Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L7340/1997/9
Licence holder	Pilbara Iron Company (Services) Pty Ltd
ACN	107 210 248
Registered business address	Level 22, Central Park 152-158 St Georges Terrace PERTH WA 6000
DWER file number	DER2013/000903-2
Duration	22/05/2014 to 31/05/2036
Date of amendment	23/11/2020
Premises details	Yandicoogina Iron Ore Mine Part of Mining Lease AM70/274; LGE L021123 NEWMAN WA 6753 (As defined by the coordinates in Schedule 2)

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	60,000,000 tonnes per annual period
Category 6: Mine dewatering	Disposal of up to 78 gigalitres per annum
Category 12: Screening, etc. of material	10,000,000 tonnes per annual period
Category 54: Sewage facility	1,192 cubic metres per day
Category 64: Class II putrescible landfill site	7,500 tonnes per annual period
Category 73: Bulk storage of chemicals, etc	1,770 cubic metres in aggregate

This licence is granted to the licence holder, subject to the attached conditions, on 23 November 2020 by:

Alana Kidd

Digitally signed by Alana Kidd
Date: 2020.11.23 10:02:39 +08'00'

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

Licence history

Reference number	Date	Summary of changes
L7340/1997/9	2 June 2016	Amendment to include the EPCM WWTP, upgraded village WWTP, YSP stacker and stockyard, Stage 1 of WFSF, operation of new landfill, construction and operation of waste dump landfill, construction and operation of D03A outlet and other administrative amendments.
L7340/1997/9	29 April 2016	Notice of amendment of licence expiry dates. Expiry date extended to 31 May 2036.
L7340/1997/9	7 September 2017	Review of premises and licence conversion.
L7340/1997/9	8 January 2018	Amendment for the construction and operation of WFC5, operation of D09A dewatering outfall, other administrative amendments.
L7340/1997/9	23 November 2020	This amendment to approve the construction and operation of waste dump landfills and putrescible landfills within the prescribed premises boundary; remove WFC5 ambient monitoring bore MB12YWFC004 and replace with SP3; update Figures (as applicable); administrative changes; and update Licence to current licensing format.

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.

Licence conditions

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

Infrastructure and equipment

Maintenance and operation requirements

1. The licence holder must ensure that the site infrastructure and equipment listed in Table 11 in Schedule 3: Infrastructure and equipment and located at the corresponding infrastructure location is maintained and operated in good working order.

2. The licence holder must ensure that the site infrastructure and equipment listed in Table 1 is maintained and operated in accordance with the corresponding operational requirement set out in Table 1.

3. The licence holder must ensure that the equipment and infrastructure in Table 1 are maintained in good working order.

Table 1: Infrastructure and equipment operational requirements

Site infrastructure	Description	Operational requirement
JC Area Bulk Fuel Facilities (shown as Permanent Hydrocarbon Storage Facility and Heavy Vehicle Fuel Facility in Schedule 1, Figure 2)	Infrastructure to store chemicals including, but not limited to fuel, oil or other hydrocarbons (where the total volume of all substances stored in a single or connected compound exceeds 100,000 L).	Chemicals must be located within low permeability (10^{-9} metres per second or less) compounds designed to contain not less than 110% of the volume of the largest storage vessel or interconnected system and an additional 25% of the total volume of substances stored in the compound.
JSE Area Bulk Fuel Facility (shown as Heavy Vehicle Fuel Facility in Schedule 1, Figure 2)		
JSW Area Bulk Fuel Facility (shown as Heavy Vehicle Fuel Facility in Schedule 1, Figure 2)		

Waste Fines Cell construction requirements

4. The licence holder must construct the embankments associated with Stage 2 of WFC3 in accordance with the diagram in Schedule 1, Figure 6.

Emissions and discharges

Authorised discharge points for emissions

5. The licence holder must ensure that the emissions specified in Table 2, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 2: Authorised discharge points

Emission	Discharge point	Discharge point location
Landfill leachate to groundwater	Subject to compliance with condition 8	
Discharge of treated sewage	Sprayfields associated with the: **Infrastructure** / **Design capacity (m^3/day)** / **Sprayfield size (ha)** • Village WWTP: 710, 17 • Mine WWTP: 20, 0.31 • Fixed Plant WWTP: 40, 1.27 • EPCM WWTP: 22, 3.5	As shown in Schedule 1, Figure 4
Discharge of waste fines as a result of ore processing	Discharged into and contained by one of the following approved WFCs: • WFC3 (with total capacity for 4,500,000 m^3 of waste fines) • WFC3A (with total capacity for 20,300,000 m^3 of waste fines) • WFC5 (with total capacity for 20,000,000 m^3 of waste fines)	As shown in Schedule1, Figures 2 and 7
Discharge of surplus dewater	Dewatering Outlets: DO2, DO3, DO3A, DO5, DO5A, DO6, DO8 DO9 and DO9A Discharges to the environment must be via: • Gabion drop structure; or • T-piece and Rip-rap; or • Rip-rap only; or • Upwelling.	As shown in Schedule 1, Figure 5

Emission limits

6. The licence holder must ensure that treated wastewater is only discharged via irrigation to the specified discharge point(s) in accordance with the limits specified in Table 3.

Table 3: Irrigation emission limits

Discharge point	Parameter	Loading limit
Sprayfields associated with the: • Village WWTP • Mine WWTP • Fixed Plant WWTP • EPCM WWTP	Total nitrogen	480 kg/ha/year
	Total phosphorus	120 kg/ha/year

7. The licence holder must ensure that emissions from the discharge point listed in Table 4 for the corresponding parameter do not exceed the corresponding limit when monitored in accordance with condition 9.

Table 4: Emission and discharge limits

Discharge point	Parameter	Limit
Dewatering Outlet DO2	Flow rate (L/s)	440
Dewatering Outlet DO3		220
Dewatering Outlet DO3A		550
Dewatering Outlet DO5		550
Dewatering Outlet DO5A		550

Waste processing

8. The licence holder must ensure that the waste types in Table 5 are only subjected to the corresponding process(es), subject to the corresponding process limits and/or specifications.

