

# MEMO



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To: Department of Primary Industries and Resources

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From: Brent Murdoch, Director & General Manager Australia,  
Vista Gold Australia Pty Ltd

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Date: August 2020

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Subject: Responses to MMP RFI

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This memo has been prepared to address the major outstanding matters identified by the Department of Primary Industry and Resources (DPIR) and to provide detail on where the request has been addressed in the MMP and/or its appendices.

The responses made in this document include outcomes from the workshop between Vista Gold and its consultants, and the Department of Primary Industry and Resources (DPIR) on 8 and 9 April 2020.

A number of documents have been attached to this RFI response memo to ensure that all requested information has been provided and where items may not have been directly addressed in the MMP or its appendices.

## **RFI Response Attachments**

<b>Attachment V1</b>	VB07 and VB08 clarification
<b>Attachment V2</b>	Memorandum RE: Stability of pit walls wrt the WRD (Ken Rippere 2019)
<b>Attachment V3</b>	Letter from DENR re: Variation to the EIS – consideration under Clause 14A
<b>Attachment V4</b>	TGI team CVs for TSF1 Review
<b>Attachment V5</b>	Geotechnical investigations borehole and test pit locations
<b>Attachment V6</b>	Receiving Environment Monitoring Program (REMP)
<b>Attachment V7</b>	Professor Jenny Davis – Statement of independence and CV
<b>Attachment V8</b>	Review of the 2017 REMF undertaken by Professor Jenny Davis
<b>Attachment V9</b>	Jill Woodworth – Statement of independence and CV
<b>Attachment V10</b>	Request for Further Information and Extension of Decision on Approval Timeframe – Mt Todd Gold Mine
<b>Attachment V11</b>	WDL 178-6 Amendment Request
<b>Attachment V12</b>	A Review of Hydrogeological Report – Factual Report (GHD)

#	Domain	Issue with Information in Current MMP	Vista Gold Must Provide and/Ensure:	Vista Gold Response / Section Addressed
1	Waste Rock Dump (WRD)	<p>There are a number of inconsistencies in the MMP documentation regarding the design and end landform of the WRD. These inconsistencies include, but are not limited to:</p> <ul style="list-style-type: none"> <li>WRD height: several appendices refer to a 300m high structure and nine 30m lifts; however, the MMP indicates a height of 160m.</li> <li>WRD shape: several appendices refer to the pyramidal water shedding shape and 3H:1V slope for closure; however, other information provided indicates a mesa shaped structure with 1.5H:1V slopes.</li> <li>WRD footprint: there appears to be no change in the area to be covered by the WRD from the EIS to the MMP, i.e. ~217ha. However, figures depicting the shape of the footprint vary. Further to this there is inconsistency regarding the watercourses to be affected by the WRD footprint.</li> <li>The location and extent of geo-synthetic clay liners (GCL): Width of the GCL varies between 15m, 25m and 52m. It is also unclear whether the WRD haul ramps will be covered with the GCL.</li> </ul> <p>The above inconsistencies therefore influence the ability of this Departments Mining Officers to determine the adequacy and reliability of information contained in related topics e.g. water balance, stormwater management, seepage management etc.</p> <p>In addition to the above inconsistencies, there is insufficient information regarding the WRD construction methodology including QA/ QC procedures during construction, base layer preparation and proposed dumping method.</p>	<p>An independent expert review of all aspects of the WRD and cover system design by an independent expert approved by the Department. The review should also cover WRD construction methodology to demonstrate that the proposed methods will not result in particle size segregation, differential compaction and settlement and not compromise the performance of the WRD.</p> <p>A letter of endorsement by the independent expert that outlines issues with the design and clearly state any relevant conditions or recommendations associated with the endorsement and any additional comments made during the assessment.</p> <p>A commitment to adopt the conditions and/or recommendations made by the independent expert and refer to the relevant section of the MMP where these conditions and/ or recommendations have been incorporated into the site management system.</p> <p>Justification, where a condition and/or recommendation made by an independent expert, that has not been accepted by Vista Gold.</p> <p>Clarity of the shape and area to be covered by the WRD supported by the submission of spatial data.</p>	<p>To confirm, the following is correct for the WRD:</p> <ul style="list-style-type: none"> <li>The WRD's height will increase from its current height of RL 24 m to approximately RL 160 m. Previous issues were due to inconsistencies between the use of RL and elevation above sea level. The maximum elevation of the WRD will be approximately 290 m elevation.</li> <li>The waste rock will be stacked in 30 m lifts at angle of repose (34 degrees or approximately 1.5H:1V) on the exterior slopes. An 8-m wide bench will be left on the dump's exterior between each 30-m lift.</li> <li>The WRD footprint will expand from 70 ha to 217 ha, providing a total waste rock storage capacity of up to 485 million tonnes (Mt) (noting that the current mine plan only envisions requiring 440 Mt of storage). There are no residual surface drainage channels overlaid by the WRD footprint. The WRD will be bounding West Burrell Creek to the West and the ridgeline on the East.</li> <li>Stormwater is managed off the WRD before utilizing the natural drainage channels. The design ensures there is no interaction between PAF and stormwater</li> <li>An innovative closure approach will be implemented, incorporating the use of low permeability liner (either GCL or linear low-density polyethylene [LLDPE]) to minimise meteoric infiltration and oxygen ingress to the PAG materials within the WRD. The liners will be placed on top of each completed 30-m waste rock lift and will be extended approximately 52 m into the dump to intercept seepage within the WRD and route it to the external 8-m wide benches on the WRD exterior. The liners serve an integral function in WRD closure. The intent of the design is to have the GCL under the WRD haul road (with a 0.3m and 1m buffer). The length of the GCL extends longer than the 52m that is typical. The GCL extends the full length under the haul road and passes through ventures.</li> </ul> <p>The MMP and it's appendices have been updated, where required, to ensure consistency with the design and end landform as per the above.</p> <p><b>Attachment R2 - Cover Trials Design and Monitoring Procedure</b> (Tetra Tech 2020) provides a cover trial design, and instrumentation and monitoring procedure for trial sections of the WRD where Vista's preferred WRD cover (i.e., petticoat cover) will be installed during concurrent reclamation.</p> <p>Attachment A to <b>Attachment A8 – Reclamation Plan</b> provides a conceptual cover seepage model prepared by Tetra Tech (May 2020).</p> <p>Tierra Group International Limited (TGI) have prepared the Mt Todd Waste Rock Dump Closure Assessment Report which is an independent review of the proposed approach to closing the WRD (<b>Attachment R1</b>). This document proposes a number of recommendations for additional studies and investigations which are recommended to occur as the detailed design progresses. Vista Gold is committed to undertaking additional studies and investigations as part of the detailed design process.</p> <p><b>Appendix R – Closure Plan</b> contains a summary of the closure and end landform of the WRD.</p> <p>Spatial data, including for the WRD, has been submitted with the MMP.</p>
2	Waste Rock Dump (WRD)	<p>The waste classification system presented is incorrect and inadequate. Vista used incorrect criteria to define PAF. Further, although Appendix H: <i>Waste Rock and AMD Management Plan</i></p>	<p>An updated Waste Rock and AMD Management Plan that details the waste classification system. The plan and the</p>	<p>The Waste Rock and AMD Management Plan (<b>Appendix F</b>) has been updated to include additional detail on waste rock classification, operational controls to</p>

