IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications by Meridian Energy Limited to Manawatū-Whanganui Regional Council, Greater Wellington Regional Council, Tararua District Council and Masterton District Council for resource consents to enable the construction, operation, and maintenance of a new wind farm on Mount Munro, located approximately 5km south of Eketāhuna

SECTION 87F REPORT OF ANDRES ROA CONCHA – OPERATIONAL WATER QUANTITY

MANAWATŪ-WHANGANUI REGIONAL COUNCIL, GREATER WELLINGTON REGIONAL COUNCIL, TARARUA DISTRICT COUNCIL AND MASTERTON DISTRICT COUNCIL

15 March 2024

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A. OUTLINE OF REPORT

1 This report, required by section 87F of the Resource Management Act 1991 (**RMA**), addresses the issues set out in sections 104 to 112 of the RMA, to the extent that they are relevant to the applications lodged with the Manawatū-Whanganui Regional Council (**Horizons**), Greater Wellington Regional Council (**GWRC**), Tararua District Council (**TDC**) and Masterton District Council (**MDC**).

2 The resource consents applied for, by Meridian Energy Limited (**Meridian or the Applicant**), are required to authorise the construction, operation and maintenance and improvement of a new wind farm on Mount Munro, located approximately 5km south of Eketāhuna. The project is known as the Mt Munro windfarm project (the **Mt Munro Project or Project**).

3 In this report I address potential effects relating to operational water quantity from the wind farm in relation to the resource consent applications lodged with Horizons and GWRC (the **Regional Councils**) and TDC and MDC (the **District Councils**).

4 While this report is pursuant to section 87F of the RMA, I have in accordance with section 42A(1A) and (1B) attempted to minimise the repetition of information included in the application and where I have considered it appropriate, adopt that information.

B. QUALIFICATIONS / EXPERIENCE

5 My name is Andres Roa Concha. I am an Engineering Consultant, and the Founding Director of AR & Associates Ltd, a civil engineering, and surveying consulting firm established in 2003 and with offices in Auckland, Hamilton, Tauranga, Christchurch and Queenstown.

6 My role in the Mt Munro Project involves the technical review of water quality effects from the operational phase of the wind farm turbines and associated infrastructure.

7 I hold a Bachelor of Engineering degree and am a Chartered Member of Engineering New Zealand, a Chartered Professional Engineer and I am

registered with Engineering New Zealand as an International Professional Engineer. Registration is only available to engineers that are Chartered Members of Engineering New Zealand and meet the required standard.

8 I have over twenty five years of post-graduate experience in the field of Civil Engineering. I have acted as a civil engineering consultant to a wide range of clients in both the public and private sectors throughout New Zealand in the fields of three-waters (drinking water, wastewater, and stormwater) infrastructure and roading and land development. I have been responsible for the design and supervision of a wide range of civil engineering projects.

9 For the last twenty years, I have acted as a consultant for the Auckland Council (and the legacy councils within the Auckland Region), and a number of territorial and regional authorities throughout New Zealand's North and South Islands. I have been responsible for undertaking technical reviews of hundreds of stormwater and earthworks-related resource consent applications. I have also been engaged to design and deliver stormwater modelling training courses to industry, Auckland University's Engineering School, and Auckland Council staff.

10 I have worked as a technical expert in the stormwater field including stormwater technical review work and in some cases acting as expert witness, for a number of significant public transport projects including Transmission Gully in Wellington, and Auckland projects including East-West Link motorway, Western Ring Route including State Highway 16 and the `Waterview Connection' (the Waterview Tunnel), Wynyard Quarter, State Highway 20 (Puhinui), Auckland-Manukau Eastern Transport Initiative (AMETI), and others.

11 I am familiar with the site and surrounding area. I visited the site along with other experts of the Regional Councils and District Councils on 21 June 2023.

C. CODE OF CONDUCT

12 I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical report has been prepared in accordance with that Code. In

particular, unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

13 I have all the information necessary to assess the Application within the scope of my expertise. There are a number of gaps in the information, in respect of stormwater quantity, which were identified through s 92 request process. The applicant has indicated through the responses that these outstanding matters will be covered as part of the detailed design process. I am comfortable with this approach subject to the imposition of robust conditions.

