

## **APPENDIX 9**

### **Infrastructure Assessment**



**TKKM TE WANANGA WHARE TAPERE O TAKITIMU : NEW SCHOOL**

**BENNETT ROAD, HASTINGS**

**INFRASTRUCTURE ASSESSMENT**



**Prepared for :** RDT PACIFIC LTD on behalf of the MINISTRY OF EDUCATION

**Prepared by :** Surveying The Bay Ltd

**Date Prepared :** June 2017 (Revised August 2017)

**Project:** 4337

## **TABLE OF CONTENTS**

<b>1.0</b>	<b>Introduction and Background</b>
<b>2.0</b>	<b>Site Location</b>
<b>3.0</b>	<b>Legal Description</b>
<b>4.0</b>	<b>District Plan Zoning</b>
<b>5.0</b>	<b>Site Characteristics</b>
<b>6.0</b>	<b>Wastewater Drainage</b>
<b>7.0</b>	<b>Water Supply</b>
<b>8.0</b>	<b>Stormwater Drainage</b>
<b>9.0</b>	<b>Electrical Supply</b>
<b>10.0</b>	<b>Telecommunications</b>
<b>11.0</b>	<b>Gas Supply</b>
<b>12.0</b>	<b>Conclusion</b>

### **Appendices**

<b>A</b>	<b>Hastings District Council Services without aerial photo</b>
<b>B</b>	<b>Hastings District Council Services with aerial photo</b>
<b>C</b>	<b>Lidar Contours of general area</b>

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## 1.0 Introduction and Background

The Ministry of Education (the Ministry) proposes to build a new school in Hastings and has purchased the subject site, shown as Area 1A in Appendices A-C. The Ministry is now proceeding with a Notice of Requirement application.

On behalf of the Ministry, Surveying The Bay Ltd has been engaged by RDT Pacific Ltd to provide a preliminary infrastructure assessment of the site including identifying any particular issues around capacity and provision of services.

## 2.0 Site Location

The site is located at Bennett Rd, on the north-east side of Hastings, and the general location is shown in Figure 1 below, outlined in red.

