

**8 Sparky Road, Otara**

**Highbrook Private Plan Change Request:  
Infrastructure Report**



Job No: 64872#C  
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Date of Issue: 19/07/2022

## DOCUMENT CONTROL

This report has been prepared by Michael Martin and reviewed by Sukhi Singh.

Respectfully submitted

Babbage Consultants Limited



Michael Martin

**Civil Engineering Principal**



Sukhi Singh

**Technical Director - Planning**

Date	Version	Author(s)	Reviewer(s)
19 Jul 2022	Rev 1	Michael Martin	Sukhi Singh
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## 1 EXECUTIVE SUMMARY

This infrastructure report is submitted in support of a Private Plan Change request to the Auckland Unitary Plan (Operative in Part), made by Highbrook Living Limited.

The Private Plan Change (PPC) seeks to rezone the part of the property at 8 Sparky Road Drive from Light Industry to Residential – Terrace Housing and Apartment Buildings.

This report provides information on the capacity of the existing public water and wastewater infrastructure in relation to the additional demands from the PPC.

It also provides information on the existing flood hazards affecting the site and the impact of the proposed development on those flood hazards.

Information on the capacity of public stormwater infrastructure and stormwater management on the site is set out in the Stormwater Management Plan.

The contents of this report are summarised below:

1. The proposed development enabled by the PPC consists of approximately 500 residential units.
2. There is no existing water supply and wastewater network on the site. New public networks are to be installed on the site, which are to be designed and constructed in accordance with Watercare's Code of Practice.
3. Connection could be made to the nearest public water supply network, which is within 25 m of the site boundary on the opposite side of Highbrook Drive. Connection to the nearest public wastewater network could be made via an onsite pump station and rising main to an existing transmission pipe approximately 230 m south of the site.
4. The water supply demand and wastewater flow from the proposed development have been assessed in accordance with Watercare's Code of Practice and Watercare have confirmed there is sufficient capacity in the public networks for the proposed development enabled by the PPC.



## 2 INTRODUCTION

Highbrook Living Limited has engaged Babbage Consultants Limited (Babbage) to prepare an Infrastructure Report to support a Private Plan Change Request (PPC) to the Auckland Unitary Plan (Operative in Part) to rezone the land that forms part of the property at 8 Spark Road, Otara (the site).

The PPC seeks to rezone the site from the current Light Industry zoning to Residential – Terrace Housing and Apartment Buildings.

This report provides information on the capacity of the existing public water and wastewater infrastructure in relation to the additional demands from the PPC.

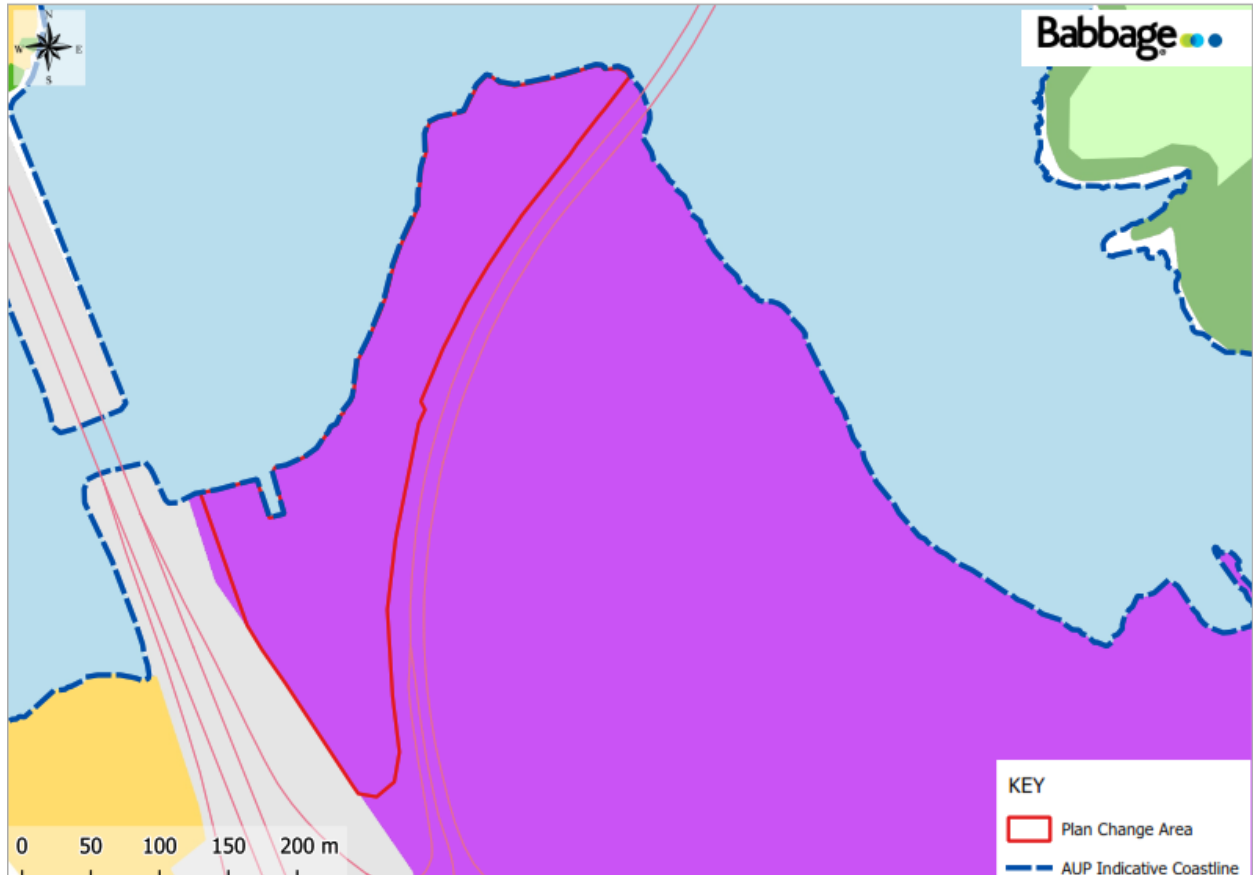
Information on the existing flood hazards affecting the site and the impact of the proposed development on those flood hazards is also provided.

