



Maryvale Solar Farm Modification 1

Addition of Battery Energy Storage System
State Significant Development Modification Assessment
(SSD 8777 MOD 1)

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Executive Summary

Maryvale Solar Farm Pty Ltd (MSF) has approval to develop a 125 megawatt (MW) Maryvale Solar (the project) farm approximately 11 kilometres (km) north of Wellington in the Central West and Orana region of NSW.

The modification application seeks to introduce a lithium-ion battery energy storage system (BESS) with a capacity of up to 125 MW / 375 MW hours. Approval is sought for the option of centralised or distributed BESS formats.

The Department exhibited the modification application from 20 January 2022 to 2 February 2022. No public submissions were received. Advice was received from Dubbo Regional Council and fourteen government agencies, none of which objected to the modification.

The Department considers that the proposed modification would have only minor, incremental impacts, noting that both proposed BESS formats would be located entirely within the approved development footprint. Hazard risks (fire and bushfire) would be minimal subject to revised conditions, and there would be minimal biodiversity, visual, traffic and noise impacts.

The Department's assessment has concluded that the modification should be approved as it would provide an approved solar farm with a battery storage facility, which would contribute to increased grid stability and energy security. Any residual environmental and amenity impacts associated with the proposed modification could be mitigated and managed through the revised conditions of consent. The modification would also provide flow-on benefits to the local community, including up to 20 construction jobs and a capital investment of \$61 million.

Consequently, it is in the public interest and should be approved.

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1 Introduction

Maryvale Solar Farm Pty Ltd (MSF) received consent in 2019 to develop the 125 megawatt (MW) Maryvale Solar Farm, approximately 11 kilometres (km) north of Wellington in the Central West and Orana region of NSW. MSF has yet to commence construction of the project.

2 Proposed modification

MSF is proposing to modify the development consent to add a lithium-ion battery energy storage system (BESS) with a capacity of up to 125 MW / 375 MW hours (MWh). Approval is sought for the option of centralised or distributed BESS formats.

The BESS would provide storage for energy generated by the solar farm that would otherwise be lost.

Both formats would occupy approximately 4 ha of land within the approved development. There would be no change to the substation, construction facilities, vegetation clearing or the number of solar panels and inverter stations.

The modification is described in detail in the Modification Report (**Appendix A**). Key components and features of the proposed modification are summarised in **Table 1** and shown in **Figures 1** and **2**.

Table 1 | Key components of the modification

Component	Modification Description
Battery	<ul style="list-style-type: none">Up to 180 shipping container style battery packs (2.6 m high) either grouped together on a 4 ha parcel of land adjacent to the on-site substation or distributed across the site co-located with each inverter station.
Ancillary infrastructure	<ul style="list-style-type: none">Cabling, fencing and water tank
Other works	<ul style="list-style-type: none">10 m wide asset protection zone around battery storage area/s, 15 metres and 20 metres around the substation
Operation	<ul style="list-style-type: none">Battery operation 24 hours per day, 7 days per week
Jobs & Capital Investment Value	<ul style="list-style-type: none">20 construction jobs and up to 4 operation jobs\$61 million