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		<p>(PDF P. 16/40) specifically requires segregation of the NAF based on arsenic (As) content, this was not presented in the waste classification criteria.</p> <p>The incorrect classification criteria has been carried through the EIS assessment phase and into the MMP preparation phase, and it appears that neither NT EPA or Vista's expert consultants picked up on this error. It is possible that a revised waste rock classification will reduce the volume of benign material available for construction.</p> <p>This is especially important given the decrease in height of the WRD from 350m to 160m as the material that was to be stored within the WRD is now proposed to undergo screening via XRT with all material exceeding 1% sulfur being processed for gold extraction and all material under 1% sulfur being isolated and used as capping material.</p> <p>Further to the waste classification system, Appendix G: <i>Geochemical Characterisation Program</i> (p. 9) indicates that samples used to investigate the geochemical spatial variability of three lithological units were obtained from two drill holes (VB07 and VB08). Vista Gold has not demonstrated that these two holes are representative of the geochemical spatial variability.</p>	<p>system must be reviewed and revised by an appropriately qualified and experienced person.</p> <p>The review, including the assessment of the waste characterisation methodology to demonstrate that the data used is representative of the waste material expected to be encountered during excavation operations.</p> <p>Additional detail on the field characterisation methodology to demonstrate how materials will be categorised in-situ and describe relevant QA/ QC procedures.</p>	<p>safeguard the environment, as well as details on the placement of waste rock and closure of the WRD.</p> <p>Edits to the plan ensure consistency with the Preliminary Feasibility Study (Tetra Tech 2019), Preliminary Feasibility Mine Study Update (MDA 2020) (<b>Appendix A2</b>), and Waste Rock Dump Closure Assessment Report (TGI 2020) (<b>Appendix R1</b>).</p> <p><i>Section 4.4.6 Waste Rock Characterisation and Management</i> of the MMP has been updated to ensure consistency with the above documents.</p> <p><b>Attachment V1 – VB07 and VB08 testwork clarification</b> has been provided to clarify that the testwork was not carried out on two holes only, the testwork was carried out on selected samples from 31 differing drillholes.</p> <p>This misunderstanding has occurred due to the Vista Gold drill-hole numbering system, the two letters represent the drillhole project location (in this instance VB = Batman) and the numerals represent the year that the hole was drilled (07 = 2007 and 08 = 2008). The report is hence referring to drillholes that were drilled in 2007 and 2007 at Batman Pit. Absent are the final three digits that give the hole number in the as-drilled sequence.</p> <p>Sample section was evenly and well distributed throughout the waste portion of the planned Batman Pit and represents a fair sample of the proposed waste material.</p>
3	Waste Rock Dump (WRD)	As previously raised with Vista Gold, the structural integrity of the WRD and the pit is of concern. It has been determined that the distance between the proposed pit shell and the proposed WRD base is between 30m and 60m.	Geotechnical reports that demonstrate the stability of pit walls considering the proximity of the WRD.	<p><b>Attachment V2 – Memorandum RE: Stability of pit walls wrt the WRD</b> from Ken Rippere (2019) has been provided as an expert opinion related to the stability of pit walls considering the proximity of the WRD.</p> <p><b>Attachment A3 - A Preliminary Geotechnical Assessment for Pit Slope Design</b> contains detail of the stability of the Pit slope.</p>
4	Waste Rock Dump (WRD)	<p>EIS Recommendation 2 states that the NT EPA and responsible Minister must be notified of any changes to the proposed action in accordance with clause 14A of the Environmental Assessment Administrative Procedures.</p> <p>Whilst section 14A of the EAAP mentions changes in environmental significance, it does not specify whether those changes are positive or negative.</p> <p>Changes to the proposed action that may result in changes to the environmental significance of the project include, but are not limited to the amended WRD height and the proposed landfill to be constructed within the WRD.</p>	Evidence of consultation with NT EPA and DENR regarding modifications to the project. This includes those that result in positive or negative changes in environmental significance.	<p><b>Appendix S – EPA Recommendations</b> has been updated.</p> <p>Vista Gold notified DENR of the correction of an error in the calculated height of the WRD (not an alteration of the proposed action). <b>Attachment V3 – Letter from DENR re: Variation to the EIS – consideration under Clause 14A</b> (31 March 2020) received from Paul Purdon, Executive Director Environmental Protection DENR, notes that under clause 14A of the Environmental Assessment Administrative Procedures, a notification to the NT EPA is not considered necessary.</p>
5	Waste Rock Dump (WRD)	<p><i>"The majority of waste will be managed onsite in a landfill located within the waste rock dump."</i> (Waste Management Plan P. 5/18)</p> <p><i>"Tyres: Regulated waste. Removed off site by licensed waste contractor or buried in WRD if approved by regulator."</i> (Table 2-1, Waste Management Plan, Pp 6-7/18).</p> <p>As mentioned above, the WRD design did not include a landfill and it is unclear if stability and compaction modelling considered the landfill and tyre disposal.</p> <p>Burial of tyres within the WRD requires further information with respect to the environmental performance and stability of the structure for the long term.</p>	<p>Details of the proposed landfill options including investigations into alternative locations for the landfill.</p> <p>Further information on the effects of the proposed landfill on the long term environmental performance and stability of the WRD should Vista Gold choose to pursue the option of locating the waste landfill within the proposed WRD.</p>	<b>Appendix D - Waste Management Plan</b> has been updated.

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6	Waste Rock Dump (WRD)	<p>EIS Recommendation 3 states “<i>The Proponent must undertake a rigorous evaluation of alternative WRD cover designs prior to authorisation of the Project.</i>”</p> <p><i>Modelling work underpinning the design of covers, and subsequent monitored trial covers, must demonstrate that the covers can meet the required cover objectives within the context of the wet- dry cycling environment of the Top End and other biophysical factors that have the potential to affect cover integrity in the long term.</i></p> <p><i>The modelling must be subject to rigorous peer review by an independent party with practical experience with the issues that affect the real world performance of the modelled cover system/s.</i>”</p> <p>Vista Gold has provided information that uses modelling assessed by the NT EPA as part of the Draft and Supplement EIS. No further information has been provided, including the independent peer review. In the absence of new information, the Department cannot reach a decision outside of that made by the NT EPA.</p>	<p>Evidence to demonstrate evaluation of alternative cover designs since June 2014 (the date of issue of Assessment Report 76).</p> <p>That modelling work underpinning the design of covers is subject to rigorous peer review by an independent party, approved by the Department, with practical experience with the issues that affect the real world performance of the modelled cover system/s.</p>	<p>Due to the steep waste rock slopes proposed at closure, traditional closure methods (capping with soil cover) will not be practical due to slope constraints (access and stability). The long-term closure of the WRD will require a cover that does not allow water to infiltrate into the facility. Accordingly, the WRD design uses geotextile material as an impermeable cover to the waste material. This cover will be included on each catch bench as well as over the entirety of the upper lift of the waste dump. Vista Gold's consultants have evaluated WRD cover designs and the cover design put forward is the best suited for their structure (<b>Appendix A</b> and <b>Attachment A2</b>).</p> <p><b>Attachment R2 - Cover Trials Design and Monitoring Procedure</b> (Tetra Tech 2020) provides a cover trial design, and instrumentation and monitoring procedure for trial sections of the WRD where Vista's preferred WRD cover (i.e., petticoat cover) will be installed during concurrent reclamation.</p> <p>The proposed cover design has been peer reviewed by an independent party - Tierra Group International Limited (TGI) have prepared the Mt Todd Waste Rock Dump Closure Assessment Report which is an independent review of the proposed approach to closing the WRD (<b>Attachment R1</b>). This report contains discussion on the proposed cover options for the WRD at closure.</p> <p><b>Appendix R – Closure Plan</b> contains a summary of the closure and end landform of the WRD.</p>
7	Tailings Storage Facilities	<p>There are several issues relating to the existing condition of the TSF and its proposed use as a foundation for TSF1. These issues include, but are not limited to:</p> <ul style="list-style-type: none"> <li>The geotechnical stability of the existing TSF not being adequately demonstrated. The most recent information was sourced from a site inspection undertaken in 2011 to determine the feasibility of constructing a plug in the spillway to retain additional water to prevent uncontrolled wet season discharges.</li> <li>The MMP makes significant assumptions regarding the current condition of the TSF decant system and under-drain system. Specifically, that these systems require only minimal repairs to reach full functionality prior to the commencement of operations.</li> <li>The MMP refers to the average dry density of the tailings as 1.5t/m<sup>3</sup> and 1.6t/m<sup>3</sup>.</li> </ul>	<p>Independent expert review of the TSF 1 design and geotechnical stability reports. The review must demonstrate that the existing TSF is suitable as the foundation for TSF 1 including assessment of the geotechnical stability of the TSF embankment and the condition of the decant and under-drain systems and include the details of any recent assessments, inspections and / or monitoring that have been undertaken.</p> <p>Consistency throughout the document.</p>	<p>The TSF 1 design and geotechnical stability reports have been independently reviewed - Tierra Group International Limited (TGI) have prepared the <b>Attachment E2 Mt Todd Tailings Storage Facility 1 Assessment Report</b> (May 2020). TGI's Senior Project Manager, Justin Knudsen, P.E., lead a highly qualified Team of discipline-specific experts with more than 50 years' combined mining-industry experience to perform the review. Resumes for the review team are attached as <b>Attachment V4 – TGI team CVs for TSF1 Review</b>.</p> <p>The MMP has been updated to ensure consistency with <b>Attachment A12 - Tailings Storage Facility Design</b> (Tetra Tech 2018) and <b>Attachment E2 - Mt Todd Tailings Storage Facility 1 Assessment Report</b> (TGI 2020).</p> <p>Responses to issues raised are included below:</p> <ul style="list-style-type: none"> <li>There have been no additional inspections or monitoring of TSF1 undertaken but experts since 2012. Unfortunately, due to travel restrictions due to the COVID-19 pandemic, TGI was unable to conduct an inspection on TSF1 during 2020.</li> </ul> <p>To assist TGI's review of the facility, Vista took high-quality drone images and video on 27 March 2020 which TGI reviewed as part of their assessment. The images are good for looking at embankment slopes and to see that no catastrophic movement has occurred on the embankment. Observations made from the review of the drone imagery are included in <b>Attachment E2 - Mt Todd Tailings Storage Facility 1 Assessment Report</b> along with a Photo Log with key images selected by TGI.</p> <p>TGI concluded that there is not enough information currently available to assess whether or not fatal flaws exist in TSF1 construction or in the proposed expansion design. Both Tetra Tech as the TSF designer and Vista as the mine owner acknowledge that there is significant work in detailed design to occur. As detailed design progresses, Vista is committed to undertaking the studies and investigations recommended in <b>Section 4.2 Recommendations of Attachment E2 Mt Todd Tailings Storage Facility 1 Assessment Report</b> to demonstrate the geotechnical stability of TSF for the proposed foundation of TSF1.</p>