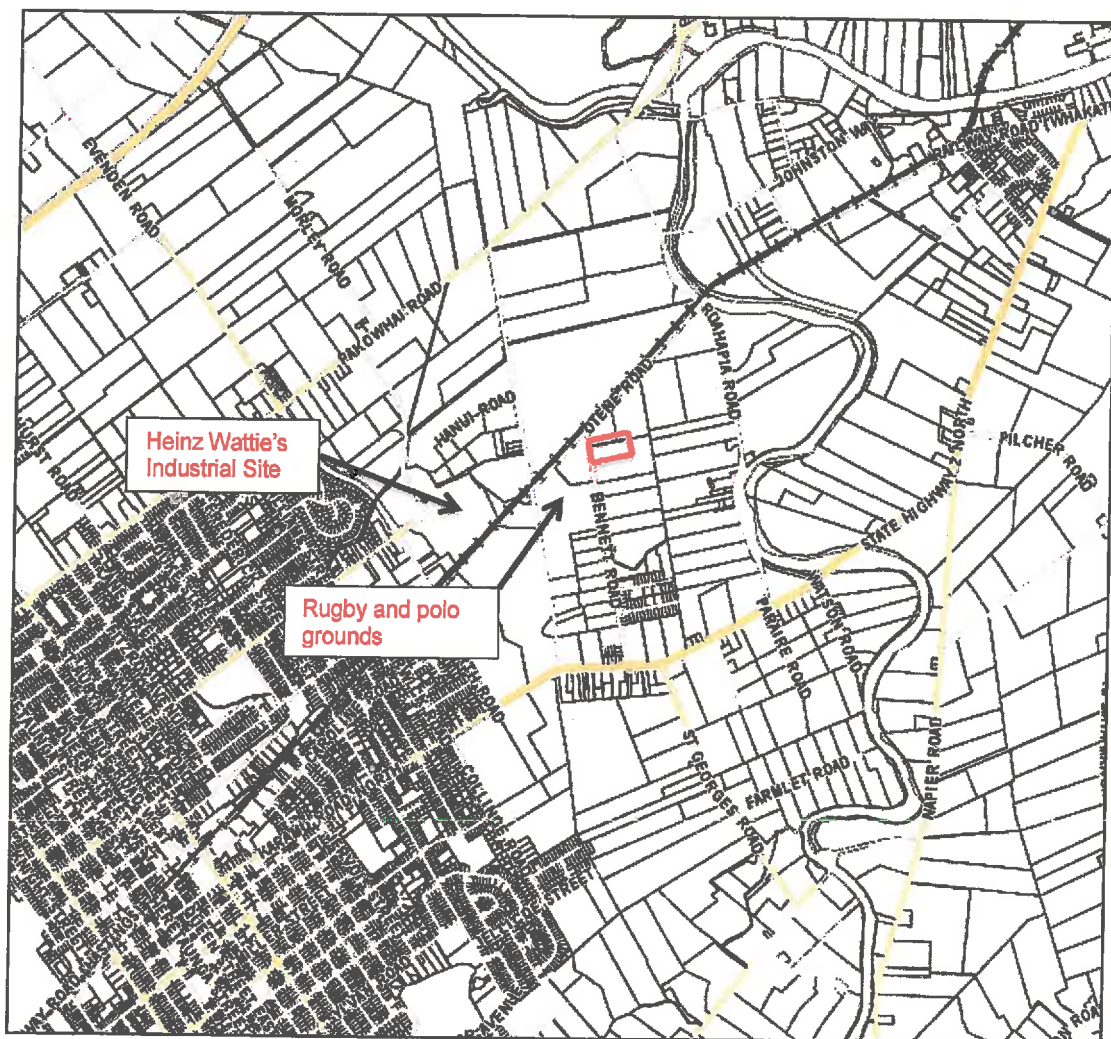


Figure 1 : General locality

The site is located in a flat area of production land of generally mixed use - primarily pip fruit, market gardens and cropping. To the west is the Heinz Wattie's industrial site, and there is also a recreation area (rugby and polo grounds) to the south-west.

Below is an extract from the Hastings District Council (HDC) GIS showing an aerial photograph and site features. The site is approximately 1.1km (as the crow flies) north-east of the Kenilworth Rd suburban residential area. There is also a rural residential cluster of housing approximately 600m to the south of the site



**Figure 2 : Aerial photo**

### 3.0 Legal Description

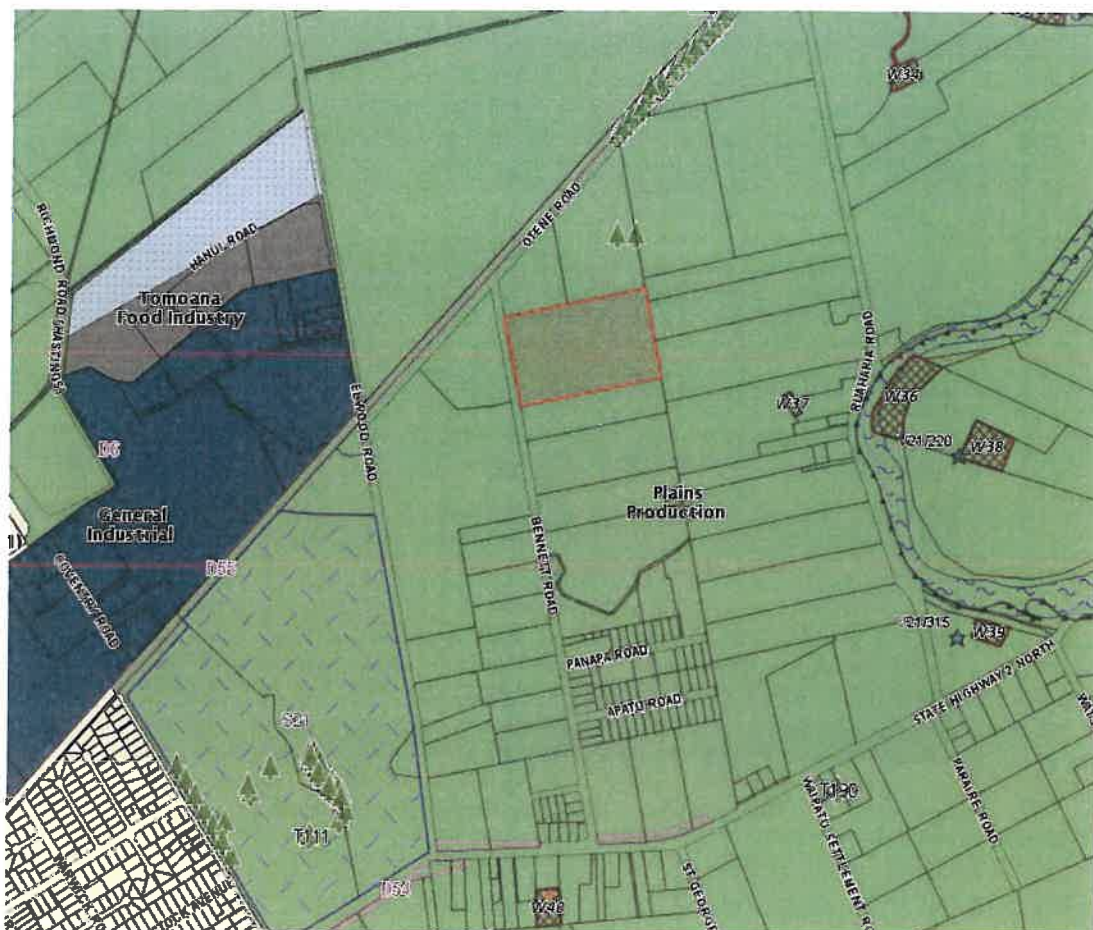
The land is contained in Computer Freehold Register HBB3/462, and is described as Lot 2 Deeds Plan 566 and Lot 2 DP 11280. The total land area is 9.2471 ha. The title is owned by Aorangi Maori Trust Board, and has no memorials noted apart from a mortgage, and being subject to Section 36(4) of the Counties Amendment Act 1961.

The Ministry of Education is proceeding with the purchase of part of HBB3/462, shown as Area 1A on Appendices A-C.

### 4.0 District Plan Zoning

The current underlying zoning is *Plains Production* as shown on Map 27 and 35 of the Proposed Hastings District Plan 2015, an extract of which is shown below.





