

Tahimana Limited

Stagecoach Road Development

Tasman

Development Report

Prepared by Darrin Canton, Staig and Smith Ltd

July 2026

12498



1. Authors Statement

I record that I have read and agree to and comply with the Environment Court's Code of Conduct for Expert Witnesses as specified in the Environment Court's Practice Note 2023. This report is within the author's area of expertise, except where the report states that the author relies upon the reports of other experts. The author has not omitted to consider any material facts known to them that might alter or detract from the conclusions reached.

2. Introduction

Tahimana Ltd are the owners of a parcel of land located at Stagecoach Road, Tasman, for which they have prepared an application to develop into a range of residential and lifestyle sized allotments. They have engaged a group of consultants to provide advice on a range of inputs during concept development and to provide reporting to accompany the development application. It is acknowledged by the applicant that the development site is of historical and ongoing importance to local Iwi. The concept for development has been adapted and enhanced as a result of liaison with and feedback received from Iwi representatives during the concept development phase.

Concept development has been undertaken over a significant period of time resulting in a number of concept iterations, with careful interrogation and consideration given to each iteration progression to ensure a development outcome which is relevant to the site constraints present whilst also acknowledging the processes and outcomes detailed in the Tasman District Council design guide for the Coastal Tasman Area.

Below is a list of consultants and organisations engaged by or with Tahimana Ltd to provide expert advice and reporting for the application.

Legal	Sally Gepp KC
Resource Management / Planning	Staig and Smith
Development Plans	Staig and Smith
Development Report	Staig and Smith
Landscape Assessment	Rough Milne Mitchell Landscape Architects
Archaeology	Amanda Young – Cultural Heritage Consultant
Ecology	RMA Ecology Ltd
3 Waters	Envirolink
Water Supply Memo	Matt Molloy Consulting
Hydrogeology	Pattle Delamore Partners
Transportation	Traffic Concepts
Geotechnical	Swanney Geotechnical and Civil Engineering
Land Contamination (PSI)	Envirolink
Noise	Bladon Bronka Acoustics Ltd
Productivity	Land Vision Ltd
Economic Report	Economic and Property Research

We note that there has been liaison with Tasman District Council staff on a number of occasions during concept progression and that their comments have been considered and changes to the concept made where needed.

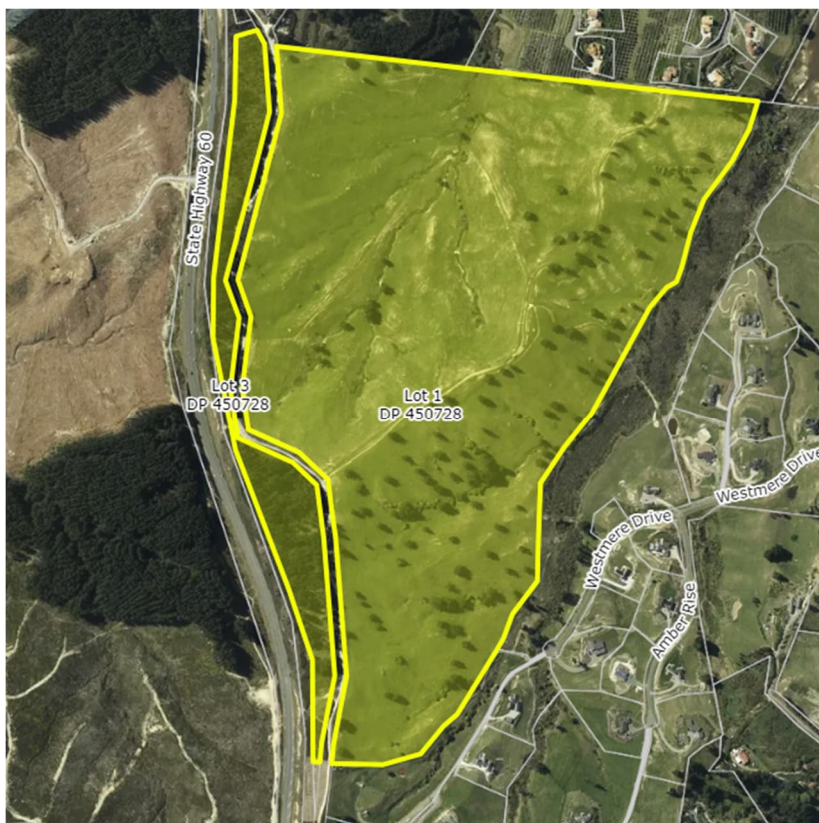
The purpose of this report is to provide an overview of the development concept set out within the Staig and Smith Ltd development plan set and, where needed, to provide comment on specific details of the design that are not included in the reporting by the consultants above.

