



Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number W6191/2018/1

Applicant Adaman Resources Pty Ltd

ACN 620 314 007

File Number DER2018/001588

Premises Kirkalocka Project
Part of Mining Lease M59/234
DAGGAR HILLS WA 6638
As defined by the coordinates in Schedule 1 of the Works Approval

Date of Report 20 March 2019

Status of Report Final

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1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
HDPE	means high density polyethylene
Minister	the Minister responsible for the EP Act and associated regulations
tpa	tonnes per annum
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997</i> (WA)
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Works Approval
Risk Event	As described in <i>Guidance Statement: Risk Assessment</i>
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> (WA)

2. Purpose and scope of assessment

2.1 Application details

Adaman Resources Pty Ltd (the Applicant) has recently acquired the Kirkalocka Gold Mine located 60km south of Mount Magnet. The site has been in care and maintenance since 2008 and the Applicant wishes to recommence operations. On the 9 November 2018 the Applicant applied for a works approval (the Application) to construct a putrescible landfill as described under Category 89 of Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations). On 14 February 2019 the Applicant advised that the location of the proposed landfill had been revised and resubmitted supporting documentation detailing changes to the Applicant. Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Works Approval (W6191/2018/1) application form and supporting documentation	8 November 2018
Email entitled "RE: APPLICATION NOTIFICATION - W6190 & W6191 Kirkalocka Project - WORKS APPROVAL APPLICATIONS, REQUEST FOR FURTHER INFORMATION" dated 18 January 2019	18 January 2019
Works Approval (W6191/2018/1) revised supporting documentation (February 2018)	14 February 2019
Email entitled "190319 DWER WAA Draft Approval Queries Cat 89 W6191.pdf" dated 19 March 2019	19 March 2019

2.2 Classification of premises

Table 3 lists the prescribed premises categories that have been applied for.

Table 3: Prescribed Premises Categories

Classification of Premises	Description	Approved Premises production or design capacity or throughput
Category 89	Putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer, as amendment from time to time) is accepted for burial.	25 tonnes per annual period

3. Overview of Premises

3.1 Operational aspects

The landfill will receive waste from mining activities (e.g. general waste associated with the mine camp) for burial in two landfill cells via the 'trench and fill method' whereby a trench will be dug and excavated soil later used as cover. The design capacity of the landfill is 25 tonnes per annum (tpa) (operating over a period of 20 years), however the expected throughput is 20 tpa over a period of 7 years. Only waste classed as "putrescible" as per the *Landfill Waste Classification and Waste Definitions 1996* will be accepted at the landfill. Other wastes (e.g. waste oils, chemicals, etc.) will be taken offsite for disposal. No tyres, asbestos or clinical waste will be accepted.

The landfill also includes a Temporary Waste Storage Area for the temporary storage of waste prior to burial in the landfill trench. Waste received at the Temporary Waste Storage Area will not remain in this area for longer than 24 hours.

Recyclable material will be stored within three designated recycling areas prior to removal offsite:

- Metal Recycling;
- Poly Recycling (e.g. HDPE and other heavy duty plastics); and
- Ancillary Recycling (e.g. other recyclables such as glass, cardboard, paper and other plastics).

3.2 Infrastructure

The landfill facility infrastructure, as it relates to Category 89 activities, is detailed in Table 4 and with reference to the Site Layout Plan (Figure 1).

Table 4 lists infrastructure associated with each prescribed premises category.

Table 4: Landfill facility Category 89 infrastructure

	Infrastructure	Site Plan Reference
1	2 x 5m x 40m x 3m Landfill Cells	Site layout plan (Figure 1)
2	Temporary Waste Storage Area including drainage sump	
3	Metal, Poly and Ancillary Recycling Areas	

4. Legislative context

Table 5 summarises approvals relevant to the assessment.

