Wellington Registry **ENV-WLG-2024-001**
Te Whanganui-a-Tara Rohe

In the Environment Court
I Mua I Te Kōti Taiao O Aotearoa

Under the Resource Management Act 1991

and in the matter of the direct referral of an application for resource consents by Meridian Energy Limited in respect of the proposed Mt Munro wind farm under section 87G of the Resource Management Act 1991 (**RMA**).

Meridian Energy Limited
Applicant

and

Tararua District Council, Masterton District Council, Manawatū-Whanganui Regional Council and Greater Wellington Regional Council (**Councils**)
Consent Authorities

and

s 274 Parties

Statement of Rebuttal Evidence of Rhys Girvan on behalf of Meridian Energy Limited

6 September 2024

ANDREW BEATSON
BARRISTER
RICHMOND CHAMBERS
TEL 021 223 9170 EMAIL ANDREW@BEATSON.CO.NZ

SOLICITORS ACTING: E TAFFS AND H TAPPER, MERIDIAN ENERGY LIMITED
287-293 DURHAM STREET NORTH, CHRISTCHURCH, 8013, NEW ZEALAND
TEL 021 676797 EMAIL ELLIE.TAFFS@MERIDIANENERGY.CO.NZ

CONTENTS

INTRODUCTION

1. My full name is Rhys James Girvan. My statement of evidence in chief dated 24 May 2024 addresses the landscape and visual effects of the proposed Mt Munro Wind Farm. My qualifications and experience are set out in that statement of evidence, and I reaffirm my commitment to comply with the code of conduct for expert witnesses.

2. The purpose of this rebuttal evidence is to provide a summary of the matters relevant to my area of expertise which have arisen since my evidence in chief (EIC) was filed, through mediation and expert conferencing, and to respond to the evidence of the section 274 parties and of Mr Joshua Hunt, on behalf of the Councils.

3. I conducted a further site visit with Mr Hunt on the 14th and 15th of July 2024. This was in response to a request received from Section 274 parties at mediation.

4. Following this site visit, I provided further material to inform discussions with Mr Hunt at expert conferencing, namely:

    a) My preliminary assessment of potential turbine layouts identified within the proposed turbine envelope which confirmed no potential differences between identified levels of effect on account of the flexibility this enables (see **Appendix A:** Alternatives Memorandum, dated 31 July 2024).

    b) Further consideration of the assessment of visual effects from individual dwellings assessed as resulting in high effects to identify which turbines would need to be removed to reduce likely effects to reduce levels of effect to moderate-high (see **Appendix A:** Alternatives Memorandum, dated 31 July 2024).

    c) Updated simulations prepared from 48 Smiths Line and 18A Hall Road to understand views of the proposed turbines in comparison to the existing meteorological mast (80m) (see **Appendix B**: Updated Visual Simulations).

5. Mr Hunt and I participated in expert conferencing in relation to landscape and visual matters. We reached agreement on most

matters, as is reflected in the Joint Statement of Landscape and Visual Experts (the **JWS**), dated 2 August 2024.

6. I note there is strong alignment between my Assessment and that undertaken by Mr Hunt, on behalf of Councils, and in which he confirms that there are no outstanding issues between us. This alignment of position relates to both the nature and level of landscape and visual effects and proposed mitigation.

SUMMARY OF KEY ISSUES

7. A principal issue arising from the proposed windfarm relates to the identified visual effects of the project when viewed from private properties, and the mitigation of these effects.

8. Since preparing my EIC, I have revisited the visual effects at properties which have been identified by s274 parties and who have now allowed access on to their properties. This has further informed the nature of recommended offsite landscape mitigation opportunities which Meridian has now offered to address both 'high' and 'moderate-high' visual effects. If accepted by landowners, I consider this mitigation would be beneficial. The nature of landscape mitigation has been further defined and agreed in the Landscape JWS and as set out in Annexure B.

9. The 'high' visual effects identified within my Assessment are limited to four dwellings not associated with the Project and located between 1 and 1.4 km from the nearest turbine. At these locations over this viewing distance, proposed wind turbines are assessed as resulting in a major change in views and consequent significant visual effects.

10. Where 'high' visual effects have been identified, additional landscape mitigation has been offered which seeks to enable an alternative primary orientation and beneficial change in available views. This may include the addition or reorientation of patios or decks designed to reduce the degree to which individual or cumulative wind turbines are observed from outdoor living areas. This is alongside the addition of individual specimen tree(s) which may assist in circumstances where individual turbines may otherwise appear prominent.

11. In addition to landscape mitigation to address ‘high’ visual effects, landscape mitigation is now proposed to address potential ‘moderate-high’ visual effects as identified at 10 additional residences. This landscape mitigation would enable the establishment of individual specimen tree(s) in locations and circumstances where turbines may otherwise appear prominent in open primary views.

12. In essence, offsite landscape mitigation seeks to reduce the consequent level of effect, as far as practicable, and is subject to affected landowner approval.

13. In terms of broader landscape and rural character effects, I consider the proposed Mount Munro windfarm responds well to and will appear embedded within the context of this working rural landscape with limited views of earthworks and other related infrastructure available from beyond the Site.

14. Within this landscape, I consider the proposed layout will appear coherent in response to the undulating topography and essentially retain the productive working rural landscape character which remains apparent. Mr Hunt and I agree that this rural environment is an appropriate one for a windfarm, from landscape and rural character perspectives.

15. While wind turbines are necessarily large dynamic structures, they will not necessarily appear dominant and overbearing from all available views. Mr Hunt and I do not consider that the visual effects of proposed turbines in the relatively small number of most affected views is unacceptable from a visual effects perspective. Furthermore, offered mitigation has the potential to reduce identified ‘high’ visual effects (4 dwellings) and ‘moderate-high’ visual effects (10 dwellings).

OUTCOME OF SITE VISITS

16. During the 14th and 15th July 2024, I visited s274 parties who have identified concerns about potential visual effects. I was accompanied by Mr Hunt and was provided an opportunity to discuss my Assessment with him, alongside observing other available views as directed by

affected landowners, including visiting some locations for which access had not previously been obtained.

17. As an outcome of my site visit, I have reviewed and (with one exception) confirmed the assessed levels of visual effect. There has been a slight increase in identified visual effects from the dwelling at 12 Smiths Line (from 'low-moderate' to 'moderate'). This change accounts for recognition of some partial and glimpse views from the garden and north-eastern end of this dwelling alongside appreciation that some more open secondary views are also enabled, including through the ongoing management of trees and shelter within the surrounding farm.

18. All visual effects including the change identified above have been agreed with Mr Hunt and are described in Annexure B of the landscape JWS.

19. The nature of views from private properties surrounding the proposed windfarm vary on account of viewing distance, orientation, intervening vegetation and the activities through which observers are engaged. Where dwellings have been occupied for some time, vegetation defining curtilage areas typically provides more extensive containment and enclosure of established garden areas. Planting is often also established to enable shelter from prevailing winds. Established planting frequently blocks or foreshortens views between garden areas and the surrounding rural landscape, including in the direction of proposed wind turbines in several instances.

20. Conversely, open rural views are more typically available from recently constructed dwellings and other surrounding areas, much of which supports rural based farming activity. Where visible, Mr Hunt and I agree the corresponding level of visual effects which occur will vary according to the context within which views are available, noting some open views will remain in primary views from residences.

21. While orientation, intervening vegetation and viewing distance are key contributing factors, Mr Hunt and I agree the greatest potential for visual effects occurs in the primary outlook from people's homes. Meridian's offer of mitigation for 'high' and 'moderate-high' visual

effects covers the range of identified properties with potential for adverse visual effects in identified primary views.

ALTERNATIVE TURBINE LAYOUTS

22. A preliminary assessment of alternative layouts within the proposed Consent Envelope was undertaken in February 2022, to consider the potential for additional adverse effects in response to the flexibility enabled through the proposed Consent Envelope.

23. In this assessment, I identified that the Proposed Consent Envelope follows a relatively narrow series of ridgelines within which turbines are proposed. This acts to limit the extent to which any individual turbines can be moved within the proposed envelope and thereby restricts the potential for material differences in landscape and visual effects. Whilst some localised differences between layouts were evident from some representative viewpoints, I do not consider this results in any material differences in likely levels of landscape and visual effects between potential scenarios at affected receivers. This preliminary assessment is reproduced in **Appendix A**.

24. In addition to my effects assessment set out in my EiC, I have responded to a request made by the Councils to provide an assessment in terms of which individual turbines would need to be removed so that the maximum effect on any residence was no more than 'moderate-high' (i.e. a less than significant effect). Based on the dispersed locations where high visual effects from dwellings could be experienced, I consider this would require removing 12 turbines overall as set out in **Appendix A**. The individual turbines identified relative to each of these dwellings are identified below:

- 48 Smiths Line (BML #2) - Turbines 8, 9 and 10
- 31 Hall Road (BML #31) - Turbines 3, 4, 5 and 6
- 51 Falkner Road (BML #18) – Turbines 18, 19 and 20
- 117 Falkner Road (BML #13) – Turbines 1, 2 and 3

25. I consider a reduction in individual turbines to reduce prominent turbines in private views would also impact the coherence of the proposed windfarm when seen from other locations, including public roads. I also observe that only two of these properties are occupied by submitters or section 274 parties who have raised concerns with visual effects.

RESPONSE TO S274 EVIDENCE

Accuracy of Visual Simulations

26. During my subsequent site visits at the request of section 274 parties, Mr Maxwell, Mr Olliver and Ms McIlraith all raised concerns with the accuracy of visual simulations used to inform my assessment of visual effects. While I acknowledge visual simulations are only a tool and have limitations, I consider they do enable an accurate 2-dimensional and static understanding of the extent of visibility and consequent visual change of the proposed Mount Munro Windfarm from defined viewpoints. They are a useful tool. This purpose and the accuracy of visual simulations has been endorsed by Mr Hunt as Council's independent Peer Reviewer.

27. During my site visit, the specific concerns which were conveyed to me primarily related to the inability to detect the existing meteorological mast in photographs supplied. This specifically related to visual simulations prepared for the landowners of 48 Smiths Line and 18A Hall Road. As set out in the Landscape JWS, I have provided updated visual simulations based on enhanced photography to indicate the scale of the existing meteorological mast which was not otherwise visible, and I agree can be used as a comparison to the scale of proposed turbines which I can confirm have been accurately modelled (see **Appendix C**).

28. The evidence of Ms McIlraith refers to research by R. Corry (2011), "*A case study on visual impact assessment for wind farm development*". I have reviewed this research which concluded that visual simulations are partially representative of post development conditions, yet commonly under-represented turbine number and size in different

locations than they were built. In the case of Mount Munro, visual simulations have been considered in terms of their accuracy in turbine number, height, diameter, and location, and adequacy in representation of built conditions. While confirmation of a final turbine layout may influence the individual locations of turbines if consented, I do not consider this would increase the overall nature or extent of identified visual effects.

29. When preparing and using visual simulations to assess a visual change, I consider it is important to ensure the field of view is correctly understood in terms of their comparative representation of human vision and in terms of assessing how many wind turbines are visible from a location. To assess visual effects of wind turbines, visual simulations and wirelines have been prepared using 120^{o} (wirelines only), 90^{o} (panoramas) and 40^{o} (single frame) fields of view where more detailed elements such as the meteorological mast is observed. While I agree that the number of turbines can vary according to which field of view is applied, this has been accounted for when assessing visual effects.

30. In terms of the accuracy of visual simulations, I disagree with the evidence of Ms McIlraith who identifies 20 turbines will be visible from 2310 Opaki-Kaiparoro Road. My assessment has identified that up to 14 wind turbines will be visible from this location and has correctly taken into account the proposed scale of wind turbines. Turbines 15-20 to the north-west of the Site would be concealed from this dwelling by topography.

Differentiating Views from Dwellings and Farms

31. The evidence of Mr Clarke raises concerns in relation to effects being measured solely from dwellings or as they impact the dwelling indoors, observing the property occupiers "*frequently use and access our farm buildings, work in the surrounding paddocks (which are in full view of Mt Munro) and spend time relaxing outdoors*." The evidence of Mr Olliver identifies that he works casually on the farm which surrounds his property. The evidence of Ms McIlrath identifies that farming is an outdoor activity, observing, "*I am outside until the sun goes down unless the weather is really horrible*."

32. The assessment of visual effects has considered the specific context and values within which change in available views would occur. In assessing levels of visual effect, I have considered a range of locations from within the rural landscape including from roads, dwellings and associated curtilage areas within which occupants have enabled access.

33. Within this context, I consider the main or primary outlook from surrounding dwellings fairly represents the highest levels of visual amenity they afford, and changes to which give rise to the greatest potential for significant visual effects.

34. Whilst parts of rural properties may obtain more open views across the wider landscape, foreshortened or partial oblique views of wind turbines are more typically obtained from established residences. Turbines which are visible from open farmland occur within the context of ongoing working rural land use and within which productive rural characteristics continue. Conversely, where occupants within and in areas surrounding their homes may experience prominent views of turbines in their primary outlook, this has been assessed as resulting in the most significant visual effects.

35. Where turbines are prominent in secondary views, rural landscape values will also largely remain in the context of ongoing productive rural activity. In this context, prominent views of wind turbines are considered to result in no more than a partial loss of or modification to key elements / features / characteristics of working rural landscape values which will endure.

36. While wind turbines may be highly visible from areas of open farmland, they are not necessarily incompatible with activities otherwise anticipated within this rural context and which will continue, and therefore will generally result in no more than moderate visual effects.

37. In terms of effects on dwellings not yet constructed, but which could be built ‘as of right’, if this windfarm is an established part of the existing environment, and assuming someone choosing to live within this rural landscape does not like the appearance of turbines, any new dwelling would likely be orientated to limit available open views. They can also,

through the establishment of planting, further reduce potentially adverse visual effects.

38. I note again that the nature of any such effect is also not automatically adverse. While some people are averse to the changes in character which may result, others may consider the nature of the effect on views to be benign or even positive. For example, during my recent site visits undertaken at the request of s274 parties, I understood the concerns of one of the landowners within Hastwell related solely to whether the presence of the windfarm would restrict any ability to establish future rural dwellings on existing vacant allotments, rather than having any concerns with potential visual effects on views from those.

Sun strike from blades

39. The submission of Mr Olliver raises concern with 'sun strike' from blades and the tops of turbine towers, referring to their recent experience of windfarms in the Hawkes Bay and Woodville. A similar concern with sunlight shining off nacelle covers has been raised by Ms McIlraith.

