

#### ASX RELEASE

20 March 2024

## **GUM CREEK SCOPING STUDY ADDENDUM**

# Inclusion of production schedule showing sequencing of resource categories

Horizon Gold Limited (**ASX:HRN**) ("**Horizon**", the "**Company**") refers to its announcement dated 18<sup>th</sup> March 2024 titled "Compelling Gum Creek Scoping Study". The announcement inadvertently neglected to include a production schedule graph showing sequencing of resource categories. This graph is included below and has been inserted on page 9 as a new "Figure 4: Annual Ore Mined (Mtpa) by Resource Category" within the original announcement and as a new Figure 7 on page 18 of the Scoping Study Report. There are no other changes to the announcement other than updating figure numbering for the insertion of the table in both sections of the announcement.

For completeness the full announcement including the additional graph is attached.



Figure 4: Annual Ore Mined (Mtpa) by Resource Category

This ASX announcement was authorised for release by the Horizon Board.

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## HORIZON

ASX RELEASE

20 March 2024

### **COMPELLING GUM CREEK SCOPING STUDY**

## **Key Points**

- The Scoping Study ("**Study**") indicates that near surface open pittable gold resources at the 100% owned Gum Creek Gold Project ("**Project**") will deliver compelling financial outcomes.
- Projected average recovered gold production of approximately 84,000 ounces per year processed through a new 2.4 million tonne per annum gravity / CIL plant over a 10-year Life of Mine (LOM).
- Initial open pit mine production target of **24.46Mt @ 1.13g/t Au for 888,000 ounces** (76% Indicated, 24% Inferred) from selected deposits. "There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised."
- Robust financial metrics returned using a conservative A\$2,900/oz base case pricing assumption and current industry costings:
  - Pre-tax cashflow of A\$574M, pre-tax Net Present Value at an 8% discount rate (NPV<sub>8</sub>) of approximately A\$318M, and pre-tax IRR of 31.5%.
  - Payback period from commencement of mining of 3.0 years.
- Study base case gold price is approximately A\$400/oz below the current spot gold price, representing significant potential upside to predicted financial outcomes. The A\$3,300/oz gold price scenario returns:
  - Pre-tax cashflow of A\$904M, pre-tax NPV<sub>8</sub> of approximately A\$548M, and pre-tax IRR of 45.8%.
  - Payback period from commencement of mining of 2.1 years.
- **Pre-production capital cost of A\$238.5M** includes a new 2.4Mt per annum gravity / CIL processing plant, a new 200-person camp, and a 20% capital cost contingency.
- LOM C1 cash operating cost of A\$1,730/oz produced, and LOM all-in sustaining cost of A\$1,931/oz produced.
- Additional resource drilling to focus on expanding the shallow oxide resources excluded from the Study and potentially further enhance the positive economic outlook of the highly prospective Gum Creek Project.
- Underground mining options at all deposits including Swan/Swift, Kingfisher, Omega, and Wilsons are yet to be evaluated.



#### **Important Note - Cautionary Statement**

The Scoping Study referred to in this announcement has been undertaken to determine the viability of open pit mining at Horizon Gold's Gum Creek Project in Western Australia, with processing of selected deposits to be undertaken at a new processing plant constructed at the previous Gidgee Gold Processing Plant location. The Study is a preliminary technical and economic assessment of the potential viability of the Project. It is based on low level technical and economic assessments that are not sufficient to support estimation of Ore Reserves. Further evaluation work and studies are required before the Company will be able to provide assurance of an economic development case.

Of the mineral resources scheduled for extraction in the Study mine production target, approximately 76% of the resource ounces are classified as Indicated, with the remaining 24% classified as Inferred. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.

The Company has concluded that it has a reasonable basis for providing these forward-looking statements and the forecast financial information included in this release based on the material assumptions outlined in this release. These include assumptions about the availability of funding. While the Company considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Study will be achieved.

To achieve the range of outcomes indicated in the Study, pre-production funding in the order of A\$238.5 million will likely be required. Investors should note that there is no certainty that the Company will be able to raise that amount of funding when needed. It is possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

It is also possible that the Company could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce the Company's proportionate ownership of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Study.

Horizon Gold has concluded it has a reasonable basis for providing the forward-looking statements included in this announcement and believes it has a 'reasonable basis' to expect it will be able to complete the development of the mineral resources outlined in the attached Scoping Study Report (Appendix 2). This announcement has been prepared in compliance with the JORC Code 2012 Edition (JORC 2012) and the ASX Listing Rules. All material assumptions on which the forecast financial information is based have been provided in this announcement and are also outlined in the attached JORC 2012 table disclosures. Given the uncertainties involved and listed above, investors should not make any investment decision based solely on the results of the Study.



#### Introduction

Horizon Gold Limited (ASX: **HRN**) (**Horizon** or the **Company**) is pleased to announce the results of a scoping study that assesses the economic potential to recommence production from near surface, free milling open pittable gold resources at the 100%-owned Gum Creek Gold Project (**Gum Creek** or the **Project**) located in the Murchison Region of Western Australia (Figure 1). Gum Creek has historically produced more than 1 million ounces of gold and currently hosts a gold resource of **2.14 million ounces**<sup>1</sup>. The Project covers 519 square kilometres of granted tenure over the highly prospective and underexplored Gum Creek greenstone belt, which contains 37 open pit and three underground gold mines.

The Company has considered various options to recommence gold mining at Gum Creek including mining and toll treating ore at the closest operating gold processing facilities, however it has determined that constructing and operating a new gravity / CIL processing plant is the optimum business strategy for the Project.

The Study envisages an initial mine production target of **24.46Mt** @ **1.13g/t** Au for **888,000** ounces (76% Indicated, 24% Inferred²) from selected deposits, with an average recovered gold production of approximately **84,000** ounces per year over a **10-year mine life**, processed through a new 2.4 million tonne per annum gravity / CIL processing plant located at the previously permitted Gidgee mill site. Established infrastructure including air strip, haul roads, tailings dam, waste dumps, in-pit water resources, camp (for construction and overflow purposes) and existing ROM pads have been used in the Study and upgraded where required.

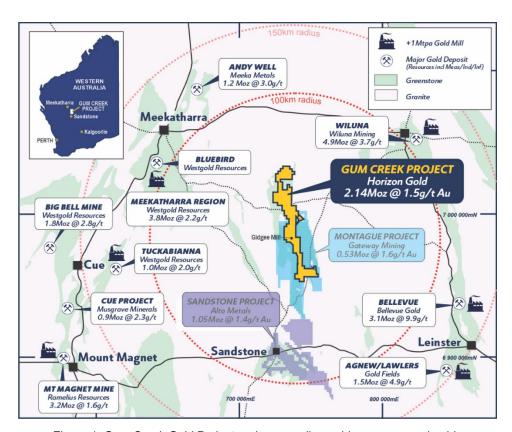


Figure 1: Gum Creek Gold Project and surrounding gold resources and gold processing operations.

<sup>&</sup>lt;sup>1</sup> Refer to Horizon Gold Limited ASX announcement titled "19% Increase in Gold Resources at Gum Creek Project" dated 15 May 2023.

<sup>&</sup>lt;sup>2</sup> There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.



#### **Scoping Study Summary**

- The Study evaluates free milling Whittle in-pit gold resources optimised using a base case gold price of A\$2900/oz (+/- A\$200/oz and +/-A\$400/oz).
- All gold resources in the Study are located on granted mining leases within the 100% owned Gum Creek Gold Project.
- Only deposits with greater than 15,000 gold ounces inside Whittle pit shells from previous pit optimisation work were included in the Study, which equates to only 14 of the current 26 Gum Creek Gold Project resource areas.
- Ore to be processed through a new 2.4Mt per annum gravity / CIL processing plant located at the previously permitted Gidgee gold processing site.
- Existing Native Vegetation Clearing Permit could be used for clearing the proposed processing infrastructure area (processing plant), and the Swan, Swift, Eagle and Shiraz deposit areas.
- Mining Proposal (ID 46008) is currently approved for the Swift deposit and the Gidgee processing infrastructure area.
- Initial open pit mine production target of **24.46Mt @ 1.13g/t Au for 888,000 ounces** comprised of 76% indicated and 24% inferred gold resource ounces (compliant with the JORC 2012 guidelines).
- Average recovered gold production of approximately 84,000oz per year over a 10-year LOM.
- LOM C1 cash operating costs of A\$1,730/oz produced including:
  - LOM Mining: A\$34.30/t milled (A\$993.6/oz produced)
  - LOM Processing: A\$23.61/t milled (A\$684.1/oz produced)
  - LOM General and Administration (G&A): A\$1.82/t milled (A\$52.7/oz produced)
- LOM All-in Sustaining Costs (AISC) of A\$1,931/oz produced including:
  - LOM Sustaining Capital: A\$3.88/t milled (A\$112.4/oz produced)
  - LOM Royalties (Govt & 3<sup>rd</sup> party): A\$3.05/t milled (A\$88.4/oz produced)
- Pre-production capital cost of A\$238.5M including existing plant demolition and removal, a new 2.4Mt per annum gravity / CIL processing plant, a new 200-person camp, pit dewatering costs, and a 20% contingency.
- LOM sustaining capital cost of A\$94.9M including an additional Tailings Storage Facility (TSF), ongoing pit dewatering capital and Property Plant & Equipment (PP&E) costs.
- Compelling financial outcomes at A\$2,900/oz gold price:
  - Pre-tax cashflow of A\$574M, pre-tax NPV<sub>8</sub> of approximately A\$318M, and pre-tax IRR of 31.5%.
  - Payback period from commencement of mining of 3.0 years.
- Study base case gold price is approximately A\$400/oz below the current spot gold price, representing significant potential upside to predicted financial outcomes.
- The A\$3,300/oz gold price scenario returns:
  - Pre-tax cashflow of A\$904M, pre-tax NPV<sub>8</sub> of approximately A\$548M, and pre-tax IRR of 45.8%.
  - Payback period from commencement of mining of 2.1 years.



#### Upside to Study outcomes:

- Excellent potential to extend the proposed mine life through underground mining and other processing methods.
- Underground mining options at all deposits including Swan/Swift, Kingfisher, Omega and Wilsons are yet to be evaluated.
- Additional shallow resource expansion drilling at the 12 resource areas not included in the study could potentially increase the resource size and gold grade of these deposits and elevate them to an economically viable status for inclusion into the mining schedule.

#### Managing Director Leigh Ryan said:

"The Study highlights the Gum Creek Project's potential robust financial metrics for a stand-alone gold processing facility in a world class Western Australian gold jurisdiction and shows a pathway for delivering value to shareholders.

The Study includes only the free milling open pittable portions of 14 of our 26 mineral resource areas and the Company is confident that through further resource drilling additional shallow oxide gold resources will be defined at the remaining 12 resources and other areas, to potentially become part of the current mine plan, extending the LOM well beyond the 10-year mine life envisaged in this Study.

Almost 50% of the Study mine production target ounces are sourced from the Swan / Swift deposit which is scheduled to be mined in years 1 to 5, and over 80% of these in pit resource ounces qualify as indicated resources (compliant with JORC 2012 guidelines). This will allow for a simple, low risk mining operation to progress during the estimated 3 year capital expenditure payback period and allow ample time for mining preparations at satellite deposits to take place, and time for additional resource drilling to be completed.

Existing granted clearing and mining proposals should enable a quick transition to mining at Gum Creek and once established, the processing facility will become a strategic asset for the region with the potential to consolidate some of the surrounding stranded gold assets.

We're very pleased with the results of the Study and are preparing to commence a feasibility study and other activities that further enhance the Project's positive economics on our path to becoming the region's next gold producer."



#### **Gum Creek Gold Resource Estimate**

On 15 May 2023 the Company announced an updated Mineral Resource Estimate (MRE) for the Gum Creek Gold Project of **44.45Mt @ 1.50g/t Au for 2.14 million ounces contained gold** (Table 1) reported in accordance with the JORC Code (2012 Edition) and based on documentation prepared by Competent Persons as defined by the JORC Code guidelines. A summary of the current MRE is detailed in Table 1 below. The MRE contains 26 discrete deposit areas that are a mixture of open cut and underground resources.

No Ore Reserves have been declared for the Gum Creek Gold Project.

Table 1: Gum Creek Gold Resources as at 15 May 2023

		Cut-off	lr.	dicated	i		nferred			Total	
Resource	Date	grade (g/t Au)	Tonnes	Au (g/t)	Gold (oz)	Tonnes	Au (g/t)	Gold (oz)	Tonnes	Au (g/t)	Gold (oz)
Swan/Swift OC	Jul-22	0.4	9,980,000	1.09	349,500	2,735,000	0.96	84,600	12,715,000	1.06	434,100
Swan UG	Jul-22	2.5 / 3.0*	301,000	6.91	66,900	226,000	7.10	51,600	527,000	6.99	118,500
Swift UG	Jul-22	3.0	•	-	-	138,000	5.72	25,400	138,000	5.72	25,400
Wilsons UG	Jul-13	1.0	2,131,000	5.33	365,000	136,000	5.95	26,000	2,267,000	5.36	391,000
Howards	May-23	0.4	8,064,000	0.82	213,100	2,136,000	0.78	53,800	10,200,000	0.81	266,900
Kingfisher OC	May-23	0.6	621,000	1.77	35,400	269,000	1.12	9,700	890,000	1.58	45,100
Kingfisher UG	May-23	1.5	359,000	3.48	40,200	917,000	3.24	95,500	1,276,000	3.31	135,700
Heron	May-23	0.6	330,000	2.11	22,400	1,822,000	1.51	88,200	2,152,000	1.60	110,600
Heron South	May-23	0.8	720,000	1.79	41,400	761,000	1.53	37,500	1,481,000	1.66	78,900
Shiraz	May-23	0.4	2,539,000	0.70	57,300	1,064,000	0.63	21,600	3,603,000	0.68	78,900
Eagle	May-23	0.8	395,000	1.94	24,700	764,000	1.80	44,100	1,159,000	1.85	68,800
Wyooda	Jul-22	0.8	430,000	1.56	21,600	862,000	1.56	43,200	1,292,000	1.56	64,800
Snook	Jul-22	0.8	75,000	2.57	6,200	846,000	1.76	47,800	921,000	1.82	54,000
Hawk	May-23	0.6	378,000	1.28	15,500	471,000	1.25	18,900	849,000	1.26	34,400
Toedter	Aug-16	0.5	-	-	-	689,000	1.54	34,000	689,000	1.54	34,000
Specimen Well	May-23	0.8	-	-	-	529,000	1.50	25,500	529,000	1.50	25,500
Wedge	May-23	0.6	-	-	-	487,000	1.52	23,800	487,000	1.52	23,800
Camel Bore	Jul-22	0.8	379,000	1.47	17,900	100,000	1.21	3,900	479,000	1.42	21,800
Kearrys	May-23	0.6	450,000	1.24	18,000	46,000	1.35	2,000	496,000	1.25	20,000
Psi	Jul-22	0.8	100,000	2.08	6,700	226,000	1.69	12,300	326,000	1.81	19,000
Hyperno- Reliance	May-23	0.6	119,000	1.73	6,600	326,000	1.16	12,200	445,000	1.31	18,800
Melbourne Bitter	May-23	0.6	214,000	1.56	10,700	148,000	1.28	6,100	362,000	1.44	16,800
Deep South Reliance	May-23	0.6	176,000	1.64	9,300	48,000	1.56	2,400	224,000	1.62	11,700
Eagles Peak	May-23	0.6	264,000	1.19	10,100	41,000	0.99	1,300	305,000	1.16	11,400
Orion	Jul-22	0.8	69,000	1.49	3,300	182,000	1.40	8,200	251,000	1.43	11,500
Wahoo	Jul-22	0.8	-	-	-	258,000	1.25	10,400	258,000	1.25	10,400
Fangio	May-23	0.6	99,000	1.32	4,200	30,000	1.35	1,300	129,000	1.33	5,500
Total			28,193,000	1.48	1,346,000	16,257,000	1.51	791,300	44,450,000	1.50	2,137,300

<sup>\*</sup> Cut-off grades are 2.5g/t Au for Swan Underground (UG) Indicated, and 3.0g/t Au for Swan UG Inferred.

Notes: Figures have been rounded. The information in this announcement that relates to the reporting of the Wilsons, and Toedter Mineral Resources has been extracted from the Horizon Gold Limited ASX announcement titled "Gum Creek Gold Project Resource Update" dated 12 February 2021 and is available to view at <a href="https://horizongold.com.au/announcements/">https://horizongold.com.au/announcements/</a>. The information in this announcement that relates to the reporting of all other Mineral Resources has been extracted from Horizon Gold Limited ASX announcements titled "32% Increase in Resources at Gum Creek Gold Project" dated 25 July 2022 and "19% Increase in Gold Resources at Gum Creek Gold Project" dated 15 May 2023, both of which are available to view at <a href="https://horizongold.com.au/announcements/">https://horizongold.com.au/announcements/</a>.

<sup>\*\*</sup> Wyooda includes the Kingston Town, Think Big and Manikato resources which are within 600m and 200m of each other respectively.



#### **Open Pit Mine Production Target**

The Study in-pit mine production target totalling approximately **24.46Mt @ 1.13g/t Au for 888,000 ounces** is sourced from 14 deposits including Eagle, Hawk, Heron South, Howards, Hyperno-Reliance, Kingfisher, Manikato, Shiraz, Snook, Specimen Well, Swan/Swift, Think Big, Toedter, and Wedge (Table 2). Of the mineral resource ounces scheduled for extraction in the Study production target, approximately 76% are classified as Indicated and 24% as Inferred<sup>3</sup> during the 10-year proposed LOM.

The open pit mine production target is reported within optimised Whittle pit shells generated by Auralia Mining Consulting using a base case input gold price of A\$2900/oz. The pit shells are based on typical contractor mining parameters and up-to-date average operating costs for deposits of a similar scale and geological nature. The production target includes a mining recovery of 95% and a mining dilution of 10%.

Cut-off grades were calculated in Whittle and varied by deposit and weathering based on processing recoveries and haulage distance with values of between 0.3g/t Au and 0.6g/t Au calculated. The production schedule reported low grade material between the calculated lower economic cut-off grade and 0.6g/t Au, with high grade material being greater than 0.6g/t Au.