Table 5: Waste processing

Waste Type[1]	Process(es)	Process limits and/or specifications[2,3]
Inert Waste Type 1	Disposal of waste by landfilling	**Waste Dump landfills** Constructed and maintained to the following requirements: • Located within the prescribed premises boundary (as depicted in Schedule 1, Figure 1). • Located no less than 25 m from the premises boundary; and 150 m from the Phil's Creek accommodation village. • Not located within an Environmentally Sensitive Area. • Located no less than 100 m from any perennial or permanent watercourse. • Located so that the vertical distance between the waste and the highest seasonal and expected post mining ground water level is no less than 3 m. • Earthen bunding installed around the facility to divert stormwater away from the landfill. • A sump or bunding constructed within the landfill to collect any surface water that has come into contact with waste. • A sign at the entrance which clearly defines what waste is accepted onto the landfill. • Location recorded on internal GIS mapping system. Managed and operated so that waste is covered with inert and incombustible material when practicable and to at least 200 mm at final landform.
Inert Waste Type 2		
Putrescible Waste (wooden pallets only)		

Waste Type[1]	Process(es)	Process limits and/or specifications[2,3]
Putrescible Waste	Disposal of waste by landfilling	**Putrescible landfills** Constructed and maintained to the following requirements: • Located within the prescribed premises boundary (as depicted in Schedule 1, Figure 1). • Located no less than 35 m from the premises boundary; and 150 m from the Phil's Creek accommodation village. • Not located within an Environmentally Sensitive Area. • Located at a minimum of 400 m from Yandicoogina Creek, Marillana Creek and Weeli Wolli Creek; and 100 m from any other perennial or permanent watercourse. • Located so that the vertical distance between the waste and the highest seasonal and expected post mining ground water level is no less than 10 m. • Earthen bunding installed around the facility to divert stormwater away from the landfill. • A sump constructed within the landfill to collect any surface water that has come into contact with waste. • Firebreak at least 3 m in width around the perimeter of the landfill. • Fenced to minimise windblown waste. • Gated and locked with a sign which clearly defines what waste is accepted onto the landfill. • Location recorded on internal GIS mapping system. Managed and operated to the following requirements: • Tipping area not greater than 30 m in length and 2 m above ground level. • Special Wastes Types 1 and 2 disposed of in sealed bags within a dedicated trench and covered as soon as possible with the location recorded. • Water that has come into contact with waste retained within the landfill; • Waste is covered weekly with clean inert and incombustible material to at least 200 mm so that no waste is left exposed.
Inert Waste Type 1		
Inert Waste Type 2		
Special Waste Type 1		
Special Waste Type 2		

Note 1: As defined by the Landfill Waste Classification and Waste Definitions (As amended December 2009).
Note 2: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.
Note 3: 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*.

Monitoring

Discharge point monitoring

9. The licence holder must monitor emissions:

(a) from each monitoring location;

(b) for the corresponding parameter;

(c) at no less than the corresponding frequency;

(d) for the corresponding averaging period; and

(e) using the corresponding method,

as set out in Table 6.

Table 6: Emissions and discharge monitoring

Monitoring location	Parameter	Minimum Frequency	Averaging period	Method
Sprayfields associated with the: • Village WWTP • Mine WWTP • Fixed Plant WWTP • EPCM WWTP	Total Phosphorus (mg/L)	Quarterly	Annual	AS 5667.10.1998 AS/NZS 5667.1:1998
	Total Nitrogen (mg/L)			
	Volume (m^3)	Continuous		Flow meter device
Dewatering Outlet DO2	Flow rate (L/s)	Continuous	Annual	Flow meter device
Dewatering Outlet DO3				
Dewatering Outlet DO3A				
Dewatering Outlet DO5				
Dewatering Outlet DO5A				

Ambient Monitoring

10. The licence holder must monitor the groundwater and surface water within and in the vicinity of WFC5:

(a) from the monitoring locations;

(b) for the corresponding of parameter;

(c) in the corresponding unit;

(d) at no less than the corresponding frequency; and

(e) using the corresponding method,

as set out in Table 7.

Table 7: Monitoring of ambient concentrations

Monitoring location	Parameter	Unit	Minimum Frequency	Method
Groundwater monitoring				
MCB1 MCB2 MB10YMA005 SP3 As depicted in Figure 7	Depth to water[1]	mAHD	Six-monthly	AS 5667.11.1998 AS/NZS 5667.1:1998
	pH[1]	pH units		
	Total Dissolved Solids	mg/L		
	Electrical conductivity[1]	µS/cm		
	Total hardness ($CaCO_3$)	mg/L		
	Major ions: Sodium (Na) Potassium (K) Calcium (Ca) Chloride (Cl) Magnesium (Mg) Fluoride (F) Bromide (Br) Sulphate (SO_4)	mg/L		
	Metals: Copper (Cu) Lead (Pb) Iron (Fe) Mercury (Hg) Manganese (Mn) Arsenic (As)[2] Cadmium (Cd)[2] Chromium (Cr)[2] Nickel (Ni)[2] Cobalt (Co)[2] Selenium (Se)[2] Boron (B) Molybdenum (Mo) Tin (Sb) Vanadium (V) Zinc (Zn)[2] Thallium (Tl)[3]	mg/L		
Surface water monitoring				
WSP1 As depicted in Figure 7	pH[1]	pH units	October of each year	AS/NZS 5667.10:1998 AS/NZS 5667.1:1998
	Total Dissolved Solids	mg/L		
	Metals: Arsenic (As)	mg/L		

Monitoring location	Parameter	Unit	Minimum Frequency	Method
	Cadmium (Cd) Cobalt (Co) Chromium (Cr) Copper (Cu) Iron (Fe) Mercury (Hg) Manganese (Mn) Nickel (Ni) Lead (Pb) Selenium (Se) Zinc (Zn)			

Note 1: In-field non NATA analysis permitted
Note 2: Comparison against the 99% protection level in ANZECC 2000 is required
Note 3: Comparison against the USEPA National Primary Drinking Water Table of Contaminants 2009 is required

11. The licence holder must ensure all water samples collected in accordance with conditions 9 and 10 are analysed by a laboratory with current NATA accreditation for the parameters being measured, unless otherwise indicated in the relevant table.

