



Civix Limited
 Level 8, 99 Albert St
 Auckland Central, Auckland, 1010

21 December 2022

25 – 27 Verran Road, Birkenhead Government Fast Track Application – Civil Engineering

This letter has been written to provide comment on civil infrastructure matters relevant to the fast-track application for 25-27 Verran Road, Birkenhead. Discussed in this letter are the required bulk earthworks, flooding assessments, and three-waters infrastructure required for the proposed development.

I – BULK EARTHWORKS AND SITE FORM

We have undertaken preliminary bulk earthworks modelling for the site based on a layout comprising 115 residential units. Our initial assessment has found compliant road grades and cross-sections can be achieved within the site and that the development layout can be achieved with reasonable earthworks and retaining structures to achieve buildable platforms and outdoor spaces.

Based on our preliminary modelling, the volume of earthworks required to achieve the final development form will consist of 12,836.7 m³ of cut and 17,767.5 m³ of fill. Where retaining is required to establish suitably flat platforms, the maximum retained height will be 7.8 metres in cut.

II – FLOODING ASSESSMENT

Auckland Council's GeoMaps information service shows three Over Land Flow Paths (OLFPs) crossing the site. We have performed a desktop assessment of these OLFPs and how they will impact the proposed development.

The largest OLFP crossing the site (OLFP A) has a catchment size of 5.6 hectares where it enters the subject site through the south-west boundary. OLFP A will not impact the development as it remains confined to the stormwater channel that runs through the site. No building is proposed to take place on or nearby this gully. All building floor levels are in excess of 5.0m higher than the stream invert.

Two smaller OLFPs enter the site through the north-west (OLFP B) and north (OLFP C) boundaries. These are smaller flowpaths with catchments of 2,114 m² and 8,545 m² respectively. Both OLFPs will retain their existing point of disposal, which is the same unlined channel as discussed for OLFP A. As the site has significant fall, we anticipate there will be no issue with maintaining these flow paths while providing sufficient freeboard to any proposed building Finished Floor Levels.

III – STORMWATER DISPOSAL

The site currently has no connection to the piped stormwater network, and instead discharges to a natural watercourse at the rear of the property that traverses from west to east. As the property falls within the Stormwater Management Area Control – Flow 1 (SMAF 1) area, all new impervious areas introduced by the development will be mitigated through the provision of underground tanks with appropriately-sized orifices to ensure stormwater flows in the receiving environment do not increase from pre-development levels.



Stormwater from the site will be directed into the existing natural watercourse at the rear of the property. This decision was made on the basis that the nearby public stormwater piped network in the berm of West Glade Crescent discharges immediately into this same natural watercourse, and there is no other suitable public stormwater access nearby. All stormwater intercepted from paved areas intended for vehicular traffic will be appropriately treated before discharging to the watercourse.

IV – WASTEWATER DISPOSAL

Wastewater generated from the site is proposed to drain into the existing public network accessible via the pipe crossing West Glade Crescent. The network will be extended from West Glade Crescent into the site, with branches extending along the major JOAL routes to provide gravity-driven wastewater drainage to the majority of the site. Two buildings will be situated below this level and will be served by private wastewater pumpstations.

A realignment of the existing wastewater network will be required to achieve this. Where an existing pipe from neighbouring 7 Verran Road enters the very north-western corner of the site, a dropper manhole will be installed and this connection will be realigned through our development's network extension. The redundant portions of the wastewater network within the site will then be abandoned and removed.

V – POTABLE WATER SUPPLY

The site is currently supplied with potable water from existing meters located in the berm of Verran Road. These are individual supply meters for single houses and will be replaced with a bulk water supply meter capable of serving all 115 houses in the development, utilizing a private 100mm diameter water main laid through the site with branching 50mm lines to achieve connectivity to all units and areas which require water supply.

Should you have any questions in relation to any of the above, please feel free to contact the undersigned on s 9(2)(a) via email s 9(2)(a)

Kind Regards,



Patrick Edwards
Civil Designer

s 9(2)(a)