Table 2: Scoping Study Open Pit Mine Production Target by Deposit

Democit		Production Target	
Deposit	Tonnes	Au (g/t)	Ounces
Swan/Swift OC*	10,396,000	1.29	431,000
Howards*	8,160,000	0.85	222,000
Eagle	1,145,000	1.08	40,000
Heron South	907,000	1.17	34,000
Toedter	566,000	1.48	27,000
Hawk	765,000	1.09	27,000
Kingfisher OC	256,000	2.11	17,000
Hyperno-Reliance	328,000	1.25	13,000
Manikato	335,000	1.20	13,000
Shiraz*	491,000	0.81	13,000
Snook	158,000	1.83	9,000
Specimen Well	252,000	1.52	12,000
Think Big	431,000	1.06	15,000
Wedge	274,000	1.65	15,000
Total	24,463,000	1.13	888,000

<sup>\*</sup> MIK models constructed as diluted mining models, hence no further dilution mining dilution or mining recovery factors have been applied.

Notes: Figures have been rounded.

The Whittle optimisation work in this Study used the mineral resource estimates referred to in previous Horizon Gold Limited ASX announcements titled "Gum Creek Gold Project Resource Update" dated 12 February 2021, "32% Increase in Resources at Gum Creek Gold Project" dated 25 July 2022 and "19% Increase in Gold Resources at Gum Creek Gold Project" dated 15 May 2023, all of which are available to view at <a href="https://horizongold.com.au/announcements/">https://horizongold.com.au/announcements/</a>.

<sup>&</sup>lt;sup>3</sup> There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.



#### Open Pit Mining and Mining Schedule

Auralia Mining Consulting were engaged to complete pit optimisation work using Whittle software to create a series of pit shells providing an optimal discounted cash flow (DCF). To simplify the study, only deposits containing more than 15,000 gold ounces inside Whittle pit shells from previous pit optimisation work were included in the Study.

Pit shells were produced using typical contractor mining parameters and up-to-date average operating costs for similar sized deposits of a similar geological nature. Mining costs used in the pit optimisation process included dewatering, grade control, drill and blast, load and haul (using rigid class haulage fleets and medium (100t-150t class) excavators, and ore haulage including haul road upgrades and maintenance. Ancillary and overhead costs used in pit optimisation work included dozing, ground control, engineer/geologist/surveyor salaries, contractors and all site General & Administration (G & A) costs.

Conventional drill and blast practices have been assumed using suitable drilling rigs and sampling procedures on 5m benches, incorporating Ammonium Nitrate-Fuel Oil (ANFO) in dry and Emulsion bulk product in wet conditions.

Density inputs are determined by previously reported specific gravity work and vary according to oxidation surfaces as used in previously announced mineral resource estimates. Metallurgical recoveries, pit wall angles, State and third-party royalties, and refining costs were all factored into the optimisation process.

In-pit mineral resources for this Study are reported within optimised Whittle pit shells generated using a base case A\$2900/oz gold price. Sensitivity analysis pit optimisation runs used A\$2500/oz, A\$2700/oz, A\$3100/oz and A\$3300/oz. The in-pit production targets include a mining recovery of 95% and a mining dilution of 10%.

Scheduling for the open pit mining was completed using Excel spreadsheets incorporating optimised in-pit volume and resource data reported against optimised pit shells. No pit designs have been completed for this study. The open pits are planned to be excavated with conventional surface mining methods. Benches are to be 5m high and will be mined in 2.5m flitches. Pit wall angles were designed based on geotechnical recommendations specific to each pit, varying from a minimum of 30 degrees in fill material to 56 degrees in competent fresh rock. The resulting average waste to ore strip ratio for the optimised pits in the Study is 5.2:1.

Top-down mining assumptions were used with a mining rate of up to 16,000 Bulk Cubic Metres (BCM) per day per excavator. The schedule assumes initial utilisation of two 100t to 150t excavators and two 777 haul truck fleets for the Swan/Swift area and to complete mining of the smaller satellite pits before reducing to one fleet when mining the smaller satellite pits and the Howards pit. Road trains will be used for longer distance hauling from the northern and southern deposits beginning in year 6.

The Company's strategy is to mine larger, lower risk open pit deposits adjacent to the proposed processing area (Swan/Swift) that return substantial profit margins in the first 5 years of mining incorporating the other "Central" satellite pits during the 3<sup>rd</sup> year of mining (Eagle, Wedge, Hawk and Kingfisher). Due to higher strip ratios, from year 6 the "Northern" satellite pits (Shiraz, Snook, Specimen Well and Toedter) and "Southern" satellite pits (Hyperno Reliance, Heron South, Manikato and Think Big) will be mined while the 2 haul truck fleets are on site. Howards will be mined from year 7 to 10 using a single fleet (Figure 2). The average LOM recovered gold production using a calculated average gold processing recovery of 95.1% is estimated to be approximately 84,000 ounces per year.



Scheduled ore mined (tonnes per annum) and the ore grade (g/t) is presented in Figure 3, and scheduled ore mined (Mtpa) by resource category is presented in Figure 4.

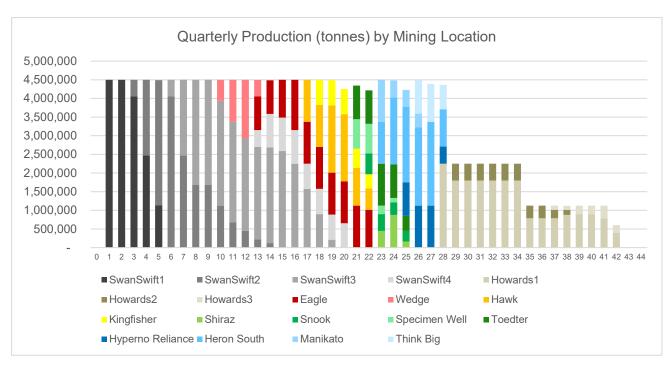


Figure 2: Quarterly Production Schedule by Deposit

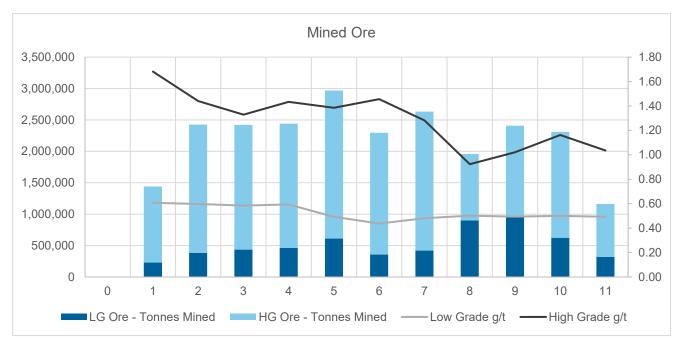


Figure 3: Annual Ore Mined (tpa) and Ore Grade (g/t)



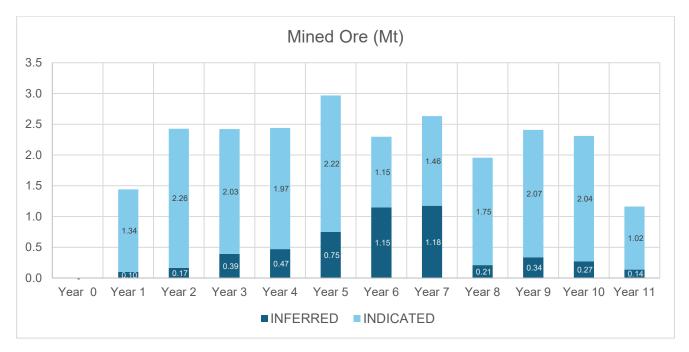


Figure 4: Annual Ore Mined (Mtpa) by Resource Category

#### Metallurgy, Processing and Power Supply

The Study assumes the existing Gidgee processing facility will be removed and replaced with a new fit for purpose gravity / carbon-in-leach (CIL) processing facility with a nameplate capacity of 2.4 million tonne per annum. The new facility will include a three-stage crushing circuit and will be constructed in the existing mill location so that it aligns with previous processing approvals. The cost of demolishing and removal of the existing plant was estimated by Demex, and the design, cost and timeline to construct the processing plant were estimated by Sedgman Pty Ltd (Sedgman).

Processing throughput varies between 2.2Mtpa and 2.4Mtpa depending on the ore feed material hardness. Comminution, reagent consumption and metallurgical recoveries for ore sourced from the Project are derived from metallurgical testwork conducted by ALS Metallurgy, a 2012 CPC Engineering desktop study and site operating records. Sedgman's process design work used an abrasion index of 0.25g, a bond rod work index of 21kWh/t and a bond ball work index of 19kWh/t.

Metallurgical sighter test-work has been completed on all 14 deposits included in the Study at a grind size of 80% passing 75µm. An average gravity gold recovery of ~35% was returned from the 14 ore sources. A review of relevant metallurgical reports and test results by Sedgman noted that the free milling ore showed rapid leach kinetics with most of the leaching being completed within 8 hours and totally complete in under 24 hours. Sedgman stated an expected weighted average total circuit recovery of 94.5%. Average Life of Mine (LOM) gold recoveries estimated from monthly Gidgee Gold Mine production reports from 1987 to 2005 were 93.0% which supports the Sedgman metallurgical test work review average recovery estimate. Sedgman's process design used a leach residence time of 6 hours, an adsorption residence time of 18 hours, an average sodium cyanide consumption of 0.39kg/t and a lime consumption of 0.54kg/t for process design work. Further metallurgy and comminution test work will feature in the Company's ongoing economic studies.

ECG Engineering recommended that power should be derived from a mixed solar and LNG generating facility supplied on a Build-Own-Operate (BOO) basis by an independent power producer under a price per kWhr contract.



#### **Tailings Storage**

The Company plans to use the existing Tailings Storage Facility (TSF) and continue with upstream raising of the perimeter embankment, but simultaneously develop a new TSF immediately north of the existing TSF to achieve the required LOM tailings storage capacity. The footprint area of the existing TSF will not increase, and the new northern TSF's footprint will cover an area of approximately 70 ha. The two TSF's will be operated separately with tailings deposition alternating between the two facilities.

#### Water Supply, Dewatering and Water Management

Groundwater in the main mining area (Swan/Swift/Kingfisher) consistently reports good water quality (low Total Dissolved Solids) and is suitable for mineral processing and stock drinking water, meeting the Australian and New Zealand Environment Conservation Council (ANZECC) stock drinking water guidelines.

Dewatering and water management will be required throughout the LOM and is necessary for 10 of the 14 deposits included in the Study. Dewatering will be required to commence 3 months prior to the commencement of mining. Initial dewatering will consist of pumping the Swan / Swift pit water to the Kingfisher and Hawk pits approximately 3km to the south of the old Gidgee processing facility. A lateral pipeline will be provided to supply raw water to the processing plant.

Water stored during pre-production in the Kingfisher and Hawk pits will be used to supply raw water to the process plant when production commences. The Heron to Manikato pits will be dewatered by pumping water to the Kingfisher pit, and the Toedter pit will be dewatered by pumping to the Kearrys pits 3 kilometres to the east.

Dewatering records for pits near the Gidgee processing plant during the previous production periods provide a high level of confidence around expected groundwater inflow rates. These flow rates have been used to determine pumping requirements for pit dewatering in the area and have been costed into pre-production costs, sustaining capital costs, and ongoing operating costs. Water flow information is limited for the areas to the north and south of the main Gidgee mining area. In these areas estimated water flow rates used are of low confidence and further hydrogeology and water flow work is planned.

#### Infrastructure

The centre of the Project is located 80km north of Sandstone. Access from Sandstone to the old Gidgee processing plant is via a 20m wide gravel road that is very well maintained by the Sandstone Shire. Historic haul roads between 15m and 20m wide extend for ~20 kilometres to the south of the Gidgee plant to the Manikato deposit, and for ~50 kilometres to the north of the plant to the Toedter deposit. The sandstone shire is occasionally contracted to grade the Project haul roads.

The old Gidgee processing facility, TSF, and local Waste Rock Dumps (WRD) are located within M57/634 which is a large mining lease (4,810Ha) with ample room for additional mining and/or processing related infrastructure. All other mining leases containing resources within the mine production target have ample room for WRD's.

The old Gidgee mine camp is still functioning with ~50 rooms currently available and suitable for accommodation. The existing kitchen, dry mess, and games room and tennis court are all in good working order. There are two 84KVa generators, five 20,000 litre water tanks and two 15,000 litre diesel storage tanks on site and all fully functional. The camp has the potential to expand available rooms to



over 100 with some minor refurbishing, however considering the potential long mine life, a new 200-man camp has been costed into this study.

The existing airstrip features a hardened unsealed surface suitable for daylight use by Code 1B aircraft above nine seats but no more than thirty seats and for day and night use by emergency aircraft such as Royal Flying Doctor Service operations.

#### Environmental, Native Title and Permitting

All the deposits contemplated in this Study are located within granted mining leases, and most have already been mined and are significantly disturbed. None of the numerous environmental and heritage surveys completed on the Project to date have identified any special flora, fauna, or heritage significance. Most environmental and heritage surveys, however, were conducted prior to 2016 and will require re-surveying as they now fall outside the seven-year age limit imposed by the Environmental Protection Authority (EPA). It is assumed that re-surveying will produce similar conclusions.

Only the Toedter and Shiraz deposits are covered by Native Title claims (Yugunga-Nya and Tjiwarl Native Title claims respectively), however both deposits are located on mining leases granted prior to 1 January 1994.

Licenses and permits currently in place within the Study area include:

- Native Vegetation Clearing Permit for the old Gidgee processing site and Swift area, Shiraz deposit, and the haul road from the processing site to Shiraz.
- Ground Water Extraction License (GWL 56290).
- Mining Proposal (ID 46008) approved for the Swift deposit and the Gidgee processing infrastructure area.
- Mine Closure Plan.



Licenses and permits required prior to the recommencement of operations include:

- Works Approval
- Expanded Mining Proposal
- Updated Mine Closure Plan
- An amendment to the existing groundwater licence to authorise mine dewatering and abstraction from the pits for processing purposes.
- Permitting and compliance for construction work, health related issues and dangerous goods.

#### Capital Cost Estimate

Capital costs were derived from various external consultants and suppliers including Auralia, Tetra Tech, Sedgman, Demex and Grounded who utilised their expertise to identify and quantify volumes and cost estimates based on recent pricing from similar WA mines (Table 3). The cost estimates include all construction and pre-production site, mining, processing, TSF, dewatering and sustaining capital costs. Pre-production mining costs (open pit pre-strip) of A\$36.4M are included in the mine operating costs over the first 5 months of operations.

Sustaining capital includes all capital expenditure post-production commencement. Sustaining capital for the processing plant includes allocation of capital replacements and throughput optimisation as well as the construction of the second tailings storage facility.

**Table 3: Summary of Capital Expenditure** 

Pre-Production Capital	(A\$M)
Demolition of existing Processing Plant	1.0
Processing Facilities (incl. offices)*	193.1
Camp and Site Facilities	25.4
Property Plant & Equipment (incl. vehicles and administration offices)	3.0
Tailings Storage Facility (TSF)*	3.5
Open Pit Dewatering (pumps, pipes, and operating costs incl. diesel)	10.5
Pre-production Mining Contractor Costs**	2.0
Total Pre-production Capital	238.5
Sustaining Capital (LOM)	(A\$M)
Tailings Storage Facility (TSF)	30.1
Dewatering & Water Management (pumps, pipes, vehicles & equipment)	62.8
Property Plant & Equipment (vehicle & building maintenance)	2.0
Total Sustaining Capital	94.9
Total Capital Costs	333.4

<sup>\*</sup> Costs are expected to be accurate within the study allowance of ±35%, the estimates include a contingency allowance of 20%.

## **Operating Cost Estimate**

Operating cost pricing and quotations have been derived from various external consultants including Auralia, Tetra Tech, Sedgman, and Northern Rise.

Mining operating cost estimates are based on an Auralia cost model and are reflective of current contractual rates for similar style and size haulage operations. Mining cost estimates include grade

<sup>\*\*</sup> Pre-production mining costs of \$36.4M in addition to mining contractor costs are included in mine operating costs over the first 5 months.



control (A\$0.55/t ore), pit dewatering (A\$0.14/bcm), drill and blast (A\$1.5/bcm, A\$2.5/bcm and A\$3.5/bcm for oxide, transitional and fresh respectively), load and haul (A\$4.4/bcm at surface, increasing by A\$0.25/bcm per five metre bench for an average A\$6.52/bcm), and ore haulage including haul road upgrades and maintenance (A\$0.20/t/km). Mining ancillary and overhead costs (A\$1.4/bcm) include dozing, ground control, mine management and technical staff salaries, contractors, and all other fixed mining operational costs. The mining operating cost is estimated to be 34.30/t milled which equates to a LOM operating cost of A\$838.9M and A\$993.6/oz Au produced.

An operating cost estimate for the proposed processing facility was undertaken at ±40% using recent reagent pricing from the Sedgman database, published market labour rates and a BOO 'over the fence' contract power supply from a mixed solar and gas generation facility. Estimates are based on published tables from similar WA mining operations, with processing operating prices built up from processing plant suppliers scaled by accepted methods. A processing operating cost of A\$23.61/t milled was calculated on a design feed grade of approximately 1.1 g/t Au which equates to a LOM operating cost of A\$577.6M and A\$684.1/oz Au produced. Process operating costs include all labour, maintenance, consumables such as reagents and grinding media, power, and mobile equipment. Consumable consumptions are based on historical consumption rates and the results of metallurgical testwork.

The State Government Royalty of 2.5% has been applied to all recovered ounces, along with various production royalties on specific deposits (Table 4). It is estimated that approximately A\$13.4M in royalties will be paid to third party companies, and approximately A\$61.2M in royalties will be paid to the State Government over the LOM.

A summary of the operating cost estimates is presented in Table 4. No contingency was added to these costs.

**Table 4: Estimated Operating Costs** 

Operating Cost Description	LOM Operating Cost (A\$M)	A\$/t milled	\$/oz Au Produced
Mining (incl. grade control, haulage, dewatering)	838.9	34.30	\$993.6
Processing	577.6	23.61	684.1
Site G&A	44.5	1.82	52.7
C1 Cash Operating Cost*	1,461.0	59.72	1,730.40
Royalties	74.6	3.05	88.4
Sustaining Capital	94.9	3.88	112.4
All-in Sustaining Cost (AISC)**	1,630.5	66.66	1,931.20

<sup>\*</sup> C1 cash cost includes mining, processing, and administration costs.

