Mason Clinic Plan Change

Waitemata District Health Board

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Document control record

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1 Objective

1.1 Introduction

This report supports the proposed plan change application by the Waitematā District Health Board (WDHB) for the Mason Clinic site, Auckland on the basis of infrastructure. It assesses the infrastructure services required to support the change of zoning from Business Mixed Use zone to Special Purpose - Healthcare Facility and Hospital zone under the Auckland Unitary Plan (Operative in Part) (AUP:OIP), and changes to the planning provisions in the Wairaka Precinct, including by extending the boundaries of Sub-precinct A and amending several standards.

The existing Mason Clinic Site is located at 81A Carrington Road, Pt Chevalier (Mason Clinic Site). The Mason Clinic provides forensic mental health services and intellectual disability services for the northern part of the North Island (from Taupo northwards). WDHB has recently acquired a combined 2.8ha of land to the north (Northern Site) and south (Southern Site) of the existing Mason Clinic Site. The acquisition of this land will enable the WDHB to plan for the overall development of this site to both enable the replacement of older, unfit buildings, and secondly to expand and intensify the facilities into the future due to increased demand.

The purpose of this report is to:

- assess the appropriateness of the proposed plan change from an infrastructure perspective (i.e. assess whether the Mason Clinic Site is and/or can be adequately serviced), and
- assess the effects of the proposed plan change, relative to the status quo.

1.2 Proposed Plan Change

The proposed plan change better facilitates the development of the Mason Clinic Site by: re-zoning the Northern Site and Southern Site from *Business - Mixed Use* to *Special Purpose - Healthcare Facility and Hospital*, to reflect the nature and needs of the Mason Clinic activity.

- amending the boundaries of Sub-Precinct A of the Wairaka Precinct to include the whole Plan Change Area.
- making adjustments to the objectives, policies and rules in the Wairaka Precinct to both better enable the development of the Mason Clinic Site, and to manage that development relative to other nearby development which is expected to occur in the future.

The purpose of the proposed plan change is to enable the efficient development and use of healthcare activities located at Mason Clinic. It is important to demonstrate that the impact of the proposed plan change will be negligible in regards to the proposed scale or intensity of the development that is currently possible at the Mason Clinic Site, or that any changes can be adequately serviced by infrastructure.

The acquisition of the new land by WDHB and the proposed plan change will allow the Mason Clinic to develop and expand more efficiently and effectively to support the growing needs of the community. The WDHB's intention is to grow the capacity of the Mason Clinic from the current 111 beds to 246 beds, and an associated increase in staff.

The proposed plan change is in alignment with development guidance and requirements set out in the AUP:OIP, where it does not amend to maximum impervious area for the Plan Change Site, and ultimately will have a negligible impact on the relevant infrastructure and surrounding environment.

This report will confirm the impact of the proposed Plan Change on the infrastructure servicing at the Mason Clinic Site including the following:

- The location and capacity of infrastructure;

- The extent to which stormwater, wastewater, water supply, electricity and telecommunication infrastructure needs to be provided to adequately service the nature and staging of anticipated development within the application area; and
- The extent to which stormwater management methods that utilise low impact stormwater design principles and improved water quality systems should be provided.

It is noted that whilst the proposed plan change will allow for the development, the subsequent staging of the development will still need to go through the resource consent and engineering plan approval stages with the relevant local authorities to approve the detailed design. This includes the specific connections and load demands on infrastructure. These requirements are typical of any proposed development and are in-line with the current zoning requirements.

1.3 Site Description and Topology

1.3.1 Site Description

The Existing Mason Clinic Site, the Northern Site and the Southern Site are all within the Wairaka Precinct of the AUP:OIP. The Existing Mason Clinic Site is within Sub-precinct A, which specifically provides for the Mason Clinic. The Northern Site and the Southern Site are currently vacant but are zoned Business – Mixed Use. The Southern Site is identified as 'Key Open Space (private)' in Wairaka Precinct Plan 1. Access to all sites is off Carrington Road, via the currently-private road network within the wider Wairaka Precinct.

Figure 1: Site Extents/Boundary

1.3.2 Site Topography

The existing Mason Clinic Site sits at the east of the new Waterview tunnel in Point Chevalier. Oakley Creek is located along the western boundary of the site with the ground sloping gently from RL 10m, west to RL 5m near the creek. At the northern extent of the Northern Site, the land slopes up to RL 16m at the boundary.

2 Wastewater

2.1 Existing Wastewater Drainage

The existing public wastewater network in the Mason Clinic site comprises of a Watercare 1050mm dia. transmission pipe which passes from Mt Albert from the east to a junction within the southern section of the Mason Clinic and then directs south, as well as 375mm and 300mm dia. wastewater reticulation mains as shown in Figure 2. The 375mm dia. wastewater main carries the wastewater load generated with the suburb of Pt Chevalier to the north and discharges into the 1050mm dia. transmission pipe. This pipe is currently located beneath a number of existing buildings within the Mason Clinic Site. The 300mm pipe carries flows from Waterview from the west, and also discharges into the transmission pipeline at the same connection point. All wastewater then flows southwards from the connection point within the Mason Clinic Site.

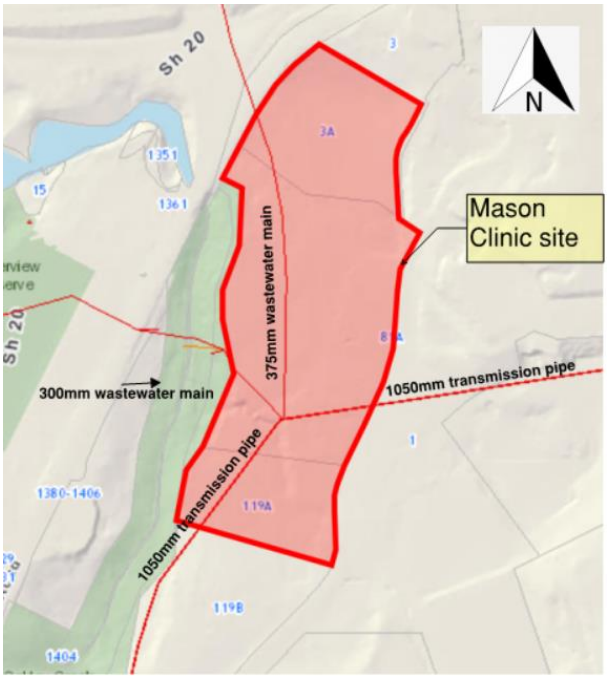


Figure 2: Existing public wastewater network (extracted from Auckland Council GIS)

The existing private wastewater network within the Mason Clinic Site currently discharges to the 375mm main owned by Watercare Services (WSL). Figure 3 shows the existing private and public wastewater network within the site.

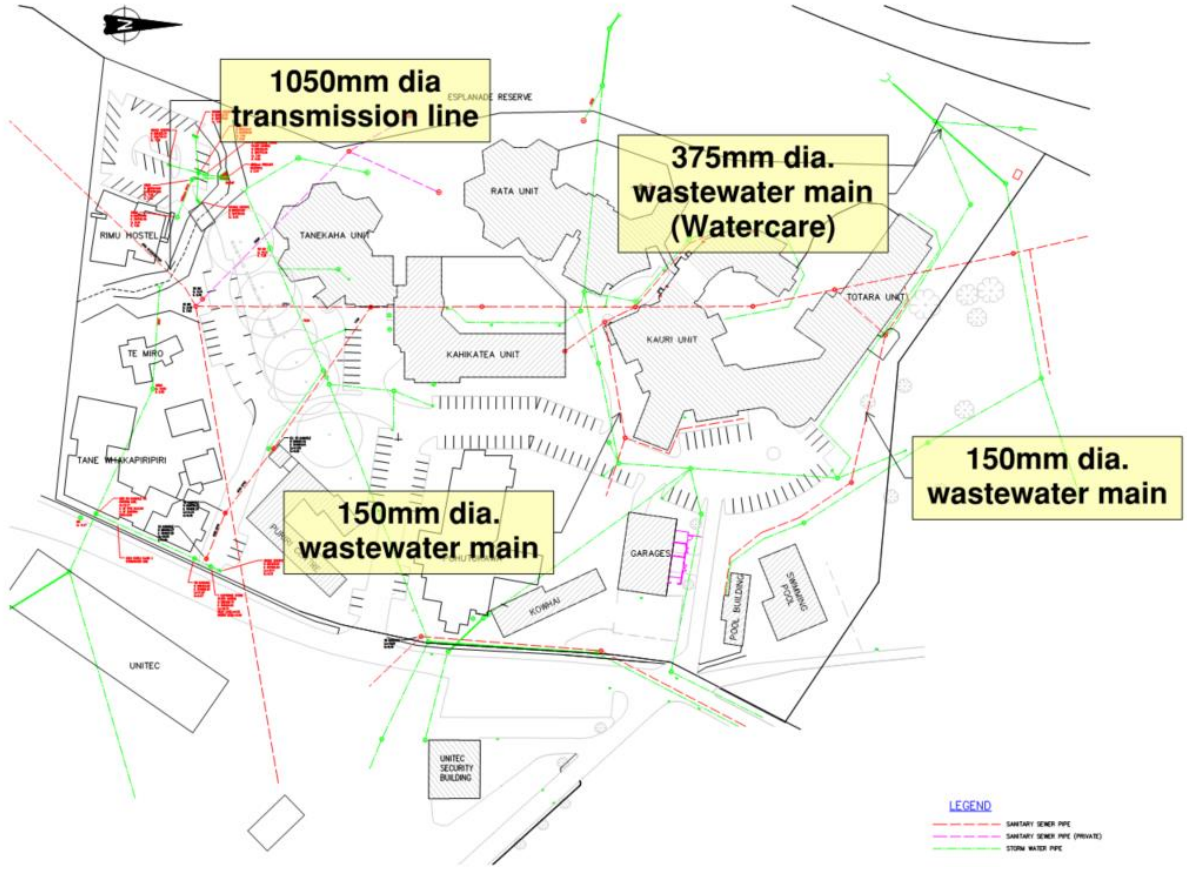


Figure 3: Existing Mason Clinic private wastewater network

Note: Plan based on Maunsell 'Site & Services Plan', 2006

2.2 Proposed Connections

To facilitate the development and expansion of the Mason Clinic, it is proposed to utilise the existing connections on site to convey wastewater flows from the site to the discharge into the Watercare 1050 dia. transmission pipeline.

The existing connections are sufficiently sized to enable the development to proceed without any major works needed.

As stated above, the resource consent and engineering plan approval processes will manage the detailed design of any physical works to the existing and proposed wastewater services, including if any existing pipes need to be realigned within or around the site, and where buildings are proposed above public services.

2.3 Capacity Assessment

The re-development of Mason Clinic results in an increase in the patient capacity and number of staff. Based on the information provided by Klein Architects Limited, the number of patients that can be facilitated at the larger Mason Clinic will be 246. To facilitate this increased patient capacity, WDHB predicts that the staff roster will expand to a size of 407. The total flow generated from the facility has been calculated based on the staff and patient numbers as per the Watercare Code of Practice and is shown in Table 1.

Initial consultation with Watercare has been undertaken and the development assessment form has been completed and submitted to Watercare on 21st July 2020 with a response received on 08 March 2021 (refer to Appendix H).

Watercare noted there are existing capacity constraints in the local area which would need to be mitigated by the developer through extensions or upgrades to the network. They also confirmed that the upstream existing pipes (375mm) will need a capacity assessment completed to inform the proposed network for the development. However as noted in the Watercare assessment report these works would be undertaken during the resource consent process following the approval of the proposed plan change. This demonstrates that the impact of the development forming the proposed plan change on the wastewater network will be similar to the current zoning of the land as the constraints noted above are existing and external to the Mason Clinic site. The Watercare response therefore confirms that the proposed plan change would have no adverse effects on the wastewater network and the servicing of the site would be completed following the standard detail design and consenting process.

Watercare also indicated that as part of a wider development, the Unitec site near Mason Clinic is also to be developed and the outcomes and timing of this may impact the final capacity. Based on Aurecon's knowledge of the site, Unitec's development is downstream of this network and is unlikely to impact the Mason Clinic upstream development.

The peak wastewater discharge was calculated to form a basis for comparison between what could potentially be developed under the current planning provisions (Mixed-Use Zone), and what development will be enabled under the proposed plan change. We have assumed that the mixed-use zone would be developed into mainly residential dwellings, using a dwelling density ratio of 94 to 113 dwellings per hectare, which is consistent with the development intensity which is planned by MHUD for the adjoining land within the Wairaka Precinct. The planning Assessment of Environmental Effects also explains the type and scale of development which is anticipated by the current zoning, and this explanation has been relied on.

Under the assumptions on the zoning above, two scenarios of alternative development were assessed and compared against the development enabled by the plan change:

- Development Scenario 1 – assess a gross dwelling density of 94 to 113 dwellings per hectare, across both the Northern Site and the Southern Site (2.84 ha total) on the basis of the underlying zoning
- Development Scenario 2 – assess a gross dwelling density of 94 to 113 dwellings per hectare to the Northern Site only (1.64 ha), and assume the south land will be open space only on the basis that it is identified as Key Open Space in the Wairaka Precinct.

	Dwellings	Equivalent Population	Peak Dry Weather Flow (PDWF)[1] l/s	Peak Wet Weather Flow (PWWF) l/s
Development Scenario 1	321	963	6.0	30.1
Development Scenario 2	186	558	3.5	17.4
Proposed Plan Change and development	NA	653	2.9	14.3

Table 1: Total flow for facility scenarios

The Peak Dry Weather Flow (PDWF) is defined as the most likely peak wastewater flow in the pipe during a normal day. It exhibits a regular pattern of usage with morning and evening peaks relating to water usage for toilets, showers, baths, washing and other household activities.

[1]Discharge rate based on occupancy and peaking factors were applied in alignment with the Watercare Code of Practice, Section 5.3.5, Tables 5.1.1 and 5.1.5.

The Peak Wet Weather Flow (PWWF) is obtained by adding inflow and infiltration to the peak dry weather flow. Wet weather flows include sewage flows and runoff that infiltrate into the wastewater systems during a storm event. Wet weather flows also include groundwater flows that enter through defective pipe joints, connections and/or manhole walls.

The difference in the calculations of the wastewater flows based on the zoning for the proposed plan change (Healthcare) and the current (Mixed-Use ie residential) reflects the different water use activities for each zone. Healthcare facilities, whilst can have a higher population do not allow for the same activities that generate wastewater flows that residential zones. This is noted above which shows the proposed plan change has a higher population than Development Scenario 2, but results in a lower flow rate.

