Response to the EPA Public Review submission

Revision E

Great Southern Landfill proposal

July 2022

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Document Control

Rev	Author	Date	Comment
A	Alkina	15/10/2020	Provided to EPA Services
B	Alkina	25/03/2021	Additional clarification provided after EPA review of response submission
C	Alkina	19/4/2021	Clarification of additional DMA responses
D	Alkina	27/04/2021	Finalised for EPA submission
E	Alkina	14/7/2022	Inclusion of DMA final response

Contents

1. INTRODUCTION

Alkina Holdings Pty Ltd (Alkina) propose to construct and operate the Great Southern Landfill (GSL) and associated infrastructure for receiving Class II and Class III waste of 150,000 to 250,000 per annual period. The landfill is located on Lot 4869, Allawuna Farm, St Ronans, approximately 80 km east of Perth on the western edge of the Shire of York.

The proposal is currently being assessed under Part IV of the *Environmental Protection Act 1986* (EP Act) under the direction of the Minister for Environment. The EPA determined that the application be assessed by way of a Public Environmental Review of the Environmental Review Document (ERD), with a five-week comment period that commenced on 6 July 2020 and ended 10 August 2020.

The purpose of this document is to:

- Provide a summary of submissions received during the public review period; and
- Respond to the matters raised in the submissions.

In doing so, the document also describes and provides additional information in response to subsequent matters raised.

The document is structured to address the public and decision-making authority (DMA) comments separately, which does result in minor duplication. On 17 December 2020, the EPA Services responded to Alkina with comments to be considered in support of the initial response, which have been incorporated.

The responses to further comments provided by stakeholders were subsequently added to the Table in Appendix A in April 2021.

The EPA then again referred the additional comments back to the DMAs for a final response in August 2021. Alkina has again provided additional information in relation to those matters which form this response and is reflected in Appendix A of this document.

Supporting information is provided as separate attachments.

2. RESPONSE TO DECISION-MAKING AUTHORITIES (DMAs)

The EPA provided Alkina Holdings a summary of matters raised by the DMAs during the public environmental review period of the proposal. Matters were raised by the following DMAs:

- Department of Water and Environmental Regulation (DWER)
- Department of Biodiversity, Conservation and Attractions (DBCA)
- The Water Corporation of Western Australia (WCWA)
- Department of Primary Industries and Regional Development (DPIRD)
- Department of Fire and Emergency Services (DFES)
- Shire of York (SoY)

In accordance with the Part IV assessment process, Alkina is required to respond to the submission that will used by the EPA to assess the proposal and make recommendations to the Minister.

The responses for each DMA were separated (as provided by the EPA). The responses are table and presented in Appendix A. Where follow-up comments were provided by a DMA, these have also been included in the table together with the Alkina response.

3. RESPONSES TO PUBLIC SUBMISSIONS

The EPA provided Alkina with a summary of matters raised by the public. A total of thirty-two submissions were received. Submitters were coded for reference by the EPA to provide them anonymity, which have been used in the response table (Appendix B).

The principal issues raised in the submissions and advice received included environmental and social issues as well as issues focussed on questions of fact and technical aspects of the proposal. Although not all the issues raised in the submissions are environmental, Alkina was asked to address all issues, comments, and questions, as they are relevant to the proposal.

The key concerns raised in the submissions include:

- Contamination to soil, surface water and groundwater from landfilling operations
- Impact to the drinking water reserve
- Impacts to flora and fauna
- Feral animals
- Biosecurity
- Air emissions
- Odour
- Noise
- Traffic congestion
- Fire

While some of the comments covered multiple areas, these have been aligned as much as possible to the Key Environmental Factors identified in the EPA environmental scoping document. General comments were responded to separately.

4. APPENDICES

The Appendices A and B form part of this document, while Appendices 1-6 are separate supporting documents.

- Appendix A: DMA comments and response table
- Appendix B: Public submission comments and response table

Further supporting information (provided as separate documents):

- Appendix 1 - GSL Management Plan v6 (updated)
- Appendix 2 - Dust Management Plan (updated)
- Appendix 3 - Stygofauna assessment
- Appendix 4 - SRK (Independent Peer Review) letter responding to comments raised.
- Appendix 5 - Shire of York – excerpt from Midwest/Wheatbelt Joint Development Assessment Panel, RAR submission dated 15 June 2020 re tourism.
- Appendix 6 - Excerpt from [2016] WASAT 22 relating to conciliation of hydrogeological views.

- Appendix 7 – Greenhouse gas emissions clarification (prepared by Golder, Report # 1777197-058-M-Rev0, dated 2 December 2020).
- Appendix 8 – Technical Memorandum: Further Information – Draft response to submission (on Greenhouse Gas Emissions) prepared by Golder, Report #1777197-060-TM-Rev0, dated 12 July 2021.
- Appendix 9 – Alkina 2019a_Feral Animal Environmental Management Plan (v4)
- Appendix 10 – Leachate generation modelling (Prepared by Golder, Report #1777197-064-R-Rev0, May 2022)
- Appendix 11 – Water balance assessment (Prepared by Golder, Report # 1777197-065R-Rev0, June 2022)

APPENDIX A: RESPONSE TO DMA COMMENTS

DWER	Matter	DMA comment - DWER	Alkina Response
	Terrestrial Environmental Quality		
DWER 1	Key Infrastructure Overview	Section 2.3.2.2 of the Great Southern Landfill (GSL) ERD states that the pond sizing requirements have been determined through water-balance and leachate-generation modelling (Golder 2019d), with Golder recommending that initially a 2.5 ML leachate pond be constructed based on a scenario that is likely for the site. Golder (2019d) also recommend calibrating the HELP modelling based on monitoring data of leachate generation and incoming waste moisture condition for a minimum period of 12 months from when landfill operations commence. Based on the outcomes of the HELP modelling, an assessment can be made on whether an additional pond may be considered appropriate to manage leachate at the site. It is noted that the Proponent affirms that the 2015 modelling assumed a more likely scenario (assuming incoming waste had an initial moisture condition of 5% dry of field capacity), whilst the 2019 modelling was based on a more conservative scenario (assuming incoming waste had an initial moisture condition of 2% dry of field capacity).	Comments noted. The initial pond sizing was determined based on the most likely scenario (initial moisture condition of 5% dry of field capacity) while the subsequent 2019 modelling was based on 2% (i.e., the waste would be close to saturation when deposited in the landfill in developing a worst-case scenario). The initial moisture condition was adopted based on Golder's observations from other similar landfill in Western Australia and following an assessment of the site conditions and likely waste to be received. Alkina has adopted the leachate management strategy developed by Golder Associates (Golder), as outlined in Golder 2019d (ERD Appendix 3.6). This includes monitoring of leachate generation rates as the site develops to ensure there is adequate capacity available, which will be supported by monitoring the waste moisture condition of the wastes accepted during the first year. The leachate generation and water balance modelling will be calibrated against the monitored leachate generation rates once this is available. The water balance modelling approach adopted for the proposed landfill is consistent with the risk management requirements outlined in the VicBPEM. Alkina does not see value in constructing a 100m x 100m x 3m (25ML) pond at the onset of the landfill when Golder has determined that this conservative scenario is based on incoming wastes having a much higher moisture content, which is very unlikely. The construction of a larger pond, which will be largely empty during the initial period, will expose the liner to unnecessary exposure to the elements. Allowing the construction of subsequent additional smaller ponds that provide the necessary capacity when needed allows greater flexibility in managing leachate at the facility. In the assessment of the original works approval (W5830/2015/1) for the proposed facility, which Alkina proposed to follow, DWER (then DER) accepted the proposed strategy and granted approval. In that application, Golder recommended construction of a pond with a

		Given that Figure 13 of the 2015 Golder report indicates that the leachate pond may exceed capacity within 18 months, it is recommended that further clarification is given to not adopting a more conservative approach. In a final comment to the EPA (July 2021), DWER again reiterated their concern that the leachate storage pond would have insufficient capacity to manage leachate if putrescible waste materials were wetter than expected, and if the area were to be subjected to large rainfall events. DWER recommended Alkina recalculate the required of the leachate capacity using more conservative assumptions. DWER also expressed concern that Alkina's proposal to construct additional ponds when needed had not considered the significant amount of time required to obtain approvals DWER recommended recalculating leachate capacity requirements using more conservative assumptions.	minimum capacity of 2500 m^3 / 2.5ML (which considers a 0.5m freeboard) suitable for the operation of Cell 1 and Cell 2. Further leachate ponds were committed prior to construction of additional cells. Consistent with other landfills, and as referenced in the ERD (Section 4.4.6.2) leachate will be irrigated within the active landfill area as part of the dust suppression management; it also assists with compaction of dry-incoming wastes. If required, leachate can also be aerated within the ponds to increase evaporation rates within the ponds. Alkina management strategies will prevent overtopping of the ponds. Alkina also committed to increase the leachate pond size / bring forward the construction of a second pond, if directed by the EPA / Ministerial Condition as part of the approval. Alkina has noted the additional feedback provided. Alkina notes DWER's concern that the topography and therefore evaporation rates may differ from Bakers Hill. Bakers Hill is also located in an undulating terrain, like the Allawuna Farm (similar landscape). Alkina has committed to establishing a weather station on site to collect climatic data and provide reference for potential dust and odour management (see updated dust management plan, and sections 11.7 and 11.9 of GSL Management Plan), which will inform localised weather patterns. Section 11.5.9 of the GSL Management Plan identifies collection of leachate data referenced by DWER. Water balancing will be refined as more data is collected during the operations. In response to the final DWER comments, Alkina clarifies that it never committed to constructing only one pond, stating additional capacity would be developed based on needs informed by monitoring of initial leachate generation rates, which would lead to construction of more ponds appropriate to requirements under amendments to a Part V DWER licence. The potential location of future ponds is reflected in Figure 21 of the ERD. Alkina identified the leachate management as an operational component regulated under Part V as a potential emission or discharge, (as was identified with a similar position presented in the works approval application which had previously been approved by DWER). Alkina does acknowledge that there may be perceived confusion between the Part IV and Part V approvals if elements are not suitably delineated between the processes and if duplicate regulation is to be avoided. Alkina also notes the DWER concern that if the Part IV
DWER 2	Leachate Generation	Sizing of the leachate collection pond(s) (refer to Sections 2.3.2.2; 4.4.3.10) The ERD document indicates that the amount of seepage that will be produced in landfill cells at the site has been estimated using the HELP water balance model with mean and 90th percentile rainfall data from the Bakers Hill meteorological station (BOM site 010244). The document also indicates that Golder consultants also intend to monitor	

		leachate production over a 12-month period, with the intention of reducing the proposed size of the leachate collection pond for the site, if possible. Although the monitoring of the leachate production rate is supported, the use of these data to reduce the capacity of the leachate collection pond is not. It is recommended that the pond is deliberately oversized to manage high rainfall periods (90th percentile annual rainfall). In the absence of a local rainfall monitoring station, data from BOM site 010244 is a suitable data source to design the capacity of the leachate storage pond. DWER subsequently reviewed the initial Alkina response and provided additional comment which relate to concerns that the rate of leachate production in the proposed landfill has been underestimated, and that the proposed storage pond will not have a sufficiently large capacity to store this wastewater. In response, Alkina indicated that the water balance was undertaken using the US EPA HELP model, and conservative assumptions about the water content of the wastes that would be disposed of at the site. Therefore, Alkina indicated that an additional pond with a capacity of 100 x 100 x 3 metres would not be required, at least in the initial stages of the operation of the landfill project. DWER accepts this response by Alkina. However, it is noted that rainfall and pan-evaporation data that were used in the HELP	and Part V approval is not clear about what infrastructure is proposed, future infrastructure not specifically identified in this proposal may require unnecessary amendments to approvals (particularly Part IV of the EP Act). Alkina had taken the typical approvals approach of developing appropriate infrastructure as required under Part V when required as the seven cells come online). Alkina does also note that DWER is now taking much longer in assessing applications under Part V of the EP Act than was previously the situation; very significant time are required by DWER to assess an application under Part V and so pond infrastructure planning and construction must reflect this situation. DWER formed a view that 25ML storage capacity would be optimum for management over the life of the landfill. This was based on a very conservative assessment by Golder assuming incoming waste material is saturated (Golder 2020 modelling). At an existing landfill facility operated by a sister company which accept the same wastes as proposed for the GSL, the waste materials are generally very dry and anticipated leachate volumes there have not eventuated. Golder also acknowledged in their assessment that in their experience the conservative scenario is unlikely to be realised. In providing clarity regarding additional work DWER wanted Alkina to undertake to satisfy their concerns as outlined in the DMA final comments, Alkina, Golder and DWER discussed the requirements at length in a virtual meeting in September 2021. In addressing DWER concerns and the recommendation to recalculate the leachate storage capacity for the operational life of the project, Alkina again engaged Golder to undertake the investigations (see Appendix 10 for Golder Report #1777197-064-R0: Leachate Generation Modelling, Great Southern Landfill, dated 27 May 2022). The report developed explains the identified discrepancies between the different modelling undertaken, and with the provision of assumptions have investigated different periods of active landfilling and capping management. It identified a leachate storage capacity of 30ML as being needed for the operational life of the Great Southern Landfill. As part of their findings, they recommended the following (which Alkina will commit to): • A 15ML leachate storage pond capacity will be sufficient for the operation of Cell 1 (e.g., a 5ML and a 10ML pond).

		simulation were not obtained locally but came from the Bakers Hill meteorological monitoring site. This is of concern because the rate of evaporation from the land surface in a hilly region like the proposed landfill site is very sensitive to the slope of the land surface, its aspect, and position on a hillside. That is, the rate of evaporation may be significantly different at the proposed landfill site than at Bakers Hill. It is therefore recommended that a weather station is established at the proposed landfill site to provide more relevant evaporation and rainfall data for the site. Data from this weather station should be collected with ongoing monitoring of the rate of leachate production at the site for at least a five-year period during the operation of the landfill. These data should then be used in a further assessment using the HELP model to refine the water balance for the landfill. Such an assessment would provide a greater level of certainty about the proposed wastewater management practices at the site. As part of the additional feedback on leachate pond sizing DWER have reviewed the response provided by Alkina with regards to leachate generation modelling and leachate pond sizing and consider that sufficient additional information has been provided. DWER also note, and acknowledge, that further calibration of the leachate generation model can be conducted throughout the life	• When waste deposition commences in the following cell, a further 15ML additional capacity (e.g., two additional ponds of 10ML and 5ML capacity) will be sufficient to manage additional leachate volumes generated. • 30ML leachate storage capacity (use of the proposed 5ML, 10ML and 5ML ponds) will be required for the deposition period for Cell 3 and 4. • Once final capping up to Cell 4 has been constructed, Cells 5, 6 and 7 will only require a 15ML pond storage capacity (e.g., 10ML + 5ML ponds) Golder also noted that 50% leachate recirculation would result in a reduction of 10% capacity of storage pond/s while enhancing evaporation of leachate (e.g., aeration systems such as a floating fountains that keeps the spray in the ponds will also reduce pond capacity requirements). Golder again reiterated that leachate generation rates need to be monitored in determining pond construction requirements, as is standard industry practice. The benefit of constructing various pond sizes / configuration allows for more effective leachate management with surplus capacity available to clean/ storm water storage. This provides additional benefit of managing clean water supplies and not exposing unused leachate ponds unnecessarily to the weather that could result in premature deterioration, as mentioned in earlier responses. The ERD has conceptually identified location areas for ponds (again, as mentioned earlier in the response section). Specific design configurations will be provided as part of the works approval application and may be influenced by in situ soils and geology (bedrock). Additional capacity storage area requirements will be met by using the excavated borrow-pits areas within the proposal footprint (which will be created in sourcing cover material); these areas are generally further away from the drainage lines and higher in the landscape. Pond shape (exact geometrical dimensions, including depth) information will be presented as part of works approval applications under Part V of the EP Act in meeting the specified storage capacities. Alkina believes the provided responses and works undertaken satisfy the concerns DWER had raised in the multiple iterations of consultation. Alkina will construct, during the operational life of the project 30ML leachate storage capacity in several ponds. The dimensions of these ponds and the configuration will be finalised as part of the Part V licensing as mentioned above

		of the proposed landfill, and this data can be used to refine water balance and leachate calculations for the premises. Alkina proposes to monitor leachate generation rates as the site develops to ensure there is adequate capacity available, and if required, construct additional ponds as necessary. DWER consider that Alkina, in taking a less conservative approach to leachate storage, will be reliant upon operational controls to manage to leachate should actual moisture and water balance conditions vary from those modelled. While this practice of using operational practices to manage leachate is not uncommon, an assessment of the suitability of this approach for this proposal should be considered, noting that should waste moisture, or leachate generation approach worst case scenario conditions, the construction of additional leachate ponds will likely be subject to approvals and construction requirements that have not been assessed as part of the current proposed infrastructure. DWER notes that these aspects of the proposed landfill design can be assessed within the scope of the assessment of a Works Approval application for the premises and note that regardless of the initial leachate pond size, conditions can be placed of the operator, under Part V of the EP Act to manage leachate and leachate storage for the landfill, in a manner that prevents pond	

		overtopping and discharges of leachate to the environment. In their final comment to the EPA (issued to Alkina in August 2021), DWER acknowledges that the Alkina ERD documentation identified potential future leachate ponds, however, have assumed that for the purpose of the EPA referral, only one pond was to be constructed with seven landfill cells and ancillary infrastructure. DWER now believe that the proposed 2.5ML pond is not adequate for the for the management of leachate over the life of the landfill. Furthermore, DWER considers that the ability to have only one operational cell at a time with all other completed cells capped is rarely achieved. Their view is that the optimum pond size for operational management is 25,000m3 (or 25ML). DWER acknowledges that while aspects of the pond design, including leachate management and provision of adequate storage capacity can be assessed and controlled under Part V, the ability to apply these controls will depend on consistency of approvals under Part IV and any other Part V approval.	

	Inland Waters		
DWER 3	Post-closure monitoring and maintenance	Section 2.3.3.7; Table 9. It is recommended that dissolved carbon dioxide, selenium, antimony, and a suite of PFAS compounds is added to the chemical parameters listed in Table 9. It is also recommended that site-specific water quality criteria are developed for these water quality parameters that will trigger a management response if exceeded.	Recommendation accepted. In Table 9 of the ERD, Alkina did identify that laboratory suites may be refined as necessary during operation. Alkina accepts the DWER recommendations to expand the monitoring suite as part of the post-closure monitoring activities. Table 9 in the ERD did commit to establishing water quality criteria based an ecological risk assessment once the site becomes operational. However, it must be noted that Alkina has not specifically asked to accept Special Type 3 wastes (soils and solid wastes impacted by PFAS) that should identify its presence as a concern. Alkina commits to developing a Groundwater Monitoring Plan prior to the operation of the landfill to detail the suite of parameters to be measured and associated frequencies of monitoring events for selected bores.
DWER 4	Modelling of groundwater flow and solute transport using CONSIM	Sections 4.5.3.8 – 9. The simulation of seepage from landfill cells suggests that it could take more than 20 years for leachate from leaking landfill cells to reach a nearby seasonal creek. One potential receptor for the contaminated groundwater would be fauna living in the hyporheic zone (i.e., stygofauna) in sediments beneath and adjacent to this creek. Although this creek is in a highly disturbed catchment and has a variable salinity, the possible presence of a hyporheic fauna has not previously been considered at the site. It is consequently recommended that a stygofauna assessment is undertaken for the site to determine whether this is likely to be a significant issue.	Comments noted. Alkina notes that DWER has never previously identified the risk to stygofauna as a concern when it granted the initial works approval in 2016. Neither was this matter raised during the development of the project scope (it was not raised as a key environmental factor) nor by the DMA in its review of the draft ERD prior to the public environmental review. Alkina has sought professional advice from an environmental consultant on this matter (Phoenix Environmental Services Pty Ltd). Phoenix concluded in their high-level assessment: *Based on a review of the geology and hydrogeology underlying the project, it is considered unlikely that a significant stygofauna community in accordance with EPA (2016a) would be present with only a minor low-suitability aquifer present overlain be a low permeability clay layer forming a barrier to surface nutrient supply. Land salinisation in this cleared agricultural landscape is likely to have impacted water quality within aquifers within the study area creating unfavourable habitat conditions for stygofauna persistence. The hyporheic zone of the Thirteen Mile Brook is considered unlikely to contain any stygofauna species of conservation concern.*

		After reviewing Alkina's response, DWER provided additional comment relating to the monitoring of (stygofauna in) the hyporheic zone	*Accordingly, the high-level review concludes that stygofauna are unlikely to be impacted by the development of the project*. A copy of the assessment report is provided as Appendix 3. The additional comment provided subsequently by DWER has been separated as it relates into a separate section (see DWER 28).
DWER 5	Climate independent water supply	Section 2.3.2.2. water collection infrastructure: Currently the proponent is proposing to rely on a surface water supply (on-stream dams) for the proposal. Given that surface water is climate dependent, and licensed surface water supply in the area is fully allocated, an alternative, climate independent water supply should be investigated/secured to demonstrate there is sufficient water availability for the life of the project. DWER subsequently commented on Alkina omitting / deferring the sourcing of sustainable water to future contractors, reiterating that dams should be constructed off-stream unless the proponent can demonstrate that measures to construct an off-stream dam is not technically viable. DWER also noted that off-stream dams would likely only have water available for use for 6-9 months of the year. DWER considers the sourcing of groundwater in the area to be low, and groundwater is likely to be saline and of limited use. DWER recommends that Alkina also consider obtaining water for dust	Comments noted. Section 2.3.2.2 in fact states that Alkina would harvest surface run-off into off-stream and on-stream dams; the latter being subject to approvals under the RIWI Act, which DWER correctly identifies as being reliant of rainfall. Alkina reports in this section of the ERD that it has met with and received advice from the DWER Swan Regional office relating to the construction of infrastructure within a creek line being subject to a Beds and Banks permit (s17 of the RIWI Act). In all their communications, they stated they would be supportive of off-stream impoundments but not on-stream dams (usually only considered as a last option). At the meeting in October 2019, they also stated that any application submitted would only be considered at the conclusion of the EPA process. The above follows from the original Golder proposal assessment of water requirements initially identified the option of establishing a 36,000 m^3 on the creek flowing into 13 Mile Brook to meet the site dust suppression water needs as part of the original approvals. Allawuna farm has multiple off stream dams (over 19) that that harvest water runoff. The land around the proposal envelope will be owned by an affiliated company. Alkina also has the option to negotiate a commercial arrangement with the landowner to purchase farm dam water collected within the property if approval for the construction of an instream dam is rejected. The landowner also has the independent option of maximising surface water runoff harvesting within the Allawuna Farm property with off-stream dams (e.g., establishing roaded catchments, or establishing additional graded contour banks). Stormwater runoff within the envelope area will also be harvested where possible. Furthermore, it is reiterated that access roads to the site will be sealed and so dust management (which will also be monitored through a comprehensive regime) focus will be

		suppression from an external source/supplier. In final advice to the Part IV assessment, issued to Alkina in August 2021, DWER stated that no appropriate investigations in a sustainable water supply had been undertaken, stating that existing groundwater may not be available, nor the quality suitable.	within the landfill operational area. Collected leachate can also supplement water for dust suppression within the landfill containment infrastructure. Where water for construction purposes is determined to be inadequate, Alkina, will as part of its tender to construct, require the successful tenderer to source their own water for the construction. Furthermore, Alkina may pursue groundwater supply options on the property and alternative off-site sources if required to satisfy dust management requirements. The Fee Simple Title Deed of the property provides ownership of resources up to 2,000 feet below the surface on Lot 4869 and advice previously obtained from Department of Water was that extraction of groundwater would not require licensing (email to Alkina from the Senior Natural Resource Management Officer at DWER dated 13 November 2017, 11:47am). It should also be noted that the site entry road will be sealed (meaning less fugitive dust generated by moving vehicles on the roads) and Alkina has the option of recirculating leachate (actively irrigating leachate onto the active landfill face) to assist with dust management within the landfill area (and leachate management control). In responding to the DWER final comments on the matter of water supply in August 2021, Alkina commissioned Golder to review the water balance to investigate sustainability of water supplies. In addressing the final comments from DWER, Golder produced report # 1777197-065-R-Rev0: Water Balance Assessment, dated 17 June 2022. This report is presented as Appendix 11. Golder investigated various scenarios of water harvesting on the property and considered leachate recirculation options to manage dust during construction and operations. The modelling undertaken indicated there is an adequate volume of water within the development envelope to meet the water requirements of the landfill between May to October for all modelled scenarios. For the months November to April, the modelling indicates a water deficiency within the development envelope, however surplus water to farming needs can be used to make up the deficit for all months, except if crop irrigation is undertaken on the farm (only dryland agriculture is currently practised) during landfill operations.

			An external recycled water source has also been sourced; the company can potentially provide 900m^3 monthly, which can be trucked to site and temporarily stored for supplementing construction of landfill cells and short-term deficits (e.g., potentially in the month of November). Furthermore, scheme water can also be purchased if needed. In reviewing potential options for temporary storage of supplemental water, Golder considered the following options feasible: • Include design features in the landfill liner to separate leachate and clean water during landfill operations (typically referred to as intercell flaps). • The clean stormwater can be pumped and temporarily stored in unutilised leachate ponds, borrow zones, pre-excavated landfill cells or existing dams. • Construct new stormwater storage dams within the development envelope (i.e., in the landfill cover borrow zones) Alkina has concluded that water supplies are not an insurmountable obstacle that would result in Alkina not being able to effectively manage dust associated with the landfill activities by employing the outlined strategies, assuming an instream dam is not supported.
DWER 6	Leachate discharge and Emissions	Section 4.5.4.1.1 on pages 181-182 of the ERD document omits the fact that some chemical constituents of potential concern (CCOPCs) in seepage to groundwater from a landfill cell are not necessarily present in the raw leachate, but rather are released into groundwater through chemical reactions between the leachate and the aquifer matrix. This means that directly measuring CCOPCs in landfill leachate may not clearly indicate their possible concentration ranges in groundwater. For instance, due to the ferruginous nature of the regolith at the Allawuna site, concentrations of dissolved iron, cobalt, manganese, nickel arsenic and antimony would probably be elevated in contaminated groundwater above their levels in leachate.	Comments noted and recommendation accepted. Section 4.5.4.1.1 describe the potential surface water impacts from leachate discharge and emissions. As part of this, Golder reviewed the monitoring results from other landfills in the absence of other data. The proposed monitoring parameters were derived from monitoring requirements imposed on comparable landfills. Alkina will develop a Groundwater Monitoring Plan (which will also address deficiencies of bores in areas as outlined in the SRK review (ERD Appendix 3.7) prior to operations and can submit this as part of the licence application process under Part V of the EP Act. Alkina acknowledges and expect DWER will impose the suite of parameters it expects to be monitored as part of any approval, irrespective of that proposed by Alkina. Alkina will commit to monitoring the parameters identified in the approvals, which will now be expanded to include monitoring of arsenic and antimony.

		This would be due to the partial reductive dissolution of iron oxide minerals in the aquifer matrix caused by reactions with leachate. Elevated concentrations of arsenic and antimony in groundwater would be of environmental concern, and these elements should be included in the monitoring suite for groundwater at the site.	
DWER 7	Potential groundwater connection to the Mundaring Weir catchment	In referral of the EPA submissions, DWER has provided additional comment: Several submissions on the proposed Great Southern landfill site mentioned a possible groundwater connection between the Thirteen Mile Brook catchment, and the adjacent catchment that forms the Public Drinking Water Supply Area (PDWSA) for Mundaring Weir. Consequently, concerns were raised about the risks of leachate from the proposed landfill site reaching the PDWSA via groundwater flow. In response, Alkina indicated that it was highly unlikely that such a hydraulic connection existed between the two catchments. DWER agrees with the assessment of Alkina on this issue, based on the known behaviour of nested groundwater flow systems in hilly terrains. A preliminary assessment of groundwater flow near the proposed landfill site using the USGS model TOPODRIVE (USGS, 2001) suggests that the regolith and fracture zones in bedrock beneath the site do not extend to a sufficiently great depth to enable	Comments noted and acknowledged DWER dispelling some of the concern raised by other submitters.

		groundwater flow to bypass Thirteen Mile Brook. That is, it is likely that most of the groundwater flow beneath the site discharges to Thirteen Mile Brook, and that this feature forms a significant hydraulic barrier to groundwater flow beyond the catchment boundary. Consequently, DWER does not consider that waste disposal at the proposed landfill site will pose a threat to water quality in the Mundaring Weir PDWSA.	
DWER 8	Potential impacts of waste disposal on nearby groundwater supplies	In referral of the EPA submissions, DWER has provided additional comment: Several submissions raised concerns about the potential impacts of waste disposal on groundwater supplies by nearby residents. In response, Alkina indicated that groundwater in the area is too saline and acidic for most extractive users, and that therefore negligible impacts would be expected. DWER broadly agrees with the response by Alkina on this issue.	Comments noted and acknowledged DWER dispelling some of the concern raised by other submitters.
DWER 8	Key Infrastructure overview	Section 2.3.2.2. The proponent is required to apply for a bed and banks permit under the Rights in Water and Irrigation Act 1914. The plans provided show that an on-stream dam is proposed. The Departments policy (Water quality protection note no. 53 – Dam construction and operation in rural areas (DWER, Sept 2019)) generally does not support on-stream	Comments noted. The issue relating to application of a Beds and Banks permit has been discussed in an earlier section of this response. Advice from the DWER Swan Region was that any application under the RIWI Act would only be dealt with after the Part IV EPA determination, which has been articulated in the section referred to by the DMA. Presence of off-stream dams on the property are visible in aerial imagery for the site. There are presently at least 19 identifiable farm dams on the property from which additional runoff harvesting could be undertaken. Additional off-stream dams can be constructed in future to

		dams and as such the documentation should be updated to show off stream dams.	capture affiliated runoff from the proposal area, including harvesting water from diversion structures, which will not need regulatory approval.
	Air Quality		
DWER 9	Greenhouse gas emissions	Upon reviewing the Alkina response to submissions, DWER noted that based on recent correspondence the proponent has indicated that total post-mitigation greenhouse gas emissions may exceed 100,000 tonnes carbon dioxide equivalence (tCO2-e) per year by approximately 2037. Information on greenhouse gas (GHG) emissions in the endorsed Environmental Review Document (June 2020) states that emissions would not be considered significant (i.e., less than 100,000 tCO2-e per year), even at their peak in the final year prior to capping in 2050. Given this new information DWER requested in November 2020 that Alkina Holdings provide clarification regarding the discrepancy with the predicted greenhouse gas emission levels and provide justification as to why a greenhouse gas management plan should not be drafted and provided for seven-day public comment. In reviewing the Golder 2 December 2020 response DWER subsequently requested Alkina: • Clarify whether the estimated Scope 1 GHG emissions were	In response to the DWER request dated 17 November 2020, which asked for clarification of GHG emissions, Alkina engaged Golder to develop the response which is provided in Appendix 8 (Golder Report #1777197-058-M-Rev0, dated 2 December 2020). Golder provided detailed information on total and reportable emissions for the duration of the landfill. Golder determined that using globally recognised GHG accounting principles (which considers the biogenic argument), the proposed GSL landfill would not exceed the *EPA (WA) Environmental Factor Guideline (EFG): Greenhouse Gas Emissions*, emissions threshold criteria of 100,000t CO_{2e} per year, and so a formal GHG Mitigation plan had not been developed (or required advertising). Alkina engaged Golder to respond to the subsequent additional information requested. This information was collated and provided as Attachment 8 (Golder Report #1777197-060-TM-Rev0, dated 12 July 2021) and was submitted to DWER in July 2021. Alkina, in June 2021, also sought to meet with the Chairperson of the EPA to discuss the EFG: Greenhouse Gas Emissions and implications regarding biogenic emissions of carbon dioxide calculations in the interpretation of the guidelines. While the meeting never eventuated, the EPA engaged the consulting firm Carbon Intel to review the GHG assessment reportability of biogenic carbon for the proposed GSL. In the Carbon Intel report DWER sent to Alkina on 14 February 2022, it confirmed that with even a 75% GHG recovery rate, emissions would remain below the 100,000t CO_{2e} per year threshold and therefore not be considered significant / require a GHG management plan.

