.00	Mr. Paraic Maher
<i>Probability:</i> 1/6 - Incredible	Most Likely:	€ 0.00	
<i>Risk Score:</i> 1/24 (4%)	Maximum:	€ 0.00	
<i>(Impact x Probability = Risk Score)</i>	50th Percentile:	€ 0.00	
RISK IMPACT			
Increase in overall rock fill quantities placed leading to cost increase.			
RISK MITIGATION PLANS			
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))			
LEADING PRACTICES			
1 - Checking measured for accuracy.			
Step	Date Due	Done	Status
Rock quantities checked	11/11/2014	True	
2 - Establish a realistic factor for bulking based on previous records			
Step	Date Due	Done	Status
Validate the factor of 2 for tonne to m3	10/11/2014	True	
3 - Procedure for Control of the measurement of rock placement.			
Step	Date Due	Done	Status
Procedure maintained for rock quantity measurement and validation.	10/11/2014	True	

RISK NO.	RISK NAME		RISK GROUP	
004	TMF increase in quantities due to settlement		Cost	
RISK DESCRIPTION				
Settlement of tailings increasing rock fill requirements				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 103,455.00	Mr. Paraic Maher
<i>Probability:</i>	3/6 - Remote	Most Likely:	€ 206,910.00	
<i>Risk Score:</i>	9/24 (38%)	Maximum:	€ 413,820.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 95,756.00	
RISK IMPACT				
Requirement for placing of rock fill with an average depth greater than 850mm, resulting in additional fill and associated costs.				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 – Monitoring of settlement on an ongoing basis				
Step	Date Due	Done	Status	
(none)				
2 - Utilising demolition material for void fill				
Step	Date Due	Done	Status	
(none)				

RISK NO.	RISK NAME	RISK GROUP
005	TMF Increase in the cost of imported material	Cost
RISK DESCRIPTION		
Rock fill procured at higher than estimated rate/m3		
RISK SCORE	COST OF RISK	RISK CHAMPION
Impact: 1/4 - Minor	Minimum: € 0.00	Mr. Paraic Maher
Probability: 1/6 - Incredible	Most Likely: € 0.00	
Risk Score: 1/24 (4%)	Maximum: € 0.00	
(Impact x Probability = Risk Score)	50 th Percentile: € 0.00	
RISK IMPACT		
RISK MITIGATION PLANS		
Mitigate by (none) (Hold, Evade, Lower, Pass, Share (HELPS))		
LEADING PRACTICES		
(none)		

RISK NO.	RISK NAME	RISK GROUP		
006	TMF Increase in contractor costs	Cost		
RISK DESCRIPTION				
Civil Contractors procured at costs higher than estimated				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	<i>3/4 - Critical</i>	Minimum:	€ 77,000.00	Mr. Paraic Maher
<i>Probability:</i>	<i>6/6 - Frequent</i>	Most Likely:	€ 115,000.00	
<i>Risk Score:</i>	<i>18/24 (75%)</i>	Maximum:	€ 154,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 86,566.00	
RISK IMPACT				
Increase in cost over the estimated allowances				
RISK MITIGATION PLANS				
Mitigate by Lower (<i>Hold, Evade, Lower, Pass, Share (HELPS)</i>)				
LEADING PRACTICES				
1 - Comparative tendering for the works.				
	Step	Date Due	Done	Status
	(none)			

RISK NO.	RISK NAME	RISK GROUP		
007	TMF Claims from contractors due to inclement weather	Cost		
RISK DESCRIPTION				
Force Majeure events impacting civil works contract				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 100,000.00	Mr. Paraic Maher
<i>Probability:</i>	5/6 - Probable	Most Likely:	€ 150,000.00	
<i>Risk Score:</i>	15/24 (62%)	Maximum:	€ 200,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 92,998.00	
RISK IMPACT				
Increase in the contract values due to claims from contractors.				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Construction of the works in the low rainfall periods.				
	Step	Date Due	Done	Status
	(none)			

