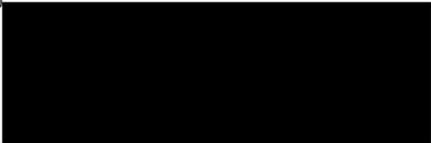


## Attachment 7 to Memorandum #7: Statement of James Bentley

<b>Date</b>	21 January 2026
<b>To</b>	Jon Bright, Project Director – Waitaha Hydro Scheme Westpower Ltd
<b>From</b>	James Bentley
<b>Project advice provided for</b>	<i>Waitaha Hydro Scheme</i>
<b>Documents referred to</b>	<i>Waitaha Hydro Scheme Substantive Application Appendix 27 Landscape and Natural Character</i>
<b>Signature</b>	

1. I have reviewed the comments and material prepared by the Department of Conservation's peer reviewer, Mr Head, as part of DOC's s 51 reports, and the additional DOC s 53 comments submitted on 14 January 2026, and my assessment still stands. I have also provided comments more broadly to queries raised by DOC on 17 November 2025 and responded to by Westpower (included in Appendix B of DOC's s 53 comments). My responses below, and my response to the Panel's Request for Further Information (#1) attached to Memorandum 5<sup>1</sup>, should be read together for context. Specifically, however, I address the material concerns raised by Mr Head, as follows from his review, and where potentially helpful to the Panel, clarify matters from my assessment:

- (a) Methodology:
  - (i) Construction.
  - (ii) intake structures.
  - (iii) power station and switchyard; and
  - (iv) power station access road to transmission route.
- (b) No changes to recommendations, however, some proposed improvements to the proposed RM conditions.

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<sup>1</sup> [Westpower-Memorandum-2-Attachment-2A.pdf](#), [Memorandum-5-Attachment-2-statement-James-Bentley-RFI-response-10-December\\_Redacted.pdf](#), and [Memorandum-5-Attachment-2A-to-statement-of-James-Bentley-RFI-response-10-December.pdf](#).

## Construction effects

*Table 2*

2. Mr Head considers that, with respect to construction effects, the last column of Table 2 of Appendix 27<sup>2</sup> means landscape (visual) and natural character effects 'post-construction' and can be discounted.
3. I have discussed this with Mr Head. I agree that the final column of Table 2 (titled "Residual effects post mitigation") for construction related effects largely reflects the post-construction effects (with the Landscape Management Plan (LMP)<sup>3</sup> measures implemented), or residual operational effects. Following my discussion with Mr Head and after reviewing Mr. Head's peer review, I have adjusted Table 2 to better align with those comments. This is attached as **Appendix A** to this response. I have annotated key differences in blue text and swapped the 'Recommended Effects Management' column with the 'Assessment of Effects' column. I have also commented that construction effects have been 'averaged' over the time-period that construction related activities will occur. This is because there will be a range of related construction effects that will have different durations and frequencies, with some periods reflecting a relatively low intensity of effect, due to activity work occurring, and at other times, a vastly increased presence of activity.
4. Overall, however, there will be a high, or significant level of temporary effect at the headworks and power station concerning natural character, landscape and visual amenity. In my opinion while Westpower has applied best-practice techniques to do what it can to avoid, mitigate and minimise these effects, the fact remains that during construction the effects will be high.
5. The only residual post-construction effect relates to visual amenity, where the visual effect is assessed as low. This reflects the absence of construction-related elements—such as machinery, temporary buildings, and similar infrastructure—as well as the removal of the temporary access track, all of which would otherwise have been cumulatively visible during the construction of both the headworks and the power station. I have worked with Westpower to design of the main structures at the Headworks and Power Station with the objective to avoid and minimise effects as practicable. This

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<sup>2</sup> [Appendix-27-landscape-report.pdf](#).

<sup>3</sup> [Appendix-40-landscape-management-plan.pdf](#).

process has reduced the permanent visual effects at a **local scale** to **moderate-high**.<sup>4</sup>

6. Based on this clarification, I therefore agree with Mr Head<sup>5</sup>

*'construction effects are by definition 'temporary', in most cases adverse, and are usually at the upper end of the effects scale for a relatively short period of time. Such effects cannot be easily mitigated by additional works, such as vegetation which, by the time it had sufficiently established, construction would be complete. In my experience, landscape assessments simply report on the construction effects in terms of what will occur, when and for how long, with an assessed average effect rating applied'.*

### **Excavator use and effect**

7. Mr Head raises concerns relating to the ongoing use of machinery at the headworks during operation. The presence and activities of the digger and the security gates do not change my assessment of the landscape and natural character effects of operations.
8. Westpower expects that the numbers vary from year to year with respect to the excavator being used within the river during operation. It is estimated that the excavator will be required approximately 5 times in a good year, and 15 times in a volatile year.
9. The excavator will be stored in the tunnel and will not be visible unless working for a short period (several hours). It will be stored sufficiently far enough up the tunnel to avoid it being affected during periods of floods, when the portal may be underwater.
10. This has been taken into account within the natural character and landscape effects assessment. Refer to page (ix) of the Landscape Assessment noting that residual natural character effects will be generally moderate-high and the digger will form part of those effects, when required. The moderate-high natural character effects will be in those locations and during the time where in-river modification is required, and is expected to decrease slightly, to moderate, when the digger is not in operation. I have also provided a notation within revised Table 2 concerning this.