		representative of all the sources from the proposal as opposed to those emissions from landfill gas alone • If the above sources have not been included, then this information should be provided • Provide details of 'other' sources of GHG emissions generated because of the proposal.	
	Landfill gas, dust and odour matters are considered in the Social Surroundings section		
	Social Surroundings		
DWER 10	Noise	Alkina submitted new information to DWER in support of their Works Approval in July 2017, which clearly indicated that the proposed operational hours would be 6.00am to 5.00pm Monday to Friday and 7.00am to 4.00pm Saturdays and Public Holidays (Sunday closed). Instead of assessing and demonstrating that noise compliance would be achieved at night, Alkina suggested that they would address the night-time noise compliance issue at the stage of the licence application, which at the time was not supported by DWER. The ERD includes an Environmental Noise Assessment report revised by VIPAC on 19 August 2015. The changes made in the revised VIPAC report include the reduced sound power level of semi-trailer road trains, and the revised elevation of the landfill footprint. The revised VIPAC report also proposed the night-time operation scenario by restricting the use of two mobile	Comments noted. DWER has accepted that operations will satisfy day-time noise criteria. Alkina will commit to only undertake landfilling after 7am on operating days until it has been able to validate that the noise levels comply with noise regulations at a 6am commencement, at which time Alkina will seek to amend the operating licence to allow for an earlier / 6am start. Alkina, as presented in the updated GSL Management Plan (section 2.5) proposes the operating time to align with daytime assigned levels (7am to 6pm, Mondays to Fridays, and 7am to 5pm on Saturdays).

		equipment items - grader and dump truck. VIPAC's noise modelling for this proposed night-time operation scenario indicated that night-time operation noise emissions would also comply with the assigned noise level. DWER does not agree with VIPAC's conclusion that night-time operations will achieve compliance with the Noise Regulations, as noise reductions seem to have been over-estimated. For instance, the operational noise emission level has been predicted to be reduced from 41 dB(A) (LA10) to 34 dB(A) (LA10) at one of the closest noise sensitive residences (2974 Great Southern Highway, St Ronans), which represents a 7 dB reduction. The sound power levels quoted for the major equipment items for the noise modelling indicate that both the grader and dump truck are not the noisiest plant (118 and 107 dB(A), respectively), when compared with other heavy plant on site, such as a compactor (124 dB(A)) and dozer (119 dB(A)). In DWER's experience, restricting the operation of the grader and dump truck only will not significantly reduce the overall noise emission levels from the site. In summary, DWER considers that the proposed operation would have sufficient buffer for it to comply with the Noise Regulations during the daytime period, however the applicant has not satisfactorily demonstrated that night-time compliance can	

		be achieved at the nearest noise sensitive locations. Following the Alkina response regarding compliance at night, DWER notes that Alkina Holdings has committed to only undertake landfilling after 7am on operating days until it has been able to validate that the noise levels comply with noise regulations at a 6am commencement, at which time Alkina will seek to amend the operating licence to allow for an earlier / 6am start. DWER considers this proposed change will ensure that the operation hours of the proposed landfill are limited to daytime only, which has satisfactorily addressed previous concern over the night-time noise compliance.	
DWER 11	Landfill Gas Assessment	Section 4.6.5.3; 5.1.2.2. This assessment uses an appropriate methodology to determine the likely production rate of gases within landfill cells. However, due to the acidity of the groundwater at the Allawuna site, there is also a risk that gaseous emissions would take place outside of landfill cells if significant seepage were to take place from the cells. This is because landfill leachate typically contains very high concentrations of bicarbonate ions due to the biodegradation of putrescible organic matter. Consequently, the chemical reaction of leachate with acidic groundwater would produce large amounts of carbon dioxide gas. Although this would not pose an explosion hazard like methane, large emissions of carbon dioxide could harm	Comments noted and recommendation partly accepted. The GSL is designed with a composite liner system on a compacted clay sub-base. Alkina maintains it is highly unlikely that landfill gas will seep through the basal liner and compacted subsoils, particularly when the landfill gas will be extracted from the landfill and be treated. Alkina does accept the premise that significant seepage of leachate containing high levels of bicarbonates could react with acidic ground waters to release carbon dioxide (if assuming liner is compromised). Alkina will add dissolved carbon dioxide to the groundwater monitoring suite for the bores near the landfill cells to satisfy the DWER concern as part of a groundwater monitoring plan that will be developed. Monitoring requirements should be implemented based on risk to receptors. Alkina does not believe that soil gas monitoring is warranted at this time as DWER is assuming there will be significant leakage through the basal liner (pre-empting). There will be no native vegetation within the immediate surround of the landfill area which could be affected by higher carbon dioxide levels. The containment infrastructure is already

		vegetation and soil fauna near landfill cells. Consequently, it is recommended that dissolved carbon dioxide is added to the groundwater monitoring suite for monitoring bores near landfill cells, and that soil gas monitoring is undertaken for this gas on a periodic basis. DWER subsequently accepted the response from Alkina on this issue.	predominantly cleared and will be kept clear to manage fire risk. Any impact on crop growth (outside the development area) that results in reduced production will be borne by the landowner (who will be affiliated with the proposal). Alkina asserts that the natural soil fauna will likely already have been influenced by existing farming practices and the disturbance caused by the construction activity will further affect their habitat through the cut, fill and compaction processes. There is no known soil fauna of concern that would warrant additional soil gas monitoring requirements. An investigation into the presence of stygofauna, determined the land salinisation in this cleared agricultural landscape is likely to have impacted favourable habitat
DWER 12	Asbestos management	Appendix B of Appendix 6-1. It is noted that an asbestos management plan is not included as part of the ERD but will be developed as a separate document, presumably in consultation with appropriate authorities as for the Fire Management Plan in Appendix C. It is recommended that Department of Health (DOH) is consulted as DOH is the lead agency for the management of asbestos impacted sites. DWER subsequently noted Alkina's commitment to consult with DoH in the development of the asbestos management plan.	Comments noted and recommendation accepted. Alkina will develop an Asbestos Management Plan with consideration of the associated legislation and advice from DOH prior to accepting any asbestos containing materials on site. Proposed measures to manage asbestos are similar to measures imposed by DWER at other licensed facilities that accept and bury asbestos. Asbestos burial areas will not be disturbed. Asbestos burial locations will also be mapped and be made known to authorities (including DFES) through the fire management plans.
DWER 13	Dust Management	Sections 3.2 and 4 of the Dust Management Plan in Appendix 5_1, Table 4 of the ERD. The following guidelines should be Included: • Department of Environment and Conservation (DEC) 2011, A guideline for managing the impacts of dust and associated contaminants from land development sites,	Comments noted and recommendations accepted. Alkina has updated the Dust Management in consideration of the DMA comments, which has meant amending headings and content. This plan is provided as Appendix 2. The guidelines presented by the DMA have been referenced in Section 7 (Legislative and Policy Framework) and Section 15 (References). The Standards and goals for particulates (Table 2) have been updated to reflect DMA comment / recommendations.

		contaminated sites remediation and other related activities, Perth, Western Australia. • National Environmental Protection Council (NEPC) 2016, National Environment Protection (Ambient Air Quality) Measure, Canberra, ACT. • New South Wales EPA (NSW EPA) 2016, Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, Sydney, NSW. Section 3.2 and Table 2 of the Dust Management Plan (DMP) in Appendix 5_1, Section 11.7.3 and Table 6 of Appendix 6-1. The TSP criterion of 90 µg/m3 is specified as an annual average, whereas the Kwinana Environmental Protection Policy (Kwinana EPP) specifies this criterion as a 24-hour average. This should be changed to align with the Kwinana EPP. The PM10 annual average NEPM criterion of 25 µg/m^3 should be included as recommended by Golder Associates. The deposited dust criteria in the NSW EPA guideline of 4g/m^2/month and 2g/m^2/month above background should be included. DWER subsequently acknowledged the in inclusion of the dust standards in Table 2 of the Dust management plan.	These changes reflect current 'industry best practice' which lends itself to reducing the perceived risk of dust emissions in a rural environment and reacting to them when they occur or identifying their source or origin for record keeping.
DWER 13	Dust management	Section 4.6.6 of the ERD, Section 3.5 of the DMP in Appendix 5_2, Section 11.7.5 of Appendix 6-1. DWER recommends wetting	Comments noted and updated.

		down of the active face prior to conducting work activities and inclusion of this dust control measure in the dust mitigation strategies. DWER subsequently acknowledged the inclusion of the wetting down recommendation	The Dust Management Plan (Section 10 – Dust Mitigation) has been updated to include the DMA recommendation.
DWER 15	Dust management	Sections 3.6.1, 3.6.2 and 3.7 of the DMP in Appendix 5-2. The proponent has committed to establishing boundary monitoring to control dust on site during construction and operational phases. The type of monitors to be used has not been specified. It is recommended that the monitoring is conducted using continuous dust monitors with short-term trigger values to guide management actions in response to elevated dust levels. Trigger values are arbitrary and can be amended if found to be ineffective in achieving dust management objectives. The DMP also refers to the use of a windsock to estimate wind strength and direction, supplemented with handheld anemometers. This equipment does not provide continuous meteorological data that is required for assessment of dust monitoring results and management actions. There are commercially available portable units that provide continuous measurements of wind and temperature that are suitable for this purpose, which AQB recommends. Should dust impacts occur or if verified complaints are received, then dust	Comments noted and recommendations accepted. The type of monitoring equipment had deliberately not been identified to not pre-empt technology that may yet become available and suitable for the purpose at the time of commencement. The type of monitoring equipment selected will need to consider operating with solar (and batteries) as access to power will be limited (distance and remoteness) and it will be impractical to run generators for monitoring purposes (as this may also affect particulate levels and be a noise emission that receptors need to contend with). Furthermore, the technology must also be suitable and provide information commensurate with the risk. Any telemetry equipment will also need to consider mobile reception coverage. Section 11.1 of the updated Dust Management Plan now provides detail of proposed (or similar) instrumentation which will involve continuous monitoring and provide the ability to provide alerts when trigger levels are breached. The trigger levels (Section 11.6) have been selected and includes both visual and quantitative values. As mentioned by the DMA, these trigger values can be adjusted to ensure the dust management objectives are being met. Alkina has used the regulatory controls DWER has placed on a waste processing site in Malaga's industrial zoned area as a guide. Weather monitoring will include both automated instrumentation (again the exact instrument will be determined based on suitable technology available at the commencement of the facility. Reference to an automated weather station and use of a windsock (operator guide) are included in Section 11.2. As stated in the ERD (4.6.4.2) the landfill will be operating in an agricultural landscape whereby farming activities will also be a major contributor of dust. In assessing the impacts (see 4.6.5.2), it was noted that there is an internal buffer or 600m to the nearest property

		management practices and the boundary monitoring program should be reviewed. Section 3.7 of the DMP should include an annual review process for the DMP. DWER subsequently was satisfied with the use of continuous monitors, the type of equipment proposed to be used (e.g., light scattering device) on the boundary and the use of an automated weather station to collect meteorological data.	boundary which will provide significant mitigation. The nearest receptor is still a further >1.2 km away and separated by topography and significant bushland to mitigate emissions. The Dust Management Plan provides for a procedure to manage complaints and contingency planning (Section 12). A specific section (Section 14) has been included to annually review the plan to ensure mitigation and monitoring requirements are commensurate with risk. After 12 months of operation and dust monitoring data collection, a better understanding of fugitive dust because of landfilling operations will inform revisions of the management plan.
DWER 16	Dust Management	Environmental receptors adjacent to the site are food crops and waterways. DWER is not aware of air quality guidelines that allow assessment of potential dust effects on these receptors. Effective dust management (as demonstrated by the boundary monitoring network and other evidence from the implementation of management procedures) is essential to mitigate potential effects. DWER subsequently responded to the comments by stating that the proponent's commitment to monitoring and mitigation to reduce the risk of dust impacts on the community is noted, including annual review of the DMP. DWER is unaware of guidelines for the assessment of dust impacts on crops and waterways, if an assessment of impacts on these receptors is required.	Comments noted. Air-borne particulates occur naturally in rural and agricultural landscapes. It results in soil migration and sedimentation where deposited. It can also be naturally conveyed by water because of rainfall runoff (together with water eroded sediments). As mentioned in the response above and in the Dust Management Plan (Section 6) and Section 4.6.4.2 and 4.6.5.2 of the ERD, Alkina believes the risk of dust to receptors in this proposal is considered low. The proposed monitoring of dust will provide greater insight of how dust from the landfill will contribute to the environment and allow review of mitigation strategies. Alkina has no knowledge of scientific studies undertaken that demonstrate that dust poses a significant risk to vegetation or crops. Existing farming (cropping and vehicle livestock movement across paddocks in the dry months) already produce significant amounts of dust, which would have impacted on vegetation and crops if it were of concern. The level of concern for dust raised by the DMA and the monitoring expectation greatly exceeds the concern for dust generation at similar facilities with closer receptors in WA. The previous proponent committed to monitoring using instrumentation to demonstrate to the community that dust will not present an unacceptable risk, which Alkina will undertake. Dust was never identified as a significant emission for this proposal but was addressed as a potential emission impacting the social surroundings. Monitoring and mitigation must reflect the risk, which Alkina have the view is being exaggerated in this proposal. Alkina will review

			the Dust Management Plan annually to ensure monitoring requirements reflect the risk to health. The proposed monitoring programme will provide the initial basis of dust accumulation because of the landfill activities. Alkina has not identified contaminated dust from waste discharges as a significant source. Waste will also be covered at the end to the working day with on-site derived soils, or an alternative daily cover (which will not present any additional contaminants). The landfill is not the only potential source of dust in the area; the agricultural activities on the property and on neighbouring farms will also present a source, particularly during the dry season by livestock movement and farm machinery (ERD 4.6.4.2) while hot dry winds often experienced in agricultural areas will also contribute to erosion and sedimentation during summer, while winter surface flows may also move sediments across the landscape. Alkina is proposing to manage the risks associated with its activities (4.6.6, Dust Management Plan and GSL Management Plan).
DWER 17	Odour Management	(Appendix 6_1, Great Southern Landfill Management Plan (GSLMP)). Section 10.6, 11.9. The thickness of daily cover is described in the GSLMP as being 225 mm (page 46) and 150 mm (pages 12, 15). The daily cover thickness requires clarification. Section 11.9.7 GSLMP. The Emission Limits section of the GSLMP has several shortcomings including: o The definition of “unreasonable odour” is very arbitrary and requires better description. o It is stated that “DWER sets a target of 500 odour units emitted from a single source”. DWER does not have specified odour emissions or concentration limits for odour sources.	Noted and recommendations accepted. Alkina has with the assistance of an odour specialist (OPAM consulting) updated the Odour section of the GSL Management Plan (11.9). This has resulted in some formatting changes. Daily cover will involve the application of 150mm of soils, or an alternative daily cover (see Section 11.9.5). The concerns raised with the emission limits has been addressed replacing this section with a robust performance monitoring system that is less subjective through the implementation of an odour patrol system.

		o It is not clear what “olfactometry monitoring” refers to. o Thresholds for remedial action resulting from “olfactometry monitoring” are not specified. Based on these shortcomings, significant revision of this section of the GSLMP is recommended. DWER provided additional comment after the odour component of the GSL Management Plan was updated in October 2020. This includes acknowledging the clarification of daily cover thickness, changes in terminology and use of an odour patrol system. The unclear procedures and references to “unreasonable odour”, “emission limit” and “olfactometry monitoring” have been removed and replaced with an odour patrol system. The inclusion of odour patrol program in the GSLMP (October 2020) is a positive step towards monitoring and managing odour emissions from the facility.	
DWER 18	Odour	After a review of the updated odour management in October 2020, DWER notes the implementation of a comprehensive odour complaint management system, and recommend the inclusion of a full description of this system:	After receiving the additional feedback from DWER, the Odour Section of the GSL Management Plan (11.9) has been further updated in consideration of feedback and comments provided by DWER. In relation to the odour complaint management system, additional description has been included under section 11.9.6 (under dot point 3) as recommended.
DWER 19	Odour	<u>Odour Patrols</u> Section 11.9.10 GSLMP. Further detail regarding mitigation options that might be	Comments noted and recommendations accepted. The Landfill Management Plan has been updated to reflect the comments.

		available if excessive odour emissions are identified is recommended. These might include for example: o Undertaking odour field assessments following the methodology in DWER's Guideline: Odour Emissions to determine the odour impact extent. Increasing the daily cover thickness. o Improving the quality of the daily cover media if it is found deficient; and o Taking further measures to reduce active face exposure during unfavourable meteorological conditions Section 11.9. The Golder Associates Technical Memorandum (2017, ERD Appendix 5_2) recommendations (Section 1.3.2) review comments regarding the report Allawuna Farm Landfill – Odour Management Plan' (Bowman and Associates Pty Ltd, July 2015) appear reasonable. It is not clear however if the Odour Management section of the GSLMP has taken into consideration all these review comments. For example, discussions regarding onsite meteorological monitoring that records wind speed, continuous improvement plan and annual review of the odour management plan are absent. After the update of the GSL Management Plan in October 2020, DWER provided additional advice, stating the inclusion of an odour patrol program in the GSLMP (October	Alkina has incorporated the additional mitigation strategies identified by the DMA into revised Section 11.9.7. The collection of meteorological information will provide benefit in managing, and detecting conditions when odour is more problematic, and enable adjust of controls accordingly. The performance monitoring system and corrective actions (11.9.6 and 11.9.7) also addresses the matters identified in the Golder review mentioned by the DMA. After the feedback provided by DWER on the Odour Section if the GSL Management Plan (October 2020 revision), Alkina, with the assistance of an odour specialist reviewed the feedback, and where appropriate updated the relevant section of the GSL Management (which has subsequently been revised to replace the former version). In section 11.9.6 of the updated GSLM, objectives of the odour performance monitoring are clearly stated which include the objective of the odour patrols. Odour performance monitoring is to: • Assess the efficiency of the daily operations and mitigation measures. • Identify and implement corrective actions should odour get recognised, or odour complaints are received, and the assessment of the performance of these actions. The issue raised by DWER is not related to the objective of the odour patrols but the recommended implementation of these patrols with movements between points depending on the wind conditions on site. Additional information in Section 11.9.6.3 has been included. An experienced field odour practitioner will be engaged to assist with development of competencies. Multiple panellists (patrollers) will be trained. Also, replacement staff will be trained. Absence of odour recognised by the patroller while odour complaint may have occurred is possible and may not be related to the lack of odour sensitivity from the patroller. A higher probability for this to happen would be transient emissions resulting in intermittent odour impacts at sensitive receptors that will not be identified by the odour patrol, if this one did not occur at the time of the odour event. If there are odour complaints, some patrols will be

		2020) is a positive step in monitoring odour emissions from the facility. The following comments are made regarding this program. A clear statement of the objectives of the odour patrols is absent. Such a statement is recommended to give further guidance to panellists as how to select pre-determined observation points for measurements (e.g., whether to move towards the site or laterally when selecting the next measurement point) (pg. 57), and to determine when "he/she has covered enough points" (pg. 57) and to further guide site managers in the interpretation of results. An assumption of sufficient staff being available with sufficient time to undertake patrols is present in the plan. Discussion regarding the ability to resource odour patrols and expected staff turnover/new staff training is recommended. Nose calibration – the possibility of panellists who are staff at the site not being sufficiently sensitive to odour should be considered if complaints occur, but odour is not detected during field surveys. DWER notes that "Training should occur prior to start of odour patrols". Odour patrols can be complicated. Training and review of the procedure, pre-determined points and results by an experienced field odour practitioner is recommended, for example prior to undertaking the first odour patrol and after a small number of odour	undertaken as part of the response to the complaint management under the wind conducive to possible impacts at the complainant's location. Where repeated complaints cannot be verified, these will be investigated by patroller (panellist) not associated with the daily operations (11.9.6.7). The use of a zig-zag approach is to intercept odours and help identify / verify the source location (direction). An example of this has now been included in the Plan (Figure 4) to demonstrate the point. Receptor R3 is not reflected in the GSL Management Plan (nor identified in the initial Odour Management Plan) and relates to superseded information that has been updated based on initial DWER comments). DWER may be referring the farmhouse, which has been established to not be a sensitive receptor as it will be directly affiliated with the landfilling activities (e.g., as either an office or caretaker residence). This clarification is documented in 11.9.2 of the GSL Management Plan. Following the final referral of DWER comments, received by Alkina in August 2021. Alkina has updated sections in the GSL Management Plan, principally in 11.9.6 where the proposed odour patrol objectives were included as recommended. The role of the odour field practitioner was further detailed to include onsite and offsite staff training with annual verifications of individual odour detection thresholds in 11.9.6.1. Additional wording was also included in section 11.9.6.2 to better reflect response to odour complaints and potential odour de-sensitisation (e.g., calling upon another trained patroller to verify, as well as support from an experienced odour field practitioner) as detailed in section 11.9.6.7. In relation to ensuring the availability of staff to conduct patrols, Alkina had previously stated that multiple patrollers would be trained. These will be staff located both on and off the site to support the implementation of associated operating procedures; this has been expanded upon based on the feedback. As mentioned in the GSL Management Plan, the Site Manager will be responsible for the implementation of performance measures and associated higher level objectives' management.

		patrols to ensure they are being undertaken effectively. "Then, the panellist moves downwind the site operations starting at the furthest point if possible and can move in a zig-zag pattern from one point to another." The purpose of moving in a zig-zag pattern between measurement points and what the panellist should be observing during this zig-zag procedure requires clarification. Pre-located monitoring points to the northwest sector are absent. These might usefully be added, particularly if the valley receptor marked R3 is deemed to be "sensitive". A potential for odour to pool or "pond" in the brook valley may need to be taken into account during early morning odour surveys. Upon a final review of the Alkina response in April 2021, DWER provided more guidance on the suggested odour patrol objectives to better link the patrols to the higher-level management objectives. They also indicated that the issue of staff availability, and nose calibration (nose de-sensitisation) had not been addressed.	
DWER 19	Odour	Odour impact risk at nearby residential receptors appears to be low, however effective management of this risk relies in part upon having a robust odour management plan in place. Consequently, it is recommended that the sections of Appendix 6_1 relevant to odour management	Comments noted and recommendations accepted. The management of odour will involve undertaking operational mitigation measures described in section 11.9.5. The GSL (Section 11.9) has been updated accordingly with the inclusion of a robust performance monitoring plan (11.9.6), with supporting corrective actions and assessment (11.9.7).

		be updated to address the above review comments.	
DWER 20	Odour	Reference to Guideline: Odour emissions, (Department of Water and Environmental Regulation, 2019) in the GSLMP is recommended.	Recommendation accepted The Odour guideline is specific to applications submitted under Part V of the EP Act while the EPA has its own guidance on separation distances relevant to associated proposals. Section 11.9.2 of the GSL Management Plan has been updated to reference the Odour Emissions guideline; its application has been stepped out in this section.
DWER 21	Odour	Odour Assessment (Attachment C, Appendix 5_2). Odour criterion modelling is not considered by DWER to be a reliable indicator of odour impact extent owing to large uncertainties associated with estimating odour emission rates and a lack of agreement regarding thresholds for impacts to amenity. For this reason, the criterion modelling assessment included in the ERD submission has not been reviewed by DWER.	Comments noted. The Odour section of the GSL Management Plan does not rely on the outcomes of any modelling.
DWER 22	Odour	In reviewing the October 2020 version of the GSL Management Plan, DWER then provided comment on the performance monitoring system and corrective actions section (11.9.6 and 11.9.7). 11.9.6.5 Odour Patrol record / log form 3b. – The meteorological conditions (wind direction, wind velocity and temperature); Wind data and temperature can be extracted from the weather station on site;" An onsite weather station is referred to in several places in the report as a source of wind speed and direction for odour patrols. It	Comments noted. It is not yet possible to provide the details of the proposed weather station system as it will be determined on appropriate technology available at the time. It is anticipated that the weather station will collect frequent (on-going) weather data and store this in a manner from which information can be retrieved; this information will be retrieved directly from the station, or potentially through Wi-Fi.

		is recommended that a description of this system and its data management be included in the report.	
DWER 23	Odour	In reviewing the October 2020 version of the GSL Management Plan, DWER then provided comment on the annual review of the odour management section of the plan and noted: "An efficient management tool is the implementation of odour patrols by the staff (panellist) at the site." (p54), "If any of these corrective actions are implemented, they should be recorded" (p59). Parts of the odour sections (11.9.6, 11.9.7) of the report are worded as instructions or recommendations on how to best undertake odour patrols, rather than plans that have been committed to by the proponents. Rewording of these sections to address this issue is recommended.	Comments noted. The wording in the relevant sections of the plan (11.9) have been altered as instructions to address the commitment concern raised.
DWER 24	Odour	In reviewing the October 2020 version of the GSL Management Plan, DWER then provided comment on the associated responsibilities associated with odour management. For example, for decision making regarding the undertaking of odour patrols, assessing, and responding appropriately to adverse odour patrol findings and maintaining site communication regarding odour incidences, prevention, management and monitoring is	Comments noted. DWER raise matters identified by Golder when they assessed the odour information that was presented for the former Allawuna Landfill proposal by Bowman and Associates (which had been previously approved by DWER) as part of the works approval submission for the Great Southern Landfill, which in turn formed the basis of the initial Part IV EP Act submission. Based on feedback received during the consultation with the DMAs under the EPA process, Alkina revised the approach to odour management to focus on odour patrols as a performance monitoring tool. The Golder assessment recommendations related to the Bowman prepared plan.

		recommended as per the Golder Associates review comments.	The site manager will be responsible for the implementation of the performance monitoring and associated management. As added in 11.9.6, Alkina will rely on an experienced field odour practitioner establish and refine the performance monitoring protocols. Odour patrol frequencies are documented in 11.9.6.2 of the GSL Management Plan, while 11.9.7 describes the assessment and response to adverse odour patrol findings.
DWER 25	Odour	In reviewing the October 2020 version of the GSL Management Plan, DWER then provided comment on the little information regarding auditing of odour management at the site and the continuous improvement program is included in the GSLMPv2. Further detail regarding these areas of management is recommended as per the Golder Associates review comments.	Comments noted. The response to DWER 24 also applies. Additional information has been provided in Review section of the Odour Management section (now 11.9.10). Odour management will be reviewed annually by the site manager and will be amended based on the follow-up over the previous year with the patrollers (panellists) on site and the collected data, including any odour complaints received.
DWER 26	Odour	In reviewing the October 2020 version of the GSL Management Plan, DWER acknowledged that the odour analysis process of DWER's 2019 "Guideline: Odour emissions" has been referenced as requested. Great Southern Landfill Site Management Plan (Oct 2020) Section 11.9.2 states: "There is no complex terrain that would favour the transportation of any odorous plume from the activity to these sensitive receptors which are located behind several hectares of bushland. The lower elevation of the brook on the west and south of the proposed facility may be a specific path for plume under stable and light wind conditions. However, no sensitive receptor has been identified in these directions."	Comments noted. Subject to approvals, Alkina will purchase the Allawuna Farm property. The homestead referred to by DWER is located on Lot 4869 and will be directly affiliated with the site operations. Alkina therefore does not consider this a sensitive receptor for the purposes of this proposal (and referenced in GSL Management Plan section 11.9.2). It was for this reason that the receptor was not identified.

		The receptor most likely to be impacted by brook valley directed plumes is a farmhouse a little over 2 km distant. This receptor is not mentioned in the report. Fig. 3 of the report shows this receptor as being located within the site boundary suggesting that it does not need to be included as a sensitive receptor. It is recommended that the status of this receptor and the location of the site boundary be clarified	
DWER 27	Odour	In reviewing the October 2020 version of the GSL Management Plan, DWER then provided comment on the odour assessment Attachment C, Appendix 5_2). Odour criterion modelling In response to comments, Alkina stated that the Odour section of the GSLMP does not rely on the outcomes of any modelling. This response is satisfactory.	Comments noted.
DWER 28	Odour	In the final comments of the review, DWER provided comment on odour patrols against DWER 28; DWER 28 already exists (monitoring of hyporheic fauna)	The DWER comments have been included in DWER 19, which addresses odour patrol aspects. Alkina interprets *DWER 28* as a typo and should be DWER19.
	Hyporheic fauna		
DWER 28	Monitoring of the hyporheic zone	Relates to initial comment made by DWER in DWER 4. After additional review of the initial Alkina response, DWER notes that Alkina has accepted the recommendation that monitoring of the hyporheic zone takes place in Thirteen Mile Brook near the landfill site.	Relates to DWER 4, in which Alkina noted that DWER has never previously identified the risk to stygofauna as a concern when it granted the initial works approval in 2016. Neither was this matter raised during the development of the project scope (it was not raised as a key environmental factor) nor by the DMA in its review of the draft ERD prior to the public environmental review.

		DWER also notes comments that have been made by Phoenix Consultants suggesting that it is unlikely that a significant assemblage of hyporheic fauna exists in sediments in Thirteen Mile Brook because of dryland salinity in the region. However, this assessment is not consistent with the results of investigations that have been carried out in streams in the region that have been affected by dryland salinity (Boulton et al., 2007), which found that significant hyporheic biodiversity could occur even under elevated salinities. It is therefore recommended that hyporheic monitoring bores are installed in Thirteen Mile Brook upgradient and downgradient of the landfill site to assess the status of the hyporheic fauna in the area, and to provide a baseline for further monitoring at the site. Guidance on the installation and monitoring of hyporheic monitoring bores can be found in British Geological Survey (2010) and the UK Environment Agency (2009).	Alkina has sought professional advice from an environmental consultant on this matter (Phoenix Environmental Services Pty Ltd). This response is detailed in DWER 4. In response to DWER feedback, Alkina believes that DWER has misinterpreted the investigation findings. Alkina did not propose to implement hyporheic zone monitoring based on the findings of the Phoenix investigations; it was a recommendation proposed by DWER in its response. Alkina has sought further advice from Phoenix Consultants after the DWER response where Phoenix caution the reliance of the Boulton study of 13 rivers in the southwest rivers with different geologies to frame determinations for a minor water course compared to a river: “The EPA Services appear to have misinterpreted our report conclusion. We considered it unlikely that a significant stygofauna community (in accordance with the EPA’s factor guideline for subterranean fauna) exists in the hyporheic zone of the brook. For the purposes of environmental impact assessment (EIA), the EPA factor guideline for subterranean fauna is concerned only with obligate stygobitic (and troglobitic) species, i.e., fauna which live their entire lives below the surface of the earth. Stygobites are far more likely to have restricted distributions (short range endemics) and therefore are at greater risk of impact from development. Further, the EPA factor Subterranean Fauna is concerned with potential for significant impact (i.e., where a proposal may impact/remove a significant proportion of their habitat) to significant subterranean fauna communities (Threatened or Priority species, locally endemic/occupying restricted habitats (SREs), potentially new species and/or forming part of a Threatened or Priority Ecological Community). NB we routinely record new species in subterranean fauna surveys, therefore emphasis tends to be on how restricted species and communities are likely to be and how much of their habitat will be impacted. While stygobitic species have been recorded from hyporheic sediments, hyporheic assemblages are more commonly represented by species that have at least some interactions with the surface (stygophiles and stygoxenes). The Boulton et al 2007 study collected fauna from the hyporheic zone of 13 rivers, only two of which recorded obligate stygofauna, the Kent and Tone Rivers. These are major river systems of the southwest, in contrast to Thirteen Mile Brook which is described as a minor watercourse, unlikely to contain a hyporheic zone comparable in size to that of the Kent or Tone Rivers. These rivers are also located in the Great Southern Region, several hundred

			km south of the proposal area, and in a completely different geological setting. I would therefore caution against relying too heavily on these results as context for Thirteen Mile Brook. We have instead looked at the local geological / hydrogeological setting to assess likelihood of a significant stygobitic assemblage being present. As mentioned below, stygofauna are only significant under the factor Subterranean Fauna where restricted communities of obligate stygobites occur and where a proposal may impact/remove a significant proportion of their habitat. In this instance, we consider this scenario highly unlikely and usually the desktop review is sufficient. However, if the EPA Services still has concerns, we could undertake some pilot sampling of the hyporheic zone to determine if any stygobitic fauna are present. As this aspect relates to potential for impact in the event of a failure in the facility liner (as opposed to a construction phase or groundwater drawdown impact) and given the late stage in the assessment process that this concern has been raised, I would propose to make this a proposal commitment, rather than holding up the assessment. If the pilot study does not record significant stygofauna, no further investigation should be required but commitments would need to be included around monitoring in the event (a) stygobitic fauna are recorded and (b) there is a breach in the liner." No changes have been made to the management plans in relation to this matter.

