# **Decision Report**

# **Application for Works Approval**

#### Part V Division 3 of the Environmental Protection Act 1986

Works Approval Number W6851/2023/1

Applicant Eastern Metropolitan Regional Council

File number DER2023/000668

Premises

Red Hill Waste Management Facility 1094 Toodyay Road Red Hill 6056

Legal description -

Lot Number	Plan/Diagram Number	Volume	Folio
Lot 1	Diagram 15239	1128	23
Lot 2	Diagram 68630	1717	585
Lot 11	Diagram 69105	1783	671
Lot 12	Deposited Plan 26468	1672	829

As defined by the coordinates in Schedule 2 of the works approval

Date of report

13 March 2024

Decision

Works approval granted

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

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# 1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the Stage 17 and 18 Class III putrescible landfill cells at the premises. As a result of this assessment, Works Approval W6851/2023/1 has been granted.

### 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <u>https://dwer.wa.gov.au/regulatory-documents</u>.

In the absence of published guidance in Western Australia, the department has also given due regard to the EPA Victoria document titled *Best Practice Environmental Management - Siting, design, operation and rehabilitation of landfills* (EPAV 2015). This guideline has previously been used by the department as the benchmark for landfill development and closure.

#### 2.2 Application summary and overview of premises

On 9 October 2023, Eastern Metropolitan Regional Council (the applicant; EMRC) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to the Stage 17 and 18 Class III putrescible landfill cells at the Red Hill Waste Management Facility. The premises is approximately 10 km northeast of Midland.

The premises relates to the categories and assessed design capacities under Schedule 1 of the Environmental Protection Regulations 1987 (EP Regulations) which are defined in Licence L8889/2015/2, however the scope of this works approval application relates only to *Category 64: Class II or III putrescible landfill site*. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with the *Guideline: Risk Assessments* (DWER 2020) are outlined in Works Approval W6851/2023/1.

### 2.3 **Proposed works**

The applicant is progressing with development of the Stage 17 and Stage 18 Class III landfill cells at the premises. The Stage 17 and 18 cells are required as the existing Stages 14, 15 and 16 are nearing the end of their lifespan and waste disposal is proposed to continue at the premises.

The proposed Stage 17 and 18 Class III landfill cells will provide approximately 881,307 m<sup>3</sup> of additional capacity and consist of the following elements:

- Engineered Composite Lining System (in order of construction/installation):
  - 500 mm engineered clay attenuation layer;
  - Geosynthetic clay liner (GCL);
  - 2 mm double textured high-density polyethylene (HDPE) geomembrane; and
  - Cushion/protection geotextile.

- Leachate collection, extraction and management system incorporating:
  - 300 mm thick aggregate leachate collection layer;
  - 160 mm diameter perforated secondary leachate collection pipes;
  - 225 mm diameter perforated primary leachate collection pipe;
  - 450 mm leachate extraction riser pipes and automatic submersible pump; and
  - Leachate main for connection to the existing leachate evaporation.
- Surface water management system consisting of open channel drains connected to existing siltation ponds and surface water management infrastructure.

The proposed dates for commencement of the works listed above are:

- Stage 17 Autumn 2024; and
- Stage 18 Summer 2025.

The proposed dates for conclusion of the works are:

- Stage 17 Spring 2025; and
- Stage 18 Autumn 2026.

#### 2.4 **Proposed operations**

While not part of the scope of this works approval, the cells will include:

- A landfill gas management system incorporating gas wells and gas mains connected to an existing gas engine compound at the premises.
- Closure with an engineered landfill capping system comprised of the following (in order of construction/installation):
  - 800 mm thick compacted clay layer with a hydraulic conductivity of at least 1 x 10^{-7} m/s; and
  - 300 mm thick layer of restoration subsoils and topsoil/growth medium.

#### 2.5 Stability risk

The applicant commissioned a stability risk assessment for both of the proposed cells. The stability assessment modelled scenarios for the different phases of the landfill lifecycle, including temporary clay capping and high phreatic leachate surfaces. The stability analysis program SLIDE2 9.026 from Rocscience was used to undertake the modelling.

