

INFRASTRUCTURE REPORT

Mill Road, Ōhoka – Fast Track Application

Carter Group Limited



EXECUTIVE SUMMARY

EARTHWORKS

Earthworks are proposed to shape the land and support the required infrastructure to build the proposed development.

Erosion, sediment and dust control measures have been proposed to minimise impacts to the receiving environment using accepted engineering practices. Adoption of these mitigation measures during construction will ensure that there are no significant effects on the surrounding or downstream environment.

ROADING AND FOOTPATHS

The subdivision will be serviced with a comprehensive network of roads and footpaths to support cars, cyclists, and pedestrians.

WASTEWATER

The proposed development will be serviced for wastewater drainage via a low-pressure sewer (LPS) network draining to a central pump station with above-ground holding tanks. The existing rising main will be used for conveyance to the Rangiora wastewater treatment plant.

FLOODING

Flooding in the 50-year and 200-year Average Recurrence Interval (ARI) rainfall events can be appropriately managed, resulting in no significant flooding effects to the site or the downstream surrounding environment.

STORMWATER

Stormwater conveyance and discharge of contaminants can be managed and mitigated appropriately across the site using primary and secondary networks, and stormwater quality and attenuation devices.

WATER SUPPLY

A new community water supply network drawing from deep bores and processed through headworks is proposed to serve the development. Although, Stage 1 residential and commercial areas are able to be serviced via the existing Ōhoka water supply network as further explained in PDP's Groundwater Assessment (dated 25 May 2026). It is expected that the proposed new network will have a positive impact as compared to the existing irrigation water take.

UTILITIES

The development can be serviced for power and telecommunications. Existing Transpower assets can be accommodated within the proposed subdivision.

CONCLUSION

In summary, the proposed development can be provided with services for vehicular and foot traffic, three waters, and utilities by conventional methods. There are no adverse impacts that reach the threshold of a *"sufficiently significant adverse impact"* such that they need to be taken into account in terms of an assessment under s 85 of the FTAA2024.

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Reference Materials

Scheme Plan by Inovo, dated 11/06/2026.

Civil Engineering Plans by Inovo, dated 09/06/2026.

Geotechnical Assessment Report – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025.

Detailed Site Investigation – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025.

Detailed Site Investigation – Supplementary: 531 and 535 Mill Road – by EHS Support, dated 9 April 2026.

Wetland Assessment by Pattle Delamore Partners Ltd, dated 13 August 2025.

Fast Track Application – 531 & 535 Mill Road - Aquatic Ecology Assessment by Instream Consulting Ltd, dated 12 August 2025.

Site Management Plan by Inovo, dated 10/06/2026.

Lizard Management Plan by Pattle Delamore Partners Ltd, dated 3 June 2026.

Urban Design and Landscape Assessment, Rev. D by DCM Urban Ltd, dated 5 June 2026.

Integrated Traffic Assessment by Novo Group, dated May 2026.

Fast Track Application – 531 & 535 Mill Road – Wastewater Connection by Pattle Delamore Partners Ltd, dated June 2026 (including Preliminary Design Report by Ecoflow Ltd, dated 30 May 2025 and 19 May 2026 letter).

Flood Effects - 531 & 535 Mill Road, Ohoka by Pattle Delamore Partners Ltd, dated 29 May 2026.

Fast Track Application – Stormwater Management for 531 & 535 Mill Road by Pattle Delamore Partners Ltd, dated 4 June 2026.

Fast Track Application – 531 & 535 Mill Road, Ōhoka – Groundwater Assessment of Environmental Effects Report by Pattle Delamore Partners Ltd, dated 25 May 2026 (including Water Supply Strategy V4 by Inovo dated 25 May 2026).

Fast Track Application – 531 & 535 Mill Road, Ohoka – Hydrology Assessment by Pattle Delamore Partners Ltd, dated 2 June 2026.

DISTRIBUTION

Carter Group Ltd



Anderson Lloyd

Novo Group

Pattle Delamore Partners

DCM Urban

QUALITY ASSURANCE

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1 INTRODUCTION

1.1 Purpose

Inovo Projects Ltd has been engaged by Carter Group Limited (Carter Group) to complete an Infrastructure Report and the associated civil engineering design and concept plans to support a Fast-track Application (Fast-track Approvals Act 2024) to the Environmental Protection Authority (EPA).

1.2 Subject Site

The subject site is located adjacent to and southwest of the township of Ōhoka and comprises approximately 154.4ha of land which is predominantly pastured areas for grazing. The site is bordered by Bradleys Road, Mill Road and Whites Road.

The subject site consists of the following properties:

531 Mill Road, Ōhoka	Lot 1 DP 318615
535 Mill Road/347 Whites Road, Ōhoka	Lot 2 DP 318615
	Lot 3 DP 318615
	Part Lot 1 DP 8301 Lot 2 DP 8301 Lot 2 DP 61732

2 DESIGN MANAGEMENT

2.1 Design Personnel

The following personnel have been actively involved in the engineering design on the project:

Michael Paterson	Land Development Manager and Director
Sanna Soederlind (CPEng)	Senior Civil Engineer & Land Development Lead
Patrick Edwards	Senior Civil Engineer
Kim Chen	Civil Engineer
Anunson Ott	Graduate Civil Engineer

Rigorous consultation and collaboration have been undertaken with the client, co-consultants and other third parties, to ensure that the design is based on the most recent and relevant information and best practices.

2.2 Design Standards

The hierarchy of design standards below have generally been used throughout the design process:

- Waimakariri Engineering Code of Practice
- Christchurch City Council Waterways, Wetland and Drainage Guide (CCC WWDG)
- NZS 4404:2010 Land Development and Subdivision Infrastructure
- Christchurch City Council Infrastructure Design Standard (IDS)
- Christchurch City Council Construction Standard Specification (CSS)
- Austroads Pavement Design Guide
- Austroads Guide to Road Design

2.3 Design Methodology

2.3.1 Design Criteria

The intent is to produce a set of preliminary design documentation describing the works required to an adequate level of detail to facilitate the approval of the fast-track consent being sought. The information supplied in this report and the associated drawings describe the construction and infrastructure works necessary to provide all necessary services to the proposed subdivision.

2.3.2 Design Review

Inovo uses an internal peer review held at the end of each design stage.

2.3.3 Design Records

Minutes of meetings, records of calculations, and electronic models are held on file at Inovo.

3 PROJECT DESCRIPTION

3.1 Proposed Development

The proposed development consists of residential allotments, a retirement village, a small commercial centre and a polo ground with associated facilities as shown on the Scheme Plan by Inovo, dated 11/06/2026.

Residential development is the primary focus of the development, with lot density generally decreasing towards the south. The gradient of lot sizes ranges, but the majority of lots are from approximately 500-800m² in the northern first stages to 2,000-2,500m² in the southern, final stages.

Table 1 - Lots by Stage

Stage	Lots (Residential)	Super Lots (Commercial/ Retirement/ Polo)	Lots (COAL)	Lots (Reserves for SMA)	Lots (Road Reserve)	Lots (All other Reserves)
1	100	2 (Commercial)	3	4	1	2
2	118	-	-	-	2	3
3	-	1 (Retirement Village)	-	-	1	1
4	92	-	1	-	2	2
5	-	1 (Polo Field)	-	-	1	-
6	94	-	2	1	2	2
7	147	-	4	2	2	7
8	102	-	1	1	2	2
9	114	-	2	1	2	3
10	40	-	-	1	2	1
11	72	-	-	-	1	4
Total	879	4	13	10	18	27

Table 1 above outlines the various types of lots proposed across the 11 stages, where 879 lots are residential and 4 are superlots for the two commercial areas, the retirement village and the polo field. It is noted that 2 of the residential lots will have existing houses on them following the subdivision.

