



## WRC S92 REQUEST & RESPONSES –

### Gleeson Managed Fill Limited Resource Consent Application (APP144475)

<b>Council:</b>	<b>Waikato Regional Council</b>	<b>Application</b>	<b>Gleeson Managed Fill Limited APP144475</b>
<b>Request</b>	<b>S 92 Request – Request for Further Information</b>	<b>Date Received</b>	<b>15 June 2022 (Letter) &amp;</b>
<b>Information submitted to WRC: 28 June 2022</b>			

- Attachment A:** Monitoring and Progress Report by Envoco
- Attachment B:** Wildlands Photos – as originally received
- Attachment C:** ESCP Plan depicting setback of SRP from wetland
- Attachment D:** Waste Acceptance Criteria Assessment of Effects – Updated June 2022
- Attachment E:** Sampling & Analysis Plan (SAP) – updated June 2022
- Attachment F:** General Hydrogeological Setting of Managed Fills Memo – PDP, dated 28 June 2022
- Attachment G:** Updated Site & Fill Management Plan (SFMP)
- Attachment H:** Updated ESCP – Fill Area 3, Southern Skies Environmental, 16 June 2022 Rev E
- Attachment I:** Updated ESCP – Fill Areas 2 & 4, Southern Skies Environmental, 16 June 2022 Rev C
- Attachment J:** Asbestos Fill Management Plan, PDP, January 2020
- Attachment K:** S92 letter from WRC and all relevant email correspondence.

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<b>Ecology – Response emailed 20 June 2022 (items 1-3)</b>			
1.	An assessment of the wetlands downstream of proposed Fill Areas 2 and 4.	There is no wetland downstream of FA4. FA3 and FA4 discharge is to an unnamed tributary that flows into the Waikato River. The proposed managed fill stormwater discharge from FA2 is treated by a site-specific ESC/SRP system, designed to best practice standards and WRC guidelines. The discharge point is further than 100m from the wetland. The wetland downstream of FA2 is highly degraded (as per phone discussion with Envoco) – and it is considered that due to the physical distance to the wetland combined with the proposed mitigation (ESC treatment	



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	devices/design), the low-level risk of potential adverse effects on this wetland does not warrant such an assessment.	
2.	<p>Confirmation of the area of wetland affected, the Stantec report says Wildlands calculated 1869 m<sup>2</sup>, which is more than calculated by Boffa Miskell 1530 m<sup>2</sup></p> <p>The measurement of an area of wetland is subjective depending on the expert, the method used and seasonal changes. The original Boffa Miskell Report<sup>1</sup> was undertaken in mid-November 2019, after a dry year, with annual rainfall well below long term average.<sup>2</sup></p> <p>The Wildlands draft review (as referred to in Stantec Report<sup>3</sup>) was undertaken mid October 2020, after a wet winter, and after the hydrological changes in FA3 due to the pond being drained. It is likely that the increased areas were due to these factors – wet weather and drainage of the pond.</p> <p>The wetlands have been identified as artificial, with the peer review by Singers Ecological Ltd (commissioned by WRC) discussing that <i>‘wetlands are uncommon habitat features in hill country areas because there are limited locations where water can pool for extended periods of time...’</i><sup>4</sup></p> <p>The loss of these wetlands does not trigger any reason for consent under the WRP, WDP (and decisions version), or the NES-FW, therefore the exact size of the artificial wetlands does not impact on assessment of effects.</p> <p>For clarification’s sake, we are accepting of the Stantec calculations, being that they are the most recent. However, it is emphasised that despite the non-protection of these wetlands, (and therefore no rule or requirement to mitigate their loss), 3600m<sup>2</sup> of natural wetland is currently being restored and enhanced within the identified compensation gully (west of Fill Areas)</p>	

<sup>1</sup> See Appendix 12 of application – ‘EIA, Boffa Miskell’ November 2019

<sup>2</sup> <https://www.waikatoregion.govt.nz/services/regional-hazards-and-emergency-management/drought/>

<sup>3</sup> See Appendix 12 of application - Refer section 3.3 of Wetland Peer Review, Stantec, 24 December 2021

<sup>4</sup> See Appendix 12 of application – Refer section 4 of ‘Wetland Review: Gleeson Managed Fill Ltd wetland areas’ prepared for WRC by Singers Ecological Ltd, 1 March 2022



