

## ASX Announcement

17 June 2021

This announcement has been authorised to be lodged with the ASX by the Board of Directors of PNX Metals Limited.



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# Positive PFS supports long-term gold, silver, zinc Project development

- **Positive PFS confirms technical and financial viability of PNX's strategy to sequentially develop its 100% owned Fountain Head gold and Hayes Creek gold-silver-zinc Projects**
- **A robust, multi-commodity development with a forecast unleveraged Pre-tax NPV<sub>8%</sub> of A\$171 million and mine life of 10-years:**
  - **Undiscounted revenues of A\$972 million (net of treatment, refining and transport charges)**
  - **Pre-tax IRR of 63% with an approximate 18-month payback period**
  - **Net revenues of A\$352 million, returning a net-cash position of A\$276 million after tax**
  - **Commodity prices (US\$) and FX rates used: gold \$1,733/oz, silver \$25/oz, zinc \$1.31lb, US\$0.77/A\$1.00**
  - **Total upfront capital costs of A\$46 million for mine development, gold plant and infrastructure EPCM costs, first fill, critical spares, and working capital**
  - **LOM AISC, net of zinc by-product credits, of A\$1,119/oz gold equivalent**
- **The study envisages initial gold mining and processing at Fountain Head (Years 1 to 5) to be followed by gold-silver-zinc development at Hayes Creek (from Year 4)**
- **Gold processing to take place at a proposed CIL plant located at Fountain Head**
- **The Hayes Creek gold-silver-zinc development will utilise the mined-out Fountain Head pit for tailings storage**
- **LOM production estimates with metals recovered to doré and concentrates:**
  - **250,500 ounces of gold, 11.4 million ounces of silver, and 116,300 tonnes of zinc**
- **The Fountain Head Environmental Impact Statement has been submitted (refer ASX release 1 June 2021) with Project Government and Environmental approvals anticipated in late 2021**
- **First gold production targeted from mid-2022 with opportunities to accelerate the timetable being assessed with stakeholders**
- **Significant upside potential to production profile via resource growth and discovery from PNX's 1,500km<sup>2</sup> NT exploration tenure**

PNX Metals Limited (**ASX: PNX**) ("**PNX**", "the **Company**") is pleased to announce the results of a Preliminary Feasibility Study (PFS) that supports the sequential development of its 100% owned Fountain Head gold and Hayes Creek gold-silver-zinc Projects (**Project**), both of which are located approximately 170km south of Darwin in the Pine Creek region of the Northern Territory.

Over the last 12 months PNX has studied a range of options and completed a comprehensive assessment of the technical and economic parameters relating to the sequential development of the Project, that the Company

believes holds the best potential to maximise shareholder returns. The proposed development will make optimum use of the Company's Mineral Resource inventory of approximately 470,000 ounces of gold, 16.2 million ounces of silver and 177,000 tonnes of zinc from ore located at Fountain Head, Glencoe and the Hayes Creek VMS deposits (Mt Bonnie and Iron Blow), of which 68% (by tonnage) is classified in the Indicated category (see section on Geology and Mineral Resources and 'Forward Looking Statements').

The Project is forecast to generate total undiscounted revenues (net of treatment, refining and transport costs) of \$972 million over its 10-year mine-life from a total combined mining inventory which exceeds 7 million tonnes. Gold will be the largest contributor to LOM revenue (48%) followed by silver (27%) and zinc (25%) (Table 3).

The PFS confirms the technical and economic viability of a staged development approach, to construct a low capital and operating cost carbon-in-leach gold plant (Plant) and infrastructure capable of treating 750ktpa with a capacity potential of 900ktpa. Near-surface oxide and free-milling gold & silver ore from three open-pit mines at Fountain Head, Mt Bonnie and Glencoe and will be processed over an initial 5-year period (Stage 1).

Subsequent to the treatment of the currently defined oxide gold and silver resources in Stage 1, the Plant will be upgraded to incorporate a sulphide flotation circuit capable of processing the Hayes Creek high-grade gold-silver-zinc massive sulphide ores into two valuable product streams, a zinc concentrate and a precious metals concentrate (Stage 2). The concentrates will be trucked to the Port of Darwin and then shipped to international markets for sale and smelting and refining.

An initial capital outlay of \$40.3 million is required for the Stage 1 pre-production mine-development, Plant and associated infrastructure, inclusive of Engineering Procurement Construction and Management (EPCM) costs. Plant first fill and critical path spares are expected to be a further \$1.69 million. A working capital component of approximately \$4 million has also been included in the financial model to manage the cost of the Project through the commissioning phase.

Capital required to construct infrastructure to process the Hayes Creek sulphide ore (Stage 2) is estimated to be an additional \$58 million (refer PNX ASX release 12 July 2017 'Hayes Creek confirmed to be a leading Zinc and Precious Metals Project in Australia'). Stage 2 capital expenditure is expected to commence in Year 3 and be funded from operating cash-flows after the pay-back of the initial Stage 1 capital.

PNX is currently working with Como Engineers (Como) to deliver a fixed duration, lump-sum design and construct contract proposal for the Plant and infrastructure thereby removing a large portion of the Project capital risk from PNX. This work will be completed over the next quarter. As the scope of work is further refined consideration will be given to utilise second-hand equipment where possible, and alternative equipment options to achieve further reductions in capital and operating costs.

The timing and quantum of Stage 2 capital is being assessed as there are a number of items that will be utilised across both process streams such as maintenance, administration, telecommunications, power, crushing and tailings. Considerable capital cost savings are expected to be realised upon completion of this work.

It is proposed that the resultant void space generated from mining at Fountain Head will be used for sub-aqueous storage of tailings from Stage 2, and flexibility in water management. This is a critical part of the Government and environmental approvals process and eliminates the need for an above ground tailings dam, resulting in significant time and cost savings, and a considerable reduction in the Project's environmental footprint and potential Project risks.

Approval has been received from the Northern Territory Department of Industry, Tourism and Trade (DITT) for a variation to the Company's Mine Management Plan (MMP) to allow dewatering of the Fountain Head pit (refer ASX release 24 March 2021). The Fountain Head Environmental Impact Statement (EIS) was also submitted to the Northern Territory Environmental Protection Authority (NTEPA) on 28 May 2021 (refer ASX release 1 June 2021) with the public consultation period underway and EIS approval anticipated by the end of 2021.

Numerous opportunities exist within PNXs approximate 1,500km<sup>2</sup> exploration tenure to delineate additional gold resources which, if successful, could extend gold processing in parallel with concentrates production, generating a significant increase in the production profile from Year 7 (see Table 3), or earlier.

RC drilling is planned to take place from mid-June 2021 to test for new mineralised positions with the potential to increase the mineable gold contained within the existing pit shells at Fountain Head and Glencoe.

### Managing Director's Comments

PNX Managing Director James Fox said: *"Much of the past year has been spent conducting a comprehensive evaluation of the various development options for our considerable gold, silver and zinc resources at Fountain Head and Hayes Creek, to determine the best outcome for shareholders. Positive results from the PFS provide strong validation for a staged development process, and an accelerated schedule to achieve a near-term gold production target of mid-2022. The Project Environmental Impact Assessment is now open for public consultation, with approvals targeted for late 2021, and Company is working with its' engineers to finalise the Plant and Infrastructure scope of works. Moving into production will be an exciting and significant milestone for the Company and we look forward to keeping stakeholders informed as the Project progresses.*

*In parallel with Project development activities PNX will continue to actively explore its large NT exploration tenure where numerous opportunities to further delineate additional resources that have the potential to enhance Project returns have been identified. We look forward to getting on the ground and starting drilling shortly."*

### CAUTIONARY STATEMENTS AND COMPETENT PERSONS' STATEMENTS

The information presented in this document is based on the PFS that has been conducted to determine the potential viability and optimum pathway to production for the Project. The outcomes of the PFS confirm the technical and financial viability of the Project and provide a strong rationale for the Company to continue with its development strategy.

The PFS has been prepared in accordance with the JORC Code and ASX Listing Rules.

Under the JORC Code a PFS is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors.

The Project PFS has followed industry accepted guidelines, particularly those provided by AusIMM to develop an accuracy level within a range of up to  $\pm 30\%$  using the parameters and assumptions set out in this document. The PFS results and the production targets and forecast financial information and income-based valuation derived from the production targets contained in this document are preliminary in nature and are not sufficient at this time to support the estimation of Ore Reserves or to provide an assurance of economic development. The Company cautions that there is no certainty that the production targets or the forecast financial information and income-based valuation derived from the production targets will be realised. The financial analysis in the PFS, summarised in this document, is conceptual in nature and should not be used as a guide for investment.

The production target and the forecast financial information and income-based valuation derived from the production targets reported in this document are based on Mineral Resources which are classified as approximately 68% Indicated and 32% Inferred (by tonnage). There is a lower level of geological confidence associated with Inferred Mineral Resources, and there is no certainty that further exploration work will result in their conversion to Indicated Mineral Resources, or that the production targets themselves will be realised.

The Company confirms that the use of 32% Inferred Resources (by tonnage) is not a determining factor of the Project's viability, and notes that the Project forecasts a positive financial performance when incorporating Indicated Resources only, and is therefore satisfied that the use of Inferred Resources in Production Target reporting and forecast financial information is not the determining factor in overall Project viability and that it is reasonable to report the PFS including the 32% Inferred Resources (by tonnage).

## **Forward Looking Statements**

This document contains 'forward-looking statements' that are based on the Company's expectations, estimates and projections as of the date on which the statements were made. Forward-looking statements are statements about a future matter and are not just statements about the Company's present intention. Forward-looking statements in this document include, among other things, statements with respect to the Hayes Creek PFS and future feasibility studies, and the Project's objectives, outlook, growth, cash flow, projections, targets and expectations, and mineral resources, as well as commodity prices, foreign exchange rates and results of exploration. Generally, the forward-looking statements can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'will be', 'plan', 'forecast', 'evolve' and similar expressions.

Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by the forward-looking statements. Forward-looking statements are developed based on assumptions about the risks, uncertainties and other factors identified in this document. The risks, uncertainties and other factors identified in this document are not exhaustive of the factors that may affect the forward-looking statements. They and other factors should be considered carefully and readers should not place undue reliance on any forward-looking statement. Readers are therefore cautioned that the forward-looking statements are predictive only and that the actual results, level of activity, performance or achievements may be materially different.

The Company disclaims any intent or obligations to revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.

Under the Corporations Act 2001 (Cth), a company may only make forward-looking statements when it has a reasonable basis for doing so. The Company believes there is a reasonable basis for the production targets and the forecast financial information and income-based valuation derived from those production targets provided in this document based on the detailed reasons and material assumptions which are outlined throughout this document. The material assumptions related to the Project's geology, mining, metallurgy, infrastructure, economics, marketing, social and government (JORC Modifying Factors) underlying the production targets and the forecast financial information and income-based valuation derived from the production targets are well understood, and have been thoroughly assessed and examined by qualified technical personnel including independent specialists and subject matter experts.

Third party consultants utilised and the reports and studies they prepared for the PFS are listed in the 'Study Objectives and Contributors' section of this document. These studies support and form the basis for a number of the material assumptions used in the PFS.

The forward-looking statements contained in this document are based on the Company's belief that it has reasonable grounds to expect that funding will be secured to advance the Project through to development and that the capital costs of the Project will be financed. The 'Project Financing and Sources of Capital' part of this document contains further detail on why the Company has a reasonable basis to believe the Project will be financed by the Company. There is no certainty, however, that sufficient funding will be raised by the Company when required.

## **Competent Persons' Statements**

The information in this document that relates to Mineral Resources at Fountain Head, Glencoe, Mt Bonnie and Iron Blow has been previously released to the market and is referenced in the 'Geology and Mineral Resources' section of this document.

For the purposes of this document, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the original 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 announcements.

The information in this document that relates to mineral processing, metallurgy, and engineering is based on information compiled by Mr David Readett, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy and Chartered Professional Metallurgical Engineer FAusIMM CP (Met). Dave Readett is employed by MWorks Pty Ltd who have provided mineral processing, metallurgical and PFS project management services to PNX. Mr Readett has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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 Readett consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## Discussion on Forecast Project Financial Metrics (see Table 6)

*Note: All financial values are in Australian dollars unless otherwise noted*

Static metals prices of US\$1,733/oz gold, US\$25.00/oz silver and US\$1.31/lb zinc have been used in the Financial Model, with no escalation or inflation in costs (see Price Forecasts and Marketing section for further information). A foreign exchange rate of USD\$0.77 per AUD has been used in the Financial Model.

**Table 1:** Project Pre and Post Tax NPV and IRR metrics

	Pre-Tax	Post-Tax
	\$ million	\$ million
NPV <sub>6%</sub>	\$197	\$147
<b>NPV<sub>8%</sub></b>	<b>\$171</b>	<b>\$127</b>
NPV <sub>10%</sub>	\$149	\$111
<b>IRR</b>	<b>63%</b>	<b>55%</b>
<b>AISC (net of zinc by-product credits)*</b>	<b>\$1,119/oz gold equivalent</b>	
<i>Below NPV and IRR using spot metals prices as at 9 June 2021 (refer Table 13)</i>		
<i>NPV<sub>8%</sub></i>	\$229	\$169
<i>IRR</i>	85%	76%

\*The revenue from the zinc paid in concentrates has been applied as a credit to the AISC (refer Table 3) which is then divided by the gold equivalent (AuEq) being paid of 372,632 ounces.

Over the 10-year life-of-mine (LOM) the Project is expected to return a strong Earnings Before Interest Tax Depreciation and Amortisation (EBITDA) of \$413 million from total revenues of \$972 million (net of treatment refining and transport charges) representing an EBITDA margin of 42%.

A healthy pre-tax unleveraged Internal Rate of Return (IRR) of 63% (post-tax IRR 55%) is calculated based on an upfront \$46 million pre-production capital investment, inclusive of a working capital component of \$4 million.

The Project is forecast to generate net revenues of \$352 million, returning a net cash position of \$276 million after tax. Net revenue includes payback of Stage 1 capital with Stage 2 capital internally funded from cashflow.

The net tax position has been calculated utilising the Company's carried forward tax losses at 30 June 2020 of \$43.3 million, estimated to be \$53.8 million at the start of the Project. Using the company tax rate of 30%, total tax payable over the life of the Project is forecast at \$75.5 million, representing an effective tax rate of 24.7%, with the lower effective rate due to the tax benefit of fully utilising carried forward tax losses. PNX will not qualify for the reduced company tax rate of 25% as annual revenues are forecast to exceed the \$50 million qualifying threshold.

The initial \$46 million capital investment in pre-production Plant, mine development and working capital yields an unleveraged pre-tax NPV, at a nominal 8% discount rate, of approximately \$171 million (NPV post-tax \$127 million). The pay-back period on this investment is approximately 18 months as reflected in the Project's calculated pre-tax IRR of 63% (post-tax IRR 55%).

Beyond the initial \$46 million capital investment (Stage 1) the Project is self-funded on a cashflow basis to continue the development into Stage 2.

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## Project Financing and Sources of Capital

Financing for the construction of the Plant and infrastructure required to achieve the production targets as outlined in this report has not yet been secured, which is typical for a PFS-stage project.

The Project financial model makes no assumption about the source of financing; however, it will likely be a mix of debt and equity funding. PNX is assessing a range of financing alternatives outside of regular debt and equity sources, including potential equity-sharing arrangements with future offtake partners, mine contractors and other interested parties, as well as the potential for forward sale of metals, in particular silver and/or gold.

