GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

Banksia Road Landfill, Dardanup. Construction and Operation of Landfill Cells 9, 10 and 12A.

Cleanaway Solid Waste Pty Ltd

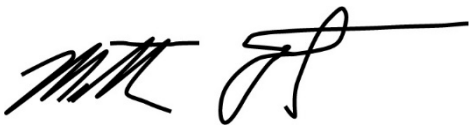
Report 1747

September 2023

This assessment report has been prepared by the Environmental Protection Authority (EPA) under s. 44 of the *Environmental Protection Act 1986* (WA). It describes the outcomes of the EPA's assessment of the Banksia Road Landfill, Dardanup. Construction and Operation of Landfill Cells 9, 10 and 12A proposal by Cleanaway Solid Waste Pty Ltd.

This assessment report is for the Western Australian Minister for Environment and sets out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if it recommends that implementation be allowed, the conditions and procedures, if any, to which implementation should be subject
- other information, advice and recommendations as the EPA thinks fit.



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Proposal

The proposal is to construct and operate three additional landfill cells (Cells 9, 10 and 12a) within the existing boundary of the Banksia Road Putrescible Landfill Facility. The proposal is located within the Shire of Dardanup, 3.8 kilometres (km) southeast of the Dardanup townsite, in the South West region of Western Australia.

The proponent for the proposal is Cleanaway Solid Waste Pty Ltd.

The proposal involves landfill cell construction, including earthworks to establish new cells and the installation of a composite lining system, associated stormwater, leachate and landfill gas management infrastructure. The proponent proposed the final waste height for the additional cells to be 149 metres (m) Australian Height Datum (AHD), with an additional two metres of capping and rehabilitation material placement, resulting in a maximum landform of 151 m AHD.

The maximum project life of the proposal is expected to be 27 years with an expected staged construction phase of seven years and a 17-year operational phase.

Context

The Banksia Road Putrescible Landfill Facility is located at Lot 2 on Deposited Plan 65861, Crooked Brook. Landfilling operations were established in June 2000 and the landfill is a licensed prescribed premise regulated through Part V of the *Environmental Protection Act 1986* (EP Act) under Licence L8904/2015/1. This licence allows for the acceptance and management of liquid waste, the discharge of tailings into a containment cell, and the acceptance of Class II and Class III putrescible waste for burial.

A licence review initiated by the Department of Water and Environmental Regulation (DWER) was undertaken in 2020 which re-assessed all activities on the premises and the ongoing acceptability of those activities with regards to environmental impacts.

The EPA notes that the proponent proposed an amendment to the Local Development Plan (LDP) in 2021 to increase the development height to 151 m AHD. The Shire of Dardanup refused the application, and it was then referred to the State Administrative Tribunal (SAT). In 2022, SAT ordered that the matter be listed for mediation, which involved an independent review of the visual amenity impacts. The result of mediation was that the proponent revised its LDP to reflect a maximum height of 130 m AHD and SAT approved the amended LDP in October 2022.

The EPA is aware that the current LDP does not allow cell waste height to 151 m AHD. It is noted that the EPA's assessment of key environmental factors, including social surroundings, considers impacts from a proposal, where they are directly linked to the changes to the physical or biological environment.

Environmental values

Greenhouse gas (GHG) emissions and social surroundings are the key environmental factors that may be impacted by the proposal. At the time of level of assessment, inland waters and air quality were also considered to be key environmental factors, however, through the assessment process it has been determined that they are no longer considered to be key environmental factors.

Consultation

The EPA published on its website the proponent's referral information for the proposal for 7-days public comment and the proponent's additional information for public review for four weeks (from 13 March 2023 to 9 April 2023). The EPA considered the comments received during these public consultation periods in its assessment.

Mitigation hierarchy

The mitigation hierarchy is a sequence of proposed actions to reduce adverse environmental impacts and emissions. The sequence commences with avoidance, then moves to minimisation, rehabilitation, and offsets are considered as the last step in the sequence.

The proponent considered the mitigation hierarchy in the development and assessment of its proposal, and as a result has:

- avoided and minimised potential impacts to hydrology, and quality of groundwater, surface water, soil and land through appropriate infrastructure design and operational management measures
- committed to implement management measures, including infrastructure design and operation, to minimise impacts to inland waters
- committed to lining the newly constructed cells to limit the migration of leachate into underlying groundwater
- committed to the implementation of measures to manage and reduce GHG emissions from the landfill
- proposed progressive staged capping of landfill cells with inert material
- proposed post-closure capping and revegetation of landfill and disturbed areas.

Assessment of key environmental factors

The EPA has identified the key environmental factors (listed below) in the course of the assessment. For each factor, the EPA has assessed the residual impacts of the proposal on the environmental values and considered whether the environmental outcomes are likely to be consistent with the EPA environmental factor objectives.

Greenhouse gas (GHG) emissions

Residual impact or risk to environmental value	Assessment finding
Scope 1 greenhouse gas (GHG) emissions may exceed the 100,000 t CO_2-e per annum threshold without effective GHG emissions management. GHG emissions contribute to climate change, which impacts on WA's environment.	The information provided by the proponent indicates that management is required to provide confidence that methane from the landfill would be captured efficiently to ensure there are minimal residual impacts from GHG emissions. The environmental outcome for GHG emissions is likely to be consistent with the EPA objective for the factor, subject to condition A1 Limits to the net GHG emissions being released. In addition, the EPA has had regard to regulation by other decision-making authorities, specifically Part V of the EP Act which can regulate landfill gas emissions. Regulatory conditions under a works approval and/or licence can include design and operation specifications to limit emissions to air. The environmental outcome for GHG emissions is likely to be consistent with the EPA objective for this factor.

Social surroundings

Residual impact or risk to environmental value		Assessment finding
1.	Potential impacts to visual amenity.	While the proponent selected an existing landfill site to provide buffer distances between sensitive land uses and proposal infrastructure, visual amenity may be impacted by the proposal implementation. There are potentially significant impacts to amenity, both visual amenity and the public's ability to live and recreate within their surroundings. The environmental outcome is likely to be consistent with the EPA objective for this factor, subject to the proposal maximum development height being restricted to 130 m AHD as stated in condition A1 'Limitations to the extent of the proposal'. The EPA also acknowledges the Shire of Dardanup as a decision-making authority under the *Planning and Development Act 2005.*
2.	Potential impacts to emissions of landfill gas, dust, noise, on-site fire, odour and windblown waste.	The EPA has taken into account regulation by other decision-making authorities, including the DWER under Part V of the EP Act, which can apply conditions to control relevant emissions and discharges related to the operation of a landfill. The EPA has also considered the need to minimise waste in accordance with the *Western Australia Waste Avoidance*

		and Resource Recovery Strategy 2030. Minimising waste will also minimise these impacts on social surroundings and has therefore recommended conditions B and C. This requires the development and subsequent implementation of an approved environmental management plan which aims to minimise the amount of waste being accepted and managed at the landfill.

Holistic assessment

The EPA considered the connections and interactions between relevant environmental factors and values to inform a holistic view of impacts to the whole environment.

In considering the interactions between social surroundings and GHG emissions, the EPA formed the view that the holistic impacts would not alter the EPA's conclusions about consistency with the EPA factor objectives.

In considering the principle of waste minimisation, and within the context of the *Western Australia Waste Avoidance and Resource Recovery Strategy 2030*, the EPA considers that approvals required by other decision-making authorities will meet the principle of the EP Act and would support the intended outcomes for other EPA factor objectives.

Conclusion and recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with EPA objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the *Environmental Protection Act 1986*.

Consistent with the scope for this report and recommendations under the EP Act, the EPA has recommended that the proposal may be implemented subject to conditions recommended in Appendix A.

Other advice

The EPA is aware of the considerable community interest in both this proposal and current operations on site. Of particular note is that the proposed final height of the

proposal (151 m AHD) was refused by the Shire of Dardanup and was referred to the SAT who approved an amended total height of 130 m AHD.

The EPA recognises that other decision-making processes and decisions relevant to this proposal may be progressed following the publication of this assessment. This includes further planning approval decisions that may progress through the SAT and the Regional Joint Development Assessment Panel. A change to a proposal may be sought, through the usual procedures and requirements of Part IV of the EP Act.

The EPA considers that the DWER's works approval and licensing requirements under Part V of the EP Act will be critical to ensuring acceptable environmental outcomes associated with the implementation of the proposal.

