



Epic Environmental Pty Ltd

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19 March 2024

Ref: BAA220014.01

Camilla Scott
Senior Environmental Officer
Department of Environment, Science and Innovation
GPO Box 2454 Brisbane QLD
Camilla.Scott@des.qld.gov.au

Dear Camilla

Subject: Responses to Mahalo North Pty Ltd A-EA-NEW-100521948 information request

Epic Environmental Pty Ltd (Epic) refer to the Information Request (IR) notice issued by the Department of Environment, Science and Innovation (DESI) on 31 January 2024 for the Environmental Authority (EA) Application (reference: A-EA-NEW-100521948), submitted for the Mahalo North Coal Seam Gas (CSG) project (the project).

On behalf of the Applicant, Comet Ridge Mahalo North Pty Ltd (Comet Ridge), Epic provides the following responses to the matters raised in the IR notice by DESI in **Table 1**.

Table 1. Responses to Information Request issued by DESI

No.	Information Request Items and Responses
General	
1	Information Requested by DESI: <u>Issue</u> An Environmental Management Plan is referenced in section 7.1.5.1 of the 'Supporting Information Report'. However, it is not provided in the application material. <u>Action required</u> 1. Please provide the Environmental Management Plan.
	Applicant response: It is in Comet Ridge's understanding that the submission of an Environmental Management Plan at this stage of the application process is not typically required for the assessment of an application. Our intention is to develop and provide a comprehensive Environmental Management Plan following the approval of the EA application. This approach will ensure that the Environmental Management Plan is tailored to the specific conditions and requirements stipulated in the site-specific EA approval, and to the specific area of the Petroleum Lease (PL). In saying that, a DRAFT copy of Comet Ridge's Environmental Management Plan has been provided in Appendix A , as stated, this will be amended on review of the awarded EA.

No.	Information Request Items and Responses																																																																
2	<p>Information Requested by DESI:</p> <p><u>Issue</u> Table 12 in Appendix D ‘Ecological Assessment Report’ predicts an overall 156.92 ha of vegetation clearing required for the project. Table 17 in the ‘Supporting information report’ predicts an overall 178.27 ha of vegetation clearing required for the project.</p> <p><u>Action required</u> 1. Please confirm the overall vegetation clearing required for the project. Include any required changes to the areas of the regulated vegetation that are proposed to be cleared.</p> <p>Applicant response:</p> <p>It has been identified that there was a discrepancy between the numbers reported in Table 12 of the Ecological Assessment Report and Table 17 of the Supporting Information Report. The correct proposed impact area is 178.27 ha, as opposed to 156.92 ha. This correction has been noted and update has been made to the Ecological Assessment Report provided in Appendix C. The revised information is included in the updated table below:</p> <p>Predicted vegetation clearing for project gas field infrastructure based on current layout</p> <table border="1" data-bbox="248 1016 1428 1249"> <thead> <tr> <th>RE</th> <th>Biodiversity (EP Act) Status</th> <th>Potential MNES habitat</th> <th>Proposed impact area (ha)</th> </tr> </thead> <tbody> <tr> <td>11.5.3</td> <td>No concern</td> <td>Koala, Squatter Pigeon, Ooline</td> <td>1.17</td> </tr> <tr> <td>Non-remnant (gilgais present)</td> <td>-</td> <td>Ornamental Snake, Grey Snake, Australian Painted Snipe</td> <td>0.89</td> </tr> <tr> <td>Non-remnant (other)</td> <td>-</td> <td>N/A</td> <td>176.21</td> </tr> <tr> <td>Overall area</td> <td></td> <td></td> <td>178.27</td> </tr> </tbody> </table> <p>Further to this adjustment, the table below provides the final calculations of the Ground-truthed Regional Ecosystems (RE) within the project area. This table is consistent with Table 7 of the updated EAR (refer Appendix C) attached to the letter.</p> <p>Ground-truthed REs within the project area</p> <table border="1" data-bbox="248 1447 1434 1944"> <thead> <tr> <th>Vegetation community</th> <th>RE</th> <th>Regulated vegetation category</th> <th>TEC</th> <th>EP Act (biodiversity) status</th> <th>Extent within Study area (ha)</th> </tr> </thead> <tbody> <tr> <td rowspan="5">1. Remnant Brigalow woodland</td> <td>11.3.1</td> <td rowspan="5">B</td> <td rowspan="5">Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)</td> <td rowspan="5">Endangered</td> <td>21.77</td> </tr> <tr> <td>11.4.8</td> <td>84.80</td> </tr> <tr> <td>11.4.9</td> <td>96.49</td> </tr> <tr> <td>11.4.9a</td> <td>36.65</td> </tr> <tr> <td>11.5.16</td> <td>76.59</td> </tr> <tr> <td rowspan="2">2. Regrowth Brigalow woodland</td> <td>11.4.8</td> <td rowspan="2">C</td> <td rowspan="2"></td> <td rowspan="2"></td> <td>3.57</td> </tr> <tr> <td>11.4.9a</td> <td>27.37</td> </tr> <tr> <td>3. Remnant Blackwood woodland</td> <td>11.4.8</td> <td>B</td> <td>N/A</td> <td>Endangered</td> <td>104.76</td> </tr> <tr> <td>4. Remnant Poplar Box woodland</td> <td>11.5.3</td> <td>B</td> <td rowspan="2">N/A</td> <td rowspan="2">No concern at present</td> <td>1,181.38</td> </tr> <tr> <td>5. Regrowth Poplar Box woodland</td> <td>11.5.3</td> <td>C</td> <td>289.05</td> </tr> </tbody> </table>	RE	Biodiversity (EP Act) Status	Potential MNES habitat	Proposed impact area (ha)	11.5.3	No concern	Koala, Squatter Pigeon, Ooline	1.17	Non-remnant (gilgais present)	-	Ornamental Snake, Grey Snake, Australian Painted Snipe	0.89	Non-remnant (other)	-	N/A	176.21	Overall area			178.27	Vegetation community	RE	Regulated vegetation category	TEC	EP Act (biodiversity) status	Extent within Study area (ha)	1. Remnant Brigalow woodland	11.3.1	B	Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)	Endangered	21.77	11.4.8	84.80	11.4.9	96.49	11.4.9a	36.65	11.5.16	76.59	2. Regrowth Brigalow woodland	11.4.8	C			3.57	11.4.9a	27.37	3. Remnant Blackwood woodland	11.4.8	B	N/A	Endangered	104.76	4. Remnant Poplar Box woodland	11.5.3	B	N/A	No concern at present	1,181.38	5. Regrowth Poplar Box woodland	11.5.3	C	289.05
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3	<p>Information Requested by DESI</p> <p><u>Issue</u> Appendix C' Groundwater Impact Assessment Report' models that, "<i>the predicted maximum magnitude of subsidence is approximately 2 mm (0.002 m) for the project Case, which is predicted to occur within the southwestern sector of the project area where the coals are deepest. For the Cumulative Case, the maximum predicted subsidence was 2 cm (0.02 m), however this occurred in association with the Mahalo development to the south where the coal seams are deeper and predicted drawdown is greater. In the Cumulative Case, the maximum predicted subsidence within the project area was roughly 10 mm (0.01 m)</i>".</p> <p>It is noted that the southwestern sector of the project area includes the Humboldt Creek and is mapped as strategic cropping area (SCA). Figure 7 'mapped areas of regional interests' highlights the portion of the project area with mapped SCA and overlays the proposed infrastructure within the SCA. It is suggested in the report that a RIDA will not be required for the project, however impacts to existing land use needs to be considered in the application.</p> <p><u>Action required</u></p> <ol style="list-style-type: none"> 1. What consultation has transpired with landholders, where project disturbance will intersect planned or existing cropping? 2. Please quantify the disturbance extent in hectares to cropping land. 3. Further information is required on the modelled subsidence predicted for the SCA area where there is proposed project disturbance. Provide a discussion on what impact subsidence may have on the local hydraulic regime and surface water flows to the Humboldt Creek and Rockland Creek. 4. Please provide detailed rehabilitation methods for proposed disturbance within the SCA. Further information should include a discussion on the management measures which will be implemented to minimise the impacts of the project on cropping land use. <hr/> <p>Applicant response</p> <ol style="list-style-type: none"> 1. Detailed discussions have occurred between Comet Ridge and the one potentially affected landholder, including adding words to the signed conduct and compensation agreement (CCA) for the project that include acknowledgement of the modelling showing the maximum magnitude subsidence expected. Comet Ridge has provided the landholder with a copy of the 'Mahalo North CSG Development Groundwater Impact Assessment – Final' report by RDM Hydro, dated 17 Nov 2023, which describes the extent and amount of modelled subsidence. The landholder was not concerned about possible subsidence, as the area is a flood plain that receives sediment depositions during periods of flooding. The area comprises of black cracking clay soil, and is ploughed regularly for dryland cropping (generally cereal crops). 2. There is 19.67 ha of strategic cropping land mapped within the project disturbance footprint. 3. The maximum magnitude of subsidence predicted is 2 cm in the Cumulative Case and 1 cm within the project area. Greater surface deformation will occur from activities such as cropping, cattle pugging, and driving light vehicles over paddocks than what is predicted to occur from CSG-related drawdown. There is therefore negligible potential for impacts on the local hydraulic regime if the maximum predicted subsidence materialises. 4. As the modelled subsidence is on private property, Comet Ridge has an agreement with the landholder to monitor the area, and to work with the landholder regarding any rehabilitation that may be required. As this is private property, the landholder will determine (in discussion with Comet Ridge) the methods they would like to use. Due to the small amount of modelled subsidence, and the continual ploughing of the cropping area for planting of crops, the landholder does not believe that subsidence will be an issue for their cropping practices, as they are continually disturbing the area