Based on the analysis, the projected wastewater discharge as allowed with maximum development under the proposed plan change, is less than that under current zoning of the Northern and Southern sites (both under Development Scenarios 1 and 2).

As such, it is concluded from a wastewater infrastructure loading perspective, that the proposed plan change will result in lesser utilisation of existing infrastructure capacity. Furthermore, network capacity up to the proposed maximum discharge has been confirmed with Watercare.

3 Water Supply

3.1 Existing Water Supply Network

There is an existing private 150mm dia. potable and firefighting ring main within the Mason Clinic Site that is supplied from a 150mm dia. watermain in Great North Road. It is also noted that there is a transmission watermain located in Carrington Road (450AC) and a larger local line located in Great North Road (200CI) providing redundancy and resilience to the area.

3.2 Proposed Servicing

It is proposed to retain the connection to the 150mm dia. watermain in Great North Road for servicing the existing Mason Clinic site. As noted above, the existing public watermains in Carrington Road provide sufficient servicing capacity for future development of the site. Therefore, servicing of future developments under the plan change or current zoning is anticipated to only require private service connections which are considered minor in nature..

3.3 Capacity Assessment

Hydrant testing has been carried out by PBS Fire Data in October 2017 on the 150mm dia. ring main within the Mason Clinic site. A summary of the results is shown in Table 2 with more details in Appendix F.

Static Pressure (kPa)	Average Residual Pressure (kPa)	Average Flow (L/s)
750	519	37

Table 2: Hydrant testing results

According to Table 1 of New Zealand Fire Service Firefighting Water Supplies Code of Practice[2], buildings with crowd activities of more than 100 people with low fire loads such as medical consulting rooms and offices fall under the category of FHC2. By assuming the floor area of the largest firecell is between 0-199 m^2, the fire water classification has been assumed as FW3 with the following specification:

- The required flow within a distance of 135m is 25 L/s
- The required additional flow within a distance of 270m is 25 L/s
- The minimum running pressure in the water main should not be less than 100kPA

The fire water classification will be confirmed by the Fire Engineers during the design phase. Further field testing will also be undertaken to confirm the capacity of the existing water network.

According to Watercare COP, the design pressure for the main Mason Clinic watermain shall be between 250KPa to 800kPa.

- The peak water consumption was calculated on the Basis of Development Scenarios 1 and 2, described above.

[2] New Zealand Fire Service Firefighting Water Supplies Code of Practice, SNZ PAS 4509:2008

	Dwellings	Equivalent Population	Average Day Demand (ADD)[3] l/s	Average Day Peak Hour Demand (PHD) l/s	Peak Day Peak Hour Demand (PDD) l/s
Development Scenario 1	321	963	2.5	6.1	12.3
Development Scenario 2	186	558	1.4	3.6	7.1
Proposed plan change and development	NA	653	2.0	5.1	10.1

Table 3: Total water demand for facility scenarios

Based on the analysis, the projected water consumption as allowed with maximum development under the proposed plan change is less than that in Development Scenario 1.

Following on from the Watercare Assessment report (Appendix H) received on March 8th, 2021, Watercare have confirmed that the proposed demand that will be generated by the proposed level of development enabled by the plan change can be supplied from the local water supply network in the area.

As such, it is concluded from a potable water infrastructure supply perspective, that the proposed plan change will result in similar or lesser utilisation of existing infrastructure capacity than the current planning provisions. Furthermore, network capacity up to the proposed peak day peak hour demand has been confirmed with Watercare.

[3] Consumption rate based on occupancy and peaking factors were applied in alignment with The Auckland Code of Practice for Land Development and Subdivision, Chapter 6, Section 6.3.5.3.

4 Utility Services

4.1 Power and Gas

The current Mason Clinic site is serviced by both power and gas utilities which also service the rest of the Wairaka Precinct site and surrounding areas. As with all new proposed developments, Vector will be engaged to coordinate and design any additional supplementary infrastructure required to support demand requirements of development. The current zoning requirements allow for development, therefore any increase in demand or servicing will be achieved by utilising the existing network.

The Wairaka Precinct is intended to be intensively redeveloped, and power services are likely to be comprehensively upgraded as required, to service this development as well as the Mason Clinic development. However, with the current bulk and network infrastructure in the area for both electricity and gas for service and supply, any works to support the plan change development would be of a minor nature and in line with the status quo for the area as it stands.

4.2 Communications

The current Mason Clinic Site is serviced by telecommunications utilities that also supply the rest of the original Unitec site and catchment with connections to the current infrastructure network in the area. As with all new proposed developments, Chorus will be engaged to coordinate and design any additional supplementary infrastructure required to support demand requirements of development. The current zoning allows for development, therefore any increase in demand or servicing will be achieved by utilising the existing network.

With the current bulk and network infrastructure in the area for telecommunications service and supply, any works to support the plan change development would be of a minor nature and in line with the status quo for the area as it stands.

5 Stormwater

5.1 Purpose

The proposed plan change does not amend the maximum impervious area for the Plan Change Site (as per Standard I334.6.5 of the AUP:OIP).

The proposed plan change also does not seek to amend rules in the AUP:OIP relating to the management of stormwater discharges and construction of stormwater infrastructure. These rules will continue to apply to the Mason Clinic Site, and include:

- Rules and standards in Chapter E8 for the diversion and discharge of stormwater runoff from impervious areas onto or into land or into water or to the coastal marine area, which generally apply to stormwater discharges from new or redeveloped impervious areas which are not diverted to existing authorised stormwater networks
- Rules and standards in Chapter E9 for the development of new or redevelopment of existing high contaminant generating carparks, which require the treatment of stormwater discharges from exposed carparks
- Rules and standards in Chapter E26 for the construction and use of stormwater pipes and outfall structures on or under land
- Rules and standards in Chapter E3 for the construction of structures in the beds of rivers or streams, and the associated bed disturbance or depositing any substance, reclamation, diversion of water and incidental damming of water

There is a difference in the AUP:OIP provisions between the current Mixed Use Zone and the proposed Special Purpose – Healthcare Facility and Hospital zone in regard to the definition of riparian yard. A riparian yard is defined as 10m from the edge of all permanent and intermittent streams in the 'Business - Mixed Use Zone', whereas in the 'Special Purpose - Healthcare Facility and Hospital Zone' the riparian yard is defined as 5m from the edge of streams.

The overall management of stormwater within the Mason Clinic Site is not impacted by the proposed plan change (with exception to the riparian margin definition described above which has no stormwater conveyance implications). The WDHB is currently involved in a separate process to have a Stormwater Management Plan prepared for the Wairaka Precinct, which includes the proposed development of the Plan Change Site. This will establish the stormwater management practices that will be employed for all stages of development, in respect of stormwater drainage and discharges, and the management of overland flow and surface flooding. This existing stormwater network in the Mason Clinic Site is shown in Figure 3.

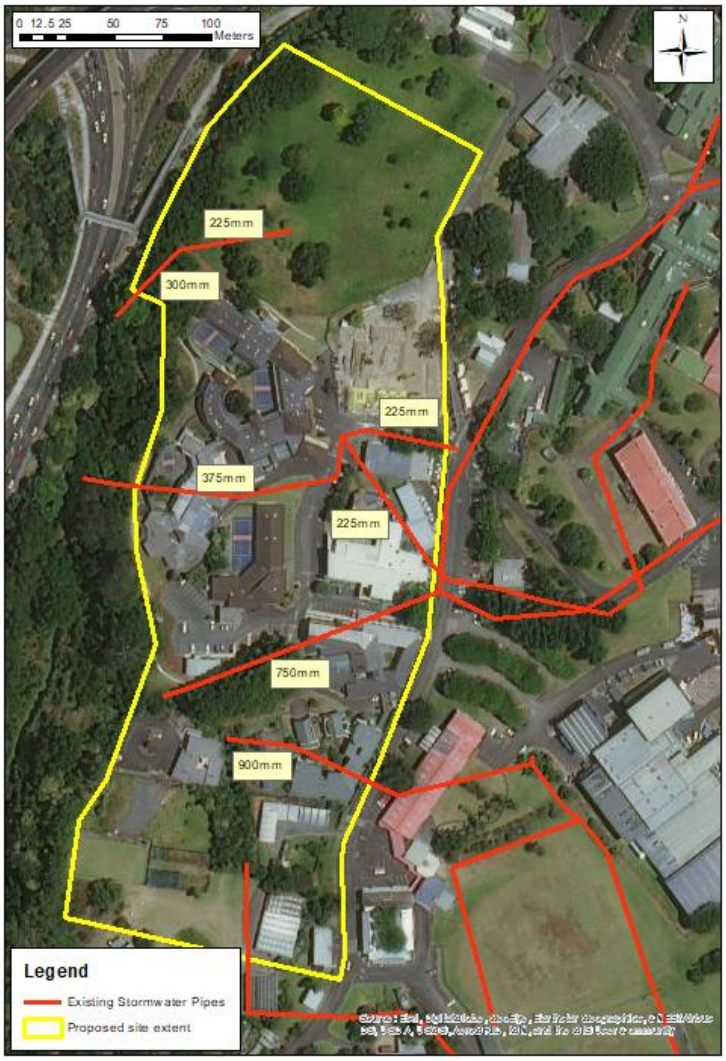


Figure 4: Existing stormwater network draining through Mason Clinic

5.1.1 Wairaka Streams and Overland Flow Paths

The Mason Clinic Site intersects the existing Wairaka Stream near the southern boundary for approximately 120m, which discharges into the Oakley Creek to the west. Contributing flows to the Wairaka Stream at this location include the stream itself, discharged through a 1.0m by 1.0m culvert, as well as an OLFP located along the western side of the Unitec Campus, converging with the Wairaka Stream at the culvert outlet.

Three OLFPs also enter the Mason Clinic Site from the eastern boundary. The northern most OLFP continues across the site and discharges directly into Oakley Creek, whereas the two southern OLFP discharge into the Wairaka Stream.

An allowance for the riparian margin is required for the Wairaka Stream. As noted above, the 'Special Purpose - Healthcare Facility and Hospital Zone' defines this as 5m from the edge of stream (as opposed to 10m for the 'Business - Mixed Use Zone'). Otherwise, the proposed plan change has no implications on the management of the Wairaka Stream or OLFPs across the Mason Clinic site.

The system of existing stream channel and OLFP are illustrated in Figure 5.

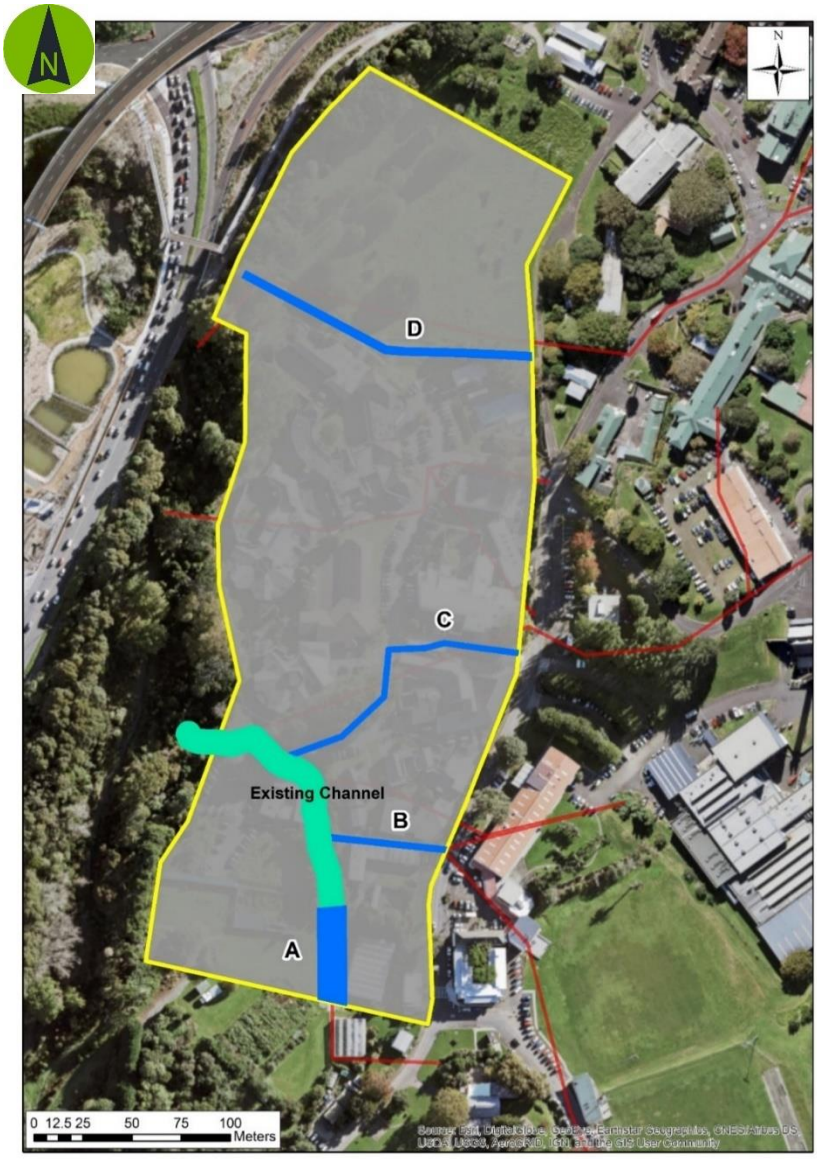


Figure 5: Wairaka Stream corridor and OLFP alignments

5.1.2 Flood Plain

Based on the flood plain identified within Auckland Council's GEOMAPS, the 1% AEP with climate change rainfall event is predicted to exceed the capacity of the Wairaka Stream and OLFP intersecting the Mason Clinic site. As such, surface flooding is predicted as illustrated below.

The predicted flooding across the Mason Clinic site has implications on proposed building footprints and freeboard. This is notable for habitable floors, which are required to allow for 500mm freeboard from the 1% AEP flood depth, as per the Auckland Council Code of Practice for Stormwater, Chapter 4, Section 4.3.5.7.

Suitable management of the incoming Wairaka stream, and upstream catchment flows arriving via OLFP, can be completed during subsequent design, and is not impacted by the proposed plan change.

