

Condition Number	Proposed Conditions	Comment
<b>General Conditions</b>		
1.	<p>The development must be carried out in general accordance with the following plans and all information submitted with the application:</p> <ul style="list-style-type: none"> <li>a) Substantive application for approvals made under the Fast-track Approvals Act 2024, dated 25 August 2025;</li> <li>b) Haldon Geotechnical Study (Beca, September 2024);</li> <li>c) Flood Risk Assessment – Haldon Solar Farm (Beca, September 2024);</li> <li>d) Flood Risk Assessment – Grid Injection (Beca, September 2024);</li> <li>e) Landscape Assessment (Boffa Miskell, August 2025);</li> <li>f) Ecological Assessment (AgScience, July 2025);</li> <li>g) Integrated Transportation Assessment (Stantec April 2025);</li> <li>h) Haldon Substation and Lines Overview (Beca, December 2024);</li> <li>i) Haldon Noise Assessment (Marshall Day, July 2025); and</li> <li>j) The site layout plan included in Attachment 1 to this consent.</li> <li>k) [To be updated with agreed document set]</li> </ul>	
2.	<p>In the event of any conflict between the documents listed in Condition 1 and these conditions, these conditions shall prevail.</p>	

Condition Number	Proposed Conditions	Comment
<b>Pre-Start</b>		
3.	<p>The Consent Holder must:</p> <ul style="list-style-type: none"> <li>a) notify the Mackenzie District Council as to the intended commencement date of any works authorised as part of this resource consent at least 10 working days before such works commence;</li> <li>b) appoint a representative(s) who must be the principal contact person for the Mackenzie District Council in regard to matters relating to this resource consent and: <ul style="list-style-type: none"> <li>i. inform the Mackenzie District Council of the representative's name and contact details at least 10 working days before works authorised by this consent commence; and</li> <li>ii. in the event that the principal contact person changes, must inform the Mackenzie District Council of a new representative as soon as practicable.</li> </ul> </li> </ul>	
4.	<p>A copy of this resource consent and all management plans required in accordance with this resource consent must be kept on site at all times during the construction work and must be produced without unreasonable delay upon request from an agent of the Mackenzie District Council.</p>	

Condition Number	Proposed Conditions	Comment
<b>Kaitiaki Governance Group</b>		
5.	At least three months prior to the commencement of construction works, the Consent Holder must establish a Kaitiaki Governance Group (“ <b>KGG</b> ”) in relation to the solar farm.	Te Rūnanga o Ngāi Tahu and Te Rūnanga o Arowhenua have suggested changes to the form and functioning of the Kaitiaki Governance Group.
5A	<p>The KGG must comprise three representatives from the Consent Holder and three representatives nominated by:</p> <ul style="list-style-type: none"> <li>a) Te Rūnanga o Arowhenua;</li> <li>b) Te Rūnanga o Waihao; and</li> <li>c) Te Rūnanga o Moeraki.</li> </ul> <p>When and if required, representatives from the Canterbury Regional Council, Mackenzie District Council, and/or the Department of Conservation, may be invited to attend KGG meetings by agreement of the KGG.</p>	
5B	<p>The purpose of the KGG includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>a) Facilitating ongoing engagement and communication between the Consent Holder and Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki as mana whenua;</li> <li>b) Supporting and overseeing the implementation of the Cultural Monitoring Programme as described in Condition 5G below;</li> <li>c) Enabling discussions between the Consent Holder and mana whenua on the effectiveness of the measures implemented by the Consent Holder to avoid,</li> </ul>	

Condition Number	Proposed Conditions	Comment
	<p>remedy, or mitigate adverse effects on cultural values associated with the whenua and wai;</p> <p>d) Where agreed by Mana whenua, facilitating their input where required by the conditions of this consent;</p> <p>e) Providing advice on monitoring results, including remedial actions where monitoring indicates a decline in the cultural health as a result of the solar farm operations;</p> <p>f) Providing mana whenua with reports, monitoring information and project updates;</p> <p>g) Providing for access to the site for purposes of mahika kai harvest; and</p> <p>h) Providing a forum through which mana whenua may offer advice on optional initiatives that respond to the cultural and historical context of the site and surrounding environment.</p> <p><i>Note: Optional initiatives may include, but are not limited to, interpretive signage, pouwhenua, and/or artworks in locations agreed between the Consent Holder and mana whenua.</i></p>	
5C	<p>The KGG must:</p> <p>a) Meet on a quarterly basis, unless otherwise agreed by all parties that a meeting is not required;</p> <p>b) Hold, at a minimum, at least one meeting in each calendar year; and</p> <p>c) Continue to operate for the duration of the project, unless otherwise agreed in writing by the KGG members.</p>	

Condition Number	Proposed Conditions	Comment
	<p>The first meeting of the KGG must be held at least twenty working days prior to the commencement of physical works on site.</p>	
5D	<p>The Consent Holder must:</p> <ul style="list-style-type: none"> <li>a) provide the KGG with up-to-date information relevant to the design, construction, operation, and decommissioning of the Solar Farm;</li> <li>b) seek advice from the KGG on the draft management plans required by the conditions of this consent, at least twenty working days prior to their submission for certification; and</li> <li>c) incorporate any advice provided by the KGG (including advice from Aoraki Environmental Consultancy and/or Aukaha) into the draft management plans by making amendments in response to that advice.</li> </ul>	
5E	<p>The Consent Holder must provide resourcing commensurate to the needs of the KGG for the duration of the solar farm. This includes but is not limited to resourcing of technical support from Aoraki Environmental Consultancy (AEC) and Aukaha to enable each Papatipu Rūnanga to participate in accordance with the requirements of these conditions.</p>	
5F	<p>The Consent Holder must maintain a record of matters raised through the KGG and the Consent Holder's response to those matters, including monitoring results and any remedial actions undertaken in response to the monitoring results</p>	

Condition Number	Proposed Conditions	Comment
<b>Cultural Monitoring Programme</b>		
5G	<p>The Consent Holder must establish and implement a Cultural Monitoring Programme in collaboration with mana whenua within and around the Site from the commencement of this consent. The Cultural Monitoring Programme must operate for the duration of the Solar Farm.</p> <p>The purpose of the Cultural Monitoring Programme is to:</p> <ul style="list-style-type: none"> <li>a) Establish a framework for monitoring cultural values and indicators of environmental health within and around the Site prior to and during operation of the Solar Farm;</li> <li>b) Enable ongoing monitoring of these values and indicators, including areas potentially affected by sediment, runoff, or other effects of the activity; and</li> <li>c) Identify and implement remedial actions where monitoring indicates a decline in cultural health or integrity attributable to the Solar Farm.</li> </ul>	
5H	<p>As part of the Cultural Monitoring Programme framework, the Consent Holder must collaborate with mana whenua to:</p> <ul style="list-style-type: none"> <li>a) Establish the specific monitoring methodology, including the indicators to be measured, the approach for data collection, and frequency of monitoring; and</li> <li>b) Ensure that the methodology allows for the identification of changes in cultural and environmental values that may require remedial or mitigation action.</li> </ul>	

Condition Number	Proposed Conditions	Comment
5I	<p>The Consent Holder must provide the opportunity for mana whenua to lead baseline and ongoing cultural monitoring in accordance with the agreed methodology. The Consent Holder must also:</p> <ul style="list-style-type: none"> <li>a) Commission all baseline and ongoing monitoring required under the Cultural Monitoring Programme in accordance with the established methodology;</li> <li>b) Ensure that the results of all monitoring are documented in a Cultural Monitoring Report; and</li> <li>c) Provide the report to the KGG, including summaries, trends, and any remedial actions taken.</li> </ul>	
5J	<p>Compliance with the Cultural Monitoring Programme conditions must be demonstrated through the annual compliance monitoring report. The report must:</p> <ul style="list-style-type: none"> <li>a) Summarise monitoring undertaken in accordance with the Cultural Monitoring Programme;</li> <li>b) Document any remedial actions implemented; and</li> <li>c) Include written confirmation from mana whenua, or their authorised representative, stating that the monitoring requirements of this condition have been met.</li> </ul>	
6.	[deleted]	
7.	[deleted]	