**Figure 3 : Current zoning**

## 5.0 Site Characteristics

The site area of interest is in the north-west corner of the block and labelled Area 1A on the project plan titled "Proposed Required Land" (dated 28-11-2016 - prepared by The Property Group).

A site visit was performed on 23 May 2017. It was not possible to perform a site walkover because access was restricted. However, it appears the entire area of interest is in pasture and fenced into several paddocks.

The area is essentially flat and appears to contain a dirt horse training track, with what appears to be an elevated observation platform, but we were unable to confirm this.

There are no buildings on the site in the area of interest, although there are stock yards and several small structures on the southern part of the block.

We could not observe any drains or other drainage features, but they may have not been visible, and no other infrastructure was readily apparent on the site.



**Photo 1 :** Site – looking north-east from Bennett Rd, showing wide road berm and flat nature of the site.



**Photo 2 :** Bennett Rd – looking north, showing existing road surface and berms.

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**Photo 3 : Bennett Rd – looking south, illustrating lack of berm infrastructure.**

## 6.0 Wastewater Drainage

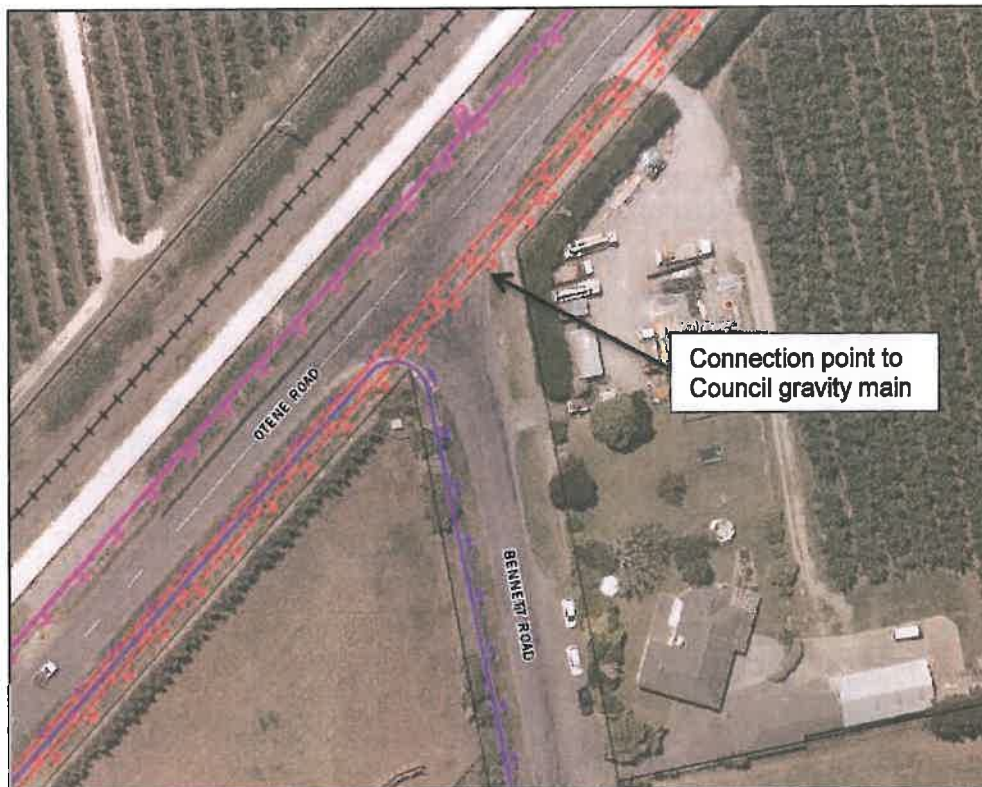
Please refer to the attached plans (**Appendices A, B & C**) showing general site levels and local HDC infrastructure.

HDC Council information has been provided by Brett Chapman, Water Services Manager.

There is an existing trunk wastewater gravity main in Otene Road, approximately 85m to the north of the property. This can be used for wastewater disposal, and there would need to be a new manhole constructed at the discharge point.

It would be possible to construct a private sewer lateral from the subject site to the gravity trunk main. We note this has already been completed for another site further south on Bennett Rd. The existing private line is shown on the west side of Bennett Rd on the existing infrastructure plans.

We have not confirmed whether the wastewater lateral could be gravity fed or would need to be a pressure line from the subject site.



**Figure 4 : Existing wastewater infrastructure**

## 7.0 Water Supply

Council advises there is no existing HDC water supply system at the north end of Bennett Rd. The HDC GIS shows one private bore and one Council bore at the south end of Bennett Rd. The Council bore has additional capacity and provides potable water. However, capacity is limited to a “top-up” supply for on-site storage (confirmed by telephone conversation with Brett Chapman 14/06/2017).

The nearest reticulated water supply is in the Coventry Rd/Kenilworth Rd area to the west of the site, as shown on the below extract from the HDC GIS. The existing 150mm AC water main is approximately 1200m from the site.

Council advises there are two realistic options, apart from a Coventry Rd supply. This assumes the construction costs for a pressure supply from Coventry road are prohibitive and have no significant advantages over the Council supply in Bennett Rd. The pressure would unlikely be sufficient for firefighting purposes, and on-site storage would still be required.

