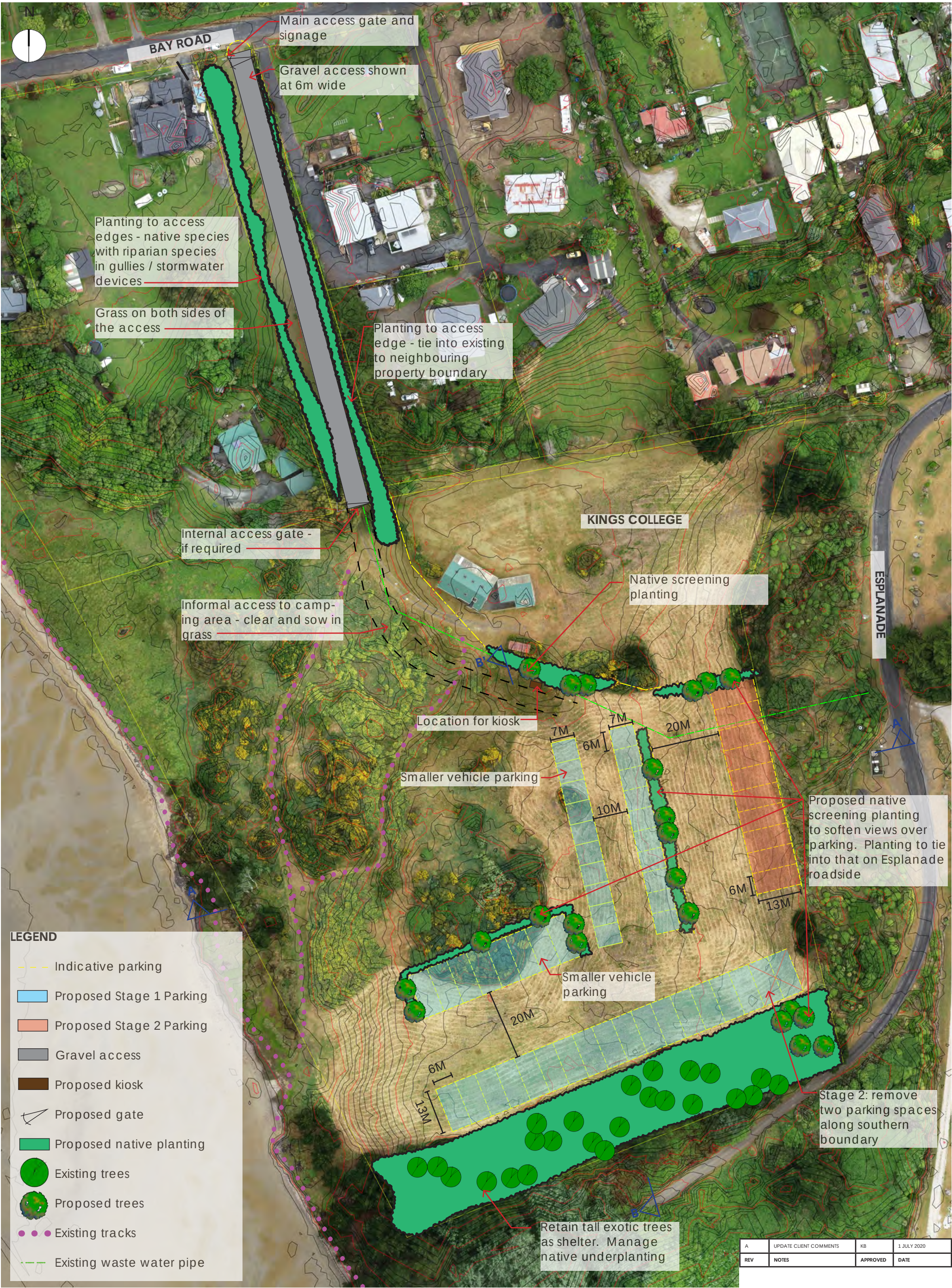


Appendices



Appendix A Landscape Plan



Landscape Design

The NZMCA site at 20 Bay Road Warrington, lies approximately half an hour drive north of Dunedin via SH1 and the Coast Road. The site, not currently owned by the NZMCA, is vacant except for a building in the north-east corner which is used by Kings High School for outdoor education activities. The NZMCA have used the site for a short-time in the past as a short stay motor caravan park, under a previous informal arrangement with the current land owner. The NZMCA are investigating the permanent use of the site as a campground. Primary access to the site will continue to be from Bay Road. Pedestrian access to the coastal pathway, south of the site, will remain unchanged. Access arrangements with Kings High School will also be maintained.

20 Bay Road forms part of a small coastal peninsula bound by the calm waters of Blueskin Bay to the west, highly valued for recreational pursuits, and the Pacific Ocean to the east. There is an existing freedom camping site at the neighbouring Warrington Domain (managed by Dunedin City Council) off the Esplanade Road to the east. The site overall has a dome shape, with gently undulating plateau above the bay. The settlement of Warrington gives way to Porteous Hill, Hammond Hill and the Silver Peaks Range beyond, that provide the inland backdrop to the site.

On the western side, the site rises up inland from Blueskin Bay, with the existing coastal pathway outside the site boundary. A broad grass bank forms the main access down to the waters edge, with the remainder of the eastern bank covered in low growing scrub, in predominantly exotic weed species. The scrub is bisected by a small network of trails enabling walking and cycle access to and from the coastal pathway and the bay. The site is surfaced in pasture grass that is maintained by the landowner. Pockets of native and exotic vegetation, dominated by Ngaio, bracken, grass species and gorse exist at the top of the plateau on the eastern side. The site is sheltered from southerly winds by a wide strip of mature pines that run the length of the southern boundary. The land immediately beyond the eastern boundary of the site has been restored with native planting (Pittosporum, Mapou, Ti kouka, Toetoe and Harakeke, among others) that has achieved a suitable height and ground coverage.

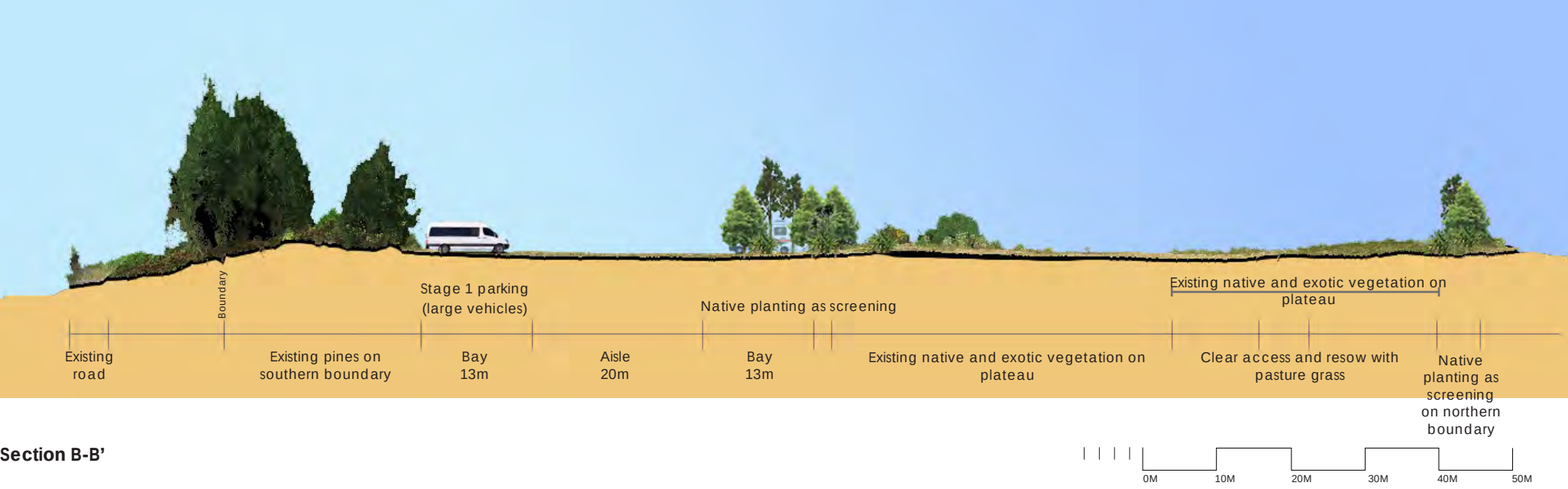
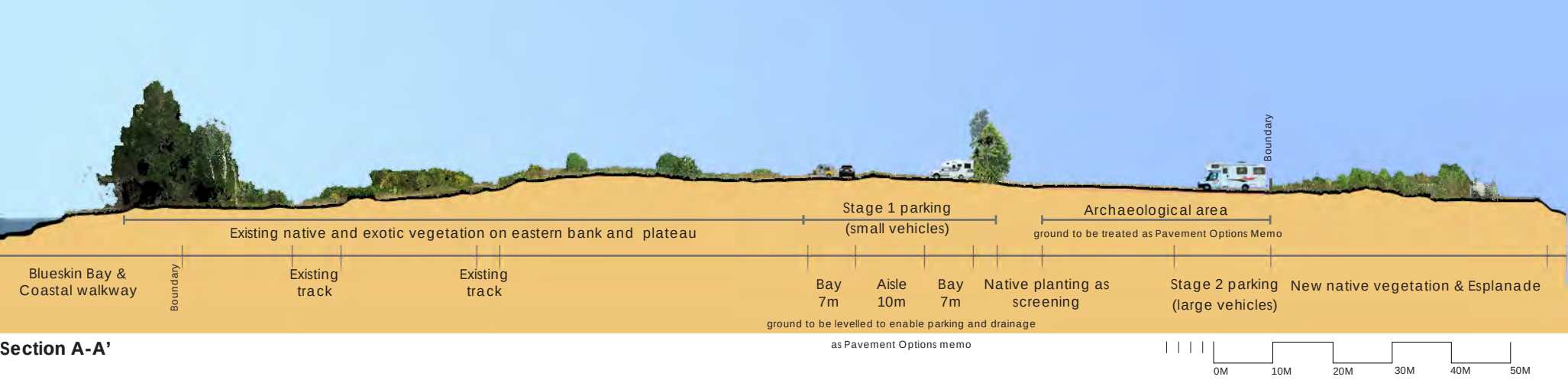
Access to the site is from Bay Road, down a gravel driveway, shared with the Kings High School property. The accessway is proposed to be widened to 6m. The gravel formation will end at the shared way between the camping area and the Kings College site. From there NZMCA members, as per membership rules, will travel along an unformed track, of which scrub will need to be cleared to enable, and sign in on arrival at a small

kiosk on the northern boundary. The site will be visually screened from the Kings High School buildings and surrounding residential properties with native planting to the northern boundary. This multi layered planting is to be of a depth and height to enable visual screening of camper vans and vehicles to adjacent properties. All planting on site is to be native, and eco-sourced, based on the list provided.

Parking as part of the Stage 1 proposal is focussed in the western part of the site. Small vehicles will be able to park in 20 No. bays, two rows that run north – south at the edge of the existing scrub. A strip of native planting will be included to the eastern edge of this to further provide screening to adjacent properties. Larger vehicles can park on the southern boundary (18 No.) and opposite, with a 20 m isle between. The eight parks opposite will also have a strip of native planting surrounding. The stand of pine trees on the southern boundary is to be retained and managed by the NZMCA.

Stage 2 parking will be along the eastern boundary, subject to archaeological protocols to protect artefacts. Surface treatment and drainage requirements are discussed in the Pavement Options Memo and the application for resource consent.

Cross Sections



Section B-B'

Plant Lists

The soil is free draining with a sand base, and the site is largely dry throughout the camping season. The western edge of the peninsula is shown as Sand Dune Forest on the Dunedin City Council Native Planting Guide. The following species are recommended based on their suitability as 'generalists' and to flourish on 'dry sites' in the DCC NPG Sand Dune Forest list¹. The DCC list is supplemented with native species observed on Esplanade, beyond the eastern boundary of the camping area.

Trees

- | | |
|---------------------------------|-----------|
| <i>Dacrycarpus dacridioides</i> | Kahikatea |
| <i>Melicytus ramiflorus</i> | Mahoe |
| <i>Podocarpus totara</i> | Totara |
| <i>Prumnopitys taxifolia</i> | Matai |
| <i>Cordyline australis</i> | Ti kouka |

Shrubs

- | | |
|--------------------------------|-----------|
| <i>Griselinea littoralis</i> | Broadleaf |
| <i>Myrsine australis</i> | Mapou |
| <i>Pittosporum tenuifolium</i> | Kohuhu |

- Coprosma lucida*
Myoporum laetum
Austroderia sp.
Astelia fragrans

- Karamu
Ngaio
Toetoe
Kakahu

Ferns

- Asplenium obtusatum*
Microsorium pustulatum
Pteridium esculentum

- Coastal spleenwort
Hounds tongue fern
Rarauhe, Bracken fern -
areas of restoration only

¹ https://www.dunedin.govt.nz/_data/assets/pdf_file/0006/732858/DCC-NPG-ecosystems-species-list-Sand-dune-forest.pdf



A	UPDATE CLIENT COMMENTS	KB	1 JULY 2020
REV	NOTES	APPROVED	DATE

Appendix B Consent Decision 2019

31 October 2019

Richard Hatherley
C/- Paterson Pitts Group
PO Box 5933
Dunedin
Attn: Andrew Robinson

Via email: andrew.robinson@ppgroup.co.nz

Dear Andrew

RESOURCE CONSENT APPLICATION:

**SUB-2018-148 LUC-2018-555
20 BAY ROAD
WARRINGTON, DUNEDIN**

Your application for resource consent was processed on a non-notified basis in accordance with sections 95A to 95G of the Resource Management Act 1991. The application was considered by a Senior Planner, under delegated authority, on 31 October 2019.

The Council has granted subdivision consent and land use consent with conditions. The assessment of the application, including the reasons for the decision, is set out in the report attached to this letter. The consent certificates are attached to the rear of this letter.

Please note that the processing of this application could not be completed within the 20 working day time limit prescribed under section 115 of the Resource Management Act 1991. The time limits for the processing of this consent have been extended pursuant to section 37A(2)(a) and 37A(4)(b)(ii) of the Resource Management Act 1991, due to: waiting for the applicant to gain the approval of Heritage NZ; and the extra demands of assessment under the Proposed 2GP.

The consent certificates outline the conditions that apply to your proposal. Please ensure that you have read and understand all of the consent conditions.

You may object to this decision or any condition within 15 working days of the decision being received, by applying in writing to the Dunedin City Council at the following address:

Senior Planner - Enquiries
Dunedin City Council
PO Box 5045
Dunedin 9054

You may request that the objection be considered by a hearings commissioner. The Council will then delegate its functions, powers and duties to an independent hearings commissioner to consider and decide the objection. Please note that you may be required to pay for the full costs of the independent hearings commissioner.

Alternatively, there may be appeal rights to the Environment Court. Please refer to section 120 of the Resource Management Act 1991. It is recommended that you consult a lawyer if you are considering this option.

You will be contacted in due course if you are due a partial refund or you have to pay additional costs for the processing of your application.

Development contributions are payable for this resource consent. A development contribution notice will be sent in due course outlining how the development contribution has been calculated and when payment is required.

Please feel free to contact me if you have any questions.

Yours faithfully

A handwritten signature in blue ink, consisting of a stylized 'R' followed by a horizontal line.

Robert Buxton
Consultant Planner

APPLICATION SUB-2018-148 LUC-2018-555**20 BAY ROAD, WARRINGTON, DUNEDIN**Department: Resource Consents

DESCRIPTION OF ACTIVITY

The application site is comprised of relatively flat to undulating low lying sand dunes, located on the spit between Warrington Domain and Blueskin Bay.

The application site is 3.24ha, an irregular shape and is accessed by a leg-in from Bay Road, between 10 Bay Road to the west and 22 and 24 Bay Road to the east. The leg-in is approximately 17m wide, 135m long and 0.23ha and is centrally located to the bulk of the site. The bulk of the site is bordered to the east and south by a site generally known as the Warrington Domain (and includes the recently created freedom camping area), and is bordered to the west by an unformed road that forms the coastal edge of Blueskin Bay. To the east of the leg-in, the northern boundary of the bulk of the site borders a 4m wide strip of land that runs along the rear of 22, 28 and 30 Bay Road. This strip of land is owned by the Council and is attached to the Warrington Domain at the east, but finishes at the leg-in. To the west of the leg-in, the northern boundary of the bulk of the site borders the rear of 10 Bay Road. The bulk of the site contains the Kings High School education facility, which is located in the northwest portion.

The current application was originally intended to reinstate a previous 4 lot subdivision (DCC consent number A-93059) that never proceeded beyond the s224 stage. However, following consideration of a number of matters, the applicant has provided an amended scheme plan for a 3-lot subdivision. This will involve proposed Lot 1 of 0.5793ha which will contain the existing Kings High School education facility and would be gifted to the school. Proposed Lot 1 would be accessed from Bay Road via a Right of Way (ROW) over proposed Lot 2. Proposed Lot 2 (2.84ha) will make up the residual site including the leg-in, except for proposed Lot 3 (315m²) which will be vested as reserve. Lot 3 will be a 4m wide strip that runs along the rear boundary of 10 Bay Road, and would be connected to the existing 4m wide strip to the east of the leg-in via a 4m wide Right of Way over the southern end of the leg-in. The applicant states that the proposed strip: "will be gifted to council as reserve, to honour a long-standing agreement between the applicant and council regarding access between council's reserve and the estuary. This land was pledged in lieu of a Reserves Contribution, and its acceptance is documented in the report dated 17 May 1993".

The education facility was granted land use consent on 10 June 1998 (RMA960388, now referenced as RMA-1996-359585). In that consent decision, the 'site' for the education facility was referred to as being 0.5793ha and accessed by a ROW, therefore, the site was Lot 1 of consent A-93059. This site was also referred to in the application and in the notification of the application. The lapse period for RMA960388 was extended twice, first by RMA 2000-0730 and then RMA 2001-0714, to lapse on 10 November 2006.

An application, SUB-2010-78, was made for the subdivision of the subject site into nine lots, however, this application was withdrawn.

A subdivision and land use consent SUB-2011-30 LUC-2011-121 was granted on 5 May 2011, which provided for a two lot subdivision that separated the Residential zone portion (proposed Lot 2 SUB-2011-30) from the Rural zone portion (proposed Lot 1 SUB-2011-30) and vested the Rural zone portion as Local Purpose Reserve. The associated land use consent authorised the existing education facility within a 4000m² curtilage (undefined) on Lot 2 SUB-2011-30. The subdivision never proceeded, and the status of the land use consent LUC-2011-121 is uncertain, but possibly lapsed, as it was related to the lapsed subdivision.

The application site is legally described as Part Lot 1 Deposited Plan 5855 and Lot 1 Deposited Plan 10272 (held in Computer Freehold Register OT13B/973) and is 3.2407ha.

REASONS FOR APPLICATION

Dunedin currently has two district plans: the Operative Dunedin City District Plan 2006 (the "2006 District Plan", and the Proposed Second Generation Dunedin City District Plan (the "Proposed 2GP"). Until the Proposed 2GP is made fully operative, both district plans need to be considered in determining the activity status and deciding what aspects of the activity require resource consent.

The activity status of the application is fixed by the provisions in place when the application was first lodged, pursuant to section 88A of the Resource Management Act 1991. However, it is the provisions of both district plans in force at the time of the decision that must be had regard to when assessing the application.

When the application was made decisions on the Proposed 2GP had been released and so all Proposed 2GP rules had legal effect. These rules become fully operative if no appeals are lodged or once any appeals have been resolved. At this stage, some appeals are still live and therefore some of the 2006 District Plan provisions are still considered in this decision. In the case of the applicant's site, the Rural – Coastal zoning minimum site size is appealed.

2006 District Plan

The subject site is zoned partly **Residential 1** (approximately 45% or 1.46ha) and partly **Rural** (approximately 55% or 1.78ha) under the Dunedin City District Plan. The Rural zoned portion is L-shaped being approximately 60m wide from the western side boundary and 43m wide along the southern boundary. To the east and south, the site borders the North Coast Coastal Landscape Preservation Area. The Blueskin Bay boundary, which is within the unformed road to the west of the site, is mapped as "Esplanade Reserve Required" and Area of Significant Conservation Value (ASCV) Estuarine Edge C104, which is described as "Estuary - mudflat, salt rush and reed swamp, succulent herb swamp".

Bay Road is classified as a Local Road.

Note the site is not mapped in the 2006 District Plan as an "Archaeological Site registered by the NZ Historic Places Trust".

Regarding the "Esplanade Reserve Required" notation, the site is closer than 20m to the coastal marine area (CMA). However, I have been advised by the Council's Subdivision Planner that as the site does not directly border the CMA and there is an unformed legal road between the CMA and the application site, then any consideration of an Esplanade Reserve, or any top-up to 20m width, would not apply in this case. This is consistent with the approach taken in SUB-2011-30.

Subdivision

Under Rule 18.5.1(i) subdivision is a restricted discretionary activity within the Rural zone where the resultant site is 15ha or greater. Proposed Lot 2, which will include the Rural zone, will be less than 15ha, and therefore under Rule 18.5.2 any subdivision that does not comply with Rule 18.5.1 is a **non-complying** activity.

Under Rule 18.5.1(iii)(a) subdivision is a restricted discretionary activity in the Residential zones where the proposal complies with Rules 18.5.3 to 18.5.6, 18.5.9 to 18.5.12 and each resulting site complies with minimum net area (500m²) and frontage requirements (3.5m). Proposed Lot 1 will not have frontage to Bay Road. Due to proposed Lot 1 not having a frontage, in accordance with Rule 18.5.2, the proposed subdivision is a **non-complying** activity.

Land Use

Although the applicant included an application for a land use for infringements of the yard and height plane, the land use rules of the 2006 District Plan that would apply to this activity are considered effectively inoperative.

Proposed 2GP

The subject site is zoned partly **Township and Settlement** (approximately 45% or 1.46ha) and partly **Rural – Coastal** (approximately 55% or 1.78ha).

The site includes the following Overlays: Natural Coastal Character "Warrington to Doctors Point sand spits"; and Hazard 3 (coastal). The Natural Coastal Character mirrors the Rural – Coastal zoning, and the Hazard 3(coastal) overlay covers the lower lying land within the Rural – Coastal zoning beside the Blueskin Bay estuary.

The site includes the following Mapped Areas: Wahi Tupuna (ID 14 "Purakanui to Hikaroroa to Huriawa" and ID 15 "Okahau (Warrington)" 16 "Blueskin Bay"); and Archaeological Site A040 "Warrington moa hunting site".

Bay Road is classified as a Local Road.

Subdivision

Note, the definition of "site" under the Proposed 2GP, states that where a site is divided by two zones that are not both Rural zones, the site is deemed to be divided into two or more sites by that zone boundary.

Rule 16.3.5.1 specifies that subdivision is a restricted discretionary activity in the Rural zones, subject to compliance with the performance criteria. The proposed subdivision will fail to comply with Rule 16.7.4.1(g) which sets the minimum site size for the Rural – Coastal zone at 40ha. Proposed Lot 2, which will include the Rural zone, will be less than 40ha. Accordingly, the infringement of the subdivision proposal with Rule 16.7.4 results in an activity status of **non-complying** pursuant to Rule 16.7.4.3. Guidance on assessment includes Rules 16.12.2.1 and 16.12.5.6.

Rule 15.3.5.2 specifies that subdivision is a restricted discretionary activity in the Township and Settlement zone, subject to compliance with the performance criteria. The proposed subdivision will comply with Rule 15.7.4.1.h which sets the minimum site size for the Township and Settlement zone at 500m². The site comprising of the Township and Settlement zoned portion of proposed Lot 2 and all of proposed Lot 1 exceed 500m². Accordingly, the subdivision is a **restricted discretionary** activity and the matters of discretion and guidance on assessment include Rules 15.11.4.1.a-d (discretion over risk from natural hazards and the effects on: neighbourhood residential character and amenity; efficiency and affordability of infrastructure; safety and efficiency of the transport network), 15.11.5.2 (discretion over risk from natural hazards), 15.11.5.5 (discretion over effects on heritage values) and 15.11.5.7 and 14.4.2.4 (discretion over effects on cultural values of Manawhenua).

Rules 16.7.3 and 15.7.3 specifies that general subdivision must comply with Rule 9.3.3 Fire Fighting. The proposed subdivision will not include fire fighting water supplies for proposed Lot 2 as this would be determined by how the site is developed. Under Rule 9.3.3.3, contravening these standards is a **restricted discretionary** activity and the matters of discretion are restricted to effects on health and safety and guidance on assessment include Rules 9.5.2.1 and 9.5.3.7.