Only the critical worst case (highest) slope scenarios were assessed, on the assumption that flatter slopes will generate higher factors of safety for the same conditions. The slope conditions used were 1V:3H for the temporary waste slope and 1V:6H to approximately 20 m high (above surrounding ground levels) for the permanently capped slope.

The assessment adopted the following minimum acceptable factors of safety (FoS):

- ≥1.5 when using peak shear strength parameters under static loading for the final capped slopes and liner;
- ≥1.3 when using peak shear strength parameters under static loading for the temporary waste slopes;
- ≥1.1 under earthquake loading for an operating base earthquake (OBE); and
- $\geq$ 1.0 for a safety evaluation earthquake (SEE).

Analysis of the sideslope liner stability found the lowest calculated FoS for all conditions were greater than 1.5, 1.1 and 1.0 for the static, OBE and SEE scenarios respectively. The most vulnerable part of the slope was found to be the interstage sideslope under drained conditions and the adjacent existing waste slope under undrained conditions. Basal heave was not considered a viable failure mechanism, as the lowest elevation at the leachate extraction sumps is located more than 3 m above the inferred maximum potentiometric head.

Analysis of the waste mass stability found the lowest calculated FoS for the temporary waste slope conditions were greater than 1.3, 1.1 and 1.0 for the static, OBE and SEE scenarios respectively.

Analysis of the final capping profile stability found the lowest calculated FoS for the capping slope conditions were greater than 1.5, 1.1 and 1.0 for the static, OBE and SEE scenarios respectively.

A sensitivity analysis to consider reduced shear strength conditions due to seismic loading was performed for the sideslope liner and final capping profile. The analysis found the lowest calculated FoS to be greater than 1.0 for both the sideslope liner and final capping profile in all scenarios.

All analysed scenarios with regards to the OBE and SEE had a FoS >1 therefore, no deformation analysis was deemed to be required.

#### 2.6 Leachate water balance

The applicant commissioned an assessment of the leachate generation potential at the premises in consideration of the new cells using the Hydrologic Evaluation of Landfill Performance (HELP) software program. The HELP program uses various weather, soil and landfill design inputs to determine the volume of leachate generated.

Leachate generation was highest in the uncapped cells, with more than double the amount of leachate being generated during a 90<sup>th</sup> percentile rainfall year compared to a 50<sup>th</sup> percentile rainfall year. Capping of the cells reduced leachate volumes, particularly in 50<sup>th</sup> percentile rainfall years. Leachate generated from the already closed cells on the premises formed the largest source of leachate due to the significant area they cover.

A 5-year water balance was then performed which considered the 50<sup>th</sup> and 90<sup>th</sup> percentile year meteorology data, the leachate generation volumes determined by the HELP model and operational conditions for the leachate ponds at June 2023. The water balance determined that the existing ponds on the premises were able to manage all leachate generated throughout the modelled period when undertaking leachate recirculation in 90<sup>th</sup> percentile rainfall years. The amount of recirculation needed was variable and had a theoretical peak monthly volume of approximately 24,400 m<sup>3</sup>, equivalent to irrigating 270 mm of leachate across the active cell area per month.

The modelling demonstrated that the pond and mechanical evaporator system is able to quickly recover from a wet rainfall year, returning pond volumes to low, manageable levels in average or drier conditions.

#### 2.7 Part IV of the EP Act

The premises is subject to Ministerial Statements No. 274 and 1140 under Part IV of the EP Act. The proposed works are understood to be within the scope of the existing ministerial statements.



Figure 1: Premises layout Works Approval: W6851/2023/1

IR-T13 Decision report template (short) v3.0 (May 2021)



### 3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

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.

