Deccan Exploration Services Private Limited

Ganajur Gold Project - Feasibility Study

Project Number AU9734

May 2017

Chapter 1 – Executive Summary

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Reviewed by:	John Fodor Deccan Exploration Services Private Limited
Issued by:	Perth Office
Document ref:	170526 FINAL AU9734 Ganajur Gold Project FS - 1 Exec Summary
Last edited:	25/05/2017 2:53 PM
Number of copies:	
Snowden:	1
Deccan Exploration Services Private Limited:	1

Table of Contents

Figures

Tables

1 EXECUTIVE SUMMARY

1.1 Introduction

Deccan Exploration Services Private Limited (DESPL) is a wholly-owned subsidiary of Deccan Gold Mines Limited (DGML). DGML is a public limited company listed on the Bombay Stock Exchange (BSE Scrip Code: 512068). DESPL is involved in gold exploration activities in the state of Karnataka since 2003 and is working towards its long-standing vision of developing a producing gold mine in India.

DESPL proposes to establish 0.30 million tonne (Mt) gold project near Ganajur Village, Haveri Taluk and District in the state of Karnataka. The proposed gold project comprises of gold ore production from the mine and processing of gold ore in the processing plant to produce the gold. The gold processing plant will be located at a distance of 1.5 km south of the Ganajur Gold Ore Mine. The Ganajur Main Gold deposit was a discovery of DESPL as a result of strategic exploration carried out under reconnaissance permit and prospecting licence stages. DESPL's mining lease application over an area of 0.29 km^2 covering the Ganajur Main Gold Deposit. The Ganajur mining lease application in Ganajur village, Haveri Taluk and District in Karnataka has been approved by the Ministry of Mines, Government of India vide letter no. 4/113/2010-MIV dated 24 July 2015. The approval is per Section 10(A)(2)(B) of the New MMDR Act 2015. Prior to this, the mining lease application for the Ganajur Main Project was recommended by the Government of Karnataka. DESPL is awaiting the final grant order/Letter of Intent from the State Government of Karnataka.

1.1.1 Location

The Ganajur Gold Mining Project area is situated near the Ganajur village, 14°49'54.08" – 14°50'16.84" N latitude; 75°24'16.57" – 75°24'48.39" E longitude, forms a part of Survey of India topographic sheet no. 48 N/5 and falls in the jurisdiction of the Haveri Taluk and District in the State of Karnataka. The corner points of Ganajur mining lease area with UTM coordinates shown in Table 1.1.

Table 1.1 Coordinates of Ganajur mining lease block

Corner	UTM zone	Easting (M)	Northing (M)
A	43	543676.6	1640318.2
B	43	544476.4	1639908.1
C	43	544310.3	1639619.9
D	43	543525.4	1640027.6

**UTM Projection Everest Datum, Zone 43N*

Figure 1.1 and Figure 1.2 show the location map. Haveri Town, located on National Highway No. 4, is 335 km by road north of Bengaluru and 100 km south of Dharwar. The centre of the Ganajur mining lease block is located 4.53 km northeast of Haveri Town, and 0.76 km southeast of Ganajur Village. The Ganajur Project is well connected by an all-weather metalled road from Haveri and Ganajur.

Figure 1.1 Location map of the Ganajur Gold Project

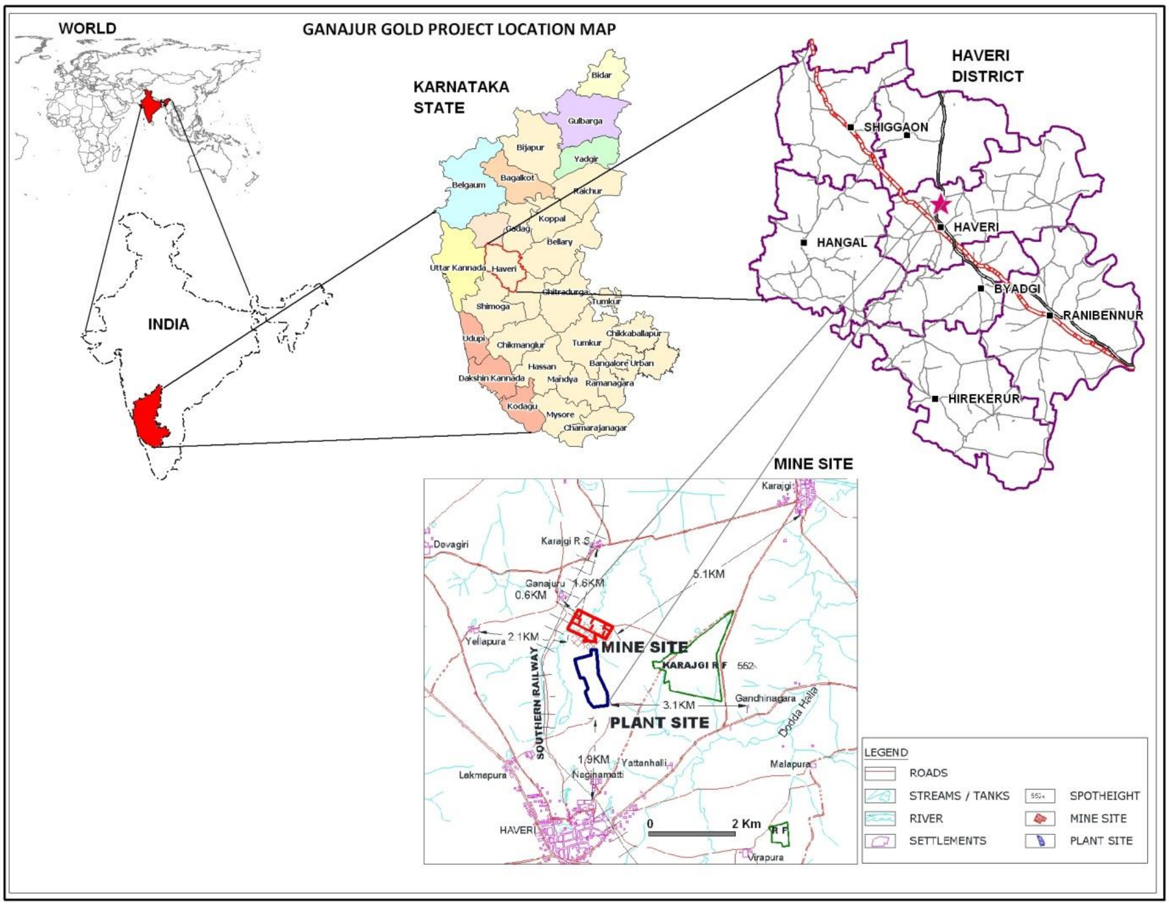
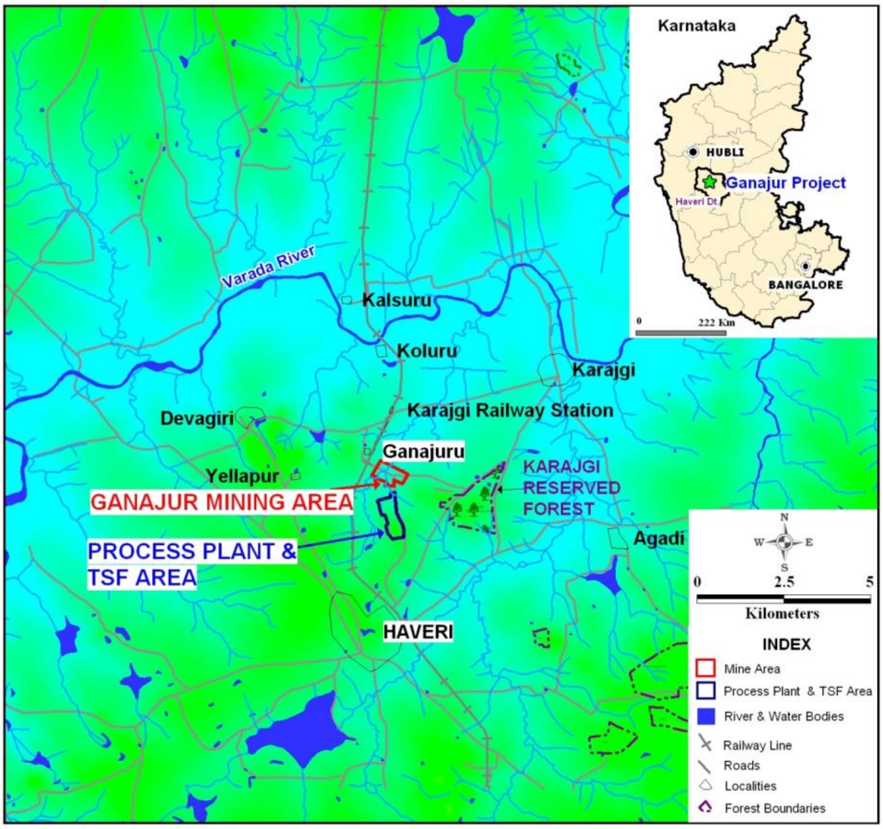


Figure 1.2 Location map of the Ganajur Gold Project



1.1.2 Climate

The Project area falls within a semi-arid sub-tropical region with moderate temperatures and rainfall. The normal annual rainfall for the Haveri District is recorded as 792 mm.

1.1.3 Physiography and infrastructure

The Project area and its surrounding area are generally flat to gently undulating terrain and a few northwest-southeast trending small ridges. The elevation of the ground surface varies from 525 metres above mean sea level (mamsl) to about 610 mamsl. Most of the Ganajur Main Gold Deposit is flat except for Ganajur Hill which is 551 mamsl (Figure 1.3).

Figure 1.3 Ganajur Main Gold Deposit

1.1.4 Drainage

The Ganajur Project and its surrounding area is drained by the Varada River. The Varada River rises in the Varada Moola in Sagara Taluk, in the hill ranges of the Western Ghats in Shimoga district of Karnataka.

The main crops grown in the district are jowar, maize, cotton, chilly, paddy, ragi, pulses, groundnut, horse gram, sugarcane and sunflower.

1.1.5 Transportation

The Project is well connected by road and rail and has well-established infrastructure in place. Ganajur Gold Project is located 6.0 km north of Haveri Town (Figure 1.1 and Figure 1.2) in Haveri District of Karnataka state on National Highway No. 4, connecting Bengaluru and Pune and 1.5 km southeast of Ganajur Village. Haveri is around 335 km from Bengaluru and 100 km south of Dharwar city. The Ganajur Gold Project is connected to Haveri and nearby villages by an all-weather metalled road.

1.1.6 Power

The HT 110 KVA powerline is located just 300 m south of the proposed processing plant (Figure 1.2). The nearest power substations are located at Haveri (3.37 km), Agadi (6.42 km), Gandhipura (3.6 km) and Basavanakatti (7.0 km). DESPL's application for obtaining 5 MW power from the 110 KV line has been sanctioned by Karnataka Power Transmission Corporation Limited (KPTCL), Bengaluru. KPTCL has approved for tapping the required power from Basavanakatti substation at a distance of around 7.0 km.

1.1.7 Water

The Varada River flows at a distance of 6.5 km north of the gold ore process plant area. It is proposed to pump water from the Varada River for the water requirement of the Project. Karnataka State High Level Clearance Committee (KSHLCC) has approved for drawing 3,000 kilolitres per day (kl/d) of water from Varada River for the project from the Kolur-Kalasur barrage.