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<sup>4</sup> [Appendix-27-landscape-report.pdf](#), pages 2 and Appendix A updated Table 2.

<sup>5</sup> Peer Review of Mr. Head, page 3.

11. To further reduce the excavator's visibility when in use, a condition has been prepared stating that the excavator be a dark recessive colour. An updated Visual Simulation (of Years 1 and 10) depicting the presence of the excavator on its way to the river, is contained within **Appendix B** of this response. The excavator shown in the visual simulation is a 20-tonne machine.
12. Refer also to the LMP, page 6.<sup>6</sup> Due to the volatility of the river, it is considered impractical to 'sculpt' the riverbed into natural forms (for the purposes of the visual simulation), as this will occur naturally due to the dynamic nature of the river.

### **Slope stabilisation treatments**

13. I acknowledge Mr Head's view that shotcreting is not appropriate in more sensitive situations such as this. I referenced the following in my report:

*'It is also proposed to minimise disturbance around the intake interface with the river rock. There is likely to be some stabilization required above the intake structure. While shotcreting is commonly used as a stabilisation treatment (and has been used for the portal area at the Amethyst Scheme), alternative treatments may be used within this sensitive location'.<sup>7</sup>*

14. The LMP<sup>8</sup> details the construction activities and landscape considerations/rehabilitation options concerning Area 2A – Power Station Area. In some circumstances, such as around the access portal and some battered slopes, shotcreting is proposed to be used:
  - (a) **D Headworks access portal and retaining walls:** *"Headworks access portal and associated access road will be integrated into the rock as much as possible, where lichen, moss and ferns will be encouraged to grow to further reduce the visual presence of this part of the Power Station. The batter above the headwall will have a Shotcrete treatment, which is suitable for weathering".*
  - (b) **E Batter Slopes:** *that "the immediate part of the batter above the portal will have shotcrete, which provides stabilisation".*
15. Additional rehabilitation measures are an appropriate method to soften and the appearance of shotcrete, including in this environment, particularly given the propensity for natural regeneration as described in Appendix 20: Vegetation Report<sup>9</sup>. In respect of the Headworks (D), this includes natural

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<sup>6</sup> An updated LMP (with Track Changes) is attached to Westpower's Memorandum #7 as **Attachment 8**

<sup>7</sup> Page 66 of Appendix 27...

<sup>8</sup> [Appendix-40-landscape-management-plan.pdf](#), see updated LMP Attachment 8, page 15.

<sup>9</sup> [Appendix 20 vegetation report](#).

rock placement, encouraging surfaces to be rough to encourage weathering as well as benches cut into faces, to encourage vegetation growth. Other alternatives, including Flex MSE bags could also be considered. For the Batter Slopes (E) Natural Regeneration is preferred but additional mitigation measures/options are listed for consideration.

16. The LMP also explains (at page 19, paragraph 4.3) the rehabilitation of landscape following unforeseen events reflecting the highly dynamic environment and potential for extreme weather, collapses during construction activities, and additional worksite requirements. More natural treatments will produce more desirable outcomes; however, this must be balanced against the safety and the protection of infrastructure (including a detailed Decision Matrix for unforeseen events in Table 3 (page19). The LMP provides an appropriate framework to manage the use of shotcreting and the consideration of additional mitigations to achieve desirable outcomes in this environment.
17. To further reinforce this, an updated LMP (with Track Changes) is attached to Westpower's Memorandum #7 as **Attachment 8**.

#### **Width of permanent maintenance access track at headworks**

18. Mr Head raises the 12m width of the permanent maintenance access route extending from the access portal to the river. I have discussed this track width further with Westpower and this access track will now be a maximum of 5m in width following construction.
19. The maintenance track, along with other elements of the project (within view) are illustrated on the Year 1 Visual Simulation incorporated into the RFI response to the panel dated 10 December 2025 (and again illustrated in **Appendix B** of this response with the presence of an excavator).

#### **Viewpoints**

20. Further visual simulations were provided to the Panel on 10 December 2025. These included a Year 1 Simulation of IN1 (the headworks area) and one of the transmission line on Waitaha Road.
21. The Year 1 Visual Simulation of IN1 shows that the temporary access route will have been removed, allowing vegetation to gradually recolonise and begin to regrow in this area. Rock placement and subtle landform manipulation (as outlined in the Type 5 Option of the LMP), together with

native rehabilitation, will help the area become more integrated with the natural environment over time.

22. The simulation illustrates that, unsurprisingly, much of the rock placement and cut faces may appear more noticeable in the first year, prior to ferns, lichens, and other vegetation establishing across these surfaces. In respect of Construction Staging Area 1 (including the Headworks) Mr Derks addresses why he expects quick regeneration in this area in **Attachment 12** to Memorandum #7. The portal and its 'wings' will also appear more prominent initially; however, natural regeneration will progressively soften these elements, reducing their visual prominence as the landscape matures.
23. The LMP provides a range of options and scenarios for integrating the proposal into this highly dynamic West Coast landscape.
24. Mr Head raises whether a further Visual Simulation should be prepared from the banks of the true left-hand side of the Waitaha River by the Power House. As part of the site visit in 2024, we visited this side of the river, however this was by helicopter. A view is outlined below.



