

WHIM CREEK COPPER-ZINC PROJECT

WHIM CREEK MINESITE AND WASTE ROCK LANDFORM EXPANSION

CLEARING PERMIT APPLICATION - PURPOSE PERMIT

Contact Person:	Dan O'Hara
Email:	dohara@anaxmetals.com.au
Phone:	0415 575 885
Street Address:	20 Kings Park Road, WEST PERTH WA 6005

Table of Contents

1. INTRODUCTION.....	2
1.1 Purpose	2
2. Location and tenure	5
3. site overview	6
3.1 Climate.....	6
3.2 Biogeographic Location.....	6
3.3 Geology and Landforms	6
3.4 Hydrology.....	6
3.5 Hydrogeology.....	7
4. Environmental values	8
4.1 Flora and Vegetation.....	8
4.1.1 Flora of Conservation Significance.....	8
4.1.2 Introduced Flora.....	10
4.1.3 Vegetation Types	10
4.1.4 Vegetation of Conservation Significance	10
4.1.5 Vegetation Condition.....	10
4.2 Fauna.....	10
5. Environmental Management measures and rehabilitation	12
6. Assessment Against The 10 Clearing Principles	13
7. References.....	18
Appendix 1	20

List of Figures

Figure 1: Whim Creek Project Location.....	3
Figure 2: Whim Creek Development Envelope and Proposed Infrastructure	4

List of Appendices

Appendix 1: Letter of Authority from Lease Holder	
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1. INTRODUCTION

The Whim Creek Copper-Zinc Project is located approximately 120 km south-east of Port Hedland in the Pilbara region of Western Australia (**Figure 1**). Straits Resources Ltd commenced mining the oxide layers at both the Mons Cupri and Whim Creek open pits in 2004 and operated the sites until the ore bodies were exhausted in 2009, with the site then being placed into Care and Maintenance. Processing of ore from other sites was undertaken using the onsite heap leach facility until 2019.

The Whim Creek Copper-Zinc Project (Project) is a brownfields mine and ore processing development proposed by Whim Creek Metals (WCM), a wholly owned subsidiary of Anax Metals Limited (Anax). In July 2020, Anax entered into an earn-in/joint venture agreement with Venturex Resources (now Develop Global Ltd) to recommence operations at the Project. WCM intends to mine sulphide ore, process the material using smart sorting technology to generate a pre-concentrate for toll treatment at a third party owned concentrator offsite.

Mining will initially focus on the expansion of the existing pit and waste rock landform at the Mons Cupri deposit and progress to mining the sulphide layers beneath the water table at the Whim Creek open pit, which will also require the expansion of the existing pit and waste rock landform at that site.

1.1 Purpose

The purpose of this document is to provide the necessary information and justification, as prescribed within the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, to seek approval under Part V of the *Environmental Protection Act 1986* for the clearing of native vegetation.

This document has been prepared to support a Native Vegetation Clearing Permit (NVCP) to be submitted to DMIRS for assessment.

Whim Creek Metals Pty Ltd has been granted a clearing permit, CPS9355, to undertake clearing associated with the mining and expansion of the Mons Cupri pit in mining lease M47/238 and is now seeking approval under Part V of the EP Act to clear vegetation for expansion of mining at the Whim Creek open pit located within mining leases M47/236 and M47/443.

The total clearing area required for the Whim Creek open pit mining and expansion project is up to 35 ha of remnant vegetation and existing landform rehabilitation, within an 83 ha development envelope (DE) (**Figure 2**).