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				<p>TGI stated that they are confident that if the recommendations are followed, and sound engineering and best practices are used in construction and operations, then there is a path forward to safely expand and deposit tailings in TSF1.</p> <p><i>Section 4.7.4 TSF1 Existing Facility</i> of the MMP has been updated.</p> <ul style="list-style-type: none"> <li>While it is hoped that only minor repairs are required for the decant and underdrain system to reach full functionality, prior to re-commissioning of TSF 1 the condition of the existing toe drains, underdrains, and decant towers will be investigated to confirm their condition. Following this investigation, a reclaim alternatives evaluation will be undertaken if the decant system cannot function as intended. <i>Section 4.7.5.3 Water Decant System</i> of the MMP has been updated.</li> <li>The average dry density of the TSF1 tailings has been adopted as 1.5 t/m<sup>3</sup>. The MMP has been updated to ensure consistency.</li> </ul>
8	Tailings Storage Facilities	<p>Both TSFs are designed with upstream lifts. This method relies on strength of tailings for stability for ongoing lifts (consolidation, differential settlement). This method of construction does not result in a structure that is conducive to use as a water holding facility.</p> <p>There are inconsistencies regarding the use of the TSFs in managing water during extreme rainfall events. Appendix R states “<i>The water management strategy leading up to and during extreme peak rainfall will involve measures such as the temporary transfer of excess water to the TSFs.</i>” (P. 34/112)</p> <p>However, Appendix G states that “<i>The water management at the TSF sites is summarised as follows: No AMD runoff water from other site locations shall be pumped to the TSFs, throughout their life cycles.</i>” (P. 15/38)</p> <p>Further, the slope stability analysis given in Appendix B is based on the following assumption; “... <i>that the water pool will be located at least 50 m away from the embankment crest as part of operational requirements.</i>” (P.40/257)</p> <p>Given that non-AMD impacted water is likely to meet the discharge criteria under the current Waste Discharge Licence and be released directly into the receiving environment it is not clear if the water requiring transfer prior to and during extreme peak rainfall, is impacted by AMD.</p>	<p>A Standard Operating Procedure for each TSF. The SOPs should provide clarification on the conditions that would result in the transfer of water to and from the TSFs and include discussion on how the assumptions made in the stability analysis will be achieved.</p>	<p><i>Section 4.7.7, Section 6.5 and Section 6.6.2</i> of the MMP have been updated to confirm that no water will pond against the tailings dam walls.</p> <p>A new section (<i>Section 4.7.7.6 Operating Procedures for TSF1 and TSF2</i>) has been included in the MMP to include a commitment to prepare an operational manual for each TSF. These will be developed during the detailed design phase to provide assurances to DPIP that ongoing operation and management will be appropriate and issues identified quickly.</p> <p>The operational manual will include inspections, audit, review and operational parameters to ensure the TSF is operated and managed in a way that ensures that the structure is sound before it manifests into a problem/failure.</p> <p><b>Appendix E Tailings Management Plan</b> has been updated and now includes <i>Section 5.4 Standard Operating Procedures for TSF1 and TSF2</i> which includes the commitment to prepare an operational manual for each TSF, as discussed above.</p> <p><b>Appendix P – Water Management Plan</b> has also been updated.</p>
9	Tailings Storage Facilities	<p>Appendix B – <i>Tailings Storage Facility Design</i> section 8 <i>Conclusions and Recommendations</i> provides that a number of studies and investigations be carried out. Vista Gold has not indicated how it intends to address these conclusions/recommendations.</p>	<p>A formal indication of how Vista Gold will address the conclusions and recommendations detailed in Appendix B.</p>	<p><b>Attachment A12 – Tailings Storage Facility Design</b> (Tetra Tech 2018) lists a number of studies and investigations that are recommended for TSF1 and TSF2.</p> <p><b>Attachment E2 – Mt Todd Tailings Storage Facility 1 Assessment Report</b> has been prepared by Terra Group International (TGI) as an expert review of TSF1. It includes <i>Section 4.2 Recommendations</i> for studies and investigations for Vista to undertake during the future phases of the project. The list includes those recommendations made by Tetra Tech in <b>Attachment A12</b>.</p> <p>As detailed design progresses, Vista is committed to undertaking these recommended studies and investigations to ensure that both TSF1 and TSF2 and their associated infrastructure are designed, constructed, operated and rehabilitated appropriately. Vista have committed to preparing an operational manual for each TSF which will be developed during the detailed design phase to provide assurances to DPIP that ongoing operation and management will be appropriate and issues identified quickly. The operational manual will include inspections, audit, review and operational parameters to ensure the TSF is</p>

