EVIDENCE IN CHIEF OF RODNEY EDWARD CLOUGH - INDEX

BOARD OF INQUIRY

HAUAURU MA RAKI WIND FARM PROPOSAL

In the Matter	of the Resource Management Act 1991
And	
In the matter	of resource consent applications by Contact Wind Limited in respect of the Hauāuru Mā Raki Wind Farm Proposal
And	
In the matter	of notices of requirement and a resource consent application by Contact Energy Limited for transmission infrastructure related to the Hauāuru Mā Raki Wind Farm Proposal

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BRIEF OF EVIDENCE IN CHIEF OF RODNEY EDWARD CLOUGH

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Introduction

1. My name is **Rodney Edward Clough**. I am the Director of Clough & Associates Ltd, Heritage Consultants.

2. I have the following qualifications and experience relevant to the evidence I shall give:

   (a) I hold a Doctorate in Archaeology from the University of London and a Master of Arts in Anthropology from the University of Auckland;

   (b) I am a former Vice President and council member of the New Zealand Archaeological Association (*NZAA*) and a member of the New Zealand Historic Places Trust (*NZHPT*) and ICOMOS (International Committee on Monuments and Sites);

   (c) I am a member of a heritage landscape group which is a subgroup of the Institute of Landscape Architects; and

   (d) I have 35 years experience in the field of archaeology including research, survey, investigation, analysis and report preparation, covering a variety of time periods and geographic locations. Over the last 20 years this work has largely focussed on New Zealand archaeology.

3. My practice carries out a range of work relating to cultural heritage management - in particular archaeological assessments relating to Resource Management Act 1991 (*RMA*) and Historic Places Act 1993 (*HPA*) requirements, conservation and management plans, survey, inventory and mitigation investigations. Clough & Associates Ltd has carried out numerous surveys and assessments in the North Island including a number on the west coast both to the north and south of the project area.

4. I confirm that I have read the 'Code of Conduct for Expert Witnesses' contained in the Environment Court Consolidated Practice Note 2006. My evidence has been prepared in compliance with that Code in the same way as I would if giving evidence in the Environment Court. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Scope of Evidence

5. My evidence covers the following topics:

- summary of conclusions;
- role in the project;
- methodology used for assessment of heritage values;
- archaeological background of the Wind Farm and Transmission Network area;
- description of heritage values in the Wind Farm and Transmission Network area;
- assessment of effects on heritage values;
- response to submitters;
- management of effects and mitigation; and
- conclusions.

Summary of Conclusions

6. Extensive field survey and archaeological research have been carried out as a basis for assessing the effects of the proposed Hauāuru mā raki wind farm (the "Wind Farm") and the proposed transmission lines connecting the substations within the Wind Farm and the Wind Farm to the national grid (the "Transmission Network") on archaeological values. The locations and significance of archaeological sites have been taken into account by Contact Wind Limited ("Contact Wind") and Contact Energy Limited ("Contact") when planning the placement of wind turbines, transmission lines and associated infrastructure.

7. Redesign of the Wind Farm at various stages has resulted in the avoidance of 16 archaeological sites that were affected by the original plans, and as outlined in the evidence of Mr James, it is possible that impacts can be further avoided or minimised at the final detailed design stage.

8. The majority of the 126 archaeological sites in the Wind Farm area will be avoided, but 14 will be affected or partly affected. There is potential for additional sites to be affected subject to the requirements of the final detailed design. Those sites affected are predominantly of lower

significance and for most only part of the site is affected. Although 9 archaeological sites were identified within the proposed transmission corridor it is expected that all of these sites will be avoided. Road upgrade work on public roads will not affect any recorded archaeological sites.

9. Taking into account the total number, extent and significance of sites recorded in the Wind Farm area and in the wider archaeological landscape between Port Waikato and Raglan, the Wind Farm will adversely affect only a small, representative cross section of sites. Priority has been given to avoiding or minimising effects on the sites considered to be of the most archaeological significance.

10. Various mitigation measures are recommended. Where sites cannot be avoided archaeological investigation and recording are proposed by way of mitigation. No archaeological investigations have previously been carried out in the wider Port Waikato to Raglan area and little is known of the date and archaeological characteristics of the sites in the area. Therefore, information obtained from mitigation investigations would be a significant and positive outcome of the Wind Farm.

11. It is also possible that additional unidentified sites may be exposed during earthworks for the Wind Farm. It is recommended that all earthworks along ridgelines and plateaus where archaeological sites are known to be present be monitored by an archaeologist to establish whether additional unrecorded archaeological remains are present. Any in situ archaeological remains with the potential to provide significant information should also be investigated and recorded.

12. My recommendations have been accepted by Contact Wind and Contact and are contained in the suite of conditions proposed by the applicant and attached to the evidence of Mr Daysh. Given the acceptance of my recommendations, I consider that the adverse effects of the Wind Farm, Transmission Network and associated infrastructure on archaeological sites and heritage values will be minor or moderate and are reasonable. There will be some significant positive effects achieved in terms of archaeological research where sites cannot be avoided. Overall I consider the Wind Farm, Transmission Network and associated infrastructure to be acceptable in archaeological and historical terms.

13. An application for Authorities to modify the affected archaeological sites, and to provide for the recording of any additional unidentified sites that

might be exposed during construction has also been made to the NZHPT by Contact Wind and Contact and is currently being processed. Detailed requirements relating to archaeological investigation and recording would be set as conditions of any Authorities granted.

Role in the Project

14. Between September 2005 and March 2007 Clough & Associates carried out a series of archaeological surveys and assessments of properties that were being considered by Contact Wind as wind power generation locations. I visited most of the properties under consideration with Barry Baquié of Clough & Associates, who carried out the detailed survey and recording of the archaeological sites. Barry Baquié attended a number of hui where the Wind Farm was discussed and the support of iwi was given to the archaeological work being carried out.

15. As a result of these investigations a baseline archaeological report summarising the survey findings was compiled in May 2007.1 The locations of archaeological sites contained in the baseline report were taken into account in the planning of the Wind Farm.

16. Further archaeological survey and assessment of the proposed transmission corridors and additional areas potentially affected by the proposed Wind Farm were carried out, and subsequently taken into account in overall planning.

17. During the development of the Wind Farm and Transmission Network the project team and I have worked together closely to ensure that effects on archaeological sites and heritage values are avoided or mitigated to the greatest extent possible. An assessment of the impacts of the proposal on archaeological sites was carried out when the locations of proposed wind turbines, sub-stations, access roads, quarries and lay down areas had been determined. Plans with these features and the archaeological sites recorded in the field were overlaid on aerial photographs.

18. Sites likely to be affected were revisited and impacts on each site assessed during June and July 2007 by myself and/or Barry Baquié, accompanied by representatives of Contact Wind and iwi representatives Selwyn Shaw, Paul Brown, Tom Flavell and Richard Thompson.

[1] Baquié, B. and R. Clough. May 2007. Waikato Wind Farms Project: Baseline Report (Archaeology). Clough & Associates Report prepared for Wind Farm Group Limited.

19. As a result of this detailed heritage input into the development of the Wind Farm layout a number of turbines were removed or relocated from the original proposal. This resulted in the avoidance of 16 archaeological sites that would otherwise have been affected. Other sites were avoided at an earlier stage when the individual property assessments were undertaken and potential turbine sites had been removed from consideration on archaeological grounds. **Exhibit REC 1** shows those turbines which were removed from the initial project for archaeological reasons. Following the redesign of the proposal by Contact Wind, a draft AEE report was prepared in July 2007.

20. I was also involved in consultation with the New Zealand Historic Places Trust ("NZHPT"), including attending an extensive site visit with NZHPT staff in August 2007. The assessment of the effects of the proposal on archaeological sites was revised again in September 2007 following this consultation with the NZHPT.

21. In October 2007, I made a presentation on the archaeological aspects of the project to the Waikato Regional and District Councils and Franklin District Council. Again, the assessment of the effects of the proposal on archaeological sites was revised to incorporate feedback from the Councils.

22. In December 2007, the assessment of the effects of the proposal on archaeological sites was updated. This incorporated assessment of some additional properties that had come into the Wind Farm, and the Transmission Network. A final report which included further information requested under Section 92 of the RMA was issued in September 2008 – R. Clough, B. Baquié and S. Macready, Hauāuru mā raki Waikato Wind Farm: Assessment of Effects (Archaeology) (Report T05) (the Report).

23. The Report is an assessment of archaeological values and does not include an assessment of Maori cultural values. A cultural values assessment report has been prepared separately by Richard Tiki o te Rangi Thompson, kaumatua of Ngati Tahinga and Ngati Karewa.

Methodology used for Assessment of Heritage Values

24. The assessment of heritage values within the Wind Farm and Transmission Network was based on extensive field survey and archaeological research.