40. I have previously considered effects relating to glare in my EiC and as addressed in Condition WFL1 of the August Proposed Conditions. Whilst I acknowledge that visibility of individual turbines will vary according to the time of day and weather conditions, blades and nacelle covers will both be coloured to generally limit the impacts of glare, applying a matt low reflective light grey or off-white finish with an LRV of 30% or less to limit the potential for any additional visual effects.

Impacts of Tree Removal

41. The evidence of Ms McIlraith refers to effects on people living at 2310 Opaki-Kaiparoro Road. I have assessed views from the adjoining driveway, from which I observed the potential for open views of 14 turbines over distances beyond approximately 1.7 kilometres. Within the context of this dwelling, I have assessed that its orientation combined with existing intervening trees to the north-west are likely beneficial in terms of reducing open rear views from the dwelling of turbines arranged along the main ridgeline. I acknowledge that the

evidence of Ms McIlraith also states that these trees are coming down for firewood at the end of their life.

42. On the basis of my assessment, I consider occupiers of this dwelling will experience 'moderate-high' visual effects. In recognition of this level of effect, I consider Meridian's offer of landscape mitigation enabling replacement specimen tree(s) to foreshorten and reduce otherwise open views of individual turbines in views from this dwelling is beneficial and I recommend 2310 Opaki-Kaiparoro Road is included in Schedule 2 of Condition VM1 of the August Proposed Conditions.

RESPONSE TO COUNCIL EVIDENCE

Acceptability of Visual Effects

43. The acceptability of potentially significant visual effects formed a key planning issue which now appears to have been resolved between Council experts, based on my review of the evidence of Mr Hunt and Mr McGahan. The most significant visual effects are identified in response to changes in primary views from four dwellings not associated with the project. I have identified, and Mr Hunt agrees, that these properties may experience 'high' and therefore significant adverse visual effects. As agreed with Mr Hunt, no 'Very High' visual effects have been identified from dwellings not associated with the project, that would likely result in unacceptable adverse effects.

44. I have visited all four individual properties from which 'high' visual effects have been identified, three of which I have visited on two separate occasions. To assist with my assessment, Boffa Miskell has prepared visual simulations which have been shared with affected residents and have informed my Residential Visual Amenity Assessment set out in Appendix 1 of my EIC. Two of the owners of properties identified with high visual effects have submitted against the proposed windfarm raising concerns with visual effects. I also note the owners of 117 Opaki-Kaiparoro Road did not raise any concerns with visual effects during my site visit.

45. Where the windfarm has potential to result in significant visual effects, I consider it is important to consider the specific landscape and rural context within which proposed visual effects may occur. An assessment of landscape effects should also consider the relevant statutory provisions including provisions for windfarms and any underlying landscape classification which may apply. In terms of landscape and rural character effects, I consider the proposed windfarm responds well to the existing landform and productive working rural character within which the proposed windfarm will operate and is otherwise consistent with the landscape and visual outcomes anticipated by the Tararua District Plan and Wairarapa Combined Plans.

46. Council's landscape peer reviewer, Mr Hunt agrees that where visual effects are significant, a distinction can be drawn in terms of 'high' and 'very high' visual effects. In the rural context, my experience is that 'very high' effects typically form the threshold for which adverse visual effects become unacceptable.

47. In essence, the proposed windfarm avoids 'Very High' visual effects which are more typically considered by landscape experts to be unacceptable. In this instance, for the dwellings which are assessed to experience a high degree of change or effect, I consider turbines would appear prominent and result in a major change in views, albeit not dominant or overbearing and unavoidable.

48. Where 'high' and 'moderate-high' visual effects are identified, landscape mitigation has also been offered to reduce the consequent level of effect, as far as practicable, subject to affected landowner approval.

49. In relation to acceptability (or otherwise) of visual effects, a distinction can also be made between 'dominance' and 'prominence' as set out in current best practice guidelines[1] . This defines dominance is a measure of scale—the extent to which a landscape is subsumed by something, while prominence is a measure of its contrast with the surroundings. With specific regard to windfarms, overseas guidelines have drawn a similar comparison in terms of proximity and extent to which an

[1] Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022, page 245, Footnote 262.

observer effectively becomes subsumed by the potential nature of a windfarm proposal, describing this threshold as[2]:

> • *the visual experience from the dwelling and garden may be comparable to "actually living within the turbine cluster" rather than a turbine cluster being present close by; or*
>
> • *the experience of the turbines is "unpleasantly overwhelming and unavoidable".*

50. For completeness, and to illustrate how a 'very high' effect is considered, I have identified one dwelling located at 85 Coach Road for which visual effects would be 'very high'. This dwelling is part of the windfarm site, and indeed from this dwelling the visual experience would be one of living within a windfarm. Wind turbines would appear dominant and overbearing in several directions. From this dwelling, the nearest proposed turbine is located 625 metres to the east with a total of up to 19 turbines visible in primary views.

Mechanism to offer mitigation

51. I support the inclusion of an offer of mitigation to people in dwellings which are identified as resulting in both 'high' and 'moderate-high' visual effects and who have not provided their written approval or are otherwise associated with this project. This equates to a total of 14 properties based on my Assessment set out in Appendix 1 of my EIC. Where such visual effects occur, I have described how potential landscape mitigation may be implemented to reduce visual effects, the wording of which has been agreed with Mr Hunt and carried though to Schedule 2.

52. From dwellings with 'high' visual effects, I consider mitigation can look to include additional opportunities for outdoor living which faces away from the windfarm and towards some other rural amenities relating to outlook, combined with planting of individual specimen trees located to diminish otherwise open unobstructed views in the direction of individual turbines. I consider this outcome is consistent with planning provisions which provide for renewable energy generation while, as far

[2] Residential Visual Amenity Assessment | LI Technical Guidance Note 2/19. Page

as practicable, avoiding, remedying or mitigating the adverse effects of large scale and/or prominent facilities.

53. Beyond this, I consider landscape mitigation offered to address "*moderate-high effects*", could look to facilitate the planting of specimen tree(s) located to define curtilage areas and assist with reducing available primary views in the direction that wind turbines are proposed. I support this offer of additional mitigation noting the benefit to the occupiers of surrounding dwellings otherwise affected which may reduce the potential prominence of turbines and therefore mitigate the level of adverse visual effects which might otherwise occur.

CONDITIONS

54. I agree that the August Proposed Conditions as amended by Mr McGahan are acceptable as they relate to visual effects. In particular, I agree with the intent and purpose behind the new VM1 and the inclusion of Schedule 2 Properties as those resulting in 'moderate high' or 'high' visual effects.

55. I also agree with condition WFL3 in terms of ensuring landscape mitigation associated with the Terminal Substation will be effective. I therefore concur with Mr Hunt that the wording of conditions reflects the recommendations made in the JWS.

CONCLUSION

56. Based on the additional assessment and information provided since I lodged my EIC, I consider significant visual effects of the proposed Mount Munro Windfarm remain limited to a small number of neighbours, which have been offered landscape mitigation, and will be acceptable.

57. In my opinion the proposed windfarm responds well to the underlying landscape values of the Site. I consider the windfarm is appropriate in the context of this working rural landscape.

58. The proposed mitigation condition responds to the planning context and seeks to manage adverse effects.

Rhys Girvan

6 September 2024

Appendix A:

Alternatives Memo – dated 31 July 2024

Boffa Miskell

Memorandum

Christchurch
Level 1
141 Cambridge Terrace
Christchurch 8013
PO Box 110
Christchurch 8140

+643 366 8891

Whangarei	15 Porowini Avenue, Morningside, Whangarei 0110	+649 358 2526
Auckland	PO Box 91250, Auckland 1142	+649 358 2526
Hamilton	PO Box 1094, Hamilton 3240	+647 960 0006
Tauranga	PO Box 13373, Tauranga 3141	+647 571 5511
Wellington	PO Box 11340, Wellington 6142	+644 385 9315
Nelson	27 Vanguard Street, Nelson 7010	+643 548 8551
Queenstown	PO Box 1028, Queenstown 9348	+643 441 1670
Dunedin	49 Water Street, Dunedin 9016	+643 470 0460

Attention:	Ellie Taffs
Company:	Meridian Energy Limited
Date:	31 July 2024
From:	Rhys Girvan
Message Ref:	Mount Munro Windfarm: Consideration of Alternative Turbine Layouts
Project No:	BM210418

This memo sets out an assessment of potential alternative wind turbine layouts and potential turbine scenarios within the Proposed Mount Munro Windfarm to identify any differences in likely visual effects. The alternatives which have been considered are summarised below:

(1) An assessment of potential scenarios of wind turbine layouts within the identified Consent Envelope.

(2) Further consideration of the proposed likely turbine layout and the potential to remove any individual turbine locations so that the maximum effect on any residence is no more than moderate-high.

1. Consideration of alternative layouts within Consent Envelope

A preliminary assessment of alternative layouts within the proposed Consent Envelope was undertaken in February 2022. The assessment was supported by a Graphic Supplement including wirelines of five potential layout scenarios (attached). To undertake this assessment, each scenario was considered from 8 representative viewpoints. This is supported by a summary table reproduced in Appendix 1 to describe the nature and level of likely visual effects from representative viewpoint.

Despite the flexibility enabled through the Consent Envelope, this assessment of potential scenarios identified that the narrow ridgelines which occur within the site act to limit the extent to which any individual turbines can be moved and thereby limit any potential to change overall landscape or visual effects. Whilst some localised differences between layouts can be detected, no material differences in likely levels of landscape and visual effects were identified between potential scenarios.

2. Required removal of individual turbines to reduce high visual effects

Following lodgement of my evidence, dated 24 May 2024, Meridian have requested a further assessment of dwellings (not associated with the project) from which potential high (and therefore significant) effects have been assessed. The purpose of this assessment is to identify what individual turbines would need to be removed so that the maximum effect on any residence was moderate-high. The locations of dwellings assessed is set out below:

- 48 Smiths Line
- 31 Hall Road
- 51 Falkner Road
- 117 Falkner Road

This subsequent assessment has been set out in Appendix 2, including identification of which turbines would need to be removed to reduce likely effects. In acknowledging this potential reduction in levels of effect, it must be emphasised that such visual effects are not automatically adverse and will also likely change through time as observers become familiar with the operation of wind turbines in the context of this working rural landscape for which they would continue to form a part.

Based on this subsequent assessment, each dwelling from which high effects have been identified is considered to require the removal of 3 or up to 4 individual turbines to reduce the likely level of visual effects. Based on the locations where high visual effects from dwellings occur, this would require removing a series of different turbines which make up the proposed windfarm, resulting in a cumulative loss of 12 turbines overall. In seeking to address visual effects observed from individual dwellings, this would also likely impact the coherence of the proposed windfarm as a whole, however not to the extent that this would introduce any additional significant landscape effects. The individual turbines identified relative to each dwelling are summarised below:

- 48 Smiths Line (BML #2) - Turbines 8, 9 and 10
- 31 Hall Road (BML #31) - Turbines 3, 4, 5 and 6
- 51 Falkner Road (BML #18) – Turbines 18, 19 and 20
- 117 Falkner Road (BML #13) – Turbines 1, 2 and 3

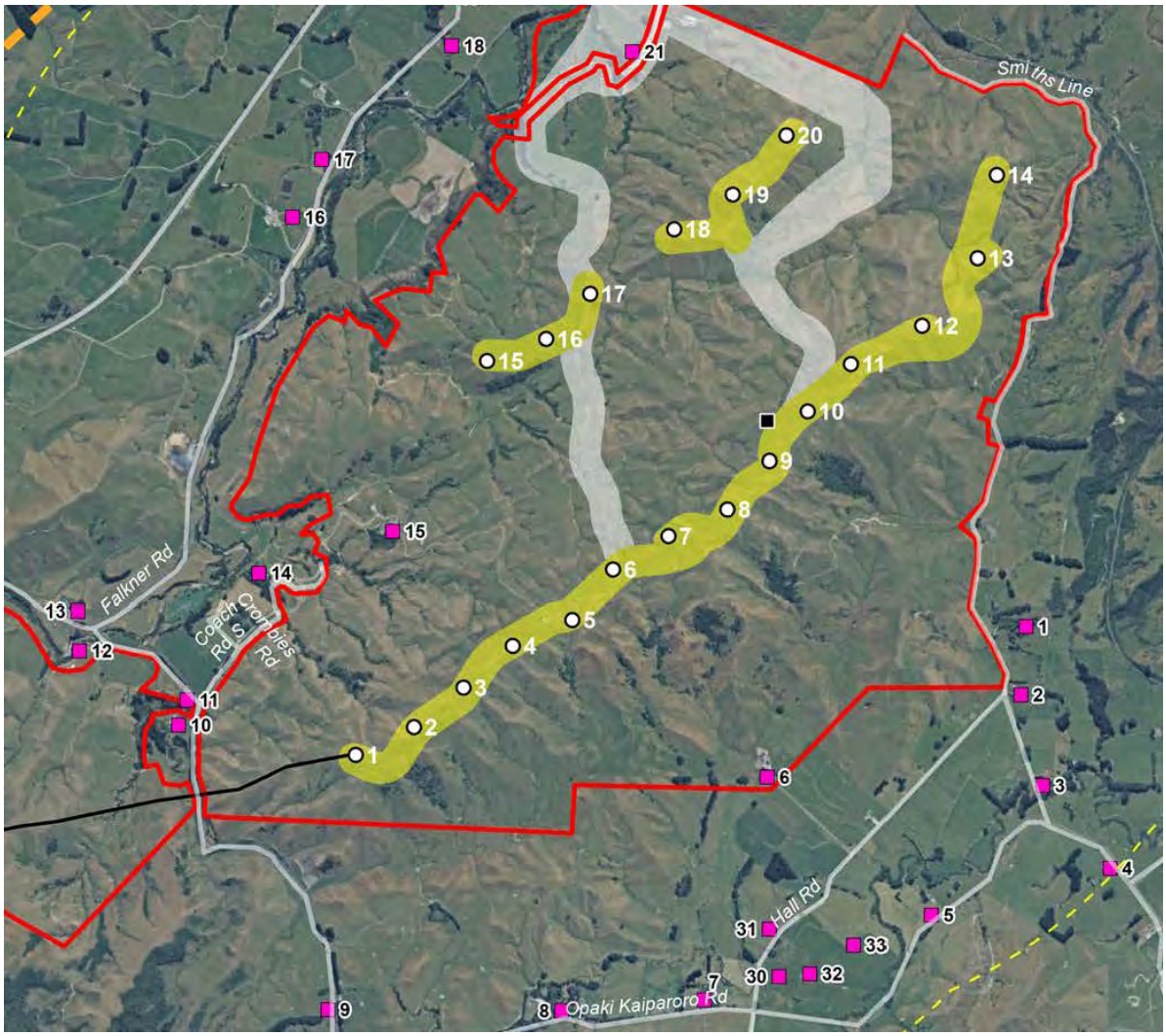


Figure 1: Numbering of the Individual Turbines Assessed

In undertaking this subsequent assessment, I remain of the opinion that the assessed level of high (and therefore significant) visual effects will result in a major change in some primary views, however, I do not consider this to result in turbines appearing dominant, overbearing and unavoidable to the extent that this potential for adverse visual effects is unacceptable. I consider high effects can be differentiated from very high effects, which may be unacceptable.

