

Stormwater

The primary objective in stormwater management is to minimise any impacts of flooding on the downstream network and to ensure that stormwater quality is not adversely affected. New residential areas create the potential for additional stormwater to be generated over and above the currently undeveloped land through the introduction of impermeable surfaces such as roofs, roads, footpaths and paved areas. Stormwater services need to consider the impacts of development on water quantity and quality up to the design criteria within the HDC Engineering Code of Practice (ECoP) which is largely based on NZS4404: 2010 Land Development and Subdivision Infrastructure. Council's design specifications for stormwater require up to a 1 in 5 year rain event to be contained within a piped network and consideration for control of overland flow in a 1 in 50 year rainfall event.

HDC's Best Practice Design Guide for Subdivision and Infrastructure Development compliments the ECoP and provides guidance for developers to ensure that any new subdivision, or the upgrading of roads or other infrastructure (such as stormwater drains) enhances the quality of the built environment in the Hastings District. The implementation of low impact sustainable practices in accordance with the ECoP ensures that stormwater solutions are targeted and appropriate for the intended development and all urban residential developments are required to comply with the specifications within the ECoP for bulk services and individual lot developments that are connecting to those services. These measures include onsite detention for mitigation of stormwater runoff from individual sites that exceed the maximum permitted runoff. Treatment is not typically required for discharges from residential lots however the receiving infrastructure that services the carriageways employs standard treatment via sumps to assist in removing solids, sediments, metals and hydrocarbons.

The Howard Street development area is currently not serviced by the urban stormwater network. The eastern boundary of the proposed rezoning is bordered by the Riverslea Drain which conveys urban stormwater from the south eastern catchments of Hastings to the Karamu Stream. The Riverslea Drain is managed by the HB Regional Council as part of the Heretaunga Plains drainage scheme however ownership would transfer to HDC once urban stormwater services were in place. The development area slopes gently in a south easterly direction towards Havelock Road and the Riverslea Drain. There is a rudimentary roadside swale in Howard Street which conveys minor stormwater flows to the Riverslea Drain but this swale is inadequate to cater for increased flows generated from residential development without significant upgrading. Stormwater from existing residential properties on the northern side of Howard Street discharges to the Windsor Drain via the urban stormwater system and is a separate catchment. There is no capacity to permit stormwater from the Howard St development to discharge to the Windsor Drain.

Capacity is constrained in the Riverslea Drain downstream of Havelock Road and the wider network is susceptible to backwater effects when the Karamu Stream is in flood. These effects cause ponding to land within and adjacent to the Howard Street development area (refer to 50 year flood level on the Structure Plan) and this flooding and inundation can remain for several days until levels in the Karamu Stream recede. In shorter duration events this flooding is unlikely to occur as the Karamu Stream is not influenced by high intensity short duration rain events. It is possible that temporary ponding could occur as a result of infrastructure capacity being exceeded with overland flow areas operating to manage conveyance to the Riverslea Drain.

The proposal for providing upgraded urban stormwater services requires a combination of a new pipe collection system, surface water swales and detention adjacent to the Riverslea Drain. Stormwater infrastructure would be constructed within road corridors to provide primary in pipe flows and the

road designed to manage overland flows in exceedance storm events without impacting on adjacent properties up to the design storm. A swale is also proposed alongside the Havelock Road boundary to ensure that stormwater generated from the road is directed away from properties. This swale will provide enhanced treatment of road stormwater to capture and contain sediments and contaminants prior to discharge to the Riverslea Drain.

A stormwater detention area is proposed to be constructed adjacent to the Riverslea Drain encompassing approximately 1.2 hectares of land. This detention area will provide sufficient storage to cater for a 1 in 50 year rainfall event and will be designed to ensure that any downstream effects are minimized. There is also an opportunity to incorporate the current flood hazard within the detention area thereby reducing or eliminating the current ponding that occurs on this land enabling residential development to proceed. This will require consideration of any internal roads and servicing needs to ensure an appropriate solution is found.

