

At this stage, no bus shelters are anticipated to be provided within the development, however given the abundance of parking bays on Road 1, a bus stop and associated bus shelter could be provided should demand require it in the future.

Based on the above, it is considered that the proposal is entirely consistent with the above policy.

Water supply, stormwater, wastewater

27.2.5.6 All new lots shall be provided with connections to a reticulated water supply, stormwater disposal and/or sewage treatment and disposal system, where such systems are available or should be provided for.

All lots to be created by this proposal will have an underground connection to waste water and stormwater disposal and a water supply. All of these connections will be made into councils network and confirmation has been provided in Attachment [I] to this application, of the capacity of these services.

Water

27.2.5.7 Ensure water supplies are of a sufficient capacity, including fire fighting requirements, and of a potable standard, for the anticipated land uses on each lot or development.

A letter from Councils engineering department confirming capacity within the network for the reticulated potable water, is included as Attachment [I] to this application. Hydrants are proposed to be installed as part of this application to facilitate compliance with councils fire fighting requirements.

Stormwater

27.2.5.11 Ensure appropriate stormwater design and management by having regard to:

- a. any viable alternative designs for stormwater management that minimise run-off and recognises stormwater as a resource through re-use in open space and landscape areas;*
- b. the capacity of existing and proposed stormwater systems;*

- c. the method, design and construction of the stormwater collection, reticulation and disposal systems, including connections to public reticulated stormwater systems;*
- d. the location, scale and construction of stormwater infrastructure;*
- e. the effectiveness of any methods proposed for the collection, reticulation and disposal of stormwater run-off, including opportunities to maintain and enhance water quality through the control of water-borne contaminants, litter and sediments, and the control of peak flow.*

The stormwater disposal design proposed by this development uses both traditional reticulation as well as low impact design with the attenuation pond and discharge to the existing stormwater channel present at the western end of the site.

By using the traditional underground network system with mud tanks etc it will ensure the long term effectiveness of the attenuation pond as it will provide a means of allowing the solids to settle before discharge to the pond. Additional to this is the height at which the outlet from the attenuation pond is set at, this has been calculated to ensure only 'clean' water is discharged to the existing stormwater channel. By ensuring there are no or very limited sediments in the water that is being discharged to the open portion of the network, it protects the longevity and efficient functioning of the system.

The capacity of the existing stormwater channel on the western edge of the development site will not be exacerbated as the water from the attenuation pond will only be discharged at the same rate as it was from the site, prior to any development.

The attenuation pond is positioned at the low point of the site, effectively acting as a cut off drain, therefore there will be little to no run off from the subject site into any adjoining sites post development.

27.2.5.12 Encourage subdivision design that includes the joint use of stormwater and flood management networks with open spaces and pedestrian/cycling transport corridors and recreational opportunities where these opportunities arise and will maintain the natural character and ecological values of wetlands and waterways.

The subdivision has been designed so that the recreation reserve is in the same location as the stormwater attenuation pond, with some mounding to separate

the two for safety reasons. However a trail is proposed to meander alongside the pond which will be able to be used for both pedestrians and cyclists and provide for recreational opportunities.

Wastewater

27.2.5.14 Ensure appropriate sewage treatment and disposal by having regard to:

- a. the method of sewage treatment and disposal;*
- b. the capacity of, and impacts on, the existing reticulated sewage treatment and disposal system;*
- c. the location, capacity, construction and environmental effects of the proposed sewage treatment and disposal system.*

All waste water disposal will be piped underground, either via gravity or under pressure, into existing council reticulation via newly installed pipes that are to be constructed as part of this proposed subdivision. Ultimately, the waste water generated by this proposal will be disposed of via the council reticulation that has recently been installed from Frankton to the Jacks Point Village.

Confirmation from QLDC engineering department of the capacity of the existing council network to cater for the additional waste water generated by this development is included in Attachment [I] to this application.

27.2.5.15 Ensure that the design and provision of any necessary infrastructure at the time of subdivision takes into account the requirements of future development on land in the vicinity.

It is proposed to extend the waste water infrastructure beyond the development boundaries and into Woolshed Road. This is purely for future proofing reasons and to enable connection into reticulation that may be constructed in the future, which could potentially remove the need to connect into the existing pump station in time.

Energy Supply and Telecommunications

27.2.5.16 Ensure adequate provision is made for the supply and installation of reticulated energy, including street lighting, and communication facilities for the anticipated land uses while:

- a. providing flexibility to cater for advances in telecommunication and computer media technology, particularly in remote locations;*
- b. ensure the method of reticulation is appropriate for the visual amenity and landscape values of the area by generally requiring services are underground, and in the context of rural environments where this may not be practicable, infrastructure is sited in a manner that minimises visual effects on the receiving environment;*
- c. generally require connections to electricity supply and telecommunications systems to the boundary of the net area of the lot, other than lots for access, roads, utilities and reserves.*

All allotments to be created as part of this subdivision will have an underground power and telecommunications supply provided to the boundary of the lot. Being underground will ensure that there are no adverse visual effects on the surrounding environment. Standard conditions of consent can be included to ensure this occurs.

Confirmation has been provided by Chorus and Aurora that suitable supplies can be made available to the proposed development, via the letters included as Attachment [I] to this application.

Based on the above, it is considered that this application is consistent with the above Policy.

Easements

27.2.5.17 Ensure that services, shared access and public access is identified and managed by the appropriate easement provisions.

The majority of the services will be located in the road reserve of roads to vest in QLDC, therefore no easements will be necessary. There are no shared accesses proposed so unlikely to need easements for this purpose. The trail to be created along the western and a portion of the southern boundary may need an easement, however, will be located on land to vest as recreation reserve, so this may not be necessary either.

A standard condition of consent requesting all easements shall be granted or reserved will ensure compliance with this policy.

27.2.5.18 Ensure that easements are of an appropriate size, location and length for the intended use of both the land and easement

Suitable, standard conditions of consent can be included to ensure that this occurs.

Jacks Point Zone

27.3.7 Objective - Subdivision occurs consistent with the Jacks Point Structure Plan Policies

27.3.7.1 Ensure that subdivision and development achieves the objectives and policies located within Chapter 41.

Based on the assessment undertaken below, it is considered that the subdivision which will facilitate the landuse portion of this application achieves the objectives and policies of Chapter 41.

27.2.7.3 Within the R(HD-SH) Activity Areas, minimise the visual effects of subdivision and future development on landscape and amenity values as viewed from State Highway 6.

This has been addressed by the Landscape Assessment included as Attachment [E] to this application, refer to pages 6 and 7 and the conclusion drawn in this assessment is that the view of the future dwellings will be filtered through mitigation planting and at a distance of at least 0.5km, therefore effects on landscape and amenity will be very small.

27.3.7.7 In the Hanley Downs areas where subdivision of land within any Residential Activity Area results in allotments less than 550m² in area:

a. such sites are to be configured:

- i. with good street frontage;*
- ii. to enable sunlight to existing and future residential units;*
- iii. to achieve an appropriate level of privacy between homes;*

b. parking, access and landscaping are to be configured in a manner which:

- i. minimises the dominance of driveways at the street edge;*
- ii. provides for efficient use of the land;*
- iii. maximises pedestrian and vehicular safety; and.*
- iv. addresses nuisance effects such as from vehicle lights*

c. subdivision design should ensure:

i. public and private spaces are clearly demarcated, and ownership and management arrangements are proposed to appropriately manage spaces in common ownership.

d. consideration is to be given as to whether design parameters are required to be secured through an appropriate legal mechanism. These are height, building mass, window sizes and locations, building setbacks, fence heights, locations and transparency, building materials and landscaping.

Nearly all the sites to be created in this development will have an area of less than 550m². All lots will have direct frontage of between 10-14+m to the roads to be constructed as part of this application.

As this development is also seeking to have the landuse approved at the same time, confidence can be achieved that the future dwellings to be constructed on future lots will be low slung and maintain as much solar access as possible. This modest height limit of the dwellings will also help to maintain privacy between allotments. Hedging and other plants, fences are able to be included to further enhance privacy between allotments.

Given the medium density nature of the development and no right of ways providing access to a number of rear lots, there will appear to be a relatively high level of vehicle crossings/driveways at the street edge, however this is proposed to be offset by an evergreen hedge along the road boundary of all residential lots and a large grass berm within the road reserve along with street trees, all of which should act to soften the impervious appearance of the driveways.

The road crossings have been discussed in detail above and have been carefully considered to ensure that the pedestrians safety is maintained as much as possible at all times when crossing the road to reach the footpath or trail on the other side.

It is unlikely that nuisance effects from car lights will be very common given the inclusion of the aforementioned evergreen hedge along the front of all residential lots. This hedge will act as a barrier to prevent the car headlights from penetrating into the dwellings and causing a nuisance.

There are no spaces proposed to be in common ownership as part of this development.

The boundary between the reserves and the residential lots are to be fenced with either post and wire, post and rail, post and mesh or square post and batten. The fence will provide a clear demarcation between public and private areas.

As mentioned above it is proposed to register a consent notice on the title which ties the landuse approved as part of this application, to the subdivision, i.e. only the typologies and associated colour palette can be constructed on the lots to be created by this subdivision, if any other design/colour/material is proposed, then consent is required to be obtained from council prior to construction.

An additional consent notice condition is also proposed to outline all bulk and location requirements for future dwellings, should a replacement dwelling be required to be constructed i.e. not by the developer, in the future.

Chapter 41 – Jacks Point Zone

41.2.1 Objective *The establishment of an integrated community, incorporating residential living, visitor accommodation, community and small-scale commercial activities with appropriate regard for landscape and visual amenity values and within a framework of open space and recreation amenities.*

Policies

General – Zone Wide

41.2.1.1 *Require activities to be located in accordance with the Structure Plan (41.7) to establish the spatial layout of development within the zone and diversity of living and complementary activities, taking into account:*

- a. integration of activities;*
- b. landscape and amenity values;*
- c. road, open space and trail networks;*
- d. visibility from State Highway 6 and from Lake Wakatipu*

The majority of the development is located in accordance with the structure plan, with the small exception on the northern side. However it is our opinion that the

objectives of the Structure Plan are still met via the carefully considered planting proposed. This planting assists in establishing the level of amenity that is expected from the residential area identified on the structure plan.

Additional to this is the integration with the adjoining residential areas of Hanley Farms via the proposed trail connection, which is the limit of integration able to be achieved given the presence of the existing stormwater channel.

The proposal is to utilise an existing road connection to the State Highway which is in the location anticipated by the Structure Plan.

The level of visibility from the State Highway of the development will be minimised by the planting to be undertaken, as required by the “State Highway Mitigation” noted on the structure plan. The site is not visible from Lake Wakatipu.

41.2.1.3 Provide safe and efficient road access from State Highway 6

Access into the site is to be via the existing NZTA approved intersection which has been constructed as part of the existing Hanley Farms Residential Development.

41.2.1.7 Maintain and protect views into the Jacks Point Zone of a predominantly rural and open character when viewed from the lake, and to maintain and protect views across the site to the mountain peaks beyond the lake when viewed from the State Highway.

The preservation of views across the site to the mountain peaks beyond from the State Highway and also the rural open character has been discussed in detail throughout the Landscape Assessment included as Attachment [E] to this application.

Residential

41.2.1.8 b. Provide for medium density and small lot housing subject to ensuring the scale and form of built development provides for an appropriate standard of residential amenity and design.

As previously noted, the development includes modest size dwelling options of between 106m² through to 175m², this provides future purchasers with differing

design options dependant on the size of the section. Each design option has been carefully chosen to ensure it fits easily within the parameters for each site, whilst still allowing for plenty outdoor living area and landscaping.

Given the majority of the typologies provided for the development are single storey with a modest maximum height of 5m, it minimises potential for shading and dominance issues to arise. Even the two storey options are only two story for a portion of the floor plan, with the other half being low slung and single storey.

Additional to this is the multiple cladding and roofing options and colours available for the future purchaser. This combined design approach results in a development which includes variance in built form and appearance, all contributing to a high standard of design.

41.2.1.9 Require that any conventional low density residential development in the Residential Hanley Downs (R(HD)) and Jacks Point (R(JP)) Activity Areas be offset by higher density residential development and common open spaces in order to achieve efficient use of land and infrastructure.

This development is for a higher level of density than that which is found in the Jacks Point part of the Zone and in some areas of the Hanley Downs part of the Zone and includes a large proportion of common open space that is easily accessible to all residents.

Based on the above, the development is considered to be consistent with the above Policy.

41.2.1.13 Apply residential development controls to protect privacy and amenity, provide access to sunlight, to achieve design cohesion, and to provide appropriate opportunities outdoor living, consistent with residential density anticipated in that Activity Area.

Given the landuse to be undertaken on the lots being created as part of this proposal and combined in the same application, comfort can be given to council as to the final design outcome parameters for the lots and the preservation of access to sunlight, maintenance of privacy and design cohesion. However in case for some reason in the future a new dwelling is required to be constructed

on one of these sites, a consent notice outlining all bulk and location requirements etc is to be registered on the title of all new residential allotments.

- 41.2.1.15 Provide for predominantly low density residential development in Residential – State Highway Activity Areas ((R(HD-SH) and (R(JP-SH)), and appropriately mitigated through landscaping and the provision of open space.*

While this development cannot be entirely considered as low density as it is more akin to a medium density development, it still includes a large amount of landscaping along the northern and eastern fringes, and centrally through the middle of the site, which is protected in perpetuity by way of consent notice or will be vested in council, so while this development is not completely consistent with this policy it is not contrary to it.

Open Space

- 41.2.2.21 Recognise the important contribution that the open space areas that adjoin the residential and village areas make to the identity, character, amenity and outlook of the Jacks Point Zone for residents and visitors.*

While this development does encroach into the OSL area slightly the majority of this area of encroachment is to be planted out to contribute towards the character of this area and the level of amenity that it will provide for future residents. We also note the large amount of open space/recreation area that is provided within the boundaries of the residential activity area which helps to offset the small portion of encroachment into the OSL area.

- 41.2.1.29 Encourage native planting of the Open Space Activity Areas (OSF, OSL and OSG).*

A large proportion of the planting proposed to be undertaken along the northern boundary (OSL area) is of native species, such as kowhai, pittosporum and griselinia which will assist in bolstering the ecological benefits experienced by this development.

APPENDIX 3 – COUNCIL ENGINEERING REVIEW

RECOMMENDED SUBDIVISION CONDITIONS

It is recommended that the following conditions are included in the subdivision consent decision:

1. All engineering works shall be carried out in accordance with the Queenstown Lakes District Council's policies and standards, being QLDC's Land Development and Subdivision Code of Practice adopted on 8th October 2020 and any subsequent amendments to that document up to the date of issue of any subdivision consent, except where specified otherwise.
2. This subdivision shall be staged into six 'major' stages (Stages 1-6 - as shown on the CFMA staging plan titled '*Woolshed Road Development Staging Plan*' Job No. 12983, drawing 17_sheet 001, dated September 2022). These 'major' stages shall only be progressed in the order shown on the staging plan.

The six 'major' stages themselves may if desired be broken into sub-stages. For the purposes of issuing approvals under sections 223 and 224(c) of the Resource Management Act 1991, the conditions of this consent shall be applied only to the extent that they are relevant to each particular sub-stage proposed. Any sub-stages within the six 'major' stages may be progressed in any order, providing all necessary subdivision works (such as servicing, flood protection measures, provision of formed legal access and related road stopping processing completions and other works required to satisfy conditions of this consent), are completed for each sub-stage, prior to certification being issued as necessary under sections 223 and 224(c) of the Resource Management Act 1991. Any balance lots created shall either be serviced to Council's standards or held together in one title with a serviced lot. Detailed staging plans for the entire development with a schedule of all infrastructure to be developed and conditions of consent to be met against each stage shall be provided to Council for review and Acceptance prior to works commencing within each stage. These plans and schedules shall be updated as future stages progress, if any, to reflect and maintain accurate understanding.

Where the stage proposed will result in the subdivision of a portion of current Lot 10 DP552601, the balance land shall continue to be amalgamated with Lot 2 DP19857 to the west.

3. The developer has agreed that if within 4 years of the consent decision being issued (xx August 2027), the completion of the below northern access link works by others have not been significantly progressed to the point where they would be reasonably expected to be complete and operational within 5 years of the decision, the developer (consent holder) will commit to designing, constructing, and where required vesting one of the required northern access options stated in Condition (4) at their cost and within the 5 years of the decision (where reasonably within their control).
4. Within 5 years from the consent decision being issued (xx August 2028) and prior to 224c for any lot within Stage 6 of the subdivision being issued, the consent holder shall demonstrate to the Manager of Resource Management Engineering at Council through the provision of all relevant information that one of the following options has occurred –
 - A new collector link road has been constructed to the north and vested in Council. This road shall run from the roundabout on Road 1 north through current Lot 3 DP 553950 (commonly referred to as 'the Patterson land') to the collector road within the Coneburn SHA. As part of this link road the associated SH6 roundabout intersection shall be complete and operational. The use of this option shall include evidence to demonstrate that QLDC P&I and NZTA have been informed that removal of the temporary road closure on Woolshed Road directly north of the development's Road 1 access can occur.

Or

 - An upgrade has occurred to the Woolshed Road/SH6 intersection to the satisfaction of Waka Kotahi to cater for all relevant traffic from the south and ensure compliance with rule 41.5.5.4 of the PDP. In conjunction upgrades shall have occurred to Woolshed Road fronting the developments and north to the revised SH6 intersection in accordance with Condition (9n). Where this option is chosen the consent holder shall also ensure that the

Woolshed Road / Road 1 bend has been re-designed as a tee intersection with priority given to the Woolshed Road through movement.

The use of this option shall include removal of the temporary road closure on Woolshed Road directly north of the development's Road 1 access.

Compliance with the above condition may require some or all of the road formation and upgrade works to be directly funded and completed by the consent holder.