Rule 15.7.5 specifies that general subdivision must comply with Rule 9.3.3 Service Connections. The proposed subdivision will not include a water connection for proposed Lot 2 as this would be determined by how the residential zone portion of the site is developed. Under Rule 9.3.7.3, contravening this standard is a **restricted discretionary** activity and the matters of discretion are restricted to effects on efficiency and affordability of infrastructure and guidance on assessment include Rules 9.5.2.1 and 9.5.3.12.

Overall the proposed subdivision is considered a **non-complying** activity.

Note Rule 10.3.1 Esplanade Reserves and Strips requires a 20m wide esplanade reserve with a minimum width of 20m along the mean high water springs (i.e. coastal marine area (CMA)). The site is closer than 20m to the coastal marine area (CMA). However, as noted above, I have

been advised by the Council's Subdivision Planner that as the site does not directly border the CMA and there is an unformed legal road between the CMA and the application site, then any consideration of an Esplanade Reserve, or any top-up to 20m width, would not apply in this case.

Land Use

The existing educational facility falls under the definition of School. Under the Proposed 2GP, activities have both a land use activity and a development activity component.

Land Use Activity

The existing education facility, as a school, has an activity status of Discretionary activity (Rule 15.3.3.26). However, the education facility on the 0.5793ha site that will become Lot 1 of this current application has been authorised by resource consent RMA960388 (now referenced as RMA-1996-359585) as mentioned above. There was also land use consent LUC-2011-121 associated with SUB-2011-30 granted in 5 May 2011, that authorised the existing education facility within a 4000m² curtilage (undefined) on Lot 2 SUB-2011-30. However, the subdivision never proceeded, and the status of the land use consent LUC-2011-121 is therefore uncertain, but possibly lapsed, as it was related to the lapsed subdivision.

The applicant has stated that *"the school hostel complex was established under a Land-Use consent (RMA 1996-359585) and a subsequent consent (LUC 2011-121). We seek that these provisions be retained."* Given the confusing consenting history of the site, in order to clarify that the land use authorised by RMA 1996-359585 applies within proposed Lot 1, consents RMA 1996-359585 and LUC 2011-121 are to be surrendered and the conditions of RMA 1996-359585 will be replicated within this current consent.

Therefore consent to authorise the existing education facility on proposed Lot 1 will be required as a **discretionary** activity (Rule 15.3.3.26) with guidance on assessment included in Rules 6.12.1, 9.7.2, 14.5.2.1, 15.12.2.1, 15.12.2.3.

Development Activity

Rule 15.6.13.1.a.i requires a setback of 2m from the side and rear boundaries. The applicant has stated that the existing education facility building on proposed Lot 1 will infringe the 2m setback requirement on the internal boundary with proposed Lot 2 by 1m. Under Rule 15.6.13.1.b contravening this standard is a **restricted discretionary** activity with discretion restricted to effects on surrounding sites' residential amenity and effects on neighbourhood residential character and amenity (Rule 15.10.4.1), and assessment guidance is listed in Rules 15.10.2.1 and 15.10.4.1.

The applicant wishes to retain the existing access and parking arrangements for the education facility, which includes the access not being sealed for the first 5m. In terms of required parking spaces, the floor area of the buildings is conservatively estimated (based on the Council's webmap) to be approximately 400m², which under Rule 15.5.8.8 (1 space per 30m² of gross floor area) would result in a minimum requirement for 13 spaces, including one as a mobility parking space. There is ample space on site to manoeuvre and park this many vehicles, requiring a parking area of 168m², and therefore, it is considered no infringement of the minimum car parking requirement is created. Infringements are considered to occur for the following:

- Rule 6.6.1.5 requires parking areas to be hard surfaced and individually marked. Under Rule 6.6.1.5.b contravening this standard is a **restricted discretionary** activity with discretion restricted to effects on the safety and efficiency of the transport network (Rule 6.10.5.1), and assessment guidance is listed in Rules 6.10.2.1 and 6.10.5.1.
- Rule 6.6.1.7 requires parking areas to be illuminated. Under Rule 6.6.1.6.b contravening this standard is a **restricted discretionary** activity with discretion restricted to effects on the safety and efficiency of the transport network (Rule 6.10.5.1), and assessment guidance is listed in Rules 6.10.2.1 and 6.10.5.1.
- Rule 6.6.3.6 requires driveways adjoining a legal road that is hard surfaced must be hard surfaced for a distance of 5m from the edge of the road. Under Rule 6.6.3.6.c

contravening this standard is a **restricted discretionary** activity with discretion restricted to effects on the safety and efficiency of the transport network (Rule 6.10.5.6), and assessment guidance is listed in Rules 6.10.2.1 and 6.10.5.6.

Overall the land use is a **discretionary** activity.

National Environmental Standards

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) came into effect on 1 January 2012. The NES-CS applies to any piece of land on which an activity or industry described in the current edition of the Hazardous Activities and Industries List (HAIL) is being undertaken, has been undertaken or is more likely than not to have been undertaken. Activities on HAIL sites may need to comply with permitted activity conditions specified in the NES-CS and/or might require resource consent.

The applicant applied for a HAIL report from the DCC (HAIL-2018-134). That report concluded "No explicit information found regarding HAIL activity". The applicant also states that a search of the Otago Regional Council Contaminated Land database has been undertaken and have advised that the subject property "does not currently appear on the database". The applicant makes the following conclusion:

Whilst none of the information sources that we've used, provide absolute evidence that no contamination exists on any part of the site; when all the results from the various information sources are taken in their totality, the likelihood of contamination at a level that would raise concern seems extremely remote. It seems unlikely that anything present on the site, resulting from past activities, will create issues that require mitigation as part of the Resource Management process that is under way. In the event of a "discovery" of evidence to the contrary during our involvement in the development process, we would undertake to bring the new information to the applicants and Council's attention and develop the appropriate mitigation response.

In conclusion, we have reviewed retrievable information from a number of sources and have found no evidence of activities or industries on the site that would potentially have led to contamination of the site.

I have checked the HAIL report which includes historic aerial photography that shows the site does not appear to have ever been developed. Taking the applicant's advice and the HAIL report into account, it is considered that the NES-CS is not applicable to this site.

There are no other National Environmental Standards relevant to this application.

Overall Status

Where an activity requires resource consent under more than one rule, and the effects of the activity are inextricably linked, the general principle from case law is that the different components should be bundled and the most restrictive activity classification applied to the whole proposal.

In this case, there is more than one rule involved, and the effects are linked. As a result, having regard to the most restrictive activity classification, the proposal is considered to be a **non-complying** activity.

WRITTEN APPROVALS AND EFFECTS ASSESSMENT

Affected Persons

The 1996 application (RMA960388, now referenced as RMA-1996-359585) for the establishment of the education facility was processed on a notified basis. The effects of the education facility were assessed by the Hearings Committee as being acceptable at that time,

although some reduction in scale of the proposed activity was made to address residents' concerns. This proposal does not seek to alter the existing education facility activity. The current application will essentially legalise the 0.5793ha site that was referred to in the application and notification of the original 1996 application.

The applicant has consulted with Aukaha who act on behalf of Kāti Huirapa Rūnaka ki Puketeraki, the kaitiaki Rūnanga whose takiwa includes the site the application relates to, and with Heritage New Zealand. Both these parties have advised that they do not oppose the application provided conditions are included relating to effects on archaeology.

No other person or party is considered to be adversely affected by the activity. This is because the environmental effects of the proposal are limited to effects on parties that are existing and less than minor.

Effects on the Environment

Permitted Baseline

Under sections 95D(b) and 104(2) of the Resource Management Act 1991, the Council may disregard an adverse effect of the activity on the environment if the district plan or a national environmental standard permits an activity with that effect.

There is no permitted baseline for subdivision.

Receiving Environment

The existing and reasonably foreseeable receiving environment is made up of:

- The existing environment and associated effects from lawfully established activities;
- Effects from any consents on the subject site (not impacted by proposal) that are likely to be implemented;
- The existing environment as modified by any resource consents granted and likely to be implemented; and
- The environment as likely to be modified by activities permitted in the district plan.

For the subject site, the existing and reasonably foreseeable receiving environment comprises a school education facility and rural and residential activity.

For adjacent land, the existing and reasonably foreseeable receiving environment comprises predominantly residential activity to the north and recreational activities, including camping, to the east and south.

It is against these that the effects of the activity, beyond the permitted baseline, must be measured.

Assessment Matters/Rules

Although the subdivision is for a non-complying activity in which all matters can be considered, the relevant assessment matters in the 2006 District Plan and the relevant assessment rules in the Proposed 2GP, have been used as these are considered to cover the relevant effects. In assessing the subdivision, the most recent lapsed subdivision consent SUB-2011-30 has been taken into consideration, as well as the earlier lapsed subdivision consent A-93059. For the education facility, the existing land use consent RMA960388 (now referenced as RMA-1996-359585) and the conditions, provides the basis for consideration, given that the effects are established and no change is proposed.

1. Lot Size and Dimensions and Physical Limitations (2006 District Plan 18.6.1(q) & 18.6.1(k); Proposed 2GP 16.7.4.3, 16.12.2.1, 16.12.5.6, 17.10.4.a-I, 17.10.5.2)

The proposed subdivision will effectively create a separate site for the existing Kings High School education facility. It will also create opportunity for a pedestrian link between the Warrington Domain and Blueskin Bay estuary. Regarding the proposed pedestrian link,

Council's Parks and Recreation Planner is generally happy with the proposed Lot to be vested in Council as Local Purpose Reserve. The Parks and Recreation Planner did request confirmation on the width of proposed Lot 3 and pedestrian ROW, the condition of the reserve, and any fencing proposed. The applicant has advised that Lot 3 and easement B would be 4m wide, but that no improvements or fencing is proposed given, as noted earlier, that the land is being gifted to the Council.

The arrangement of the sites is considered to be acceptable. The boundary for proposed Lots 1 is effectively the site that was consented for the existing education facility, although it is noted that the stormwater soakage area may be within easement C of proposed Lot 2 and therefore that easement would need to include drainage. The proposal will not create any additional development potential compared to the existing site, which is defined by the density requirements of the Township and Settlement zone, noting that any residential unit on the Rural zoned portion of proposed Lot 2 would require an application for a non-complying activity.

In terms of the existing title, the following was noted in SUB-2011-30:

The subject site is subject to Section 308(4) of the Local Government Act 1974 regarding an amalgamation condition (shown on DP 18608) holding Lot 1 DP 10272 with the balance of Lot 1 DP 5855 and Lots 1 and 13 DP 1636. It appears that this amalgamation condition has already, in effect if not fact, been partially cancelled as the subject title is not comprised of all these parcels and 'Part Lot 1 DP 5855' of the title is only a portion of the 'balance of Lot 1 DP 5855' referred to by DP 18608. I expect that the purpose of the amalgamation condition was to ensure that Lot 1 DP 10272 was held with other land to avoid becoming a parcel without access to formed legal road. This is still achieved by OT13B/973 although the land involved is not entirely that listed by DP 18608. For the purposes of this subdivision, the amalgamation condition can be cancelled outright as it is no longer relevant.

The applicant has been made aware of the cancellation condition in SUB-2011-30, but has advised "We're slightly puzzled regarding the condition to cancel the amalgamation condition. We haven't been able to find the amalgamation condition on the subject title. We can see the relatively elderly amalgamation condition on DP 18608, but we have no legal interest in the property that that plan relates to." On this basis there does not appear to be a reason to cancel the amalgamation condition through this consent.

The applicant has requested the removal of the building line restriction from the title. This restriction was to be deleted in Condition 8 of the lapsed subdivision consent A-93059. The following was noted in lapsed subdivision consent SUB-2011-30:

A building line restriction imposed in 1990 at the time of DP 21674 restricts building on the subject site within 150m of the Bay Road frontage. It is not known why this building line restriction applies, particularly when there are already a considerable number of dwellings and accessory buildings on other properties built within 150m of the south boundary of Bay Road road reserve. The effect of this building line restriction is to prevent building within the leg-in and about 15m inside the body of the subject site. It appears that the school lodge complies with this building line restriction, and there is no other construction anticipated as a result of this subdivision.

Given that the lapsed subdivision consent A-93059 occurred prior to the granting of consent for the education facility, and that the lapsed subdivision consent SUB-2011-30 did not remove the building line, I consider the building line restriction should remain. As noted above, the building line prevents buildings within approximately 15m of the northern boundary of the body of the site, and it may have been a consideration in granting consent for the education facility. Once proposed Lot 3 (which is 4m width) is created, the building line restriction would result in a restriction of approximately 11m into proposed Lot 2. This would not affect the bulk of proposed Lot 2, and any development would be expected to be located to the south, away from the education

facility. If proposed Lot 2 were to be further subdivided, then the building line restriction could be reassessed at that time.

In terms of the existing education facility building infringing the 2m yard requirement at the internal boundary of proposed Lots 1 and 2, this infringement occurs beside the proposed ROW for the existing access to the education facility, and therefore no buildings could be built near this infringement. Also, given that the infringement would occur on an internal boundary of the site that is owned by the applicant, affected person approval is considered implicit.

It is also noted that there is a container connected with the education facility that would be on, or over the site boundary. Given that the container is mobile, there is no need to infringe the yard requirement with this structure and the container can either be removed from the site or moved to be 2m from the internal boundary. This can be addressed by condition.

Overall it is considered that the proposed subdivision will provide for an acceptable development of the site.

2. Infrastructure and Easements (2006 District Plan 18.6.1(d), (e), (i), (j), (n), (o), & (p); Proposed 2GP 9.5.2.1, 9.5.3.7, 9.5.3.12, 9.6.2.4.a, 17.10.4)

The Development Support Officer for 3-Waters has considered the application and notes that there is water supply and wastewater services in Bay Road, and a Council 200mm diameter wastewater pipe beneath the proposed ROW and across proposed Lot 2. The Development Support Officer notes the education facility has an existing connection to the water supply and the applicant notes that the education facility is rated for a wastewater connection. The Development Support Officer has advised that a water connection will not be required to proposed Lot 2 at this time. Excluding the leg-in, proposed Lot 2 will contain approximately 8305m² of Township Settlement zone. Requiring one connection located 600mm into the leg-in could potentially be redundant due to the unknown future development of the site. The Development Support Officer is unsure of how the firefighting needs for this development will be met and requests that the applicant must discuss this with the New Zealand Fire Service.

Conditions are recommended by the Development Support Officer regarding easements, including an easement in gross for the existing 200mm diameter wastewater pipe. Advice notes are suggested by the Development Support Officer in regards to meeting the Code of Subdivision and Development, applying for a water supply connection and meeting fire fighting requirements.

In terms of firefighting, I note that the Proposed 2GP includes performance standards for firefighting, include water storage of 45m³ for each residential unit. Given that either of proposed lots 1 or 2 could possibly be developed for multi-unit residential development, these requirements can be met at the time of any proposed development. In terms of the existing education facility on proposed Lot 1 (which is of a similar size to a large residential unit), it is noted that land use consent RMA 960388 required as a condition that water tanks having a capacity not less than 46m³ be installed.

I note that lapsed subdivision consent A-93059 included Condition 7 that required the existing watercourse that crosses the Right of Way to be piped in accordance with the requirements of the DCC Drainage Department. This condition was not included in lapsed subdivision consent SUB-2011-30. In the land use for the existing education facility RMA960388 (now referenced as RMA-1996-359585) Condition 5 required that the right of way be formed to facilitate surface water runoff and be drained. This condition is considered suitable for the existing use of the site, and as noted in 3 below, any future development of the site will need to meet the performance standards for access, and the matter would be addressed then. RMA960388 also included condition relating to water supply and toilet facilities.

Overall I consider that the proposal will be acceptable in terms of infrastructure, given that there is no change of land use proposed, and that suitable easements can be provided to address access and servicing.

3. Transportation (2006 District Plan 18.6.1(c); Proposed 2GP 6.10.3.1, 6.11.2.7, 6.12.1, 16.12.2, 17.10.4)

The application was forwarded to the Transportation Planner of Council's Transport Department for comment. The Transportation Planner notes that the existing access to the education facility is acceptable and that, although it is not sealed for the first 5m from Bay Road, this infringement was granted consent under LUC-2011-121 and that infringement can continue as no loose material is being tracked onto the carriageway of Bay Road, and the edge of the seal is not suffering from edge-break. However, the Transportation Planner notes that if any future development did occur on the sites, the access will need to meet the requirements of the Proposed 2GP, including minimum width, with appropriate surface and drainage. The Transportation Planner has suggested that a consent notice be placed on the lots to advise of the access requirement. The Transportation Planner also advise that a formal agreement be drawn up between the owners/users of all private accesses in order to clarify their maintenance responsibilities.

I generally concur with the Transportation Planner. However, I consider that under the Proposed 2GP the access standards are a development performance standard that needs to be addressed for any development of the sites (including any change to the education facility) and can be assessed at that time without the need for a consent notice. I also note that the Proposed 2GP performance standards requiring the parking area to be hard surfaced, marked out and illuminated would result in unnecessary development of the education facility site in a coastal setting, given that the use of the education facility is restricted to 66 days per calendar year. In addition, RMA960388 (now referenced as RMA-1996-359585) required the driveway to be formed to a minimum width of 3.5m using compacted aggregate, and this condition can remain. Other conditions in that consent restricting the use of the site to 66 days per year and the number of people to 35 people would limit the amount traffic generated to a low level.

4. Hazards (2006 District Plan 18.6.1(t); Proposed 2GP 11.5.2.5, 16.12.2, 16.12.2, 17.10.4)

Section 6(h) of the Resource Management Act 1991 requires the Council to recognise and provide for the management of significant risks from natural hazards, as a matter of national importance. In addition, under section 106 of the Resource Management Act 1991, the Council may decline the subdivision consent, or it may grant the subdivision consent subject to conditions, if there is a significant risk from natural hazards.

The assessment of the risk from natural hazards requires a combined assessment of:

- (a) *the likelihood of natural hazards occurring (whether individually or in combination); and*
- (b) *the material damage to land in respect of which the consent is sought, other land, or structures that would result from natural hazards; and*
- (c) *any likely subsequent use of the land in respect of which the consent is sought that would accelerate, worsen, or result in material damage of the kind referred to in paragraph (b).*

The application has been considered by the Council's consultant engineer, Stantec New Zealand Ltd.

Stantec notes:

Hazards

From the Hazard Register, street files, and previously sent emails; for both this title and nearby properties

- *Hazard ID 10111 : Intensified Shaking (Possible Earthquake Amplification)*
- *Hazard ID 11407 : Liquefaction (Domain C)*

The ground is predominantly underlain by poorly consolidated marine or estuarine sediments with a shallow groundwater table. There is considered to be a moderate

to high likelihood of liquefaction-susceptible materials being present in some parts of the areas classified as Domain C.

- *Hazard ID 11394 : Coastal Inundation – Projected Sea Level Rise.*

Global Setting

The underlying geology consist of dune sand and is sloping by less than 12 degrees.

Earthworks

The application notes that no earthworks are likely to exceed the district plan provision.

Discussion

Lot 2 requires some earthworks to create a useable platform that will be addressed at the time of building control.

We recommend that the application not be declined on the ground of known natural hazards. There are no general potential instabilities of concern. The proposal will not create or exacerbate instabilities on this or adjacent properties.

Overall, Stantec notes the potential for amplified movement and liquefaction during a significant seismic event, and advises this is normally addressed at building control stage, but recommends specific engineering design be required. Stantec has also suggested conditions regarding earthworks however no earthworks have been included in the application.

I note that the previous subdivision consent SUB-2011-121 included a consent notice requiring specific geotechnical design for any future subdivision or building development, and that condition would appear appropriate for both proposed Lots 1 and 2. For the SUB-2011-121 application, the applicant's provided an engineer's report by ASR Limited titled "Coastal Hazard assessment: Warrington Subdivision" that considered sea level rises, storm surges and tsunami and found the risks to be low to negligible. This current application states the ASR Limited "*report concludes that the risks associated with the site are low to negligible and recommended that a minimum floor level of 2.45m above MLOS be adopted for any future buildings on the site. We concur with this view.*"

In terms of the existing education facility, RMA960388 (now referenced as RMA-1996-359585) addressed hazards by requiring a minimum floor level of 1.3m above mean high water spring tide level and that earthworks minimised risk of erosion. The site for the education facility appears to be above the 6m contour on the DCC Webmap, therefore the floor level condition appears redundant, and would be overtaken by a consent notice requiring engineering design for any new development.

Overall, I consider that a consent notice requiring specific engineering design, addressing both for amplified movement and liquefaction, and potential inundation should be included in the subdivision consent for new developments. Given that the ASR Limited report is nine years old, rather than referring to the recommended minimum floor level of that report, any assessment for inundation should be based on the most recent understanding of the risks.

5. **Amenity Values and Character (Proposed 2GP 10.4.2.2, 16.12.2, 17.8.2.3, 17.10.4)**

The proposed subdivision will create effectively two developable sites (i.e. excluding proposed Lot 3) within the residential zone, and in this regard, the effects of the proposal are largely anticipated by the zoning of the site. Proposed Lot 2 will include all of the Rural zone land (approximately 1.78ha) and therefore the subdivision does not involve any splitting of this portion of Rural zone land. Given that proposed Lot 1 is intended to legalise the existing area used by the education facility, overall, I consider that any adverse effects of the proposal on amenity and character would be less than minor.

In terms of the existing education facility, the effects of this activity have been assessed previously through the hearing of RMA960388 (now referenced as RMA-1996-359585),

and addressed through conditions of that consent which can be replicated in the current land use consent. This included restricting the number of persons attending the facility, the number of days the facility can operate, the hours for outdoor activity and also limiting paths or track linking the education facility with the adjacent reserve. These conditions will ensure the effects of the education facility do not change from the existing consented activity.

6. Heritage (Proposed 2GP 14.4.2.4, 15.11.5.5 and 15.11.5.7)

The site is documented as having significant archaeological value, including being representative of the earliest known period of settlement in Otago, and indeed New Zealand, including bones of moa and other extinct birds as well as artefacts typical of the early, Archaic, phase of settlement. The applicant has also provided information relating to some damage from earthworks that occurred between 2000 and 2012, including threats of prosecution by the NZ Historic Places Trust (now Heritage NZ) and discussion on preparing a site damage report and mitigation package. The Archaeological assessment prepared by Richard Walter and Chris Jacomb titled "Archaeological assessment of Damage to the Warrington Archaic Site I44/177" concluded:

The Warrington Archaic site {144/177} is clearly a very important archaeological site. It undoubtedly has a lower potential now to reveal significant information about the past than it had when it was largely intact. However, the great rarity of sites from this earliest period of settlement in New Zealand means that any remaining intact deposits must be treated with care.

The main conclusion is that very little in the way of intact deposits was encountered during the test-pitting, and that any deposits (including the European period dump site) that might have existed close to the NE boundary are probably preserved under at least 1.5 - 2 m of bulldozed overburden.

Another important conclusion is that any such intact deposits should be protected since there may not be much left of the site. The sparseness of the deposits in the western half of the area east of the school suggests that it may be possible to develop this area, with mitigation being achieved through monitoring and excavation. Any decision about modification to the eastern half of this area would have to be based on more extensive test investigations. The matter of the "building line" apparently agreed to by iwi would need to be followed up with Puketeraki Runanga.

It may be appropriate to consider approaching the HPT regarding a meeting between the developer, the Trust and a consultant archaeologist about the best future options for management of the archaeological deposits on the land.

As recommended in that report, and as mentioned earlier, the applicant has consulted with Heritage New Zealand Pouhere Taonga (HNZPT) and reached agreement on a suitable condition to ensure that prior to any future disturbance of the ground (except removal of vegetation using hand tools) an archaeological assessment must be prepared by an appropriately qualified and experienced person; and that any necessary approvals from HNZPT have been obtained. Also, both HNZPT and Aukaha required a condition referring to the Archaeological Discovery Protocol.

I consider that this agreement between the applicant and HNZPT provides an acceptable approach, given that the current application is simply to divide the site based on current usage and no ground disturbance is proposed.

In terms of the existing education facility, RMA960388 (now referenced as RMA-1996-359585) addressed the archaeological effects of the development through conditions of that consent which can be replicated in the current land use consent. These conditions were appropriate for the existing development, but would be overtaken by the agreed consent notice for future developments.

7. Positive effects

The creation of a separate site for the existing education facility will provide certainty for that facility to remain operating.