D. EXECUTIVE SUMMARY

14 The key conclusions of my report relating to operational stormwater quantity effects include:

(a) Increases in the volume and rate of stormwater runoff from impervious surfaces and the creation of point source discharges, in addition to land modification works can result in a range of adverse stormwater quantity effects if not adequately managed. For the Application, this is particularly from culverts and the bridge. These effects may include flooding, erosion and changes to the natural hydrological regime including natural flow paths, among others.

(b) Stormwater quantity effects can be managed through the implementation of suitable stormwater management measures, including primary and secondary conveyance systems, stormwater detention and attenuation systems, and energy dissipation and erosion protection systems. Again, here, the need for management is particularly applicable to culverts as they are the main source of stormwater discharge proposed in the Application. These effects can also be managed by the naturalisation of the stormwater system through water sensitive design practices to promote infiltration, replicate natural hydrology, create diffused discharges and make use of natural drainage pathways, depressions and storage areas.

(c) In order to ensure the adequate functioning of the stormwater system, and in particular culverts and associated outlet structures, an operation and maintenance plan should be developed during the design phase and regularly updated to reflect specific site conditions. The operation and maintenance plan should form part of the overall operational activities at the project site.

(d) The original application documents received in May 2023, and subsequent s 92 responses (described below), propose the implementation of a stormwater management system, which include a number of culverts, a bridge and other works. The stormwater system is designed to prevent discharges associated with the wind farm from causing or exacerbating flooding on neighbouring properties, and scour and erosion effects on any land or bed of a water body beyond the point of discharge.

(e) However, the overall level of detail provided both in the original application and in the s 92 responses in respect of the stormwater systems, including the proposed culverts and bridge is somewhat limited, with the design only developed to a conceptual level. The information provided to date therefore does not sufficiently demonstrate how the various stormwater quantity objectives will be achieved, and the Applicant has proposed to provide this information through the detailed design stage.

(f) The absence of information extends to the proposed works in waterbodies, which for the Application relates to the proposed culverts and bridge. These matters include hydrological parameters, culvert slope, alignment and associated erosion protection measures, allowance for fish passage, minimum freeboard requirements and culvert construction.

(g) As the design details of the various stormwater management works (including the culverts and bridge) are not yet available, I recommend that the various requirements in relation to stormwater quantity (including addressing the potential effects identified in

paragraph 14(a) herein) be addressed through consent conditions. I consider this acceptable given the works involve engineering systems that can be suitably designed and implemented on the Project site.

(h) The extent or location of the proposed fill disposal areas is not well understood. This will need to be addressed through consent conditions requiring earthworks plans to be prepared and submitted for Regional Council approval prior to physical works commencing.

(i) Submitters have raised concerns relating to the rainfall figures given in the application, which make reference to Masterton rainfall. They consider that the rainfall applicable to the Project site is higher. I agree with this observation and consider the rainfall data given in HIRDS Version 4 RCP8.5 (for the period 2081-2100) to be more appropriate for purposes of design.

(j) Additional concerns have been raised by submitters in relation to potential damage to stream margins and effects on waterways. I agree that increased stormwater discharges have the potential to adversely affect streams and waterways, and recommend that the provision of design details of appropriate stormwater mitigation systems be covered through consent conditions.

15 Overall, I have recommended a number of matters to be covered through consent conditions to address stormwater quantity management and the submitters' concerns around rainfall, and to require that the measures be adequately maintained and operated in the long term.

E. SCOPE OF REPORT

16 My report focuses on issues related to long term operational phase water quantity effects. It covers the following topics:

(a) Stormwater quantity-related effects, which would potentially arise from land modification and the creation of new impervious surfaces, including the following:

(i) Flood and erosion arising from increased stormwater flows and volumes;

(ii) Erosion arising from concentrated, punctual discharges;

(iii) Channelized stream erosion risks;

(iv) Modifications to natural flow patterns and overland flow paths, including flow diversions resulting from the construction of road corridors and other works; and

(v) Impact of the proposed works on downstream floodplains including the Makākahi River and Bruce Stream.

(b) The suitability of the proposed stormwater management system to address the identified water quantity effects;

(c) The long term operation and maintenance of the proposed stormwater management system;

(d) The suitability of the proposed consent conditions; and

(e) Relevant points raised by submitters.