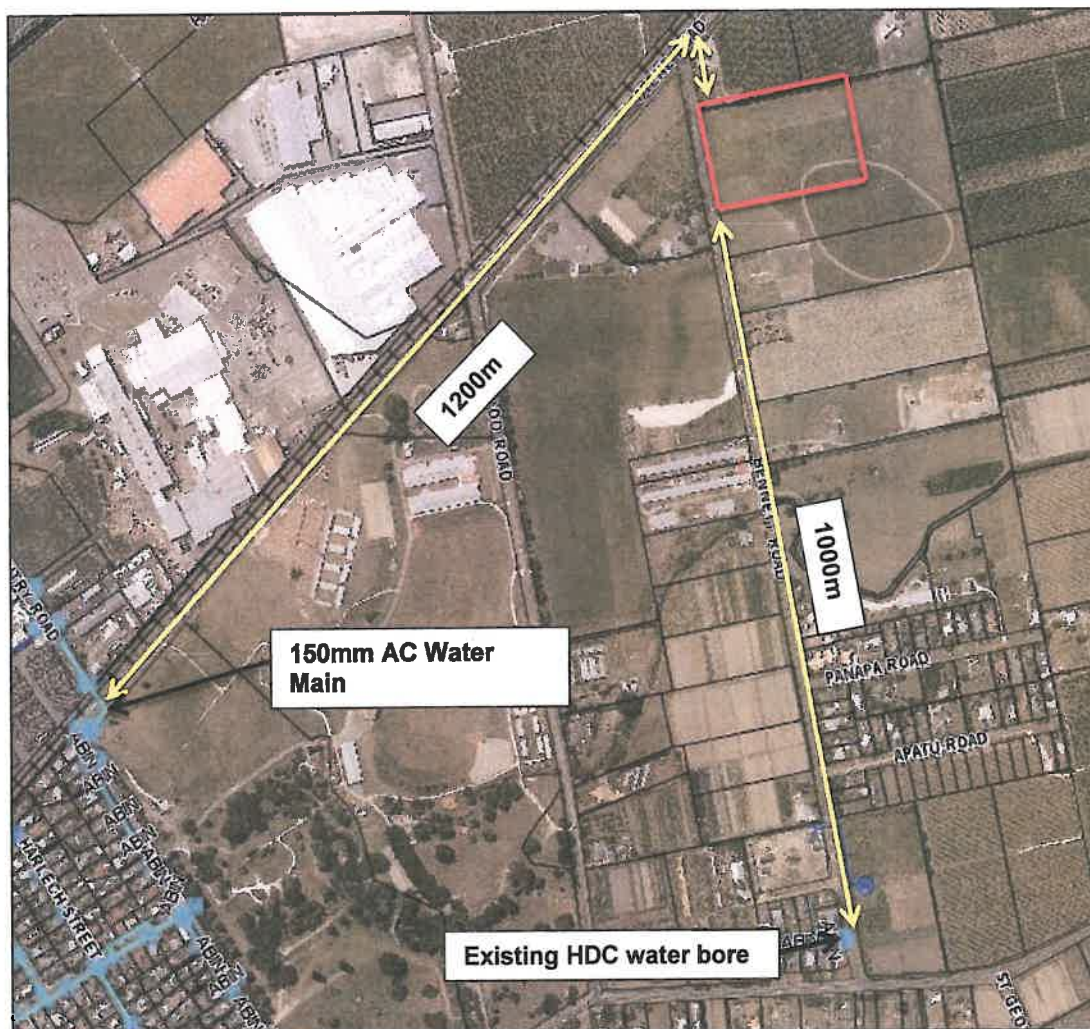
One option is to self-supply by establishing a bore on-site. We note there are already numerous bores in the vicinity, as shown on the below extract from the Hawke's Bay Regional Council (HBRC) Intramaps site. We have not confirmed with HBRC if a bore is feasible, but a resource consent would need to be obtained.

The map shows a network of roads including Olene Road, Elwood Road, Kauru Road, and a road labeled '2192'. A river is depicted on the right side. A red rectangle labeled 'Site 1A' is located near the intersection of Olene Road and a road labeled '2012'. The area is populated with many numbered points, some of which are accompanied by a small circular icon containing the letter 'f'. Other labels on the map include 'Showgrounds' and various numbers like 18299, 4217, 5982, 5983, 5954, 1109, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8412, 439, 1954, 10684, 15579, 1933, 1591, 883, 2192, 10829, 15628, 2331, 15574, 15593, 15625, 1230, 390, 2273, 8385, 15581, 1109, 5954, 4217, 18299, 2329, 5982, 5983, 16450, 5166, 15581, 10780, 2576, 980, 10772, 10748, 15532, 4740, 5957, 347, 1892, 10777, 134, 9072, 16713, 16575, 10739, 10740, 1986, 4246, 530, 3099, 5910, 4094, 15584, 1571, 15585, 575, 1176, 37, 8

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Page 9 of 17





**Figure 6 : Existing water infrastructure**

## 8.0 Stormwater Drainage

For analysis of the general area in terms of site levels, the potential for flooding and Council requirements, refer to the Flooding Assessment produced by Surveying The Bay under separate cover.

The basic premise for stormwater control, due to the downstream constraints (as mentioned in the Flooding Assessment), is that there is no increase in peak flow or volume post-development compared to pre-development. Subject to site specific design and liaison with Council, this will most likely need to be achieved through on-site attenuation.