Monitoring of WFC5 water balance

12. The licence holder must undertake annual monitoring of the water balance for WFC5, and (as a minimum) record the following information:

(a) site rainfall;

(b) evaporation rate;

(c) decant water recovery volumes;

(d) volume of tailings deposited; and

(e) estimate of seepage losses.

Records and reporting

13. 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 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; and

(d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.

14. 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 30 April each year an Annual Audit Compliance Report in the approved form.

15. The licence holder must submit to the CEO following construction of Stage 2 of WFC3, compliance documents certifying that the works were carried out in accordance with condition 4 of this licence.

16. The licence holder must within 30 days of either a waste dump landfill and/or putrescible landfill being constructed under condition 8:

(a) undertake an audit of their compliance with the specifications of the condition; and

(b) prepare and submit to the CEO an audit on that compliance.

17. The licence holder must submit to the CEO by 30 April each year, an Annual Environmental Report for that annual period for the conditions listed in Table 8, and which provides information in accordance with the corresponding requirement set out in Table 8.

Table 8: **Annual Environmental Report**

Condition	Requirement
8	Map and GIS coordinates of the waste dump and putrescible landfills within the prescribed premises boundary.
9	The results to be provided to the CEO must include, but need not be limited to the following: (a) the dates at which monitoring was undertaken for each location; (b) the raw monitoring data from Quarterly (or more frequent) monitoring of each location, for each parameter in tabulated form; and (c) the average of the Quarterly (or more frequent) monitoring results calculated for the period compared against the limits specified in condition 6.
10	The results to be provided to the CEO must include, but need not be limited to the following: (a) the dates at which monitoring was undertaken for each location; (b) the raw monitoring data (in accordance with the minimum frequency) for each location, for each parameter in tabulated form; and (c) the monitoring results compared against the ANZECC 2000 criteria for the protection of 95% of species in a freshwater ecosystem unless indicated otherwise in Table 7.
12	Annual water balance for WFC5.

18. The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:

(a) the calculation of fees payable in respect of this licence;

(b) any maintenance of infrastructure that is performed in the course of complying with conditions 1 and 2 of this licence;

(c) monitoring programmes undertaken in accordance with conditions 9 and 10 of this licence; and

(d) complaints received under condition 13 of this licence.

19. The books specified under condition 18 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 licence holder for the duration of the licence; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this licence, the terms in Table 9 have the meanings defined.

Table 9: Definitions

Term	Definition
ACN	Australian Company Number.
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 until 31 December of each year.
ANZECC 2000	means the Australian and New Zealand Environment and Conservation Council (ANZECC) and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, National Water Quality Management Strategy; no. 4.
AS/NZS 5667.1:1998	means the Australian Standard AS/NZS 5667.1:1998 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples.*
AS 5667.10.1998	means the Australian Standard AS5667.10:1998 *Water quality – Sampling – Guidance on sampling of wastewaters.*
AS/NZS 5667.11:1998	means the Australian Standard AS/NZS 5667.11:1998 *Water quality – Sampling – Guidance on sampling of groundwater.*
books	has the same meaning given to that term under the EP Act.
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
Continuous	means a data recovery rate of at least 90% during each Quarter.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the

Term	Definition
	administration of the EP Act, which includes Part V Division 3.
dewater	refers to groundwater abstracted to allow mining of ore.
discharge	has the same meaning given to that term under the EP Act.
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).
Gabion drop structure	means a dewater outlet that discharges to a descending-stepped channel bounded by rock armoured walls formed by a series of metallic mesh cages filled with rocks, concrete, or other similar substance.
JC	Junction Central.
JSE	Junction South East.
JSW	Junction South West.
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 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.
mAHD	means metres Australian Height Datum.
NATA	means the National Association of Testing Authorities, Australia.
NATA accreditation	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.
premises	refers to 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 licence.
prescribed premises	has the same meaning given to that term under the EP Act.
Quarter or Quarterly	refers to the four inclusive periods from 1 July to 30 September, 1 October to 31 December, 1 January to 31 March and 1 April to 30 June.
Rip-rap	means large loose rock or stones that are used to reduce the speed of dewater following discharge and armour designated areas from erosion caused by dewater.
T-piece	refers to dewater discharge outlet that is configured with a T-intersection that directs water to two open ends where dewater is discharged.
Upwelling	refers to dewater discharge infrastructure that conveys dewater to the discharge point via a buried pipeline and then pushed out by the water pressure through a grate on the top of the pipe where dewater is then directed via a Rip-rap channel to the environment.

Term	Definition
waste	has the same meaning given to that term under the EP Act.
WFC	Waste Fines Cell.
WWTP	Wastewater Treatment Plant.
µS/cm	means microseimens per centimetre.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