### **Economic Analysis**

An economic valuation using the physical and financial parameters outlined in the Study has been completed. A project financial model was established using a conservative A\$2,900/oz base case pricing assumption, current industry costings and an annual discount cash flow methodology to generate a Net Present Value ('NPV") at 8% and Internal Rate of Return ("IRR") for the Project on a pre-tax basis.

A range of scenarios considering different production profiles and cut-off grades have been evaluated in this scoping study. The 2.4 Mtpa throughput sustains full production for ten years, is the preferred production rate for the Study, and provides the opportunity to add additional satellite deposits beyond the current mining schedule.

<sup>\*\*</sup> AISC per ounce payable includes C1 cash cost, royalties and sustaining capital. It does not include corporate, exploration or non-sustaining costs.



The Study demonstrates that recommencement of open pit mining at a A\$2,900/oz gold price provides a positive economic return, with the base case yielding a pre-tax cashflow of A\$574M, pre-tax NPV<sub>8</sub> of approximately A\$318M, and a pre-tax IRR of 31.5%. The payback period from commencement of mining in this scenario would be 3.0 years. The annual undiscounted cashflow and cumulative undiscounted cashflow (from funding drawdown) outcomes are presented in Figure 5 below.

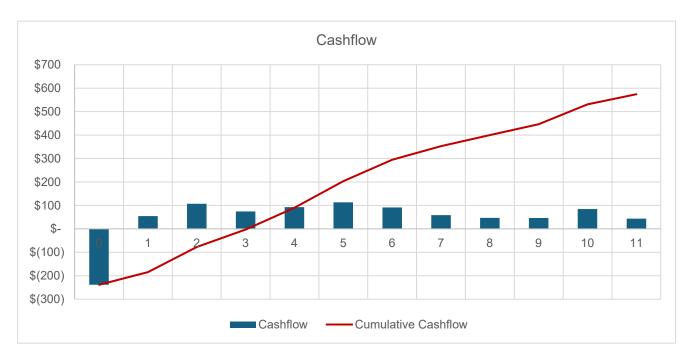


Figure 5: Cashflow and Cumulative Cashflow (A\$M) by Year

The Study base case gold price is approximately A\$400/oz below the current spot gold price, representing significant potential upside to predicted financial outcomes. The A\$3,300/oz gold price scenario returns a pre-tax cashflow of A\$904M, pre-tax NPV $_8$  of approximately A\$548M, and a pre-tax IRR of 45.8%. The payback period from commencement of mining in this scenario would be 2.1 years. (Table 5).

Table 5: Scoping Study - Gold Price Scenarios

Description	Gold Price (A\$/oz)					
Description	\$2,500	\$2,700	\$2,900*	\$3,100	\$3,300	
Pre-tax Cashflow (A\$M)	\$244.96	\$409.59	\$574.23	\$738.87	\$903.50	
NPV <sub>8</sub> (A\$M)	\$88.09	\$202.94	\$317.79	\$432.65	\$547.50	
IRR (%)	15.3%	23.8%	31.5%	38.8%	45.8%	
Payback Period (years)	4.6	3.7	3.0	2.5	2.1	

<sup>\*</sup> Base case gold price



#### Sensitivity Analysis

A sensitivity analysis of the Study's key economic parameters demonstrates that Project economics are most sensitive to a change in gold price, followed by a change in operating costs, discount rate and capital expenditure. The results of the sensitivity analysis are presented in Figure 6 in terms of NPV sensitivity.

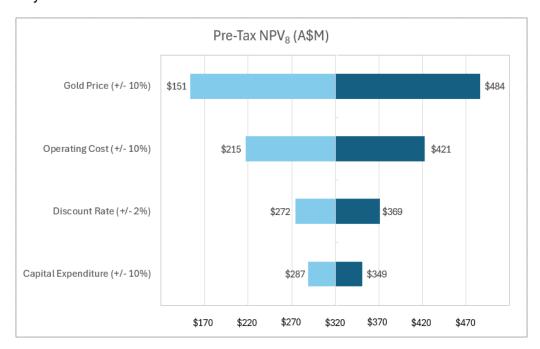


Figure 6: Study NPV Sensitivity Analysis

## **Funding**

To achieve the financial outcomes indicated in the Study, funding for pre-production capital of A\$238.5M will be required, with further funding required for sustaining capital purposes.

The Company believes that there is a reasonable basis to believe that the funding required for the development of the Project will be available when required. The grounds on which this reasonable basis is established include:

- The Study has illustrated the strong economic fundamentals of the Project including an attractive return on capital investment and robust cashflows even at a base case gold price approximately A\$400/oz below current spot gold prices. This provides a strong platform to source debt and equity funding.
- The Board of Horizon Gold has a strong track record of raising equity funds when required and the Company's major shareholders are strongly supportive of the recommencement of production within the Project.
- The Project has a 10-year mine life generating significant free cash flow relative to the development capital requirement, and release of this study provides a basis for commencing discussions with potential financiers.
- The Study demonstrates the Project can deliver significant value to shareholders.
- The Company has a tight capital structure and owns 100% of the Project, making potential financing arrangements simpler.
- The Board has extensive experience in mine development and production in the resources industry which is attractive to potential financiers seeking certainty of project delivery.



 Global debt and equity finance availability for gold projects remains robust and a number of recent examples of funding being made available for gold development projects located in Australia in the last two years support this view.

There is, however, no certainty that the Company will be able to source funding as and when required. Typical project development financing would involve a combination of debt and equity. It is possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

#### **Next Steps**

The Scoping Study provides justification that the development of the Gum Creek Gold Project is a commercially viable stand-alone mining operation and accordingly the Board of Horizon Gold Limited are considering the commencement of a Feasibility Study. Work will also commence on other identified areas that can enhance the project economics.

Further economic assessment work will be undertaken with a focus on reducing pre-production capital expenditure including processing facility costs and reducing sustaining capital expenditure including water management costs. Further evaluation of grade cutoff options and processing throughput rates will also be completed.

Additional shallow resource expansion drilling at the 12 resource areas not included in the study could potentially increase the size and resource grade of these deposits and elevate them to an economically viable status for inclusion into the production schedule.

Excellent potential to extend the proposed Study mine life through underground mining and other processing methods exists, with underground mining options at all deposits including Swan/Swift, Kingfisher, Omega and Wilsons yet to be evaluated.



#### This ASX announcement was authorised for release by the Horizon Board.

#### For further information contact:

Leigh Ryan Managing Director +61 8 6331 6092

#### Competent Persons Statement:

The information in this Scoping Study and the information that relates to Exploration Results in this announcement is based on information compiled by Mr Leigh Ryan, who is a Member of the Australasian Institute of Geoscientists. Mr Ryan is the Managing Director of Horizon Gold Limited and holds shares and options in the Company, Mr Ryan has sufficient experience in the study, development and operation of gold projects, and the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Ryan consents to the inclusion in the report of the matters based on information provided in the form and context in which it appears.

With reference to previously reported Exploration Mineral Resources which have all been cross referenced to previous market announcements throughout this report, the Company confirms that it is not aware of any additional information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

#### Forward Looking Statements:

This ASX announcement may contain certain "forward-looking statements" which may not have been based solely on historical facts, but rather may be based on the Company's current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to metals price volatility, currency fluctuations, as well as political and operational risks and governmental regulation and judicial outcomes.

#### Reasonable Basis for Forward-Looking Statements

No Ore Reserve has been declared. This ASX release has been prepared in compliance with the JORC Code (2012) and the ASX Listing Rules. All material assumptions on which the Scoping Study production target and projected financial information are based have been included in this release and disclosed in the table below.

Consideration of Modifying Factors in the format specified by JORC Code (2012) Section 4 is contained in Appendix 1.



## Appendix 1 – Reasonable Basis for Forward Looking Statements

No Ore Reserve has been declared. This ASX release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions on which the Scoping Study production target and projected financial information are based have been included in this release and disclosed in the table below.

#### **Consideration of Modifying Factors (Section 4 of the JORC Code (2012) Table 1)**

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li> <li>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	The Mineral Resource Estimate (MRE) on which the scoping study is based was announced to the ASX on 15 May 2023.  No Ore Reserve has been declared in this scoping study.
Parties participating in the Scoping Study and Site visits	Comment on any site visits undertaken by the Competent	A list of personnel involved in this study is tabulated within the Study Team section of the Scoping Study Report (Appendix 2). Horizon Gold personnel, including the Competent Person, frequently visit the deposits mentioned in this Study. Of the Study consultants, only Sedgman personnel visited the Gidgee Mine site during the Study.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	The Study is a scoping level study.  No Ore Reserve has been declared.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Cut-off grades were calculated in Whittle and varied by deposit and weathering based on processing recoveries and haulage distance with values of between 0.3g/t Au and 0.6g/t Au calculated.  The production schedule reported low grade material between the calculated economic cut-off grade and 0.6g/t Au with high grade material being greater than 0.6g/t Au.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (eg pit	No Ore Reserve has been declared as part of this scoping study.  The mining production target included in this Study has been reported within optimised Whittle pit shells generated by Auralia Mining Consulting using a base case input gold price of A\$2900/oz. Sensitivity analysis optimisations used A\$2500/oz, A\$2700/oz, A\$3100/oz and A\$3300/oz. The pit shells are based on typical contractor mining parameters and up-to-date average operating costs for deposits of a similar scale and geological nature.  Appropriate consideration has been given to the selected open pit mining method as detailed for each Study deposit below:  Swan/Swift  The estimates include variance adjustment factors reflecting open pit mining with mining selectivity of 5m by 5m by 2.5m (across strike, strike, vertical) with high quality grade control sampling on a 5m by 8m pattern.



Criteria	JORC Code explanation	Commentary
	slopes, stope sizes, etc), grade control and preproduction drilling.  The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).  The mining dilution factors used.  The mining recovery factors used.  Any minimum mining widths used.  The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.  The infrastructure requirements of the selected mining methods.	Howards The variance adjustment factors applied to the MIK estimates reflect open pit mining selectivity of 5m by 5m by 2.5m (across strike, strike, vertical), with ore selection based on 4m by 8m grade control sampling.  Shiraz The variance adjustment factors applied to the MIK estimates reflect open pit mining selectivity of 4m by 6m by 2.5m (across strike, strike, vertical), with ore selection based on 5m by 8m grade control sampling.  Eagle, Kingfisher, Hyperno-Reliance Hawk, Heron South, Snook, Specimen Well and Wedge and Wyooda Conventional open cut and underground mining methods are assumed.  Conservative pit wall angles were used for pit optimisation purposes. Recommended wall angles were provided by Peter O'Bryan & Associates and based on a review of current geological interpretations, data obtained from existing open pit exposures and drill core, and experience in geotechnical assessments and reviews of similar geological and geotechnical settings.  Mining recovery of 95% and mining dilution of 10% were used in the pit optimisation process and are considered appropriate for the Study area.  Minimum mining widths were utilised for optimisations with practical constraints such as equipment size considered.  Block models report Indicated and Inferred Mineral Resources and the mine schedule has been designed to ensure higher confidence material (Indicated) is mined upfront to reduce risk. A total of 24% Inferred Mineral Resource is within the Production Target, however further resource definition drilling is planned to upgrade these resources to an Indicated Mineral Resource category or better. The financial viability of the Project is not dependent on the inclusion of Inferred Mineral Resources in the Production Target.  Infrastructure will be supplied and utilized by the mining contractor which are expected to be temporary and removed at the end of mining activities. For more detail, refer to the Mining Section within the Study report, along with the mining subsection within operating costs for further
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the	Processing methodologies are conventional gravity / CIL methods with high recoveries typically achieved for free milling ore such as that included in this Study.  Metallurgical test-work has been completed on all deposits included in the Study. Sighter testwork was completed by Horizon Gold in 2021 and 2022 on numerous deposits including Eagle, Hawk, Hyperno-Reliance, Manikato, Shiraz, Specimen Well, Think Big, Snook and Wedge. Metallurgical testwork was also completed by various other companies on Howards and Heron South (2014), Swan (2012), Toedter and Specimen Well (2004), and Kingfisher (1992). Results from all testwork completed to date are tabulated in the body of this report.  To add confidence to the metallurgical testwork results from deposits included in this Study, historical gold processing recoveries through the Gidgee CIL processing plant (as detailed in monthly production reports) from all deposits mined between 1995 and 2005 averaged 95.4%. Estimated average gold recoveries prior to 1995 (based on total Life of Mine production figures) were 89.7%, with average LOM gold recoveries from 1987 to 2005 estimated to be 93.0%.



Criteria	JORC Code explanation	Commentary
	degree to which such samples are considered representative of the orebody as a whole.  • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	All pit optimisations include processing recovery assumptions as detailed in the body of this report.  No deleterious elements are present in the free milling ore included in this Study.  No recent bulk sampling or pilot testwork has been completed, however the considerable historic production from deposits across the entire Gum Creek Project are considered representative.  For more details, refer to the Metallurgy and Processing sections of this report and JORC Table 1 Section 3 Estimation and Reporting of Mineral Resources in previous Horizon Gold ASX resource announcements.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	All gold resources are located within granted mining leases and all deposits (apart from Howards, Hyperno-Reliance and Specimen Well) have been disturbed by previous open pit mining undertaken between 1986 and 2005.  MBS reviewed the coverage of previous waste rock characterisation works relative to the Study's proposed pits, tonnages of waste and current requirements for preparation of mining proposals. The majority of waste rock characterisation work to date has been performed from sampling of the existing waste landforms. No deleterious characters have been identified in the free milling material subject to this study. Additional waste rock characterisation work has been recommended and a work program proposed.  None of the numerous environmental and heritage surveys completed on the Project to date have identified any special flora, fauna, or heritage significance. Most environmental and heritage surveys, however, were conducted prior to 2016 and will require re-surveying as they now fall outside the seven-year age limit imposed by the Environmental Protection Authority (EPA). It is assumed that re-surveying will produce similar conclusions.  The existing TSF is located on a granted mining lease (M57/634) and will be used in years 1 and 2 of the LOM. A second TSF will be constructed immediately to the north of the existing facility.  A new processing plant will replace the existing processing plant. The plant area is also located on granted mining lease M57/634.  A Works Approval will be required to allow construction and commissioning of the processing plant, TSF, power generation facilities, landfill and wastewater disposal facilities.  A Mining Proposal and a Mine Closure Plan prepared in accordance with the Statutory Guidelines for Mining Proposals in Western Australia will also be required.  There is an existing Native Vegetation Clearing Permit, an active Groundwater Licence, and a Mining Proposal (ID 46008) currently approved for the Wilsons (adjacent to Shiraz), Swift and central infrastructure area
Infrastructure	The existence of appropriate	processing within the Gum Creek Gold Project.  The centre of the Project is located 80km north of Sandstone. Access from
	infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour,	Sandstone to the old Gidgee processing plant is via a 20m wide gravel road that is very well maintained by the Sandstone Shire. Historic haul roads between 15m and 20m wide extend for ~20 kilometres to the south of the Gidgee plant to the Manikato deposit, and for ~50 kilometres to the north of the



Criteria	JORC Code explanation	Commentary
	accommodation; or the ease with which the infrastructure can be provided, or accessed.	plant to the Toedter deposit. The sandstone shire is occasionally contracted to grade the haul roads.  The old Gidgee processing facility, TSF, and local WRD's are located within M57/634 which is a large mining lease (4,810Ha) with ample room for additional mining and/or processing related infrastructure. All other mining leases containing resources within the mine production target have ample room for WRD's.  The old Gidgee mine camp is still functioning with ~50 rooms currently available and suitable for accommodation. The existing kitchen, dry mess, and games room and tennis court are all in good working order. There are 2 x 84KVa generators, 5 x 20,000 litre water tanks and 2 x 15,000 litre diesel storage tanks on site and all fully functional. The camp has the potential to expand available rooms to over 100 with some minor refurbishing, however considering the potential long mine life a new 200-man camp has been costed into this study.  A fully functional, well maintained 1.7-kilometre-long air strip is located just 300m to the south of the camp. It is assumed that labour for the Project will fly directly to and from site out of Perth on a standard FIFO roster.  Most pits near the camp and the Gidgee plant retain good quality water suitable for mineral processing and suitable for stock drinking water, meeting the Australian and New Zealand Environment Conservation Council (ANZECC) stock drinking water guidelines.
Costs	<ul> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	Capital costs were derived from various external consultants and suppliers including Auralia, Tetra Tech, Sedgman, Demex and Grounded who utilised their expertise to identify and quantify volumes and cost estimates based on recent pricing from similar WA gold mines. They include all pre-production site, processing, TSF, and dewatering and sustaining capital costs.  Operating cost pricing and quotations have been derived from various external consultants including Auralia, Tetra Tech, Sedgman, and Northern Rise. Estimates are based on published tables from similar WA mining operations. Mining operating cost estimates are based on an Auralia cost model and are reflective of current contractual rates for similar style and size haulage operations.  Processing operating costs are built up from processing plant suppliers scaled by accepted methods and are undertaken at ±40% using recent reagent pricing from the Sedgman database, published market labour rates and an 'over the fence' contract power supply from a mixed solar and gas generation facility. Costs per ounce were calculated on the production of approximately 80K oz per annum from the design feed grade of 1.1 g/t Au.  No deleterious elements exist.  All cost estimates and financial results are provided in Australian dollars (A\$) unless stated otherwise.  Transport and trucking costs for mined ore are derived from an Auralia cost model and are reflective of current contractual rates for similar style and size haulage operations.  It is assumed that gold doré will be transported from site via charter plane for refining in Perth with no other transport-related costs applicable.  Horizon Gold has allowed for a 2.5% State Government Royalty for all Project mine production, with further Royalties incorporated into pit optimisations where
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or	applicable (Toedter and Shiraz – see body of report for further details).  The derivation of head grade comes from the Mineral Resource estimates with the application of mining recovery and mining dilution as modifying factors as outlined above.