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	with ploughing and harvesting practices. It should also be noted that the area comprises of dryland cropping and not irrigated cropping.
4	<p>Information Requested by DESI</p> <p><u>Issue</u> The ‘Greenhouse Gas Assessment Report’ identifies that, “The project will contribute only a small fraction to national and State GHG emissions inventory at <0.0027% and <0.008% per annum respectively”.</p> <p><u>Action required</u> Please confirm whether this percentage is reflective of ‘scenario 1’ scope 3 emissions, where all CSG produced is combusted for domestic energy production.</p> <p>Applicant response</p> <p>The contribution percentages to the national and State GHG emissions inventory are specifically reflective of Scope 1 and Scope 2 emissions and do not account for Scope 3 emissions. The contribution of downstream scope 3 emissions is accounted for by the users of the product and therefore are not relevant to the emission inventory of this application. Further the demand for gas in the domestic market does not change because of this project approval, rather this project will provide another supply source to the domestic market. Therefore there is no net change to national or State GHG inventory as a result of Scope 3 emissions related to this project.</p>
5	<p>Information Requested by DESI</p> <p><u>Issue</u> The ‘Appendix D- Ecological Assessment Report’ states the export pipeline is out of scope for the application, as export pipeline alignments are still under investigation. Please note that when an amendment to an existing environmental authority is proposed, the significant residual impact (SRI) assessment relates to the cumulative impacts of the entire project – i.e. impacts proposed in both the existing authority and any additional impacts proposed in the amendment.</p> <p><u>Action required</u> Further information is required to clarify how produced gas will be connected to domestic supply. Further information should address any foreseen future expansions to the project area to accommodate pipeline transportation and whether these will be included as an amendment to the environmental authority or applied for as a separate environmental authority.</p> <p>Applicant response</p> <p>Comet Ridge is exploring two options for exporting gas for domestic supply, detailed as follows:</p> <p>Option 1. Comet Ridge is working with Jemena (pipeline development company) on a pipeline route located south of the project area. A document developed by Comet Ridge, titled ‘Comet Ridge Progressing Mahalo Gas Hub Development – Capital Raising Presentation’ is publicly available and presents this option (see page 10 of Appendix B). This pipeline route would be subject to a separate petroleum pipeline license (PPL) and a separate EA, and applied for and operated by Jemena. Comet Ridge and Jemena are in discussion with Santos, to share this pipeline route which traverses the Mahalo development (PL 1083 and PL 1082). This pipeline route would connect at the gas compression facility within the project area, so there would be no additional disturbance under the project’s EA. The pipeline route, outside of the project footprint, would be part of the PPL EA application. The pipeline route is approximately 80 km long, with approximately 2 km within the project’s footprint.</p>