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		as discussed in the AEE. This is to provide a net gain back to the catchment. Please see <b>Attachment A</b> - Monitoring and Progress Report by Envoco.	
3.	Evidence that what the EMP refers to as Vegetation Type 10/ Management Unit 6/Planting Zone 9 did in fact comprise 70% exotic Mercer grass in 2020 and not grazed native swamp millet.	Please see <b>Attachment B</b> - email and photos from Wildlands, who provided the EMP.	
4.	Could you please provide the photos supplied by Wildlands in the share file, the resolution is poor in the pdf.	Photos attached by email in their original format as received from Wildlands – See <b>Attachment B</b>	
5.	Confirm the location of sediment ponds and whether their construction and operation will affect any wetlands that meet either the definition of natural wetland in the NES or the definition of significant wetland in the WRPS.	Envoco’s SNA watercourse assessment depicts 100m setback from the wetland within the SNA west of FA’s 2 and 3. (See Appendix 12.5 of the Application Documents for this report) Southern Skies have transposed where this ‘100m line’ lies on their ESC Plan for FA2 – please see <b>Attachment C</b> . NO natural wetlands will be adversely affected by the location, construction and operation of the SRP’s. Sufficient ESC methodologies have been detailed to council in this regard, and the physical separation of these SRP’s from any wetland is considered to provide sufficient comfort that any adverse effects in this regard will be less than minor.	
6.	Confirm the extent of wetland that may trigger WRPS significant wetland criterion.	It is accepted that the maximum extent of the total wetland areas in FA’s 2, 3 and 4 (as previously identified) is 1869m <sup>2</sup> and may trigger the WRPS significant wetland criteria no’s 4 and 6 (Wetlands are under-represented (4) and <i>wetland habitat that has NOT been created and maintained for/in connection with...water storage for irrigation or water supply storage.</i> (6) During investigations to determine if the wetlands were natural or artificial, it became very evident that all wetlands were man-made, created for stock watering, and then as water storage for the pine forest (as well as	



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		<p>recreational use). So, while criteria 6 may apply, the weighting given to it in this instance is considered to be low. Criteria 4 is the predominant trigger, and it is at council's discretion the weight to give it.</p> <p>Loss of 1869m<sup>2</sup> of wetland at a 1:1 compensation ratio (as recommended in Boffa Miskell EIA) would require a minimum of 1869m<sup>2</sup> of natural wetland habitat restoration to be undertaken. The EMP provides for 5816m<sup>2</sup> of wetland habitat, which is a restoration ratio of 4:1 (gain:loss).</p>	
7.	Provide clear evidence that areas subject to compensation works will be legally protected in perpetuity via a covenant or similar tool.	<p>Section 21.8.3 of the AEE states clearly that the compensation area will be protected in perpetuity by way of a private covenant on the title.</p> <p>Gleeson have also proffered a condition of consent that states: (See General Conditions 19 ... <i>The overall objective of the EMP shall be to set out the practices and procedures to be adopted to ensure compliance with consent conditions and shall include: ... (g) Within 6 months of commencement of activities under this consent, a mechanism for covenanting of the mitigation area, including gully restoration of no less than 3.75 hectares;</i></p>	
8.	Provide more detail on proposed monitoring in the Compensation area for residual pest animals and biodiversity outcomes (including lizards, birds, and the extent and quality of habitat created) to ascertain whether the restoration activities have achieved the stated objectives.	<p>Proposed monitoring of the compensation area includes:</p> <ul style="list-style-type: none"> <li>• Pest animal monitoring conducted 3 times per year with the use of tracking tunnels and chew cards. 3 monitoring events done so far with only a slight decrease in presence of rats. Next monitor will be done this month with also the use of possum leghold traps, since they have been showing up on previous monitors but we haven't caught any in existing kill traps. A positive biodiversity outcome would be &lt;5% RTCI (residual trap catch index) for possums and 80% decrease in mean presence of pest animals on tracking tunnels and chew cards over 3 monitoring events. Due to the site being among farmland, connected to other gully</li> </ul>	



