Central Queensland Coal Project

Proposed Draft Environmental Authority Conditions

Central Queensland Coal

CQC SEIS, Version 3

October 2020

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Terms and Abbreviations

AQMP	Air Quality Management Plan
AS/NZS	Australian Standards / New Zealand Standards
Central Queensland Coal	Central Queensland Coal Pty Ltd
DES	Department of Environment Science
EA	Environmental Authority
EP Act	*Environmental Protection Act 1994*
Fairway Coal	Fairway Coal Proprietary Limited
GHG	Greenhouse Gases
ML	Mining Lease
MMC	Model Mining Conditions
Mtpa	Million tonnes per annum
MWMP	Mineral Waste Management Plan
ROM	Run of Mine
TLF	Train Loadout Facility
TSP	Total suspended particulate matter

23 Proposed Draft Environmental Authority Conditions

Central Queensland Coal Pty Ltd (Central Queensland Coal) and Fairway Coal Proprietary Limited (Fairway Coal) (the joint Proponents), propose to develop the Central Queensland Coal Mine Project (the Project). As Central Queensland Coal is the senior proponent, Central Queensland Coal is referred to throughout this document. The Project comprises the Central Queensland Coal mine where coal mining and processing activities will occur along with a train loadout facility (TLF). It is intended that all aspects of the Project will occur as a single resource activity, authorised by mining leases and a site-specific Environmental Authority (EA).

This chapter sets out the substantive obligations which Central Queensland Coal envisages may be contained within the Project's draft EA. The presentation of the following EA conditions is intended to assist with the process of developing appropriate EA conditions for the Project in consultation with the Department of Environment and Science (DES). This chapter does not attempt to replace or replicate the Notice of Decision stage of the EA application process under Chapter 5, Division 3, subdivision 2 of the *Environmental Protection Act 1994* (EP Act).

DES determines an application for a mining project EA in accordance with the requirements of the EP Act with consideration to its Regulatory Strategy and model mining conditions (ESR/2016/1936) respectively.

The Regulatory Strategy provides for DES' operational delivery. This established the onus of environmental management and compliance on mining EA permit holders, with DES focussing largely on compliance monitoring backed up by appropriate enforcement or stopping activities where compliance is not met.

The Model Mining Conditions (MMC) and Model Conditions for Structures provide a basis for proposing environmental protection commitments in EA application documents. The MMCs guideline acknowledges that assessment and conditioning must be based on the specific circumstances for each project. The guideline allows for modification of the MMC to tailor for site-specific conditions and project circumstances.

The proposed conditions presented within this chapter have been derived to address the anticipated impacts of the Project and are developed to be measurable and auditable. For ease of application and review the proposed EA conditions have been structured as per the ESR/2016/1936 and ESR/2016/1934 guidelines.

23.1 Proposed Conditions

23.1.1 Environmental Authority Holders

Permit Holder	Name	Registered Address
Central Queensland Coal Pty Ltd	Nui Harris	Level 17, 240 Queen Street, Brisbane, Qld 4000
Fairway Coal Pty Ltd	Nui Harris	Level 17, 240 Queen Street, Brisbane, Qld 4000

23.1.2 Environmentally Relevant Activity and Location Details

ERA number	Relevant activity	Location and activity summary
ERA 13	Mining Black Coal.	Central Queensland Coal Area – ML 80187 and ML 700022.
ERA 8 (1)(a)	Chemical Storage – more than 500 m3 of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3; or (EP Regulation – Sch 2, Part 2).	Central Queensland Coal Area – ML 80187 and ML 700022.
ERA 31 (2b)	Mineral Processing – processing in a year >1,000,000 tonnes or more of mineral products (EP Regulation – Sch 2, Part 7).	Central Queensland Coal Area – ML 80187 and ML 700022.

23.1.3 Schedule A – General Conditions

Condition number	Condition
General	
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition, or this authority is silent on the matter, the lack of a condition or silence does not authorise environmental harm.
A2	Scope of Activity The Environmental Authority holder is approved for a coal extraction rate of up to 10 million tonnes per annum (Mtpa) Run of Mine (ROM) coal.
A3	In carrying out the mining activity, the holder of this environmental authority must not exceed the maximum disturbance area for each domain, as detailed in **Table 23-1: Authorised disturbance extent** and **Figure 23-1: Project infrastructure layout** in this environmental authority.
A4	The holder of this environmental authority must: a. install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority b. maintain such measures, plant and equipment in proper and efficient condition c. operate such measures, plant and equipment in proper and efficient condition and

Condition number	Condition
	d. Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
Monitoring	
A5	Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five years and made available to the administering authority upon request.
Financial Assurance	
A6	The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.
A7	The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.
Risk Management	
A8	The holder of this environmental authority must develop and implement a risk management system for the mining activity which mirrors the content requirement of the Standard for Risk Management (ISO 31000:2009). .
Notification of emergencies, incidents and exceptions	
A9	The holder of this environmental authority must notify the administering authority by written notification within twenty four hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance with the conditions of this environmental authority.
A10	Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: a. results and interpretation of any samples taken and analysed b. outcomes of actions taken at the time to prevent or minimise unlawful environmental harm and c. proposed actions to prevent a recurrence of the emergency or incident.
Complaints	
A11	The holder of this environmental authority must record all environmental complaints received about the mining activities including: a. name, address and contact number for of the complainant b. time and date of complaint c. reasons for the complaint d. investigations undertaken e. conclusions formed f. actions taken to resolve the complaint g. any abatement measures implemented and h. person responsible for resolving the complaint.
A12	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures,

Condition number	Condition
	where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
Third Party Reporting	
A13	The holder of this environmental authority must: a. within one year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority b. obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above and c. provide each report to the administering authority within 90 days of its completion.
A14	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: a. comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in conditions within Schedule J, the time specified in that condition and b. until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Table 23-1: Authorised disturbance extent

Mine Domain	Maximum Disturbance area (ha)
Mining and Infrastructure Area	1287.2
Haul Road to TLF and Environmental Dams, Dam 4 and TLF	55.1
Rail loop and spur line	17.9

23.1.4 Schedule B – Air

Condition number	Condition
B1	An Air Quality Management Plan (AQMP) must be developed by a suitably qualified and experienced person and submitted to the administering authority for approval at least three months prior to the commencement of mining activities. Once approved by the administering authority, the AQMP must be implemented.
B2	The AQMP required by condition B1 must, at a minimum: a. Provide for the effective management of actual and potential environmental impacts to air resulting from the mining activity. b. Be developed by an appropriately qualified and experienced person.

Condition number	Condition
	c. Identify all major sources of air emissions (including dust) that may occur as a result of the mining activity. d. Identify all potential sensitive and commercial locations that may be affected by air quality impacts from the mining activity. e. Detail a full GHG management program and reporting. f. Detail the collection of air quality and meteorological data in accordance with the administering authority's Air Quality Sampling Manual. g. Identify the adverse meteorological conditions likely to produce elevated levels of PM10 at a sensitive or commercial place due to mining activities. h. Detail the protocols for regular maintenance of plant and equipment to minimise the potential for fugitive dust emissions. i. Describe the procedures to be undertaken if any non-compliance is detected. j. Detail the period of regular review to determine the effectiveness of the plan. k. Describe the procedures that will be used to manage the dust emissions. Procedures must include the following measures committed to in the EIS, or equivalent measures that achieve the same level of dust and particulate matter deposition: i. dust enclosure of transfer points and sizing stations ii. belt washing and scrapers for returning conveyors iii. eliminate side casting and iv. enclosure of raw coal surge bins.
B3	A Spontaneous Combustion Management Plan must be developed and implemented by the holder of this environmental authority. The Spontaneous Combustion Management Plan must be submitted to the administering authority for approval three (3) months prior to the commencement of mining activities, and must: a. identify potential and actual spontaneous combustion heating areas b. involve inspections of spontaneous combustion heating areas c. include a risk assessment that will guide and prioritise management actions d. include remedial actions where a high risk has been identified and e. describe a program for the review of the effectiveness of the Spontaneous Combustion Management Plan.
B4	The holder of this environmental authority shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place: a. Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard *AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method*. b. A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five

Condition number	Condition
	exceedances recorded each year, when monitored in accordance with the most recent version of either: i. *Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet – Gravimetric method, or* ii. *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 low volume sampler—Gravimetric method*. c. A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres ($PM_{2.5}$) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.9.10 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—$PM_{2.5}$ low volume sampler—Gravimetric method*. d. A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.90.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method*.

23.1.5 Schedule C – Waste Management

Condition number	Condition
General	
C1	A Waste Management Plan must be developed and implemented prior to the commencement of mining activities.
C2	Only inert and green/timber construction and operational waste can be disposed onsite into the mine pit voids on within the mining lease
C3	Unless other permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
C4	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
Mineral Waste Management Plan	
C5	A Mineral Waste Management Plan (MWMP) must be developed by a suitably qualified and experienced person and implemented prior to the commencement of mining activities.
C6	The MWMP required by condition C5 must, at minimum, include the following items: a. a program of progressive sampling and effective characterisation of all mining waste/s to predict, under the proposed placement and disposal strategy, the quality of run-off and seepage generated including salinity, acidity, alkalinity, and dissolved metals, metalloids and non-metallic inorganic substances b. mineral waste field and laboratory testing procedure for validation of the acid-forming potential and potential erodibility characteristics of each phase

Condition number	Condition
	c. classifying waste rock zones (on the basis of acid forming potential, salinity and sodicity), placement and use of waste rock materials and appropriate disposal of PAF waste or waste designated as not suitable for use on final surfaces d. ex-situ spoil dump design criteria, including preferred selective placement of each waste domain, dump heights, dump profiles, conceptual final landform design e. monitoring and management of erosion, groundwater and surface water (including run-off and seepage) at ex-situ waste landforms f. progressive rehabilitation strategies and g. a program of continual review to determine the effectiveness of the MWMP. ** The above plan relates to the management of mine overburden, interburden and coarse rejects.

23.1.6 Schedule D – Noise

Condition number	Condition
D1	The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table 23-2: Noise limits** to be exceeded at a sensitive place or commercial place.
D2	Blasting must not cause the limits for peak particle velocity and air blast overpressure in **Table 23-3: Blasting noise limits** to be exceeded at a sensitive place or commercial place

Table 23-2: Noise limits

Sensitive Receptor						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and Public Holidays**		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{Aeq,\ adj,15\ min}$	37	37	30	37	37	30
$L_{A01,\ adj,15\ min}$	42	42	35	42	42	35
Commercial Place						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and Public Holidays**		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{Aeq,adj,15\ min}$	42	42	35	42	42	35

Table 23-3: Blasting noise limits

Blasting noise limits	Sensitive or commercial blasting noise limits place limits	
	7am - 6pm	6pm - 7am
Airblast over pressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.	No blasting unless blast specific management plan approved by the relevant authority.
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time.	No blasting unless blast specific management plan approved by the relevant authority.

Condition number	Condition
Monitoring and reporting	
D3	Noise monitoring and recording must include the following descriptor characteristics and matters: a. $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins) b. background noise L_{A90} c. the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels d. atmospheric conditions including temperature, relative humidity and wind speed and directions e. effects due to any extraneous factors such as traffic noise f. location, date and time of monitoring and g. if required by administering authority, low frequency noise, Max $L_{pLIN,T}$ and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.
D4	The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with **Table 23-3: Blasting noise limits** for: a. 100% of all blasts undertaken on this site in each month at the nearest sensitive place or commercial place and b. All blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.
D5	The holder of this environmental authority must develop and implement a Noise Management Plan. The Noise Management Plan must at a minimum: a. provide for the effective management of actual and potential environmental noise impacts resulting from the mining activity b. be developed by an appropriately qualified and experienced person c. identify all major sources of noise that may occur as a result of the mining activity d. identify all potential sensitive and commercial locations that may be affected by noise impacts from the mining activity e. detail the collection of noise and meteorological data in accordance with the administering authority's Noise Measurement Manual

Condition number	Condition
	f. describe the procedures to be undertaken if any non-compliance is detected g. detail the period of regular review to determine the effectiveness of the plan and h. describe the procedures that will be used to manage noise emissions.
D6	Notwithstanding condition D1, emission of any low frequency noise must not exceed either D6 a) or D6 b) in the event of a valid complaint about low frequency noise being made to the administering authority: a. 50 dB(Z) inside the sensitive receptor and b. 55 dB(Z) outside the sensitive receptor.

23.1.7 Schedule E - Groundwater

Condition number	Condition
E1	The holder of this environmental authority must not release contaminants to groundwater.
E2	Groundwater monitoring and analysis must be performed by an appropriately qualified person.
E3	The holder of this environmental authority must develop and implement a groundwater monitoring program for at least twelve months prior to the commencement of relevant mining activities, unless otherwise agreed in writing with the administering authority.
E4	The groundwater monitoring program must: a. identify potential sources of contamination to groundwater from the activity b. ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated c. document sampling and monitoring methodology and d. ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives: i. detect any impacts to groundwater levels due to the activity ii. detect any impacts to groundwater quality due to the activity iii. determine trends in groundwater quality iv. include an appropriate quality assurance and quality control program v. include a conceptual groundwater model and vi. include a review process improve the program.
Groundwater Quality	
E5	Groundwater quality must be monitored at the locations and frequencies defined in **Table 23-4: Groundwater monitoring locations and frequency** and shown in **Figure 23-2: Groundwater monitoring bore locations** for quality characteristics identified in **Table 23-5: Groundwater quality triggers**.
E6	Contaminant triggers and limits required by **Table 23-5: Groundwater quality triggers** must be submitted to the administering authority for assessment, three months prior to the commencement of mining.
E7	In the event that groundwater quality measured at any monitoring bore exceeds the corresponding limit in **Table 23-5: Groundwater quality triggers** on any single sampling occasion, the environmental authority holder must resample the underground water within the monitoring bore for the parameter exceeded, within

Condition number	Condition
	ten business days of receipt of the results. Whether the results of the resampling event exceeds for the same parameter or not, a further resample is not required for that sampling occasion.
E8	In the event that groundwater quality exceedance results are confirmed by resampling, as specified in Condition E7, the holder of this environmental authority must: a. notify the administering authority via WaTERS within fourteen days of receiving the resampling result and b. within three months of receiving the result, complete, and submit via WaTERS, an investigation undertaken by a suitably qualified person outlining: i. details of the investigations carried out ii. whether the result is directly associated with mining activities, and, if so iii. whether environmental harm has occurred and iv. any action required to mitigate environmental harm.

