

**DECISIONS OF THE QUEENSTOWN LAKES DISTRICT COUNCIL****NOTIFICATION UNDER s95 AND DETERMINATION UNDER s104****RESOURCE MANAGEMENT ACT 1991**

Applicant:	Arrowsouth Properties Limited
RM reference:	RM161093
Application:	Application under Section 88 of the Resource Management Act 1991 (RMA) to subdivide an existing allotment into 25 allotments consisting of 20 residential freehold titles, one road, and one stormwater allotment to be vested in Council and three private open space allotments (the balance of the site) to establish a separate title for each unit, and undertake earthworks.
Location:	McDonnell Road, Arrowtown
Legal Description:	Lot 29 Deposited Plan 369201 held in Computer Freehold Register 281292
Zoning:	Arrowtown South Special Zone
Activity Status:	Restricted Discretionary
Decision Date:	5 July 2017
Re-issue date	3 August 2017

SUMMARY OF DECISIONS

1. Pursuant to sections 95A-95F of the RMA the application will be processed on a **non-notified** basis given the findings of Section 6.0 of this report. This decision is made by, Blair Devlin, Manager Planning Practice, on 5 July 2017 under delegated authority pursuant to Section 34A of the RMA.
2. Pursuant to Section 104 of the RMA, consent is **GRANTED SUBJECT TO CONDITIONS** outlined in Appendix 1 (Land Use and Subdivision Conditions) of this decision imposed pursuant to Sections 108 and 220 of the RMA.. The consent only applies if the conditions outlined are met. To reach the decision to grant consent the application was considered (including the full and complete records available in Council's electronic file and responses to any queries) by Blair Devlin, Manager Planning Practice, as delegate for the Council.
3. Pursuant to section 133A of the RMA this consent is being re-issued due to minor errors found within the approved consent. These errors are considered minor mistakes or defects and therefore the consent can be re-issued pursuant to section 133A of the RMA. The decision was made and the re-issue authorised by Blair Devlin, Manager Planning Practice, as delegate for Council on 18 July. This re-issue is made 16 working days after the grant of the consent.
4. Pursuant to section 133A of the RMA this consent is being re-issued due to minor errors found within the approved consent. These errors are considered minor mistakes or defects and therefore the consent can be re-issued pursuant to section 133A of the RMA. The decision was made and the re-issue authorised by Blair Devlin, Manager Planning Practice, as delegate for Council on 3 August 2017. This re-issue is made 16 working days after the grant of the consent.

1. PROPOSAL AND SITE DESCRIPTION

Consent is sought to subdivide an existing allotment into 25 allotments consisting of 20 residential fee simple titles, one road and one stormwater allotment to be vested in Council, and three private open space allotments (the balance of the site), and to undertake associated earthworks.

The applicant has provided a detailed description of the site and locality, and the proposal in Sections 1-4 of the report entitled “*Assessment of Effects on the Environment, Arrowsouth Properties Ltd*”, dated 31 October prepared by C Hughes and Associates Ltd and the addendum report entitled “*Addendum to Application RM161093*” dated 18 November 2016 by Campbell Hills of C Hughes and Associates Ltd, and submitted as part of the application (hereon referred to as the applicant’s AEE and attached as **Appendix 3**). This description is considered accurate and is adopted for the purpose of this report with the addition of the following comments:

For ease of reference, the application involves the following main components:

- The creation of 20 fee simple residential lots;
- Three balance lots (proposed Lots 102, 103 and 104), to be maintained as “Private Open Space” and privately managed by Arrowsouth Properties Ltd or any successor in title;
- To establish a “*Private Open Space Management Plan*”, and “*Overarching Open Space Management Plan*” (both prepared by Rough and Milne Landscape Architects), along with an associated management structure; one balance lot (proposed Lot 101) to be vested in Council for the purpose of stormwater;
- One balance (proposed Lot 100) to be vested in Council for the purpose of roading;
- Crossing points to lots from the internal road network are detailed by the application as concrete crossings in similar sections to the swales to provide continuity of roadside drainage;
- To establish a public walk/cycle trail to be vested in Council;

Earthworks

The earthworks component relates to the creation of the roads, service installations, stormwater detention pond and public walk/cycle trail only. Earthworks are proposed within some of the lots to establish the road. Information submitted with the application outlines that up to 7,375 m³ of soil would be disturbed in association with these activities. It is intended that future individual Lot owners will carry out their own earthworks on their lot for the establishment of a residential unit.

Residential lots

Lots 1, 4 - 6 and Lot 20 include an area designated as “Roadside Planting Strip” known as R-RPS as per the structure plan for this zone. This area is proposed to be maintained by each individual lot owner as per the draft consent notice.

Lot 104 is an area designated as “Private Open Space” known as POS-E1 (major escarpment) as per the structure plan for this zone that is a ‘no build area’. This area is to be revegetated and maintained by the applicant for the first 3 growing seasons and thereafter managed collectively by way of an Owners Group consisting of the 12 owners of Lots 7 – 18 in accordance with the provisions of a Private Open Space Management Covenant. Lots 5 to 7 have easements over them relating to the right to convey sewage and water.

Residential lot dimensions are as follows:

- | | |
|------------------------------|------------------------------|
| • Lot 1 – 778m ² | * Lot 11 – 615m ² |
| • Lot 2 – 653m ² | * Lot 12 – 615m ² |
| • Lot 3 – 635m ² | * Lot 13 – 615m ² |
| • Lot 4 – 969m ² | * Lot 14 – 615m ² |
| • Lot 5 – 880m ² | * Lot 15 – 615m ² |
| • Lot 6 – 1073m ² | * Lot 16 – 615m ² |
| • Lot 7 – 957m ² | * Lot 17 – 628m ² |
| • Lot 8 – 641m ² | * Lot 18 – 680m ² |

- Lot 9 – 615m²
- Lot 10 – 615m²
- * Lot 19 – 600m²
- * Lot 20 – 639m²

Balance Lots

- Lot 100 (vested road being 3992m² in area)
- Lot 101 (stormwater asset being a wetland area of 3044m²)
- Lot 102 (private open space of 1503m²)
- Lot 103 (private open space)
 - o includes public walk/cycle trail easement
 - o is a 4.559ha balance lot
 - o is overlaid with four designated areas in relation to the structure plan for this zone being: POS-E1 (major escarpment), POS-W1(water course), POS-E5 (rock outcrop) and POS-P3 (pastoral areas).
- Lot 104 (private open space)
 - o is a 1.125ha lot
 - o is overlaid with the designated area POS-E1 (major escarpment) identified within the structure plan for this zone

2. ACTIVITY STATUS

2.1 THE DISTRICT PLAN

The subject site is zoned **Arrowtown South Special Zone** and the proposed activity requires resource consent for the following reasons:

Land Use:

- A **controlled** activity resource consent pursuant to Rule 12.32.3.2(i) for a subdivision including Overarching Open Space Management Plan prior to any development. The report entitled "*Arrowtown South Special Zone: Overarching Open Space Management Plan*" prepared by Rough & Milne Landscape Architects, updated March 2017 is proposed. Council's control is with respect to:
 - a. The appropriateness of the overarching vision statement for, and proposed methods to ensure, ecological restoration of all Private Open Space (POS) Activity Areas within the Arrowtown South Special Zone, including:
 1. The identification of key issues and target species for weed management.
 2. The types of habitat and species envisaged to be restored.
 3. The appropriateness of the proposed rabbit control programme.
 4. Evidence of the establishment of a body corporate appropriate for governing the ongoing programmes of revegetation, rabbit control and weed and management throughout the Zone.
 5. The appropriateness of a structural tree planting plan which covers Activity Areas R, RL-1, RL-3, RL-4, RL-6, RL-7, POS-E1, POS-E2, POS-E3, POS-E4, POS-E5, POS-E6 and POS-P1, POS-P2 and POS-P3
 6. The location of a proposed trail as shown indicatively on the Structure Plan.
- A **controlled** activity resource consent pursuant to Rule 12.32.3.2(ii) for a subdivision including Private Open Space Management Plans for a combination of, or an entire Private Open Space Activity Area POS-E1, POS-E2, POS-E3, POS-E4, POS-E5, POS-E6, POS-W1, POS-W2 and POS-W3 prior to any development. The report entitled "*Arrowsouth Properties Ltd: Private Open Space Management Plan*" prepared by Rough & Milne Landscape Architects, updated March 2017 is proposed. Council's control is with respect to:
 - a. Consistency with the approved Overarching Open Space Management Plan (as approved under rule 12.32.3.2 (i))

- b. The protection and enhancement of visual amenity values of the adjoining Private Open Space, Residential and Rural Living Activity Areas, including through the integration of landscaping and natural character.
- c. A programme of revegetation including:
 - 1. Species to be planted and where
 - 2. Planting densities
 - 3. Timeframes and sequencing of works including ongoing tasks
 - 4. Allocation of responsibility for undertaking the work
 - 5. Indicative costs and budgets
- d. A programme for weed control including:
 - 1. Target weed species
 - 2. Methods of control
 - 3. Timeframes for work to be undertaken and regularity of ongoing weed control
 - 4. Allocation of responsibility for undertaking the work
 - 5. Indicative costs and budgets
- e. Integration of revegetation and weed management programmes with programmes approved for other Private Open Space Activity Areas and with the vision statement approved in the Overarching Open Space Management Plan.
- f. The implementation of the trail shown on the structure plan and confirmed through the Overarching Open Space Management Plan, and provision for public access through an easement in gross.
- g. Landscaping proposed to mitigate the visual effects arising from earthworks associated with the trail shown on the Structure Plan.
- h. Consistency of format with other Private Open Space Management Plans in the zone
- i. A fencing plan for Private Open Space Watercourse areas to separate stock from the stream.
- j. The provision for the on-going protection of the features in E5 and E6
- k. Provision and retention of a viewshaft to the Muter Homestead from McDonnell Road.
- A **controlled** activity resource consent pursuant to Rule 12.32.3.2(iii) for a subdivision including Private Open Space Management Plans – Roadside Planting Strip, prior to any development. Methods for achieving the Roadside Planting Strip are proposed within the report entitled "*Arrowsouth Properties Ltd: Private Open Space Management Plan*" prepared by Rough & Milne Landscape Architects, updated March 2017. Council's control is with respect to:
 - a. Appropriateness of species,
 - b. The location, density and consistency of planting
 - c. Effectiveness in mitigating the visibility of development when viewed from sites to the south of McDonnell Road
 - d. The location of driveways
 - e. Controls to limit fencing
- A **restricted discretionary** activity resource consent pursuant to Rule 12.32.3.3 for earthworks which do not comply with those standards set out within Rule 12.32.5.1(vii). In particular, the proposal would involve more than 200m³ of earthworks and more than 20m³ would be disturbed within 7 m of a waterway.

Subdivision:

- A **controlled** activity resource consent pursuant to Rule 15.2.3.2 for subdivision of land which complies with all site and zone standards. Council's control is with respect to:
 - Lot sizes and dimensions
 - Subdivision design
 - Property access
 - Natural and other hazards
 - Water supply, storm water disposal sewerage treatment and disposal, trade waste disposal, energy supply and telecommunications
 - Open space and recreation
 - Vegetation and landscaping
 - Easements

Overall, the combined subdivision and land use application is considered to be a **restricted discretionary** activity.

2.2 NATIONAL ENVIRONMENTAL STANDARD FOR ASSESSING AND MANAGING CONTAMINANTS IN SOIL TO PROTECT HUMAN HEALTH

Based on the applicants' review of Council records, the piece of land to which this application relates is unlikely to be a HAIL site, and therefore the proposal would be permitted under the NES.

3. SECTION 95A NOTIFICATION

The applicant has not requested public notification of the application (s95A(2)(b)).

No rule or national environmental standard requires or precludes public notification of the application (s95A(2)(c)).

The consent authority is not deciding to publicly notify the application using its discretion under s95A(1) and there are no special circumstances that exist in relation to the application that would require public notification (s95A(4)).

A consent authority must publicly notify an application if it decides under s95D that the activity will have or is likely to have adverse effects on the environment that are more than minor (s95A(2)(a)).

An assessment in this respect follows.

4. ASSESSMENT OF EFFECTS ON THE ENVIRONMENT (s95D)

4.1 MANDATORY EXCLUSIONS FROM ASSESSMENT (s95D)

- A: *Effects on the owners or occupiers of land on which the activity will occur and on adjacent land (s95D(a)).*
- B: The activity is a **restricted discretionary** activity, so that adverse effects which do not relate to a matter of discretion have been disregarded (s95D(c)).
- C: *Trade competition and the effects of trade competition (s95D(d)).*

D: The following persons have provided their **written approval** and as such adverse effects on these parties have been disregarded (s95D(e)).

Person (owner/occupier)	Address (location in respect of subject site)
Roger Monk and Cook Adam Trustees Ltd*	Sec 1 SO 24781 Lot 1 DP 25880 Pt Sec 104 Blk VII Shotover SD - Sec 1 So 24781 Su BJ To Row (see figure 2)

* APA was provided in regard to the Overarching Open Space Management Plan (signed and attached to APA) as the landowner of the other subdividable land in the Arrowtown South Special Zone

4.2 PERMITTED BASELINE (s95D(b))

The consent authority **may** disregard an adverse effect of the activity if a rule or national environmental standard permits an activity with that effect. In this case the construction of any building and subdivision in the Arrowtown South Special Zone requires a resource consent. Permitted activities include up to 200m³ of earthworks in any 12 month period, planting of non-wilding species and fences of up to 2m in height. In this case the permitted baseline is of limited relevance and is not applied in the following assessment.

4.3 ASSESSMENT: EFFECTS ON THE ENVIRONMENT

Taking into account section 4.1 above, the following assessment determines whether the activity will have, or is likely to have, adverse effects on the environment that are more than minor.

The relevant assessment matters are found in sections 12.32.6.2 (*Arrowtown South Special Zone*), and Part 15 (*Subdivision, development and financial contributions*) of the District Plan, and have been considered in the assessment below.

The Assessment of Effects provided at section 7 of the applicant's AEE addresses effects in regards to the assessment matters relating to the adequacy of the provided "Private Open Space Management Plan" ("POSMP"), "Overarching Open Space Management Plan" ("OOSMP"), and the "Roadside Planting Strip" ("RPS"). In addition, the Memorandum titled "*RE: Response to Helen Mellsop's Review of Arrowsouth Open Space Management Plan*" dated 10 February 2017 also addresses the issues raised by Ms Mellsop in her review comments of the Open Space Management Plans. These assessments are accepted and are adopted for the purpose of this report.

The following additional comments are also made which include input from Councils Resource Management Engineer Mr Michael Wardill who reviewed the engineering components of the application, Ms Helen Mellsop, Council's consultant Landscape Architect who provided comment on the applicant's Open Space Management Plans. In addition, Mr Giulio Chapman-Olla, a senior roading/projects engineer for Opus Consultants was engaged by the Council's Parks and Reserves Department to provide comment on the suitability of the proposed trail's design and location. Mr Chapman-Olla's comments are summarised below and are contained within email correspondence that is saved in the Council's electronic database as confirmation that the trail is appropriate to be vested in Council.

Subdivision including Overarching and Private Open Space Management Plans, and Roadside Planting Strips

The District Plan requires a two-step Open Space Management Plan process at the time of subdivision for the subject site to ensure a comprehensive approach to development is adopted. The first step is an 'Overarching Management Plan' which provides an outline of how the various areas of open space within the zone will be established, re-vegetated and managed, while also providing a comprehensive structural tree planting plan.

The second step is to link the development of particular Residential and Rural Living Activity Areas with re-vegetation and/ or enhancement of particular areas of the Private Open Space Activity Area, through the use of more detailed 'Private Open Space Management Plan.'. This plan will include more detail on matters such as plant species, planting schedules, irrigation, maintenance, rabbit control, weed management and fencing. The specified works will need to be certified by the Council as having been or being undertaken prior to the release of separate certificates of title.

In addition, ongoing maintenance and management of revegetated Private Open Space Activity areas will remain the responsibility of landowners (except where the Council accepts land and/or works in lieu of development contributions). Applications for subdivision to create either Residential or Rural Living lots will have conditions imposed that obligate the subdivider to form an appropriate body corporate entity (or similar structure to be approved by the Council) and for that entity to have included within its constitution rules that apply to all future lot owners.

Ms Mellsop has reviewed both the Overarching Open Space Management Plan and Private Open Space Management Plan for Council and on the whole considers the two plans effectively achieve the requirements of the District Plan. Ms Mellsop raised some concerns and accompanying recommendations. The applicant responded to these concerns in the Memo entitled "*RE: Response to Helen Mellsop's Review of Arrowsouth Open Space Management Plans*" dated 10 February 2017." The applicant agreed with most of Ms Mellsop's concerns and recommendations and addressed these in the Memo and provided updated Open Space Management Plans in response.

In regard to this matter it is noted that the subdivision design and open space management strategy originally submitted with the application was significantly modified at the request of the Council. These modifications were requested in response to concerns reflected in Ms Mellsop's assessment in regard to the escarpment management structure and to more closely align the proposal with those objectives and policies set out within the District Plan. Ms Mellsop stated in regard to the originally submitted open space management structure that "*the proposal to divide part of the escarpment into private lots creates significant potential for inconsistent ongoing management of the indigenous revegetation*". The Council concurred with this concern and was of the opinion that this scheme would result in adverse effects that are more than minor.

Following discussions with the applicant in regard to these concerns, Lots 7 – 18 were modified so that they did not include any part of the private open space escarpment, and Lot 104 was created to encompass the entire private open space escarpment located to the northeast of Lots 7 – 18. In addition, an 'Owners Group' has been proposed in place of a body cooperate to manage Lot 104 following the end of growing season 3/year 3, at which point the applicant will cease management obligations of this open space area. Condition 21 has been included and endorsed by the applicant in regard to this matter requiring that this Owners Group be created prior to s224(c) approval. Condition 21 provides specific details in regard to this Owners Group concerning timeframes, responsibilities and obligations in regard to the ongoing maintenance of Lot 104. A covenant will be imposed against the titles of Lots 7 – 18 reflecting the details contained in Condition 21. The ongoing maintenance of Lot 104 is required in accordance with the Open Space Management Plan submitted as part of the application as a consent notice condition to be registered against the titles of Lots 7 - 18 and will therefore be enforceable by Council. It is considered that this mechanism satisfies those objectives and policies relating to the ongoing enhancement and maintenance of the identified open space area such that any adverse effects relating to its visual, landscape and biodiversity values will be less than minor.

- Riparian Planting and Roadside Planting Strip (RPS)

Ms Mellsop has concerns regarding the extent of the riparian planting proposed near the watercourse, which she recommends should be a full 30m width. In response, the applicant's comments that the 5m - 7m riparian strip proposed complies with ecologist Dawn Palmer review comments for their Open Space Management Plan that a riparian planting strip of at least 5m is required either side of the waterway. This advice is accepted and it is considered that any adverse effects in regard to this matter would be less than minor.

Ms Mellsop recommended that a larger grade of planting within the *Roadside Planting Strip* was more appropriate to that which is proposed to rapidly mitigate the adverse visual effects of new residential lots from McDonnell Road. The applicant concurs that if Council require more immediate screening then at least 20 PB40 Pittosporums as suggested by Ms Mellsop would be effective in achieving this. The larger specimens would provide more immediate screening of the resulting built mass from McDonnell Road and therefore limit the duration of adverse visual effects. Given the generous 6m roadside planting strip from McDonnell Road which would require buildings to be located at least 6m from the lot boundary with McDonnell Road, it is considered that the temporary duration for which the future buildings and structures will be reasonably visible from McDonnell Road within the first three years is a less than minor adverse effect. No further roadside planting is recommended in this regard.



Figure 3: Looking south onto application site from footpath

Walking and cycling trail

The OOSMP requires detailed location of a proposed trail as shown indicatively on the Structure Plan. An unsealed trail is proposed across Lot 103 to provide linkages to Advance Terrace and also to split off towards yet undeveloped areas of Arrowtown South. Pedestrian right of way easements are shown in favour of Council for the proposed trails. The design of the proposed trails has been balanced between being sympathetic to the sensitive landscape and meeting the requirements of QLDC Cycle Trail Design Standards & Specifications.

The proposed trails deviate slightly from the QLDC Cycle Trail Design Standards & Specifications; however, as the trail does not provide a “critical linkage”, the Grade 3 design standard is accepted by Parks & Reserves in lieu of the preferred Grade 2. In terms of the proposed Grade 3 design, the QLDC Cycle Trail Design Standard for Grade 3 specifies a 30m maximum length at the maximum 1 in 6 grade (“... without a flat recovery section of equal or greater length”). The applicant has commented in an email on file that *“the large fill area (retaining structure) near the top of the escarpment results in a length of 45m at 1 in 6, before flattening off slightly on the top terrace (which is sloped at 1 in 8.5 for just over 30m, before meeting the existing Advance Terrace footpath)”*. This small area of non-compliance with the Grade 3 standards has been accepted by Mr Chapman-Olla as appropriate and is the preferred option to having stairs in this section of the trail.

Overall, the proposed OOSMP, POSMP, RPS and trail are considered appropriate and effects on the environment will be less than minor.

Lot Sizes and Subdivision Design

The subdivision is for fee simple titles, the lot sizes and dimensions are considered appropriate, and adequate legal access and servicing is provided to each residential lot. The lots meet the minimum required site size.

The areas designated as Roadside Planting Area contained within the individual residential allotments are proposed to be planted and managed by the relevant applicant/consent holder or their successor to a standard the Council deems has ‘implemented’ the Private Open Space Plans (described in greater detail below) in accordance with the assessment matters in District Plan. It is not until the Council determines that the Private Open Space Plans have been ‘implemented’ that titles will be issued for the subdivision.

Each owner of each lot, as part of a management regime for the on-going maintenance and restrictions of use regarding the Roadside Planting Area is required via a consent notice to have obligations in regards to maintaining these areas as per the OSMP and not erect any structures within these areas or carry out earthworks except for minor/narrow walking track construction for pedestrian access. The requirements of this consent notice would bind each individual lot owner to the ongoing protection and maintenance of this revegetated area such that the visual amenity and landscape values it serves would be sufficiently protected in this instance.

Physical and Legal Access

Physical access is off McDonnell Road to the site and internal roading has been proposed to provide access to the proposed residential lots. Mr Wardill comments here that no residential lots have direct access to McDonnell Road and the District Plan rules limit direct access. Mr Wardill recommends a consent notice be provided on Lots 1, 4 - 6 & 20 in this regard to alert owners at the time dwellings are proposed. It is noted this requirement is also volunteered by the applicant. This recommendation will be accepted for the purposes of this report.

In terms of vehicle crossings to the residential lots within the site, crossing points to the lots from the internal road network are detailed by the application as concrete crossings in similar sections to the swales to provide continuity of roadside drainage. Mr Wardill is generally satisfied this design should work appropriately but recommends the consent holder provide evidence of compliance break over angles at the time of detailed design. This recommendation is adopted. In addition, Lots 1, 4, 6, 7, 12, 18 & 20 are all lots that either have frontages of 11m width or less and/or are located in close proximity to intersections. The formation of these crossing points is recommended by Mr Wardill to be a requirement as part of the subdivision. Further, Consent Notices are recommended for all other lots to alert owners to requirements for the construction of a sealed concrete crossing point. Mr Wardill's recommendations in this regard will be adopted by this report.

Legal access to the site is via Lot 100 identified as a road to vest with Council on the scheme plan. Conditions of consent will ensure this is built to Council standards.

A pedestrian footpath is proposed within the site and also outside of the site along McDonnell Road to provide for pedestrian safety. Mr Wardill recommends that to improve pedestrian safety outside of the subject site along McDonnell Road that it is desirable for traffic safety purposes to extend the urbanised area of McDonnell Road similar to the existing developed area to assist in maintaining lower speeds over the site frontage, despite being located within a 50km/hr speed restriction area. Mr Wardill proposes a continuation of the existing sealed footpath and concrete kerb and channel along McDonnell Road past the site entrance while noting this may also require a narrow strip of McDonnell Road seal widening to maintain (identical to the other side of the existing speed bump) road dimensions widths between the edge line and recommended K&C. Mr Wardill's recommendation is accepted.

With regard to safety and efficiency of the proposed new road intersection from McDonnell Road, Mr Wardill notes that the application is not supported by a traffic engineering assessment. He considers it is not necessary as the intersection location was considered at the time of the underlying plan change. The site is located within the 50km/hr speed restricted area.

New roads to vest are proposed in a general Tee configuration. Each residential lot will have legal access to a formed road from within the development. Road 01 will connect to McDonnell Road and Mr Wardill is satisfied that this is within 25m of the Structure Plan location and can meet the requirements of Rule 12.32.5.2 (xiii) in this regard.

The McDonnell Road intersection and the internal intersection between Roads 01 & 02 are correctly shown on application drawings with priority give ways & markings. All corner lots on approach to intersections are provided with sight distance splays in the application. Mr Wardill recommends conditions of consent in support of the application. This will be adopted.

Overall, adverse effects associated with physical and legal access will be less than minor.

Internal Roothing Design

Mr Wardill is satisfied with the internal roading design subject to a number of recommendations.

The internal roads are detailed as 5.7m wide with flush nib kerbs and a separate 1.5m width concrete footpath along on side. This meets the dimensional requirements of Figure E12 in the Council's Land Development and Subdivision Code of Practice for access up to 200 dwelling units.

Planted swales are proposed along both Roads 01 and 02 and whilst this also meets the Code of Practice for low impact design it is undesirable for Council, in Mr Wardill's opinion, due to the high maintenance requirements of planted swales versus grassed swales. Mr Wardill recommends instead that the swales within the site be grassed and whilst this will marginally increase stormwater flow, Mr Wardill is satisfied this has minimal impact on detailed designs. Mr Wardill recommends a condition of consent requiring formation of Roads 01 & 02 to Figure E12 in the Code of Practice with a 1.5m wide footpath along one side, with appropriate turning provisions, and with grassed swales instead of planted swales. Mr Wardill's recommendations will be adopted.

Mr Wardill notes that no details of street lighting have been provided nor any road naming and recommends an appropriate condition in this regard including extending street lights along McDonnell Road. Mr Wardill's recommendations are adopted.

Overall, and given the recommended conditions, adverse effects on the environment with respect to roading design are considered to be less than minor.

Hazards

The Preliminary Infrastructure and Services Report provided with the application concludes there is not considered to be any hazards in relation to the proposal. Mr Wardill concurs, stating that there are no natural hazards identified on Council mapping, as such the subdivision is not considered to exacerbate any natural hazard, and no conditions are recommended. Overall, adverse effects in terms of hazards are less than minor.

Infrastructure services

Mr Wardill has assessed the proposed subdivision and is satisfied that the proposed development can connect to existing council reticulation in regards to potable water supply, fire fighting water supply and effluent disposal. Letters have been supplied with the application from Network providers (Chorus and Aurora) confirming capacity to service the development. Mr Wardill recommends evidence of supply for both power and telecommunications is provided prior to subdivision completion. The conditions are accepted.

Mr Wardill is satisfied the proposed on site stormwater detention wetland and capture of overland flows from lots can be adequately managed and recommends conditions including for a Developers Agreement for the wetland, operations and maintenance information, and maintenance period.

Overall, and given the recommended conditions, adverse effects on the environment with respect to infrastructure services are considered to be less than minor.

Earthworks

Earthworks are required to establish roading, servicing connections and the public walking/cycling trail. Earthworks are identified adjacent to an existing stream that bisects the site. These earthworks would be located between 4 m and 7 m from this stream which is used as a potable water source downstream and site management will require specific measures to prevent silt laden material entering the stream plus ongoing maintenance and inspection to ensure measures are adequately protecting this potable water source. Several conditions of consent are recommended in this respect by Mr Wardill, particularly a condition recommending a cut off drain with a sump pump be installed to prevent silt from entering the stream. These recommendations are adopted and it is considered that they would appropriately control any adverse effects on this stream so that they would be minor only.

Section 7.2.4.1 of the Applicant's AEE details the environmental protection measures that will be deployed regarding the earthworks phase which is also detailed in the Preliminary Infrastructure and Services Report provided with the application. These mitigation measures will be ensured by way of consent conditions. In terms of site stability, the Geosolve Report highlights potential instability issues relating to the construction of the trail and recommends solutions to overcome these issues which have been incorporated into the Engineering Drawings. Mr Wardill recommends the cuts and fill are undertaken in accordance with the Geosolve Report and also recommends a condition requiring the applicant to install measures to control and/or mitigate any dust, silt run-off and sedimentation that may occur, in accordance with QLDC's Land Development and Subdivision Code of Practice and 'A Guide to Earthworks in the Queenstown Lakes District' brochure. Specifically the applicant shall prevent silt from earthworks entering the pond in the form of a cut off drain feeding into a sump with surface water pumped through either a hay or cloth filter prior to being allowed to discharge into the stream.

The earthworks required for the proposed trail will require significant earthworks and retaining that will have an impact on the integrity of the escarpment landform and the visual amenity of the wider area. This is particularly the case in the first few years after the earthworks are undertaken, until mitigation planting and other vegetation becomes established. However, Ms Mellsop has outlined in her report that the resulting adverse visual effects would be adequately mitigated over time by proposed revegetation planting.

It is considered subject to conditions of consent, that the effects of the earthworks both for the duration of the works and long term would be no more than minor on the environment.

Overall, and given the recommended conditions, adverse effects on the environment with respect to earthworks are considered to be less than minor.

4.4 DECISION: EFFECTS ON THE ENVIRONMENT (s95A(2))

Overall the proposed activity is not likely to have adverse effects on the environment that are more than minor.

5.0 EFFECTS ON PERSONS

Section 95B(1) requires a decision whether there are any affected persons (under s95E) in relation to the activity. Section 95E requires that a person is an affected person if the adverse effects of the activity on the person are minor or more than minor (but not less than minor).

5.1 MANDATORY EXCLUSIONS FROM ASSESSMENT (s95E)

- A: *The activity is a **restricted discretionary** activity, so that adverse effects which do not relate to a matter of **control** have been disregarded (s95E(2)(b)).*
- B: *The persons outlined in section 4.1 above have provided their **written approval** and as such these persons are not affected parties (s95E(3)(a)).*

5.2 PERMITTED BASELINE (s95E(2)(a))

The consent authority **may** disregard an adverse effect of the activity on a person if a rule or national environmental standard permits an activity with that effect. In this case the permitted baseline is found within section 4.2 of this report and is not relevant for comparing effects generated from permitted earthworks.

5.3 ASSESSMENT: EFFECTS ON PERSONS

Taking into account sections 5.1 and 5.2 above, the following outlines an assessment as to whether the activity will have or is likely to have adverse effects on persons that are minor or more than minor.

The assessment on persons in regards to the subdivision and the associated "Overarching Open Space Management Plan" in section 5 of the applicant's AEE is accepted and adopted, and in addition, the following further assessment is provided:

Traffic Generation

The heavy vehicle traffic associated with earthworks and construction phase has the potential to be disruptive to the occupiers of the adjacent properties, however a Traffic Management Plan will be required as a consent condition to manage the effects of the traffic for the duration of the works. Any damage to the roading network as a result of the works will be required to be repaired.

With regards to the generation from the traffic associated with this development, given that maximum number of allotments and minimum allotment size is not being breached the level of traffic generated from the proposal is anticipated for this zone. It is considered the traffic associated with the use of the site will have less than minor effects on adjacent sites.

Public walking and cycle trail

The proposed public walking and cycle trail¹ will travel through the site and connect to Advance Terrace at the top of the escarpment via a narrow leg in at the sites southeast corner between neighbouring Lot 8 DP 369201 and Lot 9 DP 369201. The District Plan does anticipate a trail link in this location (albeit arriving from a different direction) so effects on persons associated with that trail were considered at the time the Special zone was created. Lots 8 and 9 are considered to be the only lots potentially affected by the proposed trail location in terms of adverse effects regarding privacy. Lot 9 contains an established residential unit. Lot 8 is a vacant residential lot and there are no applications for developing the site at the time of writing this report. The effects on privacy for these two lots are considered to be less than minor given the intended placement of the trail when the rezoning was considered, and the use of the proposed trail is not a main commuter route or critical link given some of the more challenging gradients. Although the proposed trails will receive some potential commuters it is anticipated that it will be used recreationally where the number of users is expected to be lower than a designed commuter trail.

Overall it is considered the effect on the adjacent sites of in terms of privacy will be less than minor.

Noise, vibration and land instability

The noise and vibration associated with earthworks and construction may involve rock breaking however Mr Wardill determines that the separation between the earthworks and the existing neighbouring residential properties is sufficient to remove the need for any specific conditions. Mr Wardill's recommendation is adopted for the purposes of this report.

In terms of land instability, Mr Wardill comments that earthworks are clear of boundaries except where necessary for roading and associated servicing connections and does not recommend any specific conditions in this regard. Mr Wardill's recommendation is adopted for the purposes of this report.

A condition has been included limiting the hours of operation for construction related activities on the site to normal working times. It is considered the noise associated with the short term earthworks phase is able to be adequately mitigated and as such will have less than minor effects on adjacent sites.