To be completed prior to the commencement of any works on-site

5. The owner of the land being developed shall provide a letter to the Principal Resource Management Engineer at Council advising who their representative is for the design and execution of the engineering works and construction works required in association with this development and shall confirm that these representatives will be responsible for all aspects of the works covered under Sections 1.7 & 1.8 of QLDC's Land Development and Subdivision Code of Practice, in relation to this development.
6. The consent holder shall obtain and implement a traffic management plan approved by Council prior to undertaking any works within or adjacent to Council's road reserve that affects the normal operating conditions of the road reserve through disruption, inconvenience or delay. The Traffic Management Plan shall specifically take into account the potential impacts of the proposed works and associated traffic movements on the existing Hanley Farm public road network. The Traffic Management Plan shall be prepared by a Site Traffic Management Supervisor (STMS). All contractors obligated to implement temporary traffic management plans shall employ a qualified STMS to manage the site in accordance with the requirements of the NZTA's "Traffic Control Devices Manual Part 8: Code of practice for temporary traffic management". The STMS shall implement the Traffic Management Plan. A copy of the approved plan shall be submitted to the Manager of Resource Management Engineering at Council prior to works commencing.
7. At least 7 days prior to commencing excavations, the consent holder shall provide the Principal Resource Management Engineer at Council with the name of a suitably qualified professional as defined in Section 1.7.2 of QLDC's Land Development and Subdivision Code of Practice and who shall supervise and monitor the earthworks, geotechnical works, and fill procedures. This engineer shall be responsible for providing a Geotechnical Completion Report and Schedule 2A certificate, including fill certification, for all lots within the subdivision.
8. Prior to commencing any work on the site, the consent holder shall install a construction vehicle crossing from the existing Hanley Farm Council road network, which all construction traffic shall use to enter and exit the site (via the Woolshed Road paper road). The minimum standard for this crossing/s shall be a minimum 20 m of 150 mm deep AP40 gravel.

The establishment of this construction access crossing shall include the removal of any temporary rock or block barriers that exist within Woolshed Road legal alignment between the south-eastern corner of the subject site and the existing Hanley Farm sealed public road network.
9. Prior to commencing works on the site, with the exception of earthworks including associated controls approved through the Environmental Management Plan (EMP) process within this consent, the consent holder shall obtain 'Engineering Review and Acceptance' from the Queenstown Lakes District Council for development works to be undertaken and information requirements specified below. The application shall include all development items listed below unless a 'partial' review approach has been approved in writing by the Manager of Resource Management Engineering at Council. The 'Engineering Review and Acceptance' application(s) shall be submitted to the Manager of Resource Management Engineering at Council for review, prior to acceptance being issued. At Council's discretion, specific designs may be subject to a Peer Review, organised by the Council at the applicant's cost. The 'Engineering Review and Acceptance' application(s) shall include copies of all specifications, calculations, design plans and Schedule 1A design certificates as is considered by Council to be both necessary and adequate, in accordance with Condition (1), to detail the following requirements:

Services

- a) Provision of a potable water supply to each residential lot in terms of Council's standards and connection policy. This shall include an Acuflo GM900 as the toby valve and an approved water meter as detailed in QLDC Water Meter Policy, dated June 2017. Where the toby valve box is to be placed within a trafficable area, a trafficable lid shall be included.
- b) Provide detailed design plans for any direct water connection to the existing Council bulk trunk water main that crosses the site from Kelvin Heights (the 500mm PE trunk main). Direct connection to this Council trunk main will require a specific methodology for connection to be provided and approved by QLDC P&I.
- c) The provision of a minimum 32mm water supply lateral to the recreational reserve lot (Lot 302) to accommodate future Council facilities (toilets, water fountains, halls etc). This lateral shall be terminated with a gate valve, bulk flow meter, and backflow prevention located within a trafficable box. The requirement, location, and suitability of this lateral shall be checked and confirmed with QLDC Parks & Reserves prior to design acceptance and construction.
- d) The provision of a landscaping irrigation plan with suitable backflow prevention for landscaping to be vested in Council (if required). This shall include landscaping within roads, recreational, and drainage reserve areas.
- e) The provision of fire hydrants with adequate pressure and flow to service and maintain each residential lot with a Class FW2 fire risk in accordance with the NZ Fire Service Code of Practice for Fire Fighting Water Supplies 2008. The design for these hydrants shall include specific confirmation that the greater water supply network is capable to provide the minimum required FW2 pressures and flows to all hydrants. Any alternative solution must be approved in writing by the area Manager for the Central North Otago branch of the Fire and Emergency New Zealand.
- f) The provision of a gravity foul sewer connection from each residential lot to either the development's new centralised wastewater pump station or directly to the existing 225mm QLDC gravity main on the southern boundary of the development that feeds to the QLDC Hanley Farm pump station. These connections shall be installed with an invert suitable to drain the buildable area within each lot while maintaining minimum or greater grade and pipe cover.
- g) The provision of a centralised wastewater pump station to service the relevant portions of the development that cannot be conveyed via gravity to the existing 225mm QLDC gravity main on the southern boundary of the development that feeds to the QLDC Hanley Farm pump station. The pump station shall be designed to collect and convey via a pressure rising main the peak wet weather flows from the relevant portions of the development to the existing 225mm QLDC gravity main on the southern boundary of the development that feeds south to the QLDC Hanley Farm pump station. The pump station shall be designed in accordance with QLDC standards and include suitable emergency storage and/or generator backup and shall be connected to a SCADA (Supervisory Control and Data Acquisition) system or suitable alternative monitoring system, to protect the pump station against any system failure and/or overloading. The pump station design shall also include a water supply connection and provision of a concrete commercial vehicle crossing and access driveway from the surrounding Council road network and set down area to allow for ongoing maintenance access by heavy vehicles. If required by Council the design shall also include storage at the pump station to buffer peak flows with the objective of delaying any requirement to invest in upgrades to address downstream constraints.

The design of the wastewater pump station shall include suitable confirmation that it is located above the 1% AEP flood level of Woolshed Creek with provision of freeboard, and outside of any secondary flow paths associated with the development with provision of freeboard.

Due to high groundwater in the area the design shall include comment and if required mitigation regarding any adverse effects from groundwater ingress and infiltration on the proposed pump station and associated emergency storage chamber.

The design of the wastewater pump station shall be subject to peer review at the consent holders' cost and the design amended where required at Council discretion to meet necessary standards.

- h) The provision of a minimum 150mm gravity foul sewer lateral to the recreational reserve lot (Lot 302) to accommodate future Council facilities (toilets, water fountains, halls etc). The requirement, location, and suitability of this lateral shall be checked and confirmed with QLDC Parks & Reserves prior to design acceptance and construction.
- i) The provision of a gravity stormwater collection and disposal system which shall provide primary disposal from road surfaces and both primary and secondary protection for future development within the residential lots, in accordance with Council's standards and connection policy. This shall include:

- i) **Primary System**

A reticulated primary system to collect and dispose of stormwater under the 5% AEP storm event from all road surfaces and all potential impervious areas within each residential lot. The individual lateral connections to each residential lot shall be designed to provide gravity drainage for the entire area within the lot.

The primary reticulated stormwater system shall feed to an attenuation pond within Lot 301, and ultimately dispose to Woolshed Creek via a dedicated piped outfall. The network outfall/s to the attenuation pond shall also be designed to ensure no public access is available back into the pipe network, noting that maintenance access shall be provided.

- ii) **Primary System – Woolshed Road/Howden Drive**

A primary stormwater system to capture of runoff from the northern extension to Woolshed Road/Howden Drive from Bannister Street to Road 1. This shall be conveyed back into the development's stormwater reticulation. Alternately the consent holder may install a separate standalone stormwater network in part or full to capture and convey runoff from this portion of road directly into the Woolshed Creek in the vicinity of the culvert crossing, this will however require treatment of flows to remove 75% TSS or above, and confirmation that the flows to Woolshed Creek will not result in increased flooding of downstream properties.

- iii) **Primary System – Treatment**

The primary system shall include the provision of a gross pollutant trap/s on the outfall/s to the attenuation pond within Lot 301. The gross pollutant trap/s shall have the ability to remove 75% TSS or above. The traps shall be located as to enable ease of ongoing maintenance and clearing. Note traps should take the form of a Hynds Downstream Defender, SW360 Vortcapture, or similar. Additional treatment may be provided within the pond itself at the discretion of the developer where it can be confirmed that this will not result in significant areas of standing water that could endanger the public (children).

- iv) **Secondary System**

A secondary protection system consisting of secondary flow paths to cater for the 1% AEP storm event and/or setting of appropriate building floor levels to ensure that there is no inundation of any buildable areas within the lots, and no increase in run-off onto land beyond the site from the pre-development situation. This shall include confirmation that any flow paths through the public recreation reserve (Lot 302) will not adversely impact likely future Council assets (parks, toilets etc).

The secondary protection system shall include any relevant secondary overland flows from the east (to the east of Woolshed Road) that would pass through the development land under the 1% AEP pre-development situation. This design solution shall not increase flows into or flooding of neighbouring land from the pre-development situation.

- v) **Attenuation (to be sized for full development under first Stage)**

The provision of attenuation ponding within Lot 301 in general accordance with the AR & Associates memo titled '*EIC Stormwater Attenuation Requirements & Minimum Floor Levels*' ref P18-287-M07-RevA, dated 3rd December 2019. This pond shall be designed to ensure that the development does not increase flooding of neighbouring or downstream properties from the pre-development situation up to the 1% AEP event. The design of the pond shall specifically include the following-

- The pond shall not include any permanent or dead storage and shall be positively graded towards its outlet to ensure it drains in its entirety following a rainfall event.

- To ensure that the pond will continue to operate effectively under the % AEP flood event in Woolshed Creek, the pond shall be located 'off-line' and the land between the Woolshed Creek and the attenuation pond will be at a suitable level to provide the required protection/separation with a suitable level of freeboard.
- To ensure that the ponding area will continue to drain flows up to the 1% AEP event in Woolshed Creek, the outlet to Woolshed Creek shall be designed to ensure that the outlet invert from the pond sits above the peak 1% AEP flood flow level within Woolshed at the pond pipe outfall.
- The pond outfall to Woolshed Creek shall be designed to ensure that non-scouring velocities are maintained and/or suitable energy dissipation and scour protection measure are installed.
- Any piped inlets or outlets to the pond greater than 375mm in diameter shall be fitted with access grates to prevent public access into the pipe network
- Where the pond outlet pipe crosses the existing QLDC trunk 450mm sewer main and trunk 500mm water main the design shall ensure that no conflict with these services will occur, and suitable off-sets will be maintained. The design for this service crossing will require a specific methodology for the works to be provided and approved by QLDC P&I.
- To ensure that the pond is not adversely impacted by ground water, the designer shall confirm that the maximum seasonal ground water level sits below the invert of the pond or the pond has been specifically design to exclude any groundwater.
- To ensure that the pond batters are maintainable, the batters shall either be grassed with a maximum 1:5 batter slope or alternatively include maximum 1:3 batter slope this with planting or rock armouring etc.

To ensure the final design of this pond is acceptable to Council Property & Infrastructure as its future owner/maintainer, the design shall be reviewed and agreed with Council Property & Infrastructure prior to design acceptance.

The design of this pond and its associated attenuation function shall be supported by suitable calculations and/or hydraulic modelling and if required the design and associated information may be independently peer reviewed by Council at the consent holder's cost.

- j) The provision of a methodology to identify and address any potential areas of weak ground within the services trenches and design measures to mitigate against associated slumping/subsidence of gravity pipe networks. Noting that mitigation may be through specific trench design or alternately bulk cutting and replacing of the surrounding ground within the trench corridor.
- k) The provision of a landscape plan demonstrating that proposed street trees will not clash or cause issue with access to any underground services to be vested in Council.
- l) The provision of a suitable power supply to the recreational reserve lot (Lot 302) to provide the ability to accommodate future Council community facilities (toilets, halls etc). The requirement, location, and suitability of these connections shall be checked and confirmed with QLDC Parks & Reserves prior to design approval and construction.
- m) Detailed design plans for any required relocated or deepening of the existing Council 500mm PE bulk water main and 450mm PE sewer rising main that cross the development site. These designs shall be accompanied by a specific mythology for the works that confirms how the potential disturbance to Council's network operations and users will be minimised. This methodology shall be reviewed and accepted by Council Property & Infrastructure prior to acceptance

Transport

- n) Where required to comply with Conditions (3 & 4) the consent holder shall provide detailed design plans for review and acceptance for the following works-

- Upgrade of the portion of Woolshed Road from the bend with Road 1 to the northern boundary of the development (the north of Lot 115) to an E13 typology road with the following exceptions:
 - The centreline of the road shall be located centrally within the legal road reserve (unless specifically agreed with Council P&I otherwise)
 - The eastern side of the road is only required to be formed to a 'rural' standard with a gravel 1m wide shoulder and grassed swale drain.
 - The eastern side of the road shall include a broken yellow 'no parking' line for its full length.
 - No vehicle crossings to residential shall be installed to this section of Woolshed Road.
 - The carriageway shall be formed in asphaltic concrete and designed to cater for the intended future traffic flows and heavy traffic movements (public buses).
 - Footpaths shall be formed in concrete.

The above required design shall not be required to be provided where the consent holder can adequately demonstrate to Council's satisfaction that this road has or will be formed and vested by others to the same or a similar suitable standard under a separate consenting process

- Upgrade of the portion of Woolshed Road north of the development to the SH6 intersection to a minimum 8.4m sealed carriageway (2 x 4.2m lanes), 0.5m sealed shoulders and 0.5m gravel shoulders, and grass swales.
- Replacement of the 90-degree bend intersection between Woolshed Road and Road 1 with a tee intersection, with priority given to the Woolshed Road north-south movement. The re-design of this intersection will require the kerb and channel and footpath on the eastern side of the road to be extended 10-20m north of the intersection before reverting to any soft shoulder. This extended footpath shall also include a suitable pedestrian crossing point on Woolshed Road north of the Road 1 intersection.

Under this scenario the consent holder may as appropriate, opt to realign the boundary of Lot 1 to reduce the extent of the Council road reserve.

The re-design of the Woolshed Road / Road 1 intersection shall be in accordance with Austroads and if required include a central and/or left/right turning bays. The design of this intersection shall be accompanied by specific design justification from a suitably qualified traffic engineer and consider all current and future likely traffic movements.

- o) Where required to comply with Conditions (3 & 4) the consent holder shall submit to Council a copy of Waka Kotahi NZ Transport Agency's approval to undertake works within the State Highway (as detailed in advice notes a - c).
- p) Formation of the following roading assets -

Woolshed Road (Howden Drive) - Bannister Street to north to Road 1

Woolshed Road from Bannister Street north to the Road 1 bend shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Primary Access to housing up to 800 du", Figure E13 with the following specific exceptions:

- Indented parking shall not be installed and broken yellow 'no parking' lines shall be installed on either side of the carriageway for its full length from Bannister Street north to after the Road 1 bend.
- Both sides of the road shall include kerb & channel and a 2m wide footpath for its full length and this shall be connected back into the existing Howden Drive footpaths.
- The carriageway shall be formed in asphaltic concrete and designed to cater for the intended future traffic flows and heavy traffic movements (public buses).
- Footpaths shall be formed in concrete.
- Kerbs shall be standard kerbs (not mountable).

- If required, the provision of a vehicle and/or pedestrian barrier where the road crosses the existing Woolshed Creek box culvert.
- The carriageway shall be formed in asphaltic concrete and design to cater for the intended future traffic flows and heavy traffic movements (public buses etc).
- The design of the bend in this road shall include the provision of dropped vehicle crossing on the outside of the 90 degree bend and concrete crossing point that will if required in future provide continued access to the land to/from the north on the alignment of Woolshed Road.

The above required design shall not be required to be designed and constructed where the consent holder can adequately demonstrate to Council's satisfaction that this road will be formed and vesting of this road by others to the same or similar standard under a separate consenting process and prior to Stage 1 subdivision completion.

If required, the consent holder/designer shall consult with owners of the land to the east (Lot 1022 DP542112) and west (Lot 1019 DP551400) to ensure that temporary (or possibly permanent) access crossings are provided as required.

Road 1 (from Woolshed Road to Northern Boundary)

Road 1 (Lots 400 & 401) from Woolshed Road to the northern boundary of the development shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Primary Access to housing up to 800 du", Figure E13 with the following specific requirements:

- A minimum 500mm berm strip is required between the footpath and lot boundaries.
- The carriageway surface shall be formed in asphaltic concrete and designed to cater for the intended future traffic flows and heavy traffic movements (public buses).
- The footpaths shall be formed in concrete.
- Intersections with any local roads shall be delineated through placement of an exposed aggregate concrete threshold treatment (or alternative surface treatment as agreed by Council).

Road 2

Road 2 (Lot 402) shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Primary Access to housing up to 200 du", Figure E12 with the following specific requirements or exceptions:

- The legal width of the road reserve shall be increased to a minimum 16m.
- Minimum 2.1 m wide parking shall be provided on both sides of the road, this shall be separate from the live lane but contiguous between street blocks.
- The carriageway shall be a minimum 8.5m width and formed in asphaltic concrete
- Footpaths shall be formed in concrete.
- A minimum 500mm berm strip is required between the footpath and lot boundaries.
- The 90-degree bend in the road shall include no-parking restrictions on both sides to ensure a clear path for turning vehicles (including public buses).
- On-street parking shall be within the carriageway but shall only be permitted on one side of the carriageway. This parking may alternate sides where appropriate. Where parking is not permitted broken yellow 'no-parking' lines shall be installed.

Road 3

Road 3 (Lot 403) shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Primary Access to housing up to 800 du", Figure E13 with the following specific requirements or exceptions:

- The carriageway shall be a 7.2m width and formed in asphaltic concrete
- Footpaths shall be formed in concrete.
- A minimum 500mm berm strip is required between the footpath and lot boundaries.
- Intersections with any local roads shall be delineated through placement of an exposed aggregate concrete threshold treatment (or alternative surface treatment as agreed by Council).
- A minimum 10m radius sealed turning head shall be provided at the western extent.

Road 4, 4a, 5, 6, 7, 8, (Local Roads)

Roads 4a & 4-8 shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Primary Access to housing up to 200 du", Figure E12 with the following specific requirements or exceptions:

- The legal width of the road reserves shall be increased to a minimum 16m.
- The carriageway shall be an 8m width and formed in asphaltic concrete
- A minimum 500mm berm strip is required between the footpath and lot boundaries.
- Intersections shall be delineated through placement of an exposed aggregate concrete threshold treatment (or alternative surface treatment as agreed by Council).
- Footpaths shall be formed in concrete.

Road 7 (fronting reserve Lot 301)

Road 7 fronting Lot 302 (the recreation reserve) shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Primary Access to housing up to 200 du", Figure E12 with the following specific requirements or exceptions:

- The legal width of the road reserve shall be increased to a minimum 16m.
- The carriageway shall be a minimum 6m width and formed in asphaltic concrete.
- Minimum 2.7m wide 90-degree indented parking shall be formed on the western side
- The footpath on the western side shall be re-located to sit within the road reserve or the road reserve widened by approximately 1.5m to encompass the footpath.
- A broken yellow 'no parking' line shall be placed on the eastern side
- A broken yellow 'no parking' line shall be placed on the western side where indented 90-degree parks are not installed.
- A minimum 500mm berm strip is required on the eastern side between the footpath and lot boundaries.
- Footpaths shall be formed in concrete.