It is proposed that the section of the Riverslea Drain adjacent to the Howard St development area becomes part of the Hastings urban stormwater network. HDC holds a global resource consent for the various discharges from the Hastings network and it is envisaged that this development will be added to and administered under that consent upon rezoning being granted. Existing consent conditions require a suite of monitoring and reporting parameters to ensure that discharges comply with the HB Regional Council rules and supports key regional objectives in regard to minimising stormwater impacts on the wider drainage network, and in maintaining and enhancing water quality in the receiving environment.

Wastewater

Wastewater services only extend along Howard Street between Windsor Avenue and Palmer Place. There are no wastewater services within Howard Street beyond Palmer Place and existing residential properties to the north are serviced via a public wastewater main located within private property. The local network currently drains via the Louis St wastewater catchment.

Increased wastewater flows from the proposed development area will require new infrastructure and modelling work has identified that the Louis Street catchment is at capacity therefore the ability to gravitate via this catchment and pump station is not possible. The Parkvale area is essentially fully developed and the infrastructure that is in place is sized appropriately and meeting the intended level of service for the existing catchment demand. The provision for extensions beyond the current residential boundary in this area has not previously been accounted for in the infrastructure build programme. The Howard Street development proposal is a relatively new initiative in terms of planning for future infrastructure services and HPUDES has been the primary guiding document for determining where future infrastructure demands may be required. The ability to continue to gravitate wastewater also becomes a limiting factor as you extend further away from the primary capacity nodes. This then necessitates pumped solutions that increase capital costs and future maintenance requirements.

Council's wastewater network model was used to evaluate a range of wastewater options in order to determine the most suitable option based on effectiveness, infrastructure efficiency and cost (refer to attached report). The preferred solution is to pump wastewater to the Park Road sewer rising main which necessitates a local pump station within Howard Street and a rising main along Howard Street and St Aubyn Street East ultimately discharging at Park Road. Discharge to Park Road is necessitated due to the lack of any spare capacity in the Louis Street and Hood Street (downstream) network and the extent of new or upgraded infrastructure that would be required to facilitate this option. While

existing wastewater infrastructure is within close proximity to Howard Street, it is at capacity and the ability to accept any increase in flows is not possible with sewer overflows being an inevitable outcome. Council has, as part of its renewals programme, a number of network upgrades in the Park Road system and this has provided an opportunity to include additional capacity to cater for increased flows from Howard Street and from infill housing that has been occurring over time. This is considered to be an efficient use of existing infrastructure as there is minimal cost involved in upsizing pipes due to the construction costs already being accounted for in the intended renewals work.

The proposed infrastructure has only been sized to accommodate wastewater flows from the new Howard Street development area. Consideration was given to upsizing the infrastructure to provide for further expansions in the immediate area however there are no plans by Council to allow residential growth beyond Howard St. It is important to note that the wastewater assessment did consider the opportunity of developing a more extensive and entirely new wastewater route to provide a long-term future option, potentially improve existing network connectivity and avoid having to rely on pumping but this would have required a significantly greater upfront capital investment, extended the timeframes for being able to establish services to Howard St and was not deemed to be financially viable.

Internal services will be located within the road corridor and gravitate to a new pump station location either adjacent to 1245 Howard Street or within the proposed development area as presented in the accompanying report. Local infrastructure will be constructed by developers in accordance with the structure plan and to the appropriate ECoP standards prior to assets vesting with Council and ensures that the new infrastructure will function to the intended level of service and minimize maintenance and operational costs.

Water Supply

The water supply network currently extends both sides of the proposed development area along Howard Street and Havelock Road. Network modelling has confirmed that there is sufficient spare capacity and pressure available to meet the anticipated residential demand across the entire development area and confirms that firefighting capacity is available to comply with the NZ Fire Service Code of Practice for Firefighting Water Supplies (SNZ PAS 4509:2008). Watermain extensions will be required along Howard Street and a possible link main to join the Howard Street and Havelock Road mains may be implemented to improve resilience and ensure firefighting capacity is reinforced. There are no other infrastructure upgrades anticipated. Internal service mains and connections will be located within the road corridor and constructed in accordance with the ECoP.