Condition Number	Proposed Conditions	Comment
<b>Construction Management Plan</b>		
8.	<p>No less than 20 working days prior to the commencement of any physical works for the initial construction on the site, the Consent Holder must submit a Construction Management Plan (“<b>CMP</b>”) to the Mackenzie District Council for certification.</p> <p>Certification is required to demonstrate that the CMP:</p> <ul style="list-style-type: none"> <li>a) provides the means to achieve the objective as set out in Condition 9; and</li> <li>b) includes the matters set out in Condition 10.</li> </ul> <p>The Mackenzie District Council must use its best endeavours to certify the CMP within 20 working days of its receipt or alternatively provide the Consent Holder with a timeframe for which certification of the CMP will occur.</p>	<p>The condition has been amended to remove the deeming provision.</p>
9.	<p>The CMP must demonstrate how construction will be managed so as to avoid, remedy or mitigate adverse effects on the environment. To achieve this outcome, the plan must include:</p> <ul style="list-style-type: none"> <li>a) an outline the construction methodology for the solar array, substation and transmission line;</li> <li>b) an outline of the resource consent conditions and council requirements;</li> <li>c) identification of any construction-related activities that have the potential to impact on the immediate environment;</li> <li>d) identification of management procedures to deal with any potential effects of construction activity on the environment;</li> <li>e) protocols to manage accidental cultural heritage and archaeology discovery and preservation of discovered artefacts;</li> </ul>	<p>The elements pertaining to Transpower are supported as per their comments.</p>

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>f) protocols to ensure the safety of public, staff and contractors at all times during the works;</li> <li>g) an outline of the construction methods and management procedures to be implemented on site so that works near the National Grid are undertaken safely and potential adverse effects on the National Grid assets are appropriately managed;</li> <li>h) protocols to ensure that existing transmission lines and support structures will remain accessible during and after construction activities; and</li> <li>i) establishment of communication processes with potentially interested parties including local authorities, community groups, Iwi, commercial businesses, and local residents.</li> </ul>	
10.	<p>The CMP required under Condition 9 must, as a minimum, include:</p> <ul style="list-style-type: none"> <li>a) site plans, including the location of installations, internal access routes, parking areas and laydown areas;</li> <li>b) the construction works programme, including staging of work, construction methodology;</li> <li>c) publicity measures and safety measures, including signage, to inform adjacent landowners and occupiers and other road users;</li> <li>d) waste minimisation and management measures;</li> <li>e) measures to avoid introduction or spread of weed or pest species;</li> <li>f) information to demonstrate that construction activities undertaken on the site will meet the safe distances within the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34: 2001) or any</li> </ul>	<p>The elements pertaining to Transpower are supported as per their comments.</p>

Condition Number	Proposed Conditions	Comment
	<p>subsequent revision of the code, including of any areas that are “out of bounds” during construction and/or areas within which additional management measures are required, such as fencing off, entry and exit hurdles, maximum height limits, or where a safety observer may be required;</p> <p>g) Details of how any construction activities that could result in ground vibrations and/or ground instability will be managed to avoid causing damage to the transmission lines, including support structures;</p> <p>h) identification of the key personnel and contact person(s), including dedicated contacts for any complaints;</p> <p>i) methods and systems to inform and train all persons working on the site of potential environmental issues and how to avoid, remedy or mitigate potential adverse effects; and</p> <p>j) inclusion of Discovery Protocols and a list of contact names and numbers relevant to that discovery.</p>	
11.	<p>Prior to submitting the CMP to the Councils for certification, a copy of the draft CMP must be provided to Transpower NZ Ltd, with an invitation to provide feedback within 10 working days. The Consent Holder must ensure that all written feedback on the draft CMP received from Transpower NZ Ltd within the 10 working day timeframe is provided to the Councils when the CMP is submitted for certification, along with a clear explanation of where any comment made on the draft CMP has or has not been incorporated into the CMP and, if not incorporated, the reasons why.</p>	<p>This condition is supported by Transpower in their comments.</p>
12.	<p>The CMP may be amended at any time. Any amendments must be:</p>	

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>a) Only for the purpose of improving the efficacy of the management of construction effects-related management activities.</li> <li>b) For the purpose of applying best practicable measures to mitigate adverse effects;</li> <li>c) Consistent with the conditions of this resource consent; and</li> <li>d) Submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.</li> </ul> <p>The amended CMP shall be considered to be certified by the Mackenzie District Council if written certification is not provided to the Consent Holder within 20 working days of receipt of the amended CMP, unless the Mackenzie District Council stipulates within that timeframe that further amendments are required to be made prior to certification.</p>	
<b>Construction Traffic Management Plan</b>		
13.	<p>Prior to the commencement of construction on the site, a Construction Traffic Management Plan (“<b>CTMP</b>”) must be prepared in consultation with the NZ Transport Agency and submitted to and certified in writing by the Mackenzie District Council.</p> <p>Certification is required to demonstrate that the CTMP:</p> <ul style="list-style-type: none"> <li>a) Provides the means to achieve the objectives set out in Condition 15; and</li> <li>b) Includes the matters set out in Condition 16.</li> </ul> <p>The CTMP is to be implemented throughout the construction phase of the project.</p>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended changes to this condition to recognise the NZ Transport Agency as the relevant roading authority for the State Highway, and to ensure the implementation of the CTMP throughout the construction period.</p> <p>The suggested amendments to Condition 13 are accepted.</p>
14.	The objectives of the CTMP are to ensure that:	

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>a) Construction traffic, particularly heavy traffic, is safely accommodated along all routes to the site;</li> <li>b) Construction traffic can safely turn at intersections without affecting the safety of the intersections;</li> <li>c) Construction traffic can safely turn onto and off the Site at the proposed access location without impacting the safety of the frontage road; and</li> <li>d) Adverse effects of the condition of the public road network as a result of construction traffic are remedied.</li> </ul>	
15.	<p>The CTMP must, as a minimum, include:</p> <ul style="list-style-type: none"> <li>a) A description of process and approach for development of the CTMP;</li> <li>b) Details of the construction programme and planned traffic flows;</li> <li>c) Identification of travel routes, site access points and staff/contractor parking, including details of any measures to enable shared transport;</li> <li>d) Details of signage to provide guidance to the Site at the Haldon Road / Haldon Arm Road intersection and at the Site access point;</li> <li>e) Measures to manage road safety including such measures as signage, driver protocols, monitoring and reporting requirements;</li> <li>f) Measures to minimise the effects of construction traffic on local amenity, including the management of dust from the use of unsealed roads;</li> <li>g) Details of any road safety assessments undertaken;</li> <li>h) Methods for recording and accounting for pavement maintenance (including structures such as bridges and cattle grids);</li> </ul>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended changes to Condition 16. The suggested amendments to Condition 15 are accepted.</p> <p>The Transport Review also recommended inclusion of Advice Notes to Condition 16 that set out further matters of detail to be considered in the CTMP. These matters are considered to have been sufficiently captured in Condition 15 (a) – (p), and have not been accepted.</p> <p>Mackenzie District Council has also sought amendment to Condition 15(c) to include more detail on alternative transport modes for contractors coming to site to avoid/minimize potential adverse amenity impacts on residents on Haldon Road.</p> <p>This is addressed in Condition 26 and no further amendment is considered necessary.</p>

