



<b>Works approval number</b>	W6624/2021/1
<b>Works approval holder</b>	BHP Nickel West Pty Ltd
<b>ACN</b>	004 184 598
<b>Registered business address</b>	125 St Georges Terrace Perth, Western Australia 6000
<b>DWER file number</b>	DER2021/000635
<b>Duration</b>	04/04/2022 to 03/04/2025
<b>Date of issue</b>	04/04/2022
<b>Premises details</b>	Kambalda Nickel Concentrator Durkin Rd, KAMBALDA ML15/149, ML15/150 Lot 13 DP49832-K173678L Easement over Part lot 13 on DP 48932-K173679E Lease agreement over portion M26/317

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i> )	Assessed production capacity
Category 5: Processing or beneficiation of metallic or non-metallic ore	660,000 tonnes per annum,

This works approval is granted to the works approval holder, subject to the attached conditions, on 04 April 2022, by:

**Manager, Process Industries**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

## Interpretation

In this works approval:

- (a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a condition, each row in a table constitutes a separate condition;
- (d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:
  - (i) if dated, refers to that particular version; and
  - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

**NOTE:** This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

# Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

## Construction phase

### Infrastructure and equipment

1. The works approval holder must:
  - (a) construct and/or install the infrastructure and/or equipment;
  - (b) in accordance with the corresponding design and construction / installation requirements; and
  - (c) at the corresponding infrastructure location;
 as set out in Table 1.

**Table 1: Design and construction / installation requirements**

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Concentrate thickener and associated infrastructure including: pumps, spinner feed tank, froth ring and suppression spray bars and monitoring infrastructure.	<ul style="list-style-type: none"> <li>16m diameter high-rate thickener with a footprint of approximately 575m<sup>2</sup>.</li> <li>Total volume of thickener to be not more than 588m<sup>3</sup></li> <li>Capable of processing 174 m<sup>3</sup>/hr feed flow at 18% wt solids</li> <li>Positioned within a bunded concrete hardstand.</li> <li>Containment bunding designed to contain 110% of the total thickener volume.</li> </ul>	Schedule 1, Figure 4 – Thickener tank and Feed box
2.	Two filter presses each with a filtering capacity of 25 tonnes per hour and associated infrastructure	<ul style="list-style-type: none"> <li>Positioned inside an enclosed shed on concrete hardstand.</li> </ul>	Schedule 1, Figure – Filtration and Process tank
3.	Two storage areas with a combined capacity to hold 15,000 tonnes of wet concentrate	<ul style="list-style-type: none"> <li>Fitted with concrete hardstand and stormwater sumps to contain potentially contaminated stormwater.</li> <li>Fitted with 3 sided walls with a minimum height of 3m.</li> </ul>	Schedule 1, Figure 4 – Stockpile storage shed
4.	TSF 3B embankment raise	<ul style="list-style-type: none"> <li>Embankment raise from RL 302.5m to RL305m.</li> <li>Embankment to be raised by not more than 2.5m with upstream batter slopes of</li> </ul>	Schedule 1 – Figure 2 and Figure 3 – TSF3B

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		<p>1(v):1.5(H) and downstream batter slopes of 1(V):2.75(H).</p> <ul style="list-style-type: none"> <li>The new embankment will have a crest width of 8m.</li> <li>Construction material to include tailings borrowed from the TSF, run of mine waste rock, graded rock fill and gravel wearing course</li> <li>Designed and constructed to ensure an operational freeboard of 300mm can be maintained</li> <li>Decant causeway to be raised by 2.5 m with crest width of 8 m, batter slopes of 1(v):1.5(H) and total length of 165 m</li> <li>Tailings delivery pipelines and toe drainage return pipeline must be installed with flowmeters</li> <li>Reinstate damaged catch pits and containment bunds along the pipeline route</li> <li>Reinstate windrows, along the pipeline route</li> </ul>	
5.	TSF3B toe drain	<ul style="list-style-type: none"> <li>Install a toe drain along the northern flank of TSF3B targeting the area presenting the highest seepage risk</li> <li>Toe drain to consist of buried slotted drainage pipes discharging to a collection sump</li> <li>The collection sump to include a metered sump pump to transfer any seepage water back into the TSF or return water pond</li> </ul>	Schedule 1, Figure 2 – Return water pond, TSF3B