1.1.8 Land

There are various facilities required for the project a total of 255 acres of land will be acquired. The State Government, through a Government Order (GO) has also approved acquisition of 200 acres of land from farm-holders for the mines and processing plant. The GO has also facilitated land acquisition process through Karnataka Industrial Areas Development Board (KIADB), for which DESPL has submitted application to the KIADB in March 2013. DESPL will also be submitting application for an additional 55 acres of land after obtaining approval from Karnataka Udyog Mitra and KSHLCC. Most of the land is private agricultural land, with the remainder being government land. DESPL has obtained consent of more than 85% of the landowners, which complies with the land acquisition procedure. DESPL's long term lease agreement with landowners of the proposed gold mine will be an added advantage in the land acquisition process. Recently, KIADB processed the application for 200 acres of land and then issued a demand letter asking DESPL to remit 40% of the land cost. After payment of this deposit, KIADB will issue primary notification under Sections 3(1), 1(3) and 28(1) of the KIADB Act.

1.1.9 History

The area around the Ganajur Gold Mining Project is known for ancient artisanal gold mining activity. Chinmulgund, located southeast of Haveri, shows evidence ancient mining activities (i.e. old workings, ancient shafts, adits, waste dumps and pounding marks). However, Ganajur Main Deposit is a discovery of DESPL.

1.1.10 Tenement details

DESPL, under the Hanagal reconnaissance permit approved by the Ministry of Mines, Government of India in 2002, and granted by the State Government of Karnataka for 1,542 km^2 covering the Ganajur Main prospect, carried out initial exploration. This reconnaissance campaign included surface geological mapping, regional geochemical study of stream sediments and rock chips, channel sampling, limited reverse circulation (RC) and down-the-hole hammer (DTH) drilling. This exploration effort helped to identify and discover several gold-bearing prospects designated as Ganajur Main, South, South East, Central, Karajgi Main, Karajgi East and Hut.

DESPL recognised the mining potential of the Ganajur Main Gold Deposit and submitted a mining lease application over an area of 29.14 hectares (ha) covering the Ganajur Main Gold Deposit. The Ganajur mining lease application in Ganajur Village, Haveri Taluk and District in Karnataka was approved by the Ministry of Mines, Government of India vide letter no. 4/113/2010-MIV dated 24 July 2015.The approval is per Section 10(A)(2)(B) of the New MMDR Act 2015 and Section 5(1). Prior to this, the mining lease application for the Ganajur Main Gold Deposit was recommended by the Government of Karnataka.

DESPL signed a memorandum of understanding with the Government of Karnataka during the Global Investors Meet at Bengaluru on 4 June 2010 for commencement of a 2,000 tonnes per day (t/d) gold mine and setting up of a 2,000 t/d processing plant at Ganajur village. Prior to this, the KSHLCC approved the project on 24 May 2011.

1.1.11 Legal aspects

The Ganajur Gold Project is subject to the regulations of the Mines and Minerals (Regulation and Development) Act 1957 as amended in March 2015, the Mineral Concession Rules 1960, and the Mineral Conservation and Development Rules 1988 of India (as amended in March 2017).

1.2 Geology and Mineral Resource estimate

Snowden Mining Industry Consultants (Snowden) carried out the Mineral Resource estimate for the Ganajur Main Gold Deposit project during August 2016 on behalf of DESPL.

The August 2016 Ganajur Main Gold Deposit Mineral Resource estimate was classified and reported in accordance with the 2012 JORC Code.

The Mineral Resource has been classified as a combination of Measured, Indicated and Inferred Resources using the following criteria:

1) Measured Resources – Restricted to within the mineralised wireframe where drilling is approximately 20 mN x 20 mE or better, geological and grade continuity is confirmed and the mineralised body is at its thickest, typically 20 m to 50 m thick.
2) Indicated Resource – Restricted to within the mineralised wireframe where drilling is approximately 20 mN x 20 mE or better, geological and grade continuity is assumed. This has been restricted to areas where the mineralised body is typically less than 20 m thick.
3) Inferred Resource – Mineralisation with poor geological and grade continuity or which is defined by drilling on a grid greater than 20 mE x 20 mN.

Reporting of the Mineral Resource has been restricted to within the lease boundary provided by Deccan. Any mineralisation that has been interpreted as being outside of the lease is “unclassified” and excluded from the Mineral Resource. The classification is based on the confidence in the gold grade estimate. Given the lesser amount of data for the other variables, particularly sulphide sulphur, these should be considered of a lower confidence. The Measured classification assumes that mining will be conducted at around a 0.8 g/t Au cut-off and hence will mine the majority of the mineralisation, non-selectively.

The total Measured and Indicated Mineral Resource for the Ganajur Main Gold Deposit, reported above a 0.8 g/t Au cut-off grade, is estimated to be 2,700 kt grading at 3.40 g/t Au as detailed below in Table 1.2. The cut-off is based on preliminary results from the Feasibility Study (FS).

Table 1.2 Ganajur Main Gold Deposit Mineral Resource as at August 2016, reported above 0.8 g/t Au cut-off

Classification	Deposit	Tonnes (kt)	Au (g/t)
Measured	Oxide	580	2.82
	Sulphide	1,690	3.96
	Total Measured	**2,300**	**3.67**
Indicated	Oxide	130	1.85
	Sulphide	330	2.13
	Total Indicated	**450**	**2.05**
Measured + Indicated	**Total Measured and Indicated**	**2,700**	**3.40**
Inferred	Oxide	110	2.30
	Sulphide	110	2.29
	Total Inferred	**210**	**2.30**

Note: Small discrepancies may occur due to rounding.

The gold mineralisation in the Ganajur Main Gold Deposit is associated with a deformed iron formation hosted in a polydeformed greywacke sequence. The gold mineralisation is characterised by strong sulphide mineralisation, silica breccia and minor quartz veining developed within a sulphidic chert unit.

The gold mineralisation is epigenetic in nature but strata-bound because it is confined to the cherty iron formation. The main gold zones form a moderately to steeply dipping tabular body trending northwest to north-northwest and dipping northeast. Deccan carried out the geological interpretation using the geological logging of the chert domain and the Au assays at a nominal 0.3 g/t cut-off to define the mineralised envelopes. The mineralised domain is typically restricted to the chert with 1 m to 2 m of halo mineralisation in places and occasional small areas of unmineralised chert.

A block model was constructed using a parent block size of 10 mE x 10 mN x 5 mRL based on half the nominal drillhole spacing along with an assessment of the grade continuity. The search ellipse orientation and radius was based on the results of the grade continuity analysis, with the same search neighbourhood parameters used for all elements to maintain the metal balance and correlations between elements.

Estimation of gold, arsenic, copper, lead, sulphide sulphur (SS) and zinc was completed using ordinary block kriging with hard domain boundaries. Top cuts were not applied to the gold grades due to the low CV of 1.05 and 1.08 for the oxide and sulphide mineralised domains respectively, and lack of outliers. Top cuts were applied to SS in the oxide mineralised domain and arsenic in the sulphide mineralised domain. Grade estimation was completed using Datamine Studio 3 (Datamine) software.

Grade estimates were validated against the input drillhole composites (globally and using grade trend plots) and show a good comparison.

Extensive bulk density measurements were taken from diamond core with 264 taken in the oxide mineralised domain and 749 taken in the sulphide mineralised domain. Measurements were taken using the water immersion method. Bulk density was estimated into the model blocks by ordinary kriging in the oxide and sulphide mineralised domains. Where estimates were not possible, a default of 2.75 t/m^3 and 3.08 t/m^3 was applied to the oxide and sulphide mineralised domains, respectively, based on the average of the density measurements.

1.3 Metallurgical testing and recovery

The FS metallurgical testwork program focused on developing a gold recovery route on the predominant sulphide resource via a process flowsheet that involved flotation followed by the ultrafine grinding (UFG) and carbon in leach (CIL) on the sulphide concentrates. This flowsheet was assessed as the most likely process route that would provide the maximum net present value (NPV) for the Ganajur Project.

The sulphide variability samples that were selected for testwork are representative of the major tonnage area (“Belly” portion) of the Ganajur Main sulphide resource. These samples contained organic carbon (0.3%) which proved to be mildly preg-robbing and this effect could be negated by CIL. The x-ray diffraction (XRD) analyses confirmed that the major sulphide present is pyrite (9% to 12%) with minor arsenopyrite (1%), with silica levels at 50% and the carbonate minerals, siderite (20% to 25%), dolomite/ankerite (7% to 12%) representing the major gangue components.

The oxide variability samples and bulk oxide composite (BOC) are similar in mineralogy to the sulphide samples except that the sulphide content has been oxidised to goethite and hematite.

The comminution characteristics for the sulphide and oxide samples are similar and are considered to have a moderate to high competency with a moderate resistance to wear (abrasion).

The flotation response on the sulphide ore samples is positive with 95% gold and 97% sulphide sulphur recovery achieved into a low weight rougher concentrate stream (10% to 20%). These recoveries were attained via the optimum liberation grind size at P_{80}75 microns and by targeting a 20% to 22% sulphide sulphur concentrate grade. The flotation tailings stream at approximately 0.27 g/t Au and 0.13% SS reports directly to the tailings storage facility (TSF).

The flotation response on the oxide resource samples and oxide blends with the sulphide ore is negative compared to the gold recoveries achieved on the sulphide resource samples. Due to this poor response, conventional CIL was selected as the optimum recovery route for the oxide resource.

The optimum UFG grind liberation size and CIL conditions to attain high gold recovery from the sulphide concentrates were identified at:

- a P_{80} of 10 microns, which requires an energy consumption of 90 kWh/t
- a leach retention time of 48 hours, 0.20% initial cyanide dosage, 1 kg/t of lead nitrate, pH at 10.5 and 50 gpl of activated carbon addition.
- The reagent consumptions are 6 kg/t of NaCN, 1 kg/t of lead nitrate and 2.5 kg/t of hydrated lime.

A comprehensive gold deportment analyses on the sulphide CIL residues confirmed that the predominant gold losses were due to:

- Sub-microscopic gold with a gold content ranging between 3 g/t and 4 g/t. This residual gold cannot be recovered by CIL and sets the minimum gold residue grades.
- The remainder of the gold losses occur as unliberated fine gold particles locked in sulphides and equates to approximately 7% to 12% or 0.3 g/t to 0.8 g/t of the gold content.
- Based on this assessment an average of 4.5 g/t gold has been selected as the average sulphide residue gold grade that can be achieved from the CIL of the sulphide concentrates recovered via flotation.

Comparing the gold recoveries achieved from direct CIL vs. the flotation/UFG/CIL route on the sulphide samples is presented in Table 1.3. As shown the flotation/UFG/CIL route provides an incremental gold recovery increase ranging from 7.4% to 22.3% compared to direct CIL on the sulphide samples. Due to this significant gold recovery differential, it is recommended that the Ganajur Main Project incorporate a flotation/UFG/CIL circuit for the processing of the sulphide resource.

A gold recovery model for the sulphide resource was developed via the combination of a multivariate regression analyses (to predict the sulphide sulphur content of the Ganajur Main resource) and the interpreted results achieved from the flotation and UFG/CIL testwork program. The predicted vs. the actual gold recoveries achieved from testwork are in close agreement. Based on the average sulphide ore reserve gold grade at 3.7 g/t, the regression model estimated the average sulphide sulphur grade at 2.8%. At this average gold grade and estimated sulphide sulphur, an average gold recovery of 79% is estimated for the sulphide ore.

A gold recovery of 90% for the oxide resource can be achieved via a P_{80} grind liberation size of 75 microns and 24-hour CIL retention. The estimated key reagent consumptions are 0.5 kg/t of cyanide and 0.80 kg/t of lime.

The WAD cyanide content after CIL on the sulphide concentrates can be successfully decreased to below 10 ppm via two stages of the SO_2/O_2method (Inco) for cyanide destruction. The SMBS consumption is moderate at 5.2 kg/t of concentrate. Due to the high iron content in solution after CIL, the copper sulphate consumption is high at 3.2 kg/t of concentrate.

