



**Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.**

**PURPOSE OF THIS FORM**

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

**CHECKLIST**

Before you submit this form, please check that you have:

	Yes	No
Completed all the questions in Part A (essential).	✓	
Completed all applicable questions in Part B.	✓	
Included Attachment 1 – location maps.	✓	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).		n/a
Included Attachment 3 – confidential information (if applicable).		n/a
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✓	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?		
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
If yes, what level of assessment?		
<input checked="" type="checkbox"/> Assessment on Proponent Information	<input type="checkbox"/> Public Environmental Review	

**PROPONENT DECLARATION** (to be completed by the proponent)

I, PETER JOHN DAVIES, (full name) declare that I am authorised on behalf of IMAGE RESOURCES NL (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature: <u>P J Davies</u>	Name: Mr Peter Davies
Position: Managing Director	Company: Image Resources NL
Date: <u>17.10.2012</u>	

## PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of Part A must be completed for this document to be treated as a referral)

### 1 PROPONENT AND PROPOSAL INFORMATION

#### 1.1 Proponent

Name	Image Resources NL (Image)
Joint Venture parties (if applicable)	N/A
Australian Company Number (if applicable)	57 063 977 579
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	PO Box 644 West Perth WA 6872
Key proponent contact for the proposal: <ul style="list-style-type: none"><li>• name</li><li>• address</li><li>• phone</li><li>• email</li></ul>	Mr Peter Davies Managing Director Image Resources NL Level 2, 16 Ord Street, West Perth Ph. 08 9485 2410 <a href="mailto:pdavies@imageres.com.au">pdavies@imageres.com.au</a>
Consultant for the proposal (if applicable): <ul style="list-style-type: none"><li>• name</li><li>• address</li><li>• phone</li><li>• email</li></ul>	Ms Jackie Boyer JASS (Aust) Pty Ltd. Ph. 0416 922 235

#### 1.2 Proposal

Title	North Perth Basin Mineral Sands Project – Boonanarring Mine
Description	<p>The Proposal is to undertake conventional dry mining (open cut) over a period of 8 years, to extract mineral sands from the deposit area. This will involve the removal of overburden by scrapers and/or hydraulic excavators and trucks, together with ore mining by scrapers and/or dozers or hydraulic excavators and trucks. Ore will be delivered to feed bins at the mobile Field Mining Units (FMU) that will be situated within the active mining area and which will relocate along with the advancing mine face.</p> <p>Water is added to the ore and after removal of oversize and trash material (e.g. roots) at the FMU, the screened slurry is pumped to a mobile primary concentration plant (PCP) and then intermediate concentrate from the PCP is pumped to a less mobile secondary concentration plant (SCP) for final treatment. The PCP and SCP are jointly referred to as the “Wet Plant”. The Wet Plant uses wet gravity processing methods to separate the fine clays from the ore slurry and to remove barren sand tailings material, in order to</p>

produce heavy mineral concentrate (HMC). In this manner the concentration of heavy minerals is increased from around 8% in the ore to 95% in the HMC. The drained tailings material is returned to the mining void as backfill.

Based on the currently available information, the mining rate will be approximately 3.3 Mtpa of ore and 12 Mtpa of waste overburden. Of this material, 2.8 Mtpa of ore will be fed to the Wet Plant after the removal of trash and oversize material. The Wet Plant will produce up to 300ktpa of HMC depending on the grade of the ore.

Between 1.6 GL/yr and 2 GL/yr of water will be required for processing, net of recycling. Consideration is currently being given, in consultation with the Department of Water, to various options for sourcing the water required, including temporary transfer of existing water rights, or application for a new allocation from the Yarragadee aquifer.

The HMC will be stockpiled on site to drain for short periods prior to being transported off site. Water drained from the stockpile will be collected and recycled for use in processing. The HMC will then be transported by road and rail combination to Bunbury, or by road to Geraldton, for further treatment or for export. At a later stage (if further tenements in the region are developed) (Stage 2 – refer Figure 3), Image may establish a minerals separation plant (Dry Mill) on site at Boonanarring or elsewhere to separate the HMC into ilmenite, zircon, rutile and leucoxene products for sale. These products will also be transported to either Bunbury or Geraldton for export, using the same logistics system as that used for the HMC.

The fine clay material in the waste streams in the Wet Plant will be thickened and then pumped to shallow paste cells for drying by solar evaporation. These paste cells will be typically located adjacent to the mining void in the early stages of mine development. Later in the mine life the paste cells could be established on the areas where the mining void is being backfilled. After drying, the fine clays will be mixed with the coarse sand tailings and used as the upper layers of the re-profiling of the ground surface ready for rehabilitation and revegetation.