ROW A/B (Accessing Lots 82, 83, 114)

ROW A/B shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Access to houses/townhouses 1-3 du", Figure E9. With the specific requirement that the carriageway shall be formed in concrete.

ROW D (Accessing Lots 32, 34, 36)

ROW A/B shall be designed and formed in accordance with the QLDC COP, Table 3.2 "Suburban, Live and Play, Access to houses/townhouses 1-3 du", Figure E9. With the specific requirement that the carriageway shall be formed in concrete.

Roading Summary Table (with agreed exceptions)

Road	Lot	Figure	Legal Width	Footpath	Movement Lane excl k&c	Parking
Woolshed Road (Howden Drive) Bannister St to Road 1 bend	Ex Road Reserve	E13	20m	2m both sides	8.4m	None (Broken Yellow Lines)
Road 1	400 401	E13	20m	2m both sides	8.4m	Separate (recessed)
Road 2	402	E12	16m	1.5m both sides	8.5m	Shared (Alternating sides with broken yellow lines)
Road 3	403	E13	20m	2m both sides	7.2m	Separate (recessed)
Road 4a	404 (part)	E12	16m	1.5m both sides	8.0m	Shared
Road 4	404 (part) 405	E12	16m	1.5m both sides	8.0m	Shared
Road 6	406	E12	16m	1.5m	8.0m	Shared

				both sides		
Road 7 (south)	407 (part)	E12	16m	1.5m both sides	8.0m	Shared
Road 7 (north) Fronting reserve Lot 302	407 (part)	E12	16m	1.5m both sides	6.0m	Separate (recessed) 90-degree west side only (with broken yellow lines east side)
Road 8	408	E12	16m	1.5m both sides	8.0m	Shared
If required						
Woolshed Road Road 1 north to Lot 115	Ex Road Reserve	E13	20m	2m west side only	8.4m No K&C on east side	Separate (recessed) West side only. East side soft shoulder (with broken yellow lines)
Woolshed Road Lot 115 north to SH6	Ex Road Reserve	E13	20m	None	8.4m No K&C both sides	None(Broken Yellow Lines)

- q) Broken yellow 'no parking' restrictions across the road network shall be confirmed. This specifically relates to areas where buses will be required to negotiate corners/intersections or vehicles turn around manoeuvres.
- r) The provision of formal and informal pedestrian crossing points on key pedestrian desire lines and routes. The location and formation of these crossings shall be specifically reviewed and confirmed by a suitably qualified traffic engineer.
- s) The provision of suitable land area for future bus shelters is to be included in the detailed design for Woolshed Road (Howden Drive) and Road 1. The proposed future bus shelter locations shall be reviewed and accepted in writing by Council prior to construction of these roads being undertaken. For the avoidance of doubt, the Consent Holder is not required to construct the bus shelter as part of this consent but rather ensure suitable areas/space exist for their future installation by Council when required. The locations shall be protected across the neighbouring frontages with Consent Notices or no-complaint covenants alerting such provisions to potential future lot owners. ****to check, does not appear possible***
- t) The formation of all local road intersections in accordance with the latest Austroads intersection design guidelines. All associated signage and marking shall be in accordance with MOTSAM and the TCD Manual.
- u) The provision of the collector Road 1 / Road 2 intersection designed in accordance with the latest Austroads intersection design guidelines by a suitably qualified traffic engineer. All associated signage and marking shall be in accordance with MOTSAM and the TCD Manual.
- v) The provision of the collector Road 1 / Road 4 intersection designed in accordance with the latest Austroads intersection design guidelines by a suitably qualified traffic engineer. All associated signage and marking shall be in accordance with MOTSAM and the TCD Manual.
- w) The provision of a roundabout intersection between Roads 1/3/4. The roundabout shall be designed by a suitably qualified traffic engineer in accordance with latest Austroads intersection design guidelines. The design shall specifically include a minimum 5m radius solid raised (or garden) island surround with a minimum 7.5m or greater radius mountable concrete apron. This design shall cater for the following:
- public bus movements
 - volumes of traffic likely to result from the future development of land to the north and south. This design should assume that the existing Woolshed Road intersection to SH6 will be closed and replaced by the new Coneburn SH6 roundabout and all suitable land between the subject development and current Hanley Farm

development will be developed to a density similar to that proposed within the subject development.

- x) The provision of concrete vehicle crossings to Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 24, 25, 26, 28, 30, 32, 34, 36, 35, 37, 81, 82, 83, 100, 101, 113, 114, 115, 116, 117, 118, 131, 132, 148, 149, 192, 270, 271, 258, 259 (total 67 lots). The location of these crossing shall be in accordance with the CFMA plan titled '*Woolshed Road Development – Drainage Layout*' Job 12983. Drawing 5 – Sheet 006 (rev P), dated 6/9/22.
- y) The provision of road marking and signage for all roads, car parks, and circulation/manoeuvring aisles. All signage and marking shall be in accordance with MOTSAM and the TCD Manual. The road marking and signage designs shall be supplied as standalone drawings.
- z) The provision of road lighting in accordance with Council's road lighting policies and standards, including the Southern Light lighting strategy and AS/NZS 1158.3.1:2005. For ease of future maintenance, if possible, the poles and luminaries designed shall be consistent with those installed on recent neighbouring developments and vested roads (i.e. Hanley Farm).
- aa) Where the completion of any stage of development results in a 'temporary' dead end road that will be extended and linked under future stages, the consent holder shall provide gravel temporary turning heads. If required, these turning heads shall include easements in gross in favour of Council.
- bb) The transportation infrastructure design shall be submitted for review and certification shall be accompanied by the following:
 - i) A design and access statement in accordance with the Queenstown Lakes District Council – Land Development & Subdivision Code of Practice 2018, Section 3.2.6.
 - ii) Vehicle tracking movements shall be clearly demonstrated for all roads and intersections. The design vehicle shall be an 8 m rigid truck for local roads and 12.5m bus for collector roads.
 - iii) Detailed design for all roading shall illustrate how traffic calming measures have integrated pedestrian facilities, parking layout, and streetscapes into the overall design to achieve the target operating speed. The detailed design shall be prepared in consultation with an independent qualified person and a report submitted by this person confirming the designs achieve the target operation speed.
- cc) The consent holder shall engage an independent and suitably qualified and experienced traffic engineer to carry out a detailed design safety audit in general accordance with the NZTA Manual "Road Safety Audit Procedures for Projects" and section 3.2.7 of the Councils Code of Practice. This shall include confirmation that appropriate traffic signs and road marking have been provisioned in accordance with the New Zealand Transport Agency's Manual of Traffic Signs and Markings (MOTSAM) and the Traffic control devices manual. The consent holder shall comply with any recommendations at their own cost. A copy of this report shall be submitted to Council for review and acceptance.

Off-Road Trails & Paths

- dd) The provision of Grade 2 off-road trails as per the QLDC Cycle Trail Design Standards & Specifications and located in general accordance with the CFMA drawing titled '*Woolshed Road Development – Trails Plan*' job 12983, dated 2/3/22. This shall specifically include the linking of the off-road trail consented under Hanley Farm Stage DP10 (RM210606) north via Lot 3 RM200344 and a bridge over Woolshed Creek to the northern boundary of Lot 301. Where these paths are located in the vicinity of Woolshed Creek, they shall be confirmed to be located above the 5% AEP flood level. Where these paths join the on-road sealed footpaths, they shall be sealed for a minimum 2m back from the road footpath.

The exact location and layout of these trails shall be confirmed with Council's Parks & Reserves Department prior to engineering acceptance.

This condition can be considered to have been met where the consent holder can suitably demonstrate that this trail has been physically completed in full and accepted as complete by Council's Parks & Reserves Department under a different resource consent.

- ee) The provision of a Grade 4 off-road trail as per the QLDC Cycle Trail Design Standards & Specifications and located in general accordance with the CFMA drawing titled 'Woolshed Road Development – Trails Plan' job 12983, dated 2/3/22. This trail shall link the off-road Grade 2 trail conditioned above west to the existing Kelvin Heights-Jack's Point lakeside trail.

The exact location and layout of this trail shall be confirmed with Council's Parks & Reserves Department prior to engineering acceptance.

This condition can be considered to have been met where the consent holder can suitably demonstrate that this trail has been physically completed in full and accepted as complete by Council's Parks & Reserves Department under a different resource consent.

- ff) The provision of a pedestrian bridge (to a Grade 2 off-road trail width) crossing of Woolshed Creek within Lot 3 RM200344 as generally shown on the CFMA drawing titled 'Woolshed Road Development – Trails Plan' job 12983, dated 2/3/22. The design of this bridge shall be suitable to ensure that the bridge sits above the 100yr flood level with suitable provision of freeboard. The bridge design provided shall include a PS1 producer statement.

The exact location and layout of this bridge shall be confirmed with Council's Parks & Reserves Department prior to engineering acceptance.

This condition can be considered to have been met where the consent holder can suitably demonstrate that this trail has been physically completed in full and accepted as complete by Council's Parks & Reserves Department under a different resource consent.

- gg) The provision of all mid-block paths located in Lots 303-307. As a minimum these paths shall be 2m wide and formed in concrete. Where these paths cross the local roads in an east-west direction, they shall include either an alternate surface treatment or a formal pedestrian crossing point.
- hh) If at time of development of Stage 5 Woolshed Road fronting the development has not yet been upgraded to include a sealed footpath linking south, the consent holder shall provide a minimum 2m wide compacted gravel footpath to link the sealed footpath within Lot 306 south to the sealed footpath network within Woolshed Road (Howards Drive).
- ii) If at time of development of Stage 6, Woolshed Road fronting the development is not yet upgraded to include a sealed footpath linking south, a minimum 2m wide compacted gravel footpath shall be formed to link the sealed footpath within Lot 307 south to the sealed footpath network within Woolshed Road (Howards Drive).

Earthworks

- jj) The consent holder shall provide specific confirmation that through the proposed earthworks within the development, minimum or greater cover (or protection) will be afforded to the existing Council trunk water main (500mm) and trunk pressure sewer (450mm) that parallel the existing creek channel. This is particularly relevant with regards to the formation of the Stormwater attenuation pond within reserve Lot 301.
- kk) Any mounding located within reserve Lots 301 and 302 shall be designed with a maximum batter slope of 1(v) in 5(h) to ensure that these features can be safely mown by Council contractors.

Geotechnical

- ll) The provision of detail of any subgrade stabilisation, undercuts and fill, and/or Subgrade Improvement Layers that are proposed in the road corridors during the earthworks to address the soft CBR values present at the site as identified in the RDA Consulting report titled 'HD EIC Woolshed Geotech' dated 26th February 2020, ref no. 51137. Any Subgrade stabilisation, undercuts and fill, and/or Subgrade Improvement Layers shall be designed/specified by a Suitably Qualified and Experienced Professional and shall be supported by a Schedule 1A, as outlined in the QLDC Land Development Code of Practice.
- mm) If Lacustrine Silts (Unit 5 in the RDA Consulting report titled 'HD EIC Woolshed Geotech' dated 26th February 2020, ref no. 51137) are proposed to be reused in fill areas on site, a methodology for their use as fill shall be provided by a Suitably Qualified and Experienced Professional for Engineering Review and Acceptance. The methodology shall take into

account the recommendations of the RDA Consulting report titled 'HD EIC Woolshed Geotech' dated 26th February 2020, ref no. 51137.

- nn) The provision of detail regarding any subsoil drainage systems (whether piped or otherwise) and any cutoff drains that are proposed to be installed to ensure that perched groundwater does not affect the finished ground level of the lots. The drainage system shall be maintainable for the design life of the system (100 years as per the Code of Practice) and the maintenance requirements and provisions shall be outlined in the information submitted for Engineering Review and Acceptance.
- oo) If required by Council at time of Engineering Review and Acceptance, any aspects of the above geotechnical ground improvement works may be peer reviewed at the consent holder/applicant's cost.

Hazards

- pp) The provision of an independent peer review of the Fluent Solutions modelling of Woolshed Creek flood flows as they relate to the AR & Associates flood assessment contained within the AR & Associates memo titled '*EIC Stormwater Attenuation Requirements & Minimum Floor Levels*' ref P18-287-M07-RevA, dated 3rd December 2019. Any recommended changes to the relevant flood flows and related minimum ground levels to ensure flood protection within the development shall be incorporated into the finished ground levels required under Conditions (9qq) and (9rr) below and any other relevant conditions.

It is noted that the provision of the above peer review does not limit Council in seeking further peer review of the relevant Fluent Solutions modelling of Woolshed Creek flood flows and/or the AR & Associates flood assessment and minimum ground/floor levels.

- qq) Any buildable ground level within the residential allotments fronting Woolshed Creek shall be at or above the levels stated within Table 3 of the AR & Associates memo titled '*EIC Stormwater Attenuation Requirements & Minimum Floor Levels*' ref P18-287-M07-RevA, dated 3rd December 2019 (with any relevant change required through peer review).
- rr) Any buildable ground level within the residential allotments fronting the reserve allotments (Lots 301 & 302) shall be at or above the levels stated within Table 4 of the AR & Associates memo titled '*EIC Stormwater Attenuation Requirements & Minimum Floor Levels*' ref P18-287-M07-RevA, dated 3rd December 2019 (with any relevant change required through peer review), and shall as a minimum be 0.5m above the 1% AEP attenuation water level within the pond contained within reserve Lot 301.
- ss) All ground level for all formal recreational areas (parks, toilets etc) within recreation reserve Lot 302 shall be located at or above the 1% AEP flood level of Woolshed Creek with suitable provision for free board. Any lesser level of protection shall be specifically approved by QLDC Parks & Reserves.
- tt) The provision of detailed design plans, calculations, and modelling for the conveyance of overland flows arriving at Woolshed Road fronting the eastern boundary of the development (i.e. overland flood flows from the east). This shall be designed and installed in full under Stage 1 of the development. This shall include the following-
 - The bulk of the primary flows shall be captured from the Woolshed Road eastern swale and conveyed west (or south-west) through a pipe network to Woolshed Creek. Where these flows are to be conveyed in the same pipe network as the greater development stormwater flows, the design shall ensure that these additional flows will not adversely impact the operation of the stormwater attenuation pond. Noting that the overland flows arriving at Woolshed Road from the east may be removed in part or full when the Hanley Farm (Stage DP11) land to the east is developed in future.
 - A small portion of the primary flows (approximately 1.6 m³/s) may be directed within the Woolshed Road eastern swale north where it can be shown that this matches the existing situation and will not result in increased flooding of any neighbouring property or Woolshed Road.
 - Any primary outlets to Woolshed Creek shall ensure that suitable scour protection is included and if required public exclusion grates installed.

- Secondary flows shall be conveyed from the Woolshed Road eastern swale west via low points on Woolshed Road and the development road network to Woolshed Creek. This design shall include suitable calculations to confirm that the flows will be contained within the road network and if required reserve land and will not exceed acceptable depths and velocities. Noting that these flows will also need to account for secondary flows from the development itself.

If required, the design of these overland flow paths shall include re-design of the existing Woolshed Road gravel carriageway and swale drain/s to include suitable low points adjacent to Road 1 and reserve Lot 307 and thereby to ensure that these flows are directed to the current or future Road 1 and Road 3/4 secondary flow path routes.

The secondary flow design provided shall ensure that the current or upgraded design of the Woolshed Road swale drains are suitable to capture and convey the secondary flows while maintaining the required level of freeboard and flood protection to the lots and future dwellings within the development (including all lots fronting Woolshed Road and Lot 307 within Stage 5 & 6).

- Where the above secondary design cannot suitably capture and convey flows while maintaining the required levels of free-board and protection to lots and future dwellings, the consent holder may provide for secondary flows via an increase in the size of the primary network on the basis that the design shall ensure that these additional flows will not adversely impact the operation of the stormwater attenuation pond and outlet. In this case the consent holder will still be required to provide an emergency overland flow path.
- The design of this primary and secondary network shall be supported by suitable calculations and/or hydraulic modelling and if required the design and associated information may be independently peer reviewed by Council at the consent holder's cost.

Certification

- uu) The provision of Design Certificates for all engineering infrastructure works associated with this subdivision submitted by a suitably qualified design professional (for clarification this shall include all Roads, Water, Wastewater, Stormwater – including Stormwater Channels & Ponds). The certificates shall be in the format of the Queenstown Lakes District Council – Land Development & Subdivision Code of Practice 2020 Schedule 1A Certificate.
- vv) The provision of a Design Certificate submitted by a suitably qualified design professional for the Wastewater Pump Station required to service the subdivision. The certificate shall be in the format of an IPENZ Producer Statement PS1 or Schedule 1A certificate signed by a chartered professional engineer.
- ww) The provision of a Design Certificates submitted by a suitably qualified design professional for the stormwater attenuation system and also the stormwater system for the conveyance of overland flows arriving at Woolshed Road fronting the eastern boundary of the development. The certificates shall be in the format of a Schedule 1A certificate signed by a chartered professional engineer.
- xx) The provision of a Design Certificate/s submitted by a suitably qualified design professional for the foot-bridge crossing of the Woolshed Creek (if required under Condition 9(ff)). The certificate/s shall be in the format of an IPENZ Producer Statement PS1 or Schedule 1A certificate signed by a chartered professional engineer.

Staging details

- yy) Detailed staging plans for the entire remaining development with a schedule of all infrastructure to be developed and conditions of consent to be met against each stage shall be provided to Council for review and acceptance prior to works commencing within each stage. These plans and schedules shall be updated as future stages progress, if any, to reflect and maintain accurate understandings.

To be monitored throughout earthworks & construction

10. Throughout the earthworks and construction of the subdivision, no associated vehicle access in any form shall occur via the northern gravel portion of Woolshed Road and its associated intersection with State Highway 6. All construction movements to/from the site shall be south via the existing Hanley Farm public road network at the Howden Drive construction crossing.
11. The earthworks, geotechnical works, and fill procedures shall be supervised and monitored by the person named in Condition (7) above.
12. Earthworks shall be undertaken in accordance with the recommendations of the RDA Consulting report titled '*HD EIC Woolshed Geotech*' dated 26th February 2020, ref no. 51137.
13. Only cleanfill material shall be deposited at the site. Cleanfill material is defined as material that when buried/placed will have no adverse effect on people or the environment, and includes virgin natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:
 - combustible, putrescible, degradable or leachable components;
 - hazardous substances;
 - products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices;
 - materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos or radioactive substances;
 - liquid waste.