Removal of soluble Arsenic prior to discharge into the TSF has been achieved via the addition of ferric sulphate which is the Best Demonstrated Available Technology (BDAT) as recommended by the US EPA. A moderate consumption of ferric sulphate at 6 kg/t is estimated for this stage of the overall Ganajur flowsheet.

The rheology and settling properties for the Ganajur sulphide concentrate and final tailings stream are benign which should result in minimal slurry pumping issues, inter-tank screen head losses in CIL or thickener area requirements in order to achieve high thickener underflow slurry densities and clear overflow streams.

Table 1.3 Direct CIL vs. flotation/UFG/CIL

Sample	Feed		UFG/CIL Tail		Direct CIL Tail		Recovery Variance %
	Au	SS	Au	% recovery	Au	% recovery	
GM2	11.0	4.6	0.73	94.6			
GM3	5.2	3.8	0.78	87.4	1.85	65.1	22.3
GM4	3.7	2.4	0.86	79.5			
GM5	7.1	5.3	1.15	87.0	1.78	75.7	11.3
GM6	3.3	2.5	0.73	80.5	0.93	70.0	10.5
BSC	6.2	3.9	1.13	84.7	1.39	77.2	7.4

1.4 Mining engineering and Ore Reserve estimates

1.4.1 Geotechnical investigations

The Ganajur Main Gold deposit geotechnical engineering report was prepared by Sarathy Geotech and Engineering Services Pvt Ltd (SGES) in India for the FS, with technical oversight and review provided by Snowden.

Based on the geotechnical studies, pit slope design recommendations were developed with an acceptable level of risk of small-scale failures developing on batter faces. The recommended slope design angles in the pit design sectors are summarised in Table 1.4

Table 1.4 Pit slope design recommendations

Sector	Wall	Batter angles (°)		Maximum inter-ramp angle (°)	
		Weathered	Fresh	0 to 50 m	50 m to 100 m
Northwest	Footwall	45	60	46	51
	Hangingwall	45	80	48	56
	End wall	45	75	46	56
Southeast	Footwall	45	55	46	51
	Hangingwall	45	80	48	56
	End wall	45	75	46	56

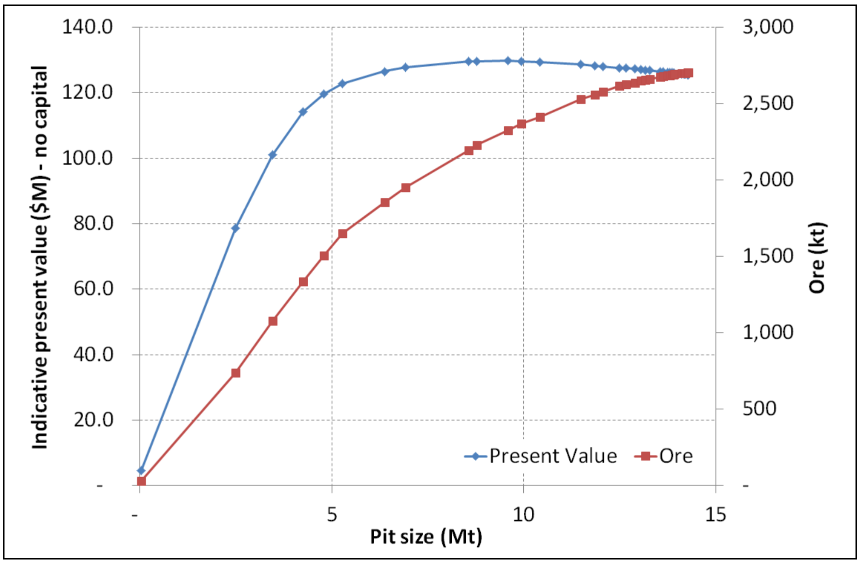
Notes to design recommendations:

- “Weathered” applies to top two 10 m benches.
- “Fresh” applies to all benches more than 20 m below surface.
- All batters to be maximum 10 m height.
- All berms to be minimum 5.0 m width.

1.4.2 Economic pit identification

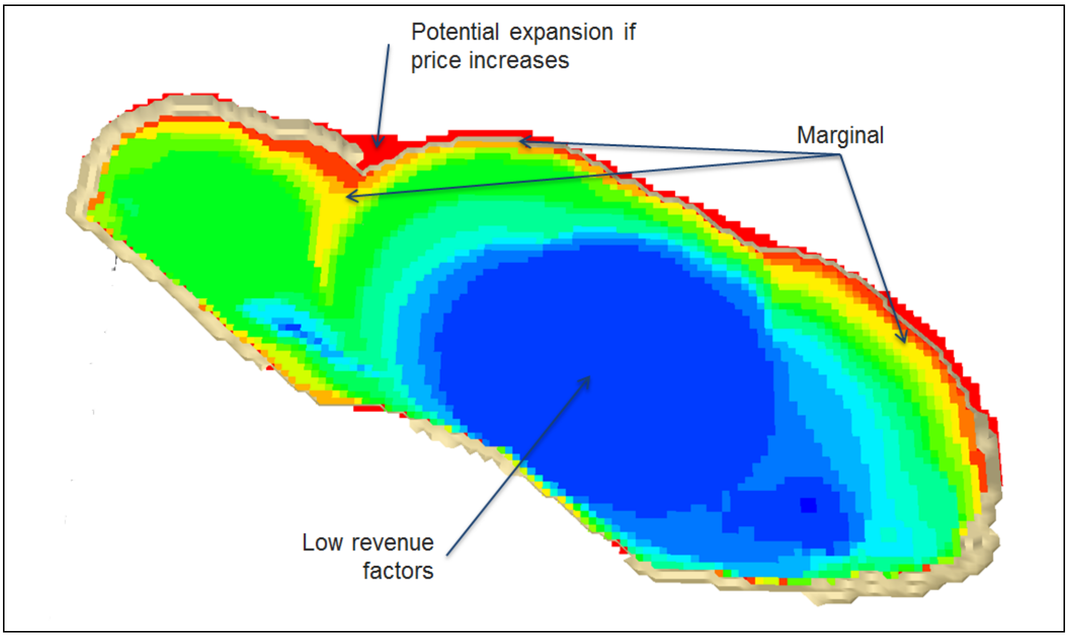
A Whittle pit optimisation confirmed an economic shell using the Measured and Indicated Mineral Resources. A graph of the pit size and present value is provided in Figure 1.4.

Figure 1.4 Graph of present value without capital and pit size



The pit shell development is shown in Figure 1.5, with the low revenue factor shells robust for a low gold price and the outer shells for a higher gold price.

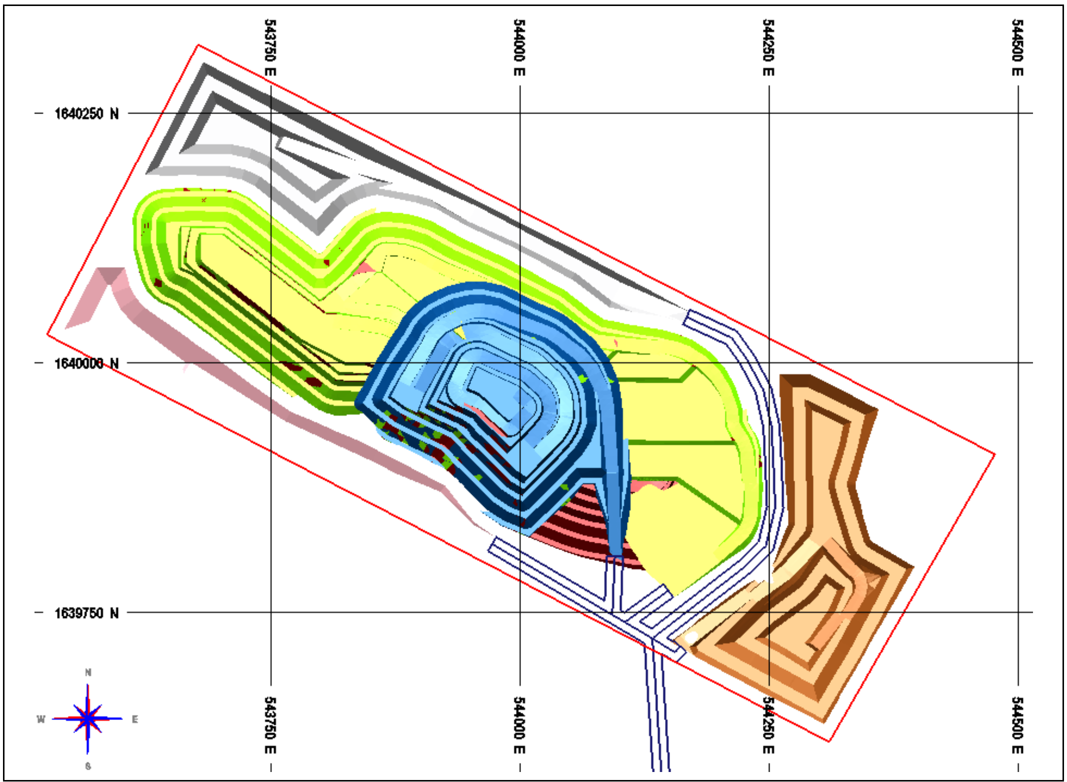
Figure 1.5 Pit shell development



1.4.3 Pit design

Pit designs were completed in Minesight software. Figure 1.6 shows the development of the staged pit design, the waste export pile and stockpiles and the proposed ex-pit road network inside the mining lease. Most of the waste is proposed to be exported to market as civil building materials.

Figure 1.6 Intra-pit road network

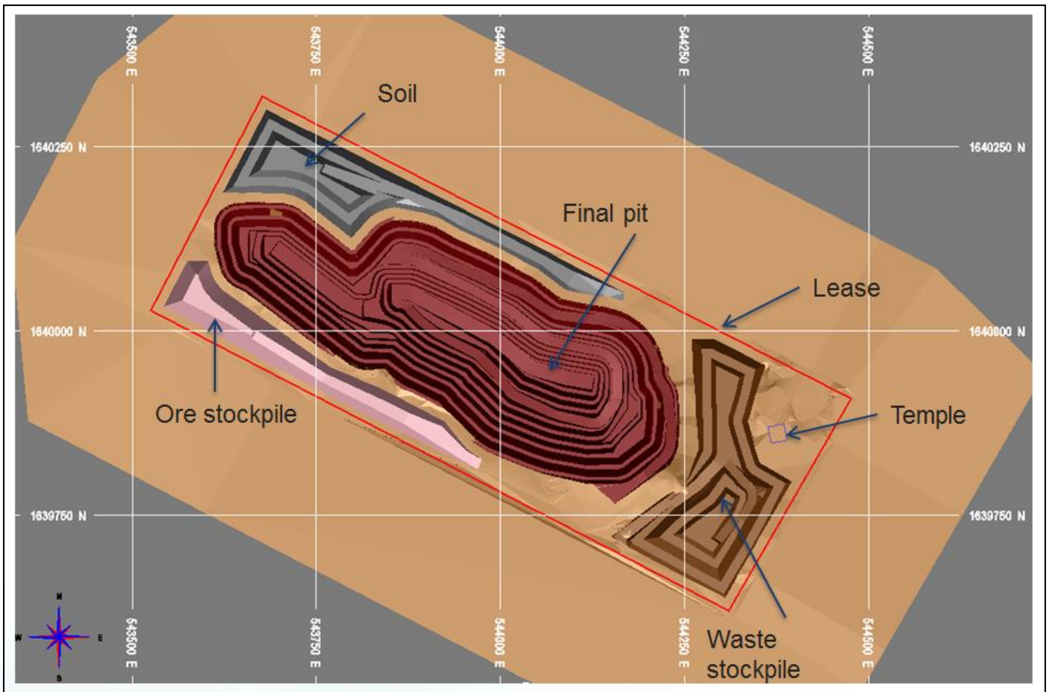


1.4.4 Site layout

There are no treatment facilities in the mining lease and ore is proposed to be processed at the Ganajur processing plant located 1.0 km south-southeast of the mine site.