Table 23-4: Groundwater monitoring locations and frequency

ID	Eastings	Northings	Surface RL (mAHD)	Screen Depth (mbgl)	Target Aquifer	Monitor	Frequency
WMP02	773497	7491734	25	12 – 18	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP04	772865	7489359	28.33	12 – 18	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	D/Q
WMP04D	772859	7489351	28.33	18.5 – 36.3	Styx Overburden [Kx] / Weathered Regolith / Qpa	Quality Level	Q
WMP05	774488	7491625	17.22	9 – 12	Alluvial (Qa)	Quality Level	D/Q
WMP06	770020	7488120	33.98	12 – 18	Regolith / Styx Underburden [Kx]	Quality Level	D/Q
WMP06D	770039	7488119	34.06	38 - 44	Styx Underburden [Kx]	Quality Level	Q
WMP07	771264	7483151	131	48 – 60	Styx Underburden [Kx]	Level	Q
WMP08	774134	7481232	43.49	10 – 16	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP08D	774134	7481232	43.49	24 – 36	Styx Underburden [Kx]	Quality Level	Q
WMP09	773459	7484062	37.63	7.1 – 15	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP10	775878	7486688	29.26	12 – 18	Styx Overburden [Kx]	Quality Level	Q
WMP11	774194	7493610	18.75	18 – 24	Styx Overburden [Kx]	Quality Level	Q
WMP11D	774201	7493623	18.7	30 – 36	Styx Overburden [Kx]	Quality Level	Q

ID	Eastings	Northings	Surface RL (mAHD)	Screen Depth (mbgl)	Target Aquifer	Monitor	Frequency
WMP12	773266	7490731	26.37	11 – 17	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP13	772604	7495931	18.4	12.7 – 19.7	Styx Overburden [Kx] / Weathered Regolith / Qpa	Quality Level	Q
WMP14	770477	7487637	32.89	9 – 18	Regolith / Styx Overburden [Kx]	Level	Q
WMP15	771774	7485564	43.25	9 - 21	Regolith / Styx Underburden [Kx] / Back Creek Group [Pb]	Quality Level	Q
WMP16	767930	7494387	41.91	25.5 – 31.5	Back Creek Group [Pb]	Level	Q
WMP16D	767923	7494380	41.84	35.7 – 41.7	Back Creek Group [Pb]	Quality Level	Q
WMP17	775465	7483308	42.83	9 - 12	Pleistocene Alluvial (Qpa) / Regolith	Level	Q
WMP17D	775470	7483286	42.83	21 - 24	Styx Overburden [Kx]	Quality Level	Q
WMP18	775366	7487144	30.54	9.2 - 12.2	Pleistocene Alluvial (Qpa) / Regolith	Level	Q
WMP18D	775358	7487152	30.62	18.5 - 23.5	Styx Overburden [Kx]	Quality Level	Q
WMP19	768808	7485676	41	13.1 - 16.1	Regolith / Back Creek Group [Pb]	Level	Q
WMP19D	768801	7485692	41	24.9 - 27.9	Back Creek Group [Pb]	Quality Level	Q
WMP20	768251	7490084	42.95	14.5 – 20.5	Regolith / Back Creek Group [Pb]	Level	Q
WMP20D	768246	7490082	42.98	24 – 30	Back Creek Group [Pb]	Quality Level	Q
WMP21	774294	7490072	23.79	6.9 - 9.9	Alluvial (Qa)	Level	Q
WMP21B	774294	7490072	27.99	86 - 92	Styx Underburden [Kx]	Quality Level	Q
WMP21D	774243	7490004	25.99	14 - 20	Styx Overburden [Kx]	Quality Level	Q
WMP22A	772008	7488891	29.67	27 – 30	Styx Overburden [Kx]	Quality Level	Q
WMP22B	772011	7488896	29.74	50 – 56	Styx Overburden [Kx]	Quality Level	Q
WMP22C	772012	7488900	29.76	200 - 206	Back Creek Group [Pb]	Quality Level	Q
WMP23A	773651	7484701	36.38	48.5 - 54.5	Styx Overburden [Kx]	Quality Level	Q
WMP23B	773638	7484709	36.36	187 - 193	Back Creek Group [Pb] / Carmila Beds [Pc]	Quality Level	Q

ID	Eastings	Northings	Surface RL (mAHD)	Screen Depth (mbgl)	Target Aquifer	Monitor	Frequency
WMP24	771965	7489093	19.36	23.4 - 26.4	Styx Overburden [Kx]	Quality Level	Q
WMP25	770812	7486227	44.21	10.1 - 13.1	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP26	773655	7489372	27.56	11.5 - 20.5	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP27	770606	7487750	33.03	14.5 - 20.5	Regolith / Styx Overburden [Kx]	Level	Q
WMP28	772192	7489099	21.91	8.9 - 11.9	Regolith / Styx Overburden [Kx]	Quality Level	Q
WMP28B	772128	7489102	21.91	5 - 7	Alluvial (Qa)	Quality Level	Q
WMP29A	771298	7497385	11.97	6.5 – 12.5	Alluvial (Qa/Qhe)	Quality Level	D/Q
WMP29B	771301	7497385	11.97	16 – 20	Pleistocene Alluvial (Qpa) / Regolith	Quality Level	Q
WMP29C	771318	7497394	11.97	52 – 58	Styx Overburden [Kx]	Quality Level	Q
WMP29D	771317	7497387	11.97	115 – 121	Styx Overburden [Kx]	Quality Level	Q
WMP29E	771312	7497397	11.97	222.5 – 228.5	Back Creek Group [Pb]	Quality Level	Q
WMP30A	772028	7488896	29.79	27 – 30	Regolith / Styx Overburden [Kx]	Level	Q
WMP30B	772028	7488900	29.75	50 – 56	Regolith / Styx Overburden [Kx]	Level	Q
WMP30C	772029	7488905	29.72	200 – 206	Back Creek Group [Pb]	Level	Q
WMP31	778070	7489063	50.49	50; 94; 103.5; 171	Back Creek Group [Pb]	Continuous Level (VWP)	D
WMP31B	778074	7489051	50.24	33 - 42	Back Creek Group [Pb]	Quality Level	Q
WMP32	776384	7485834	32.31	57 - 63	Styx Underburden [Kx]	Quality Level	Q
WMP33	772890	7490344	22.79	6 - 8	Alluvial (Qa)	Quality Level	Q
WMP33B	772890	7490344	22.29	15 - 18	Styx Overburden [Kx]	Quality Level	Q

D = Daily monitoring frequency using automatic logger.
Q = Quarterly monitoring frequency (i.e. dipped and sampled).
D/Q = Daily monitoring frequency using automatic logger and manually dipped and sampled on a quarterly basis.

Table 23-5: Groundwater quality triggers

Sites	pH*	Alk	EC	TDS	Al	As	Fe	Mn	Mo	Se	V	Zn
WMP02	6.5 – 7.0	446	17400	12400	0.01	0.002	<0.05	0.381	0.002	<0.01	<0.01	<0.005
WMP04	7.4 - 8.1	539	21900	14500	0.02	0.004	<0.05	0.0648	0.033	<0.01	<0.01	<0.005
WMP04D	6.8 - 7.1	686	26400	17700	0.01	0.001	<0.05	0.0918	0.002	<0.01	<0.01	0.058
WMP05	7.1 - 7.5	662	2890	1770	0.22	0.0048	0.25	0.323	0.003	<0.01	0.02	0.0232
WMP06	6.6 - 6.9	886	6120	4000	0.01	0.0182	2.61	2.35	0.006	<0.01	0.01	0.011
WMP06D	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
WMP08	6.7 – 7.0	722	27800	19800	<0.042	0.003	0.056	1.3	0.00297	<0.042	<0.042	0.0234
WMP08D	7.3 - 7.5	279	14800	8820	0.026	0.004	0.35	0.306	TBD	<0.01	<0.01	0.0278
WMP09	6.6 - 6.9	800	22200	15300	<0.01	0.002	<0.05	0.595	0.001	<0.01	<0.01	0.0314
WMP10	6.9 - 7.2	1290	19000	11800	0.036	0.002	0.124	0.55	0.0028	<0.01	<0.01	0.0116
WMP11	6.5 - 6.9	506	32100	23800	<0.05	0.0038	3.12	1.91	0.00293	<0.05	<0.05	0.0786
WMP11D	6.6 – 7.0	541	31600	23200	0.01	0.0108	2.82	0.379	0.00302	<0.05	<0.05	0.0794
WMP12	6.9 - 7.3	391	8710	5740	0.064	0.0042	0.058	0.378	0.0056	<0.01	0.01	TBD
WMP13	6.2 - 6.6	524	48700	39600	<0.05	<0.005	0.88	1.84	<0.005	<0.05	<0.05	0.038
WMP15	6.8 - 7.2	491	4720	2610	0.49	0.002	1.21	0.129	0.002	<0.01	<0.01	0.058
WMP16D	7.3 - 7.5	434	8510	5060	0.02	<0.001	0.116	0.145	0.0046	<0.01	<0.01	0.12
WMP17D	6.8 - 7.1	525	40400	28000	TBD	<0.005	TBD	TBD	TBD	TBD	TBD	<0.025
WMP18D	6.8 - 7.3	908	31200	22200	TBD	<0.005	TBD	TBD	TBD	TBD	TBD	0.0448
WMP19D	6.6 - 6.9	531	1900	1260	<0.01	0.007	0.81	0.0702	TBD	<0.01	<0.01	0.045
WMP20D	7.1 - 7.5	784	2010	1270	TBD	0.006	<0.05	0.0734	0.0016	<0.01	<0.01	0.1
WMP21B	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
WMP21D	6.7 – 7.0	889	42000	31800	<0.05	0.0098	0.164	0.497	ID	<0.05	<0.05	TBD
WMP22A	6.8 - 6.9	930	24600	16300	<0.01	0.004	1.6	0.624	0.004	<0.01	<0.01	0.022
WMP22B	7.2 - 7.4	828	35000	23200	<0.05	<0.005	<0.05	0.267	ID	<0.05	<0.05	<0.025

Sites	pH*	Alk	EC	TDS	Al	As	Fe	Mn	Mo	Se	V	Zn
WMP22C	9.9 - 10.1	273	5230	2840	TBD	0.0032	TBD	TBD	TBD	TBD	TBD	0.0138
WMP23A	8.0 - 12.6*	3120	25800	16200	0.188	0.0108	1.21	4.99	0.302	<0.05	<0.05	0.271
WMP23B	12.2 - 12.6	2350	16900	6830	0.86	0.003	<0.05	0.006	0.283	<0.01	<0.01	0.0296
WMP24	7.1 - 7.5	972	23200	14300	0.01	<0.001	0.344	0.0984	<0.001	<0.01	<0.01	0.0108
WMP25	6.1 - 6.7	45.8	801	612	TBD	0.002	TBD	TBD	TBD	TBD	TBD	0.029
WMP26	6.8 – 7.0	910	49700	37500	0.354	<0.005	0.218	0.601	<0.005	<0.05	<0.05	0.0584
WMP28	6.8 - 6.9	555	8350	5620	TBD	0.004	TBD	TBD	TBD	TBD	TBD	0.0222
WMP29A	7.0 - 7.2	446	8720	5610	TBD	0.0056	TBD	TBD	TBD	TBD	TBD	0.0252
WMP29B	6.5 - 6.9	421	22500	15800	TBD	0.029	TBD	TBD	TBD	TBD	TBD	0.0586
WMP29C	11.3 - 11.6*	297	20100	12200	1.92	0.0046	0.05	0.001	0.28	<0.01	0.01	ID
WMP29D	9.7 - 10.7*	103	22700	14700	0.09	0.0124	<0.05	0.05	0.132	<0.01	<0.01	0.166
WMP29E	12.2 - 12.9	3030	16000	5560	2.4	0.0074	<0.05	<0.001	0.272	<0.01	0.026	0.0406
WMP31B	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
WMP32	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
WMP33	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
WMP33B	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Note:

Contaminant triggers based on the 80th percentile of background groundwater data collected between 2017 and 2020. Lower and upper pH range established through 20th and 80th percentile of background data

TBD – To be determined, as insufficient data available. Limits need to be finalised for each bore (or group of bores where relevant) two years from the date of granting of the environmental authority

Condition number	Condition
Groundwater Level	
E9	Groundwater levels must be measured at the monitoring locations specified in **Table 23-4: Groundwater monitoring locations and frequency** and must not exceed the groundwater level trigger change thresholds specified in **Table 23-6: Groundwater level monitoring,** unless otherwise agreed in writing with the administering authority.
E10	In the event that groundwater fluctuations in excess of groundwater level trigger change thresholds specified in **Table 23-6: Groundwater level monitoring** are detected, the holder of this environmental authority must a. notify the administering authority via WaTERS within twenty four hours and b. undertake an investigation within fourteen days of detection to determine the cause of fluctuations.
E11	In the event that groundwater fluctuations are deemed to have been influenced by mining activities the holder of this environmental authority must meet the notification requirement of Condition A10 of this environmental authority.
E12	The exceedance investigation under Condition E10 must be completed and submitted to the administering authority via WaTERS within three months of notifying the administering authority.