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				operated and managed in a way that ensures that the structure is sound before is manifests into a problem/failure.
10	Tailings Storage Facilities	<p><i>"The layout of the geotechnical investigation locations is provided in the Drawings"</i> Appendix B 3.3 TSF 2 Drilling and Sampling Program (P.17/257)</p> <p>It is difficult to determine where on the drawings the investigation locations are in relation to the proposed TSF location. It cannot be determined whether the investigation locations are representative of the TSF2 footprint.</p>	Details of the geotechnical investigation including the investigation locations to demonstrate that they are representative of the TSF2 footprint.	<b>Attachment V5 – Geotechnical investigations borehole and test pit locations</b> has been provided. This figure shows the 20 boreholes (TTBH-11-11 to TTBH-11-27 and TTBH12-01, TTBH-12-04 and TTBH-12-07) drilled across the TSF2 footprint.
11	Tailings Storage Facilities	<p><i>"Further characterization of this area is recommended prior to final design of TSF 2."</i> Appendix B 3.5 TSF 2 Surface and Subsurface Conditions (P.19/257)</p> <p>It is unclear as to whether the area referred to above has been characterised further prior to the finalisation of the TSF design.</p> <p>Vista Gold has stated that further investigation would be carried out prior to construction and that characterisation would have been considered in a review of the TSF Design.</p>	The final TSF Design Review Report to demonstrate that the TSF2 footprint has been adequately characterised and is a suitable location for siting TSF2.	<p>Construction of TSF2 is not planned to begin until year 3 of operations, 5 years after construction of the plant starts. This is considered adequate time to allow for additional detailed geotechnical work and detailed design to be completed and provided for assessment to the regulator(s).</p> <p>These additional characterisation investigations will occur at the same time as the detailed work is done for TSF1.</p> <p>Vista have committed to preparing an operational manual for each TSF which will be developed during the detailed design phase to provide assurances to DPIR that ongoing operation and management will be appropriate and issues identified quickly. The operational manual will include inspections, audit, review and operational parameters to ensure the TSF is operated and managed in a way that ensures that the structure is sound before is manifests into a problem/failure.</p>
12	Tailings Storage Facilities	<p>P.69/221 states TSF2 will be built to 60m yet P.34/221 states that TSF2 will be built up to 80m high.</p> <p>It is unclear what the proposed height of TSF2 is.</p>	Consistency throughout the document.	The MMP has been updated to ensure consistency with <b>Attachment A12 - Tailings Storage Facility Design</b> (Tetra Tech 2018). To confirm, the proposed TSF 2 will be built to a height of approximately 45 m (with a maximum crest elevation of 165 m). TSF 2 will accommodate approximately 114.7 Mt of tailings.
13	Tailings Storage Facilities	<p>A number of submissions in response to the EIS stated that the proposed creek diversion designs were simplistic and failed to address how the proposed designs accommodated increased velocities from reduction in sinuosity or how the channel realignment provides conditions conducive to fish passage.</p> <p>Vista Gold stated in the EIS supplement that the final designs, including flow modelling under 'normal' conditions were to be conducted prior to the development of detailed designs. <i>"This level of detail to be discussed as part of the DFS"</i> (Environmental Impact Statement Comment &amp; Response MASTER RESPOSITORY, Vista Gold, Ref. 89, P.84/125).</p> <p>Given that the designs provided in the MMP are identical to the designs in the EIS and no further information has been provided, concerns regarding the creek diversions raised in EIS remains. Vista Gold must demonstrate major environmental impacts from creek diversions have been identified and provide discussion on the proposed mitigation measures.</p>	<p>An updated MMP that provides details on the following:</p> <ul style="list-style-type: none"> <li>• How the design preserves the natural meandering conditions, as claimed by Vista Gold in the MMP (P. 140/221)</li> <li>• The identified environmental impacts from the proposed creek diversions including impacts to the aquatic environments upstream and downstream of the diversions and details of the proposed mitigation measures.</li> <li>• How the diversion design features consider fish passage under high and 'normal' flow events including what features of the design are intended to mitigate impacts.</li> <li>• How the diversions are expected to perform under normal conditions.</li> </ul>	<p>There are two water diversion channels required during the construction of TSF2, these being of Horseshoe Creek and Stow Creek. <b>Section 4.7.6</b> of the MMP has been updated to provide additional detail related to these creek channel diversions.</p> <ul style="list-style-type: none"> <li>• The Horseshoe Creek diversion includes a meander within the diversion design. This replicates the existing conditions for the section of creek being disturbed. The MMP does not state that the Stow Creek diversion will replicate the meandering conditions existing in this section of creek. The Stow Creek diversion will replace a section of the creek that includes some existing meanders with a straight section of creek. There is another generally straight section of Stow Creek (downstream of the confluence with Horseshoe Creek) that is similar to the proposed diversion, illustrating that the design proposed is appropriate.</li> <li>• These creek diversions will be installed for the purpose of protecting the TSF2 embankment from flooding and erosion. They are used to protect infrastructure and do not alter the water balance of the mine site. The risk of accelerated deposition and erosion has been considered and incorporated into the design of both creek diversions. More detailed flow modelling will ensure that the diversions will establish a state of dynamic equilibrium (equal rates of erosion and deposition) with adjoining sections of the creeks. Further detailed design of the diversion will be undertaken to ensure that the diversion created results in a morphologically stable channel that</li> </ul>

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				<p>requires minimal short to medium term management and no ongoing management following mine closure.</p> <ul style="list-style-type: none"> <li>• <b>Section 4.7.6</b> of the MMP has been updated to include additional detail on the creek diversion design that will be incorporated to ensure facilitate fish passage through the diversion channel during normal flow conditions. Flow modelling under 'normal' flow conditions will be undertaken in order to ensure that the diversion channel provides conditions sufficient to meet requirements for providing fish passage.</li> <li>• Both the Horseshoe Creek and Stow Creek diversions have been designed to flow under normal conditions.</li> </ul> <p>It should be noted that the velocity of flow in the diversion channels is a function of the flow depth, channel width, gradient and hydraulic roughness. In addition, flow depth is a function of upstream rainfall/runoff. Adequate rainfall and/or runoff occurring over the upstream catchment is essential for sufficient discharge and flow through the diversion channels.</p>
14	Biodiversity	Information missing from the initial MMP is required to be included in the resubmission	<ol style="list-style-type: none"> <li>1) Flora and fauna surveys.</li> <li>2) An updated Flora and Fauna Management Plan that includes management objectives for all threatened species.</li> <li>3) An updated Air Quality and Dust Management Plan that includes: <ul style="list-style-type: none"> <li>- monitoring locations,</li> <li>- monitoring data collected to date,</li> <li>- assessment of the validity of the data,</li> <li>- interpretation of the data, and</li> <li>- discussion on the management plans performance.</li> </ul> </li> <li>4) An updated Fire Management Plan that provides a description and details on the current fire regime of the Mount Todd Project Area.</li> </ol>	<ol style="list-style-type: none"> <li>1) Section 2.1.4 of the MMP has been updated to include details of recent flora and fauna surveys. Section 1.5 of the Flora and Fauna Management Plan (<b>Appendix L</b> of the MMP) has also been updated to include dates and details of all recent flora and fauna studies.</li> <li>2) The Flora and Fauna Management Plan (<b>Appendix L</b> of the MMP) has been updated. Flora and Fauna Management Objectives are included in Section 3.2.</li> <li>3) The Air Quality and Dust Management Plan (<b>Appendix I</b> of the MMP) has been updated in 2019. It should be noted that this document remains in Draft as it will be reviewed by the Mt Todd Technical Advisory Committee. Changes recommended by the TAC members on the previous version of the Air Quality and Dust Management Plan will be reviewed and incorporated into the document prior to it being re-submitted to the TAC for a final review before the document is submitted to the Department of Agriculture, Water and the Environment.</li> <li>4) The Fire Management Plan (<b>Appendix K</b> of the MMP) has been updated. Section 2.5 has been added to describe the fire regime at the site over the last 10 years. <b>Attachment K1</b> and <b>Attachment K2</b> have been added to provide additional data and detail on the distribution and frequency of fires at the MTPA.</li> </ol>
15	Biodiversity	<p><i>Appendix K – Air Quality and Dust Management Plan</i> section 5.2 <i>Management Responses</i> proposes a number of management and mitigation measures (Pp. 27 – 30). However, there is no reference to the 50µg/L trigger value stipulated by the NT EPA as part of Recommendation 11 in Assessment Report 76. It is unclear how the management and mitigation measures will function in conjunction with the trigger value.</p> <p>The Air Quality and Dust Management Plan does not contain sufficient information over the derivation and use of the 50µg/L trigger value and the management and mitigation measures triggered by that value.</p>	<p>An updated Air Quality and Dust Management Plan that addresses the following:</p> <ul style="list-style-type: none"> <li>• Over what time period is the 50µg/L trigger value derived?</li> <li>• What is the timeframe for action to occur once notification that the trigger value has been exceeded?</li> <li>• What action does the value trigger?</li> </ul> <p>Where is the monitoring site/s where the trigger value will be applied? I.e. the compliance site/s?</p>	<p>The Air Quality and Dust Management Plan (<b>Appendix I</b> of the MMP) has been updated.</p> <p>It should be noted that this document remains in Draft. Changes recommended by the Technical Advisory Committee (TAC) members on the previous version of the Air Quality and Dust Management Plan will be reviewed and incorporated into the document prior to it being re-submitted to the TAC for a final review before the document is submitted to the Department of Agriculture, Water and the Environment.</p>
16	Biodiversity	EIS Recommendation 9 states “An appropriately qualified, independent party is to review the macroinvertebrate monitoring plan to determine its adequacy in detecting impacts and determining the cause of any impacts to inform implementation of an appropriate monitoring program prior to commencement of construction.”	<p>An updated Macroinvertebrate Monitoring Plan.</p> <p>A written statement demonstrating Professor Jenny Davis’s independence along with a copy of her CV.</p> <p>The review by Professor Jenny Davis in order to demonstrate that the review has been undertaken.</p>	<p>The current REMP is provided as <b>Attachment V6</b>. A written statement demonstrating Professor Jenny Davis’s independence and a copy of her CV are attached as <b>Attachment V7</b>. The review of the 2017 REMP undertaken by Professor Jenny Davis is provided as <b>Attachment V8</b>.</p> <p>The Water Management Plan (WMP) (<b>Appendix P</b>) was updated in 2020 by Jill Woodworth from SLR. During the review of the WMP an additional upstream site was included in the sediment and macroinvertebrate monitoring program to take</p>