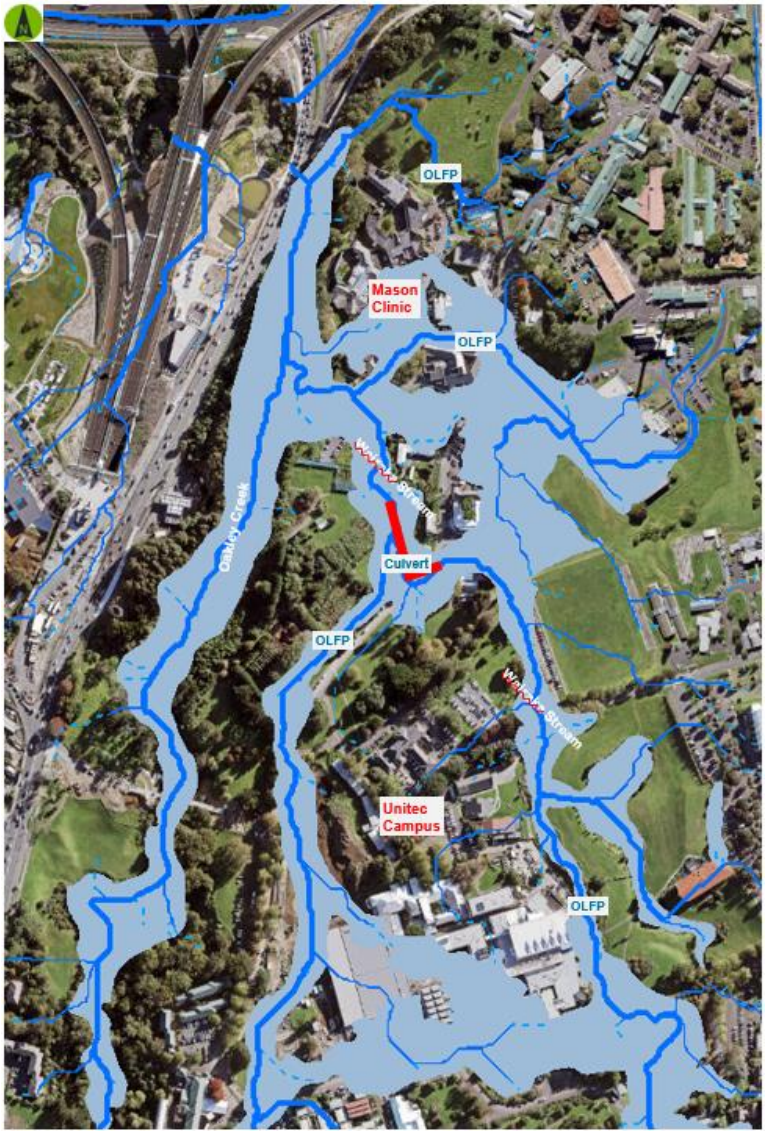


Figure 6: Existing Wairaka Stream OLFP (source: Auckland Council GEOMaps)

5.1.3 Stormwater Management

Management of stormwater conveyance across the Mason Clinic Site, and mitigation of surface flooding is required to be in alignment with the Auckland Council Storm Water Code of Practice (SWCoP[4]) and the AUP:OIP.

Overland flow paths are used to manage and mitigate any risks to sites, especially in areas where there are habitable buildings. In the event of natural hazards or events stormwater provisions set by the AUP:OIP are utilised to manage and mitigate the effects. Typically, this is done by using OLFP, detention basins, and swales to manage the rainfall runoff in a manner that results in reduced or no detrimental flooding impacts.

With future development, the capacity of the Wairaka Stream and OLFP intersecting the Mason Clinic site can be increased to better manage the predicted contributing runoff. Whereby the 1% AEP rainfall event flows can be contained within the defined channels, resulting in reduced surface flooding. As the discharge point for these flows are to the Oakley Stream, there is sufficient opportunity to allow for these events and development.

The proposal will more efficiently enable healthcare activities, with a zone which better recognises functional requirements of the activity. Given the nature of the plan change to a healthcare use, where the current and proposed zoning has the same limitations on maximum impervious area of 80% of the site, the runoff generated by the development will be consistent with the status quo and is able to be managed through the

[4] Auckland Council, 2015. *Code of Practice for Land Development and Subdivision. Chapter 4 – Stormwater. Version 2*.

standard design and resource consent processes. As a healthcare facility, the buildings will be considered habitable buildings therefore an appropriate freeboard will be required to mitigate and minimize and risk to the development.

It is noted that the in-development Wairaka Precinct Stormwater Management Plan discusses the options and strategy to allow for the development of the entire catchment, including the Plan Change Site. This includes managing the risks and hazards and the AUP:OIP provisions. The Wairaka Precinct Stormwater Management Plan is not affected by the proposed plan change.

As part of due diligence for this plan change, a catchment analysis has been undertaken by Aurecon to outline the provisions required to demonstrate the viability of a development and the ability to meet the provisions of the Unitary plan. Where the existing and proposed zoning of the site has no notable stormwater management differences. It is shown that at a high level this is feasible with the final design to be confirmed during the development phases which is based on the current and future zones. The analysis can be made available subject to request.

It is therefore considered that the plan change, and subsequent development will not generate an increase to the potential adverse effects or risks of development of the subject land, and that these effects are able to be managed by the stormwater under the SWCoP and AUP through the standard resource consent processes.

5.2 Stormwater Infrastructure

5.2.1 Existing Stormwater Drainage

Existing stormwater primary drainage at the Mason Clinic site consists of five pipes conveying upstream flows across the site (Figure 4) with connections within the site for the collection of local runoff. Refer to the existing services plan in Appendix G for the location of the stormwater network within the existing site. Note that the existing services plan does not cover the entire extent of the Mason Clinic site and potentially there are further utilities not identified.

5.2.2 Proposed Stormwater Drainage

The nature of the long-term site development including demolition of the majority of existing buildings and construction of new ones means that the existing site drainage will become redundant being located in positions that are unable to service the new buildings. New stormwater drainage will be installed as part of the site construction works to convey primary drainage flows from the site to the discharge at Oakley Creek.

The exact design of this drainage is subject to the final building, road and civil design. However, in general the new drainage pipes will capture flows from the building roofs, carparks and internal road surfaces. All roads will have kerbs in place, and all stormwater from the paved surfaces will drain to stormwater catchpits located in appropriate low areas.

5.2.3 Proposed stormwater quality treatment

Stormwater quality treatment devices will be required for high contaminant generating car parks (>30 vehicles) under the AUP, E8 section for stormwater discharge. The level of treatment is dependent on the impervious area. The future detailed design of the stormwater treatment is therefore expected to comply with the following requirement:

- Primary (piped) drainage from the high contaminant generating carparks to be conveyed to a number of treatment rain-gardens, tree pits or similar bio-active filtration devices located throughout the site. Flows from the treatment units will return to the primary drainage system for discharge to Oakley Creek. Flows from areas of low contamination including roof surfaces and landscaping will be diverted directly to the Creek with no treatment.

The treatment flow rate will be agreed with Auckland Council, but will be less than the 10-year return period flow rate.

5.3 Summary

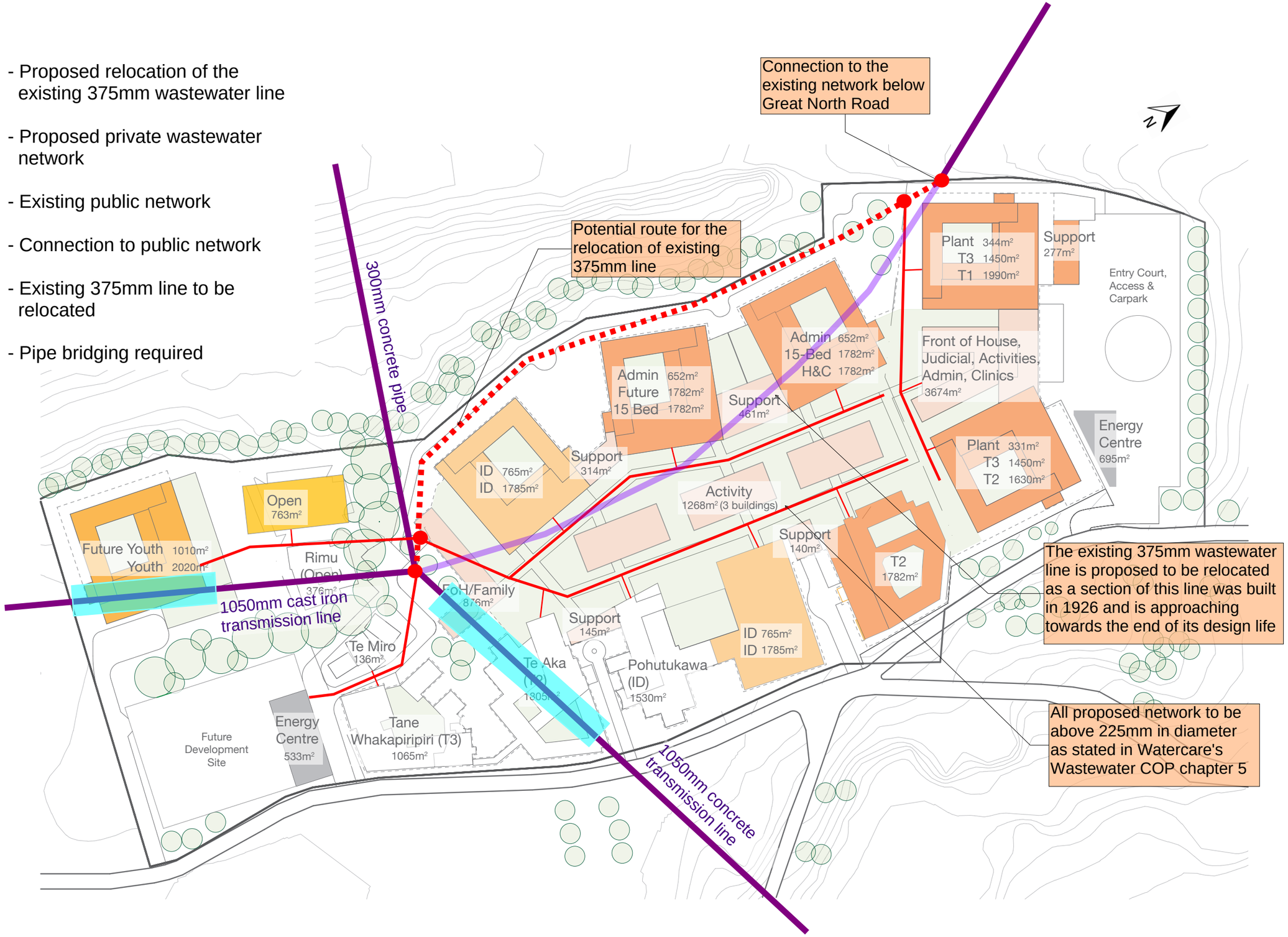
Assessments of the infrastructure services for the proposed plan change development shows that the Plan Change Area can be adequately serviced with the existing infrastructure that is available in the vicinity of the Mason Clinic. Fundamentally the existing infrastructure currently on site can support the scale and intensity of the development that will be enabled by the plan change, and the effects on these services have been demonstrated to be as per the status quo or result in lesser utilisation of existing infrastructure capacity.

Therefore, from an infrastructure perspective, the proposed plan change is assessed to be appropriately serviced and not introduce any adverse performance issues as compared to the status quo. Furthermore, it is demonstrated that the overall management of stormwater within the Mason Clinic Site, in terms of adhering to the AUP:OIP, is not impacted by the proposed plan change.

Appendices

Appendix A - Proposed Wastewater & Stormwater Network

- Proposed relocation of the existing 375mm wastewater line
- Proposed private wastewater network
- Existing public network
- Connection to public network
- Existing 375mm line to be relocated
- Pipe bridging required



Note: Areas indicated on the diagram are building GFAs.
Where there are multiple figures shown for the same building, they represent floor area for each individual storey/level.

Mason Clinic Masterplanning

Job No. 3.1157	Scale 1:1500 @ A3	Drawing No.
Date 14.08.2019	Cadfile No. 159	SK-165-C

MASTERPLAN STAGING STRATEGY

COMPLETE MASTERPLAN

Klein

Appendix B – Development application form

Development Application Form – Water Supply/Wastewater Planning Assessment		
Date of Application	**30/07/2020**	
Address of Development	**Mason Clinic, 81a Carrington Road, Pt Chevalier**	
Layout Plan of Proposed Development clearly showing: • Aerial photograph • Road names • Boundary of development • Preferred point of connection to existing water supply and wastewater asset	Refer to Appendices Appendix A: Site boundary Appendix B: Proposed wastewater and water connection locations with the existing network Appendix C: Wastewater calculation Appendix D: Existing 375mm capacity check Appendix E: Water calculation Appendix F: Hydrant testing result	
	Description	**Comment**
Current Land Use	Hospital facility at 81A Carrington Road. The northern site is currently unused land covered with grass and bush. The southern site currently has several garage/storage buildings.	*Residential (Single family dwellings) / Residential (Multi-unit dwellings) / Residential (Multi-storey apartment blocks) / Commercial / Industrial / Other (Please Specify)*
Proposed Land Use	The northern and southern site will be combined with 81a Carrington Road for an upgraded hospital facility with higher capacity	
Total Development Area (Ha.)	*6.8 Ha*	
Number of Residential Households (Consent & Ultimate)	0	*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

Water Supply Development Assessment		
Average and Peak Residential Demand (L/s)		*Show calculations based on Watercare CoP*
Average and Peak Non-Residential Demand (L/s)	10.15 L/s	*Show calculations based on Watercare CoP*
Non Residential Demand Typical Daily Consumption Profile / Trend	24 hr operation	*E.g. 24 hr operation / 10 hr (9am – 5pm) / Filling on-site storage at certain frequency)*

Fire- fighting Classification required by the proposed site	FW3	*Refer to New Zealand Standard SNZ PAS 4509:2008*
Hydrant Flow Test Results	☒ Yes ☐ No	*Attach hydrant flow test layout plan and results showing test date & time; location of hydrants tested and pressure logged; static pressure; flow; residual pressure*
Sprinkler System in building?	☐ Yes ☒ No	*Sprinkler design should consider Watercare Level of Service: minimum pressure at 200kPa and minimum flow at 25 l/min. The building owner shall conduct periodic review of sprinkler design.*
Further Water Supply comments		

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

Wastewater Development Assessment		
Peak DWF and WWF Residential Design Flows (L/s)	Not Applicable	*Show calculations based on Watercare CoP. If relevant for ultimate development scenario include No. of Potential Units/ lots for calculations.*
Peak DWF and WWF Non-Residential Design Flows (L/s)	Consent PDWF = 5.26 L/s Consent PWWF = 15.18 L/s	*Show calculations based on Watercare CoP.*
Non-Residential Discharge Profile / Trend (i.e. Operations)	24 hr operation	*E.g. 24 hr operation / 10 hr (9am – 5pm) / Other*
New Assets Required for Development	None	*If applicable, please provide supporting calculations and indicative design parameters (ie. Pump Station and rising main or storage)*
Sewer Capacity Check	119 L/s	*Capacity assessment at proposed connection point and impact on network*
Further Wastewater comments		

For internal Watercare use only

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

Appendix C – Meeting minutes

From:	Nicola Black
Sent:	Monday, July 27, 2020 11:46 AM
To:	IGotelli (Ilze); Margaret Cobeldick; Haitham Alrubayee (WDHB); Paul Stanbridge (WDHB); Matt Capon
Cc:	Eric Zhang; Michaela Wilson; Albert Ho; Alistair Osborne; ablomfield@bentley.co.nz
Subject:	Masons Clinic - Plan Change Watercare - Meeting Minutes 27/07/20

Hi All

Following our meeting this morning, below are notes and action points going forward;

Item Discussed	Action/Date
• Identification of 375mm wastewater pipe through site, needs a CCTV to confirm condition and material of pipe. WDHB to organise and pay for CCTV. Aurecon to assist once Haitham and Paul define process going forward	WDHB – 31/07
• Ilze (Watercare) to confirm any capacity issues with wastewater pipes in area, particular 375mm.	Watercare – 31/07
• Watercare cannot find any as-builts of wastewater pipe – MC thinks this pipe is relatively shallow at 2-2.5m deep	
• Watermain – holistic view of what is happening, new BSP is proposed, Watercare will confirm new location	Watercare – 31/07
○ Beca are doing Building Services, understand what has been done to date and keep them informed of progress/development.	
• Where is the secure area in the Masterplan – Aurecon to chase up Klein for plans to show proposed secured areas for Watercare.	Aurecon/Klein – 29/07

Let me know if you have any questions on the above, or additional points to add.