The commercial super lots provide for the establishment of a small village centre to serve the day-to-day needs of the local community. The commercial allotments are located in Stage 1 and are deliberately positioned as close as possible to the existing village centre to promote connectivity with the existing Ōhoka settlement and Ōhoka Domain. Stage 3 is reserved for the establishment of a retirement village with approximately 250 units/villas. To demonstrate the retirement village viability and location, an indicative layout for a retirement village has been shown on the plans in Civil Engineering Plans by Inovo, dated 09/06/2026. This layout is subject to change and is more for illustrative purposes. Stage 5 is reserved for the establishment of a polo field and ancillary facilities, which will be privately owned and operated.

Stormwater and recreation reserves are proposed throughout the development stages. In addition to their stormwater quality and attenuation benefits, these green spaces will provide amenity and recreation benefits for the subdivision.

3.2 Location

The site is located immediately adjacent to and southwest of the Ōhoka settlement and approximately 2km to the northeast of Mandeville (Figure 01).



Figure 01 – WDC Property Viewer of the subject site.

3.3 Site Description

The subject site is approximately 154.4 ha of farmland and is roughly trapezoidal in shape, bounded by Whites Road to the southeast, Bradleys Road to the northwest, Mill Road or existing residential properties fronting Mill Road to the north, and rural / rural-residential properties to the south and southwest.

The site is mostly dry grass and irrigated pasture, and has been used for dairy farming for the past 30 years. Prior to that, the site also supported livestock and arable farming. There are three existing houses on the property along with milking sheds and ancillary farm sheds. Vegetation and landcover across the site is predominantly open grass paddocks, with shelter belts and vegetation alongside fences and watercourses or surrounding existing buildings.

The Ōhoka Stream crosses the northern end of the site, and the Ōhoka South Branch stream crosses near the middle of the site. Two springs located within the site are drained by separate channels, which discharge to open drains on the west side of Whites Road. Another drain is formed along the southwestern boundary of the site, taking private land drainage. In addition to the five main watercourses that flow through the site, there are three unnamed drains present. The site is typically gently sloping (1:180) to flat, sloping from west to east towards Whites Road.

The current land use surrounding the site is primarily rural to the west of the site, with rural lifestyle to the south and east, and residential and rural-residential to the north (Ōhoka village).

3.3.1 Ground Conditions

A geotechnical investigation and assessment of suitability for subdivision has been carried out by Tetra Tech Coffey as described in their Geotechnical Assessment Report – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025.

The ground conditions for the site are described as 'Brownish-grey river alluvium (Q2a), with topsoil depths varying across the site but generally less than 0.4m, on stiff to hard clayey silts varying in thickness from 0.5 to 1.2m. All soils are observed to sit on dense to very dense sandy gravels where the layer thickness is >30m.

Tetra Tech Coffey classify the subsoils as 'Class D – Deep or soft soil sites' in accordance with NZS1170.5, Section 3.1.3. The report states that liquefaction risk is considered negligible, that static settlement is considered low risk and that there is no risk of slope failure for the majority of the site. Care must be taken to design appropriate batter slopes near waterways to mitigate any risk of slippage in those areas.

3.3.2 Drainage Features

Drainage features on the site include public and private open land drains which form part of the Ōhoka Rural Drainage Area. These include the Ōhoka Stream and the Ōhoka South Branch stream, which traverse box culverts under Bradleys and Whites Roads. Several land drains cross the site, which generally follow fence lines and discharge directly into the Ōhoka Stream. Ōhoka South Branch, or into the roadside drain alongside Whites Road draining ultimately to the Ōhoka Stream or Ōhoka South Branch. Another drain is located along the south-western boundary of the site which conveys private land drainage.

The WDC network of stockwater races does not extend into the site.

3.3.3 Existing Infrastructure

The existing dwellings located within the site, excepting the house at 531/543 Mill Road, have on-site domestic water supply wells and wastewater treatment and disposal systems, and individual connections for power and telecommunications. The existing house at 531/543 Mill Road is connected to the Ōhoka village water supply, wastewater services, and telecommunications fibre along Mill Road. Some properties surrounding the site are serviced with restricted water supply connections and low-pressure sewer connections.

An existing Ø200mm wastewater rising main runs along the western side of Bradleys Road. Known as the Mandeville-Ōhoka rising main, it originates from the Bradleys Road Pump Station at the corner of Bradleys Road and Tram Road Intersection, conveying pumped wastewater along Bradleys Road and Mill Road and eventually to the Rangiora Wastewater Treatment Plant (WWTP).

Existing Council water supply infrastructure is located at 566 Mill Road and 334 Bradleys Road, adjacent to the proposed development site. There is an existing community drinking water supply in Ōhoka, with the source and headworks being located adjacent to the site to the north.

4 EARTHWORKS

4.1 Underlying Soil Conditions

A geotechnical site investigation has been completed for the site as reported in the Geotechnical Assessment Report – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025. The report finds that the geological mapping of the area indicates the site being underlain by “Brownish-grey River alluvium (Q2a).

According to the report, the site contains a layer of topsoil of varying thickness (generally less than 0.40m) underlain by clayey silt (thickness 0.5 to 1.2 m). Sandy gravel, with minor silt lenses, was observed beneath the clayey silt layer extending to depths exceeding 30 m from the bottom of the clayey silts.

4.2 Hydrogeology

A hydrology assessment has been completed for the site as reported in the report entitled Fast Track Application – 531 and 535 Mill Road, Ohoka – Hydrology Assessment by Pattle Delamore Partners Ltd, dated 2 June 2026. Groundwater generally flows towards the coast (southeast). Groundwater discharges into spring fed streams. The report concludes that groundwater discharging via the springs found within the site is expected to be dominantly rainfall derived from upgradient of the site. The report also found that there is no evidence of a significant upwards gradient of groundwater and that onsite recharge to the shallow gravels is expected to be low given the low drainage potential of the surface soils.

The Hydrology Assessment includes recommendations to allow for a buffer distance of 20-30 meters between the developed areas and the springs and groundwater seep onsite to reduce risks of hydrological effects on spring flows. This has educated the set-backs shown on the Civil Engineering Plans by Inovo, dated 09/06/2026, along with the recommendations in the Aquatic Ecology Report by Instream.

4.3 Bulk Earthworks

The topography of the site generally slopes from west to east towards Whites Road at an average gradient of 1:180 and with height difference of approximately 7 metres total elevation change from RL 28 to RL 21m NZVD 2016 (New Zealand Vertical Datum).

The main civil works consist of the following:

- Construction of new roads and berms
- Installation of sewer reticulation
- Establishment of stormwater reticulation
- Development of stormwater management areas
- Construction of water supply infrastructure
- Trenching and installation of utility services
- Re-alignment of waterways
- Road upgrades within Whites Road, Bradleys Road and Mill Road

Bulk earthworks design has been driven by maintaining overland flow paths along roads and into Stormwater Management Areas (SMA) and achieving suitable freeboard from the top of kerb to the front of the properties fronting the road. The proposed subdivision and development will be constructed in stages. The total earthworks for the site are illustrated in the Earthworks Plan in Civil Engineering Plans by Inovo, dated 09/06/2026.

Cut/Fill calculations are based off 300mm topsoil as an estimate based on the bore logs from the Geotechnical Assessment Report (GAR) – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025. The earthworks, including cut/fill calculations, were carried out using 12d Model software comparing Triangulated Irregular Networks (TIN) surfaces representing the existing and proposed ground levels. The existing TIN surface was generated from lidar data, with tie-ins from existing roads

which have been physically surveyed on-site. The proposed TIN surface was created from road design and property section models based on the bulk earthworks design outlined above.

Any filling operations exceeding 300mm depth will be carried out in accordance with NZS4431:2022 Engineered Fill Construction for Lightweight Structures and in accordance with the recommendations in the GAR and Detailed Site Investigation – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025.