The EPA recognises that the DWER has a long history of managing potential environmental impacts associated with the operation of putrescible waste landfills and the disposal of waste to land. This is achieved through the regulation of emissions and discharges associated with activities that are prescribed under Part V of the EP Act. The DWER has advised the EPA that given the proposed volume of waste acceptance, the proponent will be required to obtain a works approval and licence under Part V of the EP Act and a range of conditions may be applied to any future approval.

The EPA notes that the Local Development Plan (LDP) sets out specific and detailed guidance for future development at a site and future development standards. The EPA advises that part of the proposal relating to final landform height was not consistent with the approved LDP pursuant to Part 6 of the *Planning and Development (Local Planning Schemes) Regulations 2015*. The EPA considers that proponents should avoid using the EPA's assessment process to achieve a contrary outcome to that already assessed and determined by a decision-making authority without an evidence-based and compelling argument.

1 Proposal

The Banksia Road Landfill, Dardanup, Construction and Operation of Landfill Cells 9, 10 and 12A (the proposal) is a proposal to construct and operate three additional landfill cells within the existing boundary of the Banksia Road Putrescible Landfill Facility. The proposal is located 3.8 kilometres from the town of Dardanup, in the South West region of Western Australia (see Figure 1).

The disturbance footprint is approximately seven hectares (ha), and the proposed waste height is 149 metres (m) Australian Height Datum (AHD) with a maximum landform of 151 m AHD, including capping and rehabilitation. Over the first 10 years of operation to 2032, the waste height is proposed to be up to 128 m AHD, with the additional waste height to be reached through landfilling of waste from 2032. The proposal includes the earthworks to establish new cells, and installation and operation of composite-lined landfill cells, with associated surface water control, leachate control and landfill gas management infrastructure.

The landfill is currently operating under a licence (L8904/2015/1 - hereafter referred to as DWER Licence) issued under Part V of the *Environmental Protection Act 1986* (EP Act), which allows for the acceptance and management of liquid waste, the discharge of tailings into a containment cell, and the acceptance of Class II and Class III putrescible waste for burial.

The proponent for the proposal is Cleanaway Solid Waste Pty Ltd (the proponent). The proponent referred the proposal to the Environmental Protection Authority (EPA) on 31 March 2021. The referral information was published on the EPA website for seven days public comment. On 5 August 2021, the EPA decided to assess the proposal at the level Referral Information with addition information required. The EPA also published the environmental review document and additional information on its website for public review for four weeks (from Monday 13 March 2023 to Sunday 9 April 2023).

The proposal is set out in section 2 of the proponent's referral supporting report (22 February 2023), which is available on the EPA website.

The elements of the proposal which have been subject to the EPA's assessment are included in Table 1.

Table 1: Proposal content document (proponent reference)

Proposal element	Location	Maximum extent or range
Physical elements		
Landfill cells Cell 9, Cell 10 and Cell 12A, associated infrastructure, leachate and landfill gas management infrastructure	Figure 2	Disturbance of approximately 7 ha within a development envelope of 121 ha: • Cell 9 – 2.45 ha • Cell 10 – 2.45 ha • Cell 12A – 2.12 ha The proposed waste height is proposed to ultimately be filled up to 149 m AHD with a maximum landform of 151 m AHD, including capping and rehabilitation.
Operational elements		
Landfilling of solid waste, including operation of stormwater, leachate and landfill gas management infrastructure	Figure 2	Landfilling of Class II & III waste up to 350,000 t/a.
Timing elements		
Project life	Landfill operations of up to 27 years from commencement of construction, including rehabilitation and closure of landfill cells.	

Units and abbreviations
AHD – Australian Height Datum
Ha – hectare
m – metre
t/a – tonnes per annum

Proposal alternatives

The proponent did not consider alternative locations for the proposal. The proposal is an addition to the existing landfill facility.

Proposal context

The proposal is located in the Shire of Dardanup. Regionally, the closest waste management facilities to the proposal site are the Bunbury Harvey Regional Council Banksia Road Organics Processing Facility, the Shire of Dardanup Waste Transfer Station and a Water Corporation wastewater treatment plant.

The existing landfill facility is currently operating under several development approvals as a waste disposal facility.

At the time the proposal was referred, the proponent was seeking an amendment to the Local Development Plan (LDP). The LDP for Lot 2 establishes a guide for future development of the site, including boundary setbacks, site access and height. The proponent sought to increase the maximum development height of 114 m AHD to 151 m AHD for the landfill waste cells. The Shire of Dardanup refused the

amendment in May 2022 and the proponent applied to the State Administrative Tribunal (SAT) for that decision to be reviewed.

In June 2022, SAT ordered that the matter be listed for mediation which occurred in August 2022. During mediation the issue of visual amenity was deliberated, and the Shire of Dardanup sought an independent review of the proponent's Visual Impact Assessment.

The result of mediation was that the proponent revised its LDP to reflect a maximum development height of 130 m AHD and SAT approved the amended LDP in October 2022. The LDP is endorsed until 2031 and further development beyond that timeframe will require future amendments or a replacement LDP. Further decisions relating to planning approvals for this development are likely to be progressed following publication of this assessment.

The EPA notes that the local community has expressed opposition to the proposal over many years and that there are public concerns with the location of the landfill in proximity to residential and other sensitive land uses.

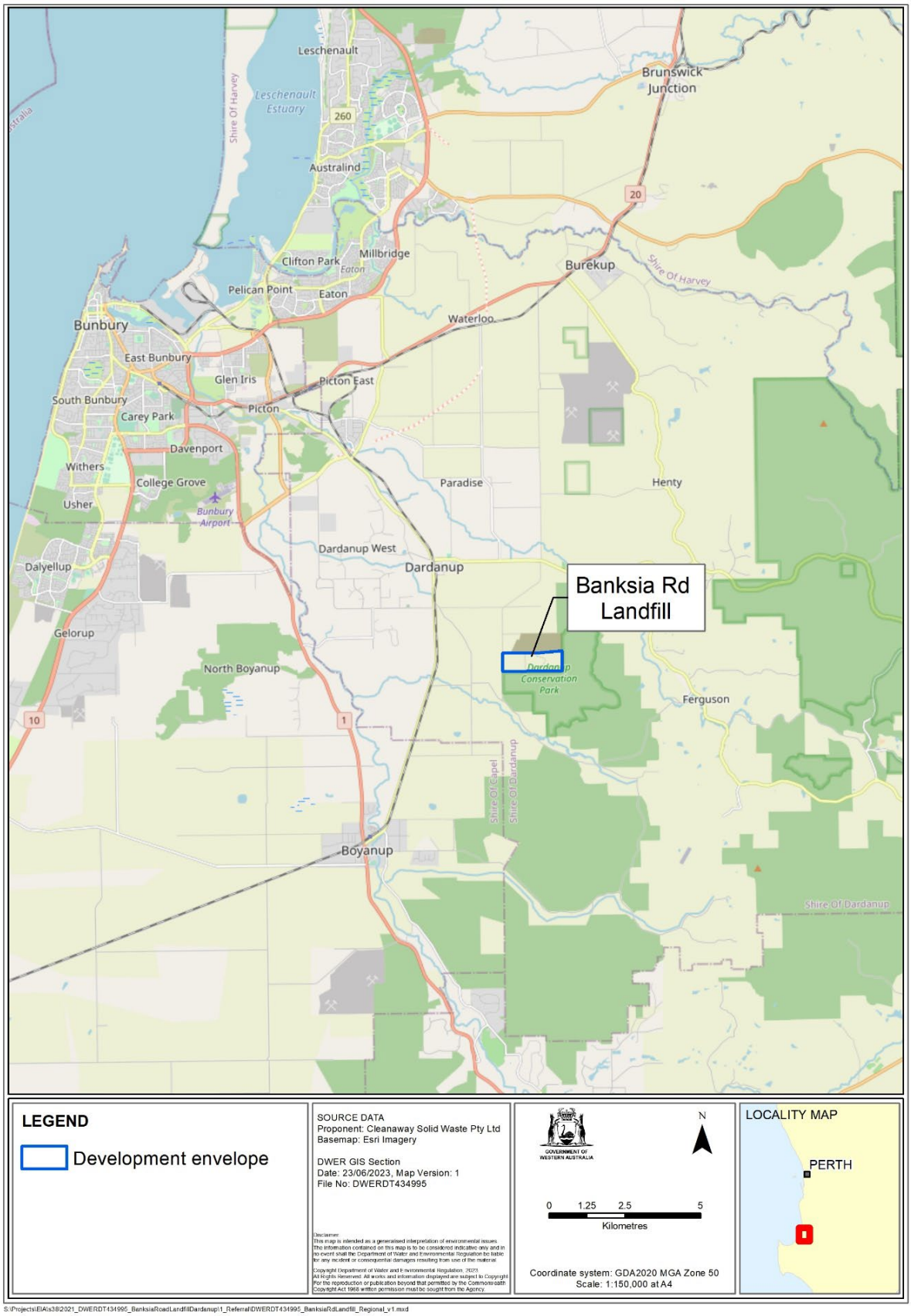

Figure 1: Project location

Figure 2: Development envelope and disturbance footprint

2 Assessment of key environmental factors

This section includes the EPA's assessment of the key environmental factors. The EPA also evaluated the impacts of the proposal on other environmental factors (inland waters and air quality) and concluded these were not key factors for the assessment. This evaluation of other relevant factors is included in Appendix D.