Acceptable materials include bricks, pavers, masonry blocks, ceramics, un-reinforced concrete, reinforced concrete where any protruding steel is cut off at the concrete face, fibre cement building products, road sub-base, tiles and virgin soils (including rock, sand, gravel, clay) - provided they are uncontaminated. Any other materials will require the prior written approval of Council prior to disposal at the site. Topsoil shall be used for final cover only.

14. The consent holder shall implement suitable measures to prevent deposition of any debris on surrounding roads by vehicles moving to and from the site. If any material is deposited on any roads, the consent holder shall take immediate action, at their expense, to clean the roads. The loading and stockpiling of earth and other materials shall be confined to the subject site.
15. No earthworks, temporary or permanent, are to breach the boundaries of the subject site. With the specific exception of earthworks required to install infrastructure services collections to the existing networks, works within the Woolshed Road legal reserve to form roads and services, and works within the consent holder's land to the west to form off-road trail links.
16. During earthworks and construction, the location of the existing Council bulk service mains (500mm Water, 450mm Pressure Sewer) shall be clearly noted (and if required marked out) and all practical steps taken to ensure damage to these service does not occur, if any damage occurs this shall be reported immediately to Council and repaired at the consent holder's cost and to the satisfaction of Council.

To be completed before Council approval of the Title Plan

17. Prior to the Council signing the Title Plan pursuant to Section 223 of the Resource Management Act 1991, the consent holder shall complete the following:
 - a) All necessary easements shall be shown in the Memorandum of Easements attached to the Title Plan and shall be duly granted or reserved. This shall include any Easements in Gross as required by Council for infrastructure to vest. Requirements for vested infrastructure and Easements in Gross shall be agreed with Council's Land Development Engineer prior to Council signing the Survey Plan and prior to obtaining 'Engineering Review and Acceptance' for design of infrastructure.
 - b) If required, prior to Stage 2 of the subdivision the consent holder shall provide relevant public access easements over the new trail linkages formed within neighboring Lot 3 RM200344,

and as required under Conditions (9dd) and (9ee) above. As required under Condition (18a) these easements shall be secured prior to 224c for Stage 2.

- c) The names of all roads which require naming in accordance with Council's road naming policy shall be shown on the survey plan.

To avoid ongoing confusion under the first stage of the subdivision the consent holder shall confirm with Council the naming convention for the northern portions of Woolshed Road and if deemed appropriate rename the relevant portion of Woolshed Road as 'Howden Drive'.

If after 5 years or under Stages 5 & 6 the consent holder opts to upgrade and access north via the northern portion of Woolshed Road, the consent holder shall confirm with Council the naming convention for the northern portion of Woolshed Road and if deemed appropriate rename the relevant portion of Woolshed Road north to the SH6 intersection as 'Howden Drive'

[Note: the road naming application should be submitted to the Principal Resource Management Engineer at QLDC. and should be lodged prior to the application for the section 223 certificate]

To be completed before issue of the s224(c) certificate

18. Prior to certification pursuant to section 224(c) of the Resource Management Act 1991, the consent holder shall complete the following:

- a) Prior to 224c for Stage 1 of the development the consent holder shall obtain relevant approvals from Council for a new temporary road closure and an associated physical barrier located within Woolshed Road 10m north of the subject site's southern boundary, being the point on Woolshed Road directly south of the vehicle access crossing to Lot 1 DP25597 (the Lloyd property). The new barrier installed shall be of a suitable standard to ensure that no vehicles can physically pass within both the carriageway or associated berms.
- b) If required, prior to 224c for Stage 2 all public access trails as required under Conditions (9dd) and (9ee) shall be constructed and accepted as complete for vesting by the QLDC Parks & Reserves department and all relevant easements shall have been secured.
- c) Prior to 224c for any allotment beyond 5 years from the date of consent decision (xx August 2028), the consent holder shall demonstrate, and Council shall be satisfied that the relevant requirements of Condition (4) of the consent have been complied with. No additional titles shall be issued beyond this dated unless compliance with this northern road link condition can be suitably demonstrated.
- d) Prior to 224c for any allotment within Stage 6 of the subdivision the consent holder shall demonstrate the relevant road access links or road upgrades have occurred in accordance with Condition (4) above. This shall include demonstrating that any relevant road stopping has been removed or placed as required.
- e) The completion and implementation of all works detailed in Condition (9) and (4) above.
- f) The submission of 'as-built' plans and information required to detail all engineering works completed in relation to or in association with this subdivision at the consent holder's cost. This information shall be formatted in accordance with Council's 'as-built' standards and shall include all Roads, Water, Irrigation, Wastewater, Stormwater reticulation and associated assets.
- g) An Elster PSM V100 or Sensus 620 water meter provided to Council's maintenance contractor Veolia for each residential lot as per condition (9a) above, and evidence of supply shall be provided to Council's Subdivision Inspector.
- h) All newly constructed gravity foul sewer and stormwater mains shall be subject to a closed-circuit television (CCTV) inspection carried out in accordance with the New Zealand Pipe Inspection Manual. A pan tilt camera shall be used, and lateral connections shall be inspected from inside the main. The CCTV shall be completed and reviewed by Council before any surface sealing and any defects identified shall be repaired.

- i) The hydrants installed under this consent shall have hydrant testing shall carried out during the peak period of an average day to confirm that there are sufficient hydrants with adequate pressure and flow to service the development with a Class FW2 fire risk in accordance with Appendix G of SNZ PAS 4509:2008 NZ Fire Service Code of Practice for Firefighting Water Supplies. Any lesser risk must be approved in writing by Fire & Emergency NZ, Queenstown Office. The testing shall be carried out by a suitably qualified and experienced person (SQEP) as defined in section 1.8 of QLDC's Land Development and Subdivision Code of Practice and evidence of the SQEP suitability to undertake or oversee such testing shall be submitted with the hydrant testing results. The results shall be submitted to Council and all related costs shall be borne by the consent holder.
- j) Written confirmation shall be provided from the electricity network supplier responsible for the area, that provision of a minimum single phase 15kva underground electricity supply has been made available to the boundaries of each residential lot and that all the network supplier's requirements for making such means of supply available have been met.
- k) Written confirmation shall be provided from the electricity network supplier responsible for the area, that provision of a suitable underground electricity supply has been made available to the boundary of Council recreational reserve Lot 302 (or as otherwise agreed with Council Parks & Reserves) and that all the network supplier's requirements for making such means of supply available have been met.
- l) Written confirmation shall be provided from the telecommunications network supplier responsible for the area, that provision of underground telephone services has been made available to the boundaries of each residential lot and that all the network supplier's requirements for making such means of supply available have been met.
- m) Any road signage shall be installed in accordance with Council's signage specifications and all necessary road markings completed on all public roads in accordance with MOTSAM and the TCD Manual. This shall include the marking out of any parking spaces.
- n) Road naming shall be carried out, and signs installed, in accordance with Council's road naming policy.
- o) At the completion of onsite earthworks, the geo-professional identified under Condition (7) shall incorporate the results of ground bearing test results for each residential allotment and the formal area of the Council recreational reserve within Lot 302 (regardless of whether affected by development cut and fill earthworks) and include these within a Geotechnical Completion Report with fill certification and Schedule 2A certificate covering all lots within the subdivision. The completion report and if required 2A certificate shall specifically consider the potential natural hazards and liquefaction and lateral spread as they relate to the lots created. The Schedule 2A certification shall specifically include a statement under Clause 3(e) covering Section 106 of the Resource Management Act 1991. In the event the Schedule 2A includes limitations or remedial works against any lot(s) the Schedule 2A shall also include a geotechnical summary table identifying requirements against each relevant lot in the subdivision for reference by future lot owners. Any remedial works outlined on the Schedule 2A that requires works across lot boundaries shall be undertaken by the consent holder prior to 224(c) certification being issued.
- p) At the completion of onsite earthworks, the consent holder shall provide survey level confirmation from a suitably qualified surveyor to demonstrate that the minimum ground levels required within the residential lots under Conditions (9qq) and (9rr), and minimum ground levels required within the formal recreation portion of Lot 302 under Condition (9ss) to provide flood protection have been achieved.
- q) The consent holder shall engage an independent and suitably qualified traffic engineer to carry out a post-construction road safety audit for each stage in general accordance with the NZTA Manual "Road Safety Audit Procedures for Projects" and section 3.2.7 of QLDC's Land Development and Subdivision Code of Practice. This shall include confirmation that appropriate traffic signs and road markings have been installed in accordance with the New Zealand Transport Agency's Traffic control devices manual. The consent holder shall undertake works in compliance with any recommendations of the road safety audit at their own cost. A copy of this report and confirmation that the recommendations have been complied with shall be submitted to Council for review and acceptance.

- r) The submission of Completion Certificates for all engineering works completed in relation to or in association with this subdivision. The certificates shall be in the format of the *Queenstown Lakes District Council – Land Development & Subdivision Code of Practice 2020* Schedule 1B and 1C Certificate.
- s) The submission of a Completion Certificate from both the Contractor and Approved Certifier for the Wastewater Pump Station installed to service the subdivision. This certificate shall be in the format of an IPENZ Producer Statement PS3 and PS4, or Schedule 1B and 1C certificate signed by a chartered professional engineer.
- t) The submission of a Completion Certificates from both the Contractor and Approved Certifier for the stormwater attenuation system and also the stormwater system for the conveyance of overland flows arriving at Woolshed Road fronting the eastern boundary of the development. These certificates shall be in the format of an IPENZ Producer Statement PS3 and PS4, or Schedule 1B and 1C certificate signed by a chartered professional engineer.
- u) The provision of an operation & maintenance plan for the wastewater pump station. This plan shall be reviewed by the Principal Resource Management Engineer at Council prior to acceptance.
- v) The provision of an operation & maintenance plan for the attenuation ponding area within reserve Lot 301 to ensure that conveyance of design flows and levels of protection are maintained in consideration of the plans reviewed under engineering acceptance. This plan shall be reviewed by the Council Property & Infrastructure department prior to acceptance.
- w) The consent holder shall ensure that all silt directly or indirectly attributable to the construction of the relevant stages of development is removed from the mud-tanks within the road network, the downstream stormwater pipe network, stormwater treatment devices, and the downstream stormwater attenuation pond.

Note: To ensure siltation in the months following 224c does not adversely impact the mud-tanks, stormwater treatment devices, and attenuation pond this aspect should be noted by Council and the contractor as requiring review through the maintenance period and catered for within the above operation & maintenance plan provisions.
- x) The consent holder shall remedy any damage to all existing road surfaces and berms that result from work carried out for this consent. This includes damage to the existing sealed formation of the Hanley Farm Road network and damage to the gravel formation of the northern portion of Woolshed Road.
- y) All exposed earthwork areas shall be top-soiled and grassed/revegetated or otherwise permanently stabilised.

Ongoing Conditions/Consent Notices

- 19. A consent notice condition pursuant to s.221 of the Resource Management Act 1991 shall be registered on the Records of Title for all residential lots that have not been provided with a formed vehicle crossing at time of subdivision. This consent notice shall require that at time of future development a concrete residential vehicle crossing shall be installed to the lot boundary in accordance with Council standards. The final design and location of this crossing shall be approved by Council via a connection to Council services application approval (CCS) or via the building consent process.
- 20. If required a consent notice condition pursuant to s.221 of the Resource Management Act 1991 shall be registered on the Records of Title for Lots 34-52 & 115 to ensure that all vehicles crossing accesses to these lots shall be provided via Road 4a (or as otherwise named) and not east via Woolshed Road.
- 21. A consent notice condition pursuant to s.221 of the Resource Management Act 1991 shall be registered on the Records of Title for the relevant lots outlined within Table 3 of the AR & Associates memo titled '*EIC Stormwater Attenuation Requirements & Minimum Floor Levels*' ref P18-287-M07-RevA, dated 3rd December 2019. This consent notice shall ensure that the minimum required ground levels detailed within this report, or within the subsequent peer review

required under Condition (9qq), shall be maintained in perpetuity and no building floor levels shall be placed below these levels.

22. A consent notice condition pursuant to s.221 of the Resource Management Act 1991 shall be registered on the Records of Title for the relevant lots outlined within Table 4 of the AR & Associates memo titled 'EIC Stormwater Attenuation Requirements & Minimum Floor Levels' ref P18-287-M07-RevA, dated 3rd December 2019. This consent notice shall ensure that the minimum required ground levels detailed within this report, or within the subsequent peer review required under Condition (9rr), shall be maintained in perpetuity and no building floor levels shall be placed below these levels.
23. In the event that the Schedule 2A certificate issued under Condition (18p) contains limitations or remedial works required, then a consent notice shall be registered on the relevant Computer Freehold Registers detailing requirements for the lot owner(s). This shall include any specific slope stability set back areas.
24. A consent notice condition pursuant to s.221 of the Resource Management Act 1991 shall be registered on the Records of Title for the relevant lots providing for the performance of any ongoing requirements for protection of emergency stormwater flow paths or minimum floor levels for buildings, where deemed necessary by Council to satisfy Condition (9i) above. The final wording of the consent notice instrument shall be checked and approved by the Council's solicitors at the consent holder's expense prior to registration to ensure that all of the Council's interests and liabilities are adequately protected.
25. In the event that the Engineering Acceptance issued under Condition (9) contains ongoing conditions or requirements associated with the installation, ownership, monitoring and/or maintenance of any infrastructure subject to Engineering Acceptance, then at Council's discretion, a consent notice (or other alternative legal instrument acceptable to Council) shall be registered on the relevant Records of Title detailing these requirements for the lot owner(s). The final form and wording of the document shall be checked and approved by Council's solicitors at the consent holder's expense prior to registration to ensure that all of the Council's interests and liabilities are adequately protected. The applicant shall liaise with the Subdivision Planner and/or Manager of Resource Management Engineering at Council in respect of the above. All costs, including costs that relate to the checking of the legal instrument by Council's solicitors and registration of the document, shall be borne by the applicant.

[Note: This condition is intended to provide for the imposition of a legal instrument for the performance of any ongoing requirements associated with the ownership, monitoring and maintenance of any infrastructure within this development that have arisen through the detailed engineering design and acceptance process, to avoid the need for a consent variation pursuant to s.127 of the Resource Management Act].
26. A consent notice condition pursuant to s.221 of the Resource Management Act 1991 (or possibly a no-complaints covenant at the discretion of Council's subdivision officer and/or solicitor) shall be registered on the Records of Title for the relevant lots alerting future lot owners adjacent to identified potential bus shelter locations under condition (9s) above. The lot owner shall be aware that the on-street parking and footpath and berm fronting this site location is for the potential use as a public transport bus stop with shelter at the sole discretion of the Queenstown Lakes District Council.

Advice Notes (General):

1. Prior approval via a Connection to Council Services for a Temporary Water Take is required if Council's water supply is to be utilised for dust suppression during earthworks. This shall include the use of a backflow prevention device to prevent contamination of Council's potable water supply.
2. This consent triggers a requirement for Development Contributions, please see the attached information sheet for more details on when a development contribution is triggered and when it is payable. For further information please contact the DCN Officer at QLDC.

3. The consent holder should be aware that the required install of a stormwater outfall, pedestrian bridge, and general earthworks in the vicinity of Woolshed Creek may require relevant resource consents to be gained from the Otago Regional Council.

Advice Notes (Waka Kotahi NZTA):

- a) It is a requirement of the Government Roadways Act 1989 that any person wanting to carry out works on a state highway first gain the approval of Waka Kotahi NZ Transport Agency for the works and that a Corridor Access Request (CAR) is applied for issued before any works commence. A CAR will be required for the any works on State Highway 6.
- b) If required Detailed Design approval for the upgrade to Woolshed Road and the SH6 intersection shall be gained from Waka Kotahi prior to the CAR being applied for. In developing the detailed design, the consent holder will need to consult with the Waka Kotahi appointed state highway maintenance contractor for Central Otago (Aspiring Highways).
- c) A CAR is made online via www.beforeudig.co.nz and/or www.submitica.co.nz. The CAR needs to be submitted at least 15 working days before the planned start of works. A copy should also be sent to the Waka Kotahi NZ Transport Agency environmental planning team at environmentalplanning@nzta.govt.nz. The Corridor Access Request will need to include:
 - (i) The Waka Kotahi approved detailed design for the intersection works.
 - (ii) A Construction Traffic Management Plan that has attained approval from the Waka Kotahi appointed state highway maintenance contractor for Central Otago (Aspiring Highways).
 - (iii) A design safety audit which has been prepared, processed and approved by Waka Kotahi in accordance with Waka Kotahi guidelines for Road Safety Audit Procedures for Projects. (<https://www.nzta.govt.nz/assets/resources/road-safety-auditprocedures/docs/road-safety-audit-procedures-tfm9.pdf>).
- d) It should also be noted that the Woolshed Road intersection with State Highway 6 is likely to be closed to all traffic at a future date yet to be determined by Waka Kotahi NZ Transport Agency and the Queenstown Lakes District Council.

Prepared by:



Alan Hopkins
CONSULTING ENGINEER

Reviewed by:



Michael Wardill
TEAM LEADER RM ENGINEERING

APPENDIX 4 – COUNCIL TRANSPORTATION REVIEW



novo group
Planning. Traffic. Development.

26 August 2022

Queenstown Lakes District Council

Attention: Alan Hopkins

Novo Group Limited
Level 1, 279 Montreal Street
PO Box 365, Christchurch 8140
0 - 03 365 5570
info@novogroup.co.nz

By email: s 9(2)(a)

Dear Alan,

RM200615 TRANSPORT PEER REVIEW ADDENDUM PART 3 WOOLSHED ROAD DEVELOPMENT

Introduction

1. We have been requested by Queenstown Lakes District Council to peer review an updated plan for the internal road network for subdivision application RM200615. We undertook previous peer reviews on 29 January 2021 and 14 April 2022. Since the last peer review, the following changes have occurred:
 - The collector road (Road 1) will access the site at the southern-eastern corner, thus avoiding access along a significant part of Woolshed Road.
 - The collector road is realigned to pass through the centre of the site to a roundabout on the northern boundary as indicated below in **Figure 1**.