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		<p>Vista Gold has provided a statement that the Receiving Environment Monitoring Plan (REMP) was reviewed and approved by Professor Jenny Davis at CDU.</p> <p>There are several issues with this statement.</p> <ul style="list-style-type: none"> <li>• There is uncertainty whether the REMP is the equivalent of a macroinvertebrate monitoring plan as the REMP is a requirement of the Waste Discharge Licence.</li> <li>• The review undertaken by Prof. Davis has not been provided.</li> <li>• There is no supporting documentation to support Prof. Davis qualifications or independence.</li> </ul> <p>The Department would like to point out that the final point is not a personal issue with Prof. Davis. However in the event that Vista Gold chooses to commission an independent expert without consulting the Department as to their suitability, the onus is on Vista Gold to demonstrate that the individual and company commissioned is qualified and independent.</p>		<p>into account the influence of the proposed TSF2 and Stow Creek diversion works. <i>Figure 8-3 – Macroinvertebrate and Sediment Sampling Sites</i> in the Water Management Plan (WMP) (<b>Appendix P</b>) has been updated to show the new monitoring site. <i>Table 8-9 Sediment and macroinvertebrate monitoring sites</i> has also been updated to include the new monitoring site (SCUS).</p> <p>A written statement from Jill stating her independence as an external reviewer of the WMP is provided as <b>Attachment V9</b>, along with her CV.</p>
17	Biodiversity	<p>The Stow Creek sediment and macroinvertebrate monitoring sites (Table 9-5 WMP P88/112) do not account for the disturbance resulting from TSF2 i.e. the Stow Creek upstream site, SCTOP, will no longer function as a control site once TSF2 and the diversions are in place.</p>	<p>Updated macroinvertebrate and sediments monitoring plans that include a control monitoring point outside of the influence of the proposed TSF2 and Stow Creek diversion works.</p>	<p>An additional upstream site has been included in the sediment and macroinvertebrate monitoring program to take into account the influence of the proposed TSF2 and Stow Creek diversion works.</p> <p><i>Figure 8-3 – Macroinvertebrate and Sediment Sampling Sites</i> in the Water Management Plan (WMP) (<b>Appendix P</b>) has been updated to show the new monitoring site. <i>Table 8-9 Sediment and macroinvertebrate monitoring sites</i> has also been updated to include the new monitoring site (SCUS).</p>
18	Biodiversity	<p>EIS Recommendation 10 states “a survey of potential nesting sites to be cleared and within a reasonable adjacent areas must be conducted in the 2015 breeding season as agreed with and to the satisfaction of the NT EPA prior to the commencement of Project works to ascertain the potential direct impacts of clearing.”</p> <p>Vista Gold states that in 2017 their consultant (SLR) prepared a report for submission to DoE (assumed to be the Australian Government Department of Environment and Energy) based on the historic nesting site of the Gouldian finch.</p> <p>However, the Recommendation is specific in its requirements i.e. that the survey is conducted in the 2015 breeding season and that it is to the satisfaction of the NT EPA.</p>	<p>The results of consultation with the NT EPA regarding their satisfaction of the 2015 survey effort within the areas proposed for clearing (including a “reasonable adjacent area”) to ascertain the potential direct impacts of clearing on Gouldian finch nesting sites.</p>	<p>In July 2015 Vista Gold sent a letter to DoE requesting that assessment approach for acceptability of potential impacts to the Gouldian Finch be varied to remove the requirement for the 2015 breeding season surveys as it was identified that there was limited value in undertaking additional breeding habitat surveys primarily because the survey done in 2014 was considered to cover 3-5 years of breeding information as residual physical nesting constructs would have been identified if nesting had occurred in recent years.</p> <p>DOE responded on 13 August 2015 (see <b>Attachment V10 – Request for Further Information and Extension of Decision on Approval Timeframe – Mt Todd Gold Mine</b>) varying their requirement for breeding habitat surveys to be undertaken in 2015. DoE amended their information request for Vista to ‘<i>assess and define the relative importance of the “Gouldian Finch core breeding habitat” to the maintenance of the regional Gouldian Finch population.</i>’</p> <p>Since then, Vista has obtained EPBC Approval 2011/5967 on 19 January 2018 which changed the condition related to Gouldian Finch breeding habitat to Condition2a: ‘<i>the action must not result in the quality or extent of breeding habitat outside of the project footprint.</i>’</p> <p>The Draft Gouldian Finch Management Plan (GFMP) is provided as <b>Attachment U1</b>. The draft GFMP includes management triggers that will enable actual or potential adverse impacts to the Gouldian Finch to be avoided, mitigated or minimised in a timely manner. The Draft GFMP has been reviewed by the Technical Advisory Committee (TAC). Changes recommended by the TAC members will be reviewed and incorporated into the GFMP. The GFMP will be re-submitted to the TAC for a final review prior to the document being submitted to the Department of Agriculture, Water and the Environment (DAWE).</p>