There are no assurances that Project finance will be obtained. Based on discussions with stakeholders, PNX believes there are reasonable grounds that the approximate \$42 million in initial capital required to develop the Project, plus a working capital assumption of approximately \$4 million incurred prior to first receipt of sales proceeds, will be funded on the following basis:

1. Robust Project economics support a decision to invest; EBITDA of \$413 million from total Revenues of \$972 million with forecast unleveraged Pre-tax NPV<sub>8%</sub> of \$171 million and mine life of 10-years
2. Capital, mining and processing costs are well understood. Upfront capital costs are comparatively low (\$46 million) and as a result it is not unreasonable to assume that a company the size of PNX (recent market capitalisation of between \$30-36 million) could secure the necessary Project funding
3. The Project has been technically de-risked with resources, mining, processing, and concentrate marketing well understood to a reasonable degree of confidence
4. The Project is located in a favourable mining jurisdiction (the Northern Territory) within 100% owned and granted MLs only 170 km from Darwin, and the development strategy includes the use of existing infrastructure which boosts project economics and further reduces Project risk
5. The Project hosts attractive key commodities; gold, silver and zinc, which are all broadly expected to have ongoing strong global demand
6. The Fountain Head dewatering MMP has been approved, and the EIS has been submitted and been made available for public comment from 9 June 2021
7. The main financing commitment for Plant and infrastructure is not required in full until environmental and mining approvals have been received, at which stage the Project will have a lower risk profile
8. PNX has been able to consistently raise equity capital to fund its mineral exploration and project development activities. The Company's substantial investors have been supportive of the Company's strategy and have provided funds through equity placements and pro-rata offers
9. The Board and senior management of PNX have experience in financing and developing mining projects in Australia and overseas and have an appropriate mix of skills and expertise to oversee and direct the progression of the Project through to a decision to mine
10. PNX has cash on hand of approximately \$4 million as at the date of this ASX release which is sufficient to continue with near-mine and regional exploration, and ongoing Project development activities as discussed elsewhere in this document

## Fountain Head gold and Hayes Creek gold-silver-zinc Project – Key Metrics

*Note: All financial values are in Australian dollars unless otherwise noted*

**Table 2:** Project Key Production Metrics Summary

Production Summary	Metals	Units	Fountain Head	Hayes Creek	Totals
Plant throughput rate		<i>tonnes per annum</i>	750,000-900,000	450,000	-
Mine life		<i>years</i>	4.8	6.6	<b>10*</b>
Ore Mined open-pit		<i>tonnes</i>	4,032,828	1,015,400	<b>5,048,228</b>
Strip-ratio open-pit		<i>waste: ore</i>	5.96	8.02	-
Ore Mined underground		-	-	1,957,565	<b>1,957,565</b>
Average Mined Grades	Gold	<i>g/t</i>	1.23	1.76	-
	Silver	<i>g/t</i>	7.42	131	-
	Zinc	<i>%</i>	-	4.45%	-
Metals Recovered	Gold	<i>ounces</i>	147,678	102,844	<b>250,522</b>
	Silver	<i>ounces</i>	688,491	10,684,910	<b>11,373,401</b>
	Zinc	<i>tonnes</i>	-	116,333	<b>116,333</b>
Metals Paid	Gold	<i>ounces</i>	147,678	82,638	<b>230,316</b>
	Silver	<i>ounces</i>	688,491	9,176,852	<b>9,865,343</b>
	Zinc	<i>tonnes</i>	-	83,851	<b>83,851</b>
Concentrates Produced		<i>dry metric tonnes</i>	-	322,309	-

*\*Fountain Head (Stage 1) and Hayes Creek (Stage 2) processing to overlap from Year 4 (see Table 5 for further details)*

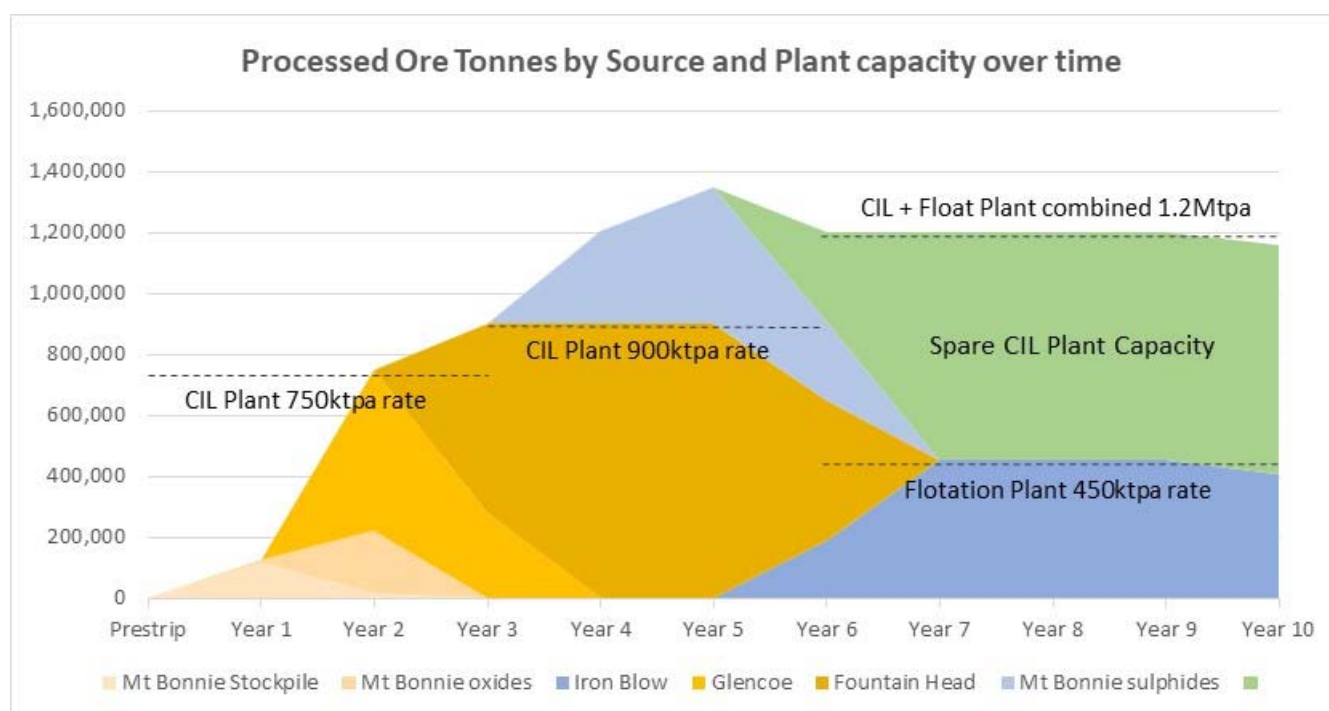
**Table 3:** Project Key Economic Metrics Summary

Project Economics A\$'000	Fountain Head	Hayes Creek	Totals	Contribution
Total Revenue (ex-mine gate)	354,623	682,287	<b>1,036,910</b>	
Gold	332,276	161,583	493,859	47.6%
Silver	22,347	259,426	281,773	27.2%
Zinc	-	261,278	261,278	25.2%
Royalties Payable (NT & 3rd Party)	15,320	49,287	<b>64,607</b>	
C1 Cash Costs	245,385	314,227	<b>559,612</b>	
EBITDA	93,919	318,772	<b>412,691</b>	
Pre-production Capital (Stage 1)	42,018	-	<b>42,018</b>	
Sustaining & Life of Mine Capital (Stage 2)	-	65,000	<b>65,000</b>	
AIC (Opex + Capex)	287,403	379,227	<b>666,630</b>	
AISC*	302,722	428,515	<b>731,237</b>	

\*All-in sustaining costs (AISC) is defined as the all-in costs ('AIC' refer Table 6) (which includes all site-based capital and operating costs; mining, processing, haulage and admin), plus royalties.



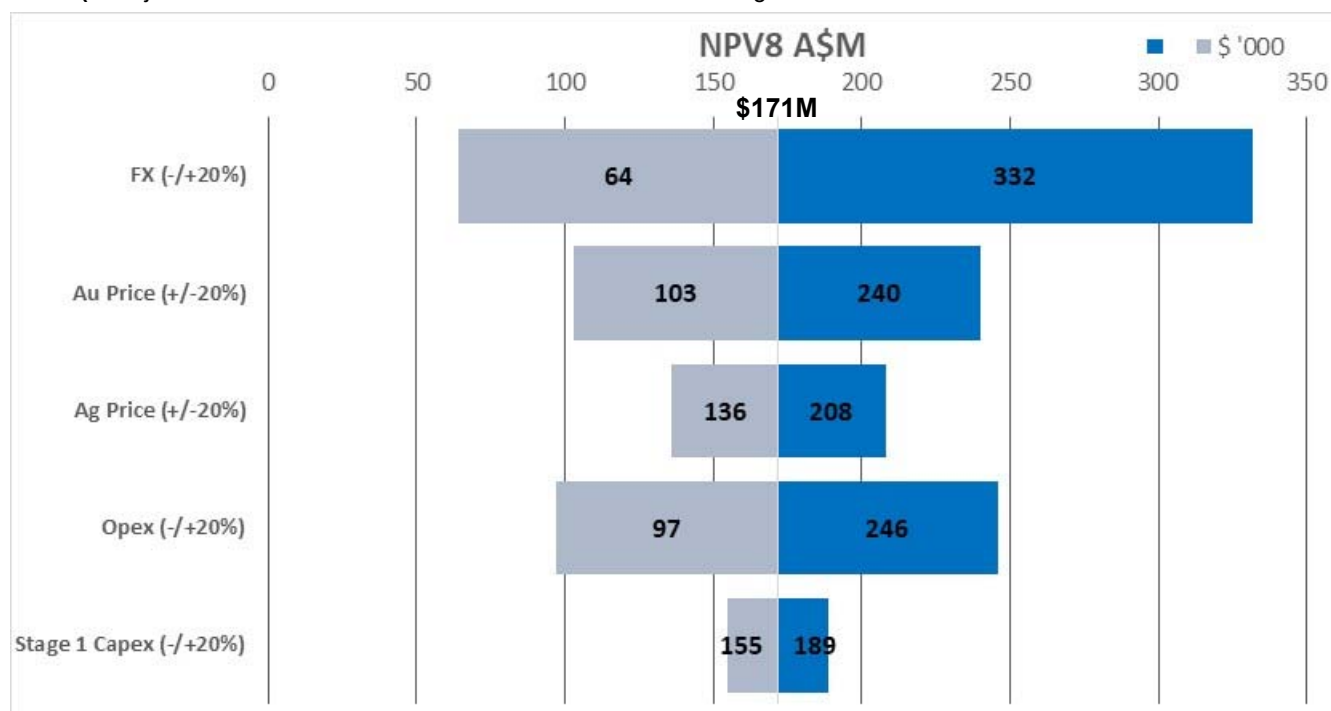
**Figure 1:** Project Gold Equivalent Production (based on the Financial Model of metals paid in doré and concentrates) and EBITDA



**Figure 2:** Plant Feed Source by mining area and Plant throughput rate capacity (CIL Stage 1 and Flotation Stage 2). Spare CIL capacity from Year 6 is an opportunity to process new gold resources delineated through exploration success, or to be used for toll-treatment/ profit share.

## Sensitivities

Table ( : Project Pre-Tax NPV Financial Sensitivities in A\$ million using an 8% discount rate



## Implementation Timeline

Milestone	Status	CY2021			CY2022				CY2023				Calendar Year									
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2024	2025	2026	2027	2028	2029	2030	2031		
Pre Feasibility	✓																					
Permitting & Approvals	✓																					
Financing & Offtake Process	Ongoing																					
Plant Design	Ongoing																					
Tendering and Contracts	Q3 2021																					
Project Environmental Approvals	Q4 2021																					
Gold CIL Plant/ Infrastructure Construction	Q4 2021																					
Mt Bonnie Mining (Gold & Silver)	Q3 2022																					
Glencoe Mining (Gold)	Q2 2023																					
Fountain Head Mining (Gold)	2024																					
Gold-silver-zinc Flotation Plant Construction	2024																					
Mt Bonnie Mining (gold-silver-zinc)	2024																					
Iron Blow U/G Mining (gold-silver-zinc)	2025																					
Resource and Exploration Drilling	Ongoing																					

Figure 3: Fountain Head Gold Project Indicative Timeline

**Table 5:** Project Physicals on an annual basis

Material Movements	Unit	Total	Life of Mine									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Ore Mined (gold oxides)	tonnes	4,032,828	188,066	966,923	1,042,595	785,286	1,049,958	-	-	-	-	-
Ore Mined (sulphides OP)	tonnes	1,015,400	-	-	-	307,026	450,960	257,414	-	-	-	-
Ore Mined (sulphides UG)	tonnes	1,957,565	-	-	-	-	-	193,527	452,000	452,000	452,000	408,038
Waste Mined (gold oxides)	tonnes	24,027,058	885,362	5,542,823	8,101,230	5,291,023	4,206,620	-	-	-	-	-
Waste Mined (sulphides OP)	tonnes	8,143,675	-	-	-	4,862,159	2,686,592	594,924	-	-	-	-
Waste Mined (sulphides UG)	tonnes	333,706	-	-	-	-	151,268	43,613	18,750	84,225	35,850	-
Total Movement	tonnes	39,510,232	1,073,428	6,509,746	9,143,824	11,245,494	8,545,399	1,089,478	470,750	536,225	487,850	408,038
Strip Ratio (OP)	tonnes waste: ore	6.37	4.71	5.73	7.77	9.30	4.59	2.31				
MRE Indicated (by tonnage)	%	68	28	16	66	48	78	94	100	100	100	100
MRE Inferred (by tonnage)	%	32	72	84	34	52	22	6	-	-	-	-
<b>Average Mined Grades (LOM)</b>												
Gold	g/t	1.46	0.90	1.42	1.03	1.45	1.46	1.59	1.74	1.86	1.96	1.44
Silver	g/t	132.2	42.2	22.7	-	163.5	136.8	124.0	108.0	136.2	144.0	109.9
Zinc	%	4.45%	-	-	-	2.00%	5.55%	4.17%	4.33%	5.06%	5.04%	4.16%
<b>Mined Metals</b>												
Gold	ounces	328,181	5,452	44,156	34,511	50,807	70,554	22,991	25,257	27,100	28,516	18,837
Silver	ounces	13,439,756	255,231	706,539	-	1,613,731	1,983,459	1,797,337	1,569,513	1,979,826	2,092,175	1,441,944
Zinc	tonnes	132,199	-	-	-	6,151	25,020	18,800	19,589	22,883	22,784	16,972
<b>Recovered Metals to doré and concentrates</b>												
Gold	ounces	250,522	3,376	35,278	30,586	40,877	57,181	22,402	15,406	16,531	17,394	11,490
Silver	ounces	11,373,400	149,794	538,696	-	1,323,239	1,626,411	1,501,817	1,381,171	1,742,247	1,841,114	1,268,911
Zinc	tonnes	116,333	-	-	-	5,167	21,017	16,145	17,630	20,595	20,505	15,274
<b>Paid Metals</b>												
Gold	ounces	230,316	3,376	35,278	30,586	37,631	54,926	19,647	12,380	13,283	13,977	9,233
Silver	ounces	9,865,342	149,794	538,696	-	1,186,808	1,458,722	1,321,839	1,154,288	1,456,050	1,538,676	1,060,468
Zinc	tonnes	83,851	-	-	-	3,902	15,870	11,925	12,425	14,514	14,451	10,765

**Table 6:** Project Financials on an annual basis

PNX PROJECT FINANCIAL SUMMARY											
Financials \$A'000	TOTAL	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Total Revenue (ex-mine gate)</b>	<b>972,303</b>	<b>11,898</b>	<b>93,014</b>	<b>65,848</b>	<b>117,004</b>	<b>193,182</b>	<b>113,654</b>	<b>96,779</b>	<b>96,779</b>	<b>96,779</b>	<b>87,366</b>
<b>Revenues</b>											
Fountain Head	<b>354,623</b>	12,459	96,861	68,818	54,805	102,830	18,850	-	-	-	-
Hayes Creek	<b>682,287</b>	-	-	-	69,746	102,443	103,124	104,279	104,279	104,279	94,137
<b>Royalties</b>											
<i>Fountain Head</i>	<i>(15,320)</i>	<i>(561)</i>	<i>(3,847)</i>	<i>(2,970)</i>	<i>(2,466)</i>	<i>(2,627)</i>	<i>(848)</i>	-	-	-	-
<i>Hayes Creek</i>	<i>(49,287)</i>	-	-	-	<i>(5,082)</i>	<i>(7,464)</i>	<i>(7,472)</i>	<i>(7,500)</i>	<i>(7,500)</i>	<i>(7,500)</i>	<i>(6,771)</i>
<b>All in Costs</b>	<b>666,630</b>	<b>51,708</b>	<b>58,465</b>	<b>62,559</b>	<b>150,469</b>	<b>90,025</b>	<b>57,150</b>	<b>49,241</b>	<b>53,309</b>	<b>50,303</b>	<b>43,400</b>
<b>Fountain Head</b>											
Capital Expenditure	<b>42,018</b>	42,018	-	-	-	-	-	-	-	-	-
Operating Costs	<b>245,385</b>	9,690	58,465	62,559	53,383	49,694	11,394	-	-	-	-
<b>Hayes Creek</b>											
Capital Expenditure	<b>65,000</b>	-	-	-	58,000	-	7,000	-	-	-	-
Operating Costs	<b>314,227</b>	-	-	-	38,886	40,331	38,756	49,241	53,309	50,303	43,400
<b>Net Revenue</b>	<b>351,673</b>	<b>6,191</b>	<b>34,549</b>	<b>3,289</b>	<b>(33,466)</b>	<b>103,158</b>	<b>56,504</b>	<b>47,538</b>	<b>43,470</b>	<b>46,475</b>	<b>43,966</b>
<b>Cumulative EBITDA</b>	<b>412,691</b>	<b>2,209</b>	<b>36,757</b>	<b>40,046</b>	<b>64,581</b>	<b>167,738</b>	<b>231,242</b>	<b>278,780</b>	<b>322,250</b>	<b>368,725</b>	<b>412,691</b>
<b>Cumulative Cash After Tax</b>	<b>276,123</b>	<b>6,191</b>	<b>44,001</b>	<b>44,029</b>	<b>10,563</b>	<b>95,026</b>	<b>137,485</b>	<b>173,668</b>	<b>207,002</b>	<b>242,441</b>	<b>276,123</b>

## Study Objectives and Contributors

Prior to commencing the Project PFS, a scope of work and schedule of deliverables was defined to address the main risks and identify key opportunities within the Project. The main objectives were to:

- Assess the likely technical and economic viability of the Project
- Consider different mining, process, location and Project configuration alternatives
- Consider different throughput capacities for the Project
- Determine the risk/reward profile of the Project considering the key value drivers, material risks and uncertainties
- Determine if there are any “fatal flaws” in the Project
- Determine the time and resources required to develop the Project

PNX engaged a number of appropriately qualified and recognised specialist technical consultants and subject matter experts (Table 7), commissioned specific reports and utilised in-house expertise to prepare the various technical and financial inputs. PNX believes it has used consistent and reasonable information in establishing the potential financial outcomes and objectives of the Project, and in compiling the study document.