DBCA	Requirement	DMA comment - DBCA	Alkina Response
	Terrestrial Fauna		
DBCA 1	**Feral Animal Control**	To reduce local feral animal populations, DBCA currently undertakes feral animal control within the DBCA managed lands adjacent to the proposed landfill facility. The proponents Feral Animal Environmental Management Plan (FAEMP) (Alkina Holdings Pty Ltd, 2020) commits to working with neighbours and stakeholders to manage feral animals in the area, undertaking an adaptive management approach. DBCA accepts that this collaborative approach, which in conjunction with DBCA control activities will ensure any increase in feral animal numbers can be managed. DBCA expects that the commitments within the FAEMP will be formalised through the approvals process In advice after the initial referral, DBCA stated they would expect that any project attributable increases to feral animal numbers which impact DBCA managed estate would be identified, through an appropriate monitoring program, and managed by the proponent in consultation with DBCA. In the final referral advice to the EPA, DBCA stated that the feral animal management plan monitoring did not adequately identify if an increase in feral numbers would be attributable to the proposal or establish parameters to trigger implementation of feral animal control. They expressed concern that numbers may increase without appropriate	Comments noted. Alkina had consulted with DBCA in the development of the Feral Animal Management Plan (particularly, the Perth Hills District of Parks and Wildlife). Alkina incorporated DBCA strategies in the development of the plan and propose to work with its neighbouring stakeholders to ensure the landfill does not provide these animals with a source of food. Alkina is committed to working with neighbours to manage any increased feral animals attributed to the landfill activity. In response to DBCA comments, Alkina has reviewed the monitoring aspect of the Feral Animal Environmental Management Plan v4 (see updated version provided). Alkina's main strategy is to prevent their entry to the landfill and therefore not provide them with any potential food source that would result in an increased population in the area. Alkina has also introduced strategies to respond to increased activity / presence identified in the vicinity of the landfill infrastructure to address DBCA concerns that numbers may increase without appropriate action. Furthermore, targeted feral animal control programmes will be setup annually to eliminate any feral animals on the property and specifically in the vicinity of the landfill. Such programmes will only be effective if neighbours implement similar activities on lands under their control of wider feral animal populations are to be controlled. As mentioned in the ERD and EMP, the presence of feral animals in the area is known prior to any landfill establishment despite existing efforts within the community and DBCA.

		control and impact biodiversity values within the Wandoo NP.	
DBCA 2	**Terrestrial fauna**	It is recognised in the ERD that approximately five hectares of native vegetation, which includes threatened Black Cockatoo habitat, will be cleared to allow for the road and access track upgrade and construction of the GSL facility. Fauna mitigation measures, to ensure no impact to native fauna during clearing works, should include the presence of fauna spotters during clearing, appropriate timing of clearing works and compliance with relevant Biodiversity Conservation Act 2016 requirements. Appropriate protection and management of fauna during clearing could be addressed through the preparation and implementation of a construction and environmental management plan (CEMP). DBCA subsequently noted the proponent has committed to preparing a Construction and Environmental Management Plan to address appropriate protection and management of native fauna during clearing.	Comments noted and recommendation accepted. Alkina will implement DBCA recommendations and prepare the said plan, which will include having a fauna spotter present during construction works. Clearing will also be timed where possible to not coincide with cockatoo nesting periods. The CEMP will be referred to DBCA prior to finalisation and prior to any construction
	Flora and Vegetation		
DBCA 3	**Clearing**	It is recognised in the ERD that approximately five hectares of native vegetation, which includes threatened Black Cockatoo habitat, will be cleared to allow for the road and access track upgrade and construction of the GSL facility. Appropriate protection and management of native vegetation during clearing could be addressed through the preparation and implementation of a CEMP.	Comments noted and recommendation accepted. The CEMP will include mitigation measure for all project development works impacting terrestrial fauna and associated habitat. The plan will be referred to DBCA prior to finalisation.

		DBCA acknowledged the Construction Environmental Management Plan to address appropriate protection and management of native vegetation during clearing.	
	Social Surroundings		
DBCA 4	**Bushfire Mitigation**	The ERD indicates that a 'Fire Management Plan' is being prepared to support the proposal (section 4.6.5.6, page 226). This document has not been provided with the referral information. As the land manager DBCA is responsible for undertaking bushfire suppression within DBCA managed lands, DBCA requests the Fire Management Plan provides bushfire mitigation measures to prevent the occurrence of fires originating from the facility and spreading to nearby DBCA managed lands. DBCA subsequently provided additional comment, stating the plan should be prepared and implemented to the satisfaction of DFES.	Comment noted. The Fire Management Plan will incorporate measures to prevent fires starting and spreading to adjoining property, including DBCA-managed lands. Alkina has engaged a Level 3 Bushfire Planning consultant who has assisted with updating the relevant plans. Alkina has prepared fire planning documents to meet the DFES and the Shire of York requirements outside the EPA process (condition of planning approval) These have been submitted to DFES and the Shire of York for approval.
	Other		
DBCA 5	**Proposed road upgrades**	The ERD includes reference to a required road upgrade from the GSL access road, westbound for approximately 500m along Great Southern Highway, to accommodate an acceleration lane. The upgrades are based on previous designs and in-principle approvals from Main Roads WA (MRWA). DBCA acknowledges that the road reserve within the proposed 500 metres westbound section is 45 metres and able to accommodate the proposed widening.	Comments noted. Based on the in-principal approvals from MRWA, Alkina expects that no proposed road upgrades / clearing will impact DBCA-managed land. The Development Envelope was extended along the Great Southern Highway to capture the flora and vegetation surveys in case a longer acceleration lane was needed (i.e., a worst-case scenario).

		DBCA notes that the development envelope extends two kilometres to the west of the GSL access road to allow for any potential further requirements by MRWA to extend the acceleration lane beyond 500 metres (page 47). The road reserve along GSH adjacent to WNP, which begins approximately 840 metre west of the GSL access road, is only 20 metres wide. An extension of the acceleration lane into the road reserve at this location may encroach into the WNP boundary. Potential direct impacts to the WNP from such an extension should be addressed in the ERD and managed through the development of a CEMP. The CEMP should also manage indirect impacts and include the adequate delineation of the clearing boundaries and measures to ensure there will be no vegetation, earth spoil or any other debris disposed of within the boundary of the national park. DBCA provided additional comment after additional referral, stating that if road upgrade works are proposed in proximity to the national park, indirect impacts to DBCA managed lands should be managed through a Construction Environmental Management Plan	The presence of the conservation estate will be raised with both MRWA and DBCA if the MRWA requirement changes from that which was previously supported and approved in principle. As stated previously, Alkina has committed to developing a CEMP that will consider matters of biological significance. The plan will be referred to DBCA prior to finalisation.

WC	Requirement	DMA comment – Water Corporation	Alkina Response
	Inland Waters		
WC 1		Although the Mundaring Weir Public Drinking Water Supply Area (PDWSA) contains a treatment plant, its treatment is designed mainly to mitigate potential risks from increased turbidity and *Escherichia coli*, and is not designed to treat more complex contaminates (such as those that may arise from landfill facilities). The *Heath Based Targets for Drinking Water Safety* manual (HBT) (WSAA, 2015) formalises the Corporation's long practised source vulnerability assessment and designates the required level of treatment. The inherent risks of having a landfill facility within/near a PDWSA have been learnt through the recent reclassification of Tamala Park Landfill (Lot 9026 on Deposited Plan 415564) to 'Contaminated – remediation required'. In which groundwater investigations identified concentrations of per- and poly-fluoroalkyl substances (PFAS) exceeding health-based guidance (PFAS National Environmental Management Plan, (2019) levels for drinking water. Arsenic and ammonia concentrations were also found to exceed assessment/guideline levels for non-potable use of groundwater, as recommended by DWER Assessment and management of contaminated sites – Contaminated sites guidelines 2014. Migration of contaminated groundwater offsite has impacted a highly important and strategic groundwater bore located in the vicinity of the landfill, resulting significant costs to the Corporation as the bore been turned offline for the foreseeable	Comments Noted. The location of the proposed GSL cannot be compared with the location of the Tamala Park Landfill which is located on the Swan Coastal Plan (which sits over the Leederville and Yarragadee aquifers that provide much of WA's drinking water). Large portions of the Tamala Park landfill are also not lined with a composite lining system to provide an effective containment barrier. Anecdotal investigations undertaken by authorities have indicated the presence of PFAS in many of the soils sampled in the Perth metro. The proposed GSL is outside the Swan Coastal Plain, will have a composite lining system with a largely impervious prepared substrate as per the Vic BPEM: siting, design, operation, and rehabilitation of landfills. The Assessment of terrestrial and groundwater has considered the movement / pathway of contaminants (in general) that do potentially pass through the landfill containment system (liner) to groundwater in its impact assessment (4.5.3, 4.5.4 and 4.5.5). ERD 4.5.6 outlines the avoidance and minimisation strategies to manage the risk. It is also demonstrated by Golder investigations to be in a separate catchment with no hydrogeological linkage. Groundwater flows are in a northerly direction (parallel to the Mundaring weir catchment) and there is no paleo-channel linking the catchments. The potentiometric height of monitoring wells is higher near the Helena River catchment than it is near the Thirteen Mile Brook valley floor showing flows towards the brook mimicking the surface topography (ERD Section 4.5.3.3 and ERD Appendix 3.1, being Golder Report no: 1777197-008-Rev1, Hydrogeological site characterisation – Section 3.4.2 while Appendix D of that report provide a summary of the standing water levels for the monitoring events). The groundwater quality in the Thirteen Mile Brook in the vicinity of the GSL has been tested to show poor quality (ERD section 4.5.3.6). Also, the GSL is not located on the opposite slope of the Helena River catchment; it will be located on the western aspect of a ridge that abuts the Six Mile Brook catchment, where flows will report to the Thirteen Mile Brook (Figure 26 of ERD).

		future and subsequent follow-up investigations to mitigate the risk to public safety. The Water Corporation subsequently clarified that the reference to the Tamala Park landfill in the Water Corporation's response represents an example of the risk of contaminants from landfill facilities, including the potential for per- fluoroalkyl and poly-fluoroalkyl substances (PFAS) contamination. Whilst multiple sources of PFAS on the Swan Coastal Plain are recognised, it is also clear that waste disposal facilities present a significant risk of PFAS contamination, as referenced by the Tamala Park example. Of concern is the range of potential contaminants of concern identified by the proponent does not reference the potential for PFAS contamination, which is considered a significant oversight. In subsequent comments, WC acknowledged that while the composite lining of the facility is designed to reduce the risk of groundwater contamination; however, WC believes the risk of contamination remains due the likelihood of the presence of PFAS in disposed material. Although the likelihood of groundwater contamination may be relatively low, the consequence of contamination is extreme.	All landfills, once established, are registered on the Contaminated Sites database. Alkina also references the agreed conclusions of the various expert witnesses at the State Administrative Tribunal [2016] WASAT 22 (see Appendix 6 excerpt, Ref. paragraph 19 & 20) whereby the planners, environmental experts and the Department of Environment Regulation's principal hydrogeological concluded that the hydrogeological aspects had been satisfactorily addressed to the satisfaction of the experts; this is including the geologist representing the interests of the Avon Valley Residents Association. The acceptance of PFAS contaminated materials is subject to a particular class of waste (Special Type 3 waste) for which Alkina has not applied to accept. This minimises the likelihood of the presence of PFAS. Based on feedback from DWER and WC, Alkina committed to extending the ambient groundwater suite to include PFAS analytes. Should PFAS be detected in the impact area as part of the proposed monitoring system, Contingency measures will be developed to manage risk and remediation (4.5.6.2)
WC 2		There is inconclusive evidence to discount the Mundaring Weir Catchment Area as a potential receptor. More consideration should be given to the hydraulic connectivity between the proposed landfill area and the PDWSA as there is inconclusive evidence of a hydrogeological barrier (regional dyke) to	Comments noted. The response in the previous line also relates. Alkina rejects the assertion that there is inconclusive evidence to discount the Mundaring Weir Catchment Area from the Thirteen Mile Brook catchment. Golder have undertaken multiple hydrogeological investigations to demonstrate the catchments are not linked.

		the west of the proposed landfill site, as it was not intersected during drilling activities and there is a general lack of understanding of groundwater flow regimes in the western portion of the proposed development area as noted in the follow statement within the report; "SRK recommends installation of additional monitoring wells in the area of the inferred change in groundwater flow direction to the west-northwest of the proposed landfill (north of MB05). This will allow for improved discretisation in the groundwater flow regime to the west. Golder agree there is a knowledge gap in this locality. Additional monitoring and groundwater sampling is also recommended below the western landfill embankment for baseline and operational monitoring of groundwater quality and levels". After further response referral, WC stated that initial Golder hydrogeological assessment provides a conceptual hydrogeological assessment of the site. The limited number and location of groundwater bores at the site makes it impossible to provide a categorical assessment of the groundwater profile on the western side of the proposed site. This is reflected in SRK's assessment which suggests that the available groundwater data "indicates that groundwater is not flowing toward the Perth Drinking Water Source Area (PDWSA)". On review of the geophysical data presented in the report and assessment of aerial imagery, it was concluded that there is very little evidence of the surface expression of a geological barrier located to the west of the site and it is therefore unreasonable to rely	Furthermore, an independent hydrogeological review commissioned by an approved EPA consultant supported the Golder conclusions (ERD Appendix 3.1 & 3.7). Alkina approached SRK (the independently appointed consultant) to respond to the comments raised by this DMA (see Appendix 4). In the SRK response, they highlighted that the available hydrogeological data indicate that groundwater is not flowing towards the PDWSA, therefore any groundwater would not have a viable pathway to the PDWSA. Also, the interpretation of geological and geophysical evidence supports the presence of a dyke to the west of the proposed landfill, which is likely to act as a further barrier to groundwater flow towards the PDWSA. SRK did recommend additional bores be installed between the proposed landfill infrastructure and the Thirteen Mile Brook to provide greater leakage detection capability (north of MB05 location, which is located near the east bank of the Thirteen Mile Brook). Their recommendation was also based on improving "baseline" monitoring of groundwater quality, for comparison of future groundwater monitoring. SRK have subsequently stated that their recommendations were developed with the intent of improving the existing groundwater monitoring network and do not reflect an opinion that the risk to any receptor is high. Alkina accepted the SRK recommendations and will install additional bores in the additional areas prior to commencement of the landfill operation. Alkina will also develop a Groundwater Monitoring Plan to ensure the monitoring network addresses the risks. As mentioned in previous responses, the groundwater gradients mimic the topography and flow towards the Thirteen Mile Brook, which follows a northerly direction. The Department of Water and Environmental Regulation, who also have significant expertise in this area have commented they do not believe the proposal poses a risk to the Mundaring Weir catchment (See DWER 7 and DWER 8).

		on this as a barrier to shallow groundwater flows.	
WC 3		The ERD does not address the possibility of a hydraulic connection between the nearby surface water tributaries adjacent to the proposed landfill and the PDWSA due to the change in topography caused by landfill activities. • The relative proximity to the PDWSA provides inherent risks to drinking water quality. • The Water Corporation has concerns regarding the public perception of this proposal due to the proximity of the site to the Priority 1 PDWSA and the widely recognised potential contamination risks associated with waste disposal sites. • It should be noted that the report does not address or make any reference to PFAS, which are widely considered as contaminants of concern associated with landfill facilities which accept municipal waste.	Comments noted. The responses in the preceding lines raised by this DMA also relates. Geological investigations have revealed no linkage between these catchments (ERD section 4.4.3.1 and 4.4.3.2, and ERD Appendix 3.1 & 3.7). The nearest paleo-channel is located 14 km to the northwest (ERD Figure 19). Groundwater monitoring bores demonstrate groundwater near the Catchment Road flows toward the Thirteen Mile Brook (away from the PDWA). DWER have also accepted this position when they granted the original proposal a works approval. This position was also supported by an independent hydrogeological review commissioned as part of this Part IV EP Act process. The appointed consultant was approved by the EPA. The proposed GSL will also be 1000 m from the PDWA boundary, this separation also reduces the risk of contamination. Alkina cannot account for the community's perception and instead relies upon the scientific investigations undertaken by experts. Elements of the community have and always will object to the establishment of a landfill site within the Shire of York (despite their waste being disposed of at an unlined landfill facility in Northam 800m from the Avon River) irrespective of the experts' evidence presented to them. DWER has also recommended the inclusion of PFAS related monitoring which Alkina will adopt within the Ground Water Monitoring Plan it will develop prior to operations. It should be noted that Alkina has not applied to accept Special Type 3 (PFAS-related wastes) and the risks of accepting leachable PFAS materials would be low.
WC 4	PDWA	After the EPA response to submission, the WC also added that the assessment needs to be undertaken within the context of government policies associated with the management of PDSWA's. The *Australian Drinking Water Guidelines* clearly state the application of the risk avoidance strategies associated with the management of PDSWA.	Alkina notes the comments. The Department of Water and Environmental Regulation, who also have significant expertise in this area have commented they do not believe the proposal poses a risk to the Mundaring Weir catchment. Also see DWER 7 and 8, and responses to WC comments above.

		The *PFAS National Environmental Management Plan 2.0* (January 2020) require the application of the precautionary principle in the management of potential PFAS contamination	

DPIRD	Requirement	DMA comment - DPIRD	Alkina Response
	Flora and vegetation		
DPIRD 1	**Soil Conservation Notice**	This property has an active Soil Conservation Notice (Ref: Appendix 2_12_Soil Conservation Notice Lot 4869), which was declared in April 2003. The area, as defined under this notice, cannot be disturbed in any way. This would include any possible run-off, traffic, encroachment etc. However, as confirmed in 2015, the Commissioner of Soil and Land Conservation has "no objections to the removal of scattered trees to facilitate the upgrading of the access road to the proposed Landfill site." (Ref: Appendix 2_14_2013 email Advice regarding Soil Conservation Notice clearing) After reviewing the Alkina response, DPIRD acknowledges that the proponent is aware of the Soil Conservation Notice and has set in place plans to ensure the conditions set out in the Notice are adhered to.	Comments noted. This proposal does not propose any additional works beyond those identified in the ERD (section 4.2.3). The existing property access through the conservation notice area will be used; it will need to be upgraded – stabilised and sealed for truck movements. The alignment which the former proponent had referred to the Commissioner that involved cutting through the bottom corner of the remnant will not be followed (by keeping to existing road).
DPIRD 2	**Declared Weeds**	While the risk of weed species being introduced to an area because of the landfill is low, it is incorrect to state it is unlikely (p91). Similarly, it is not correct to state that "it is also unlikely that any fugitive seeds would still be stuck to any vehicle when arriving at the facility given the distance the vehicles would have travelled on various public roads before getting to the premises." (p92). DPIRD state border biosecurity checkpoints have wash down facilities to minimise the risk of fugitive seeds entering Western Australia from other states. These distances are significantly greater than those proposed by	Comments noted Alkina's determination that the likelihood is "unlikely" is determined from the DWER risk assessment matrix, where Alkina maintain that a risk event will not occur in most circumstances. This also considers the distance travelled on sealed roads from the Perth metro (approximately 80 km) and much of the waste will be derived from the construction and demolition, and commercial and industrial sectors that are sorted prior to being sent to landfill. Alkina concedes that there is still a risk based on DPIRD experiences from where trucks at checkpoints could come from various locations. It is uncertain whether the landfills which DPIRD refer to are open to the public, which could increase the probability of a risk event.

		the GSL operators. DPIRD can confirm that the transporting of waste has introduced new declared weeds to landfill areas as DPIRD has assisted with the elimination of declared weed species within landfill boundaries. The GSL operators will need to be vigilant to ensure that weeds do not establish and propagate. Containment and elimination of species within the landfill fenced area will prevent any impact on the agricultural sector. In reviewing Alkina's April 2021 response, DPIRD felt reassured by Alkina's commitment to be vigilant in prevent establishment and propagation of weeds, stating DPIRD can provide Alkina assistance with the identification of plant species from both seed, dry plant matter or established plants and control methods.	In line with the DPIRD recommendations, Alkina propose to maintain vigilance in preventing the establishment of weeds establishing and propagating because of the landfill activities (ERD Section 4.2.6.2). Alkina noted the final DPIRD comments and will seek DPIRD advice to prevent the distribution and spread of weed species.
DPIRD 3	**Rehabilitation of landfill site**	The plan for rehabilitation of the landfill area is unclear. In many sections it is proposed that the landfill area "will be returned to agriculture (grazing and cropping) upon completion of landfilling activities." The Revegetation section (2.3.3.6 p52, 55) states that "disturbed areas will [be] revegetated with species suitable for the post-closure land use. For the landfill area, this will likely be shallow rooted species (to protect the capping liner) seeded via conventional seeding practices," The term "revegetation" in this context suggests native species will be planted, rather than agricultural crops and pastures. DPIRD is not aware of any landfill sites in Western Australia, once rehabilitated, which have been used for agricultural purposes. DPIRD is also unaware of any currently	Comments noted Alkina has used the term revegetation as vegetation to be established is likely to be like that of pre-landfill establishment (i.e., crops and pasture grasses, and consistent with the closure objectives – ERD Section 4.2.6.2). Rehabilitated areas will be monitored and where a land-use is no longer considered appropriate and risking the closure objectives, it will be revisited and modified to mitigate the environmental risk. The closure plan (ERD Appendix 6.3) will be implemented until it is determined that the site no longer presents any significant residual; this is currently assumed to be up to 30 years.

		published information on the level of risk associated with agricultural activities on rehabilitated landfill sites. DPIRD has previously taken a precautionary approach and recommended that agricultural activities be excluded from rehabilitated landfill sites. To pursue the goal of resuming agricultural activities, DPIRD recommends the preparation of a longer-term monitoring plan to ensure the area is safe for agricultural activities. DPIRD subsequently commented on the Alkina response, stating they support the flexibility that the proponent has adopted for the rehabilitation of the proposed landfill site. Monitoring the rehabilitation outcome and effect of any proposed land use on the long-term stability of a rehabilitation site, with immediate actions to mitigate any identified risk, is important for building confidence in this facility.' DPIRD suggests that as agriculture is a broad activity, returning to a broad acre cropping regime is not the only option available, nor is it preferred at this time. As the proponent has identified, the area could be rehabilitated for use by beekeepers.	
DPIRD 4	**Storage of topsoil for rehabilitation**	(Section 4.2.6.2, p93): DPIRD is aware that topsoil microbes do not survive long if stockpiled. For rehabilitation, it is best if topsoil is moved directly to the rehabilitation site or only stockpiled for very short periods. DPRID subsequently commented on the Alkina response, stating they support best practice, which is not to stockpile topsoil, but rather to transfer it directly to the	Comments noted. Topsoils will be stored for periods as short as possible to minimise the loss of soil microbes. In the Topsoil and Sediment Management Plan (ERD Appendix 1.7, Section 1.2), Alkina proposes to maintain topsoils stockpiles at heights of less than 1.5 m in height to reduce risk of soil microbe loss (GSL Management Plan Section 11.11.2). The use of this material will progress with capping efforts as part of the site rehabilitation.

		rehabilitation site DPIRD notes that the operations need to be practical. As the proponent has indicated in the previous section “Rehabilitation of landfill site”, monitoring of the rehabilitation site will be undertaken, and modification of practices will occur as needed. DPIRD is confident that the proponent will monitor the success of their progressive rehabilitation, as cells are closed off, and will adapt their approach to ensure the optimum rehabilitation outcome	
DPIRD 5	**Biosecurity**	Upon further review, DPRID provided additional comment on the management of ferals and weed but noted the plan did not fully address biosecurity risks. It is noted that the proponent has a Vermin/Feral Management Plan and a Noxious Weed Management Plan. While DPIRD supports these plans, they do not fully cover the potential biosecurity risk and need further development. For example, the proponent advised that “much of the waste will be derived from the construction and demolition, and commercial and industrial sectors that are sorted prior to being sent to landfill” (Alkina response p 26). Construction and demolition waste may include treated and untreated pinewood. Untreated pinewood, including dead pine trees, may host the invasive destructive pest, European House Borer (EHB), which was first detected in Perth in 2004. EHB larvae can live undetected in untreated pinewood form 2-12 years. It is only when EHB emerges as an adult beetle that visible exit holes are formed. This means all	Comments noted. Alkina will comply with legislation that limits movement of untreated pine in the management of EHB risk. Perhaps not well articulated in the ERD and the management plans is the fact that all waste is subject to a landfill (waste avoidance and resource recovery) levy. In managing the associated waste strategy hierarchy, Alkina will only landfill materials that cannot be recovered for recycling. Untreated timber is a recoverable resource that can be converted into mulch, animal bedding (e.g., EMRC Hazelmere) and compost, and therefore unlikely to be accepted at the landfill, which reduces the risk of European house borer spread. Treated timbers that cannot be recycled will likely be accepted. Wastes derived from affiliated sites will have been sorted and or processed prior to being sent to landfill. Furthermore, as described in the ERD mitigation strategies (4.6.6), wastes will not be stored on site; they will be compacted and will be covered at the end of the working day, reducing the risk. Section 11.12 of the GSL Management Plan has been updated to reflect the DPIRD feedback. Alkina noted and accepted the final comments presented by DPIRD, as presented by the EPA to Alkina in August 2021.

		untreated pinewood waste must be treated as potentially infested. The movement of pinewood throughout Perth is restricted as described in the Agriculture and related resources Protection (European House Borer) Regulations 2006. The regulations allow for the establishment of quarantine zones, Priority Management Zones (PMZs) and Restricted Movements Zones (RMZs), and place restrictions not only on untreated pinewood movement from PMZs and RMZs areas, but also on the storage, disposal, and treatment of untreated pinewood within these areas. Industry, homeowners, and government organisations must adhere to the regulations, or face a penalty of up to $2,000. The regulations continue to play an important role in reducing EHB spread and infestation and should be supported to protect WA homes. Under these regulations, a pinewood dealer means a person who carries on a business or hobby that includes buying, selling, or transporting pinewood. These regulations apply to the operator of a construction and demolition waste recycling facility where the pinewood is stored and/or disposed of and to persons and businesses transporting pinewood in and out of the facility. In a final response to the Alkina April 2021 responses, DPIRD noted that Alkina had adequately responded to the issues. Biosecurity remains an important issue and remain Alkina will need to remain vigilant in ensuring comprehensive biosecurity	

		practices are adhered to by Alkina employees.	
	Other		
DPIRD 6	**Continuation of agricultural activities on the property not impacted by the landfill activities**	The activities of this property are cropping and grazing (livestock). With the transport route to the landfill site transecting the property, DPIRD recommends separation fencing, or a traffic management plan is developed, to ensure a safe environment for livestock and the movement of farm workers and machinery. Upon further review of the Alkina response, DPIRD commented on the continuation of agricultural activities on the property not impacted by the landfill activities DPIRD is confident that the proposed measures will permit the two activities to coexist.	Comments noted. Measures will be taken to reduce the risk of collision with livestock and farming activities. This will include managing traffic by imposing speed limits, signage, livestock exclusion fencing when necessary and ensuring drivers announce themselves on two-radio when entering the premises to alert other people on the property. Alkina has already confirmed with the current beekeeper, who occasionally uses this site to place hives for the short term that they would continue to do so, as under the current agreement with the farmer.

DFES	Requirement	DMA comment - DFES	Alkina Response
DFES 1	**Bushfire Management Plan**	All fire mitigation and management strategies referred to in the ERD should be contained within the Bushfire Management Plan Following subsequent referral, DFES commented on item S15 that "the landfill containment infrastructure is not identified as a bushfire prone area." The Department of Fire and Emergency Services (DFES) is unclear what constitutes landfill containment infrastructure. An office, weighbridge and infrastructure area identified in figure 1.1 of the Bushfire Management Plan are located within an area designated as bushfire prone on the Map of Bush Fire Prone Areas. This should be acknowledged.	DFES comments noted. All fire mitigation and management strategies referred to in the ERD will be incorporated in the site-specific operations fire management plan. This management plan will be considered a live document and will be updated as changes are needed and implemented. The submission of bushfire mitigation plans is also a condition of planning approval [2016] WASAT 22, condition 1[1]. The previous fire management plans prepared with the involvement of DFES (Northam office) did not reflect the updated SPP3.7. Alkina submitted the bushfire mitigation and bushfire risk mitigation plan to the Shire of York in September 2020 accordingly to align with current requirements, which was referred to DFES for advice. Advice has subsequently been received from DFES. The plans are being revised and updated in response to the feedback with the assistance of a BPAD Accredited Practitioner Level 3 consultant (Accredit no. 27795) who developed the Bushfire Management Plan and Bushfire Risk Management Plan. A site-specific fire management plan is a component of this fire planning. In response to the additional, the landfill containment infrastructure referred to the area in which waste is landfilled, not ancillary support buildings and infrastructure (e.g., weighbridge). The fire management plan will consider the fire risk for all part of the proposed facility and develop suitable operational procedures to manage those risks. [1] Condition 1 of WASAT 22 states "*prior to the commencement of any filling activities, a fire management plan shall be prepared and approved by the Shire with advice from DFES….*"
DFES 2	**GSL Management plan**	Following further review of the Alkina response to public submissions, DFES provided additional comment. Section 11.13 of the Great Southern Landfill Management Plan (revision 3) addresses fire management mitigation practices. Specifically, 50kL of water is to be stored on site (in storage dam or designated storage tanks), and a water tanker is to be always	Comments noted. The identified discrepancy has been updated. It should be noted the GSL management plan will be updated to align with the bushfire management plan once this is finalised. Both documents will be continuously updated as new information becomes available to ensure consistency.

		available. The Bushfire Management Plan and accompanying Risk Management Plan that pre-date the Landfill Management Plan state a 150 kL dedicated water tank for fire-fighting purposes will be installed and makes no references to the availability of an on-site water tanker. The Landfill Management Plan should be amended to align with the Bushfire Management Plan.	

SoY	Requirement	DMA comment – Shire of York	Alkina Response
	Social Surroundings		
SoY 1	**Landfill operation aspects**	Consideration should be given to draft Guidelines which recommend separation distance of 1000 metres for gas, noise, dust, odour, and risk. The draft guidelines refer that separation distances do not apply to significant proposals which are formally assessed by the EPA. Appropriate buffers should be identified by site-specific studies. The Shire also notes that the separation distance of 1000 metres extends outside the lot boundary onto adjoining land. Whilst this predominately covers bushland and does not impact existing sensitive land uses, the General Agriculture zone provides for a range of tourism uses to be developed in such land, which would be incompatible within identified buffer areas and potentially affect development potential of adjoining properties. Subdivision is also possible in accordance with State Planning Policy 2.5 Rural Planning based on conservation lot or homestead lot.	Comments Noted. The draft guidelines (presumed to be the former DER draft separation distance guideline) the DMA refers to were withdrawn (these also conflicted with EPA guidance). Existing published guidelines have been followed and Alkina has demonstrated meeting the specified separation distances. The EPA guidance on separation distances requires a minimum separation of 150m between putrescible landfill activities and a single residence, with an internal buffer of 35m from the boundary. For subdivisions, a 500m buffer is stipulated. The guideline identifies noise, dust and odour as potentially causing impacts. In June 2019, DWER published a guideline on odour emissions, which is also relevant as it provides a framework for odour assessment. Alkina considered this guideline in its odour assessment (ERD Section 4.4.5.4 and Section 11.9 of the GSL Management Plan). The DWER guideline provides a screening distance of 1,000 m for putrescible landfills to determine whether further detailed analyses are required for odour risk under Part V of the EP Act applications. Outside this distance infers a lower risk, and no further detailed analysis is needed. This does not mean that a specified activity cannot occur within this stipulated screening distance, it means that DWER will require a detailed analysis to demonstrate acceptable risk in an application submitted to it for assessment. Appendix 3 of this guideline provides advice on measurement of separation distances. Method 1 applies to urban areas and Method 2 relates to the rural method (site or subdivision being greater than 0.4 ha). Using this methodology, the distance is measure in this instance is from the industry activity boundary and the sensitive land use active boundary (not the property boundary). The proposed landfill will have a 600m buffer to the nearest property boundary (and over 800m buffer in the direction of the nearest receptor). The nearest sensitive receptor (homestead) is more than 1.8 km from the proposal and has no line of site by virtue of topography and extensive bushland.