Criteria	JORC Code explanation	Commentary
	commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.  The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and coproducts.	Gold doré bars will be produced on site, further refined offsite and for purposes of this Study sold at a base case A\$2,900 per ounce. The base case gold price is currently ~A\$400/oz below spot price and is deemed suitable for this scoping study.  No revenue has been allocated to other co-product metals.
Market assessment	<ul> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	It is assumed gold produced from the Project will be sold on the open market, to purchasers including the Perth Mint and/or ABC Refinery.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.  NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The economic analysis in this Study assumes a discount rate of 8%, and no inflation. These assumptions are deemed suitable for this level of economic assessment.  Economic analysis includes a conservative base case gold price of A\$2900/oz including other gold price scenarios of A\$2500/oz, A\$2700/oz, A\$3100/oz and A\$3300/oz and a sensitivity analysis on various scenarios around gold price, operating and mining costs, discount rates and capital expenditure.  Refer to Economic Analysis, Sensitivity Analysis and Funding sections in this report for further details.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	All activities are on wholly owned Horizon Gold mining leases with significant historical mining disturbance at all deposits except for Howards, Hyperno-Reliance and Specimen Well.  Only the Toedter and Shiraz deposits are covered by the Yugunga-Nya and Tjiwarl Native Title claims respectively. Both deposits are located on mining leases granted prior to 1 January 1994 which means compensation is not payable by the tenement holder for grant or renewals.  Numerous Aboriginal archaeological heritage and ethnographic surveys have been undertaken throughout the Gum Creek Project. A search of the Aboriginal Cultural Heritage Inquiry System in January 2024 indicated the presence of 7 registered sites near but not over the deposits included in the Study. None appear likely to be directly impacted by the development of the proposed deposits within this Study.  Stakeholder engagement has commenced at various Government levels and within local community and traditional owner groups.
Other (incl Legal and Governmental)	<ul> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> </ul>	Refer to the Environmental, Native Title and Permitting section for more details.  No Ore Reserve has been declared.



Criteria	JORC Code explanation	Commentary
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	
Classification	The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Ore Reserve has been declared.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	No Ore Reserve has been declared.
Discussion of relative accuracy /confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.  The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.  Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas	No Ore Reserve has been declared.  Confidence in the relative accuracy of the individual resource estimates is reflected by their classification as Indicated and Inferred within the JORC 2012 guidelines.



Criteria	JORC Code explanation	Commentary
	of uncertainty at the current study stage.  It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available	



## **APPENDIX 2**

Scoping Study Report





# GUM CREEK GOLD PROJECT SCOPING STUDY TO RECOMMENCE OPEN PIT MINING OPERATIONS

**MARCH 2024** 





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### Introduction

Horizon Gold Limited (ASX:HRN) (Horizon or the Company) is focused on expanding and enhancing the quality of its gold resources and unlocking the economic potential of its 100%-owned Gum Creek Gold Project (Gum Creek or the Project) located in a world class gold province within the Yilgarn Craton in Western Australia.

Gum Creek has historically produced more than 1 million ounces of gold and hosts a current Mineral Resource Estimate (MRE) of 2.14 million ounces. The Project covers 519 square kilometres of contiguous tenure over the Gum Creek greenstone belt located within a well-endowed gold region that hosts multimillion-ounce resources at Mt Magnet, Meekatharra, Wiluna, Bellevue and now at Gum Creek (Figure 1).

The Project not only represents a significant brownfields exploration opportunity, but also offers significant greenfields exploration upside along its 80 kilometres of prospective and continuous strike. All the existing resources and most of the potential resource areas are located on granted Mining Leases. The Project also has significant infrastructure in place, including a 110-man camp, an operating airstrip, a relic CIL processing facility, extensive haul road network and a large tailings storage facility.

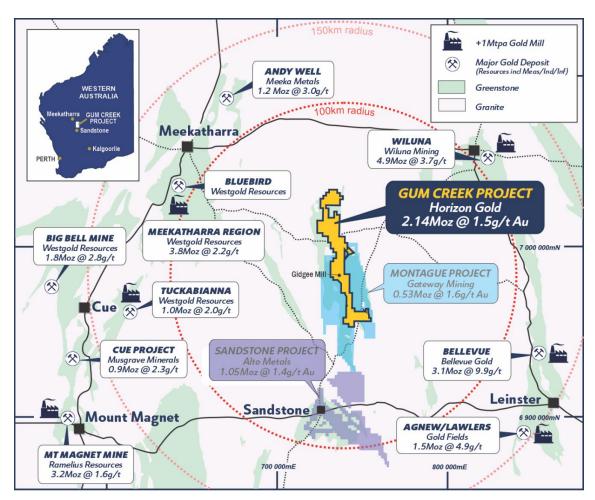


Figure 1: Gum Creek Gold Project - surrounding mines & gold deposits over simplified geology.





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Gold was first discovered in the area at Jonesville (now part of the Swan deposit) in 1926, with the first recorded gold production in 1931. More modern mining operations commenced in the 1980's and ceased in 2005 when the gold price was approximately A\$560/oz. To that time, more than one million ounces of gold was produced from over thirty open pits and three underground mines, with the main gold-producing areas being Swan-Swift, Kingfisher and Omega.

## Study Scope and Key Physical Assumptions

The Study investigated mining and processing options relating to free milling gold mineralisation within Whittle optimised in-pit resources across the Gum Creek Project.

Following a review of several mining and processing scenarios, the best economic outcome involved the construction of a 2.4Mtpa CIL processing plant treating ore over a 10-year Life of Mine (LOM) with the new processing plant to be located at previously permitted Gidgee mill site using established infrastructure wherever possible (e.g. camp, air strip, haul roads, tailings dam, ROM pad etc.).

In-pit water resources are to be used for ore processing requirements. Renewable power, diesel power, gas power and local grid power options were reviewed with a combination of gas and solar power supplied on a Build-Own-Operate (BOO) basis deemed most cost effective.

It is envisaged that Horizon Gold will utilise respected mining contractors for surface mining operations, haulage contractors for ore haulage, and use an owner-operator model for processing, technical services and administrative functions providing guidance and direction to the various contractor organisations.

The Study only evaluates deposits with greater than 15,000 gold ounces inside Whittle pit shells from previous pit optimisation work. The deposits include Eagle, Hawk, Heron South, Howards, Hyperno-Reliance, Kingfisher, Manikato, Shiraz, Snook, Specimen Well, Swan/Swift, Think Big, Toedter, and Wedge. The Study production target from the 14 deposit areas totals approximately **24.46Mt @ 1.13g/t Au for 888,000 ounces**.

All cost estimates and financial results are provided in Australian dollars unless stated otherwise.





## Study Team

Horizon Gold engaged respected industry consultants for key Study work areas as outlined in Table 1 below. Horizon Gold management engaged with various suppliers for pricing, evaluated various Study options to arrive at realistic economic outcomes, and compiled the Study report.

**Table 1: Study Team and Independent Experts** 

Scoping Study Component	Completed by:
Mineral Resources:	
Swan / Swift, Howards & Shiraz	Matrix Resources
Kingfisher, Eagle & Hyperno-Reliance	Ashmore Advisory
Think Big, Manikato & Snook	Auranmore Consulting
Heron South, Hawk, Wedge & Specimen Well	Auralia Mining Consulting
Toedter	BMGS
Geotechnical	Peter O'Bryan & Associates
Mining	Auralia Mining Consulting
Haulage	Auralia Mining Consulting
Metallurgy	Terry Weston
Processing	Sedgman
Tailings, Hydrology and Dewatering	Tetra Tech - Protea
Power	ECG Engineering
Demolition	Demex
Environmental, Hydrogeology and permitting	MBS Environmental
Native Title and Heritage	Green Legal
Village Expansion Capital (200 man camp)	Grounded
Village Services	Northern Rise
Charter Flights	JFC / Flight Charter Group
Financial Modelling	Auralia Mining Consulting
Scoping Study Compilation and Management	Horizon Gold Limited





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## Regional Geology

The Project covers the most prospective parts of the Gum Creek Greenstone Belt, located within the Southern Cross Province of the Youanmi Terrane, which forms part of the mineral rich Archaean Yilgarn Craton in Western Australia. The Gum Creek Greenstone Belt is an elongate, broadly sinusoidal formation about 110km long and 24km wide, dominated by mafic volcanic and sedimentary sequences, intruded by granitoids of various ages and compositions (Figure 2). The margins of the belt are typically dominated by contact-metamorphosed basalts and banded iron formations (BIF).

The greenstone sequence is relatively simple, with three broadly continuous major geological units occupying a large north-south synclinorium. The lowest unit consists of a sequence of interbedded banded iron formation and mafic and ultramafic volcanics overlain by ferruginous shales, shales and thin cherts. On the western margin of the belt this lower sequence has been partly intruded out by granites, and remains as thinner, discontinuous remnants.

The central unit consists of a sequence of basalts and felsic volcanics, contemporaneous dolerites, and lesser ultramafic volcanics and interflow sediments. The felsics contain quartz-sericite schists, quartzbiotite schists, and rhyolitic to andesitic fragmental volcanics, and sulphidic black shales. The unit has been intruded by differentiated gabbroic sills which range in composition from ultrabasic through pyroxenite to gabbro. The largest volume of gabbroic rock occurs in the central-eastern part of the belt, and the sills thin to the north and south.

The uppermost unit consists of shales, black shales, siltstones and minor cherts, with rare conglomerates and dolostones. The unit seldom outcrops and has not been explored to the same extent as the lower units, so details of its lithologies and structure are not as well known.

Later granites are intruded along north-south zones for the length of the belt. They are generally massive medium grained monzonitic bodies, and probably have a range of intrusion ages. They are not affected by ductile deformation but have been variously affected by later faulting. Intense silicification and epidotisation has occurred adjacent to all the internal granites. Two small stocks, one 5 kilometres SSW of Swan/Swift and the other 30 kilometres NNW of Swan/Swift, display very distinct magnetic signatures, and these may represent volcanic plugs rather than granitoids.

The northern third of the belt is intruded by numerous WNW – ENE Proterozoic dolerite dykes. These do not outcrop but are clearly identified on aeromagnetic imagery. Several early phases of tight to isoclinal folding have affected the banded iron formations of the lowest unit, and at least the latest of these phases has affected the upper units. Most fold axes have now been refolded into ~N-S parallelism.

The whole sequence has been refolded about tight NNE-trending fold axes, and this has produced two main synclines containing the upper sedimentary unit separated by a narrow anticline of the central unit basalts. This anticline contains at least 20 kilometres of gold mineralisation stretching from Wedge to the Wyooda Group. The western syncline appears to be doubly plunging, suggesting later open folding about E-W fold axes.

Faulting is complex throughout the Gum Creek Belt, and it is probable that the margins of the belt and many of the contacts between lithological units are fault controlled. The most prominent faulting occurs as regional-scale, NNW ductile shear zones, which appear to control the gross distribution of gold mineralisation in the region.





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Sinistral NE to NNE faulting and dextral and sinistral NW faulting are common throughout the belt, and empirically the main mineralised area (i.e. Swan/Swift to Wyooda) are in zones where this faulting is more intense. Metamorphic grade in the supracrustal rocks is generally greenschist facies, with slightly higher grades (containing garnet-staurolite assemblages) in the northern areas. The margins of the belt have been contact-metamorphosed to amphibolite facies by the intrusion of granites, with mafic amphibolites, and garnet-muscovite and quartz-biotite assemblages being recorded.

Historically, gold at Gum Creek has been mined from structurally controlled Archean lode-gold deposits and associated near surface supergene gold enrichment zones. Deposits are hosted in a variety of rock types including mafic volcanics, BIF and fine-grained sediments. The Project contains numerous gold and lesser base metal prospects and deposits along its entire 80km strike length.

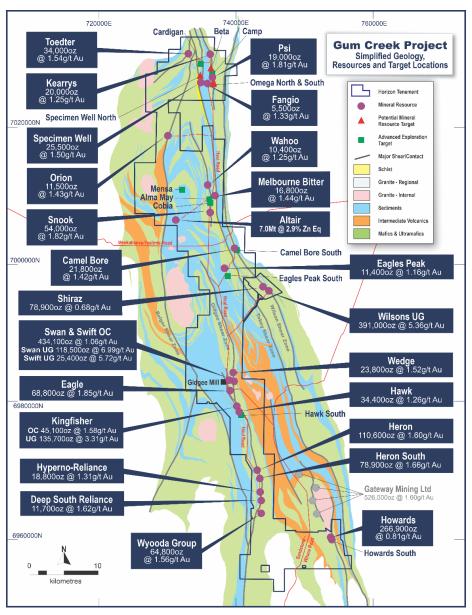


Figure 2: Mineral resources & exploration targets over geology.





### Gold Resource Estimate

On 15 May 2023 the Company announced an updated Mineral Resource Estimate (MRE) for the Gum Creek Gold Project of **44.45Mt** @ **1.50g/t Au for 2.14 million ounces contained gold** reported in accordance with the JORC Code (2012 Edition) and based on documentation prepared by Competent Persons as defined by the JORC Code guidelines. The Indicated resource ounces in the MRE represent 63% of the total MRE. The MRE contains 26 discrete deposit areas that are a mixture of open cut and underground resources. To date, no Ore Reserves have been declared for the Gum Creek Gold Project. Resource locations are shown in Figure 2, and a breakdown of the current MRE is detailed in Table 2 below.

Table 2: Gum Creek Gold Resources as at 15 May 2023

		Cut-off	lr	dicated			Inferred			Total	
Resource	Date	grade (g/t Au)	Tonnes	Au (g/t)	Gold (oz)	Tonnes	Au (g/t)	Gold (oz)	Tonnes	Au (g/t)	Gold (oz)
Swan/Swift OC	Jul-22	0.4	9,980,000	1.09	349,500	2,735,000	0.96	84,600	12,715,000	1.06	434,100
Swan UG	Jul-22	2.5 / 3.0*	301,000	6.91	66,900	226,000	7.10	51,600	527,000	6.99	118,500
Swift UG	Jul-22	3.0	-	•	-	138,000	5.72	25,400	138,000	5.72	25,400
Wilsons UG	Jul-13	1.0	2,131,000	5.33	365,000	136,000	5.95	26,000	2,267,000	5.36	391,000
Howards	May-23	0.4	8,064,000	0.82	213,100	2,136,000	0.78	53,800	10,200,000	0.81	266,900
Kingfisher OC	May-23	0.6	621,000	1.77	35,400	269,000	1.12	9,700	890,000	1.58	45,100
Kingfisher UG	May-23	1.5	359,000	3.48	40,200	917,000	3.24	95,500	1,276,000	3.31	135,700
Heron	May-23	0.6	330,000	2.11	22,400	1,822,000	1.51	88,200	2,152,000	1.60	110,600
Heron South	May-23	0.8	720,000	1.79	41,400	761,000	1.53	37,500	1,481,000	1.66	78,900
Shiraz	May-23	0.4	2,539,000	0.70	57,300	1,064,000	0.63	21,600	3,603,000	0.68	78,900
Eagle	May-23	0.8	395,000	1.94	24,700	764,000	1.80	44,100	1,159,000	1.85	68,800
Wyooda	Jul-22	0.8	430,000	1.56	21,600	862,000	1.56	43,200	1,292,000	1.56	64,800
Snook	Jul-22	0.8	75,000	2.57	6,200	846,000	1.76	47,800	921,000	1.82	54,000
Hawk	May-23	0.6	378,000	1.28	15,500	471,000	1.25	18,900	849,000	1.26	34,400
Toedter	Aug-16	0.5	-	-	-	689,000	1.54	34,000	689,000	1.54	34,000
Specimen Well	May-23	0.8	-	-	-	529,000	1.50	25,500	529,000	1.50	25,500
Wedge	May-23	0.6	-	-	-	487,000	1.52	23,800	487,000	1.52	23,800
Camel Bore	Jul-22	0.8	379,000	1.47	17,900	100,000	1.21	3,900	479,000	1.42	21,800
Kearrys	May-23	0.6	450,000	1.24	18,000	46,000	1.35	2,000	496,000	1.25	20,000
Psi	Jul-22	0.8	100,000	2.08	6,700	226,000	1.69	12,300	326,000	1.81	19,000
Hyperno- Reliance	May-23	0.6	119,000	1.73	6,600	326,000	1.16	12,200	445,000	1.31	18,800
Melbourne Bitter	May-23	0.6	214,000	1.56	10,700	148,000	1.28	6,100	362,000	1.44	16,800
Deep South Reliance	May-23	0.6	176,000	1.64	9,300	48,000	1.56	2,400	224,000	1.62	11,700
Eagles Peak	May-23	0.6	264,000	1.19	10,100	41,000	0.99	1,300	305,000	1.16	11,400
Orion	Jul-22	0.8	69,000	1.49	3,300	182,000	1.40	8,200	251,000	1.43	11,500
Wahoo	Jul-22	0.8	-	-	-	258,000	1.25	10,400	258,000	1.25	10,400
Fangio	May-23	0.6	99,000	1.32	4,200	30,000	1.35	1,300	129,000	1.33	5,500
Total			28,193,000	1.48	1,346,000	16,257,000	1.51	791,300	44,450,000	1.50	2,137,300

<sup>\*</sup> Cut-off grades are 2.5g/t Au for Swan Underground (UG) Indicated, and 3.0g/t Au for Swan UG Inferred.

The information in this announcement that relates to the reporting of the Wilsons, and Toedter Mineral Resources has been extracted from the Horizon Gold Limited ASX announcement titled "Gum Creek Gold Project Resource Update" dated 12 February 2021 and is available to view at https://horizongold.com.au/announcements/. The information in this announcement that relates to the reporting of all other Mineral Resources has been extracted from Horizon Gold Limited ASX announcements titled "32% Increase in Resources at Gum Creek Gold Project" dated 25 July 2022 and "19% Increase in Gold Resources at Gum Creek Gold Project" dated 15 May 2023, both of which are available to view at https://horizongold.com.au/announcements/.

<sup>\*\*</sup> Wyooda includes the Kingston Town, Think Big and Manikato resources which are within 600m and 200m of each other respectively. Notes: Figures have been rounded.