Table 23-6: Groundwater level monitoring

Monitoring Points	Preliminary Groundwater Level (Change) Investigation Trigger Threshold		
	Year 3	Interim (75% of maximum)	Maximum
WMP05, WMP08, WMP08D, WMP11, WMP11D, WMP13, WMP16, WMP16D, WMP17D, WMP19, WMP19D, WMP20D, WMP29A, WMP29B, WMP33	2.0	2.0	2.0
WMP06D, WMP29C, WMP29D, WMP29E, WMP31	5.0	5.0	5.0
WMP02, WMP06, WMP07, WMP10, WMP12, WMP14, WMP17, WMP18, WMP18D, WMP20, WMP21, WMP27, WMP28	2.0	Dry	-
WMP04, WMP22A, WMP22B, WMP30A, WMP30B	Dry	Dry	-
WMP21D	2.1	Dry	-
WMP26	5.3	Dry	-
WMP25	2.0	2.0	2.7
WMP09	2.0	2.9	3.8
WMP15	2.0	5.3	7.1
WMP23A	2.0	12.0	16.0
WMP23B	5.0	20.3	27.1
WMP24	4.5	4.5	5.3
WMP04D	13.4	16.2	21.6
WMP22C	12.4	27.6	36.7
WMP30C	12.6	27.9	37.1

Monitoring Points	Preliminary Groundwater Level (Change) Investigation Trigger Threshold		
	Year 3	Interim (75% of maximum)	Maximum
WMP21B	5.0	11.0	14.6
WMP33B	5.0	5.5	7.3
WMP28B	3.3	3.2	4.2

Note:
1. Site specific trigger levels must be confirmed once twelve to twenty four months of data has been collected from the site monitoring network

Condition number	Condition
Bore construction and maintenance and decommissioning	
E13	The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
E14	Where the removal of a bore will result as a direct result of the mining activity, the impact on the monitoring program must be evaluated and a replacement bore constructed prior to its removal, for continuity and to ensure that groundwater monitoring continues to meet the requirements in Condition E4.
Groundwater Dependent Ecosystems	
E15	The proponent must develop and implement a Groundwater Dependent Ecosystem Management and Monitoring Plan (GDEMMP) to detail the management of threats to defined environmental values and to report results and corrective actions for each GDE over the full period of mining activities and for a period of five years post mining rehabilitation.
E16	The GDEMMP must be submitted to the administering authority at least three months prior to the commencement of mining activities.
E17	The GDEMMP must include: a. descriptions of the ecological values of the GDEs b. descriptions of the supporting groundwater resources of the GDEs c. distribution of the GDEs and relationship with the Project area and surrounding region d. descriptions of the baseline monitoring results e. impacts of the Project on ecological and groundwater resources and associated threats to GDEs f. a monitoring program for the GDEs across the pre-impact and impact phases of the Project g. triggers for groundwater and ecological values associated with each GDE and h. details of mitigation and management measures to be implemented to avoid or reduce potential impacts on GDEs, including corrective actions.
E18	A report of the findings of the GDEMMP, including all monitoring results and interpretations, must be prepared annually by a suitable qualified person and made available on request to the administering authority. The report must include at a minimum: a. an assessment of background reference groundwater levels b. the condition of each GDE compared with previous monitoring results

Condition number	Condition
	c. the suitability of current groundwater trigger thresholds d. detail the effectiveness of avoidance, mitigation and management actions in relation to GDEs e. a description of any adaptive management initiatives implemented and f. any offsets requirements.

23.1.8 Schedule F - Water

Condition number	Condition
Contaminant release	
F1	Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
F2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in **Table 23-7: Mine affected water release points, sources and receiving waters** and depicted in **Figure 23-3: Mine affected water release points** attached to this environmental authority.
F3	The release of mine affected water to internal water management infrastructure installed and operated in accordance with a water management plan that complies with condition F29 is permitted.

Table 23-7: Mine affected water release points, sources and receiving waters

Release Point	Easting	Northing	Water source and location	Monitoring point	Receiving waterway
RP1	774303	7489580	Dam 1 Controlled Release Waste Rock Stockpile 2, CHHP2 and associated MIA area, haul road, access road. Sources water from Open Cut 1 and 2, Environmental Dams 1B, 1C, 2D and Dam 4.	Sampling tap on riser pipe outlet	Deep Creek
RP2	771975	7489055	Dam 1 Spillway As above	As close as practical to the spillway in Dam 1	Tooloomba h Creek
RP3	777740	7487943	Dam 4 Rail loadout and product stockpile pad, haul road	Sampling tap on riser pipe outlet	Deep Creek tributary

Condition number	Condition
F4	The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in **Table 23-8: Mine affected water release limits** when measured at the monitoring points specified in **Table 23-7: Mine affected water release points, sources and receiving waters** for each quality characteristic

Condition number	Condition
F5	The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table 23-7: Mine affected water release points, sources and receiving** waters for each quality characteristic and at the frequency specified in **Table 23-8: Mine affected water release limits** and **Table 23-9: Release contaminant trigger investigation levels**.

Table 23-8: Mine affected water release limits

Quality characteristic	Release limits	Monitoring frequency
Electrical conductivity (µS/cm)	Release limits specified in **Table 23-10: Mine affected water release during flow events** for variable flow criteria	Daily during release
Sulfate (SO_4^2) (mg/L)		
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	
Suspended Solids (mg/L)	50 (maximum)	

1 Based on the 80th percentile of combined surface water quality database (Styx River, Deep Creek, Tooloombah Creek, Barrack Creek) consisting of 178 datapoints between 2011 and 2018.

Table 23-9: Release contaminant trigger investigation levels

Parameter	Trigger Level (mg/L)		Monitoring Frequency
	Deep Creek	Tooloombah Creek	
Aluminium (dissolved)	0.24[a]	0.055[b]	Commencement of release and thereafter weekly during release
Arsenic (dissolved)	0.013[b]		
Boron (dissolved)	0.37[b]		
Cadmium (dissolved)	0.0002[b]		
Chromium (dissolved)	0.001[b]		
Cobalt (dissolved)	0.090[c]		
Copper (dissolved)	0.003[b]	0.002[f]	
Iron (dissolved)	0.3[d]		
Lead (dissolved)	0.004[c]		
Manganese (dissolved)	1.9[b]		
Mercury (dissolved)	0.0002[g]		
Molybdenum (dissolved)	0.034[d]		
Nickel (dissolved)	0.011[b]		
Selenium (dissolved)	0.010[f]		
Silver (dissolved)	0.001[f]		
Uranium (dissolved)	0.001[f]		
Vanadium (dissolved)	0.010[f]		
Zinc (dissolved)	0.008[b]		
Ammonia – as N	0.900[b]		
Nitrate – as N	2.4[h]		
Petroleum Hydrocarbons (C6-C9)	0.020[c]		
Petroleum Hydrocarbons (C10-C36)	0.100[c]		
Fluoride (total)	2.0[e]		

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The quality characteristics required to be monitored as per Table F3 - Release contaminant trigger investigation levels, potential contaminants can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from Table F3 - Release contaminant trigger investigation levels, potential contaminants by amendment.
3. Source of trigger level: a - Site specific trigger value; b - ANZG (2018) slightly to moderately disturbed aquatic ecosystem default guideline value; c - DES Model Mining Conditions (ESR/2016/1936); d - low reliability value (ANZG 2018); e - Protection of livestock and short term irrigation guideline; f - For aquatic ecosystem protection, based on LOR for ICPMS; g - For aquatic ecosystem protection, based on LOR for CV FIMS; h - chronic, slightly to moderately disturbed systems grading value from Hickey C.W. (2013) Updating nitrate toxicity effects on freshwater aquatic species, National Institute of Water & Atmospheric Research Ltd, report HAM2013-009, January 2013.

Condition number	Condition
F6	If quality characteristics of the release exceed any of the trigger levels specified in **Table 23-9: Release contaminant trigger investigation levels** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified **in Table 23-9: Release contaminant trigger investigation levels** and: a. where the trigger values are not exceeded then no action is to be taken, or b. where the downstream results exceed the trigger values specified **Table 23-9: Release contaminant trigger investigation levels** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and: i. if the result is less than the background monitoring site data, then no action is to be taken or ii. if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within 90 days of receiving the result, outlining: A. details of the investigations carried out and B. actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F6 b (2) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
F7	If an exceedance in accordance with condition F6 b (2) is identified, the holder of the environmental authority must notify the administering authority, via WaTERS, within 24 hours of receiving the result.
Mine affected water release events	
F8	The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in **Table 23-9: Release contaminant trigger investigation levels**.
F9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only take place during periods of natural flow in accordance with the receiving water flow criteria for discharge specified in **Table 23-10: Mine affected water release during flow events** for the release point(s) specified in **Table 23-7: Mine affected water release points, sources and receiving waters.**

Table 23-10: Mine affected water release during flow events

Deep Creek Flow Condition	Receiving Water Flow Criteria for Discharge (m^3/s)	Maximum Release Rate (m^3/s)	Release limit	
			EC (µs/cm)	Sulfate (SO_4^{2-}) (mg/L)
Low Flow	0.1	0.018	1,000	38
Medium Flow	4	0.142	2,000	80
High Flow	50	1.09	3,000	120
Very High Flow	100	2.02	4,000	160
Flood Flow	250	3.07	8,000	330

Condition number	Condition
F11	The daily quantity of mine affected water released from each release point must be measured and recorded.
F12	Releases to water must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.
Notification of release events	
F13	The environmental authority holder must notify the administering authority, via WaTERS, as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a. release commencement date/time b. details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume) c. release point/s d. release rate e. release salinity f. receiving water/s including the natural flow rate g. expected cessation date and h. expected volume to be discharged.
Notification of release event exceedance	
F15	If the release limits defined in **Table 23-8: Mine affected water release limits** are exceeded, the holder of the environmental authority must notify the administering authority, via WaTERS, within 24 hours of receiving the results.
F16	The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority, via WaTERS, detailing: a. the reason for the release b. the location of the release c. the total volume of the release and which (if any) part of this volume was non-compliant d. the total duration of the release and which (if any) part of this period was non-compliant

Condition number	Condition
	e. all water quality monitoring results (including all laboratory analyses) f. identification of any environmental harm as a result of the non-compliance g. all calculations and h. any other matters pertinent to the water release event.
Receiving environment monitoring and contaminant trigger levels	
F17	The quality of the receiving waters must be monitored at the locations specified in **Table 23-12: Receiving water upstream background sites and downstream monitoring** points for each quality characteristic and at the monitoring frequency stated in **Table 23-11: Receiving waters contaminant trigger levels**.

Table 23-11: Receiving waters contaminant trigger levels

Quality Characteristic	Trigger Level			Monitoring Frequency
	Deep Creek	Tooloombah Creek	Deep / Tooloombah Confluence (St1)	
pH (pH units)	6.5 – 8.3			Daily during the release
Electrical Conductivity (µS/cm)	740	1640	-	
Total Suspended Solids (mg/L)	26	11	15	
Turbidity (ntu)	50			
Sulfate (mg/L)	25	54	-	

Table 23-12: Receiving water upstream background sites and downstream monitoring points

Monitoring points	Receiving waters location description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Upstream background monitoring points			
De3	Deep Creek and Barrack Creek junction, located within mining lease adjacent to mining influences.	-22.705021	149.685977
To2	Tooloombah Creek, located outside the ML boundary, adjacent to mining influences upstream of uncontrolled release discharge point.	-22.682790	149.650164
Downstream monitoring points			
To3	Tooloombah Creek, located outside the ML boundary, downstream of mining influences and uncontrolled release discharge point.	-22.664615	149.659619
St1	Tooloombah Creek, located outside the ML boundary, downstream of the mine discharge point, at the confluence of Deep and Tooloombah Creeks. At the point of the peak tidal limit.	-22.640529	149.662461

Monitoring points	Receiving waters location description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
De4	Deep Creek, located outside the ML immediately downstream of controlled discharge location.	-22.672976	149.670908
De5	Deep Creek; located outside the ML boundary, downstream of controlled discharge location.	-22.664591	149.671887

Condition number	Condition
F18	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table 23-11: Receiving waters contaminant trigger levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: a. where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken or b. where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: i. details of the investigations carried out and ii. actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F18 b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
F19	All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.
Receiving environment monitoring program (REMP)	
F20	The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Tooloombah Creek and Deep Creek and Styx River within 5 km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
F21	A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.
F22	A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

Condition number	Condition
Water reuse	
F23	Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).
Annual water monitoring reporting	
F24	The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority, via WaTERS, in the specified format: a. the date on which the sample was taken b. the time at which the sample was taken c. the monitoring point at which the sample was taken d. the measured or estimated daily quantity of mine affected water released from all release points e. the release flow rate at the time of sampling for each release point f. the results of all monitoring and details of any exceedances of the conditions of this environmental authority and g. water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
Temporary interference with waterways	
F25	Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*.
Water management plan	
F26	A Water Management Plan must be developed by an appropriately qualified person and implemented. The Water Management Plan must include: a. a study of the source of contaminants b. a water balance model for the site c. a water management system for the site d. measures to manage and prevent saline drainage e. measures to manage and prevent acid rock drainage f. contingency procedures for emergencies g. management measures to maintain, where possible, the natural pattern of environmental flows, permanent and ephemeral pools, and their associated flora and fauna and h. a program for monitoring and review of the effectiveness of the water management plan. The Water Management Plan must be reviewed annually to assess the adequacy of the plan, ensure actual and potential environmental impacts are managed, and identify any necessary amendments to the plan.
Stormwater and water sediment controls	
F27	An Erosion and Sediment Control Plan must be developed by a suitably qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

Condition number	Condition
F28	Stormwater, other than mine affected water, is permitted to be released to waters from: a. erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F27 and b. water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F26, for the purpose of ensuring water does not become mine affected water.
Culvert Design	
F29	Culverts on Major Impact waterways will meet all of the relevant conditions of State Code 18: Constructing or raising waterway barrier works in fish habitats.
F30	The requirement in State Code 18 mentioned in condition F29 to roughen the culvert base is required unless the culvert base is buried. In that case, the base to be a minimum of 300mm below bed level and allow natural material to deposit on the culvert base.

23.1.9 Schedule H – Land and Rehabilitation

Note: under the Environmental Protection Act 1994 (Qld) new Environmental Authorities for mining activities are required to prepare a progressive rehabilitation and closure plan (PRCP) and an accompanying schedule to the PRCP (PRCP Schedule), which contains binding rehabilitation milestones. The PRCP will be finalised and submitted following approval of the SEIS v3 and prior to mining commencing, and contain relevant conditions relating to rehabilitation. The below conditions are included for completeness but may be replaced by those of the PRCP when issued. The rehabilitation requirements, post-mining land uses and completion criteria (provided in Chapter 11 – Rehabilitation and Decommissioning) are therefore not provided herein, but proposed to remain part of the PRCP.