			According to the Shire of York's own Responsible Authority Report 2020, tourism is not likely to be directly impacted by this proposal. See Appendix 5.
SoY 2	**Planning Policy**	The ERD should refer to State Planning Policy 3.7, not 3.6	Noted. Incorrect reference was a typo.
SoY 3	**Bushfire**	The development has the potential to increase the threat of bushfire to people, property, and infrastructure. The initial approval of the development, and fire management plan was prepared prior to the introduction of SPP3.7 which identified landfills as 'high risk' land uses. Fire Management Planning to date has not demonstrated that the risk introduced by the development is acceptable in accordance with State Planning Policy 3.7. After further review, the Shire has provided additional comment on the matter, stating that the bushfire Management Plan has been prepared to comply with State Planning Policy 3.7 which has been submitted to the Shire, although the Bushfire Management Plan is yet to be supported by the Shire.	Comments noted. The ERD referred to the updating of fire management plans (ERD Section 4.6.5.6 and 4.6.6 – Fire) to consider State Planning Policy 3.7. There was a planning condition for a Bushfire Management Plan to be *developed and approved by the Shire with the advice from DFES prior to commencement of landfilling activities*, as detailed in Condition No.1 of the SAT determination [2016] WASAT 22. Despite this requirement being a planning matter, the progression of the fire management plan also supports the assessment within the ERD. A BPAD Accredited Practitioner Level 3 consultant (Accredit no. 27795) has developed a Bushfire Management Plan and Bushfire Risk Management Plan, which has been submitted to the Shire (and DFES) for consideration in September 2020. Since then, further feedback has been received which is being considered in the updating of BFMP to the plans for the relevant decision-making authorities. Alkina is updating its site-specific operations fire management plan accordingly with the BPAD accredited consultancy. This plan will be a live document and will be updated as changes are needed. It also included the feedback provided by DFES and the Shire in their response to this SAT planning approval submittal on the 8 Oct 2020. Alkina will continue to work with the Shire and DFES outside the EPA process to ensure the plans satisfy the DMA requirement.
	Inland Waters		
SoY 4	**Groundwater**	The Shire is not qualified to assess the appropriateness of groundwater monitoring. However, it is noted that groundwater quality is a key point of concern to the community and there is perception that adequate groundwater monitoring has not been	Comments noted. Alkina notes that the Shire is responding to community concern (and not on technical qualification). The quality of the groundwater has been discussed in Section 4.5.3.6 of the ERD (and detailed in the ERD supporting appendices – Appendix 3.1, section 3.4.5 and, Appendix 3.4).

		undertaken to support assertions of groundwater flows. The site is located within 1 km of a Public Drinking Water Supply area, and adjoining properties who do not have access to reticulated water supply and have the option of installing bores for supply. Protection of water supplies is important in a drying climate. Contamination of groundwater would have serious implications where the precautionary principle should apply. The Shire subsequently clarified that the comments were only providing general comments in relation to technical documents and expressed the need to adopt a precautionary approach in decision-making.	Alkina references the agreed conclusions of the various expert witnesses at the State Administrative Tribunal [2016] WASAT 22 (see Appendix 6 excerpt, Ref. paragraph 19 & 20), which included planners, environmental experts, the Department of Environment's own principal hydrogeological, and the expert geologist representing the interests of the Avon Valley Residents Association. All expert witnesses at this SAT aligned their opinion, that the environmental consideration of the proposal has been comprehensively addressed to the satisfaction of the experts. It was no longer considered an issue of significance at the 2016 WASAT 22 (Item 20, page 9) by all hydrogeological witnesses. (see the following link: https://www.york.wa.gov.au/Profiles/york/Assets/ClientData/2016_WA_SAT_22_Decision.pdf The groundwater is determined to be moderately to strongly acidic, while the groundwater electrical conductivity (indication of salts) ranges from brackish to saline, and therefore not suitable for potable, nor non-potable domestic use. No beneficial use for groundwater at the site has been identified (and confirmed by the former Department of Water). Furthermore, some of the heavy metals also exceeded ANZECC guideline for fresh and marine water quality. Significant geophysical and hydrogeological studies have been undertaken that demonstrate that the proposal is not hydrologically linked (ERD Appendix 3.1, 3.2, 3.3, 3.4 and 3.5). An independent consultant (SRK) approved by the EPA also provided a peer-review that supported the site characterisation and the development of a conceptual model, mitigation planning and risk assessment addressing potential impacts to off-site users and stakeholders, to be competent and thorough and to satisfy industry and regulatory standard practices (ERD Appendix 3.7 and Appendix 4). In implementing the precautionary principle, Alkina has designed the landfill in accordance with best practice using a composite lining system to contain contaminants, while also implementing detections system in the very unlikely event of any containment failure. It should be noted that DWER have not raised any additional concern with the information provided, thereby assuming acceptance / satisfaction of the information / investigations.
	Other		
SoY 5	**Planning Approval**	Any proposed Special Use Zone was removed by the Minister for Planning.	Alkina is aware that planning approval time frame has lapsed, and the zoning was subsequently amended. Alkina is legally entitled to seek an extension to the preceded planning approval as planning approval was granted prior to amendments; the project has already been to SAT twice and regional JDAP three times with this project. The landfill

		The Shire subsequently provided additional advice on the matter to reiterate the present status of the statutory planning framework relating to SU8 zone	would likely have been operational today had the previous proponent not surrendered their works approval to construct the facility. Alkina was not able to substantially commence construction as tardy bureaucratic approval processes prevented completion of reassessment prior to the Minister instructing the EPA to again consider the proposal under Part IV of the EP Act. The SAT & JDAP are unable to grant approval during the EPA process.
SoY 6	**Planning**	The planning approval (now lapsed) issued by the State Administrative Tribunal took the view that the DWER/EPA were responsible for the regulation of environmental matters under the Environmental Protection Act 1986, and as such limited conditions of approval to avoid duplication. Further discussion with DWER has indicated that emissions are only considered for works where they are sited within a prescribed premises boundary. The DWER has indicated that the borrow pits may not be considered a prescribed premise under Schedule 1 of the *Environmental Protection Regulations 1987*, as screening and/or crushing activities are not proposed, referring that these may require an extractive industry licence under local planning. The Shire requires that in considering the acceptability of the development that regard is given to whether works fall under the jurisdiction of a prescribed premises, and ability for the works to be regulated by the DWER.	Borrow pits have been included Part IV of the EP assessment as they reflect an ancillary activity associated with the landfill operation. Definition of extractive industries under local planning determine that any materials extracted for use within the actual Lot (site), will not require an extractive industries licence under local planning. The borrow pits can be used as cover over the full life of the landfill & potentially during remediation works, all within the land holding boundary. The ERD section on closure and rehabilitation (2.3.3) identifies closure objectives for the proposal. These will be refined and updated as the landfill develops.
SoY 7	**Project Benefits**	Information in the Strategic Waste Infrastructure Planning (SWIPP) Project report would be based on outdated data and does not account for the direction of the newly adopted Waste Avoidance and Resource Recovery Strategy 2030 adopted in 2019 with updated strategies, actions, and	SITA's initial site location considerations chose this location over 19 other sites (ERD section 2.2). The private sector's own strategic work has been conducted by well-regarded international consultants. Therefore, the date of the 2015 SWIPP or pending 2022 strategic work is not as relevant as the geography and environmental setting of this site's location, It's distance from the major existing waste infrastructure and waste generation points within metropolitan Perth to this nearby future landfill site have not changed since the issue of the 2015 SWIP. The pending SWIP report revision is not going to change the outcome of

		targets, which would influence any conclusions of the previous SWIPP. The Auditor General's report in 2016 also identified the intention of the 2014 SWIPP was to define a long-term plan for waste facilities, including an outline of a number and type of facilities likely to be required, and their optimum location. Instead, it effectively confirmed that a long-term plan needs to be done to plan to 2050. The Waste Avoidance and Resource Recovery Strategy 2030 and associated action plan and data strategy reflect that it is a priority to undertake a strategic review of WA's waste infrastructure (including landfills by 2020) to guide infrastructure development. The outcomes of this assessment will inform the preparation of a State Waste Infrastructure Plan. The DWER has provided that preliminary planning and scoping of the State Waste Infrastructure Plan is currently underway with the DWER advising that it anticipates commencing work on this early in 2020/21. Development of landfills which are not informed by strategic assessment have potential to undermine the objectives of the Strategy. It is noted in terms of strategic location that a new Eastlink Route Road is being investigated as an alternative new key freight corridor between Perth and Northam, which will bypass the Great Southern Highway connection to York and the proposed landfill. Upon further referral of the Alkina response to the comments, the SoY maintains its position	private sectors development choices, based on sound independent consultancy, transport logistics and the waste economics of the proponents aligned group companies & waste collection regimes. The SWIPP workshops (see ERD Appendix 1.9) and presentation slides given by the DWER appointed consultant to the wider industry, (during an extensive engagement program of workshop consultation with private industry, state & local government) showed that we need ~20,000,000 tonnes of new landfill airspace by 2050, (even with best practice recycling systems and significant private investment in waste to energy and new recycling infrastructure). The state's landfill requirement in the worst-case scenarios provided to government in the Hyder Oct. 2014 interim report showed an estimated ~60,000,000 tonne shortfall for new landfill airspace would still be needed by 2050. These Government comments and reports from 2014 & 2015, (have already been acted upon by private sector investors) follow a 2015 review of the geographical advice from the SWIPP [2015]. The SWIPP 2015 are at odds with the current Waste Avoidance and Resource Recovery Strategy for 2030 (released in 2019), which "targets" a reduction of waste sent to landfill by 2030… but does not remove the need for landfills all together. Further work is underway that includes landfills in the pending SWIPP review and pending reports. That could be relevant to other developments in the future but not change the outcome of this project due to the significant investment by various proponents over many years based on advice from private and government appointed consultants on the required infrastructure needed. We suggest that the demand for recycled material procurement needs to be mandated by all levels of government, across the whole supply chain and all waste streams before the need to build new landfills (off the coastal plain) can be removed in an ideal "closed loop" economy that aligns with the waste strategy for 2030. Furthermore, the manufacturers of the raw / new materials that cannot economically be recycled, need to take greater responsibility for the resulting wastes under product stewardship systems, a review of this is also overdue since 2015 by state government. While considering the limited ~700,000 tonnes per year of new capacity, that the pending two new waste to energy facilities will only remove from the millions of tonnes of needed landfill capacity. Also, these waste to energy sites will produce significant residual waste streams that will need to be managed or landfilled) when they eventually get commissioned (in 2023; was meant to be 2022).

			SWIPP 2015 suggested that all new landfills should be located outside of metropolitan Perth off the coastal plain to better protect Perth's water supply. Other Government strategic planning documents have also made similar recommendations, like those identified in the WA Planning Commission's Waste Strategic Plan from 2012 (i.e., within the Shire of York). The distance from Perth will not change over time and population growth might mean suburbs get closer. Although it is within the remit of state government (via DWER & the Waste Authority) to provide investors (in private industry & the public sector) with detailed strategic advice on the potential location of future waste infrastructure, the actual financial investment & final decision of where & when to propose to develop future waste infrastructure, will most often come from the private sector (rather than "mixed" or "publicly" funded economic measures). The proponent has been involved in the recent consultancy with the independent government body called "Infrastructure WA" with regards for the need for waste to be better considered under their non-political remit. The significant infrastructure spending required to develop any new waste infrastructure is often reliant on the demands of the "private" sectors' waste economics and aligned businesses. Private companies commonly control the majority of the contracted waste streams by weight and often manage the landfills and collection fleets that service various local governments, private clients & state institutions within Western Australia. This lack of government leadership is forcing private industry to drive infrastructure development requirement, e.g. the GSL development. The Waste Authority Business Plan (WA BP) for FY 2022 – 23 allocated a $100,000 budget for developing pending 2022 SWIPP report (which was due in 2020). This shows that State planning is generally lagging private sector infrastructure development and is outdated by the time it is released. This document may only be available in the latter part of 2023, which will reduce ability to meet 2030 Waste Strategy targets. Government delays in infrastructure planning cause nothing but uncertainty in the private waste sector, where there is a growing demand for new landfill space. The red and green tape deployed by all levels of government on this landfill site in York, (that has previously been approved by the DWER) are only pushing potential private investment of all future waste infrastructure away from Western Australia. At a time when we need more investment in our state to improve on our state's struggling recycling results and future strategic targets.

			The ongoing delay in state government waste sector planning and environmental approvals processes (with recently introduced cost recovery from the EPA) is further impacting on the potential for new private sector investment in WA. This is happening at a time when the highest potential time for growth in the waste and recycling sector is upon us. With the Federal government's export bans (January, July 2021 & July 2022), follow the delayed implementation of any recently announced State or Federal grant funded recycling initiatives to build any new recycling infrastructure. These federal grant funded schemes and any hypothecated funds from the waste authority landfill levy, will take some time to be considered by the private sector and government. Then further delays are incurred as all parties will need to obtain / provide any future waste infrastructure's formal planning & environmental approvals. All these recent changes in regulation and planning will need to be taken into consideration when making any new political recommendation or stakeholder engagement in the pending 2022 SWIPP review, hence even more delays in this strategic work, that would have outdated the SWIPP if it had be published in 2020 without taking the recent changes / funding or export bans from State and Commonwealth into full consideration. With the above in mind and with all due respect to the Waste strategy released in 2012 and the recent 2030 Waste strategy (released in 2019), neither of these State government waste strategies have hit their forecasted diversion rates from landfill targets. The introduction of an increased landfill levy has established an increase in illegal dumping and landfill levy evasion at regional landfills, which any new DWER licenced landfill, built by reputable companies would not engage in. In response to the comment on the Eastlink Route Road. The Traffic impact statements and the prior work and strategic consideration of two different proponents, have identified the proposed location as the best site out of nineteen, before seeking and obtaining planning approval and works approval. See section 2.2.2 of the ERD. Diversion of traffic away from the town centre of York under forecasted Main Roads WA consideration of a Ring Road also have no impact on a project that is between York and Perth and not expected to travel via the town anyway.
SoY 9	**Stakeholder consultation**	Table 11: States that the proponent has contacted the Shire Ranger requesting a meeting regarding fire breaks and received no reply. The Shire records, including the	A telephone message was left on the mobile number of the Shire's ranger by Alkina's representative. When no response was received, a written dialogue was engaged via the intermediate of the current farm's landowner who wrote to the Shire Ranger regarding the lack of maintained fences & poorly managed firebreaks by the adjoining property owner. As

		Ranger's personal records, show no evidence of such a request. The Shire have subsequently responded to the Alkina comments and indicated that further discussion on matters to do with adjoining properties can occur outside of the EPA Assessment, subject to these queries being submitted directly to the Shire in writing.	the future landowner, we are keen to understand if the adjoining properties firebreaks are going to be maintained as per all landowners' legal requirements. Alkina will engage with the Shire in a positive manner outside the EPA process to address matters relevant to the DMA.
SoY 10	**Biosecurity**	All adjoining agricultural properties should be treated as sensitive premises, given the rapidly changing agricultural export market where use of products, such as glyphosate are increasingly being banned and may require a shift to more forms of organic agriculture. The Shire has subsequently provided additional comment on the matter, stating the proponent has not addressed the issues regarding biosecurity. If adjoining properties are now considered as sensitive premises, what are the implications for biosecurity.	Comments noted. Alkina has developed mitigation measures to reduce the environmental risk to adjoining premises. The remaining area on the property around the landfill will continue be managed for agriculture, which will be beyond the remit of this proposal. In seeking advice from the Department of Primary Industries and Regional Development (ERD Appendix 7.2), they stated they had no evidence that the operation of a landfill in rural areas pose an unacceptable biosecurity risk for agriculture. Further to the subsequent comment provided by the Shire, additional responses to concerns of biosecurity have been addressed in public responses (e.g., S1, S2, S6, S8, S36). Comments from the Department of Primary Industries and Regional Development (DIRD) have also been considered. In the development of the ERD, Alkina did contact DPIRD (ERD 4.6.4.7 and 4.6.5.7), who indicated that they had no evidence that landfills in operations posed an unacceptable risk to agriculture, suggesting that some of the risks will need to be managed. These mitigation strategies are detailed in ERD 4.6.6 and in parts of the updated GSL Management Plan (e.g., 11.7, and 11.12). Additional response by DPIRD (item DPIRD 5) also applies.

APPENDIX B: RESPONSE TO PUBLIC SUBMISSION COMMENTS

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
Flora and vegetation				
V1	Clearing	ANON-Z91Q-PH2J-9 / ANON-Z91Q-PH2F-5 / ANON-Z91Q-PH21-G / ANON-Z91Q-PHCW-7 / 319182	Clearing of native vegetation - will result in major disturbances to the natural hydrological cycle and greatly affect flora and fauna. This includes creating a barrier for the movement of small bird along the corridor (ANON-Z91Q-PH21-G) This will result in clearing of hundreds of aged gums and Christmas trees, with scrubs and bushes also. This will once again denude the entrance to York of some of the most significant landscape trees (318182).	The potential impacts and assessment of the clearing risks are described in ERD Section 4.2.4 (specifically section 4.2.4.1, 4.2.4.2, and 4.2.4.3), 4.2.5 1 and 4.5.4.1.5. The assessment has determined the associated clearing risk to be low given that much of the area targeted for infrastructure development has already been disturbed (classified as degraded). Clearing will be principally confined to individual isolated paddock trees. Clearing will only be minimised to the development footprint (only as needed), and as required on the Great Southern Highway as determined by Main Roads WA undertake works to allow traffic management. Clearing associated with the GSH upgrade is anticipated to be less than one hectare (approximately 0.5 ha) (see ERD Table 13) and will not involve clearing hundreds of aged gums as suggested. The upgrades to the site entry have also been assessed in the sections referred to above. Extensive remnant bushland still exists in the northern part of Lot 4869 that provides a wildlife corridor. The existing entry road to the property will be used and upgraded (sealed) with minimal disturbance on either side of it. The trees removed along the Great Southern Highway will be restricted to those needed for traffic management (safety) and are common in the area; no declared rare flora will be taken. Potential impacts associated with altered hydrological regimes are explained in Section 4.2.4.7, 4.2.5.1 (Table 19) and 4.5.4.1.5. As explained in the ERD, broadscale clearing altered the long-term water table level. The deep-rooted trees kept the groundwater levels at or below the root zone through evapotranspiration. After the broadscale clearing, the hydroperiod was altered (water tables elevated because of increased recharge, which resulted in

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
				increased waterlogging of the root zone) as deep-rooted plants were replaced with shallow rooted species (traditional agriculture) which were not to maximise the drawdown effect. The 2001 conference: Dealing with Salinity in Wheatbelt Valleys (https://www.water.wa.gov.au/__data/assets/pdf_file/0019/1648/13841.pdf) provides extensive background information on this topic. These impacts are more pronounced on the flat valley floors (https://www.agric.wa.gov.au/soil-salinity/dryland-salinity-extent-and-impact). The impact of clearing in the catchment have already been observed, including scalding effects along the Thirteen Mile Brook. It is expected that given the length of time passed since clearing (and drying climate) that a new water table equilibrium would likely have been established and the presence or absence of the remaining scattered isolated paddock trees are unlikely to have a significant impact on the water table levels. The removal of these paddock trees within the footprint are therefore not likely to further impact groundwater levels. The presence of hardstands and infrastructure will likely increase runoff in these areas and reduce recharge in the immediate vicinity. It should be noted that Alkina also committed to planting 330 seedlings (e.g., ERD 4.2.6.3), which in the long-term will perform the function of the removed trees. Furthermore, the studies conducted indicated the poor condition of the Thirteen Mile Brook riparian vegetation (ERD 4.2.3.5, which reflect the past and present land-use impacts. Section 4.2.6.3 details the commitment to continue restoration of riparian vegetation in the local catchment started by natural resource management groups.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
V2	Clearing and revegetation	319182	The proponent has not committed to replanting bulldozed trees.	Alkina proposes to plant 330 native trees within the property to provide for future cockatoo habitat and place nesting boxes within remnants on Lot 4869 (ERD 4.3.6.3). This will replace cockatoo habitat trees taken because of the proposal.
V3	Risk to flora and conservation estate	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A	Risk to Flora, reserves, and National Parks	Based on the separation distances to the various conservation estate (Table 9) and mitigation strategies to manage the risks, Alkina predicts that conservation estate will not be impacted by the proposal. Comments received from DBCA have been considered and reflect that the risks will be manageable. Section 4.2 and 4.3 of the ERD address the risks to flora, vegetation, and fauna; none of which are considered to be significant.
V4	Weeds	319182 / ANON-Z91Q-PH29-R	Introduction and spreading of weeds on nearby bush and paddocks	The potential impacts and the assessment of weeds is described in ERD section 4.2.4.6 and4.2.5.1. ERD Section 4.2.6 identifies avoidance and minimisation measures to reduce the risk of weeds. Any weeds identified within the landfill area will be controlled. The active farming around the landfill area will also assist in curbing any weed spread.
Terrestrial fauna				
F1	Clearing impacts on cockatoos	ANON-Z91Q-PH21-G	Clearing of trees will affect the potential nesting sites and feed source for the Black Cockatoos	The impact of clearing on cockatoo habitat has been detailed in ERD Section 4.3.4.1, 4.3.5.1 with mitigation measures identified 4.3.6. The outcome on fauna was determined (4.3.7) to not adversely impact the objective of protecting terrestrial fauna so that biological diversity and ecological integrity is maintained given the amount of native vegetation in the area that provide suitable cockatoo habitat (74% native vegetation extant within a 10 km radius of the project area (ERD Table 16) of which less than 0.019% of cockatoo habits in the area - ERD Section 4.3.4.1) while each cockatoo habitat tree within the development envelope was surveyed to determine presence of suitable hollows. No habitat trees with suitable hollows will be taken as part of the proposal.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
F2	Cockatoos	ANON-Z91Q-PH2U-M	Question their ability to regenerate the remnant vegetation and black cockatoo habitat	Alkina proposes to plant 330 native trees within the property to provide for future cockatoo habitat and place nesting boxes within remnants on Lot 4869 (ERD 4.3.6.3). This will likely be by way of tube stock seedlings; assistance from specialists can be sort if required. Infill planting will be undertaken as required. Species planted will be similar to which has been removed.
F3	Cockatoos	ANON-Z91Q-PH2U-M	Presence of cockatoos near the proposed landfill claimed.	Alkina has stated in the ERD that the Carnaby's Cockatoo habitat range extends over the development area (Section 4.3.3.3.1). Previous surveys have also supported presence records, and Alkina has assumed their presence (albeit sporadic).
F4	Cockatoos	319182	Details of black cockatoo surveys as the submitter questions the credentials of the surveyor and under what conditions the surveys took place.	Surveys were completed through reputable environmental consultancies with qualified scientists to evaluate the black cockatoo habitat (not a bird count, as the bird movement is sporadic and would not be a reliable indicator). The details of the survey methodology, timing and results are provided in the ERD Black cockatoo assessment (Section 4.3.3.3.1), Appendix 2.8, 2.10, and 2.11. While the survey did not identify birds on the survey days, Alkina has assumed that they make use of habitat in the area, which was the basis for the impact assessment.
F5	Cockatoos	ANON-Z91Q-PH2J-9 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH29-R / ANON-Z91Q-PH21-G / ANON-Z91Q-PH2S-J / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH2Y-R	Loss of habitat - Black cockatoos (Carnaby's, Baudin, Red tail & White tail) and affect feeding and breeding area of Cockatoos	For clarification, Alkina has assumed that the "White Tail" cockatoos referred to are either Carnaby's or Baudin cockatoo. The potential impacts and assessment thereof are detailed in ERD Section 4.3.3.3.1, 4.3.4.1, 4.3.5.1, 4.3.6 and 4.3.7. Impacts were predicted to be minimal (no residual significant impacts).
F6	Cockatoos	319182 / ANON-Z91Q-PH29-R	Native fauna will be impacted by noise causing disorientation of Carnaby Black Cockatoo, hearing loss and physiological effects (flight and fight, changes to digestion and migration).	An assessment of the impacts to black cockatoos are detailed in ERD Section 4.3.3.3.1, 4.3.4.1, 4.3.5.1, 4.3.6. While impacts of noise was not specifically addressed, the presence of the landfill will not determine their survival as cockatoos exist and regularly frequent residential areas within the Perth metro where there is persistent traffic noise and no doubt, they would be present on agricultural properties while large noisy plant is being used. They are also known to feed along major roads (including the Great

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				Southern Highway), which suggest the submitter's concern of noise may be exaggerated, or the birds have become habituated / adapted to the environment.
F7	Fauna / wildlife impacts	ANON-Z91Q-PH29-R	Native fauna will be impacted by noise causing hearing loss and physiological effects (flight and fight, changes to digestion and migration)	The area where the landfill is being constructed is described as degraded - see ERD Section 4.2.3.2 and Table 18 of ERD and therefore of limited native fauna habitat. Agricultural activities will still occur in the paddock around the proposal. Landfilling will not be undertaken in the vicinity of native bushland. The access to the site will use the existing property access. Given the separation distances and operating hours of the landfill, it is unlikely that noise will a factor for wildlife.
F8	Fauna / wildlife impacts	ANON-Z91Q-PH21-G	Fences erected by proponent to exclude feral animals, will create a barrier preventing native fauna from moving along the corridor.	Fences will be constructed around the landfill area containment infrastructure for security, feral animals, and litter control. Fences are not proposed along sections of the road that intersect bushland that access the property. The concerns raised by the submitter are unwarranted as exclusion fencing will not be installed around the entire property. The farm (like any other) has internal fences to manage livestock, and these will likely remain.
F9	Ferals	ANON-Z91Q-PH2R-H	When stating facts, should not there be a cited reference to support that statement?	The information on the feral animal habits have been derived from the Department of Primary Industries and Regional Development website. In hindsight, these should have been referenced. References to the presence of the animals in the area are based on conversations with stakeholder of the forest fringe, including the landowner, DBCA, local community members who have representations to this effect in various applications relating to this proposal. The information provided in the ERD (section 4.3.4.2) is sourced from a combination of observations from the baseline survey, communications with the landowner and DBCA staff, public / general information, and experience of one of the ERD authors (who has extensive experience in natural resource and biodiversity conservation management, having managed multiple districts over

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				9 years in the Wheatbelt Region while working for the Department of Conservation and land Management, and then the Department of Environment and Conservation). The used references are available in the appropriate section of the Feral Animal Environmental Management Plan (ERD Appendix 6.2)
F10	Ferals	ANON-Z91Q-PH2R-H	Please provide supporting references for these statements "There is currently limited (none found) published information on the direct relationship between feral animals and landfill activities".	In section 1.4.3 of the Feral Animal Environmental Management Plan (FAEMP), Alkina has stated it has not found any public information that documents the direct relationship between feral animals and landfills. Alkina does not make the assertion there is no relationship; only that no research (to our knowledge) has been undertaken in this area. As each site and environment is unique, direct impacts cannot be determined for a hypothetical proposal. ERD section 4.3.4.2 describes anticipated relationships. It is for this reason that the FAEMP (section 2) identify management-based provisions to manage the risk.
F11	Ferals	ANON-Z91Q-PH2R-H	How will Alkina know if its feral management plans are working without quantitative data from the baseline data set?	The Feral Animal Management Plan (provided as ERD Appendix 6.2) identifies the objective and outcome of the management plan with management actions corresponding to management targets in Table 3. As stated in the Table, the management target will be to prevent feral animals accessing the landfill area, minimising their attraction to the facility, and eradicating the animals detected within the development envelope area by implementing the identified management actions. Monitoring will involve visual inspections of the landfill fence and installing strategically placed motion detection cameras to detect presence. Animals detected within the fence will be eradicated and corrective measures will be implemented to prevent re-entry.

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F12	Ferals	ANON-Z91Q-PH2R-H	Can Alkina please provide habitat mapping that is relevant to feral fauna values?	The baseline feral animals survey report (ERD Appendix 2.7) identified the presence on the property with the placement of 30 motion-sensor cameras. The results are detailed in that report. The ERD discussed the difficulty in determining population numbers without individual markers on animals. The fact that feral animals are known to exist within the area, provides rationale for a feral animal management plan (ERD Appendix 6.2)
F13	Ferals	ANON-Z91Q-PH2R-H	Alkina, please change the wording in this feral management action or explain why eradication is not possible?	Eradication of a feral species requires dedicated effort and persistence from all landowners. The fact these animals persist in this landscape means that eradication has not been possible before the presence of a landfill. As part of the feral animal management plan (ERD Appendix 6.2), Alkina's strategy is to prevent access to the landfill (not providing a food source) and implementing controls when their presence is identified.
F14	Ferals	ANON-Z91Q-PH2R-H	Is there a reason why Alkina has not quantified a trigger level to necessitate management action?	As explained in the Emerge report (ERD Appendix 2.7), the expected feral animal species were detected in the area. As mentioned in the Feral Animal Management Plan, it is incumbent on all landowners to manage the impact and control the spread of declared pests, pursuant of the WA Biosecurity and Agriculture Management Act 2007. Setting quantified species numbers did not seem appropriate to Alkina as these animals should be controlled when detected and not rely in perceived trends. Alkina can only control the animals that present and attempt to gain access to the landfill, like what other land managers do on their properties.
F15	Ferals	ANON-Z91Q-PHCW-7	Leachate ponds themselves through the attraction of water and rotting food odours will attract files, rodents, feral cats and dogs, wild pigs which are already there	The potential impacts feral animals and the assessment thereof are detailed in the ERD section 4.3.4.2 & 4.3.5.2. Mitigation strategies are identified in ERD section 4.3.6 and detailed in the Feral Animal Management Plan (ERD Appendix 6.2). Feral management initiatives will include use of exclusion fencing and electrification to not provide access to any food source. Motion-detection cameras will be installed to monitor success of keeping them out. Trapping will also be undertaken on the property and any animals caught will be humanely dispatched. The

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				landfilled wastes will be compacted and covered daily to minimise odours and access to pests. Rodent baiting will also be undertaken, and tactics will be employed to deter scavenging birds. These initiatives are also detailed in section 11.12 of the GSL Management Plan (updated attached as Appendix 1)
F16	Ferals	ANON-Z91Q-PH29-R	Alkina have not researched the effects of birds becoming contaminated at the site and then transferring leachate contamination to roofs, waterways, dams, and stock troughs	Alkina has not been able to specifically research the effects mentioned by the submitter for this site as the site is yet to be developed. Also, Alkina did not identify the risk of birds contaminating the environment as significant based on the management strategies detailed in the ERD and GSL Management Plan, and the separation distance to receptors. The management strategies specifically address actions to minimise presence and attraction of pest species. Alkina has identified that the presence of the landfill may provide a food source for some species (ERD Section 4.3.4.2 and Feral Animal Environmental Management Plan (ERD Appendix 6.2) section 1.4.3) and have identified mitigation strategies in these documents (e.g., ERD section 4.3.6 and FAEMP section 2 and GSL Management Plan (ERD Appendix 6.1) section 11.12. While undertaking additional literature surveys in response to the submitter's concern, a review paper by Pablo Plaza and Sergio Lambertucci in the Global Ecology and Conservation 12(2017)9-20 Journal (https://reader.elsevier.com/reader/sd/pii/S2351989417301257?token=A65E75494D0B106C70D867643B16A5BD670CE679F34DE2233DCBA0F38945FEBA950F51297DAB913304E89DBC71A67698) was located. It attempts to review what terrestrial species exploited landfills and the impacts waste produces on them; this was from information various international studies (with limited reference to Australia). Research has indicated that for some bird species (e.g., gulls), the birds feeding at landfill site were in fact heavier due to the due to the food source and there was also an increased abundance.