2.1 Greenhouse Gas Emissions

2.1.1 Environmental objective

The EPA environmental objective for greenhouse gas (GHG) emissions is *to minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable* (EPA 2023).

2.1.2 Potential emissions from the proposal

The proposal will produce GHG emissions from:

- construction – earthworks to construct new landfill cells
- operation – combustion of diesel used for mobile plant and generation of electricity for on-site use and solid waste disposal resulting in the generation of landfill gas, emitted to the atmosphere as methane or combusted in a flare
- post-closure – decomposition of putrescible waste material.

The *Environmental Factor Guideline – Greenhouse Gas Emissions* (EPA 2023) provides that, generally, GHG emissions from a proposal will be considered where they exceed 100,000 tonnes of scope 1 or scope 2 emissions in any year measured in tonnes of CO_2-e. This is currently the same as the threshold criteria for the designation of a large facility under the Australian Government's *Safeguard Mechanism*.

The proponent has provided the following estimates of GHG emissions based on the following assumptions and inputs (JBS&G Australia 2023):

- the cells are actively filled for a combined 12-year duration, with all three cells capped by 2042
- the total combined capacity of the cells is a maximum of 3,556,500 tonnes (based on 1 tonnes/m³ waste density and capacities estimated from 3D air space modelling of cell base to top of waste at 148 m AHD)
- projections are based on a total of 300,000 tonnes of waste being deposited each year in the cells from 2023 to 2035 and 106,500 tonnes in the 2036 to provide a worst-case peak in landfill gas emissions; in reality the cells will be filled over a longer period of time in sequence with neighbouring cells in order to establish a stable landform
- municipal solid waste was assumed to be 50% Class 1 waste and Class 2 waste

- the default waste mix types listed in s.5.11(2) of the National Greenhouse and Energy Reporting Measurement Determination were applied
- tonnages of each waste mix type throughout the lifetime of the landfill cells were estimated to be – municipal solid waste 26%, commercial and industrial 17%, and construction and demolition 57%
- the methane generation constant (k-value) for the dry temperate climate of Western Australia was employed.

From these assumptions the proponent has calculated the following GHG emission projections:

- unmitigated scope 1 emissions for the proposal includes:
    - combined scope 1 emissions (including the use of diesel fuel) from the decomposition of waste accepted at the maximum annual acceptance rate of 300,000 tonnes per annum for the life of the proposal, in the absence of flaring to reduce methane emissions, are projected to be up to 97,294 tonnes CO_2-e per annum. Total GHG emissions without mitigation would be approximately 2,674,555 tCO_2-e during the operational and landfill 50-year post closure period
- scope 2 emissions are estimated as zero, as the landfill will not be connected to the local electricity grid
- scope 3 emissions were not provided by the proponent, stating that the emission rates were expected to be relatively small, and any estimate would be with high uncertainty.

It should be noted that the GHG Emissions Guideline requires the proponent to provide credible estimates of maximum and expected life of proposal scope 1, scope 2 and scope 3 GHG emissions (annual and total). In relation to scope 3 emissions, the information the proponent provided was considered inadequate, however the EPA decided to proceed with its assessment noting this information gap.

The proponent proposes a GHG mitigation technique that is widely adopted in the waste management industry, of collecting landfill gas and flaring before release to the atmosphere, to reduce GHG emissions and manage environmental risk from fires and gas accumulation in the landfill.

2.1.3 Consultation

Consultation on the proposal raised concerns about:

- GHG emissions potentially exceeding 100,000 tonnes CO_2-e per annum
- the proposal's contribution to climate change.

2.1.4 Minimisation measures (including regulation by other DMAs)

The proponent has identified the following measures to minimise GHG emissions:

- expansion of the existing landfill gas management system (flare) currently required under the current DWER Licence to include Cells 9, 10 and 12A

- improved landfill gas capture efficiency
- strategies to achieve waste diversion targets
- optimisation of vehicle operation and routes to reduce fuel usage
- electrification of its vehicle fleet
- usage of large-scale generation credits
- offset of residual emissions by application of high integrity carbon credit.

With these mitigation measures, the proponent estimates that peak annual GHG emissions will be reduced from 97,294 tCO_2-e to 41,533 tCO_2-e (JBS&G Australia 2023).

Although this represents a significant reduction in the emissions which were estimated from the proposal without mitigation and the application of the recommended conditions, whether this reduction is sufficient to minimise the risk to climate change impacts to WA's environment depends on the state of cumulative emissions over time.

Environmental Protection Act 1986 Part V

The disposal of waste to land is an activity consistent with the description of a Category 64: Class II or III putrescible landfill site under Schedule 1 of the *Environmental Protection Regulations 1987*. The proposed maximum waste acceptance rate would require the proponent to obtain a works approval and licence to regulate emissions and discharges under Part V of the EP Act.

In relation to the GHG emissions, the DWER have advised the EPA that the management and mitigation of landfill gas emissions can be regulated under Part V of the EP Act. A works approval and/or licence would authorise the construction, commissioning and time limited operations of landfill infrastructure including specifications for landfill gas extraction infrastructure design, implementation, monitoring, record keeping, review and analysis of landfill monitoring data and reporting. Monitoring results would usually be required to be reported to the DWER in periodic environmental reports (usually annually for landfill infrastructure). It is considered that these actions would be consistent with some components of the GHG Emissions Guideline.

2.1.5 Assessment of impacts to environmental values

The intent of the EPA's GHG Emissions Guideline is to inform the development and assessment of proposals, not determine the outcome of the EPA's assessment.

There is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will impact on Western Australia's environment and environmental values. The EPA therefore considers GHG emissions to be a key environmental factor in the assessment of the proposal.

The primary GHG emission from the landfill is methane produced from the decomposition of putrescible wastes. There will be additional gaseous emissions, but

these emissions are categorised as biogenic gases and are not usually considered as GHG emissions for the purposes of regulation of impacts associated with climate change. This proposal would involve the collection and combusting of methane generated by decomposing biodegradable organic matter in the landfill and converting it to carbon dioxide. Methane is a potent greenhouse gas with a Global Warming Potential 28 times greater than that of carbon dioxide (Clean Energy Regulator, 2020).

The GHG Emissions Guideline recognises that Western Australia's GHG emissions are expected to continue to increase in the short to medium term. However, in the meantime the objective of the GHG Guideline is *to minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable*.

The EPA assesses proposals where GHG emissions are a key environmental factor on a case-by-case basis and recognises that a flexible approach is important to drive innovation and improvement in best practice technologies.

In relation to the proposal, the EPA had particular regard to annual and total contributions to GHG emissions, whether the proponent has committed to achieving reduction targets over time in accordance with a linear trajectory, whether it has incorporated continual improvement, transparency and reporting, and whether it has considered offsetting emissions.

In considering these, the EPA has noted:

- the proponent's adoption of a continuous improvement approach to ensure improvement opportunities are identified and implemented
- the proponent's consideration of best practice design to reduce impacts.

The GHG Emissions Guideline acknowledges GHG emissions from a cumulative range of sources may have an impact on WA's environment, even if the specific impact of a particular proposal's emissions may not be known with certainty. In response to this, and to minimise cumulative impacts to WA's environment, the GHG Emissions Guideline therefore generally applies to proposals emitting greater than 100,000 tonnes CO_2-e per annum of scope 1 or scope 2 emissions.