3. The Site

The Tahimana development is located in Tasman on the unsealed portion of Stagecoach Road, approximately 2.3km north of the intersection with The Coastal Highway (SH No. 60), with a frontage to Stagecoach Road of approximately 1.3km. The property straddles Stagecoach Road and is in two parcels (Lots 1 and 3 DP 450728) which are held in one certificate of title, CFR 573241, totalling approximately 68 hectares. State Highway No 60, linking Nelson with Motueka and beyond adjoins the site immediately to west and the recent development of Westmere Drive adjoins the site to the east. Williams Road, Horton Road and Mamaku Road terminate to the north of the development.

The area of development to the east of Stagecoach Road consists of several ridgelines and gully areas and is in pasture. This portion of the site is currently being used to graze stock and, with the exception of Lot 139 (reserve wastewater disposal area), is the area that is proposed to be developed for residential and rural/residential use. The area to the west of Stagecoach Road (Lot 144) has recently had exotic pine plantation removed and is currently not used for farming activities. This area of the site along with lot 139 are the areas to be used for communal wastewater disposal. An area of Waka Kohati NZ Transport Agency land adjoining the site in the form of a strip of land located between State Highway No 60 and Lot 144 is also to be used for communal wastewater disposal. Waka Kotahi have advised that they will accept the land being used for this purpose and will enter in a licence to occupy agreement with the consent holder when consent for the development has been obtained.

The diagram below shows the Tahimana Ltd land ownership highlighted in yellow along with the underlying parcel appellations.



Stagecoach Road where it passes through the site is used regularly by recreational users on foot or bicycle.

There are recreational corridors free of motor vehicles from this location that provide links to Westmere Drive, Williams Road and Dicker Road which in turn provide low trafficked routes to the Tasman Great Taste Trail, thereby linking to Motueka, Tasman, Ruby Bay and Mapua via. Sheet 9 of the application drawings shows these links.

A number of wetlands and waterways have been identified on the development site. Wetlands and catchment drainage systems are present in the adjoining Westmere Drive development to the east and Horton Road to the north.

The various consultant reports included with the application provide details on a number of site attributes including ground conditions, soil types, current and historic land use, topography, and both landscape and ecological values. All of which create environmental constraints and opportunities that have been considered and used to inform the development concept and consent application.

4. Staging

Various aspects of the development are to be staged or phased as detailed on the staging plans listed below.

Sheet 4 - Issuing of Record of Title Staging

Sheet 5 - Landscape and Restoration Planting Phasing

Sheet 30 - Earthworks and Stormwater Basins Phasing

The staging and phasing of the development has been carefully considered to ensure that the earthworks, stormwater measures (in particular detention) and landscape and restoration planting required to allow any consecutive stage of the development to progress to issue of Record of Title is completed in an appropriate order and at the correct point in the development timeline. Consideration has been given to the need to have landscape mitigation planting in place when required on a stage-by-stage basis along with minimising risk to planting that earthworks can present when located next to previously completed stages.

5. Off Site Servicing

The subdivision of the site will require several services to be extended to the property boundary from areas outside the immediate development footprint. These services are included in the reporting below and consist of:

- Reticulated water supply (firefighting and residential lot potable water supply)

- oWorks within Stagecoach Road legal corridor

- oWorks within Council owned land

- Power reticulation

- oWorks within legal road corridor

- Communications

- oWorks within legal road corridor

- Stagecoach Road upgrade of varying aspects from approx. 2300m south to the site
 - o Works within Stagecoach Road legal corridor
- Cycle/walkway link to Dicker Road.
 - o Works within legal road corridor

6. Servicing of development

Details of proposed servicing for the development are set out below under appropriate headings.

6.1 Water Supply

Reticulated water supply for the provision of firefighting water flows to the entire development and potable water to the residential sized lots along with Lots 87, 111 and 145 is to be supplied from the Council operated Mapua Rural Restricted Scheme via the existing pump station at the Pomona Road reservoir. Currently water is pumped to Council owned and operated storage tanks on Stagecoach Road approximately 500 metres south of the Tahimana development. It is proposed to extend the existing pumped water line north along Stagecoach Road from the existing storage tank site to a new 300m³ tank to serve the development which is to be located on Lot 146 of the development. Envirolink have undertaken calculations on the existing supply system delivering water to Stagecoach Road and confirmed that it has the capacity to provide the additional water required to service the development in compliance with the NTLDM2020. Their report is included with this application.