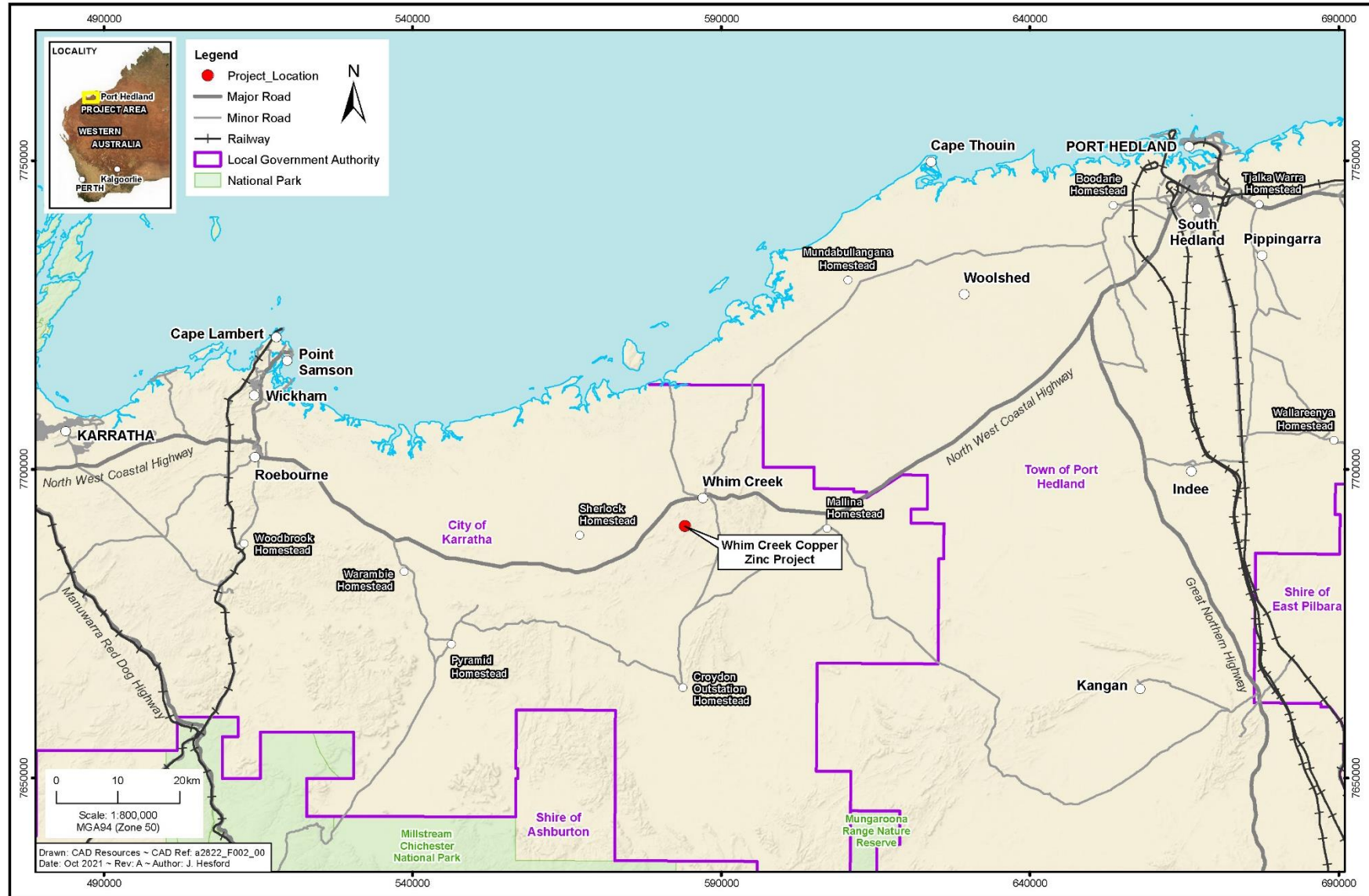


Figure 1: Whim Creek Project Location

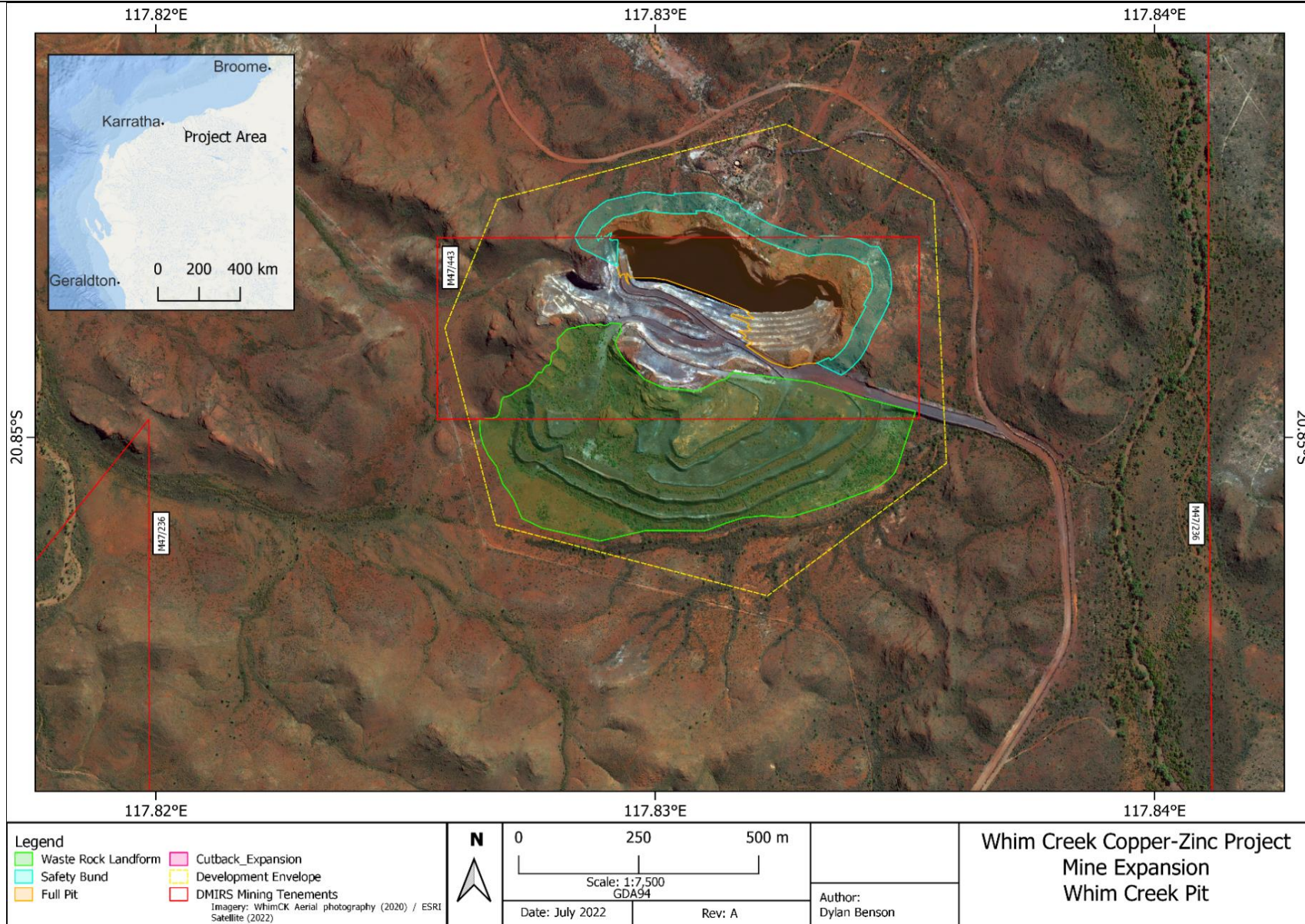


Figure 2: Whim Creek Development Envelope and Proposed Expansion

2. LOCATION AND TENURE

Mining Act 1978 tenure relevant to this Clearing Permit Application includes M47/236 and M47/443 currently held by Venturex Pilbara Pty Ltd (a wholly owned subsidiary of Venturex Resources Limited) and are summarised in Table 1. Transfer of ownership of tenements associated with the Whim Creek Metals Pty Ltd's interest is pending. Whim Creek open pit and associated infrastructure is located on the Mallina Pastoral Lease.

Tenement	Area (ha)	Granted	Expires	Lessee
M47/236	963.35	27/07/1990	26/07/2032	Venturex Pilbara Pty Ltd
M47/443	40.465	02/06/1998	01/06/2040	Venturex Pilbara Pty Ltd

Venturex Pilbara Pty Ltd has provided a Letter of Authority which enables Whim Creek Metals Pty Ltd to submit applications to clear native vegetation on their behalf (Appendix 1).

3. SITE OVERVIEW

3.1 Climate

The climate in the Central Pilbara region is typically arid, with hot summers and mild winters. Mean daily temperatures exceed 36 degrees across the summer months (December to March) and fall below 30 degrees across the winter months (May to September). Historically, the highest average monthly rainfalls are between January and March, usually as a result of brief, but intense storm activity often associated with tropical cyclones, which develop off the north Kimberley coast. Average monthly rainfall across the winter is lower, but more reliable than in the summer months. Most groundwater recharge is usually associated with the higher intensity cyclonic rainfall events.

3.2 Biogeographic Location

The Whim Creek project area lies within the Pilbara biogeographic region of the Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway and Cresswell, 1995), being one of 85 biogeographic regions covering the whole of Australia.

The Pilbara biogeographic region comprises four subregions; Hamersley, Fortescue Plains, Chichester and Roebourne (McKenzie et al., 2000). The project area occurs along the border of the Roebourne and Chichester subregions, and forms part of the Fortescue Botanical District (Abydos Plain) in the Eremaean Botanical Province (Beard, 1975).