25. The NZAA site record file was searched to establish what archaeological sites had previously been recorded in the Project area. The recorded

locations of archaeological sites were overlaid on NZMS260 metric maps. The relevant district plans were consulted regarding any scheduled cultural heritage items within the study area. The archaeological literature was searched for information on previous investigations carried out within the region. Early LINZ survey plans of the Project area were checked for information relating to archaeological or historic sites.

26. A series of archaeological field surveys was carried out to locate and record archaeological sites, recorded and unrecorded, within the properties making up the Wind Farm. These surveys were carried out between September 2005 and March 2007, and a baseline archaeological report was prepared. The surveys focused on the locations identified by Contact Wind as suitable for wind turbine placement and access roads to the turbine sites.

27. While reference was made to NZAA site information, much of the recorded data was found to be inaccurate. In most cases the sites had been recorded many years ago under the imperial rather than the metric system, and locations were known to be in error by 100m or more. Compounding this problem, was the fact that many of the sites had been recorded from aerial photographs without any on the ground verification or inspection. The approach taken was therefore to record sites in the field and only later to attempt to match them with recorded descriptions. Newly identified sites were given new NZAA site numbers at a later date.

28. Field notes, photographs, and GPS readings were made at all sites located during the field surveys. In the case of large sites GPS readings were taken both at the central point of the site and at the boundaries. Site record forms for all identified sites were prepared for filing in the NZAA site recording scheme.

29. Sites were ranked according to their relative archaeological significance based on their potential to provide information relating to the history of the region. This potential relates to criteria such as size, complexity, condition and context, which are typically used to evaluate archaeological sites. Sites were ranked on the basis of visible surface remains. No subsurface investigation was carried out, and it is possible that some sites may be of higher significance than is indicated by their surface remains. Urupa or burial sites were not ranked, but are recognised as being of high cultural significance.

30. An archaeological assessment was undertaken in June 2007 for the proposed transmission corridor. This involved inspection of areas where sites had previously been recorded within the corridor and the review of later modifications to the corridor, but not the detailed inspection of pylon sites as these have not yet been confirmed. Archaeological assessment for the public road upgrades was carried out at the same time.

Archaeological Background of the Wind Farm and Transmission Network Area

31. The west coast of the Franklin-Waikato district contains a number of archaeological sites, some of which are of high archaeological significance. Collectively, these sites make up an extensive and significant archaeological landscape. However, for the most part there has been no systematic archaeological survey within the area. The sites previously recorded in the wider area will therefore represent only a proportion of the surviving archaeological sites.

32. Many of the previously recorded sites in the area were recorded in the late 1970s by archaeologists at the Waikato Museum on the basis of features observed on 1940s aerial photographs. These sites were not field checked and the quality of the information recorded was poor. The site recording undertaken as part of this project has considerably improved the quality of information on these sites.

33. The available reports relating to archaeological survey and investigation on the west coast do not specifically relate to the area between Port Waikato and Raglan, but to areas further south.

34. The most detailed survey work on Waikato's west coast was carried out by the archaeologist Owen Wilkes in 1992-3. However, this survey focussed on the coast from Kawhia Harbour south to the Awakino River, well south of the Wind Farm. Mr Wilkes identified about 200 previously unrecorded sites, with the highest density of sites recorded around the major resource areas, such as Kawhia Harbour and Lake Harihari.

35. Wilkes found that sites were rare in the valley bottoms, contrary to expectations, but concluded that the sites had probably been obliterated by later erosion and farming. Most of the fortified sites showed little evidence of prolonged occupation, and some appeared to have no evidence of occupation, although Te Rauparaha's pa at Te Totara showed abundant

evidence of sustained use. Wilkes concluded that most of the fortified sites gave the impression of hurried construction, and would have been occupied once or perhaps not at all. The study noted that middens were large and numerous around the harbour but elsewhere were thin and minor in extent.2

36. The west coast sites that have been archaeologically investigated were investigated over 25 years ago, and publication of the results has been variable. They include the excavation of a pa (R14/54) at Raglan in 1972-3, which was interpreted as 'a well defended settlement and kumara storage site of maybe 100-200 people', occupied intermittently for several years, or continuously for a few months.3 Extensive survey and investigations were also carried out around the Aotea Harbour in the early 1970s by Richard Cassels, in which I took part. The sites investigated included living sites (storage, house sites and midden) on the northern arm of the harbour. Other excavations include a pit site at Taharoa, a coastal midden at Raglan; an archaic midden and working floor near Raglan, and a pa at Kotare (these investigations are referenced in the Report).

37. None of these investigations has been of sites within the Wind Farm and Transmission Network area – the focus has been on the Aotea, Raglan and Kawhia Harbours. As a consequence very little is known about pre-European settlement patterns and archaeological characteristics in the relevant area.

Description of heritage values of the Wind Farm and Transmission Network Area

38. The Wind Farm is predominantly spread over an area extending along approximately 34km of coastline, and along a coastal corridor about 3km wide; in some instances this extends along inland ridgelines, making the corridor approximately 8km wide. It is a dissected landscape with narrow ridges and spurs intercut by deep gullies, swampy land and seasonal or permanent creeks. While the archaeology is impressive (particularly some of the complex pa sites), there is generally a low density of sites across the landscape.

[2] O. Wilkes. 1995. Site Recording, Site Types and Site Distribution on the King Country coastline. *Archaeology in New Zealand* 38 (4): 236-256.
[3] O. Wilkes. 2000. Excavation of a Pa, R14/52 near Raglan: A Belated Report. *Archaeology in New Zealand* 43 (1): 49-72.

39. Archaeological sites within the areas surveyed consist predominantly of earthwork sites (pa, pits and terraces), with few midden recorded, whereas in New Zealand as a whole midden make up approximately 70 per cent of the total number of recorded sites. This difference is partly due to the fact that the current survey has focused mainly on the higher areas and ridgelines where wind turbines are proposed, rather than on the lower coastal areas where midden are more likely to be found. However, midden deposits built up during occupation would also be expected in association with complex earthwork sites. This scarcity of midden is consistent with the results of the archaeological work further south by Owen Wilkes, who found that midden were sparse away from the harbour areas.

40. 126 archaeological sites were identified in the Wind Farm area. The majority of the archaeological sites relate to pre-European Maori occupation. They include over 60 pit and terrace sites, over 20 pa and 7 urupa, or burial sites. Over 70 of the 126 sites had not previously been recorded but were identified for the first time during the field survey.

41. Many of the sites are of significant size, complexity, condition and contextual value, as far as can be determined on the basis of the visible archaeological remains. 32 of the sites were assigned an A ranking; 36 sites a B ranking; 37 sites a C ranking; and 12 sites a D ranking. There were 2 additional recorded sites which could not be located in the field but which may be present. Seven urupa/burial sites were not ranked from an archaeological perspective, but were assigned an AA classification on the basis of their cultural and spiritual values. The ranking was based on the criteria set out in Table 1 below.

Table 1. Criteria for the ranking of the significance of archaeological sites

Rank	Criteria based on visible evidence
[AA]	not ranked but recognised as of high cultural significance
A	large and complex sites in good condition, usually part of a group of related sites
B	moderate size and complexity in reasonable condition, frequently associated with sites of higher archaeological significance (A); or large, complex sites in poor condition
C	simpler sites, smaller in size (e.g. pit/terrace sites or a group of pits), in average condition, and having few obvious associations with other sites; or sites of moderate size and complexity in poor condition
D	simple sites, generally single features in an isolated context; or slightly larger sites in poor condition
E	recorded sites that could not be located on the ground, but which may still be present

42. Nine additional sites were identified within the Transmission Network. Four of the sites were assigned an A ranking; 3 a B ranking; and 1 a C or D ranking. The ninth site is an urupa, assigned an AA ranking.

Assessment of effects of Project on heritage values

43. The project involves several activities which have the potential to impact physically on archaeological sites. These include cut and fill earthworks relating to turbines, access roads, a quarry, laydown areas, substations, spoil sites, pylon sites (for transmission corridors) and other infrastructure.

44. The nature of the terrain (high ridges and spurs dissecting the landscape) places significant constraints on the placement of both turbines and access roads. Both are ideally located on high knolls, spurs and ridgelines. Typically these are locations likely to contain archaeological sites – particularly pa, terrace and pit sites relating to Maori settlement.

45. The effects on archaeological sites were calculated on the basis of proximity to proposed earthworks as determined on site overlays, taking topography into account. Errors of +/- 5m for roads, +/-10m for archaeological site boundaries and +/- 2.5m for contours were recognised and allowed for. Effects were categorised as follows:

    (a) 'definitely' affected: – sites (or parts thereof) that are within the location of proposed works and cannot be avoided;

    (b) 'likely' to be (or 'probably') affected: – sites (or parts thereof) extending to within 10m of proposed earthworks where there is limited flexibility for avoidance;

    (c) 'possibly' affected: – sites (or parts thereof) extending to within 15m of proposed earthworks, where there is greater flexibility for avoidance;

    (d) 'unlikely' to be affected: – sites at least 15-50m away from proposed earthworks; and

    (e) 'not affected': – sites under no threat (generally over 50m away).