I understand that further consideration of opportunities for off-site mitigation will be considered as part of expert conferencing with landscape architect Josh Hunt who has been engaged by the joint Councils. We intend to discuss and report on opportunities to mitigate the potential for significant visual effects at receivers.

Appendix 1: Layout Scenario - Landscape Assessment of Potential Difference in Effects resulting from potential turbine layouts within Consent Envelope

VIEWPOINT DESCRIPTION	Distance to nearest Turbine	Viewing Audience	Comment	Likely Level of Effect
Viewpoint VP1 illustrates a view southwest towards the site from State Highway 2. From this location the main ridgeline of the site is visible to the right of the view, with the foreground landform in front, while in the left-hand side of the view the main ridge is screened by the lower ridge in the foreground. In the centre of the view, framed by a shelterbelt boundary towards the middle ground of the view. The proposed main site access point may be visible in the left-hand side of the view.	1.5 km	State Highway users and rural dwellings to North-west of proposed windfarm	Turbines in each scenario may appear prominent along skyline. Scenarios introduce some stacking, e.g. 4. Scenario 3 appears the most coherent.	**Moderate – High** No notable difference in effect between scenarios.
Viewpoint VP2 illustrates a similar but closer view, from Falkner Road. From this location also the lower western ridge is more prominent, with the main ridge beyond. Vegetation along the Makakahi River is visible in the foreground of the view. Similar views to this may be available from some of the residential properties along Falkner Road, although these are more typically foreshortened by surrounding vegetation and have views in the opposite direction from the site.	1.1 km	Rural Road with residents of rural dwellings to the north-west of the proposed windfarm	Turbines in each scenario appear prominent and may introduce potential to appear dominant along skyline. Understanding earthworks within envelopes is key as may introduce potential for more significant effects. Little difference in stacking with some slight increase in scenario 3.	**High** No notable difference in effect between scenarios.
Viewpoint VP3 illustrates a view near the southern site boundary from the intersection of Falkner Road and Opaki-Kaiparoro Road. Falkner Road forms the left-hand foreground of the view, with Opaki-	1.1 km	Rural road with rural dwellings (up to 7)	Scenario 4 looks better and remains more coherent in response to the underlying topography along the main ridgeline.	**High** No notable difference in effect between scenarios.

Kaiparoro Road across the centre of the view and to the right. The view illustrates the relationship between the main ridge, in the right of the view, with the secondary ridgeline visible in the far-left hand side of the view. From this location it will be possible to view the wind farm as two separate parts.			Stacking of turbines evident on front ridge – less so on scenarios 2 and 4. Siting of turbine 14 looks incongruous from two defined clusters in scenario 2, 3 and 4, albeit with limited material difference in effect.	
Viewpoint VP4 shows a view from the southwest of the site looking northeast towards the site from Opaki-Kaiparoro Road. The eastern side of the main ridge forms a prominent landform in the centre of the view. A farm dwelling accessible from Hall Road is visible in the right-hand side of the view. Proposed turbines will be visible along the skyline in the view.	1.4 km	Rural roads with rural dwellings	Turbines in each scenario appear prominent forming coherent array along main ridgeline. No outliers. Some slight stacking on scenario 3.	**High** No notable difference in effect between scenarios.
Viewpoint VP5 illustrates a view towards the site form the northeast, from the rural road of Smiths Line. The main site ridgeline and lower rolling landform to the northeast of this form the dominant element in the view. Smiths Line forms the right-hand side of the view. The turbines will be visible along the main ridgeline in the view.	1.3 km	Rural roads with rural dwelling	Turbines in each scenario appear prominent. Coherent array of turbines along main ridgeline. No outliers or notable stacking identified between scenarios.	**High** No notable difference in effect between scenarios.
Viewpoint VP6 illustrates a more distant view towards the site form the northeast, from Nireaha Road, east of Eketahuna. The view looks towards the site across the surrounding rural pastoral landscape towards the site, which forms the horizon in the centre of the view. The bush covered slope of Pukaha/Mt Bruce is visible as a higher ridgeline to the right-hand side of the view. The proposed windfarm would be visible along the skyline on the horizon in the centre of the view.	3 km	Rural roads and dispersed dwellings	No outliers. Scenario 3 presents some more stacking.	**Moderate** No notable difference in effect between scenarios.

Viewpoint VP7 illustrates a view from the public rest layby at Anzac Bridge, just off the State Highway 2 corridor, to the south-east of the site. Anzac Bridge was constructed as a memorial to local soldiers who lost their lives in the Great War, and opened in 1922. In later years plaques have been added to commemorate fallen WWII veterans. In 2006 the bridge was rededicated as a war memorial site and an annual Anzac Day service is held there. From this location, intervening landform between State Highway 2 and the site obscures views towards the landform of the site itself. However, from this location turbine nacelles and blades would be visible aligned beyond the landform in the right-hand side of the view.	2.2 km	Rest area / heritage site	Partial view of turbines along the skyline. No outliers with minimal stacking.	**Low-moderate** No difference in level of effect
Viewpoint VP8 illustrates a view from Main Road, Eketahuna. The view from the town centre looks south down State Highway 2 towards the site, which is visible framed by buildings in the centre of the view. From this viewpoint, a small group of turbines would be visible on the horizon in the centre of the view, beyond the lighting poles	4.9 km	Urban views	Distant view of confined turbines along broader skyline under all scenarios. No outliers with some stacking.	**Low** No difference in level of effect

Appendix 2: Assessment of identified high effects from individual dwellings to reduce potential significant effects through removing individual turbines.

BML ref #	Location	Distance to Closest Turbine	Nature of the View	Nature of change	Potential Visual Effect	Turbines to remove to achieve Moderate-High effects rating	New distance to closest turbine	Reasons
2	48 Smiths Line	1.31 km (Turbine 9)	Dwelling located along north-eastern toe of Mount Munro. Primary views from living areas face north and west and incorporate open views towards the Site. Established vegetation within this property has predominantly been maintained to enable views towards the rural backdrop of Mount Munro. A single individual deciduous tree and overhead transmission line punctuates the skyline to the west of the dwelling.	Views looking west from the living areas will observe wind turbines 1-12, the nearest of which will form prominent dynamic elements along the skyline. Wind turbines 13-14 are located relatively lower along the ridgeline to the north and will largely remain screened beyond intervening vegetation. The majority of proposed earthworks will remain concealed beyond the ridgetop. A localised area of proposed cut will be visible to form access below the base of wind turbine 12, however this will remain below the main ridge and remain prominently screened beyond established vegetation. The existing visible landform will remain in pasture and support ongoing rural land use.	High adverse	8,9,10	1.41 km (Turbine 11)	Removes the three most prominent turbines including turbines with the highest elevation and expressive undulating form along the larger landform of Mount Munro seen along the skyline in views from the main outlook of the dwelling. Turbines within the remaining windfarm may remain prominent along the skyline, however, these would be located to appear more peripheral from the main outlook.

31	31 Hall Road	1.40 km (Turbine 5)	New house recently delivered with living areas facing north-east, North facing bedroom window with open view of ridgeline. Mature shelter belts surround this rural property with no established curtilage areas or planting surrounding the dwelling.	Proposed wind turbines 1-14 would appear prominent as an ordered array or dynamic structures visible along the adjoining skyline. The lower parts of wind turbines 11-14 will appear partially obscured by intervening trees which punctuate the skyline. Wind turbines 15-20 along the lower western ridgeline will remain entirely concealed. Proposed earthworks will remain concealed within the existing landform with the Site. The larger landholding supporting the wind turbines will continue to support ongoing pastoral land use.	High adverse	3,4,5,6	1.54 km (Turbine 7)	Removes the four most prominent turbines visible along the skyline. Other rural views, including the northern aspect of living areas from the dwelling would remain free of windfarm development. The proposed turbines which remain may continue to appear prominent in views, however the removal of the more immediate proposed turbines would ensure consequent visual impacts appear responsive to this midground view and provide a sense of open space relief along the more immediate mountain backdrop. Remaining turbines begin to appear more peripheral to the main outlook.
18	51 Falkner Road	1.08 km (Turbine 17)	This dwelling is located to the west of Mount Munro with primary views facing south-west and framed by mature vegetation. Rear open views to the south-east of the dwelling also face towards the Site and overlook low level hedging, including views	Oblique partial views and open rear views of wind turbines 15-20 will appear prominent along the skyline of Mount Munro. Beyond this, the larger array of wind turbines 1-10 will appear along the main ridgeline. Possible views of blade tips of wind turbines 11 and 13 wiping beyond landform will also appear in this view. Earthworks associated with the Site access and wind turbines	High adverse	18,19,20	1.08 km (Turbine 17)	Removes the three turbines to the left of view which currently appear prominent in open foreground views including the main outlook and rear curtilage area adjoining the dwelling. Turbines removed from the relatively higher ridge visible along the skyline. These turbines currently appear more as outliers.

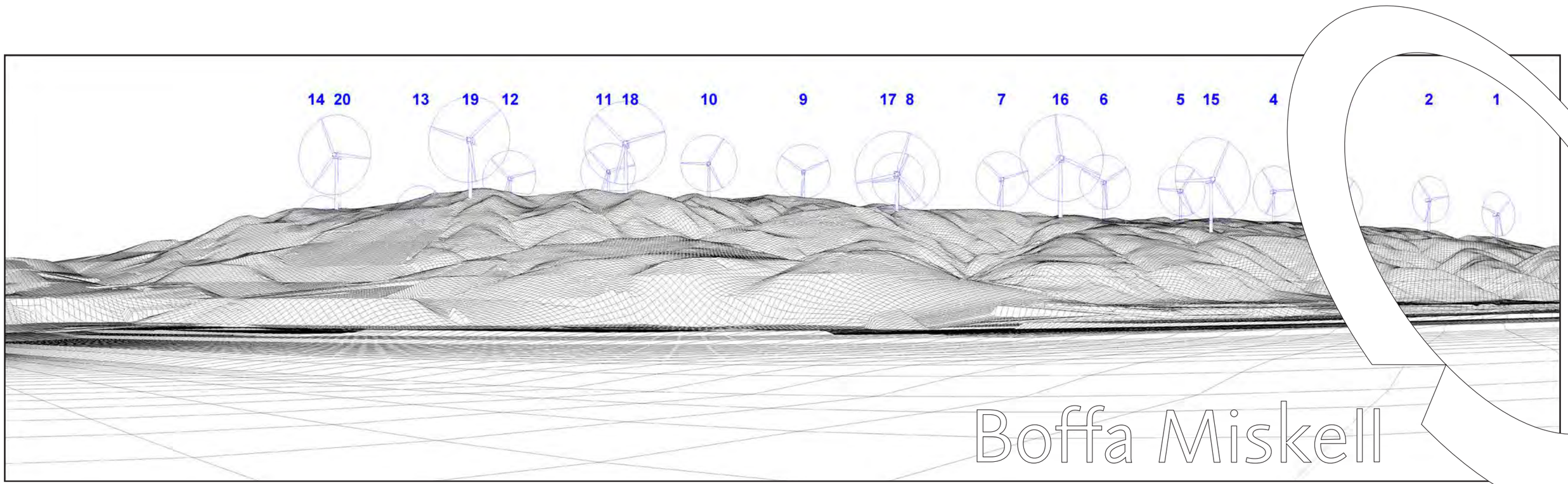
			from the vicinity of the washing line.	16-19 along the skyline will also reveal an initial raw worked appearance before being re-established in pasture and assimilated in the working rural nature which remains evident in this view.				While midground views of parts of turbines 15-17 may remain prominent in views, these would remain more limited given the nature of intervening vegetation surrounding the dwelling. Removal of turbines 18 -20 would also reduce views of earthworks visible along the skyline.
13	117 Falkner Road	1.19 km (Turbine 1)	Dwelling located to the west of Mount Munro within enclosed rural valley which extends along Falkner Road. Primary views from dwelling look northeast towards the wind farm Site and south-west along the alignment of Opaki Kaiparoro Road towards the Tararua Ranges. Farm sheds and mature vegetation punctuates parts of the Mount Munro ridgelines	Primary views from the dwelling will observe the majority of the proposed wind farm which will appear as prominent dynamic structures along the skyline. Parts of wind turbines 13,14 and 20 will be obscured beyond the intervening landform.	High adverse	1,2,3	1.65 km (Turbine 4)	Removes the three closest turbines which appear most prominent along the skyline in middle ground views. This reduction in turbines would contain the spread of turbines further northwest along the skyline which remains visible and forms two relatively more distant clusters.