The Roebourne (PIL04) subregion consists of Quaternary alluvial and older colluvial coastal and sub-coastal plains, with a grass savanna of mixed bunch and hummock grasses, and dwarf shrub steppe. Resistant linear ranges of basalts occur across the coastal plains. These uplands are dominated by *Triodia* hummock grasslands. Ephemeral drainage lines support *Eucalyptus* woodlands, Samphire, *Sporobolus* grasslands and mangal occur on the marine alluvial flats and river deltas. The islands are Quaternary sand accumulations, basalt and/or limestone.

The Chichester (PIL01) subregion comprises of undulating Archaean granite and basalt plains including significant areas of basaltic ranges. Plains support a shrub steppe characterised by *Acacia pyrifolia* over *Triodia pungens* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on the ranges (Thackway and Cresswell, 1995).

3.3 Geology and Landforms

The Whim Creek project area occurs within volcanoclastics and sediments of the Bookingarra Group, part of the Archaean Whim Creek Basin. Mineralisation is described as structurally controlled, volcanic hosted massive sulphide (VHMS) style, copper-zinc-lead deposits.

At a local scale, the dominant landform within the project area is a north-east trending range of low hills (60-80 m above sea level), flanked by lower slopes, with a discontinuous cover of locally derived colluvial soil and a network of minor drainage lines. The Balla Balla River occurs as a major drainage feature along the eastern fringe of the greater project area, flowing northwest of the Whim Creek pub over a broad flood plain and meeting the ocean approximately 20 km downstream.

The Whim Creek main pit area falls within the Ruth Land system which is described as 'Hills and ridges of volcanic and other rocks supporting shrubby hard spinifex and occasionally soft spinifex grasslands'. In the Whim Creek project area, broad floodplains are dominated by short grass savanna mixed with spinifex and dotted with dwarf acacia shrubs. Ephemeral streams are lined with eucalypts and the rocky hill slopes are sparsely vegetated.