    Exhibit REC 2 provides an example of the overlay system used for these assessments.

Wind Farm

46. **Exhibit REC 3** provides a tabular summary of the 126 archaeological sites identified within the Wind Farm area. The majority (86) of the 126 recorded sites, including all of the urupa/burial sites, will not be affected by the Wind Farm. **Exhibit REC 4** shows the general distribution of wind turbines in relation to archaeological sites. 63 of the sites are a sufficient distance away from proposed earthworks to be unaffected. While 15 sites, although originally close to earthworks, have been avoided by relocating turbines or access roads. A further 8 sites are unlikely to be affected, although they are located within 50m of proposed construction.

47. Of the remaining 40 sites, 14 will definitely be adversely affected by the proposed earthworks. 10 sites are likely to be affected as parts of these sites are within 10m of proposed earthworks. The remaining 16 sites will possibly be adversely affected by the development, being within 15m of proposed earthworks, but with greater flexibility for avoidance. At this stage, prior to the completion of the final engineering survey of the roads and the completion of the final detailed design, it is not possible to make a more precise assessment of adverse effects. However, in most cases the sites definitely or likely to be adversely affected will be partly affected, rather than destroyed.

48. During the planning phase, Contact Wind gave priority to avoiding sites identified as having the highest archaeological significance. Of the 32 sites ranked A, only 1 (3%) will definitely be adversely affected, and less than 5% of the site will be impacted on. No other A ranked sites will be affected. Of the 36 sites ranked B, 6 (17%) will definitely be adversely affected, in two cases by 80 to 100%, but otherwise between 5 and 40%. 4 further sites ranked B are likely to be affected by up to 50%. Of the 37 sites ranked C, 5 will definitely be adversely affected (3 destroyed and the others up to 80% affected) and 5 are likely to be affected. Of the 12 sites ranked D, 2 will be destroyed and 1 will probably be impacted on. These figures are likely to be reduced further at the detailed design stage when infrastructure is accurately surveyed in with respect to archaeological sites. Mr James discusses in his evidence his view of the sites where avoidance or lesser impact should be possible once final detailed design is undertaken.

49. The figures should also be viewed in the wider archaeological context. Not all properties between Port Waikato and Raglan are included in the Wind

Farm, and within the properties included only those areas suitable for wind turbine placement and access roads were surveyed. There are therefore many more recorded and unrecorded sites on the west coast between Port Waikato and Raglan than those identified in the Report. Consequently, these percentages (and hence the overall effects on the archaeological landscape) are smaller still when the number and range of sites in the broader archaeological landscape are considered. For example, some 200 sites had previously been recorded in the broader landscape between Port Waikato and Raglan. When it is considered that of the 126 sites recorded in the Wind Farm area, over 70 are newly recorded sites, then a significantly larger number than 200 (probably more than double that number of sites) would be expected to be present in the broader landscape.

Transmission Network

50. Within the Transmission Network, only 9 archaeological sites were identified. **Exhibit REC 5** provides a tabular summary of these sites which are illustrated in **Exhibit REC 6**. There is plenty of scope within the proposed corridor to avoid impacting on all of these sites.

Public Road Improvements

51. Only three recorded sites were identified close to planned road upgrades. However, none of these sites will be affected by the proposed works.

Summary

52. Overall, the proposed Wind Farm will adversely affect a small but representative cross section of sites, within areas which make up only part of the wider archaeological landscape. The distribution of archaeological sites within the Wind Farm area is very similar to the general distribution of sites on the west coast between Port Waikato and Raglan and to the south of Kawhia Harbour, where recorded sites (mainly pa, terrace and pit sites) occupy many of the ridge and spur lines close to the coast and where there are relatively few within the valley bottoms. Extensive areas on the west coast between Port Waikato and Raglan which contain a similar range and distribution of sites will be unaffected.

53. In addition to effects on identified sites, the project has the potential to impact on additional unidentified archaeological sites that might be exposed during earthworks. This is always a possibility in any area where sites have been recorded in the vicinity. However, in view of the extensive survey

work carried out to identify sites, I would not expect a high number of additional sites to be exposed. Furthermore, the possibility of additional sites does not alter my overall assessment of effects on the archaeological landscape.

54. Visual effects on the landscape in general are addressed in the evidence of Mr Lister. There will clearly be some visual effects on the archaeological landscape. However, in terms of affecting our ability to 'read' the historic landscape, I consider that the effects will be minor owing to the low density of turbine sites. I also note that the archaeological sites are not generally visible from public roads, and any visual impacts on the archaeology would not generally be apparent.

Response to submitters

55. I have reviewed the submissions made to the Board of Inquiry, seven of which raise matters related to archaeological heritage. Four submissions oppose the application on these grounds: Tainui Awhiro Ngunguru Te Po Ngunguru Te Oao Management Committee (no. 40); C. and S. Bradley (no. 53); the Department of Conservation (no. 78); and J. Carr (no. 94).

56. The first of these submissions (by Tainui Awhiro Ngunguru Te Po Ngunguru Te Ao Management Committee, no. 40) raises concerns that "very little research has been carried out on the settlement patterns and archaeological characteristics in the region between Port Waikato and Raglan" and that the destruction of archaeological characteristics and wahi tapu will result in the obliteration of the tangata whenua from the landscape. As set out earlier in my evidence, the majority of the known sites in the vicinity of the Wind Farm would be avoided and particular emphasis has been laid on avoiding burial grounds and the more significant archaeological sites (generally the largest and most complex sites). Extensive physical evidence of Maori occupation will still be present and clearly visible within the landscape. The fact that little previous archaeological research has been carried out in the area was identified in the Report, and I have recommended the archaeological investigation of sites that cannot be avoided as a way of remedying this situation. I consider that the knowledge gained would be a positive outcome of the Wind Farm proposal. Further, as stated in the evidence of Mr Yates, Contact Wind has agreed to fund a history timeline for the area.

57. Submission no. 53 by C. and S. Bradley is primarily concerned with visual effects from the submitter's property, but also states that the Wind Farm would seriously affect the historic landscape, destroying any connections with the past. As acknowledged earlier in my evidence, there will be some visual effects on the archaeological landscape, but because of the low density of turbine sites it will still be possible to 'read' and appreciate the historic landscape, as the majority of sites will remain unaffected and clearly visible. Connections with the past will not be destroyed except in the minority of cases where sites cannot be avoided.

58. Submission no. 94 by J. Carr refers in a general way to the potential archaeological and historical effects of wind farms, and opposes the placement of turbines in an "irreplaceable natural scenic and historical landscape". My response to the previous two submitters also applies to this submission.

59. The submission by the Department of Conservation (no. 78) is primarily concerned with the protection of natural values, but notes that that the proposal has the potential to adversely affect archaeological sites and seeks conditions to ensure their protection and preservation through the relocation of turbine structures and roadways. As outlined earlier in my evidence, Contact Wind has gone to considerable lengths to avoid impacts on archaeological sites and has repositioned or abandoned a number of turbine sites to protect them. However, as the archaeological sites are typically located on high spurs and ridgelines that are suitable for wind generation, and there are many archaeological sites in the area, it has been impossible to avoid all of them. Sites affected are for the most part those of lesser archaeological significance and would in most cases be damaged rather than destroyed. I believe that in the circumstances an acceptable balance between land use and conservation has been achieved.

60. The submissions from the Waikato Regional Council (no. 72) and the Waikato District Council (no. 83) are both neutral. Both wish to draw attention to relevant statutory matters, which include policy relating to archaeological and historical heritage, and to ensure that any consents contain appropriate conditions. Both submitters seek input into decisions on the conditions proposed by the applicant and into any additional conditions imposed by the Board of Inquiry. Proposed conditions relating to the management and mitigation of effects on archaeological heritage are discussed in the next section of my evidence.

61. A submission by the NZHPT (no. 57) neither supports nor opposes the application, but seeks to ensure that the conditions imposed by the Board of Inquiry do not absolve the requiring authority, applicant or consent holders of their legal obligations under the HPA to comply with the conditions of any authorities that might be granted by the NZHPT. As set out later in my evidence, Contact Wind and Contact recognise their legal obligations in respect to the HPA and have applied to the NZHPT for Authorities to modify affected archaeological sites and any additional unrecorded sites that might be exposed during construction. They understand that work affecting any archaeological site can only proceed once an Authority has been granted by the NZHPT, and that they must comply with any conditions attached to the Authority.

62. The NZHPT submission also recognises the archaeological work completed in the Report and "would like to acknowledge the design adjustments made to the proposal following consultation with NZHPT in September 2007. The adjustments attempt to avoid archaeological sites where possible so as to reduce the impact on archaeological values."

Management of effects and mitigation

Recommendations and conditions

63. In the June 2008 Report I made a number of recommendations to ensure that effects and potential effects on archaeological sites were appropriately managed and mitigated where they could not be avoided.