No persons are considered adversely affected by the proposal

5.4 DECISION: EFFECTS ON PERSONS (s95B(1))

In terms of Section 95E of the RMA, no person is considered to be adversely affected to a minor or more than minor degree.

6.0 OVERALL NOTIFICATION DETERMINATION

Given the decisions made above in sections 4.4 and 5.4 the application is to be processed on a non-notified basis.

¹ The structure plan locates the future walkway/cycleway in a different location within the site and a different location connection point at the top of the escarpment being a connection point to Cotter Ave. However, as noted in the District Plan and on the structure plan, these marked locations are indicative and is only a guide as to the general route of the trail.

7.0 S104 ASSESSMENT

7.1 EFFECTS (s104(1)(a))

Actual and potential effects on the environment have been outlined in section 4 of this report. Conditions of consent can be imposed under s108 of the RMA as required to avoid, remedy or mitigate adverse effects.

7.2 RELEVANT DISTRICT PLAN PROVISIONS (s104(1)(b)(vi))

The relevant objectives and policies are contained within Chapters 12 and 15 of the Operative District Plan.

Part 12.31 – Arrowtown South Special Zone

Objective 1 provides for *comprehensive and sustainable pattern of residential and rural living development* and **Objective 2** manages/enhances *biodiversity values, physical features, and landscape and amenity values of the Zone*.

Part 15: Subdivision, Development and Financial Contributions

Relevant Objectives and associated policies are - **Objective 1 & 2 – Servicing**, **Objective 5 – Amenity protection**; **Objective 15 – Establishment of a green network including parks, cycleways and pedestrian linkages...**;

The proposed subdivision will contribute to a comprehensive and sustainable pattern of residential development by complying with the structure plan whilst managing and enhancing biodiversity, landscape and amenity values through the implementation of Open Space Management Plans and supporting consent notice conditions.

In addition, the subdivision is providing for adequate servicing which will maintain quality of surface and groundwater through disposal of stormwater via the creation of a detention wetland. Earthworks are also assessed as suitable and can be managed through conditions of consent to align with these provisions. Therefore, it is considered that the proposed development would be consistent with the relevant objective and policies of the District Plan.

Proposed District Plan

QLDC notified the Proposed District Plan on 26th August 2015, which contains objectives and policies with immediate legal effect, pursuant to section 86A(2) of the RMA.

In this case, the objectives and policies contained in Part 2 Chapter 4 (Urban Development), and Part 5 Chapter 27 (Subdivision and Development) are relevant. It is considered given the minimal extent to which the Proposed District Plan has been exposed to testing and independent decision-making, minimal weight will be given to these provisions at this stage. Notwithstanding, it is considered the proposal would be in general accordance with the relevant objectives and policies.

7.3 OTHER MATTERS UNDER SECTION 104(1)(b))

Otago Regional Policy Statement (Decision Version 1 October 2016)

Objective 3.1 and corresponding policy 3.1.1 (e) Freshwater - aim to maintain and enhance water quality

The proposal is consistent with the relevant objectives and policies. The proposed low impact design (LID) stormwater management approach, employing planted swales and a naturally functioning detention / filtration wetland, serves to enhance the quality of the existing stream and improve water quality.

Queenstown Lakes District Council Cycle Trail Design Standards & Specifications (dated 27/08/15)

The overarching goal of this *Design standard and Construction Specification* is “to guide land developers and trail designers to achieve a high quality cycle trail specifically designed and built to cater to the needs of the community(s) it connects and serves and that minimises future maintenance costs to Council”.

The proposed public cycle and walking trail has been designed to Grade 3 specifications and this has been deemed acceptable and design approval provided by QLDC. Overall, it is considered that the proposal would be consistent with the relevant design standards and specifications.

7.4 OTHER MATTERS – SUBDIVISION (s106)

A consent authority may refuse to grant a subdivision consent, or may grant a subdivision consent subject to conditions, if it considers that the land is or is likely to be subject to, or is likely to accelerate material damage from natural hazards, or where sufficient provision for legal and physical access to each allotment has not been made. Section 106 is not required for this application.

The applicant's AEE and supporting documents conclude that no hazards were identified on the site to which Mr Wardill concurs. As such it is considered natural hazard risk is suitably addressed. The proposal has road frontage to McDonnell Road and each new allotment is to have legal and physical access onto McDonnell Road from a new internal road and single crossing point to be vested in Council. The roading includes provision for pedestrian access.

Given the above, the proposal is in accordance with s106 of the RMA and consent can be granted, subject to conditions.

7.7 DECISION: SUBDIVISION RESOURCE CONSENT PURSUANT TO SECTION 104 OF THE RMA

Consent is **granted** to subdivide to create 20 residential allotments and one road and stormwater allotment to be vested in Council and three private open space allotments (the balance of the site) subject to the conditions outlined in *Appendix 2* of this decision report imposed pursuant to Section 220 of the RMA.

8.0 OTHER MATTERS

Local Government Act 2002: Development Contributions

In granting this resource consent, pursuant to the Local Government Act 2002 and the Council's Policy on Development Contributions the Council has identified that a Development Contribution is required. Payment will be due prior to application under the RMA for certification pursuant to section 224(c).

Please contact the Council if you require a Development Contribution Estimate

Administrative Matters

The costs of processing the application are currently being assessed and you will be advised under separate cover whether further costs have been incurred.

The Council will contact you in due course to arrange the required monitoring. It is suggested that you contact the Council if you intend to delay implementation of this consent or if all conditions have been met.

This resource consent is not a consent to build under the Building Act 2004. A consent under this Act must be obtained before construction can begin.

This resource consent must be exercised within five years from the date of this decision subject to the provisions of Section 125 of the Resource Management Act 1991.

If you have any enquiries please phone (03) 441 0499 or email resourceconsents@qldc.govt.nz.

Report prepared by

Decision made by



Luke Place
PLANNER



Blair Devlin
MANAGER, PLANNING PRACTICE

APPENDIX 1 - Decision 1 - Subdivision Consent Conditions

APPENDIX 2 - Applicant's AEE

APPENDIX 3 - Private Open Space Management Plan, updated March 2017 (to be updated)

APPENDIX 4 - Overarching Open Space Management Plan, updated March 2017 (to be updated)

APPENDIX 5 - Council Engineer's Report

APPENDIX 1- SUBDIVISION AND LANDUSE CONSENT CONDITIONS

General Conditions

1. That the development must be undertaken/carried out in accordance with the following plans:

Queenstown Lakes District Council (revised by C Hughes & Associates Ltd):

- Arrowsouth Properties Ltd – Location Plan, dated February 2016

C Hughes & Associates Ltd:

- Proposed Subdivision of Lot 29 DP 369201 (Sheet 1 – Overlay on Arrowsouth Structure Plan & Indicative Subdivision Layout Plan), Plan No C1212 Issue I (dated 19 May 2017).
- Proposed Subdivision of Lot 29 DP 369201 (Sheet 2 – Proposed Subdivision Layout), Plan No C1212 Issue I (dated 19 May 2017).
- Arrowsouth – Prelim. Engineering Design Roading Layout & Typical Cross Sections, Plan # C1244_01, Issue B dated 26/10/16
- Arrowsouth – Prelim. Engineering Design Road Longitudinal Sections, Plan # C1244_02, dated October 2016
- Arrowsouth – Prelim. Engineering Design Trails Layout & Typical Cross Section, Plan # C1244_03, Issue D dated 28/02/17
- Arrowsouth – Lower Escarpment Detail Existing Ground Profile Sections, Plan # C1256 dated 28 Nov 2016
- Arrowsouth – Prelim. Engineering Design Trail Longitudinal Sections, Plan # C1244_04, Issue B dated 28/02/17
- Arrowsouth – Prelim. Engineering Design Services Layout, Plan # C1244_05, Issue B dated 27/10/16
- Arrowsouth – Prelim. Engineering Design Certified Fill Earthworks Layout, Plan # C1244_06, dated February 2017
- Private Open Space Management Plan, updated March 2017 (to be updated in accordance with Condition 22)
- Overarching Open Space Management Plan, updated March 2017 (to be updated in accordance with Condition 22)

stamped as approved on 5 July 2017 (with the exception of the Private Open Space Management Plan and Overarching Open Space Management Plan which are to be updated) and the application as submitted, with the exception of the amendments required by the following conditions of consent.

2. This consent shall not be exercised and no work or activity associated with it may be commenced or continued until the following charges have been paid in full: all charges fixed in accordance with section 36(1) of the Resource Management Act 1991 and any finalised, additional charges under section 36(3) of the Act.

General

3. 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 3rd June 2015 and subsequent amendments to that document up to the date of issue of any resource consent.

Note: The current standards are available on Council's website via the following link:
<http://www.qldc.govt.nz>

4. All trail works shall be carried out in accordance with the Queenstown Lakes District Council's policies and standards, being QLDC's Cycle Trail Design Standards and Specifications dated 27 August 2015 and subsequent amendments to that document up to the date of issue of any resource consent unless otherwise agreed by the Parks and Reserves Manager.

Note: The current standards are available on Council's website via the following link:
<http://www.qldc.govt.nz/assets/Uploads/Council-Documents/2015-Full-Council-Agendas/29-October-2015/Item-4/4a-QLDC-Cycle-Trail-Design-Standard-2015-Attachment-A.PDF>

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

5. At least 5 working days prior to commencing work on site the consent holder shall advise the Principal Resource Management Engineer at Council of the scheduled start date of physical works. Compliance with the prior to commencement of works conditions detailed in Conditions (6 to 12) below shall be demonstrated.
6. 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.
7. Prior to commencing works within the McDonnell Road reserve boundary, the consent holder shall submit a traffic management plan to the Road Corridor Engineer at Council for approval. The Traffic Management Plan shall be prepared by a Site Traffic Management Supervisor. All contractors obligated to implement temporary traffic management plans shall employ a qualified STMS on site. The STMS shall implement the Traffic Management Plan. A copy of the approved plan shall be submitted to the Principal Resource Management Engineer at Council prior to works commencing.
8. Prior to commencing any work on the site the consent holder shall install a construction vehicle crossing, which all construction traffic shall use to enter and exit the site. The crossing shall be located at the proposed Road 01 intersection with McDonnell Road. The minimum standard for this crossing shall be a minimum compacted depth of 150mm AP40 metal that extends 10m into the site. The construction traffic crossing shall be upgraded with the road and intersection formations and improvements.
9. Prior to the commencement of any works on the land being developed the consent holder shall provide to the Queenstown Lakes District Council for review and acceptance, copies of design certificates in the form of Schedule 1A of QLDC's Land Development and Subdivision Code of Practice, specifications, calculations and design plans as is considered by Council to be both necessary and adequate, in accordance with Condition (4), to detail the following engineering works required:
 - a) The provision of a water supply to Lots 1 - 20 in terms of Council's standards and connection policy. This shall include an Acuflo CM2000 as the toby valve and an approved water meter as detailed in QLDC Water Meter Policy (Appendix A), dated August 2015. The costs of the connections shall be borne by the consent holder.
 - b) The provision of a foul sewer connection from Lots 1 - 20 to Council's reticulated sewerage system in accordance with Council's standards and connection policy, which shall be able to drain the buildable area within each lot. The connections shall be designed to reflect either gravity or pressure systems. The costs of the connections shall be borne by the consent holder.

- c) The provision of a 'Low Impact Design' stormwater reticulation and disposal system in general accordance with the application. The system shall include the provision of a connection from all future impervious areas in Lots 1 - 20 to the Council reticulated stormwater disposal system. The system design shall include consideration of an intercepting cut off drain and swale above the buildable areas to Lots 7 – 18 as mitigation against overland flows and the provision of a consent notice protecting the intercepting drain/swale, if incorporated into the designs. Roding swales shall be grassed instead of planted along internal development areas. The low impact design stormwater system shall be able to drain the entire area of each lot. The costs of the connections shall be borne by the consent holder.
- d) The provision of fire hydrants with adequate pressure and flow to service the development with a minimum Class FW2 fire fighting water supply in accordance with the NZ Fire Service Code of Practice for Firefighting Water Supplies SNZ PAS 4509:2008(or superseding standard). Any alternative solution must be approved in writing by the Area Manager for the Central North Otago branch of the New Zealand Fire Service.
- e) The provision of a sealed vehicle crossing that shall be constructed to Lots 1, 4, 6, 7, 12, 18 & 20 to Council's standards. Specifically this shall include compliant breakover angles over any swales.
- f) The formation of a sealed access extending through to the nett area of Lot 4.
- g) The provision of road lighting on in accordance with Council's road lighting policies and standards, including the *Southern Light* lighting strategy. The lighting shall extend from existing McDonnell Road lighting to the intersection with Road 01 and into the proposed development. Any road lighting installed on private roads/rights of way/access lots shall be privately maintained and all operating costs shall be the responsibility of the lots serviced by such access roads. Any lights installed on private roads/rights of way/access lots shall be isolated from the Council's lighting network circuits.
- h) The formation of Road 01 and Road 02, in accordance with Figure E12 of the Land Development and Subdivision Code of Practice, except that the minimum legal road width may be reduced to 12m minimum and indented parking provided adjacent to Lot 102 for 4 vehicles. Each road shall be provided with a 1.5m wide sealed footpath, cul-de-sac turning areas and grassed stormwater swales.
- i) The formation of intersections, in accordance with the latest Austroads intersection design guides. These designs shall be subject to review and acceptance by Council with any associated costs met by the consent holder.
- j) The extension and formation of McDonnell Road kerb and channel (K&C) and sealed footpath located west of the site to across the site frontage and beyond the intersection of proposed Road 1 with McDonnell Road. For clarity both the road, footpath and K&C shall be continuous from existing urban areas.
- k) The formation of unsealed Trails 1 and 2 across Lot 103 in general accordance with Council standards and as shown in preliminary engineering designs submitted with the application.
- l) The provision of Design Certificates for all engineering works associated with this subdivision/development submitted by a suitably qualified design professional (for clarification this shall include all Roads, Water, Wastewater and Stormwater reticulation). The certificates shall be in the format of the QLDC's Land Development and Subdivision Code of Practice Schedule 1A Certificate.

10. The consent holder shall install measures to control and/or mitigate any dust, silt run-off and sedimentation that may occur, in accordance with QLDC's Land Development and Subdivision Code of Practice and 'A Guide to Earthworks in the Queenstown Lakes District' brochure, prepared by the Queenstown Lakes District Council. Specifically the applicant shall prevent silt from earthworks entering the creek in the form of a cut off drain feeding into a sump with surface water pumped through either a hay or cloth filter prior to being allowed to discharge into the stream. These measures shall be implemented **prior** to the commencement of any earthworks on site and shall be subject to ongoing weekly monitoring reports back to Council. The measures shall remain in place for the duration of the project, until all exposed areas of earth are permanently stabilised.
11. 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 of QLDC's Land Development and Subdivision Code of Practice who is familiar with the Geosolve Limited report titled: '*Slope Stability Assessment, Lot 29 DP 369201, McDonnell Road Arrowtown*', dated 21 October 2016 and who shall supervise the track excavations and associated retaining wall constructions and ensure compliance with the recommendations of this report. This engineer shall be responsible for ensuring that temporary retaining is installed wherever necessary to avoid any potential erosion or instability.
12. 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 geotechnical professional as defined in Section 2 of QLDC's Land Development and Subdivision Code of Practice and who shall supervise the earthworks and fill certification. This shall include the issue of a Completion Report and Schedule 2A certificate to the Principal Engineer for Council on completion of works and prior to subdivision completion. Any remedial works outlined on the Schedule 2A that requires works across lot boundaries shall be undertaken by the consent holder prior to s224(c) of the RMA.

To be monitored throughout earthworks

13. The earthworks, batter slopes and retaining shall be undertaken in accordance with the recommendations of the report by Geosolve Limited report titled: '*Slope Stability Assessment, Lot 29 DP 369201, McDonnell Road Arrowtown*', dated 21 October 2016.
14. The site management controls installed in Condition (10) above shall be monitored for effectiveness on a weekly basis by the consent holder during earthworks and/or immediately following heavy/prolonged rainfall events, in their ability to prevent silt laden stormwater from entering the potable water source,. Should measures not be entirely effective the consent holder shall immediately implement any measures necessary to eliminate further silt laden contaminants from entering the water source. The monitoring shall include a brief email report on system effectiveness with supporting photographs sent through to the Principal Engineer of Council at engineeringapprovals@qldc.govt.nz.
15. The consent holder shall implement suitable measures to prevent deposition of any debris on surrounding roads by vehicles moving to and from the site. In the event that any material is deposited on any roads, the consent holder shall take immediate action, at his/her expense, to clean the roads. The loading and stockpiling of earth and other materials shall be confined to the subject site.
16. No earthworks, temporary or permanent, are to breach the boundaries of the site except for the Council reviewed and accepted works within existing or proposed road reserves and connections to Council infrastructure assets.

To be completed before Council approval of the Survey Plan

17. Prior to the Council signing the Survey 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 Survey Plan and shall be duly granted or reserved. All Council services within private land shall be provided with 3m wide service easements in gross.
 - b) The names of all roads, private roads & private ways which require naming in accordance with Council's road naming policy shall be shown on the survey plan.

[Note: the road naming application should be submitted to Council prior to the application for the section 223 certificate]

Amalgamation Conditions

18. The following shall be registered with Land Information New Zealand (CSN XXXXX):
- *"That Lots 102 & 103 hereon be held in the same Computer Freehold Register"*
 - *"That Lot 104 hereon be held as to twelve undivided one-twelfth shares by the owners of Lots 7 - 18 hereon as tenants in common in the said shares and that individual Computer Freehold Registers be issued in accordance therewith"*

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

19. Prior to certification pursuant to section 224(c) of the Resource Management Act 1991, the consent holder shall complete the following:
- a) The submission of 'as-built' plans and information required to detail all engineering works completed in relation to or in association with this subdivision/development at the consent holder's cost. This information shall be formatted in accordance with Council's 'as-built' standards and shall include all Roads (including right of ways and access lots), Water, Wastewater and Stormwater reticulation (including private laterals and toby positions).
 - b) The completion and implementation of all works detailed in Condition (9) above.
 - c) The submission of a Geotechnical Completion Report and Schedule 2A certificate to the Principal Engineer for Council. Any remedial works outlined on the Schedule 2A that requires works across lot boundaries shall be undertaken by the consent holder prior to s224(c) of the RMA.
 - d) The submission of a completion certificate for the completion of the trail in the form of NZS 4404:2010 Schedules 1B & 1C which demonstrates the trail achieves the needs of the Grade 3 trail user unless otherwise agreed by the Parks and Reserves Manager.
 - e) Written confirmation shall be provided from the electricity network supplier responsible for the area, that provision of an underground electricity supply has been made available (minimum supply of single phase 15kva capacity) to the net area of all saleable lots created and that all the network supplier's requirements for making such means of supply available have been met.
 - f) 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 net area of all saleable lots created and that all the network supplier's requirements for making such means of supply available have been met.

- g) The submission of Completion Certificates from the Contractor and the Engineer advised in Condition (9) for all engineering works completed in relation to or in association with this subdivision/development (for clarification this shall include all Roads, Water, Wastewater and Stormwater reticulation). The certificates shall be in the format of a Producer Statement, or the QLDC's Land Development and Subdivision Code of Practice Schedule 1B and 1C Certificate.
- h) All newly constructed 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.
- i) The submission of an operation and maintenance manual for the stormwater soakage device that outlines adequate maintenance instructions and frequencies.
- j) The consent holder shall enter into a developer's agreement between the developer and Council. This agreement shall bind the developer to its requirements in relation to the internal stormwater disposal systems. It shall outline to Council's satisfaction the ongoing requirements of the developer to undertake, for a period of five years, the on-going monitoring and maintenance of the internal stormwater disposal systems associated with the subdivision created under RM161093 in accordance with an approved operations and maintenance manual and monitoring of the water quality of discharge from that system. The agreement shall provide for:
 - (i) A maintenance period for the stormwater soakage devices in accordance with an approved operation and maintenance manual that shall extend for a total of five years following 224(c) certification prior to the asset being accepted for maintenance by Council.
 - (ii) Periodic monitoring of water quality at the boundary of the site downstream from the stormwater soakage devices. This shall include 6 monthly tests and/or immediately after 2 storm events each year until the defects period lapses.
 - (iii) Prepare a brief report annually detailing results of monitoring conclusions and present said report to QLDC.
 - (iv) The developer's agreement shall be checked and approved by the Council's solicitors at the consent holder's expense to ensure that all of the Council's interests and liabilities are adequately protected.
- k) All signage shall be installed in accordance with Council's signage specifications and all necessary road markings completed on all public or private roads (if any), created by this subdivision.
- l) Road naming shall be carried out, and signs installed, in accordance with Council's road naming policy.
- m) All earthworked/exposed areas shall be top-soiled and grassed/revegetated or otherwise permanently stabilised.
- n) The consent holder shall remedy any damage to all existing road surfaces and berms that result from work carried out for this consent.
- o) Provide a solicitors undertaking that the land covenant referred to in Condition 24 be registered on Lots 7-18 immediately upon issue of those titles.

20. Prior to certification pursuant to section 224(c) of the Resource Management Act 1991, the consent holder shall provide for review a covenant to be registered on Lots 7 – 18 that sets out management responsibilities of those lot owners to ensure the maintenance obligations contained in the consent notice on Lot 104 (owned by them in equal shares) are complied with. The terms of this covenant shall be checked and approved by the Council's solicitors at the consent holder's expense to ensure that a framework is in place requiring the lot owners to comply with the requirements of the consent notice on Lot 104 in a uniform and consistent manner and must include the following essential terms:
- a) Lot 104 shall at all times be held in the ownership of all the Lot Owners as tenants in common of undivided one-twelfth shares.
 - b) The Lot Owners will be the 12 owners of lots 7-18 as shown on the scheme plan.
 - c) The Lot Owners shall be liable to make a fair and reasonable contribution towards the maintenance obligations (as required by the Lot 104 consent notice and resource consent conditions) relating to Lot 104 on a proportionate basis.
 - d) The Lot Owners will all be members of the Owners Group.
 - e) The Owners Group will have the following powers and obligations:
 - (i) To meet as required but at least annually and pay such levies as are required to fund the maintenance obligations as required by the resource consent conditions (through the Private Open Space Management Plans and consent notice on Lot 104).
 - (ii) Elect one or more of the Lot Owners (Owner's Representatives) to determine and collect maintenance levies and engage and pay contractors on behalf of the other Lot Owners to ensure the obligations in the covenant are complied with.
 - (iii) The Owners Representatives must be elected prior to the original developer ceasing maintenance obligations in relation to Lot 104 DP [xxxxx].
 - (iv) These maintenance levies are payable to the Owner's Representatives (if elected) to pay contractors on behalf of the other Lot Owners to ensure the obligations in the covenant are complied with.
 - (v) Levies shall be payable within 21 days of the decision by the Lot Owners (or the Owner's Representatives) to collect the levies from the Lot Owners.
 - (vi) The Lot Owners or Owner's Representatives may elect to open a bank account to hold levies.
 - (vii) The Lot Owners or Owner's Representatives must engage a third party to carry out the maintenance obligations and the Lot Owners are collectively responsible for paying any associated costs.
 - (viii) If levies are not paid the Lot Owners may make claim and take such legal proceedings as are necessary to recover unpaid levies as a civil debt due and not right of set off or dispute or contest such levy shall accrue to the lot owner defaulting on payment when levies are due. Such a lot owner is also responsible for any additional costs, bank fees, charges, interest or otherwise incurred as a result of the short payment.
 - (ix) Where payment by a lot owner in any 12 month period exceeds the costs incurred to carry out the maintenance, the amount of the excess shall stand as a credit to that lot owner.
 - (x) Any dispute between the Lot Owners shall be determined by a simple majority of votes by the Lot Owners.
 - (xi) Where an individual lot owner is responsible for a deliberate act or omission in relation to Lot 104 they shall be responsible for the payment of all costs attributable to that act or omission.
 - f) Lot 104 may be used jointly and severally by the Lot Owners, their families, guests and invitees in such a manner as is consistent with the Arrowsouth Properties Limited Private Open Space Management Plan dated March 2017.

NOTE: The Arrowsouth Properties Limited Private Open Space Management Plan dated March 2017 is to be updated in accordance with Condition 22.

- g) The obligations within the covenant do not take effect until growing season 3 following the establishment of the planting.

Staging

21. The approved Private Open Space Management Plan(s) for Private Open Space Activity Areas E1, E5 and W1 and the Roadside Planting Strip shall be implemented prior to the subdivision receiving certification under section 224(c) of the Act. The term 'Implemented' shall be deemed to be when:
 - a) Planting identified within the Private Open Space Management Plan has occurred;
 - b) Fencing identified within the Private Open Space Management Plan of waterways has occurred;
 - c) The trail which traverses any part of the Activity Area or the corresponding Private Open Space Activity Area shall be completed to a suitable standard for public use and its ongoing access for public use is legally secured.
22. Prior to certification pursuant to section 224 of the Resource Management Act 1991 the Consent Holder shall provide to the Manager – Planning Practice an updated Private Open Space Management Plan and Overarching Open Space Management Plan based on the revised scheme plans identified in Condition (1) above.

Ongoing Conditions - Consent Notices

23. The following conditions of the consent shall be complied with in perpetuity and shall be registered on the relevant Titles referred to in this condition by way of Consent Notice pursuant to s.221 of the Act.
 - a) At the time a dwelling is constructed on Lots 1 - 2 and Lots 12 - 20, the owner for the time being will require individual low pressure sewage pumps to discharge wastewater from the lot to the reticulated network. The lot owner shall be responsible for all associated costs for the installation and maintenance of all aspects of the system located within the lot boundary. 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 in accordance with the Council low pressure sewer policy. Council Resource Management Engineering department can provide guidance regarding the policy as required.
 - b) At the time a dwelling is constructed the owner for the time being shall construct a concrete vehicle crossing to the site to Council's standards and as constructed for Lots 1, 4, 6, 7, 12, 18 and 20. The design of the vehicle crossing shall be subject to approval by Council under a 'Connection to Council Service Application'. The approval should be obtained and construction of the crossing approved by a Council Inspector prior to occupation of the dwelling.
 - c) No direct vehicle access onto McDonnell Road shall be provided from Lots 1, 4, 5, 6 & 20.
 - d) In the event that the Schedule 2A certificate issued under Condition (19) contains limitations or remedial works required to support dwelling development and not cross boundaries, then a consent notice shall be registered on the relevant Computer Freehold Registers. The consent notice condition shall read;
"Prior to any dwelling construction work (other than work associated with geotechnical investigations, the owner for the time being shall submit to Council for certification, plans prepared by a suitably qualified engineer detailing the proposed foundation design, earthworks and/or other required works in accordance with the Schedule 2A certificate attached. All such measures shall be implemented prior to occupation of any building."

- e) Any stormwater cut off drains/swales designed in Condition (9)(c) above that require permanent protection and/or maintenance within the lot boundaries shall be maintained by the individual lot owners. 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.
- f) All private open space areas, building/fencing restriction and landscaping maintenance areas labelled on the plans identified in Condition (1) shall be managed in perpetuity in accordance with the Private Open Space Management Plan and Overarching Open Space Management Plan required under Condition 22.
- g) With regard to Lot 103, all building and earthworks are prohibited within the area shown as POS-E5 on the Structure Plan from the Arrowtown South Special Zone in the Operative District Plan.

Ongoing Conditions – Covenants

24. The following conditions of the consent shall be complied with in perpetuity and shall be registered on the relevant Titles of Lots 7 – 18 upon issue by way of a covenant being entered into in favour of the Queenstown Lakes District Council pursuant to section 108(2) of the Resource Management Act 1991 [volunteered condition]:
- a) Lot 104 shall at all times be held in the ownership of all the Lot Owners as tenants in common of undivided one-twelfth shares.
 - b) The Lot Owners will be the 12 owners of lots 7 - 18 as shown on the scheme plan.
 - c) The Lot Owners shall be liable to make a fair and reasonable contribution towards the maintenance obligations (as required by the Lot 104 consent notice and resource consent conditions) relating to Lot 104 on a proportionate basis.
 - d) The Lot Owners will all be members of the Owners Group.
 - e) The Owners Group will have the following powers and obligations:
 - (i) To meet as required but at least annually and pay such levies as are required to fund the maintenance obligations as required by the resource consent conditions (through the Private Open Space Management Plans and consent notice on Lot 104).
 - (ii) Elect one or more of the Lot Owners (Owner's Representatives) to determine and collect maintenance levies and engage and pay contractors on behalf of the other Lot Owners to ensure the obligations in the covenant are complied with.
 - (iii) The Owners Representatives must be elected prior to the original developer ceasing maintenance obligations in relation to Lot 104 DP [xxxxx].
 - (iv) These maintenance levies are payable to the Owner's Representatives (if elected) to pay contractors on behalf of the other Lot Owners to ensure the obligations in the covenant are complied with.
 - (v) Levies shall be payable within 21 days of the decision by the Lot Owners (or the Owner's Representatives) to collect the levies from the Lot Owners.
 - (vi) The Lot Owners or Owner's Representatives may elect to open a bank account to hold levies.
 - (vii) The Lot Owners or Owner's Representatives must engage a third party to carry out the maintenance obligations and the Lot Owners are collectively responsible for paying any associated costs.
 - (viii) If levies are not paid the Lot Owners may make claim and take such legal proceedings as are necessary to recover unpaid levies as a civil debt due and not right of set off or dispute or contest such levy shall accrue to the lot owner defaulting on payment when levies are due. Such a lot owner is also responsible for any additional costs, bank fees, charges, interest or otherwise incurred as a result of the short payment.

- (ix) Where payment by a lot owner in any 12 month period exceeds the costs incurred to carry out the maintenance, the amount of the excess shall stand as a credit to that lot owner.
 - (x) Any dispute between the Lot Owners shall be determined by a simple majority of votes by the Lot Owners.
 - (xi) Where an individual lot owner is responsible for a deliberate act or omission in relation to Lot 104 they shall be responsible for the payment of all costs attributable to that act or omission.
- f) Lot 104 may be used jointly and severally by the Lot Owners, their families, guests and invitees in such a manner as is consistent with the Arrowsouth Properties Limited Private Open Space Management Plan dated March 2017.
- g) The obligations within the covenant do not take effect until growing season 3 following the establishment of the planting.

Accidental Discovery Protocol

25. If the consent holder:

- a) discovers koiwi tangata (human skeletal remains), waahi taoka (resources of importance), waahi tapu (places or features of special significance) or other Maori artefact material, the consent holder shall without delay:
 - (i) notify Council, Tangata whenua and Heritage New Zealand Pouhere Taonga and in the case of skeletal remains, the New Zealand Police.
 - (ii) stop work within the immediate vicinity of the discovery to allow a site inspection by the Heritage New Zealand Pouhere Taonga and the appropriate runanga and their advisors, who shall determine whether the discovery is likely to be extensive, if a thorough site investigation is required, and whether an Archaeological Authority is required.

Any koiwi tangata discovered shall be handled and removed by tribal elders responsible for the tikanga (custom) appropriate to its removal or preservation. Site work shall recommence following consultation with Council, the New Zealand Pouhere Taonga, Tangata whenua, and in the case of skeletal remains, the New Zealand Police, provided that any relevant statutory permissions have been obtained.

- b) discovers any feature or archaeological material that predates 1900, or heritage material, or disturbs a previously unidentified archaeological or heritage site, the consent holder shall without delay:
 - (i) stop work within the immediate vicinity of the discovery or disturbance and;
 - (ii) advise Council, the Heritage New Zealand Pouhere Taonga and in the case of Maori features or materials, the Tangata whenua and if required, shall make an application for an Archaeological Authority pursuant to the New Zealand Pouhere Taonga Act 2014 and;
 - (iii) arrange for a suitably qualified archaeologist to undertake a survey of the site.

Site work may only recommence following consultation with Council.

Earthworks Condition

26. Hours of operation for earthworks, shall be:

- Monday to Saturday (inclusive): 8.00am to 6.00pm.
- Sundays and Public Holidays: No Activity

In addition, no heavy vehicles are to enter or exit the site, and no machinery shall start up or operate earlier than 8.00am. All activity on the site is to cease by 6.00pm.

Advice Notes

1. 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.
2. The consent holder is advised to obtain all necessary consent from the Otago Regional Council, if any.
3. The consent holder is advised that any retaining walls, including stacked stone and gabion walls, proposed in this development which exceeds 1.5m in height or walls of any height bearing additional surcharge loads will require Building Consent, as they are not exempt under Schedule 1 of the Building Act 2004.
4. 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.

For Your Information

If your decision requires monitoring, we will be sending an invoice in due course for the deposit referred to in your consent condition. To assist with compliance of your resource consent and to avoid your monitoring deposit being used before your development starts, please complete the "[Notice of Works Starting Form](#)" and email to the Monitoring Planner at RCMonitoring@qldc.govt.nz prior to works commencing.

You may also have conditions that require you to apply for Engineering Acceptance. To apply for Engineering Acceptance, please complete the [Engineering Acceptance Application form](#) and submit this completed form and an electronic set of documents to engineeringacceptance@qldc.govt.nz with our monitoring planner added to the email at RCMonitoring@qldc.govt.nz.