Table 5: Relevant approvals and tenure

Legislation	Number	Approval
<i>Environmental Protection Act 1986</i>	N/A	No clearing is approved under this Works Approval. The Applicant has indicated that clearing will be carried out under an exemption which applies under Regulation 5 (Item 25) of the <i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i> relating to clearing undertaken under the <i>Mining Act 1978</i> .
<i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i>		
<i>Mining Act 1978</i>	MP 37823 approved 2013	Kirkalocka Gold SPV Pty Ltd is the registered holder of M59/234 which is a wholly owned subsidiary of Adaman Resources Pty Ltd. Mining Proposal managed by DMIRS. An updated Mining Proposal was submitted to DMIRS on 9 March 2019 and is currently under assessment.

5. Consultation

The Application was open for public consultation from 13 December 2018 to 3 January 2019.

No submissions were received. The following stakeholders were contacted directly:

- Department of Mines, Industry Regulation and Safety;
- Department of Biodiversity, Conservation and Attractions;
- Shire of Yalgoo; and
- Shire of Mount Magnet.

6. Location and siting

6.1 Siting context

The Kirkalocka Gold Mine is an existing mine located on mining tenement M59/234, 70km south of Mount Magnet. The area consists primarily of pastoral landuse and the Premises is located within the boundaries of Kirkalocka Station and Nalbarra Station. The mine also crosses the boundaries of two local government authorities; Shire of Mount Magnet and Shire of Yalgoo. North West Coastal Highway, a major state road, is located approximately 2km east of the Premises.

6.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 7.

Table 6: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential Premises (Kirkalocka Station Homestead)	~12km north of the boundary of M59/234
Residential Premises (Nalbarra Station Homestead)	~14km west north west of the boundary of M59/234

Key finding: In accordance with the *Guidance Statement: Risk Assessments*, the Delegated Officer has determined that this assessment will not consider the risk of potential impacts to people in accommodation camps occupied by the Applicant. Potential impacts to people at these locations are subject to requirements under occupational health and safety regulations and obligations, therefore, the Delegated Officer considers that people at the accommodation camp are excluded as potential receptors.

6.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 8. Table 8 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting*.

Table 7: Environmental values

Specified ecosystems	Distance from the Premises
Threatened/Priority Fauna	Shield-backed Trapdoor Spider (<i>Idiosoma nigrum</i>) listed as "Endangered" under the <i>Wildlife Conservation Act 1950</i> and "Vulnerable" under the <i>Environmental</i>

	<i>Protection and Biodiversity Conservation Act 1999</i> recorded to occur on the premises.
Threatened Ecological Communities (TEC)	The nearest TEC is located approximately 40km away.
Designated Areas	Distance from the Premises
RIWI Act	The Premises is located within the East Murchison Groundwater Area.

6.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 8: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Watercourses/ waterbodies	Kirkalock Creek is located approx. 6km north west of the landfill. A minor drainage line is located 1km from the landfill, north of the mine pit and tailings storage facility (TSF) that drains north west towards Kirkalocka Creek.	The region is used for pastoral purposes and water within creeks may be utilised by stock.
Groundwater	<p>Depth to groundwater is approximately 6m at the landfill. Groundwater salinity at the mine (near the TSF) ranges from 840mg/L to 3500mg/L (based on 2015 monitoring data).</p> <p>The nearest privately owned bore (Curara Well ID 61812804) is located approximately 3.1km southwest of the landfill (based on available GIS dataset –WIN Groundwater Sites).</p>	<p>Groundwater is used onsite for industrial and domestic purposes.</p> <p>Groundwater in the regional area may be used for stock watering.</p> <p>There are no Public Drinking Source Water Areas within 50km of the premises.</p>