Reticulation from the new 300m³ water tank to be located on lot 146 will be extended into the development as detailed on the concept water reticulation plans accompanying this application (sheets 44 – 48). The tank has been located at a position on the site where it will provide the highest operating pressure (head) available and allow the downstream network to operate as a gravity supply system. Sheet 48 of the consent application drawings shows the tank site and its relationship to Stagecoach Road and Lot 1. Drainage and access routes to Stagecoach Road are shown along with the secondary overflow route taken through Lot 1 should the primary drainage route to Stagecoach Road be unable to accommodate excessive flows from that tank site area. The flow route through Lot 1 is located clear of proposed earthworks and the BLA area on Lot 1 within an existing gully area.

The reticulated network for the development is to provide connections to 101 lots and suction coupler fire hydrants which are to be located throughout the development in accordance with PAS 450:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice. All residential sized lots along with lots 87, 111 and 145 are to have a connection to the reticulated water supply and are to be provided with a restricted flow connection providing 1m³ of water per day. Each lot taking water from the reticulated system will be required to provide additional water storage of 3m³ and a pump to provide a pressurised water system for the individual lot at the time each lot is further developed with a consented dwelling.

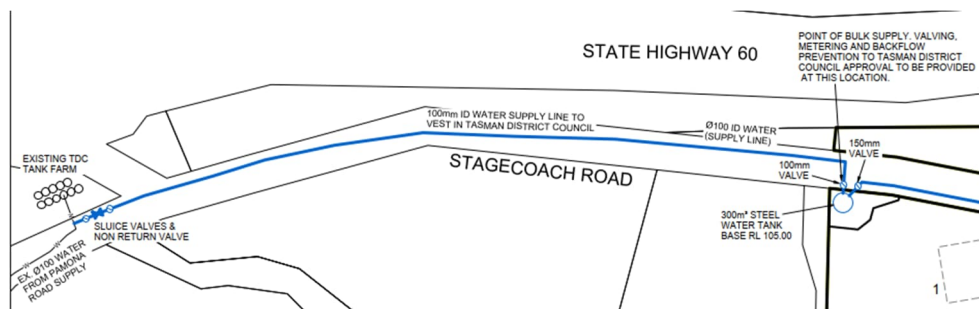
A water connection is also to be provided to the wastewater treatment plant on Lot 144, which is to be fitted with a flow restrictor and backflow prevention at the point of supply.

The larger lifestyle sized blocks are not to be provided with reticulated water and will be required to collect roof water to storage for potable domestic supply in accordance with the rules in the TRMP. However, as a reticulated firefighting supply will be provided from the reticulated network to cover

all building sites within the development individual on site storage of water for firefighting purposes will not be required.

Water Supply Ownership

Although it is the developers view that Council should take ownership of the full water supply network constructed for the development, Council have advised that they do not wish to do so and that they will accept vesting in Council of the proposed supply pipe from the existing Stagecoach Road water tank site to the point of bulk supply at the new 300m³ tank only. The diagram below taken from sheet 45 of the application plans shows the extent of water infrastructure in Stagecoach Road to vest in Council and the location of the point of bulk supply, where back flow protection and water metering are to be provided.



All water supply infrastructure downstream of the point of bulk supply is to remain privately owned and will pass into ownership and control of a Water and Wastewater Association to be set up to own, manage and operate the water supply network as a drinking water supplier.

Where privately owned water infrastructure is located within legal road corridors a license to occupy agreement will be required with Council.

6.2 Wastewater

Wastewater disposal for the development is to be via either individual on-site treatment and disposal system (most rural lifestyle lots) or a communal treatment and disposal system (for all residential sized sites and those lifestyle lots not able to accommodate onsite wastewater disposal). All lifestyle sized lots able to accommodate appropriate on-site wastewater disposal areas (including reserve disposal areas) are to install individual on site wastewater treatment and disposal systems at the time of further development of the lot i.e. house build. A number of lifestyle sized lots have been identified as not being able to accommodate appropriately sized on site disposal areas, and these lots along with all residential sized lots are to be connected to a reticulated low pressure wastewater network conveying flows to the communal on-site wastewater treatment and disposal system. There will be 101 lots connected to the communal wastewater treatment system.