MOUNT MUNRO WINDFARM
Landscape and Visual Effects Assessment

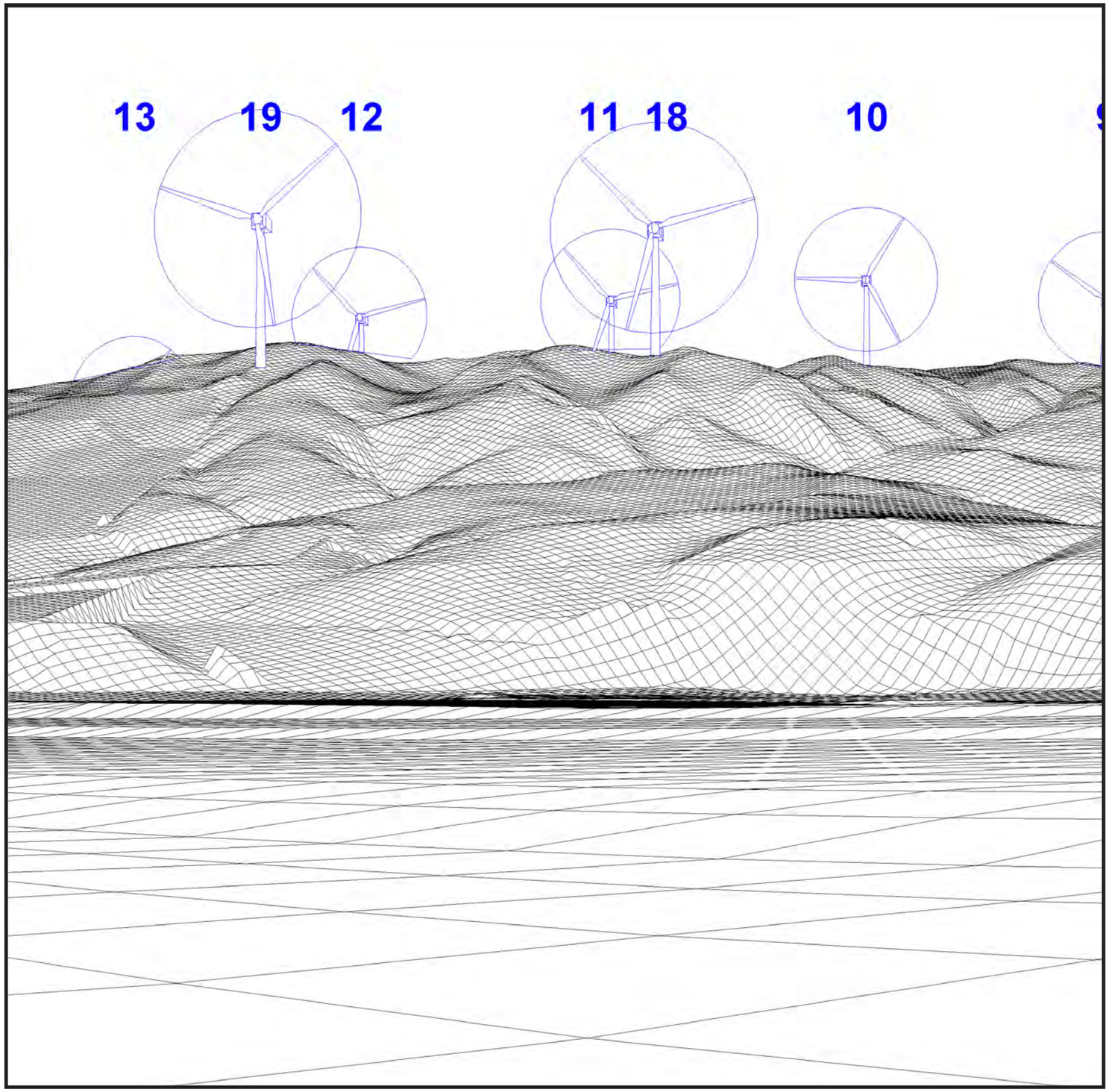
DRAFT

Layout Scenarios

Prepared for Meridian Energy by Boffa Miskell Ltd
February 2022

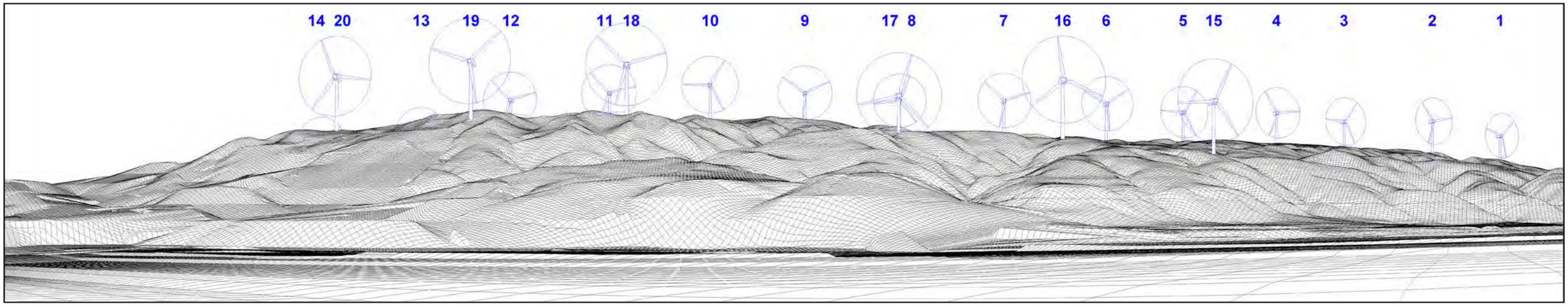


MOUNT MUNRO WINDFARM

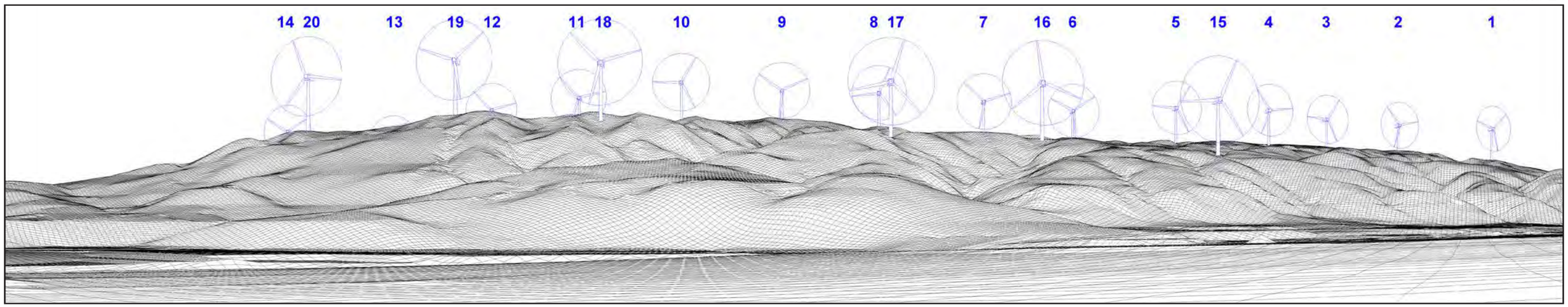


CONTENTS

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 826 773 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 492 950 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 270m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from State Highway 2

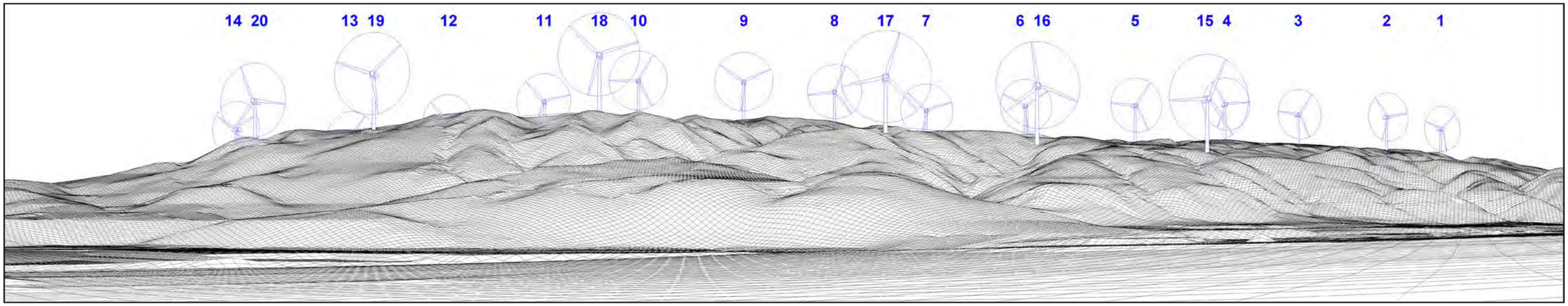
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

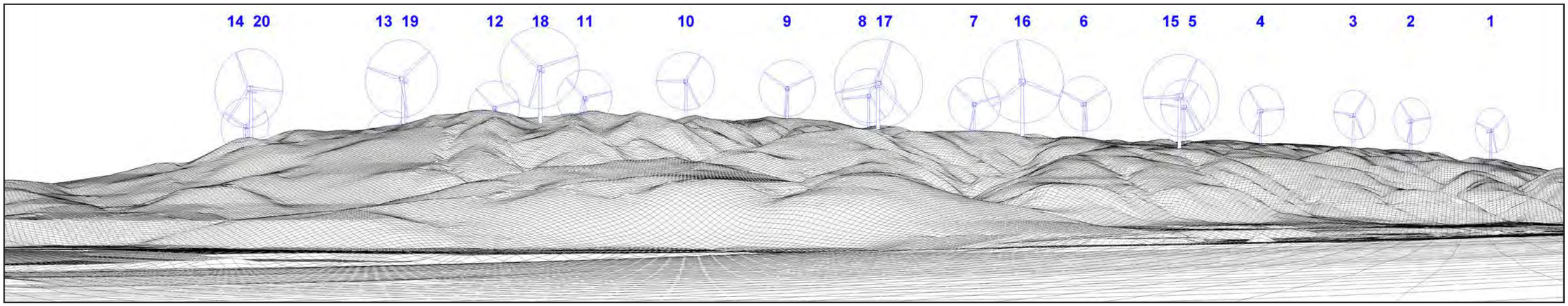
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

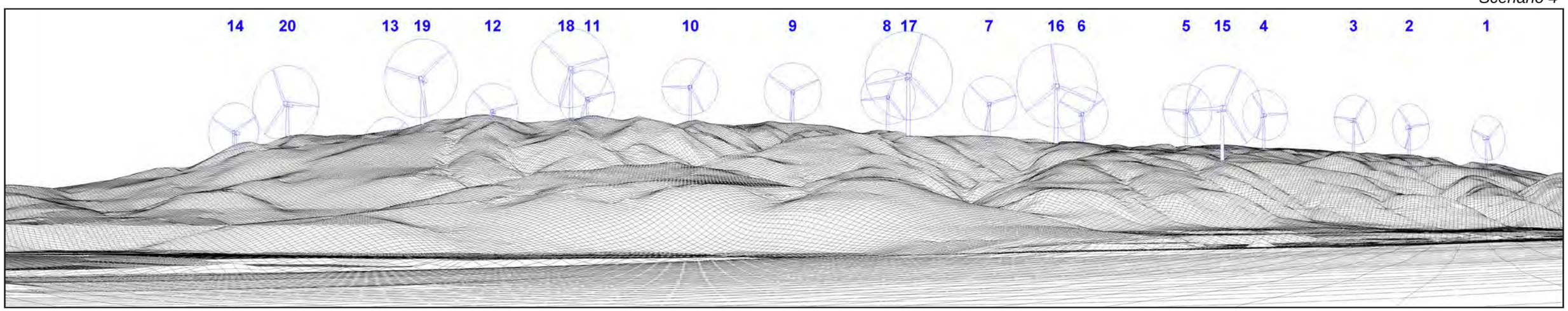
VP1



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 826 773 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 492 950 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 270m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from State Highway 2

Date: November 2021 | Revision: 0

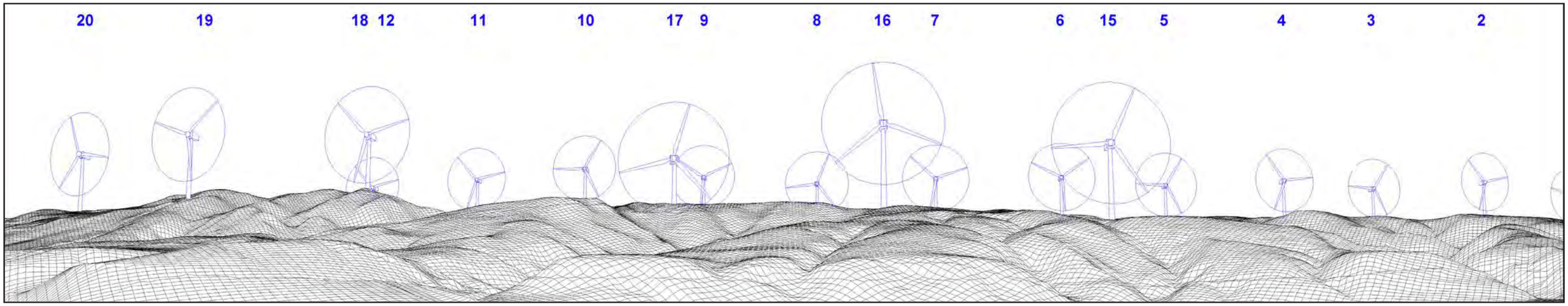
Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

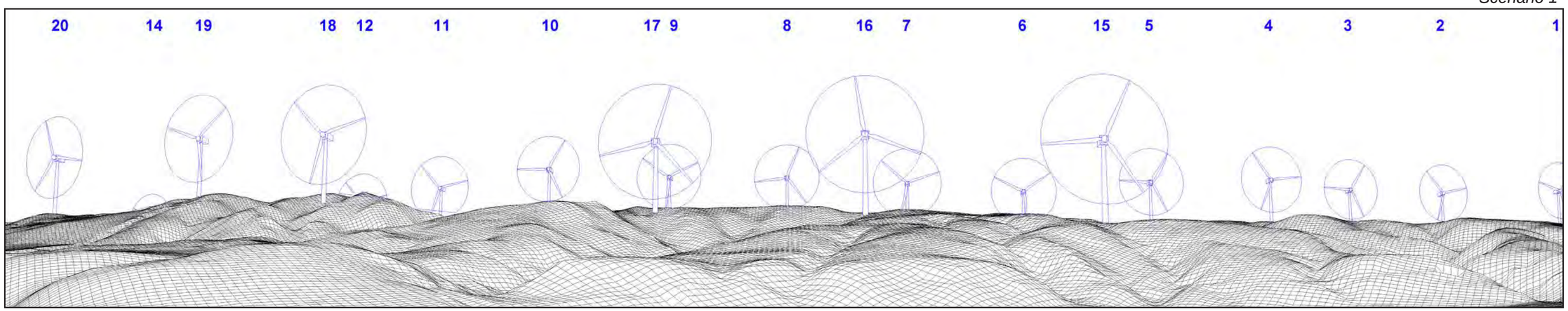
VIEWPOINT

VP1

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 826 712 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 492 359 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 250m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Falkner Road

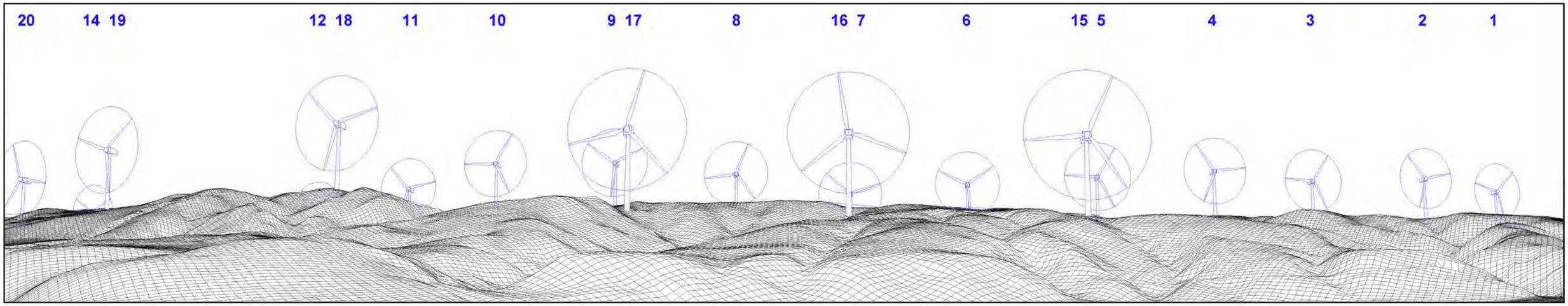
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