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Table 3: Gum Creek Mineral Resources by Metallurgical Category as at 15 May 2023

Metarial Tyres	Indicated			Inferred			Total		
Material Type	Tonnes	Au (g/t)	Ounces	Tonnes	Au (g/t)	Ounces	Tonnes	Au (g/t)	Ounces
Free Milling	22,513,000	1.15	834,300	10,460,000	1.37	461,400	32,973,000	1.22	1,295,700
Refractory	5,680,000	2.80	511,700	5,797,000	1.77	329,900	11,477,000	2.28	841,600
Total	28,193,000	1.48	1,346,000	16,257,000	1.51	791,300	44,450,000	1.50	2,137,300

Notes: Figures have been rounded. Preliminary metallurgical testwork indicates oxide mineralisation at all deposits is free milling, transition mineralisation from Eagle, Eagles Peak, Deep South Reliance, Fangio, Hawk, Heron South, Howards, Hyperno-Reliance, Kearrys, Kingfisher, Melbourne Bitter, Orion, Specimen Well, Swan/Swift, Toedter, Wahoo, Wedge and Wyooda is free milling, and fresh mineralisation from Eagle, Eagles Peak, Deep South Reliance, Fangio, Hawk, Howards, Hyperno-Reliance, Kingfisher, Melbourne Bitter, Orion, Swan/Swift, Toedter, Wahoo, and Wedge is free milling. Transition and fresh mineralisation from Camel Bore, Heron, Heron South, Kearrys, Psi, Snook, Specimen Well, Wilsons and Wyooda has variable gold recovery issues.

#### No New Information or Data:

This announcement contains references to Mineral Resource estimates, all of which have been cross referenced to previous market announcements. The Company confirms that it is not aware of any additional information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

### Geotechnical

Peter O'Bryan & Associates were engaged to complete a geotechnical review and provide conservative open pit wall angles for the Study. The review was undertaken using current geological interpretations, geotechnical data obtained from existing open pit exposures, drill core and previous geotechnical studies undertaken within the Project, in addition to the consultants' previous experience in geotechnical assessments and reviews of similar geological and geotechnical settings.

Recommended geotechnical design parameters used for the open pit optimisations are outlined in Table 4 below. It should be noted that 11 of the 14 deposits in the study involve cutbacks to existing pits and that batters within these pits remain in good condition with very limited wall failures.

Where test work was not available and/or previous open pits do not exist (Specimen Well and Hyperno-Reliance) slope angle recommendations were based on information from previously mined deposits in the Project area with similar rock types and weathering conditions. The review outlines further geotechnical work required at these two deposits (including geotechnical drilling) to identify the potential for steeper pit wall slope angles to reduce waste movement and improve open pit economics.

Table 4: Recommended Pit Wall Angles and Geotechnical Design Parameters for Pit Walls

Deposit	Fill (°)	Oxide (º)	Transition (0)	Fresh (0)	Face Height (m)	Berm Width (m)
Eagle	30	40	47	54	20m	7m
Hawk	30	40	47	54	20m	7m
Heron		40	47	54	20m	7m
Heron South		40	47	54	20m	7m
Howards		40	56	56	20m	7m
Hyperno-Reliance		40	47	54	20m	7m





Deposit	Fill (°)	Oxide (0)	Transition (0)	Fresh (°)	Face Height (m)	Berm Width (m)
Kingfisher	30	40	47	54	20m	7m
Manikato		40	47	54	20m	7m
Shiraz		40	47	54	20m	7m
Snook		40	47	54	20m	7m
Specimen Well		40	47	54	20m	7m
Swan-Swift	30	39	43	47	20m	7m
Think Big		40	47	54	20m	7m
Toedter		45	47 / 51		20m	7m
Wedge	30	40	47	54	20m	7m

## Metallurgy

Details of historical processing recoveries through the Gidgee CIL processing plant for individual deposits are not known, however from monthly production reports, average gold recoveries through the mill from all deposits mined between 1995 and 2005 were 95.4%. Estimated average gold recoveries prior to 1995, based on total Life of Mine (LOM) production figures were 89.7%, with average LOM gold recoveries from 1987 to 2005 estimated to be 93.0% (Table 5).

**Table 5: Gidgee Mill Production Statistics and Recoveries** 

Year	Ore Mined (t)	Head Grade (g/t)	Gold Mined (oz)	Gold Produced (oz)	Recoveries (%)
2005	30,631	6.61	6,510	6,860	98.1
2004	241,137	5.68	44,036	42,297	95.4
2003	343,840	5.93	65,554	62,033	96.6
2002	635,000	3.26	66,555	61,820	92.4
2001	555,000	3.98	71,018	67,131	95.0
2000	194,719	3.57	22,364	22,364	94.6
1999	199,000	3.11	19,898	19,900	90.0
1998	776,000	4.31	107,530	96,487	90.0
1997	727,000	2.65	61,940	58,528	93.0
1996	788,000	2.47	62,577	61,052	94.0
1995	721,000	3.42	79,278	80,663	95.0
*Post 1995 Production	5,211,327	3.46	607,260	579,135	95.4
Est. Pre 1995 Mined Production	3,194,318	4.00	457,295	410,415	89.7
*Total Mined Production	8,405,645	3.94	1,064,555		
*Total Mill Production	8,405,645	3.66	989,107	989,550	93.0

<sup>\*</sup>Figures compiled from Gidgee Gold Mine monthly operations reports.

Metallurgical test-work has been completed on all deposits included in the Study. Sighter testwork was completed by Horizon Gold in 2021 and 2022 on numerous deposits including Eagle, Hawk, Hyperno-Reliance, Manikato, Shiraz, Specimen Well, Think Big, Snook and Wedge. Metallurgical testwork was





also completed by various other companies on Howards and Heron South (2014), Swan (2012), Toedter and Specimen Well (2004), and Kingfisher (1992). Results from all testwork completed to date are summarised in Table 6. It should be noted that all oxide and most transitional mineralisation tested to date has been free milling, however some transitional and primary mineralisation displays refractory characteristics. The Study does not include any primary refractory mineralisation.

Table 6: Summary of Gum Creek Metallurgical Testwork – Gravity and Cyanide Leach

Deposit	No. Composite Samples	Oxidation State	Grind Size (µm)	Avg Gravity Recovery (%)	Avg Total CIL Recovery – 8hrs (%)	Avg Cyanide / Lime Consumption (kg/t)
Eagle	2	Trans	125	N/A	87.0	0.50 / 0.42
Eagle	2	Fresh	75	64.6	96.8	0.66 / 0.33
Eagle	1	Fresh	160	68.6	95.7	0.40 / 0.37
Swan / Swift	3	Fresh	75	54.5	97.3	N/A
Hawk	2	Oxide / Trans	75	39.5	97.3	0.23 / 0.46
Heron South	1	Trans	75	77.5	94.4	1.41 / 0.43
Howards	5	Fresh	75	43.5	90.1 (16hrs)	0.99 / 0.32
Hyperno- Reliance	1	Oxide	75	34.7	99.6	0.33 / 1.18
Hyperno- Reliance	1	Trans	75	66.4	94.2	0.21 / 0.91
Kingfisher	1	Fresh	75	31.9	88.5	0.81 / 0.1.35
Kingfisher	1	Fresh	75	N/A	93.0 (24hrs)	0.23 / 0.49
Manikato	1	Oxide	75	16.8	100.0	0.29 / 0.55
Manikato	1	Trans	75	52.2	79.4	1.00 / 0.69
Shiraz	1	Trans	75	17.4	85.7	0.46 / 0.47
Specimen Well	1	Oxide	75	9.7	98.3	0.48 / 1.22
Snook	3	Fresh	75	22.9	40.0*	0.56 / 0.42
Think Big	2	Oxide	75	44.6	96.5	0.44 / 0.63
Toedter	1	Oxide	75	20.0	95.0	0.66 / 1.78
Wedge	2	Oxide / Trans	75	26.3	98.2	0.30 / 0.66

<sup>\*</sup> Fresh ore from this deposit is not included in the Study

A review of preliminary metallurgical reports and test results by Sedgman Pty Ltd (Sedgman) concluded that partial recovery of the gold by gravimetric techniques should be viable, with individual test results ranging from 9.7% to 77.5% for free milling samples. Sedgman calculated that the weighted average recovery from the 14 ore sources was 34.8%, however the expected mass pull for the proposed circuit will be ~0.04%, compared to a 3% mass pull achieved in the laboratory, and therefore the average gravity recovery estimate has been derated to 23.8% for plant design purposes.

Sedgman determined that of the free milling ore results reviewed, all showed rapid leach kinetics with the vast majority of leaching being completed within the eight (8) hour time frame and appearing to be totally complete in under 24 hours. Sedgman combined the data to develop a weighted average leach





profile of the gravity tailings (Figure 3), and a combined weighted average recovery profile (Figure 4). For the gravity tailings, it is expected that 92.9% of the leach feed would be extracted and when combined with the gravity recovery, would result in a weighted average total circuit recovery of 94.5%.

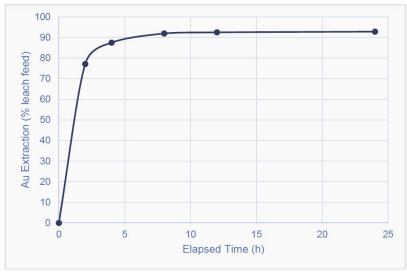


Figure 3: Weighted average gravity tailings leach profile

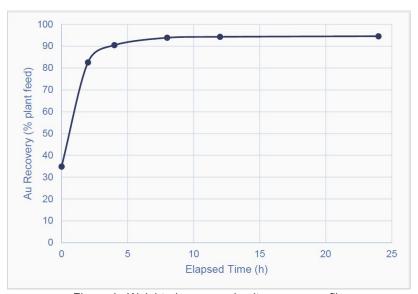


Figure 4: Weighted average circuit recovery profile

The reagent consumption rates of NaCN and lime were also reviewed. Sodium cyanide consumption ranged between 0.22 to 0.66 kg/t with a weighted average consumption of 0.39 kg/t. Similarly, the lime consumption varied between 0.33 to 1.62 kg/t, with the weighted average consumption being estimated at 0.60 kg/t.



# Open Pit Mining and Mining Schedule

Auralia Mining Consulting were engaged to complete pit optimisation work using Whittle software to create a series of pit shells providing an optimal discounted cash flow (DCF). To simplify the study, only deposits containing more than 15,000 gold ounces inside Whittle pit shells from previous pit optimisation work were included in the Study.

Pit shells were produced using typical contractor mining parameters and up-to-date average operating costs for similar sized deposits of a similar geological nature. Mining costs used in the pit optimisation process included dewatering, grade control, drill and blast, load and haul (using rigid class haulage fleets and medium (100t-150t class) excavators, and ore haulage including haul road upgrades and maintenance. Ancillary and overhead costs used in pit optimisation work included dozing, ground control, engineer/geologist/surveyor salaries, contractors and all site General & Administration (G & A) costs.

Conventional drill and blast practices have been assumed using suitable drilling rigs and sampling procedures on 5m benches, incorporating Ammonium Nitrate-Fuel Oil (ANFO) in dry and Emulsion bulk product in wet conditions.

Density inputs are determined by previously reported specific gravity work and vary according to oxidation surfaces as used in previously announced mineral resource estimates. Metallurgical recoveries, pit wall angles, State and third-party royalties, and refining costs were all factored into the optimisation process.

In-pit mineral resources for this Study are reported within optimised Whittle pit shells generated using a base case A\$2900/oz gold price. Sensitivity analysis pit optimisation runs used A\$2500/oz, A\$2700/oz, A\$3100/oz and A\$3300/oz. The in-pit production targets include a mining recovery of 95% and a mining dilution of 10%.

Scheduling for the open pit mining was completed using Excel spreadsheets incorporating optimised inpit volume and resource data reported against optimised pit shells. No pit designs have been completed for this study. The open pits are planned to be excavated with conventional surface mining methods. Benches are to be 5m high and will be mined in 2.5m flitches. Pit wall angles were designed based on geotechnical recommendations specific to each pit, varying from a minimum of 30 degrees in fill material to 56 degrees in competent fresh rock. The resulting average waste to ore strip ratio for the optimised pits in the Study is 5.2:1.

Top-down mining assumptions were used with a mining rate of up to 16,000 Bulk Cubic Metres (BCM) per day per excavator. The schedule assumes initial utilisation of two 100t to 150t excavators and two 777 haul truck fleets for the Swan/Swift area and to complete mining of the smaller satellite pits before reducing to one fleet when mining the smaller satellite pits and the Howards pit. Road trains will be used for longer distance hauling from the northern and southern deposits beginning in year 6.

The Company's strategy is to mine larger, lower risk open pit deposits adjacent to the proposed processing area (Swan/Swift) that return substantial profit margins in the first 5 years of mining incorporating the other "Central" satellite pits during the 3<sup>rd</sup> year of mining (Eagle, Wedge, Hawk and Kingfisher). Due to higher strip ratios, from year 6 the "Northern" satellite pits (Shiraz, Snook, Specimen



Well and Toedter) and "Southern" satellite pits (Hyperno Reliance, Heron South, Manikato and Think Big) will be mined while the 2 haul truck fleets are on site. Howards will be mined from year 7 to 10 using a single fleet (Figure 5). The average LOM recovered gold production using a calculated average gold processing recovery of 95.1% is estimated to be approximately 84,000 ounces per year. Scheduled ore mined (tonnes per annum) and the ore grade (g/t) is presented in Figure 6, and scheduled ore mined (million tonnes per annum) by resource category is presented in Figure 7.

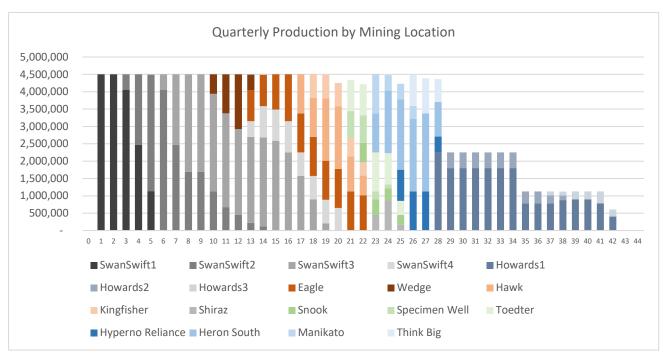


Figure 5: Quarterly Production Schedule by Deposit (waste and ore tonnes mined per quarter)



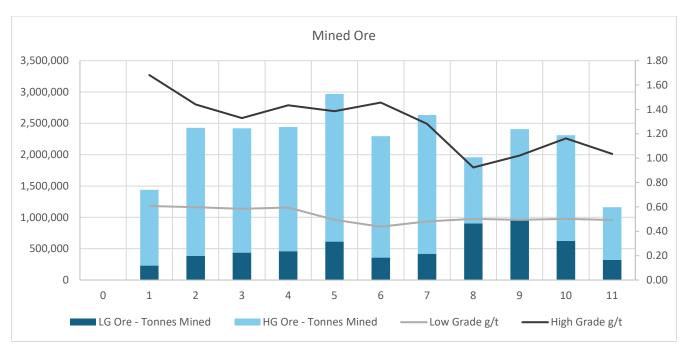


Figure 6: Annual Ore Mined (tpa) and Ore Grade (g/t)

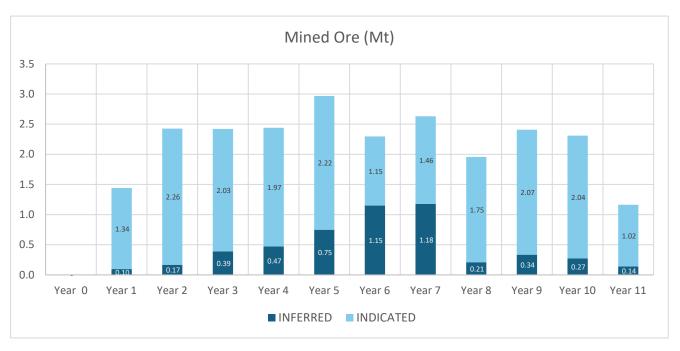


Figure 7: Annual Ore Mined (Mtpa) by Resource Category



### Open Pit Mine Production Target

The Study in-pit mine production target totalling approximately 24.46Mt @ 1.13g/t Au for 888,000 ounces is sourced from 14 deposits including Eagle, Hawk, Heron South, Howards, Hyperno-Reliance, Kingfisher, Manikato, Shiraz, Snook, Specimen Well, Swan/Swift, Think Big, Toedter, and Wedge (Table 7 & Figures 8 - 13). Of the mineral resource ounces scheduled for extraction in the Study production target, approximately 76% are classified as Indicated and 24% as Inferred during the 10-year proposed LOM.

The open pit mine production target is reported within optimised Whittle pit shells generated by Auralia Mining Consulting using a base case input gold price of A\$2900/oz. The pit shells are based on typical contractor mining parameters and up-to-date average operating costs for deposits of a similar scale and geological nature. The production target includes a mining recovery of 95% and a mining dilution of 10%.

Cut-off grades were calculated in Whittle and varied by deposit and weathering based on processing recoveries and haulage distance with values of between 0.3g/t Au and 0.6g/t Au calculated. The production schedule reported low grade material between the calculated lower economic cut-off grade and 0.6g/t Au, with high grade material being greater than 0.6g/t Au.

**Table 7: Scoping Study Open Pit Mine Production Target by Deposit** 

Democit		Production Target	
Deposit	Tonnes	Au (g/t)	Ounces
Swan/Swift OC*	10,396,000	1.29	431,000
Howards*	8,160,000	0.85	222,000
Eagle	1,145,000	1.08	40,000
Heron South	907,000	1.17	34,000
Toedter	566,000	1.48	27,000
Hawk	765,000	1.09	27,000
Kingfisher OC	256,000	2.11	17,000
Hyperno-Reliance	328,000	1.25	13,000
Manikato	335,000	1.20	13,000
Shiraz*	491,000	0.81	13,000
Snook	158,000	1.83	9,000
Specimen Well	252,000	1.52	12,000
Think Big	431,000	1.06	15,000
Wedge	274,000	1.65	15,000
Total	24,463,000	1.13	888,000

<sup>\*</sup> MIK models constructed as diluted mining models, hence no further dilution mining dilution or mining recovery factors have been applied. Notes: Figures have been rounded.

The Whittle optimisation work in this Study used the mineral resource estimates referred to in previous Horizon Gold Limited ASX announcements titled "Gum Creek Gold Project Resource Update" dated 12 February 2021, "32% Increase in Resources at Gum Creek Gold Project" dated 25 July 2022 and "19% Increase in Gold Resources at Gum Creek Gold Project" dated 15 May 2023, all of which are available to view at https://horizongold.com.au/announcements/.

<sup>&</sup>lt;sup>1</sup> There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.





Figure 8: 3D view of Main Gidgee Mining Area looking down to the northeast. Free milling A\$2,900 optimised pit shells (blue), MRE block models (coloured by Au g/t), existing pits (brown) and haul roads (red) over see-through satellite image.