17 In preparing this report, I have reviewed the Mt Munro Wind Farm Resource Consent Application (the **Application**)[1] and in particular the Assessment of Effects (**AEE**) and Tonkin and Taylor Engineering report[2] (**Engineering Report**). I have also reviewed the associated s 92 responses received on 7 September 2023 (**RFI#1 Response 1**) - Planners Assessment and Appendix 13 – Stormwater - and 25 October 2023 (**RFI#1 Clarification Response**).

F. BACKGROUND

18 The sustainable management of natural and physical resources while ensuring the strategic integration of infrastructure with land-use is required through the RMA.

1 22 May 2023.
2 Appendix D.

19 The main objective of a stormwater system is to manage stormwater runoff to ensure the safe conveyance and discharge of stormwater, and to minimise erosion, flood damage and adverse effects on the environment.

20 To achieve this, stormwater systems should be designed and constructed with adequate capacity to meet minimum level of service criteria for primary and secondary flows. Stormwater systems should also be robust, resilient, and cost effective, and be able to be maintained to ensure long service life.

21 In addition, stormwater systems must comply with minimum environmental requirements and be designed to ensure minimum adverse environmental impacts and the protection of aquatic ecosystems.

22 Increases in the volume and rate of stormwater runoff from impervious surfaces and the creation of point source discharges, in addition to land modification works can result in a range of adverse effects if not adequately managed. These may include but are not limited to:

(a) Effects on flooding upstream or downstream of the Project site, though increased peak discharges, and/or modifications to natural flow patterns and overland flow paths.

(b) Impacts on floodplains through the removal of natural depressions and/or flood storage areas.

(c) Scour and erosion arising from uncontrolled, concentrated punctual discharges into land or water bodies.

(d) Stream channel erosion (and associated downstream sedimentation) and destabilisation of stream channels arising from increased peak discharges and discharge volumes.

23 The above effects can be managed through the implementation of suitable stormwater management measures, including but not limited to:

(a) Primary stormwater systems which capture, convey and discharge runoff from the 10% AEP (1 in 10 year) event, with allowance for climate change, in a safe and effective manner and in a way which

ensures that risks to people and the environment are adequately managed.

(b) Secondary stormwater systems for the conveyance of larger storm events, up to the 1% AEP (1 in 100 year) event, with allowance for climate change, consisting of ponding areas and overland flow paths, to ensure flood risks and associated impacts on people and property are adequately managed.

(c) Stormwater management practices to ensure that pre-development hydrological conditions are maintained as much as possible and to achieve key stormwater quantity outcomes, including:

(i) Replicating pre-development conditions with respect to the timing and quantum of flows;

(ii) Ensuring that stormwater runoff is discharged in a diffused manner, mimicking natural conditions as much as possible while avoiding concentrated discharges;

(iii) Promoting infiltration of stormwater runoff for groundwater recharge and to maintain and support stream health during dry periods;

(iv) Detaining stormwater runoff and releasing it slowly to mitigate against channelised stream erosion; and

(v) Disconnecting the impervious surfaces from the receiving environment via green infrastructure practices such as rain gardens, filter strips or swales.

(d) Erosion protection systems, which may include energy dissipation devices, to mitigate against the risk of scour and erosion associated with punctual, concentrated discharges.

24 The above stormwater quantity objectives can be achieved through the adoption of a water sensitive design approach. Water sensitive design should be promoted as it seeks to manage stormwater in a way that is sensitive to

the natural environment and hydrology, by retaining the natural character of the land, landform, and hydrological conditions. It does so through:

(a) The minimisation of earthworks;

(b) The minimisation of impervious surfaces;

(c) The protection of natural features, including riparian margins and natural drainage patterns; and

(d) The incorporation of green infrastructure practices.

25 An operation and maintenance plan and associated requirements, including periodic and corrective monitoring and maintenance activities, should be developed during the design phase and regularly updated to reflect specific site conditions. The operation and maintenance plan should form part of the overall operational activities at the Project site.

G. ASSESSMENT OF APPLICATION

26 Key matters arising out of my review of the Application are set out below.

27 The Application did not include sufficient information to demonstrate how stormwater quantity related effects will be managed, including flooding, overland flow paths and erosion (arising from both concentrated discharges as well as channelized stream erosion from culverts or other discharges), and associated stormwater management and mitigation systems. Information on operation and maintenance plans for the management of the stormwater system during the life of the project was also not provided in the Application.