Condition number	Condition
Progressive Rehabilitation Plan	
H1	The holder of this environmental authority must develop a Progressive Rehabilitation Plan and submit to the administering authority for approval prior to the commencement of mining activities.
H2	The Progressive Rehabilitation Plan required by condition H1 must address all relevant requirements within this environmental authority, and at a minimum include the following items: a. how all land disturbed by the mining activities will be rehabilitated to ensure that it is: i. safe for humans and wildlife ii. non-polluting iii. stable and iv. able to sustain an agreed post mining land use b. final completion criteria for all disturbance domains c. final landform design for all areas impacted by mining activities d. detail the progressive rehabilitation strategy to be implemented, which aligns with **Figure 23-4** to **Figure 23-8** in this environmental authority e. identified analogue sites appropriate to all disturbance domains f. a process to adequately strip, stockpile, and maintain any top and subsoils disturbed by the mining activities, to ensure its volume, and physical and chemical characteristics are maintained in a way that will not constrain the achievement of the defined rehabilitation completion criteria

Condition number	Condition
	g. a compliance table that directs any reader of the plan to the relevant section/s which address all the relevant rehabilitation requirements of this environmental authority h. a rehabilitation monitoring program and i. management actions to be implemented for when rehabilitation objectives are not progressing towards the completion criteria.
H3	All land disturbed by the activities carried out under this environmental authority must be progressively rehabilitated in accordance with **Figure 23-4** to **Figure 23-8**.
H4	A Post Closure Management Plan for the site must be developed and submitted to the administering authority at least 18 months prior to the finalisation of coal mining on site and implemented for a nominal period of: a. at least 30 years following the finalisation of coal mining on site or b. a shorter period if the site is proven to be geotechnically and geochemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.
H5	Rehabilitation activities must at a minimum, achieve the completion criteria detailed within the Progressive Rehabilitation Plan required by conditions H1 and H2
Contaminated land	
H6	Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
Impacts to Prescribed Environmental Matters	
H7	Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the *Environmental Offsets Act 2014* unless the impact(s) is specified in **Table 23-13: Significant residual impacts to prescribed environmental** matters

Table 23-13: Significant residual impacts to prescribed environmental matters

Prescribed Environmental Matter	Location of impact	Maximum extent of impact
Of concern regional ecosystem – RE 11.3.4	**Figure 23-9: Impacts on Of Concern RE**	40.7 ha
Of concern regional ecosystem – RE 11.4.2	**Figure 23-9: Impacts on Of Concern RE**	110.8 ha
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map – RE 11.3.4	**Figure 23-10: Impacts on regional ecosystems within the defined distance from the defining banks of a relevant watercourse**	4.3 ha
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map – RE 11.3.25	**Figure 23-10: Impacts on regional ecosystems within the defined distance from the defining banks of a relevant watercourse**	78.8 ha
Fish passage	**Figure 23-11: Impacts on fish passage**	13.5 ha
Essential habitat (not in an urban area) for vulnerable wildlife – greater glider	**Figure 23-12: Impacts on essential habitat**	15.0 ha^

Prescribed Environmental Matter	Location of impact	Maximum extent of impact
Essential habitat (not in an urban area) for vulnerable wildlife –koala	**Figure 23-12: Impacts on essential habitat**	110.4 ha^
Essential habitat (not in an urban area) for vulnerable wildlife – squatter pigeon	**Figure 23-12: Impacts on essential habitat**	28.9 ha^
Habitat for an animal that is vulnerable wildlife – greater glider	**Figure 23-13: Impacts on habitat for an animal that is vulnerable wildlife – greater glider**	281.0 ha^
Habitat for an animal that is vulnerable wildlife –koala	**Figure 23-14: Impacts on habitat for an animal that is vulnerable wildlife – koala**	324.6 ha^
Habitat for an animal that is vulnerable wildlife – squatter pigeon	**Figure 23-15: Impacts on habitat for an animal that is vulnerable wildlife – squatter pigeon**	306.6 ha^
Habitat for an animal that is vulnerable wildlife – ornamental snake	**Figure 23-16: Impacts on habitat for an animal that is vulnerable wildlife – ornamental snake**	18.8 ha^

^ As outlined in the Biodiversity Offset Strategy, offsets for these impacts will be delivered in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy

Condition number	Condition
H8	Records demonstrating that each impact to a prescribed environmental matter not listed in **Table 23-13: Significant residual impacts to prescribed environmental matters** did not, or is not likely to, result in a significant residual impact to that matter must be: a. completed by an appropriately qualified person and b. kept for the life of the environmental authority.
H9	An environmental offset made in accordance with the Environmental Offsets Act 2014 and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in **Table 23-13: Significant residual impacts to prescribed environmental matters**, unless a lesser extent of the impact has been approved in accordance with condition H12
H10	A Project Offsets Delivery Plan will be developed in accordance with the Queensland Offsets Policy, cover the relevant predicted significant residual impacts (identified in **Table 23-13: Significant residual impacts to prescribed environmental matters**) associated with the Project, and will be submitted to DES for approval prior to the commencement of any Project activities (construction or operation).
Non-staged Impacts	
H11	Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition H7, a report completed by an appropriately qualified person that contains an analysis of the estimated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority.
H12	The report required by condition H11 must be approved by the administering authority before the notice of election, if applicable, is given to the administering authority.
H13	The notice of election for the environmental offset required by condition H12, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

Condition number	Condition
Biodiversity Management Strategies	
H14	Biodiversity management strategies must be developed as part of a Land Use Management Plan by an appropriately qualified and experienced person(s) and submitted to the administering authority for approval prior to the commencement of the project to monitor, identify and describe any adverse impacts to flora and fauna due to the authorised mining activity. The approved strategies must be implemented.
H15	The LUMP, as required by condition H14, must address all relevant requirements within this environmental authority and commitments made by the applicant in the associated EIS for the project, and at a minimum include the following items: a. vegetation monitoring program to monitor the health of vegetation potentially impacted from the mining activity b. fauna management including Significant Species Management Plans c. biosecurity management strategies and d. monitoring programs for flora is to occur bi-annually, including both dry and wet seasons. All monitoring must be carried out by suitably trained ecological professionals.
Exploration	
H16	Exploration activities must be undertaken in accordance with the most recent version of the document *Eligibility criteria and standard conditions for exploration and mineral development projects*.

23.1.10 Schedule J – Regulated Dams and Structures

This Schedule has been based on the 'DES Guideline: Structures which are dams or Levees Constructed as part of Environmentally Relevant Activities (ESR/2016/1934)'.

Condition number	Condition
Assessment of consequence category	
J1	The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) at the following times: a. prior to the design and construction of the structure, if it is not an existing structure or b. if it is an existing structure, prior to the adoption of this schedule or c. prior to any change in its purpose or the nature of its stored contents.
J2	A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.
J3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
Design and construction of a regulated structure	
J4	All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
J5	Construction of a regulated structure is prohibited unless: a. the holder has submitted a consequence category assessment report and certification to the administering authority and

Condition number	Condition
	b. certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.
J6	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) and must be recorded in the Register of Regulated Structures.
J7	Regulated structures must: a. be designed and constructed in accordance with and conform to the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) b. be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i. floodwaters from entering the regulated dam from any watercourse or drainage line and ii. wall failure due to erosion by floodwaters arising from any watercourse or drainage line and c. have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
J8	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: a. the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure and b. construction of the regulated structure is in accordance with the design plan.
Notification of affected persons	
J9	All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure a. for existing structures that are regulated structures, within 10 business days of this condition taking effect b. prior to the operation of the new regulated structure and c. if the emergency action plan is amended, within 5 business days of it being amended.
Operation of a regulated structure	
J10	Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority: a. one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition J6 b. set of 'as constructed' drawings and specifications c. certification of those 'as constructed drawings and specifications' in accordance with condition J9 d. where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan e. the requirements of this authority relating to the construction of the regulated structure have been met

Condition number	Condition
	f. the holder has entered the details required under this authority, into a Register of Regulated Dams and g. there is a current operational plan for the regulated structure.
Mandatory reporting level	
J11	Conditions J12 to J13 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
J12	The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
J13	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
J14	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
J15	The holder must record any changes to the MRL in the Register of Regulated Structures.
Design storage allowance	
J16	The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.
J17	By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
J18	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
J19	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
Annual inspection report	
J20	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
J21	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.
J22	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
J23	The holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority: a. the recommendations section of the annual inspection report and b. if applicable, any actions being taken in response to those recommendations and c. if, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report

Condition number	Condition
	from the holder, provide this to the administering authority within 10 business days of receipt of the request.
Register of regulated structures	
J24	A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
J25	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.
J26	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition J10 has been achieved.
J27	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
J28	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
J29	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