**Table 7:** Project Technical Contributors

Contributor	Role	Responsibility
Craig Wilson (PNX)	Mining, Infrastructure & Studies Manager	Project Study Owner, Optimisation, Pit & Infrastructure Designs and Scheduling
James Fox (PNX)	Project oversight	Project oversight, Strategy, Financing
David Readett (MWorx)	Metallurgical Engineering Consultant	Metallurgical Testwork and Process Design
David Browne (ERIAS)	Lead Environmental Consultant	Environmental Impact Statement and MMPs
David Hutton (Terrace Minerals)	Geological Consultant	Exploration
Michael Green (PNX)	Exploration Manager	Geology & Exploration
Como Engineers Pty Ltd	Mechanical & Process Engineering	Metallurgical and Processing Plant Design Consultants
Marco Scardigno (PNX)	Resource Geologist	Mineral Resource Modelling
H&S Consultants Pty Ltd	Mineral Resource Consultants	Glencoe Mineral Resource
CSA Global Pty Ltd	Mineral Resource Consultants	Fountain Head, Mt Bonnie & Iron Blow Mineral Resources
Resource Engineering Consultants Pty Ltd	Filtered Tailings Scoping Study	Design of filtered tailings storage in Integrated Waste Landform (IWL)
CDM Smith Australia Pty Ltd	Hydrology & Water Quality	Site water balance, flood assessment and water management strategy
Katestone Environmental Pty Ltd	Air Quality and Greenhouse Gas	Air Quality and Greenhouse Gas Assessment
Sonus Pty Ltd	Noise	Environmental Noise Assessment

Environmental Geochemistry International Pty Ltd	Geochemistry	Geochemical Characterisation
Low Ecological Services Pty Ltd	Flora and Fauna	Flora and Fauna Assessment
In Depth Archaeology	Archaeology	Archaeological Assessment
GHD Australia Ltd	Traffic and Transport	Traffic Impact Assessment

The Fountain Head and Hayes Creek components of the Project have been assessed as Stage 1 and Stage 2 respectively of a long-term, multi-commodity development opportunity that has the potential to generate significant revenues and provide significant returns to investors.

The Hayes Creek Preliminary Feasibility Study was completed in 2017 (refer PNX ASX release 12 July 2017 'Hayes Creek confirmed to be a leading Zinc and Precious Metals Project in Australia' for the original executive summary). The Hayes Creek PFS Financial Model has been updated to reflect variations in the following key parameters from 12 July 2017 to the date of this PFS:

- Commodity price and Foreign Exchange Rates (Table 10)
- Marketing and offtake payment terms, including penalties for deleterious elements, treatment and refining charges
- Recoveries of key payable metals based on updated metallurgical test work (Table 17)

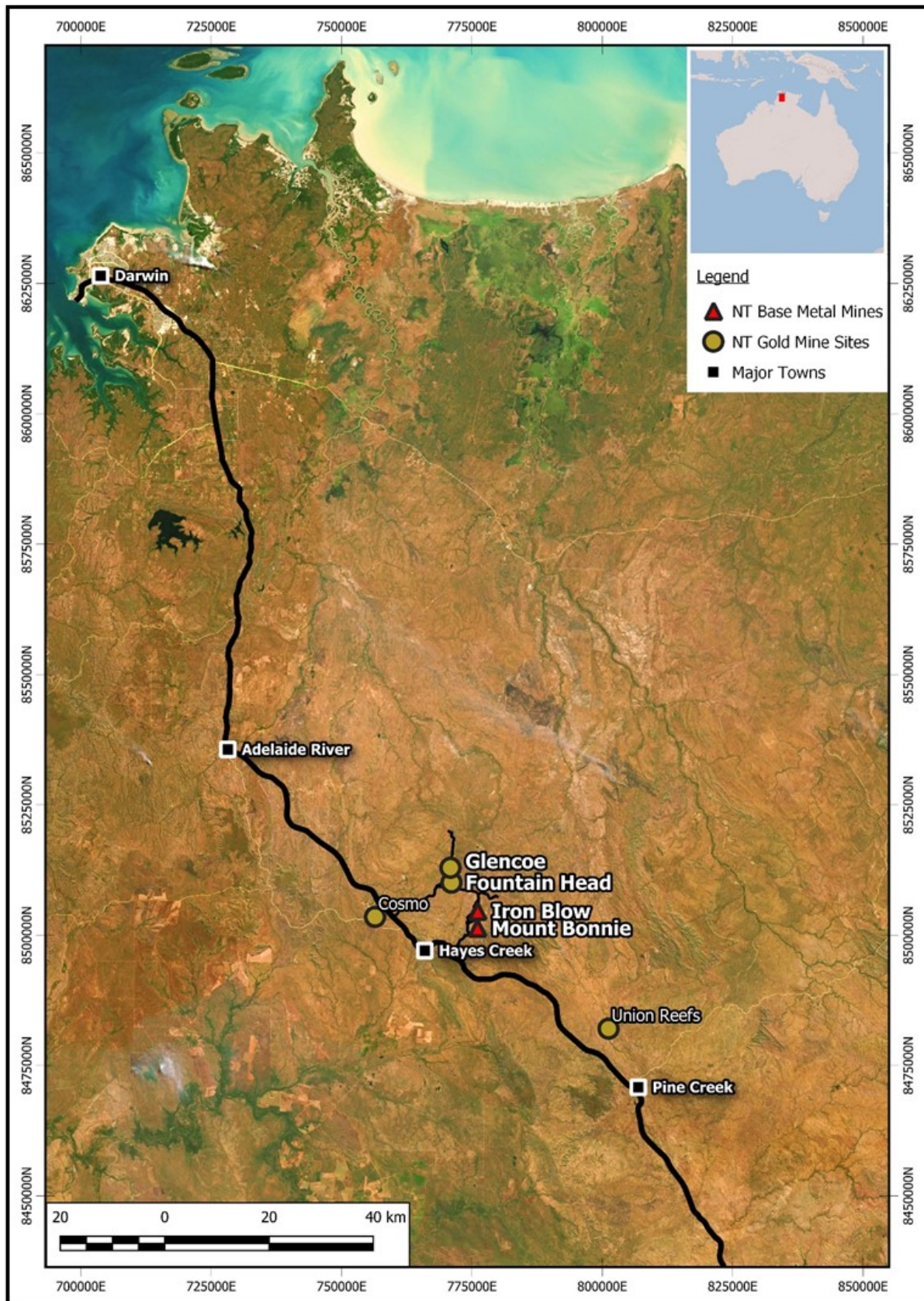
All other assumptions in the Hayes Creek PFS remain the same, including all mine capital and operating costs. Opportunities exist to further refine these assumptions and are discussed in the individual sections below.

## Location and Infrastructure

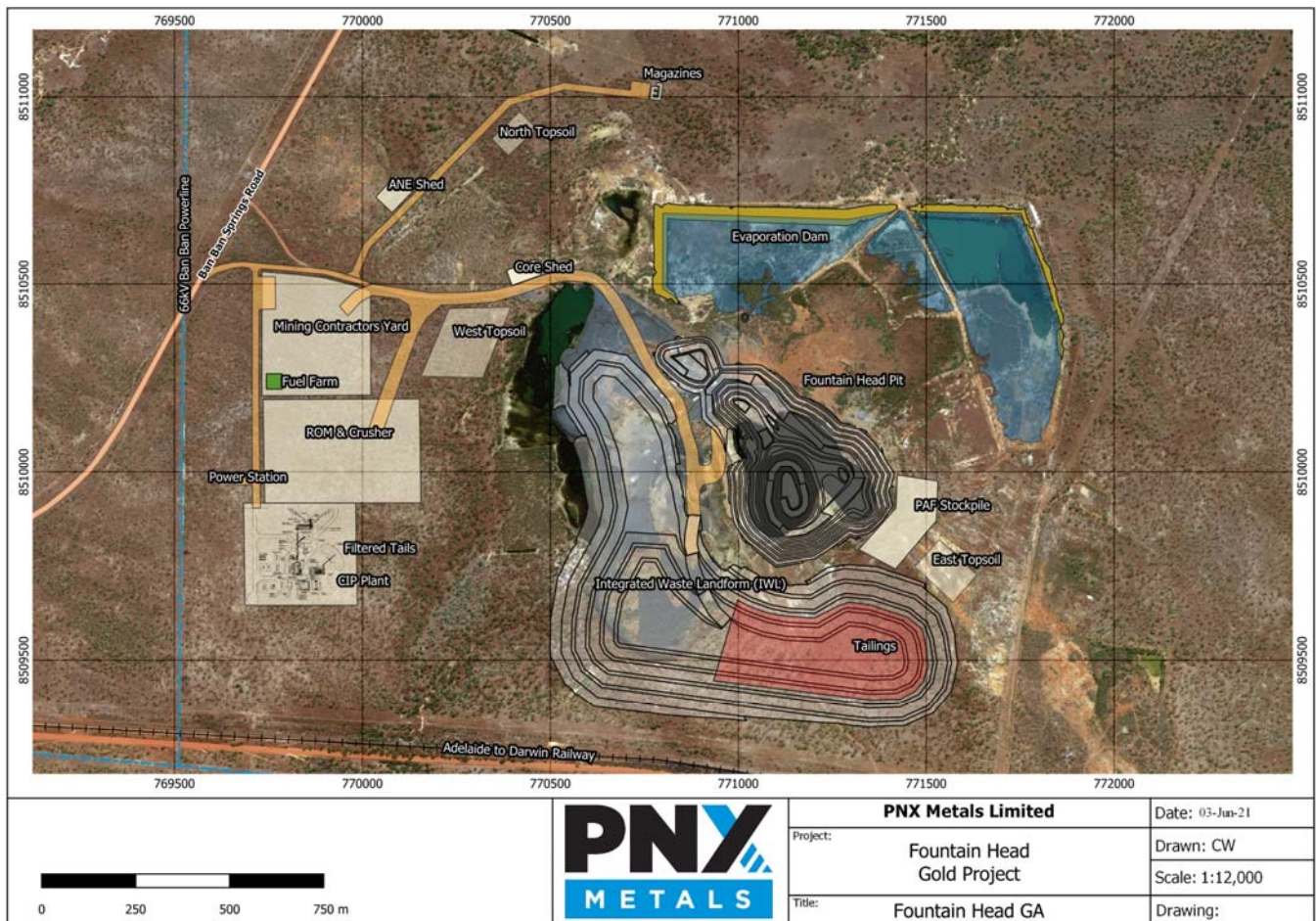
The Project is located within the boundaries of the Ban Ban Springs and Douglas pastoral stations approximately 13km east of the Stuart Highway and 170km south of Darwin in the Northern Territory (Figure 4), and comprises 19 Mineral Leases (MLs) covering an area of 1246.6 hectares providing continuous coverage of, and unrestricted access over, the Fountain Head, Glencoe, Mt Bonnie and Iron Blow deposits. All Project areas are 100% owned by PNX and located on granted MLs where the original MLs pre-date Native Title.

Access to the Fountain Head site (Figure 5) where the Plant is to be located is excellent, and from the Stuart Highway is 13km north-east along the sealed Ban Ban Springs Road. Mt Bonnie is accessed by the Grove Hill public road, and Glencoe via the sealed Ban Ban Springs Road 3km to the north of Fountain Head.

The Project is ideally located within an existing infrastructure services corridor in an historic and currently active mining region. PNX is a 100% holder of 366km<sup>2</sup>, and 90% holder of a further 1,113 km<sup>2</sup> of highly prospective exploration tenure (in Joint venture with Kirkland Lake Gold (ASX: KLA, TSX: KL)) surrounding the Project with numerous high-priority exploration targets, some of which are due to be drill tested during the 2021 exploration season.



**Figure 4:** Project Location map



**Figure 5:** Fountain Head Preliminary Site Layout

## Tenements

The Fountain Head, Glencoe, Mt Bonnie and Iron Blow MLs are 100% owned by PNX with all statutory reporting up to date (Table 8). Prior to the ML expiry dates the Company will request a renewal, and subject to the tenements being in good standing they are typically renewed for a minimum of a further 10 years. The Company is not aware of any reason why this would not continue to be the case with the Project tenements.

**Table 8:** Project Tenements

Tenement	Area Hectare	Area	Holder	Grant Date	Expiry Date
ML30512	6.4	Mt Bonnie	PNX Metals Ltd 100%	3/10/2014	2/10/2024
ML30589	31.6	Mt Bonnie		3/10/2014	2/10/2024
MLN1033	4.8	Mt Bonnie		26/08/1987	31/12/2021
MLN1039	1.2	Mt Bonnie		26/08/1987	31/12/2021
MLN214	6.3	Iron Blow		6/01/1972	31/12/2029
MLN341	14.9	Iron Blow		7/06/1976	31/12/2026
MLN342	13.7	Mt Bonnie		7/06/1976	31/12/2026
MLN343	14.9	Iron Blow		7/06/1979	31/12/2026
MLN346	16.0	Mt Bonnie		2/11/1976	31/12/2026
MLN349	15.0	Iron Blow		26/11/1976	31/12/2026
MLN405	12.0	Mt Bonnie		1/12/1977	31/12/2037
MLN459	15.0	Mt Bonnie		27/02/1979	31/12/2040
MLN811	8.1	Mt Bonnie		14/10/1975	31/12/2025
MLN816	8.1	Mt Bonnie		22/04/1976	31/12/2029
ML31124	33.5	Fountain Head	PNX Metals Ltd 100%	16/02/2016	15/02/2022
MLN1020	12.0	Fountain Head		15/10/1990	2/05/2039
MLN4	529.9	Fountain Head		3/05/1989	2/05/2039
MLN1034	304.2	Fountain Head		1/12/1988	30/11/2033
ML29679	199.0	Glencoe	Ausgold Trading Pty Ltd*	27/09/2012	26/09/2022

\*Sale and Purchase Agreement executed 27 April 2021 with completion and final payments due by 31 December 2021 (refer PNX ASX release 28 April 2021 for further details).

## Geology and Mineral Resources

Mineral Resource Estimates (MRE) (reported in accordance with the JORC Code 2012) exist at the Fountain Head, Glencoe, Mt Bonnie and Iron Blow deposits.

*Note: The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements (as referenced) that relate to the following Mineral Resource Estimates at Fountain Head, Glencoe and Mt Bonnie. All material assumptions and technical parameters underpinning the estimates in the relevant market announcements referenced 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 announcements.*

### Fountain Head Mineral Resource

PNX engaged independent mining consultants CSA Global Pty Ltd (CSA) to assess and report on the Fountain Head MRE (Table 9 and Figure 6) in accordance with the JORC Code<sup>1</sup> (refer PNX ASX release 16 June 2020 for further information including a summary report prepared by CSA and JORC Table 1).