Information on the capacity of public stormwater infrastructure and stormwater management on the site is set out in the Stormwater Management Plan prepared by Babbage.

### 3 SITE DESCRIPTION

#### 3.1 Location and Property Information

The site is located on the northern side of Highbrook Drive as shown in Figure 1 below.



**Figure 1: Site Location and Aerial Photograph (from Auckland Council GeoMaps)**

The site is bounded by the Tāmaki Estuary to the north and east, and State Highway 1 to the west.

The site address is 8 Sparky Road, Otara, which is the larger property that includes the site and the remaining property area that extends south of Highbrook Drive. Existing property information is provided in Table 1 below.

**Table 1: Property Information**

Address	8 Sparky Road, Otara
Legal description	Lot 2 DP 209362
Property area	35.02 ha
Plan Change area	Approximately 4.4 ha

### 3.2 History and Features

The site forms part of the former Ōtāhuhu Power Station site and there are remnant features of the former use as shown on Figure 2 below.



**Figure 2: Existing Site Features (from Auckland Council GeoMaps)**

The majority of the site is grassed or has low height planting and small to medium sized trees. An existing stormwater pond is located in the northwest corner of the site adjacent Highbrook Drive as shown in Figure 2 above. There is an existing vehicle crossing providing vehicle access to Highbrook Drive near the centre of the eastern boundary and an existing gravel access road through the centre of the site. There is a boat ramp to the Tamaki River at the northern end of the site and the remnants of a barge dock at the southern end of the site.

We understand the existing stormwater pond near the western boundary adjacent to State Highway 1 (SH1), was used as an erosion and sediment pond during construction of Highbrook Drive and the widening of SH1. The entirety of this stormwater pond is located outside the PPC area.

There are also existing overhead transmission power lines adjacent to the western boundary of the site. These power lines are also located outside of the PPC area.

### 3.3 Site Topography

The majority of the site is relatively flat with an elevation around RL 8 m, with the exception of the north western corner of the site which is also flat but has an elevation around RL 3 m. There is a slope along the Tamaki Estuary. The top of this slope is around RL 7 m and the base of the slope is around RL 2 m. The slope typically less than 45 degrees (1v:1h), however, is locally as steep as approximately 56 degrees (1.5v:1h).



## 4 PROPOSED PRIVATE PLAN CHANGE

The proposed PPC will allow development enabled by the Residential – Terrace Housing and Apartment Buildings Zone (THAB). Highbrook Living Development Concept Plan has been prepared to illustrate one option for the future development of the site, aligning with the outcomes envisaged by the THAB Zone. The Highbrook Living Development Concept Plan envisages approximately 500 houses on the site based mainly on an apartment typology. The Highbrook Living Development Concept Plan shown in **Appendix A**.

Vehicle access from the public road network to the site is to be provided from Highbrook Drive via a new intersection near the centre of the eastern boundary. The new intersection with Highbrook Drive has already been approved. An internal loop road is proposed within the southern area of the site, which is aligned beneath and through the proposed apartment buildings. An internal cul de sac road is proposed within the northern area of the site.

An esplanade reserve with a walkway is proposed along the western boundary adjacent the Tamaki Estuary, with a public recreation area and an existing boat ramp.