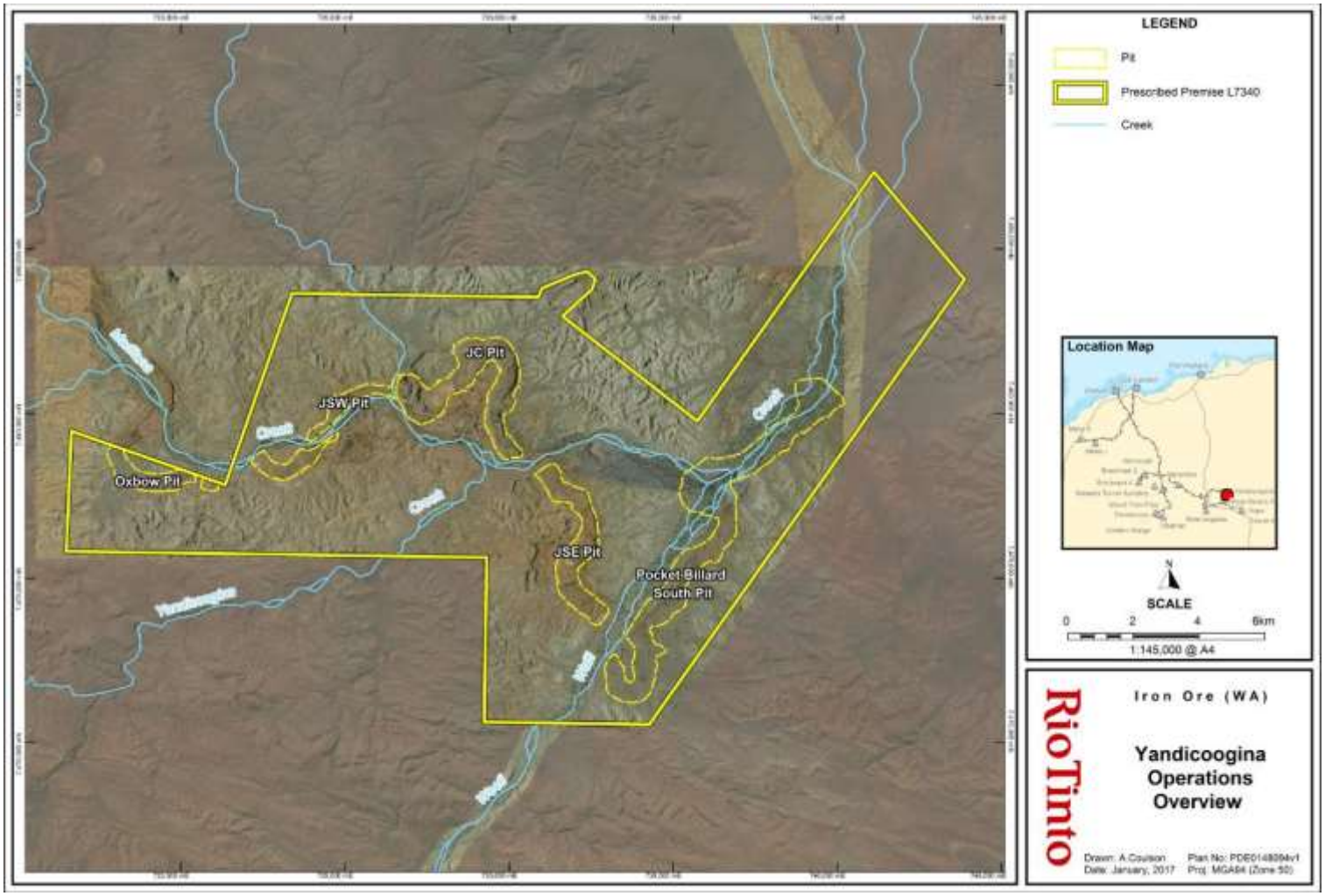

Figure 1: Map of the boundary of the prescribed premises

Infrastructure maps