A cut-off grade of 0.7g/t Au was selected following an open-pit optimisation exercise, and comparing a number of similar deposits locally. Sensitivities were assessed at various estimated costs and gold grades, with 0.7g/t Au cut-off providing suitable flexibility in pit design.

**Table 9:** Fountain Head and Tally Ho Mineral Resources by JORC Classification as at 16 June 2020, reported utilising a cut-off grade of >0.7g/t Au which is consistent with the assumed open cut mining method.

JORC Classification	Tonnage (Mt)	Au (g/t)	Ounces (Koz)
<b>Tally Ho</b>			
Indicated	0.94	2.0	59
Inferred	–	–	–
<b>Total</b>	<b>0.94</b>	<b>2.0</b>	<b>59</b>
<b>Fountain Head</b>			
Indicated	0.89	1.4	41
Inferred	1.11	1.6	56
<b>Total</b>	<b>2.00</b>	<b>1.5</b>	<b>96</b>
<b>Total Fountain Head + Tally Ho*</b>			
Indicated	1.83	1.7	100
Inferred	1.11	1.6	56
<b>Total</b>	<b>2.94</b>	<b>1.7</b>	<b>156</b>

*\*Due to the effects of rounding, the total may not represent the sum of all components*

An update to PNX's original Fountain Head MRE (comprising the Fountain Head and Tally Ho mineral lodes) was completed in mid-2020 and based on new geological information derived from analysis and interpretation of PNX's 2019 and 2020 diamond and reverse circulation (RC) drilling campaigns. 77 RC and 2 diamond drill holes were drilled for 7,402m at Fountain Head from August 2019 to February 2020. Data density was increased throughout Fountain Head West, modern data QAQC was introduced to Fountain Head East and new extensional zones of open high-grade gold mineralisation were identified along structures trending outside the preliminary pit design to the north-west, south-east and far east of the 2019 resource boundaries, as well as prospects at depth – beyond the current proposed pit outline.

Further RC drilling is planned to take place from mid-June 2021 to test for new mineralised positions with the potential to increase the mineable gold contained within the existing pit shells.

### Geology and Geological Interpretation

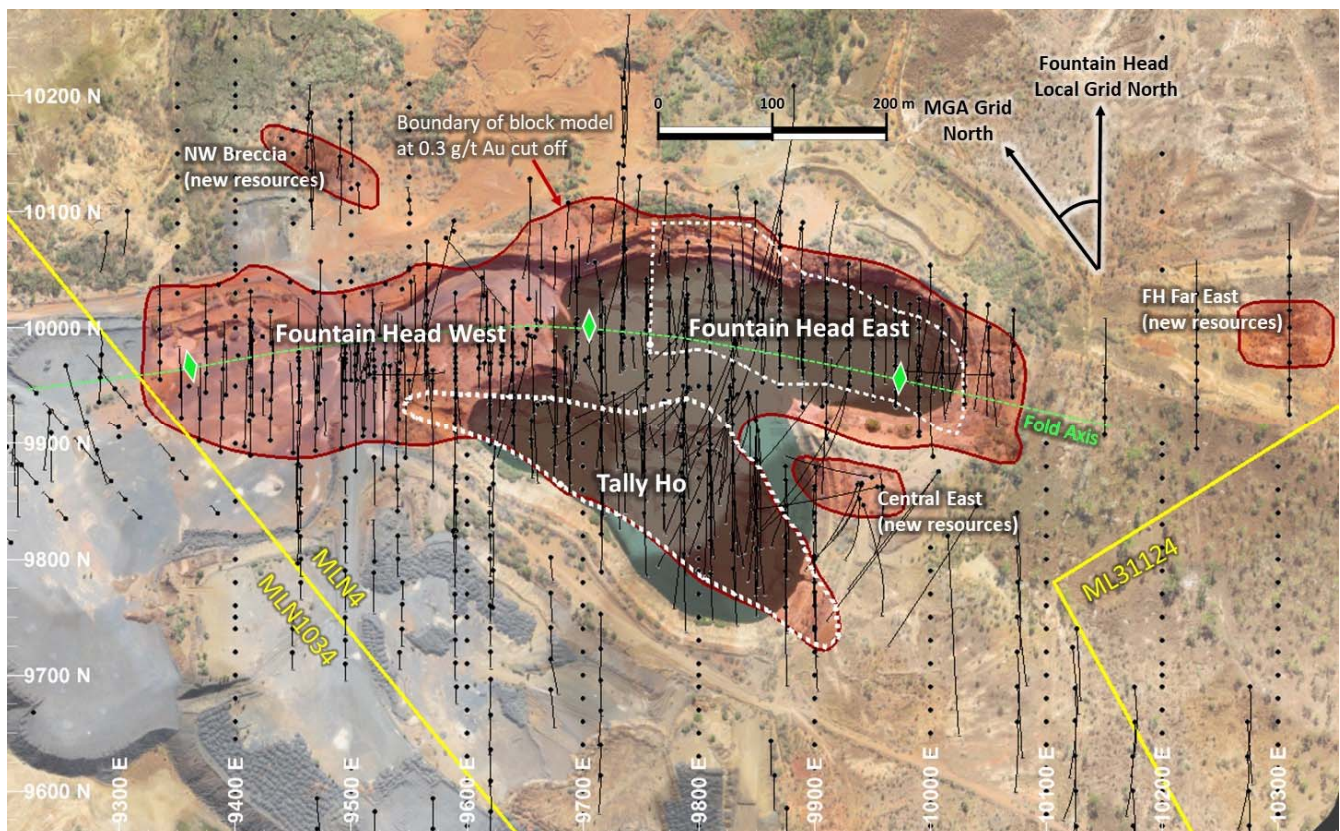
Mineralisation occurs in veins as either conformable anticlinal lodes (with flanking mineralisation) or subvertical structurally hosted ("ladder vein style") mineralisation associated with faults and shears sub-parallel to the fold

<sup>1</sup> Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

axis, and is found within interbedded mudstones, greywackes and phyllite units. Sheeted quartz vein stock-works occur mainly in the axial zone (hinge zone) with veins predominantly dipping northeast, and some saddle reefs occur in the axial zone. Increased grades encountered at Fountain Head are thought to result from secondary deformation of the Fountain Head anticline. Gold is associated with quartz veining containing a pyrite-arsenopyrite sulphide assemblage and coarse gold is not uncommon.

The following key structural settings appear to control gold mineralisation at Fountain Head:

- The structurally controlled system of mineralised quartz veins appears largely restricted to the south-western limb and hinge zone of the Fountain Head Anticline. Mineralisation is preferentially hosted in greywacke and sandstone units
- Subvertical faults or shears subparallel to fold axial planes
- Vein infill in dilatant zones in the apex of small-scale anticlinal folds associated with the Fountain Head Anticline
- Conformable veins dipping away on the limbs of the fold, and conformable saddle reefs within the hinge zone of the fold



**Figure 6:** Plan view of the Fountain Head and Tally Ho Mineral Resources (red outline) showing proximity to historic mining areas, mineral leases and drill collar locations. Fountain Head anticline shown in green

### **Glencoe Mineral Resource**

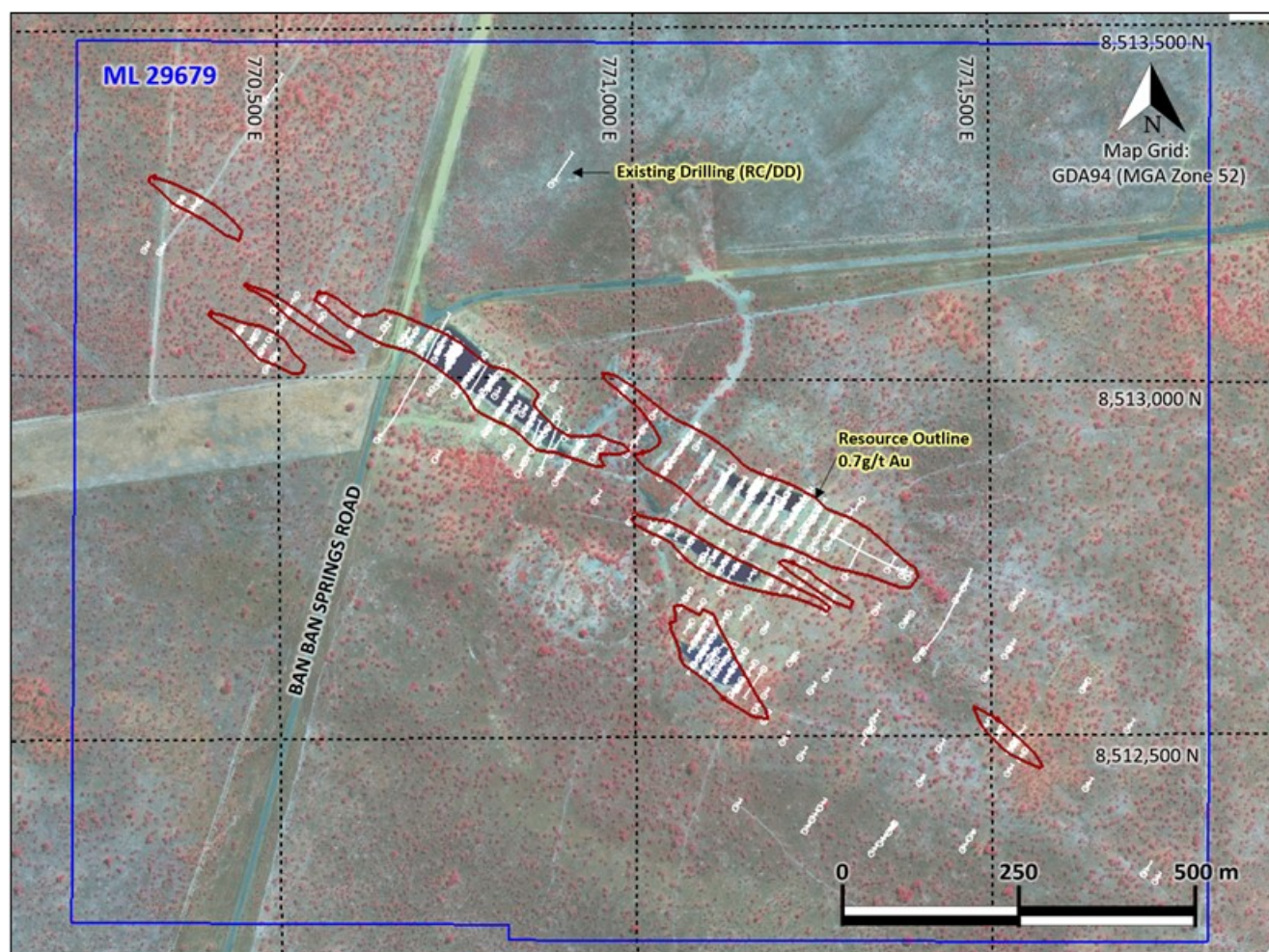
PNX engaged independent mining consultants H&S Consultants Pty Ltd (HSC), to assess and report on The Glencoe MRE (Table 10 and Figure 7) in accordance with the JORC Code (refer PNX ASX release 28 April 2021 for further information including a summary report prepared by HSC and JORC Table 1).

**Table 10:** Glencoe Mineral Resources by oxidation zone as at 26 April 2021 estimated using a cut-off grade of 0.7g/t Au which is consistent with the assumed open-cut mining method. The cut-off grade is also consistent with the Mineral Resource Estimate for Fountain Head

JORC Classification	Oxidation	Tonnage (Mt)	Au (g/t)	Ounces (Koz)
Inferred	Oxide	0.5	1.3	20
	Transitional	0.3	1.2	11
	Fresh	1.3	1.1	48
Total*		2.1	1.2	79

\*Due to the effects of rounding the totals may not represent the sum of all components

## Geological Interpretation



**Figure 7:** Glencoe Project Minerals Licence (ML 29679) boundary, existing RC and Diamond drill hole collars and traces, and resource outline at 0.7g/t Au cut off. Background image is a GeoEye satellite image in Near Infra-Red.

Gold mineralisation at Glencoe is hosted by greywacke, sandstone, siltstone and mudstone of the Paleoproterozoic Mount Bonnie Formation, and is contained within complex quartz veins and shears spatially associated with the axial regions of shallow plunging anticlines. The majority of the gold-bearing quartz veins occur within sub-vertical to steeply dipping fracture and shear zones. Other gold-bearing quartz veins are

interpreted to have conformable or 'saddle reef' geometries, and occur as stratabound bodies extending outwards from the discordant fracture-filled zones.

Late-stage chlorite alteration, shearing and brecciation overprint the gold-bearing veins, including country rock breccias with a chlorite matrix. There is a strong association of gold with sulphides, predominantly pyrite and arsenopyrite, and a close association between chlorite alteration and sulphide/gold/quartz vein development. Mineralisation has typically favoured the more ductile carbonaceous mudstone horizons. There appears to have been some gold redistribution by near-surface supergene processes.

RC drilling is planned to commence in July 2021, after drilling at Fountain Head has been completed. The aim of the proposed program is to increase geological confidence in the areas of known mineralisation and test for new extensional zones of mineralisation supported by historic drilling and surface geochemistry.

### **Mt Bonnie Mineral Resource**

PNX engaged CSA to assess and report on the Mt Bonnie MRE (Table 11) in accordance with the JORC Code (refer PNX ASX release 9 February 2017 for further information including a summary report prepared by CSA and JORC Table 1).

Zinc domains are reported above a cut-off grade of 1% Zn, gold domains are reported above a cut-off grade of 0.5g/t Au and silver domains are reported above a cut-off grade of 50g/t Ag.

**Table 11: Mt Bonnie Mineral Resources by JORC Classification as at 08 February 2017 reported utilising various cut-off grades.**

JORC Classification	Domain	Cut-off grade	Tonnage (kt)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Au (g/t)
Indicated	Oxide	0.5 g/t Au	195	0.94	2.43	0.18	171	3.8
	Main Fresh	1% Zn	1,180	4.46	0.94	0.23	121	1.02
Total Indicated			1,375	3.96	1.15	0.23	128	1.41
Inferred	Oxide	0.5 g/t Au	32	0.43	1.33	0.29	74	2.28
	Main Fresh	1% Zn	118	2.91	0.9	0.15	135	0.54
	Ag Zone	50 g/t Ag	21	0.17	0.03	0.04	87	0.04
	Stockpile	0.5 g/t Au	100	0.18	0.62	0.09	55	0.76
Total Inferred			271	1.40	0.78	0.13	95	0.79
<b>Total Indicated and Inferred</b>			<b>1,646</b>	<b>3.54</b>	<b>1.09</b>	<b>0.21</b>	<b>123</b>	<b>1.31</b>

	Zinc (t)	Lead (t)	Copper (t)	Silver (oz)	Gold (oz)
<b>Total Mt Bonnie Contained Metal*</b>	<b>58,268</b>	<b>17,491</b>	<b>3,457</b>	<b>6,509,276</b>	<b>69,326</b>

*\*Due to effects of rounding, the total may not represent the sum of all components.*

Oxide and transitional gold/silver mineralisation will be processed through the Plant as Stage 1, with the sulphide mineralisation to be processed as Stage 2.

### **Geological Interpretation**

The Mt Bonnie MRE is based on analysis of information collected from diamond and RC drilling, and geological mapping over the period from 1973 through to late 2016, including drilling by PNX.

A tabular north-west dipping zone of high-grade massive sulphides surrounded by a larger halo of lower grade brecciated and carbonate altered rocks has been defined, with a flat-lying silver-rich supergene zone identified

near-surface to the north of the historical open-pit. These three mineralised zones have been modelled and reported separately as zinc, gold and silver domains.

Excellent geological continuity and consistency of mineralisation is evident in the resource modelling, resulting in greater than 90% of the MRE being classified in the higher confidence Indicated category. The majority of the MRE is comprised of sulphide ore and occurs from approximately 25m to 170m below surface directly beneath the historical oxide pit.

Previous drilling by PNX intersected new mineralisation to the south of the historic pit and shows that mineralisation continues further south than previously anticipated and beyond the limit of current drilling. Potential also exists for a high-grade shoot(s) to extend underneath the current extent of drilling and the pit shell design.

The highest base metal and gold grades in the deposit are contained within the massive sulphide unit, which is up to 15m thick below the pit and appears to narrow with depth. The brecciated, carbonate-altered unit below the massive sulphides contains lower grade disseminated mineralisation, often with a coarse blebby appearance.

In the oxide zone (Stage 1 CIL), the lead and gold are enriched and the zinc depleted. Within the primary massive sulphide mineralisation (Stage 2 flotation) no notable metal zonation has been observed, and metal grades appear to be remarkably uniform. Towards the south of the deposit, the massive sulphides appear to break into two separate units, likely to be fold or fault repetition, and remain open to the south and at depth.