NOTIFICATION ASSESSMENT

Public Notification

Section 95A of the Resource Management Act 1991 sets out a step-by-step process for determining public notification. Each step is considered in turn below.

Step 1: Mandatory public notification in certain circumstances

- Public notification has not been requested.
- There has been no failure or refusal to provide further information.
- There has been no failure to respond or refusal to a report commissioning request.
- The application does not involve the exchange of recreation reserve land.

Step 2: If not required by Step 1, public notification precluded in certain circumstances

- There are no rules or national environmental standards precluding public notification.
- The application does not involve: a controlled activity; a restricted discretionary or discretionary subdivision; a restricted discretionary or discretionary residential activity; a boundary activity; nor, an activity prescribed in regulations as being precluded from public notification. As a result, public notification is not precluded under Step 2.

Step 3: If not precluded by Step 2, public notification required in certain circumstances

- There are no rules or national environmental standards requiring public notification.
- The activity will not have, or be likely to have, adverse effects on the environment that are more than minor, as noted above.

Step 4: Public notification in special circumstances

- There are no special circumstances that warrant the application being publicly notified. There is nothing exceptional or unusual about the application that makes public notification desirable.

Limited Notification

Section 95B of the Resource Management Act 1991 sets out a step-by-step process for determining limited notification. Each step is considered in turn below.

Step 1: Certain affected groups and affected persons must be notified

- The activity is not in a protected customary rights area; the activity is not an accommodated activity in a customary marine title area; and, the activity is not on or adjacent to, or might affect, land that is the subject of a statutory acknowledgement.

Step 2: If not required by Step 1, limited notification precluded in certain circumstances

- There are no rules or national environmental standards precluding limited notification.
- The application does not involve: a controlled activity that is not a subdivision; nor an activity prescribed in regulations as being precluded from limited notification.

Step 3: If not precluded by Step 2, certain other affected persons must be notified

- The application does not involve: a boundary activity; nor, an activity prescribed in regulations that prescribe who is an affected person.

- There are no persons where the activity's adverse effects on the person are minor or more than minor (but are not less than minor). As noted above, the applicant consulted with Aukaha who act on behalf of Kāti Huirapa Rūnaka ki Puketeraki, the kaitiaki Rūnanga whose takiwa includes the site the application relates to, and with Heritage New Zealand. Both these parties have advised that they do not oppose the application provided conditions are included relating to effects on archaeology.

Step 4: Further notification in special circumstances

- There are no special circumstances that warrant the application being limited notified. There is nothing exceptional or unusual about the application that makes limited notification to any other persons desirable.

SUBSTANTIVE DECISION ASSESSMENT

Effects

In accordance with section 104(1)(a) of the Resource Management Act 1991, the actual and potential adverse effects associated with the proposed activity have been assessed and outlined above. It is considered that the adverse effects on the environment arising from the proposal are no more than minor.

Offsetting or Compensation Measures

In accordance with section 104(1)(ab) of the Resource Management Act 1991, there are no offsetting or compensation measures proposed or agreed to by the applicant that need consideration.

Objectives and Policies

In accordance with section 104(1)(b) of the Resource Management Act 1991, the objectives and policies of the 2006 District Plan and the Proposed 2GP were taken into account when assessing the application.

2006 District Plan

The proposal is considered to be consistent with the following objectives and policies:

- **Objective 4.2.1 and Policy 4.3.1 (Sustainability Section)**
These seek to enhance and maintain the amenity values of the Dunedin area.
- **Objective 4.2.3 and Policy 4.3.2 (Sustainability Section)**
These seek to sustainably manage infrastructure.
- **Objective 6.2.1 and Policies 6.3.1-3 (Rural/Rural Residential Section)**
These seek to maintain the ability of the land resource to meet the needs of future generations.
- **Objective 6.2.2 and Policies 6.3.5, 6.3.6, 6.3.11 (Rural/Rural Residential Section)**
These seek to maintain and enhance the amenity values associated with the character of the rural area.
- **Objective 8.2.1 and Policy 8.3.1 (Residential Section)**
These seek to ensure that the adverse effects on the amenity values and character of residential areas are avoided remedied or mitigated.
- **Objective 8.2.7 and Policy 8.3.10 (Residential Section)**
These seek to recognise that some community support activities contribute to the maintenance and enhancement of residential character and amenity.
- **Objective 17.2.1 (Hazards, Hazardous Substances and Earthworks Section)**
This seeks to ensure the effects on the environment of natural hazards are avoided, remedied or mitigated.
- **Objectives 18.2.1, 18.2.2, 18.2.6 and 18.2.7 and Policies 18.3.1, 18.3.5, 18.3.6, 18.3.7 and 18.3.8 (Subdivision Section)**

These seek to ensure: that subdivision activity takes place in a coordinated and sustainable manner; that physical limitations are identified and taken into account at the time of subdivision activity; that the adverse effects of subdivision are avoided, remedied or mitigated; and that provision is made at the time of subdivision activity for appropriate infrastructure, including management of associated effects.

- **Objective 20.2.2 and Policy 20.3.5 (Transportation Section)**

These seek to ensure that activities are undertaken in a manner which avoids, remedies or mitigates adverse effects on the transportation network.

- **Objective 20.2.4 and Policy 20.3.6 (Transportation Section)**

These seek to maintain and enhance a safe, efficient and effective transportation network.

Proposed 2GP

The proposal is considered to be consistent with the following Proposed 2GP objectives and policies:

- **Objective 2.3.1 and Policies 2.3.1.2 (Strategic Directions)**

These seek to ensure that land and facilities that are important for economic productivity and social well-being, including productive rural land are protected.

- **Objective 2.4.6 and Policies 2.4.6.1-2 (Strategic Directions)**

These seek to ensure that the character and visual amenity of Dunedin's rural environment is maintained or enhanced.

- **Objective 6.2.3 and Policies 6.2.3.3, 6.2.3.4 and 6.2.3.9 (Transportation Section)**

These seek to ensure that land use, development and subdivision activities maintain the safety and efficiency of the transport network for all travel methods.

- **Objective 14.2.1 and Policies 14.2.1.3, 14.2.1.4 (Manawhenua).**

These seek to ensure that the relationship between Manawhenua and the natural environment is maintained and enhanced.

- **Objective 15.2.2 and Policy 15.2.2.1 (Residential Zones)**

These seek to ensure that residential activities, development, and subdivision activities provide high quality on-site amenity for residents.

- **Objective 15.2.3 and Policy 15.2.3.1 (Residential Zones)**

These seek to ensure that activities in residential zones maintain a good level of amenity on surrounding residential properties and public spaces.

- **Objective 15.2.4 and Policy 15.2.4.2 (Residential Zones)**

These seek to ensure that subdivision activities and development maintain or enhance the amenity of the streetscape and reflect the current or intended future character of the neighbourhood.

- **Objective 16.2.1 and Policies 16.2.1.5, 16.2.1.7 (Rural Zones)**

These seek to ensure that Rural zones are reserved for productive rural activities and the protection and enhancement of the natural environment.

- **Objective 16.2.3 and Policies 16.2.3.1, 16.2.3.1, 16.2.3.8 (Rural Zones)**

These seek to ensure that the rural character values and amenity of the rural zones are maintained or enhanced.

- **Objective 16.2.4 and Policies 16.2.4.3-4 (Rural Zones)**

These seek to ensure that the productivity of rural activities in the rural zones is maintained or enhanced.

Objectives and Policies Assessment

Although consideration should be given to the weight each Plan has, it is noted that the proposed development is considered to be consistent with the relevant objectives and policies of both Plans, and these support the granting of consent. In terms of the rural policies, the subdivision does not change the existing situation whereby some of the site is zoned Rural.

Other Matters

Section 104(1)(c) of the Resource Management Act 1991 requires the Council to have regard to any other matters considered relevant and reasonably necessary to determine the application. The matters of precedent and Plan integrity are considered relevant here. These issues have been addressed by the Environment Court (starting with *Russell v Dunedin City Council* C092/03) and case law now directs the Council to consider whether approval of a non-complying activity will create an undesirable precedent. Where a plan's integrity is at risk by virtue of such a precedent, the Council is required to apply the 'true exception test'. This is particularly relevant where the proposed activity is contrary to the objectives and policies of the district plan and/or the proposed district plan.

In this case, the proposal is a non-complying activity because the Rural zoned portion of the sites in the Rural zone does not meet the minimum lot size and some sites do not have road frontage. It is considered that approval of the proposal will not undermine the integrity of the District Plan as the existing sites also do not meet the minimum lot size, and the subdivision is simply recognising the existing use of the site.

Section 104D

Section 104D of the Resource Management Act 1991 specifies that resource consent for a non-complying activity must not be granted unless the proposal can meet at least one of two limbs. The limbs of section 104D require that the adverse effects on the environment will be no more than minor, or that the proposal will not be contrary to the objectives and policies of both the district plan and the proposed district plan. It is considered that the proposal meets both limbs as any adverse effects arising from this proposed activity will be no more than minor, and the activity will not be contrary to the objectives and policies of both the 2006 District Plan and the Proposed 2GP. Therefore, the Council can exercise its discretion under section 104D to grant consent.

Part 2

Based on the findings above, it is evident that the proposal would satisfy Part 2 of the Resource Management Act 1991. Granting of consent would promote the sustainable management of Dunedin's natural and physical resources.

RECOMMENDATION

After having regard to the above planning assessment, I recommend that:

1. This application be processed on a non-notified basis, pursuant to sections 95A and 95B of the Resource Management Act 1991.
2. The time limits for the processing of this consent be extended pursuant to section 37A(2)(a) and 37A(4)(b)(ii) of the Resource Management Act 1991
3. The Council grant consent to the proposed activity under delegated authority, in accordance with sections 104, 104B, 104C and 104D of the Resource Management Act 1991.



Robert Buxton
Consultant Planner

Date: 31 October 2019

DECISION

I have read both the notification assessment and substantive decision assessment in this report. I agree with the recommendations above.

Under delegated authority on behalf of the Dunedin City Council, I accordingly approve the granting of resource consent to the proposal:

That, having taken into account:

- *the interests of any person who may be adversely affected by the time extension;*
- *the interests of the community in achieving an adequate assessment of effects of a proposal, policy statement or plan, and*
- *its duty under Section 21 to avoid reasonable delay*

the Council has, pursuant to Sections 37A(2)(a)) and 37A(4)(b)(i) of the Resource Management Act 1991, extended the requirement outlined in Section 115 regarding the time in which notification of a decision must be given after the date the application was first lodged with the Council.

and

SUB-2018-148

*Pursuant to Part 2 and sections 34A(1), 104, 104B and 104D of the Resource Management Act 1991, and the provisions of the Operative Dunedin City District Plan 2006 and the Proposed Second Generation Dunedin City District Plan, the Dunedin City Council **grants** consent to a **non-complying activity** being a subdivision of a site into 3 lots, with Lot 3 to be vested as reserve at 20 Bay Road, Warrington, Dunedin, legally described as Part Lot 1 Deposited Plan 5855 and Lot 1 Deposited Plan 10272 (Computer Freehold Register OT13B/973), subject to conditions imposed under sections 108 and 220 of the Act, as shown on the attached certificate.*

LUC-2018-555

*Pursuant to Part 2 and sections 34A(1), 104 and 104C of the Resource Management Act 1991, and the provisions of the 2006 Dunedin City District Plan 2006 and the Proposed Second Generation Dunedin City District Plan, the Dunedin City Council **grants** consent to a **restricted discretionary activity** being the authorisation of the existing education facility on Lot 1 SUB-2018-148, and a setback infringement created by SUB-2018-148, at 20 Bay Road, Warrington, Dunedin, legally described as Part Lot 1 Deposited Plan 5855 and Lot 1 Deposited Plan 10272 (Computer Freehold Register OT13B/973), subject to conditions imposed under section 108 of the Act, as shown on the attached certificate.*



John Sule
Senior Planner

Date: 31 October 2019

REPORT TO SENIOR PLANNER

31 October 2019



Consent Type: Subdivision Consent

Consent Number: SUB-2018-148

Purpose: The subdivision of a site into 3 lots, with Lot 3 to be vested as reserve.

Location of Activity: 20 Bay Road, Warrington, Dunedin.

Legal Description: Part Lot 1 Deposited Plan 5855 and Lot 1 Deposited Plan 10272 (Computer Freehold Register OT13B/973).

Lapse Date: 31 October 2024, unless the consent has been given effect to before this date.

Conditions:

1. *The proposed activity must be undertaken in general accordance with the approved plans attached to this certificate as Appendix One, and the information provided with the resource consent application received by the Council on 17/12/2018 and further information received 17/4/2019, 18/6/2019, 1/10/2019 and 7/10/2019, except where modified by the following conditions.*
2. *Prior to certification of the survey plan, pursuant to section 223 of the Resource Management Act 1991, the consent holder must ensure the following:*
 - a) *Service easement/s are required where any private services including water supply pipes, wastewater/stormwater laterals, stormwater soakage fields or telecommunication and power supply cross property boundaries in favour of the property they service. All easements must be granted or reserved and included in a Memorandum of Easements on the cadastral dataset.*
 - b) *The Right of Ways A, B and C over Lot 2 shall be duly created or reserved in favour of Lot 1, and must be shown on the survey plan in a Memorandum of Easements.*
 - c) *An easement in gross in favour of the Dunedin City Council is required for Right of Way B over Lot 2, and must be shown on the survey plan in a Memorandum of Easements.*
 - d) *An easement in gross in favour of the Dunedin City Council is required over the Council owned wastewater pipe located within the proposed Right of Ways and across Lot 2. The easement must be made in accordance with Section 5.3.4 of the Dunedin Code of Subdivision and Development 2010 and must be shown on the survey plan in a Memorandum of Easements.*
 - e) *That Lot 3 shall be shown on the plan as vesting with Council as 'Local Purpose Reserve (Access)'.*
3. *Prior to certification pursuant to section 224(c) of the Resource Management Act 1991, the consent holder must complete the following:*
 - a) *The shipping container located on Lot 1 must be removed from the site or relocated so that, following subdivision, the permitted standards for the zone will be met.*

Consent Notices

- b) *The following consent notices must be registered on the certificate of title for Lots 1 and 2:*
- i) *No earthworks or development other than the removal of vegetation using hand tools shall occur on the site until:*
 - (a) *an archaeological assessment has been prepared by an appropriately qualified and experienced person; and*
 - (b) *that any necessary approvals from Heritage New Zealand Pouhere Taonga have been obtained.*
 - ii) *In the event that an unidentified archaeological site is located during any works on the site, the Heritage New Zealand Pouhere Taonga Archaeological Discovery Protocol in Attachment 1 applies.*
 - iii) *This site shall not be subdivided or built upon without further engineering investigation of the natural hazards affecting this land. The engineering report shall identify any hazards present (including amplified movement and liquefaction, and potential inundation) and suitable mitigation measures, and shall be submitted to the Council with any building consent or resource consent application. No work is to commence on-site until Council is satisfied the hazards can be appropriately and adequately avoided, remedied or mitigated.*

Advice Notes:

3-Waters

Code of Subdivision & Development

1. All aspects of this development shall be compliant with Parts 4, 5 and 6 of the Dunedin Code of Subdivision and Development 2010.

Water services

2. Each of Lots 1 and 2 will need a separate water service connection installed. Lot 1 has a water connection. For any development on Lot 2 a separate connection will be required and an "Application for Water Supply" will need to be submitted to the Dunedin City Council for approval to establish water connection.
3. Detail of the water supply application process can be found at <http://www.dunedin.govt.nz/services/water-supply/new-water-connections>.
4. All aspects relating to the availability of water for fire-fighting should be in accordance with SNZ PAS 4509:2008, being the Fire Service Code of Practice for Fire Fighting Water Supplies, unless otherwise approved by the New Zealand Fire Service.

Stormwater

5. The stormwater soakage field for the education facility needs to be identified, and if it extends on to Lot 2, then easements will be required.

Transportation

6. It is advised that a formal agreement be drawn up between the owners/users of all private accesses in order to clarify their maintenance responsibilities.
7. It is advised that in the event of future development on the site, Transport would assess provisions for access, parking and manoeuvring at the time of resource consent/building consent application.

Telecommunication and Power Supply

8. The telecommunication and power supply systems shall be installed in accordance with the requirements of the Dunedin Code of Subdivision and Development 2010 and the relevant network utility operator.

General

9. In addition to the conditions of a resource consent, the Resource Management Act 1991 establishes through sections 16 and 17 a duty for all persons to avoid unreasonable noise, and to avoid, remedy or mitigate any adverse effect created from an activity they undertake.
10. Resource consents are not personal property. The ability to exercise this consent is not restricted to the party who applied and/or paid for the consent application.
11. It is the responsibility of any party exercising this consent to comply with any conditions imposed on the resource consent prior to and during (as applicable) exercising the resource consent. Failure to comply with the conditions may result in prosecution, the penalties for which are outlined in section 339 of the Resource Management Act 1991.
12. The lapse period specified above may be extended on application to the Council pursuant to section 125 of the Resource Management Act 1991.
13. This is a resource consent. Please contact the Council's Building Services Department, about the building consent requirements for the work.

Issued at Dunedin on 31 October 2019

A handwritten signature in blue ink, consisting of a stylized 'R' followed by a horizontal line.

Robert Buxton
Consultant Planner

Consent Type: Land Use Consent

Consent Number: LUC-2018-555

Purpose: The authorisation of the existing education facility on Lot 1 SUB-2018-148, and a setback infringement created by SUB-2018-148.

Location of Activity: 20 Bay Road, Warrington, Dunedin.

Legal Description: Part Lot 1 Deposited Plan 5855 and Lot 1 Deposited Plan 10272 (Computer Freehold Register OT13B/973).

Commencement Date: LUC-2018-555 shall commence from the issue of title for Lot 2 of SUB-2018-148.

Lapse Date: LUC-2018-555 shall lapse five years from the signing of the Stage 2 section 223 certificate of SUB-2018-148.

Conditions:

1. *The proposed activity must be undertaken in general accordance with:*
 - a) *the application for RMA960388 (now referenced as RMA-1996-359585) submitted on the 31st of January 1998, including further information provided, and information presented at the hearing; and*
 - b) *the approved plans attached to this certificate as Appendix One, and the information provided with the resource consent application SUB-2018-148 and LUC-2018-555 received by the Council on 17/12/2018 and further information received 17/4/2019, 18/6/2019, 1/10/2019 and 7/10/2019.*
2. *At no time shall the facility be available for use by more than 35 persons, including day visitors.*
3. *The facility shall not be used for educational activities for more than 66 days per calendar year.*
4. *Subject to Condition 5 below, that at all times when the facility is not used for educational purposes, it may be used by a maximum of three family groups at any one time.*
5. *That no use of the facility may occur between the 10th of December in any year and the 20th of January in the following year.*
6. *Outside activities shall be restricted to the hours of 7.00am to 9.00pm on any day of the week.*
7. *That in times of drought the water supply to the proposed students' accommodation and classroom area may be locked off at the point of supply without compensation for the duration of the drought, at the discretion of the Water Manager. Prior notice, to be given by the Water Business Unit to the Principal of Kings High School, shall be given at least two weeks before the possibility of a shutdown, and at any time seven days before an actual shutdown of the water supply.*

8. *That the right of way be maintained to a minimum width of 3.5m and have a minimum depth of compacted aggregate of 250mm. The right of way shall be maintained to facilitate surface water run-off and be drained and collected in an approved manner on-site. The intersection point of the right of way with Bay Road shall maintain edge integrity and water table drainage flow in Bay Road, to the satisfaction of the Manager of the Transportation Planning Department.*
9. *That all earthworks on the site are to be carried out in a manner that minimises the risk of erosion of sand.*
10. *That any change to the final colours and materials of the buildings shall be provided to Council's Landscape Architect for approval.*
11. *No paths or tracks linking the proposed centre with the adjacent reserve shall be constructed without the written permission of the Contract and Asset Management Department. Consideration by the Department shall be limited to effects on the management of the reserve, and shall not be unreasonably withheld.*
12. *No earthworks or development other than the removal of vegetation using hand tools shall occur on the site until:*
 - i) *an archaeological assessment has been prepared by an appropriately qualified and experienced person; and*
 - ii) *that any necessary approvals from Heritage New Zealand Pouhere Taonga have been obtained.*
13. *In the event that an unidentified archaeological site is located during any works on the site, the Heritage New Zealand Pouhere Taonga Archaeological Discovery Protocol in Attachment 1 applies.*
14. *That any felling or modification to the existing pine trees on the site shall be under the supervision of a qualified arborist.*
15. *Within one month of the titles being issued for Lots 1 and 2 of SUB-2018-148, the land use consents RMA960388 (now referenced as RMA-1996-359585, and with time extensions by RMA 2000-0730 and RMA 2001-0714) and LUC-2011-121 must be surrendered.*

Advice Notes:

1. All aspects relating to the availability of water for fire-fighting should be in accordance with SNZ PAS 4509:2008, being the Fire Service Code of Practice for Fire Fighting Water Supplies, unless otherwise approved by the New Zealand Fire Service.
2. It is advised that in the event of future development on the site, Transport would assess provisions for access, parking and manoeuvring at the time of resource consent/building consent applications.

General

3. In addition to the conditions of a resource consent, the Resource Management Act 1991 establishes through sections 16 and 17 a duty for all persons to avoid unreasonable noise, and to avoid, remedy or mitigate any adverse effect created from an activity they undertake.
4. Resource consents are not personal property. The ability to exercise this consent is not restricted to the party who applied and/or paid for the consent application.
5. It is the responsibility of any party exercising this consent to comply with any conditions imposed on the resource consent prior to and during (as applicable) exercising the

resource consent. Failure to comply with the conditions may result in prosecution, the penalties for which are outlined in section 339 of the Resource Management Act 1991.

6. The lapse period specified above may be extended on application to the Council pursuant to section 125 of the Resource Management Act 1991.
7. This is a resource consent. Please contact the Council's Building Services Department, about the building consent requirements for the work.

Issued at Dunedin on 31 October 2019



Robert Buxton
Consultant Planner

Appendix One: Approved Plans for SUB-2018-148 & LUC-2018-555 (scanned images, not to scale)



Attachment One: Archaeological Discovery Protocol



HERITAGE NEW ZEALAND
POUHERE TAONGA

Heritage New Zealand Pouhere Taonga Archaeological Discovery Protocol

Under the Heritage New Zealand Pouhere Taonga Act 2014 an archaeological site is defined as any place in New Zealand that was associated with human activity that occurred before 1900 and provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand (see Section 6). For pre-contact Maori sites this evidence may be in the form of Taonga (artefacts) such as toki (adzes) or flake tools as well as bones, shells, charcoal, stones etc. In later sites of European/Chinese origin, artefacts such as bottle glass, crockery etc. may be found, or evidence of old foundations, wells, drains or similar structures. Pre-1900 buildings are also considered archaeological sites. Burials/koiwi tangata may be found from any historic period. Archaeological sites are legally protected under Sections 42(1) & (2) of the Heritage New Zealand Pouhere Taonga Act 2014.

In the event that an unidentified archaeological site is located during works, the following applies;

1. Work shall cease immediately at that place and within 20m around the site.
2. The contractor must shut down all machinery, secure the area, and advise the Site Manager.
3. The Site Manager shall secure the site and notify the Heritage New Zealand Otago/Southland Archaeologist (contact details are below).
4. If the site is of Maori origin, the Site Manager shall notify the Heritage New Zealand Otago/Southland Archaeologist and the appropriate Iwi groups or kaitiaki representative of the discovery. The Site Manager must ensure there is access to the site for the Heritage New Zealand Otago/Southland Archaeologist (or an independent archaeologist approved by Heritage New Zealand) and the appropriate Iwi groups or kaitiaki representative to enable appropriate cultural procedures and tikanga to be undertaken, so long as the site is not disturbed.
5. If human remains (koiwi tangata) are uncovered the Site Manager shall advise the Heritage New Zealand Otago/Southland Archaeologist, NZ Police and the appropriate Iwi groups or kaitiaki representative and the above process under 4 shall apply. **Remains are not to be moved until such time as both Iwi and Heritage New Zealand have responded.**
6. Works affecting the archaeological site and any human remains (koiwi tangata) shall not resume until Heritage New Zealand gives written approval for work to continue. Works affecting the site will likely require an Archaeological Authority applied for under the Heritage New Zealand Pouhere Taonga Act 2014. Further assessment by an independent archaeologist may be required to make an application for an Archaeological Authority.

7. Where lwi so request, any information recorded as the result of the find such as a description of location and content, is to be provided for their records.