Mining overburden will be returned direct to the pit void behind the advancing mine face, together with tails sand and oversize material. Initial overburden and tailings stockpiles will be established off the

	<p>mine path. Dried/moist fine clay material will also be returned to the pit void as described above.</p> <p>Rehabilitation will occur on the re-instated land surface behind the advancing mining operations. The intention is that the majority of land will be returned to its current agricultural use, although it is recognised that there may be opportunities to improve the environmental values of some of the land through re-vegetation with indigenous species. Experience in Western Australia has also been that the soil profile after rehabilitation following mineral sands mining is more productive than in its original condition, due to the increase in the clay content of the near surface soil profile.</p> <p>The proposal location is shown in Figure 1. Indicative locations of the proposed pit areas, Wet Plant, paste cells, stockpiles, pipelines, services and associated infrastructure and the Dry Mill (Stage 2) are shown on Figure 2. Figure 3 presents a schematic of the process of mining through to production and transport of HMC for sale (Stage 1) and further processing by a Dry Mill to produce ilmenite, zircon, rutile and leucoxene products for sale (Stage 2).</p>
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<p>Extent (area) of proposed ground disturbance.</p>	<p>The proposal envelope includes an area of 1145 ha (approximately 13.7 km long and 900 wide). Within this proposal envelope, it is expected that ground disturbance will be in the order of 350 ha, for the mine pits, Wet Plant, Dry Mill (if situated at Boonanarring), paste cells, stockpiles, pipelines, roads and other infrastructure, subject to further design. The majority of this proposal area is land already cleared of native vegetation, and is being used for agricultural purposes (cropping and grazing). The area also includes some unsuccessful non-native private plantations.</p> <p>Figure 2 outlines the proposal envelope and indicative disturbance footprint within this envelope associated with pits, processing plant areas and associated infrastructure.</p>
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<p>Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).</p>	<p>On site construction for Stage 1 is scheduled to commence in January 2014 (subject to obtaining all necessary approvals), with mining expected to take place over approximately 8 years.</p>
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<p>Details of any staging of the proposal.</p>	<p>The proposal is staged to the extent that there is the potential to include a Dry Mill processing component on site (Stage 2) if further tenements in the region are developed. The area required for the Dry Mill has been accounted for in the indicative disturbance footprint included in this proposal (Refer Figure 2).</p>
<p>Is the proposal a strategic proposal?</p>	<p>The proposal is not a strategic proposal, but Image does have other tenements in the region which it may choose to mine in future years using the same techniques and equipment (subject to approvals).</p>
<p>Is the proponent requesting a declaration that the proposal is a derived proposal?</p>	<p>No.</p>
<p>Please indicate whether, and in what way, the proposal is related to other proposals in the region.</p>	<p>This proposal is not related to other proposals currently in the region.</p>
<p>Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?</p>	<p>Image does not own the land on which the proposal is to be established. Access agreements will need to be negotiated with all relevant landowners. The proponent has entered into an Option Agreement with the current landowner to purchase Lot 5550, which is the proposed location for the initial mining operations, major surface facilities and for the future Dry Mill.</p>
<p>What is the current land use on the property, and the extent (area in hectares) of the property?</p>	<p>Current land uses in the proposal envelope are agricultural (mostly grazing, some horticulture and some defunct private plantations). Refer Figure 4.</p>

### 1.3 Location

Name of the Shire in which the proposal is located.	Shire of Gingin
For urban areas: <ul style="list-style-type: none"> <li>• street address;</li> <li>• lot number;</li> <li>• suburb; and</li> <li>• nearest road intersection.</li> </ul>	
For remote localities: <ul style="list-style-type: none"> <li>• nearest town; and</li> <li>• distance and direction from that town to the proposal site.</li> </ul>	The site is located between approximately 12 and 24 km north west of the Gingin township and includes portions of Swan Locations 05918, 05541, 05547, 05550, 05653, D082561 1, D092147 12, P025041 502, P025041 501, P029998 502 and P029998 501. These lots are situated along Brand Highway, with some lots intersected by Wannamal West Road. Refer Figures 1 and 4.

Electronic copy of spatial data - GIS or CAD, georeferenced and conforming to the following parameters: GIS: polygons representing all activities and named; <ul style="list-style-type: none"> <li>• CAD: simple closed polygons representing all activities and named;</li> <li>• datum: GDA94;</li> <li>• projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA);</li> <li>• format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.</li> </ul>	Enclosed?: Yes, as Arcview shapefiles.
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### 1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
If yes, is confidential information attached as a separate document in hard copy?	No

## 1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		Yes	
Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
Minister for the Environment (EPA)	This referral is being made under Part IV of the EP Act 1986.	Yes – this submission .	OEPA
Department of Water (DoW)	26D & 5C licences under the RIWI Act will be required to drill ground water bores and abstract ground water.	26D licences have been granted and DoW has been consulted about 5C licences.	Glenn Simmons Acting Program Manager Department of Water Swan Avon Region 7 Ellam Street, Victoria Park WA 6100 Tel: 6250 8085
Department of Environment and Conservation (DEC)	Works Approvals and Licences Part V EP Act (Categories 5 and 8)	No.	Daniel Coffey 17 Dick Perry Avenue Kensington WA 6983 Tel: 9219 8000
Department of Mines and Petroleum (DMP)	Mining Lease application (for some of the deposit area) Mining Proposal including a Mine Closure Plan under the <i>Mining Act 1978</i> .	Yes  No	Eugene Bouwhuis Manager Minerals (South & Goldfields) DMP 100 Plain Street, East Perth. Tel: 92223097 Email: Eugene.bouwhuis@dmp.wa.gov.au

Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
Department of Sustainability, Environment, Water, Population and Communities (SEWPaC)	A referral may be submitted under the EPBC Act 1999.	No	TBA

## PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

### 2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

- 2.1 flora and vegetation;
- 2.2 fauna;
- 2.3 rivers, creeks, wetlands and estuaries;
- 2.4 significant areas and/ or land features;
- 2.5 coastal zone areas;
- 2.6 marine areas and biota;
- 2.7 water supply and drainage catchments;
- 2.8 pollution;
- 2.9 greenhouse gas emissions;
- 2.10 contamination; and
- 2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.