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		<p>habitats, and being near dwellings it is unrealistic to achieve eradication of pest animals.</p> <ul style="list-style-type: none"> <li>• Bird monitoring has been done and is planned for 3 times a year to monitor populations. Of interest are seed dispersing and pollinating birds like kereru, tui and silveryeye, which indicate high quality habitat, and native wetland birds (eg. paradise duck, shags, dabchick, herons) which will hopefully use the enhanced wetland habitat. The presence of these birds during monitoring events will be an indication of restoration success.</li> <li>• Extent of habitat created is defined by the planting areas (approx. 2ha). Quality of habitat created will be monitored through vegetation plots in planting areas that represent each habitat type (wetland, gully riparian and gully slopes). Increase in growth of plants and native seedling regeneration in plots will be an indication of restoration success. As per consent conditions, replacement planting will be carried out if there are losses within the planting.</li> </ul>	
<b>Managed Fill Discharges – EHS AEE/WAC</b>			
9.	<p>Please comment on how the results of fate and transport modelling based on an easterly groundwater flow towards Waikato River might be impacted if ponded water in Fill Area 2 is found to be recharged by an obscured spring as potentially indicated by GAIA’s geotechnical engineering assessment (page 487). In summary, is there potential for a westerly transport closer to the surface in Fill Area 2 if a spring is found to be recharging this area?</p>	<p>Section 8.2.1 of the Gaia Report for FA2-FA4 states that: <i>It was noted whilst conducting the test pit investigation that a moderate amount of water was flowing from the ponded area despite limited recent rainfall. It is therefore recommended that the ponded water currently stored behind the existing farm dam be released as to ascertain whether or not the ponded water is entirely stormwater sourced and not being recharged by an obscured spring. The drainage could then be appropriately sized.. (Page 21 of that report - 2325-12 Rev C)</i></p> <p>This report was a preliminary overview report to lodge with RC.</p>	



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<p>Updated request 28 June 2022:</p> <p>With regards to the organic contaminants, modelling of fate and transport has not been undertaken but waste acceptance criteria have been justified by aligning with a number of MfE guidelines and Auckland Unitary Plan acceptance criteria. While I am confident that those guidelines have been based on a formerly robust process at the time, please provide some further discussion of the relevance of those guidelines to setting waste acceptance criteria for organic contaminants at the Gleeson’s site with regards to protection of groundwater and surface water, particularly with regards to the PAHs and organochlorine WAC.</p>	<p>Since then, a Detailed Design Report has been provided by Gaia for FA2 which again mentions the risk if groundwater springs are encountered. The mitigation strategy proposed is to provide sufficient contingency in the construction budget for additional sub-surface drainage to collect flows and divert/discharge downstream of the fill site.</p> <p>Gaia have confirmed that the potential risk of encountering groundwater springs is included in all reports of this nature, to cover any unforeseen groundwater – it was not based on any investigation or observation to there being any actual springs evident within the Fill Areas.</p> <p>In addition, Section 13.3.1 of the AEE states that: 13.3.1 <i>The Ecological Impact Assessment report (Boffa Miskell, 2019) indicated that FA2 is part of the Lake Waahi and Lake Puketirini catchment. Fill Areas 3 and 4 are part of the Waikato River catchment. There are no permanent streams within the proposed fill areas. <b>Only ephemeral/intermittent streams are observed, indicating that the surface water bodies within the proposed fill areas are not fed by groundwater but by surface water runoff.</b></i></p> <p>Response 28 June: PAHs and organochlorine compounds have high log KoC and very low water solubility (to the point of being insoluble in water for DDT and high molecular weight PAHs). Due to these factors EHS Support believe that the waste acceptance criteria will be protective of environmental health.</p>	
<p>10. Please address the following issues relating to the proposed waste acceptance criteria in Table 5 (also applies to Table 6 in the Fill Management Plan):</p>	<p>Andrew Rumsby, EHS Support: SPLP simulates the natural leaching process that occurs to wastes on or in the ground as a result of precipitation and is used to determine the potential a material left on the ground has to impact groundwater (or surface water).</p>	