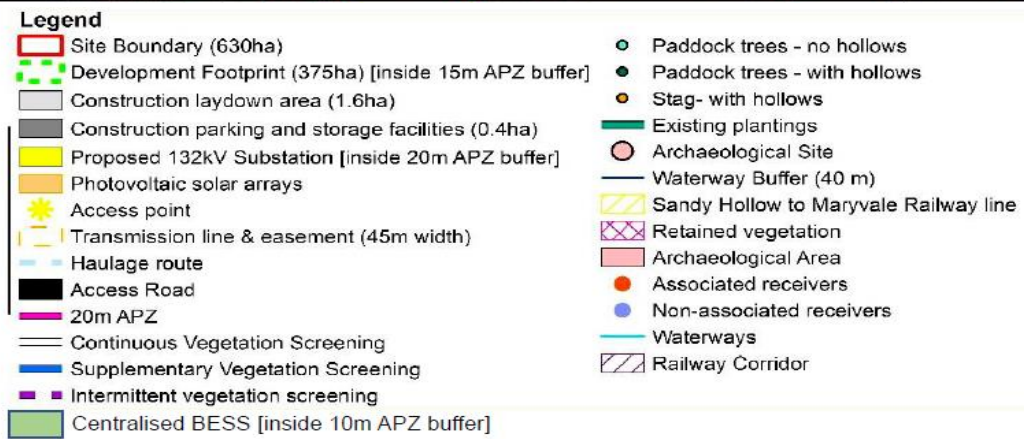


Figure 1 | Project Layout – Centralised BESS Option

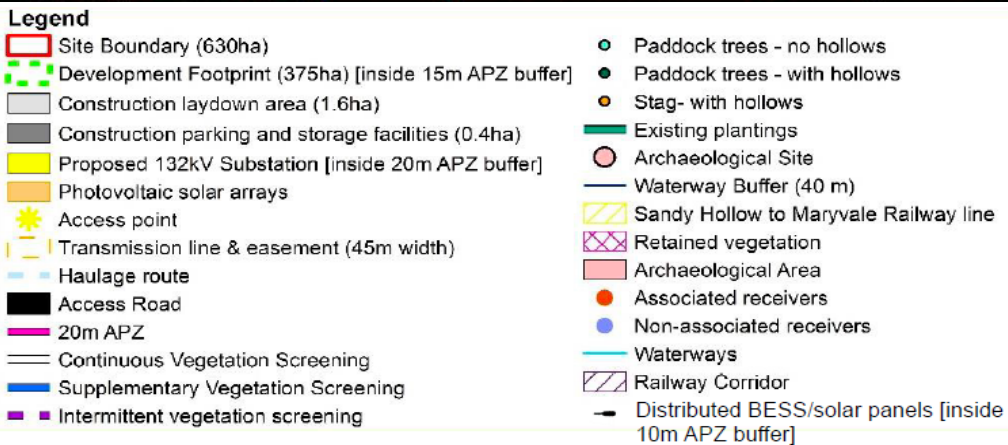
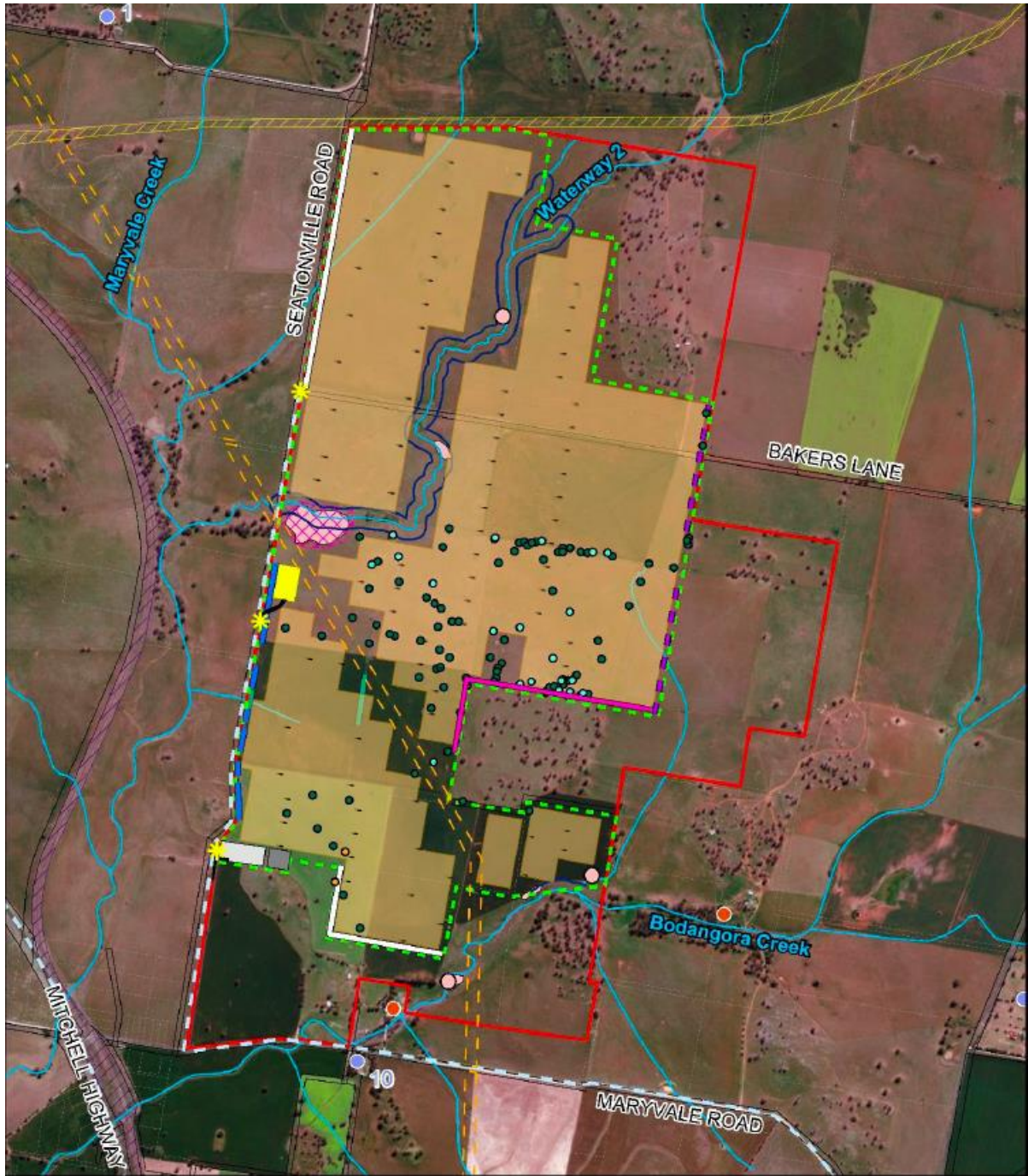