### 3.1 Source-pathways and receptors

#### 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of the	Air / windborne pathway	Frequent watering of disturbed areas during the works. No carrying out of operations with dust- creating potential during periods of high winds.
	Stage 17 and 18 Class III landfill cells and associated works	Air (	Construction works proposed to be undertaken generally during "day-time" hours (7am to 7pm, Mon – Sat).
Noise		windborne pathway	Contractor required to minimise noise emissions and comply with the recommendations in AS 2436 Guide to noise and vibration control on construction, demolition and maintenance sites.
Odour	Exposure of waste at the tie-in area	Air / windborne pathway	Any exposed or excavated waste will be
Windblown waste	14/15 (operational) and Stages 17/18	Air / windborne pathway	least by the end of each working day.
Operation	•	•	
Dust	Machinery/vehicle movements and unloading during landfilling operations in the Stage 17 and	Air / windborne pathway	Dust suppression of exposed areas as required. Active tipping face limited to no more than 2 m in height and 50 m in length.

**Table 1: Proposed applicant controls** 

Emission	Sources	Potential pathways	Proposed controls
Noise	18 Class III cells		High noise generating equipment operated during daylight hours only.
Odour	Putrescible waste accepted for and in the Stage 17 and 18 Class III cells		Active tipping face limited to no more than 2 m in height and 50 m in length. Application of daily cover.
Landfill gas		Vertical or lateral migration through soil	Landfill gas management system incorporating gas wells and gas mains to be installed and connected to existing gas infrastructure. Landfill gas flare.
Leachate	Generated from landfilled waste within the Stage 17 and 18 Class III cells	Seepage through soil to groundwater Downgradient groundwater migration	Separation from groundwater of at least 3 metres. Composite cell liner comprised of 500 mm compacted clay, GCL, 2 mm double textured HDPE and a cushion/protection geotextile. Leachate management system installed in the cells between the liner and waste profile. Extraction of leachate to existing leachate ponds upgraded under Works Approval W6829/2023/1 to a sufficient capacity to contain the additional volume. Management of leachate pond volume via recirculation into the active landfill cells, passive evaporation from the pond surface or active mechanical evaporation.
Contaminated or potentially contaminated stormwater	Surface water coming into contact with waste destined for the Stage 17 and 18 Class III cells	Surface runoff Seepage through soil to groundwater Downgradient groundwater migration	Perimeter open swale drainage channels around the landfill cells connected to existing surface water management infrastructure on the premises. Stormwater that has come into contact with waste handling areas is managed as leachate.
Windblown waste	Waste accepted for and in the Stage 17 and 18 Class III cells	Air / windborne pathway	Litter screens installed around waste deposition areas. Daily inspection and removal of windblown waste from fences and access roads. Waste is spread and compacted at regular intervals. Active tipping face limited to no more than 2 m in height and 50 m in length. Application of daily cover.

Emission	Sources	Potential pathways	Proposed controls
Disease, pathogen and weed vectors	Exposed waste during landfilling operations in the Stage 17 and 18 Class III cells	Attraction of animals and spread of weeds	Waste is spread and compacted at regular intervals. Active tipping face limited to no more than 2 m in height and 50 m in length. Application of daily cover.
Smoke and particulates		Air / windborne pathway	No burning of waste on the premises is permitted. Water supply maintained for fire suppression. Active tipping face limited to no more than 2 m in height and 50 m in length. Security fencing and weekly inspections.
Fire wash- water	Combustible waste accepted for and in the Stage 17 and 18 Class III cells	Surface runoff Seepage through soil to groundwater Downgradient groundwater migration	Perimeter open swale drainage channels around the landfill cells connected to existing surface water management infrastructure on the premises. Composite cell liner comprised of 500 mm compacted clay, GCL, 2 mm double textured HDPE and a cushion/protection geotextile. Leachate management system installed in the cells between the liner and waste profile. Leachate ponds.

#### 3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2, Figure 2 and Figure 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive	human and	environmental	receptors and	distance from	prescribed
activity					

Receptors	Distance from prescribed activity
Human receptors	
Closest sensitive receptor (north) – Rural residence	Approximately 600 m northwest of the Stage 17 and 18 footprint and 200 m north of the premises boundary.
Closest sensitive receptor (east) – Rural residence	Approximately 950 m east-southeast of the Stage 17 and 18 footprint and 60 m east of the premises boundary.