28 Further information was requested from the Applicant via s 92 of the RMA. RFI#1 Response 1 acknowledged that the development would result in increased stormwater peak flows and volumes, and provided an indication of measures that may be used for the mitigation of increased stormwater discharges.[3] The response also indicated that an overall pre and post development assessment will be undertaken at detailed design stage, along

[3] Mt Munro Wind Farm Stormwater S92 Responses, Appendix 13 (Tonkin&Taylor, 7 September 2023), pg.4.

with consideration of a range of stormwater management measures to mitigate the associated risks. The RFI#1 Response 1 suggests that this assessment will occur in accordance with the GWRC guidelines and Wellington Water Standards.[4]

29 RFI#1 Response 1 further indicated that proposed stormwater management systems will: [5]

> …consider potential changes to existing flow paths (both channelised and overland), and appropriate measures will be considered to ensure that these are maintained (such as level spreaders to disperse concentrated flows and maintain the original flow regimes) in detailed design.

30 Additionally, the response proposes to incorporate diversion bunds and/or table drains as necessary to convey run-off that is obstructed by the proposed road alignment and minimize the number of culverts required and mentioned that these runoff diversion works will likely result in "*some inter sub-catchment transfer*" of flows.[6] The response goes on to say that no diversions will be proposed *"where there may be a scour risk to an existing stream*", and that "*Catchment transfer across the wider catchment will be avoided where possible*".[7]

31 The Applicant also proposes to re-align some areas of existing stream where they conflict with the proposed road alignment, "*in order to maintain existing flow paths, and minimize culvert lengths*".[8] It is also acknowledged that concentrated discharges and channelized erosion may occur in parts of the stormwater system, particularly the proposed culverts, and that appropriate erosion and scour protection measures will be provided in these areas.

4 Ibid, pg.6.
5 Ibid, pg.4.
6 Mt Munro Wind Farm Stormwater S92 Responses, Appendix 13 (Tonkin&Taylor, 7 September 2023), pg.4.
7 Ibid.
8 Ibid.

32 I consider that the Applicant's responses as described in paragraphs 27 to 31 generally cover some of the potential effects associated with stormwater quantity, at a high level. The design of the various systems has not yet been provided, and the responses have not made specific mention of stormwater attenuation or extended detention systems, which may be necessary to manage flooding, channelised stream erosion and other potential effects that may arise from the increased discharges.

33 However, despite the absence of detail as part of the Application, I remain of the view that it is possible to design and incorporate appropriate stormwater measures to address the risks identified, and that these can be covered through robust consent conditions.

34 Clarification on the number and location of proposed culverts was also sought in the RFIs, as the Application referred to only three culverts and a bridge crossing. RFI#1 Response 1 included a revised map showing a total of 12 culverts (of varying sizes) and a bridge crossing but clarified that these are indicative only and to be confirmed during detailed design.[9]

35 RFI#1 Response 1 also included an indicative assessment of pre and post development flows for culverts 1, 2 and 3 plus "typical" small and medium sized culverts, but again, this was provided on a "for information only" basis and only covered a range of typical sizes, and as such is subject to confirmation at detailed design. A range of hydrological and hydraulic parameters were provided, and although a review of these suggested that they appear to be generally appropriate, they will need to be confirmed through the detailed design review process.

36 There are also a number of additional gaps in the assumptions and parameters provided, which need to be further understood such as soil type and associated runoff coefficients, culvert slope, alignment and associated erosion protection measures, allowance for fish passage (which may impact on the culvert's effective cross-sectional area – refer also paragraph 74(b) of Dr Forbes' s 87F Report), minimum freeboard requirements and culvert

9 Mt Munro Wind Farm Stormwater S92 Responses, Appendix 13 (Tonkin&Taylor, 7 September 2023), Appendix A.

construction including bedding and backfilling for structural support (among others). Again, I consider these matters are able to be covered through appropriate consent conditions.

37 The rainfall depths used in the applicant's preliminary hydrological assessment were assessed in accordance with Wellington Water's "*Reference Guide for Design Storm Hydrology*" document, which specifies that historic rainfall depth estimates are to be increased by 20% to allow for the effects of climate change. A review of the rainfall parameters against this guidance document suggests that they appear to be generally appropriate.