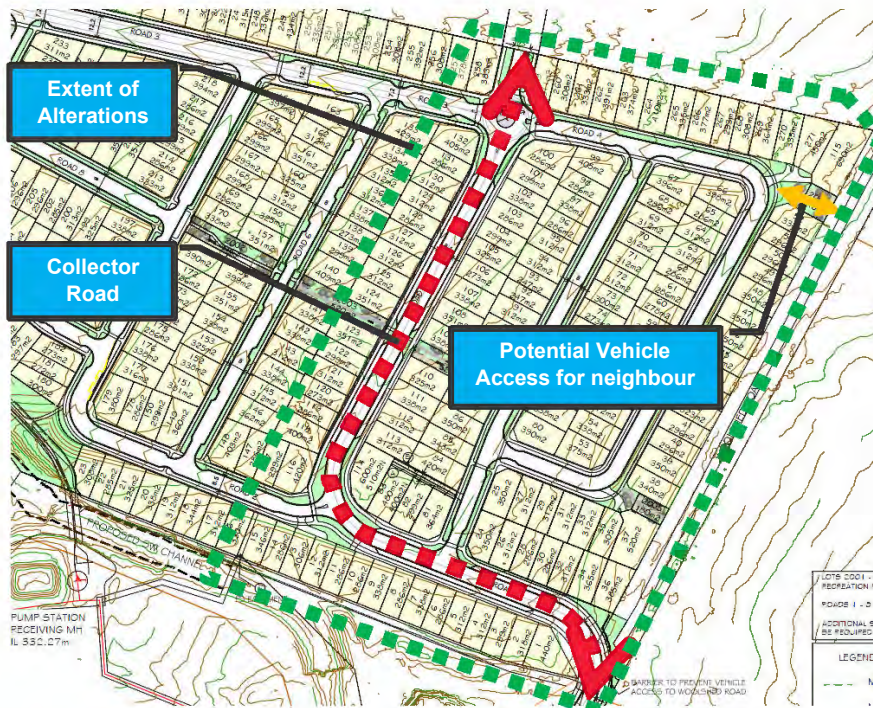


Figure 1: Proposed 90 Bend for the Collector Road Before Linking to a Roundabout



- Woolshed Road is to be stopped to through traffic at the corner of Road 1. The neighbour will retain their existing gravel road access to the north via Woolshed Road.

Background

2. Once the collector road link to the north is established in full through the neighbouring land including construction of the new Coneburn roundabout, it is proposed that the Woolshed Road is stopped further to the north with road access provided to the neighbour via lot 2006, as shown in **Figure 1**.
3. Note that if the Coneburn link cannot be established in full for any reasons outside of the applicant's control, NZTA have provided initial approval for the upgrade of the Woolshed Road/SH6 intersection to either a realigned tee or roundabout. This means that the bend will be removed on the collector road and instead it will become a priority intersection between Road 1 and Woolshed Road (see sheet 9 of **Attachment 1**).
4. The speed limit through the residential subdivision and along Woolshed Road is assumed to remain as 40km/h.
5. We have made the assessment against the Land Development and Subdivision Code of Practice.
6. The following documents were reviewed:
 - Woolshed Road Development Master Plan (Rev O – plotted 02.08.2022). Sheet 001 – Sheet 010, drawing no.5 (included in **Attachment 1**).
 - “Waka Kotahi – Update Written Approval” Email from Julie McMinn at Waka Kotahi (dated 29.07.2022)

Review

7. The purpose of this peer review addendum is to review the changes proposed, with the specific matters assessed in turn in the following sections.

Operation and safety of the collector road and any new local road intersections. This includes sightlines and off-sets.

8. Vehicle tracking has not been provided around the bend between Woolshed Road and Road 1. A tour coach (12.5m) length is considered an appropriate design vehicle given this will form part of a public transport route. Noting that Austroads¹ recommends a minimum off-set of 0.5m on turning templates, this suggests there should be 1.0m clearance between the two vehicles. Please undertake tracking to confirm that sufficient clearance is provided between on-coming vehicles and kerb lines round the bend.
9. The most likely routes for bus transport are along the collector road (Road 1), and possibly a loop provided utilising Road 1 and Road 2. Please show tracking confirming whether a bus can turn left out of and left into the Road 2 approach to the intersection

¹ Guide to Road Design Part 4: Intersections and Crossings – General

- Operation and safety of any likely future lot vehicle crossings as they relate to the collector road and associated local road intersections (sightlines and off-sets)

- That vehicle crossings are located to maximise sight lines as much as possible.
- Where a lot has two road frontages, the vehicle crossing is sited on the lower order road if possible.

- Indented parking bays are updated to take into account the location of proposed vehicle crossings to minimise redundant parking areas. **Figure 2** provides an example – it may be beneficial to extend the kerb line to the west side of the vehicle crossing before the indented parking bay starts.



Figure 2: Preferred Location for Vehicle Crossing of Lot 132 Adjacent to the Roundabout



12. It is not possible to draw conclusions on any vehicle crossings as these are not shown on the drawing. Nonetheless, we have assessed a potential vehicle crossing location for Lot 1 as this poses the greatest concern considering that it is located just round a bend, on a collector road and has limited road frontage. This has been assessed as follows:
13. As shown in **Figure 3**, an SSD of 45m is achieved for Lot 1, which is consistent with the sight distance requirement of the QLDC Proposed District Plan. The diagram assumes a 3.5m wide vehicle access against the boundary of the site and that the acceptable maximum observation angle for a left-turning driver is 120 degrees.² Provided the vehicle access is located adjacent to the western boundary of the lot, it is compliant with the District Plan requirements.
14. We note that Lots 82 and 83 appear to be served by a Right of Way that would avoid the need for access to Road 1. It is unclear whether Lot 114 shares that Right of Way, although a complaint sight line for access to Road 1 may be possible if that access is at the northern boundary of this site.



Figure 3: Sight Line Distance from Lot 1

² Guide to Road Design Part 4A: Unsignalised and Signalised Intersections



15. It is assumed that a mechanism will be included in the subdivision that prevents access to / from Woolshed Road given it is proposed to stop the road in the future (if possible).
Notably, Units 36 to 52 all include frontage to that road, with no road upgrades proposed.

Operation and safety of the changes to the layout of Road 4a

16. Road 4 and 4a utilise the same cross section as other lower order roads within the site. Accordingly, there are no concerns with the road design type proposed.
17. The only concern (which was also highlighted for the 90-degree bend on Road 2) is for the implementation of no stopping restriction markings on the inside and outside of the two 90-degree bends on Road 4a. This will ensure that vehicles including service vehicles can negotiate the bend without being blocked by parked vehicles.

Operation and safety of the Road 1 / Road 4 roundabout

18. According to the Guide to Road Design Part 4B: Roundabouts, for a speed limit of 40km/h, a desirable radius of 10m is required for the central island. The Austroads guide further states that this desirable radius provides, “sufficient size splitter islands for storage of pedestrians combined with desirable entry curvature.” The roundabout shown has a radius of 5-6m.
19. Tracking for the bus, shows the body of the bus tracking over the refuge island as well as across the kerb. Furthermore, there is no indication of the speed at which vehicle tracking has been undertaken. The tracking confirms that the roundabout design does not accommodate buses within the kerb lines and is unsafe for pedestrians waiting in the refuge.
20. Comments from the previous peer review are unresolved, as stated below:

17. The Guide states that a central island radius of 5m for a single lane roundabout will only support a design right turn vehicle of length 7.0m. The roundabout is therefore designed to cater to light vehicles e.g. cars but anything above 7.0m will need to mount an apron to turn. The downside of this is that vehicles larger than 7.0m, such as a bus (12.5m length), in order to turn at the roundabout, will need to mount the apron. Austroads recommends the apron to have a gradient of 2-2.5%³.

18. Typically, smaller roundabouts have a raised centre island and an apron. The raised centre island prevents motorists from driving straight through the roundabout. However, this roundabout does not propose a raised centre island with the entire centre proposed as mountable. As there is no deflection angle, motorists can effectively drive straight through at higher speeds.

19. The concern with the two above paragraphs is that provision of a mountable island /apron is desirable (provided the gradient is as specified in Austroads) from the perspective of passenger comfort on buses. However, too shallow an apron will not discourage cars and light vehicles to slow as they pass through the intersection, which leads to road safety concerns. Consideration should be given to a raised centre island with deflection angles that meet the maximum entry path radius for each approach as per Table 4.2 of the Guide. The

³ See Figure 4.11: typical encroachment area detail at a roundabout (Austroads Guide to Road Design Part 4B: Roundabouts)



vehicle tracking should also be updated to indicate the 0.5m offset around the design vehicles to confirm there is room for driver error around the proposed intersection.

Splitter Islands

20. The splitter islands have a minimum width of around 1.5m. The Waka Kotahi Pedestrian Planning and Design Guide recommends a minimum island width of 1.8m to shelter pedestrians⁴. The concern is that pedestrians will not be sufficiently protected from traffic with an undersized island, so we would like the islands to be increased in width to better accommodate pedestrians. This will also assist with sheltering bicycles as well.

Temporary and permanent public and heavy transport through the development (temporary being via Road 1 & 2, and permanent being north via Road 1 only)

21. The permanent passenger transport route through the site is anticipated to be along Road 1. This is acceptable in principle, although our comments regarding vehicle tracking around the Road 1 bend (see **Paragraph 8**) and through the Road 1 / Road 3 / Road 4 roundabout (see **Paragraph 20** above) remain unresolved. The inclusion of bus stops on Road 1 would reduce the available on-street car parking, although this is anticipated to be acceptable.
22. The temporary bus route may be a loop that includes Road 1 and Road 2. The Road 2 alignment has previously been assessed and is generally considered to be acceptable. Subject to resolving issues regarding vehicle tracking at the Road 1 / Road 2 intersection (see **Paragraph 9**) as well as through the Road 1 / Road 3 / Road 4 roundabout (see **Paragraph 20**), we consider this route would be acceptable.
23. Temporary use of the internal roads to accommodate heavy vehicles for construction of this subdivision and subsequent subdivisions to the north and south is anticipated to be generally acceptable. However, vehicle tracking of construction design vehicles (such as a truck and trailer) through key locations will be required to confirm these are adequately accommodated. The key location for this is the Road 1 / Road 3 / Road 4 intersection, noting that trucks are likely to need to undertake a range of turning movements to access adjacent stages of development for the construction of primarily infrastructure as well as to construct dwellings.

Impacts of changes on key footpath links and desire lines.

24. The development includes connecting into an adjacent proposed share pedestrian/cycle route (see **Figure 4**) that will link Jacks Point to Frankton. This shows the shared cycle/pedestrian path (i.e., the red line) connecting to the applicant's site in one location before extending in two directions then connecting to the footpath along Road 7 and Road 2.
25. The width of the shared path shown as a red line varies between 1.5m and 2.0m. A desirable shared path width of 2.5m is recommended for local access only shared paths according to the Pedestrian Planning and Design Guide⁵, which is recommended in the QLDC Land Development Code of Practice Guide⁶.

⁴ Figure 15.6 of that guide

⁵ <https://www.nzta.govt.nz/assets/resources/pedestrian-planning-guide/docs/pedestrian-planning-guide.pdf>

⁶ <https://www.qldc.govt.nz/services/resource-consents/land-developments-and-subdivisions>



26. We recommend that further information be provided as to whether there is a shared path strategy for the site and whether this connects in appropriately with the surrounding network. Widening and linking the shared path on site through to Road 1 will improve cycle accessibility across the site. However, it is recommended that this is discussed with QLDC.



Figure 4: Proposed Connections Between the Shared Cycle/Pedestrian Route and the Road/Footpath Network on the Site

27. Note that if a shared path cross section of 2.5m is agreed, appropriate cross-sections will need to be added to the drawing set.
28. Various Lots (Lots 2001 – 2006) have been shown as recreation reserve on the layout plan. The location of three recreation reserve areas (Lots 20002 – 2004) in the centre of the plan with a footpath running through the middle, suggest a desire line of pedestrians. There is a pedestrian crossing at the western side of Lot 2002 but none at the eastern end of Lot 2004. To maintain connectivity and consistency, a pedestrian crossing point is recommended across Road 4, at the eastern side of Lot 2004.
29. Similarly, crossing points are recommended on the two 90-degree bends of Road 4a that provide a direct links to the recreation reserve areas located at lot 2005 and lot 2006 and thus to Woolshed Road. Otherwise, pedestrians are left having to take routes along the footpaths that are not on this desire line.



30. The intersection east of the roundabout, along Road 4 has no pedestrian crossing between the northern and southern sides of this road. At least one crossing point should be added to the intersection so that pedestrians can cross towards Lots 263 or 265, for example.

Operation and safety of the potential new vehicle access for the neighbour if Woolshed Road is stopped further north.

31. A vehicle access proposed across Lot 2006 is considered an acceptable location for the neighbour located east of Woolshed Road. However, there are issues for further discussion with QLDC:
- Presumably, this vehicle access will be vested but would it be expected to accommodate access by a refuse truck and/or fire truck? If not, how are these services provided to the neighbour?
 - The existing footpath through Lot 2006 is retained for pedestrian access. Consider future proofing by offsetting the proposed footpath to allow for a vehicle access to be constructed in the future without impacting on the built footpath. Note that this will need to take into account any recommended crossing points as per **Paragraph 29**.
32. A further point to consider (along with the stopping of Woolshed Road at Road 1) would be the need for a turning head at the closed end of Woolshed Road. Vehicles may travel down this road (for deliveries/servicing for example or drivers that wrongly assume the road remains open) that would potentially need to turn in the road reserve.

Operation and safety concerns associated with Road 1 & Woolshed Road intersection if Woolshed Road is upgraded (including a new intersection with SH6)

33. The proposed intersection (see sheet 10 in **Attachment 1**) consists of a priority intersection with no right turn lane from the major road, a potentially narrow refuge and a departure lane width that may only accommodate one vehicle at a time turning onto Woolshed Road.
34. No SIDRA modelling has been provided for the intersection of Road 1 and Woolshed Road for the scenario of Woolshed Road being upgraded and a new intersection implemented at Woolshed Road & SH6. We consider the output of intersection modelling is required to confirm whether a right turn lane would be required and/or the departure lane of the minor arm needs to accommodate right and left turning traffic at the same time.
35. It is recommended that if a right turn lane along Woolshed Road and/or additional departure lanes for traffic are not required, that land is made available for these improvements to be made in the future if required. Particularly, as other development is planned in the future. It is recommended that this is discussed and agreed with QLDC.
36. As per **Paragraph 20** – widen the splitter island to be 1.8m wide to accommodate pedestrians safely including cycles and mothers with prams.
37. Furthermore, the following vehicle tracking is required to confirm the proposed intersection layout is acceptable:



- A tour coach (12.5m length) can turn left into Road 1 from Woolshed Road at a speed of 10 km/h without tracking over the refuge island and having a 0.5m buffer from any pedestrians waiting in the middle.
 - A tour coach turning left from Road 1 onto Woolshed Road without crossing the centre line.
 - A tour coach turning right from Road 1 onto Woolshed Road without hitting the kerb on the east side of Woolshed Road or overhanging the refuge island and putting pedestrians at risk.
38. It is noted, as the proposed layout design is close to the property boundaries on the north side, any localised widening may need to occur on the south side of the intersection to avoid altering Lot boundaries.

Summary

39. The above review has identified the following matters as requiring additional information / consideration to address our concerns regarding the proposed layout:
- a. Undertake design vehicle tracking (using a tour coach of 12.5m length) of:
 - i. Around the bend between Woolshed Road and Road 1;
 - ii. At the intersection of Road 2 and Road 1; and
 - iii. At the roundabout.
 - b. Reduce the level of kerbside parking outside lots 112 and 113 to improve forward visibility to the bend.
 - c. Locate vehicle crossings for each lot so that:
 - i. Sight lines are maximised
 - ii. The vehicle access is located on the lower order road if possible, where a lot fronts two roads.
 - iii. Indented parking bays are updated to take into account the location of proposed vehicle crossings to minimise redundant parking areas.
 - iv. Locate the vehicle access for Lot 1 on the western boundary of the lot.
 - v. Locate the vehicle access for Lot 114 on the northern boundary of the lot.
 - d. Implement no stopping restriction markings on the inside and outside of the two 90-degree bends on Road 4a (as well as the 90-degree bend on Road 2).
 - e. Ensure there is a mechanism included in the subdivision that prevents access to / from Woolshed Road given it is proposed to stop the road in the future (if possible).
 - f. Revise the design of the proposed roundabout to include a raised island that deflects through traffic, whilst accommodating buses.



- g. Widen the width of the splitter islands to be at least 1.8m wide for the roundabout and intersection between Road 1 & Woolshed Road (if the intersection is upgraded including the intersection of Woolshed Road & SH6).
 - h. We recommend that further information be provided as to whether there is a shared path strategy for the site and whether this connects in appropriately with the surrounding network. Widening (to potentially 2.5m) and linking the shared path on site through to Road 1 will improve cycle accessibility across the site. However, it is recommended that this is discussed with QLDC.
 - i. Provide additional crossing points:
 - i. Across Road 4, on the eastern side of Lot 2004.
 - ii. On the two 90-degree bends of Road 4a.
 - iii. At the intersection east of the roundabout. Add one crossing point so a pedestrian can cross between the north and southern sides of the road towards Lots 263 or 265, for example.
 - j. A vehicle access across Lot 2006 is considered acceptable in providing access to the neighbour located east of Woolshed Road. However, there are additional issues to consider and discuss with QLDC as follows:
 - i. Will the vehicle access be expected to accommodate a refuse truck and/or fire truck?
 - ii. Can the proposed footpath be offset so that if a vehicle access is built in the future, the footpath does not need to be amended. Also take into consideration the crossing point recommended on the 90-degree bend.
 - iii. Does the neighbouring site to the east of Woolshed Road require a turning head?
 - k. Undertake intersection modelling of Road 1 & Woolshed Road (if upgraded to a priority intersection) to confirm whether a right turn lane is required along Woolshed Road and/or the departure lane of the minor arm requires right and left turning traffic to be accommodated at the same time. If a right turn lane along Woolshed Road or additional departure lanes for traffic are not required, ensure that land is made available for these improvements to be made in the future if required. It is recommended that this is discussed and agreed with QLDC.
 - l. Undertake design vehicle tracking (using a tour coach of 12.5m length) of the intersection layout (if Woolshed Road is upgraded) as discussed in **Paragraph 37**.
40. We trust that this peer review is self-explanatory, but do not hesitate to contact the undersigned if you have any queries regarding this matter.