Receptors	Distance from prescribed activity
Closest sensitive receptor (south) – Rural residence	Approximately 1 km southeast of the Stage 17 and 18 footprint and 450 m south of the premises boundary.
Closest sensitive receptor (west) – Red Hill Amphitheatre	Approximately 2.48 km west of the Stage 17 and 18 footprint and 1.4 km west of the premises boundary.
Environmental receptors	
<b>Surface water –</b> Susannah Brook	Approximately 1.41 km north of the Stage 17 and 18 footprint and 400 m north of the premises boundary.
	the Swan River.
Surface water –	Approximately 850 m south of the Stage 17 and 18 footprint and 320 m south of the premises boundary.
Christmas Tree Creek	Flows in a westerly direction parallel to the southern boundary of the premises and is a tributary to the Jane Brook and Swan River.
Underlying groundwater – Upper layer comprised of a perched water table associated with shallow lateritic sediments mainly on low lying areas which have developed above pallid zone clays (impermeable layer of kaolinitic clays). Perched aquifers are reported to be limited in their lateral extent and considered ephemeral during and post winter. Lower regional groundwater table within granite bedrock (fracture systems) or within extensive saprolite grits (porous, weathered bedrock) often semi confined by pallid zone clays.	The highest static water level recorded within the Stage 17 and 18 footprint ranges from 280 – 285 mAHD, or approximately 11 mbgl at a minimum. From the top of the clay attenuation layer, the lowest point in Stage 17 is 3.47 m to groundwater and in Stage 18 is 6.29 m. A groundwater divide extending across the northern part of the premises trends west- northwest parallel with the surface water catchment divide. Due to this divide, there is a generally southerly to south-westerly groundwater flow across most of the premises, largely within the catchment for Christmas Tree Creek to the south.
Parks and Wildlife lands and waters – John Forrest National Park	Approximately 715 m southwest of the Stage 17 and 18 footprint and adjacent to the south of the premises boundary.
Threatened Ecological Communities (TECs) – Central Northern Darling Scarp Granite Shrubland Community	Approximately 2.58 km southwest of the Stage 17 and 18 footprint and 1.41 km west of the premises boundary.



Figure 2: Receptors surrounding the premises

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Figure 3: Underlying groundwater

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### 3.1.3 Pathways

Information relating to pathways and environmental conditions at the premises are provided in Table 3 and Figure 4.

Table 3: Potential	pathways and	environmental	conditions	relevant to the	premises

Aspect	Details						
	The two dominant geological layers across the premises are laterite and granite, however a small layer of clayey sandy silt is present along the northern sections of Lots 8, 9, and 10. The surface geology is underlain by granitic bedrock of the Yilgarn Craton.						
	The laterite layer can be cemented, vuggy and pise occasionally porphyritic.	up to 2.5 - 3n olitic. The granit	n thick and is te is described	described as a as fine to coars	massive, hard, se-grained and		
	Investigations commissio adjacent to the proposed	ned by the app works encount	plicant in 2016 ered the follow	o for the Stage ring conditions:	14 – 16 area		
Geology	<ul> <li>an upper profile c</li> </ul>	of ferruginous a	nd lateritic clay	/, overlying;			
	<ul> <li>white and cream clays), with a thic</li> </ul>	silty sandy cl kness of 4 m to	ay with saprol more than 10	lite grits (claye m, overlying;	ey gravels and		
	• bedrock, located	between 19 an	d 22 m below (	existing ground	levels.		
	During 2017, investigation cemented lateritic cap root	ns at the area s ck and clayey s	south of Stage andy silt.	17 and 18 als	o encountered		
	The closest fault line is th the premises.	e Darling Fault	and is located	approximately	5.5 km west of		
	Premises hydrogeology is comprised of two distinct underlying water bearing The uppermost layer is comprised of perched water in the ferruginous zone relatively impermeable layer of kaolinitic clays. The lower layer is the region and occurs in the saprolitic zone or granitic weathering that extends moderately weathered granite in speet joints.				bearing layers. s zone above a egional aquifer tends into the		
Hydrogeology	Regional groundwater is present in the basement saprolite or fractured basement mostly semiconfined beneath fairly thick sequences of pallid zone clays that are 5 n to 15 m thick, generally thicker in the western part of the premises, but quite variable in thickness overall						
	There are zones of almost impermeable materials over the regional aquifer which is dominated by a groundwater divide extending across the northern part of the premises, trending west-northwest. This divide is the cause of a generally southerly to south-westerly groundwater flow across the premises.						
	The SILO database offered by the Queensland Department of Environment and Science provided the following information:						
	Parameter	Average	Percentile yea	ar	Maximum		
			50 <sup>th</sup>	90 <sup>th</sup>			
Neteorology	Rainfall (mm/yr)	850.7	844.6	1,022	1,137.9		
	Pan evaporation (mm/yr)	1,850	1,907	1,653	1,757		
The majority of rainfall occurs between May and October, with larger volur in the winter months and peaking in July.				volumes falling			