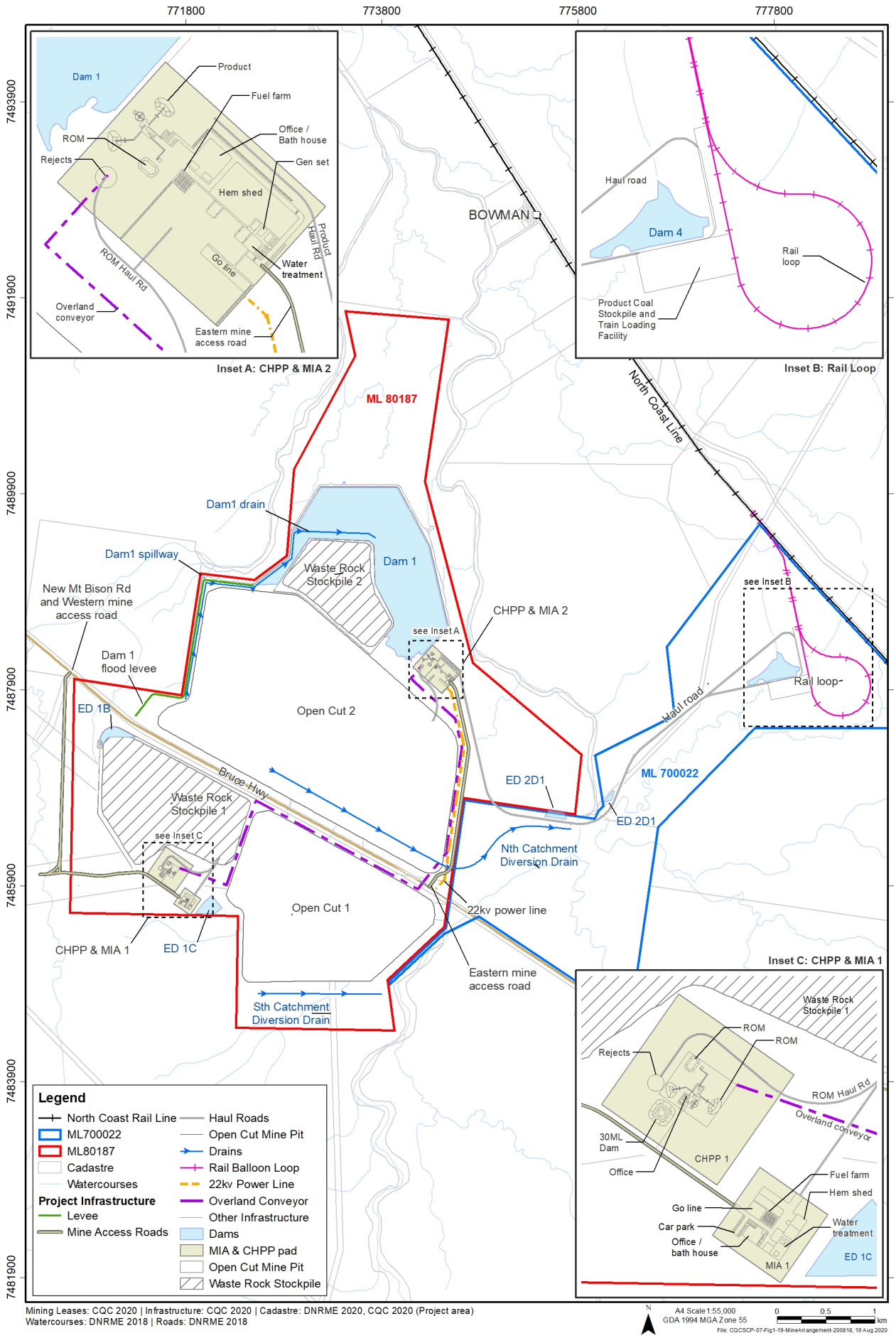

Figure 23-1: Project infrastructure layout

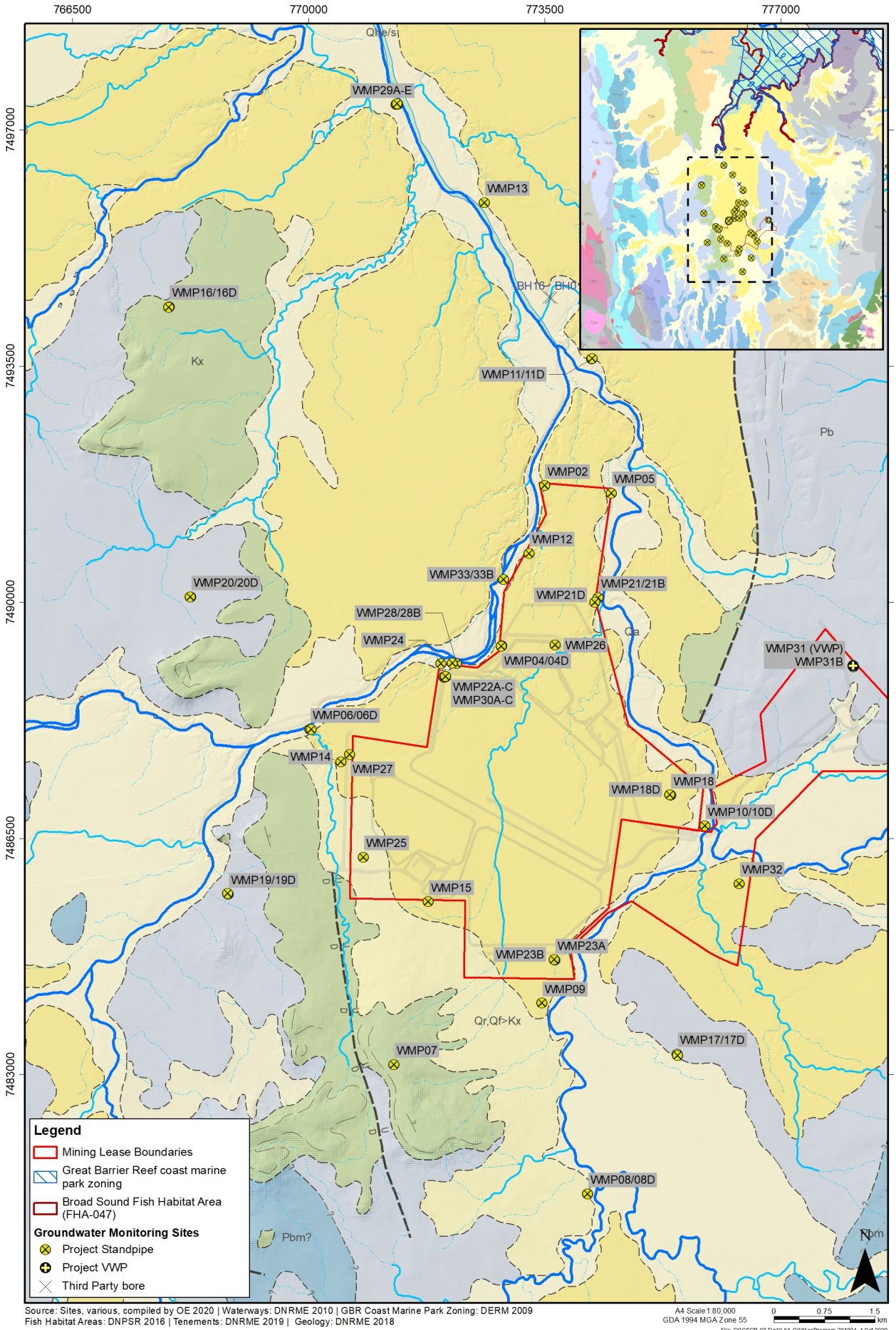

Figure 23-2: Groundwater monitoring bore locations

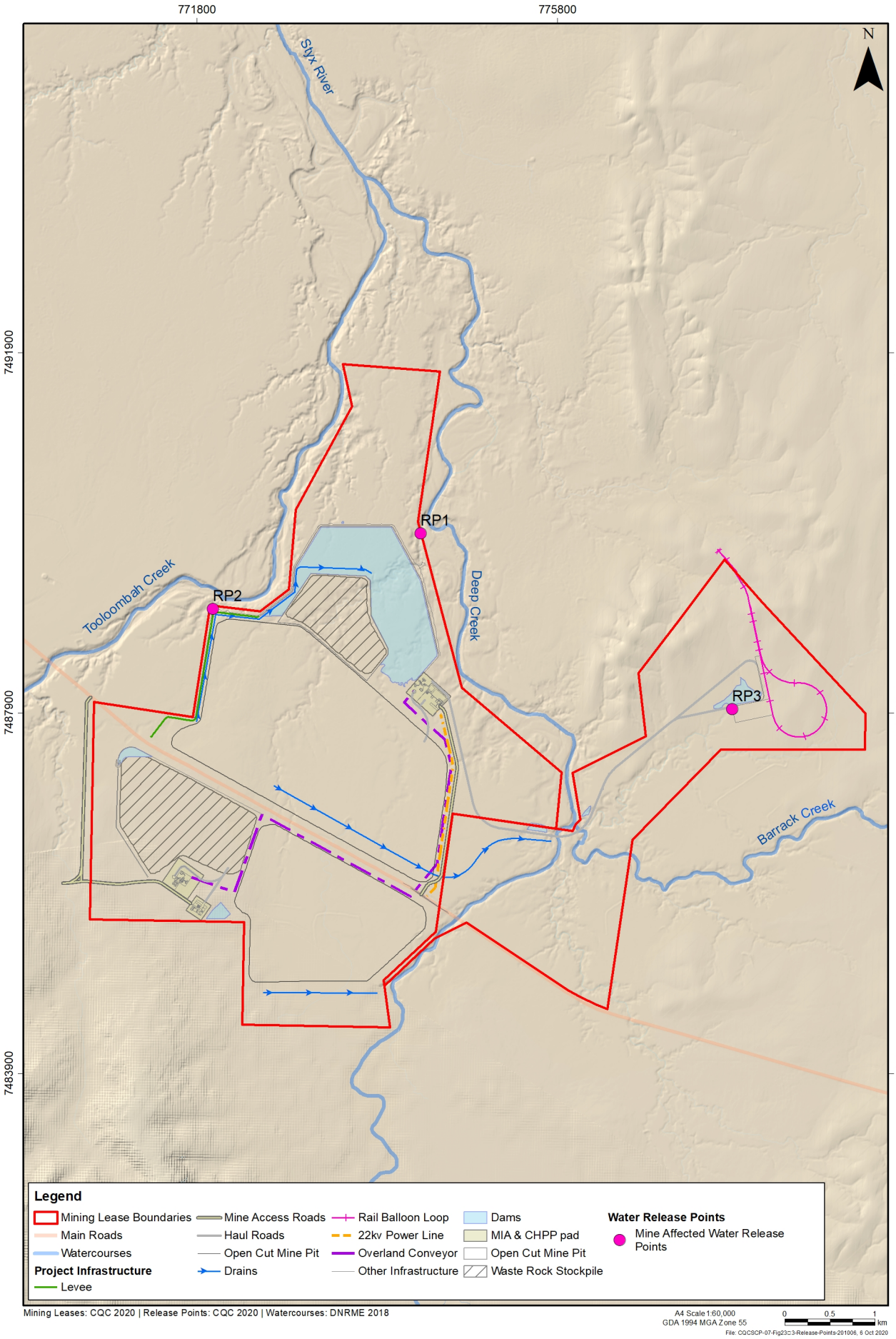

Figure 23-3: Mine affected water release points

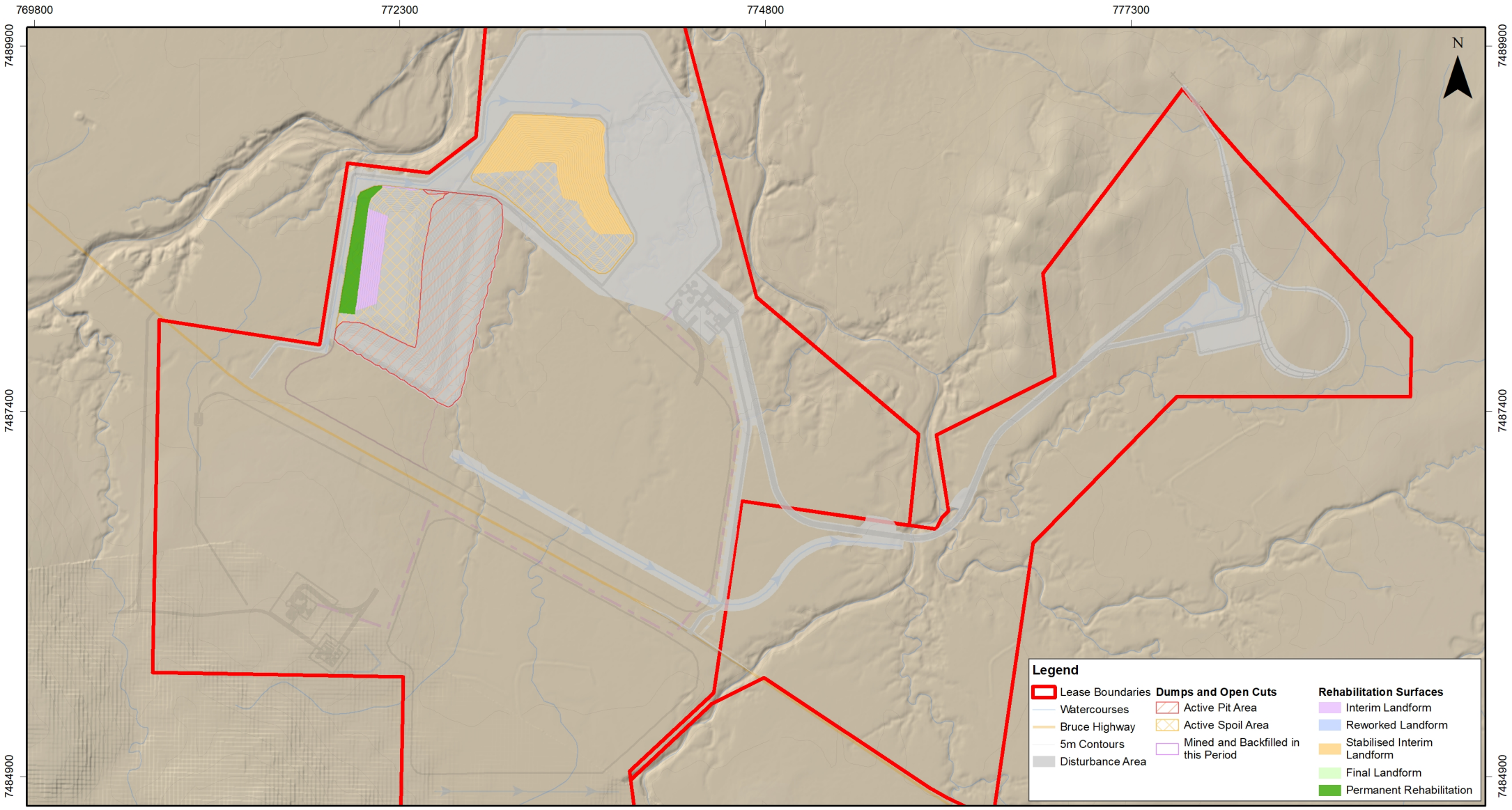