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	<p>Option 2. Comet Ridge is in discussion with Denison Gas regarding connecting to their gas pipeline (PPL 10) at the Denison Gas gas compression facility. This would necessitate a point-to-point PPL with a separate EA, going west from the project's gas compression facility. This pipeline route is approximately 13 km long, of which approximately 8 km is within the project's footprint, and 4 km of that 8 km will share a gas gathering pipeline trench that is proposed for the project infrastructure activities, resulting in approximately 4 km of new pipeline easement required. To avoid any potential impact of environmentally sensitive areas (ESA) outside the boundary of the project, the pipeline crossings at Comet River will avoid disturbance by utilising horizontal directional drilling method.</p>
Flora and Fauna	
6	<p>Information Requested by DESI</p> <p><u>Issue</u> The surveys did not include the properties Memooloo and Struan. These properties are in the south-east of the development area and are proposed to have a combined 5 vertical wells and 5 lateral wells, gathering lines and new access tracks.</p> <p><u>Action required</u> 1. Please provide the survey reports relevant to the Memooloo and Struan properties to confirm the on-ground biodiversity values for this area which may be impacted by the proposed activity. Otherwise, please provide further information to justify why ecological surveys were not required for the properties.</p> <hr/> <p>Applicant response</p> <p>Terrestrial ecological surveys of Memooloo and Struan were not considered necessary at the time of application for the following reasons:</p> <ul style="list-style-type: none"> • Desktop assessments of Matters of National Environmental Significance (MNES) and Matters of State Environmental Significance (MSES) identified there are no environmental significance areas in proximity to the proposed well sites within the Struan and Memooloo properties. • The proposed wells are not planned to be drilled for a number of years after the development has occurred (8-10 years) • The proposed wells on both Struan and Memooloo are outlier wells (meaning they may not be drilled, and if so, they will be amongst the last wells to drill) <p>As the Qld Government regional ecosystem mapping is updated every two years (on average), it would be more appropriate to undertake on-ground biodiversity value assessments closer to the period that drilling may occur, as it is likely that environmental values may have changed over the timeframe.</p> <p>We would also like to note, that prior to any on-ground disturbance, a site inspection is undertaken by a suitably qualified and experienced ecologist to ensure that any mapped or previously identified areas of environmental significance are confirmed.</p> <p>Aquatic ecological studies were undertaken at three locations on Memooloo (as documented in the Appendix E – Aquatic Values Assessment', Figure 5 of the submitted Supporting Information Report).</p>
7	<p>Information Requested by DESI</p> <p><u>Issue</u> The survey identified the presence of the northern free-tailed bat <i>Ozimops lumsdenae</i> but has not provided information on how the identification of this species from the endangered large-eared pied bat <i>Chalinolobus dwyeri</i> was made. Without a good reference call data bank, these species can be difficult to differentiate.</p>

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	<p data-bbox="231 450 405 477"><u>Action required</u></p> <p data-bbox="231 483 1406 573">Information is required on the source of ultrasonic reference material and methodology used to distinguish bat vocalisation recordings and match to the identified species. Further information should detail how the echolocation calls of <i>Ozimops lumsdenae</i> were distinguished from those of <i>Chalinolobus dwyeri</i>.</p> <hr/> <p data-bbox="231 613 448 640">Applicant response</p> <p data-bbox="231 692 1426 1077">The calls were interpreted by Brett Taylor of Epic Environmental who has 15 years of ecological consulting survey experience. This includes attending a bat interpretation course run by Chris Corben (creator of the Anabat system) and 13 years of recording and cataloguing microbat calls across most of Queensland (excepting the far south-west and northern Cape York Peninsula). These calls are used by Brett as a reference library when interpreting calls from new surveys. Brett is a member of the Australian Bat Society and converses with Greg Ford (Balance Environmental) when a microbat call requires a second opinion. It is accepted that a bat call identification report was not appended to the Ecological Assessment Report. A reference call example of <i>Ozimops lumsdenae</i> collected during the survey is presented below. This is a 'moderate confidence call' as <i>Saccolaimus flaviventris</i> was also commonly present and the species calls can look similar – this call is considered to be of a call frequency above the general call range of <i>S. flaviventris</i> and there is no second or third harmonic on the full spectrum call (as is commonly the case with calls of <i>S. flaviventris</i>).</p>

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	<p data-bbox="231 1368 1305 1400"><i>Ozimops lumsdenae</i> recorded & April 2022 at 1:17:32 am – moderate confidence call (shown in F6)</p> <p data-bbox="231 1417 1436 1576">Indeed the two species call in a similar frequency range. But <i>Chalinolobus dwyeri</i> produces calls which alternate quite distinctly in frequency between each call. Pennay et al (2004) observe: “Can easily be distinguished from other species by the combination of the low frequencies and distinct pattern of alternation present in search phase calls”. In other words the calls between the two species can be clearly differentiated. No calls of this kind were recorded.</p> <p data-bbox="231 1594 1412 1917">This species is heavily associated with sandstone escarpments and adjacent fertile box gum woodlands (Woinarski et al. 2014). In Queensland they are known from the sandstone country associated with the Carnarvon and Expedition Ranges (over 100 km south of this project) and the Blackdown Tablelands (approximately 40 km to the east). ‘Eiether of these features without the other precludes the occurrence of the species’ (Baker and Gynther 2023). There appear to be no publicly available recent records from the Blackdown Tablelands with the only record being from 1981. There are also older records (1991-1992) from the Shoalwater Bay area (ALA 2024). The ‘current’ and ‘possible’ distribution mapping for the species as presented in the Australian Bat Society’s (an organisation with a decided scientific interest in microbat species) BatMap viewer shows the project area lies outside the range of the species: https://ausbats.maps.arcgis.com/apps/webappviewer/index.html?id=d6140e83fbe1488da74a9a5c62f81af0</p> <p data-bbox="231 1935 1428 2024">There is no preferred roost habitat (sandstone country) closer to the site than the Blackdown Tablelands. The overwhelming majority of the site has been cleared of vegetation with some patches of Poplar Box on land zone 5 (sandy soils of low fertility) present and Acacia communities. The lands between the project area and</p>