Figure 4: Premises topography

### 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Works Approval W6851/2023/1 that accompanies this decision report authorises construction only. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

An amendment to Licence L8889/2015/2 is required to authorise emissions associated with the operation of the Stage 17 and 18 landfill cells on the premises. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence amendment application.

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### Table 4: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events						Applicant																	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions <sup>2</sup> of works approval																
Construction	•	•	L	1	1	1	•																
Construction of the Stage 17 and 18 Class III landfill cells and associated works	Dust	Air / windborne pathway	Rural residential receptors (600 m northwest) (950 m east-southeast) (1 km southeast)	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	N/A																
	Noise	and amenity		Refer to Section 3.1.1	C = Slight L = Possible Low Risk	Y	N/A																
Exposure of waste at the tie-in area between	Odour	Air/windborne pathway	Rural residential receptors	Refer to Section 3.1.1	C = Slight L = Possible Low Risk	Y	1 - Table 1: Pow 1/b) and 4(b)																
Stages 14/15 (operational) and Stages 17/18	Windblown waste	causing impacts to amenity	(950 m east-southeast) (1 km southeast)	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y																	
Operation																							
Machinery/vehicle movements and unloading	Dust	Air/windborne pathway causing impacts to health and amenity		Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	7-15																
and 18 Class III cells	Noise		Rural residential receptors (600 m northwest) (950 m east-southeast) (1 km southeast)	Refer to Section 3.1.1	C = Slight L = Possible Low Risk	Y	N/A																
Putrescible waste accepted for and in the Stage 17 and 18 Class III cells	Odour	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	causing impacts to amenity	Air/windborne pathway causing impacts to amenity	Air/Windborne pathway causing impacts to amenity	causing impacts to amenity	p impacts to amenity	Refer to Section 3.1.1	C = Minor L = Possible <b>Medium Risk</b>	Y	10 and 14
	Landfill gas	Vertical or lateral migration through soil to nearby houses presenting an explosion risk	Rural residential receptors (600 m northwest) (950 m east-southeast) (1 km southeast)	Refer to Section 3.1.1	C = Major L = Rare <b>Medium Risk</b>	Y	N/A																
Generated from landfilled waste within the Stage 17 and 18 Class III cells	Leachate	Seepage from landfill cells to soil causing impacts to groundwater and downgradient receptors	Underlying groundwater (>3 m below cells) John Forrest National Park (715 m southwest) Christmas Tree Creek (850 m south)	Refer to Section 3.1.1	C = Major L = Unlikely <b>Medium Risk</b>	Y	1 - Table 1: Row 1(a), 2, 4(a) and 5 2, 3, 4 and 10																