Yours sincerely,

Novo Group Limited



Simon de Verteuil

Senior Transport Engineer

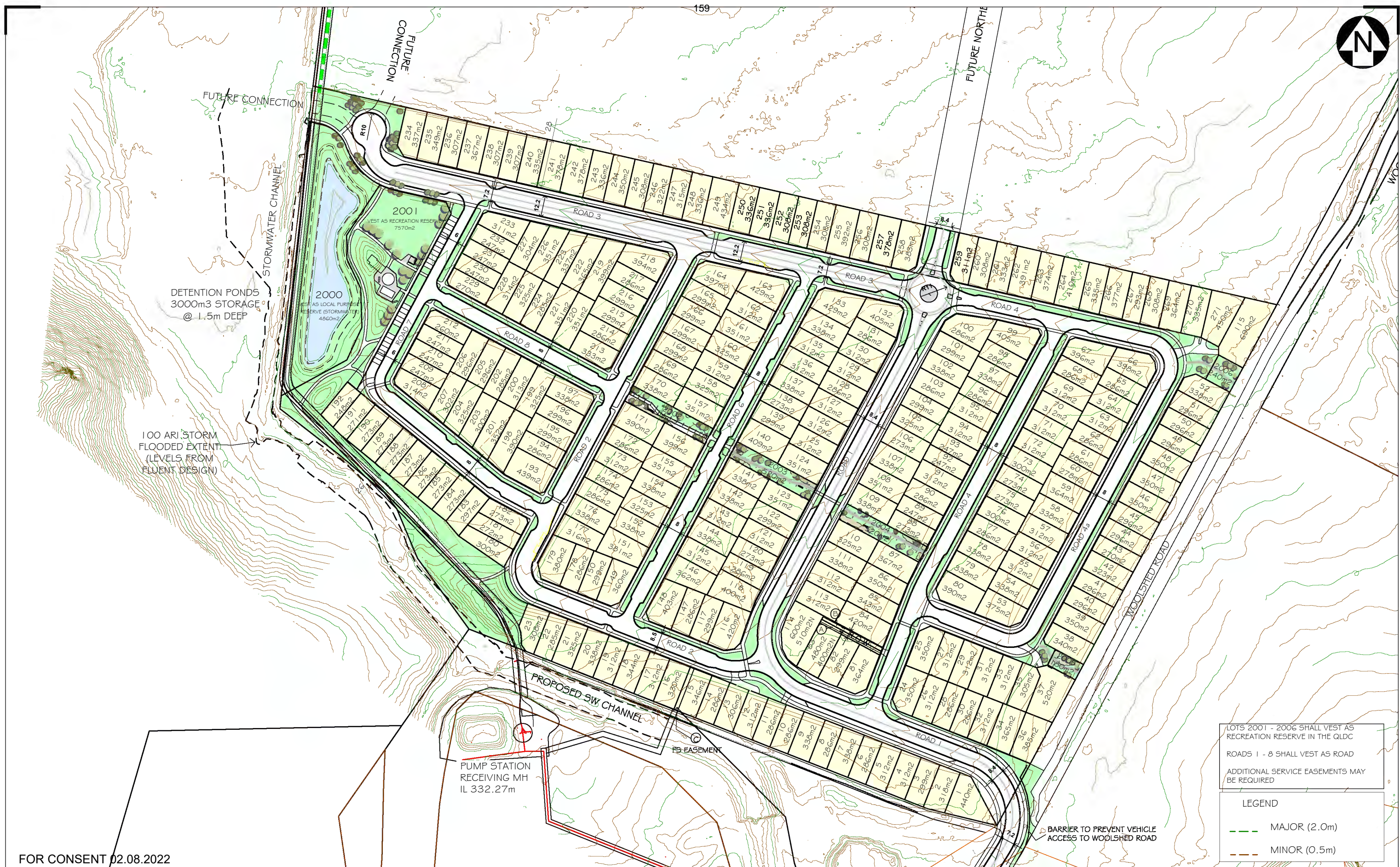
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s 9(2)(a) | W: www.novogroup.co.nz

013012d



Attachment 1: Applicant's Plans Peer Reviewed



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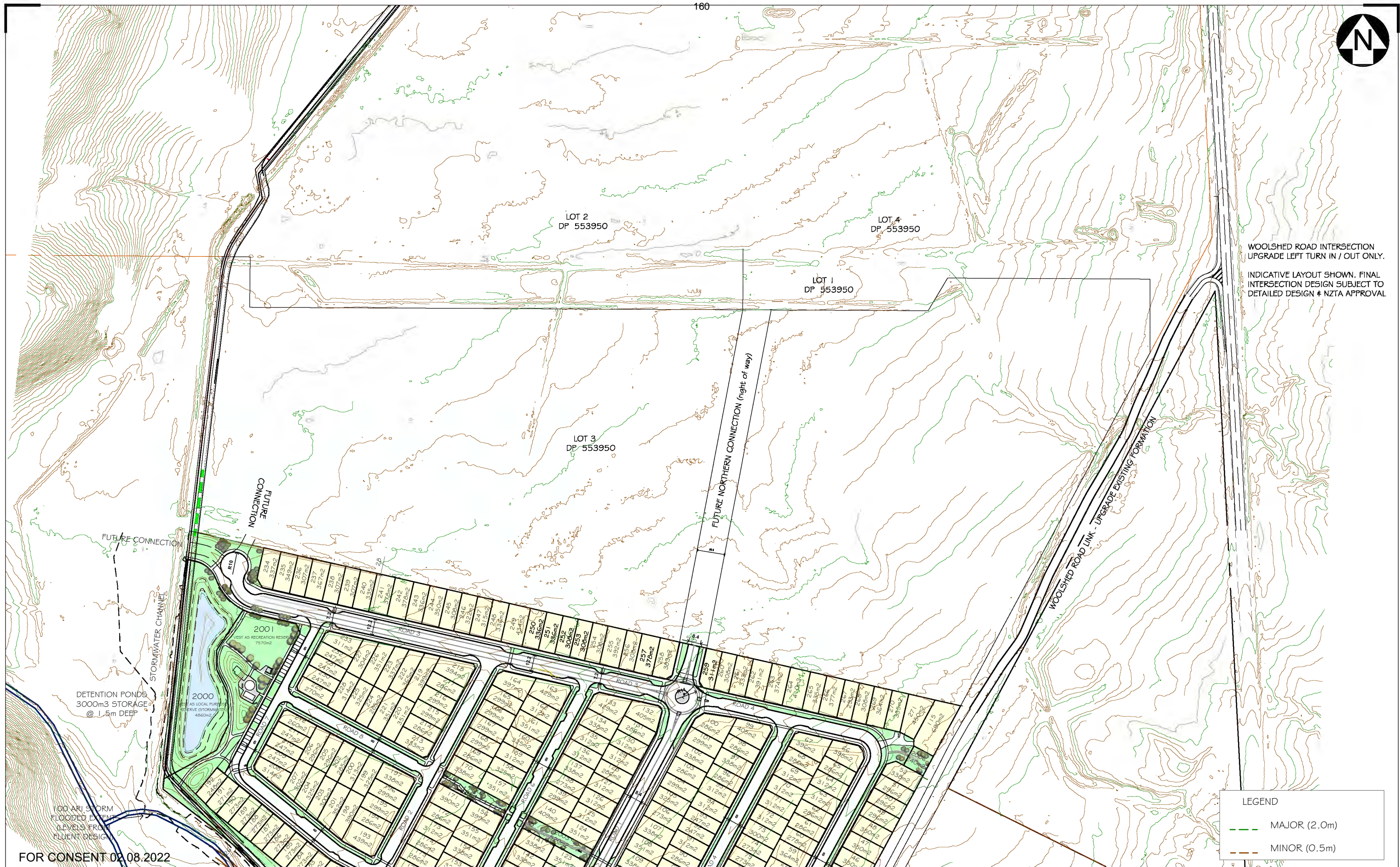
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S:\005\12900\12903\acad\12903_5_PROPOSED LAYOUT_REVO.dwg Plotted: 04.06.2022

Rev.	Date	Revision Details	By
F	07.07.20	Update Rising main alignment & add future stub	RB
I	17.02.21	Vehicle turning paths	JJ
J	08.03.21	Amend kerbs and intersections for turning	JJ
K	06.05.21	Amend Future connection and lot locations	NT
L	12.07.21	Lot sizes changed	NT
M	26.01.22	Trail location amended	ED
O	02.08.22	ALTERNATIVE ROAD LAYOUT	RB

WOOLSHED ROAD DEVELOPMENT MASTER PLAN

Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD	-	-	-	12983	5
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RB	-	-	-	1:1000 @ A1 1:2000 @ A3	001
Designed	Date	Checked	Datum & Level	Rev.	
-	-	-	NZGD2000 / MSL		



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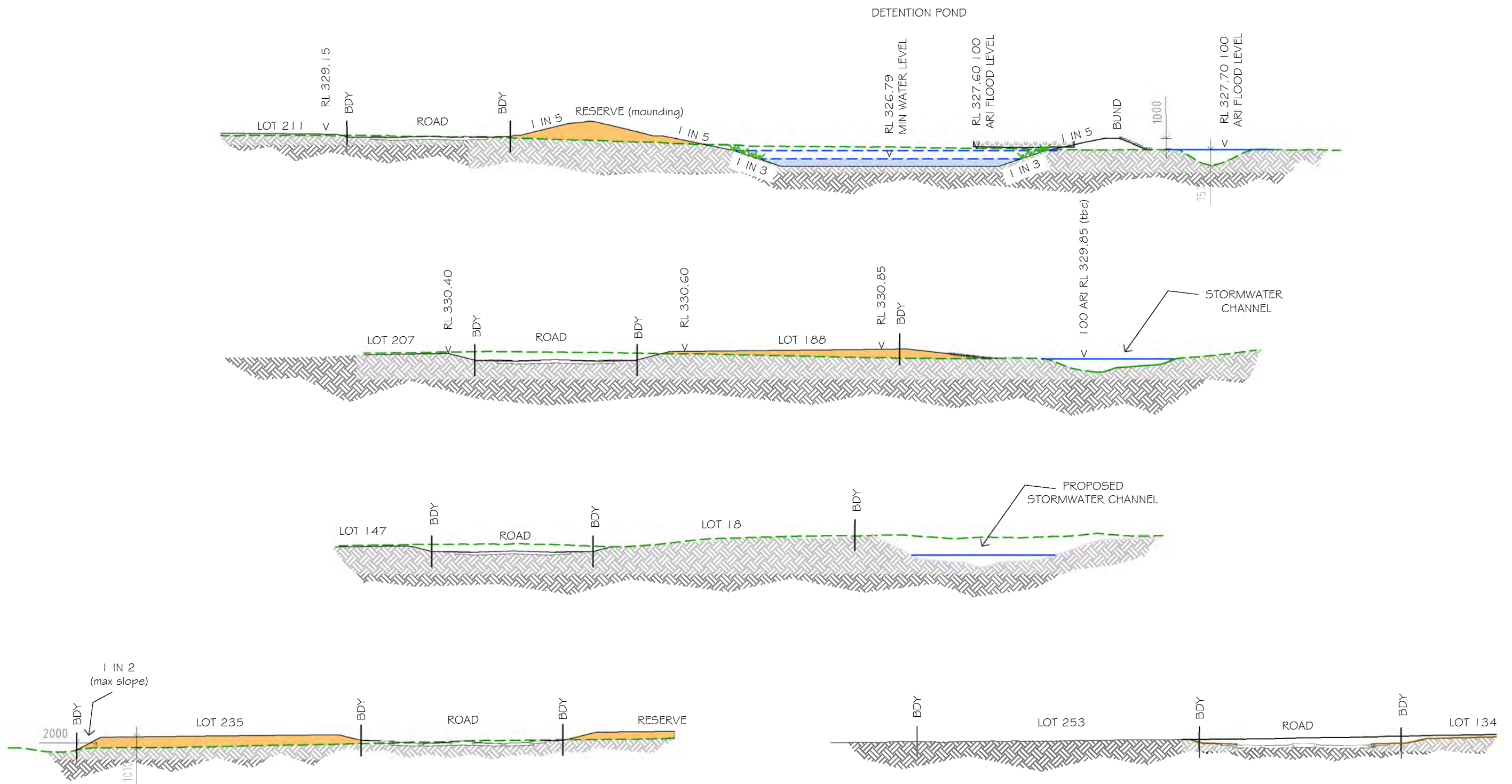
Shop 2, Otago House, 475 Moray Place, P.O. Box 5960
Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

Rev.	Date	Revision Details	By
E	01.07.20	Update 'sewer crossing' location & level	RB
F	07.07.20	Update Rising main alignment & add future stub	RB
I	17.02.21	Vehicle turning paths	JJ
J	08.03.21	Amend kerbs and intersections for turning	JJ
K	06.05.21	Amend Future connection and lot locations	NT
L	12.07.21	Lot sizes changed	NT
O	02.08.22	ALTERNATIVE ROAD LAYOUT	RB

WOOLSHED ROAD DEVELOPMENT MASTER PLAN

Client	Henley Downs Farm Holdings LTD	Surveyed	Date	Checked	Job No.	Drawing No.
					12983	5
						Sheet 002
Drawn	Date	Checked	Scale			
RB			1:1250 @ A1 1:2500 @ A3			
Designed	Date	Checked	Datum & Level	Rev.		
			NZGD2000 / MSL			

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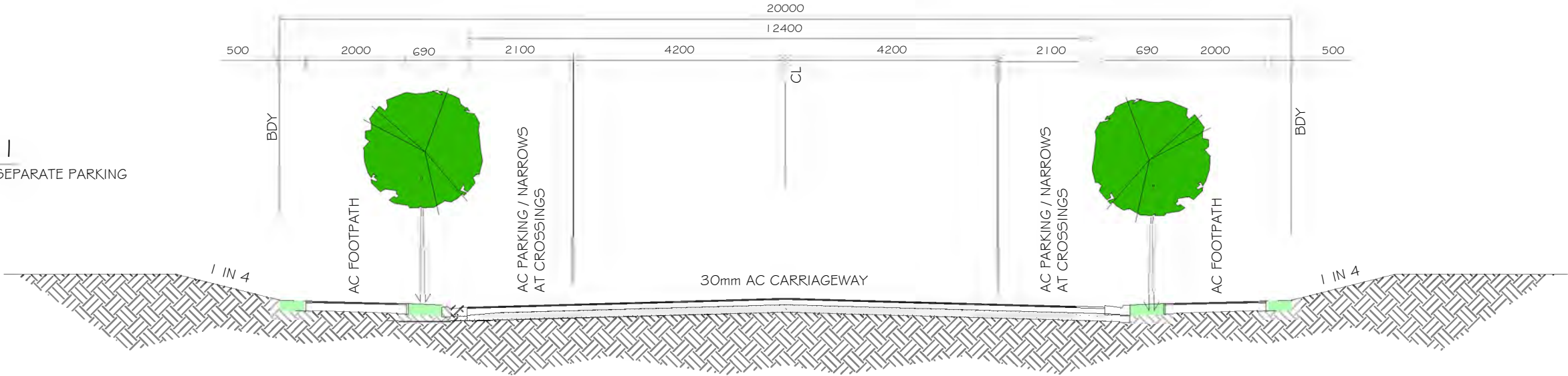
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Rev.	Date	Revision Details	By
A	12.02.20	Update Detention pond section	RB

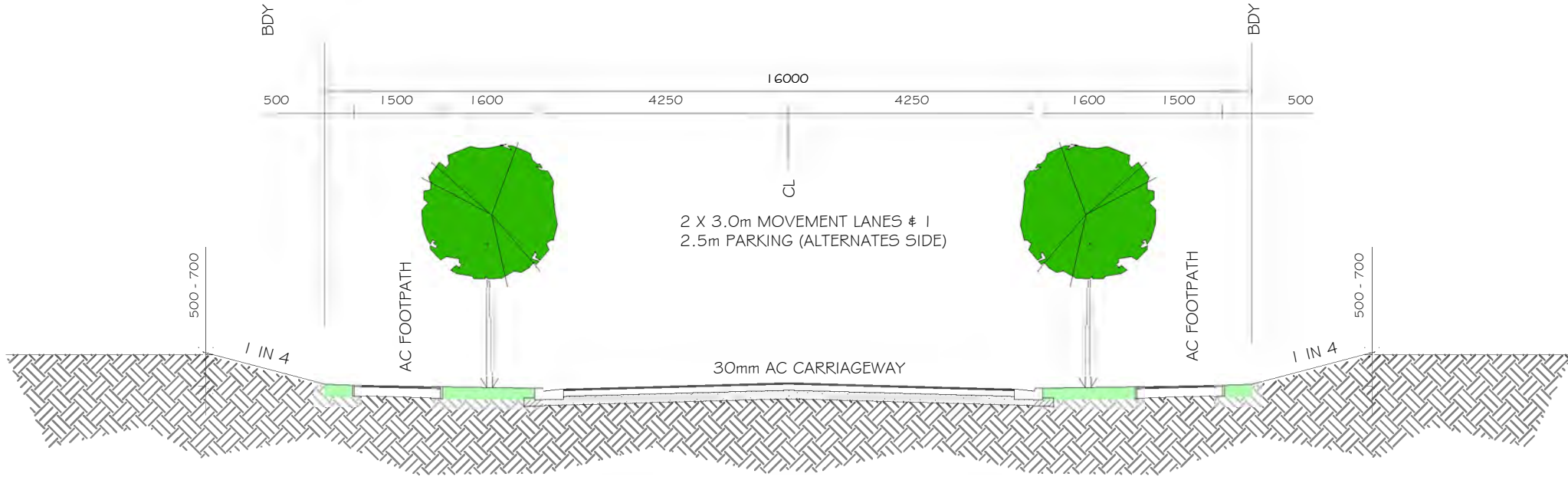
WOOLSHED ROAD DEVELOPMENT FLOOD CHANNEL SECTIONS

Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD	-	-	-	12983	5
					Sheet 003
	Drawn	Date	Checked	Scale	1:200 @ A1 1:400 @ A3
	RB	-	-		
	Designed	Date	Checked	Datum & Level	Rev.
	-	-	-	NZGD2000 / MSL	○