RISK NO.	RISK NAME	RISK GROUP		
008	Cork Harbour sediment deposits alongside jetty	Cost		
RISK DESCRIPTION				
Sediment deposits along side jetty requiring dredging works				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 100,000.00	Mr. Paraic Maher
<i>Probability:</i>	3/6 - Remote	Most Likely:	€ 240,000.00	
<i>Risk Score:</i>	9/24 (38%)	Maximum:	€ 350,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 86,204.00	
RISK IMPACT				
Increase in costs over the estimated allowances				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Establish stakeholder communication strategy with Cork Harbour				
Step	Date Due	Done	Status	
(none)				
2 - Preliminary investigation to determine the extent of the contamination.				
Step	Date Due	Done	Status	
(none)				

RISK NO.	RISK NAME	RISK GROUP		
009	Cork Harbour Dredging of river beyond jetty limits	Cost		
RISK DESCRIPTION				
Dredging required beyond the location of jetty.				
RISK SCORE		COST OF RISK		RISK CHAMPION
Impact:	2/4 - Marginal	Minimum:	€ 80,000.00	Mr. Paraic Maher
Probability:	2/6 - Improbable	Most Likely:	€ 100,000.00	
Risk Score:	4/24 (17%)	Maximum:	€ 150,000.00	
(Impact x Probability = Risk Score)		50 th Percentile:	€ 19,201.00	
RISK IMPACT				
Increase in costs over the estimated allowances				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Preliminary site investigation to determine the extent of the contamination.				
Step	Date Due	Done	Status	
(none)				
2 - Develop Stakeholder Management Plan to manage interface with Cork Harbour				
Step	Date Due	Done	Status	
(none)				

RISK NO.	RISK NAME	RISK GROUP		
010	Cork Harbour Cleaning of facilities	Cost		
RISK DESCRIPTION				
Increase in level of cleaning required at the harbour				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 250,000.00	Mr. Stephen Smith
<i>Probability:</i>	3/6 - Remote	Most Likely:	€ 450,000.00	
<i>Risk Score:</i>	9/24 (38%)	Maximum:	€ 725,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 183,591.00	
RISK IMPACT				
Increase in costs over the estimate allowances				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Stakeholder Management Plan to manage communications with Cork Harbour				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				
2 - Define scope of the work.				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				
3 - Comparative tendering of the works				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				

RISK NO.	RISK NAME	RISK GROUP	
013	Cleaning and disposal of contaminated material	Cost	
RISK DESCRIPTION			
Cleaning of the existing plant and infrastructure to remove mineral residue and disposal of residue in the TMF.			
RISK SCORE		COST OF RISK	
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 22,400.00
<i>Probability:</i>	3/6 - Remote	Most Likely:	€ 44,800.00
<i>Risk Score:</i>	9/24 (38%)	Maximum:	€ 67,200.00
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 17,028.00
RISK CHAMPION			
Mr. Paraic Maher			
RISK IMPACT			
Increase in the costs over the estimated allowances			
RISK MITIGATION PLANS			
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))			
LEADING PRACTICES			
1 - Development of the scope of work.			
Step	Date Due	Done	Status
(none)			
2 - Comparative tendering			
Step	Date Due	Done	Status
(none)			

RISK NO.	RISK NAME	RISK GROUP	
021	TMF water treatment and disposal	Cost	
RISK DESCRIPTION			
Scope of works for TMF water treatment and disposal to be finalised.			
RISK SCORE		COST OF RISK	
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 150,000.00
<i>Probability:</i>	2/6 - Improbable	Most Likely:	€ 250,000.00
<i>Risk Score:</i>	6/24 (25%)	Maximum:	€ 300,000.00
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 57,022.00
RISK CHAMPION			
Mr. Paraic Maher			
RISK IMPACT			
Increase in costs over the estimate allowances.			
RISK MITIGATION PLANS			
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))			
LEADING PRACTICES			
1 - Finalise the scope of the work.			
Step	Date Due	Done	Status
(none)			
2 - Comparative tendering.			
Step	Date Due	Done	Status
(none)			