4.4 Soil Contamination

The DSI report (Detailed Site Investigation – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025) and Supplementary DSI report by EHS dated 9 April 2026 have been prepared for the site. The documents conclude that:

- The wider site is generally free of significant contamination (concentrations at or below background levels)
- Heavy metal, PAH and asbestos contamination (concentrations greater than background levels) were detected in various soils associated with the northern and central buildings, the former railyard, and in areas of fill such as the farm dump.
- No evidence of filling was observed near the suspected landfill area in the northern part of the site.
- One or more of arsenic, cadmium, lead and asbestos were detected at concentrations greater than the SCS for residential land use in a number of samples collected around the northern and central buildings, and in a sample collected from the historical rail yard.

Due to the presence of contamination, the DSI concludes that consenting will likely be required under the NESCS and the Land and Water Regional Plan for the various activities associated with the construction and operation of the development including but not limited to earthworks, stormwater discharge and dewatering.

Detected soil contamination greater than the SCS for residential land use will require management and remediation, which should be addressed via the preparation of a Remedial Action Plan (RAP). It is anticipated given the nature of the contamination found, that the contaminated areas can be addressed in isolation.

4.5 Earthworks in and Around Waterways and Wetlands

Existing drains will be diverted to suit the proposed development layout, to improve the amenity value by naturalising artificial drains, and to achieve stormwater and ecological quality objectives. The Watercourse and Wetland Changes Plan by Inovo, dated 29/05/2026 illustrates which drains are to remain, be enhanced or be removed.

As outlined in the Wetland Assessment (by Pattle Delamore Partners Ltd, dated 13 August 2025) and the Aquatic Ecology Assessment (by Instream Consulting dated 12 August 2025) the proposed subdivision will result in some loss of existing wetland extent by filling within the site. These reports recommend that wetland losses can be managed through the creation of new wetlands and enhancing those wetlands which will remain.

4.6 Site Management and Erosion and Sediment Control during Construction

The subdivision will be constructed in stages. A Site Management Plan (SMP) has been prepared by Inovo, dated 10/06/2026 which includes an Erosion and Sediment Control Plan for Stage 1 primarily, but also includes wider site management principles to be applied for the site as a whole. Similar concepts will be applied to each of the subsequent stages to protect the surrounding and downstream environments. Stage 1 of the subdivision is the most sensitive in terms of proximity to the streams, waterways, groundwater and surrounding residents and therefore the concept for Stage 1 is applicable

to the following stages. Further, falls across the site (west to east) are consistent for all stages. Specific sizing and location of all bunds and control devices will be part of the detailed design for each stage.

The Lizard Management Plan by Pattle Delamore Partners Ltd, dated 3 June 2026 recommends that staged vegetation clearance is undertaken along with other measures before commencement of any construction works.

4.7 Summary – Earthworks

The proposed earthworks have been designed to facilitate the required infrastructure for the proposed development.

The proposed erosion, sediment and dust control measures have been developed to minimise impacts to the receiving environment using accepted engineering practices. The designed earthworks and the relevant controls proposed ensure that there will be no significant effects on the surrounding or downstream environment.

5 ROADS AND FOOTPATHS

5.1 Existing Road Network

The site has access to the three public roads surrounding the property. Bradleys Road borders the site on the north-western side, Mill Road to the north and Whites Road to the south-eastern side.

There is an existing gravel footpath along Mill Road. The shoulder of Whites Road adjacent the domain is used for parking, particularly when the Ōhoka Farmers Markets and other events are held in the domain.

There is one existing vehicle crossing off Bradleys Road, another from Whites Road, and another from Mill Road.

5.2 Proposed Roads

The proposed road layout is shown on the plans in Civil Engineering Plans by Inovo, dated 09/06/2026. It indicates the proposed road layout and local road connections to Mill Road, Bradleys Road and Whites Road. Intersections with external roads will be priority-controlled with priority given to the external road network.

The road hierarchy will deliver an accessible and coherent neighbourhood that provides safe and efficient access throughout the new development. Active transport modes can be provided for within the road reserve (incorporated into the road design) as well as within the recreation/waterway reserves.

Proposed carriageway widths are dependent on the street type and function. Roadside swales will be utilised in areas where appropriate in fitting with the surrounding environment. All roads will have berms on either side of the road for common services installation and streetscaping. Parking bays will be provided along roads which do not have swales. The extent of on-street parking will be further refined during detailed design.

Shared accessways are incorporated in areas of the subdivision where the site geometry does not favour public roads.

5.3 Footpaths and Cycleways

Footpaths and cycleways will be incorporated into the network during detailed design, utilising the recommendations from Urban Design and Landscape Assessment, Rev. D by DCM Urban Ltd, dated 5 June 2026, and Integrated Traffic Assessment Memo by Novo Group, dated May 2026. Proposed facilities include internal walkways and cycle paths, new paths along Whites Road and Bradleys Road, upgrades along Mill Road, and two pedestrian crossings over Whites Road to allow for pedestrian connectivity between the commercial area and the Ōhoka Domain.

5.4 Pavement Design

Pavement designs will be carried out at future detailed design stages. The Geotechnical Assessment Report – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025 recommends that a subgrade CBR of 3.5% is applied for initial pavement design. Initial estimates for pavement design depth suggest a depth of approx. 0.6m, to be taken into account for groundwater management purposes. Where pavements are expected to come within proximity to groundwater, specific designs may be required.

5.5 Road Drainage

Stormwater runoff within road corridors will be via roadside swales and culverts. All sumps will have trapped and/or inverted outlets and connected to the piped stormwater network. The road corridor will be used as overland flow paths to direct stormwater runoff when the drainage network is at full capacity.

As per the Geotechnical Assessment Report – Fast-track Application by Tetra Tech Coffey, dated 16 June 2025, the pavements onsite are to be protected from damage from potential elevated groundwater by installing subsoil drains beneath the road kerb lines and/or roadside swales. Where common service

trenches in the road corridor are at risk of intercepting shallow groundwater, these trenches may utilize engineered soils with low permeability to avoid re-directing groundwater along trenches.

5.6 Summary – Roads & Footpaths

In summary, the subdivision can be adequately serviced with conventional roads and footpaths that are fit for purpose with no issues of significance.

6 WASTEWATER

6.1 Existing Wastewater Infrastructure

The Ōhoka settlement is serviced by the Mandeville Area Wastewater Scheme which is included as part of the wider Eastern Districts Wastewater Scheme (EDWS). The Mandeville Area Wastewater Scheme principally consists of Bradleys Road Pump Station and the Mandeville - Ōhoka rising main that conveys wastewater some 11.2km to the Rangiora Wastewater Treatment Plant (WWTP).

The Mandeville - Ōhoka rising main conveys wastewater along Bradleys Road, Mill Road, Threlkelds Road, Flaxton Road and Lineside Road, and is constructed of a combination of DN225mm PE100 PN10 (nominal bore 200mm) and DN200mm PN12 uPVC pipeline. Two Mono positive displacement pumps at Bradleys Road pump station operate in a duty/standby arrangement.

Dwellings within the Mandeville area to the south of the site are serviced by Septic Tank Effluent Pumping (STEP) systems which pump wastewater to Bradleys Road Pump Station where effluent is accumulated in storage tanks before being conveyed via the Mandeville - Ōhoka rising main to the Rangiora WWTP in Marsh Road. Existing dwellings within the Ōhoka settlement are typically serviced by individual low-pressure sewer pump stations which discharge directly into the Mandeville - Ōhoka rising main in Mill Road or via a sub-main connection in Bradleys Road. Neighbouring lifestyle properties (generally >4ha), older dwellings and surrounding farms have on-site wastewater treatment and disposal systems.