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				In relation to pathogen infection risk, the review paper identified that pathogens are common at rubbish dumps and could pose a risk; however, they found few studies addressing the topic and were related to gulls, and do not allow for general conclusions. Crows and ibises are more likely to be attracted to the site (based on observations at other landfill sites off the Swan Coastal Plain). The submitter specifically refers to leachate contamination to roofs, waterways, dams, and stock troughs. The risk of leachate exposure from recirculation within landfill activities is reduced as the waste is covered with inert materials at the end of the day. Wastes are also progressively covered to reduce the area of exposed waste during the day (minimising access with machines actively working over the area) – see section 10.6 of GSL Management Plan (ERD Appendix 6.1). The waste types to be accepted are documented in section 10.2 of the GSL Management Plan. High risk (hazardous materials) such as clinical waste will be subject to specific management actions to mitigate risk (section 10.2.5). Alkina assumes that the concern also stems from waterbirds potentially landing in the leachate ponds and then visiting in other water impoundments, or surfaces where the birds will spread pathogens or contaminants. Pathogens within leachate will be likely be subject to a level of pasteurisation because of the heat generated within the decomposing waste, and therefore presents a reduced risk. Water quality in leachate ponds (based on sample analysis at other putrescible landfills indicate a higher likely presence of nutrient levels. Defecating birds in any pond is likely to pose a pathogen risk, including to leachate in the leachate ponds. The leachate ponds will be managed (recirculated and evaporated (GSL Management Plan section 11.5)) and will not always have leachates in them (ponds effectively emptied in summer); leachate volumes will likely increase and need containment during the winter

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				months at which time there will be other water sources in the form of farm dams. Furthermore, Alkina believes that the limited contact a bird would make with leachate from a pond and then washing the contaminant off at another site would be highly diluted at the receival point. Alkina is not aware of any incidences of disease or pathogen transmission from other landfills that accept similar wastes and have less separation to sensitive receptors. Should the presence of waterbirds at leachate ponds identify a risk to public health, Alkina will commit to incorporating additional controls measures to discourage access to the ponds, for example incorporating bird lines and grids over the ponds. Control measures of scavenging birds are identified in the GSL Management Plan (section 11.12, which also includes engaging a specialist bird control contractor, if needed).
F17	Ferals	ANON-Z91Q-PH21-G	Even if fences were erected, the odour from the dump will still attract the feral animals and the fences are often breached	Alkina does not advocate the fence will stop odour, or the attraction of feral animals; it will however prevent entry and access the landfill to get food. The measures to manage ferals have been detailed in the Feral Animal Management Plan 9ERD Appendix 6.2). Measures include implementing effective landfilling actions (compaction, cover etc.), the fencing will include measures to minimise risk of digging or climbing over (e.g., apron fencing, electrification etc.). This will be supported by general eradication methods around the development area on the property.

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F18	Ferals	ANON-Z91Q-PH2R-H	There is no baseline data provided by feral animal management to allow for assessment of changes over time to be identified. Also, the record may not provide a true representation of the relative size of feral fauna population	Alkina agrees with the submitter that the baseline survey does not quantify the densities or population size of the species (ERD 4.3.5.2). There are too many variables to establish this in an uncontained area where animals can move freely, or for individual animals are recognised. Landowner shooting may also temporarily change movement patterns to other areas. Resource availability will also affect densities. In acknowledgement of these factors, Alkina developed the Feral Animal Management Plan to focus on outcomes; preventing ferals from gaining access to waste (food source) and controlling them when their presence is identified in the area.
F19	Ferals	ANON-Z91Q-PH2R-H	Survey performed shows lower frequency of feral animal than for native fauna. So, "What baseline data other than confirming the presence of already know species have been achieved by this investigation and report?" Also "Please justify why this method of analysis was chosen when developing a baseline fauna dataset?	The comment in the report was made based on the number of triggered observations. The results of the observations are detailed in Table of the Emerge report (ERD Appendix 2.7). Alkina did have reservations about the usefulness of the information when the requirements was imposed within the Environmental Scoping Document. The cameras were set up in all habitat types (ERD Figure 18) likely to be favoured by ferals fauna species (Section 3 of Emerge Report in ERD Appendix 2.7). Data analysis involved tabling each photo taken in accordance with date and species. Unless one captures and releases feral animals (which is contrary to managing them) and the methods can be repeated under similar conditions, the use of cameras was the most objective method.
F20	Ferals	ANON-Z91Q-PH2R-H	No quantified data are presented for feral fauna in this report so how is it possible to conclude that '...the baseline assessment does not indicate large numbers of feral fauna occur within or interact with the site'?	The determination of the statement referred to by the submitter was made based extrapolated data collected from camera observations between 26 August and 5 October 2019 (Section 5.1 of Emerge document in Appendix 2.7 of ERD). While it provided quantifiable data of presence, it may not represent densities of populations.

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F21	Ferals	ANON-Z91Q-PH2R-H	How is it possible to conclude that ' The feral animals present might be expected for agricultural landscape adjacent to areas of forest and woodland, when there is no quantified analysis, no comparison with any other data (this site or other), no analysis of data within the proposed disturbance area compared with outside the proposed disturbance area, and no analysis by habitat type?	The statement was made by the scientist who completed the survey and based on their experience. Anecdotal information suggests these remarks indicate these species are common in these habitat types. If the numbers are high, it means that community control is not effective, and if low, it means existing controls are working. Either way, Alkina has set objectives and management targets to manage the risks associated with the feral animals as identified in ERD Appendix 6.2.
F22	Ferals	ANON-Z91Q-PH2R-H	ERD stated that 'the survey was undertaken shortly after the lambing season, so foxes may likely be actively searching for easy prey to feed their young'. Is this a reasonable biological statement as other researchers have concluded that as young will be in dens the females may be less likely to venture far from the pups so the abundance of adults could be lower than expected?	Conversely, it could be stated that females may need to hunt more to maintain lactation. Youngsters will also venture out to look for food when weaned. The speculation on fox numbers (which could not be determined) do not deter from the requirement to control declared pests, which has included management strategies identified in the feral animal management plan (ERD Appendix 6.2).
F23	Ferals	ANON-Z91Q-PH2R-H	The ERD states 'there was evidence of fauna movement between the neighbouring properties, to and from the woodland & forested areas' but was this just movement of Kangaroos or is there evidence of feral animal movement. If it was feral animal movement, were the feral fauna residing in the conservation estate and coming in the project area to forage or the	The Baseline fauna assessment is described in ERD section 4.3.3.4 and the associated Emerge Consultants report in ERD Appendix 2.7. 30 Motion-sensor cameras were strategically placed across the Allawuna Farm (see ERD Figure 18) for a 40-day period, which triggered 455 animal observations. The camera trap records (including date, camera ID and species) are reflected in Table 2 of the Emerge report. The assessment of boundary movement was made by the zoologist that placed the cameras and interpreted the data, and in particular the presence of animals detected at the boundary locations. No specific movement patterns could be

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			opposite? Or is there no pattern to the movement and feral fauna were just traversing the landscape randomly?	detected as it was not possible to uniquely identify specific animals. Section 5.1 of the report specifically mentions that the records may not provide a true representation of the relative size of the feral animal populations and must be interpreted cautiously. This observation is also made in section 1.4.2 of the Feral Animal Environmental Management Plan (ERD Appendix 6.2).
F24	Ferals, pests and disease	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2J-9 / ANON-Z91Q-PH2S-J / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PH21-G / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2K-A / ANON-Z91Q-PHC8-8 / 319182 / 317119 / 317133	Landfill will attract rodents, vermin, feral, pest animals and unintentional feeding restricted animal materials to feral ruminants could result in spread of endemic & exotic diseases throughout the food chain & water system	The submitter refers to feral ruminants spreading diseases. No feral ruminants were identified in the baseline feral animal surveys; feral ruminants would include deer, cattle, sheep (but not pigs). Alkina assumes the submitter may be referring to pigs. The baseline survey indicates that pigs are already present in the area, which supports local anecdotal information (e.g., farmer shooting pigs and DBCA officers undertaking targeted baiting). The landfill proposes to accept municipal solid waste; these wastes which will be compacted and covered daily (see GSL Management Plan section 11.12.3) are unlikely to introduce exotic diseases. Any clinical waste accepted will be subject to specific management requirements (like asbestos) which will require deeper burial. The GSL Management Plan Section 11.12 identifies that pests could be attracted to the landfill, which could impact the ecosystem, and details associated management actions. The Feral Animal Management Plan (ERD Appendix 6.2, Table 3) provides greater detail on feral management strategies. Control strategies include exclusion fencing to minimise access, and monitoring (cameras) to detect presence / implementation of additional controls. In relation to impacts caused by feral animals, these have been discussed in ERD section 4.3.4.2. Limited studies have been undertaken worldwide (least Australia) that investigates the spread of endemic and exotic diseases because of landfill activities. Alkina is not aware of any record of diseases (endemic or exotic) being transmitted that is traced back to a landfill in WA. The Department of Primary Industries and

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				Regional Development have identified some of the biodiversity risks but have not made any deduction in their submissions (and they are the responsible agency for biosecurity protection in WA) of disease transmission risk. The response to submission F16 refers to a literature review undertaken by Plaza and Lambertucci on how landfills impact vertebrate demography, health and conservation based. Alkina accepts that feral animals may get attracted to the landfill as a food source and management strategies aim to not provide access to the food, and control populations that present a risk; research indicates that the access to landfill as a food source supports this position. Anecdotal information suggests that pigs could spread dieback, but this activity is not dependent on the presence of a landfill and their presence has already been determined. Research quoted by Plaza and Lambertucci refer to the transmission of salmonella transmission to sheep and cattle in Scotland by gulls and baboons caused a tuberculosis outbreak when eating infected meat at a landfill, while dogs in India have resulted in increased spread risk of rabies and leptospirosis (because of increased population densities enabling spread; not from specifically feeding on landfill waste, which the GSL management strategies target prevention of access). These diseases are not specific to landfill activities and the authors of the report indicate that general conclusions cannot be drawn based on limited studies. The landfill does not propose to accept hazardous other than asbestos and clinical wastes which have strict management requirements (see GSL Management Plan 10.2.5), the landfill is unlikely to receive wastes associated with notifiable / reportable diseases. Rabies incidences are rare (no incidences since 1990 (Department of Health website). Besides salmonella, the other disease mentioned are reportable diseases and outbreaks in

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				Australia appear to be rare, with the GSL unlikely to present a source. The research has however reported elevated toxic metals of birds, such as white stocks breeding near landfills. Ingestion of plastics by birds (storks, turkeys, and vultures) may also occur, which will result in the starvation of the animal. None of these species are likely to become regular visitors to the GSL. Alkina is not aware of any incidences that have been made public whereby the presence of a landfill in WA has caused the death of bird populations.
F25	Ferals, pests and disease	ANON-Z91Q-PH29-R	Landfill will attract feral pigs and the Alkina have performed minimal researched on wild pig population. Feral pigs will affect the sites security, burrowing under the fence as well as contaminating the surrounding area. Feral pigs can be hosts or vectors of several endemic parasites and diseases. Furthermore, the flies, mosquitoes, rats, cats, and birds (typical disease vectors) are attracted by food waste and still water at landfill. If uncontrolled, these pests can affect public health, surrounding eco-system and have a serious affect upon natural fauna in the area carrying diseases and infecting wildlife	Alkina agrees with the submitter that the presence of the landfill could provide a food source to pigs if they are able to gain access. The baseline survey determined the presence of pigs and based on the positioning of the cameras during the survey showed they moved between the neighbouring property as well as the conservation estate. The presence of pigs confirmed their existence without identifying densities, so the risk of pigs spreading diseases is already there irrespective of the presence of a landfill. The Feral Animal Management Plan (Table 3) details management actions to control ferals (including pigs). With the objective of preventing feral animals accessing the landfill, strategies will include exclusion fencing with aprons, electrification of the fence and eradicating animals in the vicinity of the landfill through trapping, baiting etc. These strategies will also be complemented by operational actions such as ensure waste is covered to reduce odour etc. Section 11.12 of the GSL Management Plan identifies the risks and control strategies for the management of vermin, pests, and flies. Given the comments raised by the submitter, Alkina conducted additional literature reviews to verify whether the concerns had not been adequately addressed. As part of this, an article in Frontiers in Public Health authored in January 2020 by Amy Krystosik,

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				Gathenji Njoroge, Lorraine Odhiambo, Jenna E Forsyth, Francis Mutuku and A Desiree LaBeaud on wastes sites providing breeding sites, burrows and food for disease vectors, and urban zoonotic reservoirs (https://www.frontiersin.org/articles/10.3389/fpubh.2019.00405/full) was reviewed. The review determined that urban biological vector-borne diseases (specifically *Aedes* mosquito, which also occur in WA) are associated with the accumulation of rubbish, but the vector presence varied over season and region. Urban zoonosis, especially rodent and canine disease settings are associated with settings where garbage accumulates over time, suggesting that globally there is a link between plastic pollution / solid waste and human disease (particularly in poorer countries, where wastes are not regularly covered and scavenging often occurs at these sites). The *Aedes* species of mosquito prefer to breed in man-made containers such as recyclable plastic containers, tyres, and trash. Removal of these breeding sites will reduce risk. At the GSL, this includes compaction and covering of wastes daily as outlined in GSL Management Plan section 11.12) and general good house-keeping practices; these are consistent with reducing risk. Alkina in the GSL Management Plan has committed to engaging a relevant pest control professional to assist with the management of any vectors or pests should the existing proposed controls not be adequate. Given the quality of leachate, it is unlikely that mosquitoes will breed in in the leachate ponds. Mosquitoes generally prefer to breed in shallow waters with marginal vegetation; the ponds at the GSL will be lined and will not provide the fringing vegetation and / floating vegetation cover and protection; criteria not provided by the leachate ponds. Natural wetlands and creek lines are likely to provide more suitable mosquito breeding habitat. The potential risk of direct transmission of infectious diseases by any kind of solid waste relies on a multitude of inter-related factors, including the presence of an infectious agent, its viability in solid

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				waste and a susceptible host (which will less in a low population density environment.
F26	Native fauna risk	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH23-J / ANON-Z91Q-PH23-J / 319182	Clearing of vegetation will affect/risk the habitat of native fauna particularly pollinating insect that are vital for maintaining pollination of many species	The value of the native fauna habitat quality is described in ERD sections 4.2.3.2. Ninety-eight percent of the site is described a completely degraded, while 1% is degraded. The landfill infrastructure placement has considered the local habitat quality during the site selection process. The potential impacts of clearing on native fauna (and pollinating insects) are described in ERD section 4.2.4.2. The removal of isolated and scattered trees within the landscape that still maintains 74% native vegetation coverage in a 10km radius (ERD Table 16) will not likely impede the ability of pollinators and other fauna species to move across the landscape, particularly when there will still be multiple paddock trees maintained on the property to provide stepping-stones between remnants. The extent of native vegetation area is evident when looking at ERD figure 2. Large numbers of paddock trees will be untouched on the property will continue to provide habitat (including perching, nesting etc.). The current agreement with the beekeeper who uses this site will continue, subject to agreement by the farmer who currently uses the land (even though European honeybees are not native and can become invasive).
F27	Native fauna risk	ANON-Z91Q-PH23-J	Disease risk to wildlife. Wedge tailed eagle could potentially eat rats and rotting meat from the landfill which could introduce disease & poison into wild animal	The operational area will be kept a small as possible (~30m wide) and cover the waste at the end of the day. The chances of an eagle encountering rotten meat within the landfill is minimal with the activity around the landfill area and the waste types expected. There is scope for eagles to scavenge on dead farm animals on the property or dead / rotting native fauna in the adjoining national park. Alkina also does not believe the landfill will introduce disease or poisons that will be taken by wildlife from the waste. While Alkina is not aware of such events, such events have not been reported from other landfill sites.
F28	Native fauna risk	319182	It is the responsibility of the applicant to take care of inhabitants of this area, whether it be birds or animals	Alkina has purposefully selected the location of the landfill to minimise disturbance of native habitat (ERD Section 2.3.2.1). Impacts to vegetation and fauna have been discussed in the ERD (Section 4.2.4 and 4.3.5 for vegetation and fauna respectively).

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F29	Pests	ANON-Z91Q-PH29-R	Lack of bird-deterrent strategies	Bird deterrent strategies have been detailed in section 11.12.3 of the GSL Management Plan (which was provided as ERD Appendix 6.1). The main method of bird control on site will be to keep the landfill operating face as small as possible, progressive covering of waste during operating days, and covering the waste at the end of the working day to minimise exposure of waste as a food source to scavenging birds. Control methods identified also include the use of decoy, distress calls, blank-firing guns and / or trapping as outlined in GSL Management Plan section 11.12). It is stated in the ERD that a specialist bird control contractor will be implement and maintain bird controls strategies as required.
F30	Pests, weeds, and diseases	ANON-Z91Q-PH29-R / ANON-Z91Q-PHCW-7	Landfill will nurture diseases that cause pest and weeds infestations. Vehicles travelling to and from the landfill site contribute to the spread and build-up of disease, weeds, and pests	GSL Management Plan sections 11.15 (noxious weed management) and 11.12 (Vermin / Feral animal management) articulate management strategies to address the concerns raised by the submitter. A specific environmental management for the management of ferals was developed as part to the Part IV EP Act requirements (ERD Appendix 6.2). The ERD sections 4.2.3.6 and 4.3.3.4 provide description of the receiving environment in relation to weeds and ferals. Associated impacts and risk assessments are described in 4.2.4.6, 4.2.4.6, 4.3.4.2 and 4.3.5.2 with mitigation strategies provided in 4.2.6 and 4.3.6. The waste streams are unlikely to be a source of disease, or nurture diseases as alleged based on the proposed waste types received (generally commercial and industrial, construction and demolition, and potentially municipal solid wastes as incoming wastes will be compacted and covered by the end of the working day. No processing of wastes will be undertaken on site. All these factors will mitigate risk. Any clinical waste received will be subject to specific management controls, like that applied and regulated for asbestos and clinical waste accepted at landfill sites. Section 10.2.5 of the GSL Management Plan details the proposed controls, which include (but not limited to) accepting this waste through prior arrangement and burial in a designated area (to avoid future disturbance) and covered with a thicker covering to reduce risk of

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				exposure, which will be supported by a clinical waste register that identifies the source and content of the material. No radio-active wastes will be received. Additional information relating to this matter is also included in the responses above ((F23 and F25).
Terrestrial Environment quality				
T1	Containment infrastructure failure	ANON-Z91Q-PH2A-Z / ANON-Z91Q-PH23-J / ANON-Z91Q-PHC4-4 / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / 317119 / 317133 / ANON-Z91Q-PHCW-7 / 319182 / ANON-Z91Q-PH29-R	Since York is seismic activity hot spot, there is great concern over lining damage within the landfill due to earthquakes, use of heavy machinery and rain floods. Thus, failure of the lining will cause severe impact on the adjoin landowners	As part of the landfill design, Golder has used best practice guidance. They conducted a plethora of geotechnical investigations (outlined in ERD 4.4.3.4). In considering the seismic hazard (ERD 4.4.3.6), they completed a stability analysis and assessment for the landfill and leachate ponds to cover multiple scenarios, which met the required factors of safety (ERD 4.4.3.7). The stability analysis also informed the material specification requirements for the site. As part of the design liner configuration (see ERD Figure 24), the landfill base will compose of a composite lining system, which from the bottom upward, will comprise of an engineered subgrade, a geosynthetic clay liner, HDPE liner and a cushion geotextile to protect the liner. Drainage aggregate will be placed on top of this for leachate management and a separation geotextile will be placed between the aggregate and the waste. Heavy machinery will not make direct contact with the liner. After construction, the liner will be checked for any holes as part of the construction quality assurance programmes (ERD Section 4.4.6). The risks to the terrestrial environment and inland waters and the assessment thereof are detailed in the following ERD Sections 4.4.4.7, 4.4.3.8, 4.4.23.9, 4.4.3.10, 4.4.4, 4.4.5, and 4.5.4 & 4.5.5, respectively. As part of storm water mitigation, diversion bunds will be installed upstream of the landfill and a subsurface drainage system will be installed to ensure a two-metre separation to any potential groundwater (ERD 2.3.2.2). The leachate will be managed to

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				ensure a hydraulic head of less than 300mm over the landfill base (ERD Section 4.5.6). ERD section 4.5.6.1 identifies the management strategies to contain contaminants (i.e., avoid leaks through design) while section 4.5.6.2 identifies management actions to minimise the risk of contaminants entering the environment and implementation of measures to detect leakage, including visual inspection, installation of suitable monitoring instrumentation that is supported by a groundwater monitoring network. This section (and section 12 of GSL Management Plan) also identifies contingencies action planning to remediate risk identified through monitoring. GSL Management Plan section 11.5 also details leachate management strategies and a leachate management response plan (section 11.5.11) to manage potential anomalies identified through monitoring of the leachate system.
T2	Containment infrastructure failure	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / 319182 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Potential to leak leachate into the soil contaminating the underground water and soil flowing down into the 13 Mile Brook & Helena River as HDPE liners are in no way tear proof and they can easily be pierced and compromised like any other similar materials	The liner not only rely on an HDPE liner. It will be complemented with an engineered (compacted suitable subgrade) and a geosynthetic liner. Both liners will be protected by an engineered cushion geotextile (see ERD Figure 24 for representation). The cushion geotextile will be tested as part of the materials quality assurance programme to demonstrate that it can adequately deflect / absorb the pressures simulated by the waste and drainage aggregate prior to installation to ensure no unacceptable deformation. The assertion that the Thirteen Mile Brook is hydrologically linked to the Helena River catchment has been demonstrated to be false by the various investigations and an EPA appointed peer-reviewer (ERD Section 4.5.5.3). Interception and monitoring systems outlined in ERD Section 4.5.6 will further mitigate risk, which have also been elaborated upon in the above section (T1)
T3	Containment infrastructure failure	ANON-Z91Q-PHCW-7	Proponent is using low permeable clay, but if this clay dries out the liners fail and if it gets too wet the liners also fail	The liner not only rely on low permeable clay for containment. The liner is a composite system, as reflected in the ERD Figure 24 presentation. The GCL will be hydrated from underground moisture after placement to achieve the specified level of hydraulic conductivity (permeability). The bentonite clay in the GCL is held in

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				place by design with the seal formed when exposed to moisture (from either above or below). The GCL is supplemented by an overlying 2mm thick HDPE liner which protected by a cushion geotextile. Furthermore, the design of the landfill cells (refer to Design report in ERD Appendix 1.3) are to ensure a minimum 2m separation distance to groundwater, with a subsurface drain installed to ensure the separation. Detection systems will also be installed to ensure this separation is maintained (eliminates concern of groundwater mounding impacting the liner) (see ERD Section 4.4.6).
T4	Containment infrastructure failure	319182	Liners used have a short life span of approx. 20 years. This dump will keep producing methane and noxious leachate well after this time. This stuff will continue to leak into the underground water table forever.	Alkina does not share the opinion stated by the submitter based on the material specification quality assurance programs included in the design. The materials in the landfill lining are based on current best practice, with the VicBPEM used as the measuring standard in WA; it details international testing standard requirements to verify suitability of materials. Liners are designed with contain wastes for the duration that a risk is posed; at which time there will no longer be leachate generated and little to no methane gas generation. Materials are subject to manufacture specification testing to ensure compliance as part of the construction quality assurance programme. As part of the after-care programmes (e.g., Table 9 of ERD), leachate will continue to be managed until it is no longer being produced. The landfill will be progressively capped as it is completed, which will then remove the addition of moisture from rainfall events that could be experienced at open cells (ERD section 2.3.2), meaning that the decomposition of materials will at some point no longer produce leachate as the capping will form a barrier to prevent the addition of liquids while the maintenance of a separation distance to groundwater will remove the risk of an infiltration of moisture from below. The landfill liner design includes (as detailed in ERD 2.3.2.2) an engineered compacted subgrade and a subsurface drainage system (where needed), a geosynthetic clay liner (GCL), and a 2mm thick HDPE liner that will be protected by a fit-for-purpose cushion / protection geotextile. The CGL and

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				HDPE liner are subject to quality assurance installation, including overlaps and seal testing (Appendix 1.4 of ERD), and covered to minimise exposure to sunlight. All these measures, consistent with best practice will mitigate risk / concern identified by the submitter. Methane and landfill gas levels will be influenced by degradation processes within the waste. As the wastes stabilise (and decomposition is no longer happening), the gas levels will subside. The landfill gas levels have been predicted (ERD Appendix 4) and landfill gas management strategies detailed in in ERD section 4.6.6 and 5.1.4. Alkina has committed to post-closure monitoring to the point that the residual risk to the environment is alleviated (ERD 2.3.3.7).
T5	Contaminate soils and generate methane gas	ANON-Z91Q-PHCW-7	Landfill will contaminate surrounding soil	The risk assessment of impacts to the Terrestrial environment is detailed in Section 4.4 of the ERD. Section 4.4.3 describes the receiving environment and assessments undertaken as part of the design while 4.4.4 describes the potential impacts; 4.4.5 assesses the impacts while 4.4.6 outlines the mitigation measures to manage the risk. As part of the assessment outcome, it is predicted that the mitigation strategies, including engineered specification, construction and material quality assurance programmes, and management / monitoring plans, the landfill will not present a significant risk (low risk) to the environment. The existing soils in the location of the landfill are subject to previous land-use activities; agriculture (livestock grazing and cropping). The sub soils underlying the landfill will be engineered to reduce hydraulic conductivity and allow attenuation of contaminants that may mobilise into the environment, should leakage occur. Any contaminants leaked will migrate with groundwater. Golder modelled the transport of solutes (ERD section 4.5.3.8) to determine potential impacts on receptors. Soils surrounding the landfill will unlikely be contaminated as the waste will be placed contained within the infrastructure. Access to the landfill will be by dedicated roads and no liquid wastes will be accepted at the facility that could spill and cause contamination. Specific controls to manage chemicals and fuels on site are detailed in the GSL

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				Management Plan section 11.14 to mitigate risk of contamination to land. Once the landfill has reached its end of life, redundant infrastructure will be decommissioned, and any contaminated soils and groundwater will be remediated to a level to meet the objectives of the final land use objective (e.g., see Table 4 of ERD)
T6	Environmental risk	ANON-Z91Q-PH2K-A / 317119 / 317133 / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2H-7 / ANON-Z91Q-PH2F-5 / 319182 / ANON-Z91Q-PH23-J / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2D-3	The proposed location poses an unacceptable high risk to the environment and precautionary principles should be applied (ANON-Z91Q-PH23-J). Landfill creates environmental pollution as well as leave a toxic legacy for generations (ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2D-3)	The selection of the site was initially undertaken by SITA and considered buffer distances to receptors and the manageable environmental risk profile (ERD 2.2.2). The optimisation of the proposal is detailed in ERD Section 2.2.3. The landfill design has considered the appropriate codes and guidelines (see ERD section 2.3.2). The design elements have considered the receiving environment as outlined in the ERD sections 4.2.3, 4.3.3, 4.4.3, 4.5.3 and 4.6.3 and the risk assessments completed for all the identified key environmental factors. Mitigation strategies have been developed to manage the risk, including monitoring and post-closure to a point where the post-closure objectives are met (see ERD section 2.3.3.2). It is anticipated that after care period for putrescible landfills is typically 30 years. The containment infrastructure will be subject to a third-party quality assurance programme of materials (meeting specification) and construction (including subbase preparation, liner placement and joining, and leakage testing) Appendix 1.4 of the ERD details the CQA for the first stage of the works (for works approval purposes).
T7	Environmental risk	ANON-Z91Q-PH29-R	The positioning of a landfill on Allawuna is not consistent with EPA best practices	The WA EPA nor DWER have not yet developed any best-practice guidance in relation to the siting, design, and operations of landfills. The Victoria EPA best practice environmental management guidance has been followed in the design of this facility as its principles are generally accepted by the WA regulators. It should be noted that DWER has previously approved this proposal based on acceptable risk.

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T8	Environmental risk	ANON-Z91Q-PH29-R	Alkina has not presented other locations for a landfill where the use of alternative transporting of waste can be used (e.g., trains) to reduce environmental damage. There is a lack of extensive and conclusive scientific knowledge especially regarding paleo channels, soil, groundwater, and the effects this proposal will have on the National Parks and reserves. Alkina has presented less information on this subject than in the original SITA proposal.	ERD section 2.2.2 briefly outlines the site selection process undertaken for the proposal by the previous proponent. Through optimisation (ERD section 2.2.3) and design following appropriate best practice standards and guidelines the risk is mitigation as identified in the mitigation strategies identified in each Key Environmental Factor section. Suggested alternatives such use of trains to transport waste is logistically impractical and would still require truck movements to the rail siding and the final disposal point. In relation to conclusive knowledge in relation to paleo channels, soil and groundwater, the site characterisation undertaken by Golder Associates for the proposal has been independently reviewed by an EPA approved consultant, who concluded the Golder assessment was thorough and robust (ERD Appendix 3.6) which was again reiterated by the reviewer in Appendix 4.
T9	Environmental risk	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2S-J / ANON-Z91Q-PH23-J / ANON-Z91Q-PH2J-9 / ANON-Z91Q-PH21-G / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 /	The topography of this site is near to water tables - a potential hazard to important local water sources. The landscape, hydrology & geology of this site is not suitable for landfill. Thus, landfill does not fit into prime agricultural and water catchment land	The design of the facility undertaken by Golder Associates (see ERD Appendix 1.3) is based on detailed geotechnical investigations. Mitigation systems (e.g. sub-surface drainage systems - ERD section 2.3.2.2, and instrumentation to verify maintenance of separation to the water table and detect leakage (ERD Table 35) have been developed to mitigate risk (primarily ERD 4.2.6, 4.3.6, 4.4.6, 4.5.6 and 4.6.6). Also, the footprint of the infrastructure in relation to the extent of agricultural land within the Shire is minuscule (0.06 %) and despite assertions, it is not within water catchment land.
T10	Infrastructure	319182	Will the new proprietor build a new fence and maintain this fence, and will it stop the windblown rubbish from being all over the property?	A 2-m high mesh fence will be placed around the containment infrastructure. This will be supported with the erection of portable litter screens. The mitigation measures to manage windblown litter is detailed in 4.6.6.