The site layout with location of ultimate pit, existing temple, mining lease and stockpiles is shown below in Figure 1.7.

Figure 1.7 Ganajur mining lease layout



1.4.5 Mine production schedule

The total ex-pit movement is shown by stage in Figure 1.8.The mining rate is constrained by the maximum allowed during mine production quarters 4 to 6 and 9 to 11. The ore and waste movement is provided in Figure 1.9. The total life of mining is approximately 7.6 years.

Figure 1.8 Total ex-pit movement schedule by pit stage

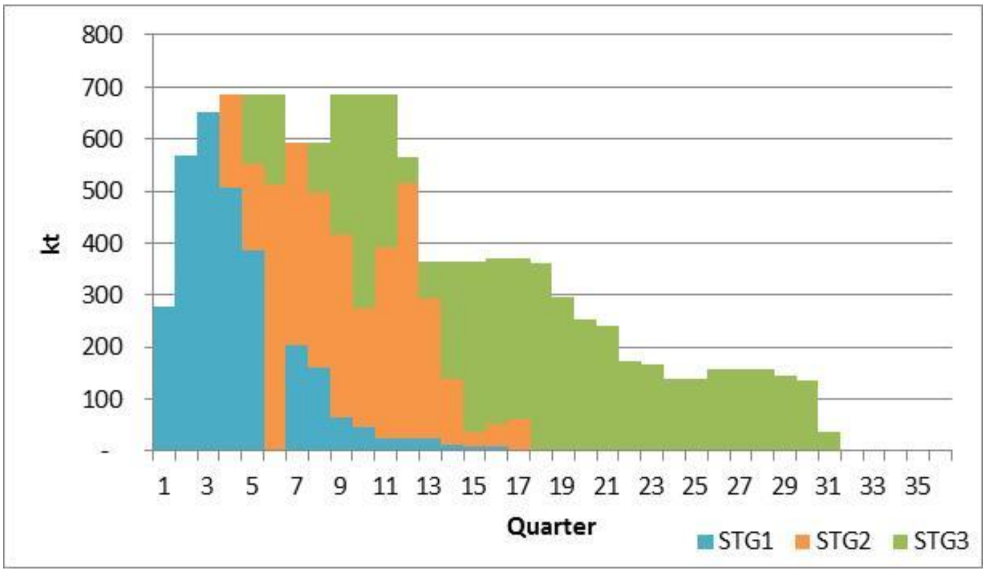
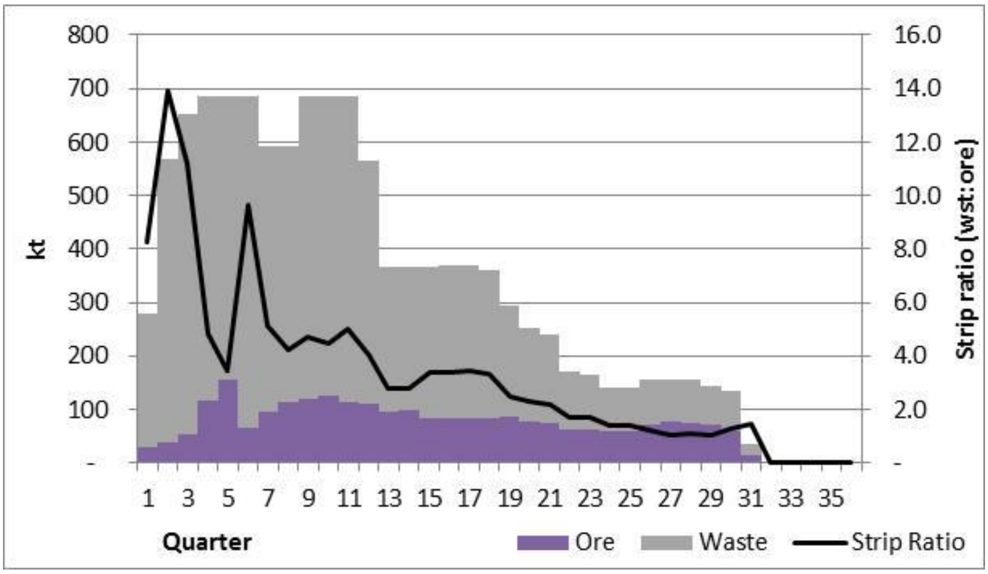
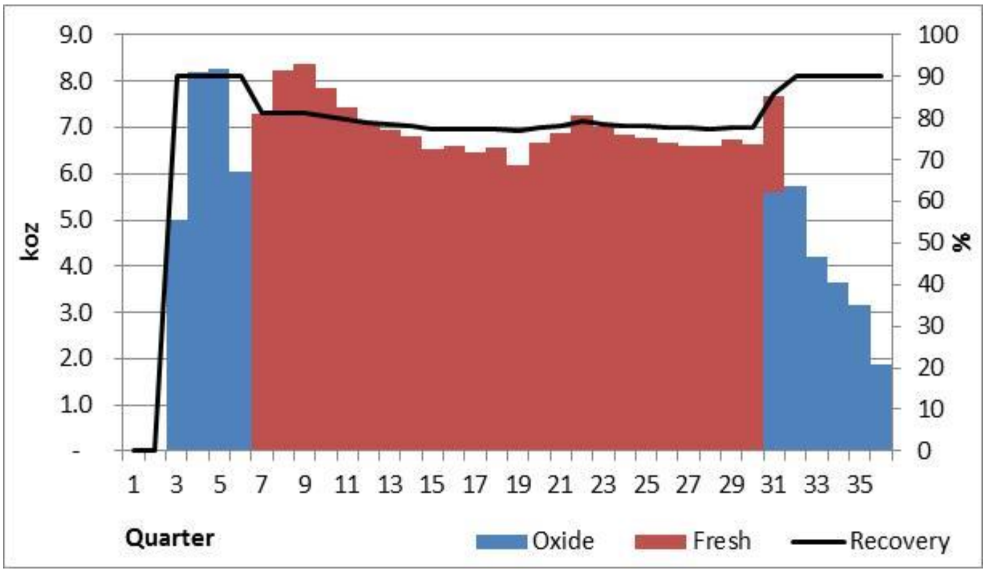


Figure 1.9 Total ex-pit movement schedule by material type



The gold production schedule is quite consistent at about 7 koz per quarter. When sulphide processing is complete, the production rate for the remaining oxide stockpile rapidly drops off as the gold grade decreases. Recoveries for the oxide material are constant 90% while fresh material varies around an average 79% recovery.

Figure 1.10 Recovered gold schedule



1.4.6 Mining methods and mine requirements

The mining method is a conventional open pit mining with load, haul and drill blast activities performed by an experienced mining contractor. It is planned that the mining contractor will buy back the waste for use in their civil operations elsewhere, subject to an offtake agreement with DESPL. Explosives and diesel fuel will be sourced locally in the city of Haveri and the costs covered by the mining contractor.

Semi selective mining is required to extract the main lode of ore that is nearly 30 m wide. A fleet of drill rigs (150 mm diameter), an excavator with a 2.0 m^3 bucket capacity and a fleet of 25 t capacity trucks will undertake the primary mining activities, supported by bulldozers, graders and loaders. Water will be encountered approximately 30 m below the surface and pumped from the pit.

The maximum manning for the Project is 115 persons and 10 technical staff will be required to control the mining operations. Accommodation for DESPL personnel and contractors will not be provided by DESPL but is available in the township of Haveri.

1.4.7 Ganajur Ore Reserves

Proved and Probable Ore Reserves were reported using the 2012 edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (JORC Code 2012).

The Ore Reserve estimate for the Ganajur Main Gold Deposit as at the end of April 2017 is provided in Table 1.5. Note that tonnes and ounces have been rounded and this may have resulted in minor discrepancies.

Table 1.5 Ganajur in-situ Ore Reserve estimate as at April 2017

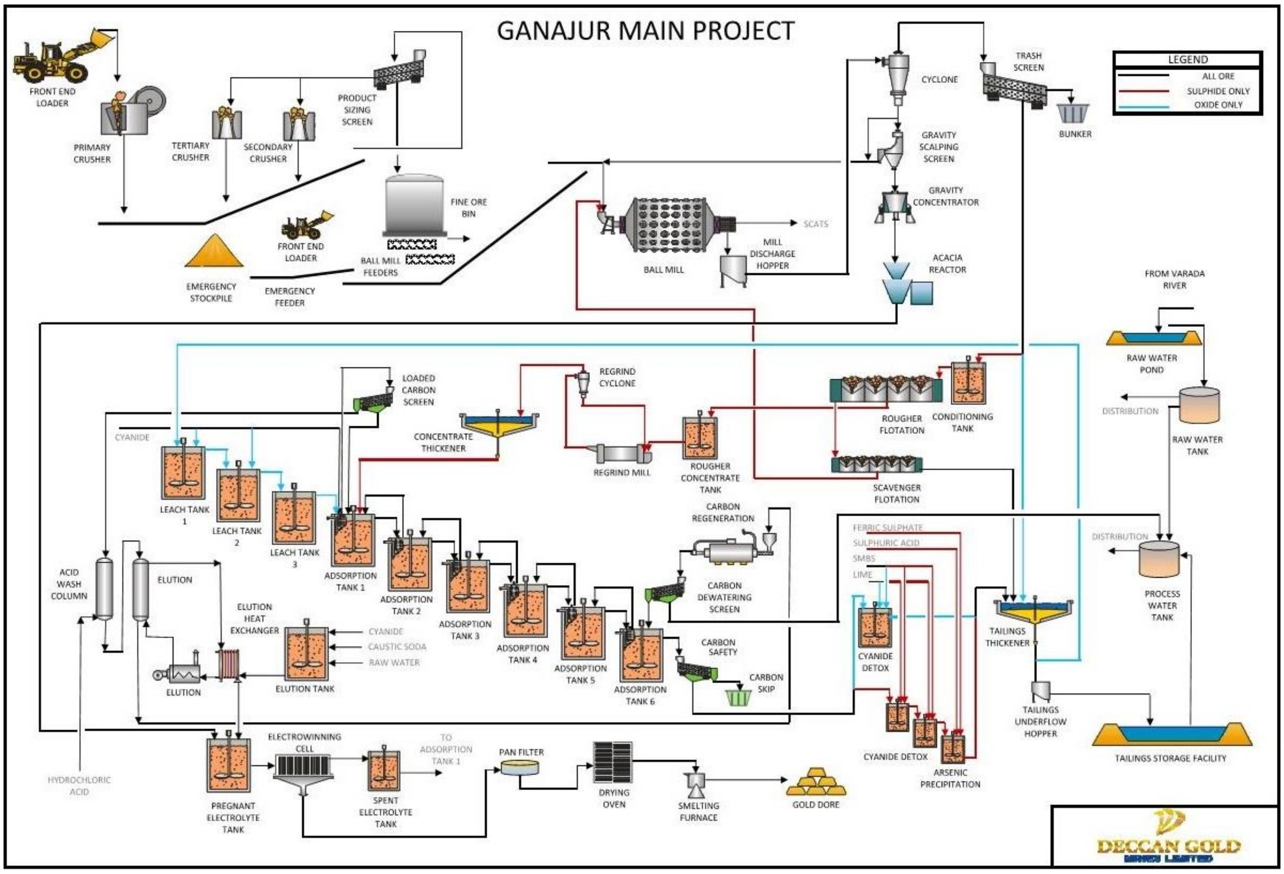
Classification	Weathering	Tonnes (kt)	Au (g/t)
Proved	Oxide	568	2.76
	Sulphide	1,567	3.94
Subtotal – Proved		**2,135**	**3.63**
Probable	Oxide	122	1.78
	Sulphide	250	2.08
Subtotal – Probable		**372**	**1.98**
TOTAL		**2,506**	**3.38**

1.5 Process plant and description

The process plant will treat a nominal 300,000 tonnes per annum (t/a) of gold-bearing ore with a crushing availability of 70% on a single shift and an overall plant availability of 91.3%. Ore will be processed via campaigns based on lithology as either sulphide or oxide material.