## Compliance reporting

2. The works approval holder must within 60 calendar days of the items of infrastructure or component(s) thereof, as specified by condition 1, being constructed:
  - (a) undertake an audit of their compliance with the requirements of condition 1; and

- (b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.
- 3. The Environmental Compliance Report required by condition 2, must include as a minimum the following:
  - (a) certification by a suitably qualified engineering professional that the infrastructure as specified in Table 1, has been constructed in accordance with the relevant requirements specified in condition 1;
  - (b) a detailed site plan showing the as constructed location of each item of infrastructure or component of infrastructure specified in condition 1; and
  - (c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

### Construction of groundwater monitoring wells

- 4. The works approval holder shall submit and implement a Groundwater Monitoring Improvement Plan to the CEO within 60 business days of the commencement date of this Works Approval, which satisfies the requirements in Table 2 and includes the following as a minimum:
  - (a) locations for installation of 2 shallow groundwater monitoring bores, including GPS co-ordinates or spatially referenced files;
  - (b) justification of how the locations identified in (a) are appropriate to understand potential impacts to groundwater resulting from operation of TSF3B; and
  - (c) a timeframe for installation and commissioning of new monitoring bores, including details on how this relates to planned deposition of tailings into TSF3B.

**Table 2: Infrastructure requirements – groundwater monitoring wells**

Infrastructure	Design, construction, and installation requirements	Monitoring well locations	Timeframe
Two new shallow monitoring bores	<u>Well design and construction:</u> Designed and constructed in accordance with ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores.  Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination <sup>1</sup> . Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened.	On M26/317	Prior to the expiry date of this works approval
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring wells.  A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726.		

Infrastructure	Design, construction, and installation requirements	Monitoring well locations	Timeframe
	Any observations of staining / odours or other indications of contamination must be included in the bore logs.		
	<p><u>Well construction log:</u></p> <p>Well construction details must be documented within a well construction log to demonstrate compliance with ASTM D5092/D5092M-16. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurement, and the revelations of the ground surface protective installations.</p>		
	<p><u>Well development:</u></p> <p>All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.</p>		
	<p><u>Installation survey:</u></p> <p>The vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.</p>		
	<p><u>Well network map:</u></p> <p>A well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.</p>		

*Note 1: Refer to Section 8 of Schedule B2 of the Assessment of Site Contamination NEPM for guidance on well screen depth and length.*

5. The works approval holder must undertake a baseline ambient groundwater sample according to Table 2 for the new bores. The results must compare against 95% level of species protection - ANZG 2018 criteria.
6. The works approval holder must, within 60 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 4 and baseline ambient groundwater results according to condition 5.

## Time limited operations phase

### Commencement and duration

7. The works approval holder may only commence time limited operations for an item of infrastructure, or component(s) thereof, listed in condition 1 once the Environmental Compliance Report has been submitted for that item of infrastructure,

of component(s) thereof, in accordance with condition 2 of this works approval.

8. The works approval holder may conduct time limited operations for the infrastructure specified in condition 1:
- for a period not exceeding 180 calendar days from the date the works approval holder meets the requirements of condition 1 for that item of infrastructure: or
  - until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, whichever occurs sooner.

### Time limited operations requirements

9. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 3 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 3.

**Table 3: Infrastructure and equipment requirements during time limited operations**

	Site infrastructure and equipment	Operational requirement
1.	Concentrate thickener and associated infrastructure	<p>Maximum volume of concentrate in the thickener not to exceed 588m<sup>3</sup>.</p> <p>Hardstand/bunding for the thickener is maintained to ensure there is no discharge of liquids from this area directly to the environment.</p> <p>Bunding must be maintained to ensure it meets the requirements of AS4681</p>
2.	Two filter presses and associated infrastructure	Must ensure that no water from the filtering process is discharged from the building.
3.	Condensate storage area	<p>Maximum storage of condensate not to exceed 15,000 tonnes</p> <p>Must ensure that all stormwater drains to stormwater sumps.</p>
4.	TSF 3B	<p>Thin layer spigot deposition, rotated around the perimeter to allow drying and consolidation of the tailings.</p> <p>Control of the supernatant pond around the decant structure and limiting pond size to 10% of the surface area.</p> <p>Must keep and maintain daily inspection logs of the following:</p> <ul style="list-style-type: none"> <li>• Return water pumps</li> <li>• Delivery pipeline</li> <li>• Discharge locations</li> <li>• Location of decant pond</li> <li>• Freeboard</li> <li>• Location and size of decant pond</li> </ul> <p>Must undertake daily visual inspections of TSF 3B for signs of seepage</p> <p>Must maintain operational freeboard of at least 300mm</p> <p>Must keep and maintain monthly records of:</p>

