



Chapel Downs Primary School

NoR Report – Civil Assessment

Ministry of Education

10 October 2023

GHD Limited




27 Napier Street, GHD Centre Level 3

Freemans Bay, Auckland 1010, New Zealand

T +64 9 370 8000 | F +64 9 370 8001 | E aklmail@ghd.com | ghd.com

Printed date	17/11/2023 4:27:00 PM
Last saved date	17 November 2023
File name	
Author	Samantha McGuire
Project manager	Tonja Schimmelpfennig
Client name	Ministry of Education
Project name	Chapel Downs Primary School
Document title	Chapel Downs Primary School NoR Report – Civil Assessment
Revision version	Rev C
Project number	12580392

Document status

Stat us Cod e	Revis ion	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	A	S. McGuire	S. Wyllie		R. Hawken		14/07/2 022
S4	B	S. McGuire	M. Cals		R Hawken		16/10/2 023
S4	C	S. McGuire	M. Cals		R. Hawken		17/11/2 023

© GHD 2023

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

1.	Introduction	1
1.1	Purpose of this report	1
1.2	Scope and limitations	1
2.	Civil Engineering	2
2.1	Stormwater	2
	2.1.1 Unconsented Stormwater Outlet	2
2.2	Wastewater	5
2.3	Potable Water	6
2.4	Overland Flow Paths and Flood Plains	7

1. Introduction

1.1 Purpose of this report

GHD Ltd has been engaged by the Ministry of Education (MoE) to provide a civil assessment of the development at Chapel Downs School to support the NOR application being sought by Forme Planning.

This assessment is designed to support the NOR for an alteration to the designation to allow for additional schooling years to be accommodated on the site.

1.2 Scope and limitations

This report: has been prepared by GHD for Ministry of Education and may only be used and relied on by Ministry of Education for the purpose agreed between GHD and Ministry of Education as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Ministry of Education arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Civil Engineering

This section of the Chapel Downs Primary School Masterplan report provides an assessment of the likely stormwater, wastewater, and water issues at the site and compliance with the Auckland Unitary Plan of the proposed expansion works at Chapel Downs Primary School, as well as the creation of the Chapel Downs Junior College within the existing site boundary.

The opinions, conclusions and any recommendations in this report are based on the conditions encountered and information reviewed at the date of preparation of the report. GHD Ltd has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date of this report.

2.1 Stormwater

There are no known public stormwater connection points within the school boundary according to the Auckland Council GIS map. There is an existing stream along the north-eastern boundary, which has an unconsented connection into it which takes most of the stormwater discharge from the site.

The remainder of the site (the dental clinic and carpark) drain into the public stormwater network along Chapel Road shown in figure 2 below.

2.1.1 Undocumented Stormwater Outlet

The existing outlet is within the school boundary, but on the outside of the wire mesh fence. The outlet pipe is partially submerged (shown in figure 1 below); however, no water was found in the base of the manhole within the school grounds, suggesting this pipe does flow, albeit slowly. This is not built to modern standards and appears to pre-date the majority of the structures on the site so likely was constructed at a similar time as when the school was first built in the 1980s.



Figure 1 *Undocumented Outlet to Stream*

The outlet has been placed back from the main channel, so a tributary stream has been formed between the outlet and the main stream, as can be seen in the figure above.

It should be noted that due to the age of the outlet, it is unclear whether the outlet caused this tributary stream to form, or if the tributary stream existed prior and the outlet was placed here so the stream maintained its previous flows, as this roughly follows the overland flow path on GIS.