The supplier of the communal wastewater treatment and disposal system has been confirmed to be Innoflow Technologies who will supply a system using their Prelos on-site septic tanks, pressurised liquid only reticulation, AdvanTex communal treatment plant and communal pressure compensating irrigation field.

Schematic details of the wastewater reticulation network are shown on sheet 60 of the application drawings and technical reporting to support both the onsite wastewater disposal and communal wastewater system is contained in the three waters report prepared by Envirolink and the Innoflow Technologies specification report, both of which are included with the application.

The area of land to be used for disposal of treated wastewater from the communal treatment system (including a reserve field area) is identified as lots 139 and 144 on the application scheme plan along with a portion of land identified as Section 34 SO 440217 which adjoins the development to the west. Section 34 SO 440217 is administered by Waka Kotahi, who have advised that they will offer a license to occupy this land for use as wastewater disposal after consent being obtained for the development.

The general concept for the communal wastewater disposal system is for all lots that are not capable of accommodating an individual onsite wastewater disposal area to pump liquid only wastewater utilising individual on site pumps via a low pressure piped network to a communal treatment plant, after first passing through an individual on site primary treatment tank. After processing within the communal treatment plant the treated waste is to be disposed of in the communal disposal area via pressure compensating drip lines.

The applicant's preference is for the wastewater reticulation, treatment plant and disposal system to pass into council ownership however Council staff have advised that there is no interest within Council for the wastewater system to vest with Council. If the system is to remain in private ownership, operation and maintenance will be the responsibility of a Water and Wastewater association to be set up for administration and operation of any commonly owned wastewater assets within the development.

Where privately owned wastewater infrastructure is located within legal road corridors a license to occupy agreement will be required with Council.

Stormwater

Envirolink have been engaged to provide reporting on stormwater management within the site including details of on-site stormwater detention requirements to ensure that post development flows leaving the site do not exceed those of predevelopment and assistance with developing the stormwater drainage system concept including input into the provision of groundwater recharge pits.

Along with accepting the need for post development stormwater management of the developed areas the applicant is aware of the close relationship between the site's current natural drainage features and the wetlands and watercourses present and acknowledges that this relationship must be maintained to ensure that the identified wetland areas remain viable into the future. Along with Envirolink the applicant has engaged Pattle Delamore Partners to undertake a hydrogeology assessment of the development to ensure that water inputs and flows currently available for the wetlands are not reduced post development. RMA Ecology have also been engaged to provide advice on location of detention structures and the requirements of construction and location of stormwater discharge points to ensure wetland recharge.

In general, the stormwater management throughout the residential areas of the development will be the same as could be expected in any urban residential development, however additional measures are to be implemented to ensure that the current water balance supporting the existing wetlands is

maintained and water quality is to be addressed utilising natural treatment systems such as treatment swales. It is noted that the roading infrastructure proposed does not trigger a requirement for treatment of road runoff under sections 5.4.8.3 of the NTLDM2020, however treatment of road runoff is proposed as part of a larger development concept intended to align with Water Sensitive Design concepts set out in section 5.3.2 of the NTLDM2020. In general this will include the provision of grass treatment swales adjoining road carriageways where grade permits, proprietary gross pollutant traps at the downstream end of pipe drainage routes and planting of detention basins and swales/watercourses.

The residential development area is to be reticulated with a piped stormwater system with each lot provided with a lateral connection, in some cases two connections with the second one to provide a clean water outlet to an adjoining wetland, and runoff from road areas is to be collected by kerb and channel and directed to sumps and the piped network. The various piped networks will discharge downstream of the developed areas to swales that will convey runoff to detention structures shown on the plans or in the case of clean water from collected from roof and soft areas to outlets provided with scour protection and energy dissipater structures allowing the runoff to then pass overland to the wetland or gully areas.

The rural lifestyle area of the development will not be provided with a reticulated stormwater system other than any culverts required to convey road runoff clear of the road corridor. Stormwater from these lots is to be directed to natural drainage areas clear of the on-site wastewater disposal areas. The rural lifestyle lots will be required to collect roof water for potable water use within the dwelling on each lot with an overflow to be provided to the onsite stormwater system.

It is the intention of the applicant to install detention on site to ensure that post development flows leaving the site do not exceed those present predevelopment. Envirolink have provided reporting on this in their stormwater assessment for the development application. Due to the nature of the site, there are a number of detention structures proposed to achieve the total volume of detention required and appropriate spread of attenuated water outlets that will allow release of water into wetland areas at appropriate locations, flow rates and volumes. The location of the detention structures is shown on the application scheme plans, earthworks plans and stormwater reticulation concept plans. In all there are 22 detention structures, with 6 located in the western catchment (labelled W1 – W6) and 16 located in the eastern catchment labelled (E2a – E7).