If your decision requires a development contribution (DC) charge, we will be sending a notice in due course. To answer questions such as what is a DC charge, when a DC charge is triggered and timing of payments, please refer to this link. <http://www.qldc.govt.nz/planning/development-contributions/> If you wish to make a DC estimate calculation yourself, please use this link: <http://www.qldc.govt.nz/planning/development-contributions/development-contributions-estimate-calculator/> And for full details on current and past policies, please use this link: <http://www.qldc.govt.nz/council-online/council-documents/policies/policy-on-development-contributions-and-financial-contributions/>

APPENDIX 2 - APPLICANT'S AEE

Assessment of Effects on the Environment

Arrowsouth Properties Ltd

(McDonnell Road, Arrowtown – Residential Subdivision)



Prepared by:

C Hughes and Associates Ltd
Surveying and Resource Management
Central Otago



In Collaboration with Lane Neave and Rough and Milne

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1. Site Description

The subdivision site is a roughly rectangular shaped allotment, located on the northeast side of McDonnell Road, Arrowtown; nestled against the existing McDonnell Road and Cotter Avenue / Advance Terrace residential areas (see the attached Location Plan – QLDC Map 27).

The legal description of the site is Lot 29 DP 369201, held in freehold title 281292 by Arrowsouth Properties Limited, with a documented area of 7.9444 hectares.

The site topography consists of a uniform, gradually sloping lower plane, and a large escarpment leading up to the existing residential properties on Advance Terrace and Cotter Avenue.

A small spring fed stream, which is unnamed and originates from the Hills Golf Club, flows into the site (via a culvert) approximately a third of the way down the McDonnell Road boundary. The stream flows centrally through the lower plane, in a south-east direction, roughly parallel to the escarpment and McDonnell Road.

The only other notable topographical feature is a small rocky outcrop (escarpment) in the southwest corner of the site.

The lower portion of the site has historically been used for pastoral stock grazing, with established vegetative ground cover consisting of low producing exotic grass species scattered with juvenile Broom plants. Other vegetation in this area includes a couple of clusters of old Willow trees (lining / within the bed of the stream), along with a selection of Broom, Gorse, Wild Fennel and Thistle surrounding the rocky outcrop in the south west corner of the site.

The escarpment is fenced off from the lower portion, and has evidently not been grazed by stock as it is covered in exotic rank grass. The escarpment is also infested with Broom, as well as some wilding Poplar, Rowan, Hawthorn, and Conifer tree species; most of which are dead as a result of recent weed spraying.

2. District Plan Zoning

The subdivision site forms part of the Arrowtown South Special Zone, and is divided up into several areas of differing activity status, which were developed through the extensive zone / plan change Environment Court proceedings, based on the topographical features present and the existing and intended land uses.

As shown on the Arrowsouth Structure Plan (included in the Special Zone Rules), the flat northwest portion of the site is zoned Residential Activity Area (R) and the remainder of the site is made up of Private Open Space (POS) Activity Areas.

The watercourse is designated POS-W1, the major escarpment is POS-E1, the rocky outcrop in the southwest corner of the site is POS-E5, and the flat (generally featureless) pastoral areas are designated POS-P3.

The Residential Activity Area is contained within the Arrowtown Urban Growth Boundary (which bisects the site), and there is provision in the District Plan, under Rule 12.32.5.2(viii), for this area to accommodate up to twenty residential units; each with a minimum net area of 450m², and incorporating a roadside planting strip (R-RPS) alongside the McDonnell Road boundary.

3. The Proposal

3.1 Subdivision

The proposal is to subdivide the site into twenty residential allotments (as anticipated by the Arrowtown South Special Zone Rules), one allotment to vest in Council as road, one allotment to vest in Council for the purpose of stormwater management, and two private open space allotments (the balance of the site); as a **Controlled Activity**, in accordance with the Arrowtown South Special Zone Rules.

Lots 1, 4-6, and 20 will back onto McDonnell Road and vary in size between 601m² and 1122m². These allotments will incorporate a protected 6m wide roadside planting strip, in accordance with the requirements of the District Plan; hence resulting in net areas of 563m² to 978m².

Lots 2, 3, and 19 will be 653m², 635m², and 600m² respectively.

Lots 7-18 will be sized between 1098m² and 2000m²; incorporating strips of the escarpment (POS-E1), which will be restricted areas to prohibit building / fencing and protect / maintain amenity value. The net (buildable) areas of these allotments will therefore be between 615m² and 956m².

Lot 100 will comprise 3992m² and is to vest in Council as road (Road 01 and Road 02, with legal road reserve widths of 13.5m and 12.0m respectively).

Lot 101 will comprise approximately 3042m² (area to be confirmed after detailed engineering design), incorporating a stormwater detention wetland and the adjoining portion of the unnamed stream (over POS-P3 pastoral open space and POS-W1 watercourse). This allotment is to vest in Council (being a stormwater asset).

Lot 102 comprises approximately 1544m² of POS-P3 pastoral private open space (area to be confirmed after detailed engineering design), and Lot 103 will comprise the remaining 4.559 hectares of the site, incorporating most of the watercourse (POS-W1), the southern portion of the escarpment (POS-E1), the rocky outcrop in the southwest corner of the site (POS-E5) and various areas of pastoral private open space (POS-P3). It is intended that the ownership of, and maintenance responsibility for, these private open space allotments (Lots 102 and 103) will remain with the applicant (Arrowsouth Properties Ltd), or any successor in title.

Please refer to the attached scheme plan (C1212).

3.2 Servicing

The applicant has consulted extensively with the Council regarding the servicing of the proposed subdivision.

The attached Preliminary Infrastructure and Services Report details the servicing proposal.

All new allotments will have direct legal and physical access from the internal subdivision roads, via a single McDonnell Road intersection, with no direct access proposed onto McDonnell Road from the allotments.

The Arrowtown Water, Sewer, and Drainage Scheme boundaries are currently in the process of being altered to include the Residential Activity Area within the site. Ulrich Glasner (QLDC Chief Engineer) is currently preparing a report for the next Council meeting, requesting this change, and he has confirmed that the residential allotments can be serviced with water and wastewater connections from / to the existing QLDC networks.

It is intended that stormwater run-off captured / generated on the allotments and road reserve areas will ultimately discharge into the unnamed stream that runs through the site, via grassed and planted swales, gravity reticulation, and a detention / filtration wetland.

All new water supply, wastewater, and stormwater infrastructure (including Lot 101 over the proposed stormwater detention system) is to vest in Council, and the easements in gross are to be created in favour of Council.

Underground electricity and telecommunications connections will be installed to the boundaries of all new allotments, as confirmed by Aurora Energy Ltd and Chorus NZ Ltd (see the attached Preliminary Infrastructure and Services Report for further detail and confirmation letters).

3.3 Landscaping, Trails, and Earthworks

Extensive landscaping (including revegetation, rabbit and stock fencing, and a network of public walkway and cycleway trails) is proposed for the subdivision site. This will significantly enhance the amenity values in the area. The landscaping strategy is detailed in the attached Private Open Space Management Plan (POSMP), prepared by Rough and Milne Landscape Architects.

Right of way easements in gross (in favour of Council) will be created over all proposed trails to ensure Council and public access is protected.

The proposed trail connections (particularly up the face of the escarpment), along with the required road construction, will require a reasonable level of earthworks. The anticipated earthworks requirements (including areas, volumes and depths) are detailed in the attached Preliminary Infrastructure and Services Report, as well as on the C1244 Preliminary Engineering Drawings.

3.4 Site and Maintenance Controls

The applicant proposes various controls to govern the use and maintenance of the subdivided allotments, as detailed below. These will be guaranteed by way of a consent notice registered on the relevant titles.

Further controls, relating to building design and materials, are also being considered by the applicant, in order to guarantee the visual quality and consistency of the neighbourhood.

3.4.1 General Controls / Conditions

- a) *The consent holder or successors shall be responsible for providing vehicle entrances between the new road carriageway and the boundaries of Lots 1-3 and 5-20 (with any entrance that crosses a swale to incorporate a concrete dish swale structure) in accordance with Section 3.3.17 and drawing R02 (in Appendix F) of Council's Land Development and Subdivision Code of Practice.*
 - Note: The consent holder shall be responsible for providing the vehicle entrance between the new road carriageway and the boundary of Lot 4.

3.4.2 The Roadside Planting Strip (R-RPS) and McDonnell Road Access

- b) *No buildings, fences, or other structures may be erected on or along the boundary between McDonnell Road and Lots 1, 4-6, and 20, or within the 6 metre wide roadside planting strip forming part of these allotments (identified by building restriction and landscaping maintenance areas on the title plan).*
- c) *The consent holder or successors shall be responsible for maintaining, in the manner identified on the Arrowsouth Properties Ltd Private Open Space Management Plan, any landscaping within the respective building restriction and maintenance areas (the roadside planting strip) over Lots 1, 4-6, and 20, as shown on the title plan, and for keeping the respective areas free of any weeds or rubbish. Any trees or plants that die or become diseased shall be replaced in the next available planting season.*
- d) *No vehicular access shall be achieved directly between McDonnell Road and Lots 1, 4-6, and 20.*

3.4.3 The Subdivided Escarpment (Northern Portion of POS-E1)

- a) *No buildings, fences, or other structures (apart from naturally coloured timber seats) may be erected on the building restriction and landscaping maintenance areas over Lots 7-18, as shown on the title plan. This also prohibits the erection of any fences, or boundary planting (such as hedges), on or alongside the boundaries between Lots 7-18 in the vicinity of these areas.*
- b) *No earthworks (except minor / narrow walking track construction, as necessary for maintenance) may be carried out on the building restriction and landscaping maintenance areas over Lots 7-18, as shown on the title plan.*
- c) *The consent holder or successors shall be responsible for maintaining, in the manner identified on the Arrowsouth Properties Ltd Private Open Space Management Plan, any landscaping (including rabbit proof fencing) within / bounding the respective building restriction and landscaping maintenance areas over Lots 7-18, as shown on the title plan, and for keeping the respective*

areas free of any weeds or rubbish. Any trees or plants that die or become diseased shall be replaced in the next available planting season.

3.4.4 The Balance Land (POS-W1, POS-P3, POS-E5, and a Portion of POS-E1)

As mentioned above, it is intended that the ownership of, and maintenance responsibility for, the balance land (Lots 102 and 103 on the attached scheme plan) is to remain with the applicant (Arrowsouth Properties Ltd), or any successor in title. The attached memorandum, prepared by Lane Neave, outlines why this is considered to be the most appropriate approach, particularly given that it allows for effective and enforceable maintenance of the balance land.

With this intended ownership structure in mind, the advice from Lane Neave specifically considers the potential legal mechanisms to ensure compliance with the Arrowsouth South Special Zone planning framework. The advice concludes that *“a consent notice pursuant to section 221 of the RMA is the most appropriate mechanism to ensure the ongoing maintenance on the Balance Land as required by the Private Open Space Area Management Plan.”*

Given the above, the following consent notice conditions are proposed to safeguard Council and public interests in this open space (balance land) through ensuring ongoing revegetation, enhancement, maintenance, and rabbit and weed control.

- a) No buildings, fences, or other structures may be erected on Lots 102 or 103, apart from those specifically shown on, and anticipated by, the Arrowsouth Properties Ltd Private Open Space Management Plan (and the associated Overarching Open Space Management Plan).*
- b) The consent holder or successors shall be responsible for maintaining, in the manner identified on the Arrowsouth Properties Ltd Private Open Space Management Plan, any landscaping (including rabbit and stock fencing) within Lots 102 and 103, and for keeping the entire area free of any weeds or rubbish. Any trees or plants that die or become diseased shall be replaced in the next available planting season.*

In addition to the proposed consent notice, Council and public interests in the balance private open space (particularly in relation to access) will be protected through the registration of right of way easements in gross (in favour of Council) over all trails.

4. District Plan Provisions and Activity Status

The subdivision site forms part of the Arrowtown South Special Zone and comprises Residential Activity Areas R and R-RPS (Roadside Planting Strip), along with Private Open Space Activity Areas POS-W1 (Watercourse), POS-E1 (Escarpment), POS-E5 (Escarpment – Rocky Outcrop), and POS-P3 (Pastoral).

4.1 Activity Status

The proposed subdivision is consistent with the relevant Arrowtown South Special Zone District Plan provisions, so it is a **controlled** activity and Council's control is in respect to the following referenced provisions.

4.2 Rules

The proposed subdivision is consistent with the relevant Rules in 12.32.3.2; in particular:

- 12.32.3.2(i), which requires approval of an appropriate Overarching Open Space Management Plan prior to any development.

A comprehensive Overarching Open Space Management Plan (OOSMP) has been prepared by Rough and Milne Landscape Architects, and is attached to this application. This document has been aligned with the requirements in Rule 12.32.3.2(i), with an overarching vision and strategies that:

1. Identify the key issues, target species, and methods for weed management.
2. Detail the historic habitat areas (plant communities) and associated restoration of plant species.
3. Outline suitable rabbit control and stock exclusion methods.
4. Propose a sustainable ownership and management structure (for ongoing revegetation, rabbit control and weed management throughout the Zone), that:
 - Is enforceable through consent notice conditions; and
 - Has been approved for the Arrowsouth Properties Ltd land by Roger Monk and Cook Adam Trustees Ltd (the owners of the other subdividable property within the Zone) – see the attached APA documentation.
5. Provide a structural revegetation strategy for the Arrowsouth Properties Ltd site which is aligned with the requirements for the various different open space areas and provides guidance for structural planting on the Roger Monk and Cook Adam Trustees Ltd property.
6. Identify the proposed trail network (achieving a balance between the indicative Arrowsouth Structure Plan locations, what is practical / achievable, and what is most effective in achieving the outcomes sought by the District Plan).

- 12.32.3.2(ii), which requires approval of appropriate Private Open Space Management Plan(s).

A detailed Private Open Space Management Plan (POSMP) has been prepared (for the Arrowsouth Properties Ltd subdivision site) by Rough and Milne Landscape Architects, and is attached to this application. This document has been aligned with the requirements in Rules 12.32.3.2(ii-iii) and presents:

- a. A methodology that is consistent with the OOSMP.
- b. An integrated landscaping approach to protect and enhance the amenity values of the various different open space areas.
- c. Detailed revegetation programmes for the various areas.
- d. Detailed weed control programmes for the various areas.
- e. Integration between the different programmes in a manner that is consistent with the overarching vision for the Zone (as outlined in the OOSMP)
- f. A functional trail network which is aligned with the vision for the Zone (expressed through the OOSMP) and achieves a balance between the indicative Arrowsouth Structure Plan positions and what is practical / achievable.
 - With proposed QLDC easements in gross to provide / protect public access.
- g. A detailed list of escarpment revegetation species, and an associated revegetation strategy, suitable for mitigating the adverse visual effects caused by the required trail earthworks.
- h. A suitable framework for any future POSMPs, and is consistent with the Arrowtown South Special Zone District Plan provisions.
- i. An integrated watercourse revegetation and fencing plan, detailing a suitable approach to enhance water quality through riparian planting and stock exclusion.
- j. A vision, programme, and revegetation strategy for the ongoing protection and enhancement of the rocky outcrop feature (POS-E5) in the southwest corner of the site.

4.3 Standards

The proposed subdivision is consistent with the relevant Site Standard in 12.32.5.1(x), as follows:

- 12.32.5.1(x) Fencing of Waterways

The proposed watercourse fencing (detailed in the POSMP) will be set back at least 15 metres from the edge of the stream (the unnamed stream).

The proposed subdivision is consistent with the relevant Zone Standards in 12.32.5.2; in particular:

- 12.32.5.2(i-ii) Staging

These standards relate to staging and require implementation of an Overarching Open Space Management Plan and associated Private Open Space Management Plan(s).

As detailed above, the required Overarching Open Space Management Plan and the Private Open Space Management Plan have both been prepared in accordance with Rules 12.32.3.2(ii-iii) and are attached to this application (for Council approval). The proposed ownership and management structure (which will provide for ongoing private open space revegetation, enhancement, maintenance and rabbit and weed control) is detailed above and is outlined in the attached OOSMP, with supporting advice in the attached memorandum, prepared by Lane Neave.

- 12.32.5.2(iv) Fencing

In accordance with this standard, all fences to be constructed in private open space activity areas will be post, waratah and wire fences with rabbit protection mesh, suitable for both stock and rabbit exclusion (as specified in the attached POSMP).

- 12.32.5.2(viii) Density

The subdivision proposal is in accordance with this standard, as the proposed minimum residential net area is 563m² (well in excess of the 450m² minimum for the Residential Activity Area), and the proposed number of residential allotments is 20 (being the maximum allowable).

- 12.32.5.2(xiii) Access

The subdivision proposal is in accordance with the relevant access standards (for the Residential Activity Area). All proposed allotments will have legal road frontage, with no direct access proposed onto McDonnell Road from any of the allotments (to be enforced by way of a consent notice). The allotments will all gain access via the internal subdivision roads, which have been designed in accordance with the positions shown on the Arrowsouth Structure Plan.

5. Consultation (Effects on Persons)

As outlined in Section 12.32.4 of the Arrowtown South Special Zone Rules, there is no requirement to obtain affected party approvals or for the application to be notified for controlled activities.

The subdivision proposal is fully in accordance with the relevant provisions of the Arrowtown South Special Zone Rules, and is therefore a **controlled** activity. As such, the relevant consultation has essentially already been carried out through the PC39 plan / zone change process.

Extensive consultation has been carried out with Council; including meetings, discussions and emails relating to the proposed private open space legal / ownership structure, servicing of the residential allotments, vesting of land and infrastructure in Council, and requirements for the Open Space Management Plans. This thorough consultation has resulted in refinement of the present application, which is aligned with the Arrowtown South Special Zone District Plan provisions and wider Council requirements.

Approval has been obtained from Roger Monk and Cook Adam Trustees Ltd (the owners of the other subdividable land in the Arrowtown South Special Zone), with regard to the Overarching Open Space Management Plan (as prepared by Rough and Milne Landscape Architects). This approval (a signed APA form and a signed copy of the Overarching Open Space Management Plan) is attached.

No further consultation is considered necessary. This is particularly the case as the other properties in the Arrowtown South Special Zone either do not contain any private open space (POS) activity areas, or they have already been subdivided to the maximum extent allowable under, and anticipated by, the District Plan.

The effects of the Overarching Open Space Management Plan (OOSMP) on Lot 2 DP 482536 have been directly considered, given that this allotment incorporates the POS-E4 Activity Area (with the building platform and bulk of the site being RL-5 Rural Living Activity Area). This allotment has recently been subdivided off, around the time of the Environment Court plan change process. As a result, there are now six allotments in the RL-5 Activity Area, being the maximum number permitted under Zone Standard 12.32.5.2(ix). Under the provisions of the District Plan, the OOSMP only comes into effect at the time of subdivision. Given that this site cannot be further subdivided, it would be impossible to retrospectively enforce any strategies or requirements, the OOSMP for the Arrowtown South Special Zone is not applicable to this allotment (or the enclosed POS-E4 area). With this in mind the proposed OOSMP is not considered to have any effects on Lot 2 DP 482536 (or the POS-E4 Activity Area).

There is no adverse effect on those in the neighbourhood, nor the wider community. There are not considered to be any adverse effects on other parties in terms of social, economic or cultural values. As detailed below, the effects are positive.

6. Natural Hazards

As detailed in the attached Preliminary Infrastructure and Services Report, there are not considered to be any hazards in relation to the subdivision site / proposal.

6.1 Soil Contamination

There are no known records or sources of contamination (including HAIL activities) on the site.

A comprehensive search (including checking records held by QLDC, ORC and previous land owners) has been carried out in order to determine this.

6.2 Flooding

The Council's GIS Natural Hazards Register does not indicate any potential risks (including any flood risk) associated with the subject site.

The stream bed / flow and bank levels, and the nearest proposed platform levels, have been surveyed and are stated in the attached Preliminary Infrastructure and Services Report.

6.3 Slope Instability

The stability of the escarpment has been determined suitable for the proposed trails, provided batter heights are minimised and suitable retaining structures are constructed where required (see the Slope Stability Assessment prepared by GeoSolve Ltd, in the Appendices within the attached Preliminary Infrastructure and Services Report).

7. Assessment of Environmental Effects

7.1 The Receiving Environment

The proposed activity is consistent with the Arrowtown South zoning and is sympathetic to the receiving environment.

A subdivision development of the proposed scale and intensity is directly anticipated by the District Plan. Residential development is compatible with the surrounding land use, as the subject site comprises the empty southern corner of Arrowtown, directly adjoining the existing McDonnell Road and Cotter Avenue / Advance Terrace residential areas.

Through the trail connections and various landscaping enhancements, the proposed subdivision will establish a buffer zone in the southern corner of Arrowtown, providing a transition between residential and semi-rural areas, and therefore conforming with the unique receiving environment.

7.2 Assessment of Effects Anticipated by the District Plan

The proposed subdivision will have minimal adverse effects on the environment.

The Arrowtown South Special Zone District Plan provisions define the permitted baseline for the subdivision site, with the Section 12.32.6 Assessment Matters essentially detailing the effects anticipated by the District Plan.

7.2.1 Effects Relating to the Overarching Open Space Management Plan

Section 12.32.6.2(i) outlines the requirements considered necessary for mitigating adverse effects relating to management of the overarching open space.

Primary consideration is given to the appropriateness and effectiveness of proposed methods for minimising / eliminating existing adverse conditions; such as weed and rabbit infestation.

The attached Overarching Open Space Management Plan (OOSMP) details the extensive measures to be taken to eradicate weed plant species and the rabbit population. Weed plants and trees are to be controlled using a mixture of techniques; including spot spraying, stump cutting and herbicide application, hand pulling / digging, and aerial spraying (for the initial treatment, where appropriate). When carried out in favourable weather conditions, these techniques are extremely effective and can be employed without any adverse effects on the surrounding environment or properties / landowners.

In a similar manner, culling and control of the existing rabbit population will be achieved with no more than minor adverse effects on adjoining property owners, and reduced rabbit numbers will have positive effects on these owners. This culling / control will initially involve rabbit proof fencing the areas to be planted,

and many of the adjoining fences are already rabbit proof. Once the various areas of the site are rabbit proof (and the existing rabbit population is contained), controlled shooting can be carried out by experienced pest controllers (using noise suppressors). This cull technique is considered the most effective for initial treatment, as the success rate is high and the effects are limited to a short time period (during the shoot). Following the initial cull, ground baiting can be employed where required (arranged by the individual property owners on an on-going basis). The OOSMP details the appropriate techniques to be employed, including the suggested bait type and the need for neighbour notification, so to mitigate any adverse effects (on neighbouring owners and domestic animals etc).

Section 12.32.6.2(i) also considers the appropriateness and effectiveness of the proposed enhancement techniques, including the species to be planted and the intended planting and trail locations. The OOSMP provides a comprehensive revegetation strategy, suggesting suitable native shrub and forest tree species for the various areas of the site. This strategy, and associated planting, will restore the ecological values and character of the area, through enhancing the degraded watercourse and escarpment areas whilst softening any visual effects resulting from the residential development or trail connections.

The OOSMP identifies the most appropriate locations for the proposed trails, which minimise any adverse effects by achieving a balance between:

- Providing practical, direct and safe alignments and surfaces;
- Minimising the adverse effects resulting from earthworks;
- Protecting neighbour privacy;
- Providing panoramic views; and
- Conforming with the indicative locations shown on the Arrowsouth Structure Plan.

Section 12.32.6.2(i) also considers the “*robustness of the proposed body corporate arrangement*” for implementation of the Overarching Open Space and Private Open Space Management Plan (OOSMP and POSMP) requirements.

As previously mentioned, it is proposed that the ownership of, and maintenance responsibility for, the balance land (Lots 102 and 103 on the attached scheme plan) is to remain with the applicant (Arrowsouth Properties Ltd) or any successor in title. Furthermore, the northern portion of the escarpment is to be divided into strips and incorporated into the adjoining residential allotments (as private open space amenity areas). Consent notices registered on the titles for all the relevant allotments will ensure ongoing maintenance and enhancement of the various private open space areas.

Whilst this approach differs from the suggested ‘body corporate’ legal structure that is referenced in the District Plan, the District Plan does anticipate other structures being used. It is considered that the use of a consent notice mechanism, obliging one legal entity, is the most practical and robust method of upholding and enforcing the requirements outlined in the OOSMP (and associated POSMPs). As detailed in the attached memorandum, prepared by Lane Neave, individual ownership (with consent notice obligations) is considered to have more practical and tangible outcomes, whereby effective decision making is effortless, and the enforcement of obligations by the Council is straightforward. This advice draws a direct comparison with a strict ‘body corporate’ structure, mentioning this type of

structure would essentially sterilise the private open space and potentially “*result in inferior RMA outcomes.*” It would also reduce the ability for Council to enforce the relevant obligations.

Given all of the above, the proposed legal / ownership structure is considered to reduce the likelihood of any future adverse effects resulting from difficulties acknowledging or enforcing the OOSMP and POSMP requirements and is considered the most appropriate way to ensure the outcomes of the zone are achieved.

7.2.2 Effects Relating to Management of the Private Open Space

Section 12.32.6.2(ii) outlines the requirements considered necessary for mitigating adverse effects relating to management of the various private open space areas.

The proposed weed eradication / control and revegetation programmes (outlined in the attached POSMP) are in accordance with the assessment matters in 12.32.6.2(ii)(a-b). These programmes provide comprehensive guidance for the relevant lot owners and are expected to prevent any future uncertainty or negligence (and associated adverse effects, such as degraded visual amenity).

In accordance with 12.32.6.2(ii)(c), the proposed POSMP planting strategy (including the watercourse revegetation and planting in / around the proposed wetland, and the escarpment revegetation) will soften any adverse visual effects resulting from the residential development. This planting strategy has been carefully considered, with variation in plant types and spacing / location, so as to achieve a soft, natural appearance and provide buffer zones to reduce the visual impact of the proposed development.

Section 12.32.6.2(ii)(d) considers the proposed location of stock fences with respect to the minimisation of adverse effects relating to effluent run-off, erosion due to stock movement, and destruction of ecologically sensitive vegetation.

As detailed in the POSMP, post and wire stock fencing (with rabbit proof mesh) is to be constructed around / alongside all planted private open space areas, such as the escarpment, the rocky outcrop, and the waterbodies (the existing stream and the proposed wetland). This fencing will allow for proper plant establishment, through protection from stock grazing / damage. Furthermore, all fencing around / alongside the waterbodies will be constructed at least 15 metres clear of the water’s edge. This will avoid effluent contamination of the watercourse and erosion of the banks, which has evidently been an issue in the past and may have had adverse effects on downstream property owners (water users) and ecosystems.

Public access along all trails (shown in the attached OOSMP and POSMP documents, and on the attached C1244 Preliminary Trails Layout) is to be protected by easements in gross in favour of Council, in accordance with Section 12.32.6.2(ii)(e). These easements will provide Council with the authority to regulate the use of the trails and carry out any maintenance considered necessary, without adversely affecting / restricting the use of the private open space by the land owner.

Consideration is given in Section 12.32.6.2(ii)(f) to the timing of the works outlined in the POSMP, with respect to the development and sale of the proposed residential allotments. The POSMP details the programme for completion and ongoing maintenance of the landscaping, including the developer and resident obligations (which are to be enforced through consent notices). This document therefore allows for staging of the works in a manner that will not have any adverse effects on the saleability of the residential allotments.

7.2.3 Effects Relating to Management of the Residential Activity Area – Roadside Planting Strip

Section 12.32.6.2(iii) outlines the requirements considered necessary for mitigating adverse effects relating to management of the Residential Activity Area – Roadside Planting Strip.

In accordance with Sections 12.32.6.2(iii)(a-b), the structure of the 6.0 metre wide roadside planting strip will be consistent with the landscaping employed over the wider site and zone. As detailed in the POSMP, the native plant species to be established in this area will include similar species to those proposed for the various private open space areas across the site. This uniform landscaping approach will establish a coherent character throughout the subdivision site (and the wider zone – through the OOSMP strategy). Furthermore, the plants along the roadside planting strip will be protected from rabbit damage through the use of individual plant sleeves, so as to avoid fencing along the roadside and detracting from the visual quality of the streetscape.

As with the revegetation proposed throughout the private open space activity areas, the primary intent of the roadside planting strip is to soften the visual appearance of the residential development from McDonnell Road and the nearby rural properties. In order to achieve this, the plant types and planting densities (outlined in the POSMP) have been selected to ultimately provide an effective buffer / screen. This will ensure the adverse effects on visual amenity values, as perceived from McDonnell Road or the rural properties on the west side of the road, are no more than minor. The suitably vegetated roadside planting strip will also serve to reduce the visual and acoustic effects of McDonnell Road vehicle movement on the new residential properties.

Sections 12.32.6.2(iii)(d-e) consider the need for practical methods to be employed to limit the domestication of, and proliferation of vehicle accessways through, the roadside planting strip. As mentioned in the POSMP, and detailed in Section 3.4.2 (above), controls are proposed to restrict the erection of any buildings, fences, or other structures within / along the roadside planting strip, and to prohibit direct vehicle access between McDonnell Road and the adjoining allotments. These controls will be enforced by way of a consent notice, and will ensure the visual coherency of the McDonnell Road streetscape is protected while also promoting the safety and efficiency of the roading network.

In a similar manner to the private open space landscaping, the POSMP details the programme for completion and ongoing maintenance of the roadside planting strip landscaping, including the developer and resident obligations (which are to be

enforced through a consent notice). This document therefore allows for staging of the works in a manner that will not have any adverse effects on the saleability of the residential allotments.

7.2.4 Effects Relating to Earthworks

Whilst the District Plan Site Standards for earthworks expressly exclude earthworks associated with a consented and approved subdivision, the following assessment of effects relating to Section 12.32.6.2(xiii) is included for completeness.

7.2.4.1 Environmental Protection Measures

As outlined in the attached Preliminary Infrastructure and Services Report, suitable environmental protection measures will be employed at the subdivision construction stage to minimise the effects on the receiving environment.

Stormwater and silt run-off will easily be managed through the use of strategically positioned silt fences, or other suitable barriers, and proper care by machinery operators (especially when leaving the site).

In a similar manner, dust emissions will be limited through the use of appropriate techniques such as regular watering, minimising the area of exposed / cut surfaces at any one time, and prompt grassing / planting of finished surfaces.

Employing a strategic earthworks programme, to minimise the duration over which earthworks surfaces are exposed, and to contain any exposed material on the site (through surface wetting and directing any run-off into the wetland basin, for example), will reduce the duration and intensity of any adverse effects to very minor.

The proposed subdivision earthworks are not considered likely to affect groundwater (based on the site investigation findings detailed in the attached Preliminary Infrastructure and Services Report, as well as the informed assumptions made by GeoSolve Ltd in Slope Stability Assessment which is in the Appendices of the Preliminary Infrastructure and Services Report).

The effects of the proposed earthworks, with respect to the stability of the subject soils, have been addressed, particularly in regard to the trails over the escarpment. The Slope Stability Assessment prepared by GeoSolve Ltd identifies potential stability issues and recommends solutions to overcome these issues and mitigate the potential adverse effects of constructing trails on the steep escarpment face. The relevant Preliminary Engineering Design drawings have been updated to reflect the GeoSolve Ltd recommendations.

7.2.4.2 Effects on Landscape and Visual Amenity Values

The proposed earthworks have been kept to a minimum, being those works necessary to achieve the outcomes directly anticipated by the District Plan. As such, the effects of the proposed earthworks on any landscape and visual amenity values are also anticipated by the District Plan.

The earthworks required for the residential development area (roading and services construction), and those required for the trails and detention wetland on

the lower private open space, are minimised as much as possible through aligning design surfaces with the existing topography. Furthermore, these areas / features will be suitably landscaped and screened with appropriate planting. As such, there are not considered to be any associated adverse effects on landscape and visual amenity values; rather, these values will be significantly enhanced.

The proposed escarpment trails are designed in a manner that is as sympathetic to the sensitive landscape as possible. Given that the escarpment is a prominent feature in the landscape, the proposed cuts and fills have been minimised through the avoidance of visually obtrusive switchbacks, the consideration of appropriate retaining structures, and slight deviation from the strict requirements in the QLDC *Cycle Trail Design Standards & Specifications*. Furthermore, the proposed revegetation strategy for the escarpment (as detailed in the attached Private Open Space Management Plan) will result in systematic rehabilitation of exposed earthworks faces (cut and fill batters etc).

With the above in mind, the adverse effects on landscape and visual amenity values resulting from the trail earthworks are expected to be no more than minor (and any potential effects are most certainly envisaged by the District Plan).

7.2.4.3 Effects on Adjacent Sites

The proposed earthworks have been considered with respect to any potential adverse effects on neighbouring property and owners / occupiers.