Kind Regards,

Nicola Black BSurv CPEng CMEngNZ
Associate – Land Development Consultant, Aurecon
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Nicola.Black@aurecongroup.com
Level 4, 139 Carlton Gore Road, Newmarket, Auckland New Zealand 1023
PO Box 9762, Newmarket, Auckland 1149
aurecongroup.com

DISCLAIMER

Appendix D – Upstream flow and capacity check

PROJECT: Mason Clinic Unitary plan change
JOB No. 508877
DATE: 21/07/2020
FOR RESOURCE CONSENT

MASON CLINIC UNITARY PLAN CHANGE
EXISTING AND PROPOSED WASTEWATER FLOWS

PDWF Self cleansing design flow
PWWF Peak design flow
Staff numbers provided by Client

				Peaking factor		Wastewater flow (L/s)	
		No.	L/day	PDWF	PWWF	PDWF	PWWF
Hospital/ Mental Health Facitility	Beds	111	570	1.5	5	1.10	3.66
	staff	95	45	2	5	0.10	0.25
Total						**1.20**	**3.91**

convert L/d to L/s 86400

Proposed Wastewater flows based on Watercare COP at stage 2B (2027)

PDWF Self cleansing design flow
PWWF Peak design flow
Staff numbers provided by Client

				Peaking factor		Wastewater flow (L/s)	
		No.	L/day	PDWF	PWWF	PDWF	PWWF
Hospital/ Mental Health Facitility	Beds	198	570	1.5	5	1.96	6.53
	staff	170	45	2	5	0.18	0.44
Total						**2.14**	**6.97**

convert L/d to L/s 86400

PROJECT: Mason Clinic Unitary plan change
JOB No. 508877
DATE: 21/07/2020
FOR RESOURCE CONSENT

MASON CLINIC UNITARY PLAN CHANGE
EXISTING AND PROPOSED WASTEWATER FLOWS

Proposed Wastewater flows based on Watercare COP at stage 3C (2049)

PDWF Self cleansing design flow
PWWF Peak design flow
Staff numbers provided by Client

				Peaking factor		Wastewater flow (L/s)	
		No.	L/day	PDWF	PWWF	PDWF	PWWF
Hospital/ Mental Health Facitility	Beds	246	570	1.5	5	2.43	8.11
	staff	407	300	2	5	2.83	7.07
Total						**5.26**	**15.18**

convert L/d to L/s 86400

	PDWF (L/s)	PWWF (L/s)
Total flow in the 375mm pipe	34.30	81.26

PROJECT: Mason Clinic Unitary plan change
JOB No. 508877
DATE: 21/07/2020
FOR RESOURCE CONSENT

MASON CLINIC UNITARY PLAN CHANGE
EXISTING AND PROPOSED WASTEWATER FLOWS

	Area (m2)	No. House	people	Peaking factor		Wastewater flow (L/s)	
total	**796199**			**PDWF**	**PWWF**	**PDWF**	**PWWF**
school - pupils	18292		277	2	6.7	0.10	0.32
School - Staff			18.46666667	2	6.7	0.02	0.06
Selwyn retirement village - hospital beds	91046		100	1.5	5	0.99	3.30
Selwyn retirement village - rest home beds			92	3	6.7	0.58	1.28
Selwyn retirement village - staff			19.2	2	5	0.02	0.05
park	48500		0				
mixed house suburban	196000	490	1470	3	6.7	9.19	20.52
Mixed housing urban zone	168454	562	1684.54	3	6.7	10.53	23.51
terrace housing and apartments	122000	407	1220	3	6.7	7.63	17.03
Roads	151907						
Unitect performing arts and screen arts - pupils			300	2	6.7	0.10	0.35
staff			40	2	6.7	0.04	0.05
Total						**29.04**	**66.08**

PROJECT: Mason Clinic Unitary plan change
JOB No. 508877
DATE: 21/07/2020
FOR RESOURCE CONSENT

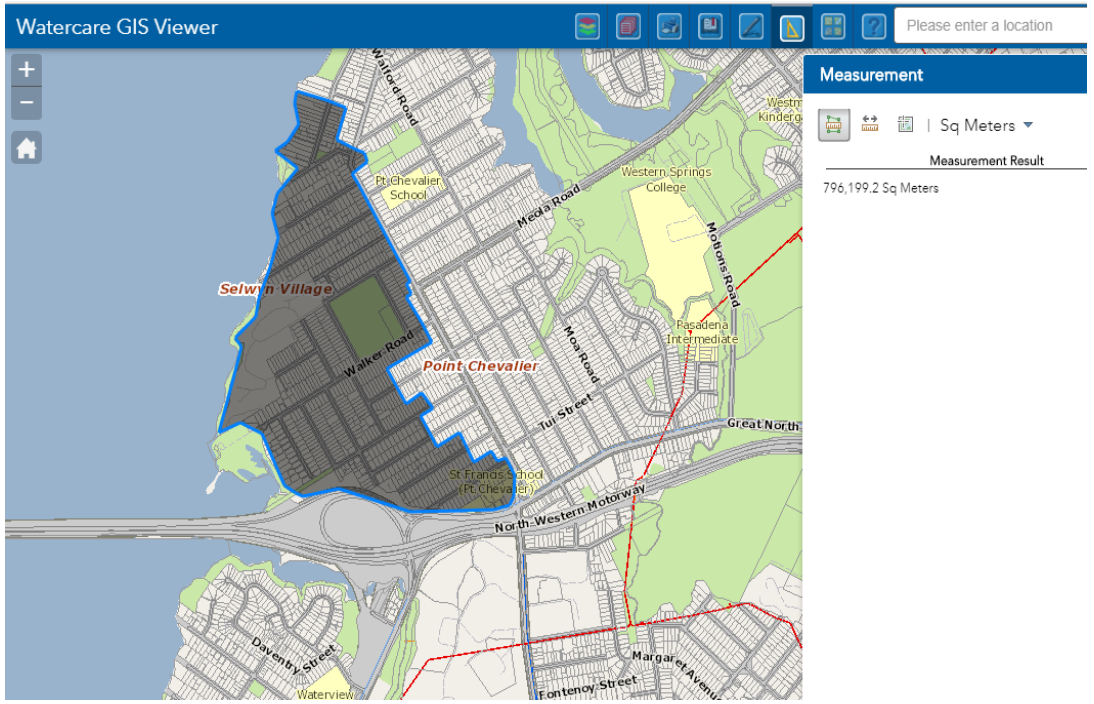
MASON CLINIC UNITARY PLAN CHANGE
EXISTING AND PROPOSED WASTEWATER FLOWS

Assumptions

Housing	3	people per property	taken from COP
	400	average house area	mixed house suburban - Unitary Plan
	300	average house area	Mixed housing urban zone -Unitary Plan
	300	average house area	Terraced housing based on google earth -
School	277	St Francis School roll based on Ero report	
	15	school staff - ratio 1 staff per 15 student	
Selwyn Retirement Village	100	hospital beds	
	92	bed rest home	
	10	hospital staff - ratio 1 staff per10 people	
Unitec site - Performing Arts	300	pupils enrolled. Obtained from website	
	40	Staff	
Wastewater flow rates and peaking factors	180	L/person/day	Residential
Refer to Watercare COP section	15	L/person/day	students
	45	L/person/day	staff
	570	L/person/day	hospital
convert L/d to L/s	86400		

PROJECT: Mason Clinic Unitary plan change
JOB No. 508877
DATE: 21/07/2020
FOR RESOURCE CONSENT

MASON CLINIC UNITARY PLAN CHANGE
EXISTING AND PROPOSED WASTEWATER FLOWS



Colebrook-White Formula

All charts in AS2200-2006, have been developed using the formulae below:

$$V = -2(2gDS)^{0.5} \log\left(\frac{k}{3.7D} + \frac{2.5\nu}{D(2gDS)^{0.5}}\right)$$

k = Colebrook-White roughness coefficient, in metres
V = velocity, in metres per second
D = circular cross-section pipe, inside diameter, in metres
S = slope, in metres per metre
ν = kinematic viscosity of water, in square metres per second.

g =	Gravity	= 9.81 m/s2	
n =	kinematic viscosity of water	= 1.010E-06 m2/s	
k =	Colebrook-White roughness coeff	= 0.150 mm	= 1.500E-04 m
D =	Inside diameter	= 375 mm	= 0.375 m
S =	Slope, in metres per metre	= 0.270%	= 0.0027 m/m
	= (Hydraulic Gradient)		
V =	Velocity	= 1.07 m/s	

Discharge:

Q = V x A A = 0.110 m2

Q = 0.1185 m/s = 118.5 L/s

Assumptions

Slope obtained from Watercare GIS maps. This will be confirmed during developed design

Appendix E – Beca proposed services drawings

Legend:

- Plant Space
- In-ground services trench
- Above ground services route
- Pull-Pit
- Services Incomer
- Path of Services rerouting

NOTE 1

THESE IDENTIFIED BUILDINGS HAVE EXISTING SELF CONTAINED BUILDING SERVICES WHICH ARE PROPOSED TO BE RETAINED UNTIL THE END OF THEIR ECONOMIC LIFE. AT SUCH TIME, THE BUILDINGS SHALL BE SUPPLIED WITH SERVICES FROM THE NEW RING MAIN DISTRIBUTION TO SUIT THE END STATE INFRASTRUCTURE ARRANGEMENT.

NOTE 2:

EACH NEW BUILDING TO INCLUDE THE FOLLOWING:

- 2 x CHILLED WATER PUMPS (NOMINAL 12l/s / 150kPa EACH) AND 100mm COPPER CHILLED WATER DISTRIBUTION THROUGHOUT
- 2 x HEATING HOT WATER PUMPS (NOMINAL 6l/s / 150kPa EACH) AND 80mm COPPER DISTRIBUTION THROUGHOUT
- ESSENTIAL AND NON-ESSENTIAL SWITCHBOARDS WITH 2 x 4C 300mm^2 LV SUPPLIES FED FROM RELEVANT ENERGY CENTRE. LIGHTING AND POWER DISTRIBUTION THROUGHOUT
- 2 x 30kW DOMESTIC HOT WATER HEAT PUMPS AND COPPER DOMESTIC HOT WATER RETICULATION THROUGHOUT
- 100mm FIRE WATER SUPPLY (INDIVIDUAL BRANCH TAKEOFFS TO INCLUDE THREE SLUICE VALVES TO ALLOW RING MAIN OPERATION)
- 65mm POTABLE WATER (INDIVIDUAL BRANCH TAKEOFFS TO INCLUDE THREE SLUICE VALVES TO ALLOW RING MAIN OPERATION)

SITE SERVICES INCOMERS:

- 180mm PE POTABLE WATER INCOMER RPZ (3m x 1m)
- 180mm PE FIRE WATER INCOMER RPZ (3m x 1m)
- VECTOR GAS INCOMER METERS (2m x 2m)
- VECTOR HV RING MAIN UNIT (3m x 3m)
- COMMS WAN SUPPLY

EACH SERVICE INCOMER (EXCLUDING COMMS) TO BE PROVIDED WITH LOCKABLE CHAIN LINK FENCE SURROUND, OR SIMILAR. PROVIDE CIRCULATION SPACE WITHIN AND AROUND EACH SERVICE INCOMER

EXISTING GAS SUPPLIES TO MASON TO REMAIN UNTIL RELEVANT EQUIPMENT END OF LIFE WHERE DOMESTIC HEATING SHALL BE REPLACED WITH HOT WATER HEAT PUMP TECHNOLOGY.