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	<p>the Blackdown Tablelands are also extensively cleared. The species did not present itself in the very conservative Protected Matters Search Tool result which had a 50 km search radius applied. There is little reason to believe the species would even possibly occur in the project area.</p>
8	<p>Information Requested by DESI</p> <p><u>Issue</u> The bat survey noted the presence of <i>Nyctophilus</i> spp. It is of importance to understand how Corben’s long-eared bat <i>Nyctophilus corbeni</i> was ruled out of this identification. The distribution of <i>N. corbeni</i> has been described within 30 km of the subject lands. This species has recently been taxonomically separated from long-eared bat <i>N. timoriensis</i> resulting in limited confirmed records and the potential underestimation of the species distribution. The presence or otherwise of both the large-eared pied-bat <i>Chalinolobus dwyeri</i> and Corben’s long-eared bat <i>Nyctophilus corbeni</i> is required to assess the impacts of the proposal and needs to be established prior to the SRI assessment.</p> <p><u>Action required</u></p> <ol style="list-style-type: none"> 1. Confirm the identity of the bat species noted on the project area and surrounding the project area. 2. Information is required to clarify why <i>Nyctophilus corbeni</i> was not identified in the project area, despite its nearby documented presence. 3. Should additional bat species be identified, complete an assessment of the impact the project may present on the species including an SRI assessment if required. <hr/> <p>Applicant response</p> <ol style="list-style-type: none"> 1. The bat species recorded as present via microbat call recording have been confirmed in Appendix C of the EAR. 2. As the commenter may know it is not possible (at this stage) to distinguish between the calls of bats species in the <i>Nyctophilus</i> genus. In the region of the project area <i>N. geoffroyi</i> and <i>N. gouldii</i> will occur. There is a minor chance <i>N. bifax</i> may also occur. It would be useful for the commenter to clarify the reference to ‘the distribution of <i>N. corbeni</i> has been described within 30 km of the subject lands’ (no DESI WildNet records of the species were noted within a 100 km radius of the centre of the site on a recent search – 2 February 2024) and why the recent separation (14 years ago now) of the species resulted in a ‘potential underestimation of the species distribution’. The taxonomic article associated with identifying the species doesn’t appear to state this? The DCCEEW approved conservation advice for the species does not state this anywhere (TSSC 2015). Although the DCCEEW’s distribution mapping for the species encompasses much of eastern central Queensland as lands in which the species ‘may occur’ (including the project area) the closest ‘likely to occur’ area is actually in the Expedition Range which is over 120 km south. The species is noted to be largely confined to the southern Brigalow Belt in Queensland (Reardon 2012; TSSC 2015) (the project lies well inside the northern Brigalow Belt Bioregion). The nearest publicly available database records (ALA 2024) are from the Blackdown Tablelands area with one record from 1998 (42 km northeast but with a high error margin on the record location of 20 km) and an 1883 record from further east (which is only listed as a ‘historical observation’). There are no other records located closer than the Expedition Range area to the south. The ‘current’ and ‘possible’ distribution mapping for the species as presented in the Australian Bat Society’s (an organisation with a decided scientific interest in microbat species) BatMap viewer shows the project area lies outside (albeit relatively close to) the possible range of the species: https://ausbats.maps.arcgis.com/apps/webappviewer/index.html?id=d6140e83fbe1488da74a9a5c62f81af0

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	<p>As is discussed in Table 10 of the EAR: Surveys suggest the species requires large tracts of forest to occur (Turbill et al. 2008). It occurs in a range of woodlands but the preferred habitat is mallee and <i>Callitris</i> woodlands and habitats that have a distinct canopy with a dense, cluttered understorey (Pennay et al 2011; Turbill & Ellis 2006). The overwhelming majority of the site associated with the project has been cleared of vegetation with some patches of Poplar Box woodland remaining and Acacia communities. The Poplar Box woodland has been impacted by canopy tree thinning presumably to 'improve' cattle grazing prospects (i.e. a distinct canopy is not present) and understorey vegetation is sparse at best across the entire site.</p> <p>The project area is outside the species known or possible range and does not support the habitat type or large tracts of woodland which the species is known to prefer. For the reasons described above the species was concluded as unlikely to occur and not subject to an assessment for SRI. Furthermore, the project proposes to clear an overall total of 1.17 ha of the disturbed Poplar Box woodland that is present. It is difficult to believe that an assessment would determine that a SRI would be possible on a population of <i>N. corbeni</i> (were the species to actually occur) given the very small area of disturbance proposed.</p> <p>3. No additional bat species to that provided in Appendix C of the EAR have been identified.</p>