In its assessment, the EPA has noted:

- the proponent's proposed rate for the capture and flaring of landfill gas is 65%
- the uncertainty associated with the likely capture rate of GHG emissions from engineered landfills prior to closure
- that scope 1 GHG emissions other than methane generation from landfill are insignificant
- that there are not expected to be any scope 2 GHG emissions
- with mitigation measures, scope 1 peak GHG emissions will be reduced from 97,294 tCO_2-e to 41,533 tCO_2-e per annum

- the lack of estimated scope 3 emissions, including that scope 3 emissions are expected to be minimal
- that GHG emissions from landfill increase annually due to the increase in the cumulative volume of waste disposed to the landfill cells over time and are predicted to peak in the final year before capping and decrease exponentially after capping.

2.1.6 Consideration of conditions

In assessing impacts to GHG emissions, the EPA has had regard for other decision-making processes that are able to regulate in a manner that is consistent with EPA objectives. The EPA notes that the regulation of waste disposal activities under Part V of the EP Act, including design and operation of the landfill infrastructure, implementation of appropriate technology, monitoring, review of operational performance and reporting for landfill gas emissions, are actions that have been assessed and conditioned for this and other landfill operations.

The EPA has noted that with mitigation, the expected annual GHG emissions are below 100,000 t CO_2-e and therefore have concluded that the requirement to develop and implement a GHG environmental management plan (EMP) to not be necessary. The EPA has instead recommended a condition limiting annual GHG emissions from this proposal to 45,000 tonnes of CO_2-e per year (not including biogenic emissions). This limit ensures that the necessary mitigation actions (section 2.1.4) are implemented without the need to develop and implement a GHG EMP.

Given the recommended condition to limit annual GHG emissions and the assessment and conditions in regulatory instruments under Part V, it is considered that in combination both regulatory instruments can regulate this proposal to meet the EPA objective for this factor.

The EPA notes the science and policy of GHG emissions and climate change is rapidly evolving. The EPA advises GHG conditions are expected to be able to be responsive to this, particularly by enabling reviews and reporting of the performance of the landfill gas management system to reflect any significant changes. For example, if there are material changes to relevant State, Commonwealth or international GHG science, policy or market mechanisms to support the achievement of net zero emissions for landfill operations. The EPA also notes the Minister can direct the EPA to inquire into implementation conditions (including GHG conditions) at any time should it become clear that capture rates are less than expected.

2.1.7 Summary of key factor assessment and recommended regulation

The EPA has considered whether the residual emissions from the proposal are consistent with the principles of the EP Act (see Appendix C) and with the EPA factor objective for GHG emissions.

In doing so, the EPA has also considered whether reasonable conditions could be imposed to reduce potential inconsistency with the EP Act principles and EPA factor objective. The EPA summary findings are in Table 2.

The EPA advises that, with the application of the recommended conditions, and the proponent's adoption of efficient technology, continuous improvement, the proposal is generally consistent with the EPA's GHG Emissions Guideline.

Table 2: Summary of assessment for greenhouse gas emissions

Residual impact or risk to environmental value	Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
Scope 1 emissions may exceed the 100,000 t CO_2-e per annum threshold with inefficient or non-existent GHG gas management (low capture rate of methane from landfill). GHG emissions contribute to climate change, which impacts on WA's environment.	The EPA found that the implementation of management practices for mitigation of GHG emissions from landfill is necessary to ensure there are no residual impacts from the generation of greenhouse gas emissions. The EPA notes advice that the design, operation and reporting for landfill gas emissions, which includes GHG emissions are actions that can be conditioned in regulatory instruments under Part V. As a result, the environmental outcome through regulation is likely to be consistent with the EPA objective for GHG emissions.	**Condition A1** Limits to the net GHG emissions being released. Up to 45,000 t CO_2-e per annum (excluding biogenic emissions) **DMA legislation** The proponent will be required to obtain a works approval and licence under Part V of the EP Act.

2.2 Social Surroundings

2.2.1 Environmental objective

The EPA environmental objective for social surroundings is *to protect social surroundings from significant harm* (EPA 2023a).

2.2.2 Investigations and surveys

The EPA advises the following surveys and investigations were used to inform the assessment of the potential impacts to social surroundings:

- Banksia Road Landfill Site Landscape and Visual Assessment – 6 September 2022 (Attachment D of the Environmental Review documentation - JBS&G Australia 2023)
- Banksia Road Landfill, Dardanup - Works Approval Application Supporting Documentation (Final Rev 2), IW Projects Pty Ltd, 7 October 2022 (Attachment A of the Environmental Review documentation - JBS&G Australia 2023)
- Visual Impact Assessment Review undertaken by URBIS – August 2022
- Consultation with Department of Planning, Lands and Heritage

- Consultation with Shire of Dardanup
- DWER Licence L8904/2015/1 – Decision Report – Review of Existing Licence.

2.2.3 Assessment context: existing environment

The Banksia Road Landfill is surrounded by the Dardanup Conservation Park on the south and eastern boundaries, and rural properties to the west and north. The northern boundary is adjacent to the Shire of Dardanup Waste Transfer station and the Bunbury Harvey Regional Council Organics Processing Facility. The closest residential premises are 0.54 km south of the southwest corner and 0.92 km west of the site.

This Banksia Road Landfill is located at the northern extent of the Whicher Scarp. The Whicher Scarp forms a sickle shaped landform unit that extends from near Burekup in the north, where it meets the Darling Scarp, to the south-west of Dunsborough where it meets the granites of the Leeuwin-Naturaliste Ridge. The EPA recognised the importance of the Whicher Scarp and published the *Environmental Protection Bulletin No 6, The Natural Values of the Whicher Scarp* in December 2013. The focus of this bulletin is on the flora and fauna but also recognises that the overall landform is distinct being a sickle formation extending over a large region.

Crooked Brook Road, perpendicular to Banksia Road and south of the site has the potential as a tourist route with destination sites such as Crooked Brook Wines, the Crooked Brook Forest Walking Trail, Dardanup Conservation Park as well as providing access to attractions on Ferguson Road. Typically, site seeing passengers travelling in a vehicle will be highly aware of their surroundings and are likely to take in the view of their surroundings.

2.2.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the Response to Submissions document (JBS&G Australia 2023a).

The key issues raised during the public consultation on the proposal and how they have been considered in the assessment are described in the sections below. The sections and impacts they address in relation to social surroundings relate primarily to visual amenity and noise emissions.

2.2.5 Potential impacts from the proposal

Visual Amenity

Key issues raised during the public consultation were regarding the outcomes of the proponent's Visual Impact Assessment. There were concerns that the proposed development height of 151 m AHD will have a significant impact to visual amenity as the cell height will become a noticeable hill and adversely impact on the broader landscape character and the visual amenity of the area. The proponent has advised that the development of the landfill to a maximum height of 151 m AHD is consistent with its long-term planning and that impacts to visual amenity are manageable.

The endorsed LDP currently allows for a maximum development height of 130 m AHD. The LDP is endorsed for implementation until 2031 and further development beyond that timeframe will require future amendments or a replacement LDP.

To mitigate the visual amenity impact, the proponent has proposed rehabilitation and planting schemes which will be managed and implemented in unison with the staged works however it is unclear how effective these measures will be in relation to the proposed height increase.

Noise

Other issues raised during the public consultation relate to the impact of increased noise and vehicle movements on amenity. The potential for increased emissions of noise is considered to be unlikely. This is because:

- The proponent's proposed noise management measures are designed to avoid and mitigate noise and include:
  - regular maintenance of equipment and noise control equipment (mufflers, baffles etc) are in good working order
  - direction of heavy vehicles, where practicable, away from the southern portion of Banksia Road where residences are located
  - creation and maintenance of buffer zones around the site boundary
  - restricting hours of operations to avoid noise generating activities.
- The proponent will be required to comply with the assigned noise levels in the *Environmental Protection* (Noise) *Regulations 1997* (Noise Regulations) and with the conditions of the DWER Licence which aim to control emissions consistent with the Noise Regulations.

2.2.6 Avoidance measures

The proposed landfill cell locations are within the development envelope of the existing landfill therefore there are limited measures to avoid impact to amenity outside of current requirements under the DWER Licence.

2.2.7 Minimisation measures (including regulation by other DMAs)

Visual Amenity

The proponent has proposed measures to minimise impacts to visual amenity including:

- a phased approach to developing the elevated landfill topography (initial height of 128 m AHD over the first ten years)
- staged capping and rehabilitation
- rehabilitation and landscaping with native trees and plant species to blend with existing landscape character
- implementation of the Rehabilitation and Closure Plan in Appendix 23 of Attachment A of the Environmental Review documentation – JBS&G Australia 2023).