The Slope Stability Assessment prepared by GeoSolve Ltd (in the Appendices within the attached Preliminary Infrastructure and Services Report), considers the proposed trail earthworks with respect to any potential hazards for the properties on the terrace at the top of the escarpment. As mentioned in the GeoSolve Ltd report, any potential “... *cut batter failure is predicted to be localised around the crest of the cut but is predicted to progressively extend further upslope*”. In order to avoid this occurring, and any slope instability issues (particularly for the adjoining Advance Terrace allotments), suitable retaining structures (to be finalised during the detailed engineering design) will be employed in accordance with the GeoSolve Ltd recommendations. Detailed geotechnical design advice will be sought during the engineering design and construction stages, so as to ensure that any cut, fill, and retaining is carried out according to QLDC engineering standards.

As mentioned above, the proposed design surfaces (particularly the roads and trails) have been aligned as closely as possible to the existing topography. As a result, the general surface drainage patterns across the site will not be altered. Furthermore, any increase in stormwater run-off, due to an increase in impermeable surfaces, will be contained and managed by the proposed stormwater wetland (detention basin). This detention system will promote groundwater recharge and control discharge into the existing stream in a manner that is unlikely to cause any adverse effects on downstream properties, water users, or ecosystems.

7.2.4.4 Effects on General Amenity Values

The effects of the required earthworks on general amenity values are to be minimised through employing suitable construction programmes and techniques, and through preserving the natural topography wherever possible.

As mentioned in the attached Preliminary Infrastructure and Services Report, the excess earthworks cut material (including topsoil) will be temporarily stockpiled on site, at the base of the escarpment on Lot 103 (pastoral private open space). There is sufficient space in this area to stockpile / spread the excess material in a uniform manner, and screen it from view (from McDonnell Road or the adjoining allotments) through grassing, which will help it blend into the landscape (and also prevent erosion of any sediment into the stream).

This approach will avoid excess heavy vehicle movements to and from the site during construction, which would otherwise potentially adversely affect the nearby land owners and road users. Ultimately it is envisaged that the excess material will be useful for other future developments in the area.

As with any typical development of this nature, the subdivision construction is anticipated to generate a certain level of noise, vibration, and dust. The effects of this on the amenity values of the surrounding area will be limited in duration, however, and will only be noticeable at particular stages of construction. These effects will be minimised through establishing a set programme of construction (with all operations to be carried out in normal working hours), through utilising machinery that is fit for purpose (i.e. not unnecessarily heavy), through regular wetting and prompt reinstatement of exposed surfaces, and through notifying / consulting adjoining owners of the intended works (where appropriate).

To avoid any ongoing adverse effects on general amenity values in the area, the existing topography is to be preserved wherever possible. This will ensure that adjoining allotments are not impacted by any visually obtrusive cut or fill areas, and it will also provide a natural feeling environment for the occupants of, and visitors to, the subdivision.

7.2.4.5 Effects on Cultural Heritage Values

There are no known sites of historical, ancestral, or archaeological value within the subject land, so there are not considered to be any adverse effects on cultural heritage values.

7.2.5 Effects Relating to Access

Section 12.32.6.2(xv) of the District Plan considers the anticipated effects relating to access.

Subparts (a.) and (b.) address the potential need for alternative or additional formed access to the site. At present, the single formed access to the residential development area is considered to be sufficient for the anticipated activities on the site, and this access is consistent with the Arrowsouth Structure Plan. Should the nature or intensity of any activity on the private open space change, then additional access(es) may be required. Depending on the nature of any proposed

change in use, there may also be scope to extend, or construct an accessway off, the proposed southern cul-de-sac road (Road 01).

Subparts (c.) and (d.) address the potential for adverse effects relating to any additional crossing points onto McDonnell Road. Given that a single access point (the Road 01 intersection) is proposed onto McDonnell Road, effects on the pastoral setting and traffic safety will be as minimal as possible (and are therefore directly anticipated by the District Plan). Furthermore, construction of further access connections onto McDonnell Road (from the adjoining residential allotments) will be prevented through consent notice restrictions, thereby avoiding any potential future increase in adverse effects.

Overall, the potential adverse effects on the environment from this proposed subdivision consent will be no more than minor.

The majority of the effects will be positive, particularly in relation to the end outcome and associated amenity values. The proposed native revegetation and ecological restoration (of the escarpment, the stream, and the site in general) will significantly enhance the landscape and receiving environment. Furthermore, the proposed trail connections will promote public use and enjoyment of this enhanced open space.

8. RMA Section 104(1)(b) Assessment

The subdivision proposal is not contrary to the relevant provisions of any National or Regional Policy Statement (NPS or RPS), National Environmental Standard (NES), the objectives and policies of the Regional Plan or District Plan, or any other relevant regulations.

Consideration has previously been given (during the Environment Court proceedings prior to PC39) to many of the relevant statutory instruments and their application to the site. The relevant statutory instruments and provisions are summarised as follows.

8.1 NES – for Assessing and Managing Contaminants in Soil

As outlined in the interim Environment Court decision of 27 May 2014, there are not considered to be any issues or effects with respect to the *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. The checks carried out as part of the current application process corroborate this determination.

8.2 National Policy Statement for Freshwater Management

The most relevant objective in the *National Policy Statement for Freshwater Management* is to maintain or improve fresh water quality while¹:

- a) *protecting the significant values of outstanding freshwater bodies;*
- b) *protecting the significant values of wetlands; and*
- c) *improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.*

The proposed low impact design (LID) stormwater management approach, employing planted swales and a naturally functioning detention / filtration wetland, serves to enhance the quality of the existing stream and improve water quality.

8.3 Regional Policy Statement for Otago

As determined during the PC39 Environment Court proceedings, the relevant policies in the operative *Regional Policy Statement (RPS) for Otago* (which are aligned with the provisions in the proposed RPS) are:

5.4.2 To avoid, remedy or mitigate degradation of Otago's natural and physical resources resulting from activities utilising the land resource.

The proposed subdivision will not degrade natural and physical resources in any way, as the Overarching Open Space Management Plan

¹ Objective A2 (*National Policy Statement for Fresh Water Management 2014*)

(OOSMP) and Private Open Space Management Plan (POSMP) strategies, and the proposed LID approach, will protect and enhance these resources.

5.4.4 To ensure that public access opportunities exist in respect of activities utilising Otago's natural and physical land features.

As detailed in the OOSMP and POSMP, a network of walkway and cycleway trails through the site will facilitate public access throughout the Arrowsouth South Special Zone, incorporating access to and along the significant natural features (such as the stream and the escarpment).

6.4.4 To maintain and enhance the ecological, intrinsic, amenity and cultural values of Otago's water resources.

As detailed in the POSMP, the landscaping strategy associated with the proposed subdivision will create a detention wetland of high ecological, intrinsic, amenity and (envisaged) cultural value. This strategy will also restore the existing stream bed to a healthy, ecologically sustainable state, providing a suitable habitat for native wildlife whilst also enhancing the intrinsic and amenity value of the watercourse.

6.4.5 To avoid, remedy or mitigate degradation of water resources resulting from the use, development or protection of the beds and banks of Otago's water bodies and of adjacent land areas.

The POSMP strategy for the revegetation, fencing and enhancement of the stream, together with the proposed LID stormwater management approach (through the use of planted swales and the planted detention / filtration wetland), will significantly enhance water quality.

6.4.7 To maintain and enhance public access to and along the margins of Otago's water bodies.

As detailed above, the proposed trail network will provide extensive public access to and along the stream.

9.4.3 To avoid, remedy or mitigate the adverse effects of Otago's built environment on Otago's natural and physical resources.

The subdivision proposal, embodied through the POSMP, is aligned with the requirements in the Arrowsouth South Special Zone District Plan provisions, in a manner that is sympathetic to the natural and physical resources present on the site.

8.4 Otago Regional Plan

The overarching objectives of the *Otago Regional Plan (Water for Otago)* that are directly relevant to the proposed subdivision activity are:

7.A.1 To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.

7.A.2 To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.

10.3.1 Otago's wetlands and their individual and collective values and uses will be maintained or enhanced for present and future generations.

With regard to the subdivision proposal (particularly the POSMP strategy and the proposed LID stormwater management approach), the relevant rules that achieve these objectives are:

12.B.1.8 The discharge of stormwater from a reticulated stormwater system to water, or onto or into land in circumstances where it may enter water, is a **permitted** activity, providing:

- (a) Where the system is lawfully installed, or extended, after 28 February 1998:
 - (i) The discharge is not to any Regionally Significant Wetland; and
 - (ii) Provision is made for the interception and removal of any contaminant which would give rise to the effects identified in Condition (d) of this rule; and
- (b) The discharge does not contain any human sewage; and
- (c) The discharge does not cause flooding of any other person's property, erosion, land instability, sedimentation or property damage; and
- (d) The stormwater discharged, after reasonable mixing, does not give rise to all or any of the following effects in the receiving water:
 - (i) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or
 - (ii) Any conspicuous change in the colour or visual clarity; or
 - (iii) Any emission of objectionable odour; or
 - (iv) The rendering of fresh water unsuitable for consumption by farm animals; or
 - (v) Any significant adverse effects on aquatic life.

The proposed LID stormwater management approach, with planted swales and the planted detention / filtration wetland (based on the design advice prepared by Fluent Solutions, in the Appendices within the attached Preliminary Infrastructure and Services Report) will ensure stormwater is properly treated and discharge into the stream is controlled (in accordance with these permitted activity requirements).

13.6.2.1 The introduction or planting of any plant to or on the bed of any lake or river for the purpose of remedying or mitigating the adverse effects of flooding, erosion, or non-point source discharge of contaminants, or to restore or enhance habitat, is a **permitted** activity providing:

- (a) Crack Willow *Salix fragilis* or Grey Willow *Salix cinerea* is not introduced to an area where it does not currently exist; and
- (b) The plant is not any pest plant listed in the Pest Management Strategy for Otago 2009; and
- (c) All reasonable steps are taken to minimise the release of sediment to the lake or river during the introduction or planting, and there is no conspicuous change in the colour or visual clarity of the water body beyond a distance of 100 metres downstream of the introduction or planting; and
- (d) The introduction or planting does not cause any flooding or erosion; and
- (e) The site is left tidy following the introduction or planting.

As detailed in the attached POSMP, weed removal and planting is proposed along the margins of the stream that runs through the site. This revegetation will consist of native plant species being strategically positioned so as to reduce erosion and sedimentation. The plants will also assist with ecological enhancement through cooling the stream and filtering out contaminants. All planting will be carried out in such a way that the above permitted activity requirements are adhered to.

8.5 The District Plan

The subdivision proposal is in accordance with the relevant District Plan Rules and Standards, as addressed in Section 5 above. The proposed activity has also been assessed with respect to the relevant objectives and policies in Part 7.1.2 and 12.31.4. The subdivision has been designed specifically in accordance with the objectives and associated policies of the Arrowsouth South Special zone, and is therefore anticipated by the District Plan. A comprehensive and sustainable development is achieved and overall the application is in accordance with the relevant objectives and policies.

9. RMA Part 2 Assessment

The subdivision proposal is consistent with the purpose and principles of the Resource Management Act 1991, as it directly promotes “... *the sustainable management of natural and physical resources.*”

The proposed low impact design approach and the Private Open Space Management Plan strategy will ensure that the relevant *Matters of national importance* (in Section 6) are upheld, through:

(a) *the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*

...

(d) *the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*

...

The subdivision proposal is also consistent with the *Other Matters* (listed in Section 7) and the principles of the Treaty of Waitangi.

10. Summary

This is an application for subdivision consent, to subdivide Lot 29 DP 369201 (on McDonnell Road, Arrowtown) into twenty residential allotments, one allotment to vest in Council as road, one allotment to vest in Council for the purpose of stormwater management, and two private open space allotments (the balance land).

The subdivision proposal is anticipated by, and complies with, the Arrowtown South Special Zone **controlled** activity requirements in the District Plan; particularly given that comprehensive Overarching Open Space and Private Open Space Management Plans are attached (for Council approval).

These Open Space Management Plans detail the proposed landscaping and strategies that will soften any impact of the residential development on the receiving environment, restore the natural character of the area, and ultimately enhance amenity values. Through these management strategies, and the proposed low impact design approach, the potential adverse effects of this proposal on the environment are considered to be no more than minor.

We therefore submit this subdivision application for Council's consideration and await a decision in due course.

Yours faithfully
C Hughes & Associates Ltd



Campbell Hills
Graduate Surveyor

Reviewed by Nicola Scott (Planning Consultant)



C. HUGHES & ASSOCIATES LTD

Surveying and Resource Management • Central Otago



Please reply to Cromwell office

Ref: 5479

18 November 2016

Queenstown Lakes District Council
Private Bag 50072
Queenstown

Attention: Manager, Resource Consents

Dear Sir,

Addendum to Application RM161093

In reply to email request (Louise White, 16 Nov) we provide the following information as an addendum to Section 4 of our Assessment of Effects.

The proposed activity requires consent for the following:

Operative District Plan:

A controlled subdivision activity pursuant to Rule 15.2.3.2 for any subdivision which complies with all site and zone standards: Rule 15.2.6.1 (lot sizes and dimensions), Rule 15.2.7.1 (subdivision design), Rule 15.2.8.1 (property access) Rule 15.2.10.1 (natural and other hazards), Rule 15.2.11.1 water supply, Rule 15.2.12.1 (storm water disposal), Rule 15.2.13.1 (sewerage treatment and disposal), Rule 15.2.14.1 (trade waste disposal), Rule 15.2.15.1 (energy supply and telecommunications), Rule 15.2.16.1 (open space and recreation), Rule 15.2.17.1 (vegetation and landscaping), Rule 15.2.18.1 (easements). Council's control is in respect to these matters.

POLICIES and OBJECTIVES

Operative District Plan

Part 15 – Subdivision, Development & Financial Contributions

Part 15 of the District Plan is concerned with appropriate servicing of the site, the cost of services, reserves contributions and amenity protection.

Provision of services to the lots has been extensively assessed in Section 2 of our "Prelim Infrastructure & Services Report" and Section 3.2 of our "Assessment of Effects on the Environment" submitted this application, and can be provided in an

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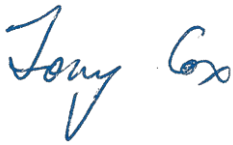
CSNZ THE CONSULTING
SURVEYORS
OF NEW ZEALAND
A DIVISION OF THE NEW ZEALAND INSTITUTE OF SURVEYORS

efficient manner. Development contributions are payable on the new lots created, providing for the additional demand on infrastructure. Amenity protection is discussed in the relevant sections elsewhere in this application. Pleasant living environments are created with an appropriate balance between buildings and open space for outdoor living and landscaping.

Overall, the application is considered to be consistent with the policies and objectives of Chapter 15.

Please do not hesitate to contact me if you have any queries.

Kind Regards,
pp

A handwritten signature in blue ink, appearing to read 'Tony Cox', with a stylized flourish at the end.

Campbell Hills
Graduate Surveyor
C Hughes and Associates Ltd (Cromwell)

APPENDIX 3 - PRIVATE OPEN SPACE MANAGEMENT PLAN, UPDATED MARCH 2017 (TO BE UPDATED)



Arrowsouth Properties Ltd

Private Open Space Management Plan

Prepared by:

rough & milne landscape architects

In collaboration with Lane Neave and CHA Surveyors Ltd

For Arrowsouth Properties Ltd
Updated March 2017

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Disclaimer

Rough and Milne Landscape Architects endeavours to ensure that the information in this publication is accurate and current. However we do not accept liability for any error or omission.

This publication is intended to provide the best possible guidance to Arrowsouth Properties Ltd, with regard to establishing and maintaining private open space areas within the Arrowtown South Special Zone. However, the information is provided as a general guidance only and is not intended as a substitute for specific advice. Rough and Milne Landscape Architects takes no responsibility for the accuracy of this information, its completeness or fitness for purpose.

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INTRODUCTION

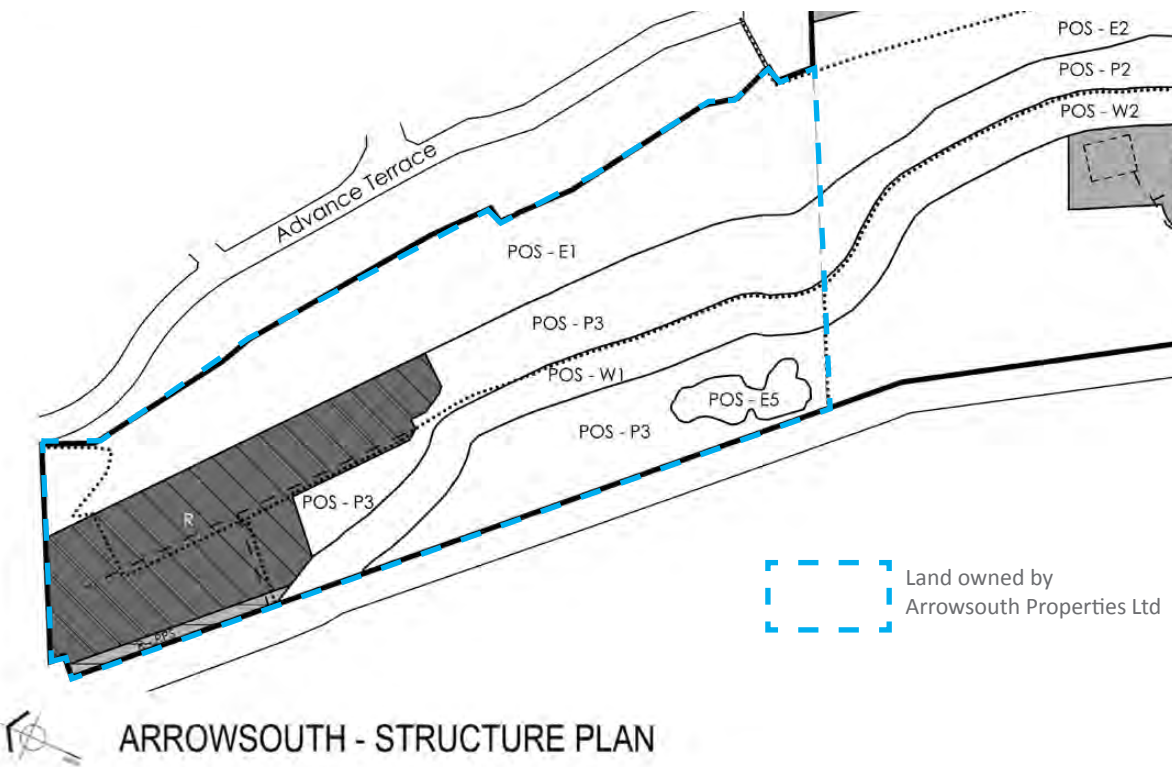
The objective of the Private Open Space Management Plan (POSMP) is to outline a strategy for establishing, re-vegetating and maintaining private open space areas within land owned by Arrowsouth Properties Ltd, within the Arrowtown South Special Zone.

It is intended that the POSMP will inform the current land owner and future residents of the vision and strategy for regenerating and managing each area of Private Open Space (POS). The areas are named in the Structure Plan (and in this document) as follows:

- POS-E1 | Escarpment
- POS-E5 | Outcrop
- POS-P3 | Pastures
- POS-W1 | Waterway
- RPS | Roadside Planting Strip

This comprehensive management plan details the Escarpment, Waterway and Pasture private open spaces, as well as the Roadside Planting Strip (RPS), and outlines a strategy for each, including:

- a public track plan, showing the location of public tracks and construction methods
- site preparation, including weed and pest management, stock and rabbit fencing, as well as indicative costs
- a revegetation strategy, including plant species and densities, a programme for planting as well as indicative costs
- a maintenance and ongoing management plan, including a programme that addresses allocation of responsibilities, timing of maintenance and indicative costs



VISUAL AMENITY VALUES



The land owned by Arrowsouth Properties Ltd is a long, reasonably narrow strip of gently rolling land defined by the toe of the escarpment and McDonnell Road. The landscape is characterised by rural farmland with grazed pasture, exotic tree planting, a spring fed stream, a small wetland area and a few rocky outcrops. This landscape unit is accessed and viewed by public from McDonnell Road. Existing dwellings located at the top of the escarpment also overlook the lower level.

Despite being dominated by invasive weeds, the site, in its location on the edge of Arrowtown, is valued for its visual amenity associated with the site's rural, open, verdant character, and the presence of wilding deciduous trees which are characteristic of Arrowtown in Autumn.

Although the overall master plan will alter the character of the landscape, the intention of the

plan is to protect and enhance visual amenity of the site, while introducing ecological values at the same time. While an area of housing at the northern end of the site will compromise some of the open space character, the southern end of the site will be retained as open pastures, the addition of extensive native planting will improve the site's naturalness. Native birds and other wildlife will be encouraged to habitate in the area. Established public tracks will increase the recreational values associated with the site.

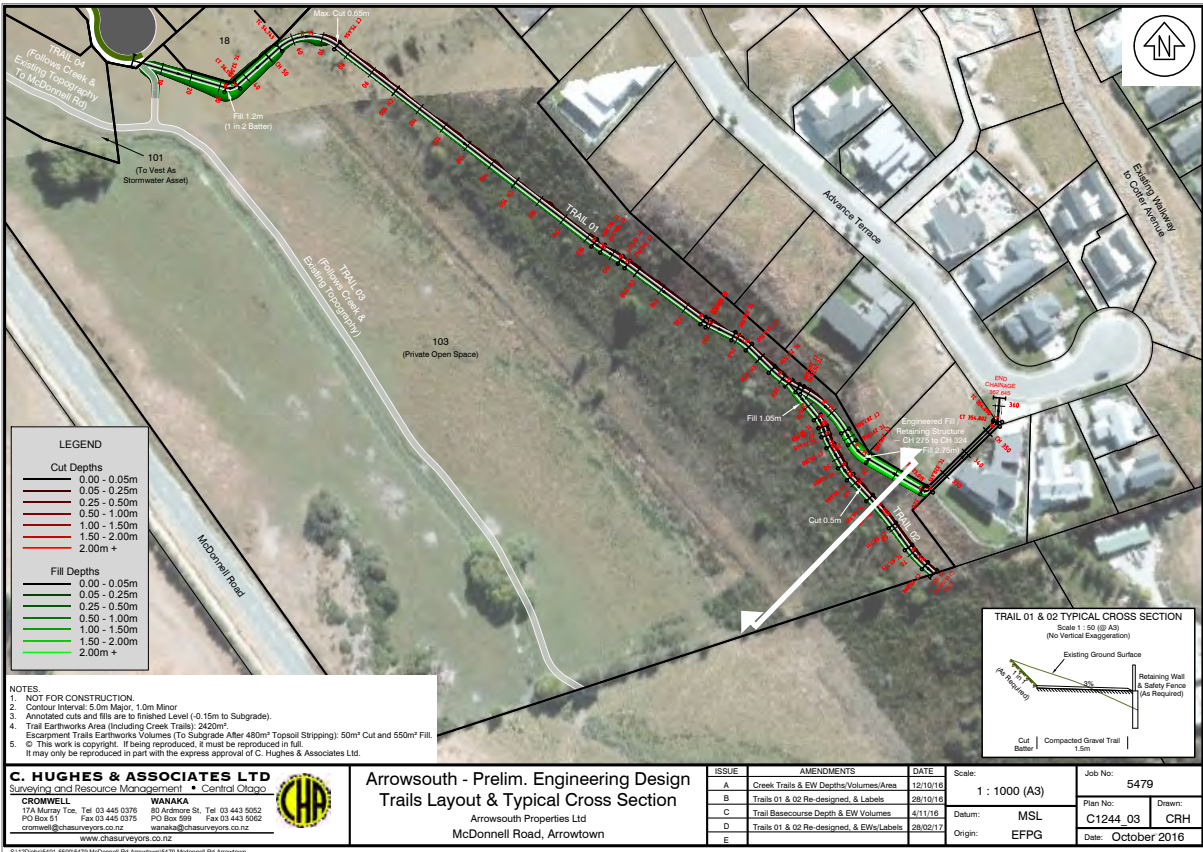
The visual amenity values will change from those associated with the rural landscape to values more closely associated with the natural landscape. The overall vision will not only improve visual amenity values, but will introduce ecological and recreational values to the site as well.

PUBLIC TRAILS

VISION

As per the District Plan rules, public access will be established through parts of the site that connect on to the wider pedestrian and cycle path network throughout Arrowtown. A 1.5m wide gravel track will be established on the escarpment to connect foot and cycle paths on McDonnell Rd with Advance Tce above the escarpment. A second track will split off near the top of the track which will one day be connected to the wider track network on the escarpment. A 2m wide gravel track will meander beside the waterway to allow public to access to the enhanced stream environment.

TRACK SET OUT PLAN (CHA LTD)



TRACK CONSTRUCTION

Tracks beside the waterway are to be 2m wide compacted gravel paths, constructed with 20mm timber edging, a 150mm layer of compacted basecourse and a 10mm layer of 0-5mm schist chip.

The proposed escarpment paths have been designed to meet a Grade 3 standard. These too will be gravel paths although are likely to be no more than 1.5m wide with cut batters no more than 1m in height. In order to achieve this, suitable retaining structures (as per engineer recommendation) up to 2.75m in height will be required to retain fill on the downhill side of the tracks along most of their length. A water table is to be established on the inside of the track.

INDICATIVE CROSS SECTION
SHOWING VISUAL SCREENING OF TRACK
RETAINING WITH NATIVE PLANTING



POS-E1 | ESCARPMENT

VISION

The vision for the escarpment is to create a self sustaining native shrubland. Plants selected for revegetation are typical to the Wakatipu Basin and hardy to local conditions to ensure the best success rate of planting. In time, the shrubland will attract native fauna and provide enhanced visual, ecological and recreational amenity for nearby residents. The escarpment shall be cleared and kept free of invasive weed species such as broom, gorse and briar, as well as being free from animal pests such as rabbits and hares.

LOCATION PLAN



Photograph of the existing escarpment, which was sprayed in March 2014

REVEGETATION STRATEGY



Deciduous Tree Clusters:

- Acer 'Autumn Blaze'* | Autumn Blaze Maple
- Fraxinus angustifolia 'Raywoodii'* | Claret Ash
- Quercus robur 'Fastigiata'* | Upright Oak
- Tilia cordata* | Small Leaved Lime

POS-E1 | ESCARPMENT

TRACK CONSTRUCTION

TRACK CONSTRUCTION
Set out (according to surveyor’s plans) and construct the 1.5m wide public tracks traversing the escarpment using earth moving machinery. Ensure cuts and batters are no greater than 1m in height. To ensure this, install a 0.5- 2.75m high retaining structure (to be approved by engineer) on the downhill side of the track where necessary. Install 150mm of compacted AP20 basecourse to surface and coat with 10mm of 0-5mm schist chip. Hydroseed or plant out all bare earth as soon as possible following track construction.

SITE PREPARATION

CLEARING WEEDS
The escarpment was sprayed in March of 2014, so only requires mulching of larger dead woody material and an additional spray to kill new broom seedlings which have re-grown since the original spray. Smaller dead weeds can remain in place to provide shelter and protection to new native seedlings.

RABBIT AND STOCK EXCLUSION
It is recommended that a rabbit and stock proof fence is installed around the perimeter of the escarpment revegetation area. Timber step styles with cycle ramps should be installed where the fence crosses the public track. Once the fence is in place, intensive rabbit eradication within the fenced area should be carried out by a pest eradication professional (either shooting, pindone poisoning or other method).

REVEGETATION

ORDER PLANTS
Plants could take up to 18 months to grow from seed to a size that can be planted out, so it’s important to give nurseries plenty of time to contract-grow the required number of plants. It is suggested that planting is staged over two planting seasons. Bare root stock saplings are only available in winter when trees are dormant. Be sure to factor this in when sourcing and ordering.

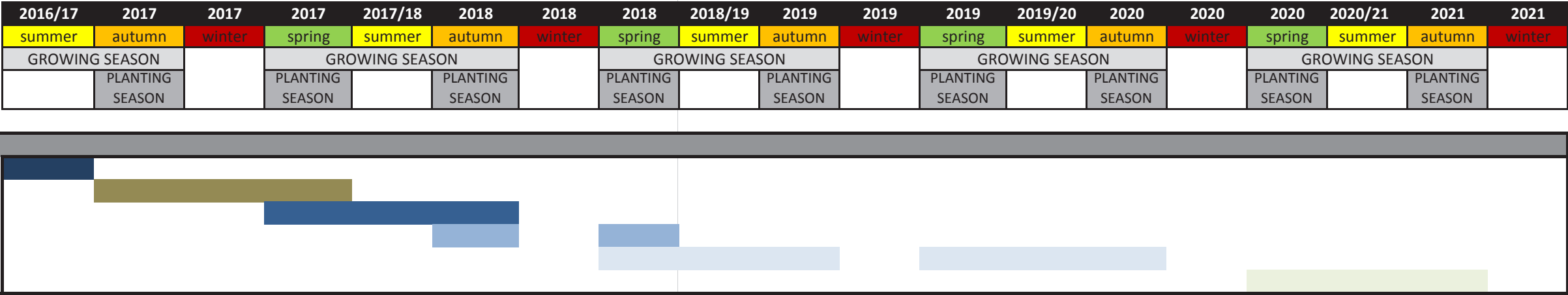
SET OUT AND PLANT
Set out plant sites by using colour coded dazzle, according to the planting plan. Spot spray rank grass (if necessary) 1m around each planting site using a ‘z’ pattern (if necessary). Seedlings should be planted in a hole that is twice the size of the root ball and at a base-of-stem depth of 2-5cm below the soil surface (this will help direct water to the roots when it rains). Install wool mulch collars to each plant at time of planting.

MAINTENANCE

GROWING SEASONS (GS) 1 & 2
Maintenance will include monthly visits from a contractor during Oct - March to spot spray weeds, monitor and replace dead plants and monitor/control rabbits. A growing season is considered to be the period between the last frost in Spring and the first frost in Autumn.

GROWING SEASONS (GS) 3 & THEREAFTER
Maintenance will begin to taper as plants become established and weeds are less likely to strangle plants. Residents will take over maintenance of the planting on their own lots at the start of the 3rd growing season. Maintenance during the third to fifth growing season will include bi-monthly visits to spot spray weeds, monitor and replace dead plants and monitor/control rabbits. Following that, maintenance will likely taper to twice per year and finally once per year.

INDICATIVE PROGRAMME



POS-E1 | ESCARPMENT

INDICATIVE PLANT SCHEDULE

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ac 'AB'	Acer 'Autumn Blaze'	autumn blaze maple	BR	as shown	7
Ar s	Aristotelia serrata	wineberry	DRT	3000	143
Au r	Austroderia richardii	toetoe	DRT	1500	232
Ca bu	Carex buchananii	buchanans sedge	DRT	700	2851
Ca pe	Carmichaelia petriei	native broom	DRT	1500	572
Ch ri	Chionochloa rigida	snow tussock	DRT	900	846
Ch ru	Chionochloa rubra	red tussock	DRT	1000	1137
Co a	Cordyline australis	cabbage tree	DRT	3000	219
Co c	Coprosma crassifolia	thick-leaved mikimiki	DRT	1500	143
Co co	Corokia cotoneaster	korokio	DRT	1500	76
Co p	Coprosma propinqua	coprosma	DRT	1500	232
Co ri	Coprosma rigida	mingimingi	DRT	1500	572
Co ru	Coprosma rugosa	coprosma	DRT	1500	232
Co v	Coprosma virescens	taupata	DRT	1500	572
Di t	Discaria toumatou	matagouri	DRT	1500	572
Fr a 'R'	Fraxinus angustifolia 'Raywoodii'	claret ash	BR	as shown	14
Fu f	Fuscospora fusca	red beech	DRT	3000	143
Fu s	Fuscospora solandri	black beech	DRT	3000	143
Gr l	Griselinia littoralis	kapuka/broadleaf	DRT	3000	572
He s	Hebe salicifolia	koromiko	DRT	3000	57
Le cu	Leonohebe cupressoides	Fragrant hebe	DRT	1500	304
Le s	Leptospermum scoparium	manuka	DRT	1500	200
Oi bu	Olearia bullata	Olearia bullata	PB5	1500	304
Oi fr	Olearia fragrantissima	fragrant tree daisy	DRT	3000	57
Oi l	Olearia lineata	tree daisy	DRT	3000	57
Oi od	Olearia odorata	scented tree daisy	DRT	3000	143
Oz l	Ozothamnus leptophyllus	cottonwood	DRT	1500	304
Ph al	Phyllocladus alpinus	mountain toatoa	DRT	3000	200
Ph c	Phormium cookianum	mountain flax	DRT/PB5	1500	784/96
Pi eu	Pittosporum eugeniodes	lemonwood	DRT	3000	143
Pi t	Pittosporum tenuifolium	kohuhu	DRT/PB5	1500	476/96
Pl r	Plagianthus regius	ribbonwood	DRT/1.2m	3000	103/40
Po c	Poa cita	silver tussock	DRT	700	1380
Qu r 'F'	Quercus robur 'Fastigiata'	upright oak	BR	as shown	7
So m	Sophora microphylla	kowhai	DRT	3000	232
Ti c	Tilia cordata	small leaved lime	BR	as shown	9
					14270

NOTE:

Spacings are shown in milimeters

DRT = Deep Root Trainer grade. Similar size plants come in other grade descriptions such as RX90, V150/V130 or 285cc/310cc, depending on availability. These grades are also acceptable.

PB5 = Plant Bag 5 grade or 3L pot.