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9	<p>Information Requested by DESI</p> <p><u>Issue</u> The ecological assessment report identifies no significant residual impacts to prescribed environmental matters (PEMs) engaged by the project. However, all PEMs impacted by the project require identification for authorisation on the environmental authority.</p> <p><u>Action required</u> Quantify the relevant impacted PEMs in table below as applicable to the project.</p> <hr/> <p>Applicant response:</p> <p>The relevant PEMs and the associated information are provided in the below table.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9d9d9;">Prescribed Environmental Matters (Schedule 2 of the Environmental Offsets Regulation 2014)</th> <th style="background-color: #d9d9d9;">Location of impact</th> <th style="background-color: #d9d9d9;">Maximum extent of impact of total area on site (ha)</th> <th style="background-color: #d9d9d9;">Significant residual impact (SRI) and Offset Required</th> </tr> </thead> <tbody> <tr> <td colspan="4">REGULATED VEGETATION</td> </tr> <tr> <td colspan="4">Endangered prescribed regional ecosystem – insert RE ID</td> </tr> <tr> <td colspan="3">None is identified within the project infrastructure footprint</td> <td>No</td> </tr> <tr> <td colspan="4">Of concern prescribed regional ecosystem (not within an urban area) – insert RE ID</td> </tr> <tr> <td colspan="3">None is identified within the project infrastructure footprint</td> <td>No</td> </tr> <tr> <td colspan="4">Prescribed regional ecosystems (not within an urban area) that intersect a wetland on the vegetation management wetlands map – insert RE ID</td> </tr> <tr> <td colspan="3">None is identified within the project infrastructure footprint</td> <td>No</td> </tr> <tr> <td colspan="4">An area of essential habitat (not in an urban area) on the essential habitat map for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a plant that is critically endangered wildlife, endangered wildlife or vulnerable wildlife – insert species name</td> </tr> <tr> <td>11.5.3</td> <td rowspan="2">PL1128</td> <td>1.17 ha</td> <td rowspan="2">No (refer to section 9.2 of the EAR in Appendix C for SRI result)</td> </tr> <tr> <td>Non-remnant (gilgai habitat)</td> <td>0.89 ha</td> </tr> <tr> <td colspan="4">For native vegetation clearing - 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No.	Information Request Items and Responses			
	None is identified within the project infrastructure footprint		No	
	A wetland of high ecological significance shown on the map of Queensland wetland environmental values – insert reference			
	None is identified within the project infrastructure footprint		No	
	A wetland or watercourse in high ecological value waters – insert reference			
	None is identified within the project infrastructure footprint		No	
	DESIGNATED PRECINCTS IN STRATEGIC ENVIRONMENTAL AREAS			
	Designated precinct in a strategic environmental area – insert reference			
	None is identified within the project infrastructure footprint		No	
	PROTECTED WILDLIFE HABITAT			
	An area that is shown as a high risk area on the flora survey trigger map and that contains plants that are critically endangered wildlife, endangered wildlife or vulnerable wildlife - insert area and species names			
	None is identified within the project infrastructure footprint		No	
	Prescribed Environmental Matters (Schedule 2 of the Environmental Offsets Regulation 2014)	Location of impact	Maximum extent of impact of total area on site (ha)	Significant residual impact (SRI) and Offset Required
	An area that is not shown as a high-risk area on the flora survey trigger map that contains plants that are critically endangered wildlife, endangered wildlife or vulnerable wildlife – insert area and species names			
	None is identified within the project infrastructure footprint		No	
	A koala habitat area			
	NA		No	
	Habitat for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a special least concern animal – insert area and species name			
	<ul style="list-style-type: none"> ● Ornamental Snake – Vulnerable ● Grey Snake – Endangered ● Australian Painted Snipe - Endangered 	PL1128	0.89 ha	No (refer to section 9.2 of the EAR in Appendix C for SRI result)
	<ul style="list-style-type: none"> ● Koala – Endangered ● Squatter Pigeon (southern) – Vulnerable ● Ooline - Vulnerable 		1.17 ha	
	PROTECTED AREAS			
	A protected area - national park (all classes)			
	None is identified within the project infrastructure footprint		No	
	A protected area – conservation park			
	None is identified within the project infrastructure footprint		No	
	A protected area – resources reserve			
	None is identified within the project infrastructure footprint		No	
	A protected area – special wildlife reserve			

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10	<p>Information Requested by DESI</p> <p><u>Issue</u> The application material states that the project will not disturb Environmentally Sensitive Areas (ESAs) or their protection zones. However, Figure 14 ‘mapped environmentally sensitive areas’ of the ‘Supporting Information Report’ depicts some indicative vertical wells and access tracks adjacent mapped Category (Cat) B ESA areas (as highlighted in yellow below).</p>																																				

No.	Information Request Items and Responses
	<p style="text-align: right; font-size: small;">Comet Ridge Mahalo North CSG Project Environmental Authority Supporting Information Report for a Petroleum Lease Figure 1- Mapped environmentally sensitive area</p>
	<p>Action required</p> <ol style="list-style-type: none"> 1. Please confirm the buffer distances between the mapped Cat B ESA on Figure 14 and the adjacent proposed disturbance. 2. Should the proposed disturbance impact the primary or secondary protection zone, please quantify the extent to which disturbance impacts within ESAs and their associated protection zones using the below table. These impacts should be listed against each protection zone trigger (i.e. Category B, Category C, and for each listing of ‘Essential Habitat’ or ‘Of Concern’, etc.). If certainty cannot be provided, justification should be provided that outlines appropriate risk management strategies to avoid impacts. <p>Applicant response</p> <p>It is noted the ESA mapping as depicted in the Information Request (Figure 4 of the EAR) is based on the Department of Resources (DoR) mapping and not the ground-truthed mapping layer. Much of the Category B ESA mapping (Endangered Regional Ecosystems (REs)) is the result of vegetation polygons representing mixed REs. It is noted that ‘applicants are encouraged to undertake ground-truthing surveys to accurately assess the RE type’ in the DES EP Act information sheet: <i>How to address environmentally sensitive areas and offset requirements in an application for an environmental authority for resource activities</i> (DES 2020).</p> <p>Ground-truthing of REs demonstrated that much of the vegetation is represented by RE 11.5.3 (No concern at present under the EP Act) and therefore is not considered to be a Category B ESA. Several polygons of vegetation communities considered Endangered under the EP Act were mapped as present following ground-truthing (RE 11.4.9, 11.5.16 and 11.3.1).</p> <p>Category C ESA mapping applicable to Figure 4 of the EAR is for essential habitat mapped for Ornamental Snake. The species is very much associated with Brigalow communities on cracking clay soils and particularly where gilgais occur. These communities usually occur on land zone 4 (such as RE 11.4.9) but may also occur on land zone 3 (RE 11.3.1) and sometimes land zone 5 (RE 11.5.16). It is not associated with eucalypt</p>