RISK NO.	RISK NAME	RISK GROUP		
022	Consultants Fees	Cost		
RISK DESCRIPTION				
Consultant's fees increase.				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	<i>3/4 - Critical</i>	Minimum:	€ 100,000.00	Mr. Paraic Maher
<i>Probability:</i>	<i>4/6 - Occasional</i>	Most Likely:	€ 150,000.00	
<i>Risk Score:</i>	<i>12/24 (50%)</i>	Maximum:	€ 200,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 75,004.00	
RISK IMPACT				
Increase in costs over the estimate allowances.				
RISK MITIGATION PLANS				
Mitigate by Lower (<i>Hold, Evade, Lower, Pass, Share (HELPS)</i>)				
LEADING PRACTICES				
1 - Scope of services to be defined.				
Step	Date Due	Done	Status	
(none)				
2 - Contract negotiation.				
Step	Date Due	Done	Status	
(none)				

RISK NO.	RISK NAME	RISK GROUP		
023	Sampling and monitoring of the facilities	Cost		
RISK DESCRIPTION				
Sampling and monitoring of the TMF.				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 50,000.00	Mr. Paraic Maher
<i>Probability:</i>	3/6 - Remote	Most Likely:	€ 75,000.00	
<i>Risk Score:</i>	9/24 (38%)	Maximum:	€ 100,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 28,496.00	
RISK IMPACT				
Increase in the costs over the estimate allowances.				
RISK MITIGATION PLANS				
Mitigate by Lower (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Scope definition of the overall requirements.				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				
2 - Contract negotiation with service providers.				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				

RISK NO.	RISK NAME	RISK GROUP		
024	Passive validation costs	Cost		
RISK DESCRIPTION				
Passive validation cost increases.				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 40,000.00	Mr. Paraic Maher
<i>Probability:</i>	5/6 - Probable	Most Likely:	€ 65,000.00	
<i>Risk Score:</i>	15/24 (62%)	Maximum:	€ 80,000.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 37,591.00	
RISK IMPACT				
Increase in costs over the estimate allowances.				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Scope definition for the service requirements.				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				
2 - Contract negotiation with the service providers.				
<u>Step</u>	<u>Date Due</u>	<u>Done</u>	<u>Status</u>	
(none)				

RISK NO.	RISK NAME	RISK GROUP
027	Pre closure inflation - Fuel	Cost
RISK DESCRIPTION		
High consumer price index - Fuel		
RISK SCORE	COST OF RISK	RISK CHAMPION
Impact: 1/4 - Minor	Minimum: € 0.00	
Probability: 2/6 - Improbable	Most Likely: € 0.00	
Risk Score: 2/24 (8%)	Maximum: € 0.00	
(Impact x Probability = Risk Score)	50 th Percentile: € 0.00	
RISK IMPACT		
RISK MITIGATION PLANS		
Mitigate by (none) (Hold, Evade, Lower, Pass, Share (HELPS))		
LEADING PRACTICES		
(none)		

RISK NO.	RISK NAME	RISK GROUP
028	Pre closure inflation - Labour	Cost
RISK DESCRIPTION		
High consumer price index - labour		
RISK SCORE	COST OF RISK	RISK CHAMPION
Impact: 2/4 - Marginal	Minimum: € 0.00	
Probability: 3/6 - Remote	Most Likely: € 0.00	
Risk Score: 6/24 (25%)	Maximum: € 0.00	
(Impact x Probability = Risk Score)	50 th Percentile: € 0.00	
RISK IMPACT		
RISK MITIGATION PLANS		
Mitigate by (none) (Hold, Evade, Lower, Pass, Share (HELPS))		
LEADING PRACTICES		
(none)		