The detention structures have been designed to occupy the minimum footprint needed to provide a structurally suitable dam requiring a minimum of maintenance. They are not intended to permanently hold or store water; however, they will hold attenuated water during and after rainfall events with the volume detained varying depending on the level of rainfall event being experienced and the size of the dam. The maximum impounded water footprint for each detention structure is shown on the plans.

It is important to note that the detention structures have been located outside of the main gully areas where possible under advice from the project Ecologist and there are no structures located within the identified wetland areas or watercourses. Two detention structures (E5d and W4) have been identified to require fish passage by the project Ecologist, which is to be provided as detailed in the Envirolink report.

Roading

Roading proposed for the development is generally in accordance with the requirements set out in the NTLDM 2020, with minor modifications where deemed necessary to fit with land topography and the development concept of residential style clusters within an area of larger rural lifestyle lots.

Stagecoach Road

Stagecoach Road in its current form consists of various construction standards from its intersection with SH No. 60 to the northern end of the development site. For the first 650 metres from the intersection with SH No. 60 the carriageway is sealed for a minimum of 6 metres width with metalled shoulders. An informal off-road cycle and walk path is evident on the western side of the road. From this point to the southern end of the development (approx. 1700 metres) Stagecoach Road is a maintained gravel formation of varying widths, generally 4.5 – 5 metres wide. An informal off-road cycle and walk path is evident in places but is not continuous and in places walkers and cyclists share the gravelled road carriageway with motor vehicles. In places the gravelled formation is located outside the legal road corridor over privately owned land. The road across the development frontage is not maintained and is generally a clay surface with some areas having a thin layer of gravel. The road in this location has areas of prominent scouring and rutting and there is no off-track walk or cycle provision. From the northern end of Stagecoach Road there are walking and cycle connections available to Williams Road and Dicker Road of varying formation standard providing connections to the Great Taste Trail and Tasman Village.

Stagecoach Road Upgrade

The upgrade works proposed to Stagecoach Road are detailed on the concept plans included with the consent application on sheets 10-13, 16-19, 27 and 64 - 76.

No upgrade is proposed to the existing sealed carriageway for the first 650m length of the existing sealed carriageway from the SH no 60 intersection; however it is proposed to upgrade the existing informal cycle/walking track to a 2.5 metre wide shared cycle/walkway from the intersection with Chaytor Road to the north along Stagecoach Road towards the development.

From the end of the existing sealed formation to the southern end of the development it is proposed to upgrade Stagecoach Road to be generally in accordance with Table 4-7 of the NTLDM 2020, Sub Collector - Rural – All. The construction is to consist of a 6.0-metre-wide sealed formation with 0.6 metre unsealed shoulders. Where topography prevents the use of sealed shoulders due to width restrictions concrete edge restraints will be utilised to hold the seal edge. A 2.5-metre-wide shared walk/cycle path is to be provided on the western side of the carriageway. Generally, the pathway will be located with separation to the sealed carriageway however due to construction constraints there will be areas where the shared cycle / walkway will be located against the concrete edge restraint required to replace the unsealed shoulder, in these locations an upstand kerb will be provided. These areas have been shown on the drawings and are at the following approximate locations:

- RD140 – 210
- RD360 – 380
- RD470 – 510
- RD870 – 910
- RD1170 – 1310
- RD1610 – 1720

Foot notes to table 4-5 of the NTLDM note that the target speed environment in Rural Lifestyle zones should be a maximum of 60km/hr. It is noted that Stagecoach Road has a signed maximum speed limit of 80km/hr.

Where the design speed achievable is less than 60km/hr the design speed has been shown on the drawings, the minimum being 40km/hr.

The upgrade is to be constructed so that to the maximum extent possible all works are located within Council owned land predominantly within the legal road corridor of Stagecoach Road. The exception to this being minor areas of earthworks extending onto Council owned land near the existing Stagecoach Road water tank site at approx. RD 1320 and an area of land administered by Waka Kotahi at approx. RD 1440-1590. No upgrade works are located over privately owned land.

Stormwater control will be by way of water tables and kerb and channel where shown. Although not shown on the resource consent drawings culverts will be required to drain road runoff, these will be detailed on the road upgrade construction drawings which will be submitted to Council for approval prior to construction works commencing.