Figure 23-4: Progressive rehabilitation plan year 4

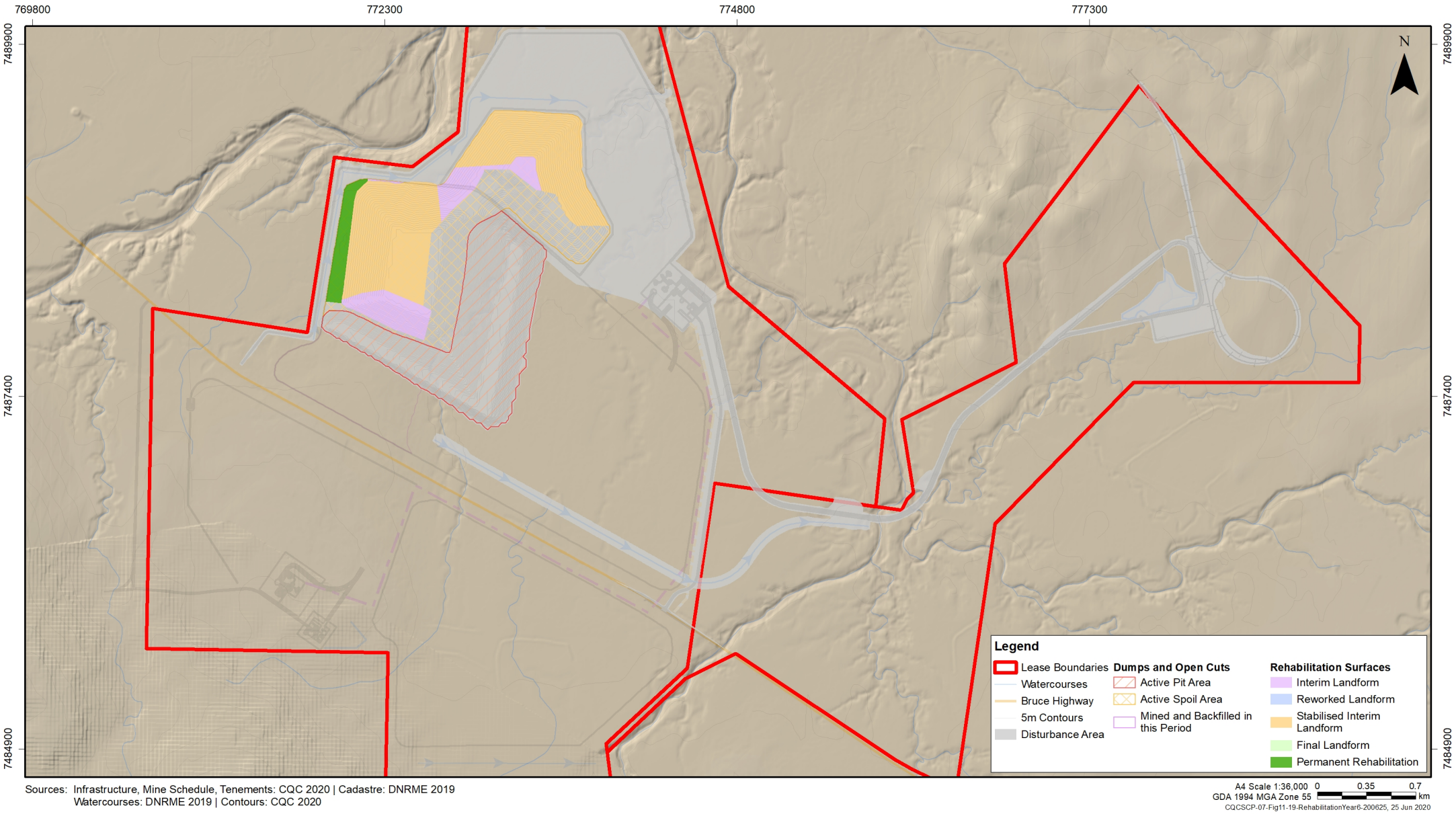

Figure 23-5: Progressive rehabilitation plan year 6

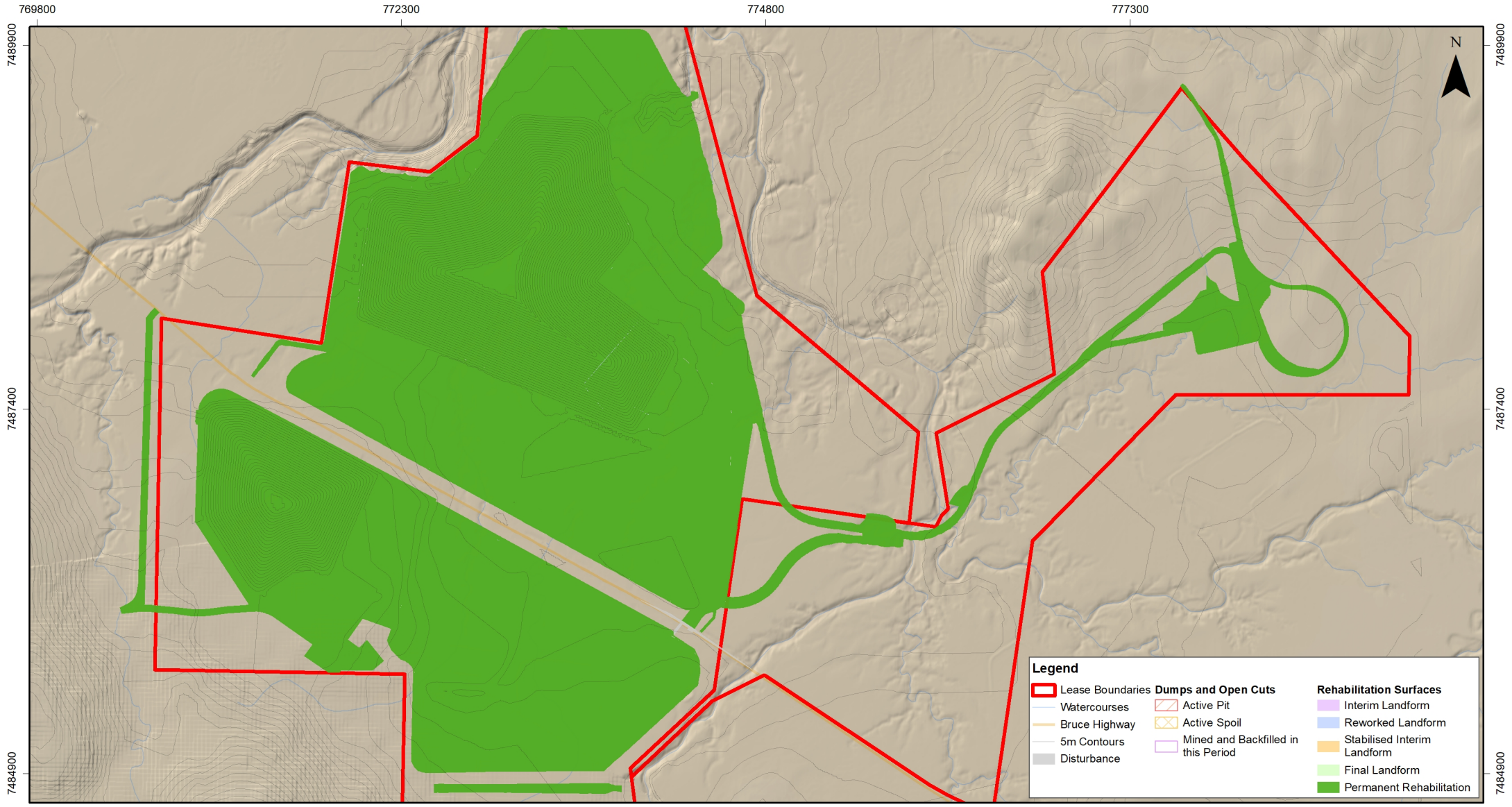

Figure 23-6: Progressive rehabilitation plan year 12

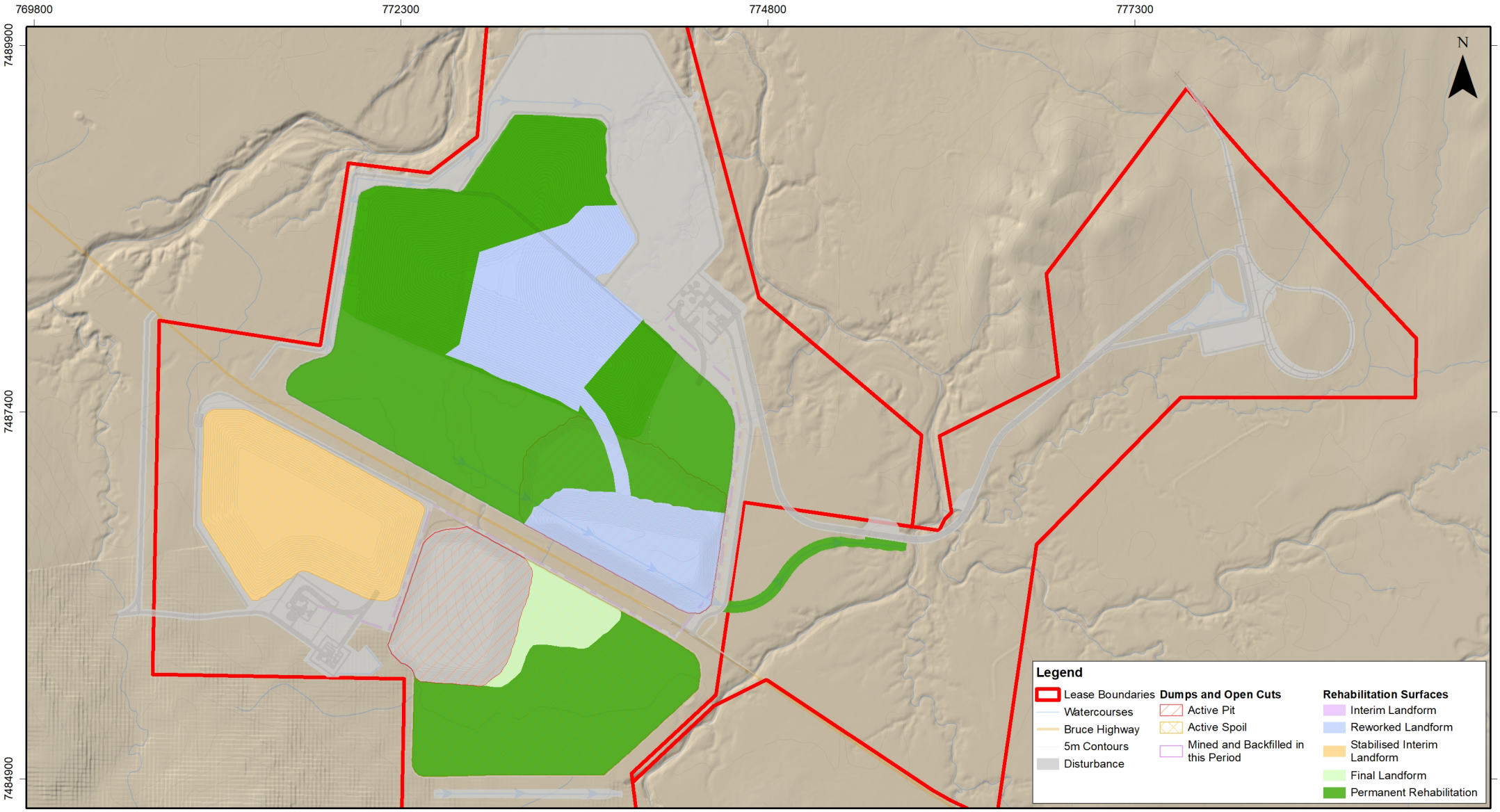

Figure 23-7: Progressive rehabilitation plan year 18