64. In addition to these recommendations, I also propose that:

(a) sites or areas of sites to be preserved that are in the vicinity of earthworks, would be marked out during construction to ensure that they are not accidentally damaged;

(b) all earthworks along ridgelines and plateaus where archaeological sites are known to be present should be monitored by an archaeologist, to establish whether additional unrecorded archaeological remains are present; and

(c) any in situ archaeological remains with the potential to provide significant information should also be investigated and recorded.

65. Contact Wind and Contact accepted all of my recommendations and they are contained within the suite of conditions attached to the evidence of Mr Daysh. I have read the proffered conditions and agree with them.

Mitigation

66. Where impacts on archaeological sites cannot be avoided, archaeological investigation of the affected sites or parts of sites is proposed by way of mitigation. This would be carried out in accordance with the conditions of any Authorities issued by the NZHPT. As so little research has been carried out on the settlement patterns and archaeological characteristics in the region between Port Waikato and Raglan, archaeological investigation of sites that cannot be avoided presents an opportunity to obtain significant information relating to the pre-European Maori settlement of the area. For example, we have no archaeological indication of the date or duration of occupation of the sites in the area by Maori populations.

67. Analysis of archaeological materials not only provides dates of settlement (through Carbon 14 dating), but also enables environmental reconstruction (through charcoal and pollen analysis), and an understanding of the economic basis of settlement (through analysis of artefacts, plant and faunal remains). Demographic information can be derived from a more detailed analysis of the density and locational attributes of the sites. I consider that the information gained through any mitigation investigations would be a significant and positive outcome of the project.

Historic Places Act 1993

68. In addition to resource consent for the project, an Authority to modify archaeological sites must be obtained from the NZHPT under the Historic Places Act 1993. This must be obtained before any work is carried out that that would affect any of the archaeological sites. Archaeological mitigation investigations of sites that cannot be avoided are expected as a condition of any Authority granted. Detailed management of the archaeological monitoring and investigation is best achieved through the Authority process.

69. An application has been made to the NZHPT by Contact Wind and Contact for Authorities to modify sites affected or potentially affected by the project, as well as any previously unidentified sites that might accidentally be discovered during construction works. As the project area is large the NZHPT has broken down the application into 11 areas for which separate

Authorities would be issued.4 I have recently attended a meeting with representatives of the NZHPT at which potential Authority conditions and the details of the research strategy were discussed.

Conclusions

70. The Wind Farm, Transmission Network and associated infrastructure have been planned to avoid adverse effects on the area's known archaeological sites as far as possible. However, a number of sites will still be affected or partially affected. Additional unidentified archaeological sites may also be exposed during earthworks.

71. Taking into account the total number, extent and significance of sites recorded in the project area and in the wider archaeological landscape, the project will affect only a small, representative cross section of sites. The urupa/burial grounds and most of the more significant archaeological sites will be unaffected.

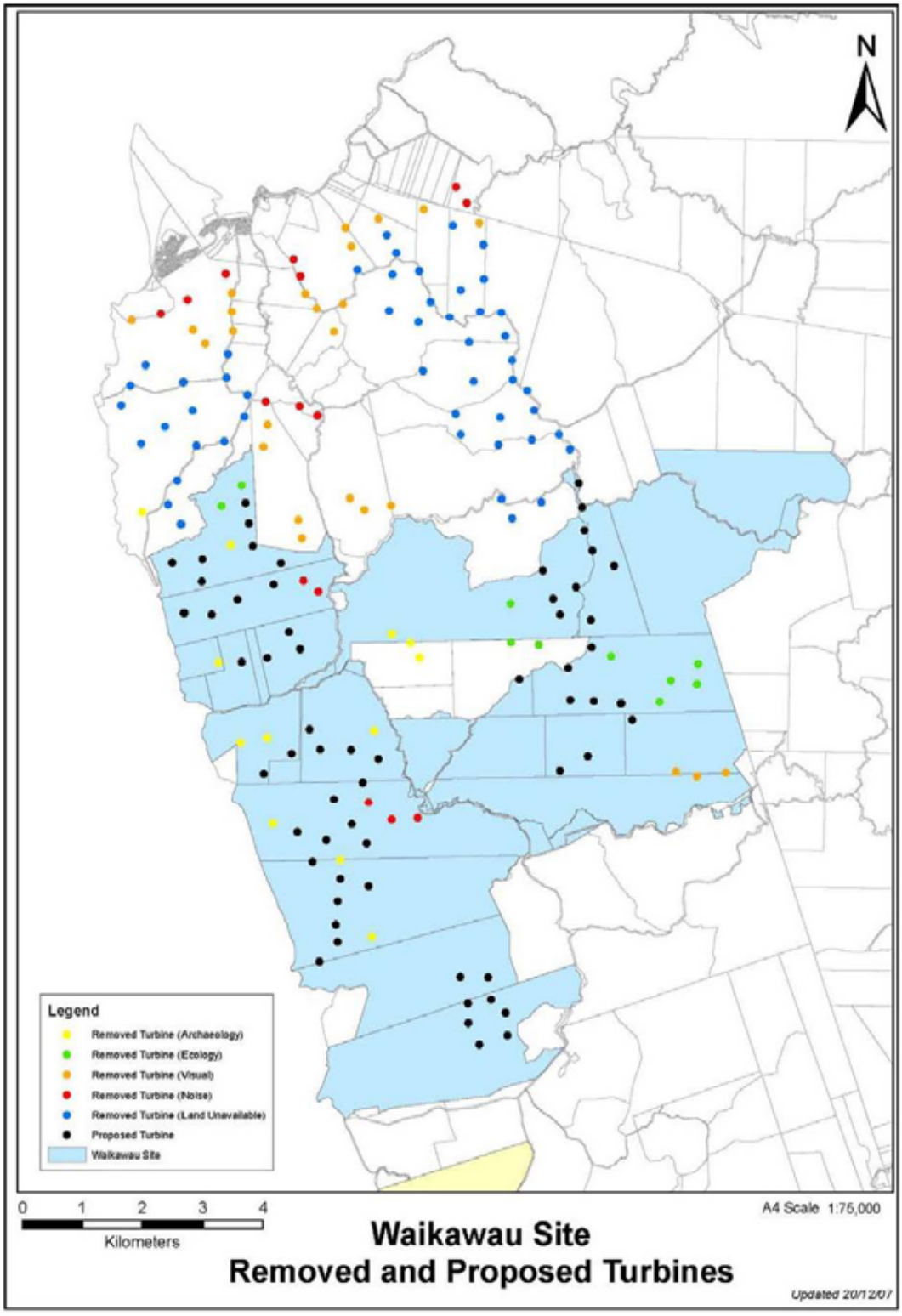
72. I consider that the adverse effects of the Wind Farm, Transmission Network and associated infrastructure on archaeological sites and heritage values will be minor or moderate and overall are reasonable. This is contingent on adherence to the mitigation measures outlined above. On this basis significant positive effects can be achieved in terms of archaeological research where sites cannot be avoided. Overall I consider the Wind Farm, Transmission Network and associated infrastructure to be acceptable in archaeological and historical terms.

RE Clough

[4] Reference numbers 2009/107 (Area A), 2009/125 (Area C), 2009/126 (Area D), 2009/127 (Area E), 2009/128 (Area F), 2009/129 (Area G), 2009/130 (Area H), 2009/131 (Area I), 2009/132 (Area J), 2009/133 (roads) and 2009/133 (the transmission corridor).

Exhibit REC 1

Plan showing turbines removed to avoid archaeological sites in the northern area (yellow dots)



Plan showing turbines removed to avoid archaeological sites in the southern area (yellow dots)