Both sulphide and oxide ores will be processed through the same crushing, milling, gravity and elution circuits, however, there are some processing differences around flotation, CIL and tailings.

Figure 1.11 Simplified process flowsheet



1.5.1 Sulphide ore processing

The ore will be delivered to the run of mine (ROM) pad using mine haulage trucks and stockpiled into fingers. A front-end loader (FEL) will reclaim ore from the various fingers as required. The jaw crusher will be fed from the FEL via a 30 m^3 ROM bin.

The jaw crusher will crush the ore to a P_{80} of 100 mm. A final crushed ore size of P_{80} 11 mm will be accomplished using two cone crushers and a product screen. The crushing circuit selected is a modular design to simplify the installation process and reduce construction costs.

The crushed ore will feed the grinding circuit which is a conventional ball milling circuit in closed circuit with cyclones. The cyclone overflow will have a P_{80} of 75 µm, suitable forthe flotation of the sulphides and CIL of the oxide ore. Cyclone underflow will recycle back to the ball mill with a portion split off to feed the gravity concentration circuit.

The gravity concentration circuit consisting of a centrifugal concentrator and intensive leach reactor will treat a percentage of the cyclone underflow. The pregnant solution from the intensive leach reactor will be transferred to the goldroom for electrowinning.

The cyclone overflow, via a trash screen will be fed to the rougher flotation circuit where the concentrate will feed the UFG circuit. The rougher flotation tailings will flow through a bank of scavenger flotation cells with the scavenger flotation concentrate recycled back to the ball mill feed and the tailings stream discharged into the tailings thickener.

The flotation concentrate will be further reduced in sizevia an UFG mill to a P_{80} of 10 µm which will operate in closed circuit with cyclones. Lead nitrate will be added to the mill feed to aid in gold dissolution in the leach circuit. The cyclone overflow will feed the flotation concentrate thickener while the cyclone underflow will be returned to the UFG mill.

The reground flotation concentrate will be thickened to 50% solids and agitated in a tank prior to six stages of leaching/adsorption in the CIL circuit. Loaded carbon will be removed periodically and replaced with regenerated and/or fresh carbon. The loaded carbon will be transferred to the elution circuit for gold recovery and doré production.

The tailings from the CIL circuit will feed the cyanide detox circuit which consists of two agitated tanks. Sodium metabisulphite (SMBS) and oxygen will be added in the first tank to convert the cyanide (CN^-) species to cyanate (CNO^-) which is relatively stable and with time will hydrolyse to ammonium and carbonate. Hydrated lime slurry will be added for pH control and the addition of copper sulphate will provide a catalyst for the reaction.

Discharge from the cyanide detox tank will flow into a single agitated tank for arsenic precipitation. Sulphuric acid (H_2SO_4) will be added to decrease the pH to approximately pH 6 and ferric sulphate ($Fe_2(SO_4)_3$) will be added to aid in the precipitation of arsenic from solution.

The arsenic precipitation circuit discharge will report to the tailings thickener where it will combine with the rougher flotation tailings and be thickened to 55% solids before being pumped to the TSF. Water will be decanted from the TSF for reuse in the process via the process water tank.

1.5.2 Oxide ore processing

Oxide ore will be processed through the same crushing, grinding and gravity circuit as the sulphide ore.

Cyclone overflow from the milling circuit will bypass the flotation circuit and instead will feed into the tailings thickener which will be used as a pre-leach thickener when processing oxide ore.

Thickened oxide ore will be leached in three large tanks prior to flowing into the six carbon adsorption tanks which are also used for processing the sulphide ore. The three larger leach tanks are required to maintain the residence time in the leach/adsorption circuit for the higher flowrate of the oxide ore stream.

Loaded carbon from the adsorption tanks are processed through the same elution circuit and gold room as the sulphide ore.

The leached tailings from the last adsorption tank flow through the carbon safety screen and report to a single stage CN destruct circuit, prior to being pumped to the TSF.

1.6 Surface geotechnical and tailings disposal

The Ganajur Gold Project infrastructure will include a TSF, a return water dam, stormwater dam, and other surface water management measures.

A geochemical assessment of the tailings material was undertaken and has been classified as potentially acid forming (PAF), with residual traces of arsenic released into solution despite the stabilisation step in the process plant. Due to the PAF geochemical classification, the selection of a suitable deposition and construction methodology required an analysis of the design criteria of both an upstream and downstream facility.

A risk-based approach was used in selecting a preferred construction method, taking into account aspects such as oxidation rates and other mitigation measures, drainage and long term environmental impacts. The key criteria for the selection of the TSF construction and operation methodologies included a cost-effective solution, environmentally acceptable practice, with maximum water conservation and minimum land use. A final recommendation and design option was made in favour of an upstream facility based on a smaller footprint, suitable pollution mitigation solutions and maximising water recovery.

Geomechanical laboratory testing of the tailings material was undertaken to determine its behaviour under conditions expected during the life of the TSF. These include density, permeability, shear strength and consolidation and were used in the design of the TSF.

A geotechnical investigation was undertaken to determine the suitability of the in-situ soils for its intended use as low a permeability liner and the construction of containment embankments. The results show that the in-situ soils have suited mechanical properties for embankment construction, but require additional compaction and permeability testing.

The TSF has been positioned adjacent to and downstream of the processing plant. The site selection was influenced by the required storage capacity and footprint, construction and development methods, local structural geology and topography, land ownership, rehabilitation requirements and existing significant surface infrastructures and features.

The TSF is designed to store a total dry tailings tonnage of 2,589,681 t over the 8.4-year life of mine requiring a volume capacity of 1.63 Mm^3 and footprint of 15.7 ha. The facility reaches maximum height of 19 m at a final rate of rise of 1.95 m per year and overall slope of 1V:3H.

The basin of the TSF will be lined with a low permeability clay layer, overlain with a geotextile and an HDPE geomembrane. Tailings will be deposited via a ring main distribution system. Drainage of supernatant water and rainfall will be via vertical penstock intake structures. Seepage water will be drained thought toe and blanket drains positioned along the basin of the TSF.

Decant and seepage water will be collected in a return water dam for reuse as process water. Stormwater runoff from the side slopes and the top surface of the TSF will collect in the perimeter catchment paddocks from where it will drain into the stormwater or event dam.

The Project site is located in a low risk seismic zone. A slope stability analysis, which incorporated tailings and soils mechanical properties and the TSF geometric profile, indicated a suitable factor of safety (FoS) against major slope failure.

A monthly deterministic water balance model has been compiled for the TSF, return water and stormwater dams. The input parameters to the water balance include the tailings characteristics, TSF layout and climate data. The rainfall data has been statistically analysed to incorporate the seasonal variability and to compile a conservative water balance. The annual return water volume was estimated at 130,476 m^3, approximately 53% of the slurry water deposited into the TSF per annum, which will return to the process plant.

The side slopes of the TSF will be progressively rehabilitated with a clay and topsoil layer and vegetation. Once the TSF has been decommissioned, the top surface of the TSF will also be capped with a rock, clay and topsoil layer, and vegetated.

1.7 Project infrastructure

The key infrastructure that has been incorporated into the overall Project design include:

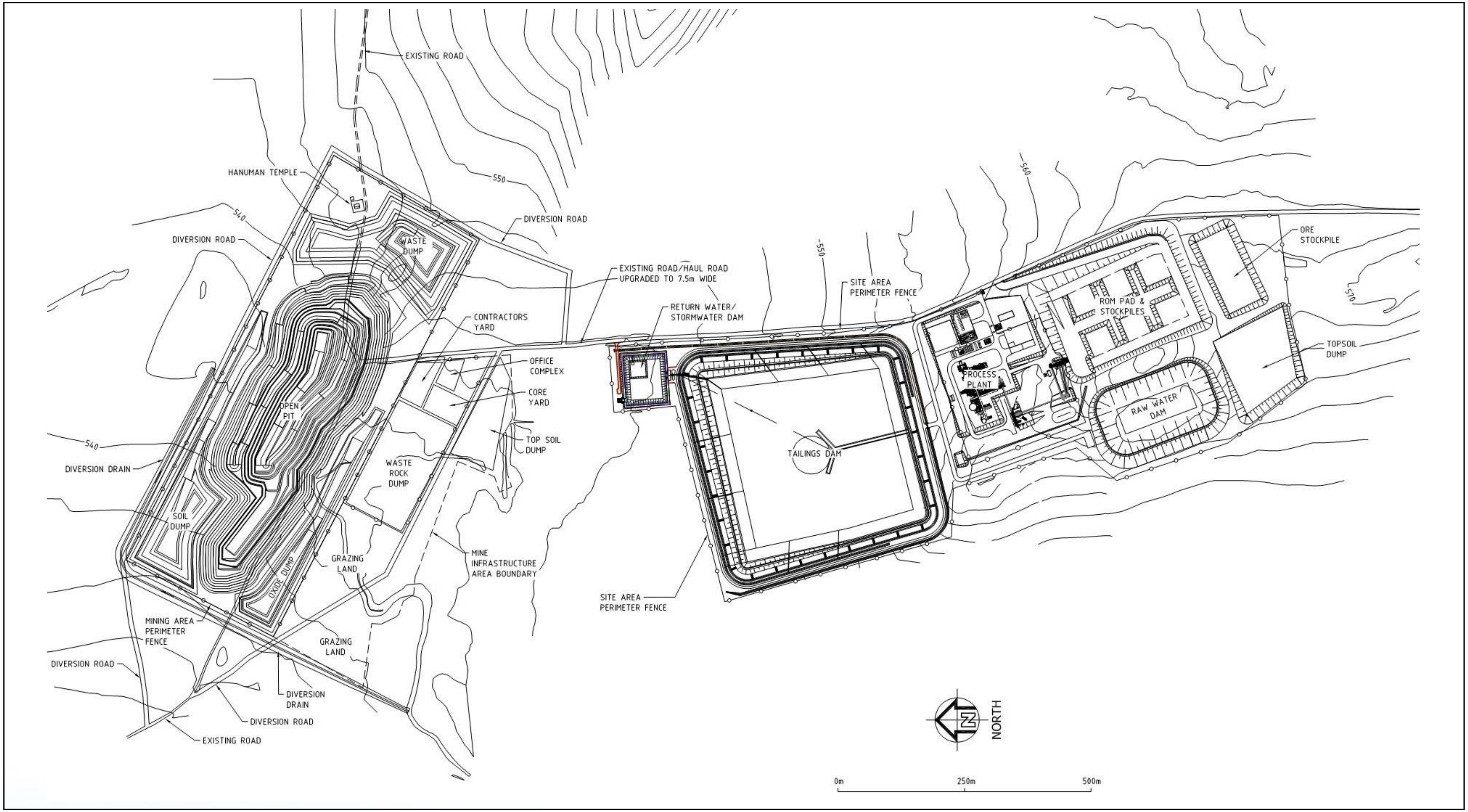
- Roads both within the Project area and access to the Project site
- Office buildings
- Gatehouses
- Laboratory and sampling areas

- Workshops and maintenance facilities
- Power supply and distribution
- Communications and computer network
- Water supply and storage infrastructure
- ROM pad and ore stockpile
- Stream diversion channel.