## 5 WATER SUPPLY

### 5.1 Existing Water Supply Network

There is currently no private water supply network on the site and no connection point from the public network to the site. There is an existing 250 mm public watermain located along the eastern berm of Highbrook Drive as shown in Figure 3 below.



*Figure 3: Existing Public Water Supply (from Auckland Council GeoMaps)*

### 5.2 Proposed Water Supply Network

To service the proposed development enabled by the PPC, water supply reticulation will be required through the site, including watermains with a minimum size of 100 mm and associated rider mains, valves, fittings and hydrants. The onsite water supply reticulation would be designed and constructed in accordance with Watercare's Code of Practice.

To provide a 'loop' connection to the public water network, two connection points would be required, with one possibly being located at the proposed intersection and the other near one end of the site.

To confirm whether the public network has sufficient capacity for the proposed development, Babbage submitted an infrastructure assessment form to Watercare in November 2021. The completed form is provided in **Appendix B**.

Watercare subsequently confirmed there is sufficient capacity in the public network for the proposed development. Their confirmation letter received on 13 December 2021 is also provided in **Appendix B**.

We note the water demand provided to Watercare was based on an assumed proposed development of 500 residential units and no commercial development. This resulted in average and peak water demands of 3.8 l/s and 19 l/s, respectively. The calculations for the water demand were carried out in accordance with Watercare's Code of Practice and are provided in **Appendix C**.



## 6 WASTEWATER

### 6.1 Existing Wastewater Network

There is currently no private wastewater network on the site and no connection point from the public network to the site. There is an existing 825 mm public transmission pipe located approximately 230 m south of the site as shown in Figure 4 below. This transmission pipe connects to a pump station approximately 650 m west of the site in Billington Reserve.



*Figure 4: Existing Public Wastewater Network (from Auckland Council GeoMaps)*

### 6.2 Proposed Wastewater Network

To service the proposed development enabled by the PPC, wastewater reticulation will be required through the site. This is likely to be a gravity system discharging to an onsite pump station, probably located in the southern area of the site, to allow a rising main connection to the existing Watercare transmission pipe south of the site near Hellabys Road as shown in Figure 4 above. On site pipes are likely to be 150 mm



diameter although some 225 mm diameter pipes may be required. The onsite and offsite wastewater reticulation would be designed and constructed in accordance with Watercare's Code of Practice.

To confirm whether the public wastewater network has sufficient capacity for the proposed development, Babbage submitted an infrastructure assessment form to Watercare in November 2021. The completed form is provided in **Appendix B**.

Watercare subsequently confirmed there is sufficient capacity in the public network for the proposed development. Their confirmation letter received on 13 December 2021 is also provided in **Appendix B**.

We note the wastewater flows provided to Watercare were based on an assumed proposed development of 500 residential units and no commercial development. This resulted in peak dry weather flow (PDWF) and peak wet weather flow (PWWF) of 9.4 l/s and 21.0 l/s, respectively. The calculations for the wastewater flows were carried out in accordance with Watercare's Code of Practice and are provided in **Appendix C**.

Watercare have advised that a static capacity assessment of the proposed wastewater connection pipeline will be required at resource consent stage.

## **Appendix A**

### **Highbrook Living Development Concept Plan**





# HIGHBROOK LIVING DEVELOPMENT CONCEPT PLAN



State Highway 1

Public recreation area

Shared outdoor space

Tōrōaki River

Walkway

Existing boat ramp for kayaks, dinghies etc.

Highbrook Drive

Key:

- A Dairy
- B Shared Office Facility
- C Cafe
- D Apartment Blocks -predominantly five storeys
- E Terrace Houses
- F Stand alone houses / Duplexes



## **Appendix B**

### **Watercare Communications**





**GENERAL ENQUIRY  
Infrastructure Assessment Form**

<b>Date of Application</b>	08/11/2021	
<b>Address of Development</b>	8 Sparky Road Otara Auckland 2025	
<b>Layout Plan of Proposed Development clearly showing:</b>	Refer attached Babbage email dated 02/11/2021	
<ul style="list-style-type: none"> <li>• Aerial photograph</li> <li>• Road names</li> <li>• Boundary of development</li> </ul>		
	<b>Description</b>	<b>Comment</b>
<b>Current Land Use</b>	Undeveloped	Residential (Single family dwellings) / Residential (Multi-unit dwellings) / Residential (Multi-storey apartment blocks) / Commercial / Industrial / Other (Please Specify)
<b>Proposed Land Use</b>	Residential (Multi-unit dwellings)	
<b>Total Development Area (Ha.)</b>	4.9 Ha	
<b>Estimated Number of Residential Households (Consent &amp; Ultimate)</b>	500 Units	E.g. 12- storey apartment building with 4 units per storey is 48 residential households.

Refer to Water and Wastewater Code of Practice for Land Development and Subdivision Section 6 Water Supply

<b>Water Supply Development Assessment</b>		
<b>Average and Peak Non-Residential Demand (L/s)</b>	3.8 l/s and 19 l/s	Watercare CoP
<b>Average and Peak Non-Residential Demand (L/s)</b>	N/A	Watercare CoP
<b>Further Water Supply comments</b>		

Refer to Water and Wastewater Code of Practice for Land Development and Subdivision Section 5 Wastewater

<b>Wastewater Development Assessment</b>		
<b>Peak DWF and WWF Residential Design Flows (L/s)</b>	PDWF = 9.4 l/s PWWF = 21.0 l/s	Watercare CoP
<b>Peak DWF and WWF Non-Residential Design Flows (L/s)</b>	N/A	Watercare CoP
<b>Further Wastewater comments</b>		

*For internal Watercare use only*

<b>Date Application Received</b>	
<b>Application Ref No.</b>	
<b>Assigned Connections Engineer</b>	
<b>Prior Developer Correspondence with Watercare</b>	
<b>Neighbouring developments to consider in capacity assessment</b>	

## Ryan Liu

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**From:** Michael Martin  
**Sent:** Tuesday, 2 November 2021 9:36 AM  
**To:** IGotelli (Ilze); Sukhi Singh  
**Cc:** KDavisMiller (Keri); AStuart (Andre); Sukhi Singh; Jono Ryan  
**Subject:** RE: Plan Change - Highbrook (Part of the site at 8 Sparky Road, Otara )

Hi Ilze,

Further to comm's below, we provide information on the proposed development as follows:

### PROPOSED DEVELOPMENT

The site is located on the western side of Highbrook Drive as shown below. Site area is approx. 4.9 ha.



The proposed plan change is intended to allow development of up to 500 residential units.

### WATER SUPPLY

There is an existing 250 mm public watermain on the eastern side of Highbrook Drive as shown below.



The intention would be to connect to the existing public 250 mm watermain. The peak water demand for proposed development in accordance with Water Supply CoP is approx. **19 l/s** for **500** residential units.

## **WASTEWATER**

There is an existing 825 mm public wastewater transmission pipeline to the south of the site as shown below.





The intention would be to connect to the existing public 825 mm wastewater pipeline as shown above. The peak wet weather flow (PWWF) for proposed development in accordance with Wastewater CoP is approx. 21 l/s for 500 residential units.

Could you please advise a suitable day and time to discuss the above with your team?

Regards,

Michael Martin

NZCE(Civil), BE(Civil)(Hons), CMEngNZ, CPEng, IntPE(NZ)

**Civil Engineering Manager**

**Babbage Consultants Limited**

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## **Appendix C**

### **Water and Wastewater Calculations**



# Calculation Sheet



Job No: 64872#C By: MJM Checked: \_\_\_\_\_ Date: 8/11/2021 Page: 1 of: 1

Project: Highbrook Living

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Subject: Water Supply Demand

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500 Units                      2 Bedrooms = 3 people  
    3 Bedrooms = 3 people

Design population = 500 dwellings x 3 people = 1,500 people


Average daily demand = 1,500 x 220 = 330,000 l/day

= **3.82 l/sec**

Peak daily demand = 330,000 x 2 = 660,000 l/day

= 7.64 l/sec

= 7.64 x 2.5 = **19.10 l/sec**

<b>JOB NAME:</b>	Highbrook Living	<b>DATE:</b>	28/10/2021	
<b>JOB NO:</b>	64872#C	<b>DES BY:</b>	RL	
<b>SUBJECT:</b>	Post-Development Wastewater Flows	<b>CHKD BY:</b>	MB	

Residential Wastewater Catchment								
Design Flow								
Catchment ID	No. of Dwellings	No. of Bedrooms	Occupancy Per Household	Litres Per Person, Per Day	Peak Dry Weather Flow (PDWF)		Peak Wet Weather Flow (PWWF)	
					Peaking Factor	Design Flow	Peaking Factor	Design Flow
				l/p/d		l/s		l/s
<b>500 UNITS</b>								
<b>UNIT A - 2 BEDROOM</b>	350	2-4	3.0	180	3.0	<b>6.56</b>	6.7	<b>14.66</b>
<b>UNIT B - 3 BEDROOM</b>	150	2-4	3.0	180	3.0	<b>2.81</b>	6.7	<b>6.28</b>
<b>Total</b>	<b>500</b>					<b>9.38</b>		<b>20.94</b>

**NOTES:**

- Residential wastewater design flows have been calculated according to Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 5, Section 5.3.5.1.1 (A)