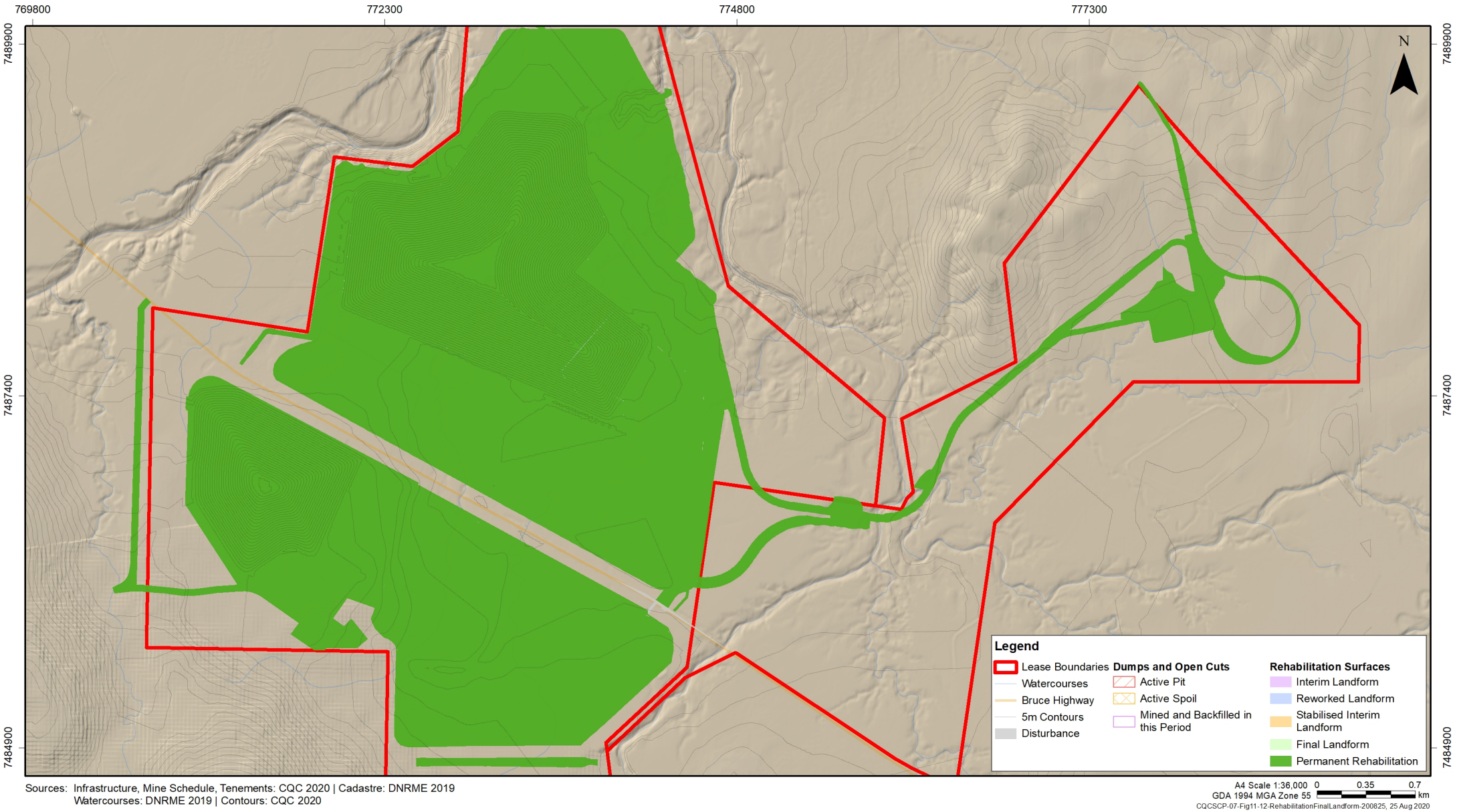

Figure 23-8: Progressive rehabilitation plan final landform

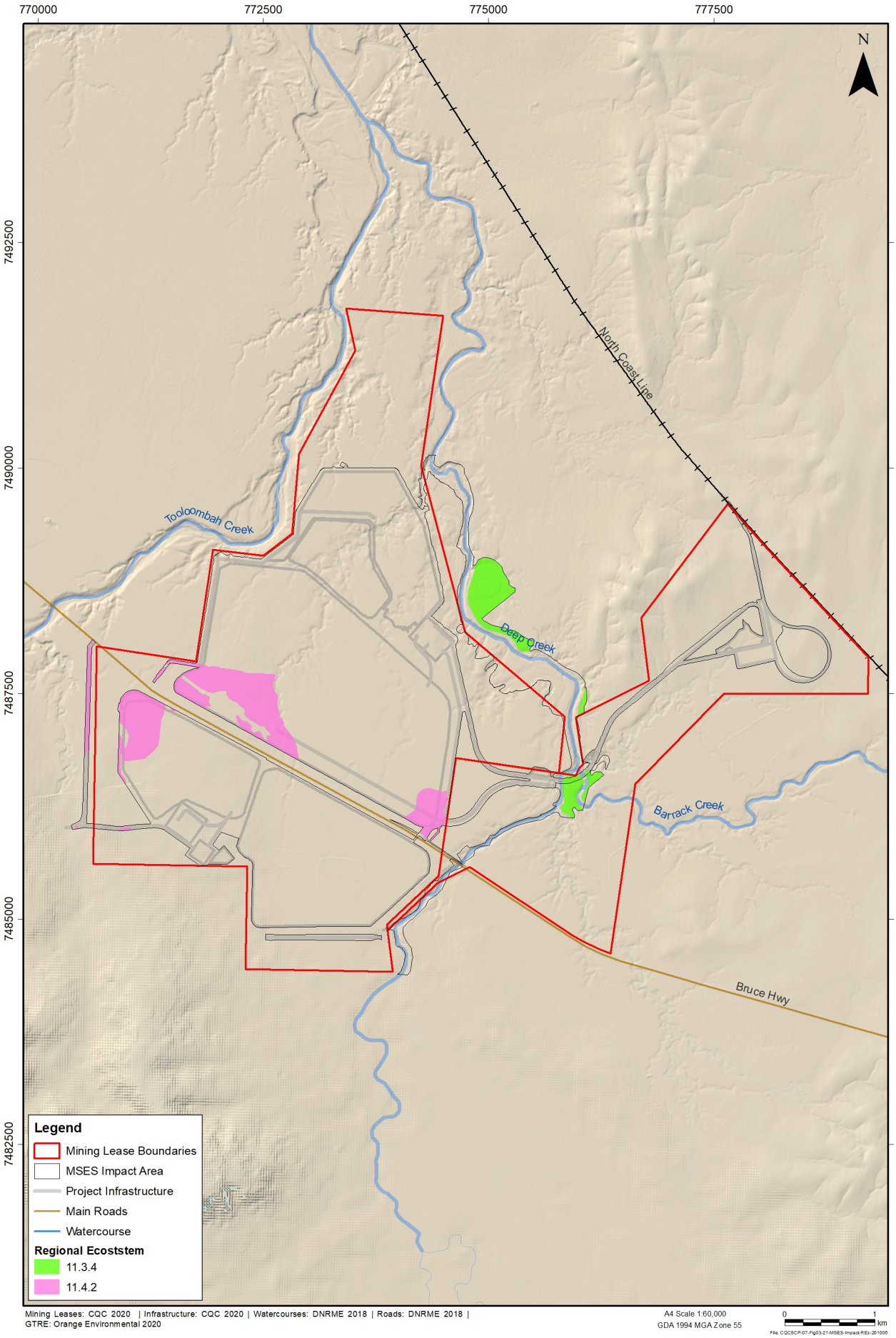

Figure 23-9: Impacts on Of Concern RE

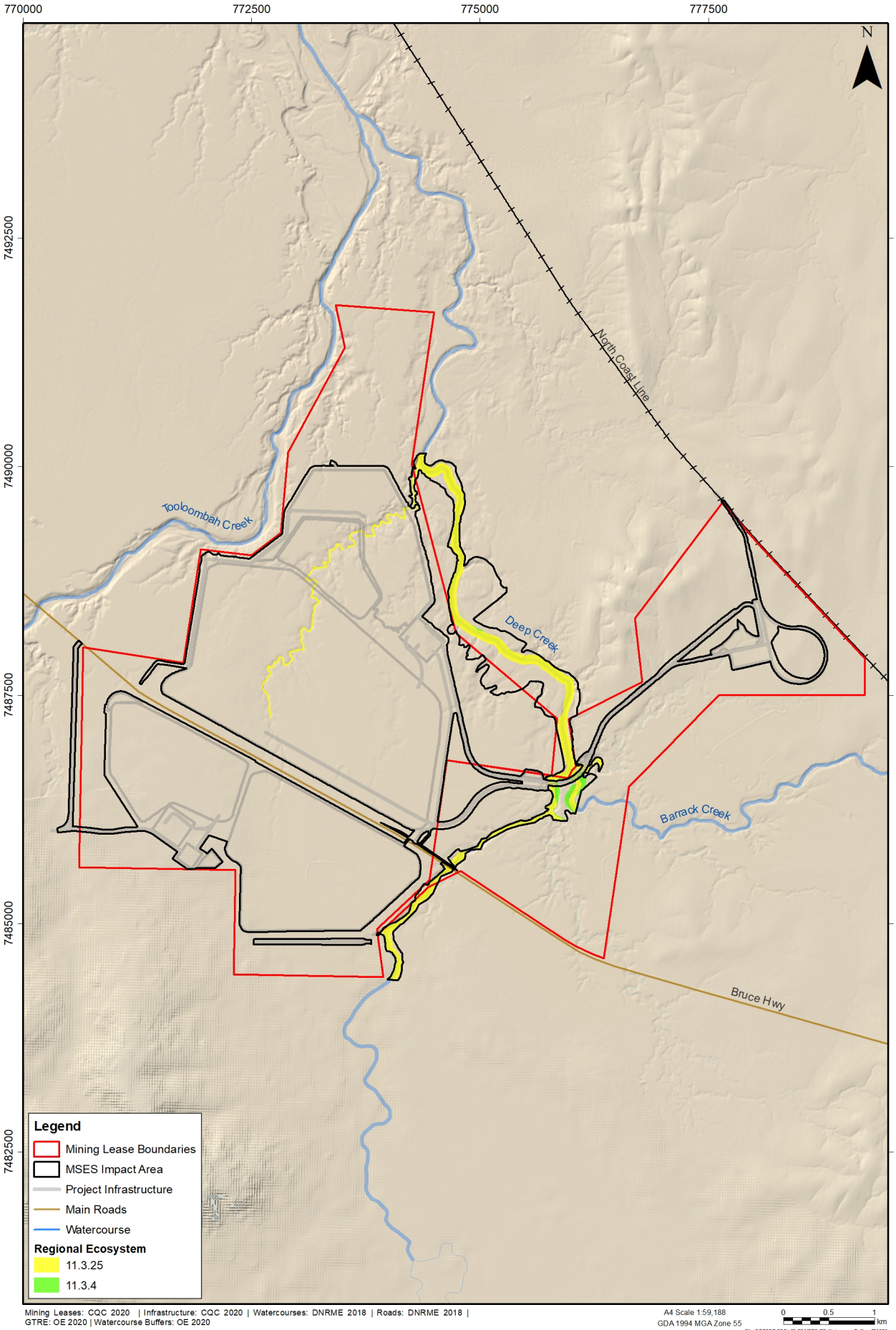

Figure 23-10: Impacts on regional ecosystems within the defined distance from the defining banks of a relevant watercourse

