

Before the Hearings Commissioners
at Christchurch

in the matter of: a submission on the proposed Hurunui and Waiau River
Regional Plan and Plan Change 3 to the Natural
Resources Regional Plan under the Resource
Management Act 1991

to: **Environment Canterbury**

submitter **Meridian Energy Limited**

Statement of evidence of Jeffrey Allen Page

Date: 12 October 2012

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STATEMENT OF EVIDENCE OF JEFFREY ALLEN PAGE

INTRODUCTION

- 1 My name is Jeffrey Allen Page.
- 2 I am employed by Meridian Energy Limited as the Consent Strategy Manager. In this role I am responsible for managing a team of three focussed on obtaining and retaining the necessary statutory environmental permissions for Meridian's existing assets and new projects. I have been employed by Meridian since October 2010.
- 3 I hold academic qualifications¹, institute membership² and experience of a professional resource management planner³. In these roles I have provided expert evidence as part of many hearing processes, including before the Environment Court.
- 4 I am not making this Statement as a planning expert. Rather, this statement is made as the Meridian's Consent Strategy Manager responsible for directing and managing the consenting of electricity generation assets and projects. This means that this brief is a statement of fact as opposed to a statement of expert opinion.
- 5 In preparing my evidence I have reviewed the evidence of:
 - 5.1 Mr Nick Eldred;
 - 5.2 Mr Rob Potts;
 - 5.3 Mr Steven Woods;
 - 5.4 Mr Ian Jowett;
 - 5.5 Mr Rob Greenaway;
 - 5.6 Dr Mark Sanders;
 - 5.7 Dr John Hayes; and
 - 5.8 Ms Sarah Dawson.

SCOPE OF EVIDENCE

- 6 I have been asked by Meridian Energy Limited (*Meridian*) to provide evidence outlining Meridian's approach to seeking resource consents

¹ BSurv (dist) and MRRP (dist), Otago University

² MNZPI

³ I have worked as a professional planner in a number of local government and private practice roles since 1992.

for the Amuri Hydro Project (*AHP*) and Balmoral Hydro Project (*BHP*) and the influence of the provisions of the Proposed Hurunui Waiau River Regional Plan (*the Proposed Plan*) on this approach. Accordingly, in this evidence I:

- 6.1 Describe AHP and BHP;
 - 6.2 Outline Meridian's response to the Proposed Plan in relation to what we consider is a lack of recognition of the importance of hydro electricity generation as a use of water;
 - 6.3 Discuss the influence of the provisions of Proposed Plan on the development of AHP application which has been lodged and the BHP application which is being prepared;
 - 6.4 Discuss the provisions of the Proposed Plan which are of concern to Meridian in the specific context of AHP and BHP, particularly the requirement for 20 Mm³ storage to be provided in order to access water from the C Block for hydro generation; and
 - 6.5 Discuss Meridian's approach to mitigation associated with AHP and BHP.
- 7 This statement traverses some similar subject matter to part of the statement of Mr Eldred. However, this evidence focuses on regional plan and consenting matters related to AHP and BHP.

THE AMURI HYDRO PROJECT AND BALMORAL HYDRO PROJECT

Amuri Hydro Project

- 8 The AHP is the application made by Meridian and Ngai Tahu Property Limited (*Meridian/NTPL*) for the taking and use of water for a hydro electricity generation proposal situated on the south bank of the Waiau River on the Amuri Plains. AHP is described in Mr Eldred's evidence and in full in the applications for resource consents for the take, use and discharge of water associated with AHP which were lodged with Canterbury Regional Council on 2 October 2011.
- 9 As described by Mr Eldred, Meridian's commitment to and delivery of any project is dependent on an assessment that it is capable of obtaining necessary consents and that the terms of those consents are such that the project will deliver an appropriate financial return. This drives Meridian's consenting approach as there is little point in investing in a consenting process with an unacceptably low probability of any consent being obtained or implemented.
- 10 For New Zealand the above point can be expressed in another way. Unless a project is financially viable it will not be attractive to

Meridian (or any other developer). This means that there are circumstances where the benefits of the use of water for renewable energy are not realised.