#### 2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

(please tick)

Yes

**If yes**, complete the rest of this section.

No

**If no**, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

The proposal site is within the Swan Coastal Plan (North) IBRA region. The proposal envelope has been extensively cleared for intensive agricultural activities, principally cropping and grazing on improved pastures. It has scattered paddock trees that are predominantly small Coastal Blackbutt (*Eucalyptus todtiana*), some large Marri (*Corymbia calophylla*) trees and some *Nuytsia floribunda*. The envelope also contains some small areas of grazed *Banksia* woodland.

The area of vegetation that may be cleared for the proposal is difficult to quantify in hectares as most of the clearing will take the form of removal of individual

trees from the parkland cleared farmland. This has been conservatively estimated to total 50 ha, if the entire length of the proposal envelope were to be impacted for a width of 700 m (as measured from the western boundary of the envelope). There are also small separate areas of native vegetation (grazed *Banksia* woodland) that may be cleared for the proposal. These are located in various areas south of Wannamal West Road and comprise approximately 3.5 ha of the total 50 ha of estimated clearing.

A large amount of native vegetation remains within the region in various nature reserves (particularly the nearby Bartlett's Well and Boonanarring Nature Reserves), National Parks and road verges. The roadside vegetation along Wannamal West Road adjacent to the northern component of proposal envelope is representative of the *Banksia* woodland that would have previously existed in the proposal envelope. Remnant native vegetation located in these reserves and road verges will not be disturbed by the proposal.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

Yes

No

**If yes**, on what date and to which office was the application submitted of the DEC?

Approval for Image to clear native vegetation is being sought through assessment and approval of this proposal under Part IV of the EP Act. A Level 2 Flora and Vegetation Survey will be undertaken to inform this assessment.

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

Yes

No

**If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

**If no**, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

It is intended to undertake a Level 2 Flora and Vegetation survey of the proposal area, and relevant parts of the nearby nature reserves during Spring of 2012.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

Yes

No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

DEC database searches indicate the possible presence of declared rare flora within 10 kilometres of the site:

- Glossy leafed Hammer Orchid (*Drakaea elastica*) may have occurred in the area. It is unlikely to still exist due to extensive clearing and grazing. A remaining population is known to exist at Cataby.
- Summer Honey Pot (*Banksia mimica*) (previously *Dryandra mimica*) occurs within 10 kilometres of the site. It is unlikely to occur in the proposal envelope due to extensive grazing. There are some patches of grey white sand on the tenement but the open low *Banksia* woodland required for existence of the plant has long been cleared.
- Dwarf pea (*Ptychosema pusillum*). This species grows in low open woodland of *Banksia* and *E todtiana* – vegetation types which previously occurred on the tenement. It is unlikely to occur due to extensive grazing of the proposal envelope. It has been located south of Gingin within 10 kilometres of the tenement.
- Fine-leaved Darwinia (*Darwinia acerosa*) is present within 10 kilometres of the tenement. It is unlikely to occur in the proposal envelope due to soil type not being suitable.
- *Eleocharis keigheryi* is thought to occur within 10 kilometres of site. It is unlikely to occur in the proposal envelope due to the unsuitable soil type.
- *Goodenia arthrotricha* Benth. This species is unlikely to occur in the proposal envelope as it generally grows on granite.

Figure 2 shows the potential location of the declared rare flora and priority as shown by the DEC database within and around the proposal envelope.

No priority flora or threatened ecological communities were identified within the proposal envelope.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

Yes

No

It is considered that given the existing condition of the proposal envelope (mostly already cleared land used for agricultural purposes) the declared rare flora species identified in the database search are likely to occur off site, or at the least, can be avoided through appropriate proposal design. This will be confirmed in the Spring 2012 Level 2 Flora and Vegetation survey which will involve targeted searches for the flora.

There are no priority flora or threatened ecological communities on site.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

Yes

No

**If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

2.1.8 What is the condition of the vegetation at the site?

The majority of the proposal envelope has been extensively parkland cleared. Scattered paddock trees of *E. tottiana* and *Corymbia callophylla* remain, and there are some small outcrops of rocky ground that retain minimal native vegetation (*Banksia*).

Grazing of livestock and annual cropping for hay has been, and continues to be conducted over the proposal envelope.

## 2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick)

Yes

**If yes**, complete the rest of this section.

No

**If no**, go to the next section.

2.2.2 Describe the nature and extent of the expected impact.

The proposal is unlikely to have an impact on fauna or fauna habitat on site given the nature of the existing environment. Removal of paddock trees may

cause an impact to the development of future habitat for some species, but this would be mitigated somewhat by the presence of the nearby nature reserves.

There is potential for impact to fauna habitat on the nearby Boonanarring and Bartlett's Well Nature Reserves as a result of dewatering of the active mining area on the proposal envelope. Hydrological investigations will be conducted to determine the likelihood of this potential impact, and if required, management measures for dewatering operations will be identified to prevent potential impact to fauna habitat in the nearby nature reserves.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

Yes                      No

Image commissioned Bamford Consulting Ecologists to conduct a survey of the proposal area to determine the value and importance of the area to Black Cockatoos in a regional context, and to note the likelihood of any other fauna species of environmental significance being present. This survey was conducted in August 2012.