al	Justification for additional regulatory controls
	The general provisions of s.51 of the EP Act apply.
	The Environmental Protection (Noise) Regulations 1997 apply.
	The applicant's proposed control of covering any exposed waste at least daily has been included in the works approval.
	The general provisions of s.51 of the EP Act apply. Waste disposal and cover requirements have been included for time-limited operations corresponding to Licence L8889/2015/2 controls.
	The Environmental Protection (Noise) Regulations 1997 apply.
	Existing regulatory controls for odour emissions during operation are included in Licence L8889/2015/2.
	Waste disposal and cover requirements have been included for time-limited operations corresponding to Licence L8889/2015/2 controls.
	Existing regulatory controls for landfill gas emissions are included in Licence L8889/2015/2.
	The Delegated Officer considers the risk event to have a Major consequence due to the potential for short- term impacts to an area of high conservation value (John Forrest National Park).
5	The applicant's key controls relating to the specifications of the composite liner and construction quality assurance activities have been included in the works approval. Existing regulatory controls during operation are also included in Licence L8889/2015/2.
	Critical containment infrastructure will be assessed by the department prior to the operation of that infrastructure.

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Risk events					Risk rating <sup>1</sup>	Applicant	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions <sup>2</sup> of works approval
Surface water coming into contact with waste destined for the Stage 17 and 18 Class III cells	Contaminated or potentially contaminated stormwater	Surface runoff causing impacts to surrounding terrestrial and aquatic ecosystems Seepage through soil to groundwater causing impacts to groundwater quality and downgradient receptors	Underlying groundwater (>3 m below cells) John Forrest National Park (715 m southwest) Christmas Tree Creek (850 m south)	Refer to Section 3.1.1	C = Major L = Unlikely <b>Medium Risk</b>	Y	1 - Table 1: Row 3 and 6 10
Waste accepted for and in the Stage 17 and 18 Class III cells	Windblown waste	Air/windborne pathway causing impacts to amenity	Rural residential receptors (600 m northwest) (950 m east-southeast) (1 km southeast)	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	N/A
Exposed waste during landfilling operations in the Stage 17 and 18 Class III cells	Disease, pathogen and weed vectors	Attraction of animals and spread of weeds causing impacts to amenity, human health and surrounding ecosystem health	Rural residential receptors (600 m northwest) (950 m east-southeast) (1 km southeast) John Forrest National Park (715 m southwest) Christmas Tree Creek (850 m south)	Refer to Section 3.1.1	C = Major L = Unlikely <b>Medium Risk</b>	Y	N/A
Combustible waste accepted for and in the Stage 17 and 18 Class III cells	Smoke and particulates	Air/windborne pathway causing impacts to health and amenity	Rural residential receptors (600 m northwest) (950 m east-southeast) (1 km southeast)	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	
	Fire wash-water	Surface runoff causing impacts to surrounding terrestrial and aquatic ecosystems Seepage through soil to groundwater causing impacts to groundwater quality and downgradient receptors	Underlying groundwater (>3 m below cells) John Forrest National Park (715 m southwest) Christmas Tree Creek (850 m south)	Refer to Section 3.1.1	C = Major L = Rare <b>Medium Risk</b>	Y	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guideline: Risk Assessments (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. Bold and underline text depicts additional regulatory controls imposed by department.

I	Justification for additional regulatory controls
	The Delegated Officer considers the risk event to have a Major consequence due to the potential for short- term impacts to an area of high conservation value (John Forrest National Park). The applicant's key controls relating to new surface water infrastructure have been included in the works approval. Existing regulatory controls during operation are also included in Licence L8889/2015/2.
	Existing regulatory controls during operation are included in Licence L8889/2015/2.
	The Delegated Officer considers the risk event to have a Major consequence due to the potential for short- term impacts to an area of high conservation value (John Forrest National Park). Existing regulatory controls during operation are included in Licence L8889/2015/2.
	Existing regulatory controls during operation are included in Licence L8889/2015/2.
	The Delegated Officer considers the risk event to have a Major consequence due to the potential for short- term impacts to an area of high conservation value (John Forrest National Park). Existing regulatory controls during operation are included in Licence L8889/2015/2.