- 11 For AHP, this means that prior to lodging its applications Meridian has reached three interdependent judgments:
 - 11.1 AHP is likely to be a financially viable project within Meridian's planning horizon;
 - 11.2 AHP is of a size and form that provides the greatest likelihood of this; and
 - 11.3 The regulatory environment, including in this case the Proposed Plan, is such that a project in terms of 11.2 can be consented.
- 12 In part, this is reflected in the statement of Mr Steven Woods, when he states that in his opinion the generation flow of up to 50 m³/s for the AHP represents the economic upper limit for hydropower development along the Amuri reach under the Proposed Plan.
- 13 For consenting purposes, the key components of AHP are:
 - 13.1 A maximum take of water of 50 m³/s from the Waiau River from within the Proposed Plan 'A', 'B' and 'C' Blocks in vicinity of the Amuri Irrigation Company intake at Leslie Hills Road Bridge, but
 - (a) no water will be taken when the Waiau River flow is 20 m³/s or less or as measured at Marble Point;
 - (b) no water will be taken when the Waiau River flow is greater than 210 m³/s as measured at Marble Point; and
 - (c) water within the Proposed Plan 'A' and 'B' Blocks will be available to be taken for irrigation purposes as a first priority (irrespective of whether that water is the subject of a current water permit or not) and only available for hydro generation when not being taken for irrigation.
 - 13.2 The out-of-river water conveyance between the take and discharge points is likely to be predominately via canals that traverse multiple private properties, for which land access will need to be negotiated;
 - 13.3 Maximum use of water of 55 m³/s for hydro electricity generation resulting in approximately 200GWh per year,

possibly from two power stations connected into the existing Transpower and/or MainPower substations located near the intersection of State Highways 7 and 70;

- 13.4 A maximum discharge of 55 m³/s to the Waiau River upstream of the confluence of Waiau and Stanton rivers, so the maximum length of river affected is 29km; and
- 13.5 The discharge must not differ from the rate of take by more than:
- (a) ± 5% when the flow in the Waiau River at Marble Point is ≤ 80 m³/s; and
 - (b) ± 10% when the flow in the Waiau River at Marble Point is > 80 m³/s.
- 14 It should be noted that the assessment of environmental effects describes that, to meet the Proposed Plan's minimum storage requirement, as part of AHP a storage reservoir will be built near Isolated Hill as part of the hydro generation scheme. Given the AHP is proposed largely as a "run of the river" scheme, this storage only provides a small amount of flexibility in the operation of the power station, and hence is of minimal operational benefit. Although the existence of the reservoir provides opportunity for irrigation takes in future, Meridian/NTPL have not applied for the taking of water for irrigation nor the storage and use of water for irrigation.
- 15 It should also be noted that the applications for AHP are limited to the principal water consents for the take, use and discharge of water and do not include all consents necessary for AHP to proceed including consents associated with construction, maintenance and operation of the scheme including land based activities.
- 16 Meridian has in two previous cases lodged applications for the principal water consents only associated with a significant hydro scheme (North Bank Tunnel on the Lower Waitaki River) and the Hunter Downs Irrigation Scheme taking water from the Lower Waitaki for the irrigation of 40,000 hectares. In both those cases Environment Canterbury's (*ECan*) (then independent) Commissioner, Professor Skelton, made a determination under section 91 of the RMA that Meridian was not required to seek all other consents relating to the project. Meridian/NTPL intends that a similar path is followed in relation to AHP. *ECan* has not yet made its determination on this matter.
- 17 The applications for the principal water consents were lodged on 2 October 2011, the day after the Waiau Catchment moratorium ceased. Advice to Meridian is that under the Environment Canterbury (Temporary Commissioners and Improvement Water

Management) Act 2010 (*the ECan Act*) this was the first day ECan could accept new applications, but it could not start processing those applications until six months after that date.