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T11	Infrastructure	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2U-M	Earthquakes/Landfill fire with heavy machinery can rip/destroy the liner and liner failure will allow toxic leachate within the landfill to escape into the environment (groundwater, 13 Mile Brook and over land)	The landfill design has considered the appropriate codes and guidelines (see ERD section 2.3.2). The design elements have considered the receiving environment as outlined in the ERD sections 4.2.3, 4.3.3, 4.4.3, 4.5.3 and 4.6.3 and the risk assessments completed for all the identified key environmental factors. Mitigation strategies have been developed to manage the risk (including terrestrial, inland waters and social - see ERD sections 4.4.6, 4.5.6 and 4.6.6). Post-closure monitoring and management strategies will continue until a point where the post-closure objectives are met (see ERD section 2.3.3.2). The risk assessment of impacts to the Terrestrial environment is detailed in Section 4.4 of the ERD. Section 4.4.3 describes the receiving environment and assessments undertaken as part of the design while 4.4.4 describes the potential impacts; 4.4.5 assesses the impacts while 4.4.6 outlines the mitigation measures to manage the risk. As part of the assessment outcome, it is predicted that the mitigation strategies, including engineered specification, construction and material quality assurance programmes, and management / monitoring plans, the landfill will not present a significant risk (low risk) to the environment. It is anticipated that after care period for putrescible landfills is typically 30 years. The containment infrastructure will be subject to a third-party quality assurance programme of materials (meeting specification) and construction (including subbase preparation, liner placement and joining, and leakage testing) Appendix 1.4 of the ERD details the CQA for the first stage of the works (for works approval purposes). In response to the concern of fire impacting the landfill liner, Alkina is developing fire management plans and operating procedures in accordance with planning requirements in collaboration with a Class III fire planning expert which will address community concerns and mitigation of risk. The ERD identified fire risks in the ERD section 4.6.4.6 and 4.6.4.6 with mitigation strategies outlined in section 4.6.6; these will be expanded upon in the fire management plans, which will be subject to Shire and DFES

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				scrutiny and approval. It should be noted that the landfill liner will be protected / buffered from any fire within the waste by virtue of the 300mm thick drainage aggregate / layer located above the liner, as described in ERD section 2.3.2.2 (Subgrade and liner system) through physical separation (to absorb / dissipate heat).
T12	Infrastructure	ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Proposal specifies that borrow pits will be constructed for daily covering of the landfill. The borrow areas will reduce the capabilities for agricultural use. The borrow pits are likely to change waterways and cause erosion, dust, wind damage, environmental harm, and pollution	The borrow pits are identified within the development footprint. Their developed with progress with cover requirements. Mitigation measures for erosion and dust are detailed in the Topsoils Management Plan (ERD Appendix 1.7). The GSL Management repeats the sediment control and dust management measures (section 11.11 and 11.7, respectively). The borrow pits will only be developed as cover soils are needed. Alkina does not believe they will change waterways as they are not in established creek systems. They may intercept landscape surface sheet flow; however, Alkina will be maximising the management (diversion around infrastructure and capture) of runoff from the slopes within the development area anyway as a source of water. This practice is commonly undertaken within agricultural landscapes to capture water in farm dams. As part of the proposal, Alkina also plans to construct a sediment dam to downstream of the landfill activities (see ERD section 2.3.2.2, pages 46 and 47). The proposal area within Lot 4869 covers an area of 132 ha. The sub-catchment associated with the proposal is only 200 ha and represents 10% of the upper part of the upper Thirteen Mile Brook catchment (ERD section 4.5.3.1)

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T13	Land contamination and degradation	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / 317119 / 317133 / 319182	Landfill will lead to land contamination & degradation resulting in loss of productive agricultural land and affecting biosecurity of the surrounding area.	The landfill design has considered the appropriate codes and guidelines (see ERD section 2.3.2). The design elements have considered the receiving environment as outlined in the ERD sections 4.2.3, 4.3.3, 4.4.3, 4.5.3 and 4.6.3 and the risk assessments completed for all the identified key environmental factors. Mitigation strategies have been developed to manage the risk (including terrestrial, inland waters and social - see ERD sections 4.4.6, 4.5.6 and 4.6.6). Post-closure monitoring and management strategies will continue until a point where the post-closure objectives are met (see ERD section 2.3.3.2). The risk assessment of impacts to the Terrestrial environment is detailed in Section 4.4 of the ERD. Section 4.4.3 describes the receiving environment and assessments undertaken as part of the design while 4.4.4 describes the potential impacts; 4.4.5 assesses the impacts while 4.4.6 outlines the mitigation measures to manage the risk. As part of the assessment outcome, it is predicted that the mitigation strategies, including engineered specification, construction and material quality assurance programmes, and management / monitoring plans, the landfill will not present a significant risk (low risk) to the environment. It is anticipated that after care period for putrescible landfills is typically 30 years. The containment infrastructure will be subject to a third-party quality assurance programme of materials (meeting specification) and construction (including subbase preparation, liner placement and joining, and leakage testing) Appendix 1.4 of the ERD details the CQA for the first stage of the works (for works approval purposes). Biosecurity matters have also been raised and addressed within the ERD section 4.6.4.7 and 4.6.5.7. The Department of Primary Industries and Regional Development could not provide any evidence of unacceptable risk to agriculture posed by landfills, providing advice on measures that will need to be implemented (and addressed in the management strategies and GSL Management Plan. Additional concerns raised subsequently by DPIRD has been addressed in the relevant DMA comment section.

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T14	Land degradation from clearing	319182	Land degradation from clearing tress - result in erosion, build up salt affecting farmland and nesting sites for endangered Carnaby's Black Cockatoo and other birds	The receiving environment for the vegetation, terrestrial fauna, and terrestrial environmental quality is described in 4.2.3, 4.3.3 and 4.4.2 of the ERD. The placement of the infrastructure has considered the geotechnical aspects of the location and the quality of the environmental values. The potential impacts and assessment of the clearing risks are described in ERD Section 4.2.4 (specifically section 4.2.4.1, 4.2.4.2, 4.2.4.3, and 4.2.4.7), 4.2.5 1 and 4.5.4.1.5. The assessment has determined the associated clearing risk to be low given that much of the area targeted for infrastructure development has already been disturbed (classified as degraded). Clearing will be principally confined to individual isolated paddock trees. Clearing will only be minimised to the development footprint (only as needed), and as required on the Great Southern Highway as determined by Main Roads WA undertake works to allow traffic management. Clearing associated with the GSH upgrade is anticipated to be less than one hectare (approximately 0.5 ha) (see ERD Table 13) and will not involve clearing hundreds of aged gums as suggested. The association of broad scale clearing (which is not being undertaken as part of this proposal) and salinity is addressed in ERD Section 4.2.4.7 and impacts assessed against the EP Act clearing principles (Table 19). The limited clearing is very unlikely to increase the salinity hazard and have a negligible impact on black cockatoos (see ERD Predicted Outcome sections: 4.2.7, 4.3.7 and 4.4.7). Fauna spotters will also be incorporated into pending construction management plans.

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T15	Leachate management	ANON-Z91Q-PH29-R	Leachate collection system can clog up in less than a decade. If the pipes in the leachate collection system clog at the GSF leachate will flow directly over the land into 13 Mile Brook and enter the ground water flowing to the Mundaring Weir catchment area. If this occur on Sunday or non-working day, then it will be too late to be discovered with no hope of containing of contamination - (General comment on leachate management)	The scenario raised by the submitter is unlikely to happen based on the leachate management systems being implemented (see ERD 4.5.6 and GSL Management Plan section 11.5). The GSL Management section 11.5.6 details the leachate extraction from the landfill; the pumping system will only be operated during operational hours. A leachate management response / contingency plan is detailed in section 11.5.11 of the GSL management plan. As part of this, minimum freeboard on ponds will be maintained to ensure overtopping. Investigations undertaken do not support the notion that the Thirteen Mile Brook is hydrologically linked to the Mundaring Weir (Helena River) catchment (see ERD section 4.5.5.3). This position has also been supported by the Department of Water and Environmental Regulation experts in their responses. DWER had previously granted a works approval to construct based on acceptable risk and controls (which have been repeated in this proposal).
F31 (T16) re-named	Monitoring and management	ANON-Z91Q-PH2R-H	How will Alkina know if its management plans are working without detailed feedback from monitoring against baseline data?	The Feral Animal EMP (ERD Appendix 6.2), ERD 4.3.6 and GSL MP (ERD Appendix 6.1, section 11.12 – plan updated based on other comments and attached to response) relates. As started in the ERD 4.3.5.2 (and the survey undertaken by Emerge Consultants) the baseline was only able to determine the presence of species as an index. Densities and population sizes can only be determined where animals can be uniquely identified (e.g., tag and release). Report concluded the presence of feral species expected to be found in the landscape were present. The management of these species in the landscape will require a coordinated control with all the landowners. The EMP (section 2) follow management-based provisions and identified management targets, actions, and monitoring initiatives to minimise the attraction of feral animals to the facility, prevent their access and increasing populations around the facility where they are identified, and presence is attributed to the presence of the landfill.

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T17	Monitoring and management	ANON-Z91Q-PH2S-J	How are the limits of leachate leaking monitored?	In accordance with the design completed by Golder (ERD Appendix 1.3), the lining of the landfill is composed of a composite lining to provide dual protection (HDPE and geosynthetic clay liner). Construction and materials will be subject to a quality assurance programmes undertaken by a third-party to ensure there is no failure of the liner at the onset (ERD Appendix 1.4). Furthermore, the leachate will be actively managed to ensure that the hydraulic head of leachate above the liner does not exceed 300mm in height (GSL Management Plan section 11.5.6). Monitoring of groundwater (lysimeters to support ambient groundwater monitoring network)) will detect seepage. It is not practical to determine leachate leakage volumes from a landfill cell into underlying soils. The underlying soils will also likely provide attenuation (ERD section 4.5.5.2).
T18	No suitable location infrastructure	ANON-Z91Q-PH2Y-R	The proposed landfill site is unsuitable because there is no water to the site and the power supply is unsuitable for large applications	Power limitations and water supply issues are operational matters that Alkina will need to manage. Alkina does not believe that these issues make the site unsuitable Power supply can be provided using solar and batteries, or use of generators during operating hours. Alkina intends to harvest runoff from the property and the development area and can if needed investigate groundwater options to supplement requirements. Previous advice from the former Department of Water stated that groundwater extraction on this property did not require a licence under the RIWI Act.
T19	Seismic risk	319182 / ANON-Z91Q-PH2S-J / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PH29-R	Allawuna (Avon valley) is located at the edge of an identified earthquake (seismic) zone combined with moving groundwater which will allow transmission of moisture from the landfill. The magnitude of 5 shows tear in HDPE liners. The fundamental physics precludes establishing waste management facility in a seismic region adjacent to significant ground/surface water resources (319182)	The seismic hazard is described in ERD section 4.4.3.6 and has been incorporated into the landfill stability assessment for multiple scenarios as part of the landfill design; this information (and the multiple geotechnical investigations ERD 4.4.3.4) has been used to develop the material specifications for the containment infrastructure to manage the risk. The submitter has also raised concerns of the seismic hazard and moving groundwater. Groundwater is found within the pores between particles of rock / sand grains and other materials (is not an underground lake). The ability of an aquifer (body of groundwater) store water depends on the porosity and the ability to transmit water is based on the

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				hydraulic conductivity. The underlying soils have been determined to have a low hydraulic conductivity (ERD 4.4.3.4). To ensure that water from below the containment does not permeate into the landfill, a separation between the containment infrastructure and the water table is to be maintained. Best practice requires a 2m separation. A 2m separation will be maintained between the landfill and the water table as part of the design (ground water level monitoring, and the establishment of a subsurface drainage system to ensure the separation. This separation will also be validated through instrumentation monitoring (see ERD 4.5.6.2). Investigations have concluded the liner factors of safety is within the required standards, furthermore, the separation of the catchment to the Mundaring Weir catchment has also been accepted by the environment regulator (which also resulted in a previous approval of this project).
T20	Waste toxicity	ANON-Z91Q-PHCW-7	Medical waste can only be put into landfill sites with liners, of which class II don't have to be lined so the question would be why are liners being used if not needed for Class 1 & 11 to meet landfill criteria? If so, who is going to monitor this site?	The question raised by the submitter should be directed at the environmental regulator. Under the DWER Waste Classification and Waste Definition document, waste classes reflect whether a facility is lined or not. DWER tend to regulate according to risk, and where appropriate have required lining of sites accepting Class 2 putrescible wastes. The criteria defining the level of contamination is principally drawn from drinking water guidelines. Despite the DWER Waste Classification document identifying that Class II sites do not need to be lined, Alkina is lining the containment infrastructure (ERD 2.3.2.2.) to mitigate risk and allow for potential acceptance of Class III wastes. Alkina has also proposed a monitoring plan (ERD 4.5.6) to minimise the likelihood of a risk event impacting environmental receptors.

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T21	Waste toxicity	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	The Proponent didn't mention of cadmium metal that are found in e-waste which can caused birth defect through airborne cadmium carrying dust ingested by pregnant women caused birth defects	The toxicity of the waste accepted at the landfill will determined by the environmental regulator. Alkina does not dispute that cadmium may be toxic to human health and is widely used in society. Alkina has sought approval for a Class III facility (effectively because it is lined by definition), however, the wastes will likely meet the Class II criteria (ERD 2.3.1). In the DWER Landfill Waste Classification and Waste Definitions document, each class has maximum concentration criteria requirements for different elements, and in the process of determining acceptability of acceptance at a facility, high concentrations can be accepted where they a demonstrated to not leach beyond the specified limit. The wastes accepted will be immediately compacted and likely covered with other waste, or landfill cover reducing the risk of any exposure from cadmium dust. Control measure associated with the acceptance of clinical wastes are detailed in GSL MP section 10.2.5 (updated MP attached to response). This includes acceptance, handling, burial, and record-keeping controls to mitigate risk; these controls are consistent with other landfill sites that accept medical / clinical waste.
T22	Waste toxicity	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	Science has found that there is potential adverse health impact related with PFAS's exposure including liver damage, thyroid disease, decreased fertility, and cancer. "You can't boil PFAS's out of your water". Brita Filters cannot remove PFAS's	PFAS impacted wastes have been placed in waste classification as a Special Type III waste, meaning the acceptance is subject to a specific risk assessment. Alkina is aware of the risks posed by PFAS to the environment. Alkina has not applied to accept these wastes at this proposed facility. While PFAS is widely used in fire-retardant items, including appliance plastics, the ability for it to become mobilised in the landfill is limited. PFAS will be included in the suite of ambient groundwater monitoring bores around the landfill once the landfill is operational to manage fugitive risk.
T23	Waste toxicity	ANON-Z91Q-PH29-R	The small amount of heavy metal found in leachate could cause significant damage to human health	Many heavy metals can cause health impacts at determined concentrations. There is limited risk that leachate aerosols will be dispersed into the wider area and impact receptors. On-site safe work procedures will be developed to manage workplace health and safety risk. Leachate will either be evaporated or sprayed / irrigated within the landfill area when available (primarily in the active landfill face). Dust monitoring programmes will be undertaken to ensure levels do not exceed health requirements.

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T24	Waste toxicity	ANON-Z91Q-PH29-R	The fluorescent lights are the significant source of mercury contamination. When fluorescent lights are broken, the mercury they contain can vapourise and by inhaling even a small amount of this vapour can cause health issues: from harming kidneys, to causing respiratory failure or even death	Fluorescent lights are not expected to be readily found within the waste stream. Where these are identified at affiliated recycling facilities, they will be diverted from the waste stream. The risk to onsite staff at the landfill (who operate in enclosed machinery) and the wider community is considered negligible.
T25	Waste toxicity	ANON-Z91Q-PH29-R	Potential danger of construction and demolition landfill. Sheet rock and gypsum board make up a large proportion of construction and demolition landfill. When this material become wet it releases hydrogen sulphide gas and possess a threat to humans especially those with asthma. Thus, we are extremely concern as the Alkina directors are also directors for registered building company Rock Solid Homes and Muchea Construction and it can be assumed that the landfill will receive waste from their own construction company projects	Plasterboard does not present a large proportion of wastes received at the affiliated company recycling facilities. The concern raised by the submitter for this waste type is negligible. Wastes from outside the Perth metro are not brought into affiliated premises for sorting as they would then become subject to government waste levy charges.
T26	Waste toxicity	ANON-Z91Q-PH29-R	Great concern that Allawuna is accepting asbestos as mentioned in previous documentation of this proposal. The fibres will become airborne and contaminate land and water	Asbestos is still widely used in the community. Where asbestos is accepted, it will be required to be in dedicated loads and subject to legislative provisions, including wrapping, transport, and burial. Asbestos will be buried in dedicated areas that will not be disturbed. GSL Management Plan section 10.2.5 provides information in relation to asbestos management.

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T27	Waste toxicity	319182	The applicant states that the contaminated soil used for capping will be the dried-up leachate sludge, put into an area to dry out. This dried out leachate is full of contaminates and it is highly toxic	It is uncertain where the submitter has sourced this information. Contaminated soils from dried up sludge will not be used for capping purposes. Waste cover options are described in the GSL Management Plan section 10.6.2 while 10.6.4 identifies the sources for daily cover. The Landfill Closure Objectives and Measures document (ERD Appendix 6.3) provides a conceptual capping design (Figure 2), which does not reference the use of sludge sediment.
Inland waters				
W1	Damming of Thirteen Mile Brook tributary	ANON-Z91Q-PHCW-7	We have concern about the quality of the conflicting data supplied based on 2 years of rainfall states that the dam would have to be over 4 metres deeps to accommodate the drainage and then states that this would be impractical for construction purposes they will put 2 dams in for storm surge. Also stated are four different flood levels for York which is basis for the onsite water collection strategy. The information used in works approval application is not factual and based on computer models, which could lead to a very different outcome.	The assessment of any dam across any creek line will be subject to Beds and Banks permit application assessment. DWER has indicated that while it is not generally supportive of in-stream flows (preference off-stream), any assessment will only be undertaken at the conclusion of the EPA process. Where the relevant application is not supported, Alkina will provide greater emphasis in harvesting runoff from the landscape and investigate groundwater sources if needed. Also, modelling is a standard practice applied to predict theoretical outcomes in the absence of constructed infrastructure that can inform success or failure.
W2	Damming of Thirteen Mile Brook tributary	ANON-Z91Q-PH29-R	Damming of Thirteen Mile Brook tributary will influence the quality and condition of the tributary	The damming of the tributary will be subject to approval under the Rights in Water and Irrigation Act 1914 issued by DWER as stated in ERD section 2.3.2.2. Advice from DWER Swan Region office indicated that such an application would only be assessed at the conclusion of the Part IV EPA process determination, and that off-stream dams were preferred over on-stream dams (on-stream dam as a last option and unlikely to be supported).

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W3	Drawdown of groundwater impacts	ANON-Z91Q-PHCW-7	Drawdown of groundwater will kill and damage trees and cause major destruction to the air quality and land	The current salinity risk in the catchment is likely attributable to the broad scale native vegetation clearing. Deep-rooted trees kept the water table suppressed. With their removal, it has altered the hydro-period and caused plants to drown by the rising waters and expression of salts on the land surface). See DPIRD website: https://www.agric.wa.gov.au/soil-salinity/dryland-salinity-western-australia-0. Remediation options include engineering (pumping / deep drainage) and revegetation initiatives to lower the water table (to better simulate pre-clearing conditions / water table levels). This catchment has been identified as being at risk (and evidence of salinisation is present in the Thirteen Mile Brook valley). It is for this reason that a conservation covenant has been placed on native vegetation on the property to mitigate the salinity risk. Alkina has not yet investigated the option of pumping groundwater for any water supply supplementation. Based on existing remediation options, the drawdown of the water table in shallow areas may benefit the native vegetation (which has been the rational for vegetation projects in the landscape). Ground water levels vary significantly across the site; between 8 to 33 m below ground level (ERD 4.5.3) and much shallower in the valley floor (less than one metre) (ERD Appendix 3.3). Some eucalypt tree species can establish very deep roots. According to Roley Bushcare, jarrah tree roots have been found 45 m below the ground surface (https://www.roleybushcare.com.au/bush-topics/262-jarrah).
W4	Drinking water catchment risk	ANON-Z91Q-PH2S-J / ANON-Z91Q-PH2A-Z / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH2U-M / 319182	Allawuna Farm is part of the Mundaring catchment, and is surrounded by the water catchment and national parks (ANON-Z91Q-PH2S-J) Risk of contaminating Mundaring & Helena catchment or nearby water courses through leachate leakage	Thirteen Mile Brook is not part of the Helena River (Mundaring Weir) catchment. The Thirteen Mile Brook flows North and joins with tributaries from the east to flow the Avon River nears Spenser's Brook (ERD Section 4.5.3.1), which is completely separated from the Mundaring Weir catchment. The Helena River catchment boundary (and National Park) abuts Allawuna Farm to the west, approximately 1 km from the proposed landfill. Comments from DBCA, who manage the National Park are being considered as part of this process, and their recommendations will be adopted.

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				Golder Associates have undertaken multiple hydrogeological investigations to demonstrate the catchments are not linked (ERD Section 4.4.3.1 and 4.4.3.2, and ERD Appendix 3.1 & 3.7). The nearest paleo-channel is located several kilometres to the northwest (ERD Figure 19). Groundwater monitoring bores demonstrate groundwater near the Catchment Road (which separates the Helena River and Thirteen Mile Brook) flows toward the Thirteen Mile Brook (away from the PDWA). DWER have also accepted this position when they granted the original proposal a works approval in 2016. Furthermore, an independent hydrogeological review commissioned by an approved EPA consultant supported the Golder conclusions (ERD Appendix 3.1 & 3.7). The assessment of risk to surface water and groundwater is detailed in ERD Sections 4.5.4 and 4.5.4 with mitigation controls detailed in 4.5.6 to manage any risk. Alkina approached SRK (the independently appointed consultant) to respond to the comments raised by Water Corporation (who were responding to community perceptions). In the SRK response (See Attachment 4), they highlighted that the available hydrogeological data indicate that groundwater is not flowing towards the PDWSA, therefore any groundwater would not have a viable pathway to the PDWSA. Also, the interpretation of geological and geophysical evidence supports the presence of a dyke to the west of the proposed landfill, which is likely to act as a further barrier to groundwater flow towards the PDWSA.

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W5	Drinking water catchment risk	ANON-Z91Q-PH2A-Z / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PH2K-A / 317119 / 317133 / ANON-Z91Q-PH29-R	Risk of contaminating drinking water catchment areas because the proposal is located on the catchment boundary. There are high chances of water pollution (Mundaring Weir catchment) by heavy metals, cadmium, mercury, lead and PFSA's through a torn liner due to seismic activity. Thus, the proposal will over time seriously affect groundwater and Mundaring catchment area	The proposed landfill will be 1000m from the catchment boundary and separated by the Thirteen Mile Brook. Extensive geotechnical investigations were undertaken to support the design (ERD Section 4.4.3.4) to ensure effective containment of waste and leachate. Alkina asserts that the proposal does not pose a risk to the WA drinking water supplies. Furthermore, the investigations have demonstrated that the Thirteen Mile Brook is not linked to the Mundaring Weir catchment (see independent review e.g., ERD Appendix 3.7, and Appendix 4). As part of the proposal assessment, Alkina investigated the receiving environment (ERD Section 4.5.3), identified the potential impacts in ERD Section 4.5.4 and assessed these impacts in 4.5.5. Mitigation strategies were identified in 4.5.6 of the ERD.
W6	Drinking water risk	ANON-Z91Q-PH2A-Z / ANON-Z91Q-PH26-N / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	Drinking water must be a priority consideration and, it's too precious to be subject to any risk/contamination at all as all communities & towns rely on clean, pollution free supply of drinking water	Alkina agrees with the submitter in protecting drinking water supplies for the State. This is one of the reasons why the proposal did not consider developing a facility in the Swan Coastal Plain which overlies the aquifers that supply about 70% of our water needs. Extensive geotechnical investigations were undertaken to support the design (ERD Section 4.4.3.4) to ensure effective containment of waste and leachate. Alkina asserts that the proposal does not pose a risk to the WA drinking water supplies. Furthermore, the investigations have demonstrated that the Thirteen Mile Brook is not linked to the Mundaring Weir catchment (see independent review e.g., ERD Appendix 3.7, and Appendix 4). The proposed landfill will be 1000m from the catchment boundary. As part of the proposal assessment, Alkina investigated the receiving environment (ERD Section 4.5.3), identified the potential impacts in ERD Section 4.5.4 and assessed these impacts in 4.5.5. Mitigation strategies were identified in 4.5.6 of the ERD.

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W7	Drinking water risk	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	Concerns for remote communities' drinking water supply.	Section 4.5 of the ERD describes the inland waters receiving environment and discusses potential impacts and assessment thereof. Mitigation strategies are detailed in 4.5.6. Based on the investigations undertaken, the Thirteen Mile Brook is not hydrologically (or hydrogeologically) linked to the Helena catchment, which is a drinking water source area. Unfortunately, with dwindling runoff, about 70% of the drinking water is now derived from aquifers beneath the Swan Coastal Plain and even runoff from the Helena River catchment is harvesting less water.
W8	Risk to springs and water holes	319182	Risk of contaminating natural water holes, hand dug bores and wells (St. Ronans well - a large stone lined well hand dug by the first cameliers). Risk of contaminating soaks at Amarna Valley	The surface water receptors have been described in ERD section 4.5.3.1. St Ronan's Well and soaks in adjoining sub-catchments (separate catchments) are outside the impact zone of the development (ERD section 4.6.4.8 and 4.6.5.9). St Ronan's Well is located more than 2.5 km upstream of the confluence with Thirteen Mile Brook. Amarna Valley appears to refer to a property name along Berry Brow Road, which is several kilometres northwest of the proposal. The name is not identified in mapping systems, or on public databases (including heritage registers). The submitter indicates that the water quality in theses soaks change over short distances, suggesting the existing lithology is highly variable. Fresh water soaks will likely be fed by subsurface flows (flowing down a hydraulic gradient and expressing at the surface). Unless these soaks are in the flow path of Thirteen Mile Brook, the creek flows are unlikely to feed these soaks. The ERD assessment details the period that any potential leachate would take to reach the Thirteen Mile Brook (4.5.3.8) should the containment infrastructure fail – over 20 years in a worst-case scenario. Furthermore, the water quality in the Thirteen Mile Brook already varies significantly, depending on the season (saline flushing), making any potential impact from the proposed landfill highly unlikely.

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W9	Risk to surface and groundwater	ANON-Z91Q-PH2J-9 / ANON-Z91Q-PH2D-3 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2S-J / ANON-Z91Q-PH2K-A / ANON-Z91Q-PHC4-4 / 319182 / ANON-Z91Q-PHC8-8 / ANON-Z91Q-PHCW-7	Contaminate 13 Mile Brook, surface/ground water and drinking water through unplanned runoff of contaminated water from the landfill sites	The design of the landfill has considered the environmental setting which included numerous geophysical testing in characterising the geology, soils, and hydrogeology of the site. The groundwater properties and surface-groundwater interactions were also investigated, as modelling undertaken of groundwater flow and solute transport. This information is detailed in section 4.4.3 and 4.5.3. Furthermore, there is no hydrological link between the Thirteen Mile Brook and the Helena River catchment, with the nearest paleo-channel being several kilometres to the west (see ERD Figure 19). An independent review undertaken at the direction of the EPA has determined the investigations to be robust and thorough (ERD section 4.5.5.3). Likewise, the National Park boundary coincides with Catchment Road next the proposal property (Lot 4869). The assessment of the Helena River catchment would therefore also apply. Furthermore, the investigation undertaken by Golder (ERD section 4.5.5.2) considered potential leachate-groundwater interactions and identified no groundwater users in the area. This is also supported in ERD 4.5.3.9 where the DWER groundwater borehole database did not identify any bores in the vicinity of the proposal. The acidic and high salinity characteristics in the groundwater on site precluded the use for potable and non-drinking use (ERD 4.5.3.6) The design has also followed best practice standards (2.3.2) and containment will rely on a composite lining system described in section 2.3.2.2 (Subgrade and liner system). The materials and construction will be subject to a third-party quality assurance programme (ERD Appendix 1.4). ERD sections 4.4.5 and 4.5.4 identify the potential impacts, 4.4.5 and 4.5.5 assess the risk, while 4.4.6 and 4.5.6 describe the mitigation strategies for the terrestrial environment quality, and the inland waters respectively.
W10	Risk to surface and groundwater	319182 / ANON-Z91Q-PH29-R / ANON-Z91Q-PHCW-7	Concern over leachate and toxin leaking into environmentally sensitive areas (Mundaring Weir catchment, National Forest and Parks, river systems) and bores	

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W11	Risk to surface and groundwater	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Contamination of groundwater/drinking water (dams) and bores as the bird dropping the waste picked from landfill to the dams/bores. Birds eat waste and leave droppings, waste affecting everything (ANON-Z91Q-PH2E-4).	Only wastes that meet the Class III criteria (DWER Landfill classification and waste definitions guideline) will be accepted at the premises. The GSL Management Plan (Attachment 1) details the management of the site to manage risks, including disposal and placement (10.4), cover material application (10.6) and the environmental protection activities (11). The active landfill area will be kept to a width of 30m, and deposited waste will immediately be compacted and covered at the end of the day. These measures, including the operation of large plant will reduce incidence of birds accessing the deposited waste. Bird deterrent strategies are described in 11.12.3 of the GSL Management Plan to reduce bird scavenging. Should it happen that a bird is able to remove any rubbish, it will likely remain within the vicinity (nearby trees). Given the internal buffer distance to the nearest property boundary, it is highly improbable that any waste will be carried off site. F24 and F25 responses also apply to support the above response. Alkina did not identify the presence of birds and their excrement in the ERD as a significant risk to the environment. It has not been reported to be a risk elsewhere at other putrescible landfills in WA either. Alkina has no control of the locations where birds defecate. The bacteria in the excrement also pose a risk to the water in the leachate ponds (which are likely to have undergone a level of pasteurization in the leachate management system) and stormwater ponds (irrespective of the presence of the landfill), which the site operator will need to consider when using the water and leachate. Alkina has outlined bird management strategies to reduce the risk of birds interacting with the waste and leachate ponds.
W12	Risk to surface and groundwater	ANON-Z91Q-PH29-R /ANON-Z91Q-PH2K-A / 317119 / 317133	Lack of information presented on historic water quality or the presence of underground streams in the area. Thus, no research has been provided by Alkina into the	The submitter asserts that the ERD lack information on historic water quality and groundwater streams, and that no research has been provided into the effects of contaminants on the environment. ERD Table 30 provides a summary of the hydrogeological assessments completed for the project and location of the

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			affects the landfill will have upon the sources if contamination was to occur. Limited monitoring & investigation has been carried out on site with assumptions being made as to water flow & contamination effect (ANON-Z91Q-PH2K-A / 317119 / 317133)/	information (various appendices of the ERD). Groundwater quality is described in ERD section 4.5.3.6. Table 31 identifies the groundwater monitoring completed between 2012 and 2017. ERD section 4.5.3.8 (and ERD Appendix 3.3 and 3.4) describes the modelling of groundwater flows and solute transportation if any leachate seepage takes place. Modelling is relied upon to simulate a situation and predict outcomes before undertaking an associated activity. While the groundwater characteristics are unlikely to have changed over the monitoring period (land use has been consistent), groundwater characteristics will again be monitored at relevant bores prior to the landfill receiving any waste.
W13	Surface water and land degradation	319182	Damming winter running tributary is so wrong. It will cause salts to bank up and turn the adjoining farmland to go unusable and salty. Also, the dam can overflow taking contaminates and poisons with it. The use of dam water instead of underground water will become unusable for human purpose as it will turn brackish & smelly during summer. And tank water will not be sufficient.	It has been stated in the ERD Section 2.3.2.2 (Water collection infrastructure) that the placement of infrastructure within a creek system will be subject to a DWER beds and Banks permit application. Any application would only be assessed at the conclusion of the Part IV EP Act process. DWER has stated in their comments as part of the public environmental review that stream allocations in the area have been fully allocated. Should on-stream containment not be supported, greater emphasis will be placed on harvesting landscape runoff into existing farm dams. The submitter has also made the comment that a dam overflow would take contaminants and poisons with it (noting that the ephemeral creek originates on a neighbouring property). All waters contaminated with leachate associated with the landfill activity will be contained within engineered infrastructure (ERD 2.3.2.2 describes the key infrastructure) with freeboards maintained to prevent overtopping. The proposed on-stream dam will not contain contaminants from the landfill.; Alkina will not be able to account for any herbicides applied to land outside its control that may flow in the creeks. The water collected in any constructed dam will be subject to the existing evaporation and salt concentration experienced in any farm dam in the area. The water quality in the creek system has been described as variable (depending on the

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				season – see ERD Section 4.5.3.1) and evidence of salt scalding along the 13 Mile Brook on the property is evident. (ERD section 4.2.3.5). Should additional water resources be required, Alkina will investigate sourcing groundwater from within the Allawuna Farm; previous advice from the former Department of Water has indicated that it would not be subject to permitting.
W14	Thirteen Mile Brook crossing	319182	13 Mile Brook will have to be crossed to access the tip, by heavy road trains, trucks, machinery, other vehicles, daily. This will create pollution and change in water flow. A culvert or bridge will have to constructed. With the water flows altered, this will bring salts up affecting adjoining farmland, surrounding Wandoo National Park and trees will die.	As stated in the ERD section 2.3.2.2, an all-weather crossing over the Thirteen Mile Brook will be required. The crossing will be constructed of reinforced box culvert sections to the standard Main Roads WA specification. The crossing will also be subject to a Beds and Banks permit. Advice from DWER has already been sought on this matter.
W15	Water supply	ANON-Z91Q-PH29-R	Lack of information on water scarcity in case dam water runs out to use in their water trucks	Alkina will harvest surface runoff from the premises and property to provide water requirements (ERD 2.3.2.2 and 4.5.3.1). Where additional water is required, groundwater sources on the property will be investigated to supplement needs. The sourcing of water will be an operational consideration that Alkina will address, should the proposed dam not be supported, other off-stream dams on the property may be used and water collection from the premises will be maximised.