38 Notwithstanding this, the information provided is unclear on the climate change time horizon used in the design. I have therefore reviewed the rainfall parameters against NIWA's HIRDS Version 4 data, being a widely used design tool for infrastructure design in New Zealand.

39 In this review I compared the historic rainfall depths given in HIRDS against the RCP8.5 scenario, being the most stringent climate change prediction, and assuming a 2081-2100 climate change time horizon. The results of my review suggest rainfall depth increases of about 34% and 35% are likely to apply for the 10- and 100-year ARI events, respectively, for storm durations of up to 20 minutes, being the maximum time of concentration applicable to the site (as reported in RFI#1 Response 1). This is considerably higher than the 20% increase specified in the Wellington Water Guidelines and in my opinion the HIRDS RCP 8.5 2081-2100 rainfall data is more conservative and should therefore be adopted for the design.

40 Regarding the provision of erosion and scour protection measures, RFI#1 Response 1 specifies a range of possible measures, such as grassed or planted surfaces, rip rap aprons, wing walls, energy dissipation measures, headwall flow transition structures and erosion protection mattresses. The response indicates that the erosion protection measures will be designed for the 10% AEP (1 in 10 year) event adjusted for climate change, and that the details of the various measures will be developed at detailed design stage. The response also proposes to include allowance for fish passage and

specifies that the design will be based on local and regional guidelines and the HEC-14 technical guidance document.

41 I generally agree with this design approach and rationale and consider that it is possible to design and incorporate appropriate mitigation measures to address erosion and scour risks, and that these can be covered through adequate consent conditions.

Operation and Maintenance

42 As mentioned, the Application did not include specific information on operation and maintenance of the permanent stormwater management systems, and this information was requested during the RFI process. The Applicant's response explained that the operation and maintenance plan will be prepared during the construction phase of the Project, at which time the various operation and maintenance requirements will be investigated based on the infrastructure specified during detailed design.

43 The development and implementation of an appropriate operation and maintenance plan is crucial for the effective functioning of the stormwater system. While this document can be developed during construction and prior to commissioning of the stormwater system, as is proposed by the Applicant, it will be important to ensure that it adequately covers all of the key elements of the stormwater system. I would also expect that this document will need to be reviewed and updated from time to time, depending on issues that may arise during the operational phase of the project, and to accommodate any adjustments to the monitoring and maintenance regime.

44 Further information was also sought in relation to the proposed fill disposal areas. In particular, information to demonstrate that natural stormwater catchments and drainage patterns will remain unchanged and natural floodplains and overland flow paths protected as part of their establishment. RFI#1 Response 1 indicated that the fill disposal areas *"will be located as much as possible long the tops of ridges where there are no catchment areas above the fill sites*", and that where this is not possible, "*a cut off / perimeter drain will be constructed around the fill area to allow surface water to pass*

around the fill site and return to its natural overland flow path immediately downslope of the fill area", resulting in any natural overland flows only being altered around the footprint of these areas.[10]

45 While I generally agree with the above design rationale, to date no detail has been provided on the extent or location of the proposed fill disposal areas. This will need to be covered through appropriate consent conditions requiring earthworks plans to be prepared and submitted for Regional Council approval prior to physical works commencing.

H. SUBMISSIONS

46 Submissions 8, 34, 37 and 44 raise concerns about the rainfall parameters proposed to be used in the design. The submissions stated that the specified parameters (which I understand refer to the Masterton rainfall depths quoted in the Ridley Dunphy report),[11] underestimate the rainfall depths likely to be experienced at the Project site.

47 I have reviewed the Masterton rainfall depths and compared them against the rainfall parameters that are likely to apply to the Project site. Based on this review, I agree that the use of Masterton rainfall data gives considerably lower rainfall values compared to those associated with the project site. I am of the view it is not appropriate in this context.

48 As mentioned in paragraph 37, and notwithstanding the reference to Masterton rainfall given in the Ridley Dunphy report, I also reviewed the rainfall data provided in RFI#1 Response 1[12] and found that they are generally in line with the requirements of Wellington Water's "*Reference Guide for Design Storm Hydrology*" document. However, as indicated in paragraphs 38 and 39, I consider the rainfall data given in HIRDS Version 4 RCP8.5 (for the period 2081-2100) to be more appropriate for purposes of design.