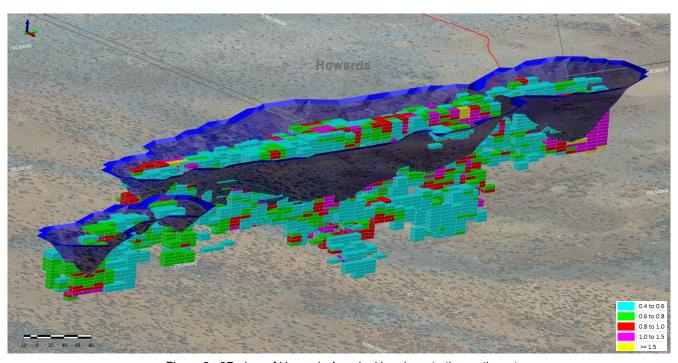


Figure 9: 3D view of Howards Area looking down to the northwest.

Free milling A\$2,900 optimised pit shells (blue), and MRE block models (coloured by Au g/t) over see-through satellite image.



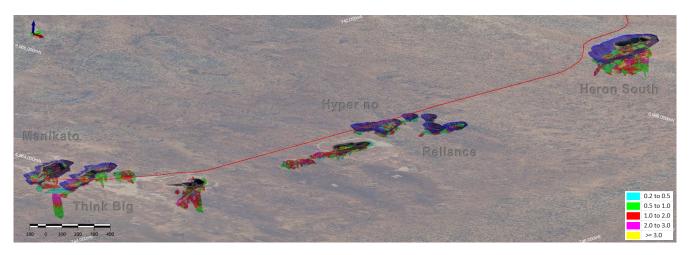


Figure 10: 3D view of Wyooda-Heron Area looking down to the northwest. Free milling A\$2,900 optimised pit shells (blue), MRE block models (coloured by Au g/t), existing pits (brown) and haul roads (red) over see-through satellite image.

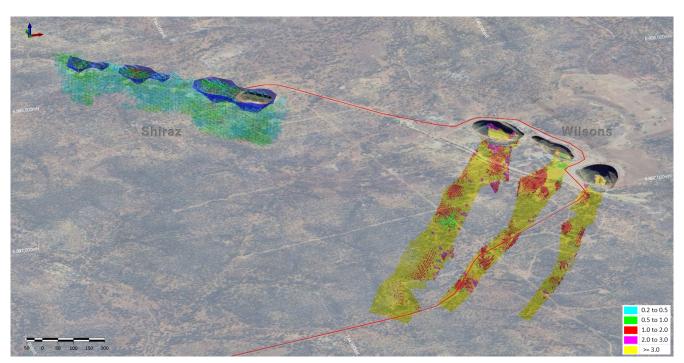


Figure 11: 3D view of Shiraz/Wilsons Area looking down to the northeast. Free milling A\$2,900 optimised pit shells (blue), MRE block models (coloured by Au g/t), existing pits (brown) and haul roads (red) over see-through satellite image.



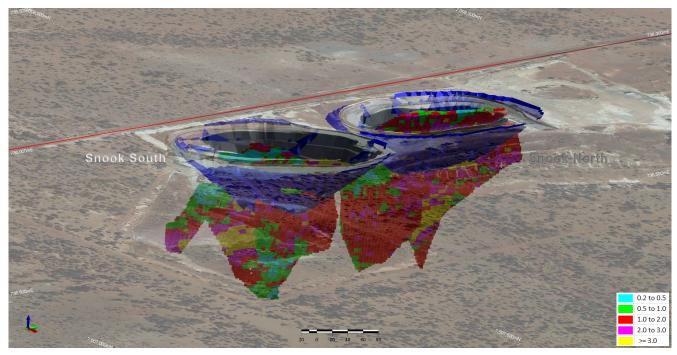


Figure 12: 3D view of Snook Deposit looking down to the northwest.

Free milling A\$2,900 optimised pit shells (blue), MRE block models (coloured by Au g/t), existing pits (brown) and haul roads (red) over see-through satellite image.

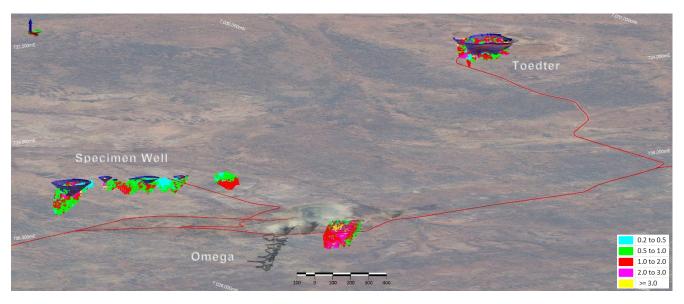


Figure 13: 3D view of Specimen Well – Toedter Area looking down to the northwest. Free milling A\$2,900 optimised pit shells (blue), MRE block models (coloured by Au g/t), existing pits (brown) and haul roads (red) over see-through satellite image.





### Hydrology and Hydrogeology

MBS Environmental and Tetra Tech were engaged to review previous studies and assess the hydrology (surface water) and Hydrogeology (groundwater) conditions respectively across the Gum Creek Project.

The hydrology review assessed the proposed mining and infrastructure areas and recommended new or additional bunding where required. All the watercourses and drainages within the Gum Creek Project are ephemeral, however flows occur periodically from January to March, when the potential exposure to high intensity rainfall is greatest. Consequently, runoff will report to the watercourses and on occasion, flows may be high enough to cause localised flooding. There is a 1250m long flood protection bund built on the north side of the Emu Feather waste dump which protects the main Gidgee processing and mining area and directs potential sheet wash flows around the waste dump and to the east of Swift. This bund may need some minor repairs but is in generally good condition. Horizon Gold has observed some prolonged periods of rain at site and understands local drainage issues which will need minor attention.

The hydrogeology review estimated expected inflows for open pit dewatering. Rock types within the gold deposit areas are generally of low permeability, however numerous local aquifers are present in sections of fractured and weathered rock, particularly in the northwest and southern areas. Here, shallow aquifers are present where the lithology consists of highly permeable surficial sediments and calcrete. The depth to groundwater in the region is variable and usually intersected between 30 and 60m below ground level. Dewatering records for pits near the Gidgee processing plant during the previous production periods provide a high level of confidence around expected groundwater inflow rates. These flow rates have been used to determine pumping requirements for pit dewatering in the area and have been costed into both pre-production and ongoing operating costs. Water flow information is limited for the areas to the north and south of the main Gidgee mining area. In these areas water flow rates used are of low confidence. Further hydrogeology and water flow work is planned.

Groundwater in the main mining area (Swan/Swift/Kingfisher) consistently reports good water quality (low Total Dissolved Solids) and is suitable for mineral processing and stock drinking water, meeting the Australian and New Zealand Environment Conservation Council (ANZECC) stock drinking water guidelines.

### Processing

A Gidgee processing facility site visit undertaken by Sedgman concluded that a clean sheet design was the most feasible for the Project. The Study considers a fit for purpose gold processing facility with a nameplate capacity of 2.4 Mtpa to be the most appropriate option. The new facility is best located in the existing mill location so that it aligns with previous processing approvals. The ores are to be both oxide and transitional free milling ores with a nominal head grade of approximately 1.1 g/t Au but the plant would be required to accommodate ores ranging from 0.5 g/t Au to 4.0 g/t Au.

Demex Pty Ltd were consulted regarding the demolition of the old Gidgee Mill. The works are estimated to take 8 weeks with a net cost of A\$0.975M including a mechanical demolition cost of A\$1.425M and potential scrap metal return of A\$0.45M. These estimates have been included as pre-production capital costs in the financial model.





Gum Creek Scoping Study March 2024

Based upon the metallurgical review and the results of a site visit, Sedgman proposed a flowsheet based upon experience from similar plants to form the basis of the costing exercise. The flowsheet is comprised of the following (presented in Figures 14 - 21):

- Three (3) stage crushing; primary jaw and two stage cones.
- Crushed ore stockpiling and reclaim.
- Single Stage ball mill grinding (9.0MW) operating in closed circuit with hydrocyclones
- Gravity gold recovery; primary centrifugal concentration followed by intensive cyanide leach
- Stirred tank gold leaching with adsorption onto activated carbon; two leach followed by six adsorption stages, 24 hour total residence time.
- Split AARL gold elution circuit; six tonne batch capacity.
- Secure gold room facility comprising electrowinning, smelting and doré storage facilities.
- Tailings disposal to a paddock style TSF.
- Reagents storage & distribution using liquid delivery rather than site mixing where possible.
- Water and air storage and distribution services.

A CPC Engineering desktop scoping study for the Gidgee Gold Project completed in 2012 was used to provide much of the process design data. Tables 8 & 9 (below) provide a summary of the basis of process design and materials handling design respectively.

Table 8: Basis of process design

Description			Value	Unit
Annual throughput	Design		2.4	dry Mtpa
Feed material			Free milling oxide,	transitional & fresh
Proportion of feed	Design		100% fr	ee milling
Crushing				
Availability			70	%
Feed rate			391	dry tph
Wet plant				
Availability			91.3	%
Feed rate			300	dry tph
Grinding circulating load			300	%
Target grind	P <sub>80</sub>		75	μm
Cyclone underflow bleed to gravity			25	%
Recovery, gravity	Average		23.75	%
Recovery, overall Average	Average		94.5	%
Target pH in leach	pН		10	
Leach residence time			6	h
Adsorption residence time			18	h
Target Au loading on carbon	[Au] on C		1,083	g/t
Ore Characteristics				
Crushing work index	CWI		10 – 46	kWh/t
Unconfined compressive strength	UCS		68 – 131	MPa
Abrasion index	Ai		0.25	g
Bond rod work index	BRWI		21	kWh/t
Bond ball work index	BBWI	Design	19	kWh/t
Feed grade	Au	Design	1.1	g/t
	Au	Range	0.5 – 4.0	g/t
Feed moisture			0 – 3	%





Description			Value	Unit
Crusher feed method	Design		ROM pad reclaim by FEL	-
Reclaim machine size	Design		CAT 992 or equivalent	-
ROM bin residence time	Design		0.25	h
ROM feed size	Design	F <sub>100</sub>	650	mm
		F <sub>80</sub>	325	mm
Crushed product size	Design	F <sub>100</sub>	16	mm
		F <sub>80</sub>	10	mm
Machine noise (@ 1m)	Design		<85	dB(A)
Dust loading			10,000	mg/m <sup>3</sup>

The major equipment required for the processing plant is outlined in Table 10 below.

Table 10 Envisaged major equipment for the Gum Creek processing plant.

Equipment	Number	Installed Power (kW)
ROM feed bin – 100t	1	N/A
Primary crusher – C130 or equivalent	1	160
Secondary crusher – HP6 or equivalent	1	450
Tertiary crusher – HP6 or equivalent	1	450
Coarse ore stockpile - live capacity 16 h, live volume 3,900 m <sup>3</sup>	1	
Reclaim feeders – Belt feeders	2	55
Ball mill – 6.7 m diameter x 10.1 m EGL	1	9,000
Cyclones – gMax15 (380mm) or equivalent, 9 operating, 2 standby	9/2	N/A
Gravity concentrator – Knelson KC-XD40	1	30
Intensive leach reactor – Acacia CS3000	1	N/A
Leach tanks – 1,264m³	2	N/A
Adsorption tanks – 1,264m³	6	N/A
Interstage screens – vertical cylindrical mechanically wiped (including spare)	7	N/A
Elution / acid wash column – 6t, internal height 8.9m, 14m³ internal volume	1	N/A
Regeneration kiln – Horizontal 300 kg/h design, LP gas	1	10
Electrowinning cells (elution) – 9 x 0.8m x 0.8m cathodes	2	18
Electrowinning cells (gravity) – 9 x 0.8m x 0.8m cathodes	1	18
Process water pond – 6,000m³, 23.5 h based on nominal flow	1	N/A
Raw water pond – 6,000m³, 33 h based on nominal flow	1	N/A



Reagents and consumables will be trucked to site from the vendor's major distribution centers. To minimise the site water requirements and the site equipment complexity, the reagents will be supplied in liquid form where possible. The major process inputs are summarised in Table 11 below.

**Table 11: Reagents and Consumables** 

Reagents	Dosing/ Consumption Point	Packaging	Distribution	Dosage / Consumption Rate	Est. Usage
Sodium Cyanide	CIL, Elution & ICL	Liquid Tanker	23.5% w/w solution	0.39 dry kg/t	937 t/a
Sodium Hydroxide	Elution, Electrowinning & ICL	Liquid Tanker	50% w/w solution	0.12 dry kg/t	951 t/a
Hydrochloric Acid	Elution	Liquid Tanker	32% w/w solution	0.0003 dry kg/t	0.79 t/a
Activated Carbon	Adsorption Tank 6	600 kg Bulk Bags	As granules	10 g/t	24 t/a
Quicklime	Grinding	60 t Bulk Tanker	Dry Powder	0.54 dry kg/t	1,291 t/a
Oxygen	Leaching	Liquid Tanker	Cryogenic Liquid		1,300 t/a
Grinding Media	Ball Mills	Bulk Delivery	63 mm balls	2.8 kg/t	5,225 t/a

#### **Process Flow Diagrams**

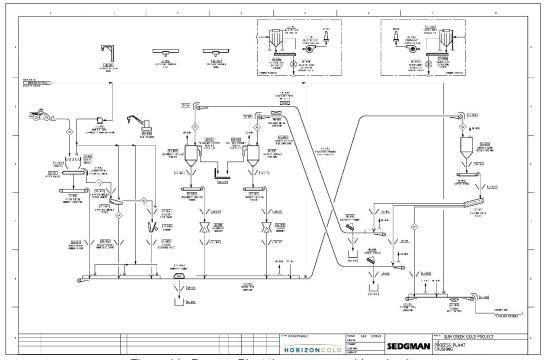


Figure 14: Process Plant three stage crushing circuit.



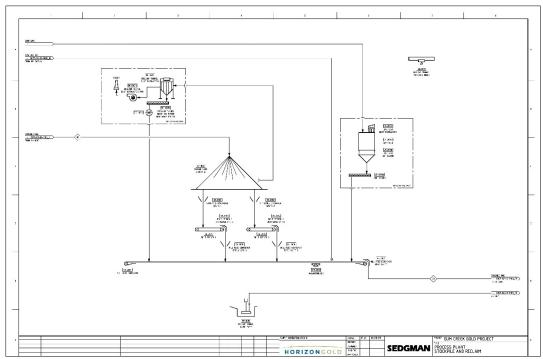


Figure 15: Process Plant Stockpile and Reclaim

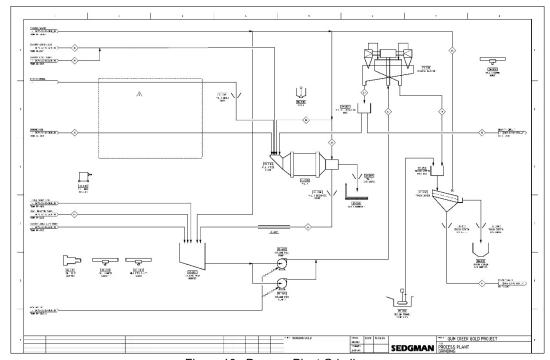


Figure 16: Process Plant Grinding



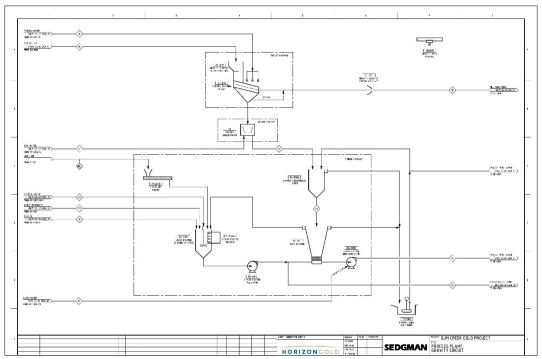


Figure 17: Process Plant Gravity Circuit.

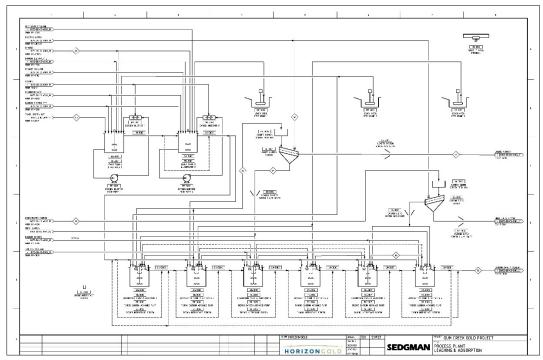


Figure 18: Process Plant Leaching & Adsorption.



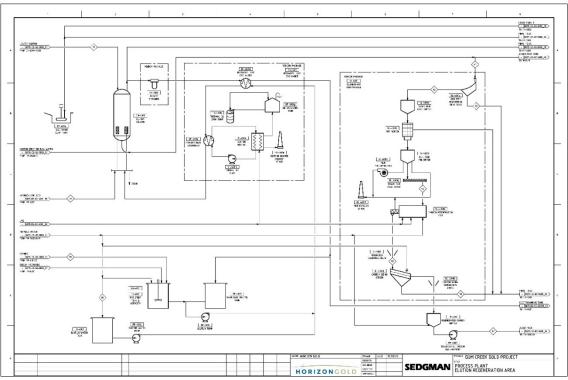


Figure 19: Process Plant Elution Regeneration Area.

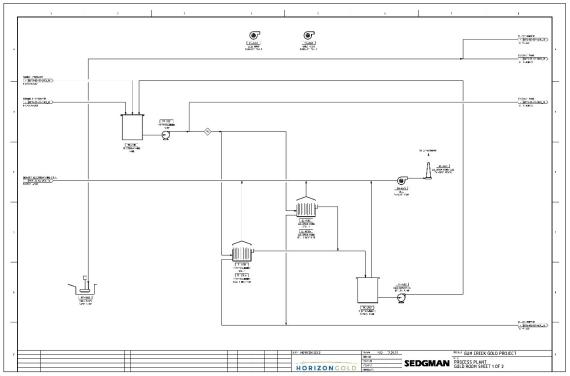


Figure 20: Process Plant Gold Room.