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<ul style="list-style-type: none"> <li>It is unclear whether it is TCLP or SPLP analysis that applies to tributyltin. The MfE guidance refers to TCLP but the footnote 15 and the column header refers to SPLP? Also, the footnote number linked to the leachate limit for tributyltin should be 15, not 14.</li> <li>For fill to be deposited within the top 2 metres of the fill site, some of the waste acceptance criteria has been based on the Class 5-Cleanfill WasteMINZ (2018) Technical Guidelines for Disposal to Land but it isn't clear what the origin of some of the numbers is.</li> <li>Also BaP should be 2 mg/kg, not 0.0054 mg/kg. Toluene and ethylbenzene values are also the wrong way around.</li> </ul>	<p>TCLP tests are designed to simulating leaching within a municipal solid waste landfill which contains food waste and significant amounts of decay organic material which generates acetic acid and low pH leachate (TCLP test is undertaken at pH 4-5).</p> <p>An SPLP test is more appropriate to use in a managed fill as managed fill are composed many of soils and inert material and do not generate low pH leachate.</p> <p>The purpose of undertaking the SPLP tests is determine whether or not managed fill material when exposed to normal weathering will have an adverse impact on either groundwater or surface water quality.</p> <p>Both SPLP and TCLP tests where design to simulate 100 years of exposure under aerobic conditions.</p> <p>We will update the Table but still use the lower BaP criteria (and there is a mistake in the derivation of this number in Wasteminz guidance document). Please see <b>Attachment D</b> - updated WAC Report</p>	
<b>EHS's Surface water Sampling and Analysis Plan</b>		
<p>11. Please confirm whether Fill Area 2 will have in addition to a discharge monitoring site located immediately downstream of the proposed wetland treatment system, a receiving environment monitoring site in the unnamed stream. The AEE and the SAP doesn't clearly discuss or justify this.</p> <p><u>Updated request 28 June 2022:</u> The discussion of the sampling locations for Fill area 2 on Pages 11 to 12 of the updated SAP</p>	<p>The SAP has been updated to include discharge monitoring sites for FA2 – see Figure 1-1 'Proposed Fill Area 2-4 and indicative sampling locations' See <b>Attachment E</b></p> <p><u>Response 28 June:</u> These inconsistencies have been corrected in Section 2 of the SAP. All indicative Figures and descriptions should now be correct. Water samples</p>	



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	(June 2022) is somewhat confusing. Figure 2-1 refers to a discharge monitoring point to be downstream of the SRP and Section 2.1 refers to a single downstream receiving surface water sample location for Fill area 2. Please confirm whether Fill Area 2 will have a discharge monitoring as well as a receiving environment monitoring location? The AEE and the SAP doesn't clearly discuss or justify this. Section 2.1 also incorrectly refers to collection of a water sample upstream of Fill Area 3.	
12.	Please identify all monitoring locations on map, even if just tentative or approximate with specific numbers or letters etc to avoid confusion e.g. DS1 and DS2 which have already been identified for FA3&4 but also DS3(?) could be used for identifying the monitoring location down gradient of Fill Area 2?	The SAP has been updated to include discharge monitoring sites for FA2 – see Figure 1-1 'Proposed Fill Area 2-4 and indicative sampling locations' See <b>Attachment E</b>
13.	Please clarify the proposed frequency of monitoring i.e. why is receiving environment sampling to be undertaken four times per year and surface water discharge monitoring to be undertaken five times per year? Wouldn't it be better to have the same frequency when the number of monitoring rounds are so similar?	The receiving environment sampling vs the surface water discharge monitoring have two different purposes and therefore different testing regimes.
14.	Section 3.3.1.3 refers to the sampling and analysis of water from the storage tank. It says that samples will be analysed on-site using a	This was a typing error. Lead is included in the analysis. Has been corrected. Please see updated WAC Report – <b>Attachment D</b> .





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	HACH D 3900 spectrophotometer to determine total boron, copper, and zinc to confirm if they meet US EPA CMC criteria. If the results are lower than the US EPA CMC criteria and pH is between 6 to 9 pH units then the water can be discharged to the stormwater treatment pond. Please confirm whether this analysis should also include lead?		
15.	Please clarify whether it is intended that WETT analysis will be used to derive a zinc limit for the discharge from Fill Area 2? If so where is it intended that the sample will be taken from for this analysis?	Andrew Rumsby, EHS Support:  This has already been taken from DS2. We believe the results are valid for fill area 2.	
16.	Please clarify why Table 4-2 does not include a trigger value for zinc, noting that Table 4-2 has been incorrectly labelled as 4-1. It is assumed that the WETT analysis derived value determined for DS1 would be applied at DS2? There also needs to be some further discussion on confirming the WETT analysis derived value after FA3 and FA4 have been in operation i.e. further confirmation of the original WETT analysis.	Andrew Rumsby, EHS Support: Currently the WETT analysis only applies to the discharge as agreed with WRC. We are not proposing a downstream limit for zinc because of inputs of other sources. Therefore, Gleeson is proposing only to have limits for zinc in the discharge. The incorrect Table reference has been updated. Further confirmation of the WETT derived value may be included in a condition of consent. The ANZG 80% ecosystem protection guideline can be used for the consent condition.	
17.	Please provide further explanation of how the hardness modification will be applied to aluminium and chromium trigger limits. The ANZ methodology identifies that hardness modification can be applied to chromium (III) but	Andrew Rumsby, EHS Support: We are modifying total chromium and as discussed previously with WRC we do not expect Chromium (IV) to be present as Cr(IV) is present only in highly acidic/highly oxidising conditions. Current surface water testing is only for Total chromium and we are not reporting on different chromium species.	