25. I do not consider that a Visual Simulation is required from this location, primarily as there is limited public access to this side of the river, and, as Mr. Head outlines:

*'.....Mr Bentley assesses the operational (permanent) adverse effects of structures within the powerhouse site on natural character values to be 'High' (when the water plume is operating) and otherwise 'Moderate-high' [50]; 'Moderate' on landscape values [52] and depending on viewpoint location between 'Moderate high' and 'Moderate-low' [53] – [54] on visual amenity values ten years out, so long as the existing walking track is re-routed away from the scheme and close-up views. Temporary construction effects are considered to be 'High' [57].'*

26. I have included the effects of the tailrace in my assessment (including the associated fencing/railing and warning signs), and this contributes to my conclusion that the effects are "high" when the water plume is operating, and otherwise moderate-high.
27. For completeness, I confirm (and Mr Head agrees) that the magnitude of effects, while slightly higher on 'day one' does not warrant an elevated level of effect (on the seven-point scale) overall.
28. Further, Mr Head notes that I used the word 'illustrative' to describe the Visual Simulations. My use of this term was solely in reference to the collection of illustrative material and was not intended to imply that the scheme may appear differently from what has been simulated. The Visual Simulations have been prepared as accurately as possible using a digital model and the methodology outlined in the Graphic Supplement. A clearer wording may be: *"The Visual Simulations accurately represent what the Scheme may look like after 10 years"*.

#### **Colour of Power Station and switchyard**

29. I acknowledge Mr Head recommended that the Power Station exterior and roof are one colour (natural grey / green / brown hues with maximum light reflectance value (LRV) of 12% maximum).
30. I am comfortable with that recommendation.

#### **Semi industrial or rural activities**

31. Within page 52 of Appendix 27, I wrote that

*'The Scheme will modify this natural area, by introducing built forms and structures uncharacteristic to this setting. The presence of the Scheme in this location will extend rurally based activities into the more natural setting of conservation land'.*
32. Mr Head stated that:

*'In my view the scheme comprises 'semi-industrial activities' rather than rural activities'.*
33. My use of the term *'rurally based activities'* was intended to refer to the extension of an access road with power poles leading to a small, local power station—features that, in themselves, extend the existing rural activities of the Waitaha Valley and are typical elements often found within rural settings. I

do, however, fully agree with Mr Head that the resulting power station node constitutes a semi-industrial activity. I make several references to this in my report, including on page 55 of Appendix 27:

*'There will be a localised change of landscape character, from semi-remote and semi-natural, to semi-industrial'.*

### **Power Station Access Road to Transmission Route**

34. Mr Head notes that my level of effects concerning the access road and transmission line extending from the Power Station to Macgregor Creek will be:

*'locally moderate to high landscape effects during construction, reducing to low as the vegetation matures to visually soften the route'.*

35. Mr Head considers this should more 'moderate' than 'low'. As addressed in my 8 December 2025 response to RFI #1, there will be limited views of the access road and transmission line from the existing track.
36. As outlined within the Vegetation Report<sup>10</sup>, the Power Station access track and transmission lines will extend through a range of forest types, with vegetation located nearest the Power Station being podocarps / hardwood forest or regenerating podocarps. Tree heights in these areas are typically 16-22 metres and 6-10 metres for regenerating podocarps. The proposed poles associated with the transmission lines would be typically 15.5m in height, extending to 21m high poles when crossing Macgregor Creek.
37. It is unlikely that it would be possible for people using the existing track or river to see the much of the transmission alignment (other than a short section of it near the Power Station (refer to the PH1 visualisation in Appendix A labelled "Proposed View After 10 Years"))<sup>11</sup>, and any views of transmission poles and lines in this area would be very limited.
38. Concerning the undergrounding of electricity wires, my understanding from Westpower is that overhead lines provide greater electricity resilience. While I agree with Mr Head that undergrounding would reduce the visual presence of the lines, in my view the access road already represents a modification within this section of the landscape. Overhead transmission lines, although an additional modification, will not materially increase the overall effects, and

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<sup>10</sup> [Appendix 20 vegetation report](#).

<sup>11</sup> RFI to panel, dated 8 December 2025.: [Memorandum-5-Attachment-2A-to-statement-of-James-Bentley-RFI-response-10-December.pdf](#).

over time will soften into the treescape as materials weather and vegetation continues to mature.