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>i) Planning for, and details of over-weight / over-dimension transport movements, including any relevant permit provisions;</li> <li>j) Provision for planning and managing the safety and efficiency of stock movements in conjunction with vehicle movements associated with the solar farm;</li> <li>k) Incident reporting mechanisms, recording and reporting methods, including steps for remedial actions (if required);</li> <li>l) Provision for emergency services access;</li> <li>m) Temporary traffic management planning, including at one-lane bridges;</li> <li>n) Provision and publicity of contact details (such an 0800 number) so that members of the public and road users have a known point of contact for any traffic related issues that may arise during the construction of the solar farm;</li> <li>o) Measures to ensure no standing or parking of construction-related vehicles on Haldon Road or Haldon Arm Road; and</li> <li>p) Measures for the ongoing review of the effectiveness of the CTMP.</li> </ul>	
16.	<p>The CTMP may be amended at any time. Any amendments must be prepared in consultation with the NZ Transport Agency and:</p> <ul style="list-style-type: none"> <li>a) Only for the purpose of improving the efficacy of the construction traffic management measures;</li> <li>b) For the purpose of applying best practicable measures to mitigate adverse effects;</li> <li>c) Consistent with the conditions of this resource consent; and</li> </ul>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended changes to this Condition to recognise the NZ Transport Agency as the relevant roading authority for the State Highway. The suggested amendments to Condition 16 are accepted.</p>

Condition Number	Proposed Conditions	Comment
	<p>d) Submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.</p> <p>The amended CTMP shall be considered to be certified by the Mackenzie District Council if written certification is not provided to the Consent Holder within 20 working days of receipt of the amended CTMP, unless the Mackenzie District Council stipulates within that timeframe that further amendments are required to be made prior to certification.</p>	
<b>Roading and Access</b>		
17.	<p>Access to the Site for construction traffic must be via a single access point to be established from Haldon Arm Road within 200 m of grid reference (NZTM 2000) E1379570, N5086610. The access must be constructed so that it can accommodate truck and trailer units turning left into and right out of the site within the formed carriageway. A queue space of 24 m must be provided at the access.</p> <p>The design of the access (including internal access) and parking areas must be submitted to and certified by the Mackenzie District Council prior to construction to confirm they are practicable for the intended use and constructed to an all-weather standard. The design of the car park must identify sufficient area to accommodate the anticipated parking demands, and the access is to include details regarding internal passing locations.</p>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended changes to Condition 17 to carry forward the intent of the Applicant’s Integrated Transportation Assessment.</p> <p>The suggested amendments to Condition 17 are accepted.</p>
17A.	<p>Prior to the end of the construction stage, the Consent Holder must provide plans of the proposed permanent access arrangement to the site to the Mackenzie District Council for certification. This access is required to accommodate the vehicle tracking of the reasonably foreseeable maintenance vehicles including appropriate gate setbacks to ensure queuing does not extend to the public road carriageway. The</p>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended insertion of new Condition 17A to address the form of the permanent (operational) site access.</p> <p>The suggested inclusion of Condition 17A is accepted.</p>

Condition Number	Proposed Conditions	Comment
	<p>access formation must be to an all-weather standard and the Consent Holder is to confirm that appropriate sight distance is achieved to Haldon Arm Road. Areas of existing access that are redundant are to be returned to the existing verge condition,</p>	
18.	<p>Prior to the commencement of construction on the site, the Consent Holder must upgrade the intersection between the two legs of Haldon Road located approximately at grid reference (NZTM 2000) E1405270, N5114480. The upgrade of this intersection must be in general accordance with indicative works illustrated in Attachment 2 to this consent and include:</p> <ul style="list-style-type: none"> <li>a) Widening of the western leg to accommodate a large heavy vehicle (such as a truck and trailer) to turn left in while a single-unit truck waits to turn right out and vice versa; and</li> <li>b) Associated line marking and signage.</li> </ul> <p>Prior to these works occurring, the Consent Holder must submit the detailed design of the upgrades to the Mackenzie District Council for approval.</p>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended changes to Condition 18 to address signage and confirmation of design of required intersection upgrades.</p> <p>The suggested amendments to Condition 18 are accepted.</p>
18A.	<p>Prior to the commencement of construction on the site, the Consent Holder must upgrade either the eastern or western Haldon Road leg at the SH8 intersection (as appropriate depending on construction traffic routing) to accommodate two-way traffic flow.</p> <p>Prior to these works occurring, the Consent Holder must develop a detailed design of the upgrades in consultation with the NZ Transport Agency and submit this to the Mackenzie District Council for certification.</p>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended insertion of new Condition 18A to provide for two-way traffic flow at the relevant parts of the SH8 / Haldon Road intersection.</p> <p>The suggested inclusion of Condition 18A is accepted with minor amendments.</p>
19.	<p>Prior to any material or equipment deliveries utilising the intersection of State Highway 8 and the eastern leg of Haldon Road located approximately at grid reference (NZTM</p>	<p>This condition has been accepted by NZ Transport Agency.</p>

Condition Number	Proposed Conditions	Comment
	<p>2000) E1405375, N5114560, the Consent Holder must complete all necessary works to realign the Haldon Road eastern leg approach to State Highway 8 to improve the driver observation angle to the left.</p>	
<p>20.</p>	<p>Prior to works commencing on the intersection upgrade referred to in Condition 18, the Consent Holder must:</p> <ul style="list-style-type: none"> <li>a) submit the detailed design of the State Highway 8 intersection realignment works to NZ Transport Agency for approval; and</li> <li>b) submit a copy of NZ Transport Agency’s approval to undertake works on the state highway (as detailed in the advice notes below) to Mackenzie District Council.</li> </ul>	<p>This condition has been accepted by NZ Transport Agency.</p> <p>Minor cross-reference error noted.</p>
<p>21.</p>	<p>The completed State Highway 8 intersection realignment works must be certified by a suitably experienced Chartered Professional Engineer (CPEng) that the works have been completed in accordance with the detailed design approved by the NZ Transport Agency. That certification must be provided to the NZ Transport Agency.</p> <p><b>Advice Notes:</b></p> <ul style="list-style-type: none"> <li>a. <i>It is a requirement of the Government Roading Powers Act 1989 that any person wanting to carry out works on a state highway first gain the approval of the NZ Transport Agency for the works and that a Corridor Access Request (CAR) is applied for and subsequently a Work Access Permit issued (WAP) before any works commence. A CAR will be required for the State Highway 8 Intersection works.</i></li> <li>b. <i>Detailed design approval from the NZ Transport Agency must be gained by the Consent Holder prior to applying for a CAR. The detailed design must be prepared by a suitably qualified professional. In developing the detailed design, the Consent Holder will need to consult with the NZ Transport Agency</i></li> </ul>	<p>This condition has been accepted by NZ Transport Agency.</p>

Condition Number	Proposed Conditions	Comment
	<p><i>appointed Safety Engineer and the state highway maintenance contractor for the Mackenzie District Council.</i></p> <p><i>c. A Corridor Access Request is made online via <a href="http://www.submitica.co.nz">www.submitica.co.nz</a>. The CAR needs to be submitted at least 21 working days before the planned start of works. The Corridor Access Request will need to include:</i></p> <ul style="list-style-type: none"> <li><i>i. The detailed final design for the State Highway 8 / Haldon Road intersection upgrade;</i></li> <li><i>ii. A Construction Traffic Management Plan that has attained approval from the NZ Transport Agency appointed state highway maintenance contractor for the Mackenzie District Council.</i></li> </ul>	
22.	<p>At least two months prior to the commencement of construction activities, the Consent Holder must engage a suitably qualified and experienced road maintenance engineer to prepare a programme to assess and record the condition of the road surface on Haldon Road and Haldon Arm Road. This programme must be submitted to the Mackenzie District Council for certification before the assessment is conducted. The inspection and recording of the road surface condition must be undertaken in consultation with the Mackenzie District Council's Transportation Manager.</p> <p>The road surface condition rating is to be used as the baseline (including vehicle counts) for assessing the works required to return the road surface to at least its standard / condition prior to the commencement of the construction.</p> <p>The programme may be provided as part of the Construction Traffic Management Plan required by Condition 13.</p>	
23.	<p>The Consent Holder must reimburse the Mackenzie District Council for the cost of the road surface maintenance (potholes / surface rutting etc) caused by the activities authorised by this consent. The maintenance cost will be calculated on a prorate basis</p>	