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	doesn't specify its use for chromium (VI) or aluminium?	The hardness modifying factors for Aluminium are outlined in the US EPA documents.	
18.	Please provide an explanation of what value is to be set if background concentrations are found to exceed 80% of the ANZ 95% protection value after hardness correction for aluminium and chromium.	<p>Andrew Rumsby, EHS Support: The course of action will be discussed with WRC once the cause of the exceedance has been determined. (this is a hypothetical and will depend on what has occurred to what may be the appropriate course of action and the results of any resampling that has been undertaken).</p> <p>For instance, aluminium exceedance could be caused by colloid aluminosilicates being present, then analysis of aluminium using laboratory-based ultrafiltration techniques allow the analysis of dissolved species that are less than the 3000 molecular weight cut off fraction (3kMWCO) which is sometimes referred to as the truly dissolved fraction and is considered to be a better approximation of the liable (biologically activate fraction) than the 0.45 µm filter fraction. if inappropriate alum dosing is the problem then site procedures will be reviewed and modified as necessary. (this is similar to the approach adopted by BT Resources for exceedances of Al at Rotowhero Coal mine).</p> <p>The action for chromium exceedances would depend what the source was of the issue once that has been identified then Gleeson will develop an appropriate response plan in discussion with WRC.</p>	
19.	Please confirm how the Level 2 criteria for the underdrain storage tank water for Fill Area 3 is calculated. The SAP indicates that it is based upon an assumed removal efficiency of 50% and 15-fold dilution factor in the SRP. I note that this is on the assumption that the volume of water in	<p>Andrew Rumsby, EHS Support: See Updated SAP. There is more than 30-fold dilution within the pond, but a 30-fold dilution has been assumed to be conservative. Based upon 30 m<sup>3</sup>/(750m<sup>3</sup>+30m<sup>3</sup>) which gives a dilution factor of 38 times.</p>	



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	the pond is a minimum of 750 m <sup>3</sup> . While I agree with the proposed Level 1 criteria, I do not agree with the Level 2 criteria for copper, lead and zinc as even assuming a 25-fold dilution (i.e. 750 m <sup>3</sup> /30 m <sup>3</sup> ) and 50% removal due to alum dosing, the concentrations would still be above the DS1 discharge criteria. It would require a 30-fold dilution (900 m <sup>3</sup> ) to achieve the correct discharge criteria.		
<b>Erosion and Sediment Control Plan FA2 and FA4 (Southern Skies Environmental Ltd, dated 7 March 2022) pg 217 &amp; 836 and Phase 1 Erosion and Sediment Control Plan FA3 – Site Establishment and Initial Filling (Southern Skies Environmental Ltd, dated 7 April 2022) pg 851 <span style="color: green;">Response emailed 20 June 2022</span></b>			
20.	The ESCP for Fill Area 3 refers to a 75 m <sup>3</sup> tank which will be positioned at the discharge point of the wetland to collect discharged water until final discharge limits are established. Please confirm whether this is to allow for the proposed 20 rounds of baseline monitoring at DS2 in order to establish the aluminium and chromium trigger limits which are proposed to be interim to begin with? It is just not clear why this tank would be necessary.	<p>Michael Parsonson, Southern Skies Environmental: The discharge point will be at the outlet of the sediment retention pond. The additional treatment wetland is not required to achieve the anticipated and necessary sediment retention and water quality outcomes and is not proposed. An updated ESCP report and drawings is attached that removes any reference to wetlands.</p> <p>The tank provides additional storage and control for the collection and off-site disposal of water during the baseline monitoring and also in the event that water the sediment retention pond discharge did not meet discharge criteria. However, it is likely that the baseline monitoring will be completed before the site is established.</p>	
21.	The diagrams in the ESPC for Fill Area 3 are confusing and need more labelling and don't indicate where the treatment wetland will be placed and how it fits in with the SRP and 75 m <sup>3</sup> tank and final discharge to ephemeral stream.	<p>Michael Parsonson, Southern Skies Environmental: An updated ESCP report is attached that removes any reference to wetlands. They are not required to achieve the necessary sediment retention performance.</p>	