Council also requires that the primary stormwater drainage system of pipes and/or open watercourses shall have sufficient capacity to convey a 5 year rain storm without surcharging onto roads.

There is no available piped primary drainage system on Bennett Rd, and there is only a shallow swale drain on both sides of the road near the subject site. The swale on the eastern side of Bennett Rd drains towards Otene Rd, and is formed into an open drain part



way along the road frontage of adjoining #120 Bennett Rd. The open drain in Otene Rd drains north-east until Ruahapia Rd, at which point there is an outfall into the Karamu Stream.



**Photo 4 :** Existing shallow swale drain on east side of Bennett Rd



**Photo 5 :** Open drain on east side of Bennett Rd outside #120, near the Otene Rd intersection (looking south)



**Photo 6 :** Open drain on south side of Otene Rd looking north-east from Bennett Rd

We have no reason to suspect the existing open drains in Bennett and Otene Roads do not have sufficient capacity to convey additional flows to the Karamu Stream outfall.

However, we note the comments of HBRC in regards to the Karamu Stream in that it can be subject to flooding and *"An aspect of this flooding is that it is exacerbated by blockages caused by the sewer pipe crossing the Karamu. The blockages may not happen every time it floods, however, if there is a weed build-up, the upstream water level can increase substantially."* See Figure 7 for a photo of the sewer pipe crossing the Karamu Stream.

In our opinion, the issue of off-site stormwater drainage capacity is probably more likely to be constrained by the outfall of the Otene Rd drain into the Karamu Stream, rather than the capacity of the open drain in Otene Rd.





**Figure 119: Hastings District Council sewage pipes crossing Karamu Stream**

**Figure 7 : Sewer pipes crossing Karamu Stream**

## 9.0 Electrical Supply

Unison Networks is the local electricity infrastructure supplier. Keith Levett has provided information as to the feasibility of electrical supply.

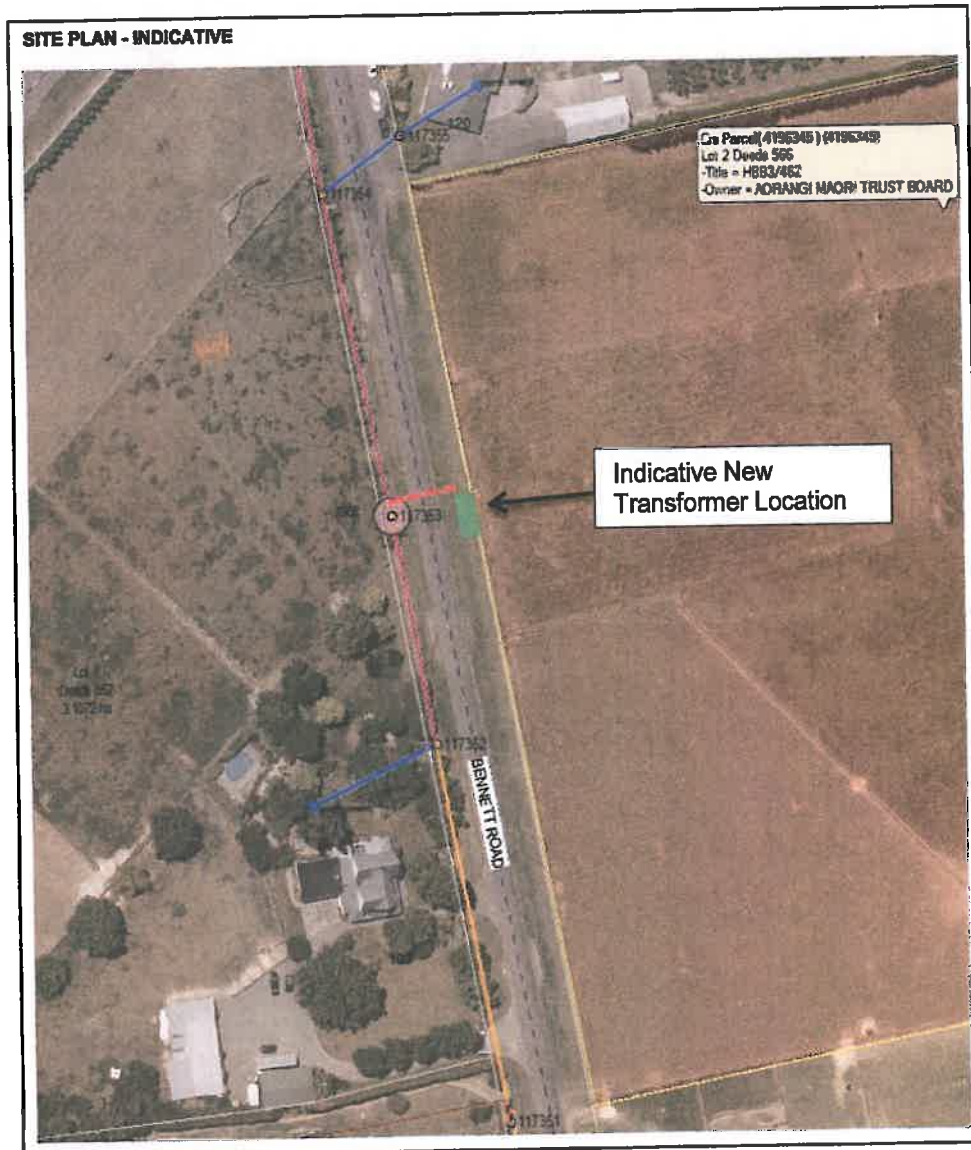
There are existing 11Kv overhead lines on Bennett Road. Below is a photograph of the overhead lines taken outside the subject property.