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10 Mt Munro Wind Farm Stormwater S92 Responses, Appendix 13 (Tonkin&Taylor, 7 September 2023), pg.8.

11 Application, Appendix F.

12 Mt Munro Wind Farm Stormwater S92 Responses, Appendix 13 (Tonkin&Taylor, 7 September 2023)

49 Submissions 8 and 13 raise concerns about damage to stream margins, presumably from erosion and/or other processes. Submissions 34 and 40 in turn raise concerns on the effects on waterways.

50 I agree with submitters that increases in stormwater runoff discharge rates and volumes have the potential to adversely affect streams and waterways. While the Applicant has undertaken to provide stormwater mitigation measures to manage stormwater quantity effects (including channelised stream erosion), no design details have been provided. I consider that suitable stormwater management measures are available, and that the design and implementation can be covered through appropriate consent conditions.

I. CONDITIONS

51 The Applicant has offered a condition requiring final design drawings and an accompanying detailed design report to be provided prior to the commencement of construction.[13] The condition also requires as-builts to be provided upon completion.

52 While I am supportive of these conditions, in my view, the lack of information provided by the Applicant means that a number of additional consent conditions are needed. I recommend additional conditions requiring information on the relevant works needed to address potential stormwater quantity effects, including but not limited to the following:

(a) A condition requiring that plans, calculations and design details of any permanent stormwater controls be provided against the relevant engineering requirements specified by the GRWC and Horizons;

(b) A condition requiring that the design report (already offered by the Applicant) include a detailed assessment of mitigation measures

[13] Condition 8 in the District Council consents and condition 3 in the Regional Council consents.

needed to address potential effects arising from increased discharges, including but not limited to:

(i) Increased flooding to land upstream and downstream of the development;

(ii) Erosion from punctual / concentrated discharges;

(iii) Channelized stream erosion risks;

(iv) Modifications to natural flow patterns and overland flow paths, including flow diversions resulting from the construction of road corridors, fill disposal areas and other works; and

(v) Impact of the proposed works on downstream floodplains including the Mākākahi River and Bruce Stream.

(c) A condition requiring the following standards to be met for any culverts:

(i) That they not adversely affect the ability of watercourses to convey flood flows (to a reasonable standard);

(ii) That they be designed to convey flows from 10-year return period flood events without heading up; and

(iii) That they be free of significant projections out of their smooth line and tie into waterbody banks in an appropriate manner;

(d) A condition requiring that works be managed to avoid:

(i) The discharge of contaminants which are toxic to aquatic ecosystems, or of sediment which causes a persistent change in visual clarity in any water;

(ii) The storage of material in the beds of waterbodies; and

(iii) Uncured cement/concrete entering waterbodies;

(e) A condition restricting works in the beds of streams or rivers to where appropriate weather is forecast and where any flows can be appropriately diverted, or where written permission from GWRC is provided;

(f) A condition requiring remediation of any erosion, scour, or instability in streams or rivers caused by the Applicant's works within 10 days (or as soon as practicable);

(g) A condition requiring that the design report include design drawings and hydrological and hydraulic calculations of any stormwater infrastructure, including culverts, permanent pipes, permanent conveyance channels and/or swales, inlet and outlet structures, energy dissipation structures, erosion protection systems, stormwater attenuation and extended detention systems;

(h) A condition requiring that the appropriateness of the rainfall data and associated climate change factors be verified. To that end, I consider the use of rainfall data from NIWA HIRDS Version 4 RCP8.5 (2081-2100) to be appropriate for design;

(i) The stormwater management system, including the proposed culverts and bridge, must be integrated with the overall stormwater management approach with respect to the stormwater quality matters discussed by Ms Ira in her s 87F report;

(j) A condition requiring approval of the detailed design plans and drawings of culverts by the Councils in advance of construction and as-builts/certification of the works (including any information required to be collected under the National Environmental Standards for Freshwater) to be submitted once works are complete; and

(k) A condition requiring the applicant to prepare and submit, for approval by the Regional Councils, an operation and maintenance plan for the stormwater management system prior to practical completion of the earthwork operations.

Andres Roa Concha

15 March 2024