It is an offence under S87 of the Heritage New Zealand Pouhere Taonga Act 2014 to modify or destroy an archaeological site without an Authority from Heritage New Zealand irrespective of whether the works are permitted or a consent has been issued under the Resource Management Act or Building Act.

Heritage New Zealand Regional archaeologist contact details:

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Archaeologist Otago/Southland
Heritage New Zealand Pouhere Taonga
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Appendix C Archaeological Assessment

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20 Bay Road, Warrington

Archaeological Assessment for Site No.
I44-177 and I44-178

Report Prepared for NZMCA
Author: Victoria Ross
Reviewed by: Dawn Cropper
Submitted: June 2020

Draft for Resource Consent



20 Bay Road, Warrington

Archaeological Assessment for Site No. I44/177 and I44/178

Report Prepared by:

New Zealand Heritage Properties Ltd

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Project Details

Archaeological Site No.	I44/177, I44/178
Site Address	20 Bay Road, Warrington (Lot 1 DP10272 and Part Lot 1 DP5855, Block I, Waikouaiti District)
Client	New Zealand Motor and Caravan Association
Client Contact	James Imlach
Client Address	james@nzmca.org.nz
Report Authors	Victoria Ross
Reviewed By	Dawn Cropper
Approved Archaeologist	Dawn Cropper
Report Submitted	June 2020
Report Submitted To	Heritage New Zealand, NZMCA, Aukaha Inc.

Ownership and Disclaimer

This report has been prepared for James Imlach on behalf of the New Zealand Motor and Caravan Association in relation to a specific work program at I44/177 and I44/178 (20 Bay Road, Warrington). This report and the information contained herein are subject to copyright. Ownership of the primary materials created in the course of the research remains the property of the named researchers and New Zealand Heritage Properties Ltd. This report remains the property of NZMCA and New Zealand Heritage Properties Ltd.

The professional advice and opinions contained in this report are those of the consultants, New Zealand Heritage Properties Ltd, and do not represent the opinions and policies of any third party. The professional advice and opinions contained in this report do not constitute legal advice.

Cover Photo: Anonymous. (1910). Warrington Beach, File: 2779 01 027A, [Photograph]. Dunedin: Hocken Snapshot.

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Executive Summary

New Zealand Heritage Properties Ltd (NZHP) has been commissioned by James Imlach on behalf of New Zealand Motor and Caravan Association (NZMCA) to prepare an archaeological assessment of 20 Bay Road, Warrington (Lot 1 DP10272 and Part Lot 1 DP5855, Block I, Waikouaiti District), to accompany the archaeological authority application as required by the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014). NZMCA proposes to create a formal motorhome and campervan park at the location, providing a stable driveway and ample space for parking 46 vehicles. 20 of these 46 parking bays (north to south) are shorter in depth and accommodate conventional motorhomes up to 7 metres long. The remaining 26 parking bays have a depth of 13 metres and can accommodate motorhomes and caravans (with space also for the towing vehicle to park). To do this, they propose stages of development, including clearance of a small amount of vegetation, planting of native species, excavation of some areas to level and stabilise the land, and building up of some areas for levelling. This project area encompasses the whole of Lot 1 DP10272 and the majority of Part Lot 1 DP5855, Block I, Waikouaiti District, on the spit at the southern end of Warrington. The northeast corner of the property will not be developed as this area will be vested to Kings College, with shared access through the northern accessway.

This archaeological assessment has identified that the proposed works have the potential to affect two sites, I44/177 and I44/178. I44/177 was recorded by Allingham in the early 1980s, with the site varyingly described as a moa-hunter site, nephrite working site, kāik and pā site (Anderson, 1989; Anderson & Smith, 1996; Hamel, 2001). The site is referenced as an important site for the understanding of pre-contact Māori, covering approximately 2ha, despite no systematic excavations having been completed. I44/178 is a midden site located on the western shore of the Warrington Spit, also recorded by Allingham in the 1980s. A site survey conducted for this assessment, have identified that both sites I44/177 and I44/178 are present within the property boundaries, with archaeological materials observed on the surface. NZHP believes there is a high likelihood of archaeological material being encountered during the proposed development, and that an archaeological authority be sought for these works.

Archaeological sites affected by the NZMCA motorhome and caravan park development at 20 Bay Road.

NZAA Site Id	Site Location	Brief Description
I44/177	E 1412783 N 4934860	Midden/cultural layers containing moa and other extinct birds, also artefacts.
I44/178	E 1412797 N 4934480	A midden/occupation layer with artefacts.

Based on the results of this archaeological assessment, NZHP makes the following recommendations:

1. As a first principle, every practical effort should be made to avoid damage to any archaeological site, whether known, or discovered during any redevelopment of the site.
2. An archaeological authority under Section 44 of the HNZPTA 2014 should be obtained from the HNZPT prior to any modification of the site.
3. A site instruction document and contractor briefing document should be prepared for NZMCA. Before the start of any on-site works, all contractors should be briefed by an archaeologist on the legislative requirements of working within archaeological sites.
4. NZMCA should undertake consultation with takata whenua to ensure all areas of cultural sensitivity are appropriately protected.
5. If re-development plans are altered from those reviewed by NZHP for this assessment (Appendix A), then HNZPT need to be alerted in the first instance.
6. All subsurface works should be monitored by an archaeologist. Any archaeological features or recovered material should be appropriately recorded and analysed.
7. Before site works commence notification should be given with at least 2 working days' notice, to HNZPT, Aukaha. An invitation should be extended for a representative from local rūnaka to attend site during all earthworks.

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8. If at any stage during the redevelopment Māori material is discovered, NZHP should be called in the first instance. NZHP will assist the NZMCA to contact all relevant parties, including HNZPT, and Aukaha. If Māori material does exist in the area to be developed, damage to this should be minimised. Any Maori artefacts will be, prima facie, property of the Crown and will be submitted to the appropriate institutions.
9. A full report on any archaeological material that is found should be prepared and submitted to the HNZPT within one year of the completion of archaeological site works.

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Abbreviations

Abbreviation	Definition
HNZPT	Heritage New Zealand Pouhere Taonga
HNZPTA 2014	Heritage New Zealand Pouhere Taonga Act 2014
NZAA	New Zealand Archaeological Association
NZHP	New Zealand Heritage Properties Limited
NZMCA	New Zealand Motor and Caravan Association
RMA 1991	Resource Management Act 1991

Acknowledgements

New Zealand Heritage Properties acknowledges and thanks the following individuals who assisted in this project:

- James Imlach on behalf of NZMCA for providing documents and information relating to the history of the site.
- Kelly Bombay and Lee Paterson, Stantec, for assisting in the technical information for the proposed development.
- Tania Richardson, on behalf of Aukaha, for coordinating with NZHP to ensure takata whenua values are incorporated within the assessment process
- Jessie Hurford for monitoring the geotechnical testing and supplying GIS maps.

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1 Introduction

New Zealand Heritage Properties Ltd (NZHP) has been commissioned by James Imlach on behalf of NZMCA to prepare an archaeological assessment of 20 Bay Road, Warrington (Lot 1 DP10272 and Part Lot 1 DP5855, Block I, Waikouaiti District), to accompany the archaeological authority application as required by the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014). This project area encompasses the whole of Lot 1 DP10272 and the majority of Part Lot 1 DP5855, Block I, Waikouaiti District, on the spit at the southern end of Warrington (Figure 1-1). The northeast corner of the property will not be developed as this area is vested to Kings College, with shared access through the northern accessway.



Figure 1-1. Location of project area at 20 Bay Road, Warrington (Lot 1 DP10272 and Part Lot 1 DP5855, Block I, Waikouaiti District). Including previously recorded archaeological sites.

NZMCA propose to develop large areas of the combined property at 20 Bay Road, creating a formal motorhome and caravan park, with a new sealed accessway. The research completed as part of this assessment has shown that archaeological sites I44/177 and I44/178 extend or are located within the project boundaries. I44/177 was recorded by Allingham in the early 1980s, with the site varyingly described as a moa-hunter site, nephrite working

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site, kāik and pā site (Anderson, 1989; Anderson & Smith, 1996; Hamel, 2001). The site is referenced as an important site for the understanding of pre-contact Māori, covering approximately 2ha, despite no systematic excavations having been completed. I44/178 is a midden site is located on the western shore of the Warrington Spit, also recorded by Allingham in the 1980s. A site survey conducted for this assessment, have identified that both sites I44/177 and I44/178 are present within the property boundaries, with archaeological materials observed on the surface. NZHP believes there is a high likelihood of archaeological material being encountered during the proposed development, and that an archaeological authority be sought for these works.

1.1 Project Outline

NZMCA propose to complete development across the portion of the site not included in the vestment to Kings College. This area of the site includes the accessway (shared with Kings College), the east and south portions of the property where the land is mostly open with a slope to the south and access to the boat launch on the southwest of the site. NZMCA proposes to create a formal motorhome and campervan park at the location, providing a stable driveway and ample space for parking 46 vehicles. 20 of these 46 parking bays (north to south) are shorter in depth and accommodate conventional motorhomes up to 7 metres long. The remaining 26 parking bays have a depth of 13 metres and can accommodate motorhomes and caravans (with space also for the towing vehicle to park).. To do this, they propose stages of development (Figure 1-2), including clearance of a small amount of vegetation, planting of native species, excavation of some areas to level and stabilise the land, and building up of some areas for levelling. Geotechnical investigations have been carried out at the site under an exploratory authority (2020/540) to inform the development plans.

Stantec, contracted by NZMCA, have planned for keeping the natural treatment of the ground where possible to mitigate impact on both the cultural and environmental resources of the land. A draft plan of the site has been provided in Figure 1-3. To do this, minor excavation is planned for the driveway area in the north of the site. This will then be built up where needed and sealed to a width 5m, to provide a durable and stable accessway for both the caravan park and Kings College. Planting will be completed the west side of the drive with established trees kept on the east. A gate will be installed at the roadside, with a second internal access gate installed if required, in line with the Kings College buildings. These gates will require minor excavations for postholes.

Native bush and trees are planned for screening around the driveway, northern side of site (below Kings College) and the southern boundary. This will tie in with the existing vegetation where possible but will involve some earth disturbance for planting. In the centre of the site, planting is proposed to form boundaries to the parking spaces. In most areas this will involve only minimal earth disturbance. In the very centre of the site a small gully is currently filled with vegetation; where the proposed parking spaces encroach on this area, vegetation clearance will be necessary.

Across the majority of the site, as stated, a small amount of levelling of the ground surface will be undertaken to provide formal parking spaces for motorhomes and campervans. To do this minor scraping of the site will take place, while the majority of this levelling will be accomplished by introducing fill to bring the ground level up. Stantec are investigating options to do this by a combination of a geotextile matting below sand or gravel where appropriate. This will act to protect the cultural material below the surface while providing a solid platform for the carparks. These works are aimed to be completed as part of the Stage 1. Stantec have identified that there is the opportunity to slightly alter this stage of plans if areas of high archaeological risk are identified where excavations were to take place.

A small kiosk is to be installed at the south end of the driveway. This is to be within the gravelled area at the boundary between the Stage 1 and Stage 2 areas. The kiosk will require minor excavations. Slightly east of the kiosk, a small dump station is proposed. This will also require minor excavations.

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Figure 1-2. Planned stages of development, as provided by Stantec. Red stars mark current accessways, with the blue line showing the property boundary.

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Figure 1-3. Development plans for 20 Bay Road, as provided by Stantec.

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2 Statutory Requirements

The legislative requirements relating to archaeological sites and artefacts are detailed in the following sections. There are two main pieces of legislation that provide protection for archaeological sites: the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014) and the Resource Management Act 1991 (RMA 1991). Artefacts are further protected by the Protected Objects Act 1975.

2.1 Heritage New Zealand Pouhere Taonga Act 2014

The HNZPTA 2014 came into effect in May 2014, repealing the Historic Places Act 1993. The purpose of this act is to promote identification, protection, preservation, and conservation of New Zealand's historical and cultural heritage. Heritage New Zealand Pouhere Taonga (HNZPT) administers the act and was formerly known as the New Zealand Historic Places Trust (Pouhere Taonga).

Archaeological sites are defined by this act as

- (a) any place in New Zealand, including any building or structure (or part of a building or structure), that--:
 - (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
 - (ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
- (b) includes a site for which a declaration is made under section 43(1)

Additionally, HNZPT has the authority (under section 43(1)) to declare any place to be an archaeological site if the place

- (a) was associated with human activity in or after 1900 or is the site of the wreck of any vessel where that wreck occurred in or after 1900; and
- (b) provides, or may be able to provide, through investigation by archaeological methods, significant evidence relating to the historical and cultural heritage of New Zealand.

Archaeological sites are protected under Section 42 of the act, and it is an offense to carry out work that may “modify or destroy, or cause to be modified or destroyed, the whole or any part of that site if that person knows, or ought reasonably to have suspected, that the site is an archaeological site”, whether or not the site has been previously recorded. Each individual who knowingly damages or destroys an archaeological site without having the appropriate authority is liable, on conviction, to substantial fines (Section 87).

Any person wishing to carry out work on an archaeological site that may modify or destroy any part of the site, including scientific investigations, must first obtain an authority from HNZPT (Sections 44(a,c)). The act stipulates that an application must be sought even if the effects on the archaeological site will be no more than minor as per Section 44(b). A significant change from the Historic Places Act (1993) is that “an authority is not required to permit work on a building that is an archaeological site unless the work will result in the demolition of the whole of the building” (Section 42(3)).

HNZPT will process the authority application within five working days of its receipt to assess if the application is adequate or if further information is required (Section 47(1)(b)). If the application meets the requirements under Section 47(1)(b), it will be accepted and notice of the determination will be provided within 20 to 40 working days. Most applications will be determined within 20 working days, but additional time may be required in certain circumstances. If HNZPT requires its own assessment of the Maori values for the site, the determination will be made within 30 working days. If the application relates to a particularly complex site, the act permits up to 40 days for the determination to be made. HNZPT will notify the applicant and other affected parties (*e.g.*, the land owner, local authorities, iwi, museums, *etc.*) of the outcome of the application.

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Once an authority has been granted, modification of an archaeological site is only allowed following the expiration of the appeals period or after the Environment Court determines any appeals. Any directly affected party has the right to appeal the decision within 15 working days of receiving notice of the determination. HNZPT may impose conditions on the authority that must be adhered to by the authority holder (Section 52). Provision exists for a review of the conditions (see Section 53). The authority remains current for a period of up to 35 years, as specified in the authority. If no period is specified in the authority, it remains current for a period of five years from the commencement date.

The authority is tied to the land for which it applies, regardless of changes in the ownership of the land. Prior to any changes of ownership, the land owner must give notice to HNZPT and advise the succeeding land owner of the authority, its conditions, and terms of consent.

An additional role of HNZPT is maintaining the New Zealand Heritage list, which is a continuation of the Register of Historic Places, Historic Areas, Wahi Tapu, and Wahi Tapu Areas. The list can include archaeological sites. The purpose of the list is to inform members of the public about such places and to assist with their protection under the Resource Management Act 1991.

2.2 Resource Management Act 1991

The RMA 1991 defines historic heritage as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, and it may include historic sites, structures, places, and areas; archaeological sites; and sites of significance to Māori. It should be noted that this definition does not include the 1900 cut-off date for protected archaeological sites as defined by the HNZPT Pouhere Taonga Act 2014. Any historic feature that can be shown to have significant values must be considered in any resource consent application.

The heritage provisions of the RMA 1991 were strengthened with the Resource Management Amendment Act 2003. The Resource Management Amendment Act 2003 contains a more detailed definition of heritage sites and now considers historic heritage to be a matter of national importance under Section 6. The act requires city, district, and regional councils to manage the use, development, and protection of natural and physical resources in a way that provides for the well-being of today's communities while safeguarding the options of future generations.

Under the RMA 1991, local authorities are required to develop and operate under a district plan, ensuring that historic heritage is protected. This includes the identification of heritage places on a heritage schedule (or list) and designation of heritage areas or precincts and documents the appropriate regulatory controls. All heritage schedules include, but are not limited to, all items on the New Zealand Heritage List/Rārangi Kōrero. Additional sites of significance to the local authority may also appear on the schedule.

The regulatory controls for historic heritage are specific to each local authority. However, most local authorities will require resource consent under the RMA 1991 for any alterations, additions, demolition, or new construction (near a listed place) with HNZPT being recognised as an affected party. Repair and maintenance are generally considered permitted activities.

The RMA 1991 requires local authorities to develop and operate under a district plan. The Dunedin City District Plan identifies the significance of historic buildings to the character of Dunedin, noting that these buildings are irreplaceable and the city is critically dependent on them. Buildings are listed on the DCC Heritage Register (Schedule 25.1) for several reasons, including their architectural quality, historical associations, or other intrinsic values worthy of protection, and the council aims to protect these buildings in order to maintain the character of the townscape. The register includes all HNZPT Category 1 and Category 2 listed buildings in Dunedin, which have been evaluated according to criteria outlined in the HNZPTA 2014.

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Iwi/hapu management plans are planning documents that are recognised by an iwi authority, relevant to the resource management issues, including heritage, of a place and lodged with the relevant local authority. They have statutory recognition under the RMA 1991. Iwi Management Plans set baseline standards for the management of Maori heritage and are beneficial for providing frameworks for streamlining management processes and codifying Maori values. Iwi Management Plans can be prepared for a rohe, heritage inventories, a specific resource or issue or general management or conservation plans (NZHPT, 2012).

Aukaha (formerly Kāi Tahu Ki Otago) is a representative of the Kāi Tahu tangata whenua in Warrington and the wider Otago area. Kāi Tahu Ki Otago Natural Resource Management Plan was lodged with the Otago Regional Council in 2005. This plan covers mostly natural resources; however, wāhi tapu, mahika kai, and the cultural landscape are all addressed for each geographical area the plan covers.

2.3 Protected Objects Act 1975

The Protected Objects Act 1975 was established to provide protection of certain objects, including protected New Zealand objects that form part of the movable cultural heritage of New Zealand. Protected New Zealand objects are defined by Schedule 4 of the act and includes archaeological objects and taonga tuturu. Under Section 11 of the Protected Objects Act 1975, any newly found Maori cultural objects (taonga tuturi) are automatically the property of the Crown if they are older than fifty years and can only be transferred from the Crown to an individual or group of individuals through the Maori Land Court. Anyone who finds a complete or partial taonga tuturu, accidentally or intentionally is required to notify the Ministry of Culture and Heritage within:

- (a) 28 days of finding the taonga tuturu; or
- (b) 28 days of completing field work undertaken in connection with an archaeological investigation authorised by HNZPT.

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3 Methodology

An archaeological assessment is required to accompany an application for an archaeological authority, as stipulated in the HNZPTA 2014. In order to assess the archaeological resources of the project area, NZHP conducted detailed documentary research, examined records of previously recorded site within the vicinity of the project area, and carried out an on-site visit.

NZHP consulted numerous sources of documentary evidence in order to determine the historical context of the project area. The results of the documentary research are provided in Section 5.3. The sources utilised in this research include:

- NZAA ArchSite Record Forms
- HNZPT Digital Library
- PapersPast
- Statistics New Zealand
- Blueskin Days, by I. Church, Strachan S., and Strachan J.
- The Archaeology of Otago, by Jill Hamel

Section 6 documents the previous investigations of the sites within the project area.

A site visit was conducted by Dr Dawn Cropper and Victoria Ross, NZHP, on 5 February 2020, and a summary of the on-site observations is provided in Section 6.2.

The assessment of archaeological and other values is based on criteria established by HNZPT (NZHPT, 2006):

- The **condition** of the site(s).
- Is the site(s) unusual, **rare or unique**, or notable in any other way in comparison to other sites of its kind?
- Does the site(s) possess **contextual value**? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; the relationship between features within a site, and the wider context of the surroundings.
- **Information potential**. What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.
- **Amenity value** (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?
- Does the site(s) have any special **cultural associations** for any particular communities or groups (e.g., Maori, European, Chinese.)

The overall level of significance was determined based on the evaluation of the criteria listed above; however, it is not possible to fully understand the archaeological significance of subsurface sites, features, and materials uncovered during the site works. It is important to recognise that the significance of a site may change on the basis of what is found during the work programme.

After determining the history of the site(s) and evaluating its archaeological value, NZHP assessed the effects of the proposed work on the site. Specifically, NZHP considered the following matters as outlined by HNZPT (NZHPT, 2006):

- How much of the site(s) will be affected, and to what degree, and what effects this will have on the values of the site(s).

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- Whether the proposed work may increase the risk of damage to the site(s) in future. For example, change from farming to residential use may make sites vulnerable to increased pedestrian and vehicular activity.
- Whether a re-design may avoid adverse effects on the site(s). It is recognised that detailed evaluation of alternatives may be beyond the scope of the archaeological assessment, however, some consideration of alternatives should be considered where possible.
- Possible methods to protect sites, and avoid, minimise or mitigate adverse effects should be discussed. These will form the basis of any recommendations in the final section.

Measures of reducing the potential adverse effects on the site(s), management of the archaeological resources, and mitigation of information loss were considered.

4 Physical Environment and Setting

The Warrington area is characterised by a small settlement and a large sand spit. The settlement of Warrington is situated on elevated land in the north-east corner of Blueskin Bay. Coastal hills surround the township on the north and west sides, with the dunes on the east and the sandspit protruding from the south of the township, protecting Blueskin Bay from the open ocean (Goldsmith & Sims, 2014)(Figure 4-1). Dunes continue down both the east and west sides of the sandspit, with wide sandy beaches on the east only. With the estuary leading into Blueskin Bay, the area is populated with various shellfish, most commonly cockles. Hills on the southern side of the bay at Doctor's Point and Māpoutahi, overlook the bay and sandspit.



Figure 4-1. Topographical map of the Warrington and Blueskin Bay area, showing the mountainous terrain on the western side, and coastal dunes with beaches on the east. Map layer utilised is LINZ NZ Topo 50.

4.1 Land Transformation

The dunes along the eastern side of the sandspit are characterised as “a well-vegetated dune system with stable back-dunes and dynamic foredunes” (Single, 2015). The sandspit acts as the buffer for Blueskin Bay to protect against the effects of erosion and direct inundation from the open sea (Goldsmith & Sims, 2014). Single reports that the beach on the eastern side of the sandspit is experiencing progradation averaging $+4.4\text{m/yr}^{-1}$ (measured between 1990 and 2014).¹ According to Goldsmith and Sims, activities such as excavation or vegetation clearance that disturb the form of the sandspit and its vegetation cover may compromise the natural buffering ability of the spit itself (2014). This could result in further changing of the shape of the spit, influencing how storm surges and tsunamis effect the bay and surrounding area inland. As the dunes and sand formations are at this stage increasing and moving seaward (by up to 230m at the northern end of the spit between 1958 and 2013)(Figure 4-2), this has actually increased the buffering effect against coastal hazards for the Blueskin Bay communities, including the

¹ Measurements taken between 1862 and 1968 showed a total change of +30m, averaging $+0.28\text{m/yr}^{-1}$ (Single, 2015).

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inland areas of Warrington (Goldsmith & Sims, 2014). Despite this the dunes remain sensitive to rapid erosion during strong storm surges, with recovery a slow process.