Figure 2 | Project Layout - Distributed BESS Option

3 Strategic Context

As NSW transitions away from coal fired power, there is an increasing need for battery storage to firm renewable energy sources.

The NSW Electrical Strategy (2019) notes that all coal fired power plants in NSW are scheduled for closure within the next twenty years and that firmed renewables are the lowest cost option to replace aging coal power stations.

AEMO's 2022 *Integrated System Plan (ISP)* states that battery storage (such as the proposed Maryvale BESS) is required to provide firming capacity and to support intra-day energy shifting.

In addition, the project site is located within the Central-West Orana Renewable Energy Zone (REZ) which the NSW Government supports in order to unlock regional investment and new energy infrastructure.

The *Central West and Orana Regional Plan 2036* Regional Plan identifies the Dubbo Regional LGA as having the potential to grow renewable energy industries.

4 Statutory context

The Department considers that the application is substantially the same development as originally approved, noting the development footprint of the approved project would not change, and the environmental impacts of the modification would not significantly increase the impacts of the approved project. Consequently, the Department considers that the proposed modification is within the scope of section 4.55(2) of the EP&A Act.

The project, including modifications, is defined as electricity generating works, and is a permissible land use within the RU1 – Primary Production zone under *State Environmental Planning Policy (Transport and Infrastructure) 2021*.

The Minister for Planning is the consent authority for the application under section 4.5 (a) of the EP&A Act. However, under the Minister's delegation to determine SSD modifications, signed 9 March 2022, the Director, Energy Assessments, may determine the application as the Council did not object to the proposal, AGL did not make any political donations and there were less than 15 public objections.

The Department has considered the matters that must be considered in determining a modification application in accordance with section 4.55(3) of the EP&A Act (summarised in **section 6**).

5 Engagement

5.1 Department's engagement

The Department publicly exhibited the modification application from 20 January 2022 until 2 February 2022 and advertised the exhibition in the Wellington Times, Dubbo Mailbox Shopper and Dubbo Daily Liberal. The Department notified people who lodged a submission to the original project and neighbouring landowners, and consulted with Dubbo Regional Council and the relevant government agencies throughout the assessment.