**Photo 7 : Transformer on west side of Bennett Rd**

RDT Pacific has advised that a load of approximately 500kVA would be required for the school, and Unison advises it is feasible to provide security of supply for a load such as this.

Below is a diagram showing a possible layout for establishment of the transformer site.



**Figure 8 : Indicative new transformer location**

## 10.0 Telecommunications

Nick van Druten from Chorus has advised there is no Ultrafast Broadband (UFB) in this area, with the nearest at the southern end of Bennett Rd at the intersection with SH2, as shown on Figure 9.

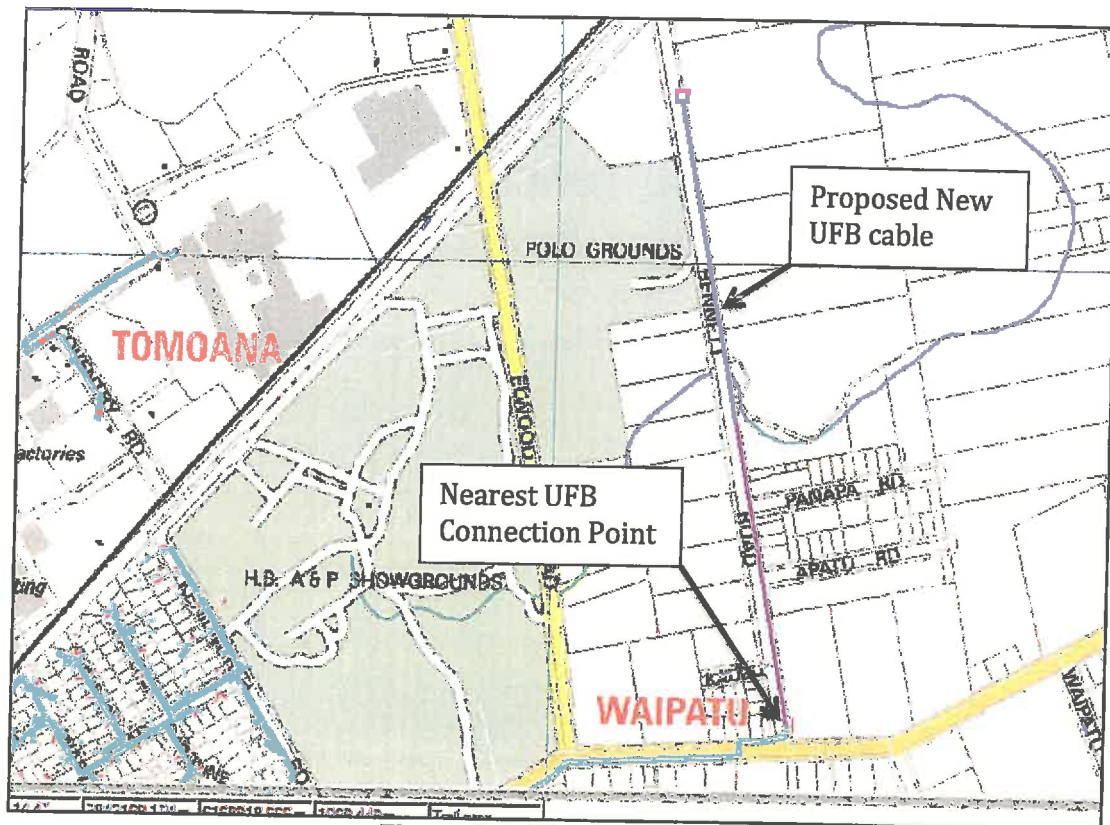


Figure 9 : UFB Infrastructure

## 11.0 Gas Supply

Powerco are the local gas infrastructure suppliers. Emma Gibson from Powerco has advised that the nearest gas main is a high pressure steel line in Otene Rd, as shown on Figure 10, and has ample capacity to service a new school.





**Figure 10** : Existing high pressure steel gas line is shown in blue

## 12.0 Conclusion

We have liaised with the appropriate service providers and determined that infrastructure services are available, however costs to provide services will be reasonably high due to the rural nature of the site.

The proximity of high voltage power lines on Bennett Rd means the provision of power is feasible. Gas and UFB services are feasible by connecting to nearby infrastructure.

The provision of wastewater drainage will be by connection to an existing gravity main in Otene Rd, which is a relatively short distance.

A private water bore could be established on the site. The nearest Council reticulated water supply is some 1200m, and there is a Council water bore at the south end of Bennett Rd, approximately 1000m away.

There appears to be capacity in the open road drains in Otene Rd to convey stormwater to the Karamu Stream. However, the Karamu Stream is susceptible to flooding issues in storm events, as outlined in the Flooding Assessment, and stormwater will require careful consideration to ensure post-development flow does not exceed pre-development.

It is recommended the capacity of the Karamu Stream to receive additional flows is investigated by further consultation with the Regional Council. Additional 2D flood modelling by the Regional Council may clarify the sensitivity of the receiving system to additional flows.