	Site infrastructure and equipment	Operational requirement
		<ul style="list-style-type: none"> <li>Volume of tailings discharged</li> <li>Volume of toe drainage recovered</li> </ul> <p>Must keep and maintain quarterly records of the following:</p> <ul style="list-style-type: none"> <li>Log of vibrating wire piezometers (VWP)</li> </ul>

10. The works approval holder must monitor the ambient groundwater and phreatic surface during time limited operations for concentrations of the identified parameters in accordance with Table 4.

**Table 4: Monitoring of ambient groundwater and phreatic surface during time limited operations**

Monitoring location	Parameter	Unit	Frequency	Averaging period	Method	
					Sampling	Analysis
Decant water KD5247A KD5248 KD5249 KD5250 Shallow monitoring bores (A and B)	SWL	mbgl	Monthly	Spot sample	AS/NZS 5667.1 AS/NZS 5667.11	By a NATA accredited laboratory
	pH	pH unit				
	Electrical conductivity	µS/cm				
	TDS	mg/L				
	NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> and NH <sub>3</sub>	mg/L				
	SO <sub>4</sub> <sup>-2</sup> , As, Cd, Co, Cr, Cu, Fe, Mo, Ni and Zn	mg/L				
TSF 3B VWP's VWP1, VWP2, VWP16-1, VWP16-2, VWP16-3 and VWP16-4	phreatic surface	mAHD	Monthly	Monthly average	n/a	n/a

11. The works approval holder must record the results of all monitoring activity required by condition 10.

#### **Time limited operations – compliance reporting**

12. The works approval holder must submit to the CEO a report on the time limited operations within 60 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.
13. The works approval holder must ensure the report required by condition 12 includes the following:
- (a) a summary of the time limited operations, including timeframes and amount of material processed and tailings deposited;



- (b) a summary of monitoring parameter results obtained during time limited operations under condition 10.
- (c) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the:
  - (i) waste fines deposited (m<sup>3</sup>);
  - (ii) waste fines density, volume of solids (w/w%) and water content;
  - (iii) calculated seepage and impact on groundwater level;
- (d) a review of performance and compliance against the conditions of the works approval and the Environmental Commissioning Report; and
- (e) where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

## Records and reporting (general)

- 14.** The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:
  - (a) the name and contact details of the complainant, (if provided);
  - (b) the time and date of the complaint;
  - (c) the complete details of the complaint and any other concerns or other issues raised; and
  - (d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.
- 15.** The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:
  - (a) the works conducted in accordance with condition 1;
  - (b) any maintenance of infrastructure that is performed in the course of complying with condition 1;
  - (c) monitoring programmes undertaken in accordance with condition 10; and
  - (d) complaints received under condition 14.
- 16.** The books specified under condition 15 must:
  - (a) be legible;
  - (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
  - (c) be retained by the works approval holder for the duration of the works approval; and
  - (d) be available to be produced to an inspector or the CEO as required.

## Definitions

In this works approval, the terms in Table 5 have the meanings defined.

**Table 5: Definitions**

Term	Definition
ANZG 2018	means the Australian and New Zealand guidelines for fresh and marine water quality <a href="https://www.waterquality.gov.au/guidelines/anz-fresh-marine">https://www.waterquality.gov.au/guidelines/anz-fresh-marine</a>
AS4681	means the Australian/New Zealand Standard. <i>The storage and handling of Class 9 (miscellaneous) dangerous goods and articles</i>
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 <i>Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples.</i>
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 <i>Water Quality – Sampling – Guidance on sampling of groundwaters.</i>
As	Arsenic
Cd	Cadmium
Cr	Chromium
Co	Cobalt
Cu	Copper
Fe	Iron
Mo	Molybdenum
Ni	Nickel
Zn	Zinc
EP Act	<i>Environmental Protection Act 1986 (WA).</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA).</i>
Freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point.
NATA	means the (Australian) National Australian Testing Authority
mAHD	meters Australian Height Datum