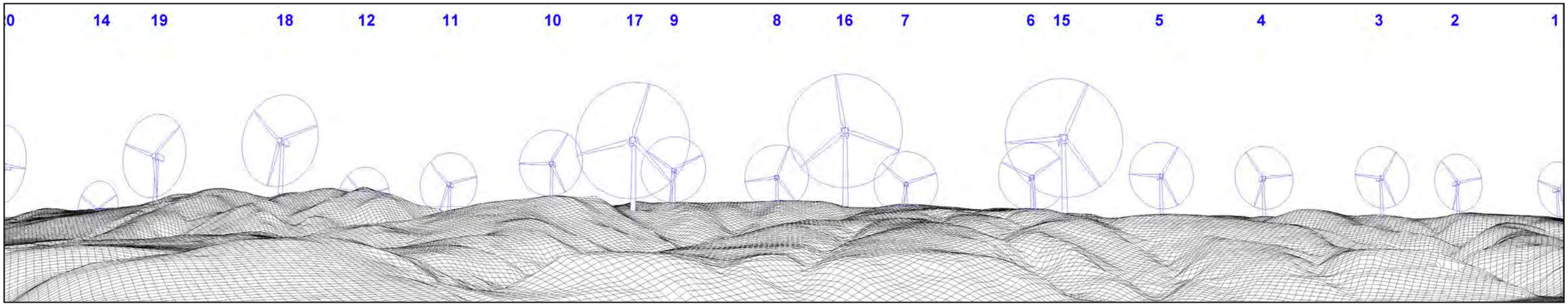
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

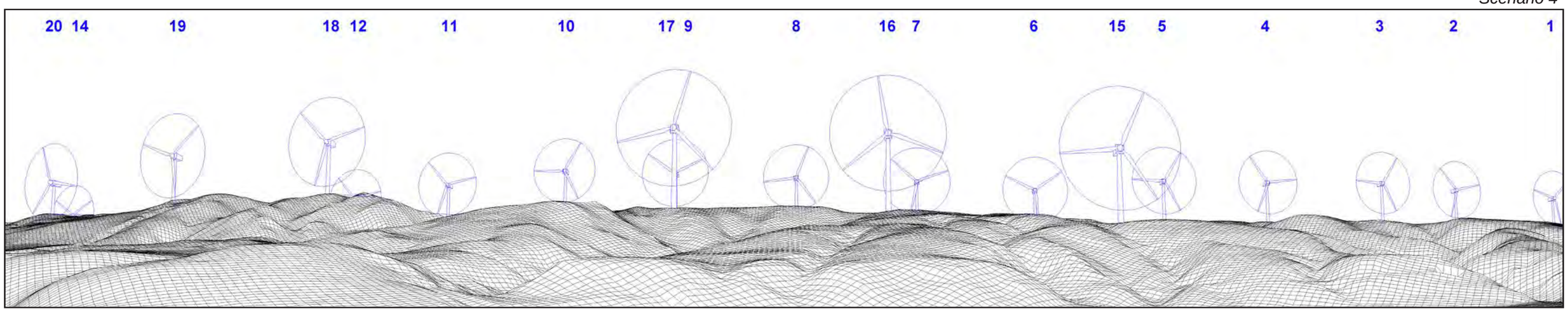
VP2



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 826 712 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 492 359 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 250m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Falkner Road

Date: November 2021 | Revision: 0

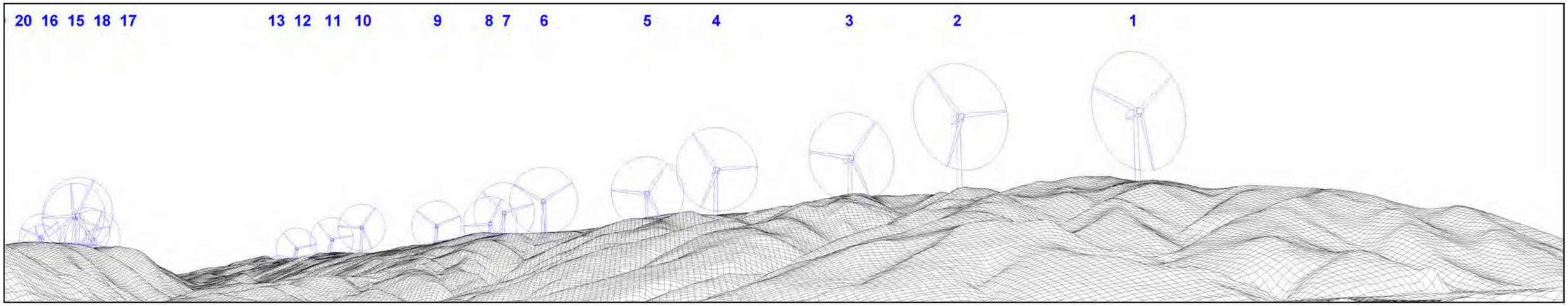
Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

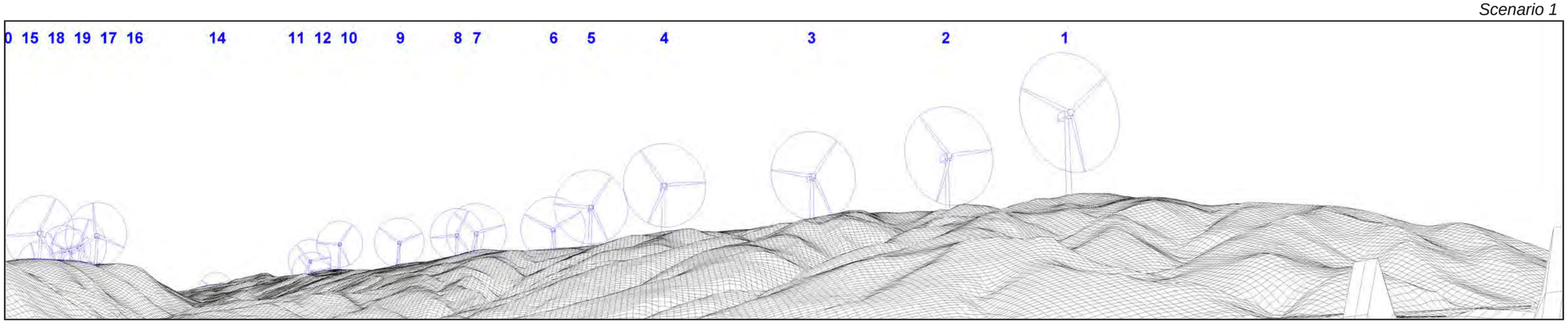
VIEWPOINT

VP2

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 825 724 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 490 421 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 262m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from intersection of Falkner Rd & Opaki Kaiparoro Rd

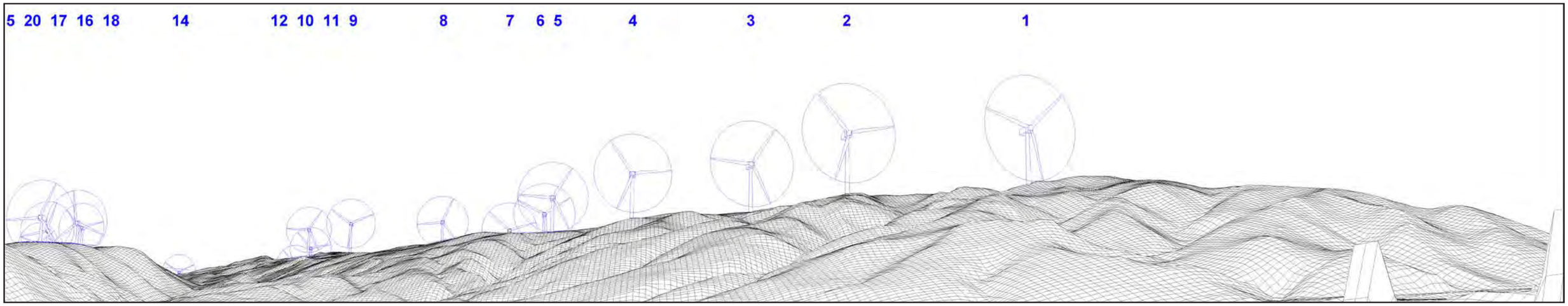
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

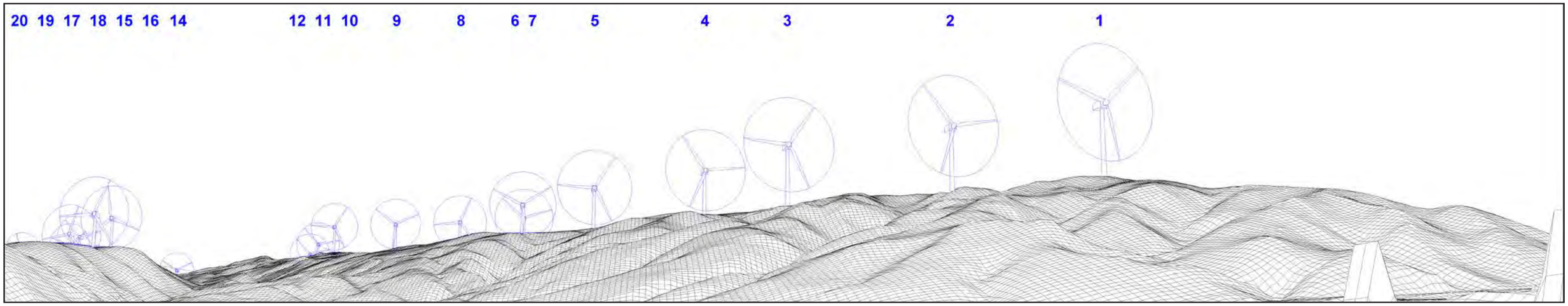
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

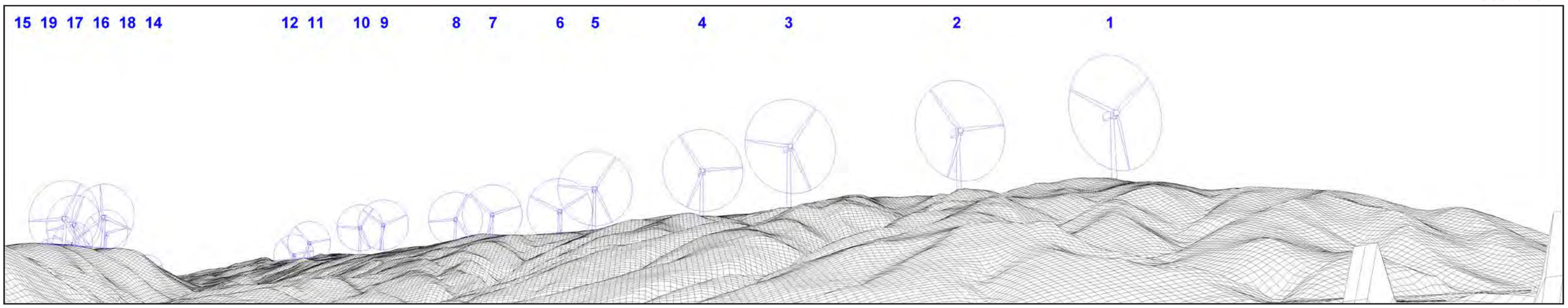
VP3



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 825 724 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 490 421 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 262m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from intersection of Falkner Rd & Opaki Kaiparoro Rd

Date: November 2021 | Revision: 0

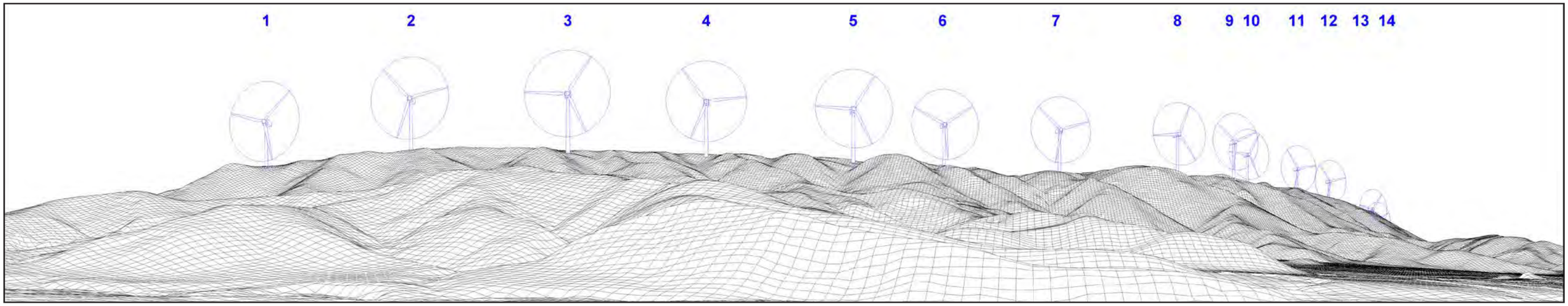
Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

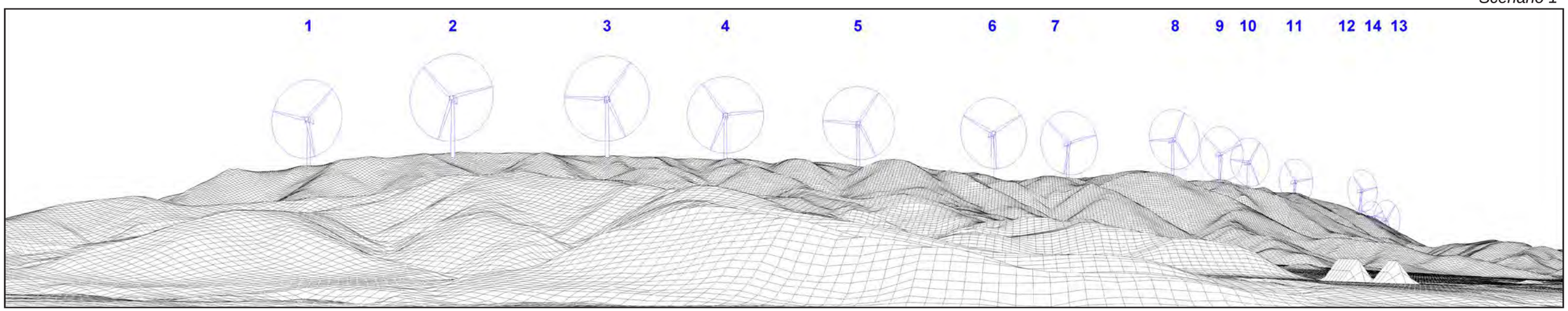
VIEWPOINT

VP3

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 827 822 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 488 960 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 267m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Opaki Kaiparoro Road