SITE SERVICES RE-ROUTING

THE FOLLOWING SERVICES DON'T SERVE THE MASON SITE BUT NEED TO BE RUN THROUGH OR AROUND THE MASON SITE:

- 1 x 100mm and 2 x 50mm GAS SUPPLIES TO SERVE TAYLOR'S AND UNITEC
- 2 x 3C 185mm2 Cu HV SUPPLY CABLES TO SERVE TAYLOR'S AND UNITEC

WATER STORAGE

- FIRE AND POTABLE WATER STORAGE TANKS, ALLOW FOR 50,000 LITRES EACH (5m DIA EACH)
- POTABLE WATER PUMP STATION (20m^2)
- FIRE WATER DIESEL PUMP AND FUEL STORAGE (30m^2)

SERVICES TRENCH

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- 1 x 3C 185mm^2 Cu HV SUPPLY CABLE
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS (2 x 4C 300mm^2 LV SUPPLIES PER BUILDING)

ABOVE GROUND SERVICES ROUTE

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS VIA CABLE LADDERS (2 x 4C 300mm^2 LV SUPPLIES PER BUILDING)
- 1 x 3C 185mm^2 Cu HV SUPPLY CABLE (UNDERGROUND)

NORTH ENERGY CENTRE (550m^2)

INTERNAL ROOMS INCLUDE:
- 6 x 30l/s / 300KPa PUMPS 2 x BUFFER TANKS (100m^3)
- 2 x 1MVA TRANSFORMERS, 2 x 1MVA GENERATORS, HV RMU, MSB (200m^2)

EXTERNAL ROOMS INCLUDE:
- 10,000L DIESEL FUEL STORAGE (50m^2)
- 3 x 800kW AIR COOLED HEAT PUMP CHILLERS (200m^2)

SERVICES TRENCH

SECTION CONTAINS:
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- 4 x 100mm CONDUITS FOR FUTURE HV AND LV RING MAIN

EXISTING SERVICES SUPPLIES

- 1 x 3C 185mm2 Cu HV SUPPLY TO UNITEC
- 50mm GAS SUPPLY TO UNITEC

SITE SERVICES INCOMERS:

- 180mm PE POTABLE WATER INCOMER RPZ (3m x 1m)
- 180mm PE FIRE WATER INCOMER RPZ (3m x 1m)
- COMMS WAN SUPPLY

EACH SERVICE INCOMER (EXCLUDING COMMS) TO BE PROVIDED WITH LOCKABLE CHAIN LINK FENCE SURROUND, OR SIMILAR. PROVIDE CIRCULATION SPACE WITHIN AND AROUND EACH SERVICE INCOMER

EXISTING SERVICES SUPPLIES

- 1 x 3C 185mm^2 Cu HV SUPPLY TO TAYLOR'S
- 100mm GAS SUPPLY TO TAYLOR'S

EXISTING BOILER PLANT AND GAS SUPPLY TO REMAIN. HEATING SOURCES TO BE TRANSFERRED TO ENERGY CENTRE DURING TRANCHE 2 AND 3

EXISTING ELECTRICAL SUBSTATION TO REMAIN. LOADS TO BE SHIFTED TO NEW ENERGY CENTRE DURING TRANCHE 2 AND 3

Support GFA 261m2

Admin T2 T1 GFA 2733m2

Two-Storey Car Park GFA 10146m2

NOTE 2

Admin T3 T3 GFA 1542m2 GFA 1992m2

Link GFA 90m2

T2 GFA 1826m2

NOTE 1

Workshop GFA 430m2

Kowhai GFA 306m2

Totara (T2)

Kauri (T2)

Rata (T2) GFA 1445m2

Mason Clinic GFA 2802m2

Kahikatea (T3) GFA 982m2

Ruriri GFA 98m2

GFA 982m2

Rimu GFA 376m2 (Open)

Te Miro GFA 136m2

Pohutukawa (ID) GFA 1530m2

Te Aka (T2) GFA 1805m2

Tane Whakapiripiri (T3) GFA 1065m2

On Ground Car Parking GFA 2800m2

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No.	Revision	By	Chk	Appd	Date
B	PBC 2 ISSUE	NF	SS	SS	12/06/19
A	DRAFT - FOR INFORMATION	NF	SS	SS	31/05/19

Drawing Originator: Beca

Original Scale (A1) / Reduced Scale (A3)

Design	NF		
Drawn	NF		
Dsg Verifier	SS		
Dwg Check	SS		Date

* Refer to Revision 1 for Original Signature

Client: Waitemata District Health Board

Project: MASON CLINIC MASTERPLAN BUSINESS CASE 2019

Title: OVERALL SERVICES REQUIREMENTS TRANCHE 1

Discipline: COMBINED SERVICES

Drawing No.: CSK-100

Rev.: B

DO NOT SCALE

IF IN DOUBT ASK.

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Legend:

- Plant Space
- In-ground services trench
- Above ground services route
- Pull-Pit
- Services Incomer
- Path of Services rerouting

NOTE 1

THESE IDENTIFIED BUILDINGS HAVE EXISTING SELF CONTAINED BUILDING SERVICES WHICH ARE PROPOSED TO BE RETAINED UNTIL THE END OF THEIR ECONOMIC LIFE. AT SUCH TIME, THE BUILDINGS SHALL BE SUPPLIED WITH SERVICES FROM THE NEW RING MAIN DISTRIBUTION TO SUIT THE END STATE INFRASTRUCTURE ARRANGEMENT.

NOTE 2:

EACH NEW BUILDING TO INCLUDE THE FOLLOWING:

- 2 x CHILLED WATER PUMPS (NOMINAL 12l/s / 150kPa EACH) AND 100mm COPPER CHILLED WATER DISTRIBUTION THROUGHOUT
- 2 x HEATING HOT WATER PUMPS (NOMINAL 6l/s / 150kPa EACH) AND 80mm COPPER DISTRIBUTION THROUGHOUT
- ESSENTIAL AND NON-ESSENTIAL SWITCHBOARDS WITH 2 x 4C 300mm^2 LV SUPPLIES FED FROM RELEVANT ENERGY CENTRE. LIGHTING AND POWER DISTRIBUTION THROUGHOUT
- 2 x 30kW DOMESTIC HOT WATER HEAT PUMPS AND COPPER DOMESTIC HOT WATER RETICULATION THROUGHOUT
- 100mm FIRE WATER SUPPLY (INDIVIDUAL BRANCH TAKEOFFS TO INCLUDE THREE SLUICE VALVES TO ALLOW RING MAIN OPERATION)
- 65mm POTABLE WATER (INDIVIDUAL BRANCH TAKEOFFS TO INCLUDE THREE SLUICE VALVES TO ALLOW RING MAIN OPERATION)

SERVICES TRENCH

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- 1 x 3C 185mm2 Cu HV SUPPLY CABLE
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS (2 x 4C 300mm2 LV SUPPLIES PER BUILDING)

ABOVE GROUND SERVICES ROUTE

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS VIA CABLE LADDERS (2 x 4C 300mm^2 LV SUPPLIES PER BUILDING)

SITE SERVICES INCOMERS:

- 180mm PE POTABLE WATER INCOMER RPZ (3m x 1m)
- 180mm PE FIRE WATER INCOMER RPZ (3m x 1m)
- VECTOR GAS INCOMER METERS (2m x 2m)
- VECTOR HV RING MAIN UNIT (3m x 3m)
- COMMS WAN SUPPLY

EACH SERVICE INCOMER (EXCLUDING COMMS) TO BE PROVIDED WITH LOCKABLE CHAIN LINK FENCE SURROUND, OR SIMILAR. PROVIDE CIRCULATION SPACE WITHIN AND AROUND EACH SERVICE INCOMER

EXISTING GAS SUPPLIES TO MASON TO REMAIN UNTIL RELEVANT EQUIPMENT END OF LIFE WHERE DOMESTIC HEATING SHALL BE REPLACED WITH HOT WATER HEAT PUMP TECHNOLOGY.

SERVED FROM SOUTH ENERGY CENTRE

SERVED FROM NORTH ENERGY CENTRE

WATER STORAGE

- FIRE AND POTABLE WATER STORAGE TANKS, ALLOW FOR 50,000 LITRES EACH (5m DIA EACH)
- POTABLE WATER PUMP STATION (20m^2)
- FIRE WATER DIESEL PUMP AND FUEL STORAGE (30m^2)

SERVICES TRENCH

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- 1 x 3C 185mm^2 Cu HV SUPPLY CABLE
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS (2 x 4C 300mm^2 LV SUPPLIES PER BUILDING)

ABOVE GROUND SERVICES ROUTE

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS VIA CABLE LADDERS (2 x 4C 300mm^2 LV SUPPLIES PER BUILDING)
- 1 x 3C 185mm^2 Cu HV SUPPLY CABLE (UNDERGROUND)

NORTH ENERGY CENTRE (550m^2)

INTERNAL ROOMS INCLUDE:
- 6 x 30l/s / 300KPa PUMPS 2 x BUFFER TANKS (100m^2)
- 2 x 1MVA TRANSFORMERS, 2 x 1MVA GENERATORS, HV RMU, MSB (200m^2)

EXTERNAL ROOMS INCLUDE:
- 10,000L DIESEL FUEL STORAGE (50m^2)
- 3 x 800kW AIR COOLED HEAT PUMP CHILLERS (200m^2)

SERVICES TRENCH

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- 1 x 3C 185mm2 Cu HV SUPPLY CABLE
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS (2 x 4C 300mm2 LV SUPPLIES PER BUILDING)

EXISTING SERVICES SUPPLIES

- 1 x 3C 185mm2 Cu HV SUPPLY TO UNITEC
- 50mm GAS SUPPLY TO UNITEC

SITE SERVICES INCOMERS:

- 180mm PE POTABLE WATER INCOMER RPZ (3m x 1m)
- 180mm PE FIRE WATER INCOMER RPZ (3m x 1m)
- COMMS WAN SUPPLY

EACH SERVICE INCOMER (EXCLUDING COMMS) TO BE PROVIDED WITH LOCKABLE CHAIN LINK FENCE SURROUND, OR SIMILAR. PROVIDE CIRCULATION SPACE WITHIN AND AROUND EACH SERVICE INCOMER

EXISTING SERVICES SUPPLIES

- 1 x 3C 185mm^2 Cu HV SUPPLY TO TAYLOR'S
- 100mm GAS SUPPLY TO TAYLOR'S

TYPICAL PULL PIT TO ACCESS AND INSTALL SERVICES

SERVICES TRENCH

SECTION CONTAINS:
- 200mm STEEL CHILLED WATER FLOW AND RETURN
- 150mm STEEL HEATING HOT WATER FLOW AND RETURN
- 180mm PE POTABLE WATER
- 180mm PE FIRE WATER
- 3 x 100mm COMMS CONDUITS
- 1 x 3C 185mm2 Cu HV SUPPLY CABLE
- LV DISTRIBUTION FROM ENERGY CENTRE TO BUILDINGS (2 x 4C 300mm2 LV SUPPLIES PER BUILDING)

SOUTH ENERGY CENTRE (550m^2)

INTERNAL ROOMS INCLUDE:
- 6 x 30l/s / 300KPa PUMPS 2 x BUFFER TANKS (100m^2)
- 2 x 1MVA TRANSFORMERS, 2 x 1MVA GENERATORS, HV RMU, MSB (200m^2)

EXTERNAL ROOMS INCLUDE:
- 10,000L DIESEL FUEL STORAGE (50m^2)
- 3 x 800kW AIR COOLED HEAT PUMP CHILLERS (200m^2)

No.	Revision	By	Chk	Appd	Date
B	PBC 2 ISSUE	NF	SS	SS	12/06/19
A	DRAFT - FOR INFORMATION	NF	SS	SS	31/05/19

Drawing Originator: Beca

Original Scale (A1) / Reduced Scale (A3)

Design	NF		
Drawn	NF		
Dsg Verifier	SS		
Dwg Check	SS		

Client: Waitemata District Health Board

Project: MASON CLINIC MASTERPLAN BUSINESS CASE 2019

Title: OVERALL SERVICES REQUIREMENTS END STATE

Discipline: COMBINED SERVICES

Drawing No.: CSK-101

Rev.: B

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LEGEND:

- IN-GROUND (TRENCHED) CHILLED WATER
- ABOVE GROUND CHILLED WATER
- ISOLATION VALVE
- SUPPLY CENTRE
- LOAD CENTRE
- PUMP

NOTE 1 - THESE IDENTIFIED BUILDINGS HAVE EXISTING SELF CONTAINED COOLING WHICH IS PROPOSED TO BE RETAINED UNTIL THE END OF ITS ECONOMIC LIFE. AT SUCH TIME, THE BUILDING SHALL BE SUPPLIED FROM THE CHILLED WATER RING MAIN TO MATCH THE END STATE CHILLED WATER ARRANGEMENT.

NOTE 2 - CHILLED WATER RING MAIN TO BE Ø200 STEEL THROUGHOUT

VALVED CHW PIPEWORK FOR FUTURE EXTENSION UNDER TRANCHE 2 WORKS

LOAD CENTRE
AREA: 5000 sqm
LOAD: 350 kW
PIPE SIZE: Ø100mm
FLOW: 14 l/s
SECONDARY PUMPS: 2 @ 14l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 3000 sqm
LOAD: 210 kW
PIPE SIZE: Ø80mm
FLOW: 8 l/s
SECONDARY PUMPS: 2 @ 8l/s /150kPa (Duty/Standby)

Admin GFA 723m2
T2 GFA 1540m2
T1 GFA 2733m2

Two-Storey Car Park
GFA 10146m2

NOTE 2

Front of House & Shared Activity Centre
GFA 3095m2

Energy Centre
GFA 504m2

Admin
T3 GFA 723m2
T3 GFA 542m2
GFA 1992m2

Link
GFA 90m2

T2
GFA 1826m2

NOTE 1

Kauri (T2)

Totara (T2)

Rata (T2)
GFA 1445m2

Mason Clinic
GFA 2802m2

Puriri
GFA 98m2

GFA 982m2

Kahikatea (T3)
GFA 982m2

Rimu
GFA 376m2
(Open)

Workshop
GFA 430m2

Pohutukawa (ID)
GFA 1530m2

Kowhai
GFA 300m2

Te Miro
GFA 136m2

Te Aka (T2)
GFA 1805m2

Tane Whakapiripiri (T3)
GFA 1065m2

On Ground Car Parking
GFA 2800m2

NORTH ENERGY CENTRE
CHILLER 1 (HEAT PUMP) = 800 kW
CHILLER 2 (HEAT PUMP) = 800 kW
CHILLER 3 (HEAT PUMP) = 800 kW
TOTAL CAPACITY = 1600 kW (N+1)
PRIMARY PUMPS = 3 @ 30l/s / 300kPa (N+1)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 294 kW
PIPE SIZE: Ø100mm
FLOW: 12 l/s
SECONDARY PUMPS: 2 @ 12l/s / 150kPa

TANEKAHA BUILDING SERVED FROM STANDALONE PLANT AT COMPLETION OF TRANCHE 1. TRANCHE 2 AND 3 CHILLER LOADS TO ALLOW FOR FUTURE CONNECTION OF THIS BUILDING

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No.	Revision	By	Chk	Appd	Date
A	PBC 2 ISSUE	NF	SS	SS	12/06/19

Drawing Originator: Beca

Original Scale (A1)
Reduced Scale (A3)

Design	NF		
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Dsg Verifier	SS		
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* Refer to Revision 1 for Original Signature

Client: Waitemata District Health Board

Project: MASON CLINIC MASTERPLAN BUSINESS CASE 2019

Title: CHILLED WATER LAYOUT TRANCHE 1

Discipline: MECHANICAL

Drawing No.: MSK-100

Rev.: A

DO NOT SCALE

IF IN DOUBT ASK.