BR = Bare Root Stock - also known as Open Ground (OG) stock.

1.2m = 1.2m high native tree sapling

INDICATIVE COSTS (SCHEDULE)

Estimate of reveg costs: Main Escarpment (POS E1)	qty	unit	rate	Site prep + ordering	Plant establishment	GS1 Maintenance	GS2 Maintenance	GS3+ Maintenance by Primary Land Owner*	GS3+ Maintenance by each resident*
Total POS area (incl track and planting)	2.177	ha							
Total area as part of Private Lots (ha) (46.5% of total area)	1.012	ha							
Tree felling and mulching^^	30	ea	\$ 110.00	\$ 3,300					
Pre-plant weed spraying (monthly Oct - April)	2.177	ha	\$ 1,000.00	\$ 13,062	\$ 6,531				
Rabbit + stock fencing	1135	lm	\$ 19.00	\$ 21,565					
Initial rabbit eradication (shooting)	6	hr	\$ 60.00	\$ 360					
Ongoing rabbit control (monitoring and poisoning)	2.177	ha	\$ 420.00	\$ 914		\$ 914	\$ 914	\$ 914	
DRT plant supply (50% to order, 50% when delivered)	14001	ea	\$ 3.30	\$ 23,102	\$ 23,102				
PB5 plant supply (50% to order, 50% when delivered)	192	ea	\$ 8.80	\$ 845	\$ 845				
BRS tree supply (50% to order, 50% when delivered)	37	ea	\$ 25.00	\$ 463	\$ 463				
1.2m native sapling supply (50% to order, 50% when delivered)	40	ea	\$ 40.00	\$ 800	\$ 800				
Set out and planting of DRT grade plants	14001	ea	\$ 3.30		\$ 46,203				
Set out and planting of PB5 grade plants	192	ea	\$ 8.80		\$ 1,690				
Set out, planting and staking of BRS trees and 1.2m saplings	77	ea	\$ 25.00		\$ 1,925				
Wool mulch collars	14270	ea	\$ 2.00		\$ 28,540				
GS1-GS2 Maintenance^		year	\$ 3,335.83			\$ 3,336	\$ 3,336		
GS3+ Maintenance~		year	\$ 2,001.50					\$ 1,071	\$ 78
Total				\$ 64,410	\$ 110,098	\$ 4,250	\$ 4,250	\$ 1,985	\$ 78
Total per hectare				\$ 29,587	\$ 50,573	\$ 1,952	\$ 1,952	\$ 1,703	\$ 920
Total per m2				\$ 2.96	\$ 5.06	\$ 0.20	\$ 0.20	\$ 0.17	\$ 0.09

All figures are GST exclusive

Notes and Assumptions:

All costs and figures are indicative only and are subject to further refinement

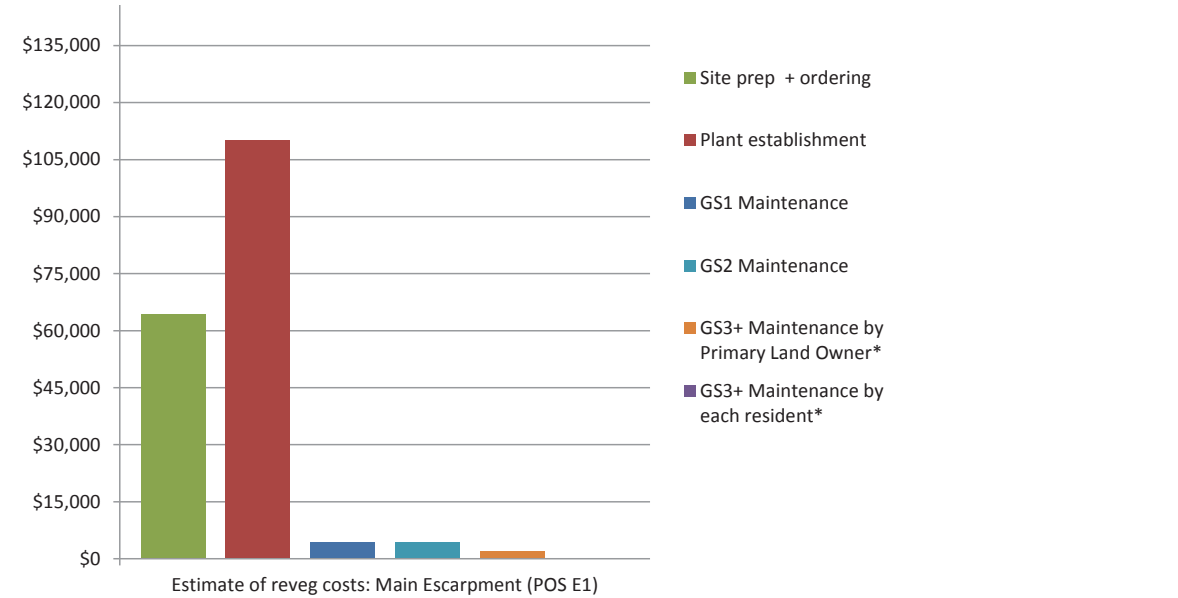
*GS3+ costs shown are an average per year for ongoing maintenance (expected to taper)

^^ worked out at 2hrs labour @\$55/hr per tree

^ worked out as 5% of (total cost to plant less cost of mulch collars). Includes herbicide spray and plant replacement

~worked out as 3% of (total cost to plant less cost of mulch collars). Includes herbicide spray and plant replacement

INDICATIVE COSTS (GRAPH)



POS-E5 | OUTCROP

VISION

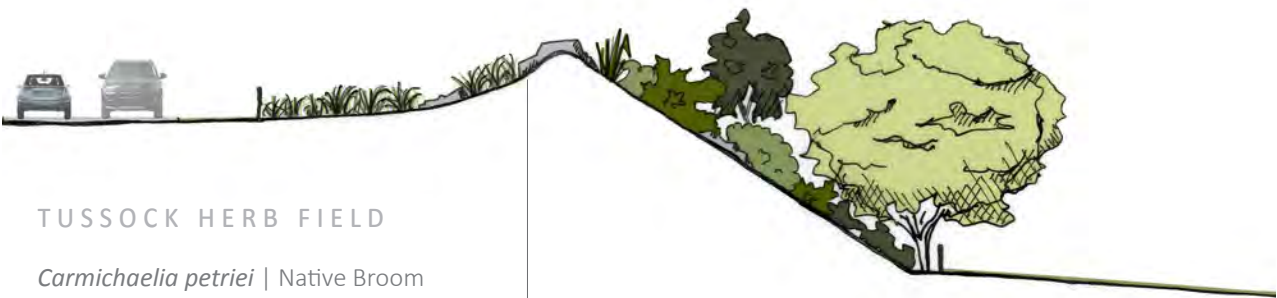
The schist outcrop on the lower plane has potential to be an attractive feature of the site (one visible from McDonnell Road), but is presently obscured with broom and gorse, and infested with rabbits. The long term enhancement goal for the outcrop is to remove the gorse and broom to reveal the schist formations and revegetate the area surrounding it with native vegetation that will encourage native birds, lizards and invertebrates to habitate there.

LOCATION PLAN



Photograph of the existing outcrop, which is currently dominated by weed species

REVEGETATION STRATEGY



TUSOCK HERB FIELD

- Carmichaelia petriei* | Native Broom
- Chionochloa rigida* | Snow Tussock
- Chionochloa rubra* | Red Tussock
- Festuca novae-zelandiae* | Tawny Tussock
- Melicytus alpinus* | Porcupine shrub
- Olearia bullata* | Shrubby Olearia

ROCKY OUTCROP

- Carmichaelia petriei* | Native Broom
- Chionochloa rigida* | Snow Tussock
- Chionochloa rubra* | Red Tussock
- Coprosma propinqua* | Mikimiki
- Coprosma rugosa* | Coprosma
- Discaria toumatou* | Matagouri
- Festuca novae-zelandiae* | Tawny Tussock
- Griselinia littoralis* | Broadleaf
- Melicytus alpinus* | Porcupine shrub
- Myrsine australis* | Matipo
- Olearia arborescens* | Tree Daisy
- Olearia bullata* | Shrubby Olearia
- Phormium cookianum* | Mountain Flax
- Pittosporum eugenoides* | Lemonwood
- Sophora microphylla* | Sth Island Kowhai

POS-E5 | OUTCROP

SITE PREPARATION

CLEARING WEEDS
The outcrop is presently infested with woody weeds such as gorse and broom and a scattering of exotic trees. To clear, these weeds will need to be sprayed or cut down and poisoned. Once dead, larger shrubs and trees can be mulched on site while smaller weeds can be left in place to provide shelter and protection to native seedlings.

RABBIT AND STOCK EXCLUSION
It is recommended that a rabbit and stock proof fence is installed around the perimeter of the revegetation area. Once the fence is in place, intensive rabbit eradication within the fenced area should be carried out by a pest eradication professional (either shooting or pindone poisoning).

REVEGETATION

ORDER PLANTS
Plants could take up to 18 months to grow from seed to a size that can be planted out, so it’s important to give nurseries plenty of time to contract-grow the required number of plants. It is recommended that planting is carried out in one planting season.

SET OUT AND PLANT
Set out plant sites by using colour coded dazzle. Spot spray rank grass 1m around each planting site using a ‘z’ pattern (if necessary). Seedlings should be planted in a hole that is twice the size of the root ball and at a base-of-stem depth of 20-50mm below the soil surface (this will help direct water to the roots when it rains). Install combi guards (including felt collar) to each plant at time of planting.

MAINTENANCE

GROWING SEASONS (GS) 1 & 2
Maintenance will include monthly visits from a contractor during Oct - March to spot spray weeds, monitor and replace dead plants and monitor rabbits. A growing season is considered to be the period between the last frost in Spring and the first frost in Autumn.

GROWING SEASONS (GS) 3 & THEREAFTER
Maintenance will begin to taper as plants become established and weeds are less likely to strangle plants. Maintenance during the third to fifth growing season will include bi-monthly visits to spot spray weeds, monitor and replace dead plants and monitor/control rabbits. Following that, maintenance should taper to twice per year and finally once per year.

INDICATIVE PROGRAMME

2016/17	2017	2017	2017	2017/18	2018	2018	2018	2018/19	2019	2019	2019	2019/20	2020	2020	2020	2020/21	2021	2021
summer	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter
GROWING SEASON			GROWING SEASON				GROWING SEASON				GROWING SEASON				GROWING SEASON			
	PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON			PLANTING SEASON			PLANTING SEASON			

Outcrop																			
Order Plants																			
Site Prep																			
Establish Planting																			
GS1-GS2 Maintenance																			
GS3+ Maintenance																			

POS-E5 | OUTCROP

INDICATIVE PLANT SCHEDULE

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ca pe	Carmichaelia petriei	native broom	DRT	1500	165
Ch ri	Chionochloa rigida	snow tussock	DRT	900	64
Ch ru	Chionochloa rubra	red tussock	DRT	1000	64
Co p	Coprosma propinqua	coprosma	DRT	1500	101
Co ru	Coprosma rugosa	coprosma	DRT	1500	101
Di t	Discaria toumatou	matagouri	DRT	1500	101
Fe nz	Festuca novae-zelandiae	tawny tussock	DRT	700	64
Gr l	Griselinia littoralis	kapuka/broadleaf	DRT	3000	101
Me a	Melicytus alpinus	porcupine shrub	DRT	800	244
My a	Myrsine australis	Matapo	DRT	1500	101
Ol a	Olearia arborescens	tree daisy	DRT	3000	25
Ol bu	Olearia bullata	Olearia bullata	PB5	1500	165
Ph c	Phormium cookianum	mountain flax	DRT	1500	101
Pi eu	Pittosporum eugeniodes	lemonwood	DRT	3000	25
So m	Sophora microphylla	kowhai	DRT	3000	25
					1447

NOTE:
Spacings are shown in milimeters
DRT = Deep Root Trainer grade. Similar size plants come in other grade descriptions such as RX90, V150/V130 or 285cc/310cc, depending on availability. These grades are also acceptable.
BR = Bare Root Stock - also known as Open Ground (OG) stock.

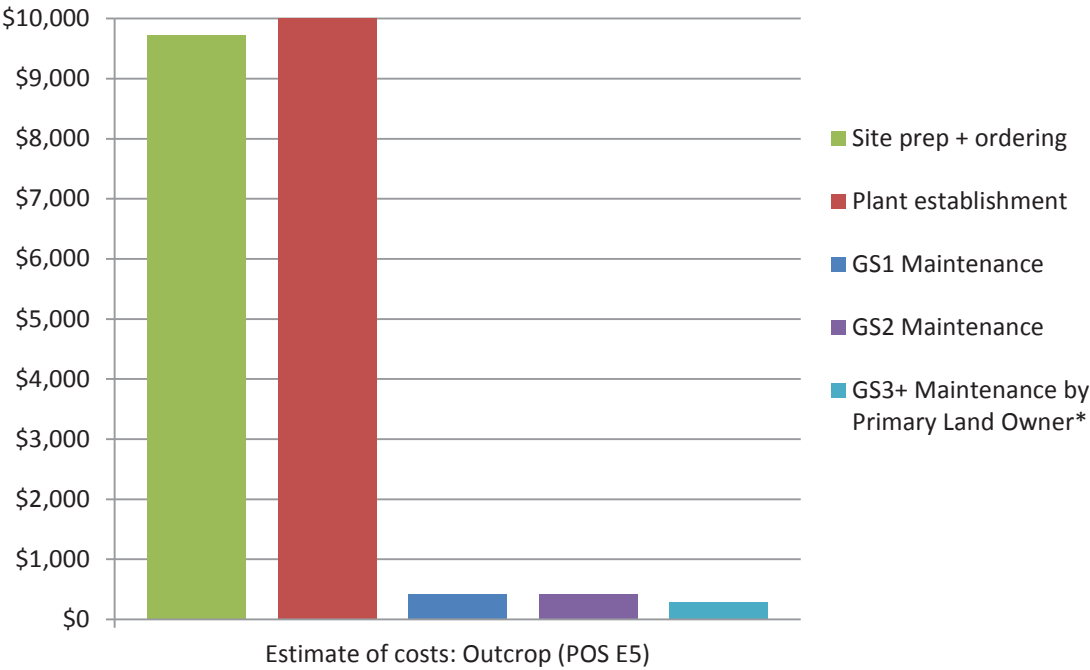
INDICATIVE COSTS (SCHEDULE)

Estimate of costs: Outcrop (POS E5)	qty	unit	rate	Site prep + ordering	Plant establishment	GS1 Maintenance	GS2 Maintenance	GS3+ Maintenance by Primary Land Owner*
Total POS area (all planted)	0.2265	ha						
Tree felling and mulching^^	15	ea	\$ 110.00	\$ 1,650				
Pre-plant weed spraying (monthly Oct - April)	0.2265	ha	\$ 1,000.00	\$ 1,359				
Rabbit + stock fencing	218	lm	\$ 19.00	\$ 4,142				
Initial rabbit eradication (shooting)	3	hr	\$ 60.00	\$ 180				
Ongoing rabbit control (monitoring and poisoning)~	0.2265	ha	\$ 420.00			\$ 95	\$ 95	\$ 95
DRT Plant supply (50% to order, 50% when delivered)	1447	ea	\$ 3.30	\$ 2,388	\$ 2,388			
Set out and planting	1447	ea	\$ 3.30		\$ 4,775			
Wool mulch collars	1447	ea	\$ 2.00		\$ 2,894			
GS1-GS2 Maintenance^	1	year	\$ 333			\$ 333	\$ 333	
GS3+ Maintenance~	1	year	\$ 200					\$ 200
Total				\$ 9,719	\$ 10,057	\$ 428	\$ 428	\$ 295
Total per hectare				\$ 42,908	\$ 44,400	\$ 1,889	\$ 1,889	\$ 1,302
Total per m2				\$ 4.29	\$ 4.44	\$ 0.19	\$ 0.19	\$ 0.13

All figures are GST exclusive

Notes and Assumptions:
All costs and figures are indicative only and are subject to further refinement
*GS3+ costs shown are an average per year for ongoing maintenance (expected to taper)
^^ worked out at 2hrs labour @\$55/hr per tree
^ worked out as 5% of (total cost to plant less cost of mulch collars). Includes herbicide spray and plant replacement
~worked out as 3% of (total cost to plant less cost of mulch collars). Includes herbicide spray and plant replacement

INDICATIVE COSTS (GRAPH)



POS-P3 | PASTURE

VISION

The flatter area on the lower plane is characterised by open, grazed pasture with a scattering of exotic trees and herbaceous pasture weeds. The long term enhancement goal for the pasture open space areas is to maintain the open character by continuing to graze the area, but to enhance visual amenity and ecological health by managing weed species. Rabbit populations would also be monitored and controlled.

LOCATION PLAN



Photograph of the existing pastoral area

TRACK CONSTRUCTION

Set out (according to surveyor’s plans) and construct a 2m wide public track that links the cul-de-sac head with the escarpment trail. Install 20mm timber edging and 150mm of compacted AP20 basecourse. Spread surface with 10mm of 0-5mm schist chip.

SITE PREPARATION

CLEARING WEEDS

The pastoral area is presently infested with a scattering of broom seedlings and a few exotic trees. To clear weeds, they will need to be sprayed or hand pulled, and trees cut down and mulched, their stumps poisoned.

RABBIT CONTROL

Intensive rabbit eradication should be carried out in the surrounding area by a pest eradication professional (either shooting or pindone poisoning).

STOCK FENCING

Post and wire stock fencing is to be erected between the escarpment and waterway fences, beside the newly constructed path. This is to contain stock which are to graze the pastures and provide clear separation between public and private areas.

REVEGETATION

ORDER PLANTS

Bare root stock saplings are only available in winter when trees are dormant. Be sure to factor this in when sourcing and ordering.

SET OUT AND PLANT

Set out trees according to the plant plan. Prepare a 750x750mm tree pit, backfilled with a good quality topsoil and compost mix. Plant sapling in tree pit and stake according to best practice.

MAINTENANCE

GROWING SEASONS (GS) 1 & 2

Maintenance will include monthly visits from a contractor during Oct - March to spot spray weeds and monitor rabbits.

GROWING SEASONS (GS) 3 & THEREAFTER

Maintenance will begin to taper as weed seedlings are less likely to germinate. Maintenance during the third to fifth growing season will include bi-monthly visits to spot spray weeds, and monitor/control rabbits. Following that, maintenance will taper further to twice per year and finally once per year.

POS-P3 | PASTURE

INDICATIVE COSTS (SCHEDULE)

Estimate of costs: Pastures (POS P3)	qty	unit	rate	GS1 Site Prep + Planting	GS2 Maintenance	GS3+ Maintenance by Primary Land Owner*
Total POS area	2.889	ha				
Stock fencing (in addition to fencing around reveg areas)	61	lm	\$ 15.00	\$ 915		
Weed spraying (monthly Oct - April)	2.889	ha	\$ 800.00	\$ 13,867		
BRS tree supply	15	ea	\$ 25.00	\$ 375		
Planting and staking	15	ea	\$ 25.00	\$ 375		
Initial Rabbit eradication	3	hr	\$ 60.00	\$ 180		
GS2 Maintenance^	2.889	ha	\$ 400.00		\$ 2,311	
GS3+ Maintenance~	2.889	ha	\$ 400.00			\$ 1,155.60
Total				\$ 15,712	\$ 2,311	\$ 1,156
Total per hectare				\$ 5,439	\$ 800	\$ 400
Total per m2				\$ 0.54	\$ 0.08	\$ 0.04

Notes and Assumptions:

All costs and figures are indicative only and are subject to further refinement

*GS3+ costs shown are an average per year for ongoing maintenance (expected to taper)

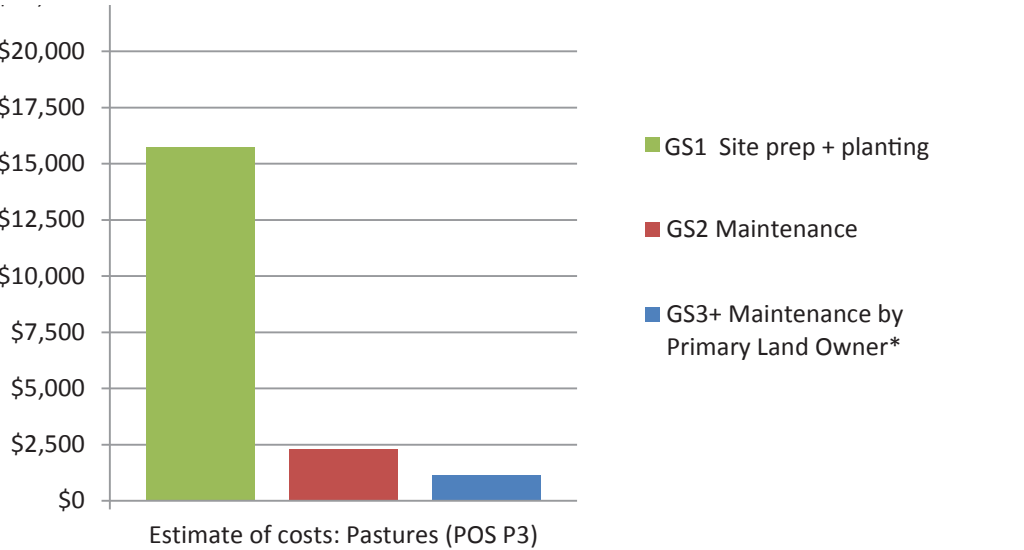
Maintenance of pasture areas includes grazing of stock or cutting of grass for hay at no additional

^ provisional sum for spot spray twice per year + mowing of area not grazed

~ provisional sum for spot spray once per year + mowing of area not grazed

All figures are GST exclusive

INDICATIVE COSTS (GRAPH)



INDICATIVE PROGRAMME

	2016/17	2017	2017	2017	2017/18	2018	2018	2018	2018/19	2019	2019	2019	2019/20	2020	2020	2020	2020/21	2021	2021
	summer	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter
	GROWING SEASON			GROWING SEASON			GROWING SEASON			GROWING SEASON			GROWING SEASON			GROWING SEASON			
		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON		PLANTING SEASON	
Pastures																			
Initial weed spray																			
GS2 Maintenance																			
GS3+ Maintenance																			

POS-W1 | WATERWAY

VISION

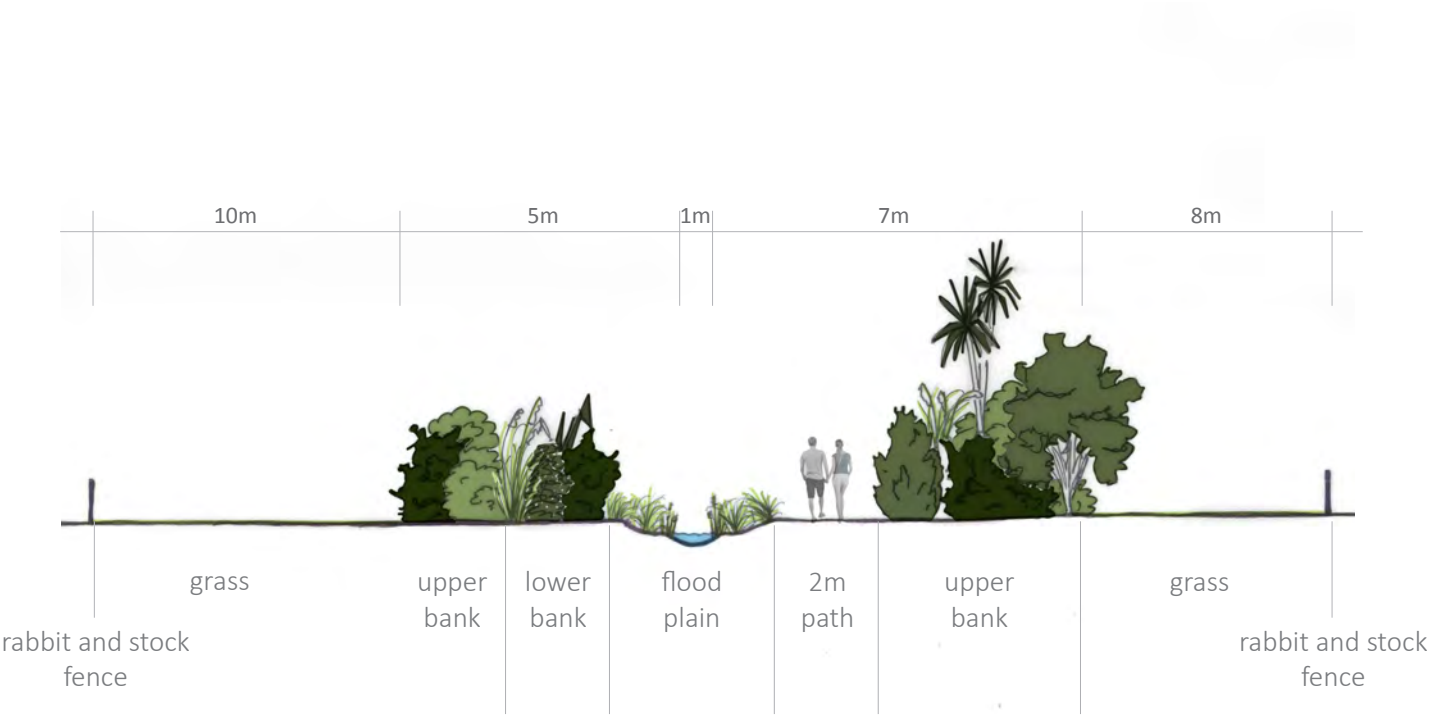
A spring-fed stream (approx 1m wide) flows in a south-eastern direction from a culvert outlet beneath McDonnell Road near the the north west corner of the site across the lower plane. The stream is currently unfenced to stock and suffers from pugging and erosion within the flood zone leaving it in poor ecological health. The long term enhancement goal is to revegetate the stream margin with native riparian planting that will improve the ecological health and amenity of the stream. Riparian planting will assist with water quality, provide habitat for wildlife and reintroduce a native seed source to the area.

LOCATION PLAN



Photograph of the existing stream which has suffered significant stock damage (pugging)

REVEGETATION STRATEGY



FLOOD PLAIN

- Carex buechananii* | Buchanans Sedge
- Carex secta* | Pukoi
- Carex sinclairii* | Sinclair's Sedge
- Chionochloa rubra* | Red Tussock
- Juncus edgariae* | Wiwi

LOWER BANK

- Austroderia richardii* | Toetoe
- Chionochloa rubra* | Red Tussock
- Coprosma propinqua* | Coprosma
- Coprosma rugosa* | Coprosma
- Coprosma virescens* | Taupata
- Olearia bullata* | Shrubby Olearia
- Olearia odorata* | Tree Daisy
- Phormium tenax* | Harakeke

UPPER BANK

- Austroderia richardii* | Toetoe
- Carmichaelia petrei* | Native Broom
- Chionochloa rubra* | Red Tussock
- Cordyline australis* | Cabbage Tree
- Coprosma crassifolia* | Thick-Leaved Mikimiki
- Coprosma propinqua* | Coprosma
- Coprosma rugosa* | Coprosma
- Coprosma virescens* | Taupata
- Discaria toumatou* | Matagouri
- Halocarpus bidwillii* | Bog Pine
- Leonohebe cupressoides* | Cypress Hebe
- Leptospermum scoparium* | Manuka
- Olearia lineata* | Tree Daisy
- Phyllocladus alpinus* | Mountain Toatoa
- Pittosporum tenuifolium* | Kohuhu
- Sophora microphylla* | Kowhai

POS-W1 | WATERWAY

TRACK CONSTRUCTION

Set out (according to surveyor’s plans) and construct a 2m wide public track that meanders beside the waterway on it’s north eastern bank. Install 20mm timber edging and 150mm of compacted AP20 basecourse. Spread surface with 10mm of 0-5mm schist chip. Install spring gates where the path crosses the rabbit proof fence.

SITE PREPARATION

CLEARING WEEDS
The riparian edge is presently devoid of any substantial weeds, except for a cluster of crack willow trees. These trees will need to be felled, mulched and their stumps poisoned. Any other herbaceous weeds should be hand pulled or sprayed.

RABBIT AND STOCK EXCLUSION
A rabbit and stock proof fence is to be installed 15m either side of the stream, as per the structure plan rules. Once the fence is in place, if necessary, rabbit eradication within the fenced area should be carried out by a pest eradication professional (either shooting or pindone poisoning) although it is unlikely any rabbits will be trapped within the confines of the fence.

REVEGETATION

ORDER PLANTS
Plants could take up to 18 months to grow from seed to a size that can be planted out, so it’s important to give nurseries plenty of time to contract-grow the required number of plants. It is recommended that planting is carried out in one planting season.

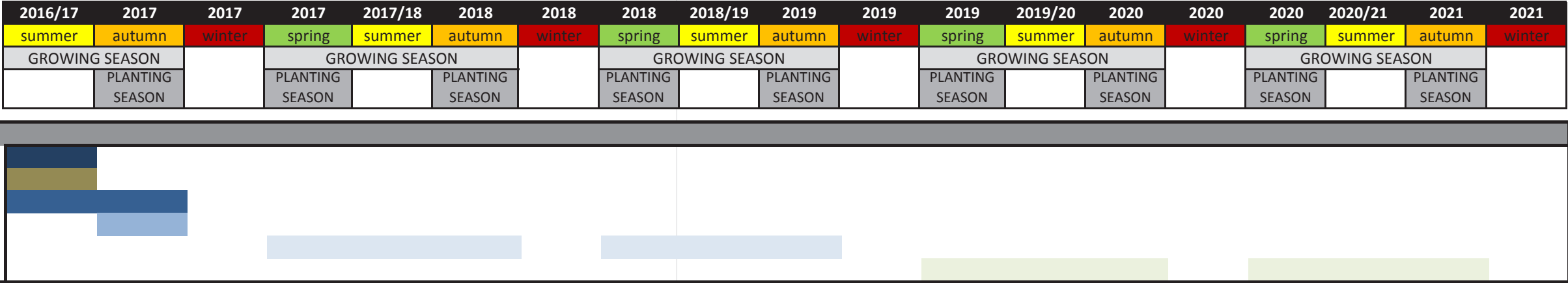
SET OUT AND PLANT
Set out plant sites according to the indicative plant plan by using colour coded dazzle. Spot spray rank grass 1m around each planting site using a ‘z’ pattern (if necessary). Seedlings should be planted in a hole that is twice the size of the root ball and at a base-of-stem depth of 20-50mm below the soil surface (this will help direct water to the roots when it rains). Install combi guards (including felt collar) to each plant at time of planting.

MAINTENANCE

GROWING SEASONS (GS) 1 & 2
Maintenance will include monthly visits from a contractor during Oct - March to spot spray weeds, monitor and replace dead plants, and monitor rabbits. A growing season is considered to be the period between the last frost in Spring and the first frost in Autumn.

GROWING SEASONS (GS) 3 & THEREAFTER
Maintenance will begin to taper as plants become established and weeds are less likely to strangle plants. Maintenance during the third to fifth growing season will include bi-monthly visits to spot spray weeds, monitor and replace dead plants and monitor/control rabbits. Following that, maintenance will taper to twice per year and finally once per year to monitor weeds.

INDICATIVE PROGRAMME



POS-W1 | WATERWAY

INDICATIVE PLANT SCHEDULE

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Au r	Austroderia richardii	toetoe	DRT	1500	160
Ca bu	Carex buchananii	buchanans sedge	DRT	700	223
Ca pe	Carmichaelia petriei	native broom	DRT	1500	76
Ca s	Carex secta	pukoi	DRT	900	138
Ca si	Carex sinclairii	sinclair's sedge	DRT	700	223
Ch ru	Chionochloa rubra	red tussock	DRT	1000	486
Co a	Cordyline australis	cabbage tree	DRT	3000	10
Co c	Coprosma crassifolia	thick-leaved mikimi	DRT	1500	76
Co p	Coprosma propinqua	coprosma	DRT	1500	160
Co ru	Coprosma rugosa	coprosma	DRT	1500	160
Co v	Coprosma virescens	taupata	DRT	1500	160
Di t	Discaria toumatou	matagouri	DRT	1500	76
Ha bi	Halocarpus bidwillii	bog pine	DRT	1500	76
He s	Hebe salicifolia	koromiko	DRT	3000	76
Ju e	Juncus edgariae	wiwi	DRT	900	138
Le cu	Leonohebe cupressoides	Fragrant hebe	DRT	1500	76
Le s	Leptospermum scoparium	manuka	DRT	1500	18
OI bu	Olearia bullata	Olearia bullata	PB5	1500	84
OI l	Olearia lineata	tree daisy	DRT	3000	18
OI od	Olearia odorata	scented tree daisy	DRT	3000	19
Ph al	Phyllocladus alpinus	mountain toatoa	DRT	3000	10
Ph t	Phormium tenax	harakeke	DRT	1500	84
Pi t	Pittosporum tenuifolium	kohuhu	DRT	1500	76
So m	Sophora microphylla	kowhai	DRT	3000	10
					2633

NOTE:
Spacings are shown in milimeters
DRT = Deep Root Trainer grade. Similar size plants come in other grade descriptions such as RX90, V150/V130 or 285cc/310cc, depending on availability. These grades are also acceptable.
BR = Bare Root Stock - also known as Open Ground (OG) stock.