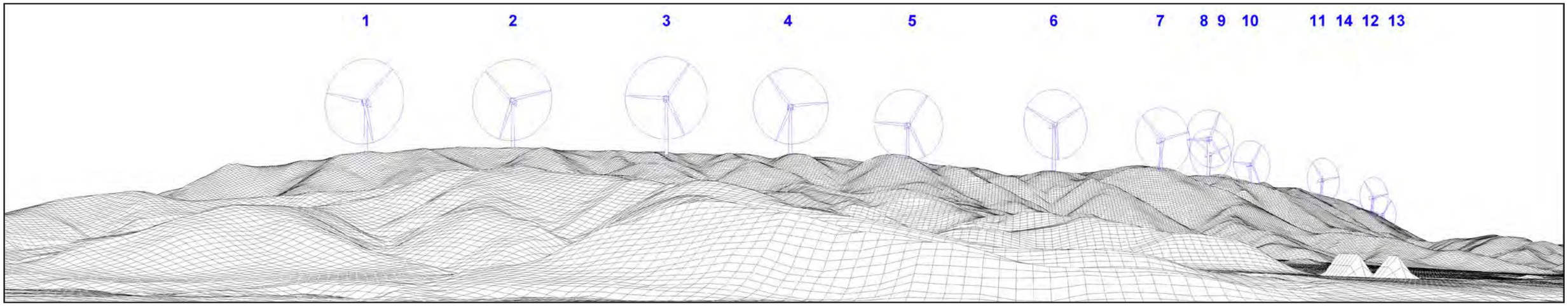
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

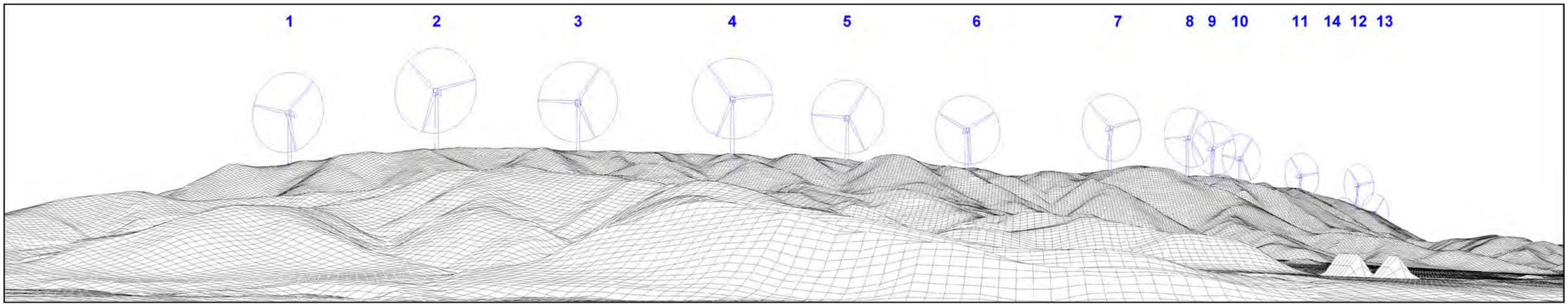
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

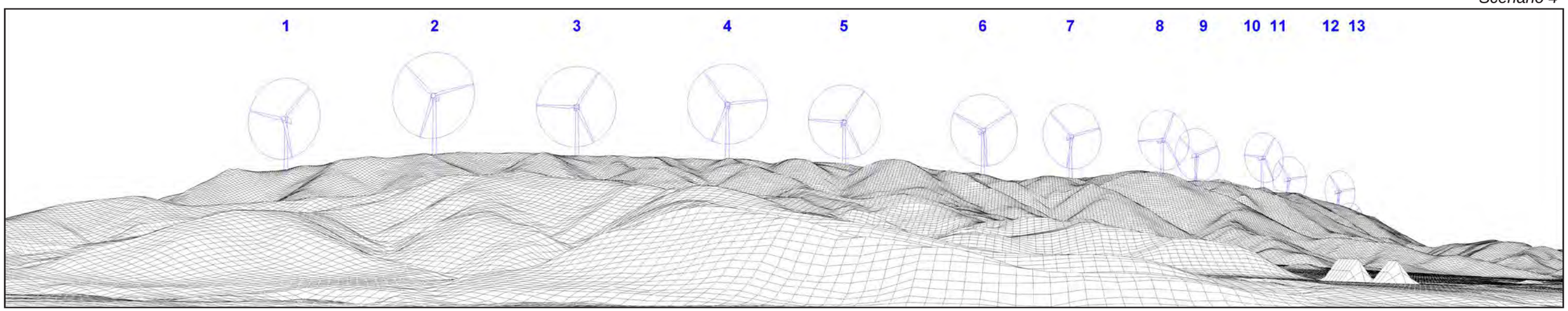
VP4



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 827 822 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 488 960 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 267m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Opaki Kaiparoro Road

Date: November 2021 | Revision: 0

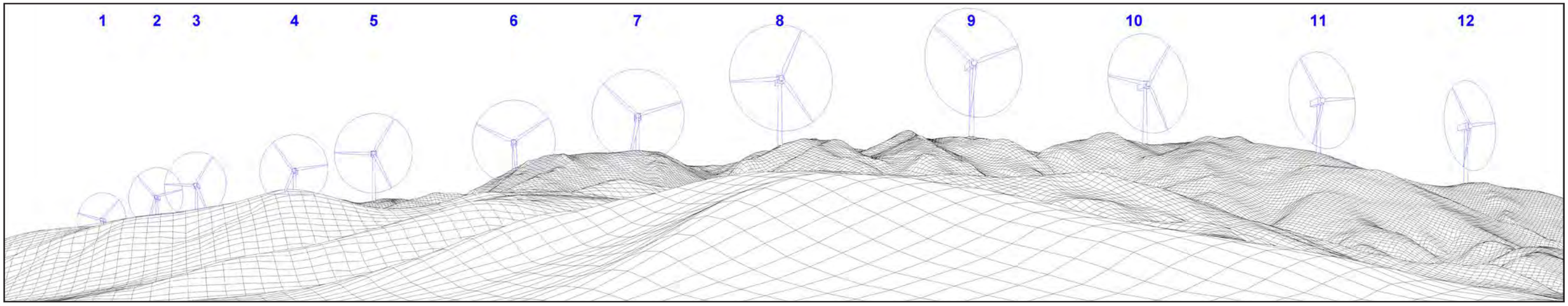
Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

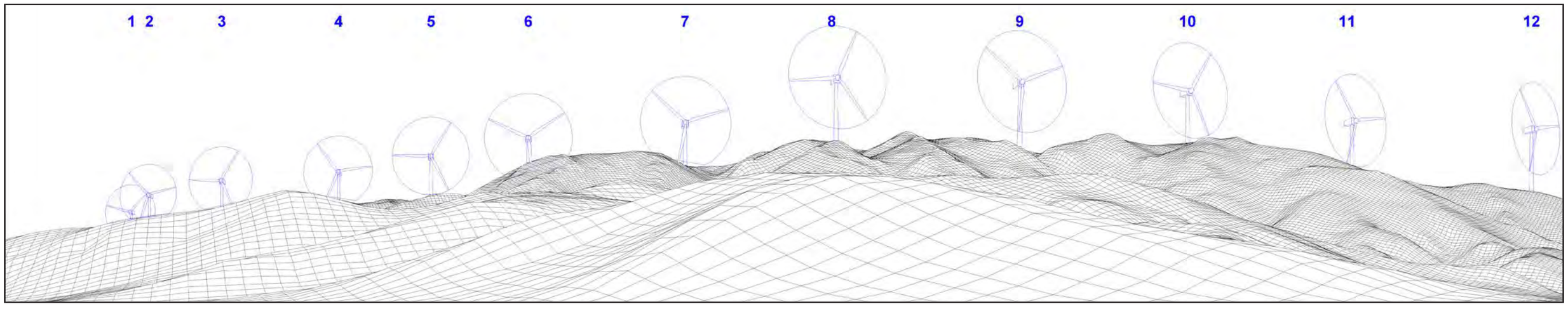
VIEWPOINT

VP4

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 829 208 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 490 088 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 251m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Smiths Line

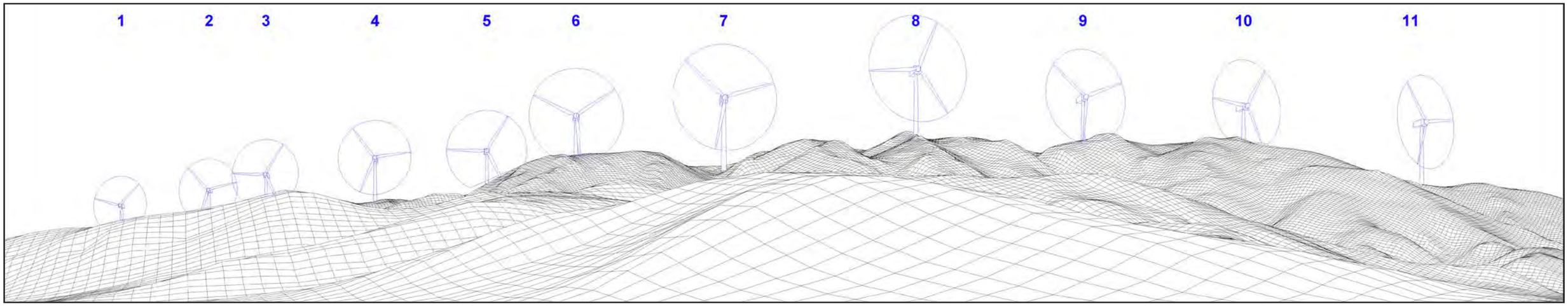
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

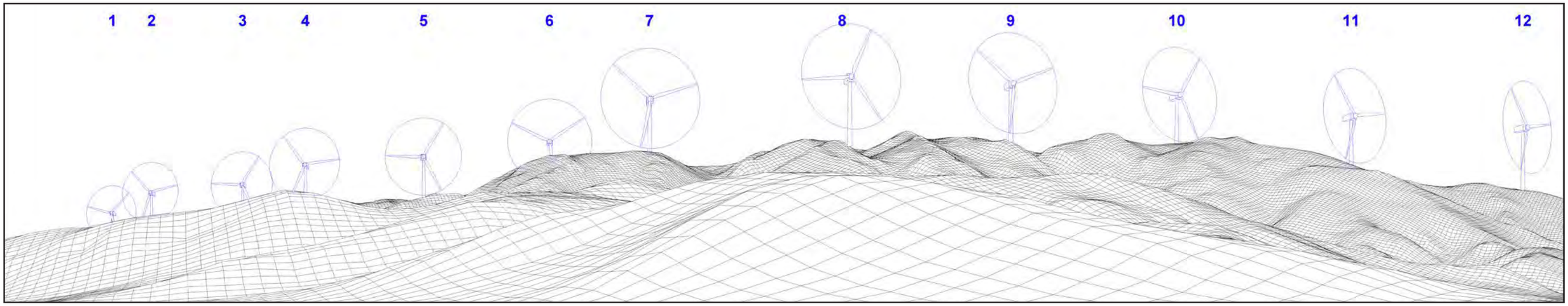
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

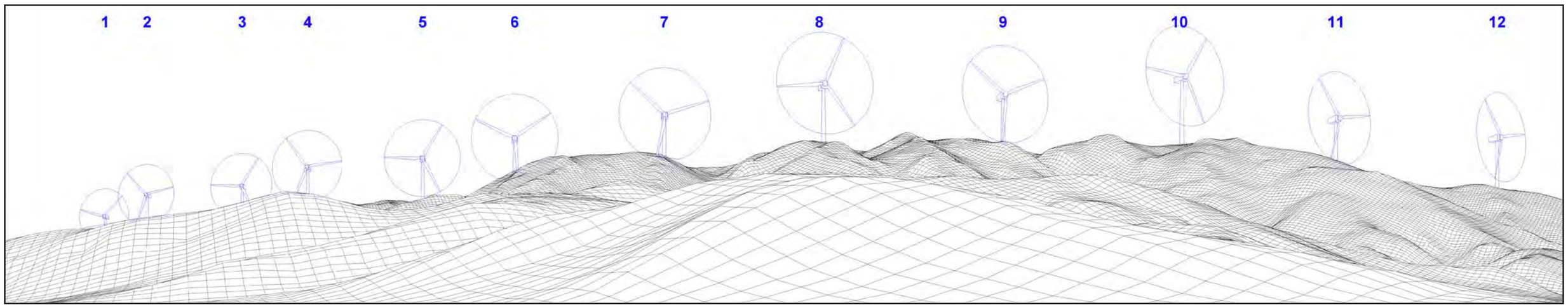
VP5



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 829 208 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 490 088 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: 251m / 2m	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Smiths Line

Date: November 2021 | Revision: 0

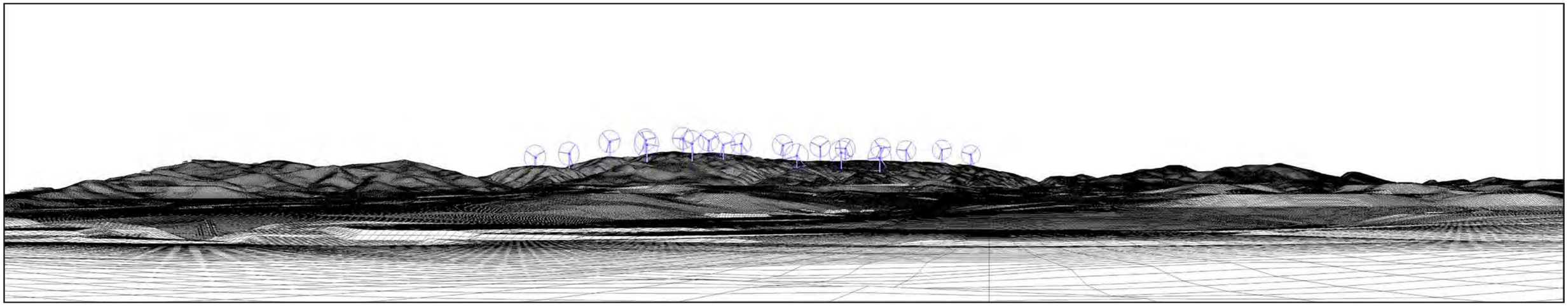
Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