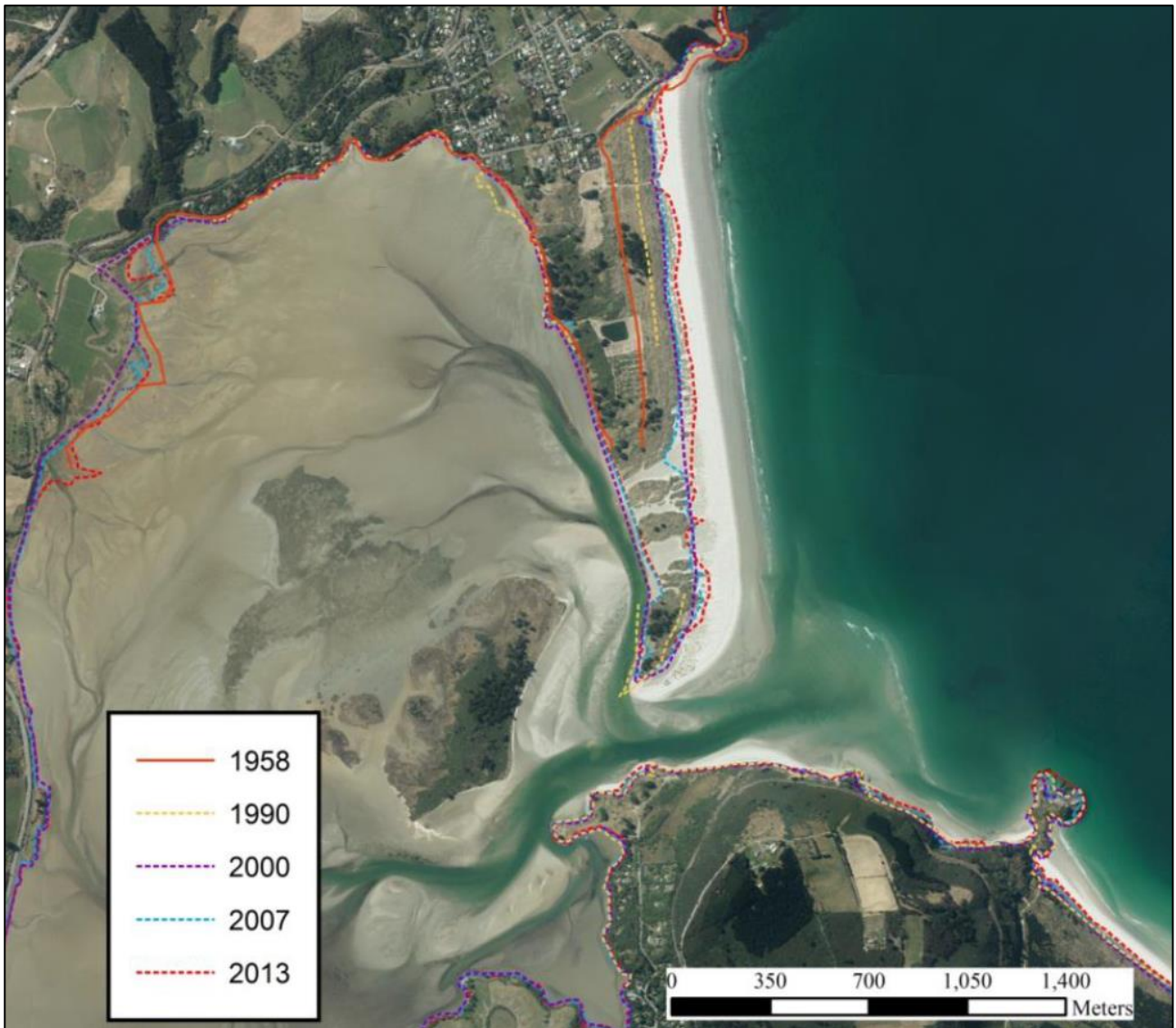


Figure 4-2. DCC map showing coastal changes at the Warrington Spit from 1958 to 2013 (as presented in Goldsmith & Sims, 2014).

5 Historical Background

Warrington is located at the north end of Blueskin Bay. It is located within Merton Riding, in the Waikouaiti County. While the land here is dominated by dune and estuarine landscapes, documentary evidence indicates that occupation of the Warrington area began as early as the so-called “moa-hunter period” Māori. Evidence of occupation and activity by mana whenua continues, in intermittent phases, through to the contact period and early colonial periods, through to the current day. The Māori and European histories of the area are discussed below.

5.1 Overview of Māori Activity in Warrington

As part of the larger Blueskin Bay area, Warrington was one of many places seen as a prime location for settlement due to its access to kai moana and sea birds (Pullar, 1957). Warrington and Blueskin Bay contained a number of occupation areas prior to European occupation. There are historic references to a Māori village at Warrington and as well as Kahuti (Blueskin) living at Doctor’s Point. Early occupation at Warrington has been identified from the later 1800s, as Aparata Renata (AKA Alfred Reynolds) reported “before arriving at the end [of Warrington Beach] the site of an ancient Maori[sic] residence is passed, on which no end of fine implements have been found, together with moa eggs almost complete. There are some very interesting stone floors of native construction here the use of which has not been satisfactorily explained so far” (Renata, 1894).

Within the wider Warrington Spit area there are a total of seven archaeological sites recorded (Figure 5-1). I44/177 and I44/178, both Māori occupation and midden sites are situated within the project area and are discussed in Section 5.3 below. Discovered by Brian Allingham, site I44/194 is a midden site to the north east of the project area, dating to the later period (Allingham, 1989). I44/200 is located to the south of I44/178, and records exposed shell middens covering roughly 60m x 30m (NZAA, 2019). Stone flakes were recorded at this site, although shell is the main component of the midden. This site was also recorded by Allingham, in 1986. In 1983 Brian Allingham also recorded site I44/125 to the northeast of the project area, at the corner of Esplanade and Church Road. This site records a narrow terrace with possible oven stones, although no midden or other cultural material has been recorded at this location. 100m north of the most western point of the project area lies I44/180. This site is recorded to be the location of a shell midden that is eroding out of the banks, similar to I44/178. This site, also recorded by Allingham in 1983, has little written on the site record form, except for “History and extent of site unknown” (NZAA, 2019). The final site within the Warrington Spit area is I44/179, which was identified as an oven site eroding from a low bank at the edge of the estuary to the east of Bay Road. The site was not relocated during the 2006 updates and is believed to have been completely lost to erosion.

The nature of the sites in this wider area, all Māori midden, oven or occupation sites, indicates heavy usage of the area by Māori prior to European contact. As Hamel refers to the area as a kāik, and early references discuss the “Warrington Beach” in general as site of early Māori occupation, it is fair to say that for a long time the archaeological sites that are located within the beach and spit area have been treated as a site complex, rather than separate and unrelated archaeological sites (Hamel, 2001).

In many of the large-scale discussions of early and late mana whenua occupation of the Otago region, the Warrington Spit area is referenced varyingly as a moa-hunter site, nephrite working site, kāika and pā site (Anderson, 1989; Anderson & Smith, 1996; Hamel, 2001). The site is generally discussed as an important site for the understanding of pre-contact Māori, covering approximately 2ha, despite no systematic excavations having been completed. Allingham generally discusses the Warrington Spit as a site complex, showing intermittent occupation, with fringe sites dotted along the coast. The high number of midden sites along the coast are likely indicative of further settlements or encampments. According to Allingham and Pullar, the “Māori name for the site at the time of European contact was Okahau, and apart from being a popular settlement, the area was reportedly a meeting place for foot travellers passing over the inland ranges to places such as the Kaikorai estuary or Central Otago” (Pullar, 1957).

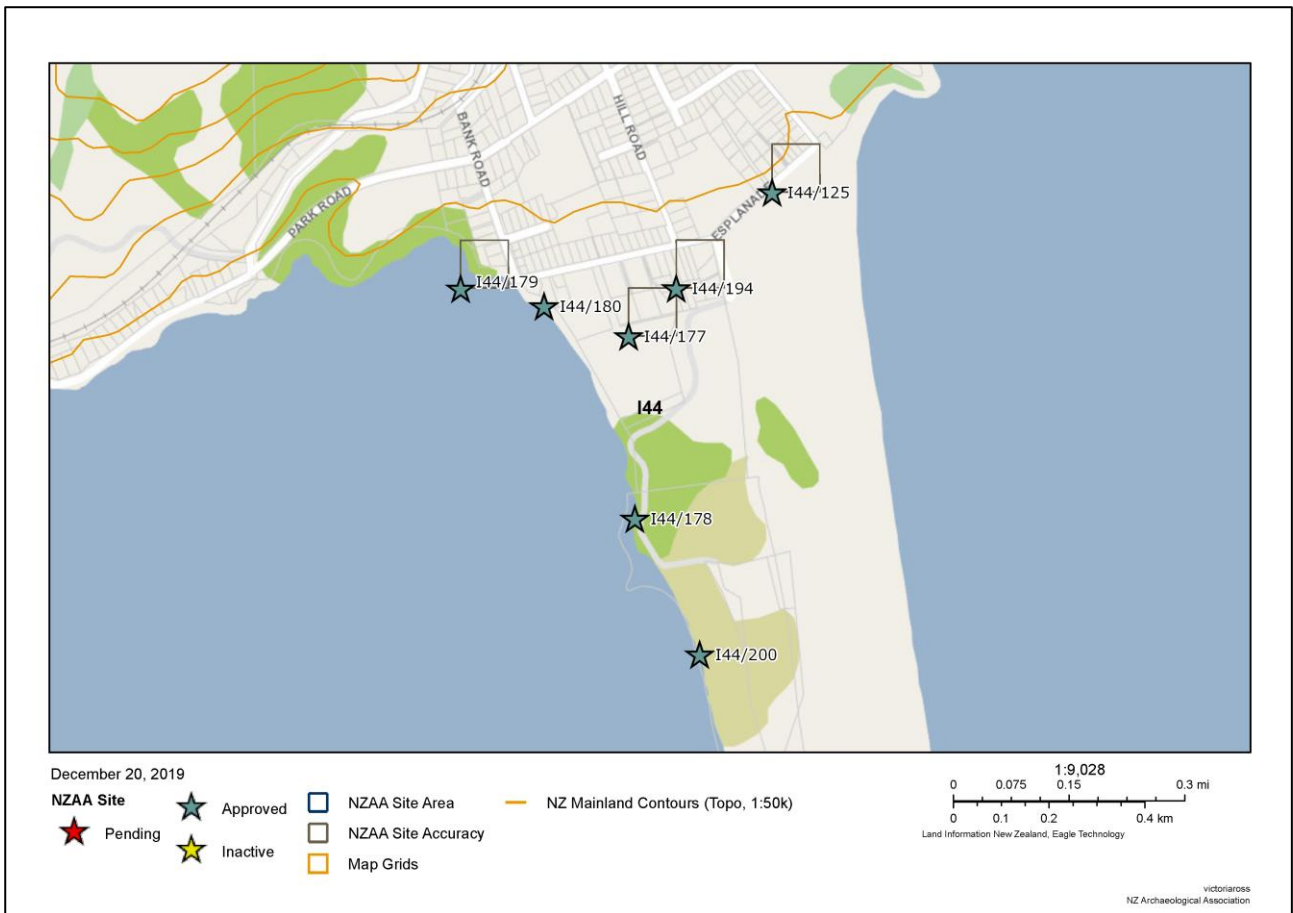


Figure 5-1. Map of previously recorded archaeological sites recorded within the Warrington Spit area (NZAA, 2019).

5.2 Pākehā Occupation and the Establishment of Warrington

The Warrington area was initially called Warrenton and the reason for the change to Warrington is uncertain (Church, Strachan, & Strachan, 2007). European settlement in the Warrington area began prior to the establishment of the official village. A Crown Grant plan from 1863 gives the indication that the area was occupied relatively early, as almost all of the sections in the area had been purchased (Figure 5-2). This plan also showed that land had been set aside for a scenic reserve, a quarry, and a school site.

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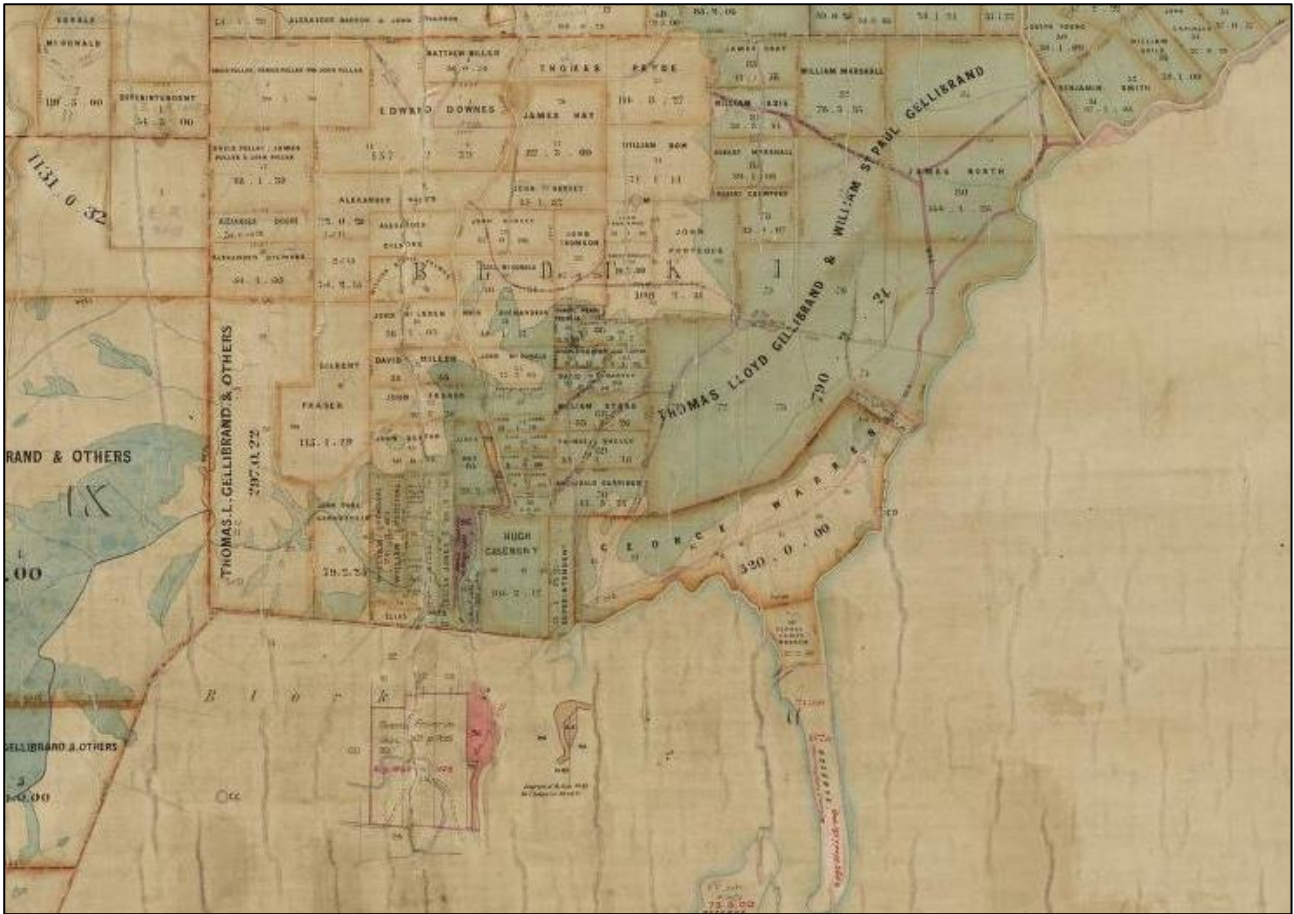


Figure 5-2. Crown Grant plan of Warrington area 1863 (Otago Crown Grant Index Records Maps, 1863).

The earliest indication of settlement in the area is seen in historic newspapers in an advertisement placed in 1865 (Otago Daily Times, 1865). This advertisement was for a number of animals and agricultural items to be sold at “Warrington Park, Blueskin District,” (Otago Daily Times, 1865). In 1866, it was advertised that “Warrenton Park Farm” was for sale, with the listing stating that the farm consisted of “about 400 acres, with good House, Sheds, and fenced in Paddocks,” (Otago Daily Times, 1866). Other advertisements of animals from farms in the area were placed during the late 1860s, reflecting the agricultural environment of the area.

Discussion of the establishment of an Anglican church in the area began in the early 1870s, with a foundation stone laid in April 1872 (Evening Star, 1872a). Prior to this, some 40 settlers would meet for services at the residence of Mrs Pitt, indicating a strong necessity for a church to be constructed (Evening Star, 1872b). Land for the church was donated by Mrs. W. A. Pitt from her property in Warrington (Evening Star, 1872b; Moore, 1958). The full funds for its construction had been raised from a concert in Dunedin held earlier in the year (Evening Star, 1872a). The St Barnabas Church was formally opened in November 1872 (Church et al., 2007). This opening event was very popular, with many travelling from Dunedin to visit, and it was noted that “so crowded was the Church that not a few were unable to gain admittance,” (Otago Witness, 1872). St Barnabas’ and its grounds were officially consecrated in June 1873 (Otago Daily Times, 1873).

At this time, the Warrington area was situated on an important route northward from Dunedin to Waikouaiti. Thus, one of the major undertakings of works in Warrington was the formation of the Coast Road, which the later settlement was built around. In 1874, Captain Pitt was advised that as soon as the Waikouaiti Road Board received his rates, work on the Warrington Road would begin. Pitt had previously gone bankrupt, and so it is not surprising that the Board were waiting on his money before works began (Otago Daily Times, 1870). In 1876, it was announced that a Post Office was opened at Warrington, with post from Dunedin arriving daily (Otago Daily Times, 1876).

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In 1877, Captain Pitt subdivided his land at Warrington Estate, between the Coast Road and the sand spit (Church et al., 2007). J. E. F. Coyle mapped out five blocks and 25 sections ranging from two to fifteen acres, naming Park, Bank, Bay, Hill and Church Roads, and an Esplanade with access off Church Road (Church et al., 2007; Otago Daily Times, 1877). These sections were described as being “in close proximity to the Main North Trunk line of railway, have a frontage to the Ocean and Blueskin Bay, with a background of magnificent timbered land,” (Otago Daily Times, 1877). The sale of the sections occurred in mid-1877 (Church et al., 2007). Around this time, the Education Board sanctioned the establishment of a school at North Blueskin, close to Warrington (Otago Witness, 1877a). In December 1877, it was announced that the settlement at Warrington was going to be extended (Evening Star, 1877).

By December 1877, the railway line from Sawyers Bay, and subsequently Dunedin, had been laid as far as Warrington, with the line planned to be opened late in the month (Otago Witness, 1877b). It was announced in January 1878 that a station would be built in Warrington (Otago Daily Times, 1878). Following this announcement, the new extension of Warrington was carried out, with the five large blocks subdivided into 18 sections on Station and Meadow Roads, and the Village of Warrington of 16 quarter-acre sections were laid out between the station and the coast road (Church et al., 2007). During the advertisement of these sections it was noted that “a portion has been set apart and surveyed for a township,” and that Warrington “must inevitably become the most favourite watering place in Otago,” (Evening Star, 1878).

Only a few houses were built in the new subdivisions initially, those of the Downes, Ferguson, and Bremner families (Church et al., 2007). In an 1880-81 directory, 16 men were recorded at Warrington. Over time the population expanded, as some staff at the Seacliff Asylum built their homes in Warrington (Church et al., 2007). The best-known house in Warrington was the Manor House, built in 1896 by Charles Ritchie Howden, which still stands today (Moore, 1958). Races were frequently held at Warrington until well into the twentieth century, with some 600 people attending the event in 1881 (Evening Star, 1881). In 1887, Sir George McLean established the Warrington stud farm, situated mid-way between Warrington and Omimi (Moore, 1958). This farm bred a number of successful horses, the farm described as being the “show place of Otago,” (Moore, 1958).

It was in the twentieth century that Warrington began to fully develop as a village. The population had increased to 108 by 1901 (Statistics New Zealand, 1901). A plan of the settlement from the 1901 military maps shows a number of buildings located around the railway line (Figure 5-3). Numerous farms can be seen around the settlement.

The township and its beach became a popular resort spot with its white sands and large safe breakers, more accessible than the beach at close-by Waitati (Moore, 1958). Many Dunedin families had summer homes at Warrington in the early twentieth century (Figure 5-4, Figure 5-5). One of the most notable residents was Arthur Barnett who rented the Manor House in 1901 (Moore, 1958). Barnett later bought the Presbyterian Church and converted it to a residence (Moore, 1958). Further development of the area, including the construction of a rest home and a school within the township, did not occur until the twentieth century.



Figure 5-3. Warrington in 1901 from the Military Maps.

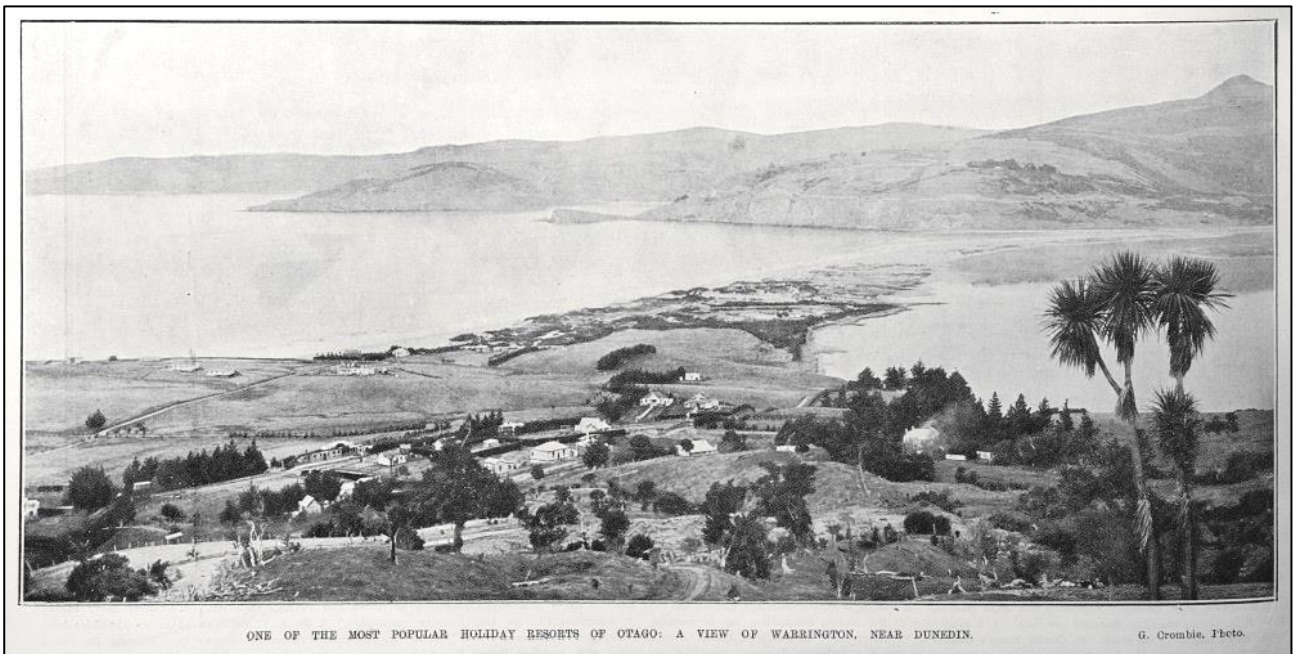


Figure 5-4. View overlooking Warrington 1912 showing a number of residences. (Crombie, 1912).

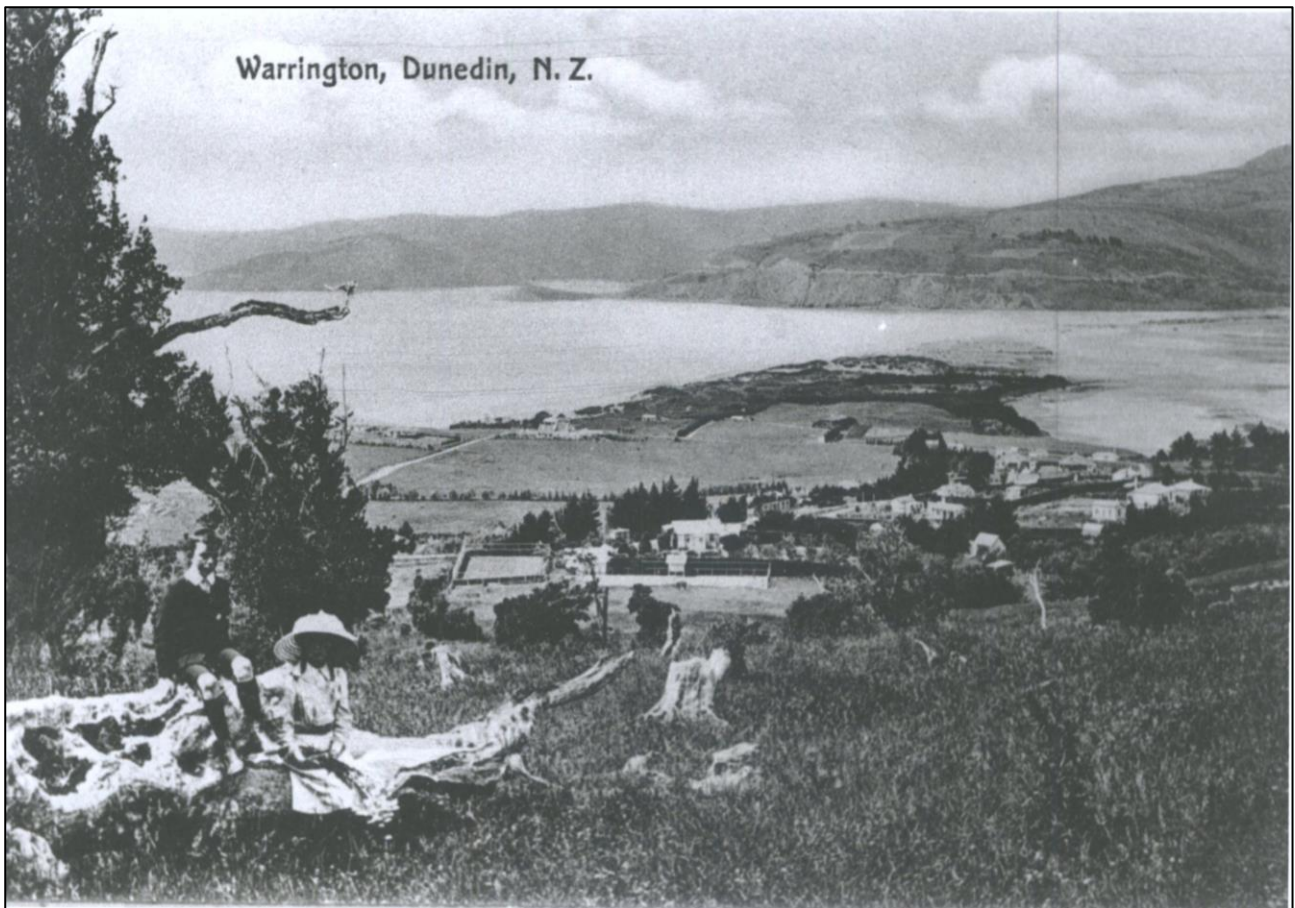


Figure 5-5. A circa 1910 photograph looking out over the Warrington beach area (Anonymous, 1910).