In addition, Image intends to undertake a Level 1 fauna survey of the proposal area in Spring 2012.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

Yes                       No                      (please tick)

A search of the DEC and EPBC databases indicated the potential presence of the following species in the proposal area:

- *Calyptorhynchus latirostris* (Carnaby's Cockatoo) (Schedule 1 and EPBC)
- *Calyptorhynchus banksii naso* (Forest Red-tailed Black-Cockatoo) (Schedule 1 and EPBC)
- *Calyptorhynchus baudinii* (Baudin's Black-Cockatoo) (Schedule 1 and EPBC)
- *Leipoa ocellata* (Malleefowl) (EPBC)
- *Rostratula australis* (Australian Painted Snipe) (EPBC)
- *Nannatherina balstoni* (Balston's Pygmy Perch) (EPBC)
- *Dasyurus geoffroii* (Chuditch, Western Quoll) (EPBC).

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

Yes

No

Of the above listed species, the only one thought to potentially occur in the proposal envelope is *Calyptorhynchus latirostris* (Carnaby's Cockatoo). Site investigations undertaken by Bamford Consulting Ecologists (August 2012) found that the proposal envelope has three trees containing hollows, which have the potential to be nest trees, and six other trees that have the potential to become nest trees in the future as they are large and old, and *may* develop hollows. Image is investigating the option of avoiding any direct impacts on these trees through the proposal design.

No Carnaby's Cockatoos and no breeding activities were observed during the site visit undertaken by Bamford Consulting Ecologists (August 2012).

### 2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick)

Yes

**If yes**, complete the rest of this section.

No

**If no**, go to the next section.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

Yes

No

**If yes**, please describe the extent of the expected impact.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

Yes

No

**If yes**, please describe the extent of the expected impact.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

Yes

No

**If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

Yes

No

**If yes**, please describe the extent of the expected impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
Perth's Bush Forever site	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
The management area as defined in s4(1) of the <i>Swan River Trust Act 1988</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure

Bartlett's Well Nature Reserve contains a conservation category wetland in the centre of the reserve. Investigations will be required to demonstrate that the proposal will not have an impact on this wetland.

There is a conservation category wetland (ID No.4636) to the west of Brand Highway over 500 metres from the proposal site. It is highly unlikely that the proposal will impact on this wetland.

Image has commissioned hydrogeological investigations to confirm that groundwater drawdown resulting from dewatering of the active mine face, or abstraction for process water does not adversely impact on the conservation category wetlands.

## 2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

Yes       No

The proposal envelope is adjacent (in part) to Bartlett's Well Nature Reserve and Boonanarring Nature Reserve (Refer Figure 2).

Bartlett's Well Nature Reserve (C1224) encompasses an area of 117 ha, and has varied vegetation. The reserve includes a conservation category wetland.

Boonanarring Nature Reserve (R4180) encompasses an area of 9, 250 ha on the Dandaragan Plateau. Its purpose is “Conservation of Flora and Fauna”.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

Yes       No      **If yes**, please provide details.

Bartlett’s Well Nature Reserve, adjacent to part of the proposal envelope, contains an Environmentally Sensitive Area.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

Yes       No      **If yes**, please provide details.

## 2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick)       Yes      **If yes**, complete the rest of this section.  
 No      **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cusped headland, coastal dunes or karst?

Yes       No      **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

Yes       No      **If yes**, please describe the extent of the expected impact.

## 2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

Yes       No      **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

Yes       No      **If yes**, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

Yes       No      **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

## 2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes       No      **If yes**, please describe what category of area.

The proposal is within the proclaimed Gingin Groundwater Area. The Department of Water is being consulted about the requirement for licences for water abstraction.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes       No      **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

Yes       No      **If yes**, please describe what category of area.

The nearest PDWSA is the Gingin Water Reserve, approximately 10 km distant from the proposal area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

Yes       No      (please tick)

2.7.5 Will the proposal require drainage of the land?

Yes       No      **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

Limited dewatering of the active front of the mining operation will be required, with this water being returned to the ground nearby through infiltration.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick)       Yes      **If yes**, complete the rest of this section.  
 No      **If no**, go to the next section.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

The Proposal will require a net supply of between 1.6 GL and 2 GL of water per year to operate.

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Two key options are currently being considered and discussed with the Department of Water for sourcing of water for use in the proposal.

One option being considered is temporary trading of existing water rights (life of project) with current licence holders in the area of the proposal. The other option is to obtain a new allocation under the *Rights in Water and Irrigation Act* from the Yarragadee aquifer. The location of the production bore required to obtain this water is yet to be determined. Hydrogeological investigations are proposed to assist in identifying the appropriate location of the production bore, and to assist in assessing the potential impacts of abstracting this water.

## 2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick)

Yes

**If yes**, complete the rest of this section.

No

**If no**, go to the next section.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

Yes

No

**If yes**, please describe what category of prescribed premise.

The Proposal is a prescribed premise under Category 8 (Mineral Sands Mining) and Category 6 (Mine Dewatering).

2.8.3 Will the proposal result in gaseous emissions to air?

Yes

No

**If yes**, please briefly describe.

The proposal will result in emission of greenhouse gases as it utilises diesel and petrol fuelled mining equipment.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

Yes

No

**If yes**, please briefly describe.

2.8.5 Will the proposal result in liquid effluent discharge?

Yes

No

**If yes**, please briefly describe the nature, concentrations and receiving environment.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

Yes

No

**If yes**, please describe.

2.8.7 Will the proposal produce or result in solid wastes?

Yes

No

**If yes**, please briefly describe the nature, concentrations and disposal location/method.

The proposal will be produce solid waste in the form of mining process waste and non-mining process waste.