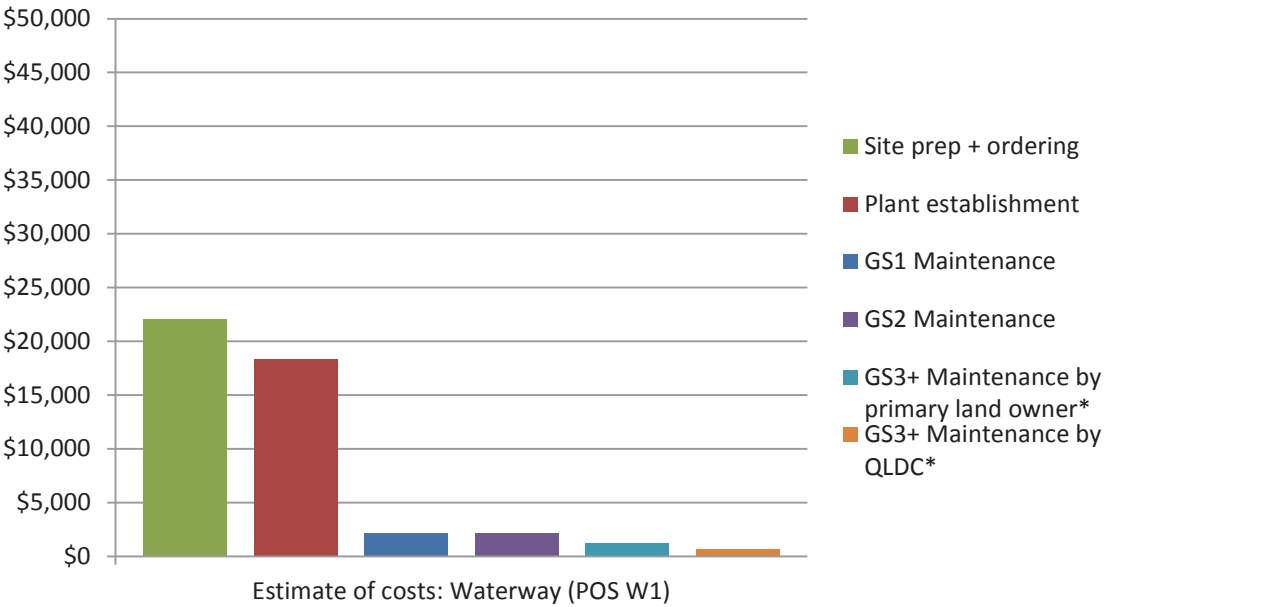
INDICATIVE COSTS (SCHEDULE)

Estimate of costs: Waterway (POS W1)	qty	unit	rate	Site prep + ordering	Plant establishment	GS1 Maintenance	GS2 Maintenance	GS3+ Maintenance by primary land owner*	GS3+ Maintenance by QLDC*
Total POS area	0.7737	ha							
Total planting area	0.343	ha							
Total grass area	0.4307	ha							
Total area of POS W1 to be vested in QLDC (39.35% of total area)	0.3042	ha							
Pre-plant weed spraying (monthly Oct - April)	0.7737	ha	\$ 500.00	\$ 2,321					
Tree felling and mulching^^	12	ea	\$ 115.00	\$ 1,380					
Rabbit + stock fencing (15m either side of waterway)	738	lm	\$ 19.00	\$ 14,022					
Ongoing rabbit control (monitoring and poisoning)	0.343	ha	\$ 420.00			\$ 144	\$ 144	\$144	
DRT Plant supply (50% to order, 50% when delivered)	2633	ea	\$ 3.30	\$ 4,344	\$ 4,344				
Planting and setout	2633	ea	\$ 3.30		\$ 8,689				
Wool mulch collars	2633	ea	\$ 2.00		\$ 5,266				
GS1-GS2 Maintenance^ (includes mowing grass in fenced area)	1	year	\$ 2,005.59			\$ 2,006	\$ 2,006		
GS3+ Maintenance~ (includes mowing grass in fenced area)	1	year	\$ 1,763.35					\$1,069	\$694
Total				\$ 22,068	\$ 18,299	\$ 2,150	\$ 2,150	\$1,214	\$694
Total per hectare				\$ 28,522	\$ 53,351	\$ 2,778	\$ 2,778	\$ 2,585	\$ 2,281
Total per m2				\$ 2.85	\$ 5.34	\$ 0.28	\$ 0.28	\$ 0.26	\$ 0.23

All figures are GST exclusive

All costs and figures are indicative only and are subject to refinement
GS = Growing Season
*GS3+ costs shown are an average per year for ongoing maintenance (expected to taper)
^^ worked out at 2hrs labour @\$55/hr per tree
^worked out as 5% of (total cost to plant less cost of mulch collars) + \$1400 per year for mowing grass. Includes herbicide spray and plant replacement
~worked out as 3% of (total cost to plant less cost of mulch collars) + \$1400 per year for mowing grass. Includes herbicide spray and plant replacement

INDICATIVE COSTS (GRAPH)



RPS | ROADSIDE PLANTING STRIP

VISION

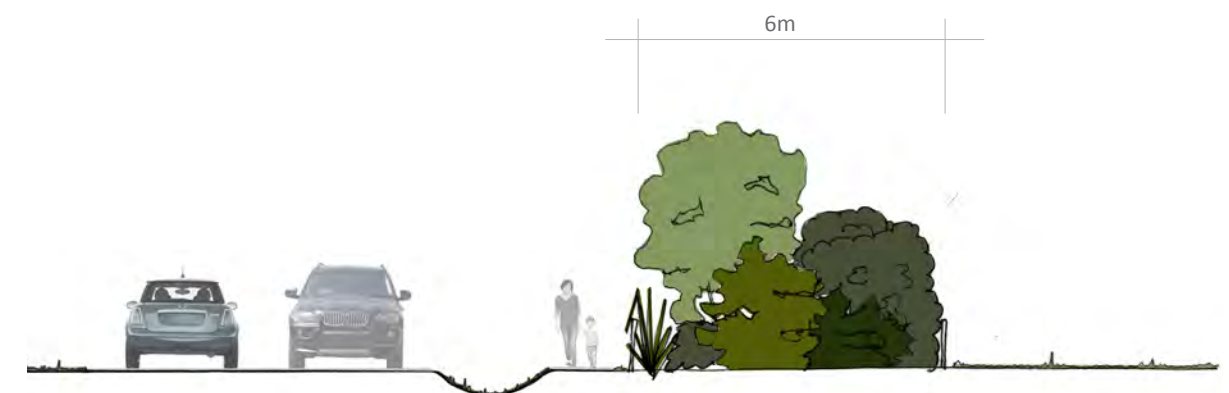
A 6m strip of land beside McDonnell Road at the north western-most corner of the site is presently on the edge of pasture lands but will one day exist between the road and new residential development. The long term enhancement goal for this strip is to establish native planting that will contribute to softening and blending the proposed residential development with the wider area.

LOCATION PLAN



Photograph of the existing roadside

REVEGETATION STRATEGY



ROADSIDE PLANTING

Coprosma crassifolia | Thick-Leaved Coprosma
Corokia cotoneaster | Wire-Netting Bush
Coprosma virescens | Green Coprosma
Olearia odorata | Scented Tree Daisy
Phormium cookianum | Mountain Flax
Pittosporum eugenoides | Lemonwood
Pittosporum tenuifolium | Kohuhu

RPS | ROADSIDE PLANTING STRIP

SITE PREPARATION

CLEARING WEEDS
The roadside is presently infested with broom seedlings and rank grass which will require spraying prior to planting.

RABBIT EXCLUSION
Rabbit netting may be applied to the existing roadside boundary fence, although it is proposed that plants are also protected from rabbits using individual combi guards around each plant. Rabbit control will be dealt with through rabbit eradication programmes in other POS areas.

REVEGETATION

ORDER PLANTS
Plants could take up to 18 months to grow from seed to a size that can be planted out, so it's important to give nurseries plenty of time to contract-grow the required number of plants. It is recommended that planting during one planting season.

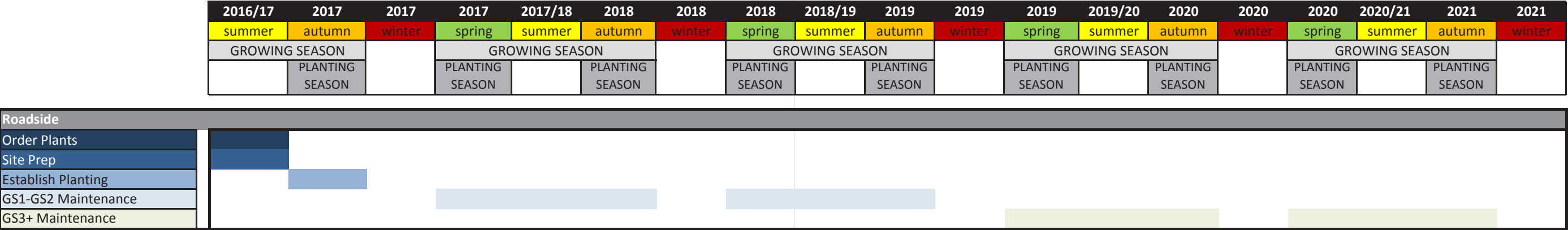
SET OUT AND PLANT
Set out plant sites by using colour coded dazzle. Spot spray rank grass 1m around each planting site using a 'z' pattern (if necessary). Seedlings should be planted in a hole that is twice the size of the root ball and at a base-of-stem depth of 20-50mm below the soil surface (this will help direct water to the roots when it rains). Install combi guards (including felt collar) to each plant at time of planting.

MAINTENANCE

GROWING SEASONS (GS) 1 & 2
Maintenance will include monthly visits from a contractor during Oct - March to spot spray weeds, monitor and replace dead plants and monitor rabbits.

GROWING SEASONS (GS) 3 & THEREAFTER
Maintenance will begin to taper as plants become established and weeds are less likely to strangle plants. Residents will take over maintenance of the planting on their own lots. Maintenance during the third to fifth growing season will include bi-monthly visits to spot spray weeds, monitor and replace dead plants and monitor/control rabbits. Following that, maintenance will taper to twice per year and finally once per year to monitor weeds.

INDICATIVE PROGRAMME



RPS | ROADSIDE PLANTING STRIP

INDICATIVE PLANT SCHEDULE

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Co c	Coprosma crassifolia	thick-leaved mikimiki	P B 3	1500	101
Co co	Corokia cotoneaster	korokio	P B 3	1500	101
Co v	Coprosma virescens	taupata	P B 3	1500	101
Ol od	Olearia odorata	scented tree daisy	P B 3	3000	25
Ph c	Phormium cookianum	mountain flax	P B 3	1500	101
Pi eu	Pittosporum eugeniodes	lemonwood	P B 3	3000	25
Pi t	Pittosporum tenuifolium	kohuhu	P B 3	1500	25
					479

NOTE:
Spacings are shown in milimeters
PB3 = Plant Bag size 3, same as 2L pot size

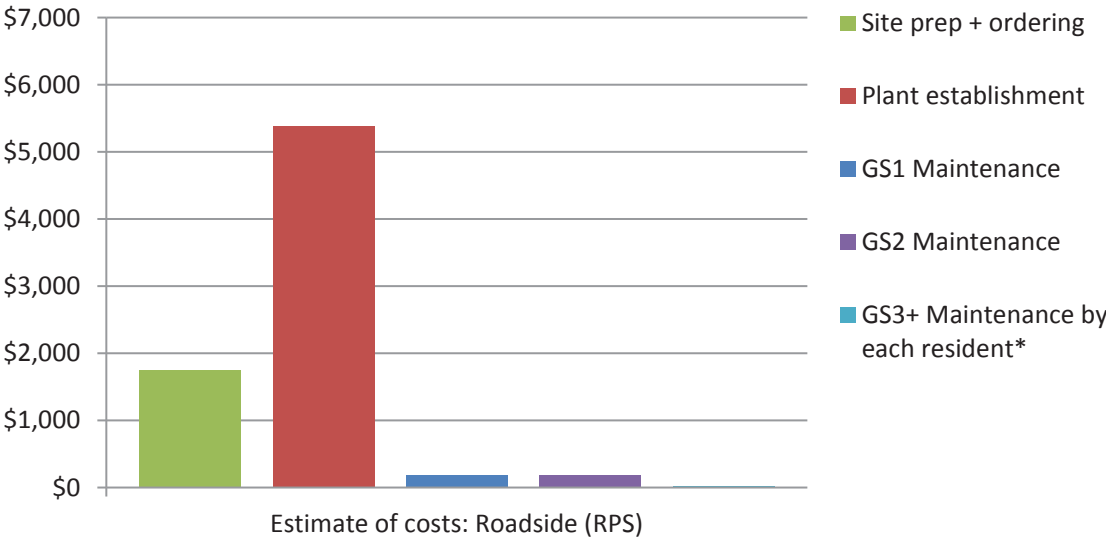
INDICATIVE COSTS (SCHEDULE)

Estimate of costs: Roadside (RPS)	qty	unit	rate	Site prep + ordering	Plant establishment	GS1 Maintenance	GS2 Maintenance	GS3+ Maintenance by each resident*
Total POS area (all planting)	0.0726	ha						
Total area as part of residential Lots (100% of POS area)	0.0726	ha						
Pre-plant weed spraying (monthly Oct - April)	0.0726	ha	\$ 1,000.00	\$ 436				
PB3 Plant supply (50% to order, 50% when delivered)	479	ea	\$ 5.50	\$ 1,317	\$ 1,317			
Planting and setout	479	ea	\$ 5.50		\$ 2,635			
Combi Guards^^	479	ea	\$ 3.00		\$ 1,437			
GS1-GS2 Maintenance	1	year	\$ 191.60			\$ 192	\$ 192	
GS3+ Maintenance	1	year	\$ 114.96					\$ 23
Total				\$ 1,753	\$ 5,389	\$ 192	\$ 192	\$ 23
Total per hectare				\$ 24,144	\$ 74,225	\$ 2,639	\$ 2,639	\$ 1,583
Total per m2				\$ 2.41	\$ 7.42	\$ 0.26	\$ 0.26	\$ 0.16

Notes and Assumptions:
All costs and figures are indicative only and are subject to refinement
GS = Growing Season
PB3 grade plants are specified on the roadside strip to speed establishment
*GS3+ costs shown are an average per year for ongoing maintenance (expected to taper)
^worked out as 5% of (total cost to plant less cost of combi guards). Includes herbicide spray and plant replacen
~worked out as 3% of (total cost to plant less cost of combi guards), Includes herbicide spray and plant replacen
^^Combi guards provide rabbit and weed protection in the absence of a rabbit exclusion fence

All figures are GST exclusive

INDICATIVE COSTS (GRAPH)



SUMMARY

TOTAL PLANT SCHEDULE

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ac 'AB'	Acer 'Autumn Blaze'	autumn blaze maple	BR	as shown	7
Ar s	Aristotelia serrata	wineberry	DRT	3000	143
Au r	Austroderia richardii	toetoe	DRT	1500	392
Ca bu	Carex buchananii	buchanans sedge	DRT	700	3074
Ca pe	Carmichaelia petriei	native broom	DRT	1500	813
Ca s	Carex secta	pukoi	DRT	900	138
Ca si	Carex sinclairii	sinclair's sedge	DRT	700	223
Ch ri	Chionochloa rigida	snow tussock	DRT	900	910
Ch ru	Chionochloa rubra	red tussock	DRT	1000	1687
Co a	Cordyline australis	cabbage tree	DRT	3000	229
Co c	Coprosma crassifolia	thick-leaved mikimiki	DRT	1500	320
Co co	Corokia cotoneaster	korokio	DRT	1500	177
Co p	Coprosma propinqua	coprosma	DRT	1500	493
Co ri	Coprosma rigida	mingimingi	DRT	1500	572
Co ru	Coprosma rugosa	coprosma	DRT	1500	493
Co v	Coprosma virescens	taupata	DRT	1500	833
Di t	Discaria toumatou	matagouri	DRT	1500	749
Fe nz	Festuca novae-zelandiae	tawny tussock	DRT	700	64
Fr a 'R'	Fraxinus angustifolia 'Raywoodii'	claret ash	BR	as shown	14
Fu f	Fuscospora fusca	red beech	DRT	3000	143
Fu s	Fuscospora solandri	black beech	DRT	3000	143
Gr l	Griselinia littoralis	kapuka/broadleaf	DRT	3000	673
Ha bi	Halocarpus bidwillii	bog pine	DRT	1500	76
He s	Hebe salicifolia	koromiko	DRT	3000	133
Ju e	Juncus edgariae	wiwi	DRT	900	138
Le cu	Leonohebe cupressoides	Fragrant hebe	DRT	1500	380
Le s	Leptospermum scoparium	manuka	DRT	1500	218
Me a	Melicytus alpinus	porcupine shrub	DRT	800	244
My a	Myrsine australis	Matapo	DRT	1500	101
Oi a	Olearia arborescens	tree daisy	DRT	3000	25
Oi bu	Olearia bullata	Olearia bullata	PB5	1500	553
Oi fr	Olearia fragrantissima	fragrant tree daisy	DRT	3000	57
Oi l	Olearia lineata	tree daisy	DRT	3000	75
Oi od	Olearia odorata	scented tree daisy	DRT	3000	187
Oz l	Ozothamnus leptophyllus	cottonwood	DRT	1500	304
Ph al	Phyllocladus alpinus	mountain toatoa	DRT	3000	210
Ph c	Phormium cookianum	mountain flax	DRT/PB5	1500	986/96
Ph t	Phormium tenax	harakeke	DRT	1500	84
Pi eu	Pittosporum eugeniodes	lemonwood	DRT	3000	193
Pi t	Pittosporum tenuifolium	kohuhu	DRT/PB5	1500	577/96
Pl r	Plagianthus regius	ribbonwood	DRT/1.2m	3000	103/40
Po c	Poa cita	silver tussock	DRT	700	1380
Qu r 'F'	Quercus robur 'Fastigiata'	upright oak	BR	as shown	7
So m	Sophora microphylla	kowhai	DRT	3000	267
Ti c	Tilia cordata	small leaved lime	BR	as shown	24
					18844

NOTE:
Spacings are shown in millimeters
DRT = Deep Root Trainer grade. Similar size plants come in other grade descriptions such as RX90, V150/V130 or 285cc/310cc, depending on availability. These grades are also acceptable.
BR = Bare Root Stock - also known as Open Ground (OG) stock.

TOTAL COST ESTIMATE

			Arrowsouth Properties Ltd	
Private Open Space (POS)	Rate*	Unit	Area	Est Cost*
Escarpment (POS E1, E2, E3)	\$ 84,065	ha	2.177	\$ 183,008
Outcrop (POS E5, E6)	\$ 91,086	ha	0.2265	\$ 20,631
Waterway (POS W1, W2, W3)	\$ 87,430	ha	0.7737	\$ 67,644
Pastures (POS P1, P2, P3)	\$ 6,239	ha	2.889	\$ 18,023
Roadside (RPS)	\$ 103,647	ha	0.0726	\$ 7,525
Total		ha	6.1388	\$ 296,832

Notes and Assumptions:
* Rates and estimated costs are indicative only and GST exclusive. They are based on a more detailed preliminary costing for POS areas on Arrowsouth Properties Ltd land and include site prep, fence construction, rabbit control, revegetation and maintenance for the first two growing seasons.

APPENDIX 4 - OVERARCHING OPEN SPACE MANAGEMENT PLAN, UPDATED MARCH 2017 (TO BE UPDATED)



Arrowtown South Special Zone Overarching Open Space Management Plan

Prepared by:

rough & milne landscape architects

In collaboration with Lane Neave and CHA Surveyors Ltd

For Arrowsouth Properties Ltd
Updated March 2017

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Disclaimer

Rough and Milne Landscape Architects endeavours to ensure that the information in this publication is accurate and current. However we do not accept liability for any error or omission.

This publication is intended to provide the best possible guidance to Arrowsouth Properties Ltd, with regard to establishing and maintaining private open space areas within the Arrowtown South Special Zone. However, the information is provided as a general guidance only and is not intended as a substitute for specific advice. Rough and Milne Landscape Architects takes no responsibility for the accuracy of this information, its completeness or fitness for purpose.

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INTRODUCTION

The objective of this Overarching Open Space Management Plan is to outline a strategy for establishing, re-vegetating and maintaining private open space areas as part of a residential living environment within the Arrowsouth Special Zone. Within this zone, the Queenstown Lakes District Council (QLDC) has adopted a Structure Plan to ensure a comprehensively planned neighbourhood that:

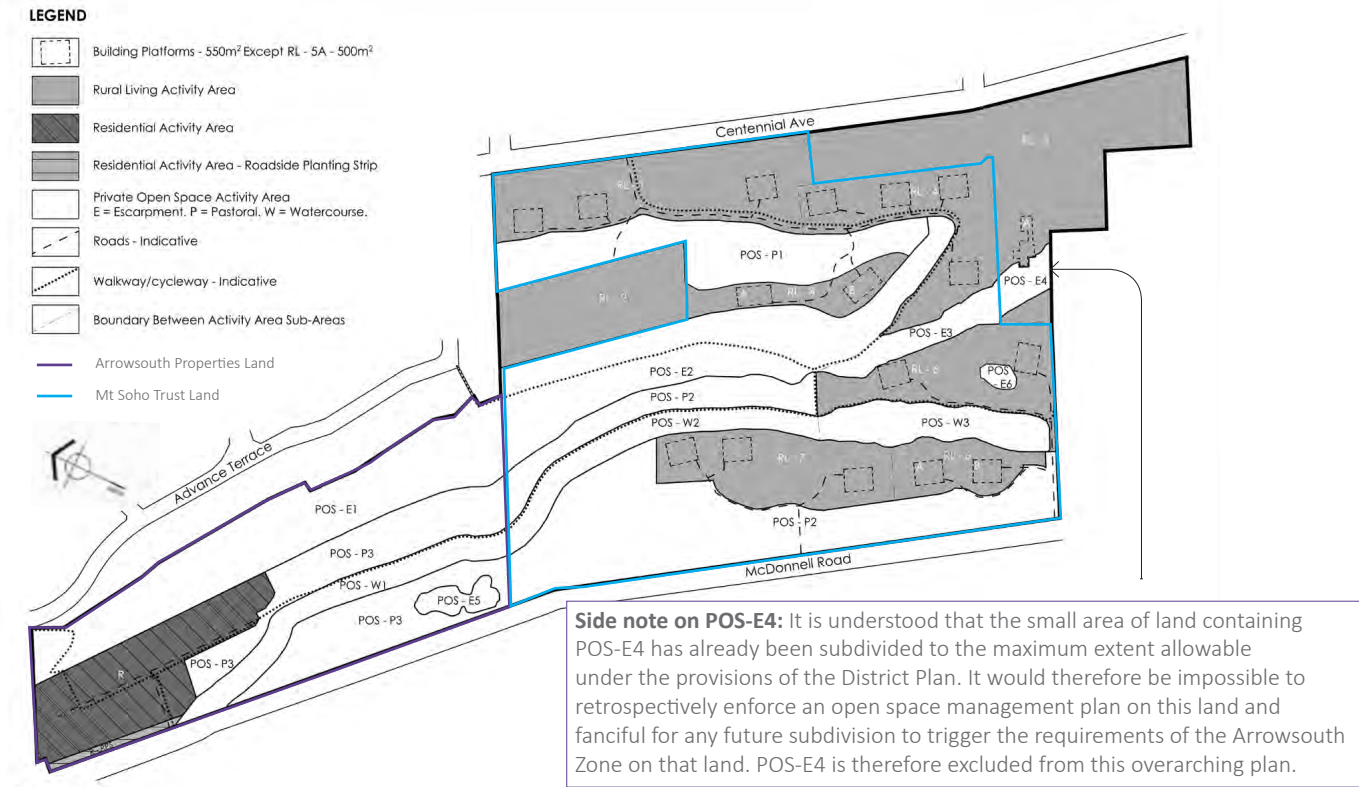
- clearly defines the southern edge of the township
- provides connections between Centennial Ave and McDonnell Road
- ensures protection of the escarpment and watercourse and creates a network of walking trails
- maintains a predominantly low density residential character
- provides consistent landscape treatment of open spaces

This overarching plan starts by proposing a vision for the private open space areas of the Arrowsouth Special Zone, and goes on to describe the strategies proposed for achieving that vision, including:

- methods for eradication and ongoing management of weeds on the site
- stock exclusion and rabbit control
- identification of historic plant communities and suggested revegetation species
- improving the success rate of planting through guidelines and programmes
- suggesting a sustainable structure for ongoing management of open space areas
- the location, construction and visual mitigation of foot/cycle tracks

It is intended that the Overarching Open Space Management Plan will provide a high level strategy on how to regenerate and maintain private open space areas.

FIGURE 1: ARROWSOUTH STRUCTURE PLAN



SITE DESCRIPTION

Arrowsouth South Special Zone occupies approximately 30 hectares of previously rural zoned land on the southern edge of the Arrowsouth Township. The zone is located between McDonnell Road to the west, Centennial Avenue to the east and bounded along its southern boundary by the Arrowsouth Golf Course. The area to the north of the special zone is an existing residential zone which forms the existing southern edge to Arrowsouth's built area. The special zone area is held within nine separate titles ranging in size from 3030m² to 17.95ha, although all private open space areas are held within the two largest titles, owned by Mt Soho Trust and Arrowsouth Properties Ltd.

The structure plan area is split into two distinct levels by a steep, vegetated escarpment which is mostly well defined until it transitions into two smaller terraces at the southeastern-most end. The upper level, described as the Centennial Avenue terrace, is distinct in elevation and character from the lower level strip of basin floor beside McDonnell Road. It is smaller than the lower level landscape unit and contains six rural dwellings with associated farm buildings and amenity planting, giving it more of a rural lifestyle zone character and density. This terrace is accessed and viewed from Centennial Avenue.

The lower level is a long, reasonably narrow strip of gently rolling land defined by the toe of the escarpment and McDonnell Road. The landscape is characterised by rural farmland with grazed pastures, exotic tree planting, a north – south running creek, a small wetland area and a few rocky outcrops. One residence and associated farm buildings, clearly visible from McDonnell Road, is located near the southern end of the lower level strip of land. This landscape unit is accessed and viewed by public from McDonnell Road. Existing dwellings



Photo 1: Overlooking the Arrowsouth Zone from the escarpment

located at the top of the escarpment also overlook the lower level.

In pre-human times, glaciers grew and retreated through several glaciation periods, carving out the Wakatipu Basin and defining the mountains that surround it. When the ice retreated, rivers continued to carve the landscape forming deep channels and terraces throughout the basin floor. Vegetation cover within the basin would have been predominantly grey scrub with species like manuka, matagouri and mingimingi, dryland woodlands of kanuka, kowhai and totara, and areas of grassland and wetland. Mountain beech and other native forest species would have existed in the shady gullies and on hill and mountain slopes where birdlife, insects and lizards were once plentiful.

Since the arrival of Maori explorers, gold miners and settlers to the Wakatipu Basin, fire, invasive plant species and animals introduced by Europeans have changed the ecological landscape of the basin into one now dominated by pastoral farmland and urban development.

This is characteristic of the existing land in the Arrowsouth South Special Zone. Currently the site is dominated by exotic pastures, but also includes areas of exotic scrub and wilding tree species.

OVERARCHING VISION

FIGURE 2: ARROWSOUTH MASTER PLAN



VISION STATEMENT

Arrowsouth will be a unique neighbourhood and open space defining the edge of Arrowtown that provides new living opportunities within an ecologically enhanced and protected environment. A major native revegetation project will see the existing stock damaged waterway and weed infested escarpment, become a lush, enriched ecosystem for wildlife and human communities to share and enjoy. This band of vegetation will create a 'green buffer' on the urban edge of Arrowtown and will assist in blending existing and proposed residential development with the surrounding landscape. A series of tracks will enable public access through the reserve areas and connect to the wider pedestrian/cycle network of Arrowtown. Through implementing a unique development scheme of dividing the revegetated escarpment into privately owned lots, residents of Arrowtown South will become stewards of their own ecologically enhanced open space.

PUBLIC TRAILS

Although open space areas within Arrowsouth are to be privately owned and managed, public access will be established through parts of the site that connect on to the wider pedestrian and cycle path network throughout Arrowtown. A 1.5m wide track will be established on the escarpment to connect foot and cycle paths on McDonnell Rd with Advance Tce and Centennial Ave above the escarpment. The cut and fill batters and retaining structures required to construct the track will be screened by native

shrubs and trees. A 2m wide path will meander beside the waterway which will allow public to appreciate the ecologically enhanced stream environment.

STRUCTURE PLANTING

Each of the private open space areas defined on the structure plan are to be revegetated to some extent with what will become *structure planting* areas of mostly native and some exotic vegetation. These areas are to be planted and

established by the primary land owner and protected under consent conditions (expanded on further in this document and the Private Open Space Management Plans).

FENCING

Larger revegetation areas such as the escarpments and the waterway are to be fenced with stock and rabbit proof fencing. Fencing along the waterway will be set back 15m on both sides of the stream to exclude stock from the sensitive riparian zone.

MANAGEMENT

Due to the fact Arrowsouth Properties Ltd is developing their land first and no development plans are in existence yet for Mt Soho Trust's land, it is not reasonable, logical or legally possible (given all the subdivided lots don't exist yet), to enforce an overarching body corporate structure (or similar alternative) to manage private open space areas across

the entire Arrowsouth Special Zone. Instead, an ongoing management strategy for private open space areas *on each land holding* is to be established by each primary land owner at the time of subdivision and outlined in the Private Open Space Management Plan submitted with the consenting application. This will best achieve the outcomes sought by the Arrowsouth Special Zone and the overarching vision.

In the case of Arrowsouth Properties land, private open space areas are to be planted and managed by the primary land owner for at least the first two growing seasons. Following this, those parts of the revegetated open space that are included within private lots are to become the responsibility of residents to manage. These, however, will remain protected by consent conditions. Management responsibilities of the balance of private open space will remain with the primary land owner and protected by consent conditions and a consent notice that will run with the land.

WEED AND PEST MANAGEMENT STRATEGY

THE EXISTING SITE

As it exists, the Arrowtown South Special Zone is a block of grazed rural land that has relatively poor ecological health with a prevalence of plant and animal pests. The escarpment is dominated by woody weed species, the waterway is unfenced and suffering stock damage and pollution, pastures are scattered with weeds and self-seeded exotic trees, and rabbit infestation is prevalent throughout the site. Apart from a handful close to the wetland, the presence of native plant species on the land is low to nil, although there may be a presence of some native lizards and birds inhabiting the area.

The private open space areas are split between two land holdings and as a result, management and extent of weed infestation differs between

properties. For example, the portion of the escarpment owned by Arrowsouth Properties Ltd was sprayed in March 2014, so the majority of invasive species are already dead (although remain uncleared) and rank grass, broom seedlings and wilding trees prevail. The portion of the escarpment owned by Mt Soho Trust is still densely covered in mature broom and gorse and will require a much more intensive programme to eradicate.

For the site to be successfully revegetated, it must first be cleared of any weed and pest species present. The following table provides guidance for eradicating the dominant weed and pest species that have been identified on the site.

TABLE 1: DOMINANT WEED AND PEST SPECIES PRESENT

GORSE <i>Ulex europaeus</i> 	Stage of Infestation	Well advanced. Escarpment on Mt Soho Trust land infested with scattering of mature plants amongst broom
	Infestation Location	Escarpment on Mt Soho Trust land; near rocky outcrop on Arrowsouth Properties Ltd land
	Control Method:	
	Mature Plants	Aerial spray or cut stump and treat with herbicide
	Seedlings	Herbicide spray or hand pull small plants
	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water. Spray application: Grazon, Escort or Tordon BK at label rates
	Follow-up	At least one follow up application of herbicide will be required. Gorse seeds remain dormant in the ground for many years so it is important to continue monitoring and removing seedlings from revegetation areas.

BROOM <i>Cytisus scoparius</i> 	Stage of Infestation	Well advanced. Escarpment on Mt Soho Trust land dominated by mature plants
	Infestation Location	Escarpment on Mt Soho Trust land has dense cover of mature plants; pastures and escarpment on Arrowsouth Properties land has dense scattering of seedlings (following spray in Spring 2015)
	Control Method:	
	Mature Plants	Aerial spray or cut stump and treat with herbicide
	Seedlings	Herbicide spray or hand pull small plants
	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water. Spray application: Grazon, Escort or Tordon BK at label rates.
	Follow-up	At least one follow up application of herbicide will be required. Broom seeds remain dormant in the ground for many years so it is important to continue monitoring and removing seedlings from revegetation areas.

HAWTHORN <i>Crateagus monogyna</i> 	Stage of Infestation	Scattering of trees
	Infestation Location	Escarpment and roadside
	Control Method:	
	Mature Plants	Cut stump and treat with herbicide
	Seedlings	Dig out small plants
	Herbicide	Cut stump application: Grazon 50ml/L water, or Tordon BK at 100ml/L water; or Escort at 5g/L water
	Follow-up	Hawthorn trees are spread by birds which eat their berries. It is recommended that revegetation areas be monitored and any hawthorn seedlings be removed as necessary.