# 4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

#### Table 5: Consultation

Consultation method	Comments received	Department response		
Application advertised on the department's website on 3 November 2023	None received	N/A		
Local Government Authority advised of proposal on 7 November 2023	The City of Swan replied on 12/12/2023 advising that the City considers the proposed staged Red Hill Waste Management Facility as 'exempted development', as the EMRC operates the facility for the purpose of Section 6 of the <i>Planning</i> <i>and Development Act 2005</i> .	Noted.		
	Additionally, the EMRC acts on behalf of certain Local Governments including the City of Swan. In accordance with clause.61-Notes: 3 of the Planning and Development Regulations 2015, the proposal does not require a planning approval.			
	The City also notes that the proposed development is considered a Waste Management, Receival, Recovery, Treatment, Processing and Disposal land use as defined in the City of Swan Local Planning Scheme No.17. The proposed land use is a 'P' land use within the Special Use 9 zone.			
Applicant was provided with draft documents on 22 December 2023 and 8 February 2024.	Refer to Appendix 1	Refer to Appendix 1		

### 5. Conclusion

Based on the assessment in this decision report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

### References

- 1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
- 2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
- 3. DWER 2020, Guideline: Risk Assessments, Perth, Western Australia.
- 4. EPA Victoria (EPAV) 2015, Best Practice Environmental Management Siting, design, operation and rehabilitation of landfills (publication 788.3), Melbourne, Victoria.
- 5. Talis Consultants Pty Ltd 2023, *Environmental Management & Assessment Plan: Stage 17 & Stage 18 Landfill Cell Development*, unpublished report prepared for EMRC, DWER reference: DWERDT846080.

# Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
22 December 2023 comments		
N/A	The applicant would like to request that a time-limited operations (TLO) period of 180 days is included in the Works Approval. This will allow landfilling activities while a future licence amendment application is assessed by the department. While DWER's Licencing Guideline states that operation of lined landfill cells is typically halted until a Licence or Licence Amendment has been obtained, it is noted that the DWER has previously approved TLO for other Class III cells landfills, following DWER approval of a CCIR report.	<ul> <li>Table 1 of the <u>Guideline: Industry Regulation Guide to</u> <u>Licensing (June 2019)</u> provides examples of typical timeframes required to assess a Critical Containment Infrastructure Report (CCIR), during time limited operations (TLO) will be delayed. The CCIR assessment period is based on the risk posed by the infrastructure type. The examples provided are not prescriptive, and infrastructure may be subject to assessment periods that vary from the examples below. Assessment periods will be determined based on environmental risk.</li> <li>It is noted that medium and high risk engineered, lined landfill cells are identified within Table 1 whereby TLO is halted until licence assessment complete and decision to grant or refuse is made. However, the department consider that the environmental risk is mitigated by the requirements of the works approval, notably conditions 4 and 7. As such, TLO has been included within the works approval.</li> <li>Condition 4 requires the submission a CCIR containing construction quality assurance certifying that the works have been carried out in accordance with the works approval and relevant CQA Plan.</li> <li>Condition 7 restricts the containment of waste within the cells until such time that the department assesses the CCIR and notifies the works approval holder that the infrastructure requirements have been satisfied.</li> </ul>
8 February 2024 comments		

Condition	Summary of applicant's comment	Department's response
7	Condition 7 should reference the ECR rather than the CCIR.	Conditions 7 and 8 have been revised to differentiate between the activities authorised following the submission of the CCIR and ECR.
12	Condition 12, specifies a minimum compaction density of 850kg/m <sup>3</sup> which may be less likely to be met for the first layers of waste placed in the cell.	The minimum compaction density requirement has been removed, noting that the requirement will be reinstated following the 180 day time-limited operations phase. Condition 12 also requires that waste is spread and compacted at regular intervals to optimise compaction of the type of waste being landfilled.