The mining process waste includes:

- Limited green waste – vegetation will be mulched and utilised in the rehabilitation process if possible.
- Overburden and trash – non-mineralised waste (e.g. soil, rocks, roots) will be returned to the mine void during mining. The initial overburden will need to be temporarily stockpiled.
- Oversize – all particles over 4 mm in size will be removed from the ore in the screening process before the ore enters the wet concentration process. This oversize material will be treated as overburden and will be returned to the mining void.
- Clay fines and sand tails – The clay fines are dried in paste cells, and are then mixed with the coarse sand tailings and used as the upper layers of the re-profiling of the ground surface of the pit voids.

All non-mining process waste such as hydrocarbon products, putrescibles and domestic waste will be disposed of to an appropriately licensed landfill facility.

2.8.8 Will the proposal result in significant off-site noise emissions?

Yes

No

**If yes**, please briefly describe.

The principal noise emitters for the proposal will be the fixed plant and the mobile mining equipment. This will result in off-site noise emissions that may

be significant to the nearest sensitive receptor, which are two residences located approximately 100 m and 300m respectively from the proposal area.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

Yes       No

**If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

It is intended to carry out an analysis of potential noise impacts during the assessment of this proposal.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other “sensitive premises” such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

Yes       No

**If yes**, please describe and provide the distance to residences and other “sensitive premises”.

The mining operation may generate dust from mining and processing operations, and will generate gaseous emissions from standard diesel and petrol combustion engines. The proposal envelope is located in a broad acre agricultural area, with nearest sensitive premises being two residences located approximately 100m and 300m distant from the mining area. The next closest residence is approximately 2km distant.

2.8.11 If the proposal has a residential component or involves “sensitive premises”, is it located near a land use that may discharge a pollutant?

Yes       No       Not Applicable

**If yes**, please describe and provide the distance to the potential pollution source

## 2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

Yes

No

**If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

## 2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

Yes

No

Unsure

**If yes**, please describe.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

Yes

No

**If yes**, please describe.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

Yes

No

**If yes**, please describe.

The results of a search of the Department of Environment and Conservation's Contaminated Sites Database on 25 September 2012 indicated the site has not been registered under the *Contaminated Sites Act 2003*. There is some indication that part of this area was used as an artillery range in the early 1940's. A search for unexploded ordinances may be required prior to mining commencing, however, it should be noted that the proposal area has been extensively farmed in the intervening period.

## 2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

Yes

No

Unsure

**If yes**, please describe.

The results of a search of the Department of Indigenous Affairs Register of Aboriginal Sites indicated that there are no registered sites within the proposal area.

Image has consulted with the South West Land and Sea Council and will undertake surveys prior to ground disturbance to confirm that no sites will be disturbed, or if necessary, to support seeking consent under the *Aboriginal Heritage Act* to disturb any identified sites if they cannot be avoided.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

Yes

No

**If yes**, please describe.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

Yes

No

**If yes**, please describe.

The proposal will involve the transport of HMC to either Bunbury or Geraldton for further processing or export. This will involve the use of existing major highways and existing rail network.

### 3. PROPOSED MANAGEMENT

#### 3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

- |  |   |                             |
|--|---|-----------------------------|
| 1. The precautionary principle.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. The principle of intergenerational equity.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. The principle of the conservation of biological diversity and ecological integrity. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Principles relating to improved valuation, pricing and incentive mechanisms.        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. The principle of waste minimisation.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