### **Appropriateness**

39. Mr Head comments on page 11 of his peer review that he agrees in principle with the following statement, however, cannot easily consider the Scheme to be appropriate in the local context due to the highly natural setting:

*'Overall, it is considered that the Scheme is appropriate with respect to natural character, landscape and visual amenity despite the fact that at more local levels the natural character, landscape and visual amenity effects are assessed as being moderate to high (or more than minor under the RMA). At a broader scale the effects are, at worst, moderate- low (or minor under the RMA). Conditions are recommended, including development of a Landscape Management Plan, to avoid effects being to a degree or scale which are inappropriate to the landscape, features and setting within which the Scheme is located.'*<sup>12</sup>

40. When considering appropriateness, it is important to understand the values that underpin the landscape. These values relate to the remote and high natural setting, the dramatic Morgan Gorge, the hotsprings, mountain context, wildness and transitory character of the Waitaha River and the recreational and cultural associations bound to these.
41. Mr Head and I agree that there will be a semi-industrial node of activity introduced to this highly natural environment. I agree with Mr Head's comments that the Scheme will retain a physical and visual presence during operation, albeit that over time, it will weather and revegetate. At a localised scale, the Scheme gives rise to natural character, landscape and visual amenity effects that are assessed as moderate to high (and therefore more than minor under the RMA), however these effects are spatially limited, and do not undermine the overall integrity or appreciation of the wider landscape. At a broader catchment and regional scale, the effects are assessed as no more than moderate–low (minor under the RMA). The Waitaha River will remain a dominant part of the landscape and will continue to display a range of flow characteristics.
42. When considered in its entirety, and with the proposed mitigation and management measures in place, including the preparation and

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<sup>12</sup>[Appendix-27-landscape-report.pdf](#), page 71.

implementation of a Landscape Management Plan, I consider the Scheme to be appropriate.

### **Recommendation retained following peer review**

43. Based on the peer review by Mr Head, I confirm my assessment does not change noting the clarifications relating to Table 2.

### **Additional Response to DOC's s 53 comments**

44. I believe that I have commented on all relevant matters raised by Mr Head and DOC to date, however, I note that within DOC's section 53 response dated 14 January 2026, further/ additional matters concerning landscape, natural character and visual amenity are listed<sup>13</sup>. For completion, I respond to these below:

*'Making the permanent access road narrower in width than 12 metres where practicable'.<sup>14</sup>*

45. I have outlined earlier that this has now been resolved to assume a 5m width. Refer to Part D, Condition 42.

*'Ensuring the colour of the structures blend in with the natural environment by requiring the use of an appropriate colour palette.'<sup>15</sup>*

46. All parts of the power station will utilise one dark, recessive colour, such as 'Ironsands'. This will include all of the building's external cladding, including roof and trim and retain a maximum light reflectance value (LRV) of 12%. Refer to Part D, Condition 46.

*'Undergrounding transmission cables where practicable.'<sup>16</sup>*

47. This is addressed above in respect of the conservation land affected and presumably is confined to the earlier comment at paragraph 15 of the response that:

- (b) "the transmission lines should be buried for at least 200 m from the Power Station and no transmission tower should be erected at the switchyard to mitigate effects of the new transmission lines from the Power Station site to the substation".

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<sup>13</sup> As set out under paragraph 19 of the DOC response dated 14 January 2026

<sup>14</sup> DOC, s 53 Comments, at paragraph 19a.

<sup>15</sup> DOC, s 53 Comments, at paragraph 19b.

<sup>16</sup> DOC, s 53 Comments, at paragraph 19c.

48. I have otherwise assessed the effects of the transmission lines in my report, and responses to the Panel.<sup>17</sup>

*'Requiring the retention and protection of enough of the vegetation to best screen building, machinery, stockpiles and general activities; using more definite terms, such as 'will assist', in conditions; and requiring that the species list provided be drawn on for any required detailed landscape plan in the future'.<sup>18</sup>*

Refer to amended conditions (Part D, Conditions 41 and 45) and updated LMP (**Attachment 8**). Specific mention is outlined to ensure that there is a sufficient vegetative buffer to the two construction management areas. In Appendix B of DOC's s 53 comments, Westpower's response states the wingwalls are not visible above the water, however, on page 6-7 of Memorandum 5 Attachment 2A provided in response to the Panel's RFI the images clearly depict wingwalls visible above the water level.

49. Westpower's response confused the walls of the intake underwater and the 'wingwall' identified in the visual simulation. The 'wingwall' identified in the visual simulations at pages 6 and 7 of Attachment 2A to Memorandum 5 could also be referred to as a 'flow training wall' and will be visible above the water.<sup>19</sup> Its functions include retaining and protecting the adjacent bank and guiding the water into the Scheme and across the screen for flushing.<sup>20</sup>
50. During construction, Westpower must follow the LMP which includes its objectives to:<sup>21</sup>
- (a) Ensure the design and use of construction methods and materials will appropriately minimise the landscape effects and natural character effects (including the localised impact on attributes at Morgan Gorge and Kiwi Flat as experienced by recreational users) of the Scheme, including reducing visual prominence, as far as practicable.
  - (b) Ensure that landscape management and maintenance methods are responsive, learning from the construction process over time.
51. In the Rehabilitation Areas section of the LMP, at 'Area 1 – the Intake', this includes the treatments in (A) "construction of permanent structures" of the

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<sup>17</sup> [Appendix-27-landscape-report.pdf](#); [Westpower-Memorandum-2-Attachment-2A.pdf](#), additional simulations were provided in [Memorandum-5-Attachment-2A-to-statement-of-James-Bentley-RFI-response-10-December.pdf](#).