No.	Information Request Items and Responses																																														
	<p>woodland (Poplar Box) communities on land zone 5, such as 11.5.3 which dominates the study area. An analysis of the extent of the project footprint within the ESA protection zones (primary protection zone (PPZ) and secondary protection zones (SPZ)) is provided in table below.</p> <p>The project footprint has gone through a number of iterations which have considered the ‘protecting biodiversity values’ section of the EP Act guideline: <i>Streamlined model conditions for petroleum activities</i>. This includes:</p> <ul style="list-style-type: none"> Streamlined condition 4: the location of the petroleum activities have been preferentially selected to maximise the use of areas of pre-existing disturbance Streamlined condition 5: linear infrastructure corridors have been minimised in width to the greatest practicable extent with regard to identified areas of ecological value Streamlined condition 6: petroleum activities for the project have avoided Category A, B and C ESAs <p>Streamlined condition 7 observes: Essential petroleum activities may be undertaken in areas of pre-existing disturbance in the primary protection zones of Category B environmentally sensitive areas that are ‘endangered’ regional ecosystems and Category C environmentally sensitive areas, providing those activities do not have a measurable negative impact on the adjacent environmentally sensitive area.</p> <p>The entirety of the project footprint located within the mapped ESA protection zones is located in habitat cleared of vegetation for cattle grazing purposes. Some portions of these area have been subject to additional disturbance caused by blade ploughing.</p> <p>It is observed that the majority of the proposed disturbance in close proximity to the ground-truthed ESAs is associated with gas gathering lines. Where possible, the project’s infrastructure footprint will be located outside of the protection zones following detailed design and pre-clearance surveys. Disturbance in these areas, if any, will require temporary clearing for trenching and installation of gas pipelines. Following installation these areas will be revegetated back to the previous condition (cattle grazing pasture) and a minor service track will be maintained. Following completion of gathering line installation any disturbance to nearby communities will be negligible at worst.</p>																																														
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No.	Information Request Items and Responses					
		SPZ	Non-remnant	0.43	-24.0742, 148.5548	
			Non-remnant	0.76	-24.0586, 148.6515	
			Non-remnant	0.51	-24.0382, 148.6255	
			Non-remnant	0.61	-24.0197, 148.6163	
			Non-remnant	0.70	-24.0731, 148.6093	
	Lateral wells ²	PPZ	Non-remnant	0.81	-24.0698, 148.5525	
			Non-remnant	1.00	-24.0392, 148.6187	
	Vertical wells ²	SPZ	Non-remnant	0.19	-24.0696, 148.5529	
		PPZ	Non-remnant	0.13	-24.0376, 148.6238	
			Non-remnant	0.03	-24.061, 148.6451	
		SPZ	Non-remnant	0.87	-24.0372, 148.6237	
			Non-remnant	0.54	-24.0214, 148.6201	
	Total				14.58	

¹ All areas that are PPZ or SPZ underlying the project disturbance footprint have previously been disturbed for agricultural activities or have been ground-truthed to be non-remnant.

²The final well design will be refined to ensure that no wells will be located within the PPZ and will be field-verified by a suitably qualified ecologist.

11 Information Requested by DESI

Issue

The Appendix D section 7.1.8.1 ‘construction impacts’ states that pipeline crossings may be required at Humboldt Creek.

It must be noted that Cat B regulated vegetation within the defining distance to a defined bank of a watercourse or drainage line is considered a prescribed environmental matter.

Action required

Provide the confirmed defined bank for the Humboldt Creek and other watercourses or drainage lines which will be disturbed from the activity and apply the defining distances.

Confirm the structural category of the creek and proposed width of clearing.

Regardless of whether an SRI will occur, the extent of the impact to the PEM must be quantified, please refer to item 6.

Applicant response

Within the project boundary there are two types of watercourses that will require crossing, including:

- Humboldt Creek (Stream Order 5)
- Minor unnamed watercourses (Stream Order 1 & 2)

For Humboldt Creek no regulated vegetation has been identified within 100 m of the mapped watercourse that will be impacted by the project’s activity. Furthermore to avoid disturbance, pipeline crossing of Humboldt Creek will be horizontal directional drilling.

None of the minor unnamed watercourses contain regulated vegetation within 25 m of the mapped watercourse will be impacted by the project’s activity. If instream construction impacts are required:

No.	Information Request Items and Responses
	<ul style="list-style-type: none"> • The pipeline corridor will have a maximum clearing width of 8 m (perpendicular to the watercourse) • Any trenching will be temporary and occur during the dry season to minimise the impact of sediment entrainment during rainfall associated flow events. <p>Based on the above, no impacts to protected environmental matters as a result of watercourse crossing are anticipated by the project.</p>
Noise	
12	<p>Information Requested by DESI</p> <p><u>Issue</u> There is a very high probability that the noise monitoring results presented in Table 4-4 is impacted from wildlife, possibly insects. This can be seen in the comparison of L_{A90} values across the time period, and how it increases in the evening period significantly. Background levels in the evening and night periods (without the influence of wildlife) in a remote location as such should decrease to a level far below that presented in this table. Insect and wildlife noises do elevate the ‘logged levels’, however, they generally do not contribute towards annoyance to human environment. It is considered best practice to remove insect noise from consideration of the background noise, so as to not elevate noise assessment results for the background noise level.</p> <p><u>Action required</u> Please provide a spectral analysis of the noise monitoring. If it is demonstrated that the noise monitoring results are impacted from insect noise, provide a noise assessment with adjusted background noise values.</p> <hr/> <p>Applicant response</p> <p>A revised Noise Assessment Report has been provided in Appendix D to include updated noise models in response to DESI’s concern over potential impact of insect noise on the measured L_{A90} noise levels.</p> <p>The noise loggers at the two Struan receptors included L_{eq} spectral analysis, however the logger at Meroo Downs does not have spectral analysis. An analysis was undertaken to calculate a corrected L_{A90} noise level. It is not appropriate to simply remove a portion of the spectrum to account for insect noise as this will be removing noise information that is associated with things other than insects. As the spectrum noise levels were L_{eq}, the L_{eq} spectra were used to create a correction value to adjust the L_{A90} down to account for excessive high frequency noise associated with insects.</p> <p>To correct for an excess of high frequency noise which is typically associated with insect noise, the spectrum above 2kHz was replaced with the 20th percentile spectrum above 2kHz of the monitoring period. The difference between the corrected and non-corrected spectra was used as a correction to the L_{A90}. This ensures that where excessive high frequency noise levels were present in the measured L_{A90}, the high frequencies will be removed in the corrected value. The corrected L_{A90} was used when reporting the L_{A90}, and in determination of the Rating Background Level for each site.</p> <p>As there was no spectral data for Meroo Downs, the correction from the nearest site (Struan Ringers) was adopted for this site as the most appropriate within the available data. This is to say, that for each 15 minute measurement period, the difference between the measured L_{A90} and the corrected L_{A90} was applied to the measured L_{A90} from Meroo Downs, which resulted in a corrected L_{A90} for Meroo Downs. The full noise monitoring charts in Appendix A of the Noise Assessment Report show both the measured and corrected L_{A90} values.</p>