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LEGEND:

- IN-GROUND (TRENCHED) CHILLED WATER
- ABOVE GROUND CHILLED WATER
- ISOLATION VALVE
- SUPPLY CENTRE
- LOAD CENTRE
- PUMP

NOTE 1 - THESE IDENTIFIED BUILDINGS HAVE EXISTING SELF CONTAINED COOLING WHICH IS PROPOSED TO BE RETAINED UNTIL THE END OF ITS ECONOMIC LIFE. AT SUCH TIME, THE BUILDING SHALL BE SUPPLIED FROM THE CHILLED WATER RING MAIN TO MATCH THE END STATE CHILLED WATER ARRANGEMENT.

NOTE 2 - CHILLED WATER RING MAIN TO BE Ø200 STEEL THROUGHOUT

NORMALLY CLOSED CHW ISOLATING VALVES AT DEMARCATION BETWEEN NORTH AND SOUTH ENERGY CENTRE SUPPLIES. VALVES MAY BE OPENED IN THE EVENT THAT EITHER ENERGY CENTRE CANNOT PRODUCE CHW

SERVED FROM SOUTH ENERGY CENTRE

SERVED FROM NORTH ENERGY CENTRE

LOAD CENTRE
AREA: 4200 sqm
LOAD: 294 kW
PIPE SIZE: Ø100mm
FLOW: 12 l/s
SECONDARY PUMPS: 2 @12l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 5000 sqm
LOAD: 350 kW
PIPE SIZE: Ø100mm
FLOW: 14 l/s
SECONDARY PUMPS: 2 @ 14l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 3000 sqm
LOAD: 210 kW
PIPE SIZE: Ø80mm
FLOW: 8 l/s
SECONDARY PUMPS: 2 @ 8l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 294 kW
PIPE SIZE: Ø100mm
FLOW: 12 l/s
SECONDARY PUMPS: 2 @ 12l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 294 kW
PIPE SIZE: Ø100mm
FLOW: 12 l/s
SECONDARY PUMPS: 2 @ 12l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 763 sqm
LOAD: 53 kW
PIPE SIZE: Ø50mm
FLOW: 2 l/s
SECONDARY PUMPS: 2 @ 2l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 3800 sqm
LOAD: 266 kW
PIPE SIZE: Ø100mm
FLOW: 11 l/s
SECONDARY PUMPS: 2 @ 11l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 376 sqm
LOAD: 26 kW
PIPE SIZE: Ø40mm
FLOW: 1 l/s
SECONDARY PUMPS: 2 @ 1l/s /150kPa (Duty/Standby)

SOUTH ENERGY CENTRE
CHILLER 1 (HEAT PUMP) = 800 kW
CHILLER 2 (HEAT PUMP) = 800 kW
CHILLER 3 (HEAT PUMP) = 800 kW
TOTAL CAPACITY = 1600 kW (N+1)
PRIMARY PUMPS = 3 @ 30l/s / 300kPa (N+1)

LOAD CENTRE
AREA: 1000 sqm
LOAD: 74 kW
PIPE SIZE: Ø65mm
FLOW: 3 l/s
SECONDARY PUMPS: 2 @ 3l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 1800 sqm
LOAD: 126 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 1530 sqm
LOAD: 107 kW
PIPE SIZE: Ø65mm
FLOW: 4 l/s
SECONDARY PUMPS: 2 @ 4l/s /150kPa (Duty/Standby)

LOAD CENTRE TO SUPPLY ALL 3 CENTRAL ACTIVITY BUILDINGS

NORMALLY CLOSED CHW ISOLATING VALVES AT DEMARCATION BETWEEN NORTH AND SOUTH ENERGY CENTRE SUPPLIES. VALVES MAY BE OPENED IN THE EVENT THAT EITHER ENERGY CENTRE CANNOT PRODUCE CHW

LOAD CENTRE
AREA: 1850 sqm
LOAD: 130 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 1800 sqm
LOAD: 126 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s /150kPa (Duty/Standby)

NORTH ENERGY CENTRE
CHILLER 1 (HEAT PUMP) = 800 kW
CHILLER 2 (HEAT PUMP) = 800 kW
CHILLER 3 (HEAT PUMP) = 800 kW
TOTAL CAPACITY = 1600 kW (N+1)
PRIMARY PUMPS = 3 @ 30l/s / 300kPa (N+1)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 294 kW
PIPE SIZE: Ø100mm
FLOW: 12 l/s
SECONDARY PUMPS: 2 @ 12l/s / 150kPa

NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 2 NOTE 1

Admin GFA 723m2 / T2 GFA 1540m2 / T1 GFA 2733m2
Two-Storey Car Park GFA 10146m2
Front of House & Shared Activity Centre GFA 3095m2
Energy Centre GFA 504m2
Admin GFA 652m2 / Future GFA 1782m2 / Generic GFA 1782m2
Support + Link GFA 314m2
Admin GFA 652m2 / Future GFA 1782m2 / Generic GFA 1782m2
Support + Link GFA 461m2
Admin T3 GFA 723m2 / GFA 1542m2 / GFA 1992m2
Link GFA 94m2
Activity GFA 1268m2 (total for 3 buildings)
Support GFA 140m2
T2 GFA 1826m2
ID (Zone) GFA 1782m2
Pohutukawa (ID) GFA 1530m2
Te Aka (T2) GFA 1805m2
Support GFA 145m2
Te Miro GFA 136m2
Tane Kapiripiri (T3) GFA 1065m2
Energy Support GFA 533m2
Two-Storey Car Park GFA 5932m2
Open GFA 763m2
Future Youth GFA 1782m2 / GFA 2002m2
Rimu GFA 376m2
(Open)
FoH/Family GFA 876m2
Link

A	PBC 2 ISSUE	NF	SS	SS	12/06/19
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Drawing Originator: Beca

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Client: Waitemata District Health Board

Project: MASON CLINIC MASTERPLAN BUSINESS CASE 2019

Title: CHILLED WATER LAYOUT END STATE

Discipline: MECHANICAL

Drawing No.: MSK-101

Rev.: A

DO NOT SCALE

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LEGEND:

- IN-GROUND (TRENCHED) HOT WATER
- ABOVE GROUND HOT WATER
- ISOLATION VALVE
- SUPPLY CENTRE
- LOAD CENTRE
- PUMP

NOTE 1 - THESE IDENTIFIED BUILDINGS HAVE EXISTING SELF CONTAINED HEATING WHICH IS PROPOSED TO BE RETAINED UNTIL THE END OF ITS ECONOMIC LIFE. AT SUCH TIME, THE BUILDING SHALL BE SUPPLIED FROM THE HEATING HOT WATER RING MAIN TO MATCH THE END STATE HEATING WATER ARRANGEMENT.

NOTE 2 - HEATING WATER RING MAIN TO BE Ø150 STEEL THROUGHOUT

VALVED HHW PIPEWORK FOR FUTURE EXTENSION UNDER TRANCHE 2 WORKS

LOAD CENTRE
AREA: 5000 sqm
LOAD: 260 kW
PIPE SIZE: Ø80mm
FLOW: 6 l/s
SECONDARY PUMPS: 2 @ 6l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 3000 sqm
LOAD: 156 kW
PIPE SIZE: Ø65mm
FLOW: 4 l/s
SECONDARY PUMPS: 2 @ 4l/s /150kPa (Duty/Standby)

Admin GFA 723m2
T2 GFA 1540m2
T1 GFA 2733m2

Two-Storey Car Park
GFA 10146m2

NOTE 2

Front of House & Shared Activity Centre
GFA 3095m2

Energy Centre
GFA 504m2

Admin
T3 GFA 723m2
T3 GFA 1542m2
GFA 1992m2

Link
GFA 90m2

T2
GFA 1826m2

NOTE 1

Rata (T2)
GFA 1445m2

Kauri (T2)

Totara (T2)

Mason Clinic
GFA 2802m2

Puriri
GFA 98m2

GFA 982m2

Kahikatea (T3)
GFA 982m2

Rimu
GFA 376m2
(Open)

Workshop
GFA 430m2

Pohutukawa (ID)
GFA 1530m2

Kowhai
GFA 300m2

Te Miro
GFA 136m2

Te Aka (T2)
GFA 1805m2

Tane Whakapiripiri (T3)
GFA 1065m2

On Ground Car Parking
GFA 2800m2

NORTH ENERGY CENTRE
CHILLER 1 (HEAT PUMP) = 800 kW
CHILLER 2 (HEAT PUMP) = 800 kW
CHILLER 3 (HEAT PUMP) = 800 kW
TOTAL CAPACITY = 1600 kW (N+1)
PRIMARY PUMPS = 3 @ 30l/s / 300kPa (N+1)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 218 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s / 150kPa

TANEKAHA BUILDING SERVED FROM STANDALONE PLANT AT COMPLETION OF TRANCHE 1. TRANCHE 2 HEATING LOADS TO ALLOW FOR FUTURE CONNECTION OF THIS BUILDING

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Client: Waitemata District Health Board

Project: MASON CLINIC MASTERPLAN BUSINESS CASE 2019

Title: HOT WATER LAYOUT TRANCHE 1

Discipline: MECHANICAL

Drawing No.: MSK-102

Rev.: A

DO NOT SCALE

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LEGEND:

- IN-GROUND (TRENCHED) HOT WATER
- ABOVE GROUND HOT WATER
- ISOLATION VALVE
- SUPPLY CENTRE
- LOAD CENTRE
- PUMP

NOTE 1 - THESE IDENTIFIED BUILDINGS HAVE EXISTING SELF CONTAINED HEATING WHICH IS PROPOSED TO BE RETAINED UNTIL THE END OF ITS ECONOMIC LIFE. AT SUCH TIME, THE BUILDING SHALL BE SUPPLIED FROM THE HEATING HOT WATER RING MAIN TO MATCH THE END STATE HEATING WATER ARRANGEMENT.

NOTE 2 - HEATING WATER RING MAIN TO BE Ø150 STEEL THROUGHOUT

NORMALLY CLOSED HHW ISOLATING VALVES AT DEMARCATION BETWEEN NORTH AND SOUTH ENERGY CENTRE SUPPLIES. VALVES MAY BE OPENED IN THE EVENT THAT EITHER ENERGY CENTRE CANNOT PRODUCE HHW

SERVED FROM SOUTH ENERGY CENTRE

SERVED FROM NORTH ENERGY CENTRE

LOAD CENTRE
AREA: 4200 sqm
LOAD: 218 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 218 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 5000 sqm
LOAD: 260 kW
PIPE SIZE: Ø80mm
FLOW: 6 l/s
SECONDARY PUMPS: 2 @ 6l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 3000 sqm
LOAD: 156 kW
PIPE SIZE: Ø65mm
FLOW: 4 l/s
SECONDARY PUMPS: 2 @ 4l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 763 sqm
LOAD: 40 kW
PIPE SIZE: Ø40mm
FLOW: 1 l/s
SECONDARY PUMPS: 2 @ 1l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 3800 sqm
LOAD: 198 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 376 sqm
LOAD: 20 kW
PIPE SIZE:
FLOW: <1 l/s
SECONDARY PUMPS:

SOUTH ENERGY CENTRE
CHILLER 1 (HEAT PUMP) = 800 kW
CHILLER 2 (HEAT PUMP) = 800 kW
CHILLER 3 (HEAT PUMP) = 800 kW
TOTAL CAPACITY = 1600 kW (N+1)
PRIMARY PUMPS = 3 @ 30l/s / 300kPa (N+1)

LOAD CENTRE
AREA: 1050 sqm
LOAD: 55 kW
PIPE SIZE: Ø40mm
FLOW: 1 l/s
SECONDARY PUMPS: 2 @ 1l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 1800 sqm
LOAD: 94 kW
PIPE SIZE: Ø50mm
FLOW: 2 l/s
SECONDARY PUMPS: 2 @ 2l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 1530 sqm
LOAD: 80 kW
PIPE SIZE: Ø50mm
FLOW: 2 l/s
SECONDARY PUMPS: 2 @ 2l/s /150kPa (Duty/Standby)

LOAD CENTRE TO SUPPLY ALL 3 CENTRAL ACTIVITY BUILDINGS

NORMALLY CLOSED HHW ISOLATING VALVES AT DEMARCATION BETWEEN NORTH AND SOUTH ENERGY CENTRE SUPPLIES. VALVES MAY BE OPENED IN THE EVENT THAT EITHER ENERGY CENTRE CANNOT PRODUCE HHW

NORTH ENERGY CENTRE
CHILLER 1 (HEAT PUMP) = 800 kW
CHILLER 2 (HEAT PUMP) = 800 kW
CHILLER 3 (HEAT PUMP) = 800 kW
TOTAL CAPACITY = 1600 kW (N+1)
PRIMARY PUMPS = 3 @ 30l/s / 300kPa (N+1)

LOAD CENTRE
AREA: 4200 sqm
LOAD: 218 kW
PIPE SIZE: Ø65mm
FLOW: 5 l/s
SECONDARY PUMPS: 2 @ 5l/s / 150kPa

LOAD CENTRE
AREA: 1850 sqm
LOAD: 96kW
PIPE SIZE: Ø50mm
FLOW: 2 l/s
SECONDARY PUMPS: 2 @ 2l/s /150kPa (Duty/Standby)

LOAD CENTRE
AREA: 1800 sqm
LOAD: 94 kW
PIPE SIZE: Ø50mm
FLOW: 2 l/s
SECONDARY PUMPS: 2 @ 2l/s /150kPa (Duty/Standby)

NOTE 1

NOTE 2

Front of House & Shared Activity Centre
GFA 3095m2

Energy Centre
GFA 504m2

Two-Storey Car Park
GFA 10146m2

Two-Storey Car Park
GFA 5932m2

Admin GFA 723m2
T2 GFA 1540m2
T1 GFA 2733m2

Admin
Generic
GFA 652m2
GFA 1782m2
GFA 1782m2

Admin
Future
Generic
GFA 652m2
GFA 1782m2

Support + Link
GFA 314m2

Support
GFA 461m2

Admin
T3 GFA 723m2
T3 GFA 1542m2
GFA 1992m2

Link
GFA 9m2

Activity
GFA 1268m2
(total for 3 buildings)

Admin
Future
GFA 652m2
GFA 1782m2
GFA 1782m2

Open
GFA 763m2

Future Youth
GFA 1782m2
GFA 2002m2

Rimu
GFA 376m2

(Open)