5.3 The History of 20 Bay Road, Warrington (I44/177 and I44/178)

The project area at 20 Bay Road, Warrington, has a history that echoes the surrounding area. Historic research and the archaeological record have shown that the property was occupied by Māori through many phases. After the arrival of European settlers, the property was apparently used as both a nature reserve and a rubbish dump, resulting in the modification of the land to accommodate new tracks and accessways to the shoreline. While ArchSite places only one archaeological site within the property, this assessment indicates a second site likely extends into this area as well (Figure 5-6).

5.3.1 Site I44/177

Site I44/177 was recorded in 1983 following a site visit completed by Brian Allingham in 1982, with numerous subsequent site visits. Allingham submitted a report on his site visits to I44/177 in June and July of 1983 (available as additional documentation for site I44/177 in the online SRF, NZAA, 2020). Allingham recorded what was termed as the “Warrington Moahunter site” and identified the site as being located at the northwest end of Warrington domain within an area of stabilised sand dunes, with the area defined by the presence of black sand, heat-shattered stones, shell fragments, and moa bone. Allington suggests that adzes (types 1A, 2A and 4A), harpoon points, minnow lures, slate knives and silcrete blades held in the Otago Museum likely originated from this site. These were collected largely by H. D. Skinner in the early twentieth century. A later phase of site use was also identified, with the area utilised as a rubbish dump during the nineteenth and twentieth century.

Allington notes that the site may have been recorded unofficially as early as 1894 by Alfred Reynolds (under the name Aparata Renata) in the *Otago Witness*. Reynolds discusses a site of “an ancient Maori residence... on which no end of fine implements have been found, together with moa eggs almost complete” (Renata, 1894).

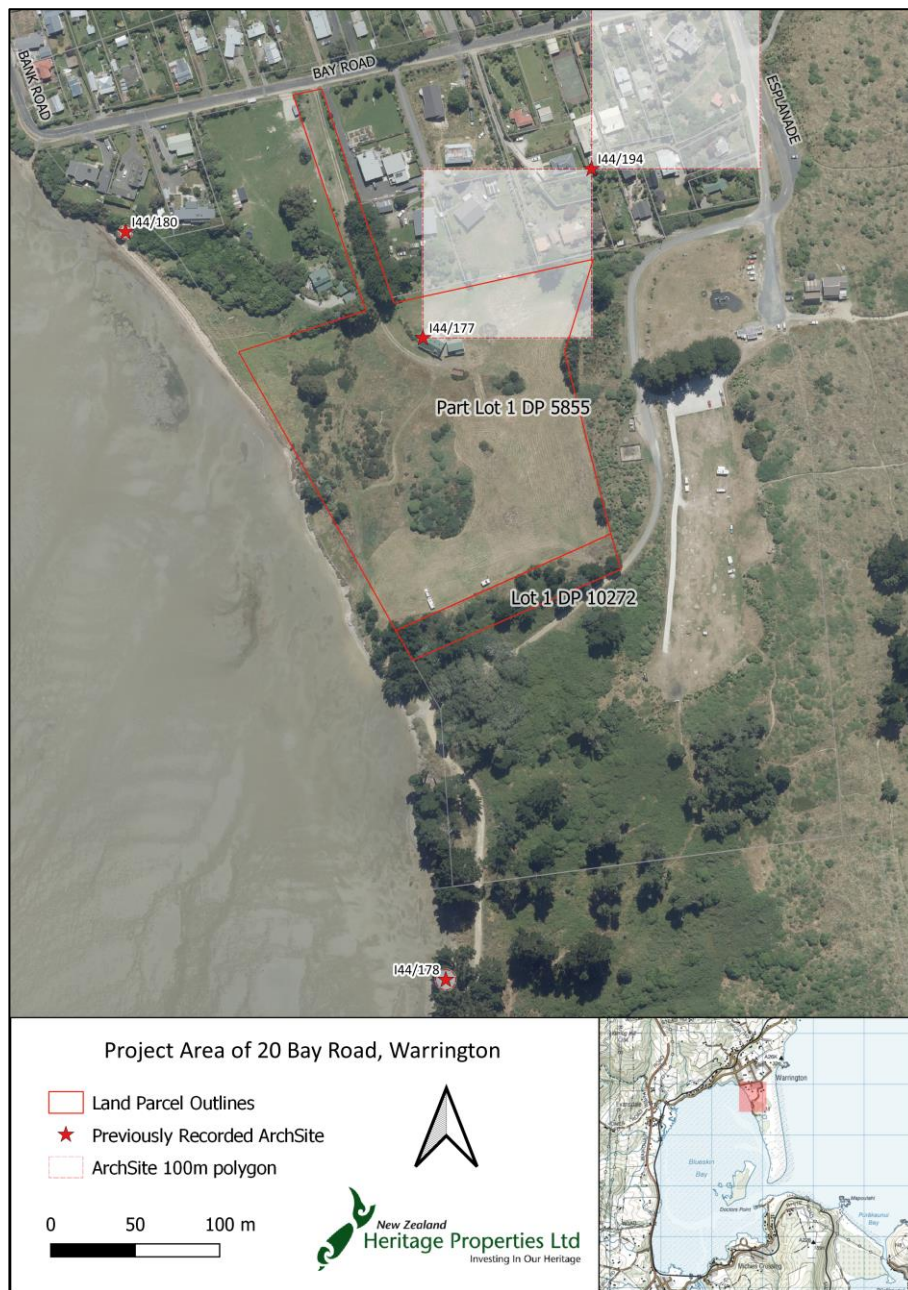


Figure 5-6. Project area with previously recorded archaeological sites in the area.

The site had been well fossicked by the early twentieth century, with it hypothesised that an A. Hamilton visited and reported on the site in 1904 and 1905;² however, Allingham notes that development and fencing of the area probably restricted public access since approximately 1900. A circa 1910 photograph looking out over the spit shows the area cleared and with divisions indicating fences (Figure 5-5). The exact site location remained unrecorded until Allingham visited the site in June of 1982. At this time, he photographed and mapped the area, as well as collected moa bones and artefacts from the surface.

Allingham revisited the site on many occasions, with reports submitted to New Zealand Historic Places Trust (NZHPT, now HNZPT) on site visits in combination with members of the University of Otago, in 1984, 1986, 1987 and 1989 (Allingham, 1986, 1987, 1989; Kooyman, 1984). Further details of the archaeological investigation of this site are provided in Section 6.

² Allingham makes this hypothesis in his site record form, however it is unclear what publications or reports this is referring to, as no references are given.

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The work completed by Allingham resulted in the site at Warrington being included in many of the large-scale discussions of early and late Māori occupation of the Otago region, referenced varyingly as a moa-hunter site, nephrite working site, kāik and pā site (Anderson, 1989; Anderson & Smith, 1996; Hamel, 2001). The site is generally discussed as an important site for the understanding of pre-contact Māori, covering approximately 2ha, despite no systematic excavations having been completed

5.3.2 Site I44/178

A second, less known, archaeological site is also located on the boundary of the project area. This is I44/178, first recorded by Allingham in the same 1982-1983 visit as I44/177. This site is located on the western shore of the Warrington Spit, covering approximately 150m of the shore. Like many in New Zealand, the beach area is designated a legal road; however, based on Allingham's site plan I44/178 forms much of the western boundary of the project area. Allingham's original site record form records a blackened sand layer with sparse cultural material including mixed Māori midden deposits and cultural material, with European fence posts. Allingham's plan marks the area at the north west of the project area as the find spot for silcrete and basalt flakes. Little seems to have been recorded of this site, apart from its existence and a few artefacts that were taken to the Otago Museum, and no further authorities or site reports have been submitted to the current HNZPT. It would seem that this site is generally included in the larger site complex discussed across this beach under I44/177. The main threat to I44/178 was noted as natural erosion. The site appears to have been revisited during the 2006 field surveys completed by NZHPT, with the online NZAA ArchSite record noting the site is visible and still eroding along the shore. No formal investigations of the site have been carried out.

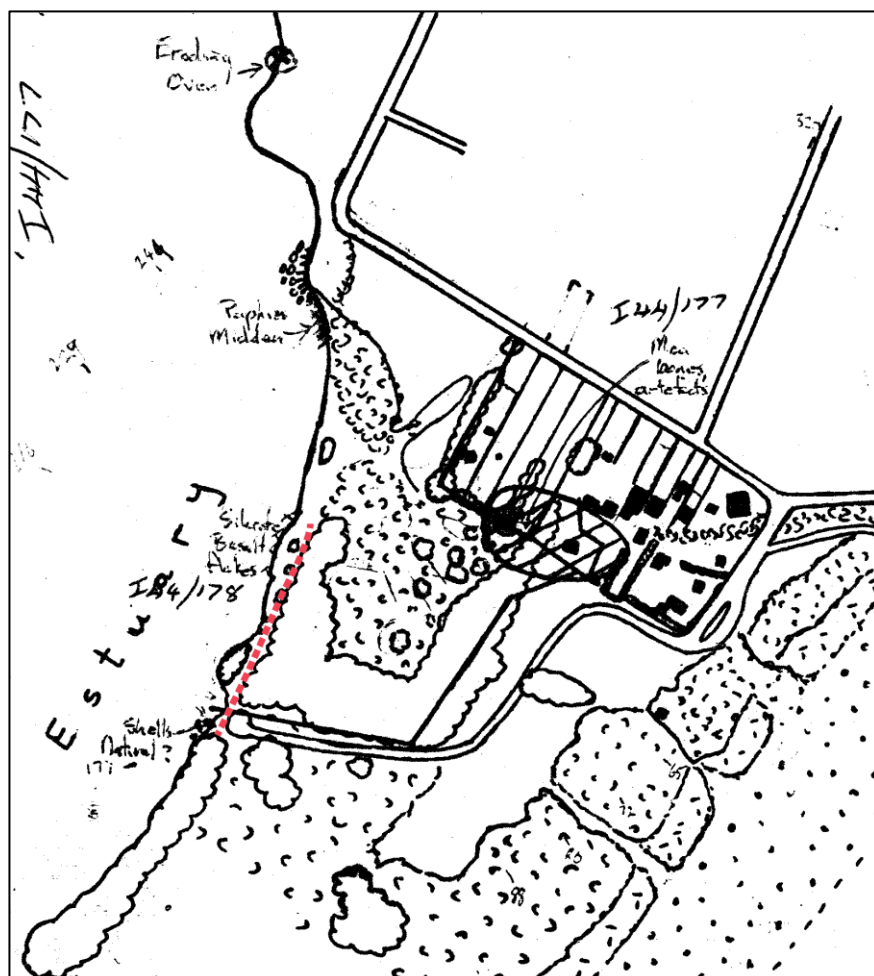


Figure 5-7. Site plan of archaeological sites at Warrington Beach, by Allingham, in his 1983 site record form for I44/177 and I44/178. Recorded extent of I44/178 marked by red dashed line.

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5.3.3 Pākehā History of 20 Bay Road

20 Bay Road, Warrington, was originally surveyed as Part Sections 1 and 2 of 50, Waikouaiti Survey District (Otago Crown Grant Index Records Maps, 1863). This was owned by George James Warren, along with the large sections of land covering much of the Warrington area going north (Figure 5-8). The 1901 Military Map (Figure 5-3) shows the eastern half of Past 2 now occupied by Howden's Manor house, with a few other smaller houses marked. At this point, the area included as 20 Bay Road was not occupied. While Allingham mentioned a rubbish dump on the property within the SRF, no further documentation could be found associated with this.



Figure 5-8. Close up of the 1862 Waikouaiti Survey District Crown Grants Index Map (Otago Crown Grant Index Records Maps, 1863).

A 1944 subdivision map indicates the land included as Part 1 of 50 was subdivided, starting to resemble the current land parcel (Figure 5-9). A 1961 map of the Lot shows the owner being a R.C. Bishop, of Dunedin and the southern portion of the lot being subdivided further; the surrounding land parcels within the spit are also owned by “R.C. Bishop of Dunedin & Warrington Improvement Society Inc.” (Figure 5-9). Despite this, historic aerial images from 1958 and 1985 show buildings on the north and eastern lots, with no structures in the project area; however, varying levels of forestry and dune formation are evident (Figure 5-10). While the archaeological site record form for I44/177 references a European period rubbish dump on the site, this is not visible within the historical records, maps or photographs.

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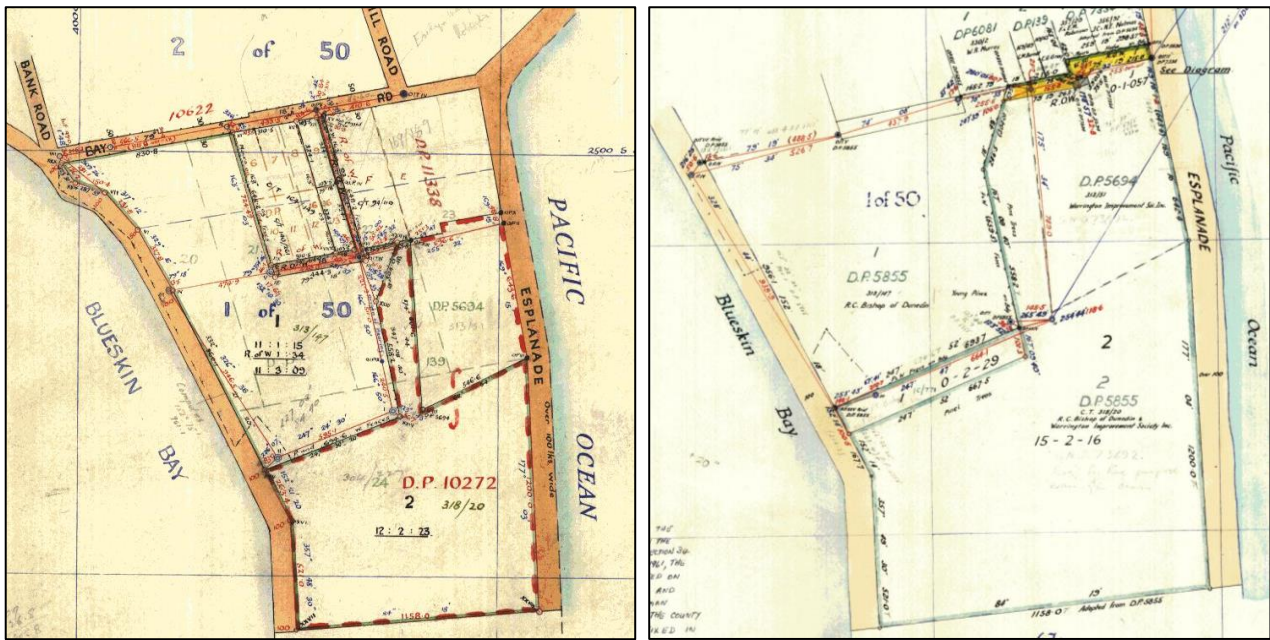


Figure 5-9. Left: 1944 subdivision map of the section, showing the new blocks to the east being separated from the main Part Section 1 (Paterson, 1944). Right: 1961 map showing the owner of much of the Warrington Spit is R.C. Bishop of Dunedin and Warrington Improvement Society Inc. (Warburton, 1961).



Figure 5-10. Retrolens photographs showing no structures within the project area. Left: 1958 (LINZ, 1958). Right: 1985 (LINZ, 1985).

6 Previous Archaeological Investigations

The Warrington area has long been the findspot for Māori archaeological sites, with reports dating to as early as the 1890's. The area was one of early interest to New Zealand's budding archaeologists at the turn of the twentieth century, along with other known settlement areas such as Whareakeake. These sites have fallen prey to fossickers and developers over the years, while remaining important sites for the archaeological communities understanding of Māori occupation within the area. Two archaeological sites intersect with the current project area: I44/177 and I44/178; these sites have been introduced above, and specific details of prior investigations at I44/177 are discussed further in this section. No formal investigations of I44/178 have been carried out.

6.1 Previous Investigations of I44/177

The exact site location for I44/177 remained unrecorded until Allingham visited the site in June of 1982. At this time, he photographed and mapped the area, as well as collected moa bones and artefacts from the surface. When he returned in June of 1983, he recorded the site was freshly disturbed, with portion of a basalt adze, silcrete and green basalt flakes found in the spoil of a bottle-collectors disturbance (Figure 6-1). A minnow lure shank was also exposed on the surface. Allingham returned with Jill Hamel to record the disturbed spoil. Within this they recorded prehistoric artefacts and "obvious midden"; the prehistoric material included fire cracked rocks (FCR), shell, moa bones and artefacts. During recording Allingham noted that lenses of prehistoric material within the stratigraphy of the European rubbish dump, to a recorded depth of 1.7m, presumably from the use of the surrounding dune sand to cover the rubbish. This visit found no intact Māori deposits. The area recorded in this visit falls in the most eastern point of the project area (see Figure 6-2).

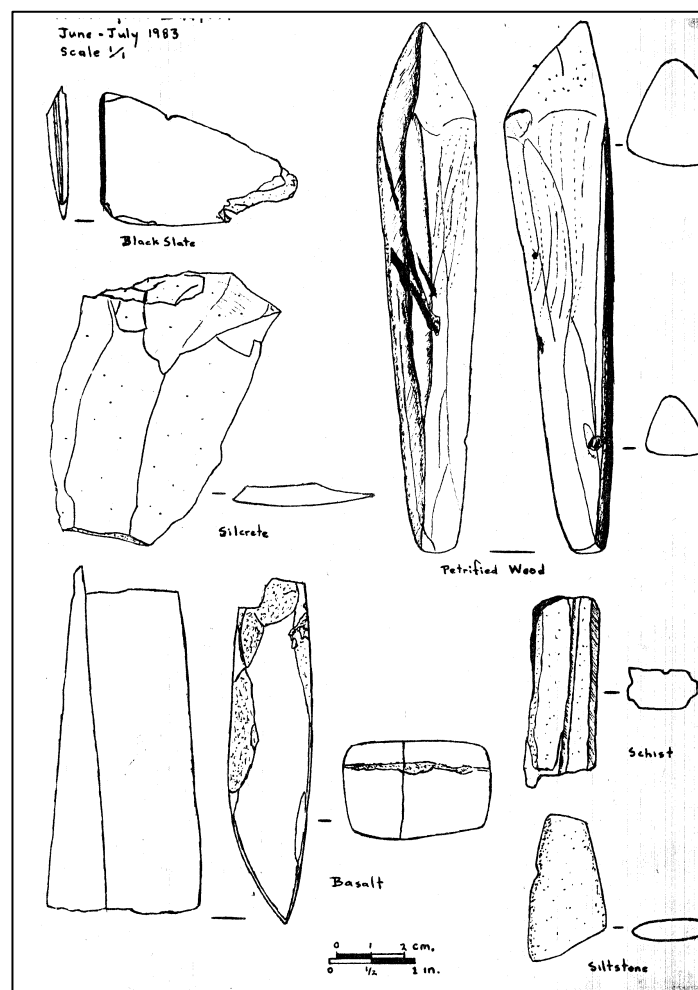


Figure 6-1. Artefacts recorded by Allingham during his 1983 site visit, included in his report (available as additional documentation for site I44/177 in the online SRF, NZAA, 2020).

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The 1985 to 1986 excavations involved trenches for a 2.5m x 1.2m septic tank, 3m x 0.5m overflow drain, and 6m x 0.8m sump in Allingham's Area A (Figure 6-2). These trenches found multiple cultural layers, dating to the "Classic period", intermediate period and early Māori, based on artefact type (Allingham, 1986). Fire scoops, FCR, lithic material, worked bone and kokowai were all found in this visit. The areas of excavation monitored in this phase were to the northeast of the current project area.

The 1986-1987 report covered excavations related to the development of two holiday residences by the Roman Catholic Diocese of Dunedin (Allingham, 1987). This included testing prior to works, and excavation of trenches for field drains and fencing. Two small areas of in situ prehistoric cultural deposit were identified within the area excavated for the field drains, Excavation A and B. Excavation A found the intact base of an oven, including two quartzite flakes, with the broken butt portion of an adze in the disturbed topsoil above this; Excavation B encountered burnt oven refuse, midden and artefacts in a 20cm thick layer, under a 45cm thick layer of recent topsoil. The works in Allingham's Area C also encountered features such as post holes and pits. The area covered in these excavations was, again, to the north and northeast of the current project area. Allingham noted in his report that the original field drain plan was altered with permission from the client to minimise the effect on the archaeological site (Allingham, 1987).

Allingham's 1988-1989 works took place in site I44/177, as well as I44/194, the nearby midden site recorded further northeast from I44/177. These works took place for sewerage drainage with monitoring taking place daily for two weeks in August of 1989 (Allingham, 1989). This work was completed through a series of test pits taken at regular intervals along the path of the drainage. This work allowed for clear stratigraphy's to be recorded across the site. This phase of works indicated that the western extent of I44/177 (where it intersects with the northeast corners of the project area) has older dates closer to the surface than those in the east, due to the lack of later "Classic" period deposits. During these excavations lithics such as adzes, blades, tools and flakes made from various stone types were collected, along with a large collection of bone artefacts, generally related to fishing (Figure 6-3). Dentalium shell and moa bone were also recovered in these works. In comparison to site I44/194, I44/177 has a much greater quantity and variety of moa bone; however, Allingham believes the two sites are part of a greater, connected site complex (Allingham, 1989). Overall, Allingham concluded that the early moa-hunter phase indicated transient settlement on the western side of the site, visible in the thin lenses of occupation material, while the middle period deposits featured post holes and other evidence of structures, indicating long-term settlement (Allingham, 1989).

In 2006 a site damage assessment was undertaken by Jill Hamel on behalf of the NZHPT, following notification in the last months of 2005 that vegetation clearance and earthworks had taken place at 20 Bay Road (Part Lot 1 DP 5855). Following the site damage assessment by Hamel, Richard Walter was commissioned to further assess and clarify the nature of the site and how earthworks had, and could potentially, impact the archaeological sites in the area.