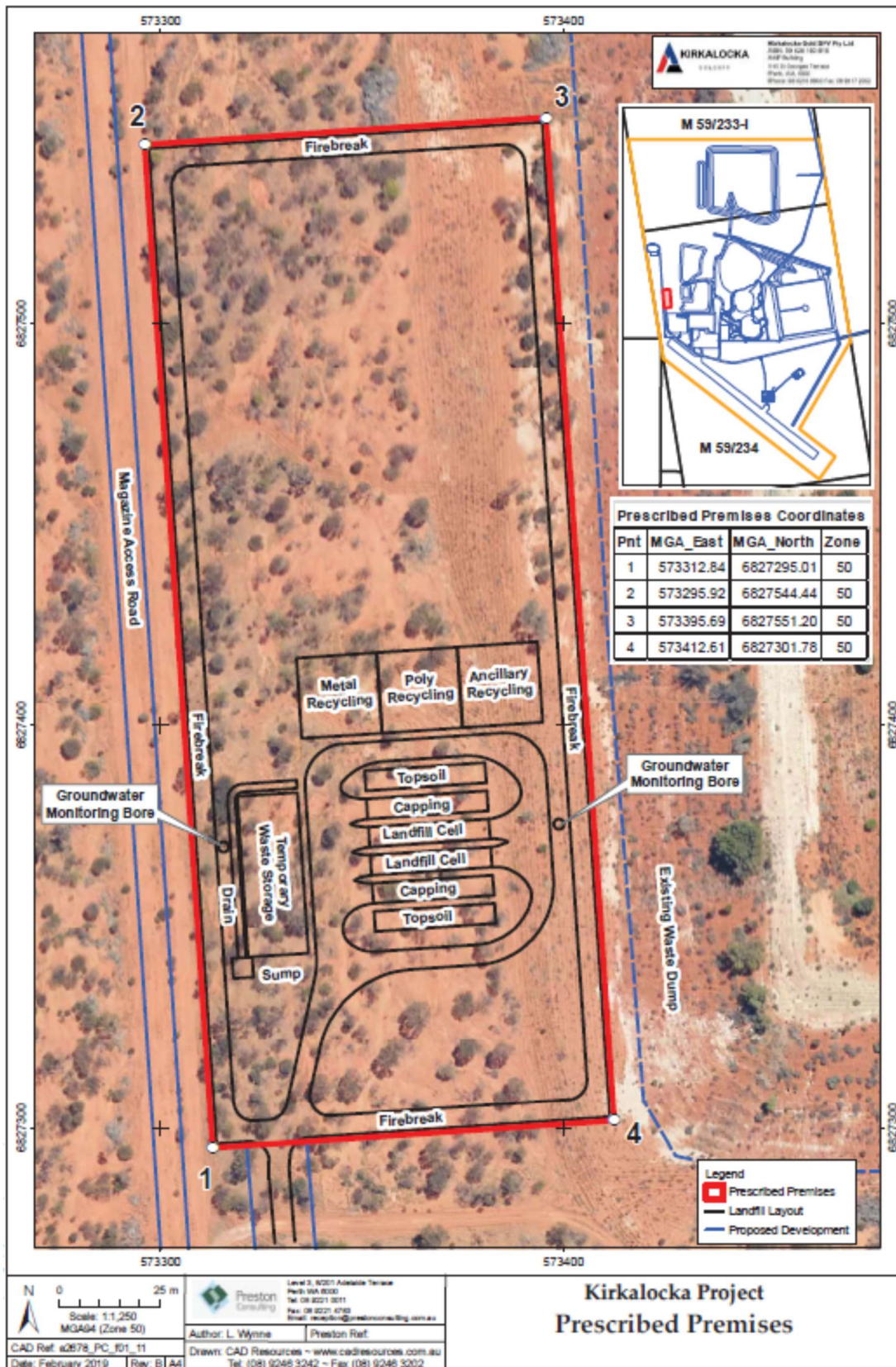


Figure 1: Site Layout Plan (provided in Application)

7. Risk assessment

7.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 9 and Table 10.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 9 and Table 10 below.

Table 9. Identification of emissions, pathway and receptors during construction

Risk Events					Consequence rating*	Likelihood rating*	Risk*	Reasoning
Sources/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Excavation of landfill trench and construction waste storage areas	Noise	Closest human receptors (pastoral stations) approximately 12km from prescribed premises.	Air / wind dispersion	None	N/A	N/A	N/A	The nearest residential receptor is located 12km away. The Delegated Office considers there is sufficient separation from sensitive receptors to mitigate the risk of dust and noise impacts.
	Dust	Priority fauna within tenement M59/234		Impacts to vegetation habitat for priority fauna	Minor	Rare	Low	The minor construction works (excavation) are not expected to generate significant dust emissions. Water, and chemical suppressants if required, will be applied to wet down roads and cleared areas to minimise dust The proposed controls are expected to be sufficient at mitigating dust emissions.

**Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)*

Table 10: Identification of emissions, pathway and receptors during operation

Risk Event					Consequence rating*	Likelihood rating*	Risk*	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Stockpiled cover material, trench excavation, vehicle movement and covering activities	Fugitive dust	Priority fauna within tenement M59/234	Air / wind dispersion	Impacts to vegetation habitat for priority fauna	Minor	Rare	Low	<p>Fugitive dust emissions associated with waste burial and cover stockpiles are expected to be minimal. The Applicant will apply the following controls to minimise dust emissions:</p> <ul style="list-style-type: none"> Minimising disturbance; Wetting down roads, stockpiles and cleared areas; and Use of dust stabilising agents as required. <p>The proposed controls are expected to be sufficient at mitigating dust emissions.</p>
		Closest human receptors (pastoral stations) approximately 12km from prescribed premises.	Air / wind dispersion	Health and amenity impacts	N/A	N/A	N/A	<p>The nearest residential receptor is located 12km away. The Delegated Office considers there is sufficient separation from sensitive receptors to mitigate the risk of dust and noise impacts.</p>
Vehicular movement and covering activities	Noise							
Waste acceptance, handling, storage and burial	Windblown waste	No residents or sensitive receptors in close proximity. Priority fauna (Shield-backed Trapdoor Spider) found within tenement M59/234.	Windblown waste and deposition outside of landfill cells	Pollution of the environment with plastics and other windblown materials	Slight	Unlikely	Low	<p>The Applicant will apply the following controls in accordance with the Landfill Regulations:</p> <ul style="list-style-type: none"> The landfill is designed to accept small quantities of waste (25tpa) although estimated throughput is 20tpa; Waste will be compacted and covered after each dumping activity if practical or covered at least on a monthly basis with inert material stockpiled next to the landfill cells; The site of the tipping area will not exceed 2m in height and 5 metres in length; The landfill will be fenced to capture any windblown waste and waste collected on a regular basis; Litter screens will be used to capture litter at the

								<p>active tipping area; and</p> <ul style="list-style-type: none"> Cells will be capped with 1m of fill on completion of landfilling activities. <p>These Applicant controls are suitable for regulatory control under the Works Approval, and Licence respectively.</p>
	Contaminated stormwater associated with contact with deposited waste and sediment	Minor ephemeral creek 1km north draining to Kirkalocka Creek 6km away.	Direct discharge (stormwater contaminated with leachate and sediment)	Contamination of stormwater potentially impacting on surface water systems	Slight	Rare	Low	<p>The following Applicant controls minimise the consequence and likelihood of a risk event:</p> <ul style="list-style-type: none"> The landfill is designed to accept small quantities of waste (25tpa) although estimated throughput is 20tpa; The landfill will only receive Putrescible Waste as defined in the Landfill Definitions; The gate at the entrance will be locked when not in use to prevent unauthorised access and disposal of unauthorised waste types (e.g/ hazardous wastes); Signage will be installed informing staff and contractors using the facility of the types of waste that can be accepted to ensure only the correct waste types are accepted at the Premises; Records of the waste types and quantities will be recorded to ensure that only acceptable waste types are received at the landfill; Uncontaminated stormwater will be directed away from the operational areas via a perimeter drainage channel installed upslope of the landfill; Stormwater falling within the landfill trenches will be contained within the trenchers; and Stormwater from the Temporary Waste Storage Area will be collected in a drainage sump sized to contain a 1 in 20 year rainfall event. The sump will be inspected regularly to ensure capacity is maintained and excavated should it be required to remove sediment build up.