FoH/Family
GFA 876m2

Link

T2
GFA 1826m2

Support
GFA 145m2

ID (Zone)
GFA 1782m2

Pohutukawa (ID)
GFA 1530m2

Te Aka (T2)
GFA 1805m2

Te Miro
GFA 136m2

Energy Support
GFA 533m2

Tanguru Kapiripiri (T3)
GFA 1065m2

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Client: Waitemata District Health Board

Project: MASON CLINIC
MASTERPLAN BUSINESS CASE 2019

Title: HOT WATER LAYOUT
END STATE

Discipline: MECHANICAL

Drawing No.: MSK-103

Rev.: A

DO NOT SCALE

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LEGEND:

- NEW IN-GROUND HV ELECTRICAL CABLE
- NEW ABOVE LV ELECTRICAL CABLE
- RE-ROUTED HV CABLE
- EXISTING LV SUBMAIN
- EXISTING HV CABLE
- MAIN SWITCHBOARD
- DISTRIBUTION BOARD
- HV RING MAIN UNIT

NOTE 1 - IN ORDER TO SUPPLY THE NEW TANEKAHA BUILDING IT IS PLANNED TO INSTALL A NEW MAIN SWITCH BOARD TO SUPPLY THE EXISTING MAIN SWITCH BOARD AND THE NEW TANEKAHA BUILDING. IT IS CONSIDERED FEASIBLE TO RE-USE/RELOCATE THE GENERATOR/S AND TRANSFORMER/S TO THE NORTH ENERGY CENTRE AS PART OF EITHER THE TRANCHE 1 OR 2 NORTH ENERGY CENTRE WORKS

UPGRADE EXISTING RMU

LOAD CENTRE
AREA: 4700 sqm
LOAD: 190 kVA

LOAD CENTRE
AREA: 2800 sqm
LOAD: 110 kVA

Front of House & Shared Activity Centre
GFA 3095m2

Energy Centre
GFA 504m2

NORTH ENERGY CENTRE

TRANSFORMER 1 = 1000 kVA
TRANSFORMER 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

GENERATOR 1 = 1000 kVA
GENERATOR 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

FUEL TANK = 10,000 Litre

MAIN SWITCHBOARD = 2000 AMP, FORM 4b, 50 kA FAULT
11,000 VOLT SWITCHBOARD OR RING MAIN UNIT

TRANSFORMERS AND GENERATORS TO BE RELOCATED TO NORTH ENERGY CENTRE FROM EXISTING SUBSTATION DURING TRANCHE 2/3 WORKS

LOAD CENTRE

AREA: 4200 sqm

LOAD: 170 kVA

EXISTING HV CABLE RE-ROUTED

- 1 x 3C 185mm2 Cu HV SUPPLY TO UNITEC

TANEKAHA BUILDING SERVED FROM EXISTING SUBSTATION AT END OF TRANCHE 1. BUILDING TO BE CHANGED OVER TO NORTH ENERGY CENTRE DURING TRANCHE 2/3 WORKS

EXISTING HV CABLE RE-ROUTED

- 1 x 3C 185mm^2 Cu HV SUPPLY TO TAYLOR'S

EXISTING SUBSTATION

TRANSFORMER 1 = 1000 kVA
TRANSFORMER 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

GENERATOR 1 = 1000 kVA
GENERATOR 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

FUEL TANK = 10,000 Litre

MAIN SWITCHBOARD = 2000 AMP, FORM 4b, 50 kA FAULT
11,000 VOLT RING MAIN UNIT

GENERATORS AND TRANSFORMERS TO BE MOVED OVER TO NORTH ENERGY CENTRE DURING TRANCHE 2/3 WORKS

NOTE 1

Admin T2 T1 GFA 723m2 / GFA 1540m2 / GFA 273m2
Two-Storey Car Park GFA 10146m2
GFA 261m2
Admin T3 T3 GFA 723m2 / GFA 1542m2 / GFA 1992m2
Link GFA 90m2
T2 GFA 1826m2
Kauri (T2)
Totara (T2)
Rata (T2) GFA 1445m2
Mason Clinic GFA 2802m2
Purirri GFA 98m2
GFA 982m2
Kahikatea (T3) GFA 982m2
Rimu GFA 376m2 (Open)
Workshop GFA 430m2
Te Miro GFA 136m2
Pohutukawa (ID) GFA 1530m2
Te Aka (T2) GFA 1805m2
Kowhai GFA 300m2
Tane Whakapiripiri (T3) GFA 1065m2
On Ground Car Parking GFA 2800m2

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Client: Waitemata District Health Board

Project: MASON CLINIC
MASTERPLAN BUSINESS CASE 2019

Title: ELECTRICAL LAYOUT
TRANCHE 1

Discipline: ELECTRICAL

Drawing No.: ESK-100

Rev.: A

DO NOT SCALE

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LEGEND:

- IN-GROUND (TRENCHED) ELECTRICAL CABLE
- ABOVE GROUND ELECTRICAL CABLE
- PATH OF RE-ROUTED HV CABLE
- MAIN SWITCHBOARD
- DISTRIBUTION BOARD
- HV RING MAIN UNIT

NOTE 1 - THE TANEKAHA BUILDING ELECTRICAL LOAD SHALL BE TRANSFERRED TO THE NORTH ENERGY CENTRE DURING TRANCHE 2/3 WORKS

SERVED FROM SOUTH ENERGY CENTRE

SERVED FROM NORTH ENERGY CENTRE

LOAD CENTRE
AREA: 5000 sqm
LOAD: 200 kVA

LOAD CENTRE
AREA: 3000 sqm
LOAD: 120 kVA

LOAD CENTRE
AREA: 4200 sqm
LOAD: 170 kVA

LOAD CENTRE
AREA: 4200 sqm
LOAD: 170 kVA

LOAD CENTRE
AREA: 4200 sqm
LOAD: 170 kVA

LOAD CENTRE
AREA: 763 sqm
LOAD: 30 kVA

LOAD CENTRE
AREA: 3800 sqm
LOAD: 152 kVA

NORTH ENERGY CENTRE

TRANSFORMER 1 = 1000 kVA
TRANSFORMER 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

GENERATOR 1 = 1000 kVA
GENERATOR 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

FUEL TANK = 10,000 Litre

MAIN SWITCHBOARD = 2000 AMP, FORM 4b, 50 kA FAULT
11,000 VOLT SWITCHBOARD OR RING MAIN UNIT

LOAD CENTRE
AREA: 376 sqm
LOAD: 15 kVA

SOUTH ENERGY CENTRE

TRANSFORMER 1 = 1000 kVA
TRANSFORMER 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

GENERATOR 1 = 1000 kVA
GENERATOR 2 = 1000 kVA
TOTAL CAPACITY = 2000 kVA (N+1)

FUEL TANK = 10,000 Litre

MAIN SWITCHBOARD = 2000 AMP, FORM 4b, 50 kA FAULT
11,000 VOLT SWITCHBOARD OR RING MAIN UNIT

LOAD CENTRE
AREA: 1050 sqm
LOAD: 42 kVA

LOAD CENTRE
AREA: 1800 sqm
LOAD: 72 kVA

LOAD CENTRE
AREA: 1530 sqm
LOAD: 61 kVA

LOAD CENTRE
AREA: 4200 sqm
LOAD: 170 kVA

EXISTING SERVICES SUPPLIES
- 1 x 3C 185mm2 Cu HV SUPPLY TO UNITEC

LOAD CENTRE
AREA: 1850 sqm
LOAD: 74 kVA

LOAD CENTRE
AREA: 1800 sqm
LOAD: 72 kVA

EXISTING SERVICES SUPPLIES
- 1 x 3C 185mm² Cu HV SUPPLY TO TAYLOR'S

Support GFA 261m2
Admin GFA 723m2
T2 GFA 1540m2
T1 GFA 2733m2
Two-Storey Car GFA 10146m2
GFA 3095m2
Energy Centre GFA 504m2
Admin GFA 723m2
T3 GFA 1542m2
T3 GFA 1992m2
Admin GFA 652m2
Future GFA 1782m2
Generic GFA 1782m2
Support + Link GFA 314m2
Admin GFA 652m2
Future GFA 1782m2
Activity GFA 1268m2 (total for 3 buildings)
Support GFA 140m2
T2 GFA 1826m2
NOTE 1
Open GFA 763m2
Future Youth GFA 2002m2
Rimu GFA 376m2
(Open)
FoH/Family GFA 876m2
Link
Te Miro GFA 136m2
Te Aka (T2) GFA 1805m2
Support GFA 145m2
Pohutukawa (ID) GFA 1530m2
ID (Zone) GFA 1782m2
NOTE 1
NOTE 1
NOTE 1
Energy Support GFA 533m2
Tane Whakamutu (T3) GFA 1065m2
o-Storey Car Park GFA 5932m2

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Client: Waitemata District Health Board

Project: MASON CLINIC
MASTERPLAN BUSINESS CASE 2019

Title: ELECTRICAL LAYOUT
END STATE

Discipline: ELECTRICAL

Drawing No.: ESK-101

Rev.: A

DO NOT SCALE

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LEGEND:

- EXISTING POTABLE WATER
- NEW POTABLE WATER
- EXISTING FIRE WATER
- NEW FIRE WATER
- NEW ISOLATION VALVE
- SUPPLY CENTRE
- LOAD CENTRE

NOTES:

1. Pipes sizes shown are nominal internal diameter bore
2. Unless noted otherwise all new potable and fire water lines are PE180
3. Every Tee junction will have 3 sluice/gate valves either side of main and the branch.
5. A series of auto valves will be required to segregate tank makeup and ring main distribution in pumping mode and normal mode.

WATER STORAGE

- FIRE AND POTABLE WATER STORAGE TANKS, ALLOW FOR 50,000 LITRES EACH (Ø5m EACH)
- POTABLE WATER PUMP STATION (20m²)
- FIRE WATER DIESEL PUMP AND FUEL STORAGE (30m²)

NEW VALVED PIPEWORK FOR FUTURE EXTENSION UNDER TRANCHE 2 WORKS

NEW VALVED PIPEWORK FOR FUTURE EXTENSION UNDER TRANCHE 2 WORKS

MAINS WATER INCOMER 1:

- UPGRADE EXISTING Ø150 TO Ø180 METERED PE POTABLE WATER INCOMER C/W RPZ (3m x 1m)
- NEW Ø180 PE FIRE WATER INCOMER C/W RPZ (3m x 1m)

EACH INCOMER TO BE PROVIDED WITH LOCKABLE CHAIN LINK FENCE SURROUND, OR SIMILAR. PROVIDE CIRCULATION SPACE WITHIN AND AROUND EACH INCOMER

TYPICAL POTABLE AND FIRE WATER SUPPLY TO EACH BUILDING

Support
GFA 261m2

Admin GFA 723m2
T2 GFA 1540m2
T1 GFA 2733m2

Two-Storey Car Park
GFA 10146m2

Front of House & Shared Activity Centre
GFA 3095m2

Energy Centre
GFA 504m2

Admin
T3 GFA 1542m2
T3 GFA 1992m2

Link
GFA 90m2

T2
GFA 1826m2

Workshop
GFA 430m2

Kowhai
GFA 306m2

Totara (T2)

Kauri (T2)

Rata (T2)
GFA 1445m2

Mason Clinic
GFA 2802m2

Kahikatea (T3)
GFA 982m2

Ruriri
GFA 98m2

Rimu
GFA 376m2
(Open)

Te Miro
GFA 136m2

Te Aka (T2)
GFA 1805m2

Pohutukawa (ID)
GFA 1530m2

Tane Whakapiripiri (T3)
GFA 1065m2

On Ground Car Parking
GFA 2800m2

VALVED POTABLE AND FIRE WATER PIPEWORK FOR FUTURE EXTENSION UNDER TRANCHE 2 AND 3 WORKS

TO UNITEC SITE

EXISTING POTABLE AND FIRE WATER DISTRIBUTION NETWORK REMAINS UNCHANGED TO EXISTING BUILDINGS UNDER TRANCHE 1 WORKS.

WATER SUPPLIES TO EXISTING BUILDINGS TO BE CHANGED OVER TO THE NEW POTABLE AND FIRE WATER RING MAINS INSTALLED UNDER TRANCHE 2 AND 3 WORKS

No.	Revision	By	Chk	Appd	Date
A	PBC 2 ISSUE	NF	SS	SS	12/06/19

Drawing Originator: Beca

Original Scale (A1)
Reduced Scale (A3)

Design	NF		
Drawn	NF		
Dsg Verifier	SS		
Dwg Check	SS		Date

* Refer to Revision 1 for Original Signature

Client: Waitemata District Health Board

Project: MASON CLINIC
MASTERPLAN BUSINESS CASE 2019

Title: POTABLE AND FIRE WATER LAYOUT TRANCHE 1

Discipline: HYDRAULIC

Drawing No.: HYD-100

Rev.: A

DO NOT SCALE

IF IN DOUBT ASK.

www.beca.com

LEGEND:

- EXISTING POTABLE WATER
- NEW POTABLE WATER
- EXISTING FIRE WATER
- NEW FIRE WATER
- NEW ISOLATION VALVE
- SUPPLY CENTRE
- LOAD CENTRE

NOTES:

1. Pipes sizes shown are nominal internal diameter bore
2. Unless noted otherwise all new potable and fire water lines are PE180
3. Every Tee junction will have 3 sluice/gate valves either side of main and the branch.
5. A series of auto valves will be required to segregate tank makeup and ring main distribution in pumping mode and normal mode.