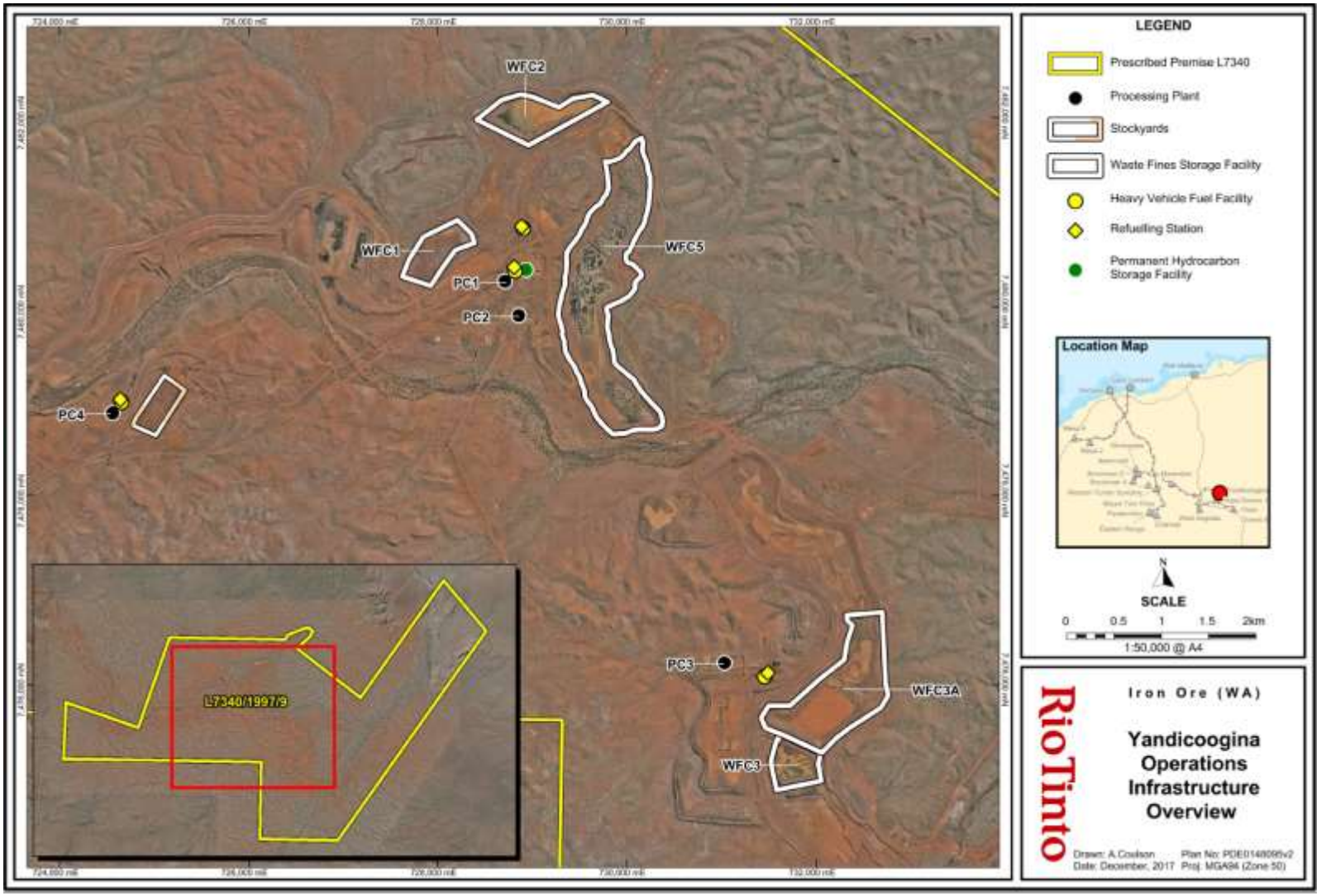

Figure 2: Infrastructure map

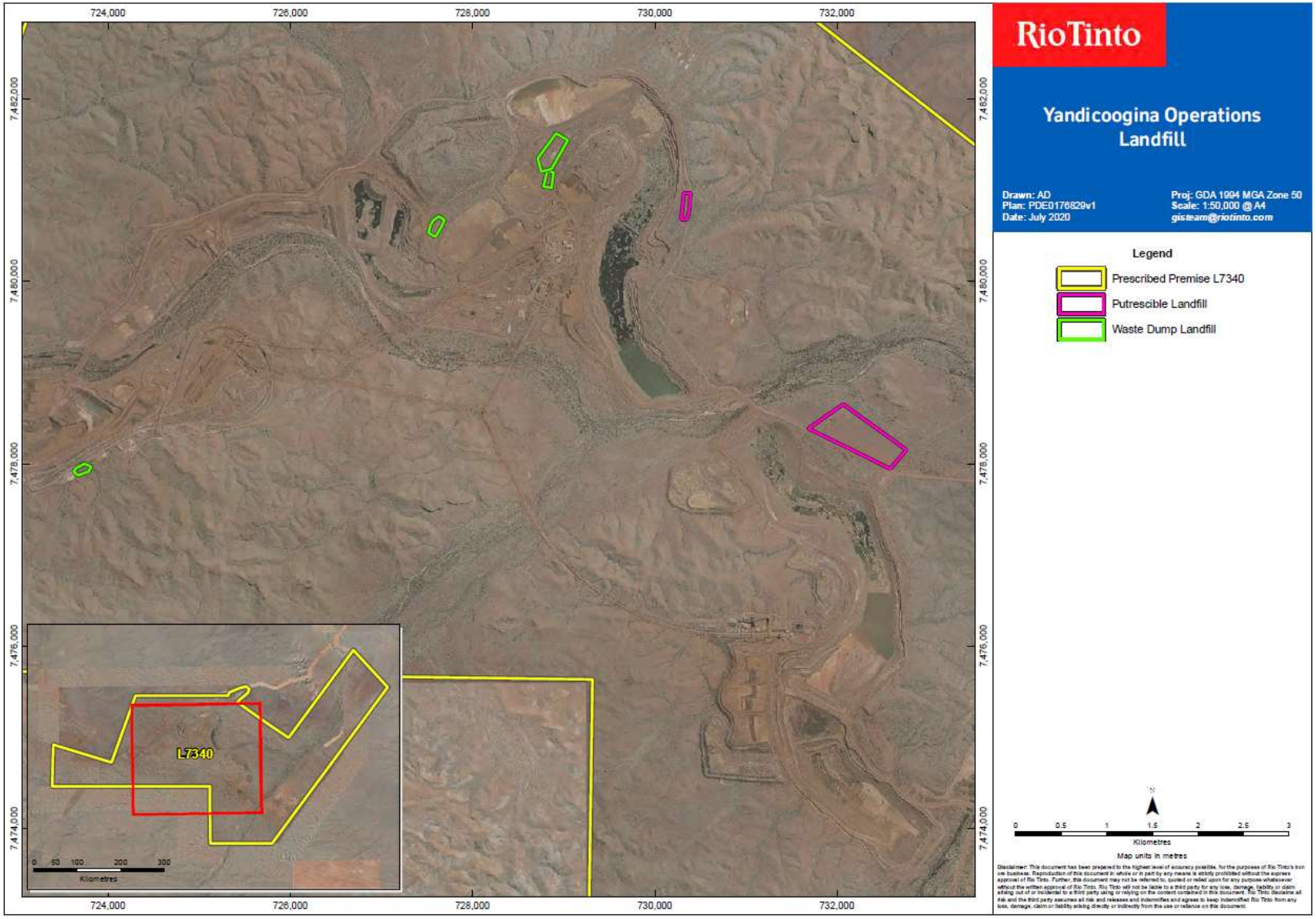

Figure 3: Existing landfill locations