<sup>18</sup> DOC, s 53 Comments, at paragraph 19d.

<sup>19</sup> [Memorandum-5-Attachment-2A-to-statement-of-James-Bentley-RFI-response-10-December.pdf](#)

<sup>20</sup> Email AusHydro to Jon Bright, Westpower, 19 January 2026.

<sup>21</sup> Attachment 8 to Memorandum #7: Updated Landscape Management Plan, paragraph 1.3.

placement of landforms and rocks, and creating rough surfaces to built forms to accelerate weathering.<sup>22</sup> This also applies to the 'wingwall'/flow training wall' identified in the visual simulations at pages 6 and 7 of Attachment 2A to Memorandum 5.

**James Bentley**

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<sup>22</sup> Updated Landscape Management Plan, page 15.

## Appendix A: Updated Table 2

Appendix A: **Updated Table 2: Environmental effects on landscape (visual) and natural character associated with each phase of the Scheme (construction and operational), the suggested approaches to manage these effects, and effects after management measures have been applied.**

(amendments identified in blue text)

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
Construction Effects	Natural Character (Headworks Site and Power Station and access road to Macgregor Creek).  Adverse	<p>In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes:</p> <ul style="list-style-type: none"> <li>- A contained footprint and careful placement of infrastructure above ground.</li> <li>- Careful sedimentation control during all Streamworks.</li> <li>- Retention of as much existing vegetation as possible, especially around construction areas.</li> <li>- Limiting transportation movements as much as practicable.</li> <li>- Limited lighting.</li> <li>- Limit stockpiling of debris.</li> </ul>	High ( <i>Significant</i> ), but temporary and localised. This effect is 'averaged' over the course of the construction period, where different stages of work result in different intensities of activity and effect.	<del>Moderate-High (More than Minor)</del>  Construction effects completed. Any residual effects are associated with the operational aspects, post development. Refer to Operational Effects.
	Landscape (Headworks Site and Power Station and access road to Macgregor Creek).  Adverse		High ( <i>Significant</i> ), but temporary and localised. This effect is 'averaged' over the course of the construction period, where different stages of work result in different intensities of activity and effect.	<del>Intake: Moderate-High (More than Minor) Power Station: Moderate (More than Minor)</del>
	Visual amenity (Headworks Site and Power Station and access road to Macgregor Creek).		High ( <i>Significant</i> ), but temporary and localised. This effect is 'averaged' over the course of the	Low ( <i>Minor</i> ) This is the only residual construction effect. This low effect

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
	Adverse		construction period, where different stages of work result in different intensities of activity and effect.	results from the visual presence of all construction machinery, temporary access roads/ compounds etc. being removed.
<b>Construction Effects</b>	Local Effects – Spoil Disposal Area (for landscape, natural character and visual amenity)	In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes: <ul style="list-style-type: none"> <li>- Confined location away from main viewing road.</li> </ul>	Moderate ( <i>More than Minor</i> )	<del>Low (Minor)</del> Construction effects completed. Any residual effects are associated with the operational aspects, post development. Refer to Operational Effects.
	Local Effects – Access and transmission line north of Macgregor Creek (for landscape, natural character and visual amenity)	In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes: <ul style="list-style-type: none"> <li>- Limited vegetation removal.</li> <li>- Visually will appear like an existing farm track.</li> </ul>	Low ( <i>Minor</i> )	<del>Neutral</del>
	Transmission Corridor upgrade through Waitaha Valley (on landscape and visual amenity)	In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes: <ul style="list-style-type: none"> <li>- Limited vegetation removal.</li> </ul>	Low ( <i>Minor</i> )	<del>Neutral</del>

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
<b>Operational effects</b>	<p>Reduced River flow (natural character through abstraction reach)</p> <p>Abiotic and Biotic Adverse Effects</p> <p>Perceptual Adverse Effects</p>	<p>In accordance with the Project Description (and the <a href="#">Landscape Management Plan</a>) including the <a href="#">conditions</a>, the project includes:</p> <ul style="list-style-type: none"> <li>- A contained footprint and careful placement of infrastructure above ground.</li> <li>- Low level weir design.</li> <li>- Controlled low flows.</li> <li>- Controls to allow native fauna to still utilise river.</li> </ul> <p>Additional mitigation measures to include:</p> <ul style="list-style-type: none"> <li>- Careful placement of river boulders/ rocks at head works and power station to assist integrate structures into natural landscape.</li> </ul>	<p>Abiotic &amp; Biotic Effects: Low (<i>Minor</i>)</p> <p>Perceptual Effects: Moderate (<i>More than Minor</i>)</p>	<p>Abiotic &amp; Biotic Effects: Low (<i>Minor</i>)</p> <p>Perceptual Effects: Moderate (<i>More than Minor</i>)</p>
<b>Operational effects</b>	Broadscale Natural Character (Headworks & Power Station)	<p>In accordance with the Project Description (and the <a href="#">Landscape Management Plan</a>) including the <a href="#">conditions</a>, the project includes:</p> <ul style="list-style-type: none"> <li>- A contained footprint and careful placement of</li> </ul>	Moderate Low ( <i>Minor</i> )	Moderate Low ( <i>Minor</i> )
	Broadscale Landscape (Headworks & Power Station)		Moderate Low ( <i>Minor</i> )	Moderate Low ( <i>Minor</i> )