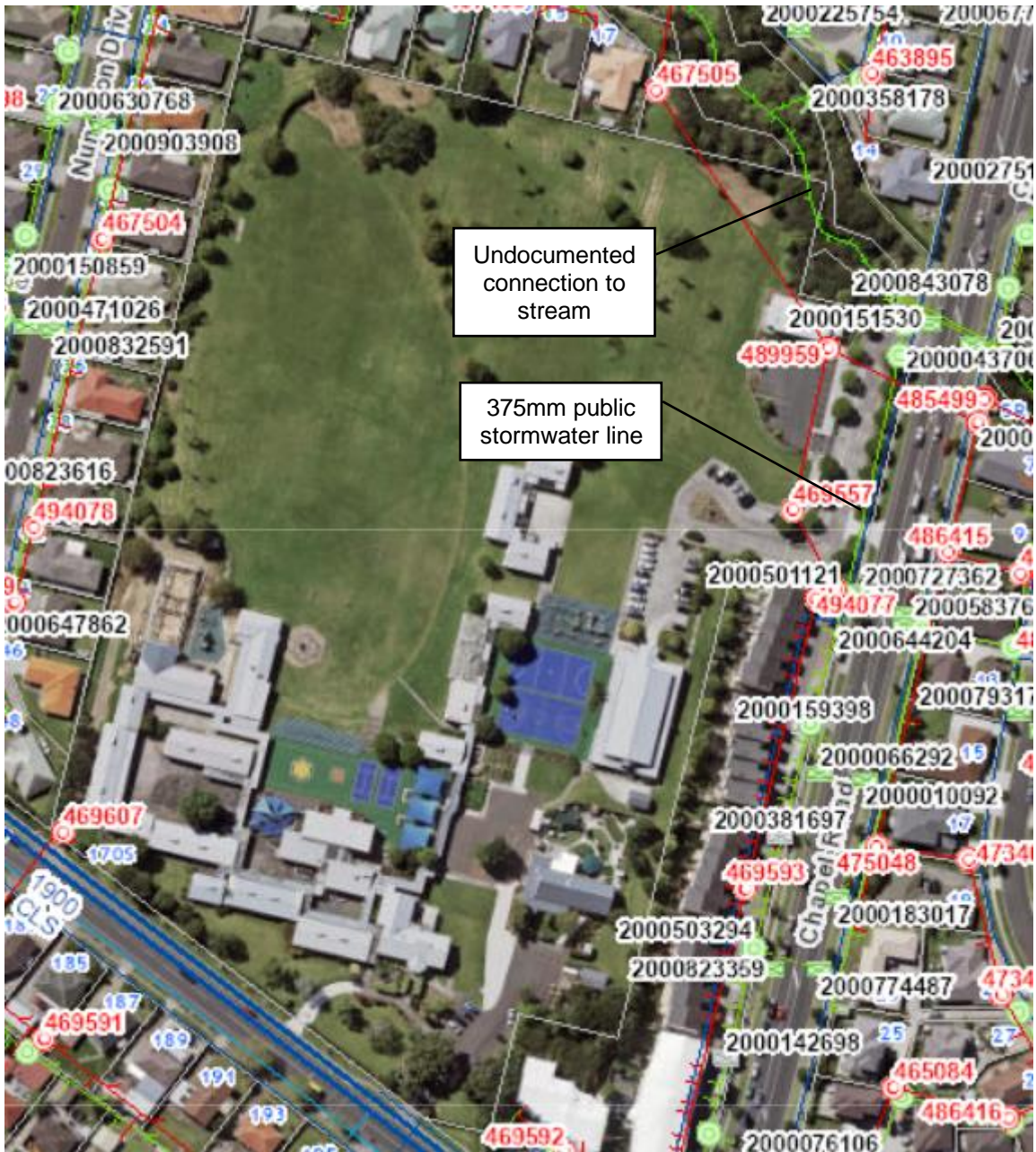


Figure 2 2 Auckland Council GIS Services Map (Stormwater)

The implications of this outlet means that any future impervious areas will need to comply with the requirements under E8 of the Auckland Unitary plan. Future development will therefore require a stormwater management device to be installed that will slow the water down to the rate as of 30 September 2013. All buildings on site that drain to the stream (with the exception of one of the relocatable blocks, which has a soakage tank installed) were constructed pre September 2013, so therefore do not need to be retrofit with tanks to make them compliant.