5.2 Submissions, Submissions Report and Agency Advice

During the exhibition period of the modification application, the Department received no public submissions. Advice was provided by 12 government agencies and comments were also received from Council. Full copies of the submissions are attached in **Appendix B**. MSF submitted a Submissions Report (**Appendix C**) providing a response to issues raised by agencies.

Table 2 | Summary of Advice from Agencies and Council

Agency	Key issue
Fire and Rescue NSW	Recommended a Fire Safety Study, Emergency Plan and an Emergency Services Information Package be prepared for the BESS. Resolved through Submission Report and new conditions.
Transport for NSW	Recommended the Traffic Management Plan be updated to provide for the BESS. Resolved through existing conditions.
Departments Water Group (DPE Water)	Recommended the Soil and Water Management Plan be updated to address any potential erosion and sedimentation. Resolved through existing conditions for erosion and stormwater.
Crown Lands	Noted certain anomalies in lot descriptions and stipulated Crown Land's requirements for use of Crown roads within and adjacent to the project area. Resolved through Submissions Report.
Dubbo Regional Council	Noted certification requirements for the BESS structures and requested draft changes to the Dubbo LEP be considered. Resolved through Submissions Report.

The Department's Biodiversity and Conservation Division (BCS), Rural Fire Service NSW, Heritage NSW – Aboriginal Cultural Heritage, Regional NSW – Mining, Exploration & Geoscience, the Environment Protection Authority (EPA), Transgrid, Essential Energy and Sidings Spring Observatory were consulted and raised no objections to the project modifications proposed.

6 Assessment

6.1 Energy Transition

The proposed modification to add a battery to the project aligns with a range of State policies (see **section 3**), which identify the need to diversify the energy generation mix and reduce the carbon emissions intensity of the grid while providing energy security and reliability.

The proposed modification would support the State's continued transition away from traditional power generation derived from fossil fuels, which is largely dispatchable (able to quickly ramp up or down depending on electricity demands), to renewable energy generation such as wind and solar, which is inherently variable. The project would provide 'firming capacity' by contributing to dispatchable energy availability during peak energy demands or when renewable production is low.

Importantly, the project would also contribute to energy security and reliability by providing frequency control ancillary services and system restart ancillary services, meaning the project would contribute to energy supply meeting energy demands, within defined technical parameters, and without disruption.

6.2 Hazards and Bushfire Risk

Due to the proposed use of large-scale battery modules, the Department has considered whether the proposed modification would increase the fire hazard potential of the project.

MSF's preliminary hazard analysis (PHA) considered risks associated with transport and storage of hazardous materials and with the operation of the battery itself, in accordance with the Department's *Hazardous Industry Planning Advisory Paper No 6* and a *Multi-Level Risk Assessment*.

The risk screening found the quantities and volumes of dangerous goods to be transported and stored on site would be below risk thresholds. It concluded that the hazard risk for the battery operation is low to moderate, and with the inclusion of mitigation measures, can be managed to an acceptable level.

The PHA recommendations would be implemented for the project, including adequate separation distances between BESS components and between the site and surrounding land use, installation of relevant infrastructure and engineering controls (such as fire-fighting equipment and site containment), implementation of technology controls (such as automatic shutdown) and appropriate management processes during construction and operation.

The Department therefore considers the risk of a major incident after the implementation of control measures is low, as is the risk of damage to neighbouring properties given the distance to the nearest sensitive receiver.

The project site is not mapped as bushfire prone land, and MSF's bushfire assessment concluded that the bushfire risks for the battery are low, subject to the inclusion of mitigation measures.

MSF's bushfire assessment recommended mitigation measures including fuel load management, additional water storage for firefighting purposes, and establishing asset protection zones (APZ) around the perimeter of the site, the substation, and around BESS infrastructure.