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19	Biodiversity	<p>EIS Recommendation 11 states that the “[PM10 dust] limit for human health of 50µg/m<sup>3</sup> is to be applied to the Yinberrie Hills SOCS core breeding habitat in the first instance as a trigger for mitigative action.”</p> <p>Vista Gold has committed to adopting the 50µg/m<sup>3</sup> trigger value for PM10 dust levels as per NT EPA Recommendation 11.</p> <p>Vista Gold has not provided details of the mitigation measures that are triggered when the trigger value is exceeded. The details of actions resulting from the exceedance of trigger values is a key component of an Environmental Management Plan and System.</p>	<p>A Gouldian Finch Management Plan, which addresses this recommendation as it relates to dust impacts on Gouldian finch.</p> <p>In order for S36(5) of the MMA to be satisfied, the Gouldian Finch Management Plan must be approved by the Australian Government Department of Agriculture, Water and the Environment and endorsed by the Flora and Fauna division of DENR.</p>	<p>The Draft Gouldian Finch Management Plan (GFMP) is provided as <b>Attachment U1</b>.</p> <p>The Draft GFMP has been reviewed by the Technical Advisory Committee (TAC). Changes recommended by the TAC members will be reviewed and incorporated into the GFMP. The GFMP will be re-submitted to the TAC for a final review prior to the document being submitted to the Department of Agriculture, Water and the Environment.</p> <p>The Air Quality and Dust Management Plan (<b>Appendix I</b> of the MMP) has been updated in 2019. It should be noted that this document remains in Draft as it will be reviewed again by the Mt Todd TAC prior to finalisation. Changes recommended by the TAC members on the previous version of the Air Quality and Dust Management Plan will be reviewed and incorporated into the document prior to it being re-submitted to the TAC for a final review before the document is submitted to the DAWE.</p>
20	Biodiversity	<p>EIS Recommendation 12 states that the “<i>The Proponent must conduct laboratory studies to develop a more appropriate threshold limit for inspirable dust impacts on representative finch species and evaluate the feasibility and value of a sentinel bird program that is responsive to mine-related impacts.</i></p> <p><i>Results from the sentinel bird program evaluation must be provided to the DME and the NT EPA prior to the commencement of construction and serious consideration given to implementing the program subject to the results.</i>”</p> <p>Vista Gold has stated that Charles Darwin University had been commissioned to undertake the laboratory studies however they had been unable to secure ethics approvals. Vista Gold also stated that the NT EPA had been consulted who then advised that the recommendation would be amended. The details of consultation with NT EPA and formal advice regarding the amendment of Recommendation 12 have not been provided.</p> <p>Vista Gold has advised that the details on developing more appropriate dust threshold values are contained in the GFMP.</p> <p>Results of the evaluation of the feasibility and value of a sentinel bird program that is responsive to mine-related impacts have not been provided.</p>	<p>A Gouldian Finch Management Plan that addresses this recommendation as it relates to dust impacts on Gouldian finch.</p> <p>In order for S36(5) of the MMA to be satisfied the Gouldian Finch Management Plan must be approved by the Australian Government Department of Agriculture, Water and the Environment and endorsed by the Flora and Fauna division of DENR.</p>	<p>Since the NT EPA handed down the EIS Recommendations, Vista has undertaken significant work in understanding the potential impacts of dust on the Gouldian Finch. Laboratory studies were found to be an unethical as a means to understand the threshold limit for inspirable dust impacts of the Gouldian Finch.</p> <p>As such, EPBC Approval 2011/5967, received on 19 January 2018, does not include a requirement for laboratory studies to be undertaken. Approval Condition 2d of EPBC 2011/5967 states that ‘<i>The action must not result in significant decrease in the short, medium or long-term health of the Gouldian Finch population within the Yinberrie Hills Site of Conservation Significance</i>’ and to meet this condition the Draft Gouldian Finch Management Plan (GFMP) (provided as <b>Attachment U1</b>) and the Draft Gouldian Finch Monitoring Methodology (GFMM) (provided as <b>Attachment U2</b>).</p> <p>The Draft GFMP and GFMM have been reviewed by the TAC. Changes recommended by the TAC members will be reviewed and incorporated into the documents which will be re-submitted to the TAC for a final review prior to the document being submitted to the DAWE.</p>
21	Biodiversity	<p>EIS Recommendation 13 states “<i>A baseline (pre-mining) and ongoing (during construction and mining) Gouldian finch population monitoring program must be established and implemented prior to the construction phase of the Project. The program must:</i></p> <ul style="list-style-type: none"> <li>➤ <i>Allow for a substantial baseline survey effort to be undertaken;</i></li> <li>➤ <i>Have sufficient rigour to detect short-term changes in the Gouldian finch breeding population;</i></li> <li>➤ <i>Distinguish between natural variation in the population and mine-related impacts;</i></li> <li>➤ <i>Establish appropriate trigger levels and management responses to enable reactive and effective impact minimisation.</i></li> </ul> <p><i>The program design must be peer reviewed by an appropriately qualified, independent person, to the satisfaction of DME and the</i></p>	<p>A written statement demonstrating Professor Stephen Garnett’s independence along with a copy of his CV.</p> <p>The review by Professor Stephen Garnett in order to demonstrate that the review has been undertaken and that the review focussed on the programs ability to achieve the requirements listed in Recommendation 13.</p> <p>A Gouldian Finch Management Plan which details sufficient baseline information of Gouldian finch population dynamics within the Mount Todd Project and surrounding areas.</p> <p>In order for S36(5) of the MMA to be satisfied the Gouldian Finch Management Plan must be approved by the Australian Government Department of Agriculture, Water and the Environment and endorsed by the Flora and Fauna division of DENR.</p>	<p>The Draft Gouldian Finch Management Plan (GFMP) is provided as <b>Attachment U1</b>. The Draft GFMP has been reviewed by the Technical Advisory Committee (TAC). Changes recommended by the TAC members have been reviewed and will be incorporated into the GFMP. The GFMP will be re-submitted to the TAC for a final review prior to the document being submitted to the DAWE.</p> <p>The Draft Gouldian Finch Monitoring Methodology (GFMM) has been included as <b>Attachment U2</b>. The Draft GFMM has been reviewed by the TAC. Changes recommended by the TAC members have been reviewed and will be incorporated into the GFMM. The GFMM will be re-submitted to the TAC for a final review prior to the document being submitted to the DAWE.</p> <p>The GFMP and GFMM will be submitted to DPIR and the NT EPA following finalisation and acceptance of the plans by DAWE.</p> <p>Under the Terms of Reference for the TAC (<b>Attachment U4</b>) the members must be suitably qualified. For the purpose of the TAC, this has been defined as ‘<i>A person with relevant tertiary qualifications and a minimum of ten years</i></p>

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		<p><i>NT EPA prior to survey commencement. The baseline survey report is to be provided to the DME and the NT EPA prior to authorisation of the Project.</i></p> <p>Vista Gold has provided a statement that the Gouldian Finch Monitoring Program was reviewed and approved by Professor Stephen Garnett at CDU.</p> <p>There are several issues with this statement.</p> <ul style="list-style-type: none"> <li>The review undertaken by Prof. Garnett has not been provided.</li> <li>There is no supporting documentation to support Prof. Garnett's qualifications or independence.</li> </ul> <p>The Department would like to point out that the final point is not a personal issue with Prof. Garnett. However in the event that Vista Gold chooses to commission an independent expert without consulting the Department as to their suitability, the onus is on Vista Gold to demonstrate that the individual and company commissioned is qualified and independent.</p>		<p><i>demonstrated experience relevant to the requirements of the conditions of approval'. A copy of CVs for the current TAC members is provided as Attachment U5.</i></p>
22	Biodiversity	<p>EIS Recommendation 14 references Recommendation 11 and Recommendation 12. The issues relating to these recommendations are outlined above.</p> <p>Recommendation 14 states "A baseline (pre-mining) and ongoing (during construction and mining) program to monitor the extent of dust deposition over Gouldian finch habitat must be established and implemented to the satisfaction of the NT EPA and the DME prior to the construction phase of the Project. The program must:</p> <ul style="list-style-type: none"> <li>➤ Be capable of detecting Project-related ground level PM10 dust (above baseline);</li> <li>➤ Be capable of monitoring the range and extent of Project-related dust;</li> <li>➤ Ensure that 98% of Gouldian finch core breeding habitat remains below the default Project-related PM10 dust level; and</li> <li>➤ Include annual reporting of monitoring results and allow for program review.</li> </ul> <p>A baseline monitoring report is to be provided to the DME and the NT EPA prior to authorisation of the Project."</p> <p>Vista Gold states that they "engaged SLR in 2017 to undertake a review of Gouldian Finch studies to date to and [sic] undertake some baseline data collection to assist with addressing the formal assessment and approval process under the EPBC Act. This assessment report has been submitted to the DoE (submission # 4).</p> <p>A comprehensive environmental monitoring program will be developed for the Mt Todd Gold Mine for the Construction Phase which will then be modified and rolled over into the operational phase which will also include a specific Gouldian Finch Monitoring [sic] Program outlined by SLR 2017."</p> <p>Vista Gold later stated that all information relating to the Gouldian Finch is discussed in the GFMP.</p>	<p>A Gouldian Finch Management Plan which details sufficient baseline information of Gouldian finch population dynamics within the Mount Todd Project and surrounding areas.</p> <p>A Gouldian Finch Management Plan addresses this recommendation as it relates to dust impacts on Gouldian Finch.</p> <p>In order for S36(5) of the MMA to be satisfied the Gouldian Finch Management Plan must be approved by the Australian Government Department of Agriculture, Water and the Environment and endorsed by the Flora and Fauna division of DENR.</p>	<p>The Draft Gouldian Finch Management Plan (GFMP) is provided as <b>Attachment U1</b>.</p> <p>The Draft GFMP has been reviewed by the Technical Advisory Committee (TAC). Changes recommended by the TAC members will be reviewed and incorporated into the GFMP. The GFMP will be re-submitted to the TAC for a final review prior to the document being submitted to the DAWE.</p> <p>The Draft Gouldian Finch Dust Monitoring and Mitigation Program (DMMP) is attached as <b>Appendix I</b> to the MMP. This document has been reviewed by the TAC and recommended changes have been incorporated. The DMMP will be re-submitted to the TAC for a final review prior to the document being submitted to the DAWE.</p>