Condition Number	Proposed Conditions	Comment
	<p>against the baseline heavy vehicle traffic volumes and taking into account any financial assistance received by Council for road maintenance or funding otherwise committed to road maintenance.</p>	
24.	<p>Following the completion of construction works, the Consent Holder must return the road surface condition of Haldon Road and Haldon Arm Road to no worse than that identified in the road surface condition survey carried out in accordance with Condition 22 of this consent at the Consent Holder's expense and to the satisfaction of the Mackenzie District Council, where not otherwise reimbursed in accordance with Condition 23.</p>	<p>The Transport Review undertaken on behalf of Mackenzie District Council has recommended insertion of additional words to Condition 23.</p> <p>The amendment is accepted.</p>
25.	<p>The Consent Holder must provide bus or alternative transport modes for as many workers associated with construction of the solar farm as is practicable to minimise light vehicle movements on Haldon Road during construction of the solar farm.</p>	<p>Minor typo noted.</p>
<p><b>Landscaping and Ecology</b></p>		
25A.	<p>In the event that the woody vegetation currently present on the lakeshore of Lake Benmore / Te Ao Mārama on the southern border of the solar farm site is programmed to be or has been removed to the extent that it no longer provides visual screening of the solar farm from Lake Benmore / Te Ao Mārama, the Consent Holder must develop and implement a landscape planting plan for the purpose of restoring the visual screening of views of the solar farm from Lake Benmore / Te Ao Mārama.</p>	
26.	<p>No permanent structures associated with the development except fencing shall be erected within 300 m of Haldon Arm Road.</p>	

Condition Number	Proposed Conditions	Comment
27.	The Consent Holder must install and maintain site perimeter fencing of a specification suitable to exclude rabbits for the life of the project.	
28.	The Consent Holder must undertake pest control for rabbits inside the perimeter fence with the objective of removing all rabbits from within the fenced area over the life of the project.	
<b>Ecological Management Plan</b>		
28A.	<p>The Consent Holder must prepare an overarching Ecological Management Plan (“<b>EMP</b>”) that sets out the response to management of ecological effects during the construction and operation of the solar farm. The EMP must incorporate matters relating to management of ecological effects contained in the following documents:</p> <ul style="list-style-type: none"> <li>a. Construction Management Plan</li> <li>b. Cultural Monitoring Plan</li> <li>c. Flora Management Plan</li> <li>d. Avifauna Management Plan</li> <li>e. Herpetofauna Management Plan</li> <li>f. Invertebrate Management Plan.</li> </ul>	
28B.	<p>The EMP must also provide detail of the conservation zones that have been set aside for purposes of offsetting ecological effects that have not otherwise been avoided, minimised or mitigated. That information must include:</p> <ul style="list-style-type: none"> <li>a. The management outcomes for each of the conservation areas</li> </ul>	

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>b. Details on how the conservation zones are to be demarcated and protected for the life of the solar project</li> <li>c. The monitoring and success criteria that will apply to ensure the management outcomes are being met</li> <li>d. The triggers and response mechanisms in the event that the outcomes are not being met</li> <li>e. Reporting and review mechanisms.</li> </ul>	
28C.	<p>The Consent Holder must develop the EMP in consultation with the Department of Conservation and submit the EMP to Mackenzie District Council for certification no less than 20 working days prior to the commencement of any physical works for the initial construction of the solar farm. Certification is required to demonstrate that the EMP will provide the means to achieve the management outcomes anticipated in Condition 28B.</p>	
<b>Flora Plant Management</b>		
29.	<p>The Consent Holder must engage a suitably qualified and experienced practitioner in Threatened or At-risk dry-land vascular plant ecology to develop a Flora Management Plan (“<b>FMP</b>”) with the objective to meet the management outcomes anticipated in Condition 28B and otherwise avoid, remedy, or mitigate for the potential adverse effects, and where required, offset and compensate for residual adverse effects, of the construction and operation of the Project on Threatened or At-Risk dry-land vascular plants.</p> <p>To achieve this objective, the FMP must:</p>	<p><b>Drafting note</b></p> <p>These conditions provide a framework for managing indigenous dry-land vascular plants.</p> <p>It is acknowledged that there are differing views on the level of potential effects. Subject to narrowing the gap in those views, these conditions may need to be revisited to ensure adequacy of measures.</p>

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>a. Detail the ecological management programme that will be implemented to avoid, remedy, and mitigate the impacts on Threatened or At-risk dry-land vascular plants during and after the construction phase of the Haldon Solar Farm;</li> <li>b. Document the management measures that will be adopted by the Consent Holder, including the restoration, management and maintenance of Threatened or At-risk dry-land vascular plants within the Project Site; and</li> <li>c. Ensure that any long-term effects are appropriately managed through monitoring, adaptive management where appropriate, and implementation of appropriate responses.</li> </ul>	<p>These additions respond to requests for further clarity on the approach to management of avifauna as raised by:</p> <p>Minister for the Environment;  Forest and Bird;  Environmental Defence Society  Department of Conservation;  Canterbury Regional Council</p>
29A.	<p>Prior to finalising the FMP the Consent Holder must engage a Suitably Qualified and Experienced Person to confirm areas of Threatened or At-Risk vegetation within the final Project footprint (including within the conservation areas) that will be confirmed following completion of detailed design.</p> <p>The vegetation mapping shall be at a scale suitable to ensure that the FMP meets the objective set out in Condition 29 and must:</p> <ul style="list-style-type: none"> <li>a. Identify accurately surveyed areas where vegetation clearance will occur;</li> <li>b. Describe the ecological value of vegetation to be cleared, including a list of indigenous plant species affected; and</li> <li>c. Identify areas of indigenous vegetation that are the subject of active management actions such as avoidance, translocation or where set aside in the conservation areas.</li> </ul>	
29B.	<p>Following the completion of the vegetation mapping required by Condition 29A, the Consent Holder must:</p>	

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>a. Consider whether any modifications can be made to the Project Footprint to avoid (as first preference) or minimise adverse effects on areas of vegetation that are subjected to specified management actions; and</li> <li>b. Include details of the considerations to address the above in the final FMP.</li> </ul>	
29C.	<p>The final FMP must include a methodology for management of vegetation clearance, consistent with the vegetation mapping required by Condition 29A, including through:</p> <ul style="list-style-type: none"> <li>a. Vegetation clearance protocols, that include demarcation, timing of clearance (if required), and supervision requirements;</li> <li>b. Opportunities for the salvage and reuse of plants;</li> <li>c. Methods for delineating and managing areas of vegetation, in particular those including any Threatened or At-risk species;</li> <li>d. Details of the rehabilitation planting to be carried out including ongoing monitoring and management requirements;</li> <li>e. The subsequent management of weeds; and</li> <li>f. Compliance monitoring and reporting requirements.</li> </ul>	
29D.	<p>The Consent Holder must develop the FMP in consultation with the Department of Conservation and submit it to Mackenzie District Council for certification no less than 20 working days prior to the commencement of any physical works for the initial construction of the solar farm. Certification is required to demonstrate that the MP will provide the means to achieve the objectives as set out in Condition 29.</p>	

Condition Number	Proposed Conditions	Comment
<b>Avifauna Management</b>		
30.	<p>The Consent Holder must engage a suitably qualified and experienced practitioner in avifauna to develop an Avifauna Monitoring Plan with the objective to avoid, remedy, or mitigate for the potential adverse effects, and where required, offset and compensate for residual adverse effects, of the construction and operation of the Project on avifauna.</p> <p>To achieve this objective, the Avifauna Monitoring Plan must include:</p> <ul style="list-style-type: none"> <li>a. Identification of bird species that are likely to use or interact with the project site;</li> <li>b. Establish methods for identifying nesting bird behaviours and protocols to minimise their disturbance when identified;</li> <li>c. Monitoring methodologies and frequencies to determine that use or interaction ;</li> <li>d. Details of the collision mortality thresholds and response actions required in accordance with Conditions 30B and 30C.;</li> <li>e. Requirements for reporting; and</li> <li>f. The review and evaluation of the Avifauna Monitoring Plan throughout the life of the project.</li> </ul>	<p>Amendments respond to requests for further clarity on the approach to management of avifauna as raised by:</p> <p>Minister for the Environment</p> <p>Environmental Defence Society</p> <p>Forest and Bird;</p> <p>Department of Conservation</p> <p>Canterbury Regional Council</p>
30A.	<p>The Avifauna Monitoring Plan must also incorporate a monitoring design for avifauna mortality surveys that includes details on:</p> <ul style="list-style-type: none"> <li>a. Avifauna mortality surveys that quantify the abundance and identity of any bird carcasses found within the site;</li> <li>b. Searcher efficiency trials that assess how effectively observers detect carcasses in the field; and</li> </ul>	

Condition Number	Proposed Conditions	Comment
------------------	---------------------	---------

- c. Carcass persistence trials that determine how detection probability changes over time as carcasses are scavenged or decay.