- Yes       No

### 3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

Yes

No

**If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

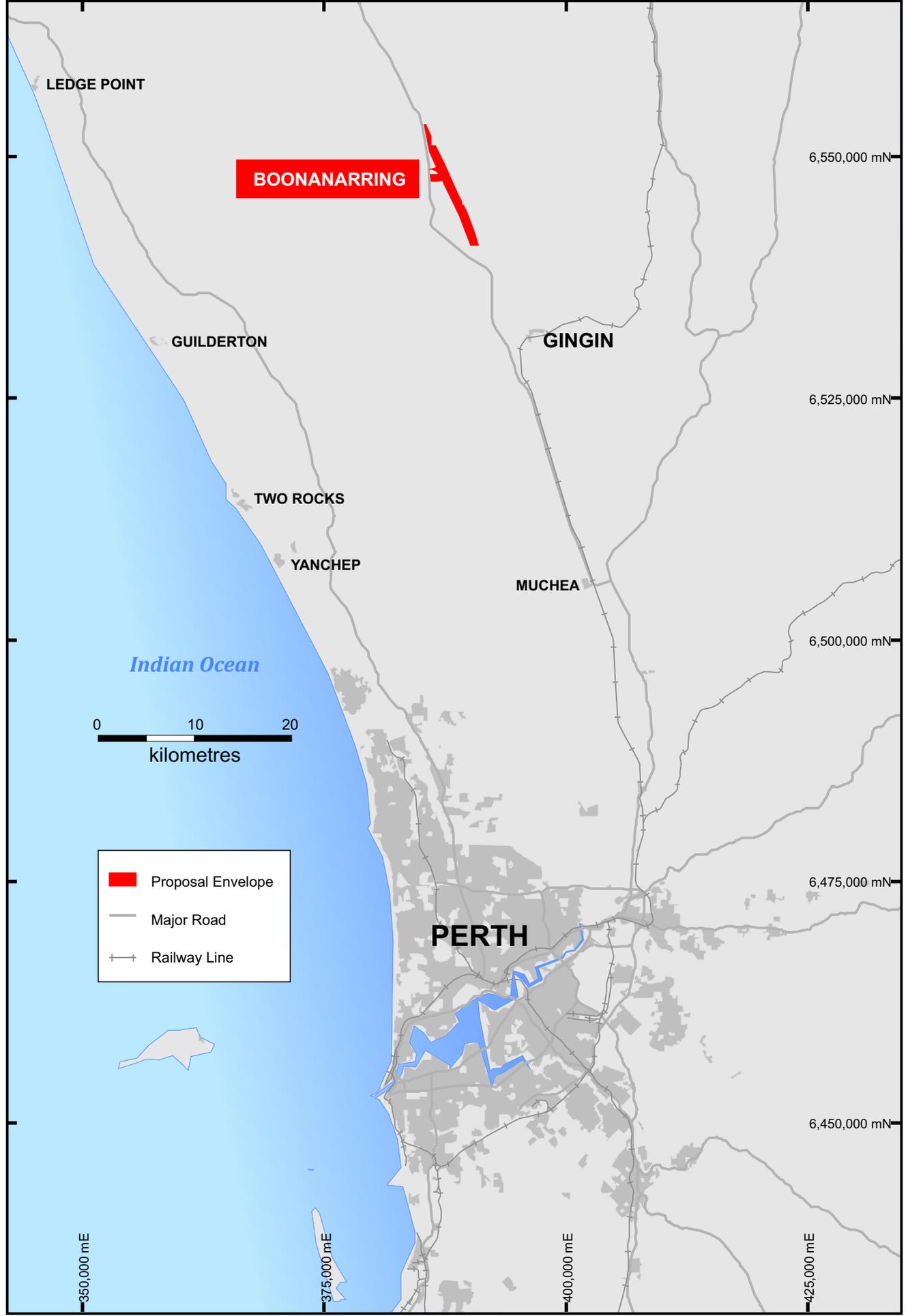
Public consultation on Image's proposal has been undertaken since March 2011. This has involved, and in most instances continues to involve:

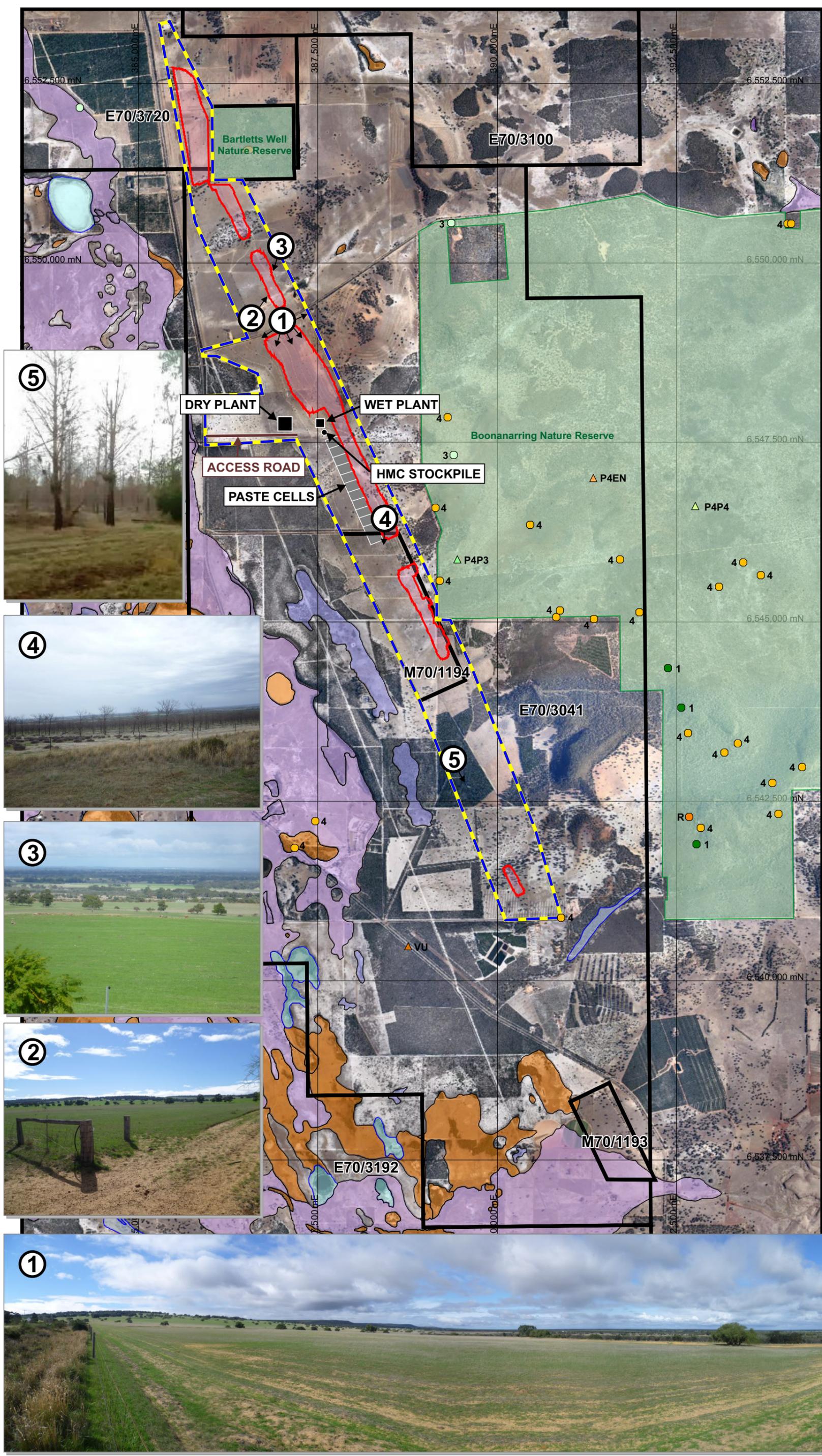
- one on one meetings with landholders and neighbours in the direct proposal envelope;
- consultation with the Gingin Shire Council, staff and councilors;
- consultation with Federal and State members of parliament;
- consultation with the South West Land and Sea Council;
- ABC radio media interviews;
- Contact with Chittering Landcare Centre;
- Casual gatherings of, and contact with, local business members; and
- Consultation with representatives of the Department of Water, Department of Environment and Conservation, Department of Mines and Petroleum.