The Mandeville- Ōhoka rising main was originally designed to service up to a total of 875 properties split between 625 in Mandeville and 250 in Ōhoka (ref: Mandeville & Ōhoka Wastewater Scheme Design Report, CPG (2012)). A second pump station for the Ōhoka area was proposed as part of the scheme but has not eventuated, and properties in the Ōhoka area are instead serviced by local pressure sewer systems which discharge directly into the Mandeville - Ōhoka rising main.

The Rangiora WWTP currently services Rangiora, the Mandeville - Ōhoka Area and Fernside scheme connections. It includes solids and grit removal followed by an aeration basin, then two facultative ponds with mechanical aeration and two smaller maturation ponds. Effluent from the final maturation pond is transferred to the wetlands at the Kaiapoi Wastewater Treatment Plant via a gravity pumping main for further treatment before discharging via ocean outfall.

6.2 Proposed Wastewater Network

It is proposed to build a new low-pressure wastewater system within the subdivision, which will be progressively built out as stages of the development are added. The system will generally comprise an individual pump station at each dwelling, in turn connected to a common local pressurized pipe in the street.

As outlined in Fast Track Application - 531 and 535 Mill Road, Ohoka - Hydrology Assessment by Pattle Delamore Partners Ltd, dated 2 June 2026, construction measures should be utilised to ensure that shallow groundwater is not diverted away from its natural flow path through service trenches. Low-pressure sewer is considered suitable and is the most practical solution for the site due to high groundwater levels. The potential for infiltration and inundation of local pressure sewer networks due to high rainfall events or high groundwater levels is significantly less than conventional gravity networks, effectively reducing the peak wet weather discharge from the system. Local pressure sewer systems can also allow for the network operator to have greater control over the peak discharge from the network when smart controls such as the IOTA Onebox or Aquatec Omnibox smart controllers are implemented.

Flow data analysis carried out by the Western Bay of Plenty District Council on low-pressure sewer schemes within their rating area reported Average Dry Weather Flow (ADWF) to Peak Wet Weather Flow (PWWF) peaking factors of up to 1.5 for two low-pressure sewer schemes of 128 and 523 connections. For modelling considerations regarding peak flows, refer to the Preliminary Design Report by Ecoflow Ltd, dated 30 May 2025 and subsequent letter dated 19 May 2026. The preliminary modelling by Ecoflow was based on approximately 859 residential lots, 300 units for the retirement village and 1.7ha of commercial area. While the yields proposed for the development are slightly different (876 residential

lots, 250 units for the retirement village and 1.49ha of commercial land), this is considered suitably conservative as the total loadings end up very similar.

Please refer to the Preliminary Design Report by Ecoflow Ltd appended to the report titled Fast Track Application – 531 & 535 Mill Road – Wastewater Connection by Pattle Delamore Partners Ltd, dated June 2026, which includes modelling using EOne Design Software to estimate pipe sizes required to maintain flushing velocities within the network.

Individual pump stations installed on each property as part of local pressure sewer reticulation systems typically provide on-site storage capacity for 24 hours of average dry weather flow ($250 \text{ L/p/day} \times 2.7 \text{ p/dwelling} = 675 \text{ Litres}$) in case of service or power outage. Connections from the house to the individual pump station are typically conventional gravity drainage.

Flushing points will be required at the head of all branch mains, following best practice. Preliminary design indicates that no air release / vacuum valves are required.

6.3 Proposed Wastewater Pump Station

The proposed LPS network will drain to a central pump station near the polo field, with above-ground holding tanks similar to the Bradleys Road pump station. This will need to be built as part of the Stage 1 of the development. From this central pump station wastewater will be pumped to the Rangiora WWTP via the existing rising main.

The report titled Fast Track Application – 531 & 535 Mill Road – Wastewater Connection by Pattle Delamore Partners Ltd, dated June 2026 concludes that the recommended wastewater solution of an LPS network and a new pumpstation with buffer storage onsite is practical and will result in no adverse impacts.

6.4 Summary – Wastewater

The proposed development can be serviced for wastewater via a low-pressure sewer network with an individual pump station at each dwelling connected to common local pressure rising mains in each street. The proposed LPS network will drain to a central pump station with above-ground holding tanks from where it will be pumped to the Rangiora WWTP via an existing rising main.

In summary, the subdivision can be adequately serviced with conventional wastewater networks and infrastructure, that are fit for purpose.

7 FLOODING

7.1 Pre-development

The WDC flood hazard maps for the 200-year and 500-year flood events are shown in Figure 02 and Figure 03 below in respect of the application site.