RISK NO.	RISK NAME	RISK GROUP	
030	ESB Sub-station		
RISK DESCRIPTION			
Cost associated with the ramp down and grid termination costs.			
RISK SCORE	COST OF RISK		RISK CHAMPION
Impact: 3/4 - Critical	Minimum:	€ 15,000.00	Mr. Paraic Maher
Probability: 6/6 - Frequent	Most Likely:	€ 20,000.00	
Risk Score: 18/24 (75%)	Maximum:	€ 25,000.00	
(Impact x Probability = Risk Score)	50 th Percentile:	€ 14,999.00	
RISK IMPACT			
Increase in costs over the estimate allowances.			
RISK MITIGATION PLANS			
Mitigate by Lower (Hold, Evade, Lower, Pass, Share (HELPS))			
LEADING PRACTICES			
1 - Scope definition of the required works.			
Step	Date Due	Done	Status
(none)			
2 - Contract negotiation with ESB.			
Step	Date Due	Done	Status
(none)			

RISK NO.	RISK NAME	RISK GROUP	
031	Decommissioning of Overhead Power Lines.		
RISK DESCRIPTION			
Decommissioning of redundant overhead powerlines			
RISK SCORE		COST OF RISK	
<i>Impact:</i>	3/4 - Critical	Minimum:	€ 20,000.00
<i>Probability:</i>	6/6 - Frequent	Most Likely:	€ 40,000.00
<i>Risk Score:</i>	18/24 (75%)	Maximum:	€ 50,000.00
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 26,744.00
RISK CHAMPION			
Mr. Paraic Maher			
RISK IMPACT			
Costs associated with the decommissioning works.			
RISK MITIGATION PLANS			
Mitigate by Lower (Hold, Evade, Lower, Pass, Share (HELPS))			
LEADING PRACTICES			
1 - Determine the scope of the works.			
Step	Date Due	Done	Status
(none)			
2 - Sale of cables to offset cost of decommissioning.			
Step	Date Due	Done	Status
(none)			

RISK NO.	RISK NAME	RISK GROUP		
033	TMF Rock Capping	Cost		
RISK DESCRIPTION				
TMF Capping - Increase in cost of imported rock.				
RISK SCORE		COST OF RISK		RISK CHAMPION
<i>Impact:</i>	1/4 - Minor	Minimum:	€ 0.00	Mr. Paraic Maher
<i>Probability:</i>	1/6 - Incredible	Most Likely:	€ 0.00	
<i>Risk Score:</i>	1/24 (4%)	Maximum:	€ 0.00	
<i>(Impact x Probability = Risk Score)</i>		50th Percentile:	€ 0.00	
RISK IMPACT				
Increase in overall capping cost				
RISK MITIGATION PLANS				
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))				
LEADING PRACTICES				
1 - Robust procurement of rock fill material				
Step	Date Due	Done	Status	
(none)				

RISK NO.	RISK NAME	RISK GROUP
034	TMF- Additional fertiliser to fields due to lack of nutrients	
RISK DESCRIPTION		
Requirement to provide fertiliser to fields		
RISK SCORE	COST OF RISK	RISK CHAMPION
<i>Impact:</i> 3/4 - Critical	Minimum: € 17,500.00	Mr. Paraic Maher
<i>Probability:</i> 5/6 - Probable	Most Likely: € 35,000.00	
<i>Risk Score:</i> 15/24 (62%)	Maximum: € 52,500.00	
<i>(Impact x Probability = Risk Score)</i>	50th Percentile: € 21,704.00	
RISK IMPACT		
Additional cost for fertiliser		
RISK MITIGATION PLANS		
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))		
LEADING PRACTICES		
(none)		

RISK NO.	RISK NAME	RISK GROUP
035	Settlement of topsoil on TMF	Cost
RISK DESCRIPTION		
Topsoil settlement requiring additional fill		
RISK SCORE	COST OF RISK	RISK CHAMPION
<i>Impact:</i> 3/4 - Critical	Minimum: € 80,000.00	Mr. Paraic Maher
<i>Probability:</i> 5/6 - Probable	Most Likely: € 100,000.00	
<i>Risk Score:</i> 15/24 (62%)	Maximum: € 120,000.00	
<i>(Impact x Probability = Risk Score)</i>	50th Percentile: € 61,999.00	
RISK IMPACT		
RISK MITIGATION PLANS		
Mitigate by Hold (Hold, Evade, Lower, Pass, Share (HELPS))		
LEADING PRACTICES		
(none)		