**Prepared by:**

**Date: June 2017  
(Revised August 2017)**



**Guy Panckhurst**

**Land Development Consultant  
Surveying The Bay Ltd (Napier)**


## **APPENDIX A : Council Services without Aerial Photo**

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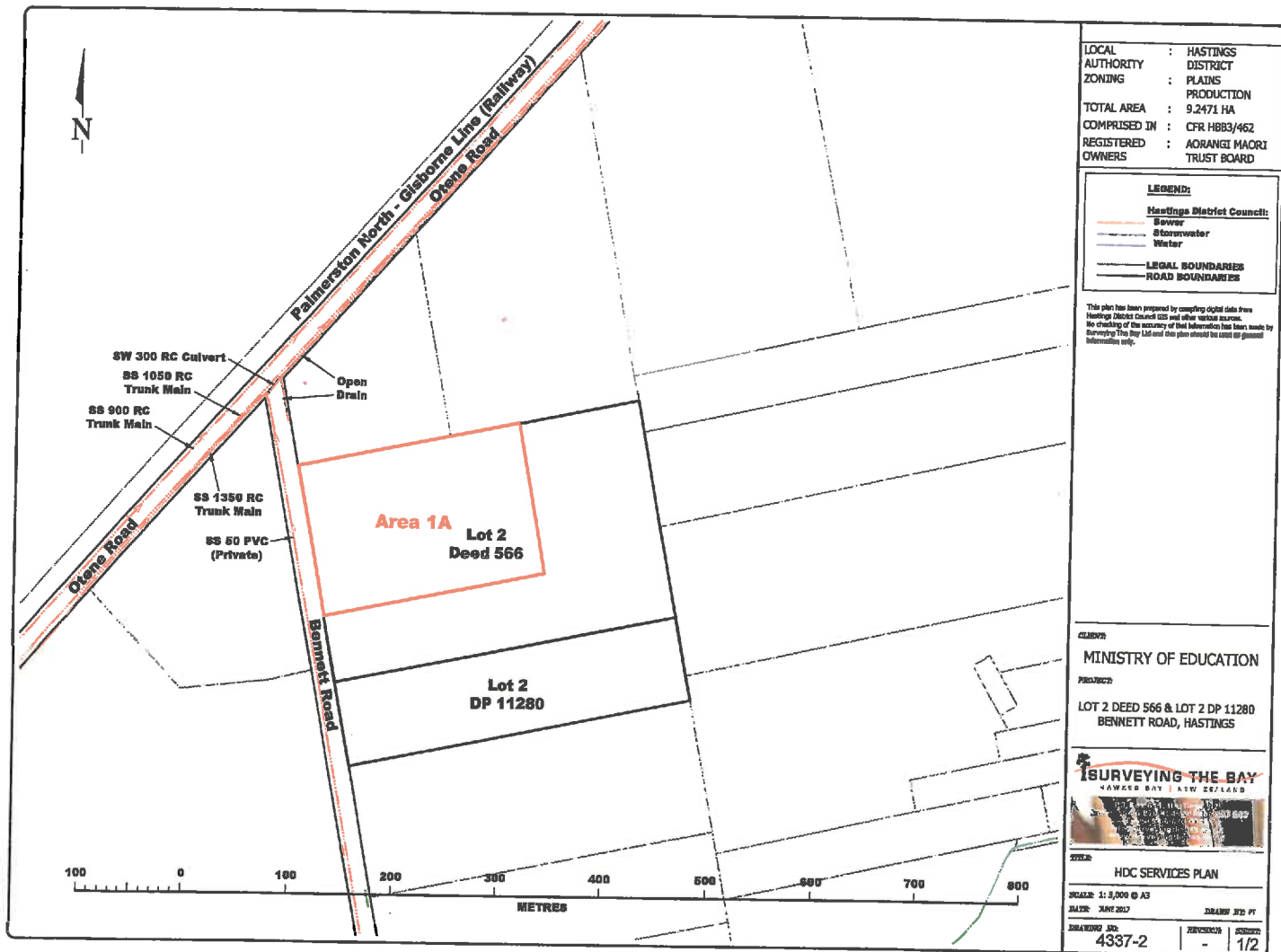
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## **APPENDIX B : Council Services with Aerial Photo**



LOCAL AUTHORITY : HASTINGS DISTRICT  
 ZONING : PLAINS PRODUCTION  
 TOTAL AREA : 9.2471 HA  
 COMPRISED IN : CFR H883/462  
 REGISTERED : AORANGI MAORI TRUST BOARD OWNERS

**LEGEND:**

**Hastings District Council:**

- Sewer
- Stormwater
- Water

**LEGAL BOUNDARIES**

**ROAD BOUNDARIES**

This plan has been prepared by compiling digital data from Hastings District Council GIS and other relevant sources. No checking of the accuracy of that information has been made by Surveying The Bay Ltd and this plan should be used as general information only.