1.7.1 Layout

A proposed layout of the Project site and associated infrastructure is shown in Figure 1.12. The layout shows the location of the raw water dam, ROM pad and ore stockpiles, processing facilities, roads and buildings.

Figure 1.12 Overall plant site layout



1.7.2 Roads

Access to the site will be via an existing public road to the east of site area. The existing paved road, accessed from Ganajur-Nagendrana Matti-Haveri road is only 3.5 m wide and will be upgraded as it will be used as a haul road from the mining pit to the ROM pad.

The existing road currently runs through the proposed mining pit. The road will be diverted to the north and south around the pit and reconnected to the eastern site access road. Access to the Hanuman Temple will be provided from the northern diversion road.

1.7.3 Power supply and distribution

The electrical power for the Ganajur Gold Project will be supplied from a take-off bay at a nearby 110 kV KPTCL substation located near Basavanakatti village which is approximately 7.5 km from the processing plant site. The exact location has not been finalised, however there are ongoing discussions to locate the take-off closer to the project site.

An 8 MVA substation located in close proximity to the plant site will be constructed to transform the 110 kV voltage supply to 11 kV. The substation will be constructed to meet the specifications and requirements of KPTCL.

The exact route of the 7.5 km 110 kV transmission line will need consultation with KPTCL and local farmers to an agreed right of way.

Refer to drawing, 7056-492-ED-001 in Appendix C of Chapter 8, for the overall plant site high voltage single line diagram which illustrates the main power distribution around the plant.

1.7.4 Raw water supply and storage

Raw water will be supplied from the Varada River, with supply limited to the monsoon months of June through September. During this period, the flood gates will be opened and the water flows through the weir located at the Kolur-Kalasur barrage.

An intake well will be constructed at Kolur-Kalasur barrage that will allow for two submersible pumps to draw water from the river on a duty/standby basis.

A 6.5 km buried pipeline will transfer raw water from the Kolur-Kalasur barrage to a 300,000 m^3 raw water storage dam constructed on the plant site. The pipeline will be buried and will utilise easements next to existing roads. This design requires minimal government involvement and ensures that once the water is pumped it remains within DGML control.

1.7.5 Buildings

Table 1.6 lists the proposed site buildings, size and use.

Table 1.6 List of site buildings

Building	Size
Administration building	480 m^2
Process plant office	110 m^2
Security office	110 m^2
Maintenance office	110 m^2
Workshop/warehouse shed	540 m^2
Medical facility	135 m^2
Mining office	110 m^2
Site area gatehouse	12 m^2
Mining area gatehouse	12 m^2
Plant ablutions	36 m^2
Crushing area switch-room	55 m^2
Main (HV/LV) switch-room	108 m^2
Lunch room	36 m^2
Control room	12 m^2
Titration room	12 m^2
Laboratory/sample preparation building	325 m^2 / 66 m^2

1.7.6 Control system

Communications around the plant will be via optical fibre cable configured in a ring topology to enable a robust communications media with redundancy. Twelve (12) core fibre cables have been specified enabling the fibre network to carry a variety of applications on dedicated fibres. They include:

- Business IT
- VoIP phones
- SCADA
- Security
- CCTV.

1.7.7 Potable water treatment plant

A brackish water reverse osmosis water treatment plant will process raw water from the raw water dam for potable water use. The treated water will be stored in a tank with a 20-hour capacity to provide potable water to the office buildings, mine site and process area.

The potable water treatment plant has a design capacity of 5 m^3/h.

1.7.8 Fire protection

The plant site facilities will be protected with a pressurized fire protection system that comprises a fire water reserve, an electric driven jockey pump, an electric driven fire pump, and an emergency diesel driven fire pump. The firewater distribution system will consist of a dedicated buried firewater loop and hydrant system for the process, ancillary buildings and warehouse/workshop.

1.7.9 Sewage

Two septic tanks will be provided; one for the plant site area and the other for the mining area.

1.7.10 Security

Security fencing around the plant/TSF and the open pit will restrict non DGML personnel, farming animals from access to these operational areas. Additional fencing will be provided for the process plant to enhance the level of security.

The gold room will be a heavily secured building, with three CCTV cameras for monitoring. Limited access will be provided into the gold room to authorised personnel via the access card reader system.

The gold room will be a sheeted building with security meshing on the inside for added security. The gold bullion will be secured in a safe which will be located in a concrete vault room within the gold room.

1.7.11 Run of mine pad and ore stockpile

The ROM pad is designed to stockpile 130,000 t of ore configured in six finger stockpiles, each 6 m high. The six finger stockpiles will be used to blend the feed ore to the process plant.

The ROM pad will incorporate a skyway to allow trucks to directly tip ore to the dedicated stockpiles.

An area south of the ROM pad has been allocated to stockpile an additional 120,000 t of ore.

Both the ROM pad and ore stockpile will be 300 mm clay lined to prevent any seepage into the ground from potential acid mine drainage (AMD) solutions.

1.7.12 Stream diversion channel

The open pit is situated in a low-lying area. The stream flows through the pit during the monsoon season. To minimise water ingress into the pit, a diversion channel will be constructed upstream to direct the water around the western side of the pit and the same will be connected downstream.

The channel will be sized for a 1:50-year rain event and be constructed with a 1:400 slope. The channel will be an unlined excavated structure.

The channel width at the two diversion road crossings is approximately 25 m. Two concrete bridges have been allowed for these road crossings.

1.7.13 Accommodation camp

No allowance for an accommodation camp has been made. The construction workforce and the mining staff will be housed in nearby towns and villages such as Haveri, Ganajur and Karajgi.

1.8 Marketing information

India is a mineral rich country with wide availability of minerals in the form of abundant rich reserves and favourable eco-geological conditions. The Indian mining industry is characterised by a large number of small operational mines.

Given the traditional significance given to gold possession in India, it generates one of the highest quantum of demand in the world. In 2015, India accounted for nearly 26% of the global fabrications demand (jewellery, bar and coin and technology). The demand for gold in India is not only the highest in the world but also the fastest growing. With the Indian economy projected to grow at 8% during 12th plan, the demand for gold can only increase further.

Although India has a long history of gold mining, current production levels are very low; during 2014/2015, India’s gold production was a negligible 1.43 t (less than 2 t). Over the coming years, mine production is expected to grow modestly as new mines enter the production phase. But the industry faces significant challenges. For mining to develop in India, regulations need to be reviewed and the industry needs investment.

India is a traditional and stable market for gold consumption imports of gold in significant quantities will continue. The present and future production of gold will not be sufficient to meet the ever-increasing demand. Therefore, efforts will be required to reduce the gap between production and demand.

The analysis, using annual data from 1990 to 2015, reveals two significant factors affecting gold consumer demand over the long term. All else being equal, gold demand is driven by:

- Income – gold demand rises with income levels; for a 1% increase in income per capita, gold demand rises by 1%
- Gold price level – higher prices deter gold purchases; for a 1% increase in prices, gold demand falls by 0.5%.

Going forward, the International Monetary Fund (IMG) has forecast per capital GDP to grow by 35% for 2015 to 2020 and the National Council of Applied Economic Research expects India's middle class to double, exceeding 500 million by 2025.

By 2020, it is expected that the Indian gold demand would average 850 t/a to 950 t/a. India's relationship with gold goes beyond income growth; gold is intertwined with India's way of life. And as we look ahead, India's gold market will evolve.

1.9 Geochemistry

1.9.1 Run of mine ore

Due to the ROM stockpile being unsaturated and air moving freely through the pile, oxidation of exposed surfaces of material commences shortly after placement of the material. Rainwater percolates through the stockpile materials and the release of drainage from the ROM stockpile will be periodic. The chemistry of the released water will be affected by the length of time the material has been on surface and the degree of weathering, the time between rainfall events (when last the material was rinsed), and the intensity of the rainfall. The material is classed as potentially acid forming and the SPLP and distilled water leach tests indicated that a fraction of arsenic (As) was present in readily soluble phases. Therefore, the ROM stockpile would require appropriate clay lining to prevent seepage into groundwater resources and percolating rainwater should be diverted away from any water resources.

1.9.2 Tailings material

Given the high As abundance in the ore samples, it is likely that there is sufficient As in the tailings to pose a long term leaching risk at the site. Although the As stabilisation step was successful, As is still released from tailings material during batch leaches at concentrations close to or exceeding General Effluent Standards. The leaching profiles of acidity, As and sulphate (SO_4) from tailings material that has undergone As stabilisation are currently being assessed during long term column leaching experiments. These results are expected after June 2017.

The TSF requires an appropriately lined facility (HDPE and clay) to prevent groundwater contamination. During construction or post closure the facility should be capped to minimise oxygen ingress and oxidation of tailings. Surface water decant should be contained and treated if necessary. Rainwater should be diverted where possible.

1.9.3 Waste rock material

The waste rock is intended to be sold as aggregate. For a period of time prior to sale, waste rock might be stored on site as a waste rock pile. Geochemical tests were therefore undertaken to assess the release of metals and acidity from the waste rock.

The waste rock is classified as non-hazardous according to Schedule II of the Indian Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. If the waste rock will be sold as aggregate it is the responsibility of the seller (according to IS 383:1970) to determine the physical characteristics and provide further information regarding presence of reactive minerals as requested by the purchaser.

1.9.4 Outcome of the geochemical studies

Acidic to near neutral saline drainage is expected to be released following oxidation of the ROM stockpile and tailings material. The waste rock material is less sulphidic and does not have long term potential to generate acid, therefore neutral or saline drainage is expected to decant from any waste rock piles on site.

The abundance of As in the ore, tailings and to extent in waste rock material is of concern. Liberated As species are mobile across the pH scale. In the material, As is present as both readily soluble and insoluble phases. Potential soluble phases include adsorption onto or inclusion into iron hydroxide or association with carbonate minerals. Insoluble phases include arsenopyrite which would require oxidation for the As to become mobile.

1.9.5 Hydrology and hydrogeology

Total make-up water requirement for the Ganajur Gold Project is 3,000 kl/d or 0.035 cubic metres per second (m^3/s). The main make-up water supply for the ore processing will be pumped from the nearby Varada River, over a four-month period during the monsoon season, for the months from July to October and will be stored on site in a HDPE-lined water storage dam with an approximate volume of 300,000 m^3. A pump station at the Varada River and a buried HDPE pipeline will transfer the river water to the plant site raw water dam for further distribution.

From the hydrogeological modelling, there is very limited groundwater ingress up to 20 m below ground level. Once the mining operation progress below the water table, groundwater ingress will occur; preliminary modelling estimates have this inflow as increasing to a maximum of around 2,000 m^3/day based on the numerical flow model predictions toward the end of Phase 3 at 85 m pit depth. Groundwater drilling and future modelling may need to be planned at the start of the mining.

The groundwater ingress predictions are built into the seasonal water budget for the mine – to effectively optimise groundwater use, minimise water abstraction from the Varada River and to minimise water disposal as part of the water management plans. Up to 1,000 m^3 per day (m^3/d) of water from the mine can be recycled to the Raw Water Reservoir to replace water pumped from the Varada River pumping system. Any additional water produced from the mine will need to be treated to comply with Indian discharge standards and released to the stream and/or provided to local farmers.

1.10 Environmental studies, permitting and social or community impact

The semi-arid sub-tropical climate of the region comprises hot and humid summers, moderate monsoon seasons and mild winter seasons. May is the hottest month in the year. The months of December, January and February are considered to have pleasant climate.

The study area includes a 10 km radius around the proposed Ganajur Gold Project that includes the open pit mine, gold processing plant and related infrastructure near Ganajur Village, Haveri Taluk and District of Karnataka State. The baseline environmental conditions determined represent the background environmental conditions in the study area and buffer zone of the Project. Baseline environmental monitoring was carried out during the 2016 summer season (March, April and May 2016) per Indian legal requirements.