APPENDIX A. List of Workshop Attendees

The workshop attendees were:

Mr. Stephen Wheston	Vedanta	SHE Manager
Mr. Paraic Maher	Vedanta	Mine Closure Engineer
Mr. Stephen Smith	Cost & Contract Consultants Limited	Managing Director
Mr. Liam Nolan	Vedanta	Financial Manager
Ms. Louise Cleere	Vedanta	Purchasing and Procurement Manager
Mr. Simon Mills	Vedanta	Supply Chain Manager
Ms. Elaine McSweeney	Vedanta	Environmental Co-ordinator

APPENDIX B. Risk Register

2	Increase in Mine facilities costs	1	Mr. Paraic Maher
3	TMF overall increase in quantities of rock fill	1	Mr. Paraic Maher
4	TMF increase in quantities due to settlement	9	Mr. Paraic Maher
5	TMF Increase in the cost of imported material	1	Mr. Paraic Maher
6	TMF Increase in contractor costs	18	Mr. Paraic Maher
7	TMF Claims from contractors due to inclement weather	15	Mr. Paraic Maher
8	Cork Harbour sediment deposits alongside jetty	9	Mr. Paraic Maher
9	Cork Harbour Dredging of river beyond jetty limits	4	Mr. Paraic Maher
10	Cork Harbour Cleaning of facilities	9	Mr. Stephen Smith
13	Cleaning and disposal of contaminated material	9	Mr. Paraic Maher
21	TMF water treatment and disposal	6	Mr. Paraic Maher
22	Consultants Fees	12	Mr. Paraic Maher
23	Sampling and monitoring of the facilities	9	Mr. Paraic Maher
24	Passive validation costs	15	Mr. Paraic Maher
27	Pre closure inflation - Fuel	2	
28	Pre closure inflation - Labour	6	
30	ESB Sub-station	18	Mr. Paraic Maher
31	Decommissioning of Overhead Power Lines	18	Mr. Paraic Maher
33	TMF Rock Capping	1	Mr. Paraic Maher
34	TMF- Additional fertiliser to fields due to lack of nutrients	15	Mr. Paraic Maher
35	Settlement of topsoil on TMF	15	Mr. Paraic Maher

APPENDIX C. SWIFT Analysis

C.1. Likelihood/Probability

Level	Description	Safety Definition	Commercial Probability		
			0% to 5%	Nil Chance	Cost/time impact is not possible. Nuisance, current expense impact only. Financial/time impact not to be considered.
1	Incredible	The event is unlikely to occur, but may be theoretically possible. It can be assumed that it will occur very exceptionally, but not less than once every 100 years.	0% to 5%	Nil Chance	Cost/time impact is not possible. Nuisance, current expense impact only. Financial/time impact not to be considered.
2	Improbable	So unlikely that it can be assumed that it will not occur or it cannot occur.	5% to 45%	Unlikely	Cost/time impact is remotely possible. Medium losses within the margin of insurance deductible (or excess). Risk may be transferred to contractor.
3	Remote	Unlikely but possible in the period of concern (e.g. once in ten times in the life of the project).	45% to 55%	As Likely as Not	Cost/time has little less than an equal chance of occurring. Manageable losses. Risk may be shared.
4	Occasional	Some time in the period of the project.	55% to 95%	Likely	Cost/time impact is fairly possible. Range of largest previous losses. On priority one review list.
5	Probable	Several times in the period of the project.	95% to 99%	Almost Certain	Cost/time impact is certain. Serious losses. On priority one review list.
6	Frequent	Likely to occur frequently, many times during the period of the project.	100%	Certain	Cost/time impact is certain. Most serious – total lost type. On priority one review list.