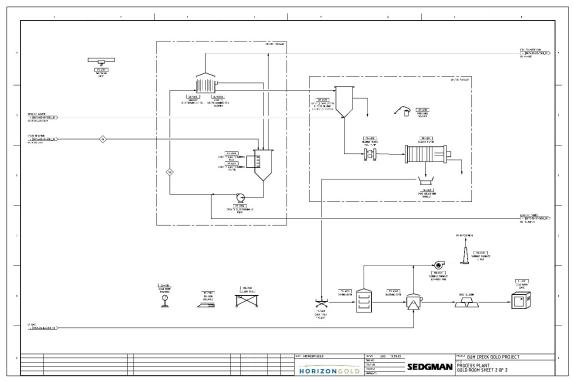


Figure 21: Process Plant Gold Room.

### Tailings Storage Facilities

The Company strategy for managing tailings storage at the Gum Creek Gold Project is based on the following criteria:

- Use the existing Tailings Storage Facility (TSF1) and continue with upstream raising of the perimeter embankment;
- Develop a new Tailings Storage Facility (TSF2) immediately north of the existing TSF to achieve the required tailings storage capacity.

The following design parameters and assumptions were adopted for the present study:

- Total (LOM) ore production: 24.46 Mt;
- Production rate: 2.4 Mtpa over 10 years;
- Processed tailings reporting to the TSF: approximately 45% solids;
- Tailings dry density: 1.4 t/m³; and
- Tailings beach slope: 1% (1:100 V:H).

The footprint area of TSF1 will not increase, and TSF2's footprint will cover an area of approximately 70 ha. TSF1 and TSF2 will be operated separately, as tailings deposition will alternate between the two facilities. The proposed general arrangement for TSF1 and TSF2 is illustrated in Figure 22 below.





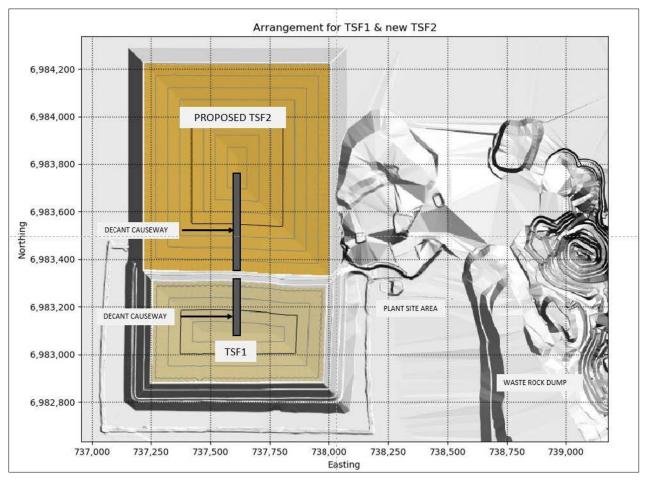


Figure 22: Plan of proposed tailings storage facility

## Water Supply, Dewatering and Water Management

Processing water for the Gidgee processing plant was initially obtained from the Swan Bitter pit and North Swan Bitter pit dewatering bores. Groundwater quality, especially in the main Gidgee mining area (Swan/Swift/Kingfisher), is suitable for mineral processing and suitable for stock drinking water, meeting the Australian and New Zealand Environment Conservation Council (ANZECC) stock drinking water guidelines. The water is also suitable for general use at the mine camp, however reverse osmosis treatment is currently used and required for ongoing potable water.

Dewatering and water management will be required throughout the LOM and is necessary for 10 of the 14 deposits included in the Study. Dewatering will be required to commence 3 months prior to the commencement of mining. Initial dewatering will consist of pumping the Swan / Swift pit water to the Kingfisher and Hawk pits approximately 3km to the south of the old Gidgee processing facility. A lateral pipeline will be provided to supply raw water to the processing plant. Pumping will be undertaken with high head high flow horizontal centrifugal self-priming direct diesel driven skid mounted water pumps. The high head and high flow pumps will be relocated to each pit requiring dewatering. The relocated pumps will be replaced with high head lower flow pumps for maintenance pumping.





Water stored during pre-production in the Kingfisher and Hawk pits will be used to supply raw water to the process plant when production commences. Additional pumps will be required to handle the increased flow rates. Eagle pit will be dewatered using relocated pumps and the same pipeline.

The pipeline installed during Swan/Swift pre-production dewatering will be reused to return water to the Swan/Swift pit and allow mining at Kingfisher to commence.

The Wedge pit will be dewatered using relocated pumps and a new pipeline to the processing plant with a bypass to the Swan/Swift or Kingfisher pits for any excess water.

The Heron to Manikato pits will be dewatered by pumping water to the Kingfisher pit, and the Toedter pit will be dewatered by pumping to the Kearrys pits 3 kilometres to the east.

Dewatering records for pits near the Gidgee processing plant during the previous production periods provide a high level of confidence around expected groundwater inflow rates. These flow rates have been used to determine pumping requirements for pit dewatering in the area and have been costed into pre-production costs, sustaining capital costs, and ongoing operating costs. Water flow information is limited for the areas to the north and south of the main Gidgee mining area. In these areas water flow rates used are of low confidence and further hydrogeology and water flow work is planned.

### Power

Power consumption for individual items of equipment has been based upon the expected installed power multiplied by a demand factor that Sedgman derived based upon experience. Individual equipment consumptions were then summed and multiplied by the area operational hours to give a consumption estimate (Table 12).

Table 12: Estimated Power Consumption for the Gum Creek Processing Plant

Area	Annual Runtime (hr)	Installed Power (kW)	Demand Power (kW)	Consumed Power (kWh)	Annual Cost (\$M)
Crushing	6,132	2,171	1,296	7,947,072	1.96
Milling	8,000	12,236	10,581	84,648,000	20.88
Total		14,407	11,877	92,595,072	22.84

The unit cost of electricity has been derived based on a hybrid power supply arrangement consisting of 12MWp of solar PV capacity and a gas power station. The gas power station will consist of reciprocating gas gensets with N+2 redundancy. The solar photovoltaic (PV) plant will deliver an annual energy production of approximately 23.8 GWh of renewable energy which constitutes a net annual renewable fraction of approximately 25% of the total energy requirements. A Battery Energy Storage System (BESS) will be installed to provide power stability to the hybrid power system to manage the intermittency of the solar PV due to cloud cover events.

The commercial strategy for the power station development is a Build Own and Operate (BOO) arrangement. Under this arrangement, a power provider will be engaged through a Power Purchase





Agreement to finance, construct, operate and maintain the gas power station and the solar PV plant. The power provider will charge a capacity fee and variable fee for the supply of electricity to the site.

Gas will be supplied via a virtual LNG pipeline that includes trucking LNG from an LNG facility in Mt Magnet with 7 days gas storage and re-gasification of LNG onsite. Separate diesel generators will be installed to provide emergency supply to the plant to manage any disruptions to the virtual gas pipeline supply.

The projected unit cost of electricity, including the BOO costs and gas supply costs, is estimated to be A\$0.2467c/kWh with the gas supply costs making up 60% of the total electricity cost. Solar PV provides a unit cost saving of approximately 2.5c/kWh, or an annual gas cost saving of A\$2.35M per year. The estimated capital costs of developing the power station under a BOO arrangement is A\$2.7M, this includes work that is excluded from the power provider scope of supply, including bulk earthworks and services interfacing to the power station including water, power, communications, security and access roads.

### Other Infrastructure

The existing processing site retains operations offices, stores and laydown areas, a workshop, and a fuel storage facility. It is anticipated that these facilities could be made usable with the services of a small building crew of six people over a two to four-month period.

The existing Gidgee mine camp is located approximately 2km south of the old Gidgee processing plant (Figure 23). The original design accommodated 110 people, however due to limited maintenance in some areas the current capacity is approximately 50 people. The camp requirements can be considered in terms of the project phases:

- ECI / ISA design Onsite requirements peak at less than 12 people and the existing Gidgee mine camp facilities are suitable.
- Early works / facilitation Existing camp facilities are suitable. This work period would include construction of new accommodation facilities. Some upgrades to the existing rooms may be required at the commencement of this period to ensure the full 50 room capacity.
- Processing Plant Construction Peak resourcing during this period would be between 160 and 250 people depending on the construction schedule prioritisation. The nature of gold plant circuits does not lend to complete modularisation of areas, but ample opportunity exists to leverage "pancake" platform builds. These can remove 10% to 30% structural erection hours from site. Staging electrical commencement post the Structural / Mechanical / Piping peak will lower the overall peak but add a further two to four months to the construction project.
- Commissioning Management of peak manning through commissioning and operations would be levelled against the peak construction load. Mining will ramp up through this period, such that coordination of the final camp limit against the project requirements running into production are to be balanced against the capital expenditure required for new facilities. The existing accommodation facilities are to be kept as overflow moving forward, subject to ongoing maintenance costs being controlled.





Figure 23: Gidgee mine camp and airstrip (July 2023).

The existing airstrip features a hardened unsealed surface suitable for daylight use by Code 1B aircraft above nine seats but no more than thirty seats and for day and night use by emergency aircraft such as Royal Flying Doctor Service operations. The airstrip runway is 1,772m long in an ENE – WSW direction with 60m additional length at each end and is 30m wide. The overall width of the airstrip is 80m. A 51m long taxiway connects the aggregate topped 40m x 30m airplane apron area to the runway.

The airstrip was upgraded in 2011 to a scope and specification based on advice provided by Aerodrome Management Services of Perth for Code 2 aircraft use. The upgrade works included new fencing to completely fence the facility and install new vehicle and personnel access gates, earthworks to improve the runway surface strength, slope, cross-fall and drainage, earthworks to re-construct the taxiway and apron area to comply with regulations, installation of new marker cones, windsock, signal circle and clearing of vegetation to comply with the obstacle limitation regulations. The strip is proposed to be used for regular charter flights to move employees to and from Perth.

### Environmental, Native Title, Heritage and Permitting

MBS Environmental (MBS) was commissioned by Horizon Gold to prepare an Environmental Scoping Study for the Project. The Environmental Scoping Study included waste rock characterisation, surface water, hydrogeology, flora and fauna, and permitting aspects collated from publicly available information sources and paid databases to provide an overview of the environmental characteristics of the project area to provide an environmental approvals strategy and cost estimate.

The Gum Creek Gold Project was mined between 1986 and 2005 and as such 11 of the 14 deposit areas contemplated in this Study have already been mined and are already significantly disturbed. None of the numerous environmental and heritage surveys completed on the Project to date have identified any special flora, fauna, or heritage significance. Most environmental and heritage surveys however,





were conducted prior to 2016 and will require re-surveying as they now fall outside the seven-year age limit imposed by the Environmental Protection Authority (EPA). It is assumed that re-surveying will produce similar conclusions.

#### Waste Rock Materials Characterisation

MBS reviewed the coverage of previous waste rock characterisation works relative to the Study's proposed pits, tonnages of waste and current requirements for preparation of mining proposals. The majority of waste rock characterisation work to date has been performed from sampling of the existing waste landforms (MBS 2019). No deleterious characters have been identified in the free milling material subject to this study. Additional waste rock characterisation work has been recommended and a work program proposed.

#### Surface Water

A review of surface hydrology and issues likely to be encountered by the Gum Creek Project and identification of potential requirements for further studies was completed. All of the on-site creeks and drainages are ephemeral in nature. However, flows will occur periodically during the summer months from January to March, when the potential exposure to high intensity cyclonic or tropical depression related rainfall is greatest. During this time, on occasion, surface water flows may be high and may cause localised flooding around existing infrastructure if appropriate measures are not in place.

#### Flora

The Project predominantly consists of low woodland Mulga (Acacia aneura), shrubland and mulga scrub with occasional chenopod shrubland, as well as hummock grasslands and shrub steppe. The vegetation complex is described as open shrubland with a scattered distribution of undergrowth and ground cover.

No Commonwealth or State-listed Threatened Ecological Communities or threatened flora species occur within the Project. Vegetation has degraded over the years due to the presence of grazing sheep, cattle and goats, resulting in a loss of perennial plant diversity.

#### Fauna

The habitats present in the project area are likely to support a range of vertebrate fauna as they are generally uniform, widespread, and common within the region, and lack features such as salt lakes, major rivers, and ranges.

Further assessment will be required to confirm if there is any habitat present to potentially support 3 threatened species (Arid Bronze Azure Butterfly host ant, Malleefowl and Night Parrot), which will determine the requirement for a Targeted survey to be completed.

#### Native Title and Heritage

The Project is partly covered by the Yugunga-Nya Native Title claim in the northwest and the Tjiwarl Native Title claim in the east of the Gum Creek Project (Figure 24).

All deposits included in the Study are located within granted mining leases, and only the Toedter and Shiraz deposits are covered by the Yugunga-Nya and Tjiwarl Native Title claims respectively. Both deposits are located on mining leases granted prior to 1 January 1994 which means Native Title compensation is not applicable for grant or any subsequent mining lease renewals. The Toedter deposit





is located entirely within M51/410 which was granted in March 1992, and the Shiraz deposit is located entirely within M53/153 which was granted in June 1990.

Numerous Aboriginal archaeological heritage and ethnographic surveys have been undertaken throughout the Gum Creek Project. A search of the Aboriginal Cultural Heritage Inquiry System in January 2024 indicated the presence of 7 registered sites near but not over the deposits included in the Study. None appear likely to be directly impacted by the development of the proposed deposits within this Study.

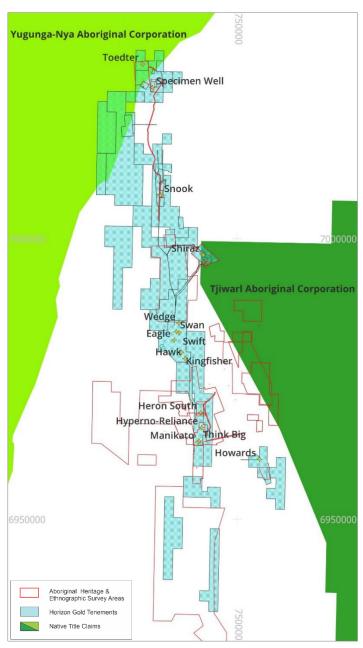


Figure 24: Native Title Claims and Aboriginal Heritage and Ethnographic Survey Areas





#### Permitting and Approvals

Current information suggests that habitat for several Environmental Protection and Biodiversity Conservation (EPBC) listed species is likely to be present within the project area, but depending on details of the proposed development significant impacts are not likely,

There is low probability of impacts on Commonwealth and State listed Threatened flora or fauna species or ecological communities and as the Project is located on land with low cultural heritage sensitivity, the likelihood of the project needing formal assessment is considered low.

A Works Approval will be required to allow construction and commissioning of key project components including the processing plant, TSF, power generation facilities, landfill and wastewater disposal facilities, and a Mining Proposal and a Mine Closure Plan are required to be prepared in accordance with the Statutory Guidelines for Mining Proposals in Western Australia 2020, (DEMIRS 2020).

A Native Vegetation Clearing Permit (NVCP) is required if clearing of native vegetation for construction or operation of the project is needed. There is an existing NVCP (6085/1) for the Project for the clearing of 100 ha across tenements M57/634, M53/153, L 53/96 and L 57/47 (Figure 25). It is likely that the clearing required for the processing plant, central infrastructure areas and the Swan, Swift, Eagle and Shiraz pits can be covered by the existing NVCP. If only small amounts of clearing are required within the vicinity of the Kingfisher, Hawk and Wedge deposits, then there is potential to amend the existing permit to cover these areas.

A Mining Proposal (ID 46008) is currently approved for the Wilsons and Swift deposits and the proposed processing area on tenements M57/634 (old Gidgee processing site and Swift areas), M53/153 (Shiraz deposit), and for miscellaneous licences L53/96, L57/44 and L57/47 (Figure 25). There may be potential to commence activities as approved under this mining proposal prior to obtaining additional approvals. This could potentially include the existing infrastructure located in the central infrastructure area, such as the camp and airstrip, the waste dump extension at Swift and haul road extension from Wilsons to Shiraz.

Groundwater licences are required for all proposed groundwater abstraction activities in proclaimed groundwater areas. Groundwater Licence GWL 56290 is currently active for the project and is valid until 5 September 2027. The GWL has an annual allocation of 30,000 kL for taking water for dust suppression for mining purposes, exploratory drilling operations and mining camp purposes within tenements M57/33, M57/72, M57/19. An amendment to the groundwater licence will be required to authorise mine dewatering and abstraction from the pits for processing purposes.

Permitting and compliance for construction work, health related issues and dangerous goods will also be required.



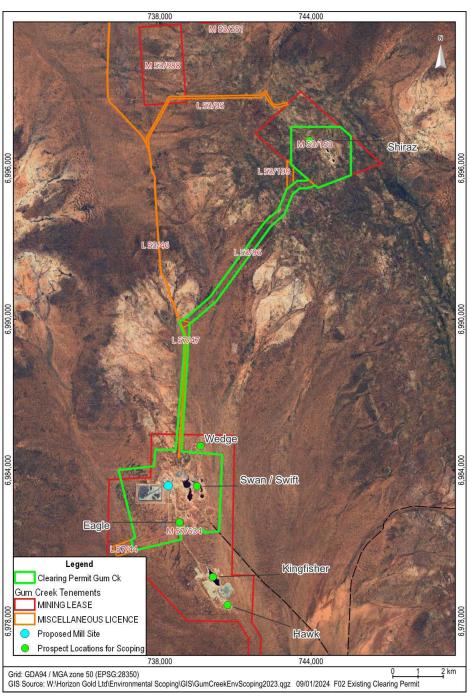


Figure 25: Current Native Vegetation Clearing Permit

Some additional baseline studies are considered likely to be required for the Project to support preparation of approval documents include Flora and Vegetation, Terrestrial Fauna and Habitat, Subterranean Fauna and Habitat, Aboriginal Heritage, Greenhouse Gas Emissions, Air Quality and Noise Emissions, Soil and Landform, Waste Rock Characterisation, and Surface Water.



### Capital Costs

Capital costs were derived from various external consultants and suppliers including Auralia, Tetra Tech, Sedgman, Demex and Grounded who utilised their expertise to identify and quantify volumes and cost estimates based on recent pricing from similar WA mines (Table 13). The cost estimates include all construction and pre-production site, mining, processing, TSF, dewatering and sustaining capital costs. Pre-production mining costs (open pit pre-strip) of A\$36.4M are included in the mine operating costs over the first 5 months of operations.

Sustaining capital includes all capital expenditure post-production commencement. Sustaining capital for the processing plant includes allocation of capital replacements and throughput optimisation as well as the construction of the second tailings storage facility.