The following consultation is planned in the near future:

- meetings with local groups such as the Gingin Water Group and the Wannamal Community Committee;
- provision of information in the local newspaper, *Northern Valley News*, on company activities;

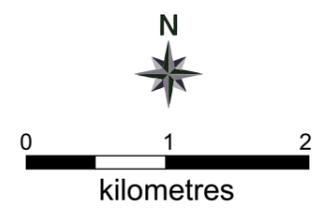
In addition, Image opened a shop front office at 3 Constable Street, Gingin to provide the public twice-weekly (Wednesday and Friday) direct access to company officers. This office is staffed by Image's Environment and Community Officer.





- ### Legend
- Image Tenement Boundary
  - Proposal Envelope
  - Nominal Pit Outline
  - Nature Reserve
- #### Geomorphic Wetlands Swan Plain
- Artificial Channel
  - Artificial Lake
  - Basin
  - Creek
  - Dampland
  - Dryland
  - Estuary-Peripheral
  - Estuary-Waterbody
  - Floodplain
  - Lake
  - No Longer a Wetland
  - Not Assessed
  - Paluslope
  - Palusplain
  - River
  - Sumpland
- #### Rare or Priority Flora
- 1
  - 2
  - 3
  - 4
  - R (DRF?)
  - X
- #### Rare or Priority Fauna
- P1
  - P2
  - P3
  - P4
  - P5
  - EN
  - VU
  - ER
  - EX