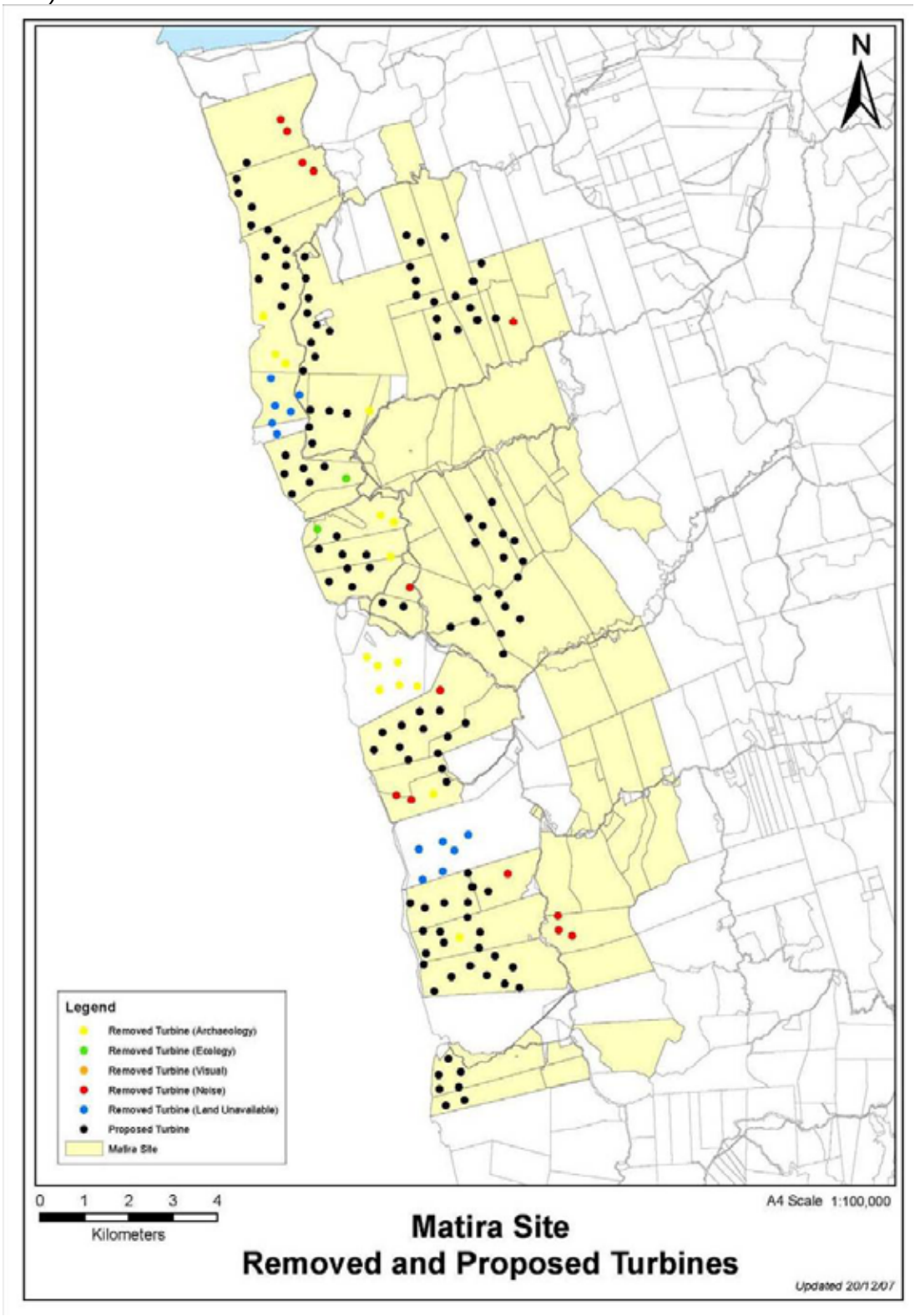


Exhibit REC 2

Example of an overlay showing a definitely affected site (R13/151, left), a ‘possibly’ affected site (R13/150, centre) and a ‘not affected’ site (R13/149, right)

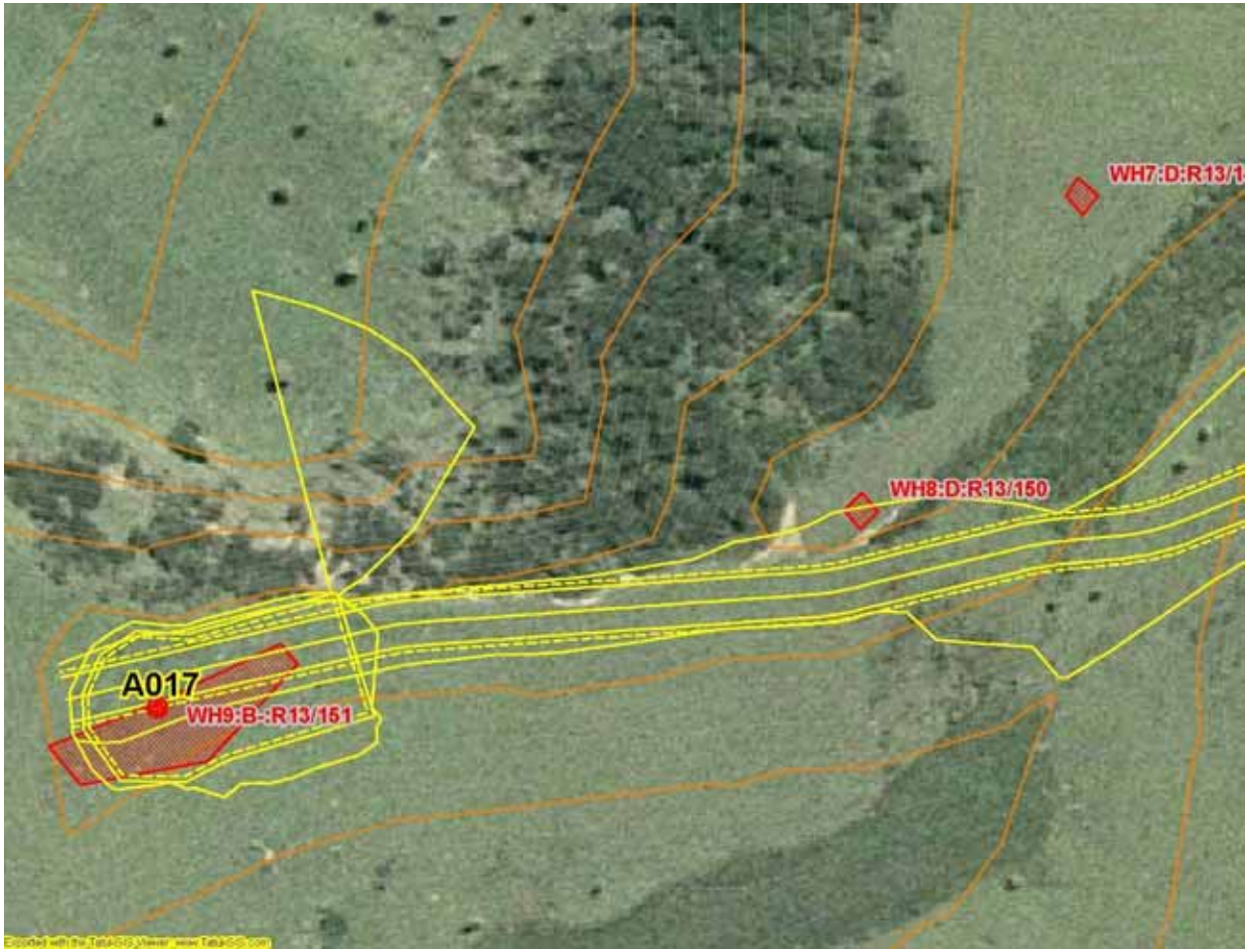


Exhibit REC 3

Summary table showing location and ranking of archaeological sites within wind farm clusters, and assessment of impact of proposed works on each site. * = new site

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
A	Whareana	WH1	R13/32	PA (RIDGE) [WHAREANA PA]	2663184	6416734	A+	20 m	avoided	A17, A18, A19 road
					2663065	6416733				
					2662999	6416797				
				[Central Location of Site]	**2663020**	**6416755**				
A	Whareana	WH2	R13/144*	PITS/TERRACE	2662855	6416703	B	10 m	avoided	A17, A18, A19 road
					2662837	6416679				
				[Central Location of Site]	**2662851**	**6416697**				
A	Whareana	WH3	R13/145	PITS/TERRACES	2662823	6416646	B	10 m	likely impact up to	A17, A18, A19 road
					2662729	6416562			50%, existing track;	
				[Central Location of Site]	**2662777**	**6416601**			shift road 10 NW?	
A	Whareana	WH4	R13/146*	PIT	2662310	6416387	D		not affected	
A	Whareana	WH5	R13/147*	PIT	2662366	6416440	D		not affected	
A	Whareana	WH6	R13/148*	PITS	2662416	6416514	C+		not affected	
A	Whareana	WH7	R13/149*	PIT (US WWII)	2662265	6416619	D	50 m	not affected	A17, A18, A19 road
A	Whareana	WH8	R13/150*	PIT	2662217	6416550	D	10m	possible impact	A17, A18, A19 road
A	Whareana	WH9	R13/151*	PITS/TERRACES	2662043	6416494	B-	0 m	definite impact up	A17
					2662090	6416521			to 80%, consider	
				[Central Location of Site]	**2662071**	**6416499**			moving A17 50m E	
A	Whareana	WH10	R13/152*	TERRACE	2661941	6416570	D		not affected	
A	Whareana	WH11	R13/153*	BUILDING SITE (SAW MILL)	2661863	6416679	C-		not affected	
A	Whareana	WH12	R13/154*	PITS/TERRACE	2663037	6417244	B-		not affected	
					2663095	6417261				
				[Central Location of Site]	**2663071**	**6417263**				