C.2. Consequence

Level	Description	Severity	Equivalent Fatalities	Severity on System	Commercial Impact	
					NIL	So minor as to be regarded as without consequence.
1	Minor	So minor as to be regarded as without consequence.	0.001	Superficial Damage	NIL	So minor as to be regarded as without consequence.
2	Marginal	Serious minor injury (requiring more than 3 days off work) or several minor injuries resulting in up to 3 days off work.	0.01	Minor Damage/ Repair to Structure/ System	LOW	Can be accommodated as part of contingency, may require an insurance claim.
3	Critical	Occupational threatening injury or illness, substantial damages.	1	Major Damage/ Repair to Structure/ System	MEDIUM	Possibility of exceeding contingency.
4	Catastrophic	Multi Fatality and/or major injuries.	>1	Total Collapse of Structure/ System	HIGH	Sever financial implications/ major system loss/ loss of major possession.

C.3. Risk Ranking

Consequence	4 Catastrophic	3 Critical	2 Marginal	1 Minor
Probability				
6 Frequent	24: Intolerable	Intolerable	Intolerable	Tolerable
5 Probable	Intolerable	Intolerable	Tolerable	Tolerable
4 Occasional	Intolerable	Intolerable	Tolerable	Negligible
3 Remote	Intolerable	Tolerable	Tolerable	Negligible
2 Improbable	Tolerable	Tolerable	Negligible	Negligible
1 Incredible	Negligible	Negligible	Negligible	1: Negligible

The aim is to ideally reduce the RISK to as low a level (number) as possible. The Control measure may affect both the Consequence and Probability.

The risk ranking number obtained represents the following:

24 to 12 HIGH	Events with risks that would have an intolerable effect on the ability to achieve the project objectives. It is certain that risk mitigation measures will be required.
12 to 6 MEDIUM	Events with a level of risk that are considered to be of a tolerable nature and can be managed by introducing risk mitigation measures.
4 and below LOW	Events with risks that are considered as negligible in nature. Whilst these risks may be considered as "low", they should be continuously monitored and re-evaluated.

If risks are at intolerable levels, then action has to be taken to reduce them to tolerable levels.

APPENDIX D. Gap Template Action Plan Definition

During the workshop, great emphasis, especially by the client, had been placed on the development of an action plan for each high level risk including the nomination of risk champions against each high level risk.

The Gap Template action plan is designed to be a tool for the Project Manager to control and manage out the risks throughout the duration of the project. It contains for each major risk the following:

D.1. Description

- A detailed description of the risk as discussed at the Workshop

D.2. Risk Champion

- The risk owner or risk champion responsible for management of mitigation measures

D.3. Risk Impact

- The impact of the risk on other elements of the project

D.4. Score

- The risk score as scored by the Workshop attendees

D.5. Leading Practices

- What leading practices are available to mitigate the risk or TO-BE environment

D.6. Gaps

- Any identified Gaps between the AS-IS situation and the TO-BE scenario

D.7. HELPS and Steps To Be Taken

- Detailed action plans to complete the above Gaps with the timelines
- Mitigation measures on each risk to Hold, Evade, Lower, Pass, Share (HELPS)

The Gap Template action plans are included in Section 4 for the major risks including the risk champions nominated by the Workshop to manage out each major risk.

The nominated risk champions have assisted in preparation of this action plan for their respective risks and their comments have been incorporated in the Gap Templates.

APPENDIX E. Continuous Risk Management Definition

Risk Focus Groups should be held with the Project Manager and the Risk Champions to review the risks on a regular basis and respond on the latest risk status.