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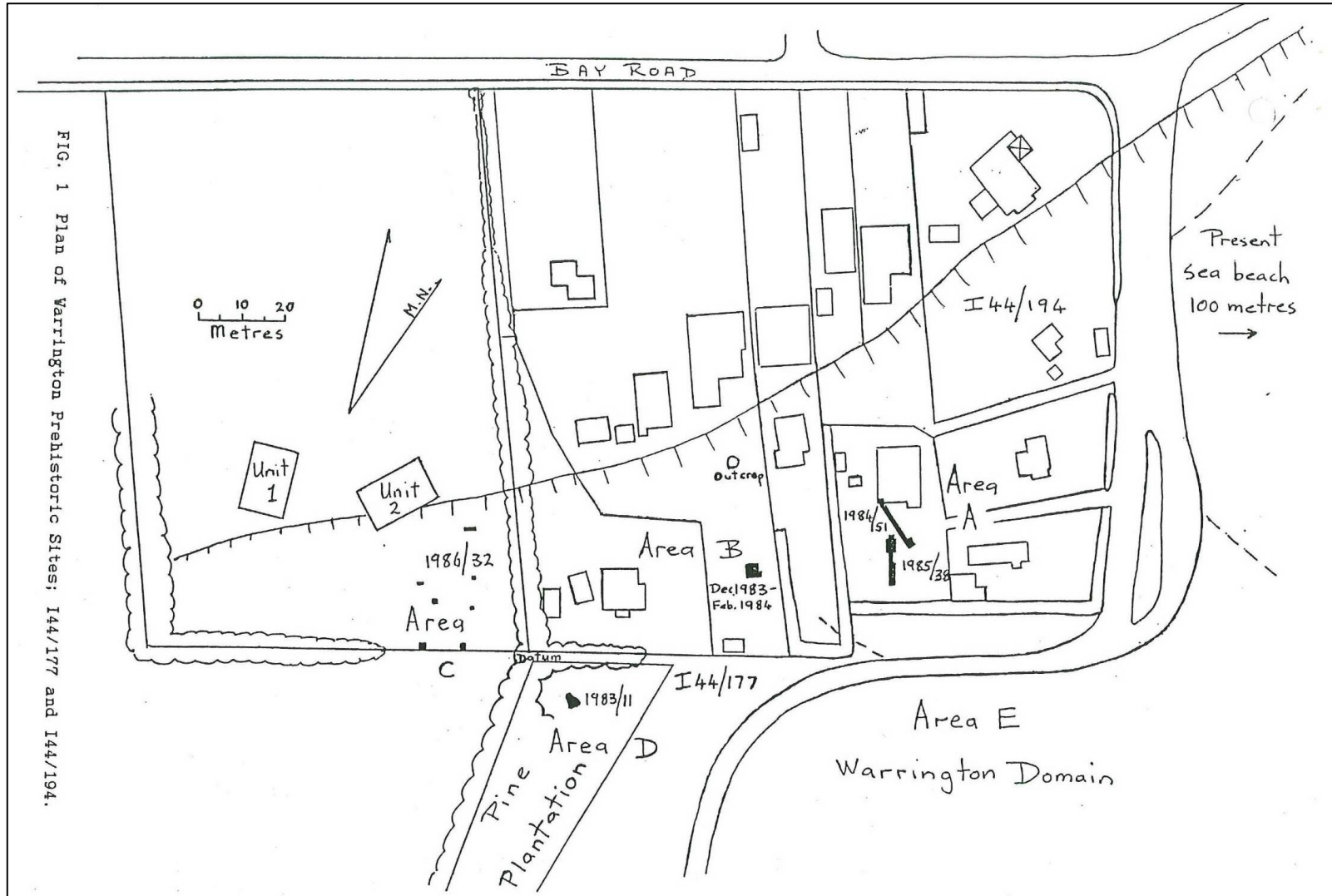


Figure 6-2. Sketch map of Allingham's various excavation areas from 1983-1987 for I44/177 (Allingham, 1987 Figure 1).

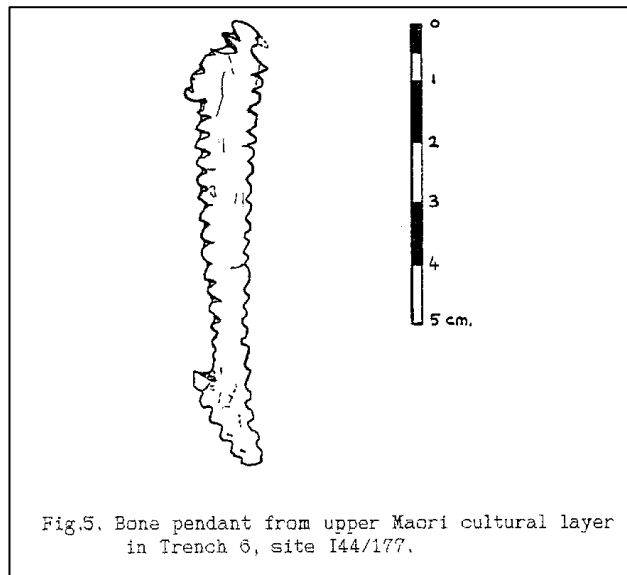


Figure 6-3. Example of worked bone artefact collected during the 1989 excavations (Allingham, 1989).

Walter notes that the damage to the site that took place first in 2001, following the subdivision of the land, and then again in 2005 included the removal of trees, slashing of scrub, contouring of the land removing the humps of some of the higher dunes, and harrowing. As expected, the contouring proved to be the most destructive activity (Walter & Jacomb, 2008). The activity took place across much of the land parcel, although the northeast corner where site I44/177 is located appeared to have suffered the worst damage. Walter and Jacomb completed a site visit including test pitting and augering for the 2008 report, noting that the visible extent of the site covered much of the northeast corner, a larger area than recorded previously (Figure 6-4).

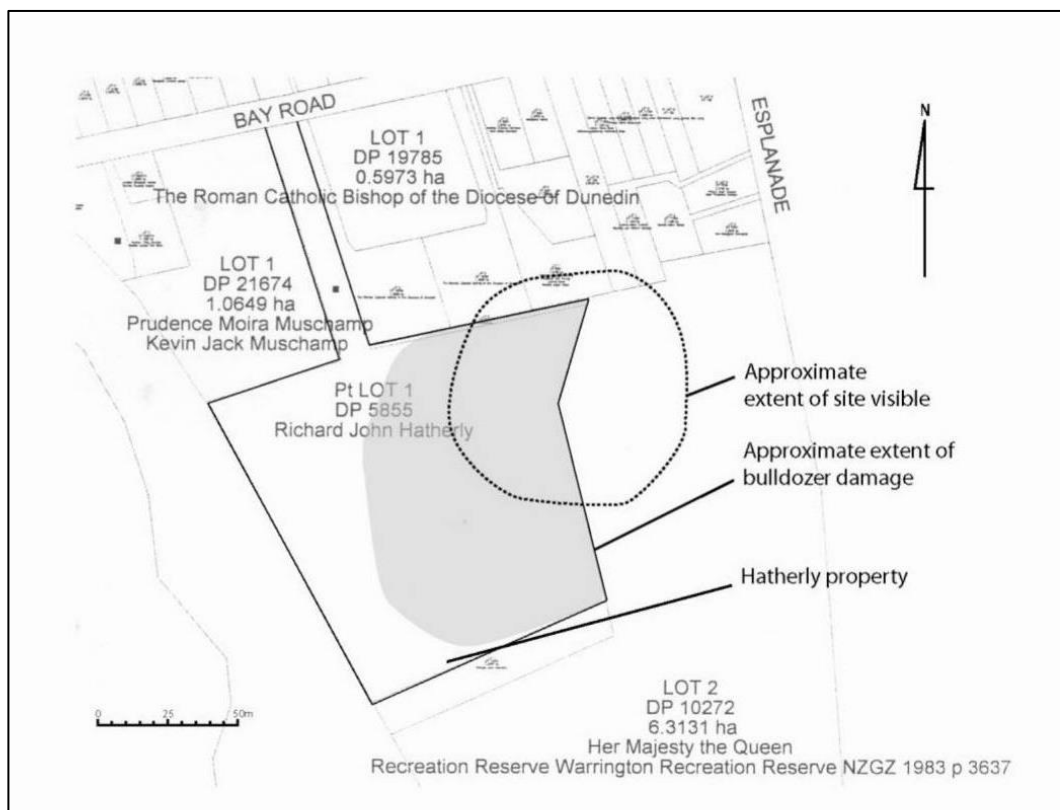


Figure 6-4. Depiction of site damage and visible site extent at 20 Bay Road (as seen in Walter & Jacomb, 2008 Figure 4).

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Despite the large amount of site damage that Hamel, Walter and Jacomb recorded, the conclusion of works from this period are that there are likely still intact deposits of both Māori and European origin buried under the sand dunes and bulldozed area in the northeast of the project area, possibly under at least 1.5-2m of this freshly bulldozed material (Walter & Jacomb, 2008). Walter concludes that “any such intact deposits should be protected since there may not be much left of the site”, discouraging any further development to the eastern area of the subdivided land (Walter & Jacomb, 2008).

In 2012 NZHPT was notified of further potential site damage to the land encompassed by 20 Bay Road. This was alleged to have occurred at Christmas of 2011, including vegetation clearance by a digger and works on the driveway. Upon a site visit by Matthew Schmidt in February 2012, it was noted that damage was ongoing due to the heavy vehicle traffic going over the exposed areas of I44/177 in the northeast of the project area. In March 2012 Richard Walter again submitted an archaeological assessment of 20 Bay Road to NZHPT, after completing a site visit to identify damage, site exposure and areas potentially at risk by proposed subdivision of land by owner, Richard Hatherly (Walter, 2012). Walter’s conclusion was that extensive damage had been done to the site (I44/177) previously, and that which remained was of high archaeological importance. All efforts should be made to avoid high risk areas of the land, particularly that in the northeast, and infilling of hollows was recommended. Access via the current right-of-way was deemed as damaging and archaeological involvement was recommended (Walter, 2012).

6.2 Geotechnical Investigations under Authority 2020/540

As part of the proposed redevelopment of the site, an exploratory authority (2020/540) was obtained to undertake geotechnical investigations. This test pitting was completed by Stantec on 13 May 2020, monitored by NZHP archaeologist Jessie Hurford. This test pitting took place in six locations across the project area, including two in the north and one in the south accessways, two in opposite areas of the proposed parking area and one in the low ground in the western side of the project area (Figure 6-5). These test pits were approximately 300mm x 300mm and were excavated to a depth of approximately 500mm. Little cultural material was encountered during these tests, with the stratigraphy consisting of various coloured sand, clay and sandy loam. One bluestone cobble was encountered in TP6 which was tested to continue in some form for approximately 1m. This cobble is an unexpected find on the site, and likely represents a manuport; however, it is unclear which phase of site use this may be associated with (i.e., occupation by mana whenua or pākehā).

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Figure 6-5. Location of geotechnical test pits completed by Stantec under authority 2020/540.

7 Results of the Site Survey

A pedestrian survey was completed on 5 February 2020 by Dawn Cropper and Victoria Ross, which identified clear areas of archaeological interest as well as modern site disturbance (Figure 7-1). The survey was conducted in 10m transects generally running in line with the property boundaries. Conditions on the day were clear and sunny; however, rain had inundated the site in the past week. At the time of the survey, the vegetation largely consisted of grass, with small bush areas in depressions and on rises. Sand dunes on the west were evident in multiple waves. The southern portion of the project area, located within Lot 1 DP 10272, was forested with an access track leading to a road. Overall, visibility was low, with grass and bush impeding identification of site extent and above ground features. However, it is thought that I44/177 extends further south than previously recorded, while I44/178 may exist only in the very southwest of the project area.



Figure 7-1. Areas of interest identified during the site survey, February 2020.

It was evident across the site that activity had taken place which involved minor earth disturbance. At least one recent small dig out for a fire was seen, with the turfed square placed to the side (Figure 7-2). Areas of vehicle movement were also visible in the crushed grass and sand. Levelling and landscaping of the northern half of the project area was also evident, as was reported on by Allingham and Walter. These works have created levelled areas with what appears to be at least one artificial hill on the west side of the property potentially for drainage.

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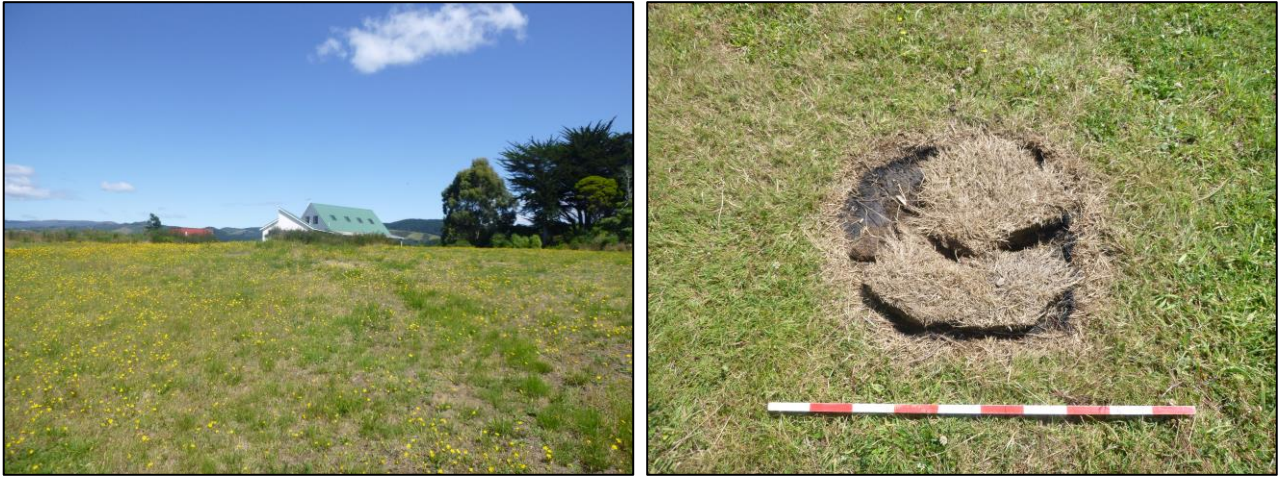


Figure 7-2. Left: looking north across site showing the grassed and undulating nature of the area. Right: recent earth disturbance visible in the site, showing evidence of a small fire. Turf replaced by archaeologist. Looking north.

The eastern side of site had numerous sandy exposures. Where the grass cover was thinner, sand was visible with patches of cultural material. In the northeast of the site, bone (burnt and unburnt), shell, charcoal and FCR were visible on the surface (Figure 7-3). It is thought that this material belongs to archaeological site I44/177, and evidence seen on site indicates that this extends further than was previously recorded on the SRF, covering nearly the full length of the eastern side of property.



Figure 7-3. Shell and bone exposed in the sand in the northeast area of site. Looking north.

Most of the centre of the site was covered in grass, and in this area of reduced visibility no features were identified. In small areas charcoal was visible within the sand, but whether this is of archaeological origin could not be determined. In the southeast corner, where the secondary access comes into the site through Lot 1, further erosion was visible in the access track. In this area shell, bone, charcoal and charcoal staining, as well as small pieces of FCR were identified (Figure 7-4).

On the western side of the project area, where the land drops down to the shore, no evidence of any definitive cultural material was found (Figure 7-5). The shallow bank along the west side of the spit appears to be actively eroding. No evidence of archaeological materials or deposits were identified along the eroded face of the bank. Further inland and amongst the trees in the most southern corner of the project area, eroding shell was identified. This was found in small clusters around the roots of trees (Figure 7-5). This corresponds with Allington's the description of I44/178, and he suggests that this exposure may be natural due to the lack of charcoal and presence

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of waterworn boulders. NZHP's visual inspection of these deposits was unable to confirm if this is archaeological or is the remains of a naturally occurring layer of shell, washed up and disturbed in one of the many tidal surges recorded for the area. In this area there was also a single piece of under glaze transfer printed ceramics. As this was in the general area of the shell deposits, it is again unclear if this is related to the artefacts recorded in the archaeological site or is a post-1900 introduction.



Figure 7-4. Eroding cultural material in the access track on the south side of site. Looking northwest and east.



Figure 7-5. Left: the natural bank face at the western boundary of the project area, looking east. Right: shell deposit found in the forested area at the south corner of the project area, looking west.

From the findings of the site survey, it is clear that sub-surface archaeology is still present across the site in varying forms with some surface archaeology occurring where erosion is taking place. As this archaeology is likely to be impacted by the proposed development, NZHP recommends that standover monitoring by an archaeologist takes place during all earthworks in the project area as there is the potential for the previously recorded archaeological sites to extend further than is currently recorded. Furthermore, NZHP recommends post-excavation analysis of any artefactual finds, as well as reporting as per standard archaeological practice.

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8 Constraints and Limitations

There were a few small constraints and limitations encountered during the assessment process. Access to the large number of previous archaeological investigations and reports was not always possible, therefore some information had to be relied on from second-hand sources. Similarly, with early work having taken place in the 1890s, it was not possible to verify some resources for accuracy or to clarify information.

During the survey process it was evident that there was a large amount of ground cover in the form of grass and bush. This impeded the ability to view the topography and surface of the site for archaeological features.

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9 Archaeological and Other Values

The significance of an archaeological site is determined by, but not limited to, its condition, rarity or uniqueness, contextual value, information potential, amenity value, and cultural association. A brief evaluation of site I44/177 is provided in Table 9-1, and I44/178 in Table 9-2, based on the criteria defined by HNZPT (NZHPT, 2006).

NZHP has assessed that archaeological site I44/177 has moderate to high archaeological value. It holds high amenity and contextual value as a core part of the larger site complex of the Warrington Spit. Site I44/178 has a low archaeological value as an ephemeral site. While artefacts have been recorded there in the past, only midden has been encountered since the original SRF. Outside of the larger site complex, I44/178 offers little new information to the archaeological understanding of the area as midden sites are recorded frequently around the bay.

Table 9-1. Summary of archaeological value for I44/177.

Value	Criteria	Assessment
Condition		The condition of the deposits recorded as I44/177 is fair to poor . It is well documented that site disturbance has been common in the past century and fresh erosion was encountered during the site survey. It is likely that subsurface archaeological deposits remain; however, it is uncertain in what condition these are.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Moderate . The site has produced notable deposits of early Māori artefacts in the past and is recorded as an important occupation site spanning many phases. Its later use as a European dump site provides an opportunity to view the history of the area from first settlement through to the post-contact era.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Maori occupation sites around a river mouth, or a gold mining complex.	High . This site is part of a larger complex of sites recorded around the Warrington area that shows evidence of common and recurring settlement around Blueskin Bay and the east coast. Due to the size and well documented archaeological investigations that have taken place within this site, this results in a high level of contextual value to continue the building and understanding of the long Māori history of Blueskin Bay and Otago.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Moderate . While the proposed development does not include large scale excavation across the site, the site has the potential to tell us about the recurring, possibly seasonal, use of the site by multiple groups. As an area of early European settlement and interest as well, the site is able to show us of the relationship between the original Māori activity and that of the later Europeans.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	High . As the proposed location of a formal motorhome and caravan park, the site has the potential to educate visitors and holidaymakers on the rich history of the area, encouraging respect for the natural and cultural environment around them. While most of the archaeology is subsurface, this could be achieved through information panels on site.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Maori, European, Chinese.	Māori and European . The site has been recognised as part of a highly significant cultural area for takata whenua, as well as having a low level of significance as a popular area of occupation for Europeans.

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Table 9-2. Summary of archaeological value for I44/178.

Value	Criteria	Assessment
Condition		Poor. Majority of site is likely subsurface and only eroded material is visible. Erosion is occurring across the viewed portion of the site.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Low. Site does not appear to contain any unique features and is possibly the remains of the southern fringe of larger site complex.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Maori occupation sites around a river mouth, or a gold mining complex.	Moderate. Site is likely part of the larger site complex that covers much of the Warrington Spit. These sites as a whole, tell the story of the early and continued occupation of the area by Māori
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Low. As the site is largely midden with some previously recorded artefacts, there is little new information to be gained from the site outside of the larger site complex.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	Moderate. The site has low amenity value on its own but has a medium value as part of the larger site complex, particularly when discussed in relation to I44/177.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Maori, European, Chinese.	Māori. Identified as of significance to takata whenua as part of the occupation history of the area.

9.1 Other Values

NZHP has identified sites of interest to takata whenua may be affected by the proposed works. As such, NZHP recommends engagement with the appropriate takata whenua through Aukaha, to ensure all cultural material encountered is treated following appropriate tikaka practices.

No historic heritage values will be affected by the proposed redevelopment.

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10 Assessment of Effects

The proposed development of the property at 20 Bay Road, Warrington has the potential to impact portions of the archaeological sites recorded as I44/177 and I44/178. NZMCA proposes to create a formal motorhome and caravan park on the property, with the project including the widening and sealing of the accessways, levelling of the eastern and southern areas of the property for parking, the installation of a small kiosk, gates, and a dumping station, as well as planting across the site for screening and area definition. These works involve earth disturbance as well as the introduction of barriers and new fill material. It is likely that earthworks will encounter the south side of site I44/177, while new planting on the south border of the site may disturb the possible midden deposits recorded as I44/178.

As earthworks are intended to be minor across site, keeping with the natural ground and building up as much as possible, it is likely that less than half of the archaeological site I44/177 will be impacted. The site is known to extend outside the north and east of the property, including in the portion vested to Kings College that will not be developed. To mitigate damage to the site, Stantec is investigating methods for providing a stabilised/reinforced surface suitable for traffic ability while providing a barrier over existing ground level. This will reduce the impact on any features close to the surface of the vehicle traffic passing over, preserving the material in situ. NZHP recommends this method be utilised for all built up areas to ensure the protection of archaeological material from the weight and movement of traffic.

Where the site I44/178 is believed to extend into the project area, managed native under planting is planned as well as on the eastern end where vegetated ground cover is less dense. This will involve minor earthworks that will likely disturb portions of the site. However, as the area is already forested it is possible that the site has already been highly disturbed by the tree roots. Digging of holes for new plantings may also provide the opportunity to gain more of an understanding of the composition and stratigraphy of this site to confirm if it is a natural occurrence or an archaeological deposit. As this site only extends a small way into the property and is centred further to the south with a recorded extent of over 100m, NZHP approximates that less than 10% of the site is at risk by the proposed activity.

Stantec have proposed that minor redesigns and alternative methods will be adopted if needed to avoid impact of any areas thought to be highly sensitive. NZHP would recommend that areas on the eastern side of site, where eroded material from I44/177 was identified during the site survey, be built up where possible as any form of site scrape is likely to encounter further archaeological material. In the southern parking area and towards the west shore, modern disturbance is visible along with a decrease in visible archaeological deposits. Because of this, NZHP believes there is a lower likelihood of encountering archaeological material in earthworks.

The proposed use of the project area as a formal motorhome and caravan park increases the risk of damage to the two vulnerable archaeological sites in the area. The higher volume of heavy class vehicles is likely to cause earth movement and has the potential to increase the erosion rate. NZHP believes Stantec's proposed methods will mitigate this potential for damage across the site by creating a buffer layer above the archaeology. Erosion will be mitigated by the introduction of more plants; however, erosion on the western shore where no planting will take place has the potential to increase.

To ensure that all archaeological material is protected and recorded where necessary, NZHP recommends that standover monitoring take place during all works involving earth disturbance, including but not limited to site scrape, vegetation clearance, post hole digging, planting and access widening. NZHP further recommends a site instruction document be prepared for the client outlining the archaeological history and legislative requirements of developing the site. All contractors working on the site should be given an archaeological briefing before commencing any work to ensure contractors are aware of the possibility of finding archaeological material, the legislative requirements surrounding the site and the appropriate measures upon encountering archaeology.

11 Conclusions and Recommendations

NZHP has assessed the proposed development at 20 Bay Road, Warrington for its effects on previously recorded archaeological sites I44/177 and I44/178. This assessment has found that both sites are present within the project area, comprising Lot 1 DP10272 and Part Lot 1 DP5855, Block I, Waikouaiti District. With the proposed development of a motorhome and caravan park under the management of NZMCA, it is likely that the portions of both archaeological sites will be impacted. NZHP recommends that an archaeological authority be applied for to cover any earthworks undertaken during the intended development.

As this assessment has identified two previously recorded archaeological sites within the property to be developed, NZHP recommends that standover monitoring take place for all earthworks, with any archaeological material or features recorded following current best practice, as required by the HNZPTA 2014. Sites affected are listed in Table 11-1.

Due to the significance of the site for takata whenua, NZHP recommends that local iwi and rūnaka, as represented by Aukaha, be notified before all site works commence. Furthermore, NZHP recommends that an invitation be extended to rūnaka to attend site during all earthworks, provided this is possible following health and safety measures.

Table 11-1. Sites affected by the proposed development at 20 Bay Road, Warrington.

NZAA Site Id	Site Location	Brief Description
I44/177	E 1412783 N 4934860	Midden/cultural layers containing moa and other extinct birds, also artefacts.
I44/178	E 1412797 N 4934480	A midden/occupation layer with artefacts.