#	Domain	Issue with Information in Current MMP	Vista Gold Must Provide and/Ensure:	Vista Gold Response / Section Addressed
23	Biodiversity	<p>EIS Recommendation 20 states “<i>The Proponent is to undertake regular monitoring of the mineral leases for exotic fauna species and implement control measures should the densities become a risk to biodiversity.</i>”</p> <p>Appendix N- <i>Flora and Fauna Management Plan Table 4-1 Pest Monitoring Plan</i> (Pp.40-41/60) provides trigger points for cats/ foxes and dingoes. However, the same document (section 2.2.6 Fauna, Pp. 12-13/60) states that four species of non-native mammals were observed during surveys. These species are: swamp buffalo (<i>Bubalus bubalis</i>), cattle (<i>Bos indicus</i>), donkey (<i>Equus asinus</i>), pig (<i>Sus scrofa</i>) and horses (<i>Equus caballus</i>).</p> <p>In response to receiving the above comments, Vista Gold submitted an amended Flora and Fauna Management Plan. However, Table 4-1 only outlines trigger points for the management of cats / foxes and dingoes and does not provide trigger values for relevant exotic fauna.</p>	An updated Flora and Fauna Management Plan that provides details regarding trigger values to undertake population control measures where densities of identified exotic fauna species become a risk to biodiversity.	The Flora and Fauna Management Plan ( <b>Appendix L</b> of the MMP) has been updated. <b>Section 3.4</b> (Table 3-5) and <b>Section 4</b> (Table 4-1) of the Flora and Fauna Management Plan has been updated to include details regarding trigger values to undertake population control measures where densities of identified exotic fauna species become a risk to biodiversity.
24	Biodiversity	<p>EIS Recommendation 26 states that “<i>As part of the Project aquatic monitoring program, the Proponent must contribute to periodic tissue sampling of fish and other species from the Edith and Daly Rivers to monitor edible species and inform human health risk assessments.</i>”</p> <p>The concerns raised by the NT EPA in Assessment Report 76 specifically relate to maintaining public confidence that the Edith and Daly Rivers are not compromised as a food source. Assessment Report 76 states “The NT EPA accepts, however, that this risk is of significant concern to the community, particularly those who rely on the Edith and Daly Rivers as a food source or for recreational and commercial fishing. <u>There is a genuine need to maintain public confidence that the food we consume is healthy.</u>” [Emphasis added].</p> <p>Vista Gold has indicated that they have no intention of addressing this recommendation, stating that “<i>Vista Gold has always been opposed to carrying out fish tissue studies as they are inherently not based on science.</i>”</p> <p>Vista Gold must consult with the NT EPA regarding the amendment or revocation of Recommendation 26.</p>	Details of consultation with NT EPA and formal advice regarding the amendment or revocation of Recommendation 26.	<p>Vista Gold has approached Fisheries on multiple occasions offering to provide funding and/or participate in a joint study to meet this recommendation. Vista is willing to contribute to a study, whether that involves the contribution of water quality data, the capture and provision of fish, or funding. Vista is willing to be involved in a study that is robust, not a study which samples tissue without scientific integrity.</p> <p>It should be noted that water quality results at the compliance (SW4) in the Edith River are not showing elevated levels of metals or potential for bioaccumulation downstream associated with the Mine. Further downstream there is the confounding factor associated with the train derailment. As such, isolating other impacts around the site and interpreting the results would be very difficult. Without undertaking isotope analysis, there is no way of confirming that a certain metal in a certain concentration is coming from the Mt Todd discharge. The vigorous macroinvertebrate and sediment monitoring program implemented by Vista Gold gives additional confidence that discharge from the mine is not negatively impacting the environment.</p> <p>DPIR has acknowledged the attempts by Vista Gold to meet this recommendation. DPIR has committed to meeting with DENR to discuss the recommendation. DPIR will advise Vista Gold of the outcomes of discussions with DENR.</p>
25	Water Management	<i>Figure 6-7 – Surface Water Sampling Locations</i> (MMP P. 182/221) does not include surface water monitoring points on Stow Creek upstream of the proposed TSF2 and diversion works. A suitable reference point needs to be established that can be used to assess mine-related impacts on water quality and general aquatic health.	A revised surface water monitoring plan that includes a surface water monitoring point upstream of the proposed TSF2 and diversion works.	<p><i>Figure 6-7 – Surface Water Sampling Locations</i> has been updated to include the additional surface water monitoring location (SW16) on Stow Creek upstream of the proposed TSF2 and diversion works. <i>Table 6-8 - Surface Water Sampling Locations</i> has been updated and includes details of the new surface water monitoring location.</p> <p>The Water Management Plan (WMP) (<b>Appendix P</b>) has been updated in 2020.</p>
26	Water Management	<p><i>Figure 6-8 Groundwater Bores Locations</i> (MMP P. 185/221) depict bores that are within the footprint of proposed infrastructure (e.g. TSF2MB02) and will be destroyed during construction.</p> <p>Replacement of bores likely to be destroyed during the life of the project has not been proposed. Vista Gold has not demonstrated that the level of coverage from the remaining monitoring bores will be adequate to assess mine-related impacts on groundwater quality.</p>	<p>An updated groundwater monitoring plan that includes details on the adequacy of the coverage of the remaining and existing monitoring bore network for assessing and detecting mine-related impacts on groundwater quality. Including whether the installation of additional and replacement monitoring bores is beneficial.</p> <p>That indicative locations of additional/ replacement monitoring bores are provided.</p>	<p>The WMP (<b>Appendix P</b>) has been updated. Section 8.5 of the WMP addresses groundwater monitoring.</p> <p>The <i>Groundwater Bores Locations</i> figure (Figure 6-8 in MMP and Figure 8-2 in the WMP) has been updated to reflect the groundwater bores to be monitored during operations.</p> <p>Two new bores (TSF2MB03 and TSF2MB04) to monitor groundwater quality south of TSF2 with potential to impact the Edith River will be installed after detailed site drawings are provided. Preliminary locations for these bores have</p>

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		There does not appear to be any coverage down hydraulic gradient of the proposed TSF2 location (i.e. between TSF2 and Stow Creek). It is unclear how any potential seepage to groundwater will be detected/intercepted.		been provided and are shown on the <i>Groundwater Bores Locations</i> figure. Locations will be confirmed upon installation.  Bores have been grouped to detect potential impacts on groundwater quality from the various infrastructure on site.
27	Water Management	<p>“No trigger values are currently defined for groundwater sampling results.” (WMP, P.86/112)</p> <p>Trigger values will allow Vista Gold to monitor and manage groundwater from mine-related impacts and provide guidance for undertaking mitigation and management actions.</p>	<p>Details of the suitability and usefulness of trigger values in assisting the monitoring and management of groundwater.</p> <p>The updated groundwater management plan should the investigation identify that groundwater trigger values are likely to improve groundwater management at the site.</p>	The WMP ( <b>Appendix P</b> ) has been updated in 2020. A TARP has been developed for providing directions on requirements if a significant upward trend in groundwater quality (including a downward trend for pH) is detected. The TARP is provided as <i>Table 8-8 TARP for Groundwater</i> of the WMP.
28	Water Management	<p>“Not all analytes are assessed at all sites.” (WMP, P.80/112)</p> <p>The statement does not provide any further clarification on which analytes are measured at which sites. It is unclear what Vista Gold consider the analytes of concern at each monitoring site.</p>	An updated Water Management Plan that clarifies which analytes are measured at which sites. Include supporting statements in the response to justify the analytical suite selected for each site.	The WMP ( <b>Appendix P</b> ) has been updated in 2020. The statement in question has been removed. <i>Section 8 - Monitoring</i> of the WMP includes details of locations, methods and parameters assessed for all water monitoring undertaken for the Project.
29	Water Management	<p><i>Table 9-3 Surface water physical and chemical parameters</i> (WMP Pp. 80-81/112) does not include arsenic.</p> <p>Given the relatively high arsenic concentrations within the groundwater systems of the Pine Creek Geosyncline, it is possible that arsenic will be problematic. No justification is provided for the exclusion of arsenic from the surface water monitoring parameters.</p> <p>Furthermore, should Vista Gold pursue the option of locating the site landfill in the waste rock dump, the surface water analytical suite must provide for the detection of any problematic leachate resulting from the decomposition of waste streams deposited in the landfill.</p>	An updated Water Management Plan that provides for the detection of problematic arsenic and provides for the detection of any problematic leachate resulting from the decomposition of waste streams deposited in the landfill.	<p>Arsenic (filtered) has been below detection limits at all surface monitoring locations on the majority of sampling occasions. No results for arsenic have been above the trigger value of 0.14 mg/L for any monitoring event between 2011-2018. The results of monitoring for arsenic are not providing additional information to interpret water quality in the Edith River.</p> <p>Vista Gold submitted a request for amendment of WDL178-6, accompanied by advice from GHD, to the NT EPA in February 2019 (see <b>Attachment V11 – WDL 178-6 Amendment Request</b>). Arsenic has since been removed from the current WDL (WDL198-7) which commenced on 26 November 2019. WDL 178-7 is available to view at: <a href="http://www.mttodd.com.au/uploads/4/7/0/5/47056705/19_10_01_ntepa_wdl178-07_web_version.pdf">http://www.mttodd.com.au/uploads/4/7/0/5/47056705/19_10_01_ntepa_wdl178-07_web_version.pdf</a>.</p> <p>Arsenic is monitored for in the sediment and groundwater monitoring programs.</p>
30	Water Management	<p>The sediment analytes (Table 9-6 WMP P. 88/112) differ to the water quality analytes presented in Table 9-3 (WMP P. 80/112) particularly in the metals suite.</p> <p>Several analytes have not been included in the water quality analytical suite, in particular, antimony, arsenic, barium, beryllium, manganese, selenium, vanadium, mercury and silver.</p>	An updated Water Management Plan that provides for the detection of metals that may also be present in sediments.	<p>The WMP (<b>Appendix P</b>) has been updated in 2020. The following tables have been updated to ensure consistency of metals analysed:</p> <ul style="list-style-type: none"> <li>• <i>Table 8-3 Surface water physical and chemical parameters non-WDL sites</i></li> <li>• <i>Table 8 7 Groundwater physical and chemical parameters</i></li> <li>• <i>Table 8-11 Sediment Analytes</i></li> </ul> <p>During the update of the WMP, metals below detection limits since 2011 were removed from the sediment, groundwater and surface water (non-WDL sites) monitoring programs. The water quality analytical suites for sediment, groundwater and surface water (non-WDL sites) now align.</p> <p>Strontium has been retained in the groundwater quality analytical suite as this can be used to assess the integrity of the bore casing. Barium is also included in the groundwater quality analytical suite as it is present in the local geology.</p>
31	Water Management	<p>EIS recommendation 6 states that the “water quality monitoring program must include monitoring of cyanide in tailings supernatant and include the parameters of WAD, free and total cyanide. The standard, safe no-discharge level of 50mg/L WAD cyanide is to be set as the threshold to trigger corrective action.”</p> <p><i>Table 9-3 Surface water physical and chemical parameters</i> (WMP Pp. 80-81/112) includes WAD and total cyanide but does not include free cyanide as a parameter.</p>	<p>An updated Water Management Plan that</p> <ul style="list-style-type: none"> <li>• includes the 50mg/L WAD cyanide trigger value for surface water;</li> <li>• specifies the actions to be taken in response to exceedances of the cyanide trigger value; and,</li> <li>• includes free cyanide as an analyte</li> </ul>	<p>The WMP (<b>Appendix P</b>) has been updated in 2020. <i>Table 8-2 Surface water physical and chemical parameters for WDL sites</i> and <i>Table 8-3 Surface water physical and chemical parameters for non-WDL sites</i> of the WMP have been updated and now include WAD, free and total cyanide.</p> <p>The 50 mg/L trigger was not added as a trigger value to the water quality monitoring program as Vista will be using cyanide in the process, but a cyanide destruction circuit has been built in to the end of the process (sodium metabisulphite is the "destructor"). Therefore, Vista does not expect cyanide to be present in any discharge from site and the trigger value and TARP for</p>