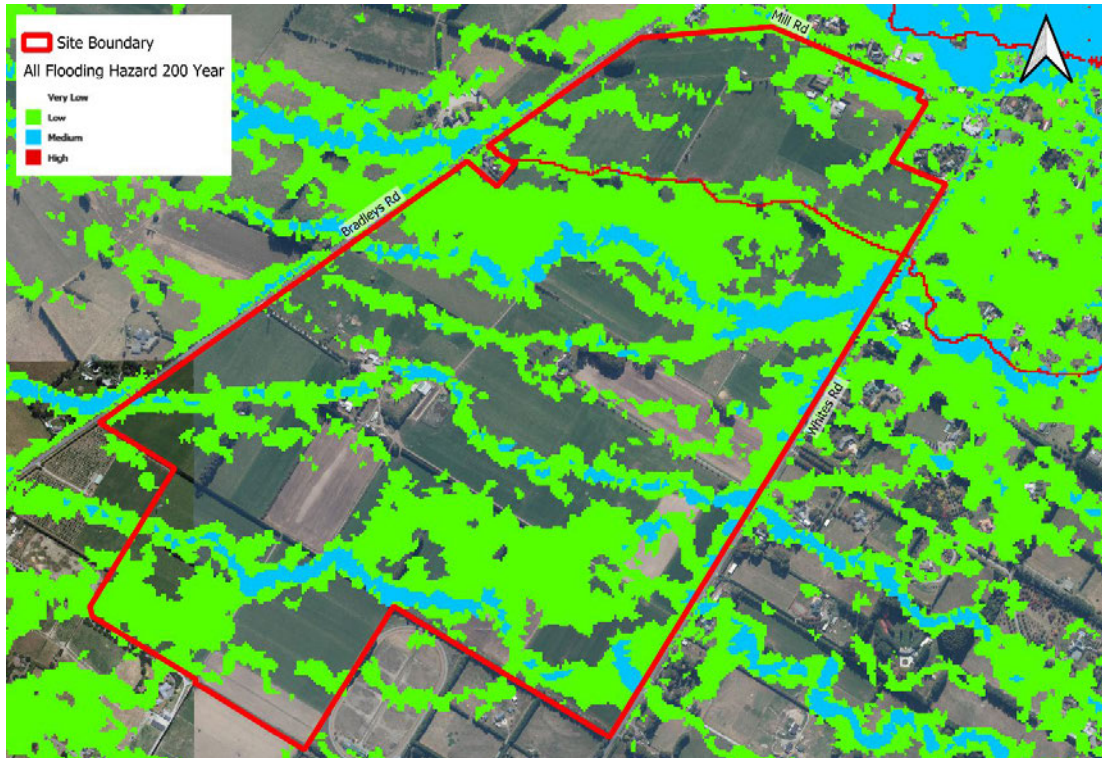


Figure 02 - WDC Regional Flood Modelling Results 200 Year Hazard

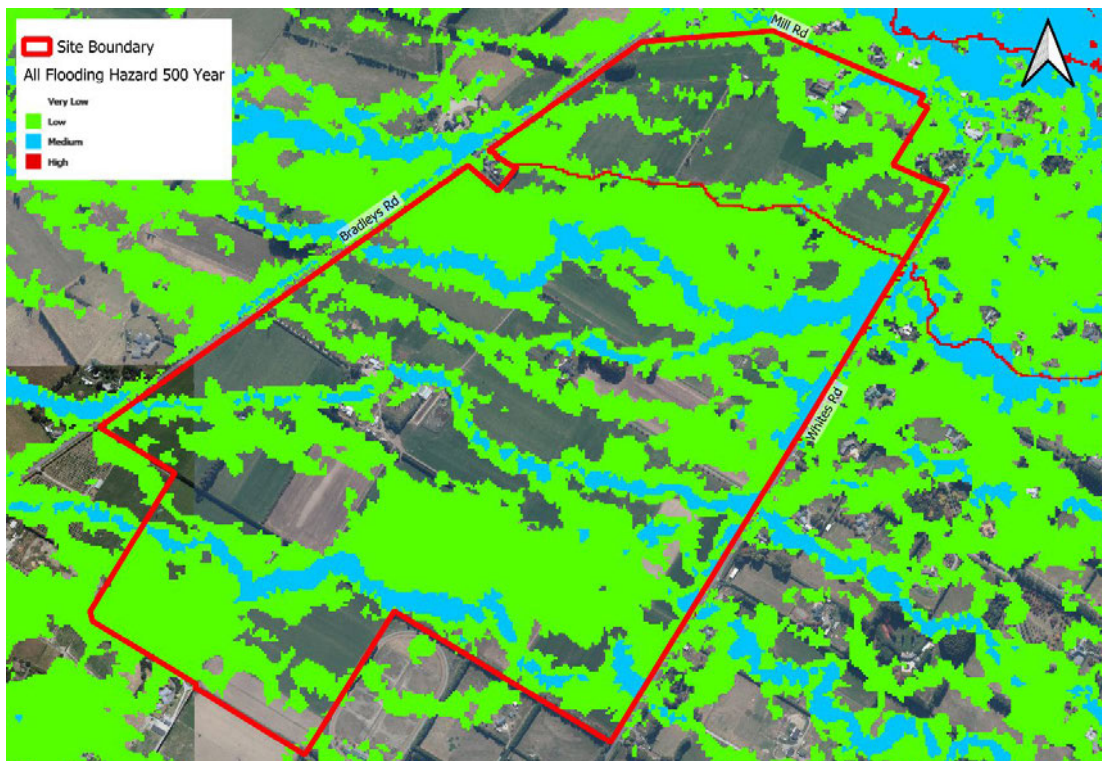


Figure 03 - WDC Regional Flood Modelling Results 500 Year Hazard

Predicted flooding on the pre-development site for 200-year and 500-year events results from significant rainfall events generating overland runoff from the upstream catchment. There are pockets of medium hazard along overland flow paths coinciding with existing streams and channels.

7.2 Post-development

The proposed earthworks, roading and stormwater infrastructure onsite has been developed with consideration to secondary flows, overland flow paths and ponding areas. Inovo have worked closely with PDP to refine the earthworks model, to ensure that impacts of flooding are managed appropriately. The report entitled Flood Effects - 531 & 535 Mill Road, Ohoka by Pattle Delamore Partners Ltd, dated 29 May 2026 shows a detailed flood assessment for the site including pre- and post-development hydraulic models, to determine the effects of the proposed development on flood depth, flows and hazard for the subdivision and neighbouring properties.

Flood assessments carried out by PDP have demonstrated that flood waters displaced by the proposed development can be constrained to drainage and road corridors within the subject site for the 50-year and 200-year Average Recurrence Interval (ARI) events, provided that recommendations around contouring, finished floor levels and stormwater infrastructure are implemented, with no significant effects on the downstream catchment. Recommendations set out in the report by PDP are to be followed and accounted for in future detailed design stages.

7.3 Summary – Flooding

In summary, flooding in the 50-year and 200-year Average Recurrence Interval (ARI) events can be appropriately managed, resulting in no significant effects onsite, or on the downstream environment.

8 STORMWATER

8.1 Existing Watercourses

Existing natural waterways such as Ōhoka Stream and Ōhoka South Branch (stream) are to be retained as natural features within the development. Land drainage upslope and downslope of the site will not be affected. Some existing drains will however be removed or diverted to suit the proposed development layout, improve the amenity value by naturalisation of formal land drains, and to achieve stormwater and ecological quality objectives. The Watercourse and Wetland Changes Plan in Civil Engineering Plans by Inovo, dated 09/06/2026 illustrates which drains are to remain, be enhanced or be removed.

The staging of the development accounts for the works associated with each waterway to be established with or ahead of each subsequent residential or commercial development of said stage.

As outlined in the Wetland Assessment (by Pattle Delamore Partners Ltd, dated 13 August 2025) and the Aquatic Ecology Assessment (by Instream Consulting dated 12 August 2025), the proposed subdivision will result in some loss of existing wetland extent by filling onsite. The report includes recommendations for fill materials and methodology for filling or re-alignment for the existing watercourses.

Streamworks will be carried out to establish culverts under the proposed roads as shown in the Proposed Stormwater Culvert Layout Plan in Civil Engineering Plans by Inovo, dated 09/06/2026. Smaller pipe culverts are proposed for the roads and intersections along Whites Road, Bradleys Road and Mill Road. Larger box culverts are proposed for the internal roads crossing the larger waterways. For all culverts where it is relevant, fish passage will be provided, including the embedment of culverts to preserve natural bed conditions. The Site Management Plan by Inovo, dated 10/06/2026 includes considerations for diversion of waterways. The proposed mitigations and recommendations from Instream Consulting in Fast Track Application – 531 & 535 Mill Road - Aquatic Ecology Assessment, dated 12 August 2025 also need to be accounted for during future design stages and construction.

8.2 Proposed Stormwater Infrastructure

8.2.1 Proposed Stormwater Networks

Impervious areas on individual residential lots will be collected and drained out via kerb adaptors to the respective road swale or road channel. Road catchpits will collect runoff from swales and road channels and direct it to the respective downstream Stormwater Management Areas (SMA). Each SMA is comprised of different stormwater devices depending on the characteristics of its catchment (refer section 8.2.2 below). The SMA then drains into the various waterways across the site. The plans in Civil Engineering Plans by Inovo, dated 09/06/2026 demonstrate how the stormwater networks will function within the subdivision, their indicative layouts and locations of the outfall.

By developing the site for residential land use there will be an increase in impervious areas such as roofs, driveways and roads, and therefore increased stormwater runoff from the site. Management of this runoff in terms of quality and quantity is required to minimise the effect on the receiving environment.

Poorly drained soils and high groundwater levels across the site mean that stormwater generated from impervious areas within individual residential lots will not be managed via infiltration to ground and therefore it is proposed to be managed as part of the proposed development. All additional stormwater runoff from the development will be managed using on-site stormwater treatment and attenuation located within the relevant SMA.

As outlined in Fast Track Application – 531 and 535 Mill Road, Ohoka – Hydrology Assessment by Pattle Delamore Partners Ltd, dated 2 June 2026, construction measures should be utilised to ensure that shallow groundwater is not diverted away from its natural flow path through service trenches. Backfill material with the same permeability as the surrounding ground will be used where applicable.

8.2.2 Proposed Stormwater Treatment

Stormwater attenuation can be provided across the site for management of stormwater to limit post-development runoff so not to exceed pre-development flows. Formalised attenuation can be provided for up to the 2% AEP event by means of attenuation within the SMAs located at the downstream end of sub-catchments, with controlled outlets discharging into drainage corridors. Stages 3 and 4 are however offset in terms of attenuation, by devices within Stage 5 (Polo field). Therefore, those devices are required to be built ahead of the impervious areas being established for Stages 3 and 4.

Designated flow path corridors crossing the site will provide additional storage for events exceeding the 2% AEP event runoff. Please refer to Section 7 Flooding above, and to PDP's findings in Flood Effects - 531 & 535 Mill Road, Ohoka by Pattle Delamore Partners Ltd, dated 29 May 2026.