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
	<p>Broadscale Visual (Headworks &amp; Power Station)</p>	<p>infrastructure above ground.</p> <ul style="list-style-type: none"> <li>- Controlled low flows through the abstraction reach, to ensure a 'flow' is always apparent.</li> <li>- Low level weir design and access for native fauna and safe portage for kayakers.</li> <li>- Retention of as much existing vegetation as possible.</li> <li>- Limit stockpiling of debris.</li> <li>- Dark colours for buildings.</li> <li>- Controlled low flows.</li> <li>- No lighting during operation except during unplanned shutdown requiring night-time staff call out / repairs.</li> </ul> <p>Additional mitigation measures to include:</p> <ul style="list-style-type: none"> <li>- Supplementary planting around the Power Station site.</li> </ul>	<p>Low (<i>Minor</i>)</p>	<p>Low (<i>Minor</i>)</p>

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
		<ul style="list-style-type: none"> <li>- Careful placement of river boulders/ rocks at headworks and power station to assist integrate structures into natural landscape.</li> <li>- <del>Further landscape mitigation techniques are outlined within the Landscape Management Plan.</del></li> </ul>		
Operational effects	Local Natural Character (Headworks)	<p>In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes:</p> <ul style="list-style-type: none"> <li>- A contained footprint and careful placement of infrastructure above ground.</li> <li>- Low level weir design and access for native fauna and safe portage for kayakers.</li> <li>- Controlled low flows.</li> </ul>	Moderate-High ( <i>More than Minor</i> )	Moderate-High ( <i>More than Minor</i> ) This effect includes the ongoing requirements to clear river gravels/ debris from the river by digger at the headworks.
	Local Landscape (Headworks)	<p>Additional mitigation measures to include:</p> <ul style="list-style-type: none"> <li>- Careful placement of river boulders/ rocks at</li> </ul>	Moderate-High ( <i>More than Minor</i> )	Moderate-High ( <i>More than Minor</i> )
	Local Visual (Headworks)		Moderate-High (near) ( <i>More than Minor</i> ) Neutral (distant)	Moderate-High ( <i>More than Minor</i> ) Neutral (distant)

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
		<p>head works and power station to assist integrate structures into natural landscape.</p> <p><del>Further landscape mitigation techniques are outlined within the Landscape Management Plan.</del></p>		
<b>Operational effects</b>	Local Natural Character (Power Station and transmission line/ access road from Power Station to north of Macgregor Creek)	<p>In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes:</p> <ul style="list-style-type: none"> <li>- A contained footprint and careful placement of infrastructure above ground.</li> <li>- Retention of as much existing vegetation as possible.</li> <li>- New planting around Power Station.</li> <li>- Where practicable, encourage a green wall/ use of existing rocks for rock stabilisation.</li> <li>- Limit stockpiling of debris.</li> </ul>	Moderate-High ( <i>More than Minor</i> )	Moderate-High ( <i>More than Minor</i> )
	Local Landscape (Power Station and transmission line/ access road from Power Station to north of Macgregor Creek)		Moderate ( <i>More than Minor</i> )	Moderate ( <i>More than Minor</i> )
	Local Visual (Power Station and transmission line/ access road from Power Station to north of Macgregor Creek)		Moderate-High (near) – <i>More than Minor</i> , Low (distant) - <i>Minor</i>	Moderate-High (near) – <i>More than Minor</i> , Low (distant) - <i>Minor</i>

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
		<ul style="list-style-type: none"> <li>- Dark colours for buildings.</li> </ul> <p>Additional mitigation measures to include:</p> <ul style="list-style-type: none"> <li>- Supplementary planting around the Power Station site.</li> <li>- Careful placement of river boulders/ rocks to assist integrate structures into natural landscape.</li> </ul> <p><del>Further landscape mitigation techniques are outlined within the Landscape Management Plan.</del></p>		
	Local Effects – Spoil Disposal Area (for landscape, natural character and visual amenity)	<p>In accordance with the Project Description (and the <a href="#">Landscape Management Plan</a>) including the conditions, the project includes:</p> <ul style="list-style-type: none"> <li>- The spoil would be profiled, graded and compacted and grassed for grazing purposes. Any watercourses would be avoided.</li> <li>- Defined areas of gravel extraction and careful</li> </ul>	Low- ( <i>Minor</i> )	Low – ( <i>Minor</i> )