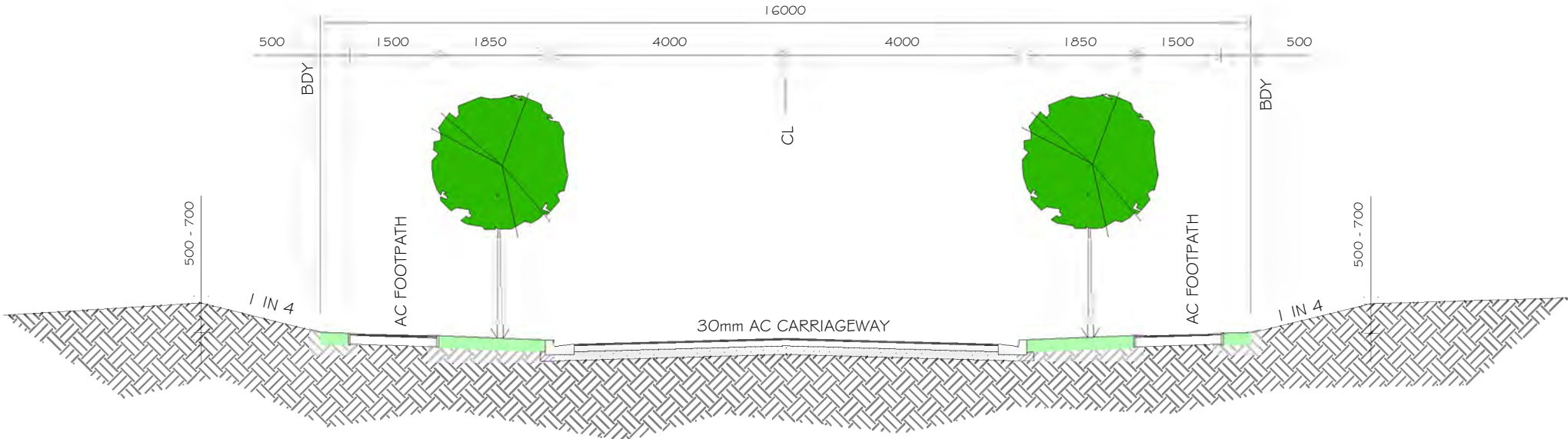
ROAD 1
2 X 4.2m MOVEMENT # 2 X SEPARATE PARKING



ROAD 2 # 3
2 X 3.0m MOVEMENT # 1 x SEPARATE PARKING



ROADS 4 - 8
4.0m SHARED MOVEMENT / PARKING



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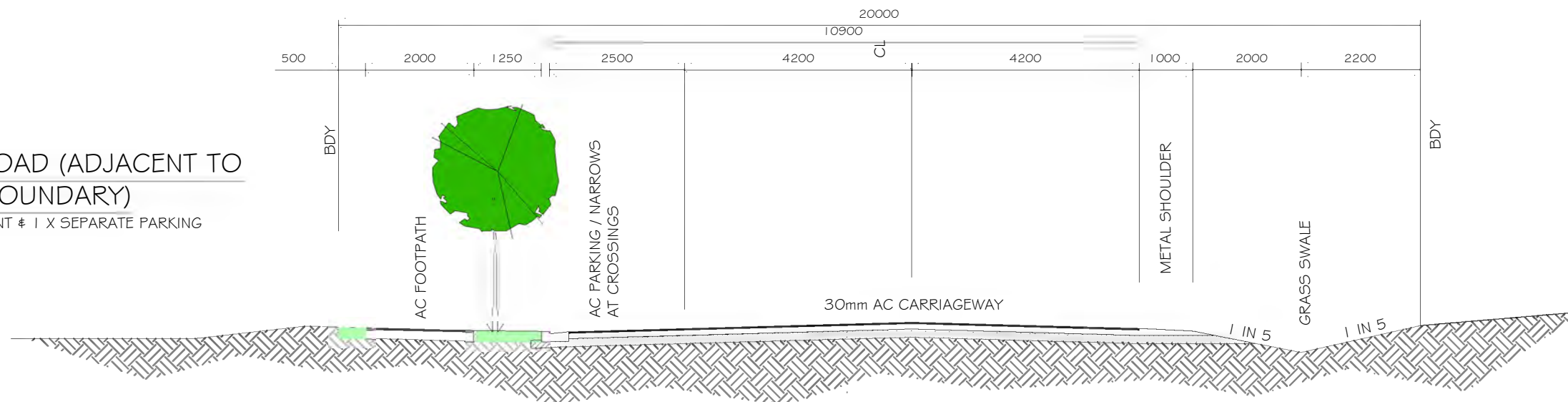
Rev.	Date	Revision Details	By
C	08.05.20	Update Road 2 width	-
E	06.07.20	Update Road 1, 2 & 3 widths	BM
G	06.10.20	Update Road profiles	RB
H	19.01.21	Adjust Road 001 width to 3.6m	RB
O	02.08.22	ALTERNATIVE ROAD LAYOUT	RB

WOOLSHED ROAD DEVELOPMENT
TYPICAL ROAD SECTIONS

Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD	-	-	-	12983	5
	Drawn	Date	Checked	Scale	Sheet 004
	RB	-	-	1:50 @ A1 1:100 @ A3	
	Designed	Date	Checked	Datum & Level	Rev.
	-	-	-	NZGD2000 / MSL	0

WOOLSHED ROAD (ADJACENT TO EIC BOUNDARY)

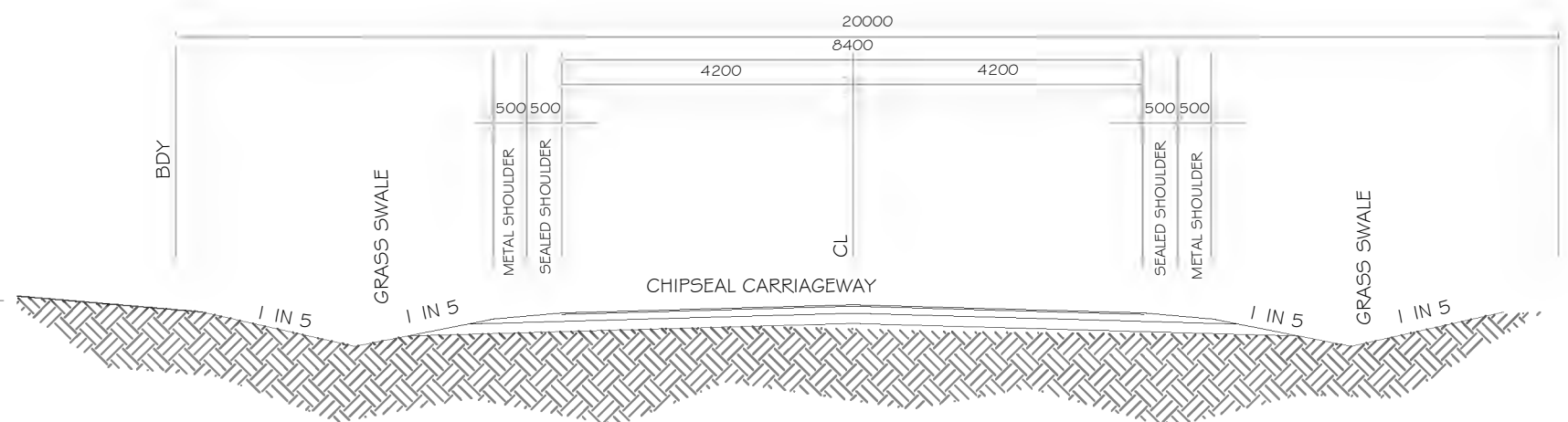
2 X 4.2m MOVEMENT & 1 X SEPARATE PARKING



WOOLSHED ROAD (NORTH OF EIC BOUNDARY) - LINK TO SH6

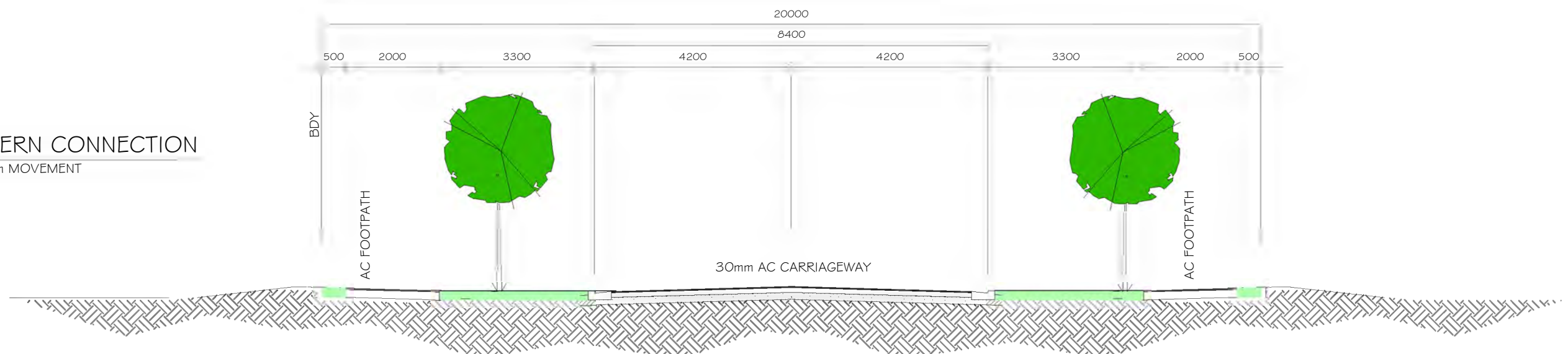
UPGRADE OPTION IF NO SHA ROUNDABOUT

2 X 4.2m MOVEMENT & SHOULDER



FUTURE NORTHERN CONNECTION

2 X 4.2m MOVEMENT



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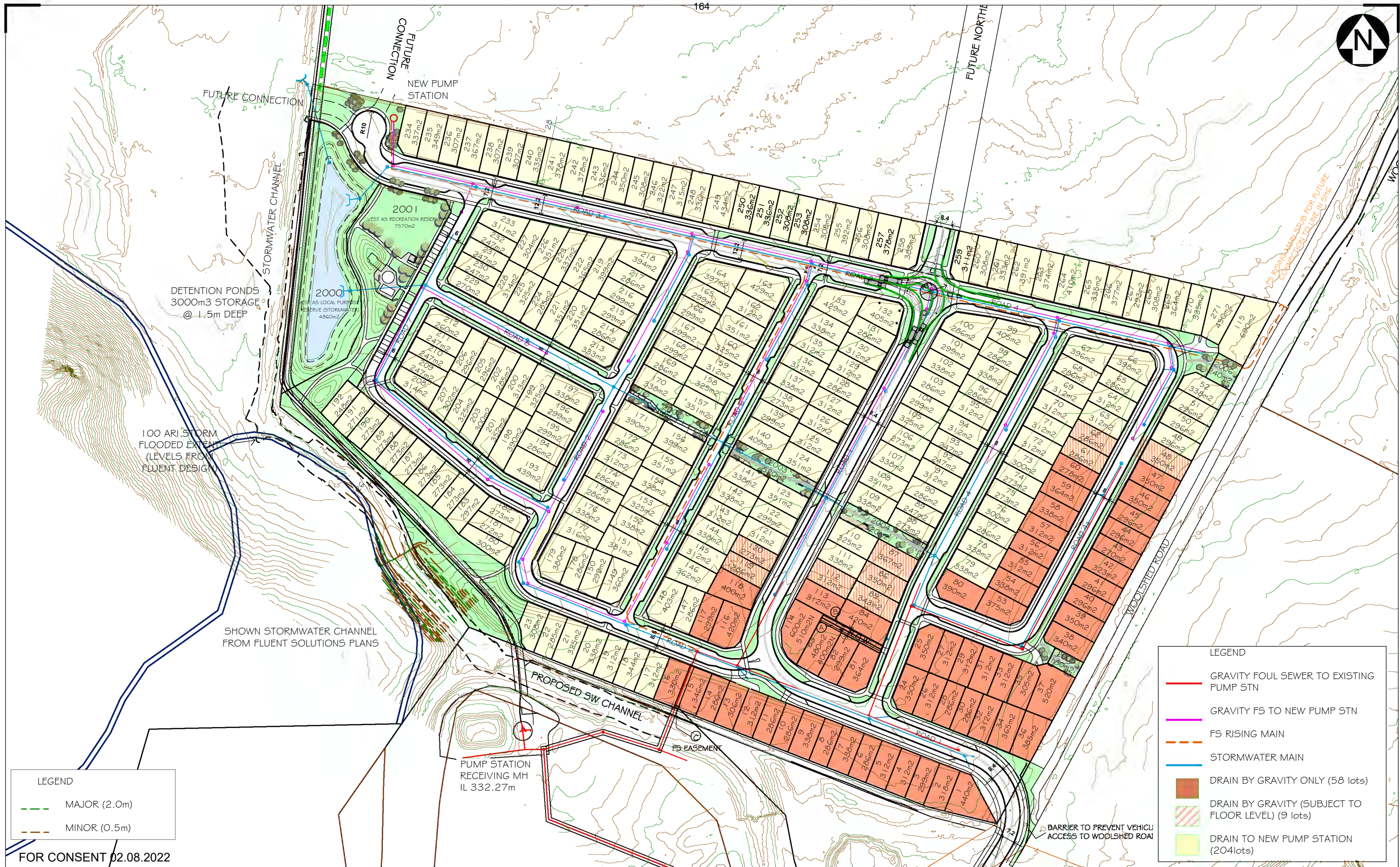
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Rev.	Date	Revision Details	By
C	08.05.20	Update Road 2 width	-
E	06.07.20	Update Road 1, 2 & 3 widths	BM
G	06.10.20	Update Road profiles	RB
H	19.01.21	Update Woolshed Rd to 4.2m lanes	RB

WOOLSHED ROAD DEVELOPMENT TYPICAL ROAD SECTIONS

Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD	-	-	-	12983	5
					Sheet 005
	Drawn	Date	Checked	Scale	1:50 @ A1
	RB	-	-	9.999998 @ A3	
	Designed	Date	Checked	Datum & Level	Rev.
	-	-	-	NZGD2000 / MSL	H



LEGEND

- MAJOR (2.0m)
- MINOR (0.5m)

LEGEND

- GRAVITY FOUL SEWER TO EXISTING PUMP STN
- GRAVITY FS TO NEW PUMP STN
- FS RISING MAIN
- STORMWATER MAIN
- DRAIN BY GRAVITY ONLY (58 lots)
- DRAIN BY GRAVITY (SUBJECT TO FLOOR LEVEL) (9 lots)
- DRAIN TO NEW PUMP STATION (204lots)

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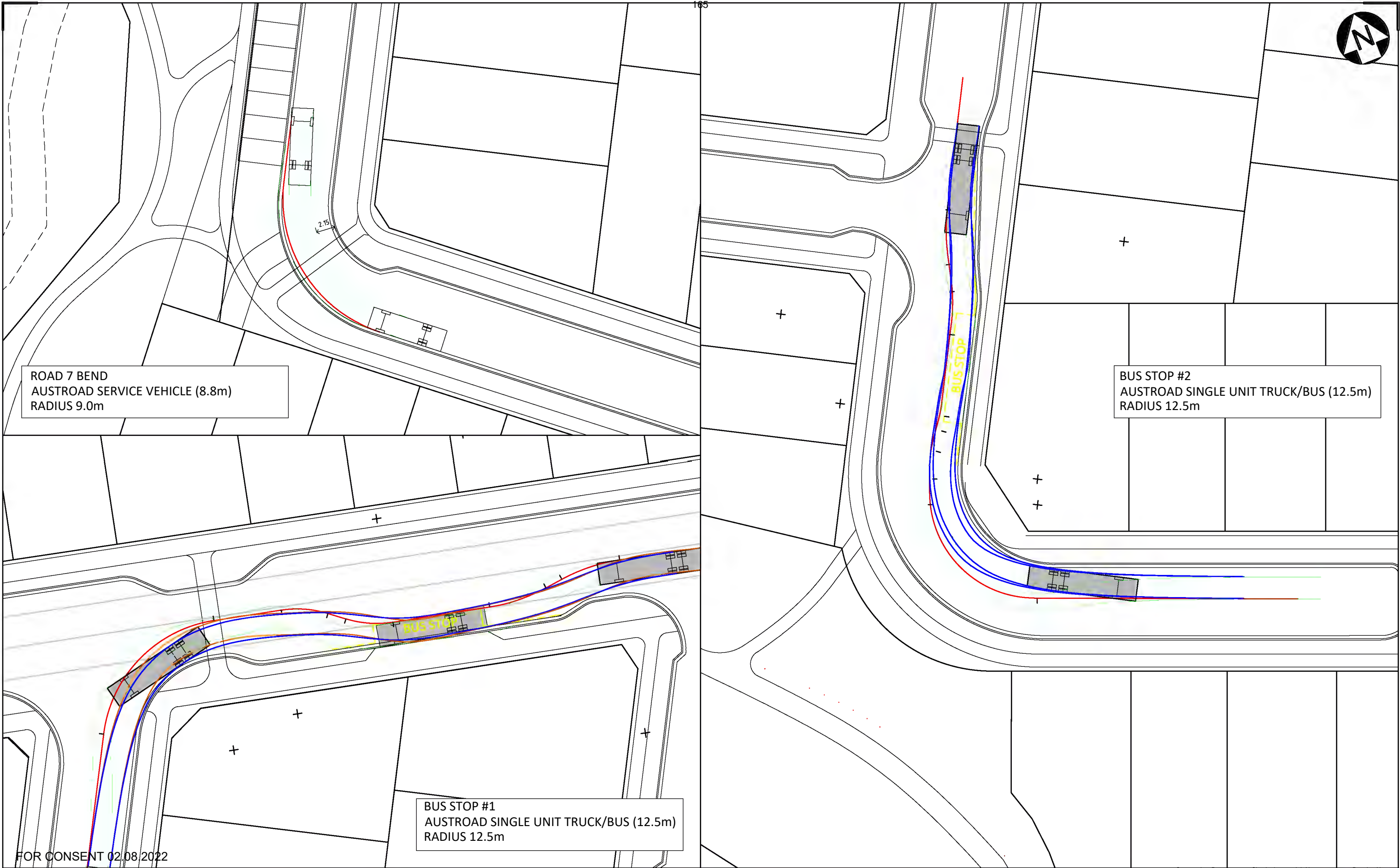
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Rev.	Date	Revision Details	By
D	25.05.20	Add sewer easement & update 'Fluent' sw channel	RB
E	01.07.20	Update sewer crossing location & level	RB
F	07.07.20	Update Rising main alignment & add future stub	RB
I	17.02.21	Vehicle turning paths	JJ
J	08.03.21	Amend kerbs and intersections for turning	JJ
K	06.05.21	Amend Future connection and lot locations	NT
L	12.07.21	Lot sizes changed	NT

WOOLSHED ROAD DEVELOPMENT DRAINAGE LAYOUT

Client	HENLEY DOWNS FARM HOLDINGS LTD	Surveyed	Date	Checked	Job No.	Drawing No.
					12983	5
						Sheet 006
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Drawn	Date	Checked	Scale	1:1000 @ A1	1:2000 @ A3	
RB						
Designed	Date	Checked	Datum & Level	NZGD2000 / MSL	Rev.	