The purpose of the avifauna mortality surveys is to inform the species-specific adaptive management triggers set out in Condition 30B.

30B. Avifauna monitoring must be measured against the adaptive management trigger for the individual species listed in the Table below. The annual mortality period will commence following the date of the installation of the first solar panel, and thereafter 1 July – 30 June annually, unless or until a review of the Avifauna Monitoring Plan confirms otherwise.

Species	Conservation Status	Adaptive Management Trigger (Annual Mortality)
Black Stilt / Kakī	Threatened – Nationally Critical	1
Australasian bittern / Matuku-hūrepo	Threatened – Nationally Critical	1
Black Fronted Tern / Tarapirohe	Threatened – Nationally Endangered	2
Any other nationally critical species		1

#### Drafting Note

These draft conditions respond to comments regarding an adaptive management response to potential effects on avifauna. These are based on the approach taken at the Southland Wind Farm, which have been accepted by DOC, and is similar to the adaptive management approach taken at the Glorit solar farm. The conditions in the Southland Wind Farm application include a table of notable bird species that are known to be within the area of the site and identify annual mortality triggers for each bird species. The triggers were informed by the ecologists and were based on the threat status for each individual species. For example, for species that are nationally critical, the annual mortality trigger is 1 bird, for nationally endangered species, the trigger is 2 and nationally vulnerable species, the trigger is 3. Where a mortality trigger is exceeded, the conditions then require the consent holder to implement compensation, to enhance known habitat or breeding sites for that species, either in the form of predator control or habitat enhancement.

Preferably there would be some expert evidence to inform the basis for these mortality triggers. This could again be based on both the threat status for the bird species and the regularity that it crosses over the site.

Condition Number	Proposed Conditions	Comment
	<p>Any other nationally endangered species</p> <hr/>	2
	<p>Any other nationally vulnerable species</p> <hr/>	3
	<p>Any other at-risk species</p> <hr/>	8
30C.	<p>In the event that the Avifauna monitoring identifies that the mortality of any individual bird species listed in Condition 30B above has equalled or exceeded the Adaptive Management Trigger for that individual species as a result of interactions with the solar installation, the following will apply:</p> <ul style="list-style-type: none"> <li>a. The Consent Holder must notify the Department of Conservation and the Mackenzie District Council within 48 hours of becoming aware of the exceedance.</li> <li>b. The Suitably Qualified and Experienced Person responsible for Avifauna monitoring at the Haldon Solar Farm must undertake an investigation and complete a draft report on the possible cause of bird mortality within 15 working days of the Consent Holder notifying the Department of Conservation and the Mackenzie District Council. This report must: <ul style="list-style-type: none"> <li>i. Identify whether any additional monitoring is required to further determine the potential cause of bird mortality; and</li> <li>ii. Outline the compensation that is required to be implemented by the Consent Holder. The purpose of the compensation must be to enhance a known habitat or breeding site of the affected bird</li> </ul> </li> </ul>	

Condition Number	Proposed Conditions	Comment
	<p>species in New Zealand to address the residual effects of the operation of the Haldon Solar Farm on avifauna. This may be in the form of additional predator control or habitat enhancement or the provision of funding to an existing or proposed predator control or habitat enhancement programme for the affected bird species.</p> <p>c. The draft report must be immediately provided to the Department of Conservation for review and comment.</p> <p>d. The Consent Holder must submit the report (including any comments from the Department of Conservation and the Consent Holder’s response to those comments) to the District Council for certification within 15 working days of providing the draft report to the Department of Conservation. A copy of the final report must also be provided to the Department of Conservation.</p> <p>Following certification of the report, the Consent Holder must implement the compensation requirements outlined in the final report.</p>	
31.	<p>The Consent Holder must develop the Avifauna Monitoring Plan in consultation with the Department of Conservation and submit it to Mackenzie District Council for certification no less than 20 working days prior to the commencement of any physical works for the initial construction of the solar farm. Certification is required to demonstrate that the Avifauna Monitoring Plan will provide the means to achieve the objectives as set out in Condition 30.</p>	
<b>Herpetofauna Management</b>		
31A.	<p>The Consent Holder must engage a suitably qualified and experienced practitioner in herpetofauna to develop a Lizard Management Plan with the objective to meet the management outcomes anticipated in Condition 28B and otherwise avoid, remedy, or mitigate for the potential adverse effects, and where required, offset and compensate</p>	<p>Amendments respond to requests for further clarity on the approach to management of herpetofauna as raised by:</p> <p>Minister for the Environment</p>

Condition Number	Proposed Conditions	Comment
	<p>for residual adverse effects, of the construction and operation of the Project on herpetofauna.</p> <p>To achieve this objective, the Lizard Management Plan must include:</p> <ul style="list-style-type: none"> <li>a. A description of the measures to be undertaken by the Consent Holder to adequately avoid, remedy, mitigate or offset for effects on lizard species present within the Project Site;</li> <li>b. A description of the incidental discovery protocols;</li> <li>c. A description of monitoring and reporting requirements; and</li> <li>d. Roles and responsibilities.</li> </ul>	<p>Department of Conservation</p> <p>Environmental Defence Society</p> <p>Forest and Bird</p> <p>Canterbury Regional Council</p>
31B.	<p>The Consent Holder must develop the Lizard Management Plan in consultation with the Department of Conservation and submit it to Mackenzie District Council for certification no less than 20 working days prior to the commencement of any physical works for the initial construction of the solar farm. Certification is required to demonstrate that the Lizard Management Plan will provide the means to achieve the objectives as set out in Condition 31A.</p>	
<b>Invertebrate Management</b>		
31C.	<p>The Consent Holder must engage a suitably qualified and experienced practitioner in terrestrial invertebrates to develop a Terrestrial Invertebrate Management Plan with the objective to meet the management outcomes anticipated in Condition 28B and otherwise avoid, remedy, or mitigate for the potential adverse effects, and where required, offset and compensate for residual adverse effects, of the construction and operation of the Project on indigenous terrestrial invertebrates.</p> <p>To achieve this objective, the Terrestrial Invertebrate Management Plan must include:</p>	<p>Amendments respond to requests for further clarity on the approach to management of invertebrates as raised by:</p> <p>Minister for the Environment</p> <p>Department of Conservation</p> <p>Environmental Defence Society</p>

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>a. A description of the measures to be taken by the Consent Holder during ground disturbance activities to avoid, remedy, mitigate, or where necessary, offset and compensate for adverse effects on notable indigenous invertebrates;</li> <li>b. An incidental discovery protocol.</li> <li>c. A description of the monitoring and reporting requirements; and</li> <li>d. Roles and responsibilities.</li> </ul>	<p>Forest and Bird</p> <p>Canterbury Regional Council</p>

31D. The Consent Holder must develop the Terrestrial Invertebrate Management Plan in consultation with the Department of Conservation and submit it to Mackenzie District Council for certification no less than 20 working days prior to the commencement of any physical works for the initial construction of the solar farm. Certification is required to demonstrate that the Terrestrial Invertebrate Management Plan will provide the means to achieve the objectives as set out in Condition 31C.