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
A	Whareana	WH13	R13/155*	BUILDING SITE (20thC HISTORIC)	2663277	6417206	C-	10 m	possible impact	A21, road
A	Whareana	WH14	R13/156*	PIT	2663695	6416581	C	10 m	possible impact, existing track	A23, road
A	Ramsden	RA1	R13/157*	PITS	2664422	6415379	C-	10 m	possible impact, up to 20%	A28 road
A	Ramsden	RA2	R13/158*	PITS/?TERRACE	2664288	6415355	C-	0 m	definite impact up to 80%, existing track	A28, road
A	Ramsden	RA3	R13/159*	PITS/TERRACE	2664262	6415234	C-	0 m	possible impact, existing track	A28, road
A	Ramsden	RA4	R13/33	?PITS	2664114	6415235	D-	0 m	likely impact up to 40%, existing track	A28, road
A	Ramsden	RA5	R13/160*	PIT	2663690	6415277	D		not affected	
A	Ramsden	RA6	R13/161*	PITS/TERRACES	2663444	6415282	B-		not affected	
A	Ramsden	RA7	R13/2	PA [RIDGE] **[Central Location of Site]**	2663177 2662946 **2663066**	6414865 6414772 **6414823**	A	0 m	definite impact on 1 pit (5%)	A31, road
A	Ramsden	RA8	R13/88	PA [RIDGE]	2662753 2662879	6414855 6414810	A		not affected	
A	Ramsden	RA9	R13/31	PA [RIDGE]	2662477	6414692	B		not affected	
A	Ramsden	RA10	R13/162*	PITS/TERRACES **[Central Location of Site]**	2663089 2663224 **2663183**	6415890 6415982 **6415948**	B-	0 m	likely impact up to 50%, existing track	A25-A26 road
A	Ramsden	RA11	R13/163*	PITS/TERRACES **[Central Location of Site]**	2662691 2662547 2662622 2662632 **2662632**	6415643 6415717 6415795 6415681 **6415705**	B+	0 m	definite impact 100% existing track	A26 turbine, road
Wind Farm Cluster	**Landowner/Property**	**Field Note-book No.**	**NZAA No.**	**Site Type**	**Easting**	**Northing**	**Ranking**	**Distance to nearest civil works (m)**	**Impact status**	**Nearest Earthworks (less than 100m away)**

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
A	Ramsden	RA12	R13/164*	PITS	2662257 2662308 2662393	6415645 6415634 6415599	B+	0 m	definite impact up to 30%, existing track; shift road 7m to N?	A27, turbine or road
A	Ramsden	RA13	R13/165*	PITS/TERRACES	2662450 2662490	6415558 6415529	C+	0 m	possible part impact, existing track	A27, road
D	Limestone Downs	L14	R13/166*	PITS/TERRACES	2664995 2665030	6409874 6409804	B		not affected	
D	Limestone Downs	L15	R13/167*	PITS	2664935 2664881	6409945 6409967	C-		not affected	
D	Limestone Downs	L16	R13/8	PITS/TERRACES	2664713 2664559	6409984 6409928	B-	30 m	impact unlikely	D19, road
D	Limestone Downs	L17	R13/168*	PITS/TERRACES	2664613 2664708 2664718 2664810	6410207 6410245 6410218 6410266	C	10 m	possible impact	D18, road
D	Limestone Downs	L18	R13/6	PITS/TERRACES	2664701 2664750 2664758 2664800 2664787 2664693 2664618 2664515	6410434 6410490 6410466 6410596 6410563 6410530 6410488 64104 31	B+	20 m	Clusters of pits/terraces Now avoided; D17 moved SW, reduce spoil heap	D17, road
D	Limestone Downs	L19	R13/169*	PA [RIDGE]	2664867 2664871 2664990	6410515 6410486 6410517	A	30 m	avoided	D17, road

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
D	Limestone Downs	L20	R13/170*	PA [RIDGE]	2665191 2665270 2665446	6410339 6410337 6410397	A		not affected	
D	Limestone Downs	L21	R13/7	PA [RIDGE]	2664732 2664793 2664821 2664781	6410986 6411038 6411037 6411096	A	0 m	possible impact, existing track cut close to pa	D16, road
D	Limestone Downs	L22	R13/171*	PITS	2664759	6411268	D	7 m	avoided	D14, road
D	Limestone Downs	L23	R13/42	PA [RIDGE]	2664985 2664922 2665116 2665128 2665142	6411374 6411345 6411311 6411271 6411293	A	0 m	Avoided by reducing cut	D14, road
D	Limestone Downs	L24	R13/172*	PITS	2665252 2665267 2665267	6411284 6411277 6411268	C-	0 m	likely impact up to 50%, existing track	D15, road
D	Limestone Downs	L25	R13/44	PITS/TERRACES	2665617 2665702	6411281 6411308	B		not affected	
D	Limestone Downs	L26	R13/45 and R13/46	PITS/TERRACES/?PA (RIDGE)	2665662 2665664	6411076 6411102	B		not affected	
D	Limestone Downs	L27	R13/198*	PITS/TERRACES	2664576 2664606 2664685 2664782	6411544 6411479 6411595 6411604	B+	40 m	avoided	D13, road
D	Limestone Downs	L28	R13/173*	PITS	2664569	6411777	D		not affected	
D	Limestone Downs	L29	R13/174*	PA [RIDGE] and PITS	2664506 2664528 2664530 2664501	6412030 6412040 6412074 6412147	A	10 m	avoided	D11, road

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Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
					2664493	6412057				
D	Limestone Downs	L30	R13/175*	PITS/TERRACES	2664347	6411925	C	80 m	not affected	
					2664297	6411889				
					2664329	6411886				
					2664286	6411934				
D	Limestone Downs	L31	R13/103	TERRACES	2664252	6411932	C	40 m	not affected	
					2664222	6411920				
					2664217	6411946				
					2664256	6411972				
D	Limestone Downs	L32	R13/39	PITS/TERRACES	2664032	6412143	A-	30 m	avoided	D12
					2664098	6412101				
					2664061	6412062				
					2664010	6412017				
					2663930	6411929				
					2663860	6411936				
					2663886	6411966				
					2663925	6412004				
					2663988	6412064				
					2664029	6412172				
					2663951	6412164				
					2663893	6412153				
					2663849	6412190				
D	Limestone Downs	L33	R13/87	PA [RIDGE]	2663659	6412177	A		not affected	
					2663583	6412095				
					2663659	6412141				
					2663733	6412181				
					2663642	6412274				
					2663546	6412367				
					2663499	6412420				
D	Limestone Downs	L34	R13/176*	PITS/TERRACES	2663784	6412066	C+		not affected	
					2663881	6412084				
					2663872	6412116				
D	Limestone Downs	L35	R13/41	PA [RIDGE]	2665426	6413852	A		not affected	

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Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
					2665401	6413798				
					2665346	6413658				
					2665399	6413609				
					2665470	6413639				
D	Limestone Downs	L36	R13/177*	PITS/TERRACES	2664433	6413543	B	0 m	definite impact up to	D04,road
					2664473	6413409			30%, 2 of 3 clusters	
					2664566	6413439			can be avoided;	
					2664697	6413558			consider moving	
					2664710	6413528			access road to east	
					2664859	6413587			aligned on existing	
					2664789	6413644			track	
					2664618	6413527			reduce spoil heap	
					2664627	6413472				
D	Limestone Downs	L37	R13/178*	?PITS	2664282	6413880	C-	80 m	not affected	D03, road
					2664267	2613855				
					2664243	2613894				
D	Limestone Downs	L38	R13/179*	PITS/TERRACES	2664461	6413196	A-	0 m	possible impact,	D02, road
					2664416	6413258			but avoided if realign	
					2664337	6413218			road to follow	
					2664334	6413255			existing track	
					2664296	6413208				
					2664305	6413226				
					2664262	6413252				
					2664233	6413240				
					2664163	6413277				
D	Limestone Downs	L39	R13/129	PITS	2663942	6413355	C-	15 m	impact unlikely	D02, road
					2663897	6413346				
					2663889	6413358				
D	Limestone Downs	L40	R13/180*	PITS/TERRACES	2663697	6413469	B+		not affected	
					2663752	6413398				