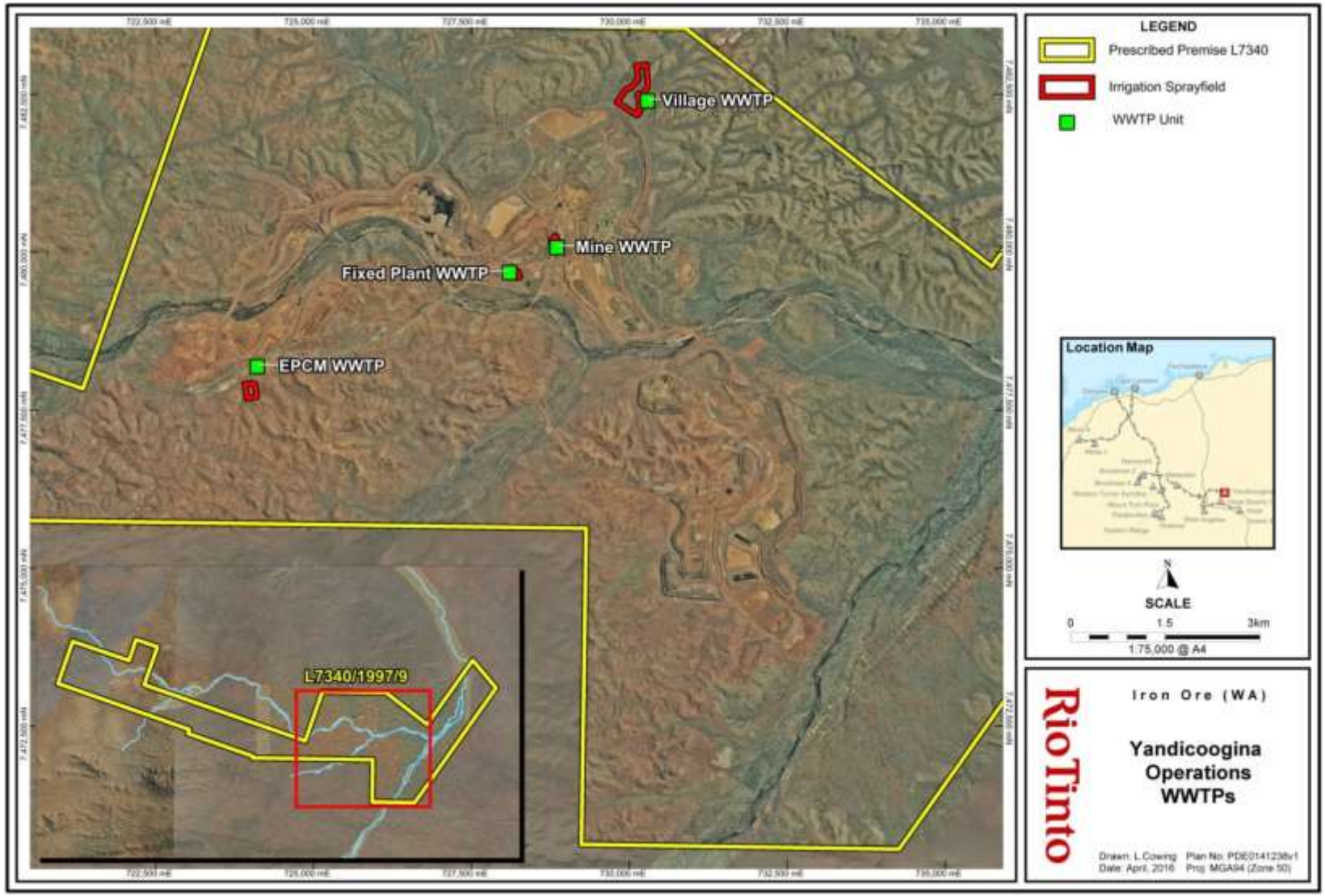

Figure 4: WWTP sprayfield locations

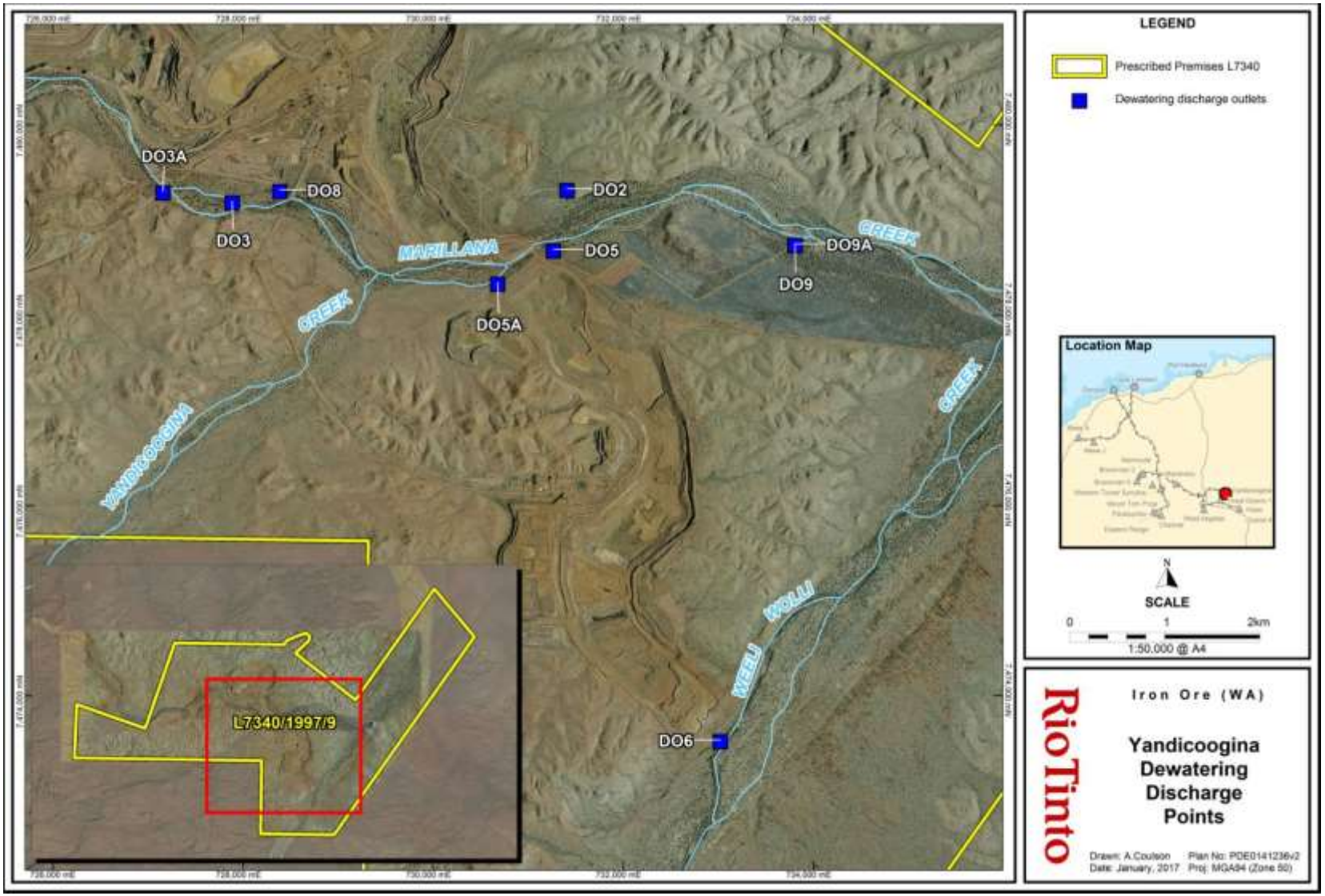

Figure 5: Dewater discharge points