**Noise**

32. All activities on the site, other than emergency service warning devices and sirens, must be designed, conducted and undertaken so as to ensure that the following noise limits are not exceeded at any point within the notional boundary of any noise sensitive activity within the site:

Mackenzie District Council has sought amendment to this condition to better reflect the Mackenzie District Plan.

The suggested amendments are accepted.

0700-2200 hours	55 dB LA <sub>eq(15 min)</sub>
2200-0700	45 dB LA <sub>eq(15 min)</sub>
At any time	70 dB LA <sub>Fmax</sub>

Condition Number	Proposed Conditions	Comment
33.	Noise from any construction activity must comply with the relevant noise limits set out in <i>Tables 2 and 3 of NZS 6803:1999 Acoustics – Construction Noise</i> , when measured and assessed in accordance with that standard.	

### Fire Risk Management

34.	<p>Prior to commencing construction, the Consent Holder must prepare an Emergency Management Plan (“<b>EMP</b>”) in consultation with Fire and Emergency New Zealand. The Consent Holder must provide evidence to Mackenzie District Council that engagement with Fire and Emergency New Zealand has occurred including evidence of sign off by a Fire and Emergency New Zealand representative. The EMP must include, but not be limited to:</p> <ul style="list-style-type: none"> <li>a) a facility description, including infrastructure details, operations, number of personnel, and operating hours;</li> <li>b) details on emergency service access and emergency response procedures;</li> <li>c) confirmation of the provisions and location of an onsite firefighting water supply; and</li> <li>d) fire risk management measures and procedures, including monitoring of alarms and faults and the management of vegetation.</li> </ul>	<p>Mackenzie District Council has sought amendment to this condition to more effectively address the matter of fire risk at the site, including (paraphrased):</p> <ul style="list-style-type: none"> <li>• location of on-site firefighting water supply</li> <li>• isolation of solar farm components</li> <li>• carrying of fire extinguishers in vehicles</li> <li>• vegetation management</li> <li>• monitoring of alarms and faults</li> </ul> <p>These matters are considered to have been sufficiently captured in Condition 35 (a) – (d) and have only been accepted in part.</p>
-----	---	--

### Emergency Hydro Inundation Response

34A.	The consent holder must, in consultation with Meridian Energy Limited, prepare, implement and maintain a current Emergency Hydro Inundation Response and Evacuation Plan for that part of the site subject to the Hydro Inundation Hazard Overlay in the Operative Mackenzie District Plan (or such replacement) for the	Meridian Energy Limited has sought inclusion of this condition to mitigate flood hazard in the event of uncontrolled release of water from the Waitaki Power Scheme.
------	--	--

Condition Number	Proposed Conditions	Comment
	<p>purposes of minimising the risk to life and property (including assets) that may arise from the uncontrolled release of water from the Waitaki Power Scheme. The Emergency Hydro Inundation Response and Evacuation Plan must be provided to Mackenzie District Council prior to construction beginning on the site, and any subsequent updates of that Plan must be provided within 3 months of an update being finalized.</p>	<p>This condition has been accepted.</p>
<p><b>Hazardous Substances</b></p>		
<p>35.</p>	<p>All hazardous substances must be identified, handled and stored in accordance with the requirements of the Hazardous Substances and New Organisms Act (1996).</p>	
<p><b>Electrical Safety – National Grid</b></p>		
<p>36.</p>	<p>All land use activities, including the construction of new buildings/structures, earthworks, fences, any operation of mobile plant and/or persons working near exposed line parts must comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) or any subsequent revision of the code.</p>	<p>This condition is supported by Transpower.</p>
<p>37.</p>	<p>The consent holder must provide Transpower NZ 10 working days' notice in writing prior to commencing the works authorised by this consent.</p> <p><i>Advice Note: notification can be sent to <a href="mailto:transmission.corridor@transpower.co.nz">transmission.corridor@transpower.co.nz</a>.</i></p>	
<p>38.</p>	<p>All buildings, structures and vegetation must be located to ensure existing vehicle access is maintained to the BEN-ISL-A National Grid transmission lines and National Grid support structures BEN-ISL-A0070, BEN-ISL-A0071, BEN-ISL-A0072 and BEN-ISL-A0073, for maintenance at all reasonable times, and emergency works at all times.</p>	<p>This condition is supported by Transpower.</p>

Condition Number	Proposed Conditions	Comment
<b>Earthworks</b>		
39.	<p>The Consent Holder must adopt all reasonable and practicable measures to prevent any dust caused by operations on the site from causing:</p> <ul style="list-style-type: none"> <li>a) an effect that is noxious, dangerous, offensive or objectionable at or beyond the site; or</li> <li>b) material damage to the National Grid transmission lines which cross the consent area.</li> </ul>	
40.	<p>Prior to the commencement of construction, the Consent Holder must provide to the Mackenzie District Council an Erosion and Sediment Control Plan (“<b>ESCP</b>”) for the construction works and operation of the activity. The plan must be prepared by a suitably qualified and experienced person, taking into account Environment Canterbury’s Erosion and Sediment Toolbox.</p> <p><b>Advice note:</b> <i>The ESCP is required to be certified by Canterbury Regional Council under the conditions of the regional consents for the Site.</i></p>	
41.	<p>If, at any time during site works, sensitive materials (koiwi/human remains, an archaeology site, a Māori cultural artefact, or a protected heritage object) are discovered, then the following protocol must be followed:</p> <ul style="list-style-type: none"> <li>a) all works must cease in the immediate vicinity (at least 20 m from the site of the discovery) and the area of the discovery must be secured including a buffer to ensure all sensitive material remains undisturbed;</li> </ul>	

Condition Number	Proposed Conditions	Comment
------------------	---------------------	---------

- b) the Consent Holder must immediately advise the Consent Authority, Heritage New Zealand Pouhere Taonga and Police (if human remains are found) and arrange a site inspection with these parties; and
- c) if the discovery contains koiwi, archaeology or artefacts of Māori origin, the Consent Holder must immediately advise representatives from Papatipu Rūnanga and arrange a site inspection with these parties.

**Buildings and Lighting**

42.	No sensitive equipment will be installed at an elevation that is below 361.11 mRL adjacent to Te Ao Mārama / Lake Benmore.	
43.	All fencing and power stations within the site must have surfaces finished in a recessive colour shade of tawny brown, green, or grey with a Light Reflectance Value of less than 36%.	
44.	<p>The following outdoor lighting may not be used between 10.00pm and 6.00am:</p> <ul style="list-style-type: none"> <li>a) searchlights; and</li> <li>b) floodlighting of an area that is not in use or of an activity that is not in operation.</li> </ul>	
45.	Security lights must be fitted and controlled with a motion sensor.	
46.	All fixed exterior lighting must be directed away from any adjacent roads and Lake Benmore.	

Condition Number	Proposed Conditions	Comment
------------------	---------------------	---------

47. All outdoor lighting must be shielded from above in such a manner that all the light shines below the horizontal.

48. The correlated colour temperature of outdoor lighting must not exceed 3000 K.

49. Only light-emitting diode, low pressure sodium and high-pressure sodium light sources must be used for outdoor lighting.

50. The maximum level of light spill from outdoor lighting must not exceed the following horizontal or vertical illuminance levels on any adjoining site:

2200 to 0600	1 lux
0600 to 2200	5 lux

### Decommissioning

51. No later than 12 months prior to the commencement of decommissioning of the solar array authorised by this resource consent, the Consent Holder must submit a Decommissioning Plan to the Team Leader Compliance for certification. The Decommissioning Plan must be prepared by a suitably qualified and experienced person and provide for the following objectives:

- a) decommissioning of the solar panels and associated infrastructure; and
- b) leaving the land in a condition that is safe and stable.