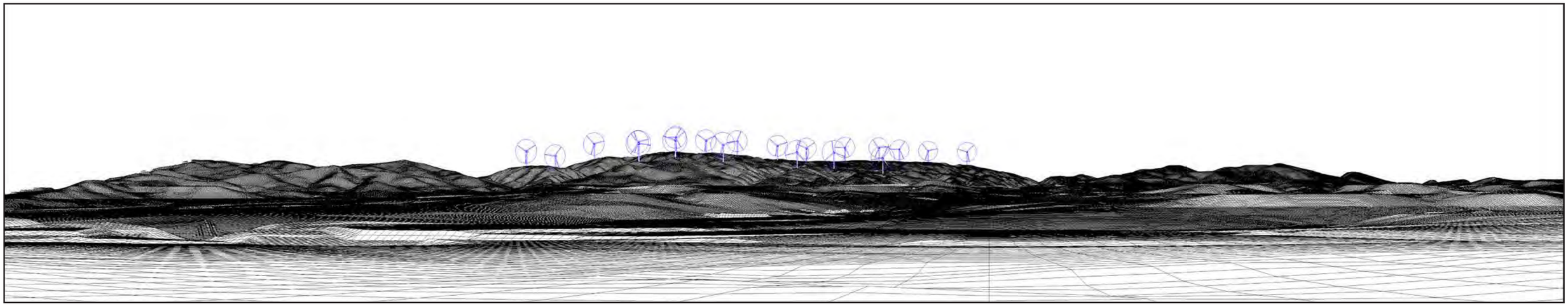
VIEWPOINT

VP5

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 826 555 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 497 302 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: -	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Nireaha Road

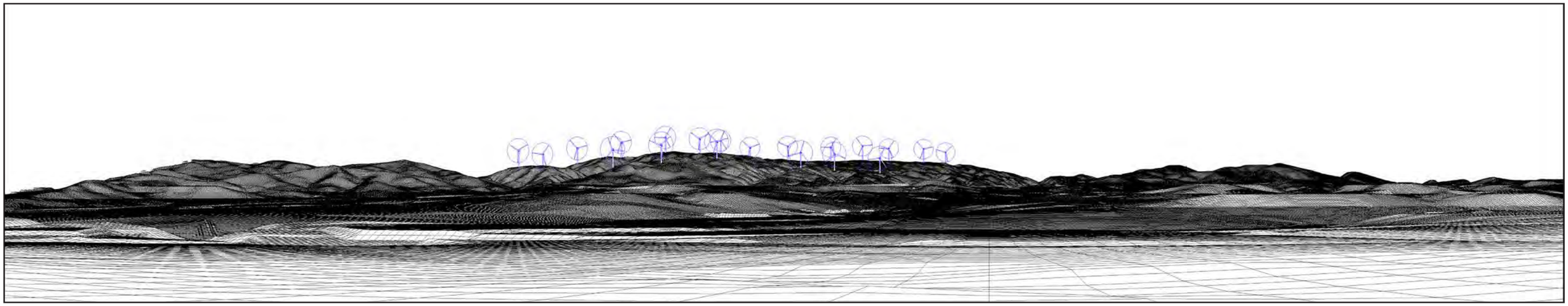
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

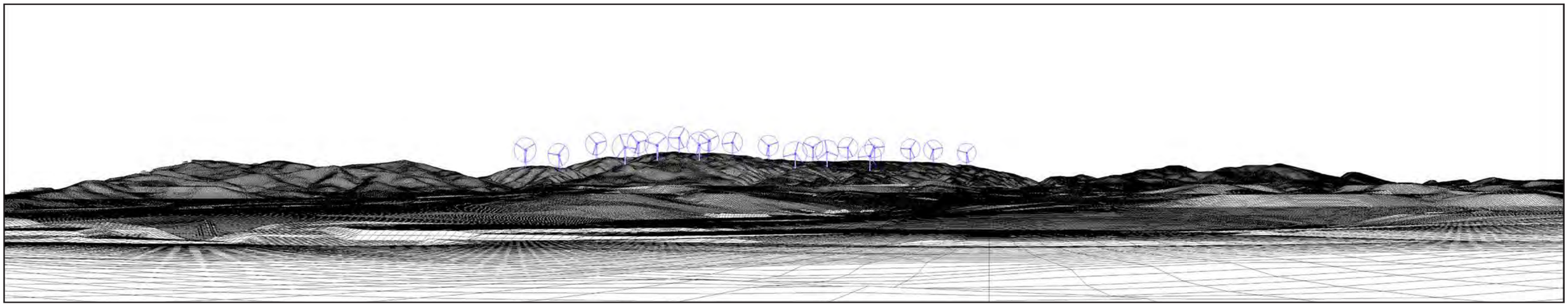
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

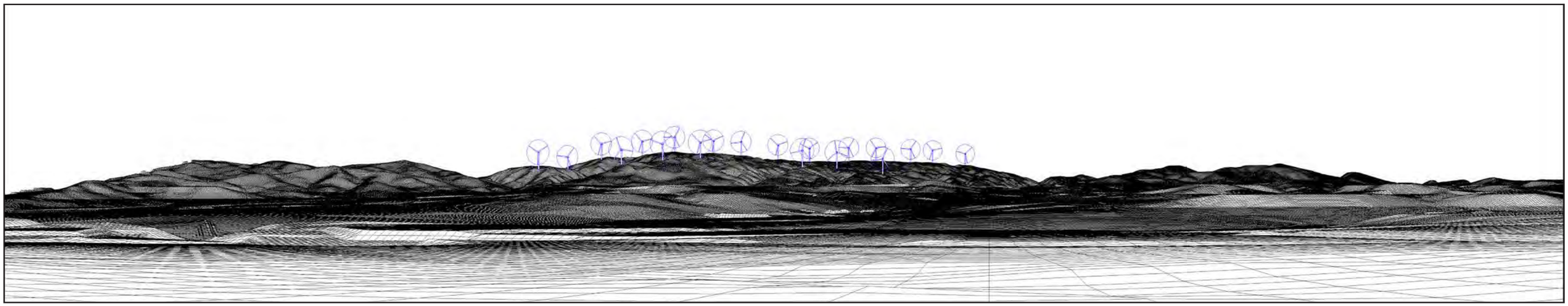
VP6



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 826 555 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 497 302 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: -	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Nireaha Road

Date: November 2021 | Revision: 0

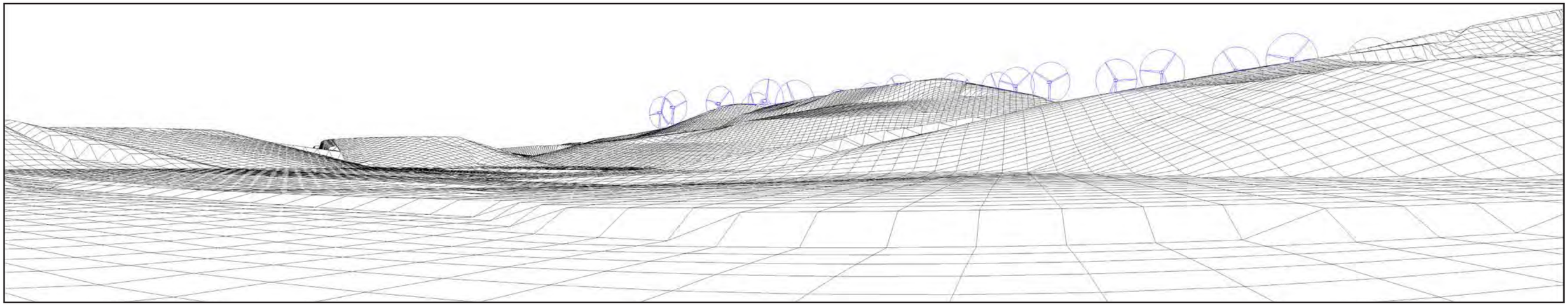
Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

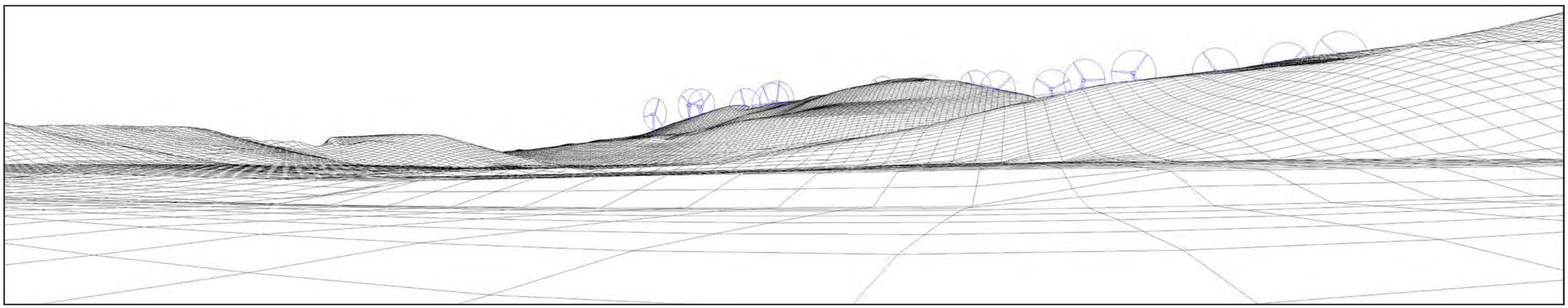
VIEWPOINT

VP6

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting : 1 824 604 mE
NZTM Northing : 5 490 748 mN
Elevation/Eye Height :-
Date of Photography :2 November 2021

Horizontal Field of View : 90°
Vertical Field of View : 30°
Projection : Cylindrical
Image Reading Distance @ A3 : 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Anzac Bridge

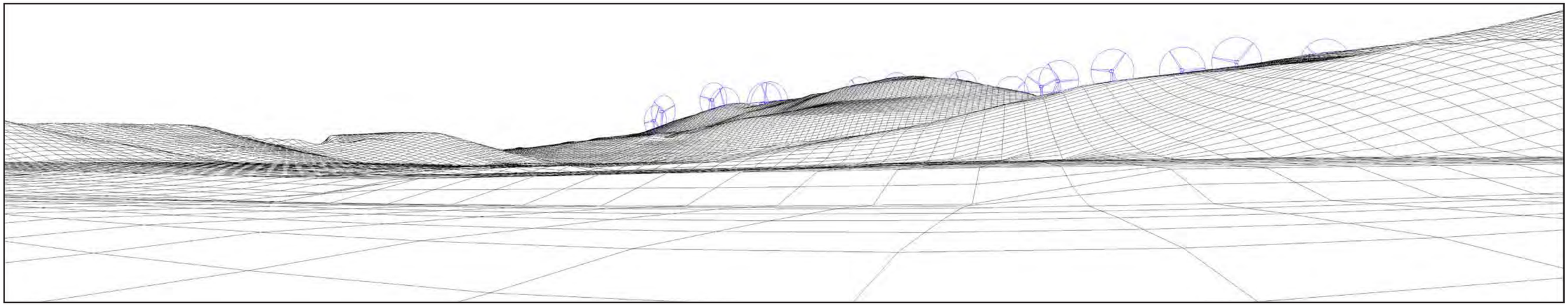
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

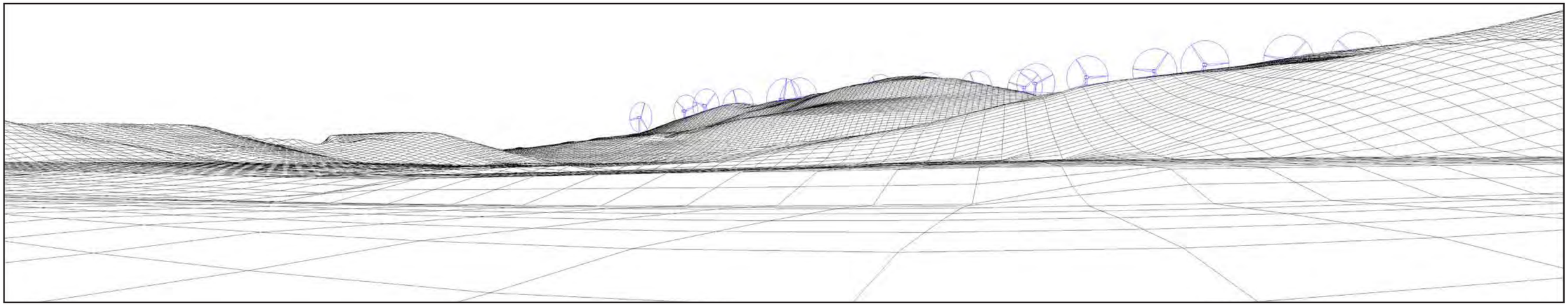
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

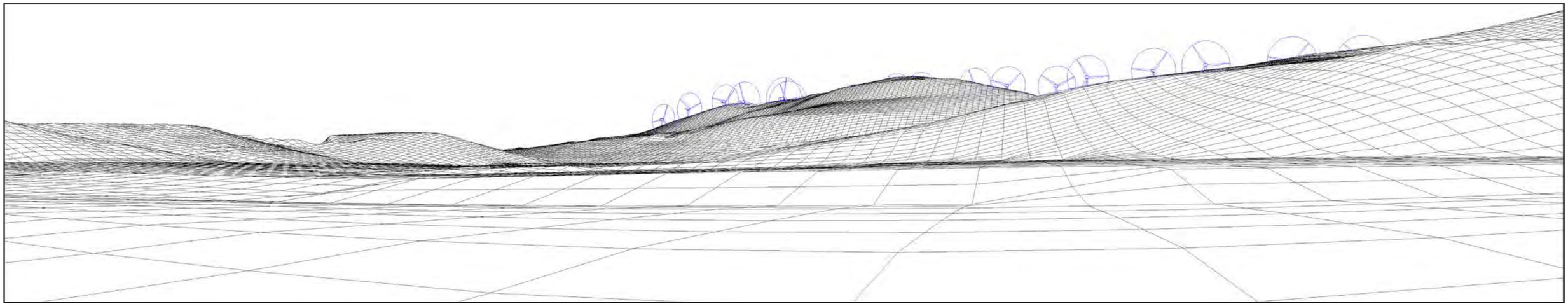
VP7



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 824 604 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 490 748 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: -	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Anzac Bridge