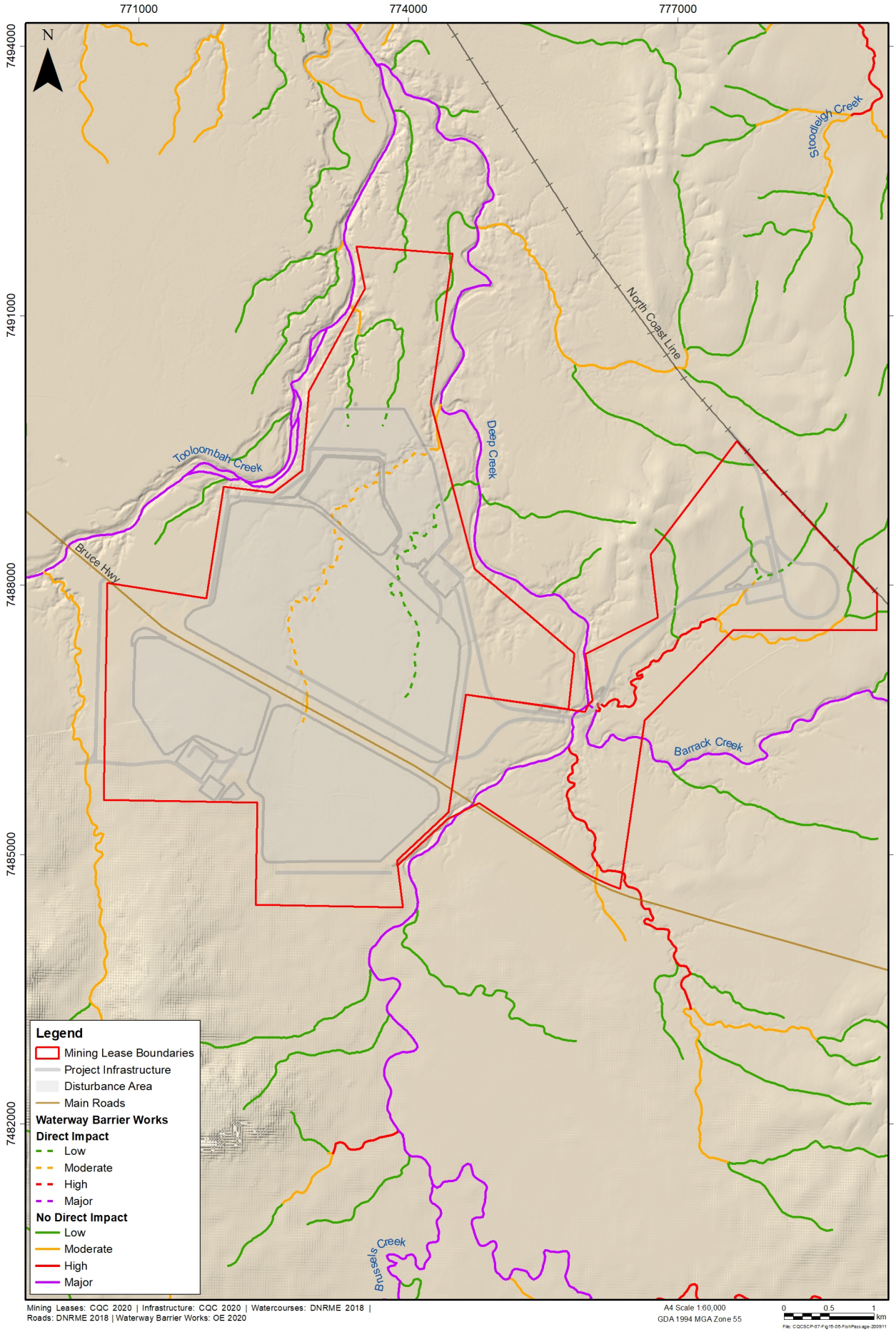

Figure 23-11: Impacts on fish passage

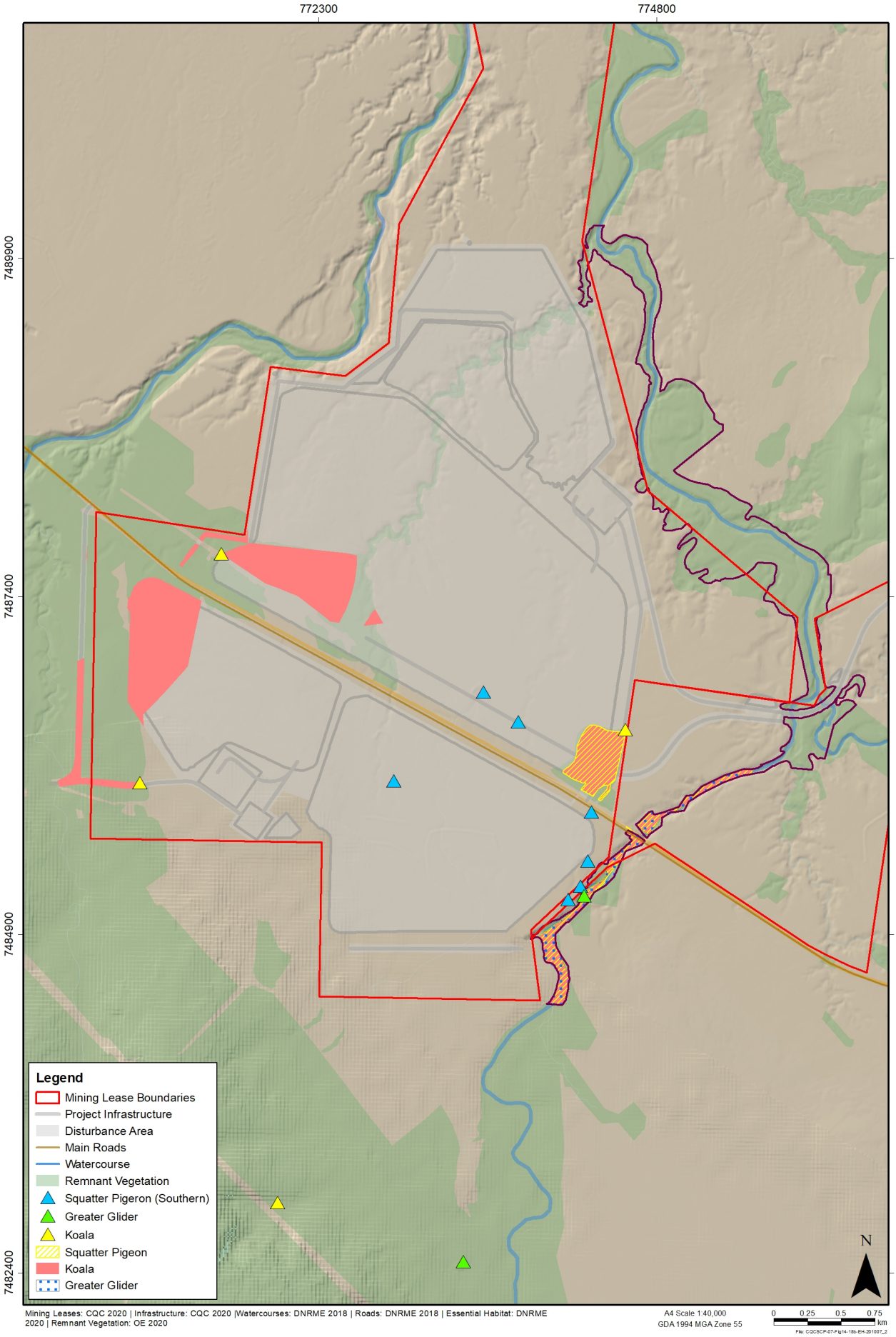

Figure 23-12: Impacts on essential habitat

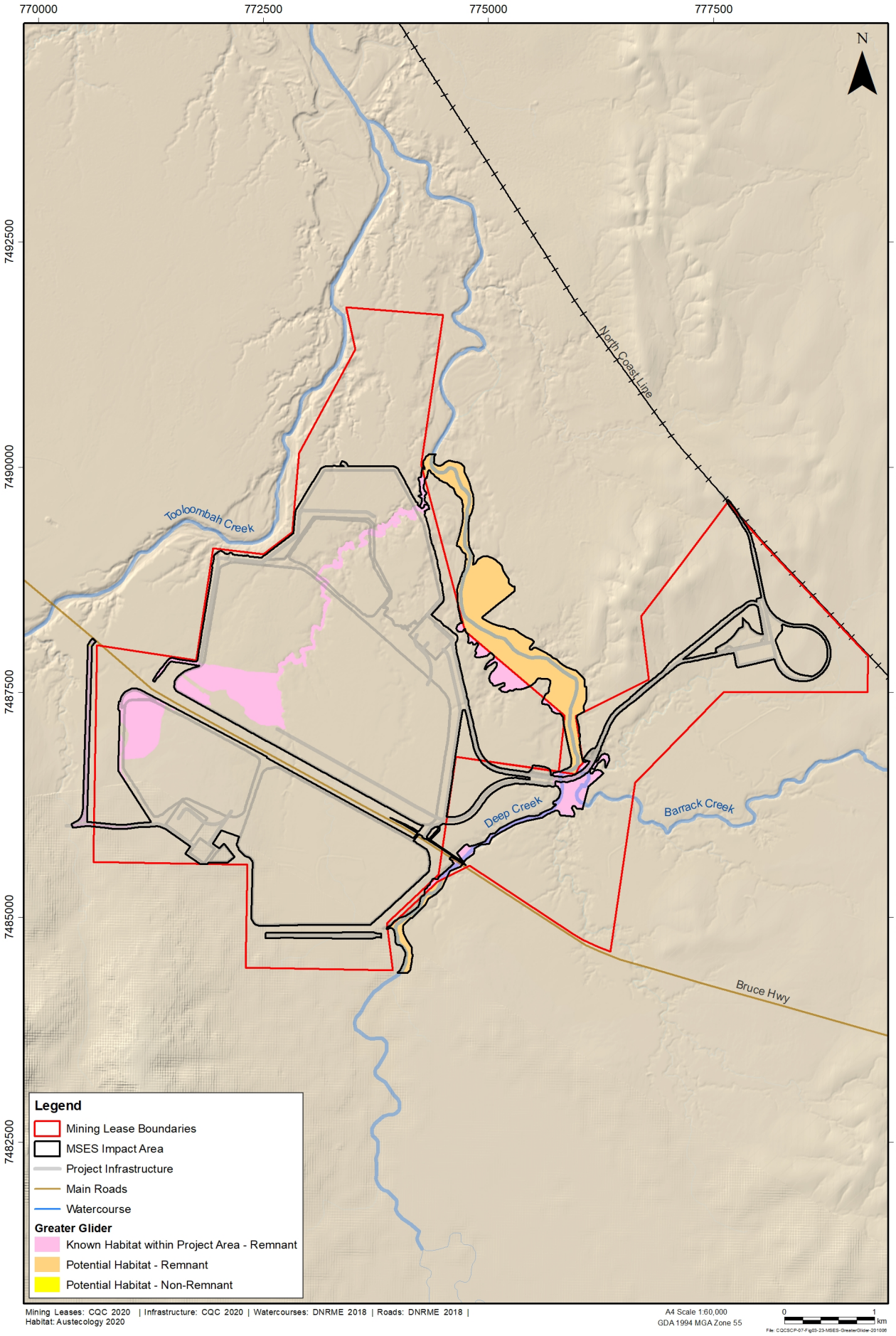

Figure 23-13: Impacts on habitat for an animal that is vulnerable wildlife – greater glider

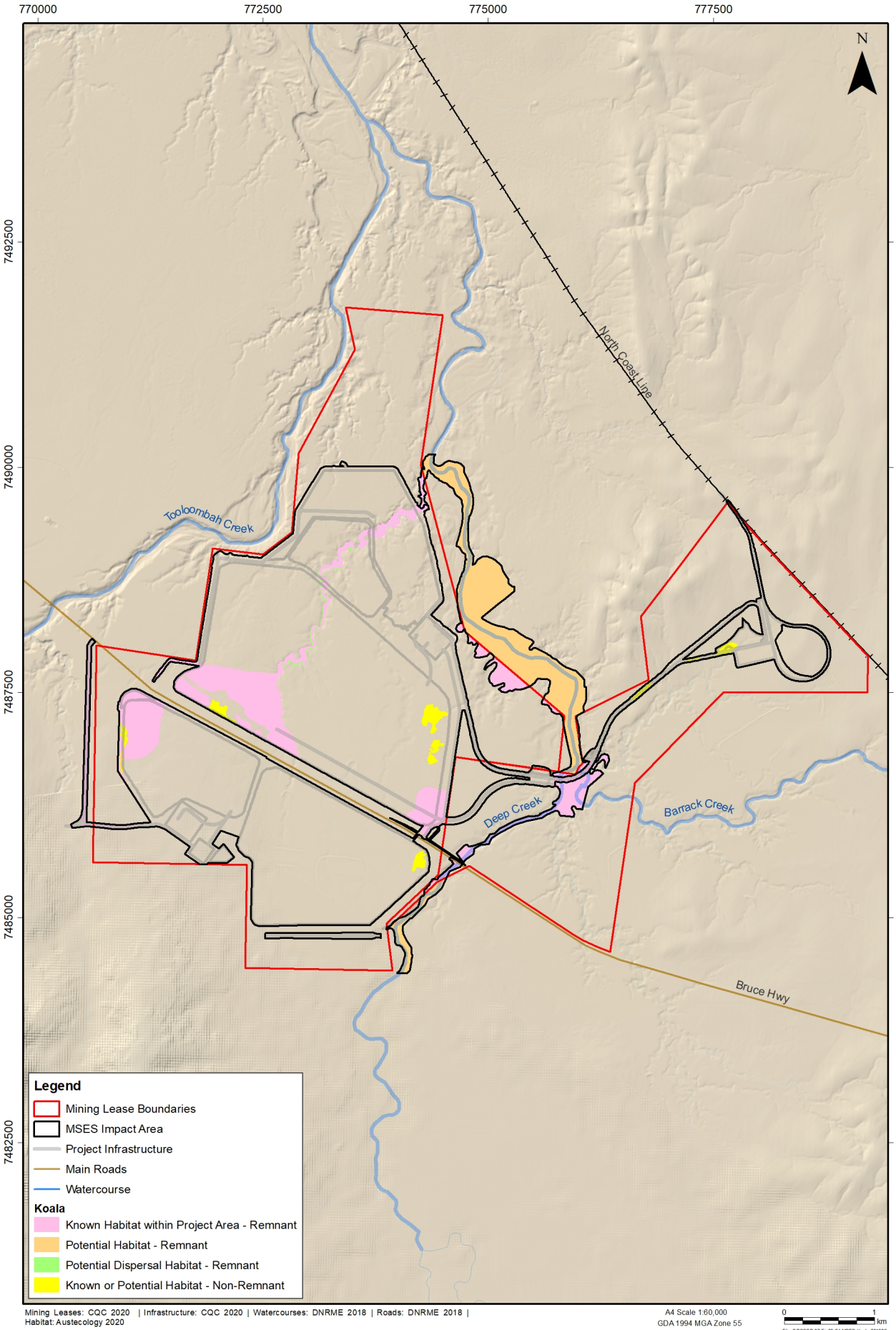

Figure 23-14: Impacts on habitat for an animal that is vulnerable wildlife – koala

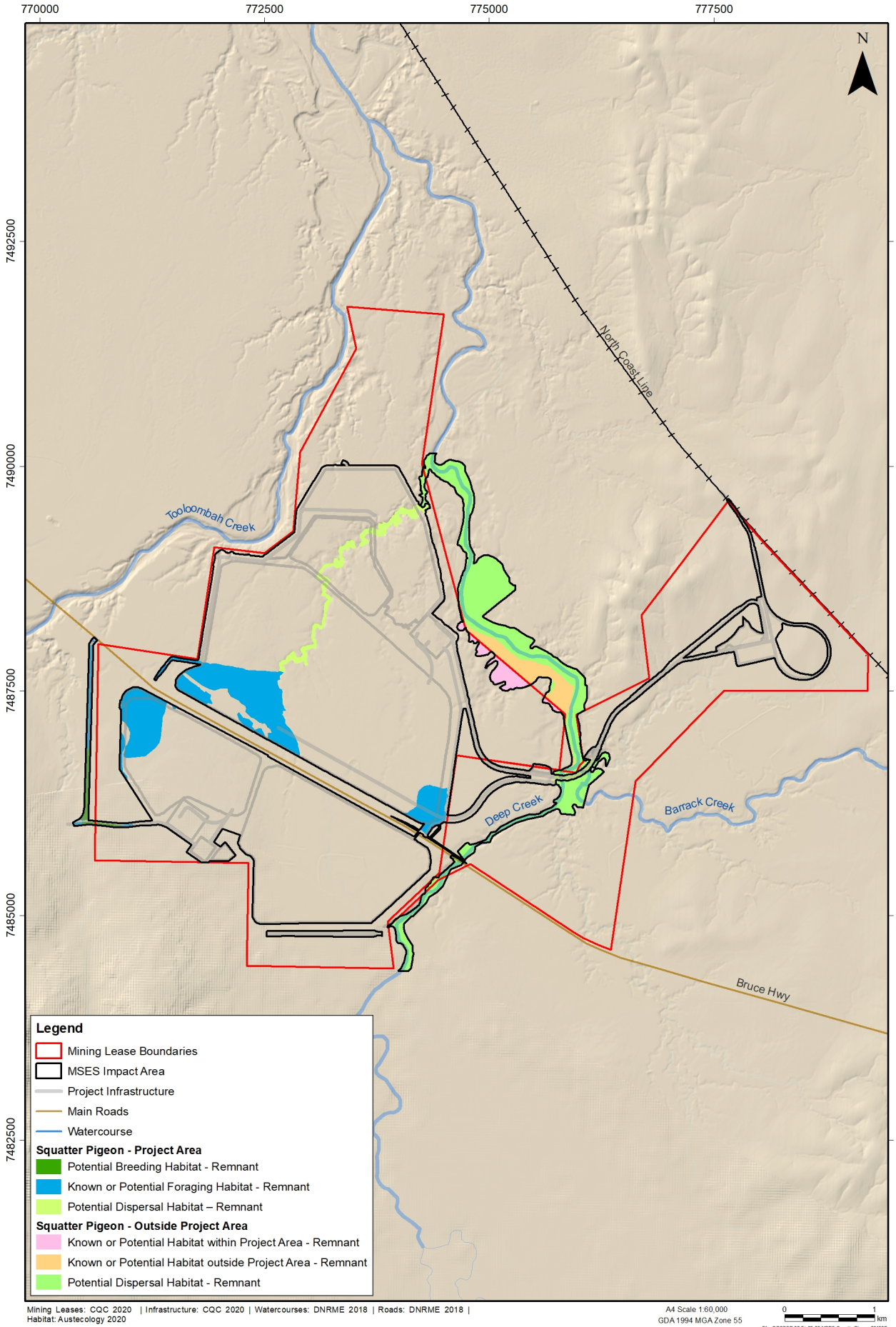

Figure 23-15: Impacts on habitat for an animal that is vulnerable wildlife – squatter pigeon

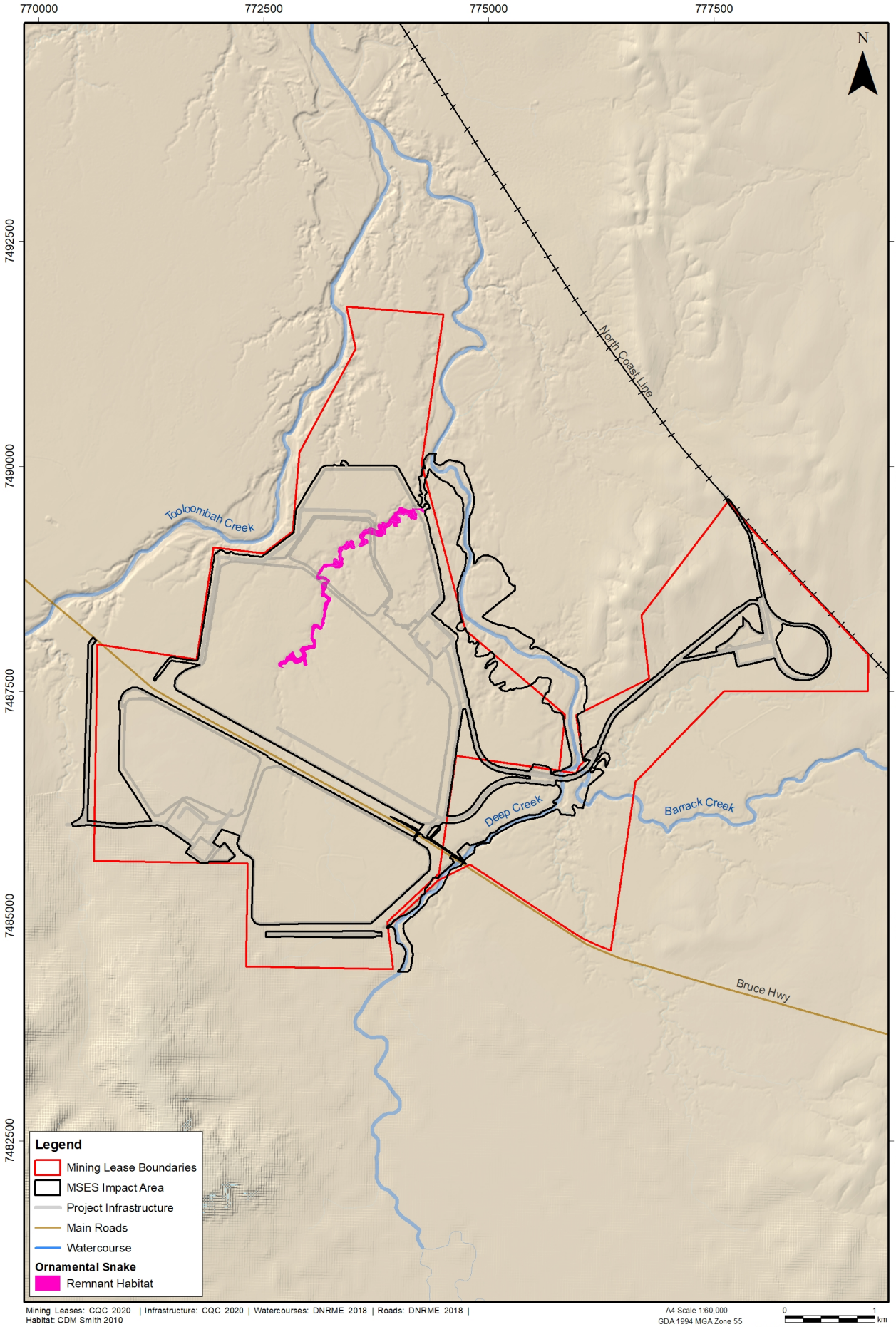

Figure 23-16: Impacts on habitat for an animal that is vulnerable wildlife – ornamental snake