52. The Decommissioning Plan must include but not be limited to:

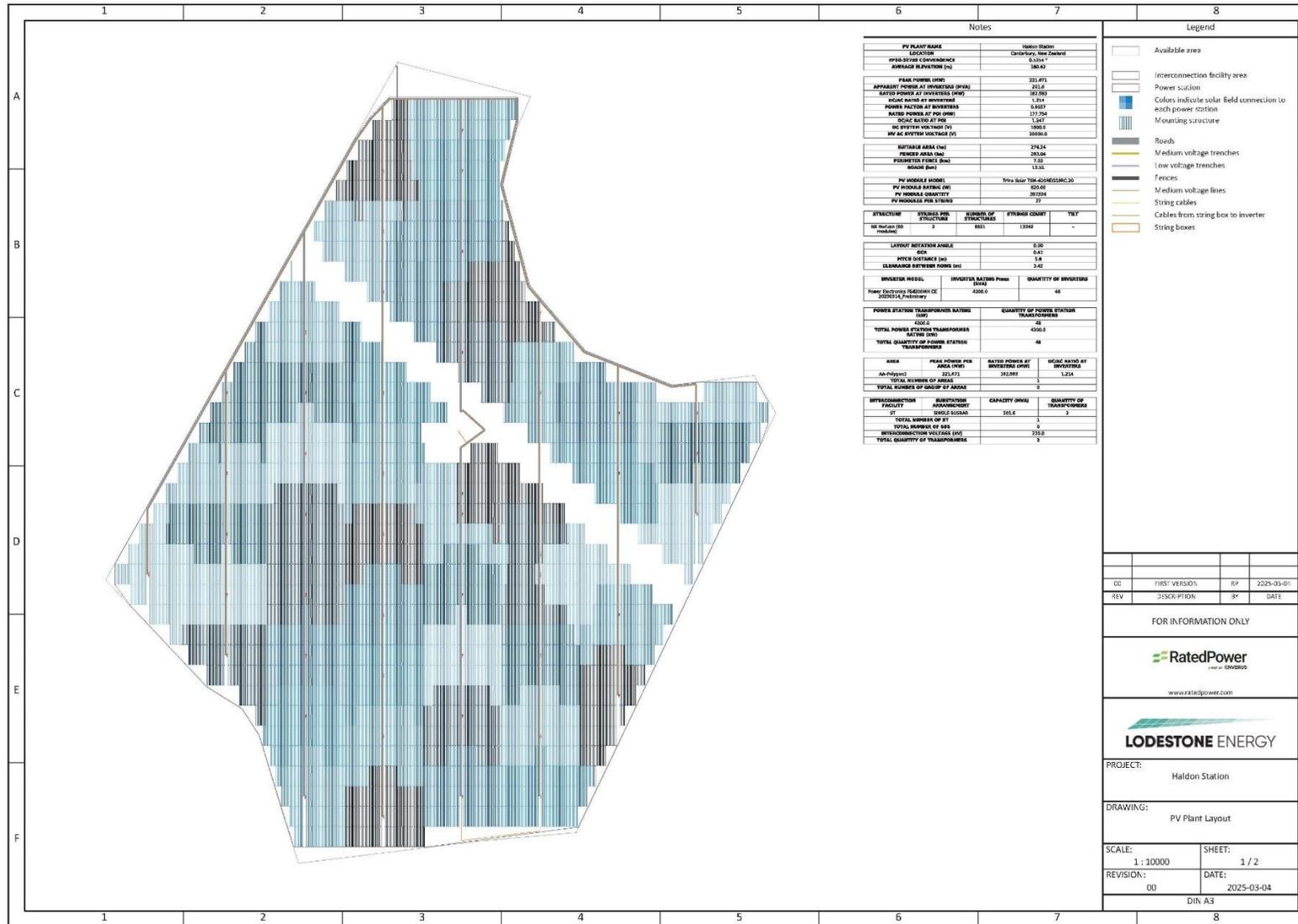
Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>a) details on all infrastructure to be decommissioned;</li> <li>b) details of specific infrastructure to remain on-site post-closure (if any) and, if so, reasons why it will remain on site;</li> <li>c) scheduling and timing for decommissioning;</li> <li>d) details of waste management and minimisation of material removed from the site;</li> <li>e) the requirement for a Detailed Site Investigation to assess any long-term soil changes and potential contamination, and any actions that may be required in response to that investigation; and</li> <li>f) details for finished ground cover at completion of decommission and future intended land use.</li> </ul>	

**Review**

53. The Mackenzie District Council may, under section 128 of the Resource Management Act 1991 (Act), initiate a review of any or all conditions of this resource consent annually in the month of the anniversary of the commencement of the consent, for the duration of the resource consent. Any such review of conditions must be for the purposes of:
- a) Responding to any adverse effect on the environment which may arise from the exercise of the consent and which it is most appropriate to deal with at a later stage;

Condition Number	Proposed Conditions	Comment
	<ul style="list-style-type: none"> <li>b) Dealing with any unanticipated adverse effects on the environment which may arise from the exercise of the consent, which it is appropriate to deal with at a later stage; or</li> <li>c) Ensuring that the conditions are effective and appropriate in managing the effects of the activities authorised by these consents.</li> </ul>	
<b>Attachment 1</b>	PV Plant Layout Plan	
<b>Attachment 2</b>	Haldon Road intersection upgrades – indicative works	