Noise, Dust and Odour

The proponent has proposed measures to minimise impacts to noise, dust and odour including:

- compliance with the assigned noise levels in the Noise Regulations
- stabilisation of surfaces and sealing of all access roads to reduce potential dust
- spraying down operational areas to manage potential dust
- ensuring waste is levelled and compacted as soon as practicable after it is discharged and at a minimum by the end of the working day.

Environmental Protection Act 1986 Part V

The disposal of waste to land is an activity consistent with the description of a Category 64: Class II or III putrescible landfill site under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations). The proposal will require a works approval and an amendment to the licence to regulate emissions and discharges under Part V of the EP Act.

In relation to the prevention of impacts to social surroundings, the DWER have advised the EPA that conditions can be placed on the works approval to specify the design, construction and operation of the landfill cells, leachate collection system, landfill gas infrastructure and ancillary infrastructure to minimise potential impacts from noise, dust, odour, landfill gas emissions, fire and windblown waste. Subsequent approvals can contain conditions to specify landfill gas management emissions, regular covering of waste, operational controls to mitigate noise, dust and windblown waste emissions, and preventative controls to impact the likelihood and severity of fires. Conditions can also specify waste acceptance methods, including the monitoring and reporting of waste volumes, types and disposal specifications. It is considered that these actions would be consistent with meeting the EPA objective in relation to social surroundings.

Closure management, detailing the capping design, final landform, capping and revegetation management and environmental monitoring can be regulated through Part V of the EP Act. Emission and environmental monitoring results are usually required to be reported to the DWER in periodic environmental reports (usually annually for landfill infrastructure).

2.2.8 Assessment of impacts to environmental values

The EPA only considers social, economic, cultural and aesthetic impacts from a proposal, if these are directly linked to changes to the physical or biological environment.

In assessing impacts to social surroundings, the EPA has had regard of other decision-making processes that are able to regulate in a manner that is consistent with EPA objectives. The EPA considers that the regulation of emissions and discharges under Part V of the EP Act including landfill gas, dust, noise, odours and windblown litter associated with the proposal will contribute to meeting the EPA

objective for this factor. Noise emissions would also be subject to the Noise Regulations.

The EPA therefore considered that the key social surroundings values likely to be significantly impacted by the proposal are potential indirect and direct impacts from changes to visual amenity.

The EPA notes that the Banksia Road Landfill is an existing site and the landfill is currently clearly visible from outside of the development envelope in areas that the public may access. The EPA recognises that the implementation of the proposal with a development height of 151 m AHD and the steep grade of the batters will result in a landfill site that contrasts with the surrounding natural, undulating landscape. Therefore, it has the potential to significantly impact the visual amenity for both local residents and tourists and requires mitigation.

The endorsed LDP currently allows for a maximum development height of 130 m AHD until 2031, after which time the LDP will be reviewed. It is likely that Visual Impact Assessments will be considered as part of any future review process.

In considering mitigation measures, the EPA has noted the:

- current approved LDP
- process that other decision-making authorities (Planning Authority) follow in assessing visual impacts from a proposal
- information provided by the proponent on visual impacts
- potential impacts to the proponent's operations and the balance of potential environmental impacts should the proposal total volume of putrescible waste not be able to be managed at the site
- precautionary principle – in relation to the uncertainty of the effectiveness of mitigation measures in preventing significant impacts from visual amenity.

The EPA considers that, based on the information available, that there is no adequate reason to depart from the conclusion of other decision makers with regard to proposal height and has recommended condition A1 to limit the height of the waste landform to 130 m AHD (128 m plus 2 m of capping).

The EPA considers that the proponent may seek to undertake additional studies and assessments on visual impacts to demonstrate that the EPA objective for this factor can be met. Should the other relevant decision makers determine that the proponent is able to mitigate visual impacts above 130 m AHD post 2031 then it may seek a change to the limit proposed in the draft statement conditions.

2.2.9 Consideration of Conditions

In assessing the potential impact to social surroundings, the EPA considered the Western Australian Waste Authority *Waste Avoidance and Resource Recovery Strategy 2030* (WARR) which aims for continuous improvement of waste services, waste avoidance and resource recovery, benchmarked against best practice and targets for waste reduction, resource recovery and the diversion of waste from landfill

disposal (Waste Authority 2020). The EPA has included a condition requiring the proponent to develop an environmental management plan designed to minimise the amount of waste being accepted and managed by the facility in line with the WARR. Minimising the amount of waste being managed on site will in turn minimise impacts relating to social surroundings.

2.2.10 Summary of key factor assessment and recommended regulation

Table 3: Summary of assessment for social surroundings

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Impacts to social surroundings, specifically visual amenity and surrounding land use.	The EPA advises that residual significant impacts to social surroundings are likely from the proposed development height of 151 m AHD. The EPA notes that while successful rehabilitation of the site may lessen the visual impact, the proposed height of 151 m AHD will appear as an obtrusive element in the landscape, and the success of mitigation measures it not without uncertainty. It is recommended that a condition be required to ensure that the proponent meets the objectives for social surroundings through the limitation to the development height. This will ensure that the environmental outcome is consistent with the EPA objective for social surroundings.	**Condition A1** Limits to the development and waste height through condition Maximum development height: 130 m AHD (top of waste – 128 m plus 2 m capping).
2	Impacts to social surroundings, specifically noise, dust and odour	The EPA advises that impacts from dust, noise and odour can be regulated through other decision-making processes, specifically Part V of the EP Act will contribute to the management of impacts to be consistent with the EPA objective for this factor.	**Conditions B and C** The development and subsequent implementation of an environmental management plan which aims to minimise the amount of waste being accepted and managed at the landfill. **DMA legislation** The proponent will be required to obtain a works approval and licence under Part V of the EP Act.

3 Holistic assessment

While the EPA assessed the impacts of the proposal against the key environmental factors and environmental values individually in the key factor assessments above, given the link between greenhouse gas emissions and social surroundings, the EPA also considered connections and interactions between them to inform a holistic view of impacts to the whole environment.

Figure 3 illustrates the connections and interactions between the key environmental factors to inform the EPA's holistic assessment.

Figure 3: Intrinsic interactions between environmental factors

Greenhouse Gas Emissions

There is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will impact on Western Australia's environment and environmental values.

GHG emissions have the potential to impact on all other environmental factors through the effects of climate change.

The EPA considers that the proposed mitigation conditions to manage GHG emissions, imposition of conditions in limiting emissions, and other decision-making processes will also mean that the impacts to other factors and values of the environment including the values associated with social surroundings are likely to be consistent with the EPA environmental factor objectives.

Social Surroundings

The potential changes to the biological and physical environment from the proposal have the potential to interact with social surroundings. GHG emissions may indirectly impact on future surrounding land use options and amenity for current residents.

Consideration of relevant principles of the EP Act

In addition to the environmental factors, in assessing the proposal, the EPA considered the principle of waste minimisation. The manner in which all EP Act principles were considered is discussed in Appendix C.

As outlined in section 4 of the EP Act, the principle establishes that all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment. The very nature of this landfill proposal development is concerned with the receipt and burial of solid waste in perpetuity.

The proposal has been designed with sufficient detail on the design, implementation and operation of containment infrastructure to prevent the discharge of waste and leachate to the environment. Minimisation of the amount of waste disposed and the restriction of waste types that can be disposed of in the landfill will also protect the environment from emissions and discharges that have the potential to impact terrestrial environmental quality, and inland waters. The design of the containment infrastructure will also be subject to consideration under Part V of the EP Act to control emissions and discharges of waste.

The *Western Australia Waste Avoidance and Resource Recovery Strategy 2030* contains objectives and targets to protect the environment. While the Strategy includes a vision of a sustainable, low-waste circular economy, landfill was identified as continuing to play an important role but is the least preferred management option in the waste hierarchy. The diversion of waste from landfill is a continuous improvement objective for the management of waste in Western Australia.

The EPA notes that there is a review of premises regulated under Part V of the EP Act currently being undertaken. The EPA included a submission to this review which stated that a comprehensive review of Part V scope could deliver significant gains in both regulatory efficiency and environmental outcomes. This could especially be the case if the activity category review was part of a holistic review of the best mechanism to assess and regulate issues under the EP Act overall. The EPA considers landfills to be a proposal type that should be considered as part of the Part V review, if the proposals consist primarily of vegetation clearing, emissions and discharges which may impact local social surroundings, they could be regulated by Part V rather than subject to EPA assessment. This allows the EPA to focus resources on complex proposals with several key environmental factors.