- 18 On 17 October 2011⁴ ECan advised that it had accepted the applications under section 88 of the RMA. On 14 March 2012 Meridian/NTPL asked for the applications to be placed on hold until the outcomes of the hearing of submissions on the Proposed Plan are known, and ECan confirmed that it had accepted this on 15 March 2012.
- 19 Following the lodging of the applications, Meridian/NTPL have taken the opportunity to undertake further field work in relation to the values of the Waiau River, the results of which are described in the various expert statements produced by Meridian at this hearing. The purpose of this field work is to develop a more robust understanding of the Waiau River environment, including its use, where the current understanding was possibly contested. This informs both this hearing and will inform the AHP principal water consents hearing.
- 20 Meridian/NTPL have chosen to share the results of some of the core field work with ECan in advance of this hearing to minimise the potential different views on the existing environment and its values. The information provided is:
- 20.1 A report by Ian Jowett entitled "Instream habitat in the Waiau River and assessment of effects of the Amuri Hydro project" dated 24 May 2012 and provided to ECan on that day;
- 20.2 A report by Cawthron Institute entitled "Periphyton, Macroninvertebrates and Fish in the Waiau river, North Canterbury – January –February 2012 Surveys" dated May 2012 and provided to ECan on 11 May 2012; and
- 20.3 Water temperature data collected by Cawthron Institute for Meridian/NTPL in the summer of 2011/2012, provided on 11 May 2012.
- Balmoral Hydro Project**
- 21 The BHP is another hydro electricity generation proposal being developed jointly by Meridian/NTPL. BHP is situated on the north bank of the Hurunui River and entirely within Balmoral Forest.

⁴ CRC120472 – use water

CRC120684 – take water

CRC120685 – discharge water

- 22 Meridian/NTPL have not yet actually applied for any resource consents for BHP, but are in the process of formulating the necessary applications for the take, use and discharge of Hurunui River water for hydro-electricity generation purposes again as for AHP we intend to only apply at this stage for the principal water consents.
- 23 For consenting purposes, I expect that the key components of BHP will be:
- 23.1 A maximum take of water of 15 m³/s from the Hurunui River from within the Proposed Plan 'A', 'B' and 'C' Blocks in the vicinity of the existing take for the Balmoral Irrigation Scheme (*BIS*), which is located immediately downstream of the Mandamus River, but
- (a) no water will be taken when the Hurunui River flow is below the minimum flows specified in the Proposed Plan;
- (b) no water will be taken for the first 48 hours when flow in the Hurunui River at Mandamus is greater than approximately 120 m³/s; and
- (c) existing and some future⁵ consented irrigation takes from the 'A' and 'B' Blocks will have priority to take water ahead of BHP.
- 23.2 Approximately 4.5 million m³ of active storage water will be stored in a reservoir at the head of the canal;
- 23.3 The out-of-river water conveyance between the take and discharge points is likely to be predominately via canals that entirely traverses Ngai Tahu Property land (apart from two public roads);
- 23.4 Maximum use of water of 18 m³/s for hydro electricity generation resulting in approximately 110 GWh per year, possibly from a chain of small power stations connected into the existing Transpower and/or local grids;
- 23.5 A maximum discharge of 18 m³/s discharged back to the Hurunui River about 28 km downstream of the point of take. This is below the Waitohi River confluence and the SH7 Bridge but upstream of the Pahau River confluence; and
- 23.6 The discharge must not differ from the rate of take by more than:

⁵ Either because of the consent held or place in the application queue

- (a) $\pm 10\%$ when the flow in the Hurunui River at Mandamus is ≤ 44 (median) m^3/s ; or
 - (b) $\pm 20\%$ when the flow in the Hurunui River at Mandamus is $> 44 \text{ m}^3/\text{s}$.
- 24 In the preparation for the resource consent applications for BHP, the advice to Meridian/NTPL was that existing knowledge, including that collected by or reported to ECan, of the Hurunui River and its values is sufficient for resource management decision making on instream value at this hearing and for the applications for the principal water consents so additional field work has not been undertaken.
- 25 Meridian has, however, commissioned additional work, including a Cultural Impact Assessment and work on hydrology, sediment transport, amenity and landscape values, river birds and effects on adjacent groundwater takes and levels in wetlands.
- 26 Whilst currently developed as a standalone hydro generation proposal the BHP will preserve the potential for BHP infrastructure to be available to help support irrigation of the Balmoral Forest land owned by NTPL. Meridian understands that independently of BHP, NTPL are separately developing applications related to the take and use of water for irrigation of Balmoral Forest. These applications whilst not part of BHP would be complementary to it.

