

Civix  
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24 November 2021

## 182 Kepa Road, Orakei – Ministry for the Environment (MfE) Fast Track Application – Civil Engineering

This letter has been written to provide comment on Civil Engineering matters relevant to the Fast-Track Application for 182-184 Kepa Road and 8 Kurahaupo Street, Auckland. Discussed in this letter are Site Access, Earthworks, Three-Waters Servicing, Scheme Plan, and Utilities.

### Site Access

The site currently has three individual vehicle crossings to access the existing dwellings. One access exists from Kepa Road and two are currently provided on Kurahaupo Street. The proposed development will remove all existing vehicle crossings, and provide the site with a single access approximately 6m wide from Kurahaupo Street.

An assessment to determine the approaching access and vehicle crossing grade will be undertaken to determine if a sufficient vehicle platform can be installed to meet the requirements set out in the Auckland Unitary Plan. Should this not be achievable given the difference in levels from Kurahaupo Street to the Level 1 basement, consideration will be given to ensure vehicles travel at a reasonable speed as they approach the footpath i.e. speed hump within boundary. Proposed vehicle turning (85<sup>th</sup> percentile from the Auckland Unitary Plan) will be assessed to ensure the arrangement complies with the requirements of the Auckland Unitary Plan



**Proposed Vehicle Crossing Assessment:** Location of new vehicle crossing proposed on Kurahaupo Street..



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## Earthworks

We are currently undertaking earthworks modelling for the site based on the latest development proposal. Our initial assessment indicates that approximately 9,000m<sup>3</sup> of cut are required to establish the basement level. The resulting maximum retaining wall height is approximately 9.1m.

Preliminary findings from the geotechnical site surveys indicate there will be groundwater encountered while basement excavation is undertaken. This will need to be considered for during construction and accounted for the basement drainage solution. Rock is unlikely to be encountered at the site given the proposed construction depths remains <9m below existing ground level.

## Stormwater

It is unclear from council records where the existing dwellings on-site connect to the public stormwater network. Site investigations (topo and CCTV) did not discover any obvious indication to suggest otherwise. The site contours fall away to the north along Kurahaupo Street, with the nearest connection obtainable gravity connection being existing catchpit 2000180328 (AKI GeoMaps ID). The development proposes to install a new manhole where this catchpit is currently located, and utilise the existing outlet which drains north into the wider public network. The existing catchpit will be repositioned adjacent the current position and connected into this new manhole to capture flows per the current scenario.

The site is not subject to a Stormwater Management Area Flow (SMAF) control under the Auckland Unitary Plan. A stormwater capacity assessment based on maximum probable development and climate change was undertaken for the downstream stormwater network and found the downstream network to be undersized for the catchment it serves. Therefore 10-year detention is proposed to mitigate the effect of the proposed development on downstream stormwater flows. Due to the site existing boundaries, there is a suitable area in the north-west corner to situate any large underground tanks should they not be easily located elsewhere.

As shown on Auckland Council Geomaps, no floodplains or significant overland flowpaths (catchment > 4,000m<sup>2</sup> as per Chapter J1 Definitions in the Auckland Unitary Plan) are predicted on the site and do not need to be considered for the development.



**Proposed Stormwater Connection:** New manhole to be installed where existing catchpit is currently located and drain the surface water flows for the site.



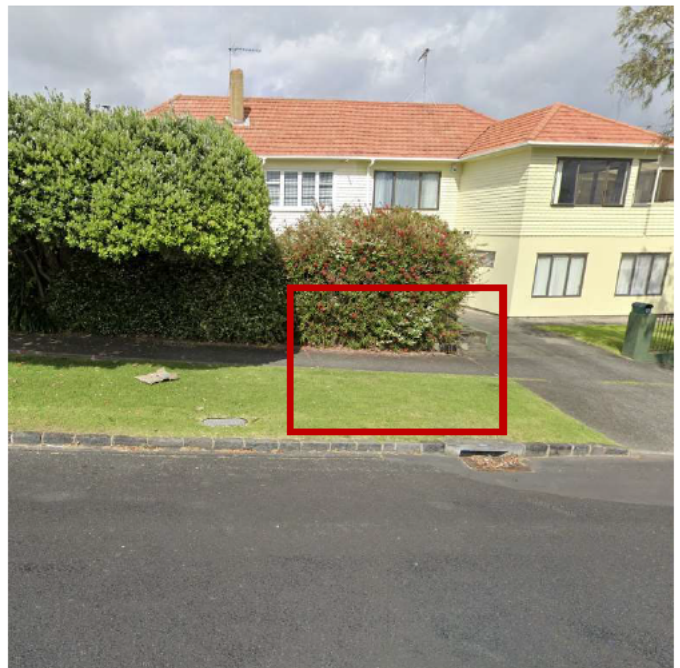
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## Wastewater