Internal Development Roding

Development roding will consist of the upgrade to Stagecoach Road across the development frontage along with the construction of several roads internal to the development to provide road, cycle and walking access to the residential clusters and rural lifestyle lots. The NTLDM2020 does not contain roding standards that directly refer to or identify requirements for roads in the Rural 3 zone, however table 4-7 for unclassified roads sets out minimum requirements for provision of carriageways, pathways, and berms under residential, rural or rural lifestyle headings. These standards have been used to inform the development of roding concepts for the application which are not intended to conform to any particular standard in table 4-7 but should be considered a hybrid concept using the requirements from the NTLDM2020 adapted to align with the development concept and fit with the steep and segmented topography of the site.

Stagecoach Road Frontage

Stagecoach Road across the development is to be upgraded to provide a carriageway of 6.0 metres and a shared cycle/walkway of 2.5 metres width on the western side of the road, separated from the carriageway. The road detail on sheet 27 of the application drawings shows the proposed profile of Stagecoach Road which includes concrete edge restraints in the form of mountable kerb and channel along with roadside swales to collect road runoff. The concrete edge restraints have been included as the applicant wishes to provide a road with a more formal appearance than a rural road profile along this length of development frontage.

Road A

Road A is the dominant road when viewing the development roding network and could be described as the spine road providing the demarcation between the rural lifestyle sized lots to the southeast and the residential clusters to the northwest. Road A is located along the main ridge located within the property with a number of cul-de-sacs accessing residential clusters from this corridor, along with rural lifestyle lots having private vehicle access to it. The road concept proposed for Road A is a modified version of the NTLDM 2020 roding standard for a *Rural Lifestyle (unclassified)* road with a design speed of 50km/hr. A 2.5-metre-wide shared pedestrian/cycleway is included however the 600mm shoulders required in the NTLDM have been removed from the profile and replaced with concrete edge restraints in the form of mountable kerb and channel. A car parking bay is to be located

adjacent to the reserve area (Lot 142), with another to be provided on the Lot 85 frontage where a lookout is to be located.

Surface water collected from the road corridor is to be directed to a roadside swale which in turn will convey stormwater flows to gully areas for disposal clear of building sites and any on site wastewater disposal areas. Details of Road A are shown on sheet 27 of the drawings.

Roads B-G

Roads B to G are cul-de-sacs providing access to the residential clusters located to the northwest of Road A with connections to either Road A or Stagecoach Road. It is proposed to construct these in accordance with NTLDM 2020 Table 4-7 roading standard *Residential (<20 dwellings) (unclassified)*. These roads are proposed to be constructed with a 5.5-metre-wide carriageway with parking bays provided where shown on the drawings. A concrete edge restraint is to be provided to each side of the carriageway in the form of mountable kerb and channel, and a footpath is to be provided on one side of the road. These details are shown on the typical road profiles on sheet 27 of the drawings.

It is noted that Roads C, G and a short length of Road E provide access to a greater number of lots than the standards in the NTLDM 2020 table 4-7 specify for a *Residential (<20 dwellings) (unclassified)* road, however the concept proposed for these roads consists of the same carriageway width and carparking allowance required in the NTLDM 2020 table 4-7 *Residential (all) (unclassified)*. Where the concept for these roads differs to the standard is the provision of a footpath on one side of the road only, rather than a footpath on both sides.

Walkways

There are a number of off-road walkways proposed within the development which have been included to provide a walking link from Westmere Road to Stagecoach Road at the northwest corner of the development and another to the northeast corner of the development. The links are achieved via a combination of off-road pathways and footpaths within legal road corridors.

The construction details of the walkways are shown on sheet 28 of the plans and the routes are indicated on the scheme plan sheets. It is intended that the walkway providing the link from Westmere Road to the reserve area on Road A will pass through lots 7,12,13, and 141. The walkway connecting Road D to Stagecoach Road will pass through lots 140 and 139 and the walkway connecting to the northeast corner of the development will pass through Lots 140, 79-81 and 83. Where the walkways are to pass through areas identified as waterways they are to be constructed as boardwalks to minimise the extent of ground disturbance required for their construction. No structures or piling will be placed in a wetland or waterway, and all piles will be placed outside of wetland extents or stream/riverbanks.

It is proposed that these walkways are available for public use and therefore where they are to pass through privately owned land easements in gross are to be created along the walkway route in favour of Tasman District Council for walkway use.