No.	Information Request Items and Responses
	<p>Additionally, changes have been made to the project's machinery since the initial assessment, with different models for the engine and reciprocating compressor now specified. Details of these updated models are listed in Table 5-2 of the report. The assessment concludes that the construction activities will be in compliance with the required noise limits without the requirement of any specialised noise mitigation treatments. The operational phase of the project will require some standard noise mitigation treatments to be applied to ensure compliance with site specific noise criteria. The site specific criteria for each of the sensitive receptors have been amended based on the updated noise models, and are provided in Section 4.4 (Table 4-5, 4-6 and 4-7) of the Noise Assessment Report.</p>
Air	
<p>13</p>	<p>Information Requested by DESI</p> <p><u>Issue</u> Table 1 of the Air Report lists the ambient air quality objectives for <i>Environmental Protection (Air) Policy 2019 (EPP (Air))</i> and the <i>National Environment Protection (Ambient Air Quality) Measure (Air NEPM)</i>. The Air NEPM values presented for NO₂ and CO have been superseded by the updated objective in 2021. The latest Air NEPM emission standards consider emerging evidence about the health impacts of NO_x and other emissions, as reported by the World Health Organisation.</p> <p><u>Action required</u></p> <ol style="list-style-type: none"> 1. Please provide a discussion on how the activity emissions will contribute to the best practice ambient emission concentrations in line with the most recent NEPM values. <hr/> <p>Applicant response</p> <p>An updated Air Quality Assessment report has been provided in Appendix E. Both the initial assessment report (June 2023) and the revised assessment report (March 2024) presented the air quality objectives and standards as specified in the:</p> <ul style="list-style-type: none"> • <i>Environmental Protection (Air) Policy 2019 (EPP(Air))</i> • <i>National Environment Protection (Ambient Air Quality) Measure 2021 (Air NEPM)</i> <p>The air quality objectives are in line with the latest standards set by the EPP (Air) and Air NEPM, as discussed in Section 3 and Table 2 of the revised assessment report. Predicted ground-level concentrations are compared to these values in Table 8 of the report.</p>
<p>14</p>	<p>Information Requested by DESI</p> <p><u>Issue</u> Appendix G- 'Air Quality Assessment'- provides an air quality technical report for the project but includes no details on emission controls. The report uses a NO_x emission rate of 6.15 g/s for each of the engine parameters for the gas compressing equipment. This is substantially above emission rates that could be considered best practice. For comparison, the US performance standard for NO_x for engines of this type is 2g/hp/hr. The emissions rate proposed is equivalent to approximately 11.65 g/hp/hr. The EU directive 2015/2193 would place a limit of 190 mg/Nm³ for new engines, and the standard of concentration under the NSW Protection of the Environment Operations (Clean Air) Regulation 2021 is 450 mg/m³ at 3% O₂. Further, the report uses a CO emission rate of 4.80 g/s for each of the engine parameters for the gas compressing equipment. The standard of concentration for CO emissions for engines of this type under the NSW Protection of the Environment Operations (Clean Air) Regulation 2021 is 125 mg/m³ at 3% O₂.</p>

No.	Information Request Items and Responses																														
	<p>Action required</p> <ol style="list-style-type: none"> In order to develop reasonable conditions, please identify what NO_x controls will be put in place to ensure that best practice emission rates can be achieved. For each of the release points proposed, complete the Table-Point source air release limits as shown below. 																														
	<table border="1"> <thead> <tr> <th>Release point and description</th> <th>Min. release height above ground (m)</th> <th>Min. velocity (m/sec)</th> <th>Min. temperature (°C) <delete if not applicable></th> <th>Contaminant</th> <th>Max. concentration release limit (g/s)</th> <th>Max. mass release limit <delete if not applicable></th> <th>Monitoring Frequency</th> </tr> </thead> <tbody> <tr> <td><i>Example</i></td> <td>5</td> <td>37.56</td> <td>852K</td> <td>CO</td> <td>4.8 g/s</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							Release point and description	Min. release height above ground (m)	Min. velocity (m/sec)	Min. temperature (°C) <delete if not applicable>	Contaminant	Max. concentration release limit (g/s)	Max. mass release limit <delete if not applicable>	Monitoring Frequency	<i>Example</i>	5	37.56	852K	CO	4.8 g/s										
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	<p>Applicant response</p> <p>The two engines proposed to power equipment at the GCF have been revised since the June 2023 assessment. Equipment at the GCF will be powered by two Waukesha 7044 Generation 5 gas compressors fitted with emissions controls in the form of a 3-way catalyst and silencer. The 3-way catalyst and silencer will significantly reduce emissions of key pollutants to air compared to the units assessed in the June 2023 assessment.</p> <p>The Waukesha engines assessed in the June 2023 assessment had an exhaust concentration of 4,648 mg/Nm³ @ 7%O₂ for NO_x, and 3,634 mg/Nm³ @ 7%O₂ for CO.</p> <p>For the revised March 2024 assessment, the post-treatment NO_x emission concentration in the exhaust of each of the Waukesha engines is 372 mg/Nm³ @ 7%O₂. The post-treatment CO emission concentration is also 372 mg/Nm³ @ 7%O₂.</p> <p>A buffer of 15% has been applied to the exhaust concentration of NO_x and CO for use in the air quality assessment and recommended EA Condition licence limits. The increase in the exhaust NO_x concentration to 428 mg/Nm³ @ 7%O₂, and the CO concentration to 428 mg/Nm³ @ 7%O₂, is to allow for any degradation in the equipment over time to ensure the equipment remains compliant with limits specified in the licence.</p> <p>Actual emissions of NO_x and CO from the Waukesha units will be below the concentrations specified. The assessed post treatment NO_x emission concentration in the exhaust of each of the Waukesha engines of 428 mg/Nm³ @ 7%O₂ is below the following referenced best practice values:</p> <ul style="list-style-type: none"> The European Union (EU) directive 2015/2193 of 190 mg/Nm³ @ 15%O₂ The NSW Protection of the Environment Operations (Clean Air) Regulation 2022 of 450 mg/Nm³ @ 7%O₂ <p>Whilst the assessed post treatment CO emission concentration in the exhaust of each of the Waukesha engines of 428 mg/Nm³ @ 7%O₂ is above the NSW <i>Protection of the Environment Operations (Clean Air) Regulation 2022</i> standard of 125 mg/Nm³ @ 7%O₂, the implementation of the emissions control technology on the units has resulted in a significant reduction in emissions of both NO_x and CO, and NO_x, the key</p>																														