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Social Surroundings				
S1	Agriculture	319182 / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2H-7 / ANON-Z91Q-PH2F-5 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2K-A / 319182 / ANON-Z91Q-PHCW-7 /	The proposal will have serious impact on agricultural land (including clearing thereof)/risk to agricultural industry and loss of productive agricultural land due to land contamination	Allawuna Farm covers more than 1,500 ha. The disturbance footprint within Lot 4869 will be 82.7 hectares, which includes existing farm roads (ERD Table 13). In a Shire that includes 136,100 ha of agricultural landholdings, the footprint of the proposal represents a very small fraction of this land (0.06%). Agricultural activities will continue the property around the proposed landfill. This proposal footprint represents a fraction of the agricultural land in the Shire. ERD section 4.2.3.2 describes the development envelope as largely degraded (98% completely degraded) because of agriculture. The agriculture risk assessment is detailed in ERD under section 4.6.3.2, 4.6.4.7, 4.6.5.7 & 4.6.6.
S2	Agriculture	ANON-Z91Q-PH2Y-R / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A	Landfill activities are not consistent with the objectives of General Agriculture policy and possess risk of an emergency or exotic animal disease outbreak. Alkina shows no consideration to farming and have not made any consultation attempt (ANON-Z91Q-PH29-R) or keep the community informed. This proposal seriously threatens our biosecurity and bio-dynamics principals (ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R)	The landfill will be constructed to accept wastes that meet Class III landfill classification criteria (ERD section 2.3.1); only wastes authorised by the regulator will be accepted and controls applied (e.g., 10.2.5 of the Landfill Management Plan - updated, see Appendix 1). Department of Primary Industries and Regional Development (DPIRD) did not raise these issues as a concern when consulted (ERD Appendix 7.2). The proposal is essentially the same project that was previously consulted with in the community. The feedback from respondents in the multiple statutory processes (including the EPA) is recorded and considered. Personal public consultation in 2020 has not been hampered by COVID 19. The construction and operation of the landfill will not impede the ability to continue existing farming activities on the property (ERD 4.6.3.2) or that of the neighbours. The landfill operation will also

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				maintain a 600 m internal buffer to the nearest property boundary (ERD Table 10). As mentioned, DPIRD has been consulted in this proposal. They did not identify any biosecurity risks that could not be managed (ERD 4.6.5.7) The mitigation strategies identified in the GSL management plan will reduce risk (ERD 6.1 which has now been updated and presented in response to comments).
S3	Agriculture and land values	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH2S-J / ANON-Z91Q-PH29-R	Depreciation in land value due to landfill speculation	The landfill will have an internal buffer of 600 m to the nearest property boundary and only visible from select paddock areas by the neighbour. The risk to agriculture will be mitigated by the separation and agricultural activities within the buffer, as detailed in ERD under section 4.6.3.2, 4.6.4.7, 4.6.5.7 & 4.6.6. Alkina is not able to respond to land value speculation.
S4	Amenity	319182 / ANON-Z91Q-PH29-R / ANON-Z91Q-PHCW-7	Landfill will ruin our amenity and will have great impact on our lifestyle and style of farming	Alkina has assessed and addressed amenity concerns as part of the assessment of risk to social surroundings has been detailed in ERD Section 4.6. Alkina has predicted low risk to the social surroundings, posing no direct impact. This has included assessment of traffic, noise, dust, visibility, odour and landfill gas, litter, and fire in ERD Section 4.6.4. Section 4.6.5 assesses these impacts. Management activities described in ERD Section 4.6.6 will ensure the low environmental risk profile is maintained. With no other landfill in the area (or even the Shire), or waste facility, the landfill presents no cumulative impacts to social surroundings as the agricultural identity around the landfill will be maintained. The landfill will be progressively rehabilitated and returned to agriculture (likely grazing) in accordance with the objectives.

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				As part of this, comprehensive dust and odour management strategies have been included (compaction and covering of waste, implementing comprehensive monitoring systems with targets and triggers etc) in the GSL Management Plan (updated and presented in Appendix 1). While the landfill may be seen at certain points of the boundary by neighbours, Alkina has committed to planting trees on the property, which will also provide screening from the eastern neighbour. Until Alkina has demonstrated ability to comply with night-time assigned levels, it is committed to only operating during the daytime assigned levels identified in the EP Noise Regulations.
S5	Amenity, tourism, and heritage	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / 317119 / 317133	Impact on amenity, heritage, tourism, and lifestyle of West Australian	Alkina has addressed the impacts on the social surroundings in Section 4.6. An assessment of impacts and risk to amenity and tourism are detailed in the ERD under section 4.6.3.5, 4.6.4.9, 4.6.5.10 & 4.6.6. ERD Section 4.6.3.1, 4.6.3.3, 4.6.4.8 & 4.6.5.9 assesses the impacts on Heritage values. The assessment did not identify heritage values at risk, nor tourism. The increased traffic levels are not considered significant and modifications to the GS Highway will be made to minimise disruptions caused be vehicles entering and existing the facility. There is no visibility to the facility from any main road, or recreation site. The visibility is restricted by topography and vegetation. Odour, litter, dust, and fire risk have all been addressed. With the proposed management controls identified in ERD section 4.6.6 and the GSL Management Plan, Alkina has determined the risk to the social surrounding as being manageable with little risk. According to the Shire of York's own Responsible Authority Report 2020, tourism is not likely to be directly impacted by this proposal. See Appendix 5.

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S6	Bees and honey	ANON-Z91Q-PH29-R	A potential biosecurity risk to the apiary industry as the Beekeeper cannot place hives within a 5km radius of the proposed landfill. On the other hand, landfill attract bees and poses risk of contaminating local honey and commercial colonies with disease, particularly the American foulbrood disease	The submitter mentions that beekeepers cannot place hives within a 5 km of a landfill. Alkina has determined that this relates honey sold with organic certification, but this separation also includes conventional orchards, and crops, livestock dip sites, and GMO crops etc. (https://www.aco.net.au/Pages/Certification/BeeKeeping.aspx). Alkina recognises the importance of the honey industry and pollination of crops in agriculture. Alkina is also aware that feral European bees can outcompete native been species to the detriment of the ecosystem. American foulbrood disease (AFD) is caused by a bacteria and can be contagious (easily spread). The spores may be introduced through contaminated equipment from other hives or from another bee colony by contaminated 'robber' or drifting bees. Unsterilised tools may also be a source of contamination (https://www.agric.wa.gov.au/bees/preventing-spread-american-foulbrood-disease). Contaminated tools should not end up in a general landfill (be burned and buried on site). Alkina has subsequently sought additional advice from DPIRD on matter, who stated they have not found a correlation that links landfill sites to regular outbreaks of AFD in WA. Reporting of AFB, which is required by legislation in low in WA. The most obvious potential risk is the domestic refuse containing open containers with residual honey. If the honey contains AFD, it will be spread to the hive. DPIRD have sentinel hives at the Canning Vale recycling centre and has not had an AFD issue in this apiary. Alkina has found no evidence / studies that indicates that a landfill presents a source of bee diseases, particularly when the incoming waste is buried on the day (compacted and covered). This biosecurity risk is not restricted to the presence of landfilling.

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				The apiarist currently maintaining beehives on the property have not expressed any concern (see ERD Table 10) and will continue operating at Allawuna Farm.
S7	Clearing and heritage	ANON-Z91Q-PH29-R	Concern that 5 ha of protected bush within the covenant and road reserve will be undertaken to upgrade the intersection. Risk of losing historical trees which represents a powerful symbol for Noongar culture	The submitter refers to the presence of a Christmas tree in the GSH road reserve likely to be taken as a tree of historical / culturally significance. Most native vegetation species have cultural significance. The vegetation within the development envelope is common in the area and do not have any higher significance than other vegetation in the area. Table 13 of the ERD details the extent of the clearing (ERD Section 4.2.3). Approximately 0.5 ha will be cleared within the Great Southern Highway and approximately 4.5 ha within Lot 4869 for the landfill footprint. Much of the 4.5 hectares involves the clearing of isolated and scattered paddock trees. The existing property access road alignment will be used, which will involve minor work to stabilise the road and seal it. The vegetation within the GSH road reserve is like that within the covenanted bushland located in the northern part of Lot 4869. It is incorrect to suggest that 5 ha of covenanted bushland and GSH road reserve will be cleared. Most of the trees being cleared are marri and wandoo paddock trees, which are common in the area. The risks associated with the clearing is document in ERD Sections 4.2.4, 4.2.5 (and specifically 4.2.5.1 and 4.2.5.2) with mitigation strategies outlined in 4.2.6. The impacts of the clearing will not threaten ecosystems, remove wildlife corridors, nor destroy any specific tree of historical significance.

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S8	Disease risk	ANON-Z91Q-PHC8-8 / ANON-Z91Q-PHCW-7	Potential risk of zoonotic transmission and veterinary diseases like Parvovirus spread by landfill. "We do not want York to become another reservoir for COVID 19"	The waste types received at the facility will mainly come from the commercial and industrial, and construction and demolition sector (that primarily come from affiliated recycling and sorting facilities), while municipal solid wastes may also be accepted. While the ERD did not explicitly deal with zoonotic disease risk, the management controls will address the associated risks. The site may accept hazardous materials such as asbestos and clinical waste (Special Type 1 and 2 wastes as per the DWER waste classification guideline), there are specific protocols undertaken to manage the risk. These include deep disposal in dedicated areas area of the landfill that are marked off and not subject to future disturbance. The GSL Management Plan (Appendix 1, Section 10.2.5) details management of Special Type 1 or 2 wastes; these waste would not be part of the general waste stream but accepted through prior arrangement in dedicated loads. Elements raised by this submitter have also been addressed in F24 and F25. It is very unlikely that the landfill will receive parvo-infected carcasses at the landfill site given the expected source of the incoming wastes. The risk of transmission of this virus will not likely increase if foxes and dogs are excluded from the landfill area (mitigation strategies explained in the Feral Animals EMP). Parvovirus is contagious and spread either through direct contact or indirect (faeces) and without vaccination will likely result in mortality of the infected animal. Foxes already persist in the landscape irrespective of the landfill and the risk of transmission exists irrespective of the landfill. In relation to the submitter linking the landfill as a reservoir for Covid 19, the management of this risk (for all people in the State) is controlled by the Department of Health, with which the landfill operations will comply. Occupational health and safety protocols will be included in safe work procedures to avoid touching wastes without protection. Accepted waste will also be covered daily.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
S9	Dust	319182 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 /	Dust particles will be coming from dusty road areas, tip site and dry leachate areas, which will then land on sheep's/wool, grasses in the paddocks and roof, contaminating wool clip, rainwater & destroy amenity. Also, with rains, this noxious dust will run into the soils, into crops, contaminating farm forever. The rainwater consumed by the livestock may significantly alter and impair their health and genetics	Alkina has assessed the risk of fugitive dust impacts in the ERD (4.6.4.2, 4.6.5.2). Alkina has determined the risk to sensitive receptors to be low given the separations distances from the landfill. Dust mitigation strategies are detailed in ERD section 4.6.6 - Fugitive dust. Measures include maintaining the internal buffers to the property boundary (min 600m), wetting down unsealed operational areas and the dusty waste loads when unloading and compacting. Access roads to the site will be sealed and therefore not generate fugitive dust of significance. Deposited waste will be progressively covered with 150mm inert materials (soil) or use of an alternative daily cover (e.g., tarpaulin or emulsion). The GSL Management Plan and Dust Management Plan have been updated and are attached as Appendix 1 and 2 respectively. As part of the controls, a dust monitoring system will be installed with trigger action levels. The plans will be reviewed annually to minimise the risk of fugitive dust from the landfill operations. It is unlikely that leachate affected dust will be spread from the landfill operations where leachate will be irrigated on areas prior to covering, which will minimise risk of cover soil contamination. Empty leachate ponds will be de-sludged where practical, however it is expected that ponds will not be empty for significant periods. Generally farming activities will also present a source of dust, particularly during the drier months, which will also land on sheep and impact rainwater. The soils to be used for cover will be taken primarily from borrow pits on site (in-situ soils) and therefore unlikely to have noxious contaminants beyond that which already exists.
S10	Dust	ANON-Z91Q-PH29-R	The dust from the landfill will cause major concern to the traffic on GSH with the potential to cause accidents from poor visibility.	The access road from the GSH to the facility will be sealed (ERD Section 4.6.6 - Fugitive dust). The GSH is also not in the pathway of prevailing winds. The landfill will be located 2km south of the GSH and be screened by topography and extensive bush. The risk of dust to road users on the highway caused by the landfill

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				operations is extremely low. Any dust or reduced visibility on the GSH will be the result of agricultural dust-storms (topsoils off agricultural land) and it will affect the wider area. The dust risk assessment is described in ERD sections 4.6.4.2 and 4.6.5.2 with mitigation strategies detailed in 4.6.6.
S11	Dust	ANON-Z91Q-PH29-R	Alkina stated of dampen the roads down but will not be able to dampen down the landfill face as this will generate further leachate. Alkina also mentions water trucks to control dust, but the water is often in very short supply	Alkina has indicated that leachate will be recirculated within the waste mass. It is anticipated that there will be excess leachate generated during the wetter months (due to rains) which will be recirculated at the active tip areas to suppress dust. Experience of similar wastes are that they have significant capacity to absorb moisture. The addition of moisture also helps with compaction and accelerates decomposition (meaning less decomposition, and leachate or gas generation after closure). Dust mitigation strategies are described in ERD Section 4.6.6, GSL Management Plan section 11.7 and the updated Dust Management Plan. Operational water requirements will be met from harvesting surface water runoff on the property, and supplementation with groundwater bores, if required.
S12	Dust	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PH2K-A / ANON-Z91Q-PHCX-8 / 318809 / 317119 / 317133 / ANON-Z91Q-PH29-R / 319182 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH2D-3	Impact on social surrounding & air quality from dust (operational dust) as it contains many toxic substances, from carcinogenic toxins to asbestos which can impact our health. We will be able to feel the dust blown across our paddock	The response in S9 also applies. The prevailing winds (information obtained from the Bureau of Meteorology website) – see ERD 2.4.1 identifies the prevailing winds for York. Winds in summer are predominantly easterly to southerly in the morning, and similar winds in the afternoon with some westerly influence. The nearest residential receptor is located ~1.8km NE of the proposed landfill and not in the direct pathway of any emissions from landfill activities. Winter winds are generally lighter and do not prevalently blow towards this receptor. ERD sections 4.6.4.2, 4.6.5.2 & 4.6.6 detail the assessment of environmental risk caused by fugitive dust and associated mitigation strategies. The Dust Management Plan has also been updated (Appendix 2) to provide greater detail on monitoring, with trigger response levels. Monitors will be set up between the landfill and sensitive receptors. The plan will be reviewed annually and updated accordingly to

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				ensure mitigation measures (and monitoring) are commensurate with the risk and data collected during the first year of operation. Section 10.2.5 outlines the asbestos and clinical waste management actions, which will be further detailed in the Asbestos Management Plan (which will also be referred to the Department of Health for endorsement). It will essentially include controls, like those imposed by the environmental regulator on other sites that accept asbestos.
S13	Fire risk - bushfire	ANON-Z91Q-PHC4-4 / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / 317119 / 317133 / ANON-Z91Q-PHC8-8 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7	Concern over landfill fire risk / bushfire risk (Bush fire prone area). Water arrangement in case of bushfire/landfill fire is not suitable (ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7)	Comments are noted. Alkina acknowledges the presence of the DFES identified "fire prone area (ERD Figure 38) within the property. The risk of fire and associated management strategies have been identified in the ERD (Section 4.6.4.3, 4.6.5.3, 4.6.5.6 and 4.6.6). Alkina also states in Fire Mitigation section (4.6.6) that a site-specific management plan is being developed (update of previous plan) to consider updated planning requirements (SPP3.7). A Bushfire Management Plan and Bushfire Risk Mitigation Plan has been developed with the assistance of an accredited Fire Planner in this regard. Alkina has received feedback from the Shire and DFES and updating the documents to meet their expectation. In the DMA response to the EPA referral, DFES stated that the strategies referred to into the ERD should be incorporated into the management plans, which will be done in finalising the plans.
S14	Fire risk - landfill	317119 / 317133 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7	Alkina Holdings have not provided a bushfire plan to deal with landfill fire. Also, Alkina claimed to have only one water truck on site. This will not be suitable as a single firefighting unit is not capable of controlling a bushfire/landfill fire	Alkina is aware of the risk posed by bushfires and landfills. A Fire Management Plan was initially developed by the previous proponent. Bushfire Prone Planning legislation was subsequently updated (SPP 3.7) and Alkina is working with the Shire and DFES to finalise the management plans. Completion of the plans is already a condition of previous planning approval (plan had to be approved prior to operations). The ERD does identify the hazards and mitigation strategies (ERD section 4.6.6) to manage the risk. In the comment provided by DFES, they noted the actions identified in mitigation strategies should be reflected in the final plan. The plan will however still be considered a living document and be updated when new information is available and as the landfill progresses.

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S15	Fire risk - Landfill	ANON-Z91Q-PH2S-J / 319182 / ANON-Z91Q-PH29-R / ANON-Z91Q-PH2Y-R	Concern over landfill fire risk which may whipped out of control causing significant impact on air quality through toxic odour and smoke which will be absorbed by the fire fighters causing health risk	Alkina recognises in the ERD (Figure 38) that portions of Lot 4869 are identified as a fire-prone area. However, the landfill containment infrastructure is not identified as a fire-prone area. As part of the fire mitigation strategies, Alkina engaged a Class III Fire consultant to develop a Bushfire Mitigation Plan, which will inform the site-specific Fire Management Plan currently being updated (refer to ERD section 4.6.6 - Fire Mitigation). The Bushfire Mitigation Plan was submitted to the Shire and DFES for consideration. Their comments and feedback on these plans will assist in finalising the Fire Management Plan, this plan will be a living document that will be updated as changes are needed. The completion of a fire management plan was a condition of planning (it needs to be completed before the site is operational). Condition No. 1 [2016] WASAT 22.
S16	General changes to air quality	319182 / ANON-Z91Q-PHC8-8 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH2K-A / 317119 / 317133	Changes in the air quality through gas emissions (including methane) causing impact on amenities, quality of breathing air and cause air pollution through putrefaction of wastes	The potential impacts of landfill gas (and greenhouse gases) are described in ERD sections 4.6.5.3 and 5.1.3 whiles the assessment thereof is described in 4.6.5.3. The presence of ambient methane will not be readily detected (odourless) but is a strong greenhouse gas. Methane only causes asphyxiation in confined spaces. The landfill will be separated from sensitive receptors by distance (over 1.8km), a ridge and wind direction, which provides an incomplete pathway for impacts. Mitigation strategies are described in 5.1.4 and 4.6.6 - landfill gas; these include progressively capping landfill completed landfill cells, installing, and operating a landfill gas extraction and treatment system. The treatment system will result in the destruction of these (and other volatile) gases. As landfill gas can also generate odours, the landfill will be covered at the end of each day (see 4.6.6 - odour) and a robust odour monitoring system will be implemented as described in GSL Management Plan section 11.9. The nearest residence is more than 1.8 km away from the premises, and with the application of controls, is not expected to be impacted.

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S17	GHG emissions	ANON-Z91Q-PH2D-3 / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Contributes to global warming and emit GHS emission, other gases, and risk	Alkina has detailed the aspect of greenhouse gas generation risk and management in the ERD under section 4.6.5.3, 5.1.1, 5.1.1.1, 5.1.1.2, 5.1.2, 5.1.2.1, 5.1.2.2, 5.1.3, 5.1.4, 5.1.4.1 & 5.1.4.2. As part of the management strategy, the landfill gas will be extracted and treated based on volumes generated.
S18	Health	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PH2U-M	It is a respectful request to consider with extreme caution the severity of the decision and the health impact it could have on people now and future	Alkina has considered the key environmental factors raised by the EPA and assessed the risks. These have also been referred to other decision-making authorities for comment. Alkina has considered the comments and updated mitigation strategies within the plans to provide necessary protection against the identified risks.
S19	Health	ANON-Z91Q-PHC8-8	Do not trust health and safety assurances from this company and there is no way guarantee they would not include medical and hazardous waste in their dumping	Alkina has stated in the ERD that wastes meeting the Class III criteria (DWER waste classification and waste definitions guideline) will be accepted. This will include Special Type 1 and Type 2 wastes (see GSL Management Plan). Mitigation measures have been included in the document to manage these wastes. The premises will also be required to be licensed under Part V of the EP Act. The environmental regulator will impose regulatory controls to safeguard the environment commensurate with risk. Landfill premises accepting metro waste are regularly inspected and audited by DWER.
S20	Heritage	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH2E-4	The site is a cultural area for the Balladong people. Thus, local Aboriginal community and elders in the area does not support the proposal".	The proposal has undertaken consultation with Aboriginal elders and responsible authorities. As stated in the ERD section 4.6.3.3, the former proponent did contact Elders of the local Aboriginal Community as part of the stakeholder consultation program. It was determined that the location of the landfill and the surrounding development are not a place of significance for Aboriginal people. Nothing in the proposal has been changed since the original consultation. The Department of Aboriginal Affairs had also previously been contacted for comment on this proposal (ERD Appendix 7.5). They did comment that the area subject to the proposal is within the publicly marked area of DAA 3758 (Helena River), however, the

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				subject area is not within the actual boundary of the heritage place. An assessment of the potential impact to cultural heritage values is described in the ERD under section 4.6.4.8 & 4.6.5.9.
S21	Landfill fire risk	ANON-Z91Q-PH29-R	Alkina do not appear to have produced a Fire Management Plan and do not comprehend the huge potential danger of the landfill fire at Allawuna site	Alkina is aware of the risk posed by bushfires and landfills. A Fire Management Plan was initially developed by the previous proponent. Bushfire Prone Planning legislation was subsequently updated (SPP 3.7) and Alkina is working with the Shire and DFES to finalise the management plans. Completion of the plans is already a condition of previous planning approval (plan had to be approved prior to operations on landfill site) Condition No 1 [2016] WASAT 22. The ERD does identify the hazards and mitigation strategies (ERD section 4.6.6) to manage the risk. In the comment provided by DFES, they noted the actions identified in mitigation strategies should be reflected in the final plan. The plan will however still be considered a living document and be updated when new information is available and as the landfill progresses.
S22	Landfill gas	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	Landfill can continue to produce flammable toxic gas for more than 50 years. "How would this be controlled when the landfill is no longer attended?"	Landfill gas emissions have been considered as part of the proposal. ERD Appendix 4.2 details the predicted landfill gas emissions. The levels of emissions will be better understood once the landfill starts operating so that the landfill gas management can be tailored to accordingly treat the gases. Section 5.1.2 of the ERD identifies some of the factors influencing production rates while mitigation and management controls are detailed in 5.1.4. In accordance with the post-closure objectives (under section 2.3.3) after care management will be undertaken as detailed in Table 9 to a point where the hazards (e.g., landfill gas) no longer pose a risk to the environment. As part of the landfill gas management system, gas extraction wells will be installed. These well risers will pass through the capping system and feed the treatment unit commensurate with the volumes generated (e.g., flaring). This treatment will continue as described in the after-care plan, which will allow the landfill gas manager to obtain carbon credits for the destruction of the methane (and

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				reduce greenhouse gas emissions). When active extraction no longer generates viable volumes to treat, the residual gases will be passively managed.
S23	Landfill gas	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PH29-R /	Concern over landfill releasing methane gas and the exposure to methane gas will seriously impair the well-being and general health problems such as cancerous illness, respiratory irritation, and central nervous system damage	As described in ERD section 4.6.4.2, methane does not affect health at low concentrations. At high concentrations in the air (usually associated with confined spaces), methane will displace oxygen, which could result in suffocation. Minor components of landfill gas contain volatile organic compounds which could cause odour and respiratory irritation. Mitigation strategies (ERD section 4.6.6 - Landfill gas, and 5.1.4) have been identified to manage the emissions and discharges. Given the separation distance to receptors (and the 600m buffer within the property), methane gas impact any neighbouring receptor will be very low.
S24	Landfill gas	ANON-Z91Q-PHCW-7	Proponent stated that landfill gas may be collected and flared to convert the methane and used for the generation of electricity. How do they propose to do this when our power lines are so old? Are the company going to upgrade the whole Western Power system?	The ability to generate power will depend on the methane generation rates, which will be monitored during operations. ERD section 5.1.4.1 details as part of the design controls to manage the landfill gas (e.g., flaring). It is anticipated that the gas will be flared. Any power generated will likely be used onsite in the first instance without exporting to the Western Power grid; much will also depend on technology available at the time (e.g., battery power storage) when the decisions are to be made.
S25	Leachate and dust	ANON-Z91Q-PH2S-J / 319182	Leachate will be used for dust suppression and the wind-blown leachate dust will contaminate neighbouring property which uses rainwater as well as affect well-being of the worker in the landfill	Leachate will only be used for dust suppression within the landfill area when it is available (likely through irrigation or dedicated cart). Given the separation distances to the nearest receptors (>1.8 km away with an internal property buffer of 600 m), it is highly improbable that the aerosols will travel that far to present a concern. In relation to workers on site, provisions within the WA workplace safety legislation deals with the health and safety requirements for workers.

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S26	Leachate and dust	ANON-Z91Q-PH29-R	Alkina have not shown how they will combat dust carrying leachate particles. Also, Alkina have not provided any research into the affects leachate in dust will cause to potable water	Leachate will primarily be sprayed / irrigated within the active landfill area, prior to the placement of cover soils (when leachate is available, otherwise harvested stormwater, ground water will be used for dust suppression) and the sealed access road within the landfill. Any airborne leachate aerosols will likely evaporate on site. Alkina is not aware of any research conducted in this field for any landfill, with many of these facilities taking waste within the Perth metro on the Swan Coastal Plan near residents. Alkina is confident that with the dust management strategies identified in the GSL Management Plan (section 11.7) and the updated Dust Management Plan that is high improbable that dust originating from the landfill will impact a sensitive receptor given the separation distances; Alkina predicts the risk to be low, which will be supported by continuous monitoring once the facility becomes operational.
S27	Litter	319182 / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2S-J / ANON-Z91Q-PHC8-8 / 319182	Littering of rubbish (windblown rubbish) along the highway, surrounding property, landfill, across the paddocks. Covering trucks is not a solution to prevent littering of rubbish as when they drop their load at the site, the wind blowing around will blow (plastics & paper) around the area polluting paddocks, sheep and animals which may get contaminated and may even eat it. (319182)	It is currently predicted that the rubbish received at the facility will primarily be derived from an affiliated waste processing facility. The trucks will be covered to contain rubbish. Litter risk is described in ERD section 4.6.4.5 and 4.6.5.5. On site, the litter management strategies are detailed in ERD section 4.6.6 and in section 11.8 of the GSL Management Plan. Included in the strategies, are use the of barriers (security and 4m high portable litter fencing), optimising the size and location of the tipping area, compacting waste immediately after placement, ensure trucks leaving the site are clean of any fugitive rubbish, and conducting regular litter patrols.

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S28	Litter	ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	The fences proposed by Alkina Holdings are only to be 1.8 metres high, which will not be sufficient in preventing wind and willy-willies against displacing rubbish beyond the landfill boundary	Alkina will not only rely on 2m high landfill perimeter fencing (1.8m high mesh fence with barbed wire above), but it will also use potable litter fencing (likely to be 4m high) immediately downwind of the tipping area to supplement the controls identified in ERD section 4.6.6 and GSL Management Plan section 11.8.
S29	Mental health	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Landfill will have serious effects upon the health and well-being of people living on surrounding properties, causing unnecessary stress and possible suicide	The Key Environmental Factor: Social Surroundings (ERD Section 4.6) describes the receiving environment and the hazards that may impact the social well-being, including, noise, dust, landfill gas, odour, litter, impacts to agriculture, heritage, and tourism values etc. and assessed these impacts in 4.6.5 with associated management strategies articulated in 4.6.6. The location for the landfill was purposely selected with the surrounding environment in mind, including suitable separation distances, visibility, and site characteristics (geology, soils, hydrogeology and surface water) to reduce likelihood of impact. In the predicted outcome (4.6.7), Alkina has determined the landfill activities pose no direct impact to the social surroundings. Management strategies will be implemented to ensure the low risk environmental profile is maintained. It is a requirement of the [2016] WASAT 22 for Alkina o engage with the local community via the development of a local stakeholder working group. This group will be established prior to the operation of the landfill and provide those with concerns a place where they can be raised and discussed openly. Alkina also welcomes the engagement of local stakeholders in private and takes this opportunity to reference any stakeholders who might be feeling stress to contact Lifeline or other regional mental health service providers for help.

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S30	No community benefit	ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2K-A / 317119 / 317133 / 319182 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PH29-R / ANON-Z91Q-PH23-J	Except for large bureaucratic corporations, there is no quantified benefits (economic/employment, heritage, or amenities) to the York community instead it can destroy environment, flora, fauna & tourism	The benefits of the proposal are articulated in the Justification section of the ERD (section 2.2). Wider community benefits include the development of a lined landfill following best practice guidelines away from sensitive receptors. The facility may also in the future provide landfilling opportunities for the Shire of York residents that send their waste to an unlined facility 800m away from the Avon River. The proposal will also create employment for up to 10 persons, many of whom will potentially be employed from the local area. The proposal will not destroy the environment, flora, fauna, and tourism as asserted. The risk assessment of these aspects has been detailed respectively in the ERD sections: 4.2.3, 4.3.3, 4.6.3.5 (receiving environment); 4.2.4, 4.3.4, 4.6.4.8 (potential impacts); 4.2.5, 4.3.5, 4.6.5.9 (assessment of impacts) and mitigation (4.2.6, 4.3.6 and 4.6.6). In the recent Regulatory Authority Report compiled by the Shire of York for the planning considerations, the Shire acknowledged heritage and local tourism will unlikely be impacted by the proposal.

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S31	Noise	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / ANON-Z91Q-PH29-R / 319182 / ANON-Z91Q-PH2Y-R / ANON-Z91Q-PHCW-7	Cause traffic, machinery, beeper, generator noise along a country road with noise from excavation (construction) and operational activities. Thus, these noise generated will affect amenities, residences, fauna, livestock, and human wellbeing	The noise levels have been assessed to likely comply with the *Environmental Protection (Noise) Regulations 1997*. DWER has accepted that the daytime noise criteria will likely be met. They did however take the view that the night-time noise compliance had not been demonstrated. Taking consideration of DWER advice, Alkina will not commence landfill operations on site prior to 7 am until the compliance of night-time noise can be verified to allow an earlier start. Alkina did complete a noise risk assessment in the ERD (sections 4.6.4.1, 4.6.5.1) and provided mitigation measures detailed in 4.6.6 - Noise. For instance, reverse beepers can be replaced with croakers / low frequency beepers, and noise bunding can be created using on site strategically placed material stockpiles if needed (particularly near the source) and despite inference, generators will not normally be running 24/7. It should also be noted that farming equipment will at times be operating in the landscape (agricultural activities), which will also present a source of noise. Furthermore, most if not all the waste trucks will be approaching from the west and turning into the landfill prior to passing farming homesteads. The Great Southern Highway does experience a fair amount of traffic, many vehicle will include freight trucks that could operate at all hours of the day. Alkina does not believe that noise will significantly impact livestock or wildlife given the hours of operation (not running 24/7) and animals will likely become habituated or maintain separation from the noise-generating activities. Given the separation distance to the nearest receptor, Alkina does not believe the amenity at the nearest residence will be affected. Threatened species such as black cockatoos are often observed in the Perth metro suburbia and along major traffic routes (including the Great Southern Highway) where there is constant / sporadic noise-generating activities, suggesting they have adapted / habituated.