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		The drawings have been reviewed and labelled as necessary. See <b>Attachments H and I</b>	
22.	Both ESCPs for FA2&4 and FA3 refer to cleaning out of sediment when the SRPs are no more than 20% full. Please clarify whether this is referring to 20% of the pond volume based on sediment depth only i.e. when 20% of the pond volume is made up of sediment? If so it is assumed that there will be an easy way of measuring this?	Michael Parsonson, Southern Skies Environmental:  It is in accordance with the WRC guideline page 68 i.e. the latter and measured on the manhole riser.	
<b>Huntly Site and Fill Management Plan Rev 07, dated April 2022 pg 188</b>			
23.	Footnote at bottom of each page still refers to a 06 Version and 2021 date.	Thank you. Have updated to Rev 08 and changed date	
24.	The Waste Acceptance criteria Table 6 will need updating once EHS has amended some of the errors identified in Table 5 of EHS's AEE for the managed fill.	This table has been updated. Please see attached updated SFMP ( <b>Attachment G</b> )	
25.	Section 12.3 of the Application (pg 46) refers to Pre-Testing and Pre-Approval of Fill Material and refers to secondary testing of loads upon arrival to site (every 500m <sup>3</sup> , plus random testing and an annual audit – by samples and by x-ray). However, the Fill Management Plan does not provide any detail on this. Please provide detailed procedures regarding how secondary testing of loads, random testing and annual audit by lab analysis and XRF will be undertaken.	Andrew Rumsby, EHS Support:  This request is asking for more detail that is required for a hazardous waste landfill, therefore it is proposed that the exact methodology will be determined later. However, a Certified Environmental Practitioner will undertake the work in accordance with MFE Contaminated Land Management Guideline No. 5.  WRC Dr Caldwell Response 28 June 2022: <i>This is the sort of detail we have had in management plans for other managed fill sites. But I agree that it will provide confidence that it will be</i>	



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	<i>properly addressed if certified environmental practitioner undertakes work and in accordance with MfE CMLG No. 5.</i>	
<b>Draft Acid Sulphate Soil Management Plan by EHS, dated June 2022 Response emailed 20 June 2022</b>		
26. The plan identifies that runoff from the treatment pad will be piped to a holding pond sized for up to the 50 year storm event. The pond will be dewatered by pumping to the quarry pit when its pH is between 6 and 9. The pH will be monitored and buffered with caustic soda if required to ensure the pH range is achieved. Will there be any additional water quality analysis such as a metal and metalloid suite as additional confirmation?	<p>Andrew Rumsby, EHS Support: Michael Parsonson, Southern Skies Environmental: The ASS processing area is proposed to be 2500m<sup>2</sup>, with a pond a 362.5m<sup>3</sup> pond sized to contain runoff up to the 50 year ARI event. The pond is to be dewatered via pumping to the quarry, once the pH is confirmed to be 6 – 9.</p> <p>The groundwater flow to the quarry is in the order of 1350m<sup>3</sup> per day, based on modelling undertaken for the quarry expansion. Without any additional surface water input, this will provide a minimum dilution factor of 3.7 to 1.</p> <p>In addition, the quarry has a total catchment of 61.4ha, which includes approximately 20ha of pastured land to the south, and the approximately 12ha of vegetated quarry expansion area to the north. The ASS management area is 0.041% of that catchment.</p> <p>Thus, during a rain event that results in runoff, there will be significant additional dilution from catchment runoff.</p> <p>As described in the ASS Management Plan, the ASS processing site will be managed on a daily basis such that soils will be mixed and cleared from the site by the end of each day. In addition, importation will be controlled to avoid predicted high rainfall events.</p> <p>Consequently, the overall controlled discharge of water from the pond will always achieve significant dilution within the quarry prior to any discharge</p>	