PDP have outlined the attenuation and quality treatments for each SMA in the report Fast Track Application – Stormwater Management for 531 & 535 Mill Road, Ōhoka by Pattle Delamore Partners Ltd, dated 4 June 2026.

8.3 Summary – Stormwater

Stormwater from proposed impervious areas will be conveyed to Stormwater Management Areas (SMA) across the site via the pipes, kerb and channel and/or swales that form the primary and secondary stormwater networks onsite.

Attenuation treatment will be provided via swales and via detention within the SMAs. Quality treatment to remove contaminants will be provided via proprietary devices, swales, and first flush basins and wetlands within the SMAs.

In summary, conveyance and discharge of contaminants can be managed and mitigated appropriately across the site.

9 POTABLE WATER

9.1 Existing Water Infrastructure

The Ōhoka water supply scheme is owned and operated by WDC and so falls under the definition of a reticulated supply. The Ōhoka scheme is currently a semi-restricted supply (a mixture of properties with supply restricted to 2m³/day and 19m³/day).

The existing public supply does not have sufficient capacity to serve the entirety of the proposed development yet is able to service the Stage 1 residential and commercial lots.

9.2 Proposed Water Infrastructure

It is proposed to decommission the existing four shallow irrigation bores onsite and to construct a new community drinking water supply for the proposed subdivision (beyond the use of the existing Ohoka water supply for Stage 1) with an estimated total of four or five new bores, associated headworks, treatment and distribution networks. Please refer to Water Supply Strategy appended to the Groundwater Assessment of Environmental Effects Report by Pattle Delamore Partners Ltd, dated 25 May 2026 for the proposed community supply. Centralised water treatment facilities will be established on-site to treat the raw water from the bores to the appropriate standards. The treatment train will be designed to produce potable water that meets the New Zealand Drinking Water Standards for consumption.

The report titled Fast Track Application – 531 & 535 Mill Road, Ōhoka – Groundwater Assessment of Environmental Effects by Pattle Delamore Partners Ltd, dated 25 May 2026 is included in the reference materials. The report assesses the proposed community water supply demand, estimated bore requirements and associated environmental effects for the proposed development. The report concludes that there will be no adverse impacts on existing groundwater users around the proposed subdivision, including any adverse impacts on their reliability of supply. Post construction, there will be a net reduction in groundwater abstracted at the site, resulting in a positive impact.

Recommendations include that a Community Drinking-water Protection Zone is adopted around each proposed new bore, extending 100m from each bore. Therefore, the new bores will be situated at least 100m from the external property boundaries. Suitable locations for bores and headworks will be determined at detailed design stage. Bore yield, selection of treatment technology, storage tank sizing and pump designs will be outlined at detailed design stage.

9.2.1 Reticulation Layout

A preliminary design of the water supply network within the site is shown in the plans in Civil Engineering Plans by Inovo, dated 09/06/2026.

Watermains are proposed to be extended through the carriageways, and sub-mains are proposed in the berms for the provision of individual service connections. Detailed design of the water supply network will be carried out in accordance with the Waimakariri District Council Engineering Code of Practice Part 7: Water Supply. Two-end supply will be accommodated as appropriate to ensure that redundancy is accounted for in the proposed network. The pipe network shown in the engineering plans has been indicatively sized using EPANet analysis. Further analysis will be undertaken at detailed design stage.

As outlined in Fast Track Application – 531 and 535 Mill Road, Ohoka – Hydrology Assessment by Pattle Delamore Partners Ltd, dated 2 June 2026, construction measures should be utilised to ensure that shallow groundwater is not diverted away from its natural flow path through service trenches.

9.2.2 Firefighting

Currently the Ōhoka & Mandeville water supply schemes are not considered fire districts, although fire hydrants are provided throughout Ōhoka and Mandeville.

The residential lots proposed will fall into category FW2 water supply classification. This category includes non-sprinklered structures of housing including single family dwellings, multi-unit dwellings,

but excludes multi-storey apartment blocks. Any requirements beyond that, such as for the commercial areas, the buildings related to the retirement village and the polo field may fall into higher categories.

Under Table 2 of SNZ/PAS 4509:2008 Fire Service Code of Practice, FW2 Fire water classification requires a water flow of 750 L/min (12.5 L/s) within a distance of 135m and an additional 750 L/min (12.5 L/s) within a distance of 270m with a maximum of 2 fire hydrants to provide flow. The water requirements for fire protection systems must be considered in addition to the firefighting water supplies, the fire protection system demand plus 1500 L/min (25 L/s) at 1 bar residual pressure.

The proposed development can be provided with reticulation designed to allow compliance with SNZ/PAS 4509:2008 through the proposed new community water supply. The headworks and internal water supply network within the development can be designed to accommodate peak demand including provision for fire-fighting demand in accordance with WDC's Engineering Code of Practice and SNZ/PAS 4509:2008 Fire Service Code of Practice.

The detailed design of the water supply system is to be based on the average fire risk using Tables 1 and 2 of the SNZ/PAS 4509:2008 Fire Service Code of Practice. Additional storage must be provided to balance diurnal peak demand, seasonal peak demand and normal system failures to account for background consumer demand concurrently with the fire water flows from hydrants. This typically means that about two thirds of the annual peak consumer demand should be used consecutively with fire flows from hydrants, with resulting reticulation pressures not less than 100 kPa.

Detailed design of the headworks will include considerations of abstraction rates from the proposed bores, treatment and storage of water at the headworks site and pump requirements, to ensure that sufficient volume and pressure can be provided at peak demand and to allow for compliant firefighting within the network.

A preliminary design of the water supply network and indicative fire hydrant locations is shown in the plans in Civil Engineering Plans by Inovo, dated 09/06/2026.

9.3 Summary – Potable Water

A new community supply network with new deep bores is proposed to serve the development, beyond the use of the existing Ōhoka supply for Stage 1. It is expected that the proposed new network will have a positive impact as compared to the existing irrigation water take.

10 STREETLIGHTING, ELECTRICITY AND COMMUNICATIONS

10.1 Electricity

10.1.1 MainPower Subdivision Electricity Supply

The existing 11kV and 33kV electricity network bordering the site can be extended to provide sufficient power to the development. Full appraisal of the network extension requirements will be carried out once the subdivision consent (fast track approval) has been obtained.

Electrical power can be provided to all allotments to utility company and industry standards. All network and reticulation cabling is expected to be installed underground, with transformer kiosk sites located on separate lots at locations approved by MainPower. Utility allotments will be created for the new transformer kiosks within the site at detailed design stage.

MainPower have supplied a Capacity Letter to confirm supply (refer Appendix A).

10.1.2 Transpower National Grid

66kV overhead transmission lines cross the site in the southwest corner as shown on the site plan included in Civil Engineering Plans by Inovo, dated 09/06/2026. These transmission lines form part of the national grid operated by Transpower and are known as the Islington to Southbrook A (ISL-SBK-A) distribution line.

Buildings and structures must comply with the minimum safe clearance requirements in the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34). NZECP 34 specifies minimum safe separation distances for people, buildings/structures, mobile plant and earthworks from National Grid lines (including their support structures).

Transpower have been contacted and their requirements for the transmission lines onsite have been incorporated into the subdivision layout. The required set-backs and height restrictions will comply at all stages of construction, including the placement of homes on sites near the transmission lines. Please find relevant correspondence in Transpower Letter (refer Appendix B).

10.2 Streetlighting

Streetlighting will be provided to roading and reserves in accordance WDC engineering standards where required. Streetlight locations and luminaire specifications will be provided at detailed design stage and will be designed to comply with NZS1158 lighting category subcategory PR4 and WDC engineering standards.