3.4 Hydrology

The project area lies within the hydrological unit known as the Port Hedland Coastal Drainage Basin (AIC, 2007) and the Pilbara Proclaimed Surface Water Area. The hydrology of this coastal drainage basin is

characterised by numerous ephemeral watercourses which flow north across the flat coastal plain towards the Indian Ocean in response to rainfall. The more significant flood events are often associated with cyclonic activity between the months of November and April.

The Balla Balla Creek is the most significant watercourse located immediately east of the Processing Area and pits. Balla Balla Creek flows north past the Processing Area, under the North West Coastal Highway bridge then joins the main tributary of Whim Creek before reaching the ocean. The Whim Creek Mine (pit and waste rock dump) is located on the catchment divide.

There are also smaller catchment areas contributing localised runoff to the Whim Creek pit and waste rock landform areas during significant rainfall events.

3.5 Hydrogeology

The Whim Creek project area lies within the Archean Whim Creek Belt, which outcrops as a northeast trending range of hills and consists of rhyolitic-dacitic rock overlain sequentially by the Mons Cupri Volcanics and laminated Rushall Slate, the latter of which hosts the Whim Creek deposit. The Whim Creek area was once blanketed by a vast Cretaceous-Tertiary peneplain which over time has been entirely eroded, as has its weathering profile, leaving the Whim Creek Volcanic Belt as a low range of hills with just a thin and discontinuous cover of locally derived colluvial soil (Collins et al., 2004).

The Whim Creek project area has been subject to multiple deformation events, which has resulted in secondary jointing, faulting, fracturing and igneous intrusion, subsequently the primary aquifer system in the project area is fractured rock. Fractured rock aquifers have been intersected in exploration and production bore drilling programs within the project area. They are discrete and anisotropic; they have no definitive geological or geophysical signature, making them difficult to locate and yield difficult to predict.

4. ENVIRONMENTAL VALUES

This section contains information about the environmental characteristics of the proposed Purpose Permit Area (within the context of the region), specifically relating to flora, vegetation and terrestrial fauna values, which may be relevant to this NVCP application. The assessment against the 10 Clearing Principles has also taken into regard the geological, soil characteristics and hydrogeology to inform the impact predictions.

4.1 Flora and Vegetation

Numerous flora and vegetation and vegetation health surveys have been conducted across the Whim Creek project area to support project permitting. Flora and vegetation surveys have been undertaken by Connell (2005) for the Whim Creek main pit waste dump expansion, in 2007 by Onshore Environmental Consultants (Onshore) for the Whim Creek mine and Astron (2006) undertook a flora and vegetation survey for the Mons Cupri expansion area located four kilometres south of the Whim Creek pit.

VLA (2021, 2022) undertook desktop reviews of flora and vegetation reports for the Mons Cupri and Whim Creek minesites within the Whim Creek project area. VLA are also conducting bi-annual vegetation monitoring via quadrats around the Whim Creek mine and local region.

4.1.1 Flora of Conservation Significance

In the 2006 and 2007 surveys (Astron 2006, Onshore 2007), three flora species, *Acacia glaucocaesia*, *Abutilon trudgenii* and *Gomphrena cucullata*, were listed as Priority species for the Study Area. Two of these species (*Acacia glaucocaesia* and *Abutilon trudgenii*) are no longer listed as Priority species, whilst *Gomphrena cucullata* still remains a Priority 3 species, but doesn't appear to have any known records within a 40 km radius from the Whim Creek Pit (DBCA 2022) and hence has not been included as a Priority species for this assessment.

No Threatened Flora have been recorded in the vicinity of the Whim Creek project area.

There are currently eight conservation significant species recorded within a 40 km radius of the Whim Creek minesite project area. An assessment of likelihood of occurrence in the Whim Creek minesite project area indicates one P3 species, *Euploca mutica* and one P4 *Goodenia nuda* are likely to occur within the area, whilst one P1 species, *Tephrosia rosea* var *Port Hedland* (A S George 1114), and one P4 species *Rhynchosia bungarensis* have the potential to occur within the project area. The remaining four conservation significant species are unlikely to occur (Table 2).

Table 2. Likelihood of Occurrence of Priority Species within the Study Area

Species	Habit and flowering information	Life Form A/P	Habitat	Likelihood of occurrence
Priority 1				
<i>Euploca parviantrum</i> (formerly known as <i>Heliotropium parviantrum</i>)	Small erect her to 15 cm tall. Branchlets with appressed hairs. Leaflets linear to narrow elliptic 6-25 x 0.7 – 2.5m. Small white flowers on simple cyme. Flowers February to June.	Annual	Stony plains, sandy plains with <i>Triodia</i> species.	Unlikely Rarely collected from further north. No records within 20 km of Study Area