RELEVANCE TO THE PROPOSED PLAN

- 27 Meridian/NTPL have sourced or undertaken environmental assessments for the AHP to the extent that the AHP principal water consent applications have been accepted as complete by Environment Canterbury under section 88 of the RMA. The outcomes of those environment assessments are summarised in evidence at this hearing to largely support the environmental flow and allocation regime set out in the Proposed Plan for the Waiau (except for the B Block $2 \text{ m}^3/\text{s}$ gap and the requirement for 20 Mm^3 of storage to be provided before Meridian/NTPL are able to access the C block for hydro generation).
- 28 Meridian and NTPL are in the process of preparing similar applications for resource consents for the take, use and discharge of water associated with BHP and an overview of the key environmental assessments relating to the Hurunui is provided at this hearing.
- 29 The applications for AHP and BHP rely upon the Proposed Plan framework in terms of its flow and allocation regime, activity status and objective and policy framework. As such, in Meridian's view assessments underpinning these proposals can help inform the appropriateness, or otherwise, of provisions in the Proposed

Plan. In effect AHP and BHP become examples of projects that may result from the implementation of the Proposed Plan framework.

- 30 In particular, AHP proposes that once the A and B Blocks are fully allocated and all that water is taken, when available it will take all of the 42 m³/s C Block allocation, or that portion of the C Block that is available. Therefore, the assessments can help inform the appropriateness of the Proposed Plan management framework, including the flow and allocation regime. However, it cannot assist in understanding whether other uses of 'B' and 'C' block water, particularly consumptive uses, or the same use but in another location, would have similar resource management outcomes.

PROPOSED HURUNUI WAIAMU REGIONAL PLAN AND HYDRO-ELECTRICITY GENERATION

- 31 Meridian views the Proposed Plan as the regional plan that establishes the water allocation framework for the Waiau and Hurunui Rivers for the immediate future. Accordingly, it has and continues to participate in the development of the Proposed Plan in the hope that the operative version of the plan will appropriately recognise the importance of the hydro-electricity generation opportunities on both rivers described by Mr Eldred. In doing this, it recognises the strong emphasis on integration, so has, and continues, to actively participate in, and explore, how and when hydro generation may be integrated with, or support, irrigation. It does not, however, consider that hydro generation should be a by-product of irrigation storage in the manner the Proposed Plan currently contemplates. Hydro generation in its own right is a regionally and nationally beneficial use of water and the infrastructure associated with a hydro generation scheme can often provide opportunities for irrigation storage, rather than vice versa.
- 32 Meridian's involvement in the development of the Proposed Plan extends back to the development of the Waiau-Hurunui Zone Implementation Programme 2011 (*ZIP*).
- 33 Meridian is largely supportive of the environmental flow and water allocation regime set out in the provisions of the Proposed Plan resulting from the *ZIP*.
- 34 However, it does however have some significant concerns about some provisions in the Proposed Plan which impact on AHP and BHP. These are:
- 34.1 The Proposed Plan provides insufficient recognition, and acknowledgement of the benefits of the use of water for renewable energy generation;

- 34.2 The Proposed Plan does not recognise the non-consumptive characteristics of hydro generation;
- 34.3 The realism of the objective and policy expression with the expectation that proposals involving the taking and use of water will have no adverse impact on existing values. The reality is that major infrastructure projects including hydro generation and irrigation storage will have some degree of adverse effects;
- 34.4 The high level of importance accorded to recreation values, when compared with the position of these values in the Resource Management Act and within the Canterbury Water Management Strategy, noting the relative low importance of the recreation values affected by AHP and BHP;
- 34.5 The storage plan techniques used to manage the effects on existing consented irrigators reliability as a result of the proposed increases in the minimum flow in both rivers in February and March;
- 34.6 The expectation that any loss in reliability will be offset by the provision of storage and that this storage is a pre-condition for new users seeking to use C block water when those new users have no influence on the minimum flows for A and B block users. I note particularly that where 20 Mm³ of storage is not provided the making of an application to access C Block water is prohibited (Rule 5.2);
- 34.7 The appropriateness of the figure of 20 Mm³ storage where Meridian's advice from Mr Potts is that based on potential irrigable area significantly less storage is required to satisfy realistic irrigation demand; and
- 34.8 The demarcation between the operative Canterbury Natural Resources Regional Plan (*NRRP*) and the Proposed Plan.
- 35 Ms Dawson will provide an expert view on these matters. However, with respect to Meridian's concerns about the lack of recognition of renewable energy generation in the Proposed Plan I make the following comments:
- 35.1 In practice the ZIP and subsequently the Proposed Plan create a hierarchy of importance of management values in relation to the Hurunui and Waiau rivers as follows: human and stock water; natural environment and recreation activities derived from that environment; existing (largely irrigation) uses; new irrigation users; and then hydro-electricity generation and other uses. Meridian views this as a mistake by under valuing the importance of the use of water for hydro