Potential impacts to the physical, ecological and socio-economic environments which may arise as a result of the proposed mining and related activities were assessed for the following aspects:

- Air emissions
- Transportation and roads
- Noise generation
- Waste water generation
- Solid waste disposal.

1.10.1 Air emissions

The following risk areas were identified as the main sources for controlling fugitive dust emissions on site:

- Drilling
- Blasting
- Excavation
- Loading operation
- Transportation of ore and overburden.

The proposed environmental management measures for controlling air pollution are as follows:

- Utilisation of drilling equipment with built-in water injection systems.
- Regular wet suppression (spraying) on blasted heaps, dumps and haul roads. Water sprayers controlling conveyor-borne dust with an efficacy of 90% or greater. Additives should be added to the sprayer arrangements of stockpiles of the crushed material.
- Wet suppression should also be implemented on stockpiles of the ore at the processing plant. Crushed fine ore must be stored in closed bins. Dry dust collectors (using dust socks which are cleaned via high pressure reverse air jets) and water sprays should further be utilised at the crushers and transfer points of all the conveyors for ore handling.
- Implementation and maintenance of a green belt around the mining area (afforestation).
- Best-practice measures for drilling and blasting (sharp drill bits, using optimum blast charges and time delay detonators).
- Avoiding blasting during high windy periods, night times and temperature inversion periods.
- Regular grading of haul roads and service roads.
- Managing vehicle loads to avoid overfilling and spillages.
- Ongoing maintenance and servicing of vehicles and machinery.
- Progressive revegetation of denuded areas to stabilise surfaces.

1.10.2 Noise generation

The following noise abatement measurements are proposed for implementation during the operational phase:

- Ongoing maintenance of vehicles, machinery and equipment.
- Limiting blasting activities to daylight hours and employing optimum explosive charges, proper delay detonators and proper stemming to prevent blowout of holes.
- Limiting time exposure of personnel to excessive noise and adequate provision of personal protective equipment.
- Limiting vehicle speeds appropriate to the type of vehicle and the working area.
- Noise generating sources at the plant should be sufficiently away from residential dwellings. Crushers, grinding mills and diesel generating sets could be housed in closed buildings to help attenuate the noise level.
- In order to reduce noise generation/absorb noise from air compressors, pumps and diesel generators, the machinery will be placed on vibration isolators.
- The proposed 7.5 m wide green belt should encompass the plant area, office buildings, township and internal roads wherever possible to attenuate noise.

1.10.3 Terrestrial ecology (fauna and flora)

To manage potential impacts to flora and fauna of the study area, the following conservation measures should be undertaken in the study area:

- Plantation of suitable native species preferably indigenous species on degraded or waste-land and open degraded forest:
  - It is noted that a comprehensive list of suitable species is not provided in this regard, nor is an actual implementation plan.
- Planting of palatable grasses will be undertaken to support the herbivore population.
- Artificial waterholes will be created and natural water sources will be maintained on a spatial–temporal distribution basis.
- Development of the greenbelt around mining area (mentioned elsewhere).
- Planting of native fruit and fodder species within the buffer zone.

1.10.4 Blasting and ground vibration

The drilling and blasting technical parameters specified must be strictly adhered to in order to limit the potential for fly-rock and ground vibrations and to ensure that the PPV remains within the allowable limits at all times. The following measures are planned for controlling ground vibration and fly rock:

Ground vibrations should be limited to less than 6 mm/sec by implementing the following measures:

- Free face must be provided for each hole and the charge per delay must be kept within permissible limits.
- Sand-covered, delayed detonating fuses must be used during blasting.
- The burden of holes in the first row, as well as the effective burden of other blast holes, must be optimised. Blast holes must also be charged with the optimum quantity of explosives.
- A staggered pattern of blasting must be adopted.
- Benches must only be blasted one at a time.

1.10.5 Afforestation

The proposed green belt, which is recommended to mitigate various potential impacts arising due to mining and related activities at the Ganajur Gold Project, includes the following areas:

- 26% (36 ha) of the plant area
- Waste rock stockpile – 10.87 acres
- Temple Buffer Zone and Safety Zone (5.8 acres).

1.10.6 Social

The demographic profile of the socio-economic changesstudy area is shown in Table 1.7.

Table 1.7 Population demographics

Population, household size and sex ratio in the study area	Total (0 to 10 km)
No. of villages	20
Households	60,585
Population	292,696
Male population	150,671
Female population	142,025
Household size	4 to 5
Sex ratio	943 females : 1,000 males

The Ganajur Gold Mine and plant area does not involve any displacement of human settlements as the land is private agricultural land and will be purchased by DESPL. A farmhouse is present at the location of the proposed open-cast pit; however, it is assumed that this property will be dispensed with in terms of the land acquisition agreement arrived at.

1.11 Operating cost estimate

1.11.1 Process operating cost

The projected life of mine (LOM) average process operating cost for the 300,000 t/a Ganajur Gold Project is $23.53/t of sulphide ore processed and $18.36/t of oxide ore processed. This cost excludes all mining operating costs, taxes, permitting costs, non-process administrative costs and other government imposed costs unless otherwise noted.

Table 1.8 Summary of process operating costs

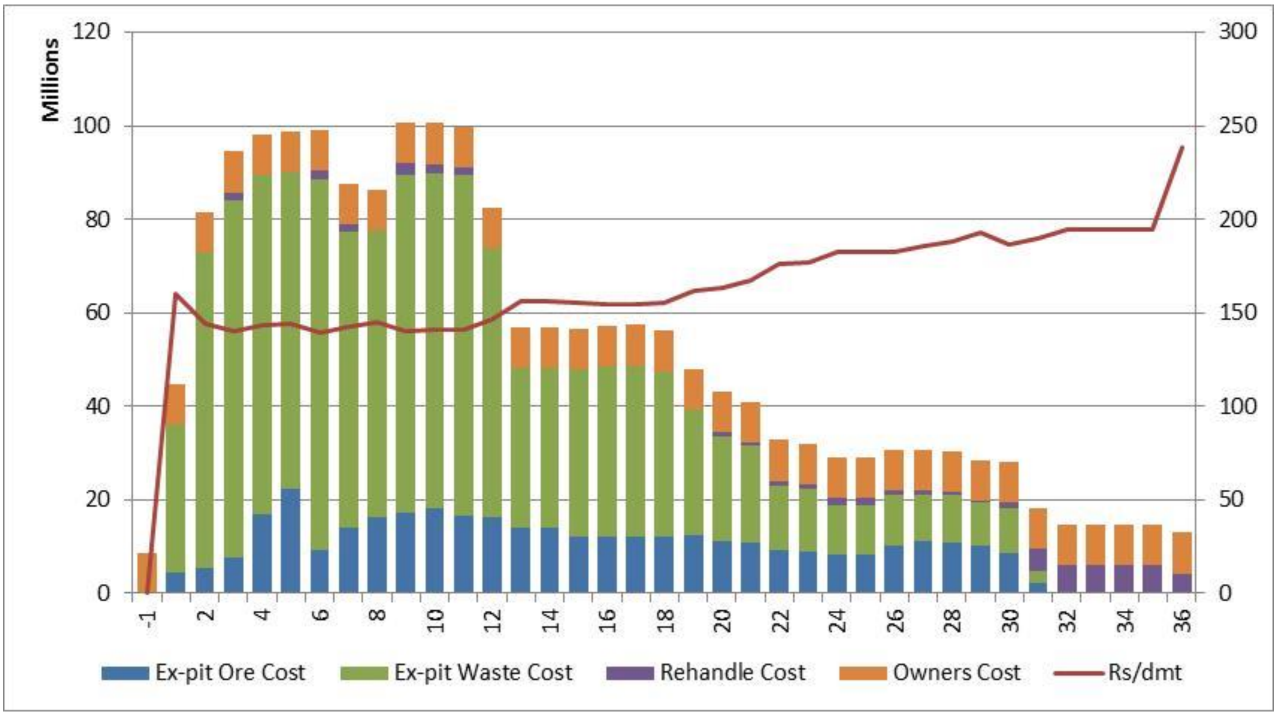
Category	Cost (US$)		
	$M/year	$/t	$/oz
300,000 t/a sulphide ore	7.06	23.53	249.31
300,000 t/a oxide ore	5.51	18.36	243.00

1.11.2 Mining operating cost

Mining costs were estimated in Indian rupee (IDR) and converted to US$ for financial modelling

Snowden estimated a LOM operating cost of ₹1,917 million (US$28.13 million). The operating cost schedule is shown in Figure 1.13.

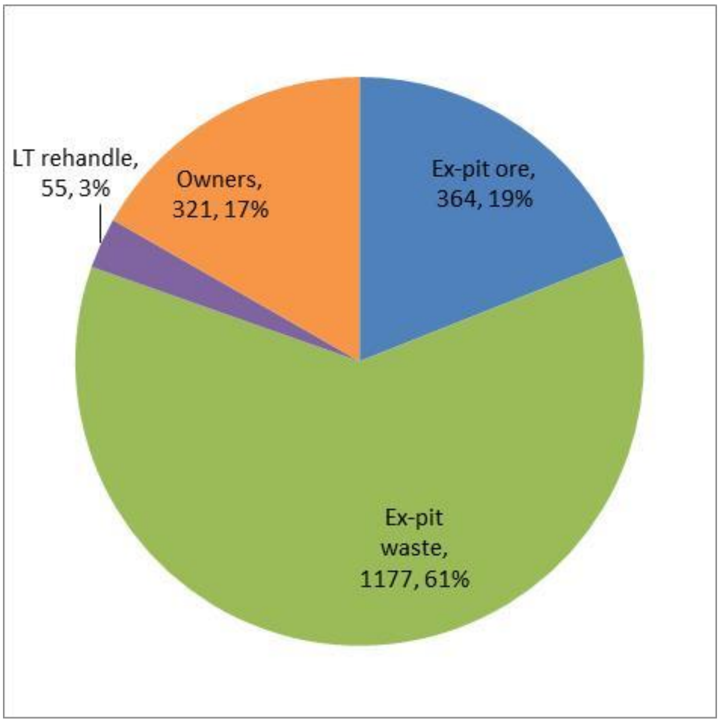
Figure 1.13 Operating cost summary(₹ million)



At the peak in Quarters 9 to 11, operating costs are estimated to be around ₹100 million (US$1.47 million) per quarter. The unit operating cost is relatively consistent at approximately ₹150/t (US$2.20/t) moved for the first half of the mine life before rising over the second half to around ₹200/t (US$2.93/t) moved.

Figure 1.14 summarises the total mining operating cost over the mine life. Nearly two-thirds of the total cost is attributable to mining waste.

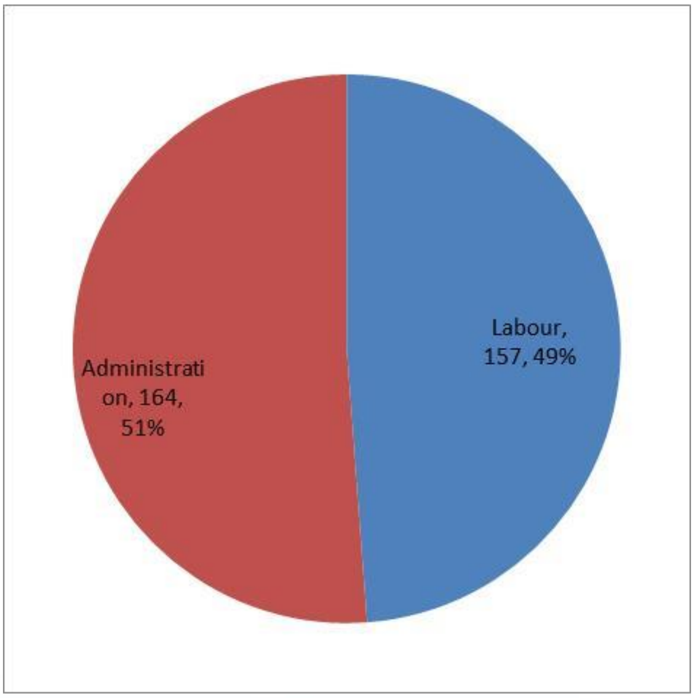
Figure 1.14 Total operating cost spilt (₹ million)



1.11.3 Owner's costs

Owner's costs are split almost evenly between labour and administration (Figure 1.15).