Species	Habit and flowering information	Life Form A/P	Habitat	Likelihood of occurrence
<i>Tephrosia rosea</i> var <i>port Hedland</i> (A S George 1114)	Medium open grey-green shrub, stems and leaves with dense velvety fine white hairs. Leaflets 5-7, pinnate, terminal leaf. Corolla uniformly pink, fruits woolly. 9-10 mm long. Flowers July – September.	Perennial	Occurs in coastal and near-coastal locations from Port Hedland to Point Samson, also collected along the Peawah River. In sandy and sandy loam soils, and tan, deep sands in coastal dunes.	Potential Usually coastal but record from the Peawah River, less than 20 km from Study Area
Priority 3				
<i>Abutilon</i> sp <i>Pritzelianum</i> (S van Leeuwen 5059)	Tall erect but open multi-stemmed shrub 1 – 2m tall. Dull grey-green circular-elliptical leaves 15-55 mm x 10-45 mm. Flower orangy-yellow 27 mm across.	Perennial	Occurs on sand plains, generally in red sands but also on coastal orange sands. Very occasionally on shallow soiled granitic plain	Unlikely Habitat not present or collected in study area. No records within 20 km of Study Area
<i>Corchorus</i> <i>congener</i>	Small pale grey-green shrub to 40cm, often spreading. Stems and leaves with short pale hairs. Leaves lanceolate, shallowly serrated. Corolla yellow. Flowers April – June or August to November.	Perennial	Sandy habitat, red sands, red sandy loam with limestone, dunes or plains.	Unlikely Habitat not present and not recorded within 20 km of Study Area.
<i>Euploca mutica</i> (formerly known as <i>Heliotropium muticum</i>)	A small grey-green scabrous herb or spreading shrub to 30 cm. Leaves are small and ovate (to 10mm). Flowers are small, white with stiff spiny hairs.	Perennial	Plains, red-orange sand, stony brown loams over calcrete or ironstone. Red-brown sandy clays.	Likely Habitat present, collected within 5 km of Study Area
<i>Solanum</i> <i>cataphractum</i>	Erect or sprawling prickly shrub, green, sparsely hairy when young, prickles to 7mm long abundant. Leaves dark green deeply lobed 6-14 linear segments. Flowers purple.	Perennial	Occur on sand, sandstone, restricted to coastal area and islands.	Unlikely Habitat not present and no records within 20 km of Study Area
Priority 4				

Species	Habit and flowering information	Life Form A/P	Habitat	Likelihood of occurrence
<i>Goodenia nuda</i>	Small herb to 15 cm with flat linear leaves 25-110 mm long, 0.6-2mm wide, sparse hairs, margins entire or toothed. Yellow flowers on pedicels 30-50 mm. Flowers with sparse hairs on outside and hairy inside. Flowers April to August.	Perennial	Mixed alluvial plain with sandy brown loam; red-brown loamy floodplains, red sandy loams over ironstone, granite or quartz	Likely Habitat present and collected from within 10 km from Study Area
<i>Rhynchosia bungarensis</i>	Compact, prostrate or climbing vinelike shrub, to 0.5 m high. Leaves are distinctly sticky distinguishing it from <i>R. minima</i> . Small yellow pea flower. Flowers when vine is healthy after summer or winter rains.	Perennial	Base of rockpiles. Pebbly, shingly coarse sand amongst boulders. Rocky gully walls. Rocky habitat.	Potential Habitat present and more widely distributed than currently recorded.

4.1.2 Introduced Flora

Some common Pilbara weed species such as **Aerva javanica* (kapok bush), **Cenchrus ciliaris* (buffel grass), **Cenchrus setiger* (birdwood grass) and **Indigofera oblongifolia* occur within the DE. None of these species are listed as Weeds of National Significance (WoNS) or Declared Pests under s. 22 of the *Biosecurity and Agriculture Management Act 2007* (BAM Act).

4.1.3 Vegetation Types

The vegetation types described by Astron (2006) and Onshore (2007) are all well represented in the area. Vegetation in the project area has been modified by repeated historical fire and past European (pastoral and mining) activities.

4.1.4 Vegetation of Conservation Significance

No Threatened Ecological Communities (TEC) have been recorded in the vicinity of the Whim Creek project area.

The mapped boundary of one Priority Ecological Community (PEC) named the *Horseflat Land System of the Roebourne Plains* occurs approximately 1 km northwest of the Whim Creek DE. This PEC is characterised by extensive, weakly gilgai clay plains dominated by tussock grasslands on mostly alluvial non-gilgaied, red clay loams or heavy clay loams which is uncharacteristic of the land within and surrounding the DE.

4.1.5 Vegetation Condition

Vegetation condition in the DE ranges from completely disturbed due to previous mining activities to 'good' to 'excellent'.

4.2 Fauna

Bamford Consulting Ecologists (BCE) (2021) conducted a site reconnaissance or Basic level fauna survey to confirm the presence of habitat that would support conservation significant fauna species.

An initial site visit was conducted over three days in April 2021 to review the DE and surrounding landscape and set some camera traps for two nights. The cameras were located in a range of habitats suitable for Northern Quoll covering Vegetation and Substrate Associations (VSA) VSA1 to VSA5, however were

predominantly set up in VSA1 and VSA2 (i.e. rocky areas). The camera traps returned positive results for the presence of *Dasyurus hallucatus* (Northern Quoll) at Mons Cupri and Whim Creek mine sites (BCE, 2021). A mine adit approximately 5 km south of the Whim Creek minesite was found to be used as a temporary roost by a small number of *Macroderma gigas* (Ghost Bats).