Gold mineralisation also occurs in a separate association outside of the massive sulphide zones, mostly in the Footwall Series.

### **Iron Blow Mineral Resource**

PNX engaged CSA to assess and report on the Iron Blow MRE (Table 12) in accordance with the JORC Code (refer PNX ASX release 3 May 2017 for further information including a summary report prepared by CSA and JORC Table 1).

A mineralisation envelope was interpreted for each of the two main lodes, the East Lode (Zn-Au-Ag-Pb) and West Lode (Zn-Au), and four subsidiary lodes with a 1 g/t gold equivalent grade cut-off used to interpret and report these lodes.

**Table 12: Iron Blow Mineral Resources by JORC Classification as at 3 May 2017**

JORC Classification	Lode	AuEq <sup>^</sup> Cut-off (g/t)	Tonnage (Mt)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Au (g/t)
Indicated	East Lode	1.0	0.80	7.64	1.83	0.30	275	2.90
	West Lode	1.0	1.28	4.14	0.33	0.31	60	1.73
Total Indicated			2.08	5.49	0.91	0.30	143	2.19
Inferred	East Lode	1.0	0.02	0.48	0.34	0.16	132	6.01
	West Lode	1.0	0.02	0.76	0.96	0.13	109	1.02
	FW Gold	1.0	0.21	0.25	0.07	0.03	16	2.03
	HW Gold	1.0	0.04	0.06	0.09	0.01	6	1.68
	Interlude Gold	1.0	0.04	0.21	0.03	0.07	8	1.66
	Interlude Base Metal	1.0	0.12	3.52	0.32	0.14	35	0.69
Total Inferred			0.45	1.11	0.18	0.07	27	1.71
<b>Total Indicated and Inferred</b>			<b>2.53</b>	<b>4.71</b>	<b>0.78</b>	<b>0.26</b>	<b>122</b>	<b>2.10</b>

	Zinc (t)	Lead (t)	Copper (t)	Silver (oz)	Gold (oz)
<b>Total Iron Blow Contained Metal*</b>	<b>119,163</b>	<b>19,734</b>	<b>6,578</b>	<b>9,923,800</b>	<b>170,820</b>

\*Due to effects of rounding, the total may not represent the sum of all components

^The formulae below were applied to the estimated constituents to derive the gold metal equivalent values

Gold Equivalent (field = "AuEq") (g/t) = (Au grade (g/t) \* (Au price per ounce/31.10348) \* Au recovery) + (Ag grade (g/t) \* (Ag price per ounce/31.10348) \* Ag recovery) + (Zn grade (%) \* (Zn price per tonne/100) \* Zn recovery) / (Au price per ounce/31.10348 \* Au recovery)

## Geological Interpretation

The Iron Blow MRE is based on analysis of information collected from numerous diamond and RC drilling campaigns and geological mapping from 1906 through to early 2017. Since late 2015 PNX has drilled 60 RC and diamond drill holes for a total of approximately 8,500 metres.

Drilling delineated two main massive sulphide lodes; an eastern hanging-wall lode defined by its significant zinc-gold-silver-lead mineralisation, and underneath, a broader predominantly zinc-gold rich western footwall lode. Four additional subsidiary lodes were also geologically modelled and reported separately; two gold rich zones located in the hanging-wall to the East Lode and footwall to the West Lode, and two gold and base metal zones delineated between the East and West Lodes (the "interlode" domain).

The majority of the MRE is comprised of sulphide ore and occurs within 270 metres of surface directly beneath and to the south of the historical oxide pit. The highest base metal and gold grades in the deposit are contained within the two massive sulphide lodes, which have been defined continuously over a strike length of about 250 metres, with true widths between 1 and 30 metres and plunging moderately to the south.

The resource model generated through interpretation of the drilling data has shown excellent geological continuity and consistency of mineralisation sufficient to support the Mineral Resource classification levels. Potential exists for mineralisation to extend underneath the extent of existing drilling and the MRE. Further drill testing is required to potentially extend these mineralised zones at depth; it is likely that this would occur as part of any future development.

## Price Forecasts, Exchange Rate and Marketing

### *Summary of metals prices and USD exchange rate used in the Project Financial Model*

The consensus market view of medium to long-term pricing is positive on the Project's three main payable metals, being gold, silver and zinc.

Gold is forecast to maintain its approximate price going forward, well within its historic ranges and with a continued robust outlook. With significant global stimulus packages including higher infrastructure spending underway the prospect of inflation and higher interest rates remains, which typically results in a stronger gold price environment.

The Company has taken the view that using a static gold price of US\$1,733/ounce for use in the Financial Model is appropriate based on the above commentary and taking into account publicly available Commodity Price research. Spot gold price as at 9 June 2021 is US\$1,895.

Silver is typically much more volatile than gold and as such is difficult to forecast over the longer term, with few financial institutions doing so. Recently silver has consistently outperformed expectations, reflecting in part stronger than anticipated global industrial activity. Robust investor interest has been attracted by the narrative of silver benefitting from rising energy transition demand.

Normal supply and demand dynamics are returning to pre-pandemic levels for the base metal markets with tightness on the supply side of the zinc concentrate market continuing to support the zinc price. Increased

spending by governments around the world, primarily through investment in infrastructure projects, will likely continue to drive increases in base metal prices for the foreseeable future.

The financial model uses an end point straight line method for all metals prices (Table 13).

**Table 13:** Metals Prices used in the FS Financial Model vs Spot Prices

Commodity	Gold	Silver	Zinc	FX
Unit	per ounce	per ounce	per pound	AUD: USD
<b>Study price US\$</b>	<b>1,733</b>	<b>25.0</b>	<b>1.31</b>	<b>0.770</b>
Study price A\$	2,250	32.5	1.70	0.770
Spot price US\$ (9 June 2021)	1,895	27.7	1.36	0.773
Difference from Spot Price	- 9.3%	- 10.9%	-3.8%	-1.0%
2017 Hayes Creek Study Price US\$	1,289	19.4	1.17	0.73

Freepoint Commodities LLC have provided concentrate marketing and offtake guidance which has been used to inform parts of the Financial Model related to the Hayes Creek concentrates production. Treatment Charges (TC's) of US\$159/tonne of concentrate have been used which is consistent with 2021 annual benchmark terms. It has been assumed that all concentrates will be sold under long-term contract and none on the spot-market.

Payment terms for the zinc and gold/silver concentrates are typical, as are the penalties for deleterious elements. Refining charges have been applied and relate to the gold and silver contained within the concentrates. Costs for transport and shipping from mine-gate to offshore refineries have also been included.

Although copper and lead are recovered to concentrates, they are not paid based on the offtake guidance received, and as such have no impact on the concentrate sales price.

It has been assumed that the gold/silver doré will be transported to the Perth mint for refining and credit, costs have been included in the financial model to account for this.

### **Mining Factors and Assumptions and Overall Mining approach**

Each of the MREs at Fountain Head, Mt Bonnie and Glencoe were processed via Pseudoflow optimisation to identify the economic pit shells using the parameters shown in Tables 14, 15 and 17. Final pit shell selection utilised for guiding the pit design process was also based on evaluating upside potential for further resource expansion through exploration drilling and conducting sensitivities on gold price.

Sequential management of mining, water and tailings management for stage 1 has been modelled and is proposed to occur in the following order:

1. Rehandle, transport and processing of Mt Bonnie stockpile
2. Open-pit mining and processing of Mt Bonnie oxide and transitional ore
3. Open-pit mining and processing of Glencoe gold ore
4. Mt Bonnie and Glencoe tailings to be co-disposed within the Fountain Head waste stockpile
5. Open-pit mining and processing of Fountain Head gold ore

6. Fountain Head tailings to be co-disposed within the Fountain Head waste stockpile and other available void space e.g., Glencoe

The mine plan assumes that only one primary excavation fleet will be required on site with a smaller batter pulling machine available as a backup excavator. The movement of the mining fleet between mining areas will be limited.

The production schedule is based on a single Hitachi EX1900 (or similar) excavator loading 90t sized trucks operating 365 days per annum. Mechanical availability of the excavation fleet assumed is 95% and operator efficiency 92%.

Existing road infrastructure and tracks will be used where possible with short-sections requiring upgrading.

**Table 14:** Project Pit and Haul Road Design Parameters

Feature	Unit	Fountain Head	Mt Bonnie	Glencoe
Surface RL (mine grid)	mRL	1,105	190	~104
Final pit floor (mine grid)	mRL	945	105	65
Total pit depth	m	160	25 (from lower ground level)	40
Pit length	m	750	320	250
Pit width	m	430	260	250
Road width – dual lane	m	30	-	-
Road width – single lane	m	17	17	17
Ramp gradient	V:H	1:8	1:9	1:9
Batter/bench height	m	15	10	10
Berm width	m	5	5	5
Upper batter angle (weathered zone)	Degrees °	55-70	50 - 60	50
Lower batter angles (fresh rock)	Degrees °	70	-	60
Overall pit slope	Degrees °	45 – 48	34 - 43	35 - 46

## Mining Costs and Material Movement

Requests for quotation (RFQ's) were sent to mining contractors for the purposes of obtaining indicative pricing for mining, haulage and crushing & screening activities for the Project.

The pricing received from the RFQ's were then used to inform the mining component of the study.

It is expected that when fully operational approximately 90 mining personnel will be employed, predominantly on a 'drive-in drive-out' basis with buses and transport shared with the Plant staff.

**Table 15:** Unit Mining Costs

Average Costs	Unit	Mt Bonnie Stockpile	Mt Bonnie oxide/ transitional	Glencoe	Fountain Head
Mining (ore/ waste)	\$/tonne	-	4.50	4.50	4.50
Stockpile Rehandle	\$/tonne	0.90	-	-	-
Ore Haulage	\$/tonne	6.36	6.36	1.51	-

Total open-pit material movement to provide feed for the Plant during Stage 1 is expected to be approximately 4.03Mt of ore and 24Mt of waste resulting in a strip ratio (waste: ore) of approximately 5.96:1.

A further 2.97Mt of ore is expected to be mined during Stage 2 of the Project from a combination of open-pit and underground sources at Mt Bonnie and Iron Blow.

### Fountain Head

The existing open-pit will be cutback and extended in a northwest direction, deepening the existing pit by approximately 90m. Mining will occur by way of conventional drill and blast mining techniques using standard mining equipment including 125-200t excavators and 90-100t off-highway haul trucks (Table 16).

The mining sequence at each site will consist of:

- Clearing, levelling and stockpiling of any topsoil and sub-soils for later use in site rehabilitation
- Blast hole drilling using track mounted top hammer drills with bit sizes ranging from 89mm to 127mm. The depth of the blast holes will vary between 2 to 10m with drill and blast to occur on a 5m vertical bench
- Grade control samples from the blast holes will be assayed off-site at Northern Australian Laboratories (NAL) in Pine Creek
- The drill holes are then charged with bulk explosives using Ammonium Nitrate & Fuel Oil (ANFO) in dry holes and bulk water-resistant emulsions will be used in wet holes, both of these products will be mixed in the pit using a sub-contracted dedicated explosive Mobile Manufacturing Unit (MMU)
- The blasted rock will then have survey lines marked on the ground to identify ore and waste based on the grade control results. The waste rock will be excavated and hauled to the expanded waste rock stockpile, and the ore will be hauled to the dedicated Plant ROM pad for stockpiling and subsequent processing

**Table 16:** Mining and Processing Equipment with Ancillaries

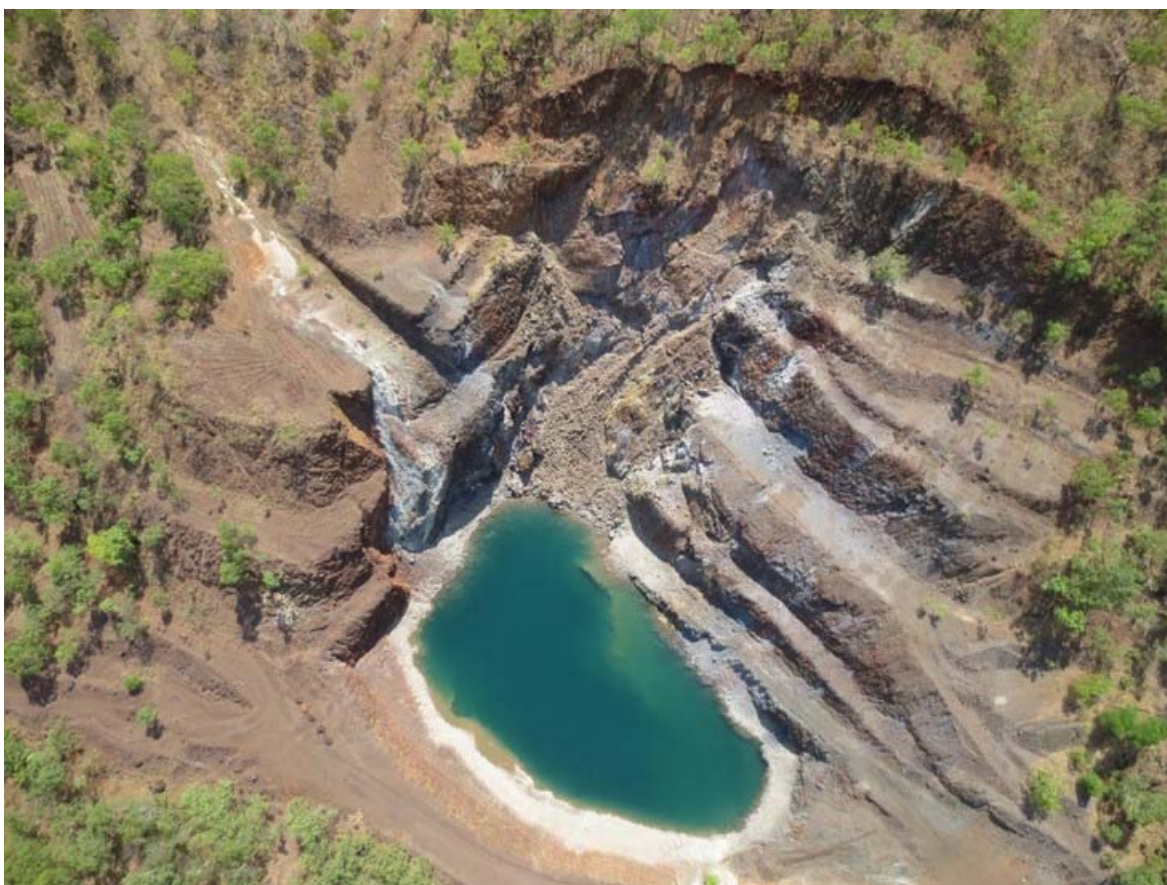
Type	Size	No. Units
Excavator	125 – 200t class	1
Excavator	30t class	1
Trucks	90 – 100t class	6
Dozer	50t class	2
Grader	4.3m Moldboard	1
Water cart	80 kL	1
Drill	Track mounted top hammer	2
MMU	Open pit unit	1
Stemming loader	3m <sup>3</sup> class	1
Crusher loader	6.5m <sup>3</sup> class	1
Fire tender, Workshop, Service trucks	TBD	1 ea
Boiler makers truck	TBD	2
Light vehicles	Various	12
Lighting plants	5 Head LED	10

Bus	26 seat coach (TBD)	1
Crane	25t	1
Forklift, Tyre handler, Telehandler	TBD	1 ea
Skid steer loaders	TBD	2