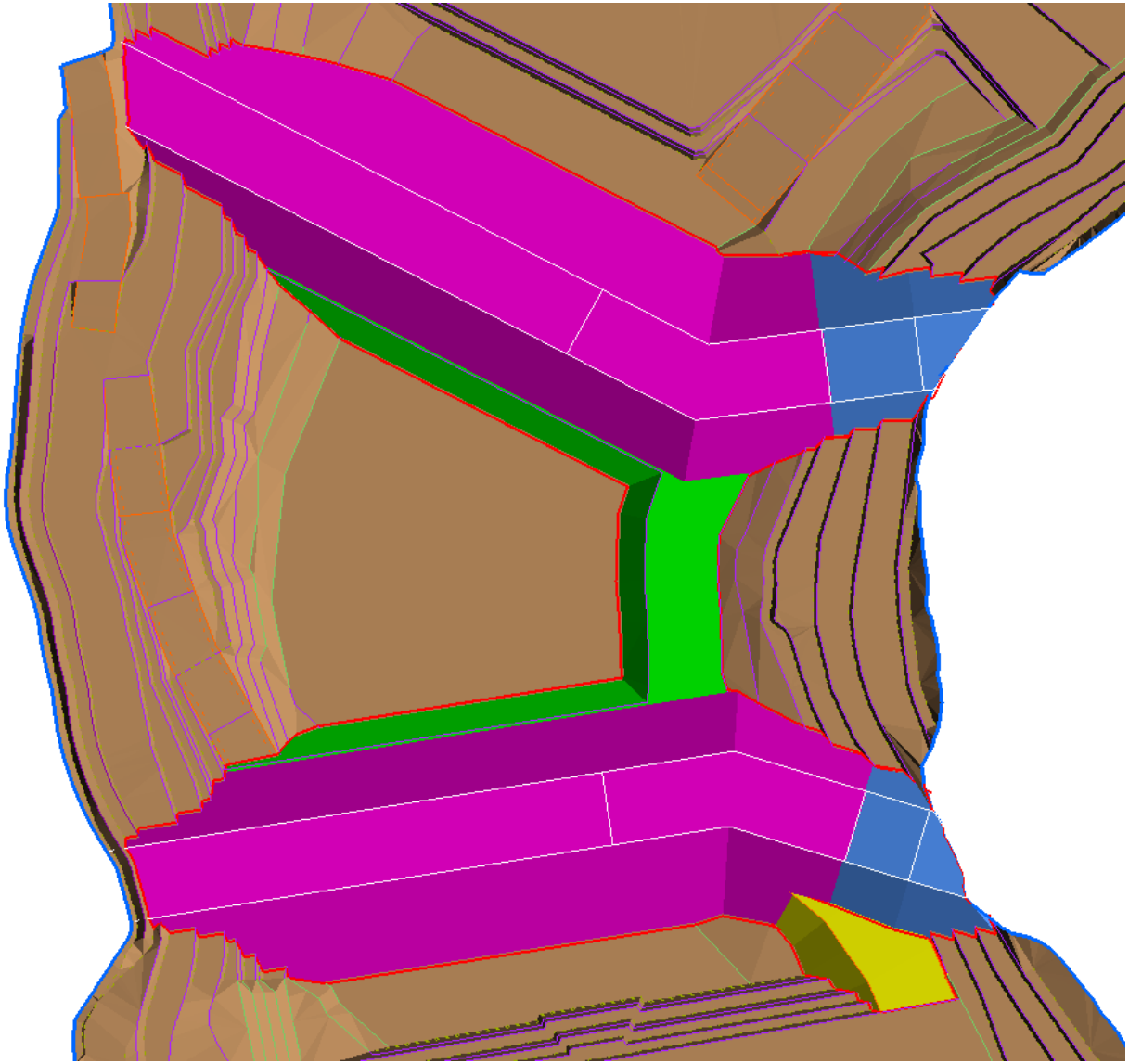

Figure 6: Final embankment layout of WFC3 (Stage 2 embankments are shown in purple and blue)