Scheme Phase	Environmental effects (positive and adverse effects)	Recommended effects management	Assessment of effects	Residual effects
		regrading of riverbed to natural forms when extraction complete.		
Operational effects	Local Effects – Access and transmission line between Macgregor Creek and Waitaha Road (for landscape, natural character and visual amenity)	In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes: <ul style="list-style-type: none"> <li>- Transmission corridor and access track aligned (where possible) together.</li> <li>- Limited vegetation removal.</li> </ul>	Neutral	Neutral
	Transmission Corridor upgrade between Mclean Farm and Waitaha substation (on landscape and visual amenity)	In accordance with the Project Description (and the Landscape Management Plan) including the conditions, the project includes: <ul style="list-style-type: none"> <li>- Replacement poles to be located along this road corridor.</li> <li>- Very limited to no vegetation removal.</li> </ul>	Neutral	Neutral

**Appendix B: Visual Simulation IN1 illustrating an excavator at Year 1 & Year 10**

# WAITAHA HYDRO

## RESPONSE TO DOC COMMENTS: UPDATE TO VISUAL SIMULATION INT TO INCLUDE EXCAVATOR

19 JANUARY 2026



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Proposed View with excavator



Proposed View with excavator

# VISUALISATIONS - METHODOLOGY

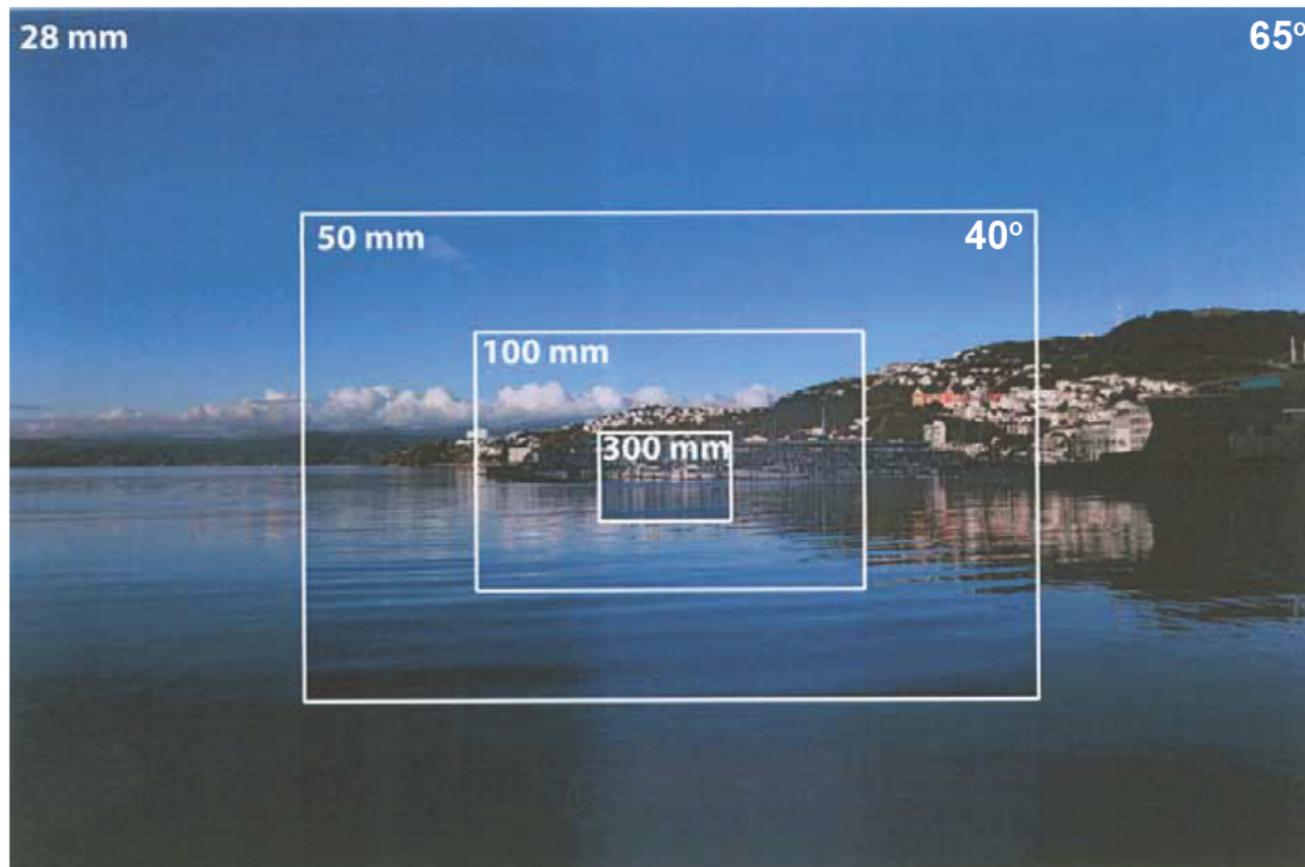
## SITE VISIT & PHOTOGRAPHY

Site photographs were taken with a Canon digital SLR camera fitted with a 50mm focal length lens, mounted on a tripod and panoramic head. A series of photos were taken at predetermined viewpoints, situated on public land. The locations of each viewpoint were fixed using a hand held GPS Unit.