#	Domain	Issue with Information in Current MMP	Vista Gold Must Provide and/Ensure:	Vista Gold Response / Section Addressed
		The threshold specified by the NT EPA (50mg/L WAD cyanide) has not been set as a trigger value and corrective actions have not been stated.		exceedances has not been included in the WMP. Vista expects any cyanide exceedances in the receiving water to be detected in the routine WDL monitoring at SW4 where the trigger value for total cyanide is 7 ug/L and any exceedances will be investigated as reported in the WDL TARP ( <i>Table 8-4 TARP for SW4 non-compliance</i> ) in the WMP.
32	Water Management	<p>EIS Recommendation 7 states that “<i>the proponent must undertake revised water balance modelling prior to authorisation of the Project using the most up-to-date data and assumptions based on regulatory requirements. The water balance modelling is to be peer reviewed by an appropriately qualified independent expert and the review provided to the regulator.</i>”</p> <p><i>Revised modelling outputs will be used to inform the water management and treatment options for the site, including the water treatment plant capacity.</i>”</p> <p>Vista Gold has provided a Water Management Plan and claims that the plan was reviewed by GHD during the preparation of the MMP.</p>	<p>Details on the water balance modelling.</p> <p>A written statement demonstrating GHD and the specific reviewer’s independence along with a copy of their CV.</p> <p>The review by GHD in order to demonstrate that the review has been undertaken on the water balance modelling.</p>	<p>The Site Wide Water Balance (<b>Attachment A9</b>) was updated in October 2019.</p> <p><i>A Review of Hydrogeological Report – Factual Report (Attachment V12)</i> was prepared by GHD in April 2020. The report formally documents the independent review, completed by GHD, and subsequent amendments of the Hydrogeological Report on the Water Balance Model, completed in April 2017 by Tetra Tech, for the Mt. Todd Gold Mine. The appendices to the document include Review Comments and Responses, Email Correspondence and CV.</p> <p>The report was used to inform the WMP (<b>Appendix P</b>) which has been updated in 2020 by Jill Woodworth from SLR. A written statement from Jill stating her independence as an external reviewer of the WMP and a copy of her CV is provided as <b>Attachment V9</b>.</p>
33	Closure	<p>EIS Recommendation 22 states that the “<i>Proponent must consider in detail the costs and the benefits of backfilling the pit with PAF waste rock and/or tailings and an appropriate cover at mine closure in accordance with leading practice mine closure principles. The benefit/cost analysis should include partial backfilling scenarios through disposal of the more reactive material as well as the full backfilling option. Details should be provided to the DME.</i>”</p> <p>Vista Gold has provided a calculation that states the cost to backfill 100% of the pit is cost prohibitive. No further discussion or justification is provided. No costs / benefits analysis is provided. No partial backfill scenarios are provided.</p>	<p>A detailed cost benefit analysis that compares the social, environmental and economic costs associated with the proposed management of the pit void and management of waste rock (e.g. dump design, construction, capping, monitoring, seepage interception, contaminated water treatment, pumping operations, discharge etc.) to the social, environmental and economic benefits of multiple backfilling scenarios.</p>	<p>The Closure Plan (<b>Appendix R</b>) has been updated to include a feasibility assessment of Pit closure options.</p> <p>Vista Gold has undertaken a cost/benefit analysis that compares the social, environmental and economic costs associated with the proposed management of the Batman Pit void and management of waste rock upon the closure of the Mt Todd Project. Options considered include:</p> <ol style="list-style-type: none"> <li>1. Backfill</li> <li>2. Partial backfill</li> <li>3. Pit Lake (chosen scenario)</li> </ol> <p>Due to the orientation of the deposit and sequencing of mining at Mt Todd, at end of mining in the Pit there will very little waste rock and majority ore being removed. As such, to backfill the Pit would mean moving the waste rock dump into the Pit after it is finished. The cost of double handling the waste rock from the completed WRD and back into the Pit at the end of mining is therefore cost prohibitive to the Project.</p> <p>The costs associated with both the complete backfill option, and the partial backfill option, would render the Project uneconomical and would prohibit the development of the operation. Should one of these options be chosen, the Project would not go ahead and would result in the consequent loss of employment opportunities and associated community investment projects, services, taxes and royalties.</p>
34	Closure	<p>EIS Recommendation 23 states that “<i>Consideration must be given in the conceptual closure plan to methods for improving the water quality of the pit lake after closure if backfilling cannot be achieved.</i>”</p> <p>Vista Gold has provided a response that argues that the pit water quality at closure will not be of such a poor quality to require improvement. However the response does not provide sufficient information to allow DPIR to support the proponents position.</p>	<p>A conceptual closure plan that provides consideration to improving water quality of the proposed pit lake post closure.</p> <p>Note: Should Vista Gold choose to elaborate on the expected post closure water quality, the discussion must take into account seasonal variations to pit water levels (e.g. the maximum and minimum pit water levels predicted) and must be reconciled with the following information:</p> <ul style="list-style-type: none"> <li>• Independent Expert reviewed Water Balance</li> <li>• Independent Expert reviewed Waste Classification System</li> </ul>	<p>Section 10.1 of the Closure Plan (<b>Appendix R</b>) to the MMP has been updated to include consideration of the water quality within the Batman Pit post closure.</p> <p>Practical Geochemistry LLC were engaged complete geochemical modelling to assess future water quality for the Batman Pit lake (<b>Attachment R3</b>) and to provide expert opinion related to the water quality of the related to the post-closure pit lake (<b>Attachment R4</b>).</p>