# Attachment 1 – Indicative Site Layout Plan



Notes

<b>PV PLANT NAME</b>	Haldon Station			
<b>LOCATION</b>	Chertsey, New Zealand			
<b>SP10-SP15 CONDUCTANCE</b>	0.3347			
<b>SWRAGE ELEVATION (m)</b>	180.42			
<b>PEAK POWER (kW)</b>	221.873			
<b>APPARENT POWER AT INVERTERS (kVA)</b>	261.6			
<b>RATIO POWER AT INVERTERS (kW)</b>	85.283			
<b>DC/AC RATIO BY INVERTER</b>	1.514			
<b>POWER FACTOR AT INVERTERS</b>	0.9237			
<b>RATED POWER AT PV ARRAY</b>	377.754			
<b>DC/AC RATIO AT PV</b>	1.347			
<b>DC SYSTEM VOLTAGE (V)</b>	1500.0			
<b>INV AC SYSTEM VOLTAGE (V)</b>	2000.0			
<b>ESTIMATED AREA (m²)</b>	29424			
<b>FENCE AREA (m²)</b>	20304			
<b>PERMITTED FENCE (m)</b>	7.03			
<b>ROADS (m)</b>	13.36			
<b>PV MODULE MODEL</b>	Tripa Solar TM-60G60S16C30			
<b>PV MODULE RATING (W)</b>	623.00			
<b>PV MODULE QUANTITY</b>	362204			
<b>PV MODULES PER STRING</b>	27			
<b>STRUCTURE</b>	STRINGS PER STRUCTURE	NUMBER OF STRUCTURES	ESTIMATED COST	TILT
NO. Modules (30 modules)	3	631	13942	-
<b>LAYOUT DETAILOR NAME</b>	0.00			
<b>ROW</b>	0.43			
<b>PITCH DISTANCE (m)</b>	1.4			
<b>ISLANDING DISTANCE (m)</b>	3.42			
<b>INVERTER MODEL</b>	<b>INVERTER RATING (kW)</b>	<b>QUANTITY OF INVERTERS</b>		
Power Electronics Regulator SE SERIES 4, 7, 10, 15, 20, 30, 40, 50, 60, 70, 80, 100, 150, 200, 300, 400, 500, 600, 700, 800, 1000, 1500, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 10000, 15000, 20000, 30000, 40000, 50000, 60000, 70000, 80000, 100000, 150000, 200000, 300000, 400000, 500000, 600000, 700000, 800000, 1000000, 1500000, 2000000, 3000000, 4000000, 5000000, 6000000, 7000000, 8000000, 10000000, 15000000, 20000000, 30000000, 40000000, 50000000, 60000000, 70000000, 80000000, 100000000, 150000000, 200000000, 300000000, 400000000, 500000000, 600000000, 700000000, 800000000, 1000000000, 1500000000, 2000000000, 3000000000, 4000000000, 5000000000, 6000000000, 7000000000, 8000000000, 10000000000, 15000000000, 20000000000, 30000000000, 40000000000, 50000000000, 60000000000, 70000000000, 80000000000, 100000000000, 150000000000, 200000000000, 300000000000, 400000000000, 500000000000, 600000000000, 700000000000, 800000000000, 1000000000000, 1500000000000, 2000000000000, 3000000000000, 4000000000000, 5000000000000, 6000000000000, 7000000000000, 8000000000000, 10000000000000, 15000000000000, 20000000000000, 30000000000000, 40000000000000, 50000000000000, 60000000000000, 70000000000000, 80000000000000, 100000000000000, 150000000000000, 200000000000000, 300000000000000, 400000000000000, 500000000000000, 600000000000000, 700000000000000, 800000000000000, 1000000000000000, 1500000000000000, 2000000000000000, 3000000000000000, 4000000000000000, 5000000000000000, 6000000000000000, 7000000000000000, 8000000000000000, 10000000000000000, 15000000000000000, 20000000000000000, 30000000000000000, 40000000000000000, 50000000000000000, 60000000000000000, 70000000000000000, 80000000000000000, 100000000000000000, 150000000000000000, 200000000000000000, 300000000000000000, 400000000000000000, 500000000000000000, 600000000000000000, 700000000000000000, 800000000000000000, 1000000000000000000, 1500000000000000000, 2000000000000000000, 3000000000000000000, 4000000000000000000, 5000000000000000000, 6000000000000000000, 7000000000000000000, 8000000000000000000, 10000000000000000000, 15000000000000000000, 20000000000000000000, 30000000000000000000, 40000000000000000000, 50000000000000000000, 60000000000000000000, 70000000000000000000, 80000000000000000000, 100000000000000000000, 150000000000000000000, 200000000000000000000, 300000000000000000000, 400000000000000000000, 500000000000000000000, 600000000000000000000, 700000000000000000000, 800000000000000000000, 1000000000000000000000, 1500000000000000000000, 2000000000000000000000, 3000000000000000000000, 4000000000000000000000, 5000000000000000000000, 6000000000000000000000, 7000000000000000000000, 8000000000000000000000, 10000000000000000000000, 15000000000000000000000, 20000000000000000000000, 30000000000000000000000, 40000000000000000000000, 50000000000000000000000, 60000000000000000000000, 70000000000000000000000, 80000000000000000000000, 100000000000000000000000, 150000000000000000000000, 200000000000000000000000, 300000000000000000000000, 400000000000000000000000, 500000000000000000000000, 600000000000000000000000, 700000000000000000000000, 800000000000000000000000, 1000000000000000000000000, 1500000000000000000000000, 2000000000000000000000000, 3000000000000000000000000, 4000000000000000000000000, 5000000000000000000000000, 6000000000000000000000000, 7000000000000000000000000, 8000000000000000000000000, 10000000000000000000000000, 15000000000000000000000000, 20000000000000000000000000, 30000000000000000000000000, 40000000000000000000000000, 50000000000000000000000000, 60000000000000000000000000, 70000000000000000000000000, 80000000000000000000000000, 100000000000000000000000000, 150000000000000000000000000, 200000000000000000000000000, 300000000000000000000000000, 400000000000000000000000000, 500000000000000000000000000, 600000000000000000000000000, 700000000000000000000000000, 800000000000000000000000000, 1000000000000000000000000000, 1500000000000000000000000000, 2000000000000000000000000000, 3000000000000000000000000000, 4000000000000000000000000000, 5000000000000000000000000000, 6000000000000000000000000000, 7000000000000000000000000000, 8000000000000000000000000000, 10000000000000000000000000000, 15000000000000000000000000000, 20000000000000000000000000000, 30000000000000000000000000000, 40000000000000000000000000000, 50000000000000000000000000000, 60000000000000000000000000000, 70000000000000000000000000000, 80000000000000000000000000000, 100000000000000000000000000000, 150000000000000000000000000000, 200000000000000000000000000000, 300000000000000000000000000000, 400000000000000000000000000000, 500000000000000000000000000000, 600000000000000000000000000000, 700000000000000000000000000000, 800000000000000000000000000000, 1000000000000000000000000000000, 1500000000000000000000000000000, 2000000000000000000000000000000, 3000000000000000000000000000000, 4000000000000000000000000000000, 5000000000000000000000000000000, 6000000000000000000000000000000, 7000000000000000000000000000000, 8000000000000000000000000000000, 10000000000000000000000000000000, 15000000000000000000000000000000, 20000000000000000000000000000000, 30000000000000000000000000000000, 40000000000000000000000000000000, 50000000000000000000000000000000, 60000000000000000000000000000000, 70000000000000000000000000000000, 80000000000000000000000000000000, 100000000000000000000000000000000, 150000000000000000000000000000000, 200000000000000000000000000000000, 300000000000000000000000000000000, 400000000000000000000000000000000, 500000000000000000000000000000000, 600000000000000000000000000000000, 700000000000000000000000000000000, 800000000000000000000000000000000, 1000000000000000000000000000000000, 1500000000000000000000000000000000, 2000000000000000000000000000000000, 3000000000000000000000000000000000, 4000000000000000000000000000000000, 5000000000000000000000000000000000, 6000000000000000000000000000000000, 7000000000000000000000000000000000, 8000000000000000000000000000000000, 10000000000000000000000000000000000, 15000000000000000000000000000000000, 20000000000000000000000000000000000, 30000000000000000000000000000000000, 40000000000000000000000000000000000, 50000000000000000000000000000000000, 60000000000000000000000000000000000, 70000000000000000000000000000000000, 80000000000000000000000000000000000, 100000000000000000000000000000000000, 150000000000000000000000000000000000, 200000000000000000000000000000000000, 300000000000000000000000000000000000, 400000000000000000000000000000000000, 500000000000000000000000000000000000, 600000000000000000000000000000000000, 700000000000000000000000000000000000, 800000000000000000000000000000000000, 1000000000000000000000000000000000000, 1500000000000000000000000000000000000, 2000000000000000000000000000000000000, 3000000000000000000000000000000000000, 4000000000000000000000000000000000000, 5000000000000000000000000000000000000, 6000000000000000000000000000000000000, 7000000000000000000000000000000000000, 8000000000000000000000000000000000000, 10000000000000000000000000000000000000, 15000000000000000000000000000000000000, 20000000000000000000000000000000000000, 30000000000000000000000000000000000000, 40000000000000000000000000000000000000, 50000000000000000000000000000000000000, 60000000000000000000000000000000000000, 70000000000000000000000000000000000000, 80000000000000000000000000000000000000, 100000000000000000000000000000000000000, 150000000000000000000000000000000000000, 200000000000000000000000000000000000000, 300000000000000000000000000000000000000, 400000000000000000000000000000000000000, 500000000000000000000000000000000000000, 600000000000000000000000000000000000000, 700000000000000000000000000000000000000, 800000000000000000000000000000000000000, 1000000000000000000000000000000000000000, 1500000000000000000000000000000000000000, 2000000000000000000000000000000000000000, 3000000000000000000000000000000000000000, 4000000000000000000000000000000000000000, 5000000000000000000000000000000000000000, 6000000000000000000000000000000000000000, 7000000000000000000000000000000000000000, 8000000000000000000000000000000000000000, 100, 15000000000000000000000000000000000000000, 200, 300, 400, 500, 600, 700, 800, 1000, 1500, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 100, 15000, 200, 300, 400, 500, 600, 700, 800, 1000, 1500, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 100, 15000, 200, 300, 400, 500, 600, 700, 800, 1000, 1500, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 100, 15000, 200, 300, 400, 500, 600, 700, 800, 1000, 1500, 2000,				

**Attachment 2:**

**Haldon Road intersection upgrades – indicative works**