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Rev.	Date	Revision Details	By
B	27.02.19	Update walkway, reserve & link road	RB
C	08.05.20	Update with revised lots & reduce road 2' width	RB
D	25.05.20	Add sewer easement & update 'Fluent' sw channel	RB
E	01.07.20	Update 'sewer' crossing location & level	RB
F	07.07.20	Update Rising main alignment & add future stub	RB
I	17.02.21	Vehicle turning paths	JJ
J	08.03.21	Amend Kerbs and intersections for turning	JJ

WOOLSHED ROAD DEVELOPMENT
VEHICLE TURNING PATHS
AUSTROADS SINGLE UNIT TRUCK/BUS (12.5m)

Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD	-	-	-	12983	5 Sheet 007
Drawn	Date	Checked	Scale	##### @ A1 ##### @ A3	
RB	-	-	-		
Designed	Date	Checked	Datum & Level	Rev.	
-	-	-	NZGD2000 / MSL	J	

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ROUNDAABOUT TURN
AUSTROAD SINGLE UNIT TRUCK/BUS (12.5m)
RADIUS 12.5m

ROUNDAABOUT TURN
AUSTROAD SINGLE UNIT TRUCK/BUS (12.5m)
RADIUS 12.5m



FOR CONSENT 02.06.2022



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Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

Rev.	Date	Revision Details	By
C	06.05.20	Update with revised lots & reduce road 2 width	RB
D	25.05.20	Add sewer easement & update 'Fluent' sw channel	RB
E	01.07.20	Update 'sewer' crossing location & level	RB
F	07.07.20	Update 'Rising' main alignment & add 'future' stub	RB
I	17.02.21	Vehicle turning paths	JJ
J	08.03.21	Amend 'kerbs' and intersections for turning	JJ
N	28.01.22	Add roundabout turning paths	RB

WOOLSHED ROAD DEVELOPMENT
VEHICLE TURNING PATHS
AUSTROADS SINGLE UNIT TRUCK/BUS (12.5m)

Client	Henley Downs Farm Holdings LTD	Surveyed	Date	Checked	Job No.	Drawing No.
					12983	5
						Sheet 008
Drawn	Date	Checked	Scale	##### @ A1		
RB				##### @ A3		
Designed	Date	Checked	Datum & Level	Rev.		
			NZGD2000 / MSL	N		

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INDICATIVE TRAIL
LOCATION

Lot 10
DP 552601

INDICATIVE TRAIL
LOCATION

INDICATIVE TRAIL
LOCATION

INDICATIVE TRAIL
LOCATION

KEY:

- Grade 2 Trail to be constructed as part of RM200615
- Grade 4 Trail to be constructed as part of RM200615 (follows approx. easement area AF on DP 552601)

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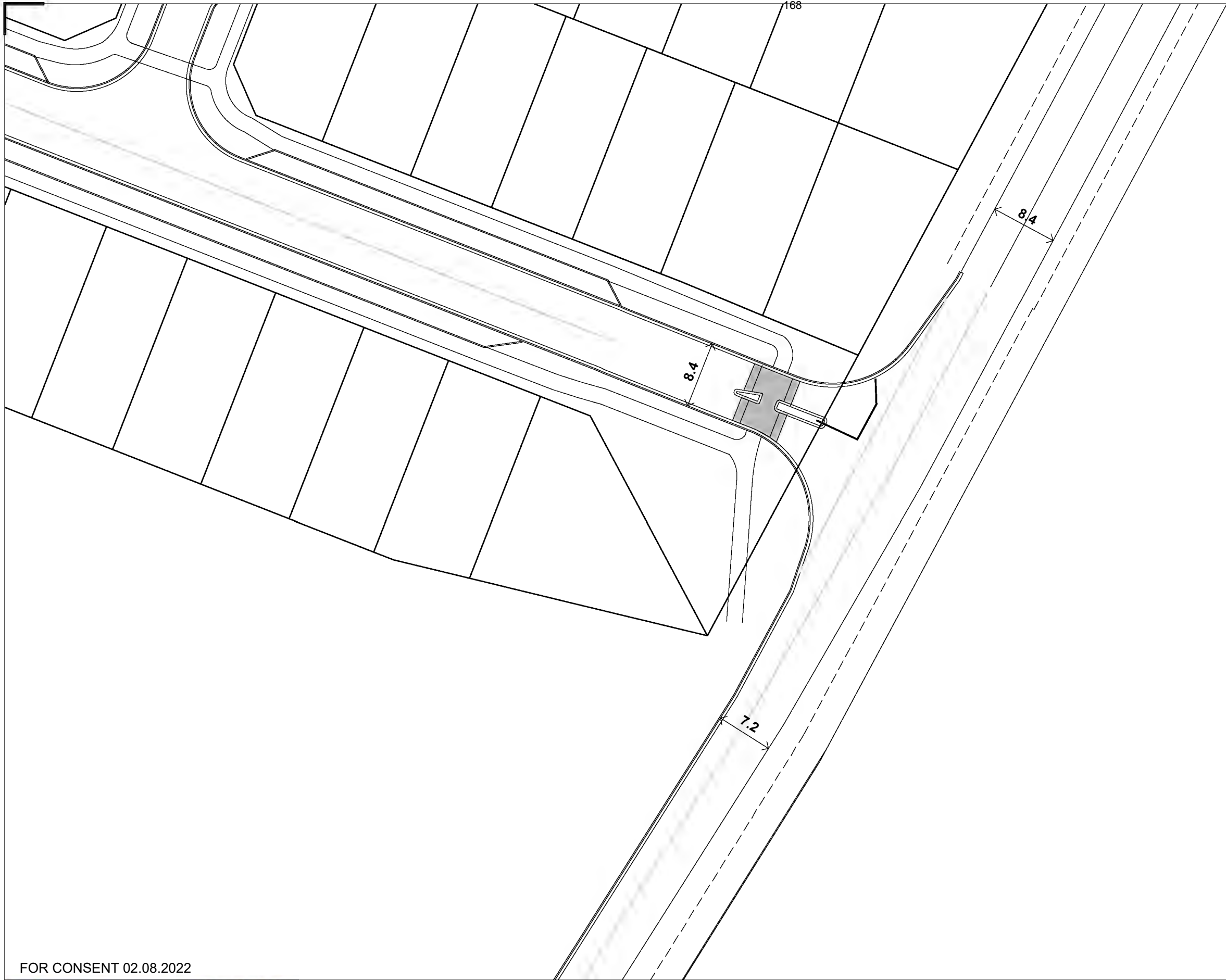
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Rev.	Date	Revision Details	By
'A'	2.03.22	'Add' in grades to trails	ED

WOOLSHED ROAD DEVELOPMENT TRAILS PLAN

Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD	-	-	-	12983	5
					Sheet 009
Drawn	Date	Checked	Scale	1:1000 @ A1	1:2000 @ A3
RB	-	-	-	-	-
Designed	Date	Checked	Datum & Level	Rev.	
-	-	-	NZGD2000 / MSL	A	

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Client	Surveyed	Date	Checked	Job No.	Drawing No.
HENLEY DOWNS FARM HOLDINGS LTD			-	12983	5 Sheet 010
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	RB		-		
	Designed	Date	Checked	Datum & Level	Rev
			-	NZGD 2000 / MSL	0

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Clark Fortune McDonald & Associates

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12983PL_02

8 September 2022

Queenstown Lakes District Council
Private Bag
Queenstown
Attn: Alan Hopkins

Dear Alan,

Please see below for responses to the queries raised by Novo Group in the letter dated 30 August 2022.

- a) Undertake design vehicle tracking (using a tour coach of 12.5m length) of:*
- i) Around the bend between Woolshed Road and Road 1*
 - ii) At the intersection of Road 2 and Road 1; and*
 - iii) At the roundabout*

Please see sheet 011 which show vehicle tracking to address points i) and ii). Point iii) has already been provided on sheet 008.

We note that tracking curves are shown over a portion of the centre of the roundabout, this is unavoidable given the size of the bus required to be modelled at a 12.5m radius curve. This round about is the same dimension and design as those in Hanley Farm. In practice a bus can turn tighter than 12.5m if needed, so the extent of the encroachment over the centre of the roundabout will not be as severe as depicted by the tracking curves.

- b) Reduce the level of kerbside parking outside lots 112 and 113 to improve forward visibility to the bend*

This has been done

- c) Locate vehicle crossings for each lot so that:*
- i. Sight lines are maximised*
 - ii. The vehicle access is located on the lower order road if possible, where a lot fronts two roads*
 - iii. Indented parking bays are updated to take into account the location of proposed vehicle crossings to minimise redundant parking areas*
 - iv. The vehicle access for lot 1 is on the western boundary of the lot.*
 - v. The vehicle accesses for lots 81 and 114 are compliant if they do not share the ROW.*
 - vi. The vehicle acceses surrounding the roundabout are in suitable locations thus not interfering with the operation of the roundabout and/or the splitter islands on approaches.*

Please see attached plan, specifically sheet 001, that details all lots that will have crossings in fixed locations to ensure that sight lines, separation distances etc, are maximised. The remaining lots that



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do not have specific crossings shown, will all likely have accesses located as close to the southern end of the lots as possible, to maximise best practice urban design outcomes.

Noting that all vehicle crossings are identified on the minor roads where possible; indented parking bays have been updated; the vehicle access for lot 1 is on the northern boundary; Lot 114 will share the right of way to reduce potential conflict on Road one by limiting the numbers of crossing on this main collector road, as a result the vehicle access for this lot complies. Lot 81 crossing will be off the lower order road.

- d) Ensure there is a mechanism included in the subdivision that prevents access to/from Woolshed Road given it is proposed to stop the road in future (if possible)*

The applicant has until the first 224c approval is sought to have a temporary road closure application approved. This temporary road closure application has been prepared and will be lodged immediately following the issue of this decision. By temporarily closing the portion of Woolshed Road directly north of the subject site, and erecting signage to advise of this closure, it will prevent access to/from Woolshed Road.

It is also proposed to erect a barrier on the apex of the first bend in Road 1 to physically prevent any access onto Road 1, from the north.

Conditions of consent have also been volunteered to ensure that construction traffic access the State Highway via the Hanley Farm intersection and not via Woolshed Road.

- e) Implement no stopping restriction markings on the:*

- i) Inside and outside of the two 90 degree bends on Road 4a*
- ii) Inside and outside of the two 90 degree bends on Road 1 that tie in with the indented parking bays*

Noted, suitable conditions of consent can be included to ensure this road marking is shown in the engineering acceptance plan package to be submitted to council for approval, prior to construction.

- f) Revise the design of the proposed roundabout to include a raised island that deflects through traffic, whilst accommodating buses*

The middle of the roundabout was always designed as being raised, we have added a note to the plan to make this clearer. Conditions of consent can be included to ensure this is detailed as part of the EA application.

- g) Widen the width of the splitter islands to be at least 1.8m wide for the roundabout and intersection between Road 1 and Woolshed Road (if the intersection is upgraded including the intersection of Woolshed Road and SH6).*

Please see the attached updated plan showing an amended splitter islands to address the above concern.

- h) We recommend that further information be provided as to whether there is a shared path strategy for the site and whether this connects in appropriately with the surrounding road network. Widening (to potentially 2.5m) and linking the shared path on site through to Road*

1 will improve cycle accessibility across the site. However, it is recommended that this is discussed with QLDC.

There is no official shared path strategy for this development. The locations of the pedestrian trails shown on sheet 012 have been agreed with council parks team. The width of the footpath through the centre of the site has been agreed at 2.0m and finished in concrete.

With the provision of a footpath on the road extension from the end of Howden Drive through to the entry to the subject site, which will connect to the footpaths proposed to be provided internally, along with the trails providing a connection to the Way to Go funded trail that is to be constructed along the western boundary of the site, all ensures there is a large interconnected, pedestrian/cycle network provided by this development.

We note that the footpath extension in Howdens Drive will also enable connection to the trail network that has been constructed within Hanley Farms on the south side of the stormwater channel.

The trails provided in the recreation reserve will be able to be link to Road 1 via the footpath alongside Road 2. This is the same setup as currently exists in the adjoining Hanley Farms network, with a mixture of off road trails interconnecting with footpaths adjoining the public roads.

i) Provide additional crossing points:

- i. Across road 4, on the eastern side of Lot 2004*
- ii. On the two 90-degee bends of Road 4a*
- iii. At the intersection east of the roundabout. Add one crossing point so a pedestrian can cross between the north and southern sides of the road towards Lots 263 or 265, for example*

These have been added onto the attached plans.

j) Please can the Applicant confirm whether a footpath will be provided along Woolshed Road between Road 1 and Lot 2006 under the different scenarios (with and without Woolshed Road being upgraded) and what form this footpath could take.

Yes a footpath can be provided along Woolshed Road, it is expected that this will be sealed and formed to a width of 2m and provided as far north as the recreation reserve (lot 2006). This will match with what is provided along Howden Drive, to the south of Woolshed Road, in the Hanley Farms subdivision

k) If Woolshed Road is stopped further north, a new vehicle crossing (for access to the neighbour in the east) is considered acceptable on the apex of Road 1 bend. However, consider whether a turning head is required at the closed end of Woolshed Road to accommodate deliveries/service vehicles to the neighbour or drivers that wrongly assume that Woolshed Road remains open.

It is not proposed to provide a turning head as part of this proposal. This is because the portion of Woolshed Road that is to be temporarily closed is only a small sliver, as it is intended to still enable the residents of the property to the east of the subject site, to continue to use Woolshed Road in a northerly direction. A physical barrier and the road geometry will prevent access from Road 1 north onto Woolshed Road. As a result of this, no turning circle will be required.

Should council choose to fully close Woolshed Road in the future, then a temporary turning head may be required, but this can be determined at that time.

- l) Undertake intersection modelling of Road 1 and Woolshed Road (if upgraded to a priority intersection) to confirm whether a right turn lane is required along Woolshed Road and/or the departure land of the minor arm requires right and left turning traffic to be accommodated at the same time. If a right turn land along Woolshed Road or additional departure lanes for traffic are not required, ensure that land is made available for these improvements to be made in the future if required. It is recommended that this is discussed and agreed with QLDC.*

The applicant has consulted with their traffic engineer who is of the opinion that undertaking intersection modelling at this time would not be useful as the parameters of which the modelling should be undertaken against are not well defined at this stage and would be impossible to provide a sensible result.

There is a large road reserve proposed in this area so will be able to accommodate turn lanes if deemed necessary in the future.

- m) Show that the vehicle crossing for Lot 36 can be accommodated with the Road 1 bend and with a tee intersection. Furthermore, that the lot boundary of 36 is chamfered (in the south eastern corner) to allow for the possible future tee intersection.*

The lot layout has been amended for this area of the site so that access to lots 36 and 34 will be via a right of way off Road 4a instead. Lot 34 is shown as having a chamfered boundary now.

- n) Undertake design vehicle tracking (using a tour coach of 12.m length) of the intersection layout (if Woolshed Road is upgraded) as discussed in Paragraph 42.*

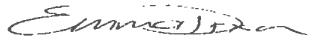
Please see attached the updated plans, specifically sheet 010.

- o) If Lot 2006 is proposed as a possible local road connection in the future, show how this can be accommodated with the proposed design? This includes the location of vehicle crossings to Lots 270, 271 and 115. Lot 52 and Lot 115 will also need to be chamfered to accommodate a tee intersection at this location. It is recognised that this intersection may only accommodate light vehicles, possibly a refuse truck. This will need to be reflected in the width of the road whilst allowing no parking. A new road cross-section will be required this is proposed.*

It is unlikely that lot 2006 will ever become a road connection under this revised design, however if it did then we would anticipate that the cross section shown in the attached plan set for road 4, would suffice in this instance. A minimum 16m width is provided for this reserve allotment, which would adequately accommodate the cross section indicated on the plan set for Road 4. In the unlikely event that this reserve is changed to road in the future, suitable conditions of consent can be included to ensure suitably detailed design plans are approved by council prior to construction commencing.

We trust the above and attached set of amended plans is sufficient to enable the Novo Group queries to be closed out.

Yours faithfully
CLARK FORTUNE MCDONALD

A handwritten signature in black ink, appearing to read 'Emma Dixon', with a stylized flourish at the end.

Emma Dixon
Resource Management Planner

APPENDIX 5 – COUNCIL URBAN DESIGN REVIEW



QUEENSTOWN LAKES DISTRICT COUNCIL
10 Gorge Road
QUEENSTOWN 9300

Email: s 9(2)(a)

Ref: 2020_139 QLDC Henley Downs Peer Review_A

Monday, 2 October 2023

**WOOLSHED ROAD DEVELOPMENT BY CLASSIC DEVELOPMENTS LIMITED,
HENLEY DOWNS
URBAN DESIGN PEER REVIEW**

Dear Hayden

The following letter is an Urban Design peer review of the drawings and reports prepared for the Woolshed Development at Henley Downs, Queenstown, being:

- Urban Design Report by Construkt, dated July 2020;
- Appendix 5 Typologies 16 July 2020 by Construkt;
- Landscape Master Plan by SITE Landscape Architects;
- Scheme Plan dated CFM dated 20.7.2020.

THE PROPOSAL

The proposal by Classic Developments NZ Limited is to create 272 residential lots with 272 associated dwellings. The proposed is located within the Jacks Point zone, on Lot 9 DP498175 on Woolshed Road and is 145,304m² in area. For all intents and purposes the site is flat with no natural features or waterway.

DENSITY AND TYPOLOGIES

The proposal proposes 272 residential lots varying in size between 245 – 571m². The majority of the lots are approximately 300-325m² in area which is considered medium to low density allowing for either standalone or duplex developments. Terrace or apartment typologies are not anticipated.

In appendix 5 of the application, 12 different house typologies are proposed. A mix of single and double storey typologies are proposed, varying between 106m² and 175m² in size and in bedroom number. All dwelling designs directly front the street with garaging setback behind the front façade of the dwelling. The typologies are supported by 'Unit Types' documented in the Urban Design Report, highlighting different roof types with are proposed throughout the development. Nine different roof forms are proposed, all being simple, uncomplex forms will provide variation and interest without appearing cluttered.

The typologies are supported by design controls on materials, setbacks, and fence design. The controls are considered appropriate to ensure a positive design outcome is achieved, including a positive interface with Woolshed Road.