Figure 1.15 Owner's cost summary



1.12 Capital cost estimate

CPC Project Design Pty Ltd (CPC) has compiled the total capital cost estimate for the Ganajur Main Project, which is summarised in Table 1.9.

Table 1.9 Capital estimate summary – Ganajur Main Project (1Q17, ±15%)

WBS	Description	US$
1	Mining	874,470
3	Process plant	19,028,226
5	Process plant infrastructure	5,042,640
6	Infrastructure plant and equipment	4,283,556
8	Construction indirects	2,152,503
9	Indirect costs	14,961,410
Total		**46,342,805**

While CPC has prepared the majority of the estimate scope and pricing, Prime Resources (Pty) Ltd (Prime Resources) provided the engineering quantities for the TSF and DGML provided the owner's costs and assisted with obtaining indicative in country construction rates.

The work breakdown structure (WBS) is based on the standard CPC WBS for capital projects.

Note that the final pre-production capital number used in the Economic Analysis makes an allowance for progressive mine closure cost requirements and presents as $46.6 million.

1.13 Economic analysis

Snowden prepared an economic cashflow and financial analysis model based on inputs derived from mining and processing schedules, as well as capital and operating cost estimates, including royalties for the Project. The model was prepared from construction and mining schedules estimated on a quarterly basis for Project life. All inputs are consolidated annually in this report. The cash flow model was based on the following:

- 100% equity ownership
- Costing from January 2017
- 1.75-year production period for plant construction
- No cost escalation
- All costs reported in US$ and where costs were estimated in Indian Rupee (INR),the exchange rate used was INR66 to the US$.

Table 1.10 and Table 1.11 provide the Project headline results before and after taxation for a gold price of $1,250/oz of gold (base case).

Table 1.10 Economic model headline results before taxation

Item	Unit	Value at $1,250/oz Au
Net cash flow	$ M	133.0
NPV_5	$ M	91.6
IRR	%	39.1

Table 1.11 Economic model headline results after taxation

Item	Unit	Value at $1,250/oz Au
Net cash flow	$ M	93.1
NPV_5	$ M	61.4
IRR	%	29.6

Table 1.12 shows the inputs were used in the economic cash flow model.

Table 1.12 Economic model inputs

Item	Unit	Value
Pre-production	years	1.75
Life of process production	years	8.35
Project life	years	10.1
LOM ore mined	kt	2,506
LOM waste mined	kt	9,237
LOM total material mined	kt	11,743
Strip ratio w:o		3.68
LOM ore processed	kt	2,506
LOM average Au grade	%	3.38
LOM average Au recovery sulphide	%	79.0
LOM average Au recovery oxide	%	90.0
LOM average gold recovery	%	81.7
LOM contained ounces	koz	273
LOM recovered ounces	koz	221
Average annual gold produced	koz	27
Plant throughput (average)	Mt/a	0.30
LOM Au price	$/oz	1,250

A summary of total LOM costs is shown in Table 1.13 below. Note that no depreciation of capital was included in the taxation estimation.

Table 1.13 Total LOM costs

Item	Unit	Value
Pre-production capital	$ M	46.6
Production sustaining capital	$ M	3.1
Total Capital Costs	**$ M**	**49.7**
Total mining	$ M	21.6
Total processing	$ M	55.8
Onsite labour	$ M	1.2
Total Operating Costs	**$ M**	**78.5**
Royalties	**$ M**	**14.9**
Taxation	**$ M**	**39.8**
TOTAL ALL COSTS	**$ M**	**183.0**

The Project LOM key performance indicators (KPIs) after taxation are presented in Table 1.14 below.

Table 1.14 KPIs after taxation

Item	Unit	Value at $1,250/oz Au
Total value of product sold	$ M	276.1
Cash cost	$/oz	423
Total cost	$/oz	829
Production year payback	year	2.7
Brooke Hunt methodology C1 cost	$/oz	356
Brooke Hunt methodology C2 cost	$/oz	356
Brooke Hunt methodology C3 cost	$/oz	423

The cash costs include all direct operating costs plus royalties, the total costs include the cash costs plus capital costs and taxation. The Brooke Hunt methodology C1 costs include all direct operating expenses but do not include royalties, C2 is C1 plus depreciation and C3 is C2 plus royalties.

A breakeven analysis after taxation was undertaken on the gold price and gold grade for NPV_5. This analysis is conducted on the sensitivity analysis data and provides the gold price which will bring either the NPV_5 to $0.0. The results of this analysis are presented in Table 1.15.

Table 1.15 Breakeven analysis after taxation

Item	Unit	Breakeven
Gold price	$/oz Au	701
Gold grade	g/t Au	1.90

1.14 Project implementation

The recommended development methodology for the design and construction of the Ganajur Main project is engineering, procurement and construction management (EPCM). This approach allows DESPL to monitor and control the budget, schedule and quality through all stages of project development and execution.

It is intended that procurement of all equipment and bulk materials will be completed by the EPCM engineer and will be free-issued to the construction contractors for installation. This will ensure control over the critical procurement activities to achieve the desired completion schedule and ensure control of quality that meet DGML's requirements.

1.14.1 Project objectives

The strategic objectives for the project are to:

- Deliver the project with zero lost time and medical treatment injuries
- Zero major environmental incidents
- 100% compliance with all approvals
- Positive community relations
- Low impact on surrounding communities
- Implementation and delivery of an operational process plant which achieves the availability, reliability and metallurgical performance given in the process design criteria
- Low cost, fast track, high quality implementation of the process plant and associated infrastructure
- Utilise Indian manufactured equipment and materials where practically possible and cost effective.

1.14.2 Project implementation stages and schedule

This project implementation strategy provides the overall methods of managing the project from the detail design, procurement and construction through to commissioning. To meet the schedule proposed, the implementation schedule is structured into four stages:

- Feed engineering
- Detail design
- Construction
- Commissioning and handover.

1.14.3 Project schedule

The project schedule (Figure 1.16) and is based on the following:

- Off-site – 40-hour week, no work on public holidays, between Christmas and New Year and the first week of January
- On-site, the engineer and construction contractors will work 13 days per fortnight, 10 hours per day, with no site activities between Christmas and New Year.

Figure 1.16 Ganajur Gold Project summary project implementation schedule

The milestone dates for the development of the project are:

- May 2017 – Commence feed engineering
- July 2017 – DGML approval for the project
- September 2017 – Award of EPCM contract
- December 2017 – Mobilisation of mining contractor
- January 2018 – Site works earthworks
- May 2018 – Water storage dam and river extraction facility and pipeline completed
- October 2018 – Project completion and ore commissioning.

1.15 Risks and opportunities

A risk and opportunity assessment for the Ganajur Gold Project was performed via a one-day workshop held in March 2017 at the CPC office in Perth, Western Australia. The risk assessment was attended by representatives from Snowden, CPC and DESPL. Prime Resources' input was via a conference call link.

Risks were rated on the current state of the Project (Figure 1.17) and then re-rated after control measures were identified to manage the risks (Figure 1.18).

Figure 1.17 Comparison of current risks

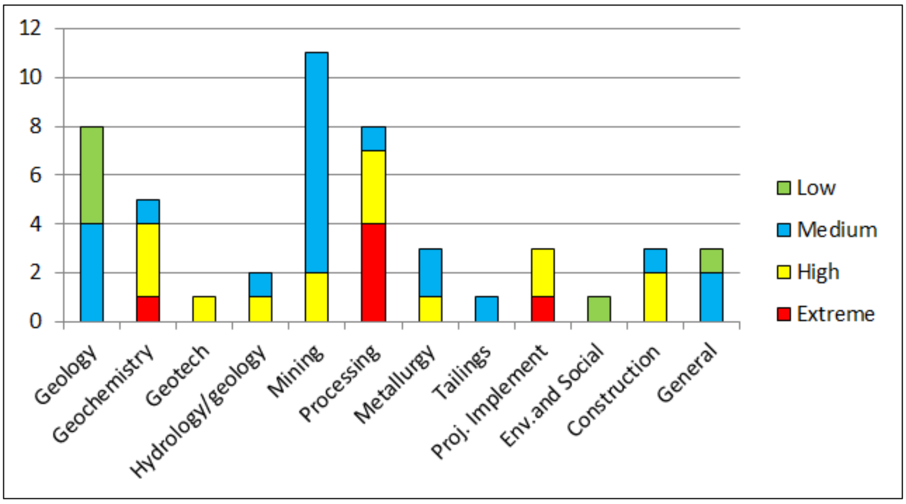
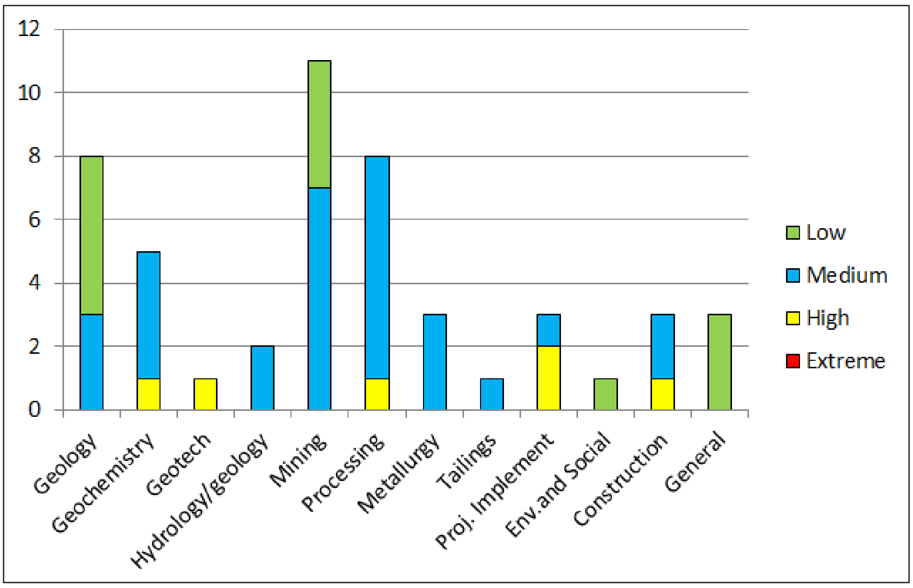


Figure 1.18 Risks after identified controls were applied



1.16 Recommendations

Recommendations for actions to occur both during project implementation and project operations have been made by the technical contributors for each of the following areas:

- Geology
- Geotechnical
- Geochemical
- Hydrogeology and hydrology
- Tailings management
- Mining operations
- Metallurgy and process plant
- Infrastructure, and
- Environmental, social and community.

The authors indicate that the best outcomes for the Project will be achieved if these recommendations are followed.

1.17 Interpretation and conclusions

Following review of the FS technical information, DESPL have advised their intention to progress with Project Implementation as per the schedule provided.

Snowden has reviewed the content of each technical chapter and interprets the mine as viable at the given assumptions, inputs and financial criteria. Snowden endorses the recommendations made by the technical contributors as required for the project implementation and future operations.