**Table 13: Summary of Capital Expenditure** 

Pre-Production Capital	(A\$M)
Demolition of existing Processing Plant	1.0
Processing Facilities (incl. offices)*	193.1
Camp and Site Facilities	25.4
Property Plant & Equipment (incl. vehicles and administration offices)	3
Tailings Storage Facility (TSF)*	3.5
Open Pit Dewatering (pumps, pipes, and operating costs incl. diesel)	10.5
Pre-production Mining Contractor Costs**	2
Total Pre-production Capital	238.5
Sustaining Capital (LOM)	(A\$M)
Tailings Storage Facility (TSF)	30.1
Dewatering and Water Management (pumps, pipes, vehicles & equipment)	62.8
Property Plant & Equipment (vehicle & building maintenance)	2
Total Sustaining Capital	94.9
Total Capital Costs	333.4

<sup>\*</sup> Costs are expected to be accurate within the study allowance of ±35%, the estimates include a contingency allowance of 20%.

#### Gidgee Processing Plant Demolition

A cost estimate to demolish and remove all components of the existing 600tpa processing plant was provided by DEMEX. The cost breakdown is presented in Table 14 below.

**Table 14: Demolition Cost Estimate** 

Description	(A\$)
Mechanical demolition of CIL Plant and attached infrastructure inclusive of concrete slab	1,425,000
Less potential scrap metal return value based on current market value	(450,000)
Total Cost	975,000

<sup>\*\*</sup> Pre-production mining costs of \$36.4M in addition to mining contractor costs are included in mine operating costs over the first 5 months.





#### **Processing Facilities**

A capital cost estimate to an accuracy of  $\pm 40\%$  was developed from first principles and recent equipment pricing from the Sedgman pricing database. It was estimated that the cost of the processing plant would be A\$193.1M including a 20% contingency for direct costs and allowances (Table 15).

Table 15: Breakdown of estimated capital costs (single stage ball mill)

Description	Item	Sub Item Cost (%A)	Total Cost (%A)
Crushing		35,015,000	
Grinding		29,893,000	
Gravity		1,708,000	
Leach & Adsorption		21,347,000	
Elution		2,142,000	
Gold Room		2,670,000	
Tailings		741,000	
Tailings Storage		150,000	
Sodium Cyanide		1,273,000	
Hydrochloric Acid		317,000	
Sodium Hydroxide		77,000	
Oxygen		70,000	
Services		1,052,000	
Site Buildings		3,133,000	
		Sub Total	99,587,000
Cost Centre Allowances	Commissioning spares	597,000	
	Electrical, instrumentation & controls	21,909,000	
	Fire system	1,494,000	
	First fills & lubricants	598,000	
	Piping & valves	8,963,000	
		Sub Total	33,561,000
	Engineering	10,652,000	
	PCM	19,972,000	
	Warranty / defects	1,331,000	
		Sub Total	31,955,000
		Contingency (20%)	27,984,000
		Total cost	193,087,000

Note: figures have been rounded

#### Camp and Site Facilities

A total cost estimate of A\$25.4 million to supply and install a 200-person camp was provided by Grounded (Table 16). This estimate includes all camp facilities and services, and averages A\$127,000 per bed. Camp infrastructure durations from order to occupation are up to 18 months from formation of contract.





#### Camp facilities include the following:

- 20 x management dongas each with 2 separate access compartments containing bed, wardrobe, desk and town toilet and shower.
- 40 x standard accommodation dongas with 4 separate access compartments containing bed, wardrobe, desk and own toilet and shower.
- 4 x laundry dongas fitted out with washing machines and dryers etc.
- 4 x 40ft transportable building complex to form fitted out kitchen and adjoining dining room.
- 2 x 40ft transportable building complex to form gymnasium/recreation room adjacent to pool and tennis court.
- 2 x 40ft transportable building complex to form wet mess.
- 2 x 40ft transportable building complex to form a maintenance shed.
- Suitable waste and water treatment plants and all suitable concrete paths, and electrical and plumbing to all buildings.

All buildings are quoted as steel chassis, panel walls, steel roof construction configuration, complying with National Construction Code requirements.

Table 16: Breakdown of estimated camp facility capital costs

Description	(A\$)
Preliminaries	396,331
Indirect Personnel – Site and Offsite	2,551,966
Site Mobilization and Demonization	931,529
Documentation for Completion/Handover	143,780
Civil Works and Concrete Works	1,417,607
Building and Equipment Supply and Installation, including complexing, connections, WWTP, piping, electrical works, fencing and all tie-ins	15,576,757
Earthworks, Site services works	4,421,595
Total Capital Costs	25,439,566

#### **Tailings Storage Facility**

The capital cost estimates for the proposed existing TSF embankment raise and for the new TSF are summarised in Table 17 below. The total cost for both facilities is A\$33.7M.

**Table 17: Summary of TSF Capital Expenditure** 

Description	Existing TSF (\$A)	New TSF (\$A)	Totals
TSF civil earthworks capital cost*	3,520,140**	12,942,990***	16,463,130
TSF civil earthworks future stages (Stages 2 to 5)*	8,672,440	8,526,120	17,198,560
Total Cost	12,192,580	21,469,110	33,661,690

<sup>\*</sup> Costs are expected to be accurate within the study allowance of ±35%, the estimates include a contingency allowance of 20% for the TSF construction cost.

<sup>\*\*</sup> Year 1

<sup>\*\*\*</sup> Year 2





#### Open Pit Dewatering

Pre-production capital includes dewatering pumps and piping, electrical equipment, and light vehicles. Dewatering of the Swift area (Vigilant, Swift Gannet pits) will be required to commence 3 months prior to the commencement of mining. Sustaining capital includes replacement and/or additional pumps, pipes, vehicles & equipment.

#### Property Plant and Equipment (PPE)

PPE capital cost estimates include site vehicles, radio communications, administration offices and potable water equipment (including a new RO plant). PPE sustaining capital cost estimates include site vehicle and building maintenance costs.

### **Operating Costs**

Operating cost pricing and quotations have been derived from various external consultants including Auralia, Tetra Tech, Sedgman, and Northern Rise. Estimates are based on published tables from similar WA mining operations, with processing operating costs built up from processing plant suppliers scaled by accepted methods. Operating cost estimates are presented in Table 18.

**Table 18: Estimated Operating Costs** 

Operating Cost Description	LOM Operating Cost (A\$M)	A\$/t milled	\$/oz Au Produced
Mining (incl. grade control, haulage, dewatering)	838.9	34.30	\$993.6
Processing	577.6	23.61	684.1
Site G&A	44.5	1.82	52.7
C1 Cash Operating Cost*	1,461.0	59.72	1,730.40
Royalties	74.6	3.05	88.4
Sustaining Capital	94.9	3.88	112.4
All-in Sustaining Cost (AISC)**	1,630.5	66.66	1,931.20

<sup>\*</sup> C1 cash cost includes mining, processing, and administration costs.

<sup>\*\*</sup> AISC per ounce payable includes C1 cash cost, royalties and sustaining capital. It does not include corporate, exploration or non-sustaining costs.



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#### **Mining**

Mining operating cost estimates are based on an Auralia cost model and are reflective of current contractual rates for similar style and size haulage operations. Mining operating cost estimates include grade control (A\$0.55/t ore), pit dewatering (A\$0.14/bcm), drill and blast (A\$1.5/bcm, A\$2.5/bcm and A\$3.5/bcm for oxide, transitional and fresh respectively), load and haul (A\$4.4/bcm at surface, increasing by A\$0.25/bcm per five metre bench for an average A\$6.52/bcm), and ore haulage including haul road upgrades and maintenance (A\$0.20/t/km). Mining ancillary and overhead costs (A\$1.4/bcm) include dozing, ground control, mine management and technical staff salaries, contractors, and all other fixed mining operational costs. The mining operating cost is estimated to be 34.30/t milled which equates to a LOM operating cost of A\$838.9M and A\$993.6/oz Au produced(Table 19).

**Table 19: Mining Operating Cost Summary** 

Description	LOM Cost (A\$M)	Cost (A\$/bcm mined)	Cost (A\$/ROM t)	Cost (A\$/oz Au)
Grade Control	13.5	0.18	0.55	15.9
Pit Dewatering (labour, diesel)	10.5	0.14	0.43	12.4
Drill and Blast* (avg ox, tr, fr)	140.1	1.85	5.73	165.9
Load and Haul**	494.6	6.52	20.22	585.9
Ore Haulage	73.8	0.97	3.02	87.4
Mining Overheads & Ancillary Costs	106.4	1.40	4.35	126.0
Total	838.9	11.06	34.30	993.6

<sup>\*</sup> Average A\$ per bcm mined for oxide, transition and fresh rock.

#### Processing

An operating cost estimate for the proposed processing facility was undertaken at ±40% using recent reagent pricing from the Sedgman database, published market labour rates and a BOO 'over the fence' contract power supply from a mixed solar and gas generation facility. A processing operating cost of A\$23.61/t milled was calculated on a design feed grade of approximately 1.1 g/t Au which equates to a LOM operating cost of A\$577.6M and A\$684.1/oz Au produced. A summary of the processing operating costs is given in Table 20 below. No contingency was added to these costs.

**Table 20: Processing Operating Cost Summary** 

Description	Estimated LOM Cost (A\$M)	Cost (A\$/ROM t)	Cost (A\$/oz Au)
Labour	82.0	3.35	97.1
Maintenance	44.0	1.80	52.2
Consumables	156.8	6.41	185.7
Power	223.8	9.15	265.1
Mobile Equipment	46.5	1.90	55.1
G&A	24.5	1.00	29.0
Total	577.6	23.61	684.1

<sup>\*\*</sup> Includes site establishment / clearing costs.







#### **Royalties**

The State Government Royalty of 2.5% has been applied to all recovered ounces, along with various production royalties on specific deposits as detailed in Table 21 below. It is estimated that approximately A\$13.4M in royalties will be paid to third party companies, and approximately A\$61.2M in royalties will be paid to the State Government over the LOM.

**Table 21: Scoping Study Gold Royalty Summary** 

Deposit	Gold Royalty Name	Royalty Owner	Royalty Details
Heron South (southern portion of ore body), Hyperno- Reliance (southern portion of ore body), Manikato, Think Big	Wyooda Thangoo Royalty	Twin Hills Operations PL	Royalty (A\$ per tonne of ore treated) = A\$(P/500) x (G/3) x (29.4/49) where (P = avg A\$/oz Au price, G = avg head grade)
Howards	Howards Royalty	Dalrymple Resources PL	A\$10/oz of gold mined & processed after first 30,000oz
Shiraz	Mt Townsend Royalty	Barrick (Kalgoorlie) Ltd & Kundana Gold PL	Royalty (A\$ per tonne of ore treated for first 500,000t) = A\$(R x SP/470) where R = A\$2.25, SP = avg A\$/oz spot Au price
Shiraz	Mt Townsend Royalty	Barrick (Kalgoorlie) Ltd & Kundana Gold PL	Royalty (\$A per tonne of ore treated after first 500,000t) = A\$(R x SP/470) where R = A\$2.75, SP = avg A\$/oz spot Au price
Snook South	Buttercup Bore Royalty	Royal Gold Inc.	Royalty = 0.02 x (T x HG/31.103477) x A\$/oz Au Spot where T = Ore Treated (t), HG = avg head grade
Toedter	Murchison Downs Royalty	Newsat Ltd	Royalty (A\$ per tonne of ore treated) = A\$(2.0 x (P/bp) where P = avg A\$/oz Au price, bp = base price of gold A\$500/oz

#### Site General and Administrative (G & A)

General and administrative costs are derived from an internal cost model and reflect recent industry rates and manning requirements for a similar style and size of operation. G & A costs including Site Operations Manager, Financial Manager, OH&S and Environmental staff (A\$60,000 per month), Flights (A\$50,000 per month), Food and Accommodation (A\$175,000 per month - A\$65 per bed per night), Insurance, Admin, Freight, Rents, Rates, MRF, and Pastoral costs (A\$65,000 per month) for a total fixed monthly cost of A\$350,000. This cost estimate does not include mining G & A or processing G & A costs which are built into their respective operating cost estimates (as cost per tonne ore mined or processed).





### Economic Analysis

An economic valuation using the physical and financial parameters outlined in the Study has been completed. A project financial model was established using a conservative A\$2,900/oz base case pricing assumption, current industry costings and an annual discount cash flow methodology to generate a Net Present Value ('NPV") at 8% and Internal Rate of Return ("IRR") for the project on a pre-tax basis.

A range of scenarios considering different production profiles and cut-off grades have been evaluated in this scoping study. The 2.4 Mtpa throughput sustains full production for ten years, is the preferred production rate for the Study, and provides the opportunity to add additional satellite deposits and/or toll treat ore from other companies beyond the current mining schedule.

The Study demonstrates that recommencement of open pit mining at a A\$2,900/oz gold price provides a positive economic return, with the base case yielding a pre-tax cashflow of A\$574M, pre-tax NPV<sub>8</sub> of approximately A\$318M, and a pre-tax IRR of 31.5%. The payback period from commencement of mining in this scenario would be 3.0 years. The annual undiscounted cashflow and cumulative undiscounted cashflow (from funding drawdown) outcomes are presented in Figure 26 below.

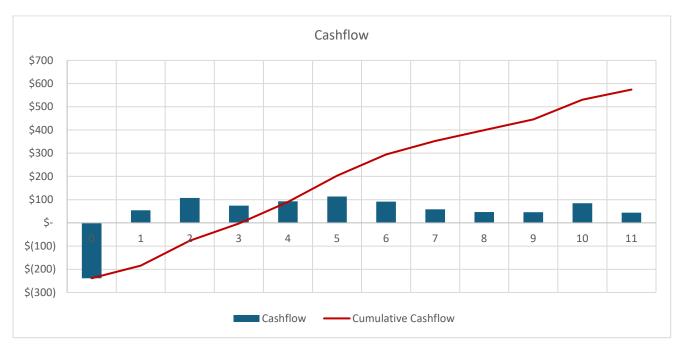


Figure 26: Undiscounted Cashflow and Cumulative Undiscounted Cashflow (A\$M) by Year

The Study base case gold price is approximately A\$400/oz below the current spot gold price, representing significant potential upside to predicted financial outcomes. The A\$3,300/oz gold price scenario returns a pre-tax cashflow of A\$904M, pre-tax NPV $_8$  of approximately A\$548M, and a pre-tax IRR of 45.8%. The payback period from commencement of mining in this scenario would be 2.1 years. (Table 22).



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Table 22: Scoping Study - Gold Price Scenarios

Description		Gold Price (A\$/oz)						
Description	\$2,500	\$3,100	\$3,300					
Pre-tax Cashflow (A\$M)	\$244.96	\$409.59	\$574.23	\$738.87	\$903.50			
NPV <sub>8</sub> (A\$M)	\$88.09	\$202.94	\$317.79	\$432.65	\$547.50			
IRR (%)	15.3%	23.8%	31.5%	38.8%	45.8%			
Payback Period (years)	4.6	3.7	3.0	2.5	2.1			

<sup>\*</sup> Base case gold price

## Sensitivity Analysis

A sensitivity analysis of the Study's key economic parameters demonstrates that project economics are most sensitive to a change in gold price, followed by a change in operating costs, discount rate and capital expenditure. The results of the sensitivity analysis are presented in Figure 27 in terms of NPV sensitivity.

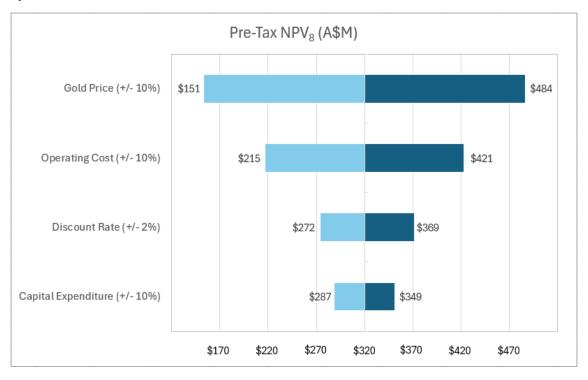


Figure 27: Study NPV sensitivity analysis



## **Funding**

To achieve the financial outcomes indicated in the Study, funding for pre-production capital of A\$238.5M will be required, with further funding required for sustaining capital purposes.

The Company believes that there is a reasonable basis to believe that the funding required for the development of the Project will be available when required. The grounds on which this reasonable basis is established include:

- The Study has illustrated the strong economic fundamentals of the Project including an attractive return on capital investment and robust cashflows even at a base case gold price approximately A\$400/oz below current spot gold prices. This provides a strong platform to source debt and equity funding.
- The Board of Horizon Gold has a strong track record of raising equity funds when required and the Company's major shareholders are strongly supportive of the recommencement of production within the Project.
- The Project has a 10-year mine life generating significant free cash flow relative to the development capital requirement, and release of this study provides a basis for commencing discussions with potential financiers.
- The Study demonstrates the Project can deliver significant value to shareholders.
- The Company has a tight capital structure, and owns 100% of the Project, making potential financing arrangements simpler.
- The Board has extensive experience in mine development and production in the resources industry which is attractive to potential financiers seeking certainty of project delivery.
- Global debt and equity finance availability for gold projects remains robust and a number of recent examples of funding being made available for gold development projects located in Australia in the last two years support this view.

There is, however, no certainty that the Company will be able to source funding as and when required. Typical project development financing would involve a combination of debt and equity. It is possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

### Conclusions and Recommendations

The Scoping Study provides justification that the development of the Gum Creek Gold Project is a commercially viable stand-alone mining operation and accordingly the Board of Horizon Gold Limited are considering the commencement of a Feasibility Study. Work should also commence on other areas that can enhance the project economics.

This work should focus on reducing pre-production capital expenditure including processing facility costs and reducing sustaining capital expenditure including ongoing water management costs. Further evaluation of grade cutoff options and processing throughput rates should also be completed.

Further resource drilling at the Project should focus on expanding the shallow oxide resources excluded from the Study and identifying new shallow oxide resources close to existing infrastructure to include in



the production schedule, in addition to converting Inferred Mineral Resources to Indicated Mineral Resources.

There is excellent potential to extend the proposed Study mine life through underground mining and other processing methods, and underground mining options at all deposits including Swan/Swift, Kingfisher, Omega and Wilsons should be evaluated.





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