CLIENT: **MINISTRY OF EDUCATION**  
 PROJECT: **LOT 2 DEED 566 & LOT 2 DP 11280 BENNETT ROAD, HASTINGS**



TITLE: **HDC SERVICES PLAN**  
 SCALE: 1:3,000 @ A3  
 DATE: JUNE 2017  
 DRAWN BY: PY  
 SURVEYING INC: **4337-2** | REVIEWED: - | CHECKED: 2/2




## **APPENDIX C : LIDAR Contours and Levels**

### **Napier**

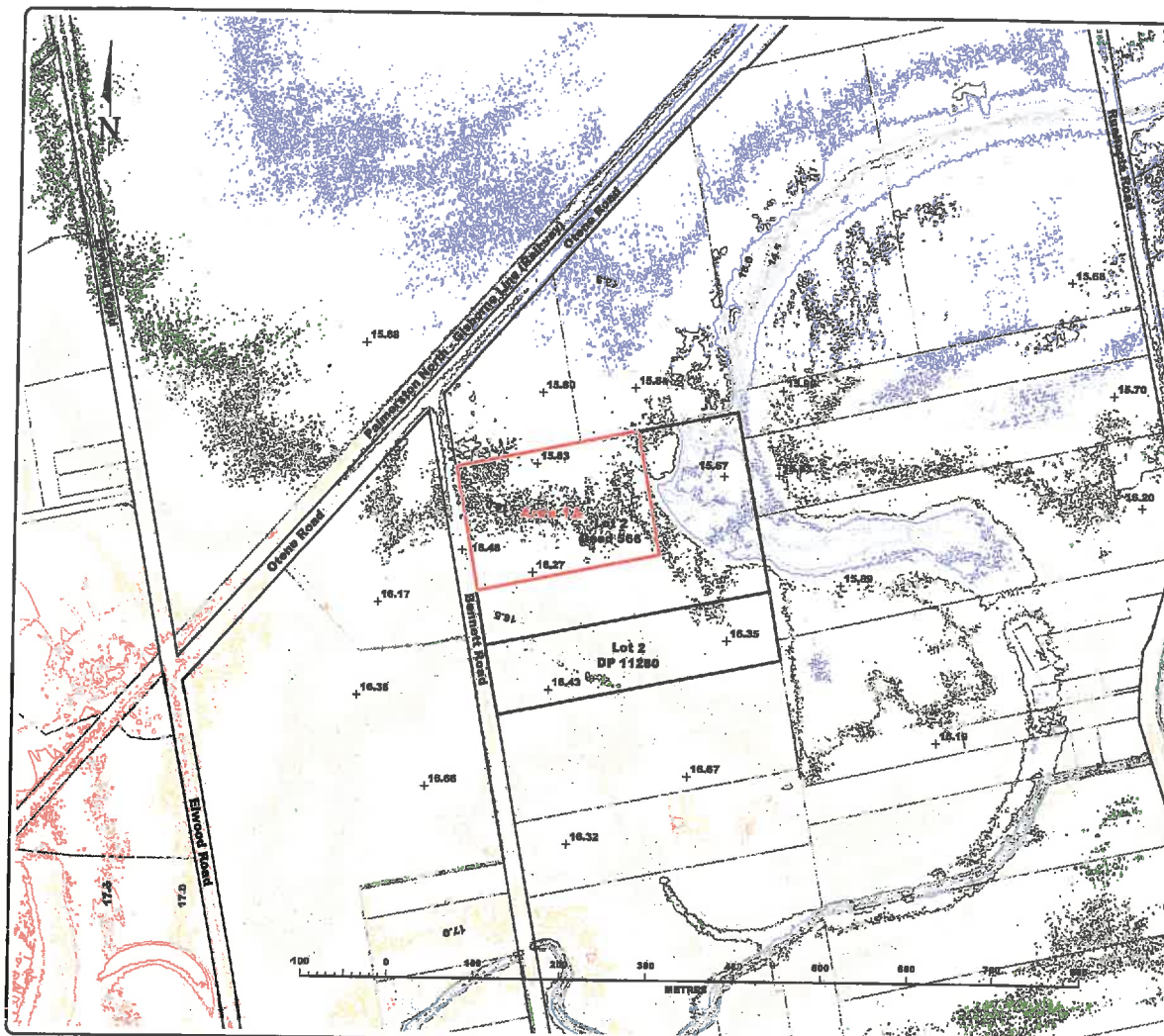
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LOCAL AUTHORITY : HASTINGS  
 DISTRICT : DISTRICT  
 ZONING : PLAINS  
 PRODUCTION : PRODUCTION  
 TOTAL AREA : 9.2471 HA  
 COMPRISED IN : CFR H883/462  
 REGISTERED : AORANGI MAORI  
 OWNERS : TRUST BOARD

**LEGEND:**  
**LIDAR CONTOURS:**  
 18.0m  
 17.5m  
 17.0m  
 16.5m  
 16.0m  
 15.5m  
 15.0m  
**LEGAL BOUNDARIES**  
**ROAD BOUNDARIES**

This plan has been prepared by compiling digital data from Hastings Bay Regional Council Lidar data (from 2 July 2009) and other relevant sources.  
 No checking of the accuracy of that information has been made by Surveying the Bay Ltd and this plan should be used as general information only.

CLIENT:  
**MINISTRY OF EDUCATION**  
 PROJECT:  
 GROUND LEVELS OF  
 LOT 2 DEED 566 & LOT 2 DP 11280  
 BENNETT ROAD, HASTINGS



TITLE:  
**CONTOUR PLAN**

SCALE: 1:4,000 @ A3

DRAWN: JUNE 2017

REVIEW: JUNE 17

DRAWING NO:  
 4337-1

REVISION:  
 1/1