Term	Definition
mbgl	meters below ground level
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this works approval.
Spot sample	means a discrete sample representative at the time and place at which the sample is taken
Suitably qualified engineering professional	means a person who: (a) is eligible for membership of the Institute of Engineers, Australia; and (b) holds a tertiary academic qualification in engineering; and (c) has a minimum of 5 years of experience working in the field of tailings facilities
SWL	Standing Water Level
TDS	Total Dissolved Solids
NO <sup>3-</sup>	means nitrate
NO <sup>2-</sup>	means nitrite
NH <sup>3</sup>	means ammonia
SO <sub>4</sub> <sup>-2</sup>	means sulphate
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.
VWP	vibrating wire piezometers

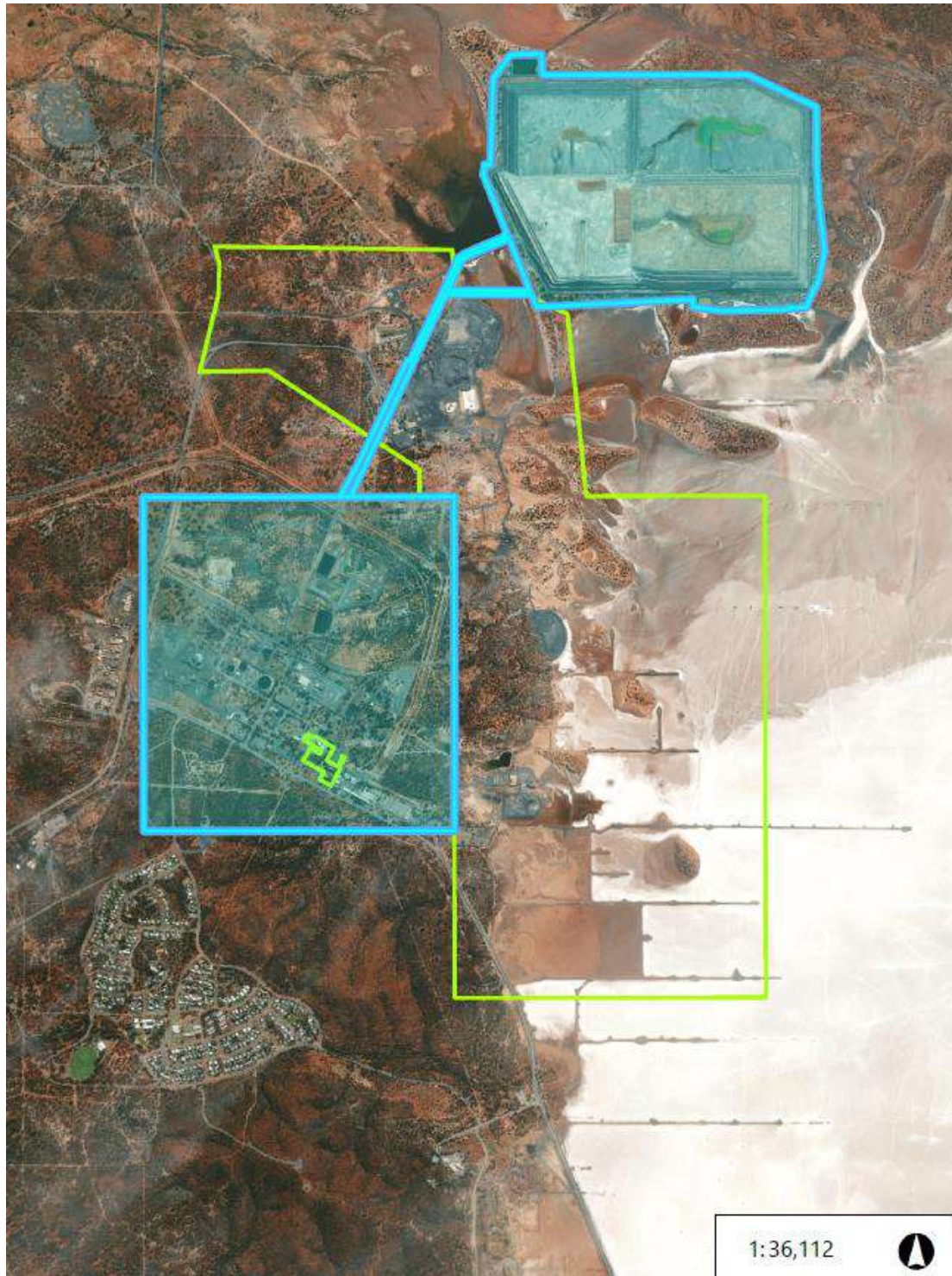
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## END OF CONDITIONS

## Schedule 1: Maps

### Premises map

The boundary of the prescribed premises is shown as the outline of the shaded blue area on the map below (Figure 1).