ROWAN <i>Sorbus spp</i> 	Stage of Infestation	Scattering of trees
	Infestation Location	Escarpment
	Control Method:	
	<i>Mature Plants</i>	Cut stump and treat with herbicide
	<i>Seedlings</i>	Dig out small plants
POPLAR <i>Populus spp</i> 	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water
	Ongoing Maintenance	Rowan trees are spread by birds which eat their berries. It is recommended that revegetation areas be monitored and any rowan seedlings be removed as necessary.
	Stage of Infestation	Scattering of trees
	Infestation Location	Escarpment and Pastures
	Control Method:	
	<i>Mature Plants</i>	Cut stump and treat with herbicide
	<i>Seedlings</i>	Dig out small plants
	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water
	Ongoing Maintenance	Poplar trees have invasive root systems that send suckers up to form new trees, so it is important to keep an eye out for suckers and remove/poison these if they occur.

CRACK WILLOW <i>Salix fragilis</i> 	Stage of Infestation	Scattering of trees
	Infestation Location	Along waterway and in pastures
	Control Method:	
	<i>Mature Plants</i>	Drill and Inject method – should be done when willow trees are in full leaf (generally Nov to Feb). Drill 45° into sapwood approx. 10mm and inject holes with herbicide. Drill holes as close as possible to the ground. Repeat every 10cm to form a ring of holes around the base of the tree. Remove tree once dead.
	<i>Seedlings</i>	Hand pulling. Must pull all of the plant as roots and dropped branch fragments will re-shoot.
DOUGLAS FIR AND OTHER PINES <i>Pseudotsuga menziesii</i> and <i>Pinus spp.</i> 	Herbicide	5g Escort® + 500ml glyphosate 10mL Pulse® penetrant + .5ml Landmark® dye per 1L water. Dissolve the Escort into the water before adding the other chemicals. Makes 1.5L herbicide (approx. 150 trees). Use 10ml herbicide mixture per hole within one minute of drilling.
	Ongoing Maintenance	Seedlings are to be hand pulled, and much care is to be taken with removing all the roots and dropped branch fragments as these are likely to strike and re-shoot.
	Stage of Infestation	Scattering of trees
	Infestation Location	Escarpment
	Control Method:	
	<i>Mature Plants</i>	Cut stump and treat with herbicide
	<i>Seedlings</i>	Dig out small plants
	Herbicide	Apply cut stump immediately after cutting with X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water
	Ongoing Maintenance	Seedlings are to be hand pulled

FENNEL Foeniculum vulgare 	Stage of Infestation	Scattering of plants
	Infestation Location	Pasture areas, rocky outcrop and along waterway
	Control Method:	
	Mature Plants	Herbicide spray before flowering or at best before seeds have set.
	Seedlings	Hand pull or herbicide spray
NODDING THISTLE Carduus nutans 	Herbicide	Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water. Spray application: Grazon, Escort or Tordon BK at label rates.
	Ongoing Maintenance	Spot spray or hand pull as necessary
	Stage of Infestation	Scattering of plants
	Infestation Location	Pasture areas, rocky outcrop and along waterway
	Control Method:	Grub, hand pull or cut with weed-eater before flowers appear on thistles. Or spot spray individual plants again before flowers appear.
	Herbicide	Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water.
	Ongoing Maintenance	Thistles produce wind dispersed seeds, it is recommended that spot spraying is done annually prior to thistles flowering, which will over time help control the spread and any localised weeds.

BRIAR ROSE Rosa rubiginosa 	Stage of Infestation	Moderately advanced
	Infestation Location	Escarpment
	Control Method:	
	Mature Plants	Aerial spray or cut stump and treat with herbicide
	Seedlings	Herbicide spray or hand pull small plants
RABBITS AND HARES 	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water. Spray application: Grazon, Escort or Tordon BK at label rates
	Ongoing Maintenance	At least one follow up application of herbicide will be required, as briar roses are easily re-established so it is important to continue monitoring and removing seedlings from re-vegetation areas.
	Stage of Infestation	Moderately advanced
	Infestation Location	Whole site
	Control Method:	
	Exclusion	Install rabbit proof fencing to larger revegetation areas (such as the escarpment). Install protectors to individual plants in unfenced areas.
	Culling	Kill rabbits and hares within fenced areas by shooting (initially, while there is no development) or ground baiting (ongoing).
	Poison	Due to the location of the site near an urban area, it is recommended rabbits are poisoned using Pindone in bait stations. Baiting is most effective at the end of Summer- early Autumn when food source is scarce. Poison should be handled by experienced persons only and neighbours should be alerted to it's use. Remove and destroy poisoned rabbit carcasses to prevent them from being eaten by domestic animals.
	Ongoing Maintenance	Continue to eradicate rabbits with poison or trapping as required. Continue to ensure plant protectors remain intact until plants are mature. Although mature plants and trees will not require rabbit protection, to encourage the forest to self seed and regenerate on its own, it is important to protect planted areas from rabbits.

WEED AND RABBIT MANAGEMENT RESPONSIBILITIES

As described previously on page 7, this strategy for ongoing management of private open space applies only to the land owned by Arrowsouth Properties Ltd and is described in greater detail on the Private Open Space Management Plan for this land holding. An ongoing management strategy for the remaining private open space areas in the zone (owned by Mt Soho Trust) is to be provided with the consent application for subdivision of that land holding.

ONGOING MANAGEMENT STRATEGY

FIRST TWO GROWING SEASONS:

The primary land owner will carry out initial comprehensive weed and pest eradication of private open space areas on their land at time of subdivision. Rabbit proof fences will be installed to larger areas of revegetation and will by default become stock exclusion fences. Weeds and rabbits will continue to be managed in all private open space areas by the primary land owner for two growing seasons following planting of revegetated areas.

FOLLOWING FIRST TWO GROWING SEASONS:

The new owners of privately owned lots that include an area of private open space are to resume management responsibilities of their portion of private open space. The QLDC is to resume responsibility for the vested reserve land including the stormwater basin. The primary landowner will continue to manage the balance of private open space areas for as long as necessary.

CONSENT NOTICE & CONDITIONS

In order to ensure private open spaces are appropriately managed into the future, all private open space areas will remain protected under consent conditions and a consent notice that will run with the land. Conditions of consent are to include:

- protection from the removal of any native planting
- responsibility for replacement of dead plants
- protection of the rabbit proof fence
- responsibility for the management and eradication of weed species from the revegetation area
- restrictions on the plant species (with wilding potential) allowed to be planted in domestic gardens

FIGURE 3: OPENSOURCE MANAGEMENT RESPONSIBILITIES AFTER TWO GROWING SEASONS

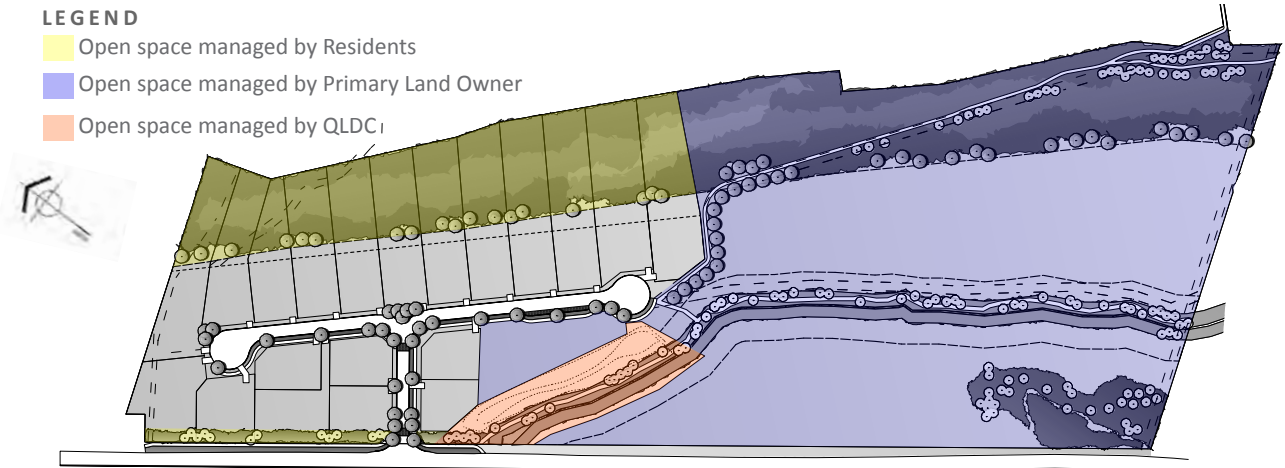


TABLE 2: WEED MANAGEMENT TASKS AND ESTIMATE OF RATES

	unit	est rate
Site preparation - one growing season prior to planting		
Wilding tree felling and mulching	per tree	\$110 once
Pre-plant scrub cutting + mulching	per hectare	\$1600 once
Pre-plant weed spraying	per hectare	\$1000 monthly
Maintenance - first two growing seasons after planting		
Spot spray between plants + remove wilding tree seedlings + replace dead plants + mow ungrazed grass	per hectare	\$2000 - \$3000 annually
Maintenance - third growing season and thereafter		
Spot spray between plants + remove wilding tree seedlings + replace dead plants + mow ungrazed grass	per hectare	\$1400 - \$2600 annually (tapering as plants mature)

* growing season = Oct- March

TABLE 3: RABBIT MANAGEMENT TASKS AND ESTIMATE OF RATES

	unit	est rate
Site preparation - prior to planting		
Rabbit and stock exclusion fencing	per lm	\$19 once
Initial rabbit culling (shooting)	per hr	\$60 once
Maintenance - following planting		
Routine rabbit monitoring and fence checks	per hr	\$45 bi-monthly for first 4 years after planting
Control of rabbits by Pindone poisoning (2 feeds)	per ha	\$145 as required

REVEGETATION STRATEGY

RESTORATION PHILOSOPHY

The goal for all areas of restoration planting will be to create a self-sustaining native shrub and forest areas, free from the pressures of stock, pest browse and weed competition. Particular focus will be on restoring habitats and food sources for native wildlife, including the rare and endangered NZ Eastern Falcon.

PRIVATE OPEN SPACES (POS)

The Private Open Spaces identified in the structure plan represent four main revegetation zones. These are:

POS E1, E2, E3 | ESCARPMENT

A large escarpment divides the upper terrace from the lower plane. The slope faces a south west direction. It is currently infested with rank grass, woody weed species and rabbits.

The long term enhancement goal for the escarpment is to first clear it of invasive weeds and rabbits, then restore it to native bush which will reintroduce a native seed source to the area and provide habitat for native wildlife. A scattering of non-invasive, deciduous trees will be planted at the base of the escarpment to reflect the traditional Arrowtown character.

POS E5, E6 | ROCK OUTCROPS

There are two schist outcrops on the lower plane that have potential to be attractive features of the site (one visible from the McDonnell Road), but are presently obscured with broom and gorse and infested with rabbits.

The long term enhancement goal for these outcrops is to remove the gorse and broom to reveal the schist formations and revegetate the areas surrounding them with native vegetation. This will create a habitat for native birds, lizards and invertebrates.

POS W1, W2, W3 | WATERWAYS

A spring-fed stream (approx 1m wide) flows from a culvert outlet beneath McDonnell Road near the north west corner of the site, in a south east direction across the lower plane. This leads into to a small wetland area before continuing to the Arrow River. The stream is currently unfenced to stock and suffers from pugging and erosion within the flood zone. Some native grasses and sedges are present around the wetland area, although much of the waterway is devoid of native vegetation.

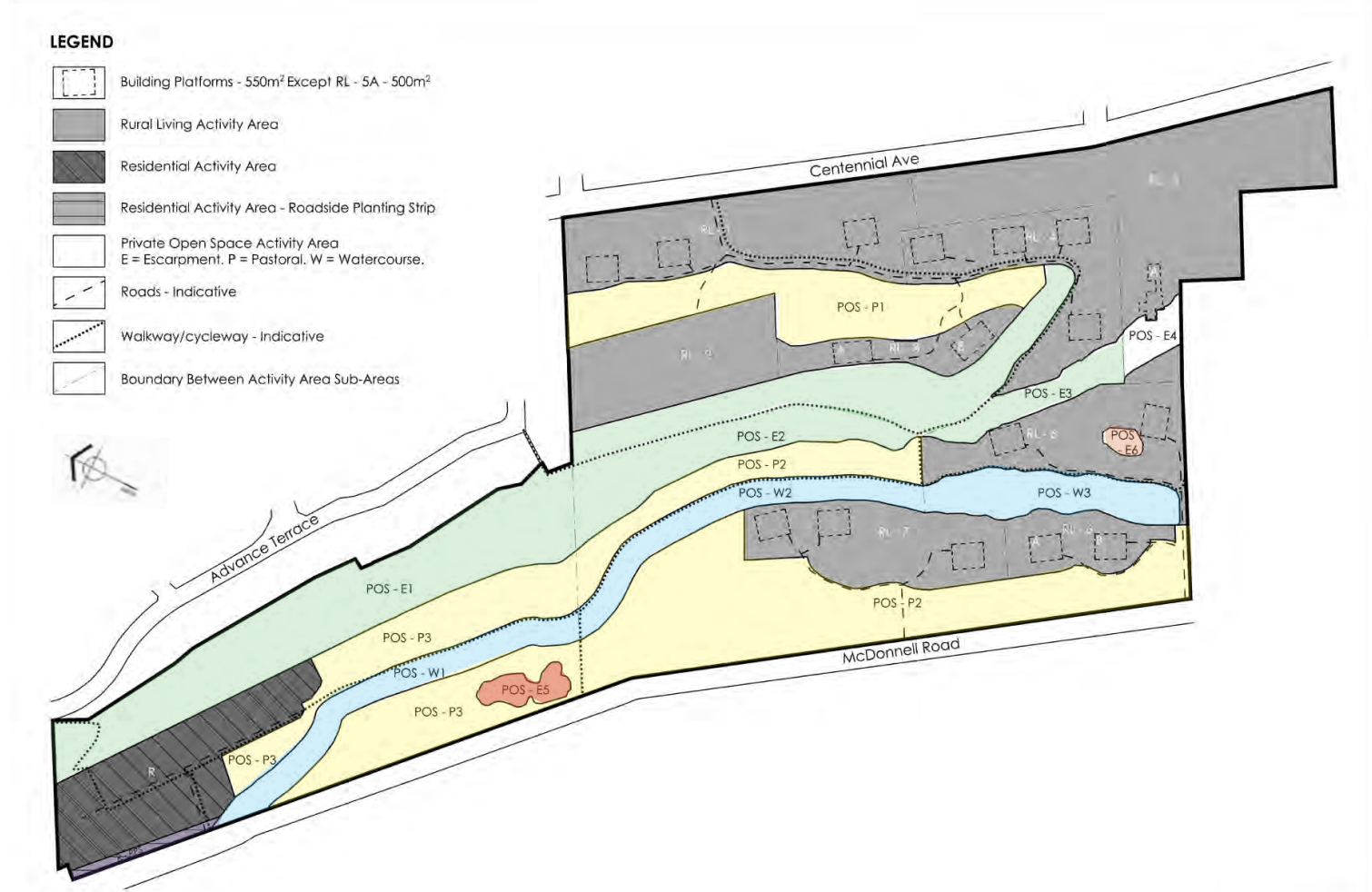
The long term enhancement goal is to exclude stock and revegetate the stream margin with native riparian planting that will improve the ecological health and amenity of the stream. Riparian planting will assist with water quality, provide habitat for wildlife and reintroduce a native seed source to the area.

POS P1, P2, P3 | PASTURES

The flatter areas within the zone boundary on the upper terrace and lower plane are typically open, grazed pastures with a scattering of exotic trees and herbaceous pasture weeds. Rabbits are prevalent.

The long term enhancement goal for the pasture open space areas is to maintain the open character by continuing to graze the grass, but invasive weeds and rabbit populations would be controlled. A row of deciduous specimen trees will be planted alongside the lower section of escarpment track to soften the embankment created during track construction.

FIGURE 4: PRIVATE OPEN SPACE AREAS MAP



ROADSIDE PLANTING STRIP (RPS)

A 6m strip of land beside McDonnell Road at the north western-most corner of the site has been identified in the structure plan to become a roadside planting strip. It is presently part of the pasture land but will one day exist between the road and new residential development.

The long term enhancement goal for this strip is to establish native planting that will contribute to softening and blending the proposed residential development with the wider area.

TABLE 4: PLANT SCHEDULE - NATIVES

NATIVE SPECIES LIST	POS E1, E2, E3	POS E5, E6	POS W1, W2, W3	RPS	STREET SCAPE
<i>Aristotelia serrata</i> Wineberry	✓				
<i>Austroderia richardii</i> Toetoe	✓		✓		
<i>Carex buchananii</i> Buchanans sedge	✓		✓		
<i>Carex secta</i> Pukoi			✓		
<i>Carex sinclarii</i> Sinclair’s sedge			✓		
<i>Carmichaelia petriei</i> Native broom	✓	✓	✓		
<i>Chionochloa rigida</i> Snow tussock	✓	✓			
<i>Chionochloa rubra</i> Red tussock	✓	✓	✓		✓
<i>Coprosma crassifolia</i> Thick-leaved Mikimiki	✓		✓	✓	
<i>Coprosma propinqua</i> Mikimiki	✓	✓	✓		
<i>Coprosma rigida</i> Mingimingi	✓				
<i>Coprosma rugosa</i> Coprosma	✓	✓	✓		
<i>Coprosma virescens</i> Green coprosma	✓		✓	✓	
<i>Cordyline australis</i> Cabbage tree	✓		✓		
<i>Corokia cotoneaster</i> Korokio	✓			✓	
<i>Discaria toumatou</i> Matagouri	✓	✓	✓		
<i>Festuca novae-zelandiae</i> Tawny tussock		✓			
<i>Fuscospora fusca</i> Red Beech	✓				
<i>Fuscospora cliffortioides</i> Mountain Beech	✓				
<i>Griselinia littoralis</i> Broadleaf	✓	✓			✓
<i>Halocarpus bidwillii</i> Bog Pine			✓		
<i>Hebe salicifolia</i> Koromiko	✓		✓		
<i>Juncus edgariae</i> Wiwi			✓		
<i>Leonohebe cupressoides</i> Cypress Hebe	✓		✓		
<i>Leptospermum scoparium</i> Manuka	✓		✓		
<i>Melicytus alpinus</i> Porcupine Shrub		✓			
<i>Myrsine australis</i> Matipo	✓	✓			
<i>Olearia arborescens</i> Tree Daisy		✓			
<i>Olearia bullata</i> Shrubby Olearia	✓	✓	✓		✓
<i>Olearia fragrantissima</i> Fragrant Tree Daisy	✓				
<i>Olearia lineata</i> Mountain Tree Daisy	✓		✓		
<i>Olearia odorata</i> Scented Tree Daisy	✓		✓	✓	
<i>Ozothamnus leptophyllus</i> Cottonwood	✓				
<i>Phyllocladus alpinus</i> Mountain Toatoa	✓		✓		

NATIVE SPECIES LIST CONT’D	POS E1, E2, E3	POS E5, E6	POS W1, W2, W3	RPS	STREET SCAPE
<i>Phormium cookianum</i> Mountain flax	✓	✓		✓	
<i>Phormium tenax</i> Harakeke			✓		
<i>Pittosporum eugenoides</i> Lemonwood	✓	✓		✓	
<i>Pittosporum tenuifolium</i> Kohuhu	✓		✓	✓	
<i>Plagianthus regius</i> Ribbonwood	✓				
<i>Poa cita</i> Silver Tussock	✓	✓			✓
<i>Sophora microphylla</i> Sth Island Kowhai	✓	✓	✓		

TABLE 5: PLANT SCHEDULE - EXOTICS

EXOTIC SPECIES LIST	POS E1, E2, E3	POS E5, E6	POS W1, W2, W3	RPS	STREET SCAPE
<i>Acer</i> ‘Autumn Blaze’ Autumn Blaze Maple	✓				✓
<i>Fraxinus angustifolia</i> ‘Raywoodii’ Claret Ash	✓				
<i>Quercus robur</i> ‘fastigiata’ Upright Oak	✓				
<i>Tilia cordata</i> Small Leaved Lime	✓				

PLANT GRADES

General revegetation: Most native shrubs and trees are to be specified at **DRT** (Deep Root Trainer) grade, although similar size plants come in other pot/plant bag types (depending on what is available) such as V150 / V310, 285cc / 310cc and RX90, which would also be acceptable. Although plants are very small at this grade, they are most cost effective to plant on mass (allowing for some casualties) and have a better chance of establishing without irrigation.

Track screening on escarpment: In locations where the cut and fill batters or retaining structures are visible, larger grade shrubs and trees (**PB5** or equivalent shrubs and **1.2m high** saplings) will be required to provide a more immediate screening effect.

Deciduous specimen trees in private open space: Generally, deciduous specimen trees will be supplied as **BR** (Bare Root) stock, so long as they are planted in winter when trees are dormant. This is a cost effective way to purchase deciduous trees.

Roadside Planting Strip (RPS): Shrubs and small trees in the RPS are to perform a screening function and therefore must be supplied at a minimum of **PB3** grade to ensure fast establishment.

Street trees: Specimen street trees are to be supplied at a minimum height of **2m with 30-40mm caliper**.

TABLE 6: REVEGETATION TASKS AND ESTIMATE OF RATES

	unit	est rate
Supply - order up to 18 months prior to planting		
DRT grade plant (plants inside fence only)	per plant	\$3.30
PB3 grade plant (RPS)	per plant	\$5.50
PB5 grade plant (track mitigation)	per plant	\$8.80
BR grade deciduous specimen tree	per tree	\$25.00
1.2m high native sapling	per tree	\$40.00
Planting - during planting season		
Planting (per DRT)	per plant	\$3.30
Planting (per PB3)	per plant	\$5.50
Planting (per PB5)	per plant	\$8.80
Planting (per BR)	per tree	\$15.00
Planting (per 1.2m sapling)	per tree	\$15.00
Wool mulch collar (plants inside fence only)	per plant	\$1.15
Combi guard (plants not inside fence only)	per plant	\$3.00
Tree staking	per tree	\$25

DRT = Deep Root Trainer or equivalent
PB3 = Plant Bag size 3 (or 2L pot) grade
PB5 = Plant Bag size 5 (or 3L pot) grade
BR = Bare Root grade (or OG- Open Ground grade)

SITE PREPARATION

Once woody species are controlled, if necessary spot spray long grass in the planting zones (having paced out and planned each planting site based on the spacing suggested, ideally using colour coded dazzle or stakes) for at least 1m diameter around each planting site. This is usually achieved by spraying in a ‘z’ pattern, one metre across and one metre up.

SOIL CONDITIONS

Soil on the site is predominantly silty loam and schist laden silty/sandy loam. Soil on the escarpment naturally contains more schist fragment and lower moisture content than soils on the lower plane which tend to get wetter and finer with depth before reaching particulate schist and bedrock. Topsoil depths range from 300mm on the escarpment to 500mm on the lower plane. Overall, soil type and conditions are well suited to establishing native planting.

PLANTING TIME

Planting should typically be done in early spring (September, October, up to mid early November) and autumn (April, May, June), but is weather dependent. In essence the target is the period of increased rain, while moderate temperatures persist. Irrigation can overcome this limitation but is generally not a practical consideration (cost or practicality wise). Winter on the whole is avoided due to frost threat and slow initial growth.



Photo 2: Test pit topsoil sample from the escarpment

HOLE SIZE AND DEPTH

Plants should be planted in a hole that is twice the size of the root ball and at a base-of-stem depth of 20-50mm below the soil surface (this will help direct water to the roots when it rains).

FERTILISING

Fertiliser is not generally required to establish native species and given that the soils are naturally fertile in the site, there are no reasons to add fertiliser when planting.

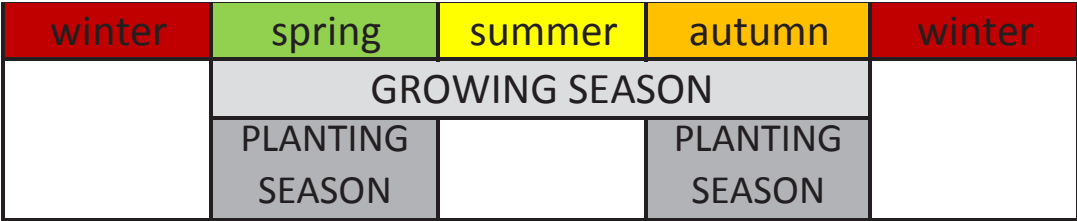


Figure 5: Diagram of Planting and Growing Seasons

MULCHING

Mulch, like fertiliser, is an option normally dependent on cost. While plants do not require mulch, mulching has the benefits of suppressing weed competition around the plant so reducing maintenance; it also helps retain water in the soil over summer periods and adds to the soil nutrient levels as it breaks down. Ideally we would recommend 500mm x 500mm squares of wool mulch be applied around each planting site. This will assist with keeping maintenance costs down as plants establish (making it much easier to spray around seedlings).

WATERING

Although native seedlings should not be planted in dry conditions, when it is necessary that they are, it may be worthwhile to water them immediately after planting to promote fine root development.

BLANKING

Typically 5 - 10% of seedlings will be lost in the first two - three years following planting. This can vary hugely depending on the growing conditions and quality of plant stock. Supplementary planting to replace all dead or sickly specimens may need to be undertaken for at least the first two growing seasons. The species used in these supplementary plantings should be exact replacements (i.e. the same species and grade as those which have died) unless a succession of this species dies in the same place. In which case, another species from the supplied list should be tried. Annual monitoring will be required to establish how many (if any) of which species (and where) need to be replaced.



Photo 3: Successful revegetation project at Wangaloa (closed coal mine near Kaitangata in southeast Otago). This photo is taken seven years after planting (photo credit: www.otago.ac.nz).

TOTAL ESTIMATE OF COSTS

			Arrowsouth Properties Ltd		Mt Soho Trust	
Private Open Space (POS)	Rate*	Unit	Area	Est Cost*	Area	Est Cost*
Escarpment (POS E1, E2, E3)	\$ 84,065	ha	2.177	\$ 183,008	3.011	\$ 253,118
Outcrop (POS E5, E6)	\$ 91,086	ha	0.2265	\$ 20,631	0.068	\$ 6,194
Waterway (POS W1, W2, W3)	\$ 87,430	ha	0.7737	\$ 67,644	1.864	\$ 162,969
Pastures (POS P1, P2, P3)	\$ 6,239	ha	2.889	\$ 18,023	5.886	\$ 36,721
Roadside (RPS)	\$ 103,647	ha	0.0726	\$ 7,525	n/a	n/a
Total		ha	6.1388	\$ 296,832	10.829	\$ 459,002

Notes and Assumptions:

* Rates and estimated costs are indicative only and GST exclusive. They are based on a more detailed preliminary costing for POS areas on Arrowsouth Properties Ltd land and include site prep, fence construction, rabbit control, revegetation and maintenance for the first two growing seasons.

CONCLUDING REMARKS

Given the scale of this restoration and the number of plants involved it will be necessary to give advanced notice to nurseries in order to allow them adequate time to propagate sufficient healthy stock (at least 18 months). However, it is possible that stock may not be obtainable in the proportions indicated in this restoration plan. If so, some deviation from the stipulated planting composition is acceptable provided that only hardy species are planted in equal or greater numbers than indicated.

The success of this restoration programme will depend on numerous factors, such as climate, weed control, pest control, plant stock quality and the skills of the selected plant contractor. It is critical that the appointed planting contractor is experienced in planting natives, as poor planting technique will result in high plant mortality.

As such, this restoration advice is given without prejudice and no guarantee of success is made. However, with careful consideration given to the selection of plant supplier and planting contractor, as well as adequate monitoring and control of threats on the site, the private open space area should develop into a valued area of native vegetation and a thriving ecological habitat.

APPENDIX 5 - COUNCIL ENGINEER'S REPORT

ENGINEERING REPORT

TO: Louise White

FROM: Michael Wardill

DATE: 06-12-2016

APPLICATION DETAILS	
REFERENCE	RM161093
APPLICANT	Arrowsouth Properties Limited
APPLICATION TYPE & DESCRIPTION	Application made under section 88 of the Resource Management Act 1991 (RMA) to Subdivide Lot 29 DP 369201 into twenty residential allotments, one allotment to vest in Council as road, one allotment to vest in Council for the purpose of stormwater management, and two private open space allotments (the balance of the site); as a controlled activity, in accordance with the Arrowtown South Special Zone Rules.
ADDRESS	McDonnell Road
ZONING	Arrowtown South Special Zone
LEGAL DESCRIPTION	Lot 29 DP 369201
SITE AREA	7.9444Ha
ACTIVITY STATUS	Controlled

Application	Reference Documents	Subject application
	Previous Relevant Consents	None referenced.
	Date of site visit	TBC

Location Diagram



Summary of Existing Information in Sheet:

REFERENCE	DESCRIPTION	REMARKS	DATE
1	Lot 100	Lot 100	1/1/2016
2	Lot 100	Lot 100	1/1/2016
3	Lot 100	Lot 100	1/1/2016
4	Lot 100	Lot 100	1/1/2016
5	Lot 100	Lot 100	1/1/2016
6	Lot 100	Lot 100	1/1/2016
7	Lot 100	Lot 100	1/1/2016
8	Lot 100	Lot 100	1/1/2016
9	Lot 100	Lot 100	1/1/2016
10	Lot 100	Lot 100	1/1/2016
11	Lot 100	Lot 100	1/1/2016
12	Lot 100	Lot 100	1/1/2016
13	Lot 100	Lot 100	1/1/2016
14	Lot 100	Lot 100	1/1/2016
15	Lot 100	Lot 100	1/1/2016
16	Lot 100	Lot 100	1/1/2016
17	Lot 100	Lot 100	1/1/2016
18	Lot 100	Lot 100	1/1/2016
19	Lot 100	Lot 100	1/1/2016
20	Lot 100	Lot 100	1/1/2016

Memorandum of Understanding in Gross

REFERENCE	DESCRIPTION	REMARKS	DATE
1	Lot 100	Lot 100	1/1/2016
2	Lot 100	Lot 100	1/1/2016
3	Lot 100	Lot 100	1/1/2016
4	Lot 100	Lot 100	1/1/2016
5	Lot 100	Lot 100	1/1/2016
6	Lot 100	Lot 100	1/1/2016
7	Lot 100	Lot 100	1/1/2016
8	Lot 100	Lot 100	1/1/2016
9	Lot 100	Lot 100	1/1/2016
10	Lot 100	Lot 100	1/1/2016
11	Lot 100	Lot 100	1/1/2016
12	Lot 100	Lot 100	1/1/2016
13	Lot 100	Lot 100	1/1/2016
14	Lot 100	Lot 100	1/1/2016
15	Lot 100	Lot 100	1/1/2016
16	Lot 100	Lot 100	1/1/2016
17	Lot 100	Lot 100	1/1/2016
18	Lot 100	Lot 100	1/1/2016
19	Lot 100	Lot 100	1/1/2016
20	Lot 100	Lot 100	1/1/2016

NOTES:

1. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).
2. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).
3. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).
4. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).
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18. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).
19. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).
20. All lots are to be subdivided into lots of approximately 1000 sqm (to be permitted by council resolution).

Proposed Subdivision of Lot 29 DP 369201
(Sheet 1 - Overlay on Arrowsouth Structure Plan & Indicative Subdivision Layout Plan)
 Arrowsouth Properties Ltd
 McDonnell Road, Arrowtown

C. HUGHES & ASSOCIATES LTD Surveying and Resource Management • Christchurch			ISSUE A. Amendments added/delivered B. Amendments, Covenants & Lots 7-9 C. Lots 10 & 20, Rd Width, Easements & Covenants D. Lots 10-100 and Easements E.	DATE 28/10/16 28/10/16 27/10/16	Scale: 1 : 1750 (A3) Datum: - Origin: -	Job No: 5478 Plan No: C1212 Drawn: CRH Date: June 2016
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Subdivision

The application proposes a subdivision of Lot 29 DP369201 into 20 freehold residential allotments with associated; road to vest, stormwater disposal area to vest, and balance allotments being privately retained as open space. Details are shown on CHA Scheme Plan above. The residential allotments vary between 600m² and 2,000m² in area and are all located within the 'Residential Activity Area' of the Arrowsouth Structure Plan. The minimum lot size permitted by Rule 15.2.6.3 of the District Plan for Arrowtown South is 600m² and all residential allotments meet this minimum requirement. I make no recommendations in this regard.

The proposed roading allotment services more than 12 residential allotments and therefore vesting of the roading is required in accordance with Rule 14.2.4.1(iv) stating: *"No private way or private vehicle access or shared access shall serve sites with a potential to accommodate more than 12 units on the site and adjoining sites."* I recommend supporting conditions of consent.

The proposed stormwater allotment has been reviewed during pre-application and recommended to vest in Council by QLDC '*Manager Strategy and Performance, Property and Infrastructure*'. A copy of this approval is held within the archived engineering folder. I recommend supporting conditions of consent.