**Figure 2:**  
**Proposal Site and**  
**Environmental Characteristics**



Boonanarring & Gingin North



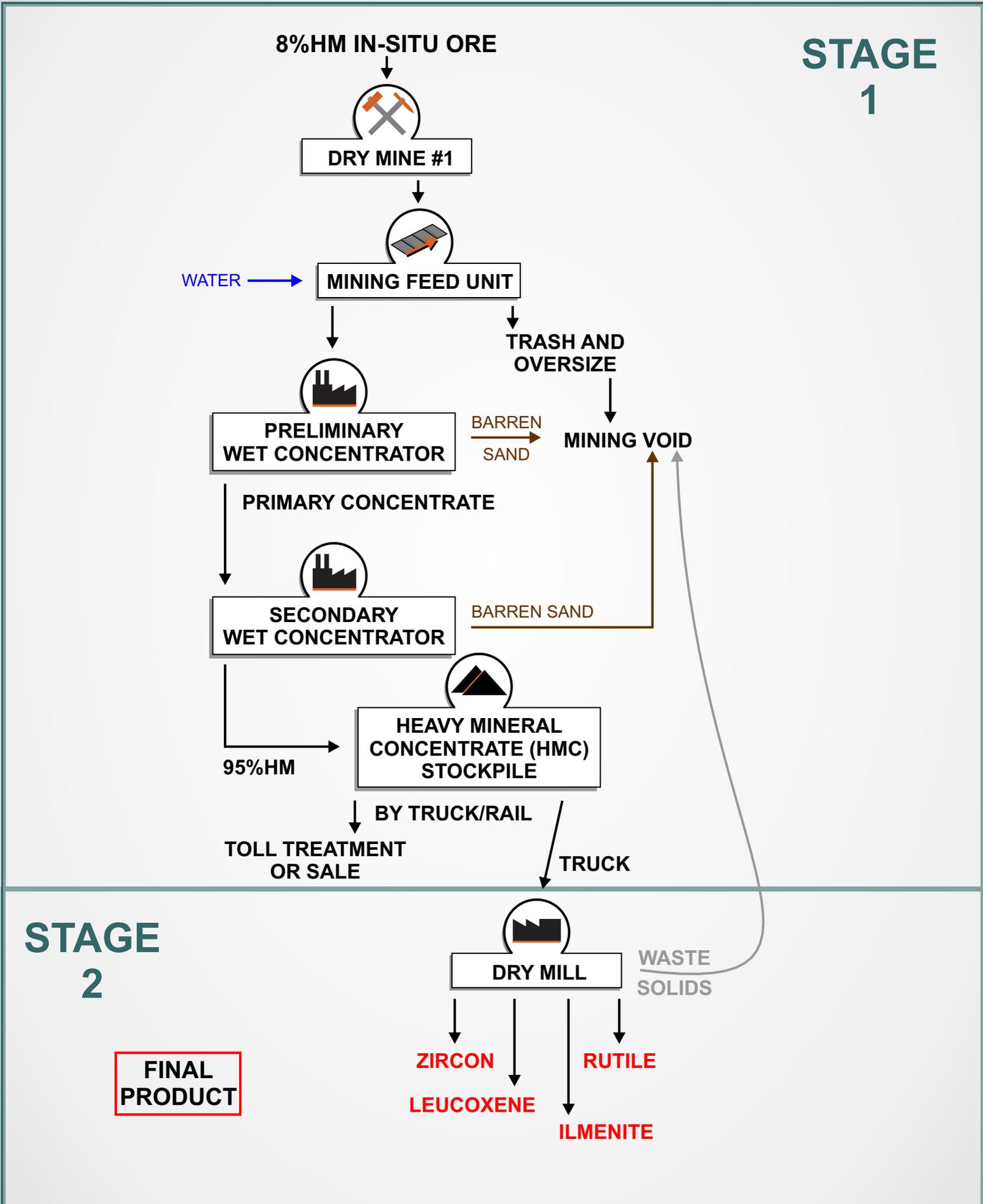
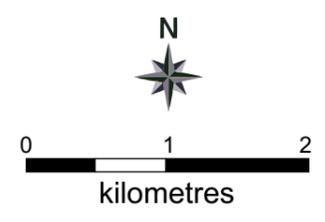
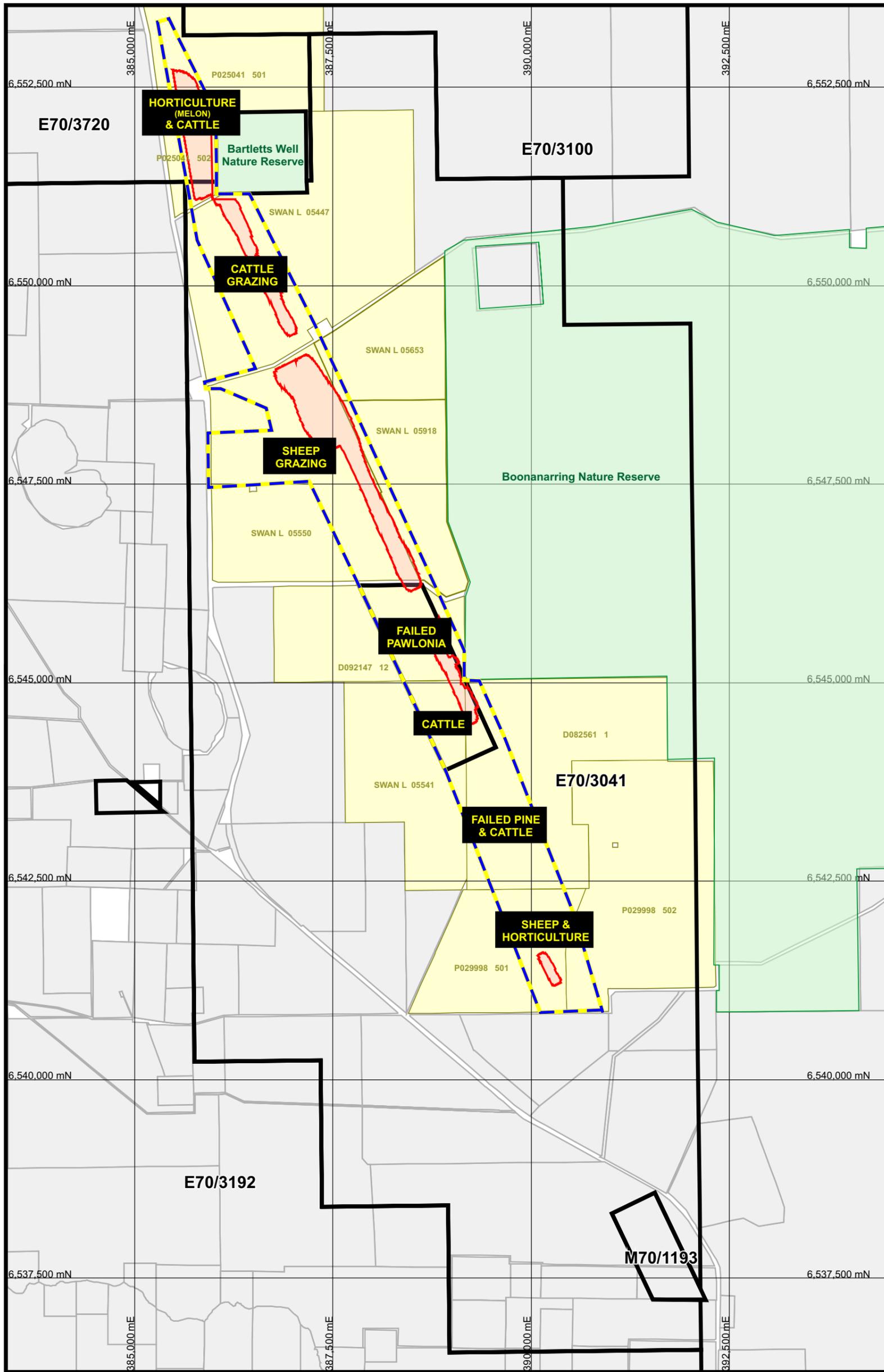


Figure 3:  
Mining and Processing Schematic



**Boonanarring & Gingin North**

**Figure 4:  
Current Land Uses  
on Proposal Site**

**Legend**

-  Image Tenement Boundary
-  Proposal Envelope
-  Nominal Pit Outline
-  Nature Reserve
-  Cadastral Boundary Intersecting Proposal Envelope
-  Other Cadastral Boundary