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Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
					2663835	6413378				
					2663836	6413319				
D	Limestone Downs	L41	R13/181*	PITS/TERRACES	2663647	6413510	A-		not affected	
					2663614	6413517				
					2663577	6413550				
					2663511	6413596				
					2663581	6413591				
					2663540	6413886				
					2663502	64139 69				
					2663585	6413773				
D	Limestone Downs	L42	R13/182*	URUPA/WAHI TAPU	2662970	6413396	[AA]		not affected	
					2663041	6413425				
					2663062	6413383				
					2662995	6413348				
D	Limestone Downs	L43	R13/183*	PA [RIDGE]	2662916	6413439	A		not affected	
					2663154	6413597				
					2663189	6413542				
					2663365	6413571				
D	Ward	WD1	R13/61	PITS/TERRACES	2665206	6408485	B+		not affected	
					2665250	6408625				
					2665368	6408728				
					2665360	6408566				
				Central location	**2665309**	**6408603**				
D	Ward	WD2	R13/65	PA (RIDGE) [Part of R13/66]	2666647	6408187	A		not affected	
D	Ward	WD3	R13/66	PA (RIDGE)	2666574	6408110	A		not affected	
					2666721	6408316				
					2666890	6408412				
					2667000	6408338				
					2666846	6408243				
				Central location	**2666824**	**6408316**				
D	Ward	WD9	R13/199*	PITS/TERRACES	2667331	6408309	B	5m	impact unlikely, existing farm track	Possible roading to D025
					2667287	6408390				
					2667316	6408434				
					2667360	6408368				
				Central location	**2667324**	**6408368**				
D	Ward	WD10	R13/200*	PITS	2665513	6408159	B		not affected	
					2665539	6408149				

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
D	Ward	WD11	R13/201*	MIDDEN (SHELL)/ UMU	2664804 2664869	6407898 6407934	B+		not affected	
D	Ward	WD12	R13/202*	PITS/TERRACES **Central location**	2667532 2667618 2667543 **2667574**	6408166 6408118 6408093 **6408132**	B+	5m	impact unlikely, existing farm track	Possible roading to D025
E	Whitford	W1	R13/184*	?PITS/URUPA **[Central Location of Site]**	2666697 2666562 2666562 **2666607**	6403716 6403625 6403699 **6403676**	[AA]	0 m	avoided, by using existing farm track	E05, road
E	Whitford	W2	R13/185*	PITS	2666364	6404132	C-		not affected	
E	Whitford	W3	R13/75	PITS	2666482	6404272	C+	0 m	impact likely up to 40%	E03, road
E	Whitford	W4	R13/186*	PITS **[Central Location of Site]**	2666719 2666665 2666702 **2666695**	6404155 6404110 6404176 **6404162**	C		not affected	
E	Whitford	W5	R13/187*	PITS/TERRACES **[Central Location of Site]**	2666585 2666621 2666626 **2666607**	6404184 6404199 6404162 **6404184**	B-		not affected	
E	Whitford	W6	R13/109	PIT	2666776	6404353	D		not affected	
E	Whitford	W7	R13/188*	PITS **[Central Location of Site]**	2666938 2666777 **2666849**	6404228 6404228 **6404235**	C+		not affected	
E	Whitford	W8	R13/57	PITS/TERRACES **[Central Location of Site]**	2666470 2666584 **2666526**	6405138 6404894 **6405044**	A-	10 m	possible impact, but unlikely if bring turbine SW	E01, road
E	Whitford	W9	R13/59	PITS/TERRACES	2667799 2668013	6404793 6404837	B+		not affected	

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
				[Central Location of Site]	**2667894**	**6404801**				
E	Whitford	W10	R13/189*	PITS/TERRACES	2666666	6404897	B		possible impact	
				[Estimated locations]	2666776	6404912				
				[Central Location of Site]	**2666717**	**6404912**				
E	Pukerewa	P46	R13/127	PA [RIDGE]	2667474	6400481	A		not affected	
					2667358	6400476				
					2667332	6400526				
					2667312	6400467				
E	Pukerewa	P47	R13/78	PITS/TERRACES	2666949	6401848	B+		not affected	
					2667110	6401802				
E	Pukerewa	P48	R13/190*	WAHI TAPU/URUPA/CEMETERY	2667892	6402986	[AA]	20m	avoided, but move spoil site from urupa	close to E12 access
					2667899	6402922				
					2667922	6402992				
					2667930	6402928				
E	Pukerewa	P49	R13/191*	WAHI TAPU/BURIAL	2667733	6402794	[AA]	70 m	avoided	E12
E	Pukerewa	P50	R13/192*	TERRACE	2667698	6402809	C		not affected	E12
E	Pukerewa	P51	R13/193*	PITS/TERRACE	2667155	6402694	C+		not affected	
					2667133	6402671				
E	Pukerewa	P52	R13/194*	PITS/TERRACE	2666726	6402370	B-	0 m	definite impact up to 80%	E10, road
					2666715	6402405				
					2666779	6402422				
					2666789	6402399				
					2666842	6402429				
					2666849	6402410				
E	Pukerewa	P53	R13/195*	PITS	2666926	6402449	C	0 m	possible impact	E10, track
					2666905	6402489				
E	Pukerewa	P54	R13/196*	PITS/TERRACES	2666879	6402869	B	0 m	definite impact up to 40% of site; consider moving access road 15m	E08, road
					2666924	6402873				
					2666923	6402874				

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
					6466979	6402910			north	
E	Pukerewa	P55	R13/197*	PIT/TERRACE	2666790	6403178	C		not affected	
E	Matenga	M6	R14/22	PA (RIDGE)	2668435	6398646	A		not affected	
					2668392	6398644				
					2668404	6398671				
					2668311	6398706				
					2668304	6398676				
					2668246	6398693				
				[Central Location of Site]	**2668266**	**6398684**				
E	Matenga	M7	R14/392*	BUILDING SITE (20thC HISTORIC)	2668290	6399380	D	0 m	definite impact 100%	E25
E	Matenga	M8	R14/169	PA (RIDGE)	2668862	6399283	A	20m?	Possible impact but	E26, road
					2668800	6399176			removal of E27 has	
					2668756	6399261			significantly	
					2668837	6399331			reduced impact – if	
				[Central Location of Site]	**2668770**	**6399234**			any	
E	Matenga	M9	R14/294	PA (RIDGE)	2668300	6399900	A		not affected	
					2668123	6399949				
					2668147	6399824				
					2668103	6399872				
				[Central Location of Site]	**2668188**	**6399911**				
F	Matira Farms Ltd	MF	R14/170	?PITS [Recorded from aerial photo]	2671700	6399000	E (not a site)		not affected	
F	Matira Farms Ltd	MF	R14/217	TERRACES/PITS/BURIAL	2669582	6369953	AA		not affected	
					2669750	6369990				
					2669700	6369900				
F	Matira Farms Ltd	MF	R14/293	PITS/TERRACES	2669797	6398963	B+		not affected	
					2669712	6398995				
					2669632	6398966				
E	Black	B1	R14/2	PA (RIDGE) [Near Matira Mast]	2667867	6398263	A	10 m	possible impact ,	E33
					2667798	6398241				
					2667683	6398206				

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
					2667662	6398253				
					2667727	6398289				
					2667837	6398290				
G	Shorten	SH6	R14/44	PITS/TERRACES	2670169	6395160	B	50 m	impact unlikely	G10, road
					2670217	6395102				
					2670175	6395046				
					2670139	6395068				
					2670227	6394924				
					2670343	6394913				
					2670226	6394857				
G	Shorten	SH5	R14/45	PITS	2669520	6395252	C	50 m	impact unlikely	G09
					2669430	6395091				
G	Shorten	SH2	R14/46	PITS	2668398	6395619	C	0 m	possible impact	G05
					2668308	6395620				
					2668420	6395430				
					2668310	6395435				
G	Shorten	SH4	R14/47	PA (RIDGE)	2669017	6396009	A	0 m	impact possible, existing track	G12, road
					2669022	6396039				
					2669092	6396066				
					2669144	6395982				
					2669134	6395959				
G	Black	B6	R14/147	MIDDEN (SHELL)	[2668200]	[6396900]	E		not affected	
G	Black	B7	R14/148	PITS/MIDDEN (SHELL)	2669520	6396900	A-		not affected	
					2669751	6396855				
					2669885	6397083				
E	Black	B3	R14/161	PITS/?PA	2668525	6397900	B		not affected	
					2668752	6397970				
E	Black	B4	R14/162	PA (RIDGE)	2668780	6397879	A		not affected	
					2668865	6397987				
G	Black	B5	R14/218	PA (RIDGE)	2669713	6396216	A-		not affected	
					2669593	6396140				
					2669711	6396142				
					2669779	6396226				

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
G	Thompson et al	T1	R14/256	OCCUPATION AREA [not revisited] [?Related to R14/161 & 162]	[2668400]	[6397600]	A		not affected	
E	Thompson et al	T2	R14/295	PITS/TERRACES	2667062 2667136 2667141 2667174 2667123	6399911 6399952 6399935 6399843 6399850	B-		not affected	
E	Black	B2	R14/393*	PITS/TERRACES [Coastal knoll northern headland Waikorea Stream]	2667550 2667675 2667645	6397655 6397678 6397568	C	90 m	avoided	E35
G	Shorten	SH3	R14/394*	PIT/TERRACE	2668552 2668601 2668610	6395521 6395548 6395526	C-		not affected	
G	Thompson et al	T3	R14/395*	PA(RIDGE)	2668614 2668676 2668630 2668546	6395961 6395948 6395890 6395849	A	40 m	impact unlikely	G08, road
H	Rupapere	RU1	R14/175	PA (RIDGE) **[Central Location of Site]**	2670904 2670725 **2670821**	6393247 6393203 **6393228**	A		not affected	
H	Rupapere	RU2	R14/179	PITS/TERRACES **[Central Location of Site]**	2669448 2669499 2669499 **2669461**	6392228 6392259 6392209 **6392184**	A-	100m	Now avoided by Changing road alignment	H01, road
H	Rupapere	RU3	R14/396*	PITS	2669378	6391880	C-	10 m	impact likely up to 20% ? reduce spoil heap	H05, road
H	Rupapere	RU4	R14/397*	PIT	2669712	6392315	C-	0 m	definite impact up to 70%, existing track, but can reduce by shifting spoil heap	H02, road