During the subsequent field visit in May 2021, Northern Quoll were found to be widely dispersed across the landscape utilising different habitat types or VSAs that provide fauna habitats. As rocky habitat is extensive throughout the region and Northern Quoll records widespread, it was concluded that Northern Quoll are well distributed throughout the study area and beyond.

The intent of the field assessment was to determine the extent of the local distribution of Northern Quoll. Population size is difficult to determine (and highly variable both seasonally and annually). The cameras were set to determine presence of the Northern Quolls. Individuals were not identified, but in almost all cases it appeared that just one or two animals visited each camera where there was a Northern Quoll record. BCE concluded a 'few' individuals would be utilising the Whim Creek minesite area, based on the Whim Creek DE (approximately 83 ha maximum, of which about 30% is rocky ridge) and the known home range of individuals (35 ha for females and 100 ha for males). Home ranges overlap, but with only a very small portion of the DE actually consisting of rocky hills which are likely to provide denning habitat, it was concluded that only a small number of animals would actually occur in the DE. There is ample habitat outside the proposed disturbance footprint and DE for them to disperse e.g. adjacent ridges and creek lines. All impacts to fauna resulting from the implementation of the Whim Creek minesite expansion are expected to be minor.

BCE confirmed there were no survey limitations associated with either the Basic or Targeted surveys in accordance with *EPA 2020 Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment*.

5. ENVIRONMENTAL MANAGEMENT MEASURES AND REHABILITATION

Environmental management measures that will be implemented to avoid, minimise and reduce the impacts associated with clearing up to 35 hectares for the Whim Creek minesite development include:

- Ground Disturbance Permit procedures will be implemented prior to clearing
- Areas designated for clearing will be surveyed and boundaries clearly demarcated. Operator personnel will be familiarised with demarcated areas prior to the commencement of clearing to ensure no clearing is undertaken beyond demarcated clearing zones
- Northern Quoll trapping and relocation will be undertaken prior to clearing
- Existing access tracks or other cleared areas will be utilised to prevent unnecessary clearing
- Earthmoving equipment will be inspected for the presence of soils and vegetation matter prior to the commencement of clearing works
- Clearing will be undertaken progressively so only those areas absolutely required for operations are disturbed
- Vehicles and equipment will adhere to speed limits and avoid driving over, or parking on, vegetation and/or tree roots that are not designated for clearing
- Effective waste containment and disposal procedures will be implemented to prevent attraction of feral predators, such as cats and foxes
- Personnel will be inducted and educated on environmental requirements of the Project.

Rehabilitation of the Whim Creek minesite and associated infrastructure will be undertaken in accordance with the Mine Closure Plan approved under the *Mining Act 1978*. This will detail all closure practices and management measures as required. Broad closure objectives relevant to the mine include, but are not limited to:

- Progressive rehabilitation for disturbances not required for ongoing operations such as used borrow pits and redundant laydown areas
- Rehabilitation of the area to meet agreed criteria prior to relinquishment
- Rehabilitation will support self-sustaining, functional ecosystems comprising suitable, local flora species as far as available resources and site conditions allow.

6. ASSESSMENT AGAINST THE 10 CLEARING PRINCIPLES

Clearing Principle	Assessment
(a). Native vegetation should not be cleared if it comprises a high level of biological diversity.	<p>No recent flora and vegetation surveys have been conducted over the application area. In 2007, Straits (Whim Creek) Pty Ltd (Straits), who were the lease holders at that time, engaged Onshore Environmental Services (Onshore) to conduct a vegetation and flora survey within mining leases M47/236, M47/237 and M47/443. This survey included the expansion area currently proposed by Anax (within mining leases M47/236 and M47/443) (Figure 2) however, new environmental research and regulations since 2007 require that the Onshore report be reviewed to document any changes or new requirements that may be necessary. VLA (2022) undertook a desktop review of flora and vegetation surveys undertaken both within the proposed application area as well as surrounding areas to determine the likelihood of occurrence of flora and vegetation of conservation significance within the proposed application area. Flora and vegetation surveys reviewed included Connell (2005) for the Whim Creek main pit waste dump expansion, Astron (2006) for the Mons Cupri minesite expansion, Onshore (2007) for mining leases M47/236, M47/237 and M47/443 and Phoenix (2020) for the Balla Balla Infrastructure – Rail and Conveyor Project.</p> <p>The vegetation of the application area has been described as being dominated by <i>Acacia</i> shrublands and <i>Triodia</i> hummock grasslands (Astron, 2006, Onshore 2007).</p> <p>No Threatened or Priority Ecological Communities were identified as potentially occurring within the application area and none of the vegetation types mapped and described are listed as Threatened or Priority Ecological Communities (Astron, 2006; VLA, 2021, VLA 2022).</p> <p>A total of 130 flora species from 77 genera and 37 families were recorded during the Astron (2006) survey.</p> <p>VLA (2022) identified eight flora species of conservation significance within 40 kilometres of the application area. Two species, <i>Euploca mutica</i> (P3) and <i>Goodenia nuda</i> (P4), were considered likely to occur within the application area based on suitable habitat and proximity of nearby records. An additional two flora species, <i>Tephrosia rosea</i> var Port Hedland (P1) and <i>Rhynchosia bungarensis</i> (P4), have the potential to occur within the application area based on suitable habitat and the remaining four Priority species, <i>Abutilon</i> sp <i>Pritzelianum</i> (S van Leeuwen 5059) (P3), <i>Corchorus congener</i> (P3), <i>Euploca parviantrum</i> (P1) and <i>Solanum cataphractum</i> (P3) are unlikely to occur in the Study Area (VLA 2022). The Astron (2006) survey did not identify any Threatened or Priority flora species within the application area. Priority flora species potentially present are not locally or regionally restricted, and occur across multiple IBRA bioregions or subregions (Western Australian Herbarium, 1998-). Given the known records and distribution of these species, the proposed clearing is unlikely to have a significant impact on the conservation status of Priority flora potentially present.</p> <p>A desktop assessment undertaken by Bamford (2021) identified a total of 271 vertebrate fauna species potentially occurring in the application area and surrounds. This includes 41 mammals, 136 birds, 83 reptiles and seven amphibians (Bamford, 2021). Four fish species were also recorded. Of the 271 species recorded, 25 were of conservation significance, with 15 expected to occur as</p>