								These Applicant controls are suitable for regulatory control under the Works Approval, and Licence respectively
	Fire (contaminated fire water and burnt materials)	Minor ephemeral creek 1km north draining to Kirkalocka Creek 6km away. Depth to groundwater 6mbgl	Direct discharge	Contamination of soil, surface waters and groundwater.	Minor	Rare	Low	<p>The Applicant will apply the following controls in accordance with the Landfill Regulations:</p> <ul style="list-style-type: none"> • No waste will be burnt on the Premises; • Only putrescible waste will be accepted for burial at the landfill. No tyres will be accepted for storage or burial; • Waste will be compacted and covered after each dumping activity if practical or covered at least on a monthly basis; and • The size of the tipping area will not exceed 2m above the excavated ground level (with an additional 1m to allow for capping on closure) and 5 metres in length. <p>These Applicant controls are suitable for regulatory control under the Works Approval, and Licence respectively.</p>
	Fire (Smoke)	Closest human receptors (pastoral stations) approximately 12km from prescribed premises.	Air / wind dispersion (smoke)	Public health and amenity.	N/A	N/A	N/A	No receptor present

	Seepage of leachate	Groundwater 6mbgl	Infiltration to underlying groundwater	Contamination of soil and impacts to groundwater or surface water quality	Slight	Unlikely	Low	<p>The following Applicant controls minimise the consequence and likelihood of a risk event:</p> <ul style="list-style-type: none"> • The landfill is designed to accept small quantities of waste (25tpa); • Only putrescible waste will be received at the landfill. The landfill will not receive contaminated waste such as oils and chemicals; • The gate at the entrance will be locked when not in use to prevent unauthorised access; • Signage will be installed informing staff and contractors using the facility of the types of waste that can be accepted; • Records of the waste types and quantities will be recorded to ensure that only acceptable waste types are received at the landfill; and • Uncontaminated stormwater will be directed away from the operational areas. <p>These Applicant controls are suitable for regulatory control under the Works Approval, and Licence respectively.</p> <p>The Applicant has committed to installing 2 groundwater monitoring bores with groundwater quality monitored on a 6 monthly basis. The Delegated Officer has determined that the low level of risk does not require groundwater monitoring to be conditioned on the works approval or licence.</p>
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**Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)*

8. Applicant's comments

The Applicant was provided with the draft Decision Report and draft issued Works Approval on 12 March 2019. With the exception of providing additional information as requested by DWER, the Applicant did not provide comments on the draft documents.

9. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Issued Works Approval will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Although short construction timeframes are expected the Works Approval has been issued for a period of 3 years. The works approval allows the Applicant to undertake works, subject to conditions, in addition to allowing the acceptance of waste following the completion of works and as the Premises commences operating, also subject to conditions.

It is expected that the Applicant will apply for a licence towards the completion of installing the first Landfill Cell. The determined controls for a licence will be generally consistent with the operation based conditions outlined in Table 10 and included on the works approval as follows:

1. Operation infrastructure and equipment;
2. Waste type restrictions and waste classification;
3. Monitoring of waste inputs;
4. Post closure requirements; and
5. Annual reporting.

Final determination of licence controls will consider information submitted by the Applicant in its licence application and in response to works approval requirements.

Operation under the Works Approval has been authorised for period of 3 months, following the submission of written confirmation that works have been completed, while the application for licence is assessed.

Caron Goodbourn
Manager, Process Industries

Delegated Officer under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

Document title	Availability
Works Approval (W6191/2018/1) application form and supporting documentation (November 2018)	DWER records (A1737472)
Email entitled "RE: APPLICATION NOTIFICATION - W6190 & W6191 Kirkalocka Project - WORKS APPROVAL APPLICATIONS, REQUEST FOR FURTHER INFORMATION" dated 18 January 2019	DWER records (A1763750)
Works Approval (W6191/2018/1) revised supporting documentation (February 2018)	DWER records (A1767594)
<i>Environmental Protection (Rural Landfill) Regulations 2002</i>	Accessed at www.legislation.wa.gov.au
DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au
DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	
DER, August 2016. <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth.	
DER, February 2017 <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	
DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	
DWER, April 2018. <i>Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)</i> , Department of Water and Environmental Regulation, Perth	

Attachment 1: Issued Works Approval W6191/2018/1