electricity. Meridian made this point on the draft ZIP and continues to make this point in its submission to the Proposed Plan;

- 35.2 In Meridian's view the Proposed Plan goes further than simply prioritising access to water. It also attempts to create the circumstance whereby new water users support existing water users through the provision of infrastructure that is sized to provide for community and stock water supplies⁶ and to maintain existing irrigators' current reliability in the event a river's minimum flow increases⁷. Effectively, this can be viewed as requiring commercial cross subsidisation between different types of water users. Meridian views this as inappropriate basis to allocate and manage water;
- 35.3 This tension likely arises as resulting of a mismatch of different view points. The ZIP was focused on the two relevant catchments and their ability to provide local benefits through irrigation. The community of interest is primarily the Hurunui District. As you would expect, it therefore emphasises the attainment of local values at least cost;
- 35.4 In contrast, because of the way in which hydro electricity generation is delivered in New Zealand, it is largely valued for national importance and Meridian's community of interest is the national community as a whole including the South Island, entire region as well as local communities. Our perception is that when there is tension between local values and national values, the ZIP and subsequently the Proposed Plan have resolved this in favour of the local values; and
- 35.5 Notwithstanding this, Meridian has worked to create two hydro-electricity generation proposals that recognise the stated local values. However, there becomes a point whereby tension is created between national, regional and local values and some form of reconciliation needs to occur.

THE INFLUENCE OF THE PROPOSED PLAN AND THE PROCESSES LEADING TO IT

- 36 Achievement of the environmental flow and allocation regimes set out in Table 1 for the Waiau and Hurunui rivers is central to Meridian's/NTPL's approach to AHP and BHP. In this regard I note that any applications that do not comply with the Environmental Flow and Allocation Regime are prohibited activities under Rule 5.2.

⁶ Policy 6.7

⁷ See Policies

- 37 Meridian/NTPL have therefore positioned the AHP principal water consent applications, and is planning to position their future BHP applications, on the basis that the Proposed Plan will become the relevant regional plan and its AHP and BHP proposals reflect a flow and allocation regime generally as set out in the Proposed Plan. Meridian/NTPL have taken the stance that the NRRP will not be directly relevant to water allocation at the time of consenting. Meridian considers that this is the situation Parliament and ECan intended when the moratorium was put in place on the Waiau and Hurunui rivers.
- 38 The AHP application was, and the BHP application is being, prepared with an understanding of the likely form of the objectives, policies and rules of the Proposed Plan. In particular the applications:
- 38.1 Anticipate the likely allocation limits for each allocation block in Part Four - Table 1: Environmental Flow and Allocation Regime will apply. The take for AHP is, and the take for BHP will be, sized to fit within these blocks;
- 38.2 Are developed in a manner anticipated to comply with Proposed Rule 3.1, resulting in an activity status of discretionary. The application for AHP has been designed to fit within the parameters of Proposed Rule 3.1 and BHP is being designed to fit within the parameters of Proposed Rule 3.2, particularly as they relate to the allocation of 'C' block water in these two rivers;
- 38.3 Recognising the spatial and temporal sharing of water approach contained in Policy 9.4. The principal water consent applications for AHP are, and for BHP will be, designed to take and use water within the 'A' and 'B' blocks at times they are not taken for consented or future irrigation. Use of A and B block water for hydro generation when it is not being used for irrigation is an important component of both AHP and BHP being considered to be viable renewable energy generation projects; and
- 38.4 So that the matters in Policies 3.5 and 3.6 were considered and assessed and mitigation proposed or signalled for key adverse effects. For AHP, Meridian/NTPL have instructed and obtained assessments from independent experts on the nine matters in Policy 3.5 and ensured that the pattern of the discharge means that the five matters in Policy 3.6 do not require further assessment. Meridian/NTPL are following a similar approach for BHP, but are likely to rely on existing information when they consider that this information is robust and that further assessment would add no substantial further information.