Summary of holistic assessment

When the separate environmental factors and values affected by the proposal were considered together in a holistic assessment, the EPA formed the view that the impacts from the proposal would not alter the EPA's views about consistency with the EPA factor objectives as assessed in section 2.

4 Recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment, and the historical record of regulation to mitigate risk under Part V of the EP Act
- principles of the EP Act.

The EPA recommends that the proposal may be implemented subject to the conditions recommended in Appendix A.

5 Other advice

The EPA may, if it sees fit, include other information, advice or recommendations relevant to the environment in its assessment reports, even if that information has not been taken into account by the EPA in its assessment of a proposal.

Planning processes

The EPA is aware of the considerable community interest in both this proposal and current operations on site. Of particular note is that the proposed final height of the proposal (151 m AHD) was refused by the Shire of Dardanup and was referred to the SAT who approved an amended total height of 130 m AHD.

The EPA recognises that other decision-making processes and decisions relevant to this proposal may be progressed following the publication of this assessment. This includes further planning approval decisions that may progress through the SAT and the Regional Joint Development Assessment Panel. A change to a proposal may be sought, through the usual procedures and requirements of Part IV of the EP Act.

Other decision-making authorities

Consistent with the interim guidance for taking decision-making processes into account, the EPA had regard to the processes undertaken by other decision-making authorities, the impacts that can be managed, relevant considerations, likely conditions or requirements and whether the EPA objectives for environmental factors would be met by the likely outcomes.

The EPA considers that the DWER's works approval and licensing requirements under Part V of the EP Act will be critical to ensuring acceptable environmental outcomes associated with the implementation of the proposal.

The EPA recognises that DWER has a long history of managing potential environmental impacts associated with the operation of putrescible waste landfills and the disposal of waste to land. This is achieved through the regulation of emissions and discharges associated with activities that are prescribed under Part V of the EP Act. DWER has advised the EPA that given the proposed volume of waste acceptance, that the proponent will be required to obtain a works approval and licence under Part V of the EP Act and a range of conditions may be applied to any future approval.

In consultation with DWER, the EPA expects that any future works approval and licence granted under Part V of the EP Act will align with its recommendations where it relates to an EPA factor objective outlined in this report.

The EPA notes that the Local Development Plan (LDP) sets out specific and detailed guidance for future development at a site and future development standards. The EPA advises that part of the proposal relating to final landform height was not consistent with the approved LDP pursuant to Part 6 of the *Planning and Development (Local Planning Schemes) Regulations 2015*. The EPA considers that proponents should avoid using the EPA's assessment process to achieve a contrary

outcome to that already assessed and determined by a decision-making authority (DMA). Where a proponent is proposing a greater maximum extent or range of a proposal element to that already determined by a DMA, the EPA expects proponents provide a compelling and evidence-based argument to support its proposal.

Appendix A: Recommended conditions

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
***(Environmental Protection Act 1986*)**

BANKSIA ROAD LANDFILL, DARDANUP. CONSTRUCTION AND OPERATION OF CELLS 9, 10 AND 12A

Proposal:	The Banksia Road Landfill proposal is to construct and operate landfill cells 9, 10 and 12A and associated infrastructure ten kilometres (km) east of Bunbury in the Shire of Dardanup
Proponent:	Cleanaway Solid Waste Pty Ltd Australian Company Number 120 175 635
Proponent address:	Level 4, 441 St Kilda Road MELBOURNE VIC 3004
Assessment number:	2303

Report of the Environmental Protection Authority: 1747

Introduction: Pursuant to section 45 of the *Environmental Protection Act 1986,* it has been agreed that the proposal entitled Banksia Road Landfill, Dardanup. Construction and Operation of Landfill Cells 9, 10 and 12A described in the proposal content elements, may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

Conditions and procedures

Part A: Proposal extent

Part B: Environmental outcomes, prescriptions and objectives

Part C: Environmental management plans and monitoring

Part D: Compliance and other conditions

Part A: Proposal extent

Limitations and extent of proposal

A1-1 The proponent must ensure that the proposal is implemented in such a manner that the following limitation or maximum extents / capacities / ranges are not exceeded:

Proposal element	Location	Maximum extent or range
Physical elements		
Development envelope	Figure 1	Disturbance of up to 7 hectares within a Development Envelope of 121 hectares.
Maximum development height		130 metres **AHD** (top of waste – 128 metres plus 2 metres capping)
Net GHG emissions		Up to 45,000 **tCO_2-e** per annum, excluding **biogenic** emissions
Timing elements		
Project life		Landfilling operations of up to 27 years from date of substantial **commencement of operations**

PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Waste Minimisation

B1-1 The proponent must implement the proposal to meet the following environmental objectives:

(1) the proposal's acceptance of waste volumes, types of waste and disposal methods:

(a) are consistent with the principles of waste minimisation and the waste hierarchy;

(b) align with Western Australia's Waste Avoidance and Resource Recovery Strategy 2030 (as amended or replaced);

(c) are consistent with diversion of relevant waste streams away from landfill where practicable;

(d) are consistent with waste being accepted from producers and/or suppliers who operate in accordance with a waste minimisation policy consistent with the Western Australia's Waste Avoidance and Resource Recovery Strategy 2030 (as amended or replaced) and recognised state and national product stewardship schemes; and

(e) are reviewed every five (5) years and continuous improvements are implemented to ensure consistency with the above are included.

B1-2 The proponent must prepare an environmental management plan that satisfies the requirements of condition C4 and demonstrates how the waste minimisation environmental objectives in condition B1-1 will be achieved, and submit it to the CEO.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING

C1 Environmental Management Plans: Conditions Related to Commencement of Implementation of the Proposal

C1-1 The proponent must not undertake **operations** until the **CEO** has confirmed in writing that the environmental management plan required by condition B1-2 meets the requirements of that condition.

C2 Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication

C2-1 Upon being required to implement an environmental management plan under Part B, or after receiving notice in writing from the **CEO** under condition B1-2 that the environmental management plan required in Part B satisfies the relevant requirements, the proponent must:

(1) implement the most recent version of the confirmed environmental management plan; and

(2) continue to implement the confirmed environmental management plan referred to in condition C2-1(1), other than for any period which the CEO confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.

C2-2 The proponent:

(1) may review and revise a **confirmed** environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan; and

(2) must review and revise a **confirmed** environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the **CEO**.

C2-3 Despite condition C2-1, but subject to condition C2-4, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.

C2-4 If the proponent is to implement minor revisions to the environmental management plan under condition C2-3, the proponent must provide the **CEO** with the following at least twenty (20) business days before it implements the revisions:

(1) the revised environmental management plan clearly showing the minor revisions;

(2) an explanation of and justification for the minor revisions; and

(3) an explanation of why the minor revisions will not result in new or increased adverse impacts to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.

C2-5 The proponent must cease to implement any revisions which the **CEO** notifies the proponent (at any time) in writing may not be implemented.

C2-6 The **confirmed** environmental management plan, and any revised environmental management plan under conditions C2-2 and C2-4, must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).

C3 Conditions Related to Monitoring

C3-1 The proponent must undertake monitoring capable of:

(1) substantiating whether the proposal limitations and extents in Part A are exceeded.

C3-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2 and to the other decision-making authority, a compliance monitoring report that:

(1) outlines the monitoring that was undertaken during the implementation of the proposal;

(2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded;

(3) outlines the results of the monitoring;

(4) reports whether the proposal limitations and extents in Part A were exceeded, based on analysis of the results of the monitoring; and

(5) reports any actions taken by the proponent to remediate any potential non-compliance.

C4 Environmental Management Plans: Conditions Related to Management Actions and Targets for Objective Based Conditions

C4-1 The environmental management plan required under condition B1-2 must contain provisions which enable the achievement of the relevant objectives of

those conditions and substantiation of whether the objectives are reasonably likely to be met, and must include:

(1) management actions;

(2) management targets;

(3) contingency measures if management targets are not met; and

(4) reporting requirements.

C4-2 Without limiting condition C2-1, the failure to achieve an environmental objective, or implement a management action, regardless of whether contingency measures have been or are being implemented, represents a non-compliance with these conditions.