The RFS and Council raised no objection to the modification, subject to the implementation of the recommendations in the bushfire assessment and regular maintenance of the asset protection zone.

The Department concludes the fire hazard risk for the development can be satisfactorily managed subject to additional and revised conditions, including an updated Emergency Response Plan and preparation of a Fire Safety Study.

6.3 Other issues

The potential impacts proposed modification are considered in **Table 3**. The Department has also taken the opportunity to make other administrative updates to the consent as described in **Appendix H**.

Table 3 | Other issues

Land Use

- The modification does not change the nature of the approved land use for electricity generation and would not prevent agricultural activities from continuing on surrounding lands.
- MSF's commitment to return the land back to its pre-development state following decommissioning remains.
- The Department considers that the modification would have a negligible impact on the inherent agricultural capability of the land beyond that approved, and represents an effective and compatible use of land.

Traffic and Transport

- There would be no increase to the total number of construction vehicles accessing the site each day, however overall project construction time would be extended by 4 weeks.
- The modification would have minimal impact to the operational traffic volumes or site access.
- The Department considers the additional traffic would be managed effectively through the existing conditions.

Visual

- Both BESS options would comprise approximately 180 battery units, up to 2.4 m wide and 12.2 m long. The maximum height of the battery units would be 3 m above ground level, this being 1 m lower than the height of the approved solar panels.
- MSF has committed to visual mitigation measures including additional screen planting.
- The centralised BESS option would be screened by the supplementary vegetation screening required along the western boundary of the approved project.
- The Department considers that any change in the visual impacts of the project would be minor, and the rural character and visual quality of the area would not be impacted beyond what is already approved.

Noise

- The modification would not alter construction noise impacts as assessed under the original project.
- There would be negligible noise during operation and the cumulative noise emissions of the modified project are below project noise trigger levels under the NSW *Noise Policy for Industry* (EPA, 2017) for all identified receivers. However, an additional condition is recommended to ensure any noise generated at night does not exceed *NSW Noise Policy for Industry* standards.

Biodiversity

- The modification requires no additional clearing and no changes to the approved development footprint.
- The Department and BCS note that a Biodiversity Development Assessment Report (BDAR) is therefore not required for the modification under section 7.17(2)(c) of the *Biodiversity Conservation Act 2016*.

Water, Soil and Erosion

- The Department notes the site is not flood prone and is satisfied that the existing conditions of consent would adequately manage the runoff and ensure that there are no adverse water or flooding impacts during construction, operation or decommissioning.

Waste

- Waste generated by construction and decommissioning activities would be managed and re-cycled or disposed of in accordance with existing conditions of the development consent.
- Operation of the BESS would generate minimal waste.

Decommissioning

- The anticipated lifespan of the BESS is 30 years.
- Post decommissioning, the land would be rehabilitated within 18 months of the cessation of operations.

7 Evaluation

The Department has assessed the modification application and advice received from relevant government agencies. The Department has also considered the objectives and relevant considerations under sections 4.55 (3) and 4.15 of the EP&A Act.

The proposed modification seeks to construct a 125 MW / 375 MWh BESS over 4 ha of land within the approved development footprint.

The Department considers the proposed BESS is a compatible land use and any hazards can be appropriately managed by conditions. Visual and noise impacts would be minor and impacts on biodiversity, traffic, heritage, water, waste and land use would also be substantially the same as previously assessed and approved.

In summary, the Department's assessment has found that the proposed modification would not result in any significant impacts beyond those that were assessed and approved under the existing consent.

The Department considers that the key benefit of the modification would be to enable the existing solar farm to store solar energy to send to the grid during peak demand, which contributes to increased energy reliability.

The modification achieves an appropriate balance between maximising the benefits of the project through the provision of an energy storage system and minimising the potential impacts on surrounding land users and the environment.

The Department has drafted a Notice of Modification (see **Appendix D**) and consolidated version of the development consent (see **Appendix E**). MSF, Government agencies and Council have reviewed the conditions and no objections have been raised.

The Department is satisfied that the proposed modification is in the public interest and should be approved subject to these conditions.