**Figure 1: Map of the boundary of the prescribed premises**







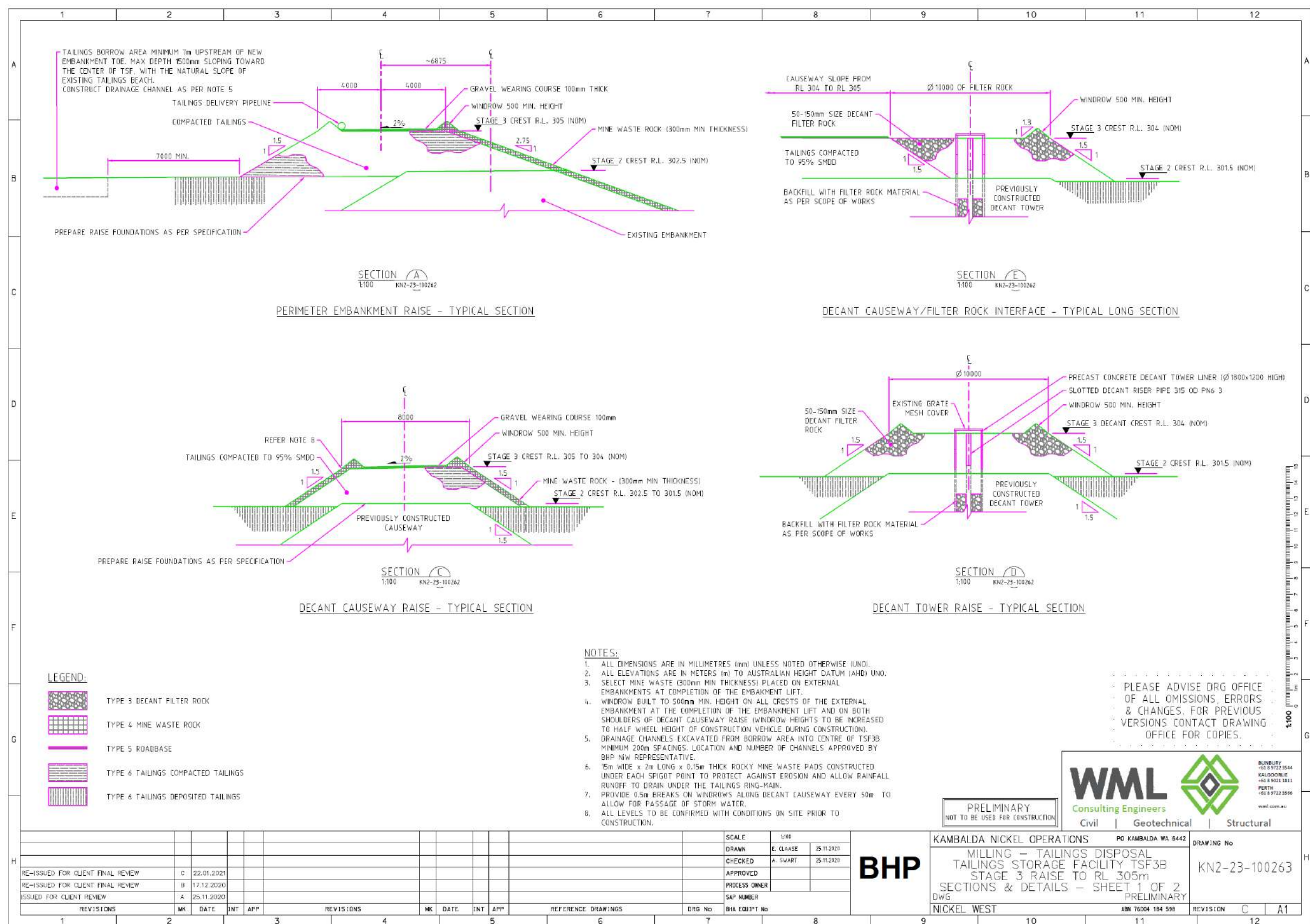


Figure 3: Construction details for TSF 3B Stage 3 raise to RL 305 m.