2.2 Wastewater

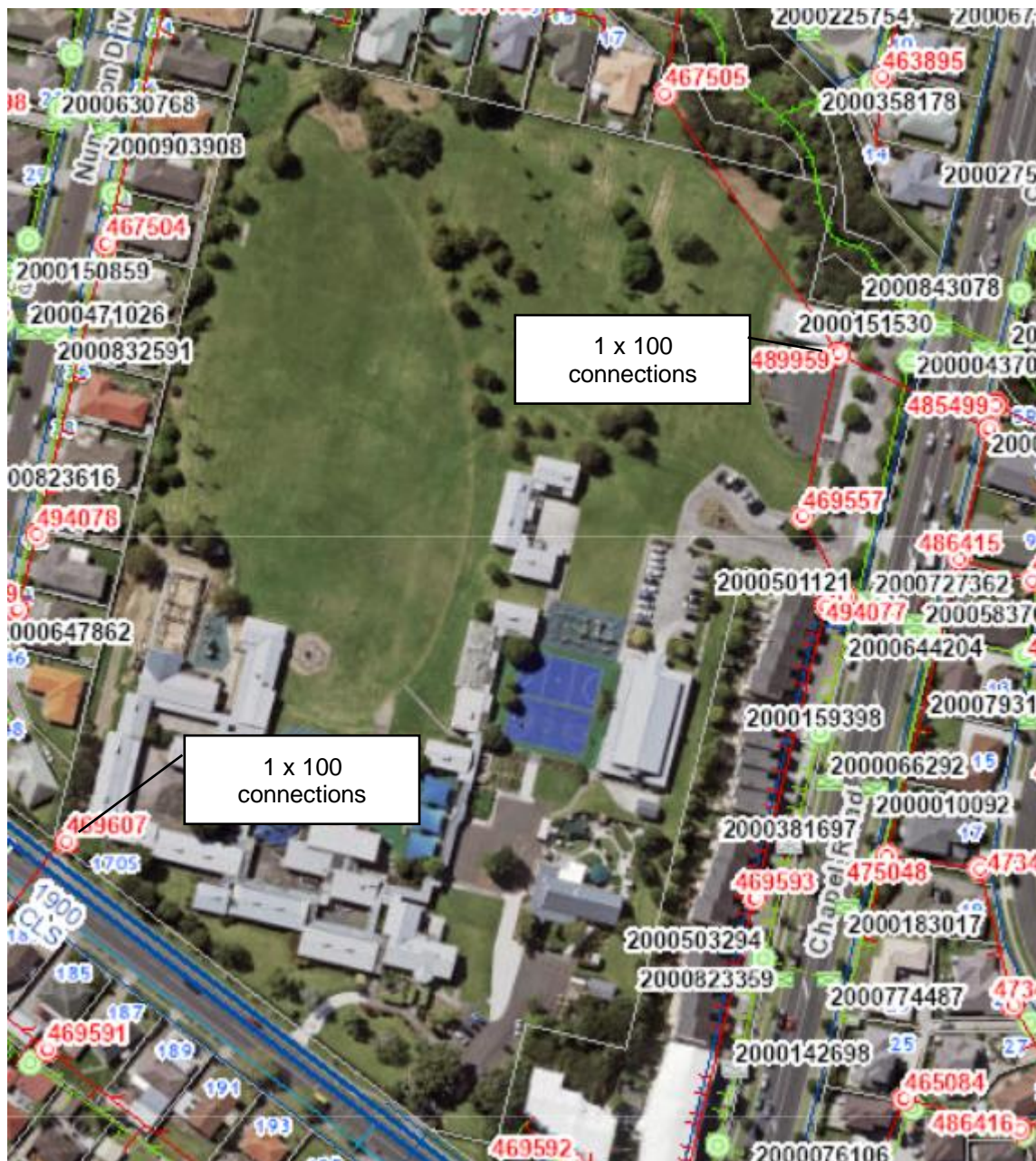


Figure 33 Auckland Council GIS Services Map (Wastewater)

There are two existing consented connections into the Watercare sewer connection, only one of which is currently in use according to available information and site survey investigations.

The one in use is the one by the dental clinic (the north-eastern corner of the site shown in figure 3 above), with the one onto Dawson Road being abandoned. To connect into this line would require the use of a pump station, which is costly to maintain when a gravity feed connection is available for use. Site gradients allow the flows from the south-western corner of the site reach to north-eastern without compromising cover or gradient.

Given the size of the outlet (100mm) any large-scale development on the site that isn't offset by the removal of existing flow generating structures will need to include a capacity assessment of the downstream private sewer network. The public sewer is 150mm from this point onwards, so could be upsized to a 150mm if required at any stage as part of the development.

2.3 Potable Water

The existing potable water connection to the school is a 20mm PE connection off the existing 50mm PE public line. This would need to be upgraded with the development for the school to at least a 50mm, and a new connection made for any sprinklered structures proposed as part of the development. This will be required to be installed as part of the first stage of the Masterplan Works.



Figure 44 Auckland Council GIS Services Map (Potable Water)

The sprinklered connection would be at the tee so a 100mm connection is possible.

Pressure testing undertaken at this point have shown that the lines have sufficient pressure for the development, so only an increase of the meter size at the boundary would be required, as well as a Watercare compliant backflow device.

2.4 Overland Flow Paths and Flood Plains

There are three overland flow paths that pass through the site, all of which are generated within the site. These will need to be considered when setting the final building locations. As they are generated within the site, these can be largely adjusted around the proposed development through ground shaping and a mix of hard and soft landscaping. An assessment into the stormwater flow path levels will need to be undertaken before setting the finished floor level of any buildings in close proximity to the overland flow paths (either existing or created as part of the development).

No changes will be made to where the overland flow paths exit the site. The northernmost flowpath exits the site and is then directed around the southern portion of a neighbouring house. It will be important that the flow through this point is not significantly increased to avoid adversely affecting this property. Any increased flows should be directed towards the stream.

There is an existing floodplain within the site boundary. This however is concentrated around the existing stream in the north-eastern corner of the site. All development should be outside of this area, away from the stream bank.



Figure 5 Overland Flow Path Map

2.5 Conclusion & Recommendations

The stormwater outlet for the site has sufficient capacity for the works under the Masterplan, however will need to be re-assessed if there are proposed to be large increases in impermeable area in the catchment. While this line is

not currently documented on Council's GIS system, nor was a consent for this outlet found, it is currently compliant with Unitary Plan E8 discharge requirements. Any additional impermeable areas installed on the site however will need to have retention and detention devices incorporated into the design to prevent overloading of the stream in accordance with E8 requirements.

No changes are required to the wastewater network as part of the Masterplan works, however it is recommended that this be re-assessed at the start of each stage of works.

A new water meter connection is required, to upsize the existing 20 mm connection to a 50 mm connection and a 100 mm sprinkler connection. This is required to be installed as part of the first stage of the Masterplan works.

No changes to the overland flow paths where these enter or exit the site boundaries are proposed as part of the works, and only minor changes to the flow in the interior of the site is proposed to avoid building footprints.



ghd.com

→ **The Power of Commitment**