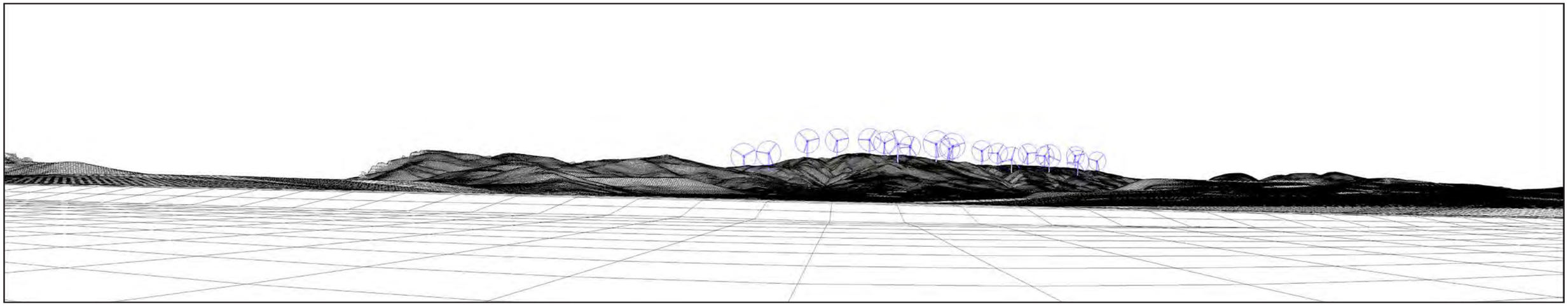
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

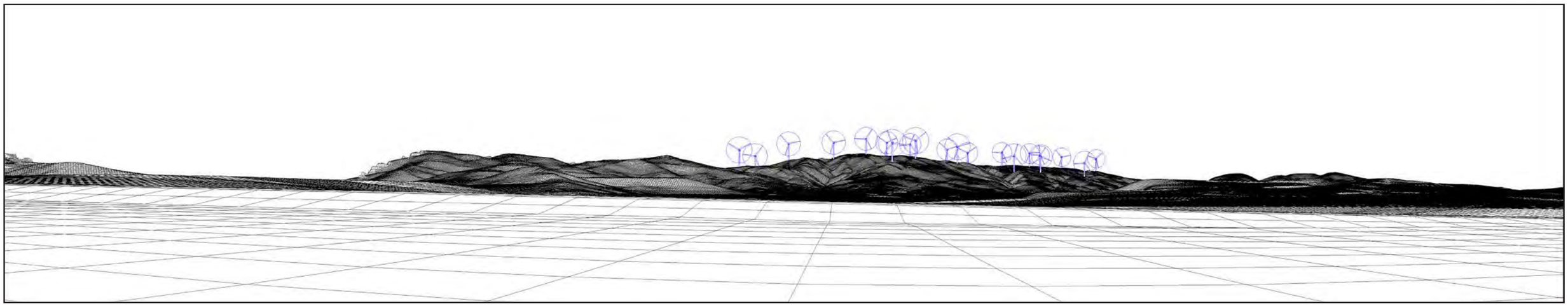
VIEWPOINT

VP7

Existing View



Scenario 1



Scenario 2

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 828 579 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 497 186 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: -	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Main St, Eketahuna

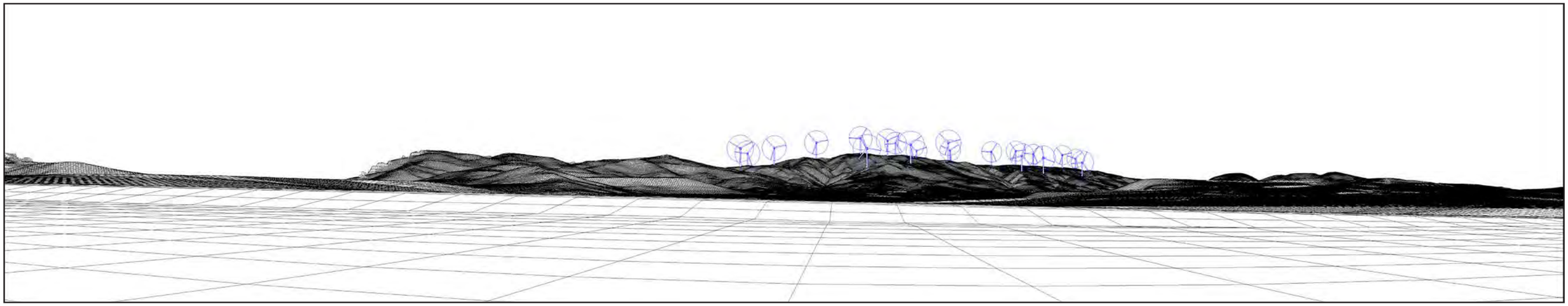
Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

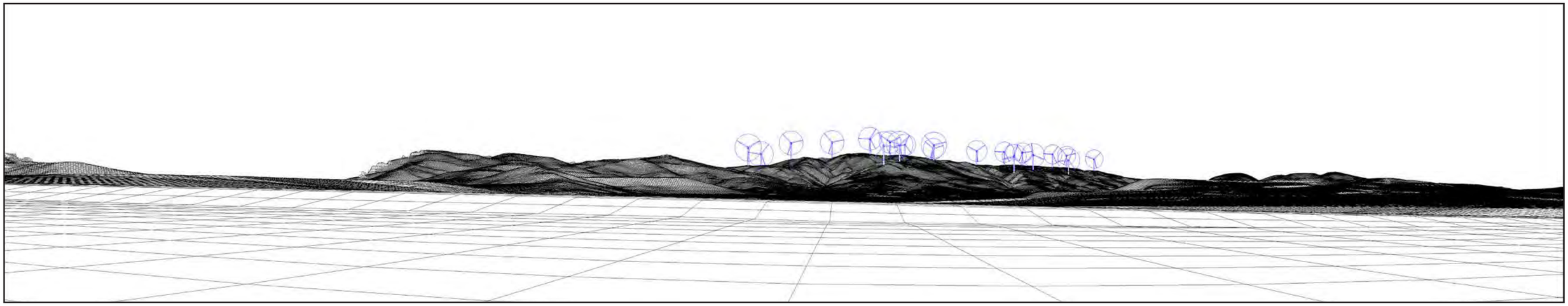
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

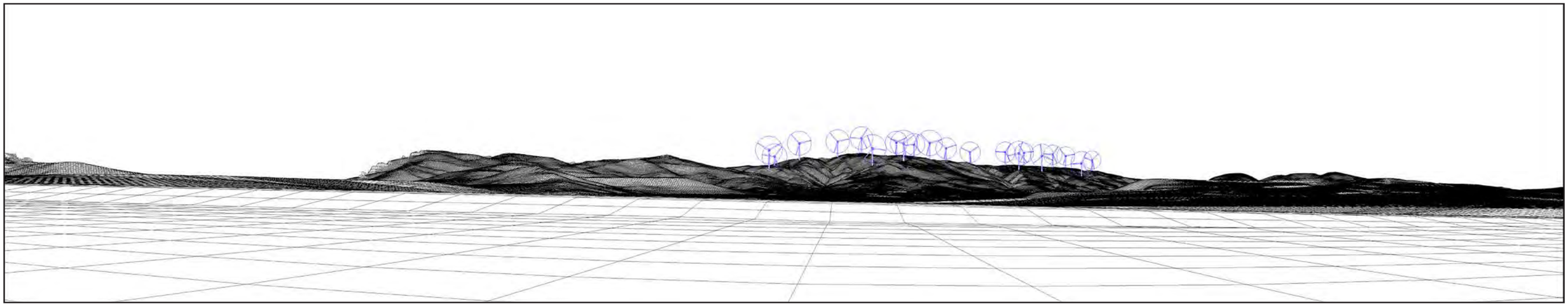
VP8



Scenario 3



Scenario 4



Scenario 5

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting	: 1 828 579 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5 497 186 mN	Vertical Field of View	: 30°
Elevation/Eye Height	: -	Projection	: Cylindrical
Date of Photography	: 2 November 2021	Image Reading Distance @ A3	: 20cm

Turbine Dimensions: Hub=92m / RD=136m (all scenarios)

DRAFT

MOUNT MUNRO WINDFARM

View from Main St, Eketahuna

Date: November 2021 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

VIEWPOINT

VP8

Appendix B:

Updated Visual Simulations from 48 Smiths Line and 18A Hall Road

Horizontal Field of View: 90º *Image Reading Distance when printed at A3: 20cm*

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting : 1 829 236 mE
NZTM Northing : 5 490 186 mN
Elevation/Eye Height : 253m / 2m
Date of Photography : 3 March 2023 NZDT

Horizontal Field of View: 40°
Reading Distance when printed at A3: 50cm

Turbine Dimensions: Hub=92m / RD=136m / Total=160m (V10-01)

Height of Mast: 80m

MOUNT MUNRO WINDFARM

48 Smiths Line (BM02)

Date: July 2024 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

BM02

Horizontal Field of View: 90° Image Reading Distance when printed at A3: 20cm

Proposed View - Single Frame
(Existing 80m mast has been enhanced in this view to ensure visibility)

Boffa Miskell

www.boffamiskell.co.nz

Viewpoint Details

NZTM Easting : 1 828 448 mE
NZTM Northing : 5 489 113 mN
Elevation/Eye Height : 255m / 2m
Date of Photography : 2 March 2023 NZDT

Horizontal Field of View: 40°
Reading Distance when printed at A3: 50cm

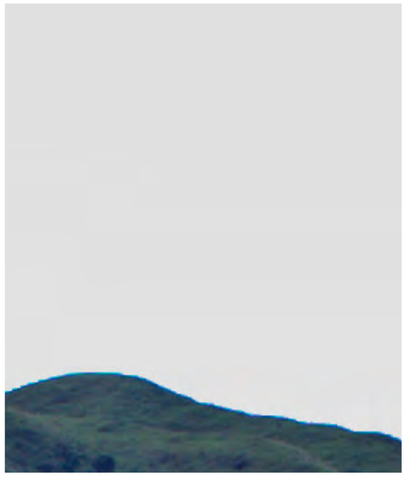
Turbine Dimensions: Hub=92m / RD=136m / Total=160m (V10-01)
Height of Mast: 80m

MOUNT MUNRO WINDFARM

Hall Road (BM32)

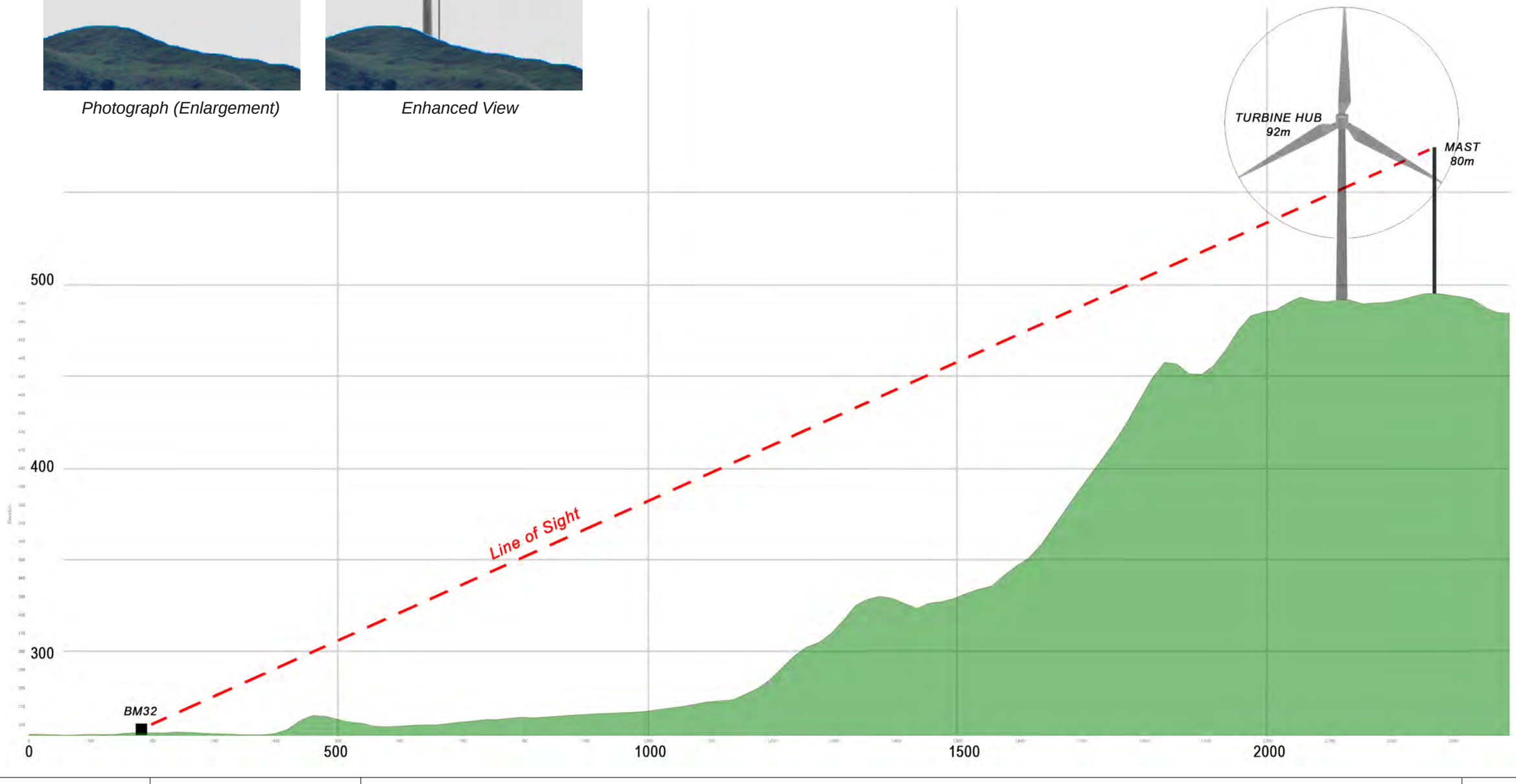
Date: July 2024 | Revision: 0
Plan prepared for Meridian Energy by Boffa Miskell Limited
Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

BM32



Photograph (Enlargement)

Enhanced View



Boffa Miskell

www.boffamiskell.co.nz

Turbine Dimensions: Hub=92m / RD=136m / Total=160m (V10-01)

Height of Mast: 80m

MOUNT MUNRO WINDFARM

Hall Road - Cross Section

Date: July 2024 | Revision: 0

Plan prepared for Meridian Energy by Boffa Miskell Limited

Project Manager:rhys.girvan@boffamiskell.co.nz | Drawn: PMo | Checked: -

BM32