Dicker Road Cycle/Walkway Link

The application includes a proposal to provide a shared cycle/pedestrian link from the development to the southern formed end of Dicker Road at Tasman Village. The route of the link is shown on sheet 8 of the application drawings and is to be formed to 2.5m width with TDC Gap 20 cycleway mix extending from the northwest corner of the development along an existing legal road corridor to Dicker Road. Upon completion of this link there will be a newly formed 2.5m wide shared

cycle/pedestrian pathway along Stagecoach Road extending from Chaytor Road in the south to Dicker Road at the north, a total distance of approximately 6 kilometres.

This is currently a well-used informal recreational link for cyclists from the wider community, and it is expected that along with an improvement for these users the new link will also provide a desirable link in either direction to the Tasman Great Taste Trail for residents in the proposed development.

7. Earthworks

To accommodate construction of roads and building areas it is necessary to undertake bulk earthworks consisting of cutting and filling over areas of the site where development is to occur along with earthworks to accommodate the upgrade of Stagecoach Road and the shaping of the communal wastewater disposal area. The concept earthworks model is shown on Sheets 31 – 43 of the drawings and includes details of existing and proposed landform contours along with iso contour plans indicating depths of cuts and fills.

Ecological site investigations and reporting has identified areas of wetland, ponds and water courses throughout the site which have informed both the development layout and earthworks concept. Wetland areas, watercourses, and ponds identified at the time of ecological survey along with required minimum setback margins have been included in the earthworks concept drawings and provide a clear visual representation of the proximity of earthworks extents to those areas. An additional construction works buffer (set back) of 3 metres has been included in the design to accommodate earthworks operations.

Swanney Geotechnical and Civil Engineering have undertaken preliminary site and soil investigations and have provided advice on maximum cut and fill batter slopes and the appropriateness of the bulk earthworks proposed in the application, both within the areas to be used for housing development and the area to be used for the communal wastewater disposal.

The earthworks concept consists of creating flat building areas of varying size on each of the rural lifestyle and residential sites along with roading corridors to access those sites. Earthworks will also be required along the length of Stagecoach Road where upgrading is proposed to allow the formation widths proposed to be constructed. Staging of the earthworks is to align closely with the staging of the development so that at any one time the extent of earthworks being undertaken will be limited to that necessary to complete the stage or stages being progressed to issue of record of title.

The approximate total earthworks volume has been calculated at 225,000m³ of cut and 160,000m³ of fill. Due to the nature of undertaking any bulk earthworks operation over land previously used for plantation forestry and with a topography such as this site, containing ridge and gully areas, it is difficult to accurately calculate the makeup (organic, unsuitable or suitable for structural fill) of the earthwork's volumes. However, it is expected that the additional cut volume will provide ample suitable material for use as structural fill, and it is noted that the site will provide opportunity for unsuitable material and surplus organic material to be used to soften the appearance of the built environment. It is also noted that using surplus material on site will negate the need to remove surplus cut material from site, thereby limiting the number of construction traffic movements along Stagecoach Road and on the wider transport network.

All earthworks are to be supervised by a Geoprofessional who will ensure the earthworks are undertaken to the appropriate standard and will issue close out reporting upon completion of each stage of the development. It is intended that all lots will be provided with an area certified to allow construction of a NZS3604 compliant residential building, however it should be noted that the size and shape of the certified area may not be the same as the identified building location area (BLA) on any said lot. It should also be noted that in some instances it may not be possible for a NZS3604 certified build area to be identified on a lot. In these instances, close out reporting will detail the requirements to be met to allow a residential dwelling to be built on the lot within the BLA.

A specific earthworks methodology has not yet been developed for the works but will be developed in consultation with the main contractor prior to construction works commencing on site. It is expected that a basic order of earthworks will be as set out below:

- 1 Establishment of contractors on site compound and lay down areas.
- 2 Install pre-approved dust, erosion and sediment control measures.
- 3 Strip topsoil to stockpile from earthworks areas.
- 4 Strip unsuitable material to stockpile from earthworks areas.
- 5 Undertake cut to fill works.
- 6 Spread unsuitable material to structural fill periphery.
- 7 Respread topsoil from stockpile over earth worked areas.
- 8 Undertake grassing out of earth worked areas.
- 9 Upon stabilisation of earth worked areas - dust, erosion, and sediment control measures to be removed.

During earthworks construction it is expected that other items of work will be required to be undertaken simultaneously such as installation of subsoil drains, stormwater drains, and general construction works related to the development works.