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
H	Rupapere	RU5	R14/398*	URUPA/WAHI TAPU	2672200	6392677	[AA]	10 m	avoided	near existing track to H09
					2672196	6392686				
					2672205	6392691				
					2672210	6392681				
				[Central Location of Site]	**2672189**	**6392677**				
H	Rupapere	RU6	R14/211	PITS (?PA)	2670100	**6392100**	B?	0m	probable impact, but not accessible for site visit	road to HO6, HO7
H	Kettle	K1	R14/405*	PITS	2670316	6391535	B		Not affected	
I	Jo Jackson	JO1	R14/399*	PITS	2671859	6388671	C+	0 m	definite impact up to 80%, existing track	I05, road
I	Jo Jackson	JO2	R14/165	TERRACES	2670945	6388441	C		definite 100%	I023
I	Jo Jackson	JO3	R14/400*	PITS/TERRACES	2670521	6388353	C+	0 m	definite impact 100%, existing track	I02, road
I	Jo Jackson	JO4	R14/401*	PITS	2670237	6388416	D	0 m	definite impact 100%, existing track	I01, road
I	Jo Jackson	JO5	R14/05	PA(RIDGE)	2671393	6387873	A+	10-30m	Impact unlikely	access to I09 & 107
					2671352	6387692				
					2671198	6387700				
				[Central Location of Site]	**2671267**	**6387710**				
I	Jo Jackson	JO6	R14/25	PA(RIDGE)	2672717	6386802	A-		not affected	
					2672577	6386791				
				[Central Location of Site]	**2672638**	**6386801**				
J	John Jackson	JN7	R14/402*	URUPA	2672538	6385020	[AA]		not affected	
J	John Jackson	JN8	R14/198	PITS/TERRACES	2671585	6384372	B	0m	likely impact up to 10%	road to J03
					2671725	6384422				
				[Central Location of Site]	**2671655**	**6384391**				
J	John Jackson	JN9	R14/210	PITS	2671336	6384968	B-		not affected	
					2671293	6384936				
				[Central Location of Site]	**2671317**	**6384957**				
J	John Jackson	JN10	R14/278	PITS	2671423	6385084	C-		not affected	
					2671401	6385067				

Wind Farm Cluster	Landowner/Property	Field Note-book No.	NZAA No.	Site Type	Easting	Northing	Ranking	Distance to nearest civil works (m)	Impact status	Nearest Earthworks (less than 100m away)
				[Central Location of Site]	**2671413**	**6385078**				
J	John Jackson	JN11	R14/277	PITS	2671081	6385201	C-		not affected	
J	John Jackson	JN12	R14/403*	PITS/TERRACES	2672319	6385042	C+	0 m	impact likely up to 30%	road to J03
J	John Jackson	JN13	R14/404*	PITS/TERRACES	2672312	6385003	C+	0 m	impact likely up to 10%	road to J03

Exhibit REC 4

General distribution of wind turbines (blue circles) in relation to archaeological sites (red squares)

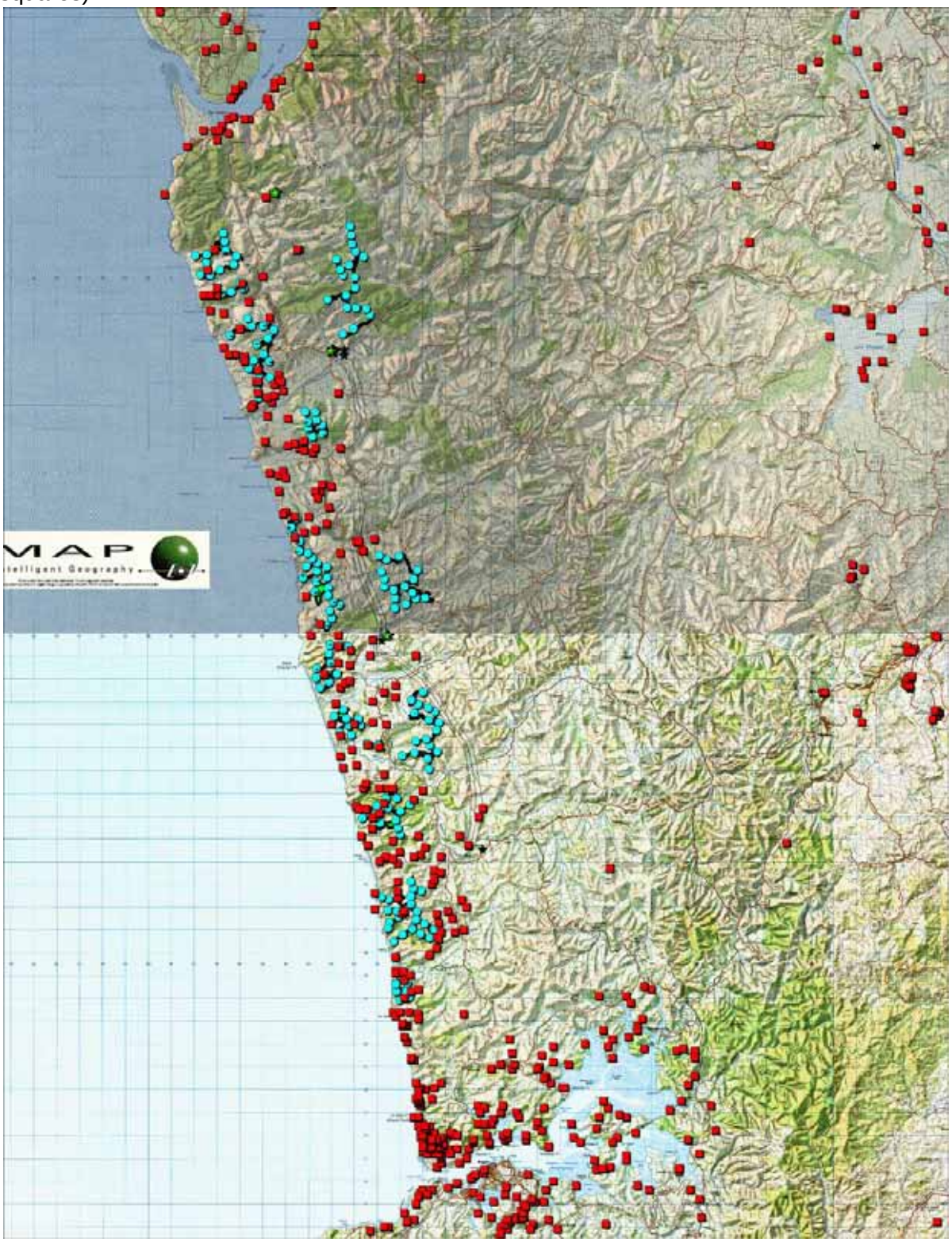

Exhibit REC 5

Summary table of sites located along the transmission corridor. * = new site

Field Notebook No.	NZAA Site No.	Site Type	Easting	Northing	Ranking	Impact
FR01	R13/130	PA (RIDGE)	2686815 2686735	6421332 6421352	A	The placement of pylons within the transmission corridor has not yet been determined. However, it is considered that that is ample scope for avoidance of all identified sites
		Garden Area	2686684 2686700 2686638 2686684	6421338 6421389 6421369 6421338		
FR02	R13/205	PA (RIDGE)	2687519 2687476 2687441 2687385 2687205 2687169 2687066 2686981 2686938	6421473 6421452 6421438 6421409 6421367 6421328 6421305 6421296 6421319	A	
WV01	R13/143*	PA (RIDGE) **[central location of site]**	2669935 2669798 2669879 2669878	6404105 6404130 6404231 6404110	B	
WV02	R13/76	PIT	2669392	6403583	D/C	
WV03	R13/142*	URUPA	2669083	6404023	[AA]	
WV04	R13/60	PA (SPUR) **[central location of site]**	2669164 2669181 2669217 2669240 2669235 2669225 2669209	6404002 6403981 6404059 6404046 6403998 6403978 6404015	A	
	R14/177	PA (RIDGE)	2674678	6392300	A	not affected
	R14/184	PITS	2674480	6391925	B	not affected
	R14/192	PITS	2674096	6390684	B	not affected

Exhibit REC 6

Transmission corridor and distribution of recorded archaeological sites