The balance lots, being Lots 102 & 103 are proposed to be retained as 'Private Open Space' and to ensure these do not become separately saleable I recommend a condition requiring these 2 lots be amalgamated together in a single CFR title for maintenance clarity purposes. Neither of these lots require servicing as the Arrowsouth Structure Plan does not permit residential activity on either lot. The ongoing management of these lots is anticipated to be addressed by Council planner as part of the respective assessment under Rules 12.32 in the District Plan.

The application will result in development contributions and I recommend an advice note to alert the consent holder, if granted.

Transport

Access Intersections

The application is not supported by a traffic engineering assessment however it is not considered necessary as the intersection location, with McDonnell Road, was considered at the time of the underlying plan change.

The site is located with frontage onto McDonnell Road and within the 50km/hr speed restricted area. New roads to vest are proposed in a general Tee configuration to create Roads 01 and Road 02. Each residential lot will have legal access to a formed road from within the development. Road 01 will connect to McDonnell Road and I am satisfied this is within 25m of the Structure Plan location and can meet the requirements of Rule 12.32.5.2 (xiii) in this regard.

The McDonnell Road intersection and the internal intersection between Roads 01 & 02 are correctly shown on application drawings with priority give ways & markings. All corner lots on approach to intersections are provided with sight distance splays in the application. I recommend conditions of consent in support of the application.

Road and footpath formations

Along McDonnell Road the proposal includes a new footpath, swale, and associated stormwater infrastructure. It is desirable for traffic safety purposes to extend the urbanised

area of McDonnell Road similar to the existing developed area to assist in maintaining lower speeds over the site frontage, despite being located within a 50km/hr speed restriction area. I therefore recommend a continuation of the existing sealed footpath and concrete kerb and channel (K&C) along McDonnell Road past the site entrance. I note this may also require a narrow strip of McDonnell Road seal widening to maintain (identical to the other side of the existing speed bump) road dimensions widths between the edge line and recommended K&C.

The internal roads are detailed as 5.7m wide with flush nib kerbs and a separate 1.5m width concrete footpath along on side. This meets the dimensional requirements of Figure E12 in the Council's Land Development and Subdivision Code of Practice for access up to 200 dwelling units.

Planted swales are proposed along both Roads 01 and 02 and whilst this also meets the CoP for low impact design it is undesirable for Council, in my opinion, due to the high maintenance requirements of planted swales versus grassed swales. I recommend instead that the swales within the site be grassed and whilst this will marginally increase stormwater flows I am satisfied this has minimal impact on detailed designs.

I recommend a condition of consent requiring formation of Roads 01 & 02 to Figure E12 in the CoP with a 1.5m wide footpath along one side, with appropriate turning provisions, and with grassed swales instead of planted swales.

No details of street lighting provided. An appropriate condition is recommended in this regard including extending street lights along McDonnell Road.

No road naming has been proposed at this stage and this will need to be conditioned.

Crossing Points

No lots have direct access to McDonnell Road and the plan rules limit direct access. I recommend a consent notice be provided on Lots 1, 4 - 6 & 20 in this regard to alert owners at the time dwellings are proposed. It is noted this requirement is also volunteered by the applicant.

Crossing points to lots from the internal road network are detailed by the application as concrete crossings in similar sections to the swales to provide continuity of roadside drainage. The swales are 1.8m wide with side gradients of 1 in 5. This equates to a 0.18m vertical difference for vehicles to negotiate over a 1.8m length and standard vehicles have a wheel base of 2.81m thus spanning this distance. I am generally satisfied this design should work appropriately but I recommend the consent holder, if granted, provide evidence of compliance break over angles at the time of detailed design. Lots 1, 4, 6, 7, 12, 18 & 20 are all lots that either have frontages of 11m width or less and/or are located in close proximity to intersections. The formation of these crossing points is required as part of the subdivision.

Consent Notices are recommended for all other lots to alert owners to requirements for the construction of a sealed concrete crossing point.

Trails

An unsealed trail is proposed across Lot 103 to provide linkages to Advance Terrace and also to split off towards yet undeveloped areas of Arrowtown South. The trails are proposed at 1.5m width with retaining walls to limit exposed cut batters. Approval is required from Council Parks & Reserves Planning Manager and it is understood that Council Planner will complete this process to check validity. I do however agree with the design approach for the trails and recommend construction in accordance with submitted details, if approved for vesting as detailed. Pedestrian right of way easements are shown in favour of Council for the proposed trails.

Services

The site is currently shown on Council mapping as outside of Council reticulated service areas. The infrastructure service boundaries however were extended on the 24 November 2016 by formal decision of the full Council. I am therefore satisfied that reticulated Council servicing can be available for the subject site subject to appropriate extension, design, and construction herein.

Water

A connection is proposed within the western area of the lot to an existing 200mm PVC water main. An easement is required for the new section of water main through Lot 7 and is appropriately shown on the Scheme Plan. I recommend that all necessary easements are granted and reserved.

Drawings provided with the application show the proposed water main arrangement beneath the roads to vest and I am satisfied that both capacity and servicing are achievable to the development. I recommend full design details of the water servicing are provided for detailed engineering review and acceptance, prior to starting works.

Sewer

A connection is proposed within the southwestern corner of the lot to the McDonnell Road pump station. Drawings provided with the application show the proposed sewer main arrangement beneath the roads to vest. The proposal will permit gravity discharge from Lots 3 - 11 however all other lots will require individual private pumps (low pressure) to pump back to a gravity draining manhole. I am satisfied that both capacity and servicing are achievable to the development and I recommend full design details of the sewer water servicing are provided for detailed engineering review and acceptance, prior to starting works. I also recommend a consent notice be registered upon the titles for Lots 1 - 2 & Lots 12 - 20 detailing Council requirements for the pump systems at the time dwellings are proposed.

Stormwater

The application includes reticulated stormwater beneath the internal and external road environment to a central stormwater detention and treatment system being vested in Council. This area is shown as Lot 101 on the submitted Scheme Plan. The vesting of the stormwater allotment has been approved by Council, as noted above. Council policy in this regard to vesting of Low Impact Designs require the maintenance period by the developer to extend for the initial 5 years to ensure the system operates efficiently as designed and particularly through the dwelling construction phase of development. I recommended a condition requiring the submission of an Operations and Maintenance report for the stormwater asset and a further condition requiring the developer to enter into a Developer's agreement with QLDC regarding an extended maintenance term.

Grassed swales in lieu of planted swales along roading swales are recommended, as assessed above. Lot lateral connections are proposed to the stormwater main.

Lots 7 - 18 all have a steeply rising terrace along the northern site areas and a cut off drain and small continuous swale may be required to intercept and control overland flows. Whilst Advance Terrace is further north again I am satisfied that some assessment is necessary at detailed design stage to consider appropriate mitigation measures. I recommend a related condition of consent.

Power and Telecommunications

Letters have been supplied with the application from Network providers (Chorus and Aurora) confirming capacity to service the development. I recommend evidence of supply for both power and telecommunications is provided prior to subdivision completion.

Hazards

There are no natural hazards identified on Council mapping and I am satisfied that no recommendations are necessary in this regard.

EARTHWORKS			Comments	Condition
ENGINEERING	Extent	Description	Earthworks are proposed for the construction of roads, trails, and service installations for this subdivision.	-
		Cut /Fill Volume (m ³)	1,380m ³ of earthwork stripping plus 1,540m ³ cut and 685m ³ fill	-
		Total Volume (m ³)	3,605m ³	-
		Area Exposed (m ²)	8,270m ²	-
		Max Height Cut/Fill (m)	1.3m maximum cut and 0.7m fill to roading berm. 1.0m maximum cut and fill depths to the trail.	
		Prox. to Boundary	Earthworks are clear of boundaries except where necessary for roading and associated servicing connections.	-
		Prox. to Water	Earthworks are identified adjacent to an existing stream that bisects the site. the stream is used as a potable water source down and site management will require specific measures to prevent silt laden material entering the stream plus ongoing maintenance and inspection to ensure measures are adequately protecting this potable water source. Several conditions of consent are recommended in this respect. This may also require ORC approval. An advice note is recommended for the latter.	X
	Stability	Geotech assessment by	Geosolve for the Trails excavations only.	X
		Report reference	Slope Stability Assessment, Lot 29 DP 369201, McDonnell Road Arrowtown, dated 21 October 2016	-
		Rock breaking	Rock breaking may be required however I am satisfied that the separation between proposed earthworks and neighbouring residential development is sufficient to remove the need for any conditions.	-
		Rock blasting		-
		Preconstruction survey	Not Required.	-
		Retaining	Recommend an advice Note	X
		Recommendations on cut/batter slopes	Not required	-
		Fill certification/specific foundation design required	Addressed under Schedule 2A below	-
		Engineers supervision	Required	X
		Uncertified fill covenant	Not required	-
		Schedule 2a Certificate	Required	X
		Clean fill only	Not required	-
	Mana game	Report reference	A Guide to Earthworks in the Queenstown Lakes District brochure	X

		Specific sedimentation management	A cut off drain with a sump pump is recommended to prevent silt from entering the stream.	X
		Specific stormwater management		
		Neighbours		
		Traffic management	Required	X
		Construction crossing	Required	X
		Revegetation	Required	X
	Summary		In summary, earthworks for this development are feasible and in my opinion will neither result in any land instability beyond the site boundaries, nor provide significant nuisance effects to neighbours, provided the recommended conditions are applied.	

PROJECT INFORMATION	Developers Engineering Representative	Required	X
	Notice of commencement	Not required as engineering review and acceptance will permit appropriate notice.	-
	Traffic Management Plan	Required for all works affecting McDonnell Road vehicle and pedestrian movements.	X
	Design Certificates	Required.	X
	Completion Certificates	Not required	-
	As built	Require asbuilts for all services and road constructions.	X

TITLES	Consent Notices	There are no existing CN attached to this title. A number of notices are proposed in the assessment above relating to access and sewer servicing.	X
	Easements	A condition is recommended to ensure all necessary easements are granted or reserved. A review of the proposed Scheme Plan confirms that all identified easements are appropriate to reflect the proposal.	X
	Road Names on title plan	Required	X
	Building platforms	Not required	-
	Amalgamation Condition	Required for Lots 102 and 103	X

RECOMMENDED CONDITIONS

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

General

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 3rd June 2015 and subsequent amendments to that document up to the date of issue of any resource consent.

Note: The current standards are available on Council's website via the following link:

<http://www.qldc.govt.nz>

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

2. At least 5 working days prior to commencing work on site the consent holder shall advise the Principal Resource Management Engineer at Council of the scheduled start date of physical works. Compliance with the prior to commencement of works conditions detailed in Conditions (3 to 9) below shall be demonstrated.
3. 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.
4. Prior to commencing works within the McDonnell Road reserve boundary, the consent holder shall submit a traffic management plan to the Road Corridor Engineer at Council for approval. The Traffic Management Plan shall be prepared by a Site Traffic Management Supervisor. All contractors obligated to implement temporary traffic management plans shall employ a qualified STMS on site. The STMS shall implement the Traffic Management Plan. A copy of the approved plan shall be submitted to the Principal Resource Management Engineer at Council prior to works commencing.
5. Prior to commencing any work on the site the consent holder shall install a construction vehicle crossing, which all construction traffic shall use to enter and exit the site. The crossing shall be located at the proposed Road 01 intersection with McDonnell Road. The minimum standard for this crossing shall be a minimum compacted depth of 150mm AP40 metal that extends 10m into the site. The construction traffic crossing shall be upgraded with the road and intersection formations and improvements.
6. Prior to the commencement of any works on the land being developed the consent holder shall provide to the Queenstown Lakes District Council for review and acceptance, copies of design certificates in the form of Schedule 1A of QLDC's Land Development and Subdivision Code of Practice, specifications, calculations and design plans as is considered by Council to be both necessary and adequate, in accordance with Condition (1), to detail the following engineering works required:
 - a) The provision of a water supply to Lots 1 - 20 in terms of Council's standards and connection policy. This shall include an Acuflo CM2000 as the toby valve and an approved water meter as detailed in QLDC Water Meter Policy (Appendix A), dated August 2015. The costs of the connections shall be borne by the consent holder.
 - b) The provision of a foul sewer connection from Lots 1 - 20 to Council's reticulated sewerage system in accordance with Council's standards and connection policy, which shall be able to drain the buildable area within each lot. The connections shall be designed to reflect either gravity or pressure systems. The costs of the connections shall be borne by the consent holder.

- c) The provision of a 'Low Impact Design' stormwater reticulation and disposal system in general accordance with the application. The system shall include the provision of a connection from all future impervious areas in Lots 1 - 20 to the Council reticulated stormwater disposal system. The system design shall include consideration of an intercepting cut off drain and swale above the buildable areas to Lots 7 – 18 as mitigation against overland flows and the provision of a consent notice protecting the intercepting drain/swale, if incorporated into the designs. Roading swales shall be grassed instead of planted along internal development areas. The low impact design stormwater system shall be able to drain the entire area of each lot. The costs of the connections shall be borne by the consent holder.
 - d) The provision of fire hydrants with adequate pressure and flow to service the development with a minimum Class FW2 fire fighting water supply in accordance with the NZ Fire Service Code of Practice for Firefighting Water Supplies SNZ PAS 4509:2008(or superseding standard). Any alternative solution must be approved in writing by the Area Manager for the Central North Otago branch of the New Zealand Fire Service.
 - e) The provision of a sealed vehicle crossing that shall be constructed to Lots 1, 4, 6, 7, 12, 18 & 20 to Council's standards. Specifically this shall include compliant breakover angles over any swales.
 - f) The formation of a sealed access extending through to the nett area of Lot 4.
 - g) The provision of road lighting on in accordance with Council's road lighting policies and standards, including the *Southern Light* lighting strategy. The lighting shall extend from existing McDonnell Road lighting to the intersection with Road 01 and into the proposed development. Any road lighting installed on private roads/rights of way/access lots shall be privately maintained and all operating costs shall be the responsibility of the lots serviced by such access roads. Any lights installed on private roads/rights of way/access lots shall be isolated from the Council's lighting network circuits.
 - h) The formation of Road 01 and Road 02, in accordance with Figure E12 of the Land Development and Subdivision Code of Practice, except that the minimum legal road width may be reduced to 12m minimum and indented parking provided adjacent to Lot 102 for 4 vehicles. Each road shall be provided with a 1.5m wide sealed footpath, cul-de-sac turning areas and grassed stormwater swales.
 - i) The formation of intersections, in accordance with the latest Austroads intersection design guides. These designs shall be subject to review and acceptance by Council with any associated costs met by the consent holder.
 - j) The extension and formation of McDonnell Road kerb and channel (K&C) and sealed footpath located west of the site to across the site frontage and beyond the intersection of proposed Road 1 with McDonnell Road. For clarity both the footpath and K&C shall be continuous from existing urban areas.
 - k) The formation of unsealed Trails 1 and 2 across Lot 103 in general accordance with Council standards and as shown in preliminary engineering designs submitted with the application.
 - l) The provision of Design Certificates for all engineering works associated with this subdivision/development submitted by a suitably qualified design professional (for clarification this shall include all Roads, Water, Wastewater and Stormwater reticulation). The certificates shall be in the format of the QLDC's Land Development and Subdivision Code of Practice Schedule 1A Certificate.
7. The consent holder shall install measures to control and/or mitigate any dust, silt run-off and sedimentation that may occur, in accordance with QLDC's Land Development and Subdivision Code of Practice and 'A Guide to Earthworks in the Queenstown Lakes District' brochure, prepared by the Queenstown Lakes District Council. Specifically the applicant shall prevent silt from earthworks entering the pond in the form of a cut off drain feeding into a sump with surface water pumped through either a hay or cloth filter prior to being allowed to discharge into the stream. These measures shall be implemented **prior** to the commencement of any earthworks on site and shall be subject to ongoing weekly monitoring reports back to Council. The measures shall remain in place for the duration of the project, until all exposed areas of earth are permanently stabilised.

8. 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 of QLDC's Land Development and Subdivision Code of Practice who is familiar with the Geosolve Limited report titled: '*Slope Stability Assessment, Lot 29 DP 369201, McDonnell Road Arrowtown*', dated 21 October 2016 and who shall supervise the track excavations and associated retaining wall constructions and ensure compliance with the recommendations of this report. This engineer shall be responsible for ensuring that temporary retaining is installed wherever necessary to avoid any potential erosion or instability.
9. 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 geotechnical professional as defined in Section 2 of QLDC's Land Development and Subdivision Code of Practice and who shall supervise the earthworks and fill certification. This shall include the issue of a Completion Report and Schedule 2A certificate to the Principal Engineer for Council on completion of works and prior to subdivision completion. Any remedial works outlined on the Schedule 2A that requires works across lot boundaries shall be undertaken by the consent holder prior to s224(c) of the RMA.

To be monitored throughout earthworks

10. The earthworks, batter slopes and retaining shall be undertaken in accordance with the recommendations of the report by Geosolve Limited report titled: '*Slope Stability Assessment, Lot 29 DP 369201, McDonnell Road Arrowtown*', dated 21 October 2016.
11. The site management controls installed in condition (7) above shall be monitored for effectiveness on a weekly basis by the consent holder during earthworks and/or immediately following heavy/prolonged rainfall events, in their ability to prevent silt laden stormwater from entering the potable water source,. Should measures not be entirely effective the consent holder shall immediately implement any measures necessary to eliminate further silt laden contaminants from entering the water source. The monitoring shall include a brief email report on system effectiveness with supporting photographs sent through to the Principal Engineer of Council at engineeringapprovals@qldc.govt.nz.
12. The consent holder shall implement suitable measures to prevent deposition of any debris on surrounding roads by vehicles moving to and from the site. In the event that any material is deposited on any roads, the consent holder shall take immediate action, at his/her expense, to clean the roads. The loading and stockpiling of earth and other materials shall be confined to the subject site.
13. No earthworks, temporary or permanent, are to breach the boundaries of the site except for the Council reviewed and accepted works within existing or proposed road reserves and connections to Council infrastructure assets.

To be completed before Council approval of the Survey Plan

14. Prior to the Council signing the Survey 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 Survey Plan and shall be duly granted or reserved. All Council services within private land shall be provided with 3m wide service easements in gross.
 - b) The names of all roads, private roads & private ways which require naming in accordance with Council's road naming policy shall be shown on the survey plan.

[Note: the road naming application should be submitted to Council prior to the application for the section 223 certificate]

Amalgamation Condition

15. The following shall be registered with Land Information New Zealand (CSN XXXXX):

- *“That Lots 102 & 103 hereon be held in the same Computer Freehold Register”*

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

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

- a) The submission of ‘as-built’ plans and information required to detail all engineering works completed in relation to or in association with this subdivision/development at the consent holder’s cost. This information shall be formatted in accordance with Council’s ‘as-built’ standards and shall include all Roads (including right of ways and access lots), Water, Wastewater and Stormwater reticulation (including private laterals and toby positions).
- b) The completion and implementation of all works detailed in Condition (6) above.
- c) The submission of a Geotechnical Completion Report and Schedule 2A certificate to the Principal Engineer for Council. Any remedial works outlined on the Schedule 2A that requires works across lot boundaries shall be undertaken by the consent holder prior to s224(c) of the RMA.
- d) Written confirmation shall be provided from the electricity network supplier responsible for the area, that provision of an underground electricity supply has been made available (minimum supply of single phase 15kva capacity) to the net area of all saleable lots created and that all the network supplier’s requirements for making such means of supply available have been met.
- e) 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 net area of all saleable lots created and that all the network supplier’s requirements for making such means of supply available have been met.
- f) The submission of Completion Certificates from the Contractor and the Engineer advised in Condition (3) for all engineering works completed in relation to or in association with this subdivision/development (for clarification this shall include all Roads, Water, Wastewater and Stormwater reticulation). The certificates shall be in the format of a Producer Statement, or the QLDC’s Land Development and Subdivision Code of Practice Schedule 1B and 1C Certificate.
- g) All newly constructed 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.
- h) The submission of an operation and maintenance manual for the stormwater soakage device that outlines adequate maintenance instructions and frequencies.
- i) The consent holder shall enter into a developer’s agreement between the developer and Council. This agreement shall bind the developer to its requirements and outline to Councils satisfaction the ongoing requirements of the developer to undertake, for a period of five years, the on-going monitoring and maintenance of the internal stormwater disposal systems associated with the subdivision created under RM161093 in accordance with an approved operations and maintenance manual and monitoring of the water quality of discharge from that system. The agreement shall provide for:
 - i. A maintenance period for the stormwater soakage devices in accordance with an approved operation and maintenance manual that shall extend for a total of five years following 224(c) certification prior to the asset being accepted for maintenance by Council.
 - ii. Periodic monitoring of water quality at the boundary of the site downstream from the stormwater soakage devices. This shall include 6 monthly tests and/or immediately after 2 storm events each year until the defects period lapses.
 - iii. Prepare a brief report annually detailing results of monitoring conclusions and present said report to QLDC.

- iv. The developer's agreement shall be checked and approved by the Council's solicitors at the consent holder's expense to ensure that all of the Council's interests and liabilities are adequately protected.
- j) All signage shall be installed in accordance with Council's signage specifications and all necessary road markings completed on all public or private roads (if any), created by this subdivision.
- k) Road naming shall be carried out, and signs installed, in accordance with Council's road naming policy.
- l) All earthworked/exposed areas shall be top-soiled and grassed/revegetated or otherwise permanently stabilised.
- m) The consent holder shall remedy any damage to all existing road surfaces and berms that result from work carried out for this consent.

Ongoing Conditions/Consent Notices

17. The following conditions of the consent shall be complied with in perpetuity and shall be registered on the relevant Titles by way of Consent Notice pursuant to s.221 of the Act.

- a) At the time a dwelling is constructed on Lots 1 - 2 and Lots 12 - 20, the owner for the time being will require individual low pressure sewage pumps to discharge wastewater from the lot to the reticulated network. The lot owner shall be responsible for all associated costs for the installation and maintenance of all aspects of the system located within the lot boundary. 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 in accordance with the Council low pressure sewer policy. Council Resource Management Engineering department can provide guidance regarding the policy as required.
- b) At the time a dwelling is constructed the owner for the time being shall construct a concrete vehicle crossing to the site to Council's standards and as constructed for Lots 1, 4, 6, 7, 12, 18 and 20. The design of the vehicle crossing shall be subject to approval by Council under a 'Connection to Council Service Application'. The approval should be obtained and construction of the crossing approved by a Council Inspector prior to occupation of the dwelling.
- c) No direct vehicle access onto McDonnell Road shall be provided from Lots 1, 4, 5, 6 & 20.
- d) In the event that the Schedule 2A certificate issued under Condition (16) contains limitations or remedial works required to support dwelling development and not cross boundaries, then a consent notice shall be registered on the relevant Computer Freehold Registers. The consent notice condition shall read;

"Prior to any dwelling construction work (other than work associated with geotechnical investigations, the owner for the time being shall submit to Council for certification, plans prepared by a suitably qualified engineer detailing the proposed foundation design, earthworks and/or other required works in accordance with the Schedule 2A certificate attached. All such measures shall be implemented prior to occupation of any building."
- e) Any stormwater cut off drains/swales designed in Condition (6)(c) above that require permanent protection and/or maintenance within the lot boundaries shall be maintained by the individual lot owners. 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.

Advice Note:

- 1. 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.
- 2. The consent holder is advised to obtain all necessary consent from the Otago Regional Council, if any.

3. The consent holder is advised that any retaining walls, including stacked stone and gabion walls, proposed in this development which exceeds 1.5m in height or walls of any height bearing additional surcharge loads will require Building Consent, as they are not exempt under Schedule 1 of the Building Act 2004.
 4. 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.
-

Prepared by:



Michael Wardill
ENGINEER

Reviewed by:



David Wallace
PRINCIPAL: ENGINEERING

ARROWSOUTH PROPERTIES LTD - LOCATION PLAN

QUEENSTOWN LAKES DISTRICT COUNCIL

APPROVED PLAN:
RM161093

Wednesday, 5 July 2017

28

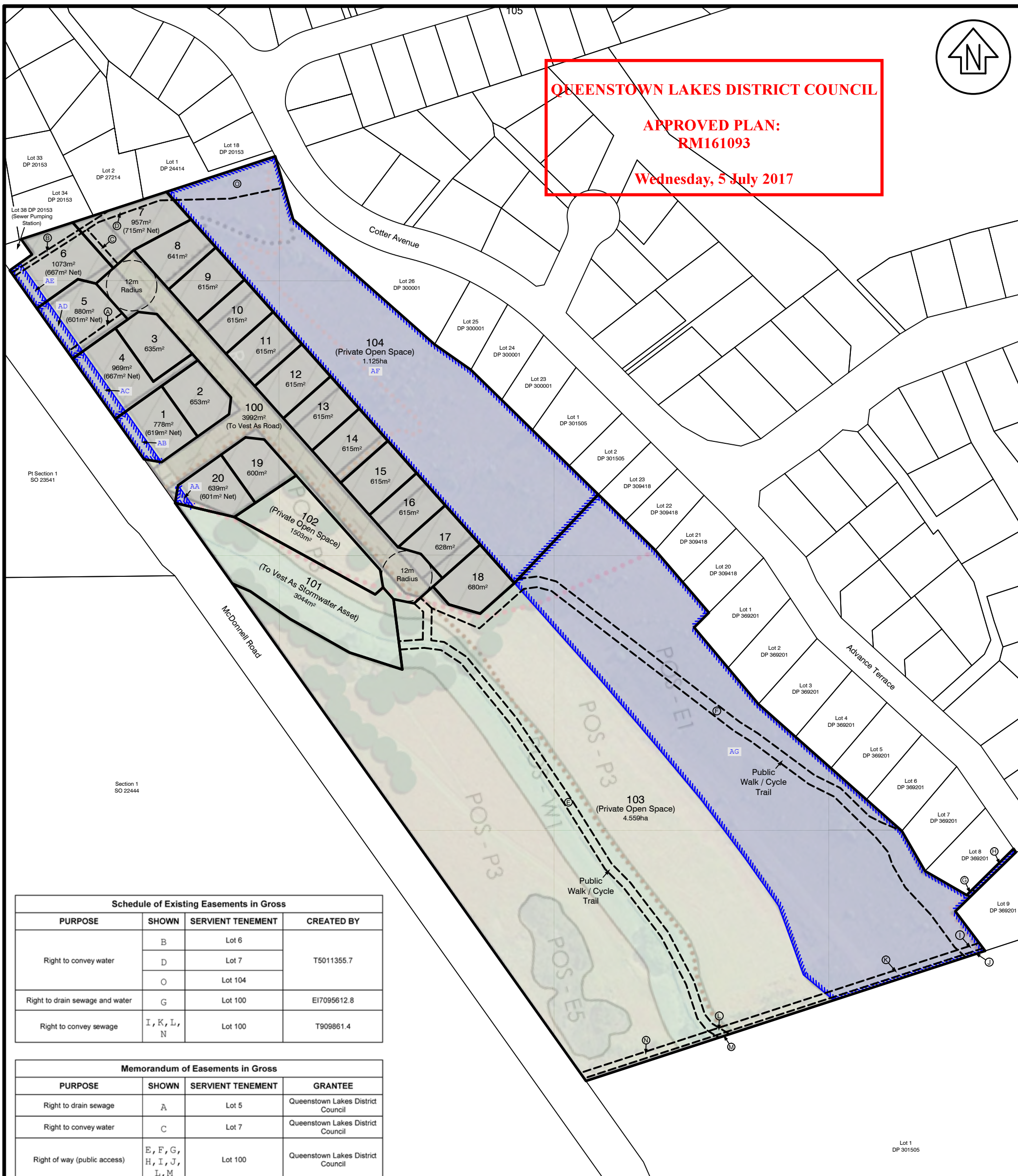
Meadow Park

Resort - Millbrook

SUBDIVISION SITE

Zone boundary follows ridgeline

Parcel boundaries derived from New Zealand Core Records System Vector Data (Corax) obtained from LINZ under the LINZ Licence Agreement



Schedule of Existing Easements in Gross			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
Right to convey water	B	Lot 6	T5011355.7
	D	Lot 7	
	O	Lot 104	
Right to drain sewage and water	G	Lot 100	EI7095612.8
Right to convey sewage	I, K, L, N	Lot 100	T909861.4

Memorandum of Easements in Gross			
PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
Right to drain sewage	A	Lot 5	Queenstown Lakes District Council
Right to convey water	C	Lot 7	Queenstown Lakes District Council
Right of way (public access)	E, F, G, H, I, J, L, M	Lot 100	Queenstown Lakes District Council

NOTES:

1. Areas AA-AG (hatched blue) are building/fencing restriction and landscaping maintenance areas (to be protected by consent notices).
2. Lot 101 is to vest in QLDC as a stormwater (detention) asset.
3. Lots 102 and 103 are private open space allotments, to be amalgamated together in one title (and to remain in Arrowsouth Properties Ltd ownership).
4. Lot 104 is a private open space allotment, to be amalgamated with the titles for Lots 7-18 (held in equal, undivided shares).
5. Areas and dimensions are subject to survey.
6. Underlying plans (Arrowsouth Structure Plan & Indicative Subdivision Layout Plan) prepared by Vivian+Espie.
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Proposed Subdivision of Lot 29 DP 369201
(Sheet 1 - Overlay on Arrowsouth Structure Plan & Indicative Subdivision Layout Plan)

Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

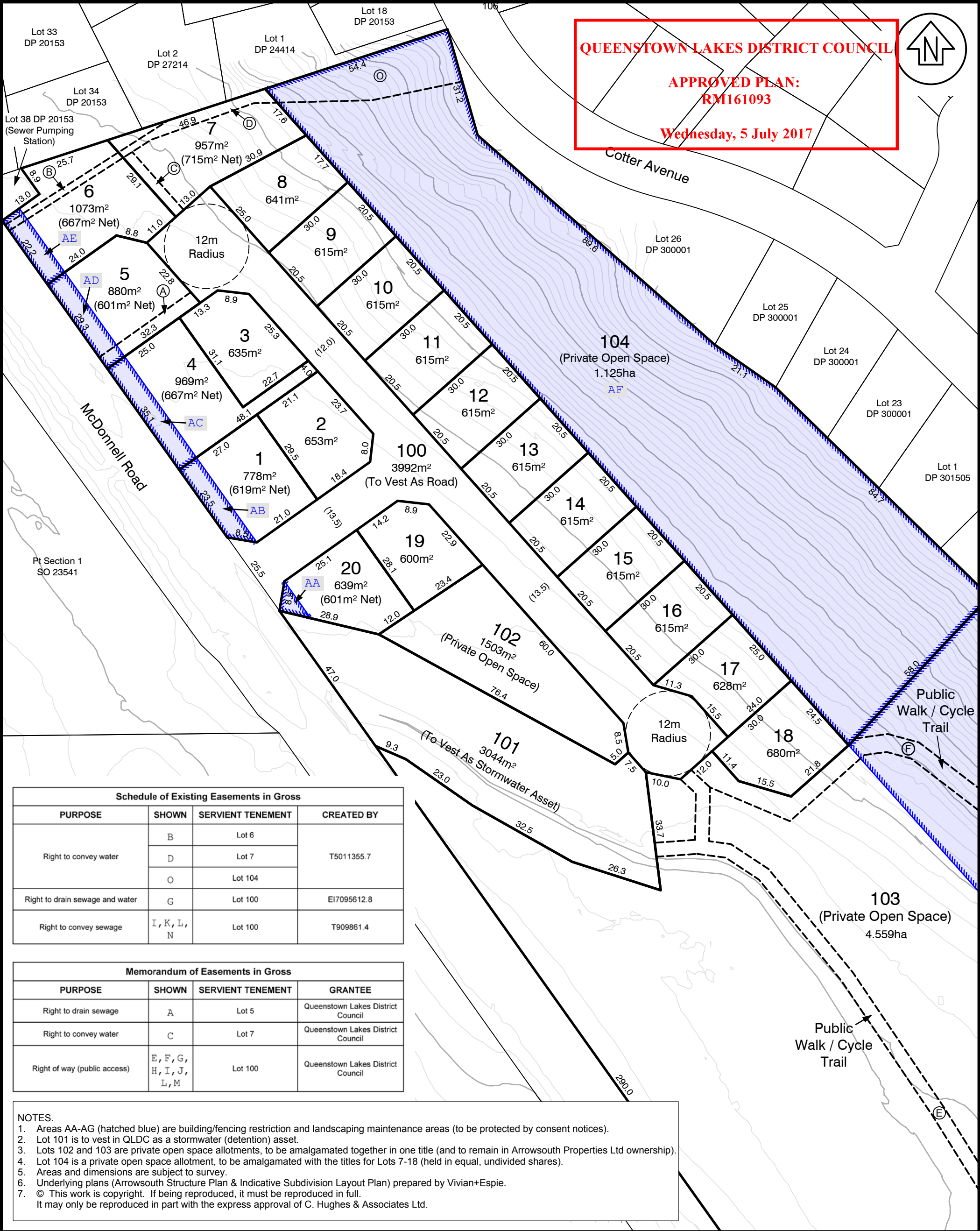
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ISSