Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L8454/2010/2
Licence holder	Chichester Metals Pty Ltd
ACN	109 264 262
Registered business address	87 Adelaide Terrace EAST PERTH WA 6004
DWER file number	2010/003105
Duration	24/08/2015 to 23/08/2036
Premises details	Christmas Creek Mine Site

Tenements E46/610, E46/612, M46/320, M46/321, M46/322, M46/323, M46/324, M46/325, M46/326, M46/327, M46/328, M46/329, M46/330, M46/331, M46/332, M46/333, M46/334, M46/335, M46/336, M46/337, M46/338, M46/339, M46/340, M46/341, M46/342, M46/343, M46/344, M46/345, M46/346, M46/347, M46/348, M46/349, M46/350, M46/351, M46/352, M46/353, M46/354, M46/355, M46/403, M46/406, M46/412, M46/413, M46/414, M46/415, M46/416, M46/417, M46/418, M46/419, M46/420, M46/421, M46/422, M46/423, M46/424, G46/7, L46/49, L46/56, L46/58, L46/86, L46/87, L46/106, L46/111, E46/566 and L46/66

MULGA DOWNS WA 6751 As depicted in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	Assessed production / design capacity
Category 5: Processing or beneficiation of metallic or non-metallic ore	77,000,000 tonnes per Annual Period
Category 6: Mine dewatering	43,000,000 tonnes per Annual Period (injected)
Category 31: Chemical manufacturing	195 tonnes per Annual Period
Category 52: Electric power generation	63.6 MWe per Annual Period
Category 54: Sewage facility	1,040 cubic metres per day
Category 57: Used tyre storage	2,000 tyres
Category 64: Class II putrescible landfill	10,000 tonnes per Annual Period
Category 73: Bulk storage of chemicals	15,183.1 cubic metres in aggregate

This licence is granted to the licence holder, subject to the attached conditions, on 5 April 2022 by:

ALANA KIDD
MANAGER, RESOURCE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Licence history

Date	Reference number	Summary of changes
22/02/2010	W4623/2009/1	Ore Processing Facility works approval
22/02/2010	W4626/2010/1	Construction Camp Wastewater Treatment Facility works approval
28/06/2010	W4682/2010/1	Putrescible Landfill works approval
08/07/2010	W4643/2010/1	Power Station of 28-megawatt (MW) capacity works approval
23/08/2010	L8454/2010/1	Licence issued for Christmas Creek Camp Wastewater Treatment Facility operation, category 54
02/09/2010	W4724/2010/1	Christmas Creek Village Wastewater Treatment Plant
11/10/2010	W4733/2010/1	Operations Camp Wastewater Treatment Facility works approval
09/12/2010	L8454/2010/1	Licence amendment to include putrescible landfill, category 89
20/12/2010	W4739/2010/1	Hydrogeological Investigations for Christmas Creek Water Management Scheme works approval
20/12/2010	W4790/2010/1	Vasse Tailings Storage Facility works approval
17/01/2011	W4782/2010/1	Hydrocarbon Storage works approval
18/07/2011	W4924/2011/1	Second Ore Processing Facility, Remote Crushing Hub and Overland Conveyor works approval
10/11/2011	L8454/2010/1	Licence amendment to authorise power station operation category 52, ore processing facility category 5, additional WWTP, Tailings Storage Facility (TSF) and supporting infrastructure
19/12/2011	W4996/2011/1	Christmas Creek Hillside East Borefield Extension works approval
05/12/2011	W5001/2011/1	Power station expansion to 54 MW capacity works approval
12/03/2012	L8454/2010/1	Licence amendment to include category 6 (dewatering) and category 73 (bulk storage of chemicals)
05/07/2012	W5120/2012/1	Additional bulk fuel storage works approval
09/08/2012	W5210/2012/1	Windich TSF works approval
04/03/2013	W5309/2012/1	Christmas Creek Water Management Scheme infrastructure works approval
15/04/2013	W5363/2012/1	Vasse above ground tailings storage facility works approval

13/06/2013	L8454/2010/1	Amendment initiated by Licence Holder to increase the capacities authorised in categories 5, 6, 52, 54 and 73.
15/08/2013	L8454/2010/1	Amendment initiated by Licence Holder to authorise increase in capacity of category 6 to 43 Mt/a
12/12/2013	L8454/2010/1	Amendment initiated by Licence Holder to construct and operate mobile crushing and screening facilities and operate Vasse TSF
11/07/2013	W5425/2013/1	Windich TSF 2 works approval
20/08/2015	L8454/2010/2	Licence reissue and amendment to add Windich TSF2 and update to new template Licence
7/7/2016	L8454/2010/2	Licence amendment for approval to construction the Flinders Strip 12 In-Pit TSF, Windich Above-Ground TSF and the Karntama Village WWTP sludge handling unit, update prescribed premises boundary, increase category 73 approved design capacity, replace category 89 with category 64, inclusion of conditions for the reinjection of mine dewater and removal of requirement to implement the Water Management Scheme, and inclusion of a 2 MW Caterpillar C175 generator as an emission point to air
28/02/2017	L8454/2010/2	Amendment Notice 1 Approval to construct and operate the Flinders In-Pit TSF (below water table tailings deposition), update the Vasse and Windich TSF groundwater monitoring requirements, changes to the requirements for controls on sewage pipelines, update the containment infrastructure requirements, changes to the used tyre storage requirements and include total dissolved solids in the WWTP monitoring suite
14/07/2017	L8454/2010/2	Licence amendment to update the containment infrastructure requirements in Table 1.2.1, include a provision in Table 1.2.3 to allow clean fill to be used as cover material, remove reference to the Mobile Crushing and Screening Environmental Management Procedure, remove reference to infrastructure which has been constructed, removal of the Flinders In-Pit TSF deposition limit, removal of the air emission monitoring requirements
16/07/2018	L8454/2010/2	Licence amendment to combine the two existing TSFs at Flinders, being the Flinders Strip 12 TSF and the Flinders In-Pit TSF into one consolidated landform (Flinders In-Pit TSF Complex); reduce the capacity of category 52 from 56 MW to 54 MW; update condition 1.2.1 to include the high risk saline pipelines; remove condition 1.2.11; update condition 4.3.1 to remove reference to the leak detection system; and remove the pipeline sample CCSP0011 and include CCSP0024
15/01/2019	L8454/2010/2	Licence amendment to allow the disposal of reverse osmosis reject water to be discharged to the existing Construction Camp irrigation area; construction of the Lefroy Turkey's Nest; and installation and operation of 11 saline injection bores

30/01/2020	L8454/2010/2	Licence amendment for construction/ installation of Vertical Wet High Intensity Magnetic Separator Plant, 5 Diesel Generator sets (1400kW) and a reverse osmosis plant (350kL).
07/08/2020	L8454/2010/2	Licence amendment for installation of a new 1600kW Diesel Generator, increase in capacity of 5 existing generators (1600kW), construction of five additional saline injection bores and addition of a new emission to land point (L3). Minor administrative amendments to mapping and terminology within Licence.
23/11/2020	L8454/2010/2	DWER initiated licence amendment to authorise RO brine for irrigation and roadways (previously assessed but information delayed) and an administrative amendment to update the number of saline reinjection bores. Removing construction and compliance requirements for the Vertical Wet High Intensity Magnetic Separator (V-WHIMS) Plant, Diesel Generator Sets and Karntama Camp RO Plant as compliance reports received.
03/06/2021	L8454/2010/2	Licence amendment for: • Construction and operation of a Hydrogen Refuelling Station (HRS) at the Christmas Creek Karntama Village that will be used for the refuelling of hydrogen powered vehicles onsite; • Addition of the existing Elvis Turkey's Nest and proposed Mobile Max Turkey's Nest to the list of water containment infrastructure on the licence; • Three additional tailings spigots required for tailings deposition along the southern and eastern embankments within Strip 12 of the Flinders In-Pit Tailings Storage Facility (TSF); and • Update to Schedule 1 map of containment infrastructure for disposal of used tyres, construction waste with updated five year mine pits and waste dumps. Licence reformatted into current Licence template with condition numbers modified.
5/04/2022	L8454/2010/2	Licence amendment for: • Construction of the new Flinders In-Pit TSF2 Facility; • OPF1 Lump Plant extension to the existing OPF1; • Change the location of the proposed Hydrogen Refuelling Station (HRS); and • Install two back-up emergency generator sets at the power station.

Interpretation

In this licence:

(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 licence:

(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 licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

General

1 The Licence Holder must ensure the limits specified in Table 1 are not exceeded.

Table 1: Production or design capacity limits

Category[1]	Category description[1]	Premises production or design capacity limit
5	Processing or beneficiation of metallic or non-metallic ore	77,000,000 tonnes per annual period
6	Mine dewatering	43,000,000 tonnes per annual period reinjected
31	Chemical manufacturing	195 tonnes per annual period
52	Electric power generation	63.6 MW
73	Bulk storage of chemicals	15,183.1 cubic metres in aggregate

Note 1: *Environmental Protection Regulations 1987*, Schedule 1.

Infrastructure and equipment

2 The Licence Holder must ensure that all pipelines or sections of pipelines containing tailings and high-risk saline pipelines (as identified on the map of environmentally sensitive areas depicted in Schedule 1) are either:
(a) equipped with telemetry; or
(b) equipped with automatic cut-outs in the event of a pipe failure; or
(c) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

3 The Licence Holder must ensure that the waste material specified in Table 2 is only stored and/or treated within vessels or compounds listed in Table 2 and identified on the map of containment infrastructure in Schedule 1, in accordance with the requirements specified within Table 2.

Table 2: Containment infrastructure

Storage vessel or compound	Material	Requirements
Windich TSF 1 Windich TSF 2 Vasse TSF Flinders In-Pit TSF1 Complex Flinders In-Pit TSF2 Complex	Tailings	• Maintain a minimum freeboard equivalent to that required to contain a 1 in 100 year storm event over 72 hours from the operational pond surface to lowest elevation of perimeter embankment; • Install, maintain and operate a supernatant water collection and return system only when a recoverable volume of water is present; • Flinders In-Pit TSF1 Complex maximum tailings elevation level of Relative Level 437.0 m; and • Flinders In-Pit TSF2 Complex maximum tailings elevation level of Relative Level 437.0 m.
Flinder's Decant Settlement Pond, Franco's Turkey's Nest (Village Road), Ollies Turkey's Nest, Windich Decant Sediment Pond and Vasse Decant Settlement Pond, Ruby Turkey's Nest	Brackish water	• Earthen Pond; and • Minimum vertical freeboard of 100 mm.
TLO Settlement Pond (Jeffs)	Brackish water Potentially hydrocarbon contaminated treated wastewater from Power station treated water pond	• Earthen Pond; and • Minimum vertical freeboard of 100 mm.
OPF1 Turkey's Nest, OPF2 Turkey's Nest, Akmar Turkey's Nest,	Saline or Brackish water	• HDPE liner; and • Minimum vertical freeboard of 200 mm.

Baltic Turkey's Nest, Caspian Turkey's Nest, Charlton Turkey's Nest, Codgers Transfer Pond, Crank Transfer Pond, Eyre Turkey's Nest, Gatehouse Turkey's Nest, Helsinki Turkey's Nest (RCH1), Laura's Turkey's Nest, Windich Ponds x 3, Young Settlement Ponds, Lefroy Turkey's Nest, Elvis Turkey's Nest and Mobile Max Turkey's Nest		
CCY1 Treatment Ponds 1, 2 and 3	Potentially hydrocarbon contaminated treated wastewater from the CCY1 oily water separator	• HDPE liner; and • Minimum vertical freeboard of 200 mm.
CCY2 Treatment Ponds 1 and 2	Potentially hydrocarbon contaminated treated wastewater from the CCY2 oily water separator	• HDPE liner; and • Minimum vertical freeboard of 200 mm.
Power Station pond	Potentially hydrocarbon contaminated treated wastewater from the Bulk Diesel Storage Facility oily water separator	• HDPE liner.

4 The Licence Holder must:

(a) undertake inspections as detailed in Table 3;
(b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
(c) maintain a record of all inspections undertaken.

Table 3: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Tailings delivery pipelines	Visual integrity	Daily whilst operational
Tailings decant water return pipelines	Visual integrity	Daily whilst operational
Tailings storage facility embankment freeboard	Visual to confirm required freeboard capacity is available	Daily whilst operational
Saline water infrastructure (transfer ponds, settlement ponds and pipelines)	Visual integrity	Daily
Pipeline transferring RO brine from the Karntama RO Plant area to the Codgers Transfer Pond	Visual integrity	Twice weekly

5 The Licence Holder must undertake an annual water balance for the TSFs. The water balance must as a minimum consider the following:

(a) site rainfall;
(b) evaporation;
(c) tailings return water recovery volumes;
(d) seepage recovery volumes; and
(e) volumes of tailings deposited.

6 The Licence Holder must ensure that where wastes produced on the Premises are not taken off-site for lawful use or disposal, they are managed in accordance with the requirements in Table 4.

Table 4: Management of waste[1, 2, 3]

Waste type	Management strategy	Requirements
Sewage	Biological, physical and chemical treatment	1,040 m^3/day cumulatively
Used tyres	Storage	• Not more than 2,000 used tyres must be stored at the premises at any one time; • Used tyre stacks must not exceed 500 tyres per stack and 5 m in height; • Used tyre stacks are to be stored no less than 6 m from any other tyre stacks; and • The waste tyre stockpiles must not exceed 1000 m^2 in area.
	Burial in waste rock materials or completed mining voids	• Tyres must be placed in cells of less than 1000 tyres and only in those locations shown on the Map of emission points in Schedule 1; • Cover of at least 1 m of waste rock will be placed over each cell; and • Cell locations where tyres are to be buried will be surveyed and the latitude and longitude recorded.
Inert Waste Type 1 Putrescible Waste Clean Fill and Bio remediated soils as described for Class II Waste as defined in the Landfill Definitions Uncontaminated Fill	Receipt, handling and disposal of waste by landfilling	<u>All waste types</u> • No more than 10,000 tonnes per year of all waste types cumulatively must be disposed of by landfilling; • Disposal of waste by landfilling must only take place within the landfill area shown on the Map of emission points in Schedule 1; • Disposal of untreated timber and concrete in mining voids and waste rock facilities must only occur at the locations shown on the Map of emissions points in Schedule 1; • Waste must be placed in a defined trench or within an area enclosed by earthen bunds;

Waste type	Management strategy	Requirements
		• The active tipping area must be restricted to a maximum linear length of 60 m; and • Construction, operation and decommissioning of landfill cells can occur within the defined landfill area providing there is no waste within: ➢ 100 m of any surface water body; and ➢ 3 m of the highest level of the water table aquifer.
Reverse Osmosis (RO) Reject Stream	Onsite irrigation to irrigation area using blended RO reject stream with treated sewage effluent	• Undiluted RO Reject stream will not be used for irrigation
	Onsite dust suppression and/or ore processing using blended RO reject stream with mine dewatering water	• Undiluted RO reject stream will not be used for dust suppression and/or ore processing
HRS output water	HRS output water is transferred from the HRS to the Elvis Turkey's Nest where it is used for dust suppression	• Output water from HRS plant

Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

Note 2: Additional requirements for the acceptance and landfilling of Controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

Note 3: Clean Fill and Uncontaminated Fill can also be used as cover for landfill capping.

7 The Licence Holder must ensure that cover is applied and maintained on landfilled wastes in accordance with Table 5 and that sufficient stockpiles of cover are maintained on site at all times.

Table 5: Cover requirements[1]

Waste Type	Material	Depth	Timescales
Putrescible waste	Inert and incombustible material	300 mm	As soon as practicable, but at least weekly, after deposit
All waste		1,000 mm	Within three months of the final waste load in each trench

Note 1: Additional requirements for the covering of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

8 The Licence Holder must ensure that windblown waste within and outside the landfill area is collected on at least a monthly basis and returned to the active tipping area.

9 The Licence Holder must construct the infrastructure specified in Table 6 in accordance with the documentation and specifications detailed in Table 6.

10 The Licence Holder must not depart from the design and construction requirements specified in Table 6 except:
(a) where such departure is minor in nature and does not materially change or affect the infrastructure; or
(b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment; and
(c) and all other conditions in this Licence are still satisfied.

Table 6: Infrastructure requirements[1]

Infrastructure	Requirements (Design and construction)
Windich Above-Ground TSF	
Embankment construction	In accordance with, *Windich Above-Ground Tailings Storage Facility – Detailed Design* (SRK Consulting, October 2015)
Tailings delivery	Use of existing Windich TSF 1 and Windich TSF 2 tailings delivery pipelines and spigot arrangements
Supernatant Water Recovery	Use of the existing Windich TSF 1 and Windich TSF 2 water recovery pump, pipelines and turkey's nest
Saline injection bores as depicted on the map in Schedule 1	
Saline injection bores	Installation of following 5 saline injection bores drilled into the Oakover aquifer at the saline injection borefield: SAI33 SAI34 SAI35 SAI36 SAI37
Flinders In-pit TSF1 Complex Spigots	
TSF spigots	Addition of 3 spigot disposal points on the south and east walls
Mobile Max Turkey's Nest	
Mobile Max Turkey's Nest	HDPE liner Minimum vertical freeboard of 200mm Equipped with an in-flow cut off valve
Hydrogen Refuelling Station	
HRS	2 electrolysers Compressors

Infrastructure	Requirements (Design and construction)
	High pressure hydrogen storage tanks 2 hydrogen refuelling dispensers
Flinders In-Pit TSF2 Complex	
In-pit tailings storage facility	Tailings delivery pipelines and disposal spigot locations Decant return water pump and pipeline Filled in two stages: • Stage 1 providing tailings storage of approximately 7.3 Mm^3 to the maximum tailings level of 420.2 mRL; • Stage 2 to provide additional tailings storage of approximately 17 Mm^3 to the maximum tailings level of 437.0 mRL; and • Minimum freeboard of Flinders In-Pit TSF2 will be maintained equivalent to that required to contain a 1 in 100 year storm event over 72 hours from the operational pond surface to the lowest elevation of perimeter embankment
OPF1 Lump Plant extension	
Crushing and Screening: • Screen • Oversize crusher Conveyor: • Conveyor to lump product • Conveying system into existing plant Stacker: • Stacker • Sample station	Dust suppression equipment and measures to be included in the plant design and will include dust covers, skirts, and water sprayers Containment bunds designed and constructed around the proposed OPF1 Lump Plant to manage any surface water run-off
Back Up Diesel Gensets	
2 x Back Up Diesel Gensets	2 x 1600 kW emergency back up diesel gensets Emission point height 3.7 m Diesel fired genset engine Low sulphur diesel fuel

Note 1: Where the details and commitments of the documents listed in Condition 9 are inconsistent with any other condition of this Licence, the conditions of this Licence shall prevail.

11 The Licence Holder must operate the infrastructure specified in Table 6 in accordance with the conditions of this Licence, following submission of the compliance documents required under condition 31.

Emissions and discharges

Authorised discharge points for emissions

12 The Licence Holder must ensure that where waste is emitted to air from the emission points in Table 7 and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this Licence.

Table 7: Emission points to air

Emission point reference and location on Map of emission points	Emission Point	Emission point height (m)	Source, including any abatement
A1 – A27	27 x 2 MW Cummins diesel genset	9.4	Diesel fired genset engine; low sulphur diesel fuel
A28 – A33	6 x 1600 kW Diesel Generator	3.7	Diesel fired genset engine; low sulphur diesel fuel
A34 – A35	2 x 1600 kW emergency back up diesel gensets	3.7	Diesel fired genset engine; low sulphur diesel fuel

13 The Licence Holder must ensure that where waste is emitted to surface water from the nominated contingency discharge points in Table 8 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 8: Point source emissions to surface water

Emission point reference	Description	Source including abatement
CCDP04 (W1) CCDP01 (W2) CCDP02 (W3) CCDP03 (W4)	Contingency discharge of mine dewater in the event that reuse, reinjection, in pit disposal and temporary storage are not available or have been exhausted	Mine dewater

14 The Licence Holder must ensure that where waste is emitted to groundwater from the emission points in Table 9 and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this Licence.

Table 9: Point source emissions to groundwater

Emission point reference and location on Map of emission points		Description	Source including abatement
Saline Injection Zone SAI01, SAI01A SAI02 SAI03A, SAI03B SAI04, SAI04A SAI04B SAI05, SAI05B SAI06, SAI07 SAI08, SAI09 SAI10, SAI11 SAI12, SAI12a SAI12b SAI13, SAI13A SAI14, SAI14A SAI15, SAI15A SAI16, SAI16A SAI16B SAI17, SAI17B SAI18, SAI18B SAI19 SAI20 SAI20A, SAI20B SAI21 SAI21A, SAI21B SAI22, SAI22A SAI23 SAI23R, SAI23A SAI24, SAI25 SAI26, SAI27 SAI28, SAI03R SAI10A SAI29, SAI30 SAI31, SAI32 SAI33, SAI34 SAI35, SAI 36, SAI37, SAI38, SAI39, SAI40, SAI41, SAI42	Brackish Injection Zone HSB42 HSB43 HSB44 HSB45 HSB46 HSB47 HSB48 HSB49 HSB50 HSB51 HSB52 HSB53 HSB54 HSB55 HSB56 HSB57 HSB58 HSB59 HSB60 HSB61 HSB62 HSB63	Direct injection below ground	Water from mine dewatering

15 The Licence Holder must ensure that where waste is emitted to land from the emission points in Table 10 and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this Licence.

Table 10: Emissions to land

Emission point reference	Description	Source including abatement
L1 - Karntama irrigation area	Pipe feeding irrigation area of 15 hectares	Treated wastewater from Karntama WWTP and reverse osmosis reject water
L2 - Construction Camp irrigation area	Pipe feeding irrigation area of 13 hectares	Treated wastewater pipeline——from Construction Camp WWTP and reverse osmosis reject water
L3 - Power station treated water pond	Gravity fed overflow from the Power Station Pond through a low point in the southern embankment wall of the Power Station Pond Rock armouring is present at the overflow point to prevent erosion of the embankment wall. The water is then directed into a diversion channel that flows into the TLO Settlement Pond (Jeffs)	Wastewater treated through the Power Station OWS that is then transferred to the Power Station Pond
L4 - RO brine used for dust suppression and/or ore processing	RO brine is transferred to the Codgers Transfer Pond where it is mixed with groundwater and used for dust suppression and/or ore processing	RO reject water (brine)
L5	HRS output water is transferred to the Elvis Turkey's Nest where it is used for dust suppression	HRS output water

16 The Licence Holder shall not cause or allow emissions to land greater than the limits listed in Table 11.

Table 11: Emission limits to land

Emission point reference	Description	Parameter	Reportable Limit (including units)	Averaging period
L3 - Power station treated water pond	Gravity fed overflow from the Power Station Pond through a low point in the southern embankment wall of the Power Station Pond Rock armouring is present at the overflow point to prevent erosion of the embankment wall. The water is then directed into a diversion channel that flows into the TLO Settlement Pond (Jeffs)	Total Recoverable Hydrocarbons	15 mg/L	Spot sample

Monitoring

General monitoring

17 The Licence Holder must ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all surface water sampling is conducted in accordance with AS/NZS 5667.6;
(d) all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and
(e) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

18 The licence holder must ensure that:
(a) Monitoring is undertaken in each weekly period such that there are at least 4 days in between the days on which samples are taken in successive weeks;
(b) Monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months;
(c) Monitoring is undertaken in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters;
(d) Monitoring is undertaken in each six-monthly period such that there are at least 5 months in between the days on which samples are taken in successive periods of six months; and
(e) Monitoring is undertaken in each annual period such that there are at least 9 months in between the days on which samples are taken in successive years.

19 The licence holder must ensure that all monitoring equipment is operated and calibrated in accordance with the manufacturer's specifications.

Discharge point monitoring

20 The Licence Holder must undertake the monitoring in Table 12 according to the specification in that table.

Table 12: Monitoring of point source emissions to surface water

Emission point reference	Parameter	Limit	Units	Frequency
CCDP04 (W1) CCDP01 (W2) CCDP02 (W3) CCDP03 (W4)	Electrical conductivity	15,000	µS/cm	1) 30 minutes following commencement of discharge; and 2) 24 hourly intervals thereafter during the duration of the contingency discharge event.
	Turbidity	100	NTU	
	Cumulative water meter readings	-	m^3	1) prior to discharge event at the designated discharge point; and 2) 24 hourly intervals for the duration of the contingency discharge event.

21 The Licence Holder must undertake the monitoring in Table 13 according to the specification in that table.

Table 13: Monitoring of point source emissions to groundwater

Emission point reference	Parameter	Units	Frequency
Each saline and brackish reinjection emission point referenced in Table 9	Cumulative volume[1]	GLpa	Annually
CCSP0001 (Hillside East Brackish Injection Borefield) Saline Injection Borefield CCSP0024 (Windich Saline) CCSP0015 (Crank Saline)	pH[2]	pH units	Six monthly when reinjecting
	Electrical Conductivity	µS/cm	
	Total Dissolved Solids	mg/L	
	Total Suspended Solids	mg/L	
	Major cations and anions – Sodium Potassium Calcium Magnesium Chloride Alkalinity Sulfate Nitrate	mg/L	
	Metals, Metalloids and Non-metals - Aluminium Antimony Arsenic Beryllium Boron Cadmium Chromium Cobalt Copper Iron Manganese Mercury Nickel Lead Selenium Silver Zinc	mg/L	

Note 1: Determined using water balance calculations consistent with the *Christmas Creek Groundwater Operating Strategy* (CC-PH-HY-0002).

Note 2: In-field non-NATA accredited analysis permitted.

22 The Licence Holder must undertake the monitoring in Table 14 according to the specifications in that table and compare to the relevant ANZECC/ARMCANZ Guidelines.

Table 14: Monitoring of emissions to land

Emission point reference	Parameter	Units	Frequency
L1, L2	Cumulative volume of treated wastewater discharged via irrigation	m^3	Monthly
	Cumulative volume of treated wastewater discharged via dust suppression	m^3	
	Biochemical Oxygen Demand	mg/L	Quarterly
	Total suspended solids	mg/L	
	Total dissolved solids	mg/L	
	pH[1]	pH units	
	Total Nitrogen	mg/L	
	Total Phosphorus	mg/L	
	E. coli	cfu/100mL	
L3	Total Recoverable Hydrocarbons	mg/L	Quarterly when discharging One week after the reportable limit in Table 11 is exceeded, for a maximum of three total consecutive exceedances, following which discharge from that emission point must cease, until such time as the limit is no longer exceeded
L4	Cumulative volume of Reverse Osmosis brine discharged to the Codgers Transfer Pond	m^3	Monthly
	pH[1]	pH units	
	Electrical Conductivity	µS/cm	
	Total Dissolved Solids	mg/L	
	Sulphate	mg/L	

Note 1: In-field non-NATA accredited analysis permitted.

23 The Licence Holder must undertake the monitoring in Table 15 according to the specifications in that table.

Table 15: Process monitoring

Emission point reference	Monitoring point location	Parameter	Units	Frequency
CCY1 and CCY2 treatment ponds	Final treated wastewater storage pond prior to reuse for dust suppression	Volumetric flow rate	m^3/day	Monthly
		Total Recoverable Hydrocarbons	mg/L	
		Total Dissolved Solids	mg/L	

24 The Licence Holder must undertake the monitoring in Table 16 according to the specifications in that table.

Table 16: Monitoring of ambient groundwater quality

Monitoring point reference and location[2]	Parameter	Units	Averaging period	Frequency
Windich Above-Ground TSF				
WDM02 WDM08 (786171 E, 7522569 N) WDM12 (784780 E, 7521869 N) WDM18 (784877.81E, 7519156.75N) WDM13 (786744 E, 7520716 N) WDM22	Standing water level	mbgl	Spot sample	Six monthly
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total Dissolved Solids	mg/L		
	Major cations and anions – Sodium Potassium Calcium Magnesium Chloride Sulfate	mg/L		
	Dissolved metals, metalloids and non-metals - Aluminium Antimony Arsenic Beryllium Boron Cadmium Cobalt Chromium Copper Iron Manganese Mercury Nickel Lead Selenium Silver Thallium Uranium Zinc	mg/L		

Monitoring point reference and location[2]	Parameter	Units	Averaging period	Frequency
Flinders In-Pit TSF1 Complex				
FLM06	Standing water level	mbgl	Spot sample	Monthly
FLM08 FLM17 CCE04MB	pH[1]	pH units	Spot sample	Quarterly
	Electrical conductivity	µS/cm		
	Total Dissolved Solids	mg/L		
	Major cations and anions - Sodium Potassium Calcium Magnesium Chloride Sulfate Alkalinity Nitrate Ammonia	mg/L		
	Dissolved metals, metalloids and non-metals – Aluminum Antimony Arsenic Beryllium Boron Cadmium Cobalt Chromium Copper Iron Manganese Mercury Nickel Lead Selenium Silver Thallium Uranium Zinc	mg/L		
Flinders In-Pit TSF 2 Complex				
FLM07_S	Standing water level	mbgl	Spot sample	Monthly
FLM26_D FLM28_D	pH[1]	pH units	Spot sample	Quarterly
	Electrical conductivity	µS/cm		
	Total Dissolved Solids	mg/L		
	Major cations and anions -	mg/L		

Monitoring point reference and location[2]	Parameter	Units	Averaging period	Frequency
	Sodium Potassium Calcium Magnesium Chloride Sulfate Alkalinity Nitrate Ammonia			
	Dissolved metals, metalloids and non-metals – Aluminum Antimony Arsenic Beryllium Boron Cadmium Cobalt Chromium Copper Iron Manganese Mercury Nickel Lead Selenium Silver Thallium Uranium Zinc	mg/L		
Vasse TSF				
VAM01 (780528 E, 7525182 N) VAM02 (781048 E, 7525249 N) VAM04 (781631 E, 7526182 N)	Standing water level	mbgl	Spot sample	Quarterly
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total Dissolved Solids	mg/L		
	Major cations and anions – Sodium Potassium Calcium Magnesium Chloride Sulfate	mg/L		
	Dissolved metals, metalloids and non-metals – Aluminium	mg/L		

Monitoring point reference and location[2]	Parameter	Units	Averaging period	Frequency
	Antimony Arsenic Beryllium Boron Cadmium Cobalt Chromium Copper Iron Manganese Mercury Nickel Lead Selenium Silver Thallium Uranium Zinc			
Mine dewater reinjection				
CCFMM01_S CCFMM01_D CCFMM02_S CCFMM02_D CCFMM03_S CCFMM03_D CCFMM04_S CCFMM04_D HSMB29_D HSMB29_S SAM59_D SAM59_S SAM07_D SAM07_S SAM12_S SAM12_D SCX01_S SCX03_S SCX06 (All) SCX06_S SCX06_D	Standing water level	mbgl	Spot sample	Six monthly
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total Dissolved Solids	mg/L		
	Major cations and anions – Sodium Potassium Calcium Magnesium Chloride Alkalinity Sulfate Nitrate	mg/L		
	Metals, metalloids and non-metals – Aluminum Antimony Arsenic Beryllium Boron Cadmium Cobalt Chromium Copper Iron Manganese Mercury Nickel	mg/L		

Monitoring point reference and location[2]	Parameter	Units	Averaging period	Frequency
	Lead Selenium Silver Zinc			

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: No sample required if bore is dry.

Monitoring

25 The licence holder must maintain accurate and auditable books that include the following records, information, reports, and data required by this licence:
(a) The calculation of fees payable in respect of this licence;
(b) the works conducted in accordance with condition 9 of this licence;
(c) any maintenance of infrastructure that is performed in the course of complying with the conditions of this licence;
(d) monitoring programmes undertaken in accordance with condition 20 Table 12, condition 21 Table 13, condition 22 Table 14, condition 23 Table 15 and condition 24 Table 16 of this licence; and
(e) complaints received under condition 28 of this licence.

26 The books specified under condition 25 must:
(a) be legible;
(b) if amendment, be amended in such a way that the original version(s) and any subsequent amendments remain legible and area capable of retrieval;
(c) be retained by the licence holder for the duration of the licence; and
(d) be available to be produced to an inspector or the CEO as required.

27 The licence holder must:
(a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and
(b) prepare and submit to the CEO by no later than 31 March each year, after the end of that annual period, an Annual Audit Compliance Report in the approved form.

28 The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department of 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 nay other concerns or other issues raised; and
(d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.

29 The licence holder must submit to the CEO by no later than 31 March each year, after the end of each annual period, an Annual Environmental Report for that annual period for the conditions listed in Table 17, and which provides information in accordance with the corresponding requirement set out in Table 17.

Table 17: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Condition 5	Annual water balance	None specified
Condition 15, Table 10	L1 and L2 – representative photographs of the irrigation areas, summary of vegetation health and weed management (within the irrigation areas) implemented during reporting period L3 – summary of inspections of erosion and vegetation health and weed management with controls implemented during reporting period	None specified
Condition 20, Table 12	Contingency discharge monitoring	None specified
Condition 21 Table 13	Groundwater reinjection monitoring	None specified
Condition 22, Table 14	Monitoring of emissions to land and interpretation of results against plant design specifications and relevant ANZECC/ARMCANZ Guidelines	None specified
Condition 23, Table 15	Process monitoring results and interpretation of results	None specified
Condition 24, Table 16	Ambient groundwater monitoring results; and a comparison of results from the Windich TSF, Vasse TSF and Flinders In-Pit TSF1 Complex and Flinders In-Pit TSF2 Complex groundwater monitoring bores against the site specific trigger values detailed in the document, *Life of Mine Geochemistry Programme – Site Specific Trigger Values* (45-SY-EN-0001). Details of investigations conducted, including outcomes, environmental impacts and remedial actions, in relation to trigger exceedances and a discussion of any trends identified	None specified
Condition 27	Compliance	None specified
Condition 28	Complaints summary	None specified

30 The Licence Holder must ensure that the Annual Environmental Report also contains:
   (a) an assessment of the information contained within the report against previous monitoring results; and
   (b) a list of any original monitoring reports submitted to the Licence Holder from third parties for the annual period and make these reports available on request.

31 The Licence Holder must ensure that the conditions listed in Table 18 are notified to the CEO in accordance with the notification requirements of the table.

Table 18: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
Condition 1, Table 1 Condition 3, Table 2 Condition 6, Table 4 Condition 20, Table 12	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day.	N1
Condition 9	The Licence Holder must submit a compliance document to the CEO, following the construction of the Windich Above-Ground TSF, saline injection bores, Mobile Max Turkey's Nest, Flinders In-Pit TSF1 Complex Spigots, Flinders In-Pit TSF2 Complex and Hydrogen Refuelling Station. The compliance documents must be certified by a suitably qualified engineer and certify that the works were constructed in accordance with the construction requirements specified in Condition 10 Table 6; (a) provide a list of departures from the specified works certified by a suitably qualified engineer; and (b) be signed by a person authorised to represent the Licence Holder and contain the printed name and position of that person within the company.	Prior to commencement of commissioning.	None specified
Condition 13	Contingency discharge	Within 3 days of cessation of the discharge; and including results from the monitoring required under Condition 17, Table 11	None specified

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

Definitions

In this licence, the terms in Table 19 have the meanings defined.

Table 19: Definitions

Term	Definition
ACN	Australian Company Number
AHD	Australian height datum
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 January to 31 December in the same year
ANZECC/ARMCANZ	means Australian and New Zealand Guidelines for Fresh and Marine Water Quality
AS/NZS 5667.1'	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.6	means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams*
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*
averaging period	means the time over which a limit is measured or a monitoring result is obtained
books	has the same meaning given to that term under the EP Act.
CCY	means Central Contractors Yard

Term	Definition
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
Clean Fill	has the meaning defined in the Landfill Definitions
controlled waste	has the definition in Environmental Protection (Controlled Waste) Regulations 2004
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
discharge	has the same meaning given to that term under the EP Act.
DWER	means Department of Water and Environmental Regulation
emission	has the same meaning given to that term under the EP Act.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point
GLpa	means gigalitres per annum
HDPE	means high density polyethylene
HRS	Hydrogen Refuelling Station
Inert Waste Type 1	has the meaning defined in the Landfill Definitions
Inert Waste Type 2	has the meaning defined in the Landfill Definitions
Landfill Definitions	means the document titled *"Landfill Waste Classification and Waste Definitions"* published by the Chief Executive Officer of the Department of Water and Environmental Regulation as amended from time to time
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained

Term	Definition
	within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
mbgl	means metres below ground level
MW	means megawatts
NATA	means the National Association of Testing Authorities, Australia
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
normal operating conditions	means any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring
NTU	means Nephelometric Turbidity Units
premises	refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the premises maps Figures 1 - 14
prescribed premises	has the same meaning given to that term under the EP Act.
putrescible waste	has the meaning defined in the Landfill Definitions
quarterly	means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December
RO	means reverse osmosis
RTU	means Remote Telemetry Units;
Schedule 1’	means Schedule 1 of this Licence unless otherwise stated
Schedule 2	means Schedule 2 of this Licence unless otherwise stated
Schedule 3	means Schedule 3 of this Licence unless otherwise stated
six monthly’	means the 2 inclusive periods from 1 January to 30 June and 1 July to 31 December
spot sample	means a discrete sample representative at the time and place at which the sample is taken
TDS	means Total Dissolved Solids
TSF	means Tailings Storage Facility

Term	Definition
Uncontaminated Fill	has the meaning defined in the Landfill Definitions
µS/cm	means microsiemens per centimetre
waste	has the same meaning given to that term under the EP Act.
WWTP	means wastewater treatment plant

Schedule 1: Maps

Premises map

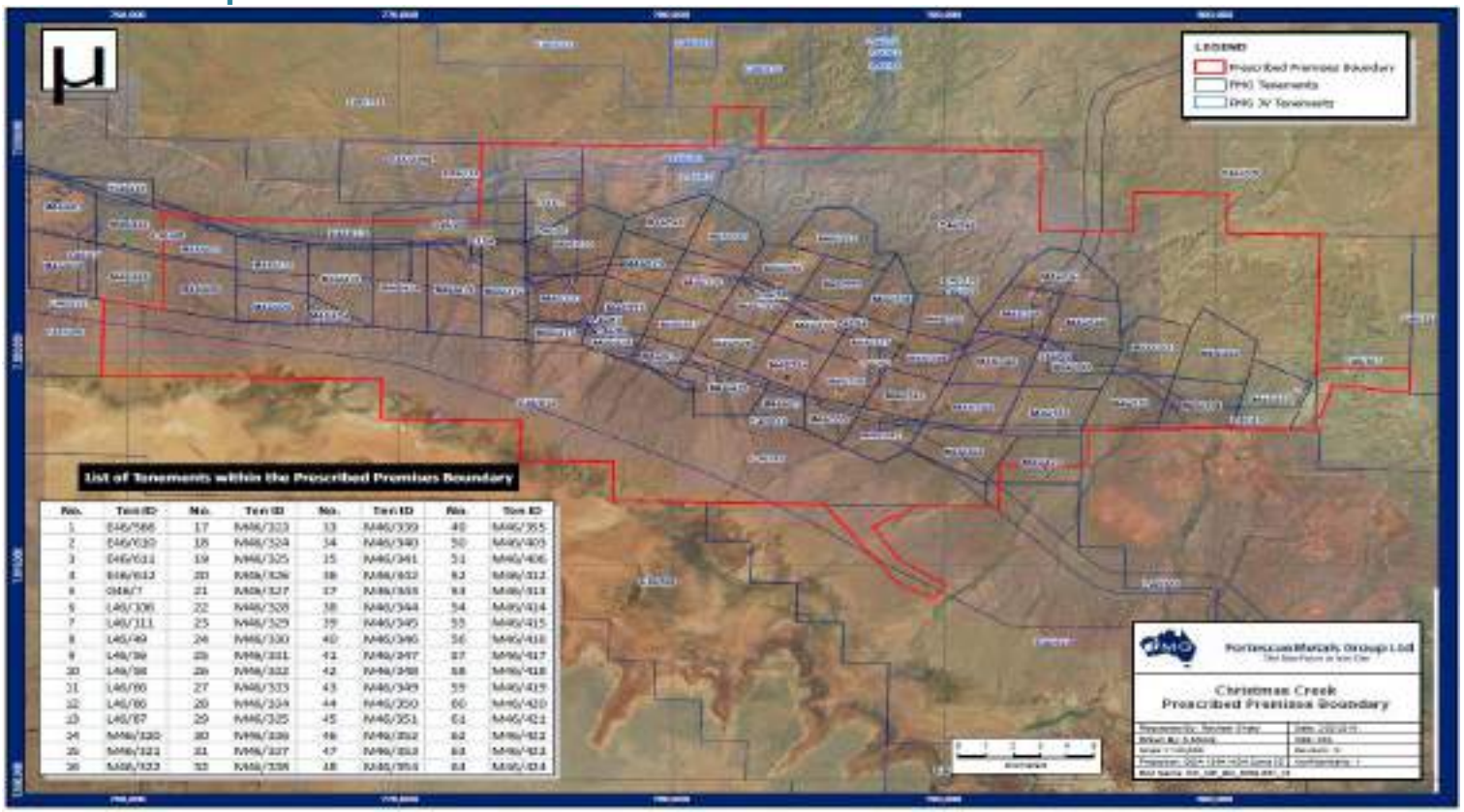

Figure 1: Premises Map with the red line depicts the Premises boundary

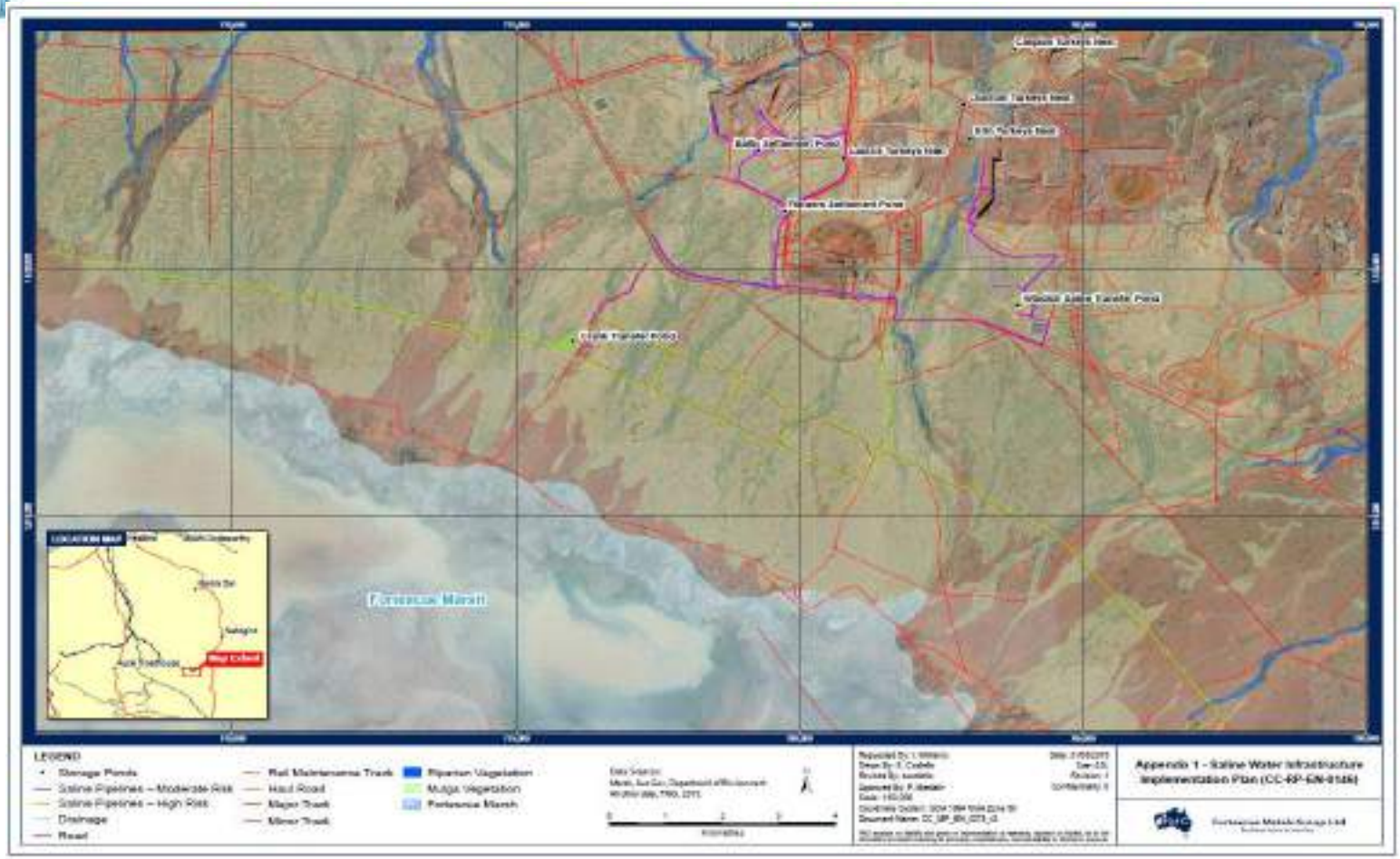

Figure 2: Map of environmentally sensitive areas referred to in condition 2

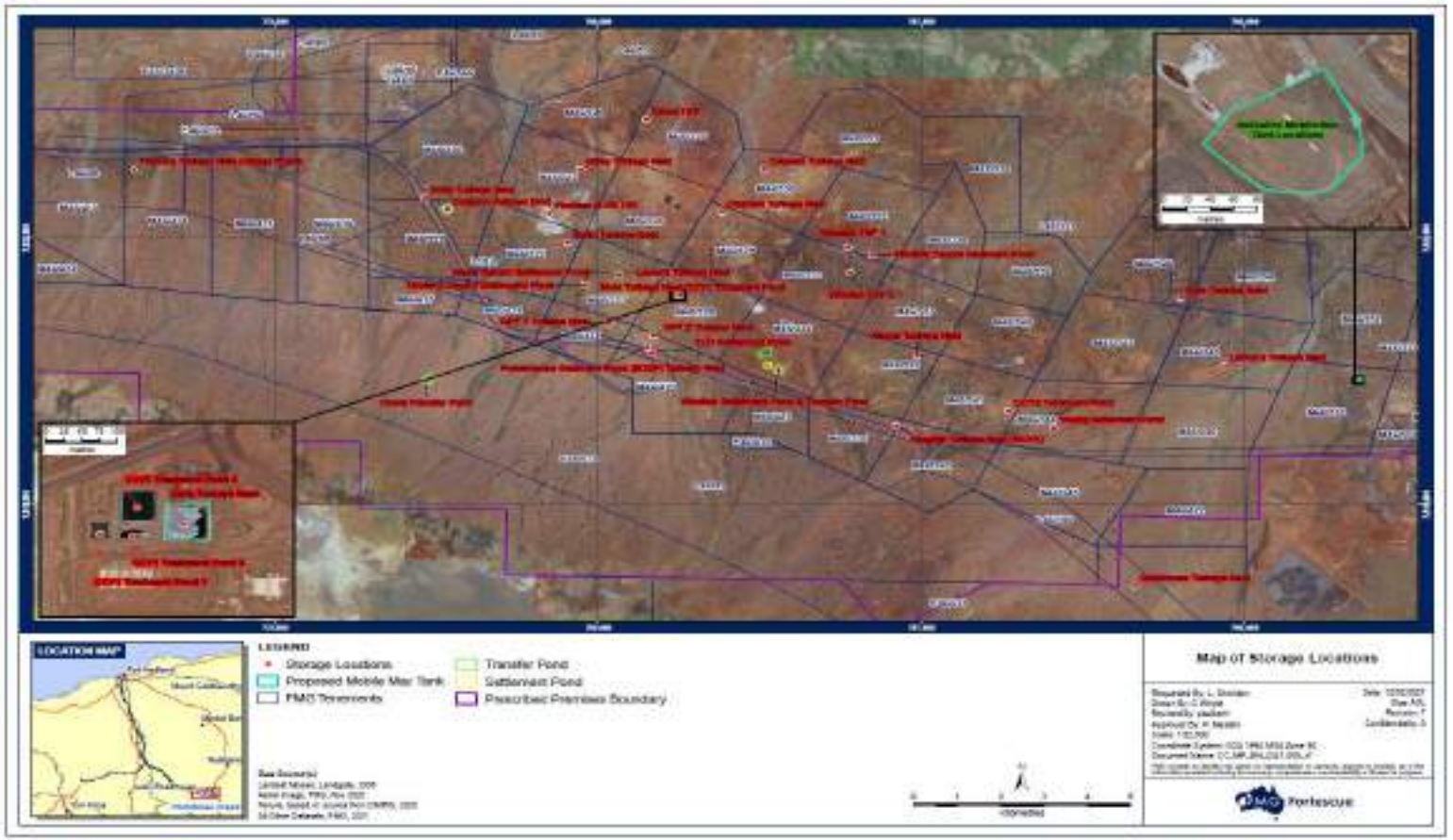

Figure 3: Map of containment infrastructure referred to in Condition 3, Table 2 (note Mobile Max Turkey's Nest can be relocated around the mine site to provide additional water storage capacity)

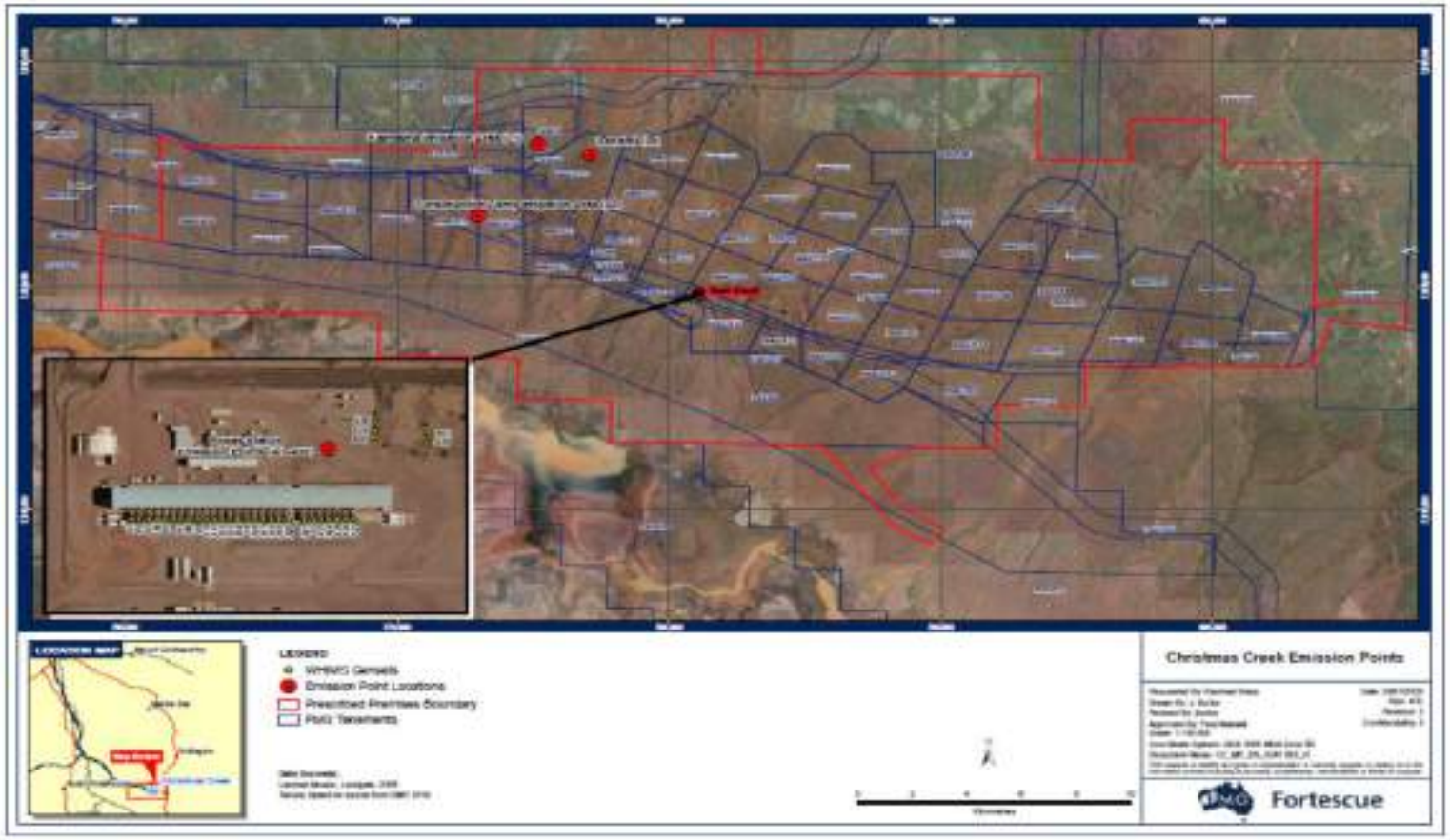

Figure 4: Map of emission points referred to in Condition 12, Table 7 and Condition 15, Table 10

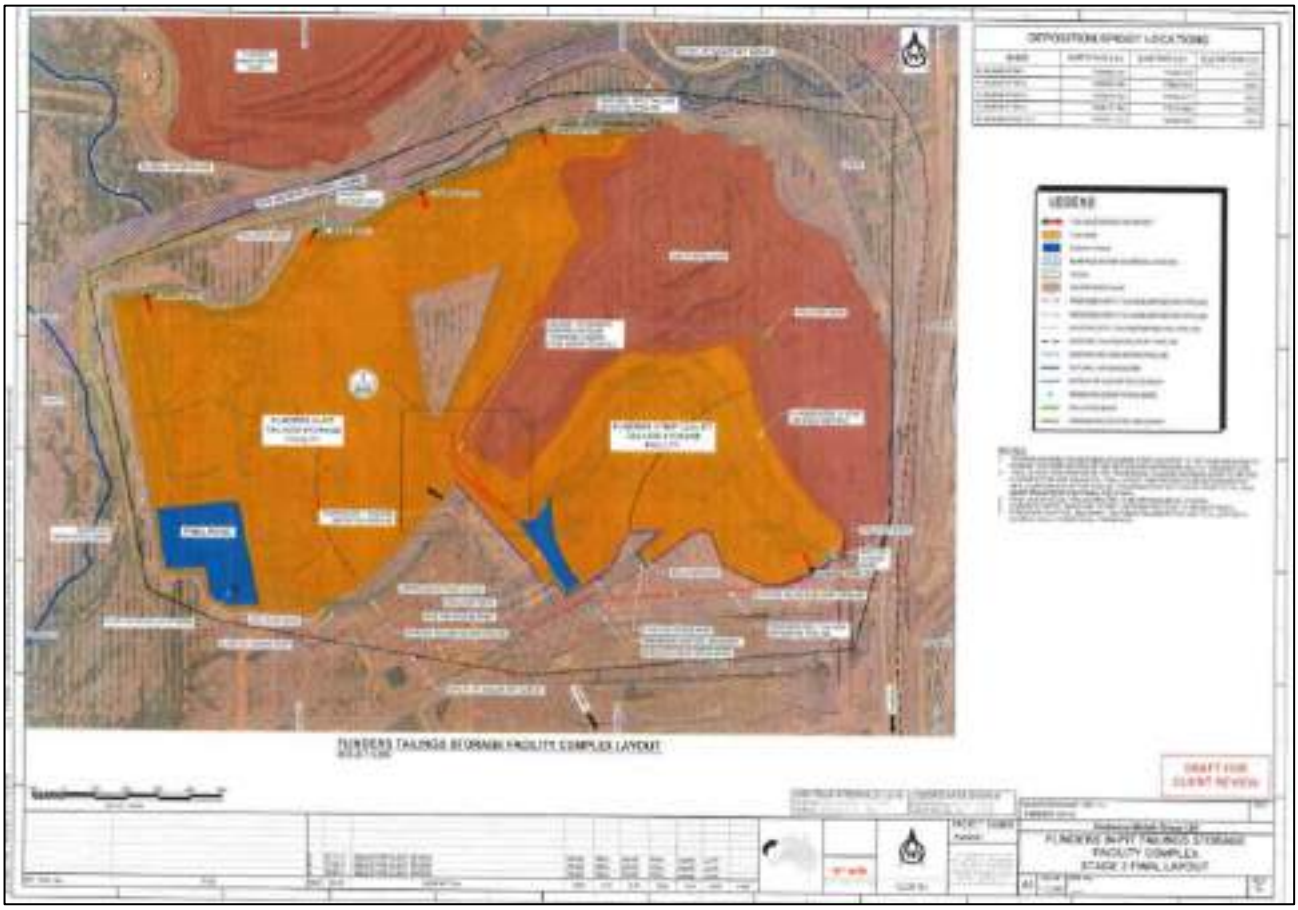

Figure 5: Map of Flinders In-Pit TSF1 Complex referred to in Condition 10, Table 6

Figure 6: Map showing location of V-WHIMS Plant

Figure 7: Map showing location of Reverse Osmosis Plant at Karntama Camp

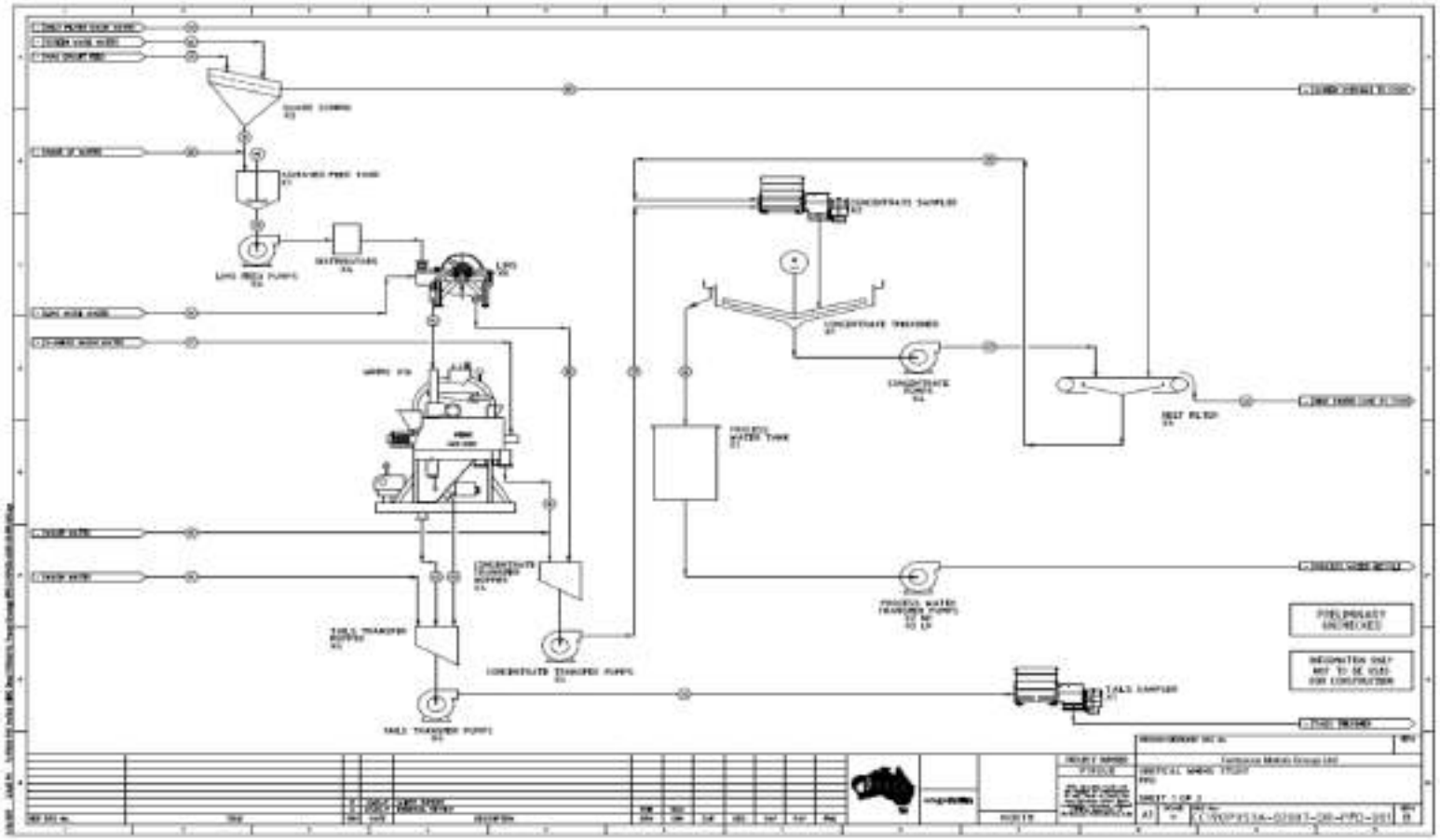

Figure 8: Vertical Wet High Intensity Magnetic Separator Plant (V-WHIMS Plant)

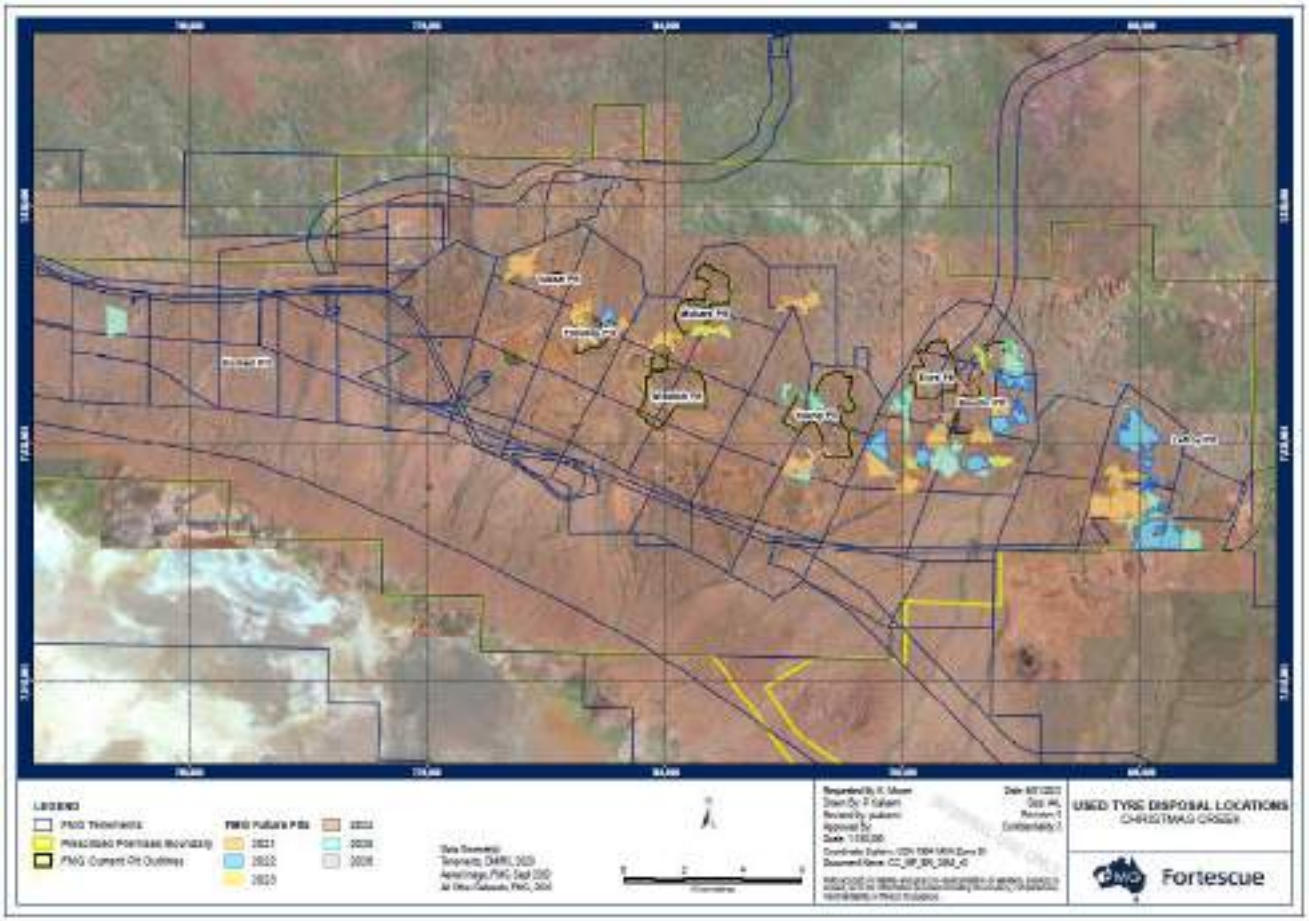

Figure 9: Locations of the used tyres and construction waste disposal locations, defined in Condition 6, Table 4

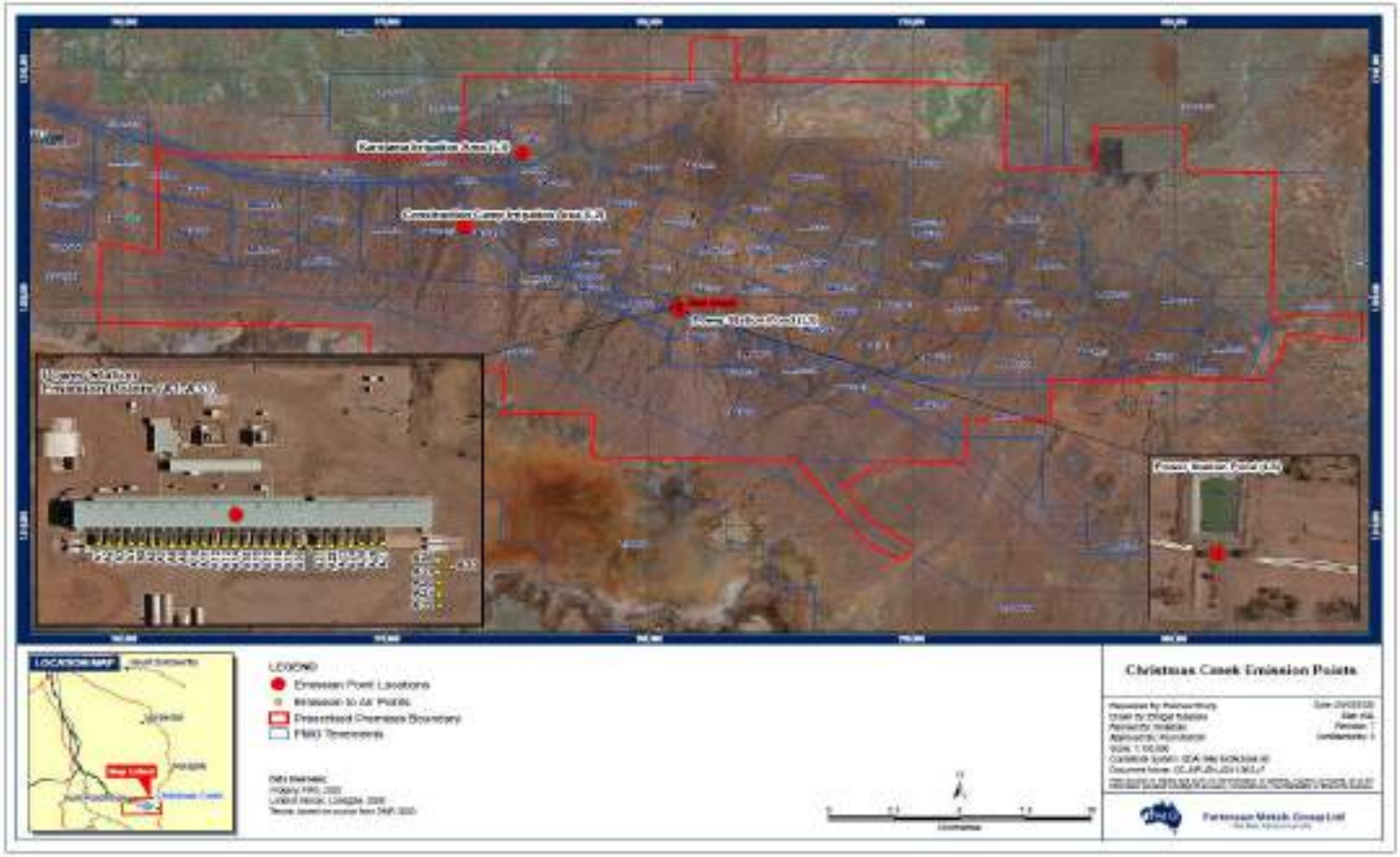

Figure 10: The locations of the emission points defined in Condition 12, Table 7 and Condition 15, Table 10 and monitoring locations defined in Condition 22, Table 14

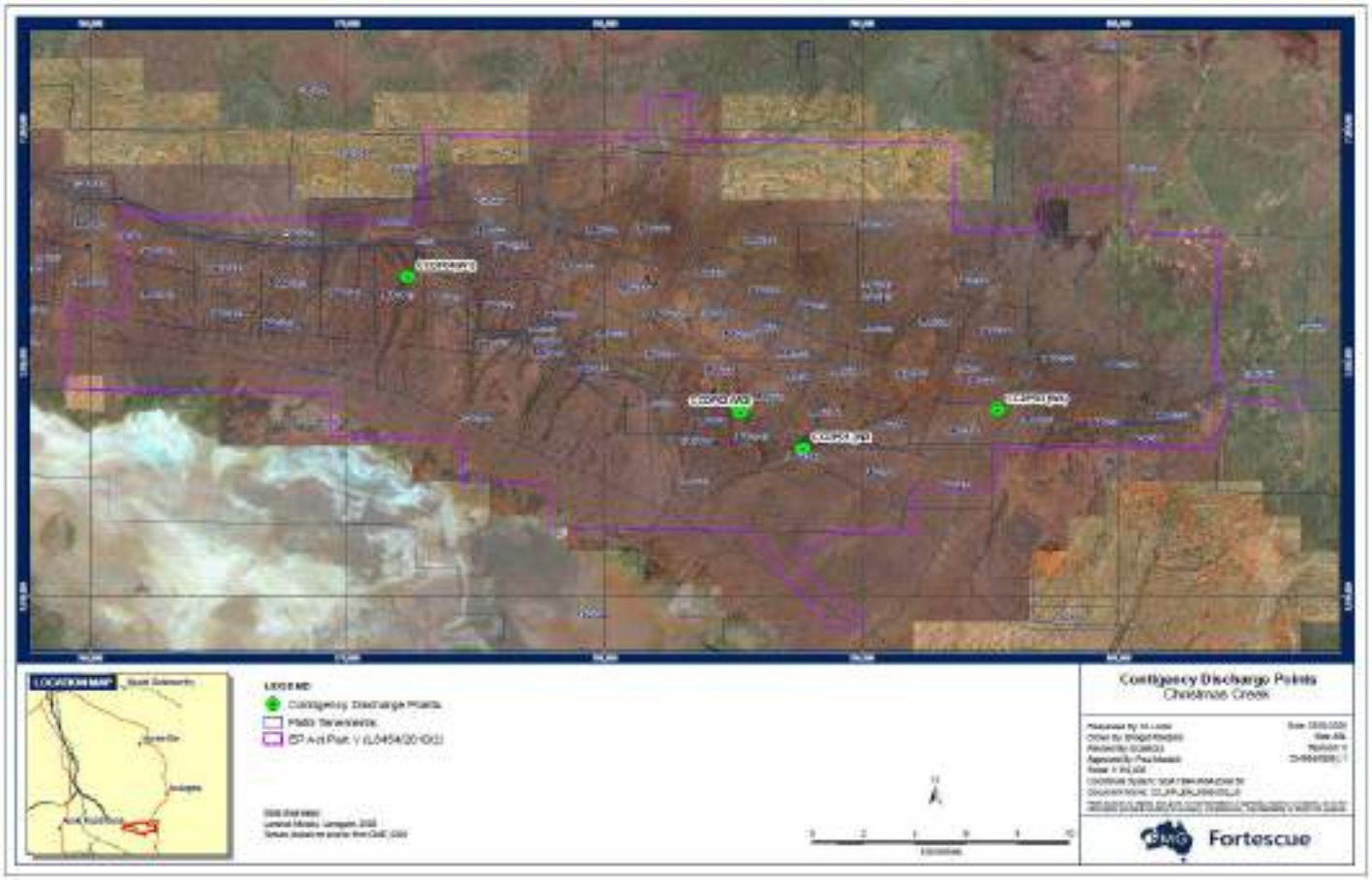

Figure 11: The locations of the emission points defined in Condition 13, Table 8 and monitoring locations defined in Condition 20, Table 12

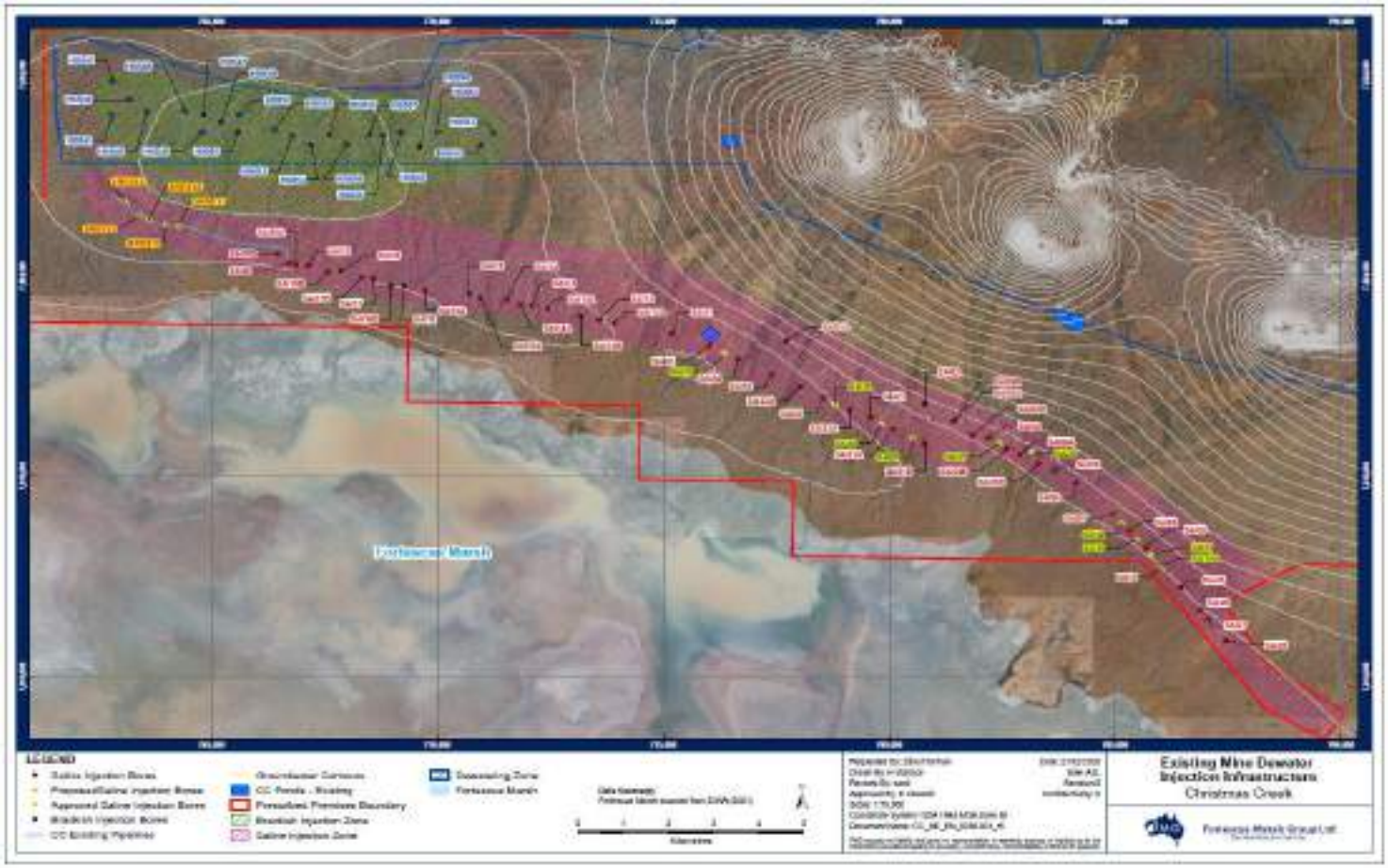

Figure 12: The locations of the emission points defined in Condition 14, Table 9

Figure 13: The locations of the TSF monitoring points defined in Condition 24, Table 16

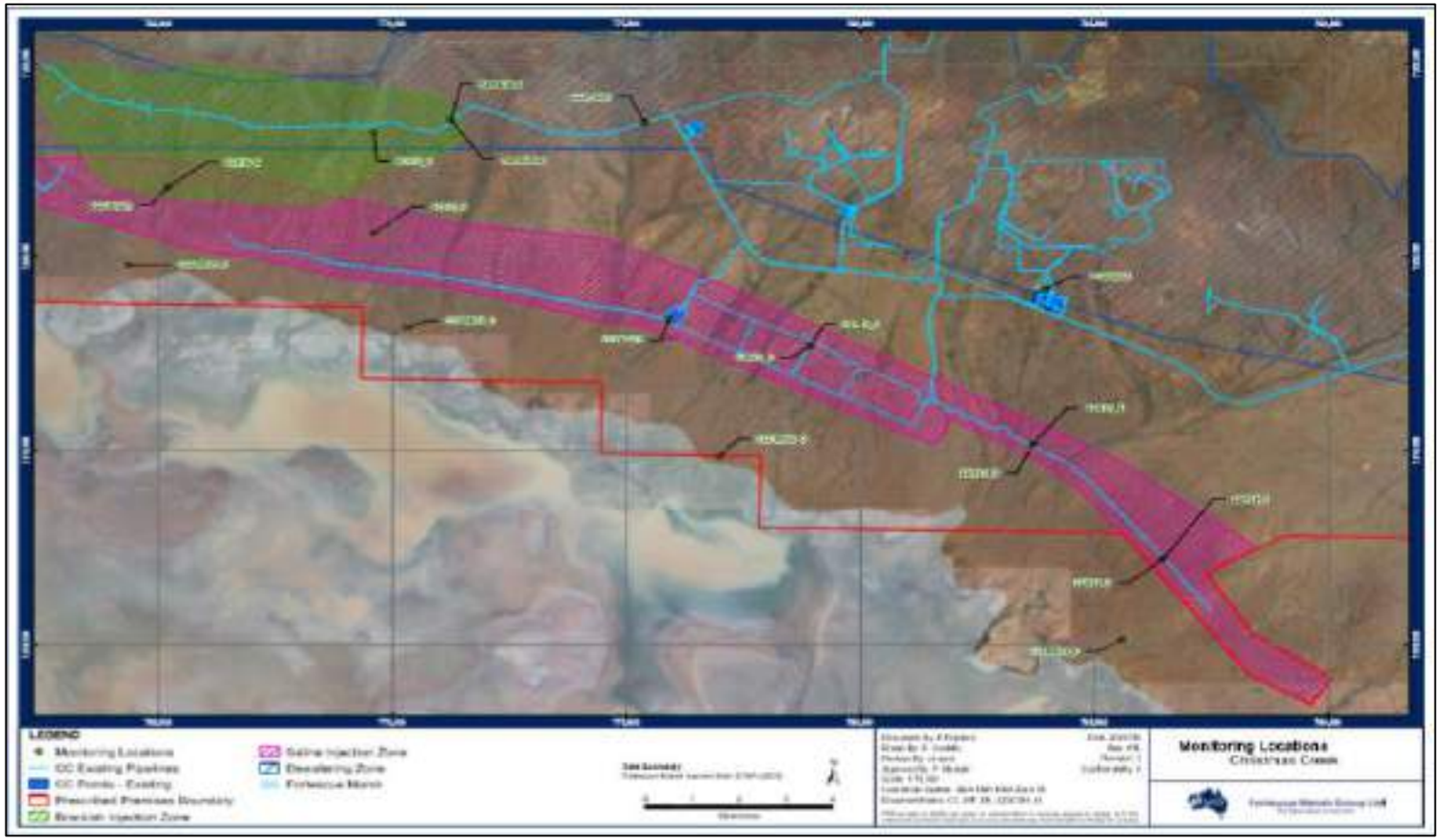

Figure 14: The locations of the monitoring locations defined in Condition 21, Table 13 and Condition 24, Table 16

Figure 15: Location of the Hydrogen Refuelling Station

Figure 16: Proposed Flinders TSF2 Complex and groundwater monitoring bores

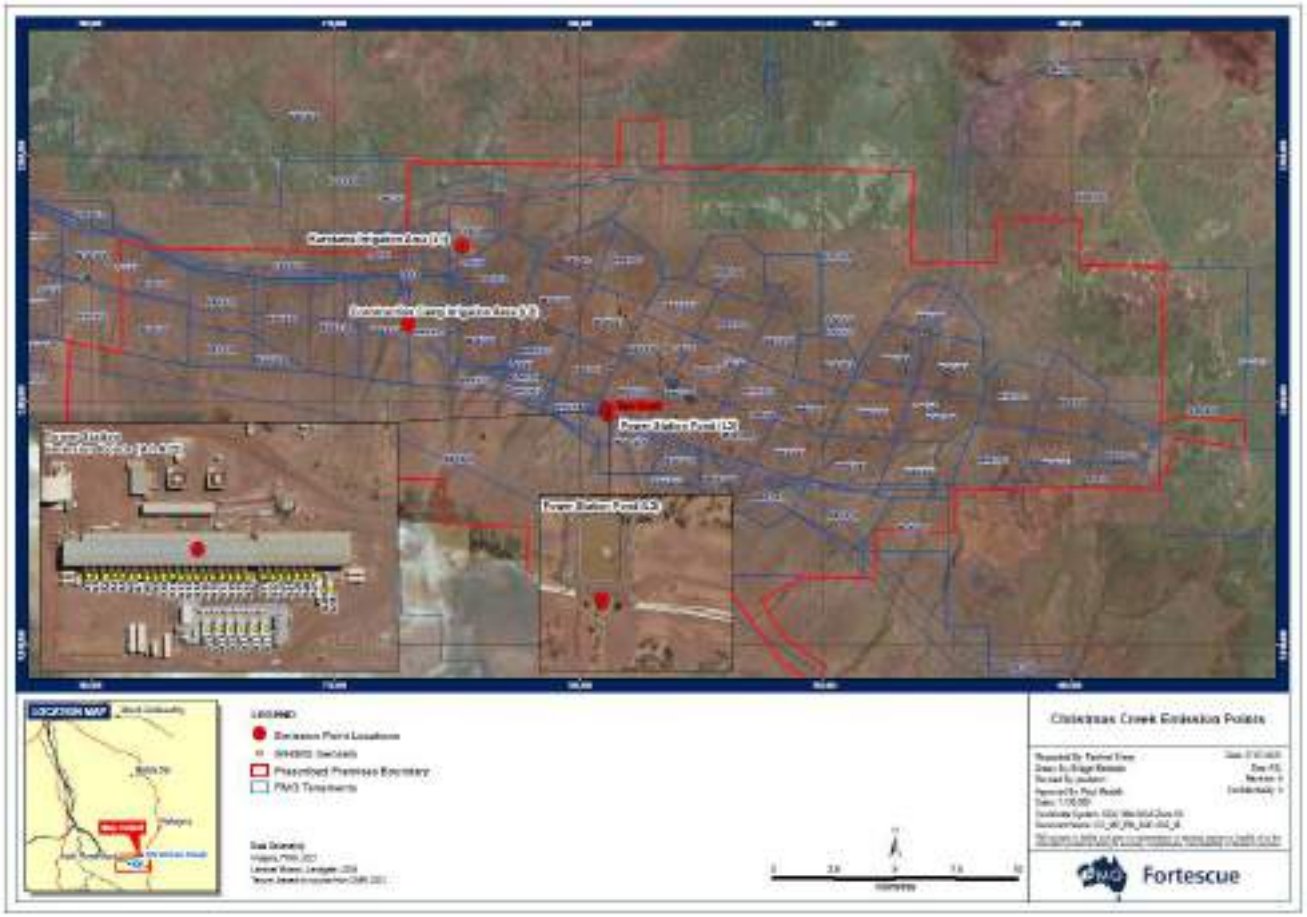

Figure 17: Location of proposed new diesel generator sets

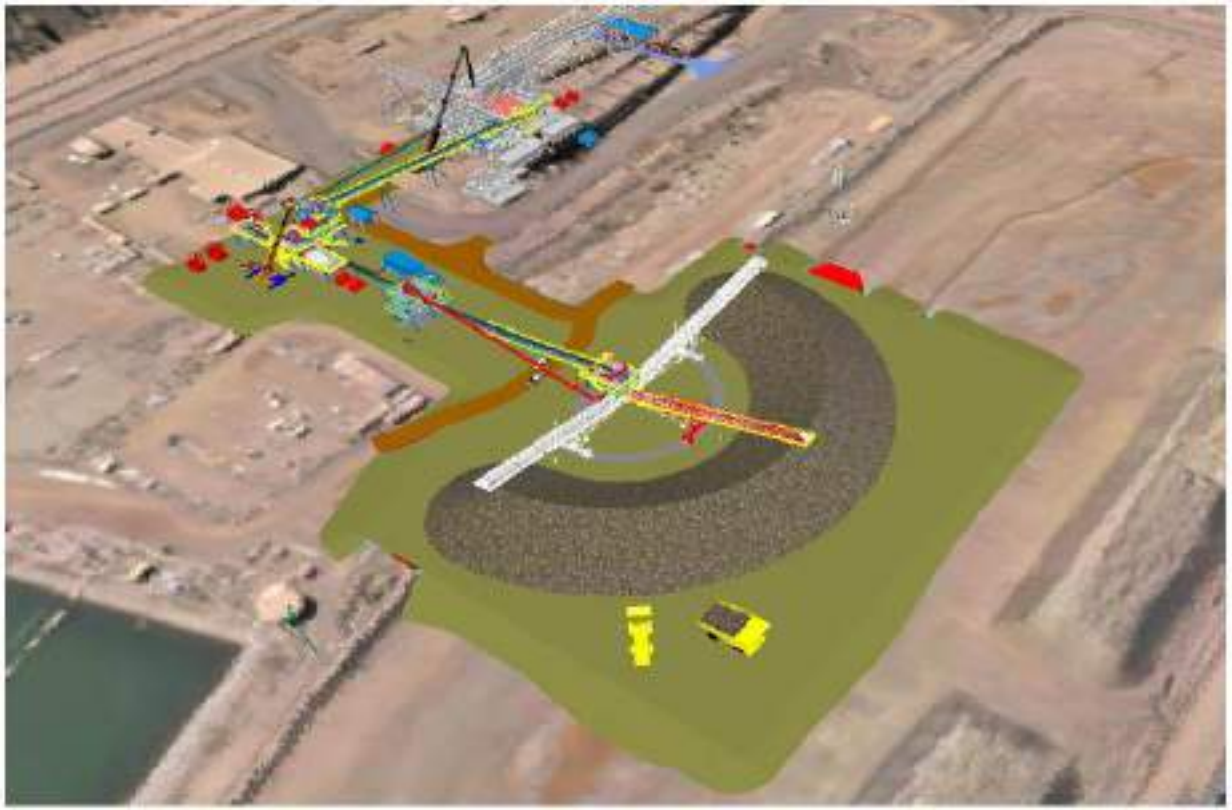

Figure 18: Indicative layout of proposed OPF1 Lump Plant

Schedule 2: Reporting & notification forms

Licence:	Licence holder:
Form: N1	Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence number	
Name of operator	
Location of premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of licence holder	
Date	