WATER STORAGE

- FIRE AND POTABLE WATER STORAGE TANKS, ALLOW FOR 50,000 LITRES EACH (Ø5m EACH)
- POTABLE WATER PUMP STATION (20m²)
- FIRE WATER DIESEL PUMP AND FUEL STORAGE (30m²)

MAINS WATER INCOMER 1:

- Ø180 METERED PE POTABLE WATER INCOMER RPZ (3m x 1m)
- Ø180 PE FIRE WATER INCOMER RPZ (3m x 1m)

TYPICAL POTABLE AND FIRE WATER SUPPLY TO EACH BUILDING

Ø180 PE

Ø180 PE

Ø100 PE

Ø180 PE

Ø180 PE

Admin GFA 723m2
T2 GFA 1540m2
T1 GFA 2733m2

Support
GFA 261m2

Two-Storey Car Park
GFA 10146m2

Front of House & Shared Activity Centre
GFA 3095m2

Energy Centre
GFA 504m2

Admin GFA 652m2
Generic GFA 1782m2
H&C GFA 1782m2

GFA 652m2 Admin Support + Link GFA 461m2
GFA 1782m2 Future
GFA 1782m2 Generic

Admin GFA 723m2
T3 GFA 1542m2
T3 GFA 1992m2

Support + Link
GFA 314m2

Admin GFA 652m2
Future GFA 1782m2
ID GFA 1782m2

Activity
GFA 1268m2
(total for 3 buildings)

Link
GFA 90m2

Support
GFA 140m2

T2
GFA 1826m2

Open
GFA 763m2

Future GFA 1782m2
Youth GFA 2002m2

Rimu
GFA 376m2
(Open)

FoH/Family Link
GFA 876m2

Support
GFA 145m2

Pohutukawa (ID)
GFA 1530m2

ID (Zone)
GFA 1782m2

Te Miro
GFA 136m2

Te Aka (T2)
GFA 1805m2

Energy/ Support
GFA 533m2

Tane Whakapiripiri (T3)
GFA 1065m2

Two-Storey Car Park
GFA 5932m2

MAINS WATER INCOMER 2:

- UPGRADE TO Ø180mm METERED PE POTABLE WATER INCOMER RPZ (3m x 1m)
- NEW Ø180mm PE FIRE WATER INCOMER RPZ (3m x 1m)

SERVICE INCOMER TO BE PROVIDED WITH LOCKABLE CHAIN LINK FENCE SURROUND, OR SIMILAR. PROVIDE CIRCULATION SPACE WITHIN AND AROUND SERVICE INCOMER

TO UNITEC SITE

EXISTING POTABLE AND FIRE WATER DISTRIBUTION NETWORK REMAINS UNCHANGED TO EXISTING BUILDINGS UNDER TRANCHE 1 WORKS.

WATER SUPPLIES TO EXISTING BUILDINGS TO BE CHANGED OVER TO THE NEW POTABLE AND FIRE WATER RING MAINS INSTALLED UNDER TRANCHE 2 AND 3 WORKS

No.	Revision	By	Chk	Appd	Date
A	PBC 2 ISSUE	NF	SS	SS	12/06/19

Drawing Originator: Beca

Original Scale (A1) / Reduced Scale (A3)

Design	NF		
Drawn	NF		
Dsg Verifier	SS		
Dwg Check	SS		Date

* Refer to Revision 1 for Original Signature

Client: Waitemata District Health Board

Project: MASON CLINIC MASTERPLAN BUSINESS CASE 2019

Title: POTABLE AND FIRE WATER LAYOUT END STATE

Discipline: HYDRAULIC

Drawing No.: HYD-101

Rev.: A

DO NOT SCALE

IF IN DOUBT ASK.

www.beca.com

Appendix F – Hydrant testing result

PBS Fire Data IT
www.pbsfiredata.com

For and on behalf of WAITEMATA DISTRICT HEALTH BOARD
R 7 NOV 2017

P O Box 22 280
Otahuhu, Auckland 1640
Ph: (09) 279 3709
Fax: (09) 279 3719
e-mail: pbsfire@xtra.co.nz

PO Box 976
Hamilton
Ph: (07) 834 4304
Fax: (07) 834 4306
email: waikato@pbsfire.com

ISO 9001 CERTIFIED GCS

FIRE HYDRANT / SITE WATER MAIN FLOW TEST

Date:	OCT 2017..	**Site:**	CARRINGTON HOSPITAL MAIN SITE.
Address:	CARRINGTON ROAD –AUCKLAND.	**Building Number:**	SITE COMBINE MAIN.
Client:	WAITEMATA .D.H.B		

Site water main (ringmain) (signal ended main):	RINGMAIN-FEEDED BY -1X150mm SINGLE COUNCIL SUPPLY FROM GREAT NORTH ROAD (MOTORWAY SIDE OF SITE).
Size of Towns main :	HOSPITAL SUPPLY 150mm ...AND 1X EMERGENCY 100mm SINGLE FEED FROM UNTEC (KEEPED CLOSED).
Town's main boosted pump/tank or other :	N/A
Tank capacity :	N/A
Back Flow:	1X 150mm FEEDED FROM GREAT NORTH ROAD.
Size of Back Flow:	150mm.
Other connections to site Fire water mains :	Council Supply / Lake Supply / Tank Supply / Bore Supply
Comments:	SITE WATER SUPPLY DRAWINGS DATED MARCH1971 AND JAN2013 (WOODS) USED AS REFERNCE. HYDRANT LOCATIONS ANS SLICE VALUES ON SITE.

Standard:	NZS4510- NZS4541	1978	1998	2008	SNZ-PAS-4509-2008

Hydrant Number	Static kPa	Location of site supply	Orifice size	Flow kPa	Flow meter	Ltrs/pm	LITRES P-SEC	Comments/Work Required
1	750	BETWEEN BLD16 AND BLD1 RECECTION/ BACKFLOW.SUPPLY.	D5	550	50	2310	38.5	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.
2	750	OLD GARAGE WORKSOP.BLD4	D5	550	48	2262	37.7	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.
3	750	RATA UNIT ,BLD8	D5	525	45	2196	36.6	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.
4	750	I/D UNIT FRONT, POHUTOKAWA.BLD13	D5	525	45	2196	36.6	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.
5	750	KAHIKATEA CARPARK. BLD9	D5	500	40	2070	34.5	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.
6	750	ACCESS BRIDGE, RIMU.BLD14	D5	525	45	2196	36.6	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.
7	750	MEETING HOUSE, MARAE.BLD10	D5	500	50	2310	38.5	ACTION REQUIRED, POST/CAT EYE /TRIANGLE PAINTING.
8	760	REAR OF PURRI CTR. BLD12	D5	500	50	2310	38.5	ACTION REQUIRED, POST/ CAT EYE /TRIANGLE PAINTING.
9	750	POHUTOKAWA.BLD13	D5	500	48	2262	37.7	ACTION REQUIRED, CAT EYE /TRIANGLE PAINTING.

Quok

Disclaimer: IQP reserves the rights to withdraw Form 12a should the information provided by the owners, consultants or any third party are deemed to be incorrect. Form 12a shall be declared null and void.

Appendix G – Existing Stormwater and Wastewater Utilities Plan

1050 dia. Wastewater transmission main

ESPLANADE RESERVE

225mm outfall to be upgraded

Existing wastewater connection to be confirmed

375 dia. Public Wastewater main (combined)

375 dia. Public Wastewater main

RATA UNIT

RIMU HOSTEL

TANEKAHA UNIT

TOTARA UNIT

Existing 225 dia. stormwater main

KAURI UNIT

KAHIKATEA UNIT

TE MIRO

11kV Vector cable and telecom ducts

50 dia. gas main (to Unitec?)

TANE WHAKAPIRIPIRI

PURIRI CENTRE

POHUTUKAWA

GARAGES

POOL BUILDING

SWIMMING POOL

KOWHAI

UNITEC

UNITEC SECURITY BUILDING

EXISTING SERVICES ASSESSMENT AURECON MARK-UP 01/03/2019

SOUTHERN SITE (EXTENT NOT SHOWN)

NORTHERN SITE (EXTENT NOT SHOWN)

LEGEND

- TELECOM SERVICE DUCTS
- COMMUNICATIONS SERVICE DUCTS
- POWER CABLES (LV) – BURIED DIRECT
- POWER CABLES (HV) – BURIED DIRECT
- GAS PIPE
- GAS PIPE (REDUNDANT)
- SANITARY SEWER PIPE
- SANITARY SEWER PIPE (PRIVATE)
- STORM WATER PIPE
- POWER SERVICE DUCTS
- LIGHTING SERVICE DUCT
- LIGHTING CIRCUIT
- FLEXALEN HOT WATER PIPE (F&R)
- MANHOLE
- LIGHTING COLUMN
- A= KIM LIGHTING – ARCHITYPE AR4 C/W 400W METAL HALIDE LAMP, TYPE IV REFLECTOR & 7m CSP PACIFIC OCLYTE BASE PLATE MOUNTED COLUMN
- B= UNKOWN
- ELECTRICAL CHAMBER (1200x900)
- PC1–PC10 ELECTRICAL CHAMBER REFERENCE
- COMMUNICATIONS PIT (600x600)
- CC1–CC20 COMMUNICATIONS CHAMBER REFERENCE
- TELECOM'S CHAMBER (1200x900)
- TELECOM'S CHAMBER (ø600)
- NEW MDPE PIPEWORK
- REDUNDANT WATER SUPPLY PIPEWORK.
- EXISTING WATER SUPPLY PIPEWORK
- FIRE HYDRANT
- SLUICE VALVE

Issue	Description	Date	App'd
		30.11.06	
		05.12.05	PDB
A	AS–BUILT FOR REVIEW	31.10.05	PDB

The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the Maunsell assurance system certified to AS/NZS ISO 9001–2000

		Checked	Date
Design	PDB		04.05.06
Drawn	VPT		
Approved			

maunsell

Maunsell Limited
AN AECOM COMPANY

Waitemata District Health Board
Te Wai Awhina

INTELLECTUAL DISABILITIES & KAUPAPA MAORI UNITS
MASON CLINIC
CARRINGTON RD AUCKLAND

SITE & SERVICES PLAN (ENABLING WORKS)

Scale
1 : 500 (A1)
1 : 1000 (A3)

Status
AS–BUILT

Drawing No. 3816035 - CS–00
Issue C

Appendix H – Watercare Assessment Report 2021

Watercare
An Auckland Council Organisation

Watercare Services Limited
Private Bag 94010
Auckland 2241
www.watercare.co.nz
Customer service line
Mon to Fri 7.30 to 6pm
09 442 2222
info@water.co.nz

Fault line
24 hours
09 442 2222
Free text 3130
faults@water.co.nz

08 March 2021

Waitemata District Health Board
Private Bag 93-503
Takapuna, Auckland 0740

Dear Nicola,

Re: Your request for an assessment of water and wastewater capacity
Address: **81A Carrington RD Mount Albert 1025**
Watercare application number **CON 60068**

This assessment is independent of the Auckland Council consenting process. This letter does not constitute a pre-approval from Watercare and the assessment is valid for two years from the date of this letter.

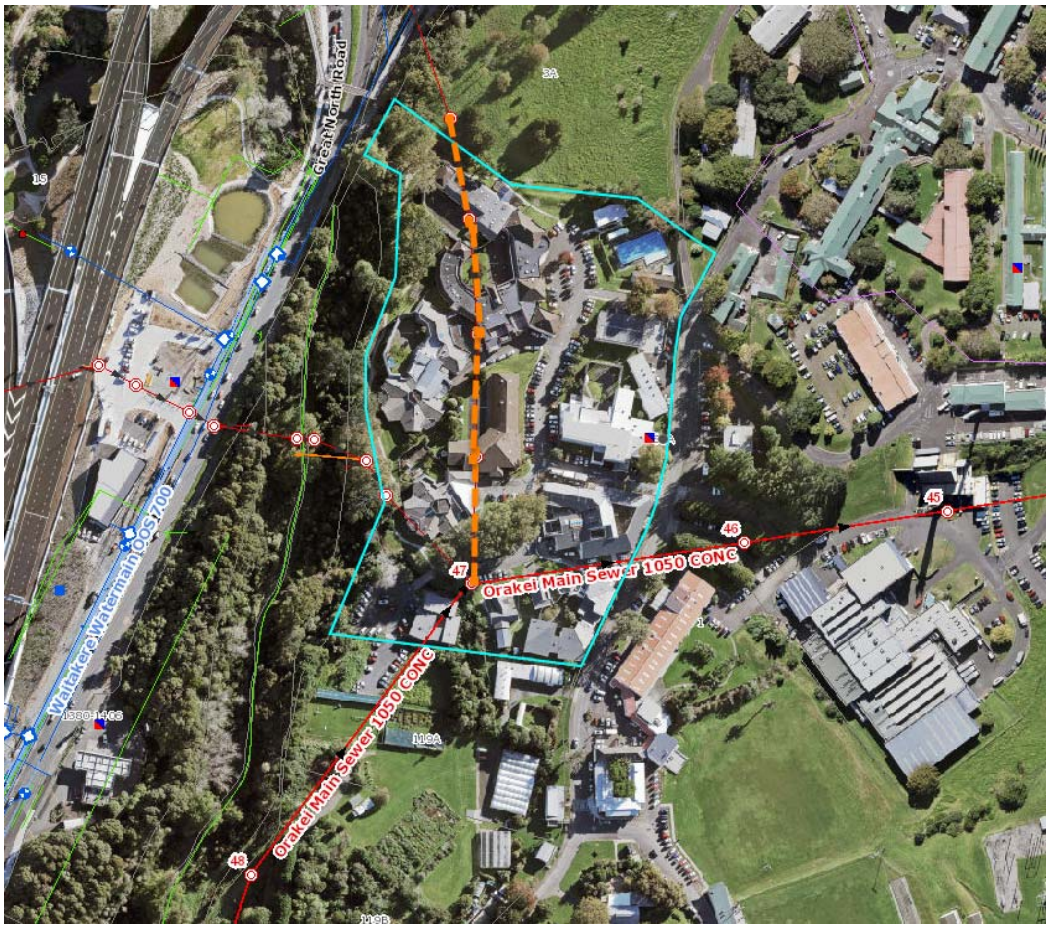
Watercare has undertaken an initial high-level assessment of the proposal for this **246 beds – Hospital/Mental Health Facility** at **81A Carrington RD Mount Albert**. Based on the information provided at this stage, in particular, AURECON calculations dated on 21/07/2020, we confirm the following.

Water supply: There is capacity in the local water supply network. Based on the supply only being an increase of approximately 6 l/s on currently demand and supply from Great South Road.

Wastewater: There are capacity constraints in the wastewater network. The developer shall undertake an asset investigation in order to further confirm these capacity constraints.

The 375mm diameter wastewater line extending through the site of the Mason Clinic development does appear to be at capacity for the incoming flow from the upstream catchment, due to its relatively flat grades. Watercare recommends carrying out an asset survey of these manholes, lid level and internal depth survey, to confirm its capacity. Be mindful that if the developer intends in the future to divert this section of the network, it would likely result in reduced grades further limiting capacity.

Wastewater network constraints will need to be mitigated by the developer through public network extensions or upgrades, depending on the agreed solution with Watercare as part of the resource consent process or future consent process.



375mm SS network with possible constraints (highlighted in orange) that requires asset investigation.

We are aware of a wider development on Unitec's site near this proposed development. In light of that, be aware that it might affect the final decision/outcome on the network in this area. This shall be assessed further in the future.

Yours Sincerely

Tarso Girio
Development Engineer | Developer Services

Watercare
An Auckland Council Organisation

Document prepared by

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aurecon

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