8 Recommendation

It is recommended that the Director, Energy Assessments, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the application Maryvale Solar Farm Modification 1 (SSD 8777 MOD 1) falls within the scope of section 4.55(2) of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the modification;
- **modify** the consent SSD 8777; and
- **signs** the attached approval of the modification (**Appendix E**).

Recommended by:



13/7/22

Elisha Dunn
Environmental Assessment Officer
Energy Assessments

Recommended by:




13/7/22

Karl Okorn
Team Leader
Energy Assessments

9 Determination

The recommendation is **Adopted / Not adopted** by:



15/7/22

Iwan Davies
A/Director
Energy Assessments

as delegate of the Minister for Planning

Appendices

Appendix A – Modification Report

Appendix B – Submissions and Agency Advice

Appendix C – Submissions Report

Appendix D – Notice of Modification

Appendix E – Consolidated Consent

Appendices A to E available at: <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-1-battery-energy-storage-system>

Appendix F – Statutory considerations

Under section 4.55(3) of the EP&A Act, the consent authority must consider the matters referred to in section 4.15(1) of relevance to the development. **Table 6** identifies the matters for consideration under section 4.15 of the EP&A Act that apply to the proposed modification. The table represents a summary for which additional information and consideration is provided in other sections of this report, as referenced in the table.

Table 6 | Assessment of Section 4.15(1)

Section 4.15(1) Matters for consideration	The Department's assessment
(a)(i) any environmental planning instrument	The modified proposal complies with the relevant legislation as addressed in Sections 3 and 4 .
(a)(ii) any proposed instrument	
(a)(iii) any development control plan	Not applicable.
(a)(iia) any planning agreement	
(a)(iv) the regulations	
	The application satisfactorily meets the relevant requirements of the <i>Environmental Planning and Assessment Regulation 2021</i> , including the procedures relating to modification applications (Part 5), the requirements for notification (Part 5, Division 2) and fees (Part 13) (refer to Section 4).

(b) the likely impacts of that development including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	The Department considers the proposed changes to be minor and would not result in adverse environmental impacts (refer to Section 6).
(c) the suitability of the site for the development	The site is suitable for the development as addressed in Sections 4 and 6 .
(d) any submissions	The Department has considered the submissions received. Refer to Sections 5 and 6 .
(e) the public interest	The Department considers the modified proposal to be in the public interest as it would achieve an appropriate balance between maximising the benefits of the project through the provision of an energy storage system and minimising the potential impacts on surrounding land users and the environment.

Appendix H – Summary of Minor and Administrative Changes to Conditions

Condition Number	Minor and Administrative Changes	Reason for Change
Definitions	Update the definition of EIS in the consent	To include the Modification Report and Submissions Report provided to the Department in the assessment of the modification application
Definitions	Update new titles for the Department (Department of Planning and Environment), its agency head (Planning Secretary) and Minister (for Planning)	To reflect current Departmental and Ministerial titles and responsibilities
Definitions	Update definitions of BCD (now Biodiversity, Conservation and Science Directorate) and RMS (now TfNSW)	To reflect changes to agency names
Schedule 3, Condition 1	Replace condition to state the approved capacity of the BESS	To confirm the approved capacity of the BESS
Schedule 3, Condition 26	Updated conditions relating to storage and handling of dangerous materials	To reflect current compliance requirements
Schedule 3, Condition 27	Update the operating conditions to include requirements for battery storage	To reflect the provision of battery storage on the site
Schedule 3, Condition 28	Update the emergency plan requirements	To reflect the provision of battery storage on the site
Schedule 4, Condition 3	Updated condition relating to incident notification	To reflect current compliance requirements
Schedule 4, Conditions 5 and 6	Updated conditions relating to non-compliance notification, compliance reporting and independent environmental audit	To reflect current compliance requirements
Appendix 1	Update layout plan and schedule of lands	To incorporate the modified layout
Appendix 7	Add incident notification and reporting requirements	To reflect current compliance requirements