	<p>residents and two are expected as regular visitors (Bamford, 2021).</p> <p>A field survey undertaken within the application area and surrounds (Bamford 2021) recorded a total of 49 vertebrate species, comprising one amphibian, seven reptiles, 31 birds and ten mammals Evidence of two conservation significant fauna species was recorded within the application area, including Northern Quoll (<i>Dasyurus hallucatus</i>, EN at a State and Federal level) and ghost bat (<i>Macroderma gigas</i>, VU at a State and Federal level) (Bamford, 2021). The Northern Quoll is a resident in the application area (Bamford, 2021). The fauna assemblage is moderately rich and almost intact, and the proposed clearing is unlikely to significantly impact on fauna biodiversity on a local or regional scale (Bamford, 2021).</p> <p>The vegetation types, fauna habitats and landform types present within the application area, are well represented in surrounding areas (Bamford, 2021; VLA, 2022). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
<p>(b). Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.</p>	<p>The following five fauna habitats were recorded within the application area and surrounds (Bamford, 2021):</p> <ul style="list-style-type: none"> • Rocky hills • Gravelly hills • Stony plains and lower slopes • Sandy to sandy loam plains • Drainage lines <p>The fauna habitats present within the application area and surrounds are extensive within the region and are not restricted to the application area (Bamford, 2021). The proposed development within the application area will likely impact rocky hills, gravelly hills, and stony plains and lower slopes fauna habitats (Bamford, 2021).</p> <p>Two conservation significant species were recorded within the application area and surrounds by secondary evidence (tracks) or on camera traps, including: Northern Quoll (<i>Dasyurus hallucatus</i>) and Ghost Bat (<i>Macroderma gigas</i>)(Bamford, 2021).</p> <p>Northern Quoll were recorded with camera traps at 14 locations within and outside the application area (only one within the application area) (Bamford, 2021). One camera trap within the application area at Whim Creek minesite recorded Northern Quoll within close proximity to existing mining operations, such as open pits and waste rock landforms (Bamford, 2021). No Northern Quoll dens were identified in the Whim Creek minesite area during active searching (both within and outside of the DE) on both of the site visits, however the landforms present within the application area (rocky ridges and hills) have the potential to provide denning habitat (Bamford, 2021). Whilst part of the pit / waste rock landform expansion area is a rocky ridge, such rocky ridges occur throughout the greater project area and beyond as is seen traversing the Great Northern Hwy between Karratha and Whim Creek site and between survey sites. Therefore, the rocky ridge area in the proposed pit cutback zone and the waste rock landform is not significant breeding habitat considering the extent of breeding habitat locally and regionally.</p>

	<p>While suitable rocky denning habitat for Northern Quoll is quite extensive within the broader survey area (up to 8 kilometres from the application area) and within the region, the proposed clearing will potentially impact denning habitat (Bamford, 2021). Potential impacts to Northern Quoll as a result of the proposed clearing may be minimised by ensuring pre-clearance surveys are undertaken to identify individuals of this species within the application area and to relocate them (DBCA, 2021).</p> <p>Ghost bat has been identified within 5km of the application area (in a temporary roost at a mine adit located approximately 500m south of the Mons Cupri minesite, on the side of a hill facing away from the mining development and determined to be a regular visitor to the broader survey area (Bamford, 2021). There is no known roosting habitat present within the Whim Creek minesite application area (Bamford, 2021). The proposed clearing may impact potential foraging and dispersal habitat, however the impacts are not expected to significantly impact the conservation status of this species (Bamford, 2021).</p> <p>Based on the above, the proposed clearing is at variance to this Principle.</p>
<p>(c). Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.</p>	<p>There are no known records of Threatened flora within the application area (DBCA, 2007-). The Onshore (2007) flora and vegetation survey of the application area did not record any species of Threatened flora. A desktop assessment based on current information did not identify any Threatened flora as having the potential to occur within the application area (VLA, 2022).</p> <p>The vegetation types within the application area are common and widespread within the region (Astron, 2006), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora (DBCA, 2007-).</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
<p>(d). Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.</p>	<p>There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area.</p> <p>A flora and vegetation desktop review of the application area did not identify any TECs (VLA, 2022). A 2007 flora and vegetation survey of the application area did not map any vegetation that would be considered part of a TEC (Onshore, 2007)</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
<p>(e). Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.</p>	<p>The application area falls within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Pilbara Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation association 649: Hummock grassland with scattered shrubs or mallee <i>Triodia</i> spp. <i>Acacia</i> spp., <i>Grevillea</i> spp. <i>Eucalyptus</i> spp.</p> <p>Approximately 99% of the pre-European extent of this vegetation association remains uncleared at both the State and Bioregional level (Government of Western Australia, 2019). Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.</p>