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S32	Odour	ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH29-R /ANON-Z91Q-PH2K-A / 317119 / 317133 / 319182 / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Landfills emit odour through leachate pond affecting social surrounding, air quality as well as causing health issues including headaches, nausea, fatigue, respiratory problems, and continual odour can lead to stress and depression. Methods proposed for measuring odour is poor. Alkina is relying on available general weather data but should be based on site specific data (ANON-Z91Q-PH29-R).	Alkina completed an odour risk assessment (ERD section 4.6.4.4, 4.6.5.4) and presented odour mitigation strategies in section 4.6.6. This was based on modelling undertaken by the previous proponent. While DWER acknowledged in the DMA comments that risk was likely to be low, they did recommend actions to improve the odour section of the GSL Management Plan (section 11.9). Alkina has adopted this advice and provided greater management clarity in the updated section, particularly in monitoring and response measures.
S33	Odour	ANON-Z91Q-PH29-R	Methods proposed for measuring odour is poor. Alkina is relying on available general weather data but should be based on site specific data.	Alkina has noted the comments provided and acknowledge the previous methods of measuring odour was subjective. Alkina has sought specialist advice in relation to odour and updated the Odour section (11.9) of the GSL Management Plan to include a more robust methodology. The updated management plan is present in Appendix 1.
S34	Odour from methane gas	ANON-Z91Q-PH2K-A / ANON-Z91Q-PH29-R / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PHCW-7	Emit methane gas odour generated from the decomposing rubbish	Alkina expects the landfill to generate gases, of which methane will be a substantive component. Potential landfill gas impacts are described in ERD Section 4.6.4.3, while ERD Section 4.6.5.3 assesses the impacts. Mitigation strategies are outlined in ERD Section 4.6.6. ERD Section 5.1.1 describes the impacts of greenhouses gases (of which methane is a potent gas) while 5.1.2 details the modelling of landfill gas production. Methane gas does not present much odour, it is often the small quantity of volatised organic compounds that are responsible for the odour. Mitigation strategies (ERD section 4.6.6 - Landfill gas, and 5.1.4) have been identified to manage the emissions and discharges. Given the separation distance to receptors (and the 600m buffer within the property), methane gas impact any neighbouring receptor will be very low.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
				The odour management section of the GSL Management Plan (section 11.9) has been updated to provide greater clarity in managing odour.
S35	Tourism	ANON-Z91Q-PH2S-J / 319182 / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2K-A / 317119 / 317133 / ANON-Z91Q-PH29-R	The Mount Observation is a tourist spot (ANON-Z91Q-PH2S-J). Allawuna is a tourist must see place (319182). Landfill will destroy tourism and with increase traffic along GSH will affect visitors destroying events and the economy of York	Alkina has assessed the risk that the landfill presents to tourism. The existing amenity and tourism environment is described in ERD section 4.6.3.5. As stated in ERD, the landfill will not be visible from the Mount Observation picnic area, nor from the Great Southern Highway. The potential impact to tourism is detailed in ERD section 4.6.4.9 and is assessed in 4.6.5.10. Mitigation measures are described in ERD section 4.6.6 (Visual amenity, tourism, and heritage). As part of the environmental review, Alkina also commissioned an updated traffic impact statement, assessed the impacts of traffic, and presented mitigation measures (see ERD sections 4.6.3.6, 4.6.4.10, 4.6.5.8, and 4.6.6 - Traffic facility access). The proposed landfill poses low risk to tourism. The Shire of York, in a recent Responsible Authority Report (Attachment 5) has stated that the landfill is unlikely to directly impact tourism.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
S36	Tourism	ANON-Z91Q-PHC8-8 / ANON-Z91Q-PH2Y-R	York is dependent on tourism and agriculture. This proposal severally threatens the York future as a tourism destination and biosecurity as quality farming land. Thus, reduces employment, and enjoyment of life in this area	Aspects that allow enjoyment in an area relate to the social surroundings. The assessment of risk to the social surroundings is described in Section 4.6 of the ERD. Alkina has acknowledged in the ERD section 4.6.3.5 that York is a tourist destination, and a contributor to the local economy. The potential impact to tourism is detailed in ERD section 4.6.4.8 and is assessed in 4.6.5.10. Mitigation measures are described in ERD section 4.6.6 (Visual amenity, tourism, and heritage). As part of the environmental review, Alkina also commissioned an updated traffic impact statement, assessed the impacts of traffic, and presented mitigation measures (see ERD sections 4.6.3.6, 4.6.4.10, 4.6.5.8, and 4.6.6 - Traffic facility access). The proposed landfill poses low risk to tourism. The Shire of York, in a recent Responsible Authority Report (Attachment 5) has stated that the landfill is unlikely to directly impact tourism. In relation to impacting biosecurity and quality of farming land, the impacts to agriculture have been detailed in ERD sections 4.6.3.2, 4.6.4.9, and 4.6.5.7. Risk to biosecurity and quality of agricultural land is considered low. Advice from the Department of Primary Industries and Regional Development stated that the agency had no evidence that many of the landfill sites already in operation in rural areas pose an unacceptable risk to agriculture. They did comment that landfills could be a source of diseases, pollutants, weeds, and pests that will need to be managed. Based on the assessment, it is uncertain how the conclusion is drawn that there will be lower employment because of the landfill (which will in fact create jobs - ERD section 2.2.1).

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
S37	Tourism and heritage	ANON-Z91Q-PHC4-4	Affect tourism and aboriginal heritage	Alkina has assessed the risk that the landfill presents to tourism and aboriginal heritage in the ERD. The existing environment (Aboriginal heritage, amenity, and tourism) is described in ERD section 4.6.3.3 and 4.6.3.5. As stated in ERD, the landfill will not be visible from the Mount Observation picnic area, nor from the Great Southern Highway. The nearest Aboriginal heritage site is associated with the Helena River catchment. The potential impacts to Aboriginal heritage and tourism are detailed in ERD section 4.6.4.8 and 4.6.4.9 and is assessed in 4.6.5.9 and 4.6.5.10. Mitigation measures are described in ERD section 4.6.6 (Visual amenity, tourism, and heritage). As part of the environmental review, Alkina also commissioned an updated traffic impact statement, assessed the impacts of traffic, and presented mitigation measures (see ERD sections 4.6.3.6, 4.6.4.10, 4.6.5.8, and 4.6.6 - Traffic facility access). The advice provided by the Department of Aboriginal Affairs is that heritage areas will not be impacted, while the Shire has recently acknowledged in a Responsible Authority Report (planning for the proposal) that tourism is unlikely to be directly impacted.
S38	Traffic	ANON-Z91Q-PH2J-9 / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2S-J / ANON-Z91Q-PH2K-A / ANON-Z91Q-PH23-J / ANON-Z91Q-PH29-R / 319182 / ANON-Z91Q-PHC8-8 / ANON-Z91Q-PHCW-7	Create road traffic/traffic noise/traffic hazard leading to death roll along the stretch. Also, risk to road users especially foreign tourists and elderly pedestrians viewing wildflowers. The GSH is a winding country road unsuitable for two road trains per hours/heavy haulage commercial/smelly rubbish truck (ANON-Z91Q-PH2S-J/ANON-Z91Q-PH23-J)	As part of the environmental review, Alkina considered the impacts relating to social surroundings in ERD section 4.6, As part of this, Alkina commissioned a new Traffic Impact Statement (TIS) (ERD Appendix 5.4). Potential transport impacts have been identified in ERD 4.6.4.10 with an assessment completed in Section 4.6.5.8. Based on the TIS findings, it is anticipated the landfill associated traffic would result in approximately 1.5% increased volumes (slight / marginal increase). As part of the proposal to minimise impacts, a bypass lane will be created on the northern side of the GSH (to not impact passing traffic) while a slip / acceleration lane will be created for empty trucks travelling back to the Perth metro (to enable them to get to speed and merge safely with any vehicles travelling in the same direction (as illustrated in Figure 37 of the ERD).

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S39	Traffic	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / ANON-Z91Q-PHC8-8 / 317119 / 317133	Extra truck movement will impact on native flora and fauna living in the surrounding National Parks	The Traffic Impact Statement completed for the proposal has concluded the landfill will likely result in a 1.5% increase in traffic flow. Alkina does not share the view that this addition volume of vehicles will present a significant increase in risk to fauna and flora beyond that which is currently experienced.
S40	Traffic	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	The more trucks and the emission from the trucks and the danger to the environment and humans will create havoc with the many accidents on this GSH which the main road have stated is not the legal length for these 87-ton loads. Positioning of the intersection upgrade is not safe and will not give sufficient line of sight for traffic, especially when travelling in a westerly direction (ANON-Z91Q-PH29-R)	As part of the environmental review, Alkina considered the impacts relating to social surroundings in ERD section 4.6. As part of this, Alkina commissioned a new Traffic Impact Statement (TIS) (ERD Appendix 5.4). Potential transport impacts have been identified in ERD 4.6.4.10 with an assessment completed in Section 4.6.5.8. Based on the TIS findings, it is anticipated the landfill associated traffic would result in approximately 1.5% increased volumes (slight / marginal increase). The intersection design has previously been presented to Main Roads WA, who have accepted the in-principle design. Main Roads are responsible for determining road safety and associated design. Alkina will rely on their determinations.
S41	Vehicles	ANON-Z91Q-PH2S-J	Proponent will make sure that trucks are unmarked to hide their activities	As indicated in the ERD section 4.6.5.10, the wastes (which come from the metro area) will be transported in unmarked trucks, and there will be no signage on the Great Southern Highway which identifies that landfilling activities is being undertaken on the premises.
S42	Visibility	319182	The applicant stated that the tip will not be seen but will be able to see the tip. It can be viewed from our farm, paddocks, the southern property, catchment road and when it gets taller, it will be viewed from the Highway. Mt. Observation and catchment road is a top tourist area. The smelly landfill and vision will be seen	ERD section 4.6.3.5 states that the landfill will be obscured from the Mount Observation picnic area and the Great Southern Highway by intervening topography and bushland. A schematic (ERD Figure 33) provides the landscape profile from the picnic area to the proposed landfill and to the nearest neighbour residence, which contradicts the submitters assertion when the final landform is anticipated to be 350.5mRL (ERD Figure 9). The ERD did state the landfill would be visible along a portion of the catchment road, but the road would not readily be used by tourists (hence limited impact). It was not asserted in the ERD that the landfill would not be visible at the property boundary, even though there are large remnants they will assist providing some screening.

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S43	Water birds spreading diseases from leachate ponds	ANON-Z91Q-PHCW-7	Attraction of different birds to the leachate ponds spreading diseases to water supplies and all over Australia	The submitter assumes that birds contacting leachate will become diseased. Alkina did not identify this as a significant concern in the ERD. The response in F16 also applies. Leachate will likely be nutrient rich and contain contaminants at levels consistent with the waste types that can be received at landfill and is often diluted with rainfall collected within the containment area. Leachate quality will periodically be tested for composition. Alkina believes is it highly improbable that water birds will become diseases and spread the disease to water supplies and all over Australia. Water birds will be more likely to be attracted to ponds that provide food. Alkina is not aware of any incidences of disease or pathogen transmission from other landfills that accept similar wastes and have less separation to sensitive receptors. Should the presence of waterbirds at leachate ponds identify a risk to public health, Alkina will commit to incorporating additional controls measures to discourage access to the ponds, for example incorporating bird lines and grids over the ponds. Control measures of scavenging birds are identified in the GSL Management Plan (section 11.12, which also includes engaging a specialist bird control contractor, if needed).
General comments				
G1	Allawuna Farm	319182	Construction of landfill at Allawuna will make the entire Allawuna Farm a contaminated site forever. Thus, Allawuna will not be a farm anymore	Alkina has established the development envelope for the proposal to reflect the extent of any possible disturbance around the footprint and does not include the entire Allawuna Farm (ERD Figure 2). The landfill containment infrastructure will be restricted to Lot 4869 only. The design within the environmental setting and mitigation controls have been outlined in the ERD, which will be supported by outlined monitoring (during operations and post-closure) until the) closure objectives (ERD Section 2.3.3.7) have been achieved.

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				Any contamination will be subject to remedial in accordance with the *Contaminated Sites Act 2003*.
G2	Climate	ANON-Z91Q-PH2J-9	Loss of rainfall & heat via climate change will impact water supplies	A climate overview has been provided in ERD section 2.4.1. Climate is a significant factor in the design as it affects groundwater levels and movement, leachate volumes, flood and erosion assessment, and the ability to harvest water for dust suppression on site. The infrastructure design, including leachate management has considered this element (ERD 2.3.2.2). The potential impacts associated with the proposal on inland waters is detailed in ERD Section 4.5.4 with an assessment completed in 4.5.5 (particularly 4.5.5.1 and 4.5.5.2). Alkina will source water from collected surface runoff, including using water harvested from other dams on the property. While a surface water pond within the tributary to the south of the landfill is proposed (and yet to be considered under the RIWI Act), Alkina will investigate taking of groundwater for dust management if collected run-off is not adequate.
G3	Community opposition	ANON-Z91Q-PH2D-3 / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2H-7 / ANON-Z91Q-PH2F-5 / ANON-Z91Q-PH2B-1 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R / 317119 / 317133	Community opposed for this landfill as there is no social license to operate, does not fit the objectives and ideals of the community and affect tourist expectation. The proposal is all about Proxy bureaucratic smear	The justification for the project, including its benefits and locality is detailed in ERD Section 2.2. Alkina is aware of opposition to the proposal within elements of the community and has determined this to be the most suitable location. It is no longer feasible to establish new facilities on the Swan Coastal Plan (urban encroachment, sandy environment with groundwater supplies that many West Australians rely upon as the source of drinking water). Despite community opposition, this proposed landfill will be constructed (engineered with geomembrane lining) with the appropriate environmental considerations and controls; providing York with an alternative disposal site that which is being used York (i.e., the Old Quarry Road landfill site in Northam which is unlined and approximately 900m from the Avon River). According to the Shire of York's own Responsible Authority Report 2020, tourism is not likely to be directly impacted by this proposal. See Appendix 5.

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G4	Community services	317119 / 317133	Proposal will put undue and unnecessary strain on local emergency and service volunteers	The ERD has not specifically addressed this matter. Without adequate controls and procedures in place, additional support from emergency services may be required. However, the proposed management strategies of the site will reduce the risk of incidents that may require the services of emergency services. These are included in the existing management plans, including those being updated (as part of the planning authority requirements). Having thorough fire management plans and standard operating instructions to support the operations that will identify / manage capacity and actions to be implemented. A detailed review of the bushfire advise levels (BAL rating) has been undertaken as part of the statutory planning condition No.1 (SAT condition). This work has been undertaken by a Class III certified Bushfire fire assessor. With the Bush Fire Risk Management Plan and Bush Fire Plan both subject to a review by DFES and the Shire prior to landfilling operations on the site commencing.
G5	Consultation	319182	Inadequate consultation with neighbours, the local area of the residents of York. Only met with Shire representatives.	Alkina has previously met with community members in relation to the project and is aware of their concerns through the multiple forums - planning and environmental (works approval applications and now under Part IV of the EP Act). The proposal has not changed since previous consultations. Additional personal consultation has been limited with COVID restrictions. Information relating to the proposal has been made publicly available in applications made under the EP Act. Works approval applications are usually advertised for a three-week period, while the Part IV public environmental review was available for five weeks and multiple hard copies of the documents have been distributed within the community.

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G6	Credibility and financial	319182	As Alkina company runs under the umbrella of many names such as Alkina Holdings Pty Ltd, Instant Waste, Opal Vale Waste and so on. We do not trust their credibility, as the management of Opal Vale on Toodyay Road is under scrutiny. So, the Shire of York should have a Bond of $30 million as a fall back when this goes wrong. "I quote - Business New, article by Mark Beyer, 27 July 2020".	Alkina Holdings Pty Ltd is a separately listed company. While Alkina does not subscribe to the Business news, the article the submitter refers to is unrelated, as the subject of that report is not a Director of Alkina. The submitter refers to the management of the Opalvale landfill being under scrutiny. DWER closely monitors all landfills accepting metro waste (with no particular focus on Opalvale). Alkina has no concern or control of increased regulatory scrutiny. It is not appropriate for Alkina to comment on financial bond consideration at this stage.
G7	EPA process	ANON-Z91Q-PH21-G	The proponent has failed to meet its timelines set out in the ESD to release the ERD	The timelines in the ESD are meant to be indicative. Significant delays were caused during the process of amending the development envelope to better define the project scope. The original description (based on the Minister's referral) included the entire Allawuna Farm property and did not include any works associated with the intersection upgrade of the GSH. This meant all the analyses and reports had to be revisited to conform to the amended envelope. The amendment was approved on 7 February 2020 (see ERD section 2.1). Alkina considered it was more important to ensure the information present was comprehensive and completed additional work after DMA reviews of the draft ERD rather than focusing on timeframes.
G8	Financial	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / 317119 / 317133 / 319182 / ANON-Z91Q-PH29-R	Financial ability of company to pay for remediation of contamination at the site. ANON-Z91Q-PH29-R believes a $50 million insurance bond should be imposed as a contingency fund.	The various mitigation measures, including engineered containment after-care management has been described in the ERD and supporting attachments. The premises is also likely to be regularly audited by DWER (as they do at other landfill sites). Provisions under the Contaminated Sites Act 2003 will hold the company / landowner liable for remediation. It is not for Alkina to determine whether a bond is necessary.

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G9	Information accuracy	319182	Alkina claimed of having only one neighbour. This is incorrect, as there are at least 5 adjoining neighbouring farms and at least 20 near neighbours within a 5 kilometre distance	Alkina has made no claim that there is only one neighbour and apologises if that perception was created when referencing the only “land boundary adjoining" neighbour. As part of the risk assessment Alkina has followed the DWER risk assessment framework, which focuses on the nearest neighbour / receptor has been considered to determine risk.
G10	Information accuracy	ANON-Z91Q-PH29-R	Concerns over accuracy of information / conflict between ERD (proposal) & DWER application form in relating to operating period, distance to the Town of York and operating hours.	It should be noted that the application presented to DWER as part of the works approval application and the EPA is the same information. The operational period of the landfill could be between 20 to 37 years, depending on the annual volumes received at the site (rate of airspace being used). Based on accepting 200,000 tonnes of waste per year, the landfill will be operational for 28 years (ERD Table 8). Golder completed the design assuming 37 years. This information is being provided to the EPA to clarify the interpretation. This does not affect the after-care period as the site will be managed to the point where the landfill no longer poses a risk to the environment (anticipated 30 years post closure). Measurement from the Allawuna Farm property access to the town of York is determined to be 20 km according to Google maps. The exact distance is not significantly relevant. The attachments that the submitter refer to do not correspond with the attachments provided for this process under Part IV. Based on advice from DWER, Alkina will operate the site in accordance with the daytime assigned noise levels until it can be demonstrated that an earlier start will not breach night-time levels. It is proposed to operate between 7am to 6pm, however waste will only be accepted until 5pm to enable compaction and coverage prior to the end of the day, including doing machine pre-start inspections etc.
G11	Other	ANON-Z91Q-PH2S-J	The Shire has spent hundreds of thousands of dollars opposing the proposal.	The spending by the Shire is a matter for the Shire to address. All local governments have a duty of care to provide planning services. Alkina, like any other business is entitled to be allowed to follow due process in seeking approvals.

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G12	Other	319182; ANON-Z91Q-PHCP-Z	Waste to Energy technologies and State Government strategic plans have moved away from landfills	Comments made by submitter are irrelevant to Alkina. SITA relinquished their approval after they purchased another landfill facility & becoming the maintenance & operational contractor for one of the two waste to energy facilities under construction. Even with the 400,000 tonnes per year capacity of the waste to energy plant mentioned, there is a need for an estimated 20,000,000 to 60,000,000 tonnes of new landfill capacity by 2050.
G13	Other	ANON-Z91Q-PHCW-7	It is stated that the trucks are only going to be monitored coming into the site with one camera placed on the side of the entrance to the landfill site. The trucks are supposed to be enclosed, so how are they monitoring these trucks properly?	Alkina GSL Management Plan section 10.2.1 has acknowledged the constraints, stating... *Due to vehicles either being covered (transfer trailers and bins vehicles) or sealed (compactor vehicles), it is not practical/possible to visually inspect the waste material at the weighbridge; however, an elevated camera is mounted on the weighbridge gatehouse to enable the weighbridge operator to, where possible, monitor the contents of the incoming vehicles.* Furthermore, at this stage, wastes will be derived from affiliated waste sorting / processing facilities to remove economically viable recycling materials. This will provide some assurance of the content. Furthermore, these recycling facilities are restricted in the materials they can accept at their premises.
G14	Planning	ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / 317119 / 317133 / 319182	In the Mid-West/Wheatbelt Joint Development Assessment Panel meeting, the vote has been to deny the landfill approval as it's listed as a prohibited use in York (agricultural land)	Alkina Holdings and past proponents have taken this project to SAT to review the ruling of the JDAP panel. The planning approval extension on the site was granted before the changes made by the Shire of York &/or the Minister for Planning. Alkina is looking to extend this expired planning approval as it is legally able to do so.
G15	Planning	ANON-Z91Q-PH2S-J	During SITA proposal York Town Plan did not mention landfill as a prohibited use but now York Town Plan has been modified - landfill are a prohibited use	Comment noted. This matter will be decided by State Administrative Tribunal or JDAP. Alkina Holdings Pty Ltd is legally able to progress its expired planning approval based on the extension of [2018] WASAT 130 condition No. 9. It is our intent to have planning extended beyond March 2020.

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G16	Planning	ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	Repeated extension indicated that something is not right with the planning and should be terminated	Planning approval was granted by SAT twice, based on sound legal reasoning and due consideration of the environment. The delay in processing the environmental approvals via various government agencies has caused Alkina to obtain repeated extensions to planning approval. No outstanding environmental queries have been made by state government agencies regarding these environmental approvals. Therefore, Alkina believes it has answered all the environmental questions raised.
G17	Planning	317119 / 317133	The proposal is ad-hoc and is not considered proper and orderly planning	The site was selected by undertaking a comprehensive review of 19 different sites. Consideration given to the WA Planning Commissions Waste Strategy plan 2012 which shows a landfill in York. The State Waste Infrastructure Planning report in 2015 acknowledges that all new landfills should be built off the swan coastal plain.
G18	Planning	319182	SAT never attended the site and EPA never assessed the former proposal, but a "sunset clause" now exists on "Allawuna" farm allowing Alkina Holdings Pty Ltd to proceed with a new application without EPA assessment.	Correct, SAT representatives never attended the farm site... but expert witnesses from both sides of the SAT proceedings attended site and provided a joint position on the key environmental considerations prior to the WASAT 22 ruling in 2016. Local stakeholders were also allowed to provide layperson's witness statements at both the WASAT 22 in 2016 and the WASAT 130 in 2018. The EPA were asked to review the site under public consultation in 2013. They determined to not assess the landfill proposal under Part IV of the EP Act in 2013. The EPA and a Board representative have since visited the Allawuna Farm after the Minister for Environment directed the EPA in March 2019 to refer the project under 43(1) regulation.
G19	Planning	ANON-Z91Q-PH29-R	If eco-housing proposal could be rejected so does landfill proposal as the effects of the GSL will be far greater on the St Ronans environment than an eco-housing proposal	Alkina Holdings Pty Ltd cannot comment on other planning approval proposals that might have been rejected by the Shire, Regional JDAP or SAT. That would be comment beyond the remit of this proposal. Alkina sees a need for a landfill within the Shire of York, who currently export their waste to Northam into a landfill that is unlined and only 800m from the Avon River.

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G20	Planning	319182 / ANON-Z91Q-PH2Y-R	Landfill does not comply with any of the objectives in York's Community Strategic Plan and Local Planning Strategy	Everyone produces waste, and currently infrastructure does not always exist in WA to enable economical recycling. Currently the Shire's residents have their waste collected and transported to another Shire where the waste is deposited to landfill, in an unlined landfill only 800m from the Avon River. Alkina Holdings Pty Ltd cannot comment on the objectives of the community strategic plan and local planning strategy. Alkina identified that there is a need for landfills in WA and these new lined landfills should be built off the swan coastal plain but near enough to the waste generators to make logistical transport feasible.
G21	Power generators	319182	Use of generator for 24 hours a day and night will disturb the lifestyle of numerous birds, animals, and insects, etc., causing light pollution to the night birds such as owls, venture and other night insects	The facility will not be operating 24/7 and therefore will not need to run generators continuously. Where practicable, Alkina will use solar and battery back-up as an alternative power source.
G22	Property rights	ANON-Z91Q-PHCW-7 / ANON-Z91Q-PH29-R	Proposal challenges our property rights and our water rights, having the potential to seriously affect property output and income and health	The ERD has documented the receiving environment in relation to each of the Key Environmental Factors (4.2.3; 4.3.3; 4.4.3; 4.5.3; 4.6.3) assessed the risks (4.2.4 & 5; 4.3.4 & 5; 4.4.4 & 5; 4.5.4 &5; 4.6.4. & 5) and provided mitigation strategies (4.2.6; 4.3.6; 4.4.6; 4.5.6; 4.6.6) to ensuring the risks to the environment is maintained at a low level. Social Surroundings is specifically addressed in Section 4.6 and included heritage, agriculture, visual amenity and tourism, landfill operations (e.g., noise, fugitive dust, fire, odour and landfill gas, litter, and transport) The determination of the location has been a consequence of multiple investigations to minimise potential impact and consider social aspect. The landfill will be developed with an internal buffer of 600m from the nearest property boundary and will be surrounded by agricultural and bushland to mitigate risk of landfill-associated potential impacts. Alkina also understands that the Fee Simple deed on the landholding. Once Alkina purchases the land, will not require a

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				licence to take water, as the water down to the bedrock will be owned as will any surface water that falls into this. Our assessment has determined that there is a low risk to downstream receptors.
G23	Strategy and alternatives	ANON-Z91Q-PH2S-J / ANON-Z91Q-PH23-J / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809 / 319182 / ANON-Z91Q-PH2D-3 / ANON-Z91Q-PH2E-4 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / 317119 / 317133 / ANON-Z91Q-PH29-R	Suggesting alternative methods/ strategy of waste management (recycling waste)/grant proposal / disposal be considered. Also, the proposal is not consistent with the Waste Strategy and principles of sustainable development, State & Regional Strategic plans & policies for use of rural land. It should also develop more job opportunities (ANON-z91Q-PH23-J)	Even when considering the 2030 waste strategic targets in Western Australia waste strategy 2019 (Targeting a reduction of waste to landfill of ~15%). Initial estimates are that we need around 20,000,000 tonnes of new landfill airspace by 2050. Even with two new Waste to Energy facilities coming online. *Hyder Oct 2014 presentation to State Waste Infrastructure Planning Policy stakeholders.
G24	Strategy and alternatives	ANON-Z91Q-PH2B-1 / ANON-Z91Q-PHCP-Z / ANON-Z91Q-PHCX-8 / 318809	Need for this landfill question, suggesting alternative methods of waste management / disposal be considered. The proposed landfill is also not consistent with the Waste Strategy	Even when considering the 2030 waste strategic targets in Western Australia waste strategy 2019 (Targeting a reduction of waste to landfill of <15%). Initial estimates are that we need around 20,000,000 tonnes of new landfill airspace by 2050. Even with two new Waste to Energy facilities coming online. *Hyder Oct 2014 presentation to State Waste Infrastructure Planning Policy stakeholders was provided with the ERD submission as Appendix1.9.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
G25	Strategy and alternatives	ANON-Z91Q-PHC8-8 / ANON-Z91Q-PH2D-3 / ANON-Z91Q-PH2U-M / ANON-Z91Q-PH2K-A / 317119 / 317133 / 319182	The location is completely unacceptable as it's very close to national parks, banks of Brook and vital water sources. So, the project can pose risk to the community, environment, and road users. Since WA have sufficient landfill capacity so, no need for this landfill (ANON-Z91Q-PH2D-3)	Water road and national park infrastructure are answered under other sections of this public review. The State Waste Infrastructure Planning Policy presentations to private, local, and state government in Oct 2014. Stated that we already had a short fall of landfill capacity for 2050. * Hyder Consultancy working on behalf of the Dept. of Environment. This 2050 estimated capacity shortfall is around 60,000,000 tonnes under business as normal practice and still 20,000,000 tonnes under best practice modelling using the latest waste to energy facilities, (which only account for 700,000 tonnes PA).
G26	Strategy and alternatives	ANON-Z91Q-PH2H-7 / ANON-Z91Q-PH2F-5	Government allowing a new landfill in pristine area sends wrong message (its clearly environmental vandalism)	The landfill will be managed and constructed within environmental laws. Building new landfills on the swan coastal plain could pose a greater risk to the environment. Currently local residents' waste is sent to the unlined landfill in Northam, near the Avon River which also poses more risk to the environment under business-as-usual practice compared to a lined landfill.
G27	Strategy and alternatives	ANON-Z91Q-PH2S-J	Cost of cleaning up after the landfill has polluted ground water will have to be met by future generation. Waste disposal industry have record of being unavailable when paying for clean-up costs. Thus, if EPA approve this proposal a twenty-million-dollar security bond must be lodged with Shire of York	Alkina Holdings Pty Ltd cannot comment on the potential for a security bond. Independent Peer reviews of the ground water has established that the risk is low of polluting ground water. The condition of the current ground water in this area is also below useable levels for drinking.
G28	Strategy and alternatives	ANON-Z91Q-PHC4-4	Lack of alternative options for dealing with waste destined for the landfill. Management plan for safe operation of landfill is questionable due to the lack of details. Due the absence of strategies, it is impossible to address in detail the risks the proposed landfill could have on residents, environment & water catchments	The ERD Section 2.2 outlines the justification of the proposal. As mentioned in this section, waste reduction targets have never been previously met in WA as previous strategic infrastructure planning studies have identified a need for ~20,000,000 tonnes by 2050 when considering the best-case waste infrastructure modelling conducted by the Dept. of Environment's consultants in 2014. As presented at the State Waste Infrastructure Planning workshops to industry, state, and local government (see ERD 2.2). WA has a shortage of landfill space into the future, even when considering the Waste to Energy Processes coming online in 2022.

No.	Matter raised	Submitter reference(s)	Issues raised	Alkina response to comment
				Waste is recycled where possible (and economically viable) – wastes to be landfilled from affiliated sites are residuals from waste processing, recycling, and sorting facilities. All Perth metro waste is subject to waste avoidance and resource recovery levies, which provide increasing incentives to reduce volumes going to landfill. Given the existing economics (and population growth) and consideration of new and proposed waste reduction initiatives, there will always be a residual component of waste streams that will require disposal (landfills). This also still happens in first world countries such as Germany. The Western Australia State Waste Infrastructure Plan reiterates that future landfills should be placed away from the water supply under the Swan Coastal Plain. The WA Planning Commission's Waste Strategy showed a future landfill planned within the Shire of York. The investigations that have led to the design and risk assessment has been detailed throughout the ERD, which has led to the avoidance and mitigation strategies identified in the GSL Management Plan; these are consistent with best practice and are specific to the site.
G29	Strategy and alternatives	ANON-Z91Q-PH29-R	Alkina have failed to show the need for another landfill, especially with air space still available until 2050 in existing landfills plus the newly constructed SUEZ landfill at North Bannister and recently released Waste Avoidance and Resource Recovery Strategy Action Plan 2030	Even when considering the 2030 waste strategic targets in Western Australia waste strategy 2019 (Targeting a reduction of waste to landfill of ~15%). Initial estimates are that we need around 20,000,000 tonnes of new landfill airspace by 2050. Even with two new Waste to Energy facilities coming online. *Hyder Oct 2014 presentation to State Waste Infrastructure Planning Policy stakeholders. The SWIPP also stated that future landfills be built away from the ground water under the Swan Coastal Plain.

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G30	Strategy and alternatives	ANON-Z91Q-PH29-R	The idea that certain Alkina and Opalvale Directors, who are one in the same, are seeking to build a landfill at York while also building a landfill at Toodyay is inconceivable. The use of different companies containing the same directors building landfills only for profit and who will be responsible when contamination occurs? Thus, no new landfills should be granted approval when the landfills already in existence can accommodate waste well into the future	Alkina Holdings Pty Ltd and Opalvale Pty Ltd are separate companies and have different directors (they are not the same as asserted). Note that comments on strategic planning earlier in submissions, answer the question on the need for new landfills in Western Australia. WA has a need for ~20,000,000 tonnes by 2050 when considering the best-case waste infrastructure modelling conducted by the Dept. of Environment's consultants in 2014. As presented at the State Waste Infrastructure Planning workshops to industry, state, and local government (see ERD 2.2).
G31	Weather	319182	The proposed area is hilly, prone to strong winds and extreme weather events.	The information regarding the weather has been sourced from the nearest Bureau of Meteorology weather stations as an official provider of climate information, which provides existence guidance. Alkina is aware that the local environment may influence weather patterns. An automatic weather station (as referred to in the Dust management Plan and GSL Management Plan) will be installed to assist with implementation of management strategies to minimise the likelihood of a risk event.
G32	Workplace safety	ANON-Z91Q-PH2K-A / 319182 / ANON-Z91Q-PH29-R	Alkina has a poor track record of workplace safety and commitment to management plans (ANON-Z91Q-PH2K-A). It's first time an entity has been found guilty of gross negligence (319182)	Alkina, nor its director has been found guilty of gross negligence under the OSH Act. Alkina continuously meets its obligations specified in workplace health and safety legislation and operates supporting management plans, (aspects which are beyond the scope of the EPA referral).