### **Mt Bonnie**

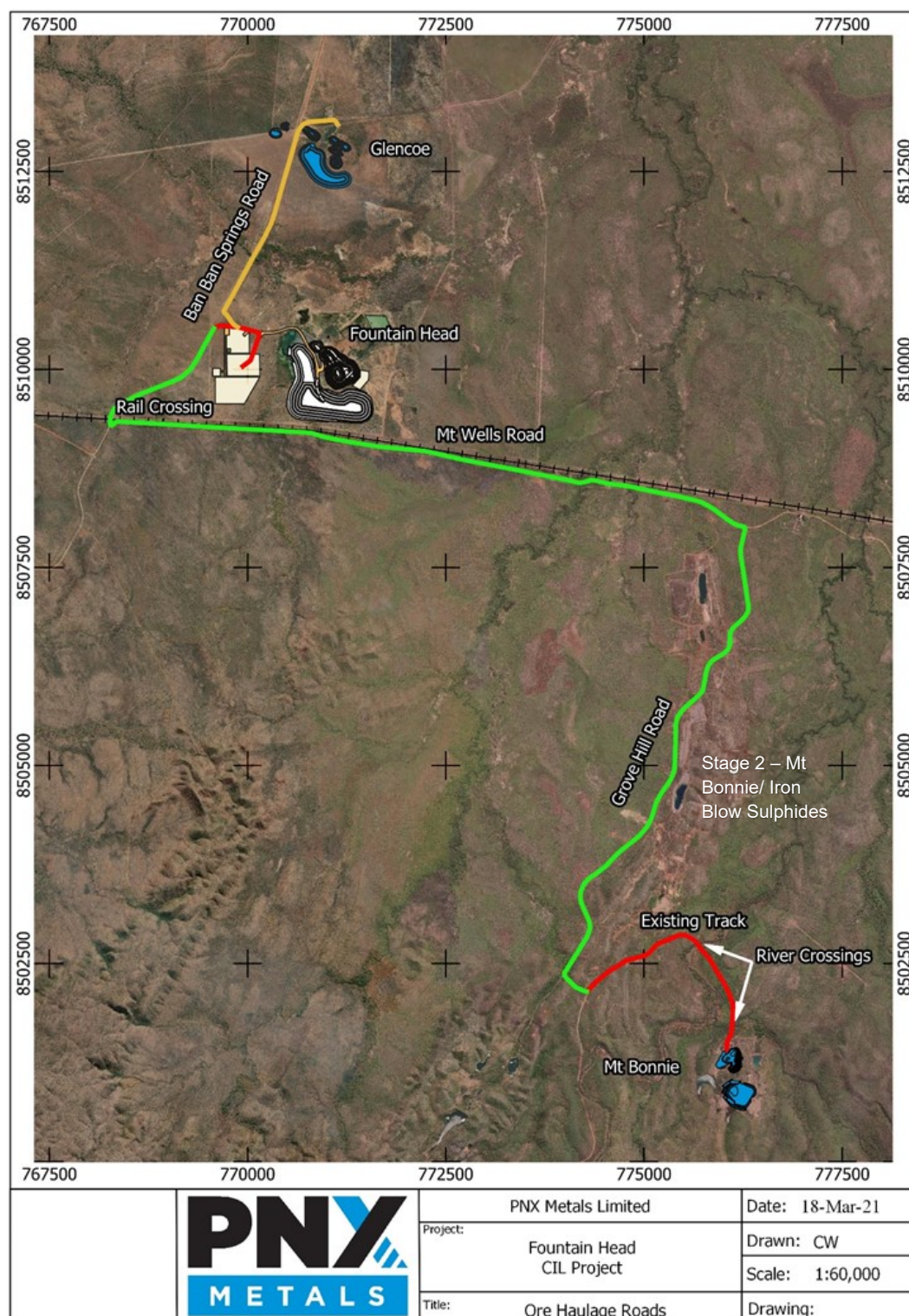
An historical ore stockpile located to the south of the existing open pit will be the first material processed through the Plant. This material contains approximately 100,000t of ore grading 0.76g/t gold and 55g/t silver (Table 11), and will be a reclaim operation.

The ore will be hauled to Fountain Head ROM via an existing site access track, and the Grove Hill and Mt Wells public roads (Figure 9). For the safety of public road users, it is proposed that standard road haulage trucks will be utilised. It is expected that the access track will require some rock sheeting and shaping to allow for efficient transport, and that no culverts will be required.



**Figure 8:** Mt Bonnie aerial view of existing historic open-pit looking north-east

Mining of in-situ oxide and transitional ores will require pre-development work to gain access to the top of Mt Bonnie. Conventional drill and blast and mining will take place on a bench-by-bench basis until the oxide/transitional material has been depleted. The ore will be transported along the same access tracks used for the stockpile. Mining of the sulphide zone will occur in the same manner when the Plant has been upgraded.



**Figure 9:** Proposed Haul Road routes (green = public roads, red = existing tracks requiring upgrade, yellow = to be upgraded if required)

## Geotechnical Parameters

A 2007 Preliminary Geotechnical Slope Design (McEnhill, I., March 2007 Tally Ho Open Pit) has been reviewed by PNX's Geotechnical Consultants (Peter O'Bryan & Associates) and used as the basis for Fountain Head pit designs. Five Geotechnical diamond drill holes will be drilled into the pit wall and laboratory strength testing conducted on the core samples to finalise the pit design. PNX does not expect the geotechnical parameters to change materially.

Geotechnical parameters used for the open-pit design at Mt Bonnie were derived from extensive data collection, a site visit, wall mapping and testing of drill core (Technical Note: 16073D\_Mt Bonnie Revised Preliminary Pit Wall Design Parameters – 20th March 2017).

No historic geotechnical test work has been located for Glencoe despite several test pits being mined historically. A single 40° overall slope angle has been used in the pit optimisation process. Further assessment will be completed to confirm and refine this assumption.

## Mine Optimisation Summary

Based on the information and inputs discussed, the Mine Optimisation has resulted in the following: (Table 17).

**Table 17:** Breakdown of open-pit Mineral Resources and metrics by mining area

	Unit	Mt Bonnie Stockpile	Mt Bonnie oxide/transitional	Glencoe	Fountain Head	Total/Average
Ore Mined	tonne	134,769	211,065	809,154	2,877,839	4,032,828
Mined Au grade	g/t	0.76	2.18	1.21	1.19	1.23
Mine Ag Grade	g/t	44	114	-	-	7.42
Waste Mined	tonne	2,499	1,594,028	4,831,659	17,598,872	24,027,058
<b>Total Mined</b>	<b>tonne</b>	<b>137,268</b>	<b>1,805,093</b>	<b>5,640,813</b>	<b>20,476,712</b>	<b>28,059,886</b>
Strip Ratio	waste: ore	0.02	7.55	5.97	5.96	5.96
Final Pit Depth	metres	N/A	25	40	160	-

## Mineral Processing and Engineering

Capital and operating cost estimates and engineering services for a CIL gold plant (Plant) capable of treating 750ktpa (with a capacity potential of 900ktpa) of gold/silver oxide and transitional ore from the Project have been provided by Como Engineers (Como) under the guidance of PNX's metallurgical consultant engineer David Readett.

Como is an experienced engineering group that specialises in 'fit for purpose' solutions utilising modular and transportable equipment in their plant designs. PNX is working with Como to design and construct the Plant for a fixed duration, lump-sum price, thereby removing a large portion of the project risk from PNX. This work will be completed over the next 3 months and result in a fixed price design and construct contract proposal. As the scope of work is further refined consideration will be given to utilise 2<sup>nd</sup> hand-equipment where possible and alternative equipment options to achieve further reductions in capital and operating costs.

The engineering scope of work involved defining key processing parameters from PNX test work and desired throughput rates to generate the process flowsheet and process design criteria (PDC) (Table 19). Key process equipment requirements were used to establish capital and operating costs estimates for the design and construction of the Plant and associated infrastructure.

## Metallurgy and Test Work

Following successful testwork conducted by both Dominion Gold Ltd and GBS Gold Australia Pty Ltd (GBS), ore was mined from Fountain Head and Tally Ho and treated at Union Reefs process facilities. Mining ceased in 2008 prior to the complete extraction of known resources due to GBS financial difficulties. Production reports indicate processing of the ore was successful with up to 45% gravity gold recovery, and overall gold recoveries greater than 94%. Historic test work also indicates cyanide gold recovery in excess of 90%.

Since acquiring the Fountain Head MLs PNX has conducted a number of test work programs utilising bulk ore samples from the mine, and diamond and RC core samples from PNX drilling campaigns which has confirmed historical recovery rates.

Mt Bonnie gold/silver oxide ore was historically mined and processed at Mt Bonnie (around 1985). Remnant ore and stockpiles remain at site. Two test work programs were undertaken on both diamond and RC core from PNX drilling programs and used to derive the Plant metallurgical recoveries (Table 18).

Como reviewed the historical and recent testwork programs and results. The Fountain Head, Mt Bonnie and Glencoe test work consisted of multi element head assays, mineralogy, comminution, materials characteristics, leach characteristics, settling and filtration characteristics. The orebodies exhibit excellent cyanide gold recovery characteristics consistent with their successful historic treatment.

Based on the review, and in consultation with PNX, Como established a CIL Plant Process Design Criteria and Process Flowsheet which is summarised and described below (Table 18). Battery limits are top of the ROM bin to production of gold doré, tailings filtration, inlets to the raw and potable water tanks and incomer to the mill motor control centre (MCC).

A Gap Analysis was also conducted and has provided focus for additional recommended confirmatory metallurgical test work which will occur over the next few months.

**Table 18:** Metallurgical Recoveries used in the Financial Model

	Metallurgical Recoveries		
	Gold	Silver	Zinc
Mt Bonnie (stockpile)	90%	78%	-
Mt Bonnie (oxides)	87%	70%	-
Glencoe	90%	-	-
Fountain Head	94%	-	-
Mt Bonnie (sulphides) *	61%	82%	84%
Iron Blow (sulphides) *	61%	88%	90%

*\* Note: In the case of recoveries to concentrates from Mt Bonnie and Iron Blow, metals recovered are not equal to metals paid due to concentrates payment terms*

**Table 19:** Plant Process Design Criteria

Description	Units	Value
<b>Operating Schedule</b>		
Annual Throughput*	tpa	750,000 – 900,000
Plant Capacity	tph	94
Availability	%	91.3
Design Feed Grade - Gold	g/t	1.50
Design Feed Grade - Silver	g/t	14.0
Design Gold Recovery	%	92
Design Silver Recovery	%	60
Design CIL Gold Recovery	%	90
Design Gravity Gold Recovery	%	20
Design Gravity Silver Recovery	%	6
<b>Physical Ore Characteristics</b>		
Ore Sources		Mt Bonnie, Glencoe, Fountain Head
Bond Ball Work Index - design	kWh/t	12.5
<b>Crushing</b>		
Circuit Type	-	Three Stage
Primary Crusher	-	Jaw
Secondary and Tertiary Crushers	-	Cone
Feed Size F100	mm	600
Product Size P80	mm	12
<b>Grinding</b>		
Circuit Type	-	Ball
Feed Size F80	mm	12

Product Size P80	um	150
Grinding Power Required	kW/t	9.3
<b>Leach Circuit</b>		
No. of Tanks	#	2
Leach Circuit volume total	m3	850
Leach Circuit residence time	hr	5.4
<b>Adsorption Circuit</b>		
No. of Tanks	#	6
Adsorption Circuit volume total	m3	4,675
Adsorption Circuit residence time	hr	22
<b>Elution and Electrowinning</b>		
Carbon Elution Process	-	Pressure Zadra
Design Capacity (Carbon)	t	2.0
<b>Carbon Regeneration</b>		
Reactivation Kiln Type		Horizontal Diesel Fired
Capacity	kg/hr	100
<b>Reagents</b>		
Lime	kg/t	2.10
Cyanide	kg/t	1.78

\* Fountain Head ore will be treated at a higher throughput rate than Mt Bonnie and Glencoe oxides due to a high gravity recoverable component of the Fountain Head gold (between 20-40%), and a coarser required grind size to achieve design recoveries.

## Process Flow

Ore (top size nominal -600mm) will be fed by a front-end loader into the ROM bin and then via a variable speed feeder into a three-stage crushing circuit (a jaw crusher and two cone crushers) (Figure 10).

The crushed product, at a nominal 12mm size fraction, will then be fed into the single-stage ball milling circuit along with lime to control the pH. A reclaim stockpile containing excess ore will be generated to provide mill feed when the crusher is offline. Cyclones are used to classify the milled ore with a fraction of the cyclone underflow passing through a gravity concentrator to recover any coarse gold.



## Power and General Infrastructure

The Project takes advantage of existing infrastructure that includes haul roads, telecommunications, nearby camp facilities, water and grid power.

The study assumes power is provided by leased diesel generators, shown as the Base Case (Table 20). Quotes for pricing and support services have been sourced from Aggreko Australia and include 3 x 1,250kVA generators (2 in operation and 1 on standby) and self-bunded fuel storage.

Power costs are based on the preliminary electrical load list with average continuous power draw calculated for each major piece of equipment using installed capacity multiplied by a relevant demand factor and planned utilisation.

Total Plant installed power is estimated at 2,414kW and annual power demand estimated at 12.13GW.

High-level comparisons have been completed with grid power and gas power which result in the potential for considerable Project operating cost savings over Stage 1 and 2 of the Project. These assessments will be finalised and incorporated in the overall Project engineers' scope. The preferred option is to utilise existing mains power being generated from the nearby gas fired power station at Pine Creek. This facility was recently upgraded to increase the availability and minimise power losses during electrical storms.

Use of mains power would require a 66kV Spur to Substation, an 11kV Substation, and 11kV transmission line to the Plant. These costs have been incorporated in the unit costs (Table 20), and would still result in a net cost saving to Stage 1 of the Project of approximately \$2.6 million or \$0.65 tonne.

**Table 20:** Power supply unit cost and Project savings

	Unit	100% Mains Grid Power	Gas Fired Power Station (BOO)	Diesel Fired Power Station (Rental)
Power Supply Options	c/kWh	21.0	22.7	24.7
Indicative Project Cost Savings from Base Case	\$	\$2,641,376	\$1,421,481	Base Case

The following buildings have been included within the Plant Infrastructure as part of the EPCM costs:

- Process Plant Office
- Mill Control Room
- Crib Room and Ablutions
- Maintenance Workshop/Office
- Warehouse
- Electrowinning/ Gold room (containerised)

Additional infrastructure that is part of the Mining component includes:

- Admin and Mining Office,
- Crib Room and Ablutions
- Heavy Vehicle Workshop
- Heavy Vehicle Wash Bay
- Fuel Farm
- Explosives Magazines

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## Safety Management

PNX takes its Occupational Health, Safety and Environmental (OHS&E) obligations seriously and it is expected that all site management and workforce will operate in a manner that does not jeopardise the safety and wellbeing of employees or others.

Safety Management Plans (SMP) and Environment Management Plans (EMP) will be maintained for the duration of the Project. These will be dynamic documents updated on an as needed basis and reviewed and modified at least annually. A zero tolerance Drug & Alcohol Policy will also be in place and regular testing will be conducted in accordance with this Policy.

The principal and contractor workforce will have extensive training and inductions into the site procedures and policies with a clear understanding of the requirements of the SMP & EMP documents.

It is expected that no work will take place without high quality job safety and environmental assessments (JSEA) having been conducted on all tasks to protect site personnel and the environment.

Any incidents or accidents will be investigated fully and to a level of detail that will prevent a reoccurrence or to reduce the consequences of such events. All incidents will be reported in accordance with PNX and regulatory requirements including NT WorkSafe.

The control of fugitive dust is important for employee health and for maintaining good relationships with other stakeholders. At all times roads will be watered, crushers will have operational dust suppression sprays and any other necessary controls will be implemented to maintain low levels of dust generation across the site.

Blasting will be conducted in daylight hours only at set times to minimise disturbance, and will typically be lunch time or end of shift. Due to the proximity of the APA Bonaparte Gas pipeline and the Alice Springs – Darwin railway line, the Fountain Head site will have a zero ‘fly rock’ ejection policy and ground vibrations will need to be less than 200mm/s at the pipeline.

## Project Approvals Process

The Project is located on granted MLs where the originally granted titles pre-date Native Title, and the natural environment is heavily disturbed from previous mining activities. PNX considers the likelihood of the Project gaining authorisation to mine is high. The EIS has been submitted (refer PNX ASX release 1 June 2021) with approval anticipated in late 2021.

In the Northern Territory environmental permitting of mining activities is regulated under the Environmental Protection Act 2019 (EP Act) and the Mining Management Act (MMA), and is administered by the Northern Territory Environmental Protection Authority (NT EPA) and the Department of Industry Tourism and Trade (DITT) respectively. The MMA provides the framework for the authorisation of mining activities, the management of mining sites, the protection of the environment on mining sites, and the provision of economic and social benefits to communities affected by mining activities.

The Fountain Head of Intent (NOI) was submitted to the NT EPA on 20 December 2019 to determine the level of assessment required under the EA Act. On the 16 March 2020, the Statement of Reasons (SoR) were provided by the NT EPA, determining that the Project would require assessment under the EA Act at the level of an EIS.

Prior to that, in February 2019, PNX had submitted a referral under the Environmental Protection and Biodiversity Control Act (EPBC) Act 1999 for the development of the Hayes Creek Project which included processing of ore on the Fountain Head MLs, and use of the Fountain Head void to store tailings. The Department of Agriculture Water and Environment (AWE) after a period of public consultation determined that the proposed activity was not a controlled action and would therefore not require approval under the EPBC Act. As a result, PNX has elected

not to submit a referral for the Fountain Head component of the project on the basis that there are no additional matters to be considered that were not addressed in the Hayes Creek Project referral.