10.3 Communications

Telecommunications can be provided to all sites in the form of fibre optic network installed to utility company and industry standards. The existing fibre network can be extended to the site and distributed to individual allotments. All network and reticulation cabling is expected to be installed underground. Microducts will be installed along the frontage of all lots in the common services trench along with water and power. Individual break-outs and installation of fibre cable will be completed at building consent stage once building and site access layouts are confirmed.

Enable have supplied a Enable Capacity Letter to confirm supply (refer Appendix C).

10.4 Summary – Power, Street lighting and Communications

In summary, the development can be serviced for power and telecommunications. Existing Transpower assets can be accommodated within the proposed subdivision.

11 CONCLUSION

In summary, this report demonstrates that the proposed development can be appropriately served with the necessary three waters, transportation, and other common utilities required to support a subdivision of this scale, and that this infrastructure can be constructed without causing significant effects on the surrounding and downstream environment. Any adverse impacts from the proposed development can be mitigated such that none reach the threshold of a "sufficiently significant adverse impact" requiring assessment under s 85 of the FTAA2024.

APPENDIX A | MAINPOWER CAPACITY LETTER

MAINPOWER NEW ZEALAND LIMITED
172 Fernside Road, Rangiora 7472, New Zealand
PO Box 346, Rangiora 7440
0800 30 90 80

Reference: MACK00075079

21 May 2026 - via email

Carter Group Limited
Level2, ASB House, The Crossing
P.O. Box 2726
Christchurch 8140

Dear T Carter,

Re: Power connection for proposed subdivision. Lot 2 DP 318615, 535 Mill Road Ohoka

Based on the information available to MainPower on the date of this letter, capacity can be made available on the High Voltage Network to supply the proposed subdivision.

Please be advised, capacity is allocated based on the order that applications are received and approved. MainPower does not guarantee that the current capacity will remain available.

Additionally, available capacity does not guarantee that there is an electrical supply to the boundary of the proposed development. Additional infrastructure may be required to facilitate supply.

If you have any questions, please do not hesitate to contact the MainPower Network Services Team on 03 311 8311 or NSR@mainpower.co.nz

Yours sincerely



Moria van Greunen
Network Services Representative

APPENDIX B | TRANSPOWER LETTER



28th March 2025

Re: PATAI001385 – 236 Bradleys Road, Ohoka

We understand that this proposal is for a proposed subdivision involving public roading, drainage, utilities (including associated earthworks) as shown on the latest scheme plan titled 'Ohoka Fast Track Application - General Layout Plan' (Drawing No. X-160-E Rev E, dated 03.03.25). The western extent of the site / proposal is located within the National Grid Yard (NGY) of the ISL-SBK-A National Grid transmission line. Transmission towers ISL-SBK-A0089 and ISL-SBK-A0088 are located in the west of the site, adjacent to proposed Lots 799 and 801 and proposed lots 486 and 487 respectively.

Transpower's engineers and planners have undertaken a review of the proposal with respect to the NGY and the mandatory clearance requirements of the New Zealand Electrical Code of Practice (NZECP 34: 2001) and provide the following comments:

- Transpower does not support any new activities sensitive to the National Grid (habitable buildings) being located within the NGY. Based on a review of the proposed subdivision scheme plan, Transpower considers that the size of the proposed lots traversed by transmission lines (with the potential exception of proposed Lot 795 which does not appear suitable for a site) will allow for future housing or building development to be positioned away from the NGY. Given the shape of proposed Lot 795 and the area of the lot that will be within the NGY, it does not appear feasible to accommodate a building platform on this lot that will be located outside the NGY. Transpower recommend the lot is used for reserve purposes.
- In addition to the NGY restrictions, all buildings must comply with the NZECP building to conductor clearance requirements. Given the longer spans of the transmission line extending through the site, the conductor blowout extent (the area where the conductors (wires) are physically present as the lines can swing out this far in high wind conditions) extends beyond the NGY. Future buildings located outside the NGY but within 7m from the NGY extent (i.e. between 12-19 m from the centreline of the transmission lines) will be located within the blowout extent and will likely be subject to building height restrictions. Specifically, buildings located within the blowout extent on the following lots will likely be subject height restrictions (i.e., may be limited to single-story dwellings):
 - 659-660
 - 485-490
 - 796-799
 - 801-804
- Building located beyond 19 m from the centreline of the National Grid transmission lines on these lots will not be subject to building height restrictions.
- Should any future building platforms be located within 19 m of the centreline of the transmission lines on the above listed lots, we recommend the landowners contact Transpower for assessment of the proposed dwellings against the NZECP building to



conductor clearance requirements. Transpower request a consent condition on the aforementioned lots that requires all future buildings comply with the building to conductor clearance requirements in accordance with NZECP.

- In accordance with Section 5 of NZECP, no mobile plant or large vehicles may come within 4 meters of any transmission lines during construction or future use of any proposed dwellings. Accordingly, all machinery, mobile plant and vehicles operating within 12m of the transmission lines, and traversing beneath the lines, shall be limited to a maximum reach height of 5 metres.
- Section 2.2.3 of NZECP sets out the restrictions on excavation within 12m of the outer edge of tower foundations. Specifically, no excavation shall:
 - a. exceed a depth greater than 300mm within 6 metres of the outer edge of the visible foundations of the tower; or
 - b. exceed a depth greater than 3 metres between 6 metres and 12 metres of the outer edge of the visible foundation of the tower; or
 - c. create an unstable batter.
- In order to comply with NZECP34: 2001 conductor to ground clearances, no fill or material shall be stockpiled or deposited so that the conductor to ground clearance is reduced to less than 7 metres. Additionally, Transpower does not support the stockpiling of materials or storage of equipment beneath the ISL-SBK-A National Grid transmission lines or within 12 metres of any National Grid support structure.
- Transpower has a right to access its existing assets under s23 of the Electricity Act 1992. Accordingly, any future buildings, structures (including fencing), or vegetation planting must be located to ensure vehicle access is maintained to the National Grid transmission lines, including support structures ISL-SBK-A0088 and A0089, for maintenance at all reasonable times and emergency works at all times.
- Any new vegetation planted within the NGY should be less than 2 metres in height at full maturity. Any proposed new trees or vegetation outside of the NGY must be setback sufficiently to ensure the tree cannot fall within 4 metres of the ISL-SBK-A transmission line. All vegetation must comply with the Electricity (Hazards from Trees) Regulations 2003, or any subsequent revision of the regulations.
- Any planting in proximity of National Grid Support Structures must be setback by at least 2 metres, with at least one side of National Grid Support Structure kept free from trees or vegetation in order to provide Transpower with access for operation and maintenance activities.
- Given the proximity of the proposed development to the National Grid transmission assets, we request that a Construction Management Plan (CMP) be prepared prior to the commencement of earthworks and construction. The CMP shall demonstrate how the works will comply with NZECP34:2001 minimum approach distances (i.e., minimum required distance between wires/conductors and mobile plant and any earthworks undertaken within



12m of towers). Please refer to the attached recommendation document for more details. Transpower request the CMP forms a consent condition if there is scope, otherwise the CMP should still be prepared as risk mitigation given the proximity of works to the transmission lines. Once completed, please upload the CMP for comment via Patai Form 5.

Earth Potential Rise (EPR) is the potential for towers or poles to transfer high voltage and dangerous currents into the ground during a lightning strike or fault on the transmission line, which can present earthing safety issues with respect to the tower located within the site. Once building platforms have been identified, we recommend contacting Transpower for advice on EPR and any mitigation measures that may need to be implemented during the design and construction phase of any future development in order to manage EPR risk.

APPENDIX C | ENABLE CAPACITY LETTER

Inovo Projects

18 May 2026

Level 1,93 Manchester Street
8011 Christchurch
Christchurch New Zealand

Patrick Edwards

[Redacted]
[Redacted]

UFB Fibre delivery to Ohoka Estates

In response to your email requesting confirmation from Enable of fibre delivery to the proposed lots at Ohoka Estates - Mill Road, Bradleys Road & Whites Road, Ohoka. I am pleased to be able to confirm the following:

These lots can be provisioned to provide full UFB fibre from Enable. Standard design, implementation and fees will apply.