## NZILA GUIDELINES & PANORAMA PREPARATION

The visualisations have been produced in accordance with the Tuia Pito Ora New Zealand Institute of Landscape Architects (NZILA) Best Practice Guidelines for Visual Simulations (BPG 10.2) and also adhere to Boffa Miskell's internal Visualisation Guidelines.

Camera lenses with different focal lengths capture images with differing fields of view. As can be seen below (derived from Fig 9 of the NZILA BPG), a photo taken with a 28mm lens provides a horizontal field of view of 65°. A 50mm lens will provide a cropped (40°) version of the same view. So panoramas can be created by taking multiple 28mm or 50mm photos (in "portrait" mode), and using digital stitching software to merge and crop to create a single panorama. The photographs used in these visualisations have a field of view of 40° (apart from IN1 which is 65°).

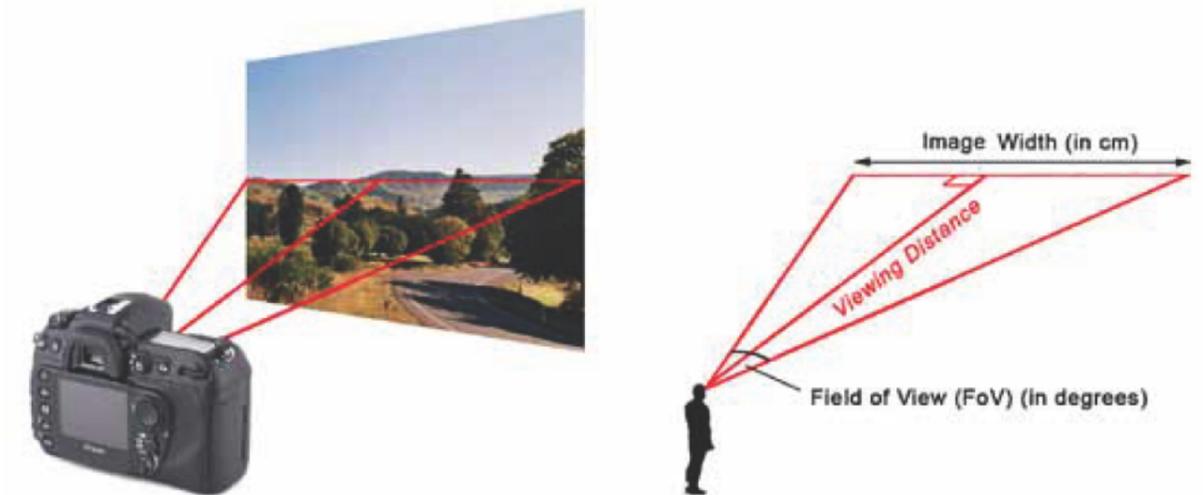


## 3D MODELLING

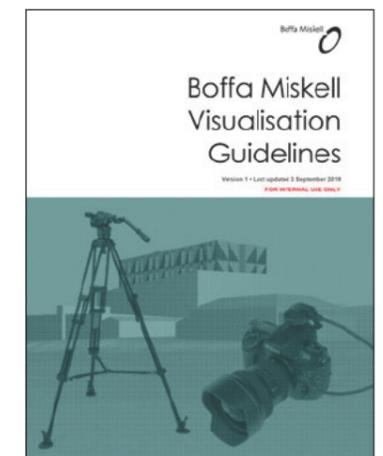
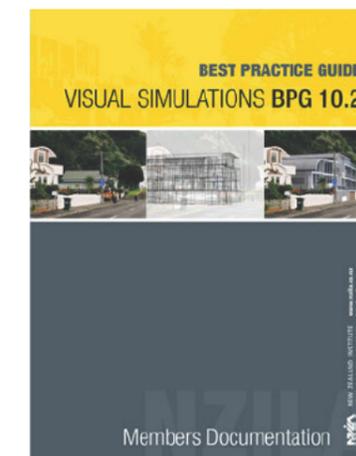
Virtual camera views were then created in 3D modelling software, and 3D terrain data and engineering models were imported. These views were then registered over the corresponding photographs, using identifiable features in the landscape and the characteristics of the camera to match the two together. The visualisations were then assembled using graphic design software.

## IMAGE READING DISTANCES

These visualisations have a field of view of 40° and so should be viewed from a distance of 20 cm when printed at A3 (apart from IN1 which is 65° and should be viewed at 28 cm). This will ensure that each simulation is viewed as if standing on-site at the actual camera location, and is in accordance with Section 7.11 of the NZILA BPG. Users are encouraged to print these pages on A3 transparency, go to the viewpoint and hold at the specified reading distance in order to verify the methodology.



Geometry of Image Reading Distance





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Boffa Miskell is a leading New Zealand environmental consultancy with nine offices throughout Aotearoa. We work with a wide range of local, international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, Te Hīhiri (cultural advisory), engagement, transport advisory, climate change, graphics and mapping. Over the past five decades we have built a reputation for creativity, professionalism, innovation and excellence by understanding each project's interconnections with the wider environmental, social, cultural and economic context.

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09 358 2526	09 358 2526	07 960 0006	07 571 5511	04 385 9315	03 548 8551	03 366 8891	03 441 1670	03 470 0460