No.	Information Request Items and Responses																						
	<p data-bbox="233 416 1409 510">pollutant of interest, satisfies the relevant emission standard limits. In addition, the results of the air quality assessment show that the predicted maximum incremental ground-level concentrations of CO due to the project are, at most, 0.07% of the EPP (Air) objective and Air NEPM standard.</p> <p data-bbox="233 544 1437 638">The recommended Conditions of Approval in relation to air for the project informed by the results of the air quality assessment are provided in Section 8 of the revised Air Quality Assessment report. Conditions relate to release points and contamination limits to air are provided below and in Table 7 of the report.</p> <table border="1" data-bbox="233 672 1398 1059"> <thead> <tr> <th data-bbox="233 672 373 869">Release point</th> <th data-bbox="373 672 541 869">Release point and source description</th> <th data-bbox="541 672 655 869">Minimum release height (metres above ground)</th> <th data-bbox="655 672 770 869">Minimum efflux velocity (m/s)</th> <th data-bbox="770 672 922 869">Minimum exit gas temperature (°C)</th> <th data-bbox="922 672 1091 869">Contaminant</th> <th data-bbox="1091 672 1254 869">Max. concentration release limit (g/s)</th> <th data-bbox="1254 672 1398 869">Minimum monitoring Frequency</th> </tr> </thead> <tbody> <tr> <td data-bbox="233 869 373 1059">GCF unit 1 and unit 2</td> <td data-bbox="373 869 541 1059">GCF engine exhaust stack, exhaust pipe discharge</td> <td data-bbox="541 869 655 1059">5.0</td> <td data-bbox="655 869 770 1059">39.33</td> <td data-bbox="770 869 922 1059">585</td> <td data-bbox="922 869 1091 1059">NO_x</td> <td data-bbox="1091 869 1254 1059">428 mg/Nm³ @ 7% O₂ (dry)</td> <td data-bbox="1254 869 1398 1059">Annually for three years from commission</td> </tr> </tbody> </table>							Release point	Release point and source description	Minimum release height (metres above ground)	Minimum efflux velocity (m/s)	Minimum exit gas temperature (°C)	Contaminant	Max. concentration release limit (g/s)	Minimum monitoring Frequency	GCF unit 1 and unit 2	GCF engine exhaust stack, exhaust pipe discharge	5.0	39.33	585	NO _x	428 mg/Nm ³ @ 7% O ₂ (dry)	Annually for three years from commission
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No.	Information Request Items and Responses
Surface water Impacts	
15	<p>Information Requested by DESI</p> <p><u>Issue</u> The Environmental Values (EVs) for the Comet River Sub-Basin waters in Table 5 of section 3.6 ‘environmental values and water quality objectives’ indicates that ‘primary and secondary recreation’ as well as ‘cultural and spiritual values’ are relevant to the proposed activities. No further information was provided detailing if there are any Native Title claims over the project area and what considerations have been made to accommodate cultural and spiritual environmental values.</p> <p><u>Action required</u></p> <ol style="list-style-type: none"> 1. Please confirm if other types of surface water uses such as “recreation” and “cultural and spiritual uses” were considered in the assessment. If no consideration was given, assess impacts of the project on those types of water uses. 2. Please provide further information on the project impacts to cultural and spiritual environmental values of surface and groundwater and explain how cultural values will be protected. <hr/> <p>Applicant response</p> <p>Comet Ridge would like to confirm that there are no Native Title claims over the project area (PL 1128). The Comet River has un-claimed Native Title, as it is a creek/river boundary, however it should be noted that the Comet River is not within the project’s footprint.</p> <p><u>Action item 1</u></p> <p>As the Comet River is an ephemeral river, it does not flow continuously throughout the year. Comet River only holds some water in isolated pools and only flows through private properties. Comet Ridge acknowledged that the values in Table 5 of the Surface Water Report are relevant to the proposed activities, despite the report not addressing this specifically.</p> <p>Based on general conversation between Comet Ridge and the landholders, the main recreational uses of the Comet River includes fishing, swimming in water holes, hunting wild pigs, and having picnics under the trees, mainly when their children were younger. Comet Ridge does not prevent access to any water bodies as it does not own the relevant properties. Access to the properties is granted by virtue of a CCA, and there are no restrictions on access for recreational purposes. Mitigation and management controls are in place (as discussed in the Supporting Information Report and technical reports). These measures include, but are not limited to, ensuring no release to waters, implementation of erosion and sediment control (which prevents increases to turbidity of waters), and chemical storage and management, thereby mitigating any potential damage to the areas used for recreational purposes. Based on the above, the project activities will not impact on ‘recreation’ values along the Comet River.</p> <p>In regard to cultural and spiritual uses, again, the properties are privately owned, and Comet Ridge does not restrict anyone’s access to the properties. It is a matter for the landholder to determine who is allowed entry. Additionally, the construction of project infrastructure including well site locations and gas gathering lines will be surveyed by Cultural Heritage (CH) advisors prior to any land or vegetation disturbance in accordance with the <i>Queensland Aboriginal Cultural Heritage Act 2003</i>. Should CH artifacts or areas of CH significance be identified, these will be managed in discussions with the appropriate CH group (as there is no Native Title claimants, Comet Ridge works with the relevant CH claimant groups).</p> <p><u>Action item 2</u></p>

No.	Information Request Items and Responses
	<p>The project area covers parts of four properties, which are freehold properties where no Native Title claims exist. A small section of Humbolt Creek (approximately 2 km) transects the southwestern area of the project. A previous search of the Qld Gov Cultural Heritage database identified 13 cultural heritage finds (dated from 2013) located in two areas adjacent to the road easement. No cultural heritage finds were identified on any of the properties within the project area.</p> <p>As discussed in the submitted document ‘Appendix C – Groundwater Impact Assessment Report’, the Executive summary states that “It is concluded that the Mahalo North Project will not have a significant impact on water resources’. Water resources includes groundwater resources, groundwater dependent assets and groundwater environmental values, not just in the project area but also in the catchment area. Also, the submitted report ‘Appendix E – Aquatic values assessment report’, talks to how Comet Ridge will manage and mitigate any impacts on ground and surface waters (including ground water dependent ecosystems). As such, Comet Ridge believes that the assessments undertaken and the mitigation methods proposed, indicate that there will be no project impacts to cultural and spiritual environmental values of surface and groundwater, and that these values will be protected.</p>

Please do not hesitate to contact Comet Ridge using the contact details provided below if you have any further queries in relation to this response to the IR Notice.

Comet Ridge Limited

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Yours sincerely

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