	Pre-European Area (ha)	Current Extent (ha)	Remaining %	Conservation Status	Pre-European % in DBCA managed lands
IBRA Bioregion - Pilbara	17,808,657	17,731,764	~99	Least Concern	10.12
Beard Vegetation Association - WA					
649	40,364	40,178	~99	Least Concern	N/A
Beard Vegetation Association – Pilbara Bioregion					
649	40,364	40,178	~99	Least Concern	N/A
Based on the above, the proposal is not at variance to this Principle					
(f). Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	<p>There are no permanent watercourses or wetlands within the area proposed for clearing (VLA, 2022). Multiple drainage lines either pass through or are adjacent to the application area. Most of the drainage lines in the region are ephemeral, only flowing briefly immediately following significant rainfall.</p> <p>Riparian vegetation associated with an ephemeral drainage line to the south of the waste rock landform has been avoided in the design of the Waste Rock Dump.</p> <p>Based on the above, the proposal is not likely to be at variance to this Principle.</p>				
(g). Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	<p>The application area lies within the Ruth land system. This land system has been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Primary Industries and Regional Development, DPIRD).</p> <p>The Ruth land system is described as hills and ridges of volcanic and other rocks supporting hard spinifex (occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). This land system is prone to fairly regular burning, but is not susceptible to erosion (Van Vreeswyk et al., 2004).</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>				
(h). Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the	<p>There are no conservation areas within or in the vicinity of the application area. The nearest DBCA (formerly DPaW) managed land are the Millstream Chichester National Park which is approximately 59 kilometres southwest, and Mungaroona Range Nature Reserve which is located approximately 56 kilometres southeast of the application area. The proposed clearing is unlikely to impact on the environmental values of any conservation area.</p>				

environmental values of any adjacent or nearby conservation area.	Based on the above, the proposed clearing is not likely to be at variance to this Principle.
(i). Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	<p>There are no Public Drinking Water Source Areas within or in close proximity to the application area. There are no permanent watercourses or wetlands within the proposed clearing area. Drainage lines in the region are ephemeral, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.</p> <p>The proposed clearing is unlikely to cause deterioration in the quality of underground water.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
(j). Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	<p>The climate of the Pilbara bioregion is semi-arid, with an average rainfall of approximately 297.6 millimetres per year (BoM, 2022). Drainage lines in the area are ephemeral, only flowing briefly immediately following significant rainfall during late summer and early autumn.</p> <p>There are no permanent water courses or waterbodies within the application area. Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>

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APPENDIX 1
LETTER OF AUTHORITY FROM LEASE HOLDER



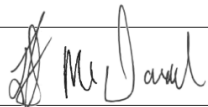
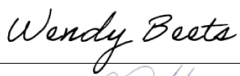
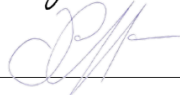
19 July 2022

General Manager Environmental Compliance
 Resource and Environmental Compliance Division
 Department of Mines Industry Regulation and Safety
 Mineral House, 100 Plain Street
 EAST PERTH WA 6004

Dear Sir/Madam,

Whim Creek Project: Letter of Authority in regard to Native Vegetation Clearing Permit Applications

Please be advised that with respect to the tenements held by **Venturex Pilbara Pty Ltd** (Company) that comprise the Whim Creek Group (L47/36, M47/236, M47/237, M47/238 & M47/443) the following people are authorised to submit applications for clearing permits on behalf of the Company and provide such endorsement as is necessary for these submissions.

NAME	SIGNATURE
Andrew McDonald	
Wendy Beets	
Dan O'Hara	

Yours sincerely


 A blue ink signature of Trevor Hart, consisting of a large, stylized initial 'T' followed by the name 'Trevor Hart'.

Trevor Hart
Company Secretary/CFO

CC: Geoff Laing, Anax Metals Ltd

Registered & Principal Office

Level 2, 91 Havelock Street, West Perth WA 6005
 PO Box 585, West Perth WA 6872

ABN 36 119 345 327

Tel: +61 8 6389 7400
 Fax: +61 8 9463 7836

www.develop.com.au
hello@develop.com.au