The Project area does not fall within any world heritage properties or national heritage places and it is not located within a Commonwealth marine area. There are also no wetlands of international importance located in the vicinity of the Project.

### **Key Environmental Considerations**

In selecting the location for Project infrastructure, PNX's preference is to locate Plant and infrastructure on land that has already been disturbed, i.e., areas with little vegetation growth, thereby avoiding clearing areas of undisturbed vegetation so far as reasonably practicable.

The management of waste rock and tailings, in particular materials classified as Potentially Acid Forming (PAF), and surface water management are key considerations in PNX's Project development strategy. Specifically identifying how these materials will be managed during development, operation and closure with minimal adverse impact on the environment. As a result of this approach, the closure plan of the Project has been a key driver in its development strategy.

The Fountain Head MLs were identified as the preferred location for the Plant location due to:

- Being centrally located to the proposed mining areas at Fountain Head, Glencoe, Mt Bonnie & Iron Blow
- Containing a suitable historic mining void for in-pit tails deposition and permanent water cover (taking into account capacity, geology, groundwater movement)
- Access to the preferred area (existing MLs, 100% PNX ownership)
- Access and proximity to existing infrastructure including haul roads, rail, gas, grid power and telecommunications

A number of technical studies were completed between 2019 and 2021 to support the preparation of the EIS.

No major issues were identified during the Company risk assessment process, and management plans and strategies have been drafted for managing stormwater, potential leachates, seepages and groundwater monitoring requirements.

### **Site Water Balance**

A water balance model has been developed in GoldSim to simulate the water management of the Fountain Head MLs from the existing pit during the dewatering phase (phase I), the LOM (phase II) and post-mining up to 500 years (phase III) (CDM Smith, 2020). This modelling was undertaken to determine pit dewatering requirements and the capacity of the evaporation pond to store extracted water.

The GoldSim model simulates inflows to the evaporation pond from Fountain Head pit dewatering, groundwater, direct rainfall and runoff, and outflows from evaporation (both natural and mechanically forced) and groundwater infiltration (i.e., seepage). This modelling provided input into PNX's water management strategy.

### **Water Management**

Discharge of water from the Fountain Head MLs is not proposed for the pit dewatering. Excess water will be managed by evaporation and by storage in the remediated evaporation pond to the north of the existing open pit.

Mechanical evaporators are used in high-temperature environments to assist with the water balance. PNX is proposing to locate two evaporators initially within the Fountain Head pit and then relocate them to a central pad within the evaporation pond once mining has commenced. Wind drift in any direction will result in any

unevaporated plume falling within the evaporation pond footprint. A typical setup of these evaporators is shown (Figure 11). The operation of the evaporators will be linked via telemetry to a weather station which will automatically shut down the evaporators when wind direction and/or wind speeds may result in the spray drifting outside of the pit and/or evaporation pond.



**Figure 11:** Typical Evaporators

### ***Geochemical***

Geochemical testing of waste rock was commissioned to gain an understanding of the geochemical properties and to provide information on the leaching characteristics of various metals. The geochemical properties are also used to determine the volumes of PAF waste rock, material suitable for use during construction, and how to appropriately categorise, store and manage waste rock when mining recommences.

A total of 551 samples were analysed and the results used to estimate volume (and mass) of oxide, transitional and fresh material to be mined from Fountain Head pit. Results suggest that a substantial portion (approximately 95%) of waste rock will be NAF, with approximately two thirds of the ore mined also Non-Acid Forming (NAF).

Any PAF material will be segregated and stockpiled adjacent to the proposed open pit with the location selected to facilitate placement of PAF material into the pit for permanent storage (below water) at the completion of mining.

The PAF stockpile is expected to be minimal and estimated as approximately 60,000 m<sup>3</sup>. An engineered and compacted base will be constructed below the PAF stockpile and will incorporate perimeter bunding to contain rainfall with any seepage with water captured and re-directed to a storage pond.

### ***Tailings***

At closure it is proposed that the section of the IWL where tailings are stored will be capped with 0.5 m of compacted clay and 1.5 m of waste rock to minimise infiltrating water through the cover to the tailings below and reduce the risk of mobilising metals. The IWL will also be shaped into a convex landform to encourage runoff.

The Project provides an opportunity for the controlled removal of weeds in the area, particularly dense infestations of Gamba grass located around existing infrastructure. A weed management plan will be implemented to manage the weeds on site to prevent further spread.

Progressive rehabilitation is proposed and will reduce the likelihood of further erosion in the Project area.

### ***Areas of Aboriginal Significance and Other Heritage***

The Project is located on granted MLs where the originally granted titles pre-date Native Title.

An Aboriginal Areas Protection Authority (AAPA) Clearance Certificate has been issued to PNX for the Fountain Head MLs. Two restricted work areas and one sacred site have been identified, including a perennial billabong and watering hole, in the far north-west corner of the MLs. PNX proposed activities do not encroach upon the areas identified.

*“An AAPA certificate protects sacred sites from damage by setting out the conditions for using or carrying out works proposed by a proponent on an area of land and/or sea. These conditions relate to sacred sites in the area or in the vicinity of the proposed works, so that they are not damaged. It is a legal document issued under the Northern Territory Aboriginal Sacred Sites Act, and indemnifies the holder against prosecution under the Act for damage to sacred sites in the area of the Authority Certificate provided the proposed work or use has been carried out in accordance with the conditions of the Authority Certificate”.*

Archaeological surveys have also been carried out around the heavily historical disturbed areas at Mt Bonnie and Glencoe to ensure compliance with provisions of the NT Heritage Conservation Act 1991. At Glencoe a grinding place and three sites containing background scatter of isolated stone artefacts of low archaeological significance were identified. The areas have been surveyed and are situated well outside any new areas of proposed disturbance by PNX.

### **Stakeholder Communication**

PNX recognises the importance of developing and maintaining relationships with Project stakeholders with general engagement occurring since late 2014 when PNX commenced activities in the area.

Engagement activities specific to Fountain Head began in July 2019 with newsletters circulated to stakeholders impacted directly by the Project. The Company maintains a stakeholder register to record interactions. Information disclosure and consultation has been undertaken in accordance with the EA Act and the Environment Protection Act 2019 (EP Act).

### **Environmental Bonds and Rehabilitation**

Current Project environmental rehabilitation and security bonds relating to historical mining activities equate to \$784,055 held by the Northern Territory Department of Industry, Tourism and Trade (DITT).

PNX received approval from DITT for a variation to the Company's Mine Management Plan (MMP) to allow for dewatering of the Fountain Head Pit. Prior to commencing dewatering activities, which will occur in advance of mining at Fountain Head, the Company will provide additional security for environmental rehabilitation of \$87,481 (refer ASX release 24 March 2021).

The water will be stored on site immediately to the north of the pit in the historic evaporation ponds, which will be enlarged and comply with ANCOLD Incorporated Guidelines 2012 (Australian National Committee on Large Dams).

Total calculated bonds for the Project will be calculated as part of the EIS and MMO approval and will need to be in place prior to ground disturbing activities commencing. Bonds at Fountain Head primarily relate to the enlargement of the waste dump, and for removal of the Plant in the event of a default. Bonds held by DITT are typically required in the form of cash or a bank guarantee.

The MMA also requires payment of an annual levy on mining securities to fund addressing legacy mining liabilities. This is a non-refundable annual levy of 1% on the total calculated rehabilitation cost applied to each mining operation authorised under the MMA.

Rehabilitation of PNX disturbance is expected to be progressively completed in-line with mining activities, with closure costs included as a portion of operating costs.

## Plant and Infrastructure Capital Costs

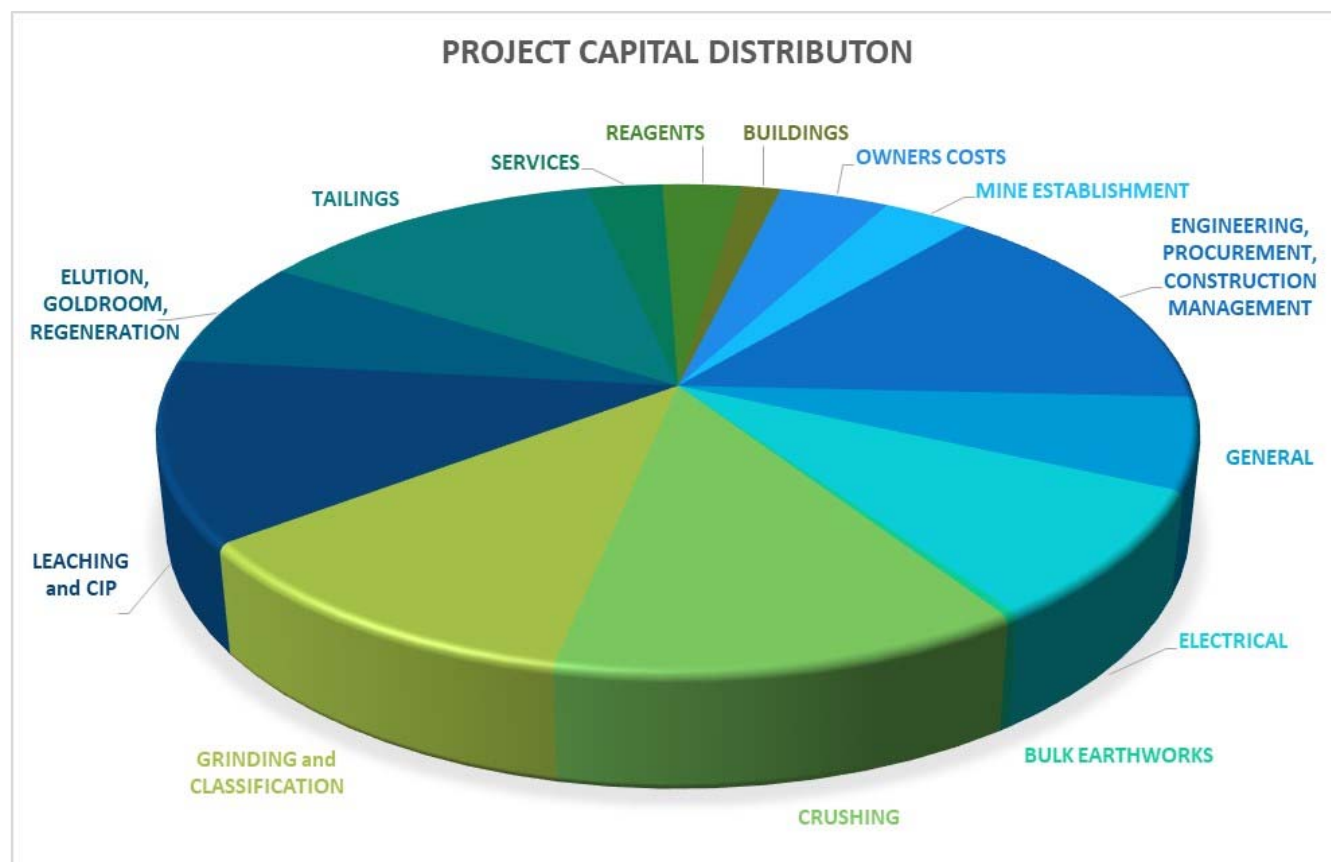
The Stage 1 base case capital cost estimate (+/- 30% accuracy) for the Plant (Figure 13) including all direct/indirect costs totals \$38.94 million. EPCM and all construction related costs including commissioning are included in the estimate. First fill and critical spares are estimated to be approximately \$1.69 million (Figure 12). Sustaining capital has been factored and included as part of the Plant operating cost.

In-line with PNX's Hayes Creek PFS, the Stage 2 capital cost for the flotation component of the Plant is estimated to be approximately \$58 million. This capital component is expected to be funded out of cashflows generated from Stage 1.

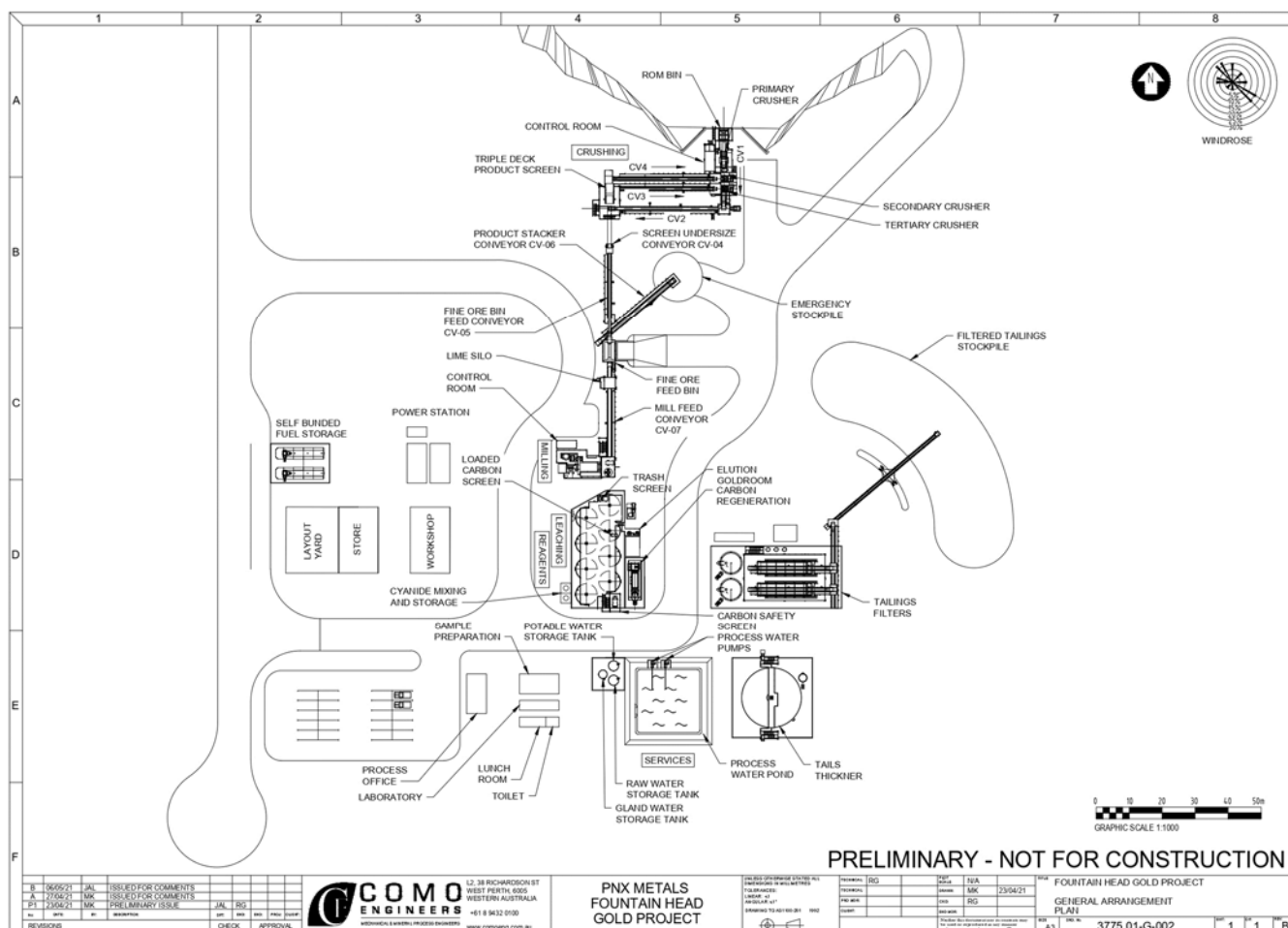
The Company is working with Como to further refine the timing and quantum of Stage 2 capital as there are a number of items that will be utilised across both process streams such as maintenance, administration, telecommunications, power, crushing and tailings. Considerable capital cost savings of between \$5-10 million are expected to be realised upon completion of this work; these projected savings have not been factored into the Financial Model.

Capital required for pre-mining underground specific infrastructure at Iron Blow is estimated at \$7 million and includes all of the specific equipment, portal construction, ventilation shafts and fans, development and set-up costs required to access the orebody prior to production. The estimated cost of demobilising equipment is also included at the end of both Mt Bonnie and Iron Blow mining periods.

Underground capital development costs at Iron Blow estimated to be \$25.5 million have been treated as sustaining capital and are included in the overall underground mining cost.