The main functions of the risk focus group would be to:

- Review the Risk Register
- Review the major risks
- Review the Gap Templates and report on any major changes in the status of the risks
- Re-score the risks and track the movement of the high and medium level risks.
- At key stages of the project, reconvene the workshop (e.g. end of detailed design)

The traffic light procedure would generally proceed as follows:

- **RED** – These are high-level risks and would score 12 or higher on the SWIFT Analysis and are potential 'show-stopper' risks and should be closely monitored.
- **AMBER** – These are medium-level risks and would score between 5 and 10 on the SWIFT Analysis and are, at the higher scoring level, potential serious risks to cost and time.
- **GREEN** – These are lower-level risks and would score 4 and below on the SWIFT Analysis and whilst they are low or minor risks, some have the potential to increase to medium or even high-level risks and must therefore be regularly identified and monitored.

Lisheen Mine Closure & Rehabilitation
Summary

Item	Description	Unescalated	Escalated	Unescalated
		Act/Forecast	Act/Forecast	Act/Forecast
		Amount March '15	Total	Amount March '16
I	Plant Site			
1	Tepee (Course Ore Storage)	€78,627.40	€79,570.52	€22,040.00
2	Workshop and Surface Storage	€37,144.59	€36,812.82	€0.00
3	Mine Water Treatment Plant	€16,583.72	€16,915.68	€144,794.00
4	Mill Building	€237,166.80	€241,910.34	€82,986.80
5	Backfill Plant	€58,551.96	€59,723.04	€10,470.20
6	ESB Sub-Station	€0.00	€0.00	€0.00
7	Conditioning Ponds	€115,022.00	€117,322.44	€176,233.50
8	Other Infrastructure	€346,771.72	€351,900.16	€372,689.82
9	Roads and Fencing	€91,558.16	€93,389.32	€109,585.54
10	Buried Services	€370,925.48	€377,284.20	€370,925.48
II	Mine Facilities			
11	Fixed Plant	€85,750.00	€85,750.00	€0.00
12	Mobile Plant	€0.00	€0.00	€0.00
13	Mine Portal	€54,747.13	€55,477.60	€201,289.62
14	Cleaning & Disposal of Contaminated Material	€1,217,326.50	€1,103,864.36	€531,206.50
III	TMF			
15	Demolition of Structures & Equipment in TMF	€12,100.00	€12,342.00	€12,100.00
16	Dry Closure of TMF	€8,079,713.07	€8,169,477.93	€8,999,402.63
IV	Other Surface Facilities			
17	Buildings & Structures	€560,780.22	€574,135.66	€1,078,845.09
18	Land Holdings	€350,000.00	€356,700.00	€350,000.00
V	Shipping Yard Cork			
19	Dredging of River	€100,000.00	€102,000.00	€100,000.00
20	Cleaning of all Facilities	€915,912.00	€686,436.00	€385,522.00
VI	Miscellaneous			
21	Landscaping	€386,401.20	€394,129.02	€196,945.00
22	Water discharge & power requirements	€1,818,902.60	€1,912,063.16	€1,899,181.00
23	Site Security	€517,892.00	€528,249.84	€517,892.00
24	TMF Water Treatment & Disposal	€1,000,000.00	€1,046,690.34	€974,707.22
25	Engineering Fees	€769,253.00	€789,141.54	€930,277.00
26	Allow for Sampling and Monitoring of Project	€200,000.00	€205,375.27	€187,387.00
27	Project Management Team	€3,286,117.00	€3,488,525.59	€3,292,738.00
28	Insurances	€801,521.74	€867,747.30	€801,521.81
29	IPC Licence	€270,000.00	€289,542.75	€135,000.00
30	Commercial rates	€0.00	€0.00	€0.00
31	Escalation	€374,817.00	€0.00	€0.00
VII	Passive Validation Period			
32	Passive Validation Costs	€347,519.94	€373,634.97	€347,519.94
Estimated Mine Closure Total		€22,501,105.22	€22,416,111.86	€22,231,260.15
Modelled Risk and Contingency		€1,234,007.00	€1,262,797.37	€1,002,407.00
Mine Closure Grand Total		€23,735,112.22	€23,678,909.23	€23,233,667.15