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS

D1 Non-compliance Reporting

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

(1) report this to the **CEO** within seven (7) days;

(2) implement **contingency measures**;

(3) investigate the cause;

(4) investigate environmental impacts;

(5) advise rectification measures to be implemented;

(6) advise any other measures to be implemented to ensure no further impact; and

(7) provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(6) above.

D1-2 Failure to comply with the requirements of a condition, or with the content of an environmental management required under a condition, constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 above have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted within fifteen (15) months of the date of this Statement, and subsequent plans must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

(1) state whether each condition of this Statement has been complied with, including:

(a) exceedance of any proposal limits and extents;

(b) I am currently reviewing the achievement of environmental outcomes;

(c) achievement of environmental objectives;

(d) requirements to implement the content of environmental management plans;

(e) monitoring requirements;

(f) implement **contingency measures**;

(g) requirements to implement adaptive management;

(h) reporting requirements;

(2) include the results of any monitoring (inclusive of any raw data) that has been required under Part C in order to demonstrate that the limits in Part A, any outcome or any objectives are being met;

(3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;

(4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;

(5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; and

(6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has confirmed by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2, or prior to implementation of the proposal, whichever is sooner.

D2-6 The Compliance Assessment Plan must include:

(1) what, when and how information will be collected and recorded to assess compliance;

(2) the methods which will be used to assess compliance;

(3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;

(4) the retention of compliance assessments;

(5) the table of contents of Compliance Assessment Reports, including audit tables; and

(6) how and when Compliance Assessment Reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Time Limit for Proposal Implementation

D4-1 The proposal must be substantially commenced within five (5) years from the date of this Statement.

D4-2 The proponent must provide to the **CEO** documentary evidence demonstrating that they have complied with condition D4-1 no later than fourteen (14) days after the expiration of period specified in condition D4-1.

D4-3 If the proposal has not been substantially commenced within the period specified in condition D4-1, implementation of the proposal must not be commenced or continued after the expiration of that period.

D5 Public Availability of Data

D5-1 Subject to condition D5-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

D5-2 If:

(1) any data referred to in condition D5-1 contains trade secrets; or

(2) any data referred to in condition D5-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

D5-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D6 Independent Audit

D6-1 The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental outcomes and/or the environmental objectives and/or environmental performance with the conditions of this statement, as and when directed by the **CEO**.

D6-2 The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audit under condition D6-1.

D6-3 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2-1, or at any time as and when directed in writing by the **CEO**. The audit report is to be supported by credible evidence to substantiate its findings.

D6-4 The independent audit report required by condition D6-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 2: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Adverse impact / adversely impacted	Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in environmental value. Adverse impacts can arise from direct or indirect disturbance, or other impacts from the proposal such as (but not limited to) hydrological change, spread or introduction of environmental weeds, altered fire regimes, introduction or spread of disease, changes in erosion/deposition/accretion and edge effects.
AHD	Australian Height Datum
Authorised offsets	Units representing **GHG** emissions issued under one of the following schemes and cancelled or retired in accordance with any rules applicable at the relevant time governing the cancellation or retiring of units of that kind: (a) Australian Carbon Credit Units issued under the Carbon Credits (Carbon Farming Initiative) Act 2011 (Cth); (b) Verified Emission Reductions issued under the Gold Standard program; (c) Verified Carbon Units issued under the Verified Carbon Standard program; or (d) other offset units that the Minister has notified the proponent in writing meet integrity principles and are based on clear, enforceable and accountable methods.
Biogenic	Carbon dioxide emissions associated with the generation and combustion of landfill gas.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or the **CEO's** delegate.
Commencement of operations	Means commencing operation of the proposal and includes pre-commissioning, commissioning, start-up and operation of the proposal.
Confirmed	In relation to a plan required to be made and submitted to the **CEO**, means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition. In relation to a plan required to be implemented without the need to be first submitted to the **CEO**, means that plan until it is revised, and then means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition.
Contingency measures	Planned actions for implementation if it is identified that an environmental outcome, environmental objective, threshold criteria or management target are likely to be, or are being, exceeded. Contingency measures include changes to operations or reductions in disturbance to reduce impacts and must be decisive actions that will quickly bring the impact to below any relevant threshold, management target and to ensure that the environmental outcome and/or objective can be met.

Greenhouse Gas or GHG	Has the meaning given by Section 7A of the National Greenhouse and Energy Reporting Act 2007 (Cth) or, if that definition is amended or repealed, the meaning set out in an Act, regulation or instrument concerning greenhouse gases as specified by the Minister.
Net GHG emissions	**Proposal GHG emissions** for a period less any reduction in **GHG** Emissions represented by the cancellation or retirement of **authorised offsets** which: (a) were cancelled or retired between the first day of the period until 1 March in the year after the period has ended; (b) have not been used to offset **GHG** emissions other than proposal **GHG** emissions; and (c) were not generated by avoiding proposal **GHG** emissions.
Operations / operational	Operation of the infrastructure for the proposal and includes pre-commissioning, commissioning, start-up and operation of the infrastructure for the proposal.
Proposal GHG emissions	**GHG** emissions released to the atmosphere as a direct result of an activity or series of activities that comprise/s or form/s part of the proposal,
tCO_2-e	Tonnes of carbon dioxide equivalent. A metric used to compare emissions from various greenhouse gases by converting amounts of other gases to the equivalent amount of carbon dioxide based on their Global Warming Potential.

Figure 1: Banksia Road Landfill development envelope and disturbance footprint (This map is a representation of the co-ordinates referenced in Schedule 1)

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 2020 (GDA20).

Spatial data depicting the figures are held by the Department of Water and Environmental Regulation. Record no DWERDT179896.

Appendix B: Decision-making authorities

Section 45 of the *Environmental Protection Act 1986* requires the Minister for Environment to determine which or whom of the decision-making authorities (DMA) in relation to the assessed proposal the Minister considers to be a key DMA. The Minister must consult, and if possible, agree with the key DMA(s) on the implementation issues.

The EPA has identified the relevant DMAs for the proposal in Table B1.

Table B1: Identified relevant decision-making authorities for the proposal

Decision-Making Authority	Legislation (and approval)
1. Minister for Environment	*Environmental Protection Act 1986*
2. Chief Executive Officer, Department of Water and Environmental Regulation	*Environmental Protection Act 1986- Part V works approval and licence*
3. Regional Joint Development Assessment Panel	*Planning and Development Act 2005* - Development Approval
4. Chief Executive Officer Shire of Dardanup	*Planning and Development Act 2005* - Development Approval

Appendix C: Environmental Protection Act principles

Table C1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.* *In application of this precautionary principle, decisions should be guided by –* *(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(b) an assessment of the risk-weighted consequences of various options.*	The EPA has considered the precautionary principle in its assessment and has had particular regard to this principle in its assessment of GHG and Social Surroundings. EPA considers that the precautionary principle requires scientific certainty that impacts to visual amenity can be mitigated (section 2.2.8) The EPA noted that the proponent has provided infrastructure design and management methodology suitable for the containment of waste, emissions and discharges in the specific location, consistent with current industry practice and standards. The EPA had regard to DWER advice that the design and operation of containment infrastructure can be managed under Part V of the EP Act, specifically as a Category 64 Class II or III putrescible landfill site under Schedule 1 of the EP Regulations. DWER have advised that conditions can be placed on the works approval and/or licence to specify discharge criteria and monitoring for landfill leachate, discharges and chemical spills, waste acceptance methods and a Closure Management Plan closer to the completion of waste disposal activities. From its assessment of this proposal the EPA has concluded that there is no threat of serious or irreversible harm to inland waters and air quality, provided that the Part V regulatory requirements are complied with. The EPA notes that climate change as a result of cumulative GHG emissions has the potential to cause serious damage to WA's environment. The specific impacts of any single proposal's GHG emissions are not able to be known with certainty at this time. However, the EPA has not used this as a reason for postponing assessment of the proposal's contribution to the State's GHG emissions or recommending practicable conditions to reduce emissions in order to minimise the risk of environmental harm associated with climate change. The EPA has recommended condition A1 which limits the amount of CO_2 released into the atmosphere from this proposal which will be achieved