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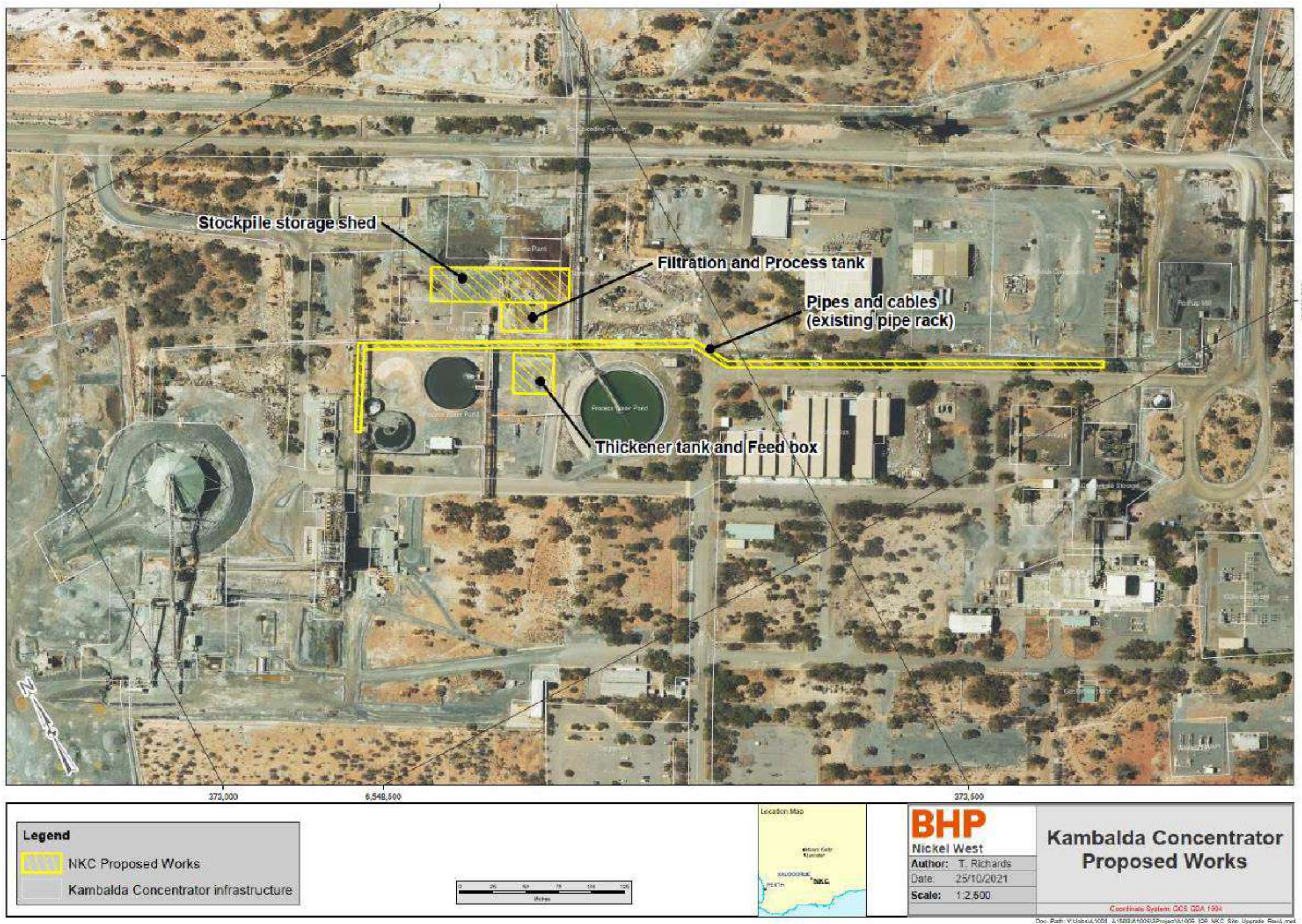


Figure 4: Location of new infrastructure