- 39 When making the applications for the principal water consents associated with AHP Meridian made a number of deliberate decisions in relation to other provisions of the Proposed Plan and it hopes some of the matters of concern to it will be remedied through this hearing:
- 39.1 Not to lodge applications for the construction, operation and maintenance consents necessary for AHP as a strict implementation of Proposed Policy 6.9 would require. This is for the reasons Mr Eldred outlines, and in particular Meridian's experience on other projects where principal water consents have been decided by Canterbury Regional Council separately from other consents necessary for the construction, operation and maintenance of significant infrastructure. Meridian/NTPL understand there is a discretion available to the Regional Council under section 91 of the RMA to proceed in this manner and do not consider Policy 6.9 could, or should, preclude staged proposals;
- 39.2 At the time of applying for AHP, Meridian/NTPL identified Isolated Hill as a potential water storage location and described how this may assist to facilitate the expectation expressed within the Proposed Plan for up to 100,000ha of irrigation within the Hurunui and Waiau Zone⁸, but decided not to seek the necessary resource consents to create this storage facility nor seek consents to enable water to be taken or used for irrigation. The reason for this is that the storage has minimal benefit for AHP and would primarily be of benefit to irrigators. Until Meridian can properly understand the commercially realisable demand from existing and future irrigators we can make no commitment to the construction of a storage facility at Isolated Hill. In project terms, as described by Mr Eldred, providing for storage at Isolated Hill has a negative influence on commercial value of AHP;
- 39.3 In relation to the point above, subsequent to the lodging of AHP Meridian has obtained advice on the potential irrigable area from Twin Bridges to the sea to understand the appropriateness of the figure of 20 Mm³ of storage for irrigation set out in the Proposed Plan. The evidence which will be produced by Mr Potts is that the net area suitable for irrigation is 30,045 ha and the storage requirements are likely to be in the region of 12.5 Mm³, all of which is not necessarily best provided at Isolated Hill;⁹ and

⁸ See the first bullet point under the heading 'for hydro electricity proposals' in the definition of Infrastructure Development Plan.

⁹ See paragraph 10 of evidence of Robert Potts

39.4 Not to seek consents to take water in relation to any irrigation potential arising from the construction of AHP. The reasons for this are as outlined above in relation to Isolated Hill, and because of detailed water quality assessments the applications would have needed to include at a point in time when the AHP is not in a position to deliver on any irrigation requirements.

40 The provisions of the Proposed Plan are having a similar influence on the approach of Meridian/NTPL to the development of the BHP applications.

MERIDIAN'S APPROACH TO ENVIRONMENTAL MANAGEMENT MEASURES

41 Meridian accepts that to promote sustainable management, all of its projects result in adverse effects on the environment that need to be avoided, remedied or mitigated. AHP and BHP are no exception.

42 Meridian believes that the off river non-consumptive nature of both AHP and BHP set these proposals apart from those taking water for consumptive purposes such as irrigation. In essence, all the water taken for hydro generation is returned to the river albeit downstream, and can be managed so that the discharge is of a similar water quantity and quality to the take. As such, the potential effects are different from those of consumptive water users and arise from the following changes to the river:

42.1 In the section of river between the take and discharge, from:

- (a) The removal of water from the river; and
- (b) Consequent changes in river channel form, flows within braids, instream habitat and use;

42.2 In the section of river downstream of the discharge, from:

- (a) Any difference between the rate of take and rate of discharge at any point in time; and
- (b) Any change in water quality from that taken to that discharged; and