EP Act principle	Consideration
	through mitigation measures to reduce GHG emissions. The EPA also noted advice that the management, mitigation and review of operational performance for landfill gas include emissions of GHG which can be regulated under EP Act Part V statutory decision-making processes.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	The EPA has considered the principle of intergenerational equity in its assessment and has had particular regard to this principle in its assessment of air quality and inland waters. The implementation of this proposal has the potential to impact air quality and inland waters through the release of air emissions and leaching from the waste cells into the local aquifers. The EPA considers that the Part V licence process can achieve the EPA objective for air quality by setting enforceable limits, requiring monitoring, and requiring implementation of minimisation measures. From its assessment of this proposal, the EPA has concluded that the environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.
3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	The EPA has considered the principle of conservation of biological diversity and ecological integrity in its assessment. The EPA notes that there will be no direct impacts to flora and vegetation and terrestrial fauna through clearing, as there will be no change to the current footprint of the proposal. The EPA has noted the magnitude of the proposal's air emissions and the outcomes of the air quality modelling and has considered the measures that have been incorporated into the design of the proposed plant to minimise these emissions to reduce the risk of biological diversity and ecological integrity being adversely affected.
4. Principles relating to improved valuation, pricing and incentive mechanisms ▪ *Environmental factors should be included in the valuation of assets and services.*	The EPA considered this principle within the context of the State *Waste Avoidance and Resource Recovery Strategy 2030* and the waste levy which supports objectives of the strategy. The waste levy provides a financial incentive to reduce the quantity of landfill disposal generated within the Perth metropolitan area. While the waste levy provides a market mechanism that makes landfill disposal more expensive and less attractive to the proponent, the EPA considered a condition to support increased recovery and recycling

EP Act principle	Consideration
▪ *The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.* ▪ *The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.* ▪ *Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.*	where feasible, over the life of the facility. The EPA therefore recommended a condition for waste minimisation to ensure that the facility aligns with the *Waste Avoidance and Resources Recovery Strategy* and its revisions over time. The EPA notes that the proponent will bear the costs relating to implementing the proposal to achieve environmental outcomes, and management and monitoring of environmental impacts during construction, operation and decommissioning of the proposal. The EPA has had particular regard to this principle in considering the residual impacts of the proposal on inland waters, terrestrial environmental quality, terrestrial fauna, social surroundings and GHG emissions, including the costs of continual improvement of management practices to mitigate GHG emissions.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	While the *Waste Avoidance and Resource Recovery Strategy 2030* for Western Australia includes a vision of a sustainable, low-waste circular economy, landfill was identified as continuing to play an important role (State Infrastructure Strategy (2022)). The disposal of waste to landfill waste is the least preferred management option in the waste hierarchy, with the diversion of waste from landfill a continuous improvement objective for the management of waste in Western Australia. The design, construction and operation of landfill infrastructure are consistent with the description of a category 64 Class II or III putrescible landfill site under Schedule 1 of the EP Regulations. Relevant to waste disposal activities under Part V of the EP Act, the DWER advised that regulatory instruments may include conditions for waste acceptance methods, monitoring and reporting of waste volumes, types and disposal. This is the case for the current operation. From its assessment of the proposal the EPA has recommended a condition to minimise waste through the submission and subsequent implementation of a waste minimisation EMP.

Appendix D: Other environmental factors

Table D1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Water			
Inland waters	Impacts to inland waters from implementing the proposal could occur due to surface water runoff and leachate seepage into groundwater aquifers from the new cells and existing leachate ponds. Other potential sources of contaminants are pond overflow events and direct spills from refuelling or other site processes.	Public comments • Concern regarding impact from increased stormwater runoff and silt deposition into adjacent properties • Potential impact from leaching into aquifers used by local landowners/industry. Agency comments • Requested justification on the effectiveness of the current stormwater management and the proposed management and how it will meet EPA objectives.	Inland waters were identified as a preliminary key environmental factor when the EPA decided to assess the proposal. The EPA notes that impacts to inland waters from the existing operation are currently regulated under DWER Licence. The EPA considers that DWER's regulatory processes, undertaken in accordance with Part V of the EP Act, can achieve the EPA objective for inland waters through the current leachate and groundwater quality monitoring and management plans and the installation of appropriate leachate and stormwater management systems for the new cells. Accordingly, the EPA did not consider inland waters to be a key environmental factor at the conclusion of its assessment.
Air			
Air quality	Air emissions of dust from landfill operations include excavation, movement and storage of soil, clearing of vegetation, vehicle movements on unsealed	Public comments • Concern regarding impact from air pollution to the public. Agency comments • Requested an updated Dust Management Plan (DMP) to reflect	Air quality was identified as a preliminary key environmental factor when the EPA decided to assess the proposal.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	roads, and handling of waste. Decomposing material can result in the generation of landfill gases. Where emissions are not managed appropriately, these gases escape into the atmosphere and can reduce the quality of the surrounding air. During operations, decomposing waste or leachate ponds can result in fugitive odour.	the outcomes of any additional monitoring that has occurred. There are also some minor differences with the referral document such as a 20km/hr speed limit vs 25km/hr in the DMP. • The DMP does not include continuous dust monitoring which is inconsistent with the Dust Guideline (DEC 2011) risk assessment site classification recommendations. Dust monitoring was previously initiated through licence conditions and on-site real-time dust monitoring is considered to be a valuable dust management tool. • The limited number of metals detected and particle values should be considered in the context that the monitoring occurred while the dust risk was lower due to the season (April to June).	The EPA notes that impacts to air quality from the existing operation are currently regulated under DWER Licence. The EPA has considered the residual impacts of the proposal's air emissions, on their own for the existing proposal, the combined impacts of the existing and changed proposal, and on human health at the sensitive receptor locations previously defined and considers that DWER's regulatory processes, undertaken in accordance with Part V of the EP Act, can achieve the EPA objective for air quality by requiring monitoring, and the implementation of avoidance and minimisation measures. Accordingly, the EPA did not consider air quality to be a key environmental factor at the conclusion of its assessment.

Appendix E: Relevant policy, guidance and procedures

The EPA had particular regard to the policies, guidelines and procedures listed below in the assessment of the proposal.

- *Environmental factor guideline – Greenhouse gas emissions* (EPA 2023)
- *Environmental factor guideline – Social surroundings* (EPA 2023)
- *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual* (EPA 2023)
- *Statement of environmental principles, factors, objectives and aims of EIA* (EPA 2023)
- Environmental impact assessment (Part IV Divisions 1 and 2) administrative procedures 2021 (State of Western Australia 2021).
- *Waste Avoidance and Resource Recovery Strategy 2030* (State of Western Australia)

Appendix F: List of submitters

7-day comment on referral

Organisations and public

- 17 submissions were received from the public during the 7-day public comment period.

Government agencies

- Shire of Dardanup

Public review of proponent information

Organisations and public

- Four submissions were received from the public during the 4-week public comment period.

Government agencies

- Department of Biodiversity, Conservation and Attractions
- Department of Planning, Lands and Heritage
- Department of Primary Industries and Regional Development
- Shire of Dardanup

Appendix G: Assessment timeline

Date	Progress stages	Time (weeks)
5 August 2021	EPA decided to assess – level of assessment set	
16 January 2023	EPA requested additional information	75
22 February 2023	EPA received additional information	6
7 March 2023	EPA accepted additional information	2
13 March 2023	EPA released additional information for public review	1
9 April 2023	Public review period for additional information closed	4
28 June 2023	EPA received final information for assessment	12
17 August 2023	EPA completed its assessment	7
28 September 2023	EPA provided report to the Minister for Environment	6
5 October 2023	EPA report published	3 days
26 October 2023	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the EPA met its timeline objective to complete its assessment and provide a report to the Minister.

References

Clean Energy Regulator 2020, *Explanatory Statement National Greenhouse and Energy Reporting Measurement Amendment (2020 Update) Determination 2020*, Canberra, ACT.

EPA 2023, *Environmental factor guideline – Greenhouse gas emissions*, Environmental Protection Authority, Perth, WA.

EPA 2023a, *Environmental factor guideline – Social surroundings*, Environmental Protection Authority, Perth, WA.

JBS&G Australia Pty Ltd 2023, *Cleanaway Solid Waste Pty Ltd Banksia Road Landfill, Dardanup Construction and Operation of Landfill Cells 9, 10 and 12A Referral Information with additional information required under section 40(2)(a) of the Environmental Protection Act 1986* Perth, WA

JBS&G Australia Pty Ltd 2023a, *Cleanaway Solid Waste Pty Ltd Banksia Road Landfill, Dardanup Construction and Operation of Landfill Cells 9, 10 and 12A Proponent Response to Submissions 28 June 2023* Perth, WA

Waste Authority 2020*, Waste Avoidance and Resource Recovery Strategy 2030*, Perth, WA