Erosion and Sediment Control

As with any project of this size there is potential for sediment laden run-off to be generated from site both during construction and post construction until such time as disturbed areas of ground are stabilised, and appropriate stormwater control measures are in place and operational. Generation of dust and sediment is possible at any stage of construction works but has shown to be at greatest risk during earthworks construction. Prior to construction commencing on site the contractor will be required to prepare a Dust, Erosion and Sediment Control Plan (DESCP) and a Construction Environmental Management Plan (CEMP)

For approval by the Tasman District Council. As a minimum, between them the plans shall address the following items.

- A site description
- Outline the proposed staging and programme of the construction activities.
- Include a locality and site map identifying wetland areas, waterways, direction of surface stormwater flows, contours, and property boundaries.
- Address how adverse effects on the environment are to be avoided or mitigated.
- Show how ground disturbance is to be minimised.
- Detail how disturbance of identified streambeds is to be avoided.
- Show measures to be implemented to avoid work areas encroaching into identified wetland areas and adjoining buffer zones during construction.

- Provide a bad weather contingency plan, including debris and flood management.
- Include onsite management measures for hazardous substances.
- Advise contact details of senior contractor staff responsible for the works for the duration of the construction activities.

The CEMP and DESCP are to be prepared on a stage-by-stage basis reflecting the phasing that the earthworks are to be completed in and are to be approved by Council prior to being implemented on site prior to construction works commencing. The plans are to be prepared by the contractor with the involvement of the design and construction management consultants as well as the project ecologist to ensure that appropriate and workable short and medium-term solutions are used. It is expected that ongoing review of the measures implemented will be required during and after construction until stabilisation is achieved to ensure efficient operation of the systems installed to manage treatment of runoff from the site. All measures detailed in the CEMP and DESCP are to remain in place and be operational until stabilisation of disturbed ground is achieved and Council has given approval for the measures to be removed.

There are a number of measures expected to be implemented on site to limit the generation of dust and sediment laden runoff during construction. The Nelson Tasman Erosion and Sediment Control Guidelines provide extensive advice on site management during land disturbance activities and is to be utilised in the preparation of the CEMP and DESCP prepared for the construction works required for this development. Below is a list of the types of measures expected to be implemented on site during construction works.

- Undertaking of earthworks on a staged basis to limit the extent of open ground at any one time, thereby minimising exposure to weather.
- Temporary fencing of sensitive areas of the site during construction to prevent inadvertent access to these areas by construction equipment and vehicles (wetlands, water courses etc).
- Installation of stabilised construction entrances and stabilised staging and set down areas.
- Provision of emergency spill kits and preparation of an emergency spill response plan.
- Installation of clear water diversions to redirect clean water around earthworks areas.
- Installation of dirty water diversions to direct sediment laden runoff to treatment devices.
- Installation of silt fences and maintaining of vegetated buffers (grass strips) around perimeter of the area of land disturbance.
- Provision of sediment retention basins.
- Utilising of temporary erosion protection measures, such as straw mulch, erosion control blankets and covering of stockpiles prior to the onset of adverse weather conditions.
- Prompt installation of stabilisation measures (immediate and long term) upon completion of earthworks (straw mulch, hydroseeding, gravel cover on road lines, establishing of vegetation cover).
- Provision of scour protection to all culvert (both temporary and permanent) inlets and outlets at time of installation.

It is noted that not all the above measures may be utilised on this site and that there may be other measures that are not listed above that are implemented by the contractor while working on the site. The CEMP and DESCP detailing measures to be implemented for the site will be prepared by the contractor undertaking the works and supplied to Council for approval prior to works commencing.

8. Electrical

Electrical supply to the development will be via the Network Tasman owned electricity distribution network. Network Tasman distribute power to the greater Nelson Tasman area.

Network Tasman have advised that they have immediate capacity available near the subdivision boundary to supply up to 50 lots within Tahimana with power. The servicing of the remainder of the development requires the provision of a high-capacity loop, to be constructed to serve Tahimana and other large rural residential developments in this area of Tasman. The planning of these works is currently progressing within Network Tasman, with timing of the construction of the loop dependant on the issuing of consent for the development of Tahimana.

9. Communications

Ongoing negotiations are currently being undertaken by Tahimana with both Chorus and Network Tasman for provision of communication to the development by means of a fibre optic cabling.

Inspection of online mobile phone and data coverage maps show that both Spark (4G service) and OneNZ (4G and satellite service) services are available at the site.