42.3 The design of the physical structures at the intake and outfall locations.

43 In relation to the river environment, AHP and BHP lend themselves to three main types of mitigation measures:

- 43.1 Management of the time and rate of the take and the discharge;
 - 43.2 Design of the intake and outfall structures; and
 - 43.3 Physical works associated with the river environment.
- 44 For AHP, Meridian/NTPL are proposing to manage the take and discharge so that:
- 44.1 The minimum monthly flow in the Proposed Plan is met by ceasing or restricting the take. This ensures the instream and other values protected by the minimum flow are not affected by AHP;
 - 44.2 The discharge rate approximates the rate of take. As a consequence of this there will be little effect if any effect on flows in the Waiau River from the AHP downstream of the point of discharge from the power scheme. This effectively limits the river environment effects of AHP to the section of river between the intake and discharge (which in other evidence is called the Amuri Plains reach). This avoids affecting the geomorphic, aquatic, amenity and recreation values below the point of discharge;
 - 44.3 Water ceases to be taken into the intake when the river is at $210 \text{ m}^3/\text{s}$, which is approximately 3 times the median flow. This ensures that the large braided river channel forming flows pass through this stretch of the Waiau River, and also provides for the scouring of periphyton and fine sediment from the river bed; and
 - 44.4 No water is taken during any International Jet Boat Marathon and up to four times a year for other jet boat events.
- 45 In addition, we are working through the management of freshes of FRE1.5 ($\sim 109 \text{ m}^3/\text{s}$) or greater to control periphyton accrual. This will have benefits for aesthetic values and recreational activities such as salmon angling and swimming in the Amuri Plains reach. It recognises that these are matters that Policy 3.5 identifies need be addressed.
- 46 In terms of intake and outfall design, these will be designed to exclude juvenile and adult native fish and salmonids to the extent specified in Schedule WQN12 of Chapter 5 of the NRRP, being the regulatory requirement for a discretionary activity in the Proposed Plan.

- 47 We are working through the appropriate response, if any, to the loss of water in the river braids and what this may mean for nesting river birds.
- 48 While it is too early to be definitive, Meridian/NTPL are approaching BHP on a similar basis.

CONCLUSION

- 49 The economic viability of both AHP and BHP are dependant on the retention of the present environmental flow and allocation blocks in the Proposed Plan. Neither scheme is viable without affordable access to the 'C' blocks, and 'A' and 'B' blocks when not taken for irrigation as provided for in the Plan. Without access to these blocks, neither scheme will be constructed. Opportunities will be foregone, not just for renewable energy generation in a part of the region and nation reliant on "imported" electricity, but for associated irrigation development also, particularly in the Waiau catchment.
- 50 An overriding concern of Meridian is the linking in the Proposed Plan of the provision of storage of limited value to hydro electricity generation or to manage the effects of such generation, with access to the C Block for hydro generation. Meridian is concerned as this impacts on the assessment of viability of AHP and BHP.
- 51 In any event, in Meridian's view the appropriateness of the 20 Mm³ figure is highly questionable. In particular the work completed by Mr Potts outlines that the 20 Mm³ figure is an overestimate of the necessary supply for irrigation, assuming that this supply is commercially realisable, which is a fundamental concern. Rule 5.2 provides that the taking of water that is not consistent with the Environmental Flow and Allocation Regime in Table 1 is a prohibited activity. The C block allocation is zero where 20 Mm³ storage is not provided and Meridian has limited ability to provide storage that creates a significant financial drag on a project.
- 52 Some submitters have argued against the retention of the 'C' blocks in the Proposed Plan. Meridian takes an entirely different view; the 'C' blocks should be retained as there is opportunity to assess if and how they can be utilised for renewable energy (and perhaps associated irrigation development).
- 53 That requires the assessment of detailed consent applications such as those relating to AHP and BHP. Meridian's work to date strongly indicates that although there will be adverse effects along up to 29km of the Waiau River, and 28km of the Hurunui River, all these effects can be appropriately avoided or mitigated, particularly as hydro power is not a consumptive use of water.

- 54 The Proposed Plan has the opportunity to enable opportunities that result in significant benefits from the use of water for hydro generation whilst enabling irrigation for the future. Meridian urges that it does so and does not include provisions in the Plan which are so unrealistic as to preclude meritorious proposals by rendering them prohibited activities, or makes them practically unaffordable for reasons that do not relate to a hydro generation project. Meridian considers it would be inappropriate to foreclose those opportunities without them being comprehensively evaluated through full assessments of effects and a full consent hearing and decision process. That opportunity could be lost if the provisions of Table 1 (with prohibited activity status for non-compliance) remain.

Dated: 12 October 2012

Jeffrey Allen Page