I trust that the above confirmation allows you to continue the planning and consenting of this lot. Please let me know if you require any other information.

Yours sincerely



Chris Gant

Business Development Manager

[Redacted]

[Redacted]

Enable Networks Limited

Iwikau, Level 3

93 Cambridge Terrace

Christchurch, 8013

New Zealand

APPENDIX D | AUTHOR'S CURRICULUM VITAE



SANNA SOEDERLIND

LAND DEVELOPMENT LEAD

QUALIFICATIONS

CMEngNZ | CPEng | M. Eng. (Civil & Environmental)

PROFILE

Sanna is Chartered Professional Civil Engineer and Auckland Council Producer Statement Author with thirteen years' experience in design and construction monitoring of land development projects. With involvement in projects across the public and private sectors, including greenfield and brownfield subdivisions, retirement villages, social housing, sports facilities and other forms of land development. Sanna is able to leverage her experience to make innovative and thoughtful engineering decisions.

KEY STRENGTHS

Civil engineering design management and coordination
Excellent communication
Pragmatic, personable and approachable
Organisation and time management

RELEVANT PROJECT EXPERIENCE

Blue Skies Subdivision, Kaiapoi, Canterbury, 2024-2026, Lead Civil Engineer, CPEng Reviewer

Brownfield Subdivision Development including 76 residential lots including two superlots, a recreation reserve, a childcare site and a stormwater management area.

The role included coordinating the engineering design and working closely with the project lead and wider consultant team including transportation/traffic, geotechnical, environmental, ecology, landscaping and urban design, and other disciplines to deliver streamlined outcomes for the client.

Auckland Council, Healthy Waters, Network Solutions, 2025 - Ongoing, Consultant Healthy Waters Specialist, Expert Witness

Involvement in the Network Upgrade Programme, Managed Service Request projects and acting as an Expert Witness for Healthy Waters, for public infrastructure on private land, including providing property access strategy advice, project management and stakeholder engagement with private property owners and teams within Healthy Waters and obtaining legal access by way of agreement and/or issuing statutory notices. Projects include:

- Auckland Transport Eastern Busway Zones 2, 3 and 4
- Croftfield Wetland and Link Drive Pond
- Knightsbridge Pond
- Numerous Pipelining Projects
- Puketaha Outfall Upgrade
- Han Court Slip Remediation and Outfall Upgrades
- East Tamaki Dam Spillway Upgrade

Pioneer Highway, Palmerston North, 2025-2026, Project Director

Stormwater Management Plan including flood modelling for a 10-lot subdivision.

Moir Hill Due Diligence, Warkworth, 2026, Project Director

Due diligence reporting and concept viability investigations for a 1,500Ha site, including assessing suitability for a Fast Track Application.

Rewa Road Overland Flow Path Assessment, Maraetai, 2026, Engineering Lead

Overland Flow Path Assessment for Auckland Transport project with footpath and drainage upgrades.

Te Roera Drive Stormwater Assessment, Taradale, 2025, Lead Civil Engineer, CPEng Reviewer

Stormwater Management Report and related engineering plans for a 25Ha rural subdivision.

Cardinal Logistics Warehouse, Rolleston, 2025, Engineering Lead

Resource Consent engineering reporting and plans for a 33,000m² warehouse building.

McTeigue Subdivision Detailed Design, Christchurch, 2024, CPEng Reviewer

22-lot residential subdivision including three superlots.

Whangarei Park Village Consenting and Construction, Whangarei, 2022-2024, Project Lead, CPEng Reviewer

24-unit extension to an existing retirement village.

Waimarie Street Subdivision, Auckland, 2023-2024, Project Lead, CPEng Reviewer

Detailed design for a 58-lot residential subdivision.

Tāmaki Regeneration Company (TRC), Pirangi - 1 & 11 Tuakiri Street & 154 Tripoli Road, Point England 2023-2024, CPEng Reviewer

88-unit social housing development including 77 individual lots and a 12-unit apartment.

Metlife Care, 7-19 St Vincent Avenue, Remuera, 2022-2023, CPEng Reviewer and Expert Witness

5-storey retirement complex. Reviewer for Infrastructure Report for the Resource Consent including acting as expert witness including providing hearing evidence following notification.



MICHAEL PATERSON

DIRECTOR | NATIONAL MANAGER - LAND DEVELOPMENT

QUALIFICATIONS

Bachelor of Surveying, University of Otago
Diploma of Project Management, Global Training Institute
Licensed Cadastral Surveyor
Member of New Zealand Institute of Surveyors (MNZIS)

PROFILE

Michael has gained a wide range of valuable experience in surveying, engineering and resource management in both New Zealand and Australia. He has been involved in projects varying in scale and complexity, working closely with contractors, engineers, and other surveyors in a leadership position to find solutions in positioning. Michael brings a clear understanding of the regulatory planning framework and successfully integrates it with engineering surveying and the underlying Cadastral framework for the projects he works on.

KEY STRENGTHS

Lateral and logical thinking
Technical data interpretation and analysis
Attention to detail
12D, AutoCad, Autodesk Revit, CivilCad Magnet, Trimble software capabilities

PROJECT EXPERIENCE

COMMERCIAL

Metro Sports Facility, \$300m, 2019-2025- Survey Manager

Coordination and execution of all survey works, data management and quality assurance

Christchurch Exhibition and Convention Centre (Te Pae), \$300m, 2017-2021 - Survey Manager

Coordination and execution of all survey works, data management and quality assurance

Ballantynes Redevelopment, \$20m, 2018-2019 - Lead Surveyor

Coordination and execution of all survey works, data management and quality assurance

INFRASTRUCTURE

John Holland, Gorgon Natural Gas Project, \$65b, 2014-2015 - Project Engineering Surveyor

Precise engineering surveying for the non-process infrastructure, Barrow Island

Transcity Joint Venture, Legacy Way Project, \$1.5b, 2012-2014 - Project Engineering Surveyor

Civil structures and tunnel surveying for twin 4.5km long tunnels built by TBM in record time, Queensland

MacMahon Holdings, FMG Solomon Rail Spur Construction, \$300m, 2011-2012 - Project Engineering Surveyor

Bulk earthworks and rail infrastructure surveying for 8 million cubic metre cut to fill project, Western Australia

EDUCATION

Shirley Boys and Avonside Girls Campus, \$80m, 2017-2018 - Survey Manager

Coordination and execution of all survey works, data management and quality assurance

LAND DEVELOPMENT

Cashmere Estates Subdivision Stages 2-6, \$12m, 2019-Current - Project Manager/Civil Designer

Project management, resource consenting, civil design and contract supervision for 350 lot hillside subdivision

Stoneridge Downs Subdivision, \$10m, 2017-2019 - Project Manager/Civil Designer

Project management, resource consenting, civil design and contract supervision for boutique 27 lot hillside subdivision

Highested on the Park Subdivision, \$12m, 2015-2017 - Project Manager/Civil Designer

Subdivision design, construction supervisor, lead surveyor for 55 lot subdivision in Casebrook

The Trail Subdivision, \$12m, 2016-2018 - Project Manager/Civil Designer

Subdivision design, engineering design, lead surveyor for 85 lot subdivision in Wigram

HEALTHCARE

Canterbury District Health Board, Acute Services Building, \$300m, 2015-Current - Survey Manager

Coordination and execution of all survey works, data management and quality assurance

Nurse Maude, Nurse Maude Redevelopment, \$20m, 2015-2018 - Lead Surveyor

All survey works associated with the Aged Care Facility, McDougal House and Utilities Building