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		<p>from the quarry as well as reduced risk of soil contamination, given that the site will be cleared of soil before significant rainfall events.</p> <p>For additional certainty, on-site testing of the discharge from the pond can be undertaken using a HACH D 3900 spectrophotometer.</p> <p>WRC Dr Caldwell response 28 June 2022: <i>I agree this should be sufficient and we can consider this as part of the monitoring, especially for metals like zinc that are particularly mobilised by acid sulfate soil environments. <b>So consider this s92 request addressed.</b></i></p>	
<b>Air Quality AEE and related management Plans Response emailed 20 June 2022</b>			
27.	<p>The Asbestos air monitoring programme, dated April 2020 on page 355 only contains the front page. The subsequent pages are all part of the Dust Management Plan dated February 2020 but with Asbestos air monitoring programme on the header of each page? Please clarify whether an Asbestos air monitoring plan is available and if so please provide a copy of it.</p>	<p>Kate Madsen, Paua Planning Ltd: In terms of the Asbestos Air Monitoring Plan, this is contained within section 7.7 of the Asbestos Fill Management Plan (see <b>Attachment J</b>). I believe it was suggested this information be extracted and placed into a separate Asbestos Air Monitoring Plan, so the cover page was created, however this was not completed as it was concluded that all details were already included in the Asbestos Fill Management Plan by PDP, dated August 2020.</p> <p>WRC response 28 June 2022: <i>I'm happy with either arrangement. Can stay in the Asbestos management plan if its easier. And happy with detail included on monitoring. <b>Consider this s92 request addressed.</b></i></p>	
<b>Erosion and Sediment Control Response emailed 20 June 2022</b>			
28.	<p>Considering the catchment size of Fill Area 4 being 5.21 ha being larger than Fill Area 2 which includes further treatment devices such as the</p>	<p>Michael Parsonson, Southern Skies Environmental:</p>	



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	Wetland treatment device, why are these methods not being adopted for Fill Area 4?	No wetlands are proposed or required to achieve the necessary level of water quality treatment. The proposal will meet the outcomes anticipated by WRC TR2009/02.	
<b>Groundwater Effects</b>			
29.	<p><b>Conceptualisation</b> Please provide a validation of the hydraulic properties listed in Table 2 of Appendix 10.1 Waste Acceptance Criteria Report. These are referenced as being from an ‘unpublished PDP report’ and have no supporting information (as fields sheets, monitoring locations etc). An explanation of who collected the data, under what methodology, when and how they were collected is required. As the only data of this type presented, they are critical to the assessment.</p>	<p>Please see <b>Attachment F</b>: Groundwater Memo provided by Parviz Namjou from PDP for responses to groundwater effects queries. No piezometers are installed in these bores to measure water levels. The water level if encountered is reported in the test pits logs. See PDP memo (PDP 2022).</p>	
30.	Please provide a conceptual cross section/s of the site that includes interpreted groundwater levels relative to the quarry, the fill areas, and receptors such as streams/wetlands/river.		
31.	Quarry dewatering – is this permanent and what is the radius of influence. If quarrying stops, will groundwater levels increase and would this affect any of the Fill areas? A cross section may be useful in assessing this risk.		
32.	There is no mention of groundwater strike on BH301 and BH302. Is this because no groundwater was encountered, or because it was not recorded?		



## WRC S92 REQUEST & RESPONSES –

### Gleeson Managed Fill Limited Resource Consent Application (APP144475)

Request for information		s92 Response	Close Out (Y/N) Comment
33.	There is reference to the potential for springs and seeps at least two of the Fill Areas in the GAIA geotechnical report. Has any further information on the presence of springs been obtained?	Kate Madsen, Paua Planning Ltd: The Section 13.3.1 of the AEE states that: 13.3.1 <i>The Ecological Impact Assessment report (Boffa Miskell, 2019) indicated that FA2 is part of the Lake Waahi and Lake Puketirini catchment. Fill Areas 3 and 4 are part of the Waikato River catchment. There are no permanent streams within the proposed fill areas. <b>Only ephemeral/intermittent streams are observed, indicating that the surface water bodies within the proposed fill areas are not fed by groundwater but by surface water runoff.</b></i>	
34.	Will activities (such as underdrainage) at any of the Fill Areas result in the loss of stream flow downstream from the Fill Areas? Noting the potential for drainage water from FA3 is to be trucked offsite if quality is not suitable for discharge to the streams. If so, has this been quantified (such as via a simple water balance model)?	Any loss of stream flow downstream of the Fill Area's is unlikely, as wherever possible, clean water runoff is being diverted from the Fill Areas and continues to discharge to the receiving environment. All drainage water within the Fill Areas flows to the SRP for treatment before discharging to the receiving environment – with some low-level evaporation from pond surfaces occurring (similar to existing ponded water within the Fill Areas). In regard to the deep-drainage required for FA3, initial investigations and testing have assessed the risk of contaminants in the soil exceeding the agreed WAC is very low, therefore the need to truck any water off site (rather than discharging to the SRP for treatment) is highly unlikely and will result in negligible loss of stream flow downstream of FA3. Should a regional consent be required in the future (to take water off site), this will be applied for separately.	
35.	There is limited documentation on the conceptual setting (geology/hydrogeology) assumptions adopted for the RBCA modelling. The model requires inputs such as groundwater depth and hydraulic conductivity. Please provide further information on the assumptions made to populate the model inputs.	Please see attached Groundwater Memo provided by Parviz Namjou from PDP for responses to groundwater effects queries. <b>Attachment F</b>	