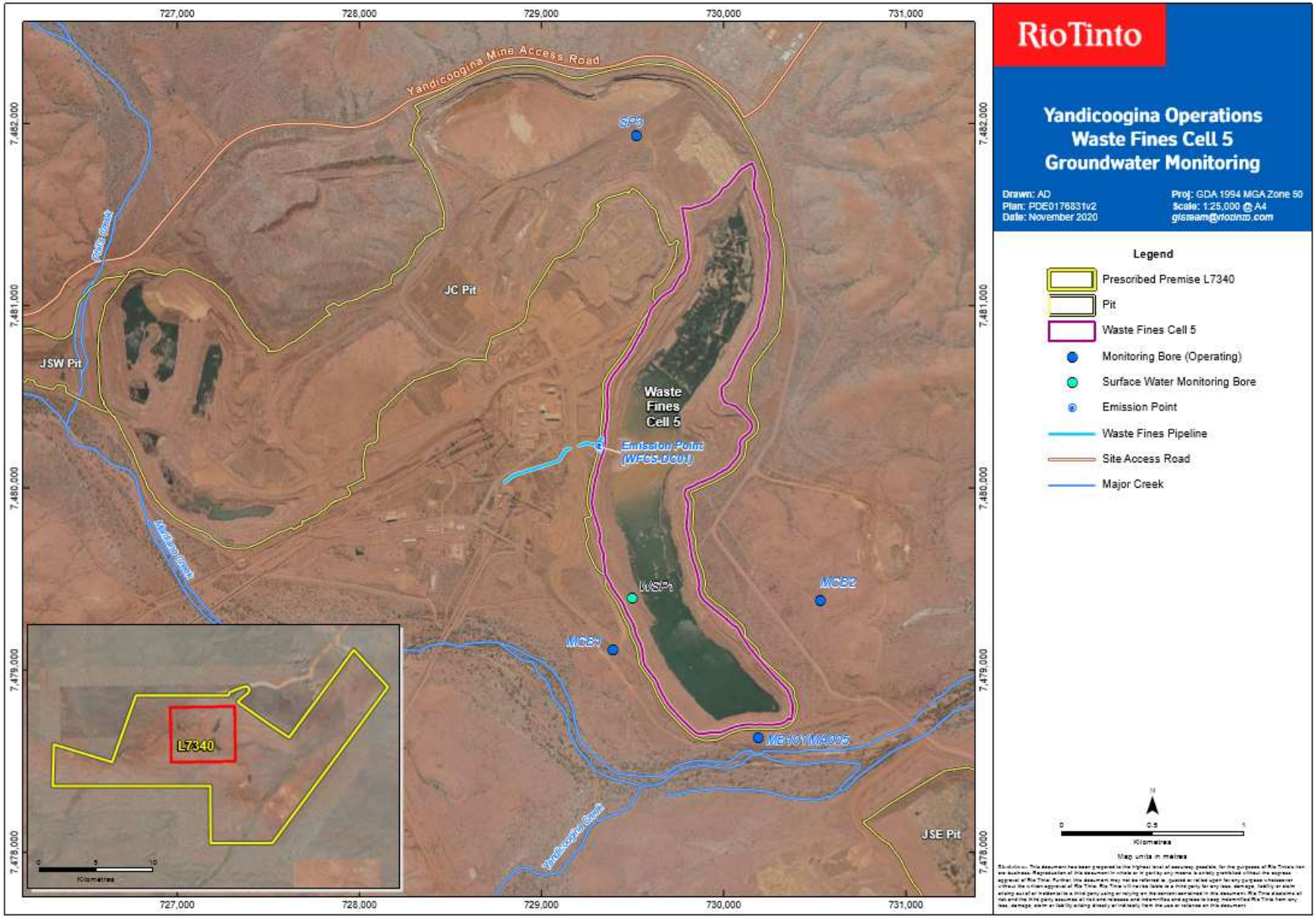

Figure 7: Location of the WFC5 emission point and groundwater and surface water monitoring locations

Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 10.

Table 10: Premises boundary coordinates (Zone 50)

Easting	Northing
741,120	7,487,354
743,875	7,484,080
735,736	7,479,772
734,267	7,470,550
729,240	7,470,629
729,316	7,475,629
716,506	7,475,811
721,347	7,477,838
716,664	7,479,472
723,380	7,483,660
730,884	7,483,545
732,629	7,484,095
731,626	7,482,967
734,061	7,481,073
735,736	7,479,772

Schedule 3: Infrastructure and equipment

Table 11: Infrastructure and Equipment

	Infrastructure and equipment	Infrastructure location
Category 5: Processing or beneficiation of metallic ore		
1	Dry processing plants (JC, JSW) including fixed crushers and screens	As shown in Schedule 1, Figure 2: PC1, PC4
2	Wet processing plants (JC, JSE)	As shown in Schedule 1, Figure 2: PC2, PC3
3	Stockyard, ore stackers and reclaimers, stockpiles, and train loading facilities	As shown in Schedule 1, Figure 2: Stockyards
4	Conveyors, transfer stations	Not shown
5	WFC3 (with total capacity for 4, 500,000m^3 of waste fines)	As shown in Schedule 1, Figure 2: WFC3,
6	WFC3A (with total capacity for 20,300,000m^3 of waste fines)	As shown in Schedule 1, Figure 2: WFC3A
7	WFC5 (with total capacity for 20,000,000 m^3 of waste fines)	As shown in Schedule 1, Figure 2: WFC5
8	Water storage/process water ponds	Not shown
9	Waste fines pipelines	Not shown
10	Decant return pipelines	Not shown
11	WFC5 groundwater monitoring bores: MCB1 MCB2 MB10YMA005 SP3	As shown in Schedule 1, Figure 7
Category 6: Mine dewatering		
12	Dewatering outlets: DO2, DO3, DO3A, DO5, DO5A, DO6, DO8, DO9 and DO9A	As shown in Schedule 1, Figure 5
13	Dewatering pipelines	Not shown
Category 12: Screening etc. of material		
14	Crushing and screening equipment (various)	Within the prescribed premises boundary (Schedule 1, Figure 1)

	Infrastructure and equipment	Infrastructure location
Category 54: Sewage facility		
15	Permanent village WWTP (710 m^3/d) and associated 17 ha sprayfield	As shown in Schedule 1, Figure 4: Village WWTP
16	Mine WWTP (20 m^3/d) and associated 0.31 ha sprayfield	As shown in Schedule 1, Figure 4: Mine WWTP
17	Fixed plant WWTP (40 m^3/d) and associated 1.27 ha sprayfield	As shown in Schedule 1, Figure 4: Fixed WWTP
18	EPCM WWTP (22 m^3/d) and associated 3.5 ha sprayfield	As shown in Schedule 1, Figure 4: EPCM WWTP
19	Pipelines, wells, transfer points	Not shown
Category 64: Class II putrescible landfill site		
20	Old landfill (JC)	As shown in Schedule 1, Figure 3: Putrescible Landfill
21	Waste Dump Landfill (JSW)	As shown in Schedule 1, Figure 3: Waste Dump Landfill
22	New Putrescible Landfill (JSE)	As shown in Schedule 1, Figure 3: Putrescible landfill
23	Waste Dump Landfill (JC)	As shown in Schedule 1, Figure 3: Waste Dump Landfill
Category 73: Bulk storage of chemicals etc.		
24	Heavy vehicle fuel facilities (HVFF)	As shown in Schedule 1, Figure 2: Heavy Vehicle Fuel Facility
25	Permanent Hydrocarbon Storage Facility	As shown in Schedule 1, Figure 2: Permanent Hydrocarbon Storage Facility
26	Refuelling Stations	As shown in Schedule 1, Figure 2: Refuelling Station