**Figure 12:** Plant Capital Costs



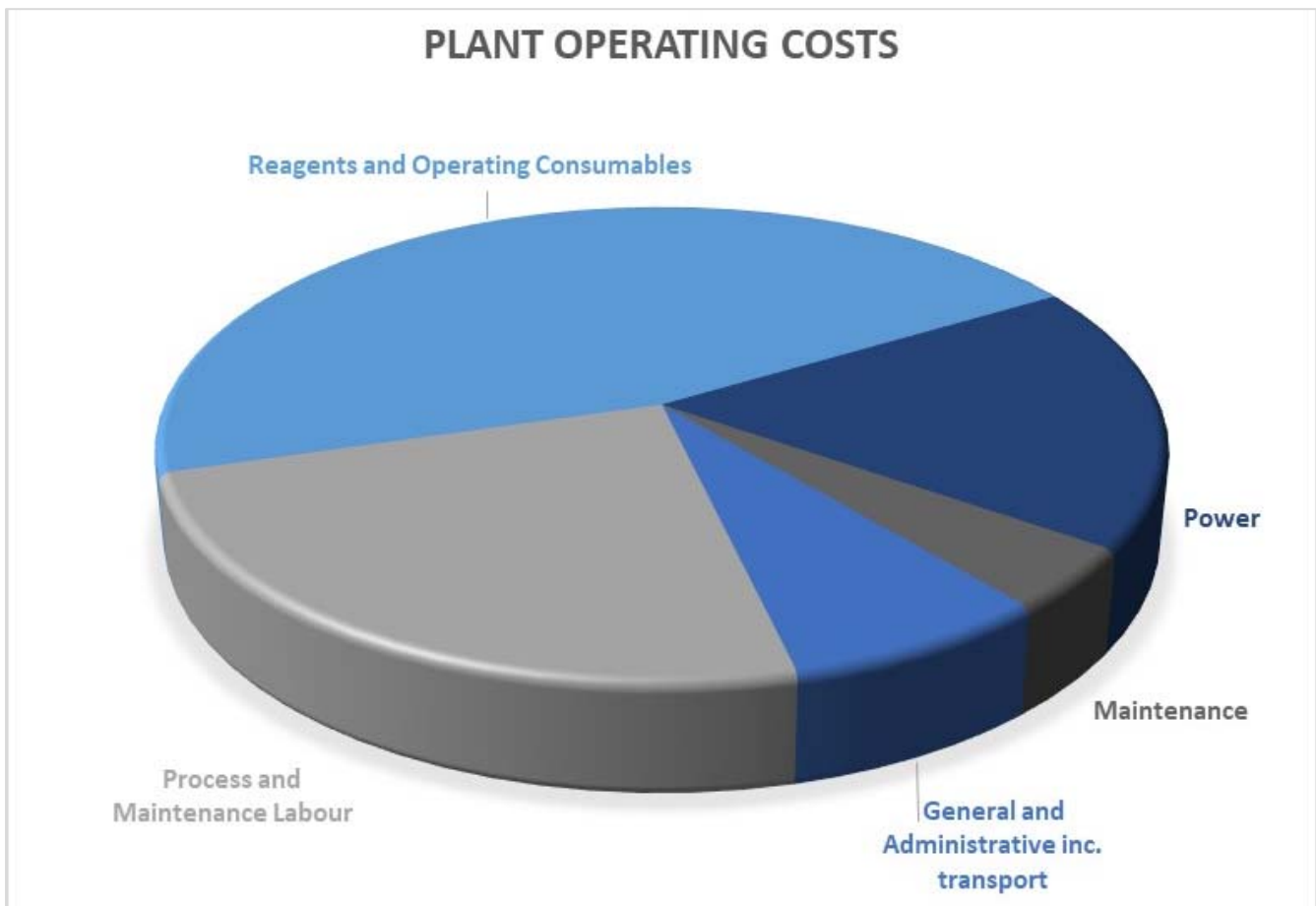
**Figure 13:** Preliminary Plant Layout

## Plant Operating Costs

Base case Stage 1 operating costs for the Plant have been estimated to be \$24.32 per tonne of ore processed from crusher feed through to gold/silver doré production (Table 21 and Figure 14). At the higher Plant throughput rates some of the fixed cost components such as labour will be reduced on a unit basis, however these have not been factored into the operating cost as they result in minor overall improvements.

**Table 21:** Operating Cost Summary – Base Case

Cost Area	Cost Per Annum	\$/tonne	% Breakdown
General and Administrative inc. transport	\$ 1,357,177	1.81	7.4%
Process and Maintenance Labour	\$ 4,399,200	5.87	24.1%
Reagents and Operating Consumables	\$ 8,399,007	11.20	46.0%
Power	\$ 3,317,370	4.42	18.2%
Maintenance	\$ 770,770	1.03	4.2%
Totals	\$ 18,243,524	24.32	100%



**Figure 14:** Plant Operating Costs

The Company has assessed the option of a contract crushing service in place of the fixed plant and has received several indicative quotes from reputable crushing and mining contractors. The use of contract crushing results in an additional operating cost of approximately \$6.21/tonne of ore crushed, reduces the up-front Plant capital by approximately \$6.36 million, and reduces the Plant variable operating costs by \$2.81/tonne. Based on the proposed Stage 1 life of mine total material crushed of approximately 4.033Mt, installing a fixed 3-stage crushing circuit as part of the Plant would result in a net cost saving to the Project of approximately \$7.35 million vs the contract crushing alternative.

Tailings management options have been assessed and include filtration and co-disposal of dry tailings within the waste dump (this is discussed in more detail in the environmental section), versus pumping thickened tailings to an existing historic mining void. The capital and operating costs associated with these two options are very similar. Filtration and co-disposal of tailings with waste rock on site is the preferred option and has been included in the Plant operating costs. A variable cost of \$2.00 tonne for handling of the dry-stacked tails has also been included.

Dewatering of the Fountain Head pit is expected to commence during the third year of the Project using pontoon pumps located within the pit and piping to transfer water to the dewatering dam. Costs of \$70,000 per month have been included within the mining component of the financial model to account for this activity which also includes the use of evaporators when required.

The operating cost estimate assumes site contract generated diesel power and includes allowances for site safety, environmental, security and Plant administration. Plant maintenance, spares, reagents and operating consumables are all included.

Diesel costs (as quoted) inclusive of transport and on-site storage in self-bunded tanks, and the current ATO Diesel Excise Rebate has been included at \$0.74c/litre, resulting in on-site power costs of \$0.247kW/hr.

Up to 34 Plant personnel will be employed on shift (9:5 and 2:1) with the majority engaged on a 'drive-in drive-out' basis.

## Royalties

Three Royalties are applicable to the Project and have been included in the Financial Model:

- NT Government minerals royalty – 20% of project profit as calculated under the legislation (Mineral Royalty Act 1982 (NT))
- Newmarket Gold NT Holdings Pty Ltd – 2% NSR royalty on gold and silver at Fountain Head, Mt Bonnie and Iron Blow, and a 1% NSR on gold at Glencoe
- Counterparties to Silver Streaming Agreement – equal to a 1% NSR royalty on all metals paid

The total of all Royalties that would be paid are estimated to be \$64.6 million over the LOM.

## Regional Exploration Potential - Burnside

The Burnside Exploration Project (90% PNX/ 10% KLA) ("Burnside") covers an area of approximately 950 km<sup>2</sup> (Figure 15) and surrounds the Fountain Head, Glencoe, Mt Bonnie and Iron Blow MLs.

In late 2020 PNX conducted a comprehensive review of the Burnside area that identified multiple high-priority gold exploration targets, separate from known resources at Fountain Head and Glencoe, each with the potential to host economic quantities of gold mineralisation. Four targets, typically characterised by strong surface geochemical anomalism and drilled bedrock mineralisation, have been prioritised for follow-up during the 2021 exploration season, (refer ASX release 9 October 2020 including JORC tables).

The Burnside area, part of the broader Pine Creek Orogen, has a substantial gold endowment of approximately 3.5Moz. The majority of the gold mineralisation typically occurs in zones of quartz veining, brecciation and shearing along fold hinges, shear zones and thrust faults.

Historic exploration largely involved surface prospecting throughout areas of outcrop to identify prospective zones followed by trenching (costeining) and drilling. PNX's review highlighted that while exploration in the vicinity of known deposits is extensive, areas along strike from existing mineralisation and non-outcropping areas have not been effectively explored in the past and remain essentially untested despite being highly prospective

The majority of regional exploration at Burnside took place in the period between the late 1980s and early 2000s when low gold prices prevailed. Consequently, various gold anomalies and targets originally identified during that period were not followed up and now present as opportunities for PNX and its Project development strategy in the current environment of substantially higher gold prices.

### Medusa

The Medusa gold target lies within the central portion of Burnside and is characterised by a large surface (700m x 600m area) gold and arsenic in soil anomaly, and rock chip values up to 2.56g/t gold and 6.70% arsenic (arsenic being a good pathfinder for gold mineralisation in the Pine Creek and Burnside region).

Initial reconnaissance drill testing of the structure undertaken in 1996 returned encouraging near-surface intercepts which have never been followed up including:

- 2m @ 1.83g/t gold from 26 metres in MEDR0001,
- 3m @ 1.19g/t gold from 9 metres in MDR0008

The mineralisation, which occurs within a zone of quartz veining and shearing, was intersected over a 600m strike length and remains open in all directions. Significantly the original surface geochemical anomaly extends well beyond the limits of drilling and interpretation of magnetic data suggests that there are multiple parallel NE trending fault zones running through the area which have never been drill tested.

### ***Cookies Corner***

Cookies Corner is located on a NE trending fault approximately 3km to the NNE of the historic Goodall deposit, where Western Mining Corporation mined 4.1Mt @ 1.99 g/t gold (228Koz contained gold) from 1988 to 1992. Gold mineralisation at Goodall occurs within a 25m to 50m wide x 600m long zone of shearing and quartz veining on the western limb of an anticlinal fold hinge closure adjacent to the same NE trending fault that hosts Cookies Corner.

At Cookies Corner an 800m long x 300m wide gold in soil anomaly has been defined that overlies an area of outcropping gossanous quartz veins. Drilling by PNX in late 2018 intersected gold mineralised quartz veining over a 400m strike, which remains open in all directions. Intercepts reported at the time included (refer ASX release 29 January 2019):

- 2m @ 4.35 g/t Au from 61 metres in CCRC018,
- 11m @ 1.13 g/t Au from 75 metres in CCRC023,
- 6m @ 1.82 g/t Au from 133 metres in CCRC003,
- 4m @ 2.12 g/t Au from 44 metres in CCRC004,
- 4m @ 2.86 g/t Au from 35 metres in CCRC017,
- 9m @ 2.48 g/t Au from 42 metres in CC03 (historic),
- 21m @ 1.27 g/t Au from 37 m in CC04 (historic), and
- 10m @ 1.66 g/t Au from 45 metres in CC05 (historic)

### ***Western Arm North***

Western Arm North is characterised by a linear north-south trending 900-metre-long x 400-metre-wide surface gold in soil anomaly overlying the soil-covered northern continuation of the same faulted anticlinal fold hinge that hosts KLA's Western Arm Gold Deposit (Inferred Resource 1.79Mt @ 1.4g/t gold for 86,000 contained ounces) 1km to the south.

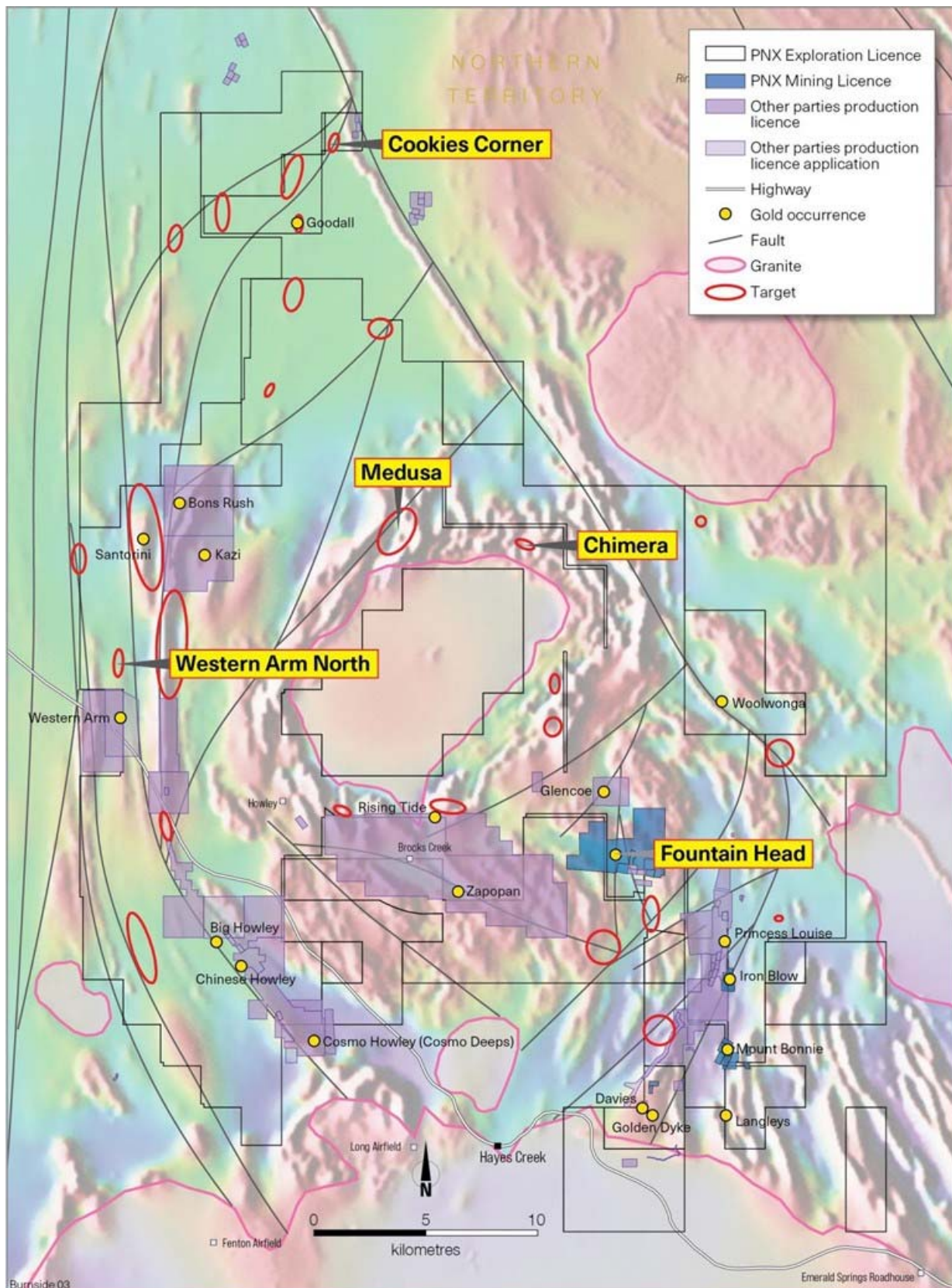
Three drill traverses (spaced 300m to 500m apart) of 20m deep vertical reconnaissance holes were drilled across the anomaly in 1993 with several holes intersecting anomalous gold within weathered ferruginous quartz veining and sediments. Results include:

- 1m @ 2.23g/t gold from 19 metres in NW1 (hole ended in mineralisation),
- 2m @ 1.26g/t gold from 13 metres in NW8,
- 1m @ 1.30g/t gold from 8 metres in NW9

### ***Chimera***

Lying east of Medusa within the same dolerite and sediment rock sequence, Chimera is an east-west trending 700m long x 200m wide surface gold in soil anomaly.

Four 60m deep angled RC holes drilled in 1996 did not identify the source of the anomaly and as such it remains unexplained.



**Figure 15:** Burnside Exploration Project – TMI magnetics

## **Risks and opportunities**

### ***Risks***

- AUD/USD exchange rate fluctuations
- Significant fall in the price of gold, silver and zinc
- Mining production, recoveries and dilution, and Plant recoveries and throughput rates are not achieved
- Capital and operating costs are significantly higher than anticipated
- Mined vs MRE reconciliation is negative

### ***Opportunities***

- Future metals price increases
- Use of 2<sup>nd</sup> hand equipment in Plant design
- Fixed price EPCM contract
- Achieving higher than modelled Plant recoveries
- Strong exploration upside potential and further discovery and/or acquisitions potentially mineable gold/base metals deposits

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For further information please visit the Company's website [www.pnxmetals.com.au](http://www.pnxmetals.com.au) or contact us:

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