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### Gleeson Managed Fill Limited Resource Consent Application (APP144475)

Request for information		s92 Response	Close Out (Y/N) Comment
36.	Is the RBCA assessment representative of the fate and transport of contaminants from all three proposed Fill Areas?	Andrew Rumsby, EHS Support: RCBA assessment representative of the F 7 T of contaminants of all site – the model assumes a thickness of contaminants of the total proposed volume. The volume just in the model was an earlier volume (about 3-4 years ago). I think what is being proposed is slightly less. RBCA does not model each fill area independently.	
37.	Does the RBCA model include the mine tailings contaminants present at FA3?	Andrew Rumsby, EHS Support: No, it is not possible to include that into the RBCA model – however the main contaminants of concern from the mine tailings is boron (which cannot be modelled using RCBA) and we have proposed to use only Auckland Background values.	
38.	Is the Waikato River is the most appropriate receptor given that the pathway to the river would be via the regional groundwater system. The general conceptualisation and geotechnical reporting indicates that the most likely pathway would be via shallow groundwater seepage to localised wetlands/streams/springs, then the Waikato River.	Please see attached Groundwater Memo provided by Parviz Namjou from PDP for responses to groundwater effects queries. <b>Attachment F</b>	
39.	What monitoring of groundwater is proposed?	Andrew Rumsby, EHS Support:/Parviz Namjou, PDP Ltd: None. We do not believe there is a sensitive groundwater receptor to warrant any groundwater monitoring.	
<b>Dewatering Fill Area 3</b>			
40.	The application includes dewatering Fill Area 3 by pumping subsoil drainage water into a tank. Please advise what your activity status assessment is for this activity and whether another resource consent is needed.	Section 3.2.3 of the AEE seeks a Regional Water Permit under Rule 3.6.4.13 for Diversion and subsequent discharge of water, as a discretionary activity.  <i>Where the diversion and subsequent discharge of water does not comply with Rules 3.6.4.6, 3.6.4.7, 3.6.4.8, 4.2.9.1, 4.2.9.2 or 4.2.9.3 any:</i>	



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	<p>1. ...,</p> <p>2. <i>Diversion of water</i></p> <p><i>Subsoil drainage will divert all ground and surface water/stormwater for discharge into the sediment retention pond before discharge into the natural environment (intermittent stream).</i></p> <p><i>In the case of FA3, shallow groundwater will be diverted to a tank for testing before being discharged to the SRP for treatment.</i></p> <p>Chapter 3.6 (in the background section) explains that:  <i>“Activities that are intended to lower the water table, such as land drainage, can result in the movement of water from lakes and wetlands. <b>This constitutes a diversion of ground and/or surface water.</b>”</i></p> <p>Therefore, it is assessed that the FA3 deep-drainage constitutes a diversion of groundwater for the purposes of drainage, with the water being ‘moved/diverted’ rather than ‘taken’. The tank is part of the ESC system proposed for FA3 and provides a safeguard to ensure that any subsoil water associated with the historic mine tailings is tested for contaminants before being safely discharged for treatment via the SRP before entering the receiving environment. Initial investigations/testing have indicated it highly unlikely that the diverted water will exceed the agreed WAC.</p> <p>If WRC disagree with this interpretation, it is requested that the suite of consent applications be amended to include a Water Permit (Taking of surface water as a zero net take) under Rule 3.3.4.23, as a discretionary activity. It is not considered that further assessment in this regard is required as the information provided to date provides sufficient assessment of effects.</p>	



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