As such, NZHP makes the following recommendations:

10. As a first principle, every practical effort should be made to avoid damage to any archaeological site, whether known, or discovered during any redevelopment of the site.
11. An archaeological authority under Section 44 of the HNZPTA 2014 should be obtained from the HNZPT prior to any modification of the site.
12. A site instruction document and contractor briefing document should be prepared for NZMCA. Before the start of any on-site works, all contractors should be briefed by an archaeologist on the legislative requirements of working within archaeological sites.
13. NZMCA should undertake consultation with takata whenua to ensure all areas of cultural sensitivity are appropriately protected.
14. If re-development plans are altered from those reviewed by NZHP for this assessment (Appendix A), then HNZPT need to be alerted in the first instance.
15. All subsurface works should be monitored by an archaeologist. Any archaeological features or recovered material should be appropriately recorded and analysed.
16. Before site works commence notification should be given with at least 2 working days' notice, to HNZPT, Aukaha. An invitation should be extended for a representative from local rūnaka to attend site during all earthworks.
17. If at any stage during the redevelopment Māori material is discovered, NZHP should be called in the first instance. NZHP will assist the NZMCA to contact all relevant parties, including HNZPT, and Aukaha. If Māori material does exist in the area to be developed, damage to this should be minimised. Any Maori artefacts will be, prima facie, property of the Crown and will be submitted to the appropriate institutions.
18. A full report on any archaeological material that is found should be prepared and submitted to the HNZPT within one year of the completion of archaeological site works.

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Appendix A Development Plans



Figure A-1. Development plans provided by Stantec.

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Appendix B Site Record Forms of Previously Recorded Archaeological Sites

NZHP has identified that the sites listed in Table C-1 below may be affected by the proposed works, and site record forms for each site are provided in the following pages.

Table B-1. Sites affected by the development of 20 Bay Road, Warrington.

NZAA Site Id	Site Location	Brief Description
I44/177	E 1412783 N 4934860	Midden/cultural layers containing moa and other extinct birds, also artefacts.
I44/178	E 1412797 N 4934480	A midden/occupation layer with artefacts.

Appendix D Geotechnical Input

Bay Road Development

This report has been prepared for the benefit of the New Zealand Motor Caravan Association. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

Rev. no	Date	Description	Prepared by	Checked by	Reviewed by	Approved by
			D Crawford	L Paterson	L Paterson	D Evans

1 Introduction

1.1 Brief

The New Zealand Motor Caravan Association has asked Stantec to carry out soil testing to inform future pavement design, for the potential development of a campground on the site.

1.2 Location

The site location is 20 Bay Road Warrington, 5065177 (Situation) LOT 1 DP 10272.



Figure 1.1 Bay Road Site Map

1.3 Testing

The soil sampling was carried out by Lee Paterson and Dylan Crawford of Stantec. Prior to sampling beginning all underground services were clearly identified by Delta. The site visit was carried out under the supervision of a representative from the New Zealand Historic Places Trust.

Shallow test pits were dug out by hand, with 15kg samples removed for lab testing. Topsoil was completely removed before the samples were collected. Scala penetrometer testing was carried at each of the six sites.

2 Testing

2.1 Test Pit Locations

The figure below shows the location of the six test pits.



Figure 2.1: Test Pit Locations

	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6
Easting	397316	397340	397399	397452	397367	397321
Northing	811391	811302	811235	811165	811167	811259
Height R/L (m)	10.1	3.92	5.78	4.58	5.76	2.32

*NZGD2000 / NZVD 2016

A photo of each test pit location is attached in appendix A.

2.2 Test Pit Scala Results

At each of the six sites topsoil depths were 250mm, with the exception of site five, where topsoil depths were 100mm.

The Scala results are shown in the following table.

Depth BGL (m)	Scala 1	Scala 2	Scala 3	Scala 4	Scala 5	Scala 6 (attempt 1)**	Scala 6 (attempt 2)**
0.1	4	5	2	3	2	2	2
0.2	5	4	2	4	3	2	2
0.3	7	5	3	4	3	Refusal	3
0.4	6	7	4	3	3		Refusal
0.5	9	7	4	3	4		
0.6	9	6	4	2	5		
0.7	10	5	4	1	4		
0.8		4		1	4		
0.9							
1.0							
1.1							

*Blow Counts Per 100mm

** Site 6 appeared to be in the middle of a manmade flood path, which had bluestone placed in it. The bluestone caused two test refusals at a depth of 0.4m.

2.3 Lab Results

Samples were tested by Central Testing Services, Alexandra.

	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6
Topsoil Thickness (mm)	225	250	250	250	100	250
Lab CBR%	4.5%	18%	7%	16%	3.5%	19%

A full copy of the lab results is attached in appendix B.

APPENDIX A Test Pit Site Photos

Client:	New Zealand Motor Caravan Association	Project:	Bay Road Development
Site Name:		Site Location:	20 Bay Road, Warrington
Photograph ID: 1			
Photo Location: Test Pit 1			
Direction:			
Survey Date: 13/05/2020			
Comments:			
Photograph ID: 2			
Photo Location: Test Pit 2			
Direction:			
Survey Date: 13/05/2020			
Comments:			

Client:		New Zealand Motor Caravan Association	Project:		Bay Road Development
Site Name:			Site Location:		20 Bay Road, Warrington
Photograph ID: 3					
Photo Location:					
Test Pit 3					
Direction:					
Survey Date:					
13/05/2020					
Comments:					

Photograph ID: 4					
Photo Location:					
Test Pit 4					
Direction:					
Survey Date:					
13/05/2020					
Comments:					

Client:		New Zealand Motor Caravan Association	Project:		Bay Road Development
Site Name:			Site Location:		20 Bay Road, Warrington
Photograph ID: 5					
Photo Location:					
Test Pit 5					
Direction:					
Survey Date:					
13/05/2020					
Comments:					
Photograph ID: 6					
Photo Location:					
Test Pit 6					
Direction:					
Survey Date:					
13/05/2020					
Comments:					

APPENDIX B Lab Results



TEST REPORT - LABORATORY SOAKED CBR'S

Client Details:	Stantec New Zealand, P.O. Box 4, Dunedin	Attention:	D. Crawford
Job Description:	20 Bay Road, Warrington Investigations		
Sample Description:	See Below	Client Order No:	N/A
Sample Source:	See Below	Sample Label No:	See Below
Date & Time Sampled:	13-May-20	Sampled By:	Unknown
Sample Method:	Test Pit *	Date Received:	18-May-20
Test Method:	NZS 4407:2015, Test 3.15		

LABORATORY SOAKED CBR RESULTS			
Sample Source:	Test Pit 1	Test Pit 2	Test Pit 3
Sample Label No:	38012	37918	38010
Sample Depth: (mm)	300	Not Stated	Not Stated
Fraction Tested:	-19.0 mm	Whole soil	-19.0 mm
Sample Description:	Sandy SILT with minor clay and trace of gravel (minor organic matter)	SAND with minor silt (trace of organic matter)	SAND with minor / some silt and minor gravel (trace of organic matter)
Condition of Sample:	Soaked	Soaked	Soaked
Surcharge Mass: (kg)	4.0	4.0	4.0
Time Soaked:	4 days	4 days	4 days
Swell: (%)	1.2	0.0	0.4
Water Content as Compacted: (%)	22.6	13.3	8.6
Water Content From Under Plunger: (%)	30.1	22.7	26.2
Dry Density As Compacted: (t/m ³)	1.37	1.57	1.44
CBR Value @ 2.5 mm Penetration:	4.5	17	5
CBR Value @ 5.0 mm Penetration:	4.5	18	7
Reported CBR Value:	4.5	18	7

Notes:

- The material was received in a natural state.
- The sample was compacted to NZ Standard Compaction at the water content as received.
- The rate of penetration was 1.10 mm / min.
- Information contained in this report which is Not IANZ Accredited relates to the sample descriptions based on NZ Geotechnical Society Guidelines 2005, the sample method * and sampling.
- This report may not be reproduced except in full.

Tested By: C. Fisher

Date: 21 to 26-May-20

Checked By:

Tests indicated as Not Accredited are outside the scope of the laboratory's accreditation





TEST REPORT - LABORATORY SOAKED CBR'S

Client Details:	Stantec New Zealand, P.O. Box 4, Dunedin	Attention:	D. Crawford
Job Description:	20 Bay Road, Warrington Investigations		
Sample Description:	See Below	Client Order No:	N/A
Sample Source:	See Below	Sample Label No:	See Below
Date & Time Sampled:	13-May-20	Sampled By:	Unknown
Sample Method:	Test Pit *	Date Received:	18-May-20
Test Method:	NZS 4407:2015, Test 3.15		

LABORATORY SOAKED CBR RESULTS			
Sample Source:	Test Pit 4	Test Pit 5	Test Pit 6
Sample Label No:	38002	38000	37998
Sample Depth: (mm)	Not Stated	Not Stated	Not Stated
Fraction Tested:	Whole soil	-19.0 mm	Whole soil
Sample Description:	SAND with minor silt (trace of organic matter)	SAND with some silt (trace of organic matter)	SAND with minor silt (trace of organic matter)
Condition of Sample:	Soaked	Soaked	Soaked
Surcharge Mass: (kg)	4.0	4.0	4.0
Time Soaked:	4 days	4 days	4 days
Swell: (%)	0.0	0.0	0.2
Water Content as Compacted: (%)	8.9	4.4	11.3
Water Content From Under Plunger: (%)	24.4	26.5	19.6
Dry Density As Compacted: (t/m ³)	1.49	1.40	1.58
CBR Value @ 2.5 mm Penetration:	14	2.5	16
CBR Value @ 5.0 mm Penetration:	16	3.5	19
Reported CBR Value:	16	3.5	19

Notes:

- The material was received in a natural state.
- The sample was compacted to NZ Standard Compaction at the water content as received.
- The rate of penetration was 1.10 mm / min.
- Information contained in this report which is Not IANZ Accredited relates to the sample descriptions based on NZ Geotechnical Society Guidelines 2005, the sample method * and sampling.
- This report may not be reproduced except in full.

Tested By: C. Fisher

Date: 21 to 26-May-20

Checked By: 

Approved Signatory


A.P. Julius
Laboratory Manager

Tests indicated as Not Accredited are outside the scope of the laboratory's accreditation



16 June 2020

Dear [Pavement Designer]

20 Bay Road Warrington
Pavement Testing Investigation

We enclose a copy of the factual testing report for the 20 Bay Road Warrington.

Summary

The prevailing geology was confirmed as silty sands, as anticipated. The ground at the time of testing was dry, with no standing / ponding water. The soils underlying the topsoil were consistent across the site in terms of material type.

As a general description of the findings:

- Topsoil was encountered generally 250mm thick across the site, except for the southwestern corner.
- Below topsoil, the scala penetrometer blow counts were generally indicative of a CBR of 8%
- The scala penetrometer blow count results for the access in the south-eastern corner were low, and indicative of CBR < 3% should be assumed in this location.
- The laboratory tests generally correlated well with the site tests.

Discussion

A pavement designer should review the attached report and provide advice on the recommended construction for any trafficable surface.

In general, we do not recommend that pavement construction is placed directly on top of topsoil, as this material is highly variable, and may be susceptible to compression, heaving and rutting when trafficked wet.

Without prejudging what a pavement designer may propose, the underlying silty sand soils are relatively consistent in their stiffness from a pavement design perspective, and we anticipate that a relatively standard flexible pavement design will suffice in this site.

We understand that the client is seeking guidance on the potential for a “scoria” type porous flexible overlay being placed as a hard-standing that can both be driven on and get will “green-up”. Whilst this is likely a reasonably serviceable solution, it is certainly non-standard, and a pavement designer would have to advise on the suitability of such a solution.



Yours sincerely

Paterson, Lee
Geotechnical Engineer
Stantec New Zealand

Encl.: Factual Geotechnical Report

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Armagh
Christchurch 8141

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Appendix E NZMCA Member Requirements

ENVIRONMENTAL CARE CODE

Driving towards a sustainable future

- Empty toilet and waste tanks in approved dump stations. *Holes must not be dug in the ground*
- Take care with plants and animals
- Keep your vehicle to formed tracks
- Keep your campsite tidy. Remove all rubbish and take it with you when you leave
- Leave no extra equipment around outside your vehicle, although you may use your awning and generator
- Generators may be used from 8am to 8pm only (consider your neighbours by limiting the use thereof)
- Observe fire restrictions. Use only built fireplaces and portable BBQs if you wish to cook outside
- Be aware, respect and value any spiritual, historical or scenic value in areas you visit
- You are requested to report environment abuse and/or improper use to the landowner or local DOC office.

sustainable
BUSINESS NETWORK
MEMBER

The logo features the word 'sustainable' in a large, grey, sans-serif font. Below it, 'BUSINESS NETWORK' is written in a smaller, grey, sans-serif font, and 'MEMBER' is written in a small, green, sans-serif font. To the right of the text is a graphic of several green dots arranged in a diagonal line, suggesting a path or a cluster of points.

MEMBERSHIP CODE OF CONDUCT

- Treat others with respect and courtesy wherever you are
- Be a considerate and safe driver. Obey NZ road safety rules, and pull over to let others pass
- Avoid causing visual or noise pollution, e.g. only use generators, stereos etc at appropriate times during the day, and do not hang washing out in places that may offend others
- Park your vehicle with safety in mind, in case of fire or flooding. At least 3m from other vehicles or inhabited buildings is recommended
- Comply with local animal control bylaws. Keep your pets under control and pick up after them
- Be discreet when choosing an overnight parking spot – consider how the surrounding neighbours may react
- Respect restrictions - do not overstay your welcome. If asked to move on, do so gracefully
- Offer to pay for facilities used. Water, power, waste disposal, road and ground maintenance all cost money
- Do not demand discounts or special treatment using the Association name
- Abide by NZMCA regulations.

Appendix F Pavement Options Memo

20 Bay Road, Warrington – Pavement Options

This report has been prepared for the benefit of the NZ Motor Caravan Association. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

Rev. no	Date	Description	Prepared by	Checked by	Reviewed by	Approved by
1	30/6/2020	First Issue	N Lister	K Bombay	L Paterson	D Evans

1 Background

The site at 20 Bay Road Warrington, has historically been used as a Kings School training facility and motor caravan park. It is proposed by the NZ Motor Caravan Association (NZMCA) to develop the site into a more formal caravan park, by completing a range of improvements over the site, semi-formalising parking arrangements with landscaping, and introduce additional amenity plantings.

It is proposed to upgrade the entry driveway to a higher standard un-sealed gravel surface than currently exists, while the remainder of the site will remain as a grass covered area.



Figure 1: Indicative Site Plan.

Located within the main site are areas of historical and archaeological significance, with near and at surface artefacts being identified. The previous use of the site, resulted in the disturbance of some of these identified areas, either as the result of ground contouring works, or due to vehicle traffic driving over the site.

This report details a range of options which could be implemented to successfully allow the historical areas to remain undisturbed while the NZMCA operate a motor caravan park on the site. Generally, this will take the form of protecting any artefacts in place, by the use of geotextile fabric and geosynthetic grids, to provide a separation and reinforcement layer, on top of the existing ground surface, followed by the placement of fill effectively burying the artefacts.

Note while the word “pavement” is used throughout this report, other than the access driveway, the nature of the proposed development is not for a standard road pavement to be constructed, rather a reinforced or unreinforced soil pavement. As such some of the normal pavement design methods are not directly applicable to this situation.

The key item to ensure a suitably durable topsoil / grass surface for the expected traffic loadings is surface drainage. Once topsoil is wet or saturated the strength of the material reduces rapidly.

2 Design Traffic

The site is expected to be trafficked by a range of vehicles varying from private cars towing caravans to medium commercial vehicles (bus, campervan, recreational vehicle). With the movement of vehicles per day expected to peak at 100 vpd during the high season.

The total expected Design Equivalent Standard Axle (DESA) for use in the pavement design is based on the vehicle profile and volumes presented in the separate Integrated Transport Assessment report. The following design parameters have been used to calculate the design traffic loadings:

- Design life = 25 years
- Heavy Commercial Vehicle (HCV) growth = 0% (assumed)
- %HCV = 3.4% (ITA report based on 50% Class 4 and 100% Class 5 vehicles)
- ESA/HCV = 1.44 (Transit 2007 NZ Supplement to Austroads, in lieu of any site specific data)
- Number of Heavy Vehicle Axles Groups (NHVAG) per HCV = 2.4 (Transit 2007 NZ Supplement to Austroads, in lieu of any site specific data)
- ESA/HVAG = 0.6 (Transit 2007 NZ Supplement to Austroads, in lieu of any site specific data)
- Annual Average Daily Traffic (AADT) = 100

A 25 year in service DESA of 4.4×10^4 ESA is calculated for the new access road and wider site, DESA calculation included in **Appendix A**. Note this is a very low expected traffic volume however, should be conservative due to the higher percentage of these vehicles being partially laden, compared to normal HCVs which typically will have higher loading factors.

3 Geotechnical Investigation

A brief geotechnical investigation has been completed over the site with six test pits being completed across the extent of the site. The Geotechnical Assessment is included in **Appendix B**.

3.1 Subsurface Ground Conditions

The test pits indicate that the site is generally underlain by:

- a layer of TOPSOIL / organic matter to approximately 250mm, varying to 100mm to the South West of the site
- underlain by a subgrade of mainly SAND with minor silt varying to a sandy SILT to the North of the site.

3.2 Subgrade CBR for Design

Based on the subgrade descriptions logged as part of the geotechnical investigation and with reference to Austroads 2012 Table 5.4, reproduced below, we would expect a subgrade CBR of approximately 10% for the SAND subgrade, and 2% for the SILT subgrade, assuming fair to poor drainage conditions.

Table 5.4: Typical presumptive subgrade design CBR values

Description of subgrade		Typical CBR values (%)	
Material	Unified Soil Classification	Excellent to good drainage	Fair to poor drainage
Highly plastic clay Silt	CH	5	2–3
	ML	4	2
Silty-clay Sandy-clay	CL CL	5–6	3–4
Sand	SW, SP	10–18	10–18

Based on the site scale penetrometers and lab soaked CBR testing, a range of subgrade CBR varying from 3.5% to 19% across the site has been identified. These results indicate potentially weaker areas of SAND subgrade being present in pockets across the site than the presumptive values provided by Austroads.

3.3 Design Subgrade CBR

We have adopted a subgrade **design CBR of 4%** for use in the design:

4 Design Pavement

Based on the design traffic and subgrade CBR values a design pavement depth of 290mm is calculated.

For a typical two layer road pavement (subbase, and basecourse) this would normally require a 190mm of AP65 subbase followed by 100mm of AP40 basecourse. Minimum layer depths are governed by the need to achieve 2.5 times the maximum particle size to allow full compaction.

The above design pavement is only directly applicable to the accessway construction as this is to be constructed of compacted granular materials but provides an indication of suitable treatments for the wider sider which is to remain grassed.

4.1 Accessway

This area has the highest concentration of vehicle loadings, as it funnels vehicles from Bay Road into the site proper.

The above design values are deeper than the 250mm required depth of compacted granular material contained in the DCC consent. The required 250mm pavement depth is expected to be sufficient due to the accessway remaining unsealed, therefore being able to be repaired / strengthened relatively easily by adding additional material, and the conservatism in the traffic loading calculations.

If the accessway is to be sealed with a chipseal or asphalt, then consideration should be given to increasing the depth of pavement provided.

4.2 Campervan / Caravan Parking Area

A grassed soil “pavement” is proposed for the remainder of the site. Three separate grassed “pavement” designs are described below, to account for the vehicle circulation area where concentrated traffic movements on site may cause topsoil / turf damage, the identified area of archaeological significance requiring protection treatment, and the balance of the site.

4.2.1 Circulation Areas

The areas of higher or concentrated traffic movements, such as near the kiosk / transition from the granular accessway onto the grassed area and the turning areas at the head of each lane, are at risk of damage if driven on when wet. It is recommended that a suitable soil reinforcement is provided in these areas. An example of a suitable proprietary product, Cirtex SurePave, is provided in **Appendix C**.

There are other products available from different manufacturers, which provide the same or a similar function, which may also be suitable. This product class works by reinforcing the top 50 – 75mm of topsoil with reinforcement matt. The matt typically has a “honey comb” arrangement of open cells, which provides confinement to the topsoil layer, allowing the applied wheel loading to be spread across a wider area of the topsoil below without inducing additional compaction.

Generally the installation of this type of product requires the following steps:

- stripping of ~50mm of the topsoil / turf layer,
- levelling of the site with imported topsoil or sand to ensure drainage fall is maintained,
- placement of the proprietary soil reinforcement mats,
- filling the reinforcement mat cells with topsoil,
- sowing grass or laying turf (aka Readylawn)

4.2.2 Area of Archaeological Significance

The areas identified as containing near or at surface artefacts, requires some form of protection from direct traffic loading to ensure any artefacts remain protected and un-damaged. **Figure 2** below shows the indicative extent of the archaeological area with minimal cover to the layer of interest.



Figure 2: Areas of Archeological Interest identified during Site Survey, Feb 2020.

To provide protection in this area it is proposed to complete an “overlay” pavement design, with limited to no excavations being completed, by placing additional imported material above the existing surface level. This area is proposed to be mainly a parking area, with circulation limited to the northern entry to the lane between parking spaces rather than in a concentrated area as such it is expected that the un reinforced surface could remain as long as it is well compacted following grass strike and has sufficient fall to ensure positive runoff of surface water.

A geotextile fabric and geogrid reinforcement layer is proposed to be laid on the existing surface prior to the overlay. This has a two fold benefit, firstly the geogrid layer helps spread any imposed traffic loading across a wider area of the existing ground minimising the chance of deformation from occurring and / or damage to near surface artefacts.

Secondly, the geofabric and geogrid layer provides a physical barrier that will highlight to anyone excavating on site, that they have reached the depth of archaeological significance.

To ensure adequate drainage is achieved a drainage layer of coarse sand is proposed directly above the geofabric and geogrid layer. This layer ideally would drain to daylight or via subsoil drains to a suitable outfall.

In this area the construction of this pavement would take the following steps:

- spray existing grass with a suitable herbicide,
- mow the dead grass close to the existing surface level, and remove clippings to waste,
- place geofabric and geogrid layer,
- place 100mm coarse sand drainage blanket,
- place 200mm minimum imported topsoil across the area,
- level site to ensure positive drainage is achieved,
- sowing grass or laying turf (aka Readylawn)
- roll area once grass strike has been achieved, to ensure a suitably compact surface.
- monitor site, and retrofit soil reinforcement matt if required.

4.2.3 Balance of Site

For the remainder of the site, some levelling / recontouring will be required to ensure positive drainage is maintained, especially given the proposed overlay to the archaeological area may fill some of the natural flow paths, and to provide a smoother surface for vehicle ride. This levelling should be completed via the importation of additional topsoil to the site as a fill operation, rather than a combination cut and fill operation, to minimise any excavations required.

In this area the construction would take the following steps:

- spray existing grass with a suitable herbicide,
- mow the dead grass close to the existing surface level, and remove clippings to waste,
- place varying depth of imported topsoil across the area,
- level site to ensure positive drainage is achieved,
- sowing grass or laying turf (aka Readylawn)
- roll area once grass strike has been achieved, to ensure a suitably compact surface.
- monitor site, and retrofit soil reinforcement matt if required.

5 Construction Considerations

Some construction requirements are outlined below. These comments do not constitute a specification, however a technical specification will be required to allow the successful construction of the upgrade.

5.1 Imported Topsoil

The imported topsoil should be a high quality freely draining sandy LOAM or gravelly LOAM material, to ensure there is sufficient strength in the topsoil to counteract the imposed loads. If there is too high a content of CLAY or SILT the topsoil is likely to pug under imposed wheel loads.

5.2 Construction Sequence

The construction sequence should be staged to minimise the over tracking of unprotected, or wet soils. Once the soil support matrix is damaged by trafficking of wet soils, the only repair possible is drying of the soil, followed by hoeing in place back to a fine particle size, followed by relaying. If this occurs then the chance of over excavating or hoeing through the existing surface is a risk.

5.3 Pavement Drainage

Protection of the pavement against damage induced by water within the pavement or ponding on the surface is a critical aspect of the pavement design.

A subsoil system may be required to allow removal of excess water from the subgrade and minimise the overlaying topsoil from becoming affected by moisture and will assist in maintaining the pavement in a good condition over its life.

Special care will be needed when installing any subsoil drains as they are likely to need to be installed below the existing surface level, to allow for positive drainage.

5.4 Ongoing Maintenance

With a trafficked grass area, some ongoing maintenance and remediation of damaged areas of the topsoil surface and grass is expected. Imposed wheel loads and concentrated traffic have the potential to over compact the surface or damage the grass covering. This damage can be minimised by rotating the use of the individual parking areas, to ensure even vehicle loading across the site.

The main accessway being unsealed will require ongoing addition of new wearing course to replenish the surface, and potentially regrading to ensure positive drainage and removal of any potholing.

Appendix A: Design Traffic Loading