An existing 150mm dia AC main currently traverses the site from west to east through 8 Kurahaupo Street towards manhole 514614 (Akl GeoMaps ID) within the berm. The proposed development basement will intersect this existing pipe, and therefore will need to consider diverting the existing public network. Site topography surveys undertaken 19/01/21 confirmed the manhole within the site has an upstream drainage connection (likely to be from the neighbouring site to the West, 180 Kepa Road), which requires consideration to ensure a connection point is provided in the permanent scenario.

The proposed development will discharge into this diverted carrier drain, which drains towards the existing 225mm dia concrete pipe in the berm of Kurahaupo Street draining north.

A wastewater infrastructure assessment was completed for the downstream network to ensure sufficient capacity for the development. Approximately 85 dwellings contribute to the immediate downstream network. The WaterCare Water and Wastewater Code of Practice for Land Development and Subdivision (November 2019, version 2.2) Section 5.3.5.5. Table 5.4 concludes that in practical terms, DN150 pipes laid at 0.75% grade have capacity for up to 200 houses. Based on this, coupled with the immediate downstream pipe from the development sized at 225mm dia pipe laid to approximately 8%, the downstream network has sufficient capacity for the development.



**Proposed Wastewater Connection:** Existing public manhole within property to be repositioned. US connection to be traced and diverted from boundary to neighbouring property. DS outlet to align within property boundary and discharge into new public manhole on existing 225mm dia RC carrier drain within the footpath of Kurahaupo Steet.

## Water Supply

The site is bordered on the east and south side by a 100mm dia AC and 200mm dia watermain respectively. Per Watercare *Code of Practice for Land Development and Subdivision Table 6.2 Empirical guide for principal main sizing*, a 200mm dia pipe has the capacity to provide up to 400 lots with supply and is expected to provide potable water use and Firefighting requirements. A site-specific hydrant test will be undertaken to confirm achievable flow and pressure are supplies within the existing line.

Firefighting requirements for the site come from the Standards New Zealand New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ 4509:2008 Section 4.4 Table 1&2 which requires the first available hydrant to be <135m from the front door of every dwelling and a second available hydrant to be <270m from the front door of every dwelling. In addition to this, the NZ Building Code C/AS7 2.2.1b requires a maximum hose run distance from the nearest truck parking point or

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hydrant to be 75m from the farthest point within the dwelling. Parking locations for trucks require a minimum 4.0m wide legal access. Given the locality of hydrants in the surrounding area, the site will comply with the relevant requirements.

### Unit Title Plan

The apartment block will be provided with a typical unit title. Proposed units will be allocated with relevant parking lot(s). The unit tile will need to provide an easement for the for the wastewater drainage from the neighbouring property 180 Kapa Road. An easement in gross will be provided to relevant utility suppliers cabling into the site. A body corporate will need to cover the water usage for the site.

### Power, Telecom, and Gas Supply

B4uDig plans received 15/10/15 show the following infrastructure aligned outside the proposed development boundaries:

- Various Chorus underground telecommunication cables
- Vector Fibre
- Vector MP4 Gas main
- Vector 400V & 11,000V – 6,600V power cables below ground

The two Kapa Road sites are currently supplied power through an above ground connection. All proposed utility connections are proposed to remain underground, and will be coordinated with Vector and Chorus in due course.

Should you have any questions in relation to any of the above, please feel free to contact the undersigned on 02040762923 or via email [sam.brady@civix.co.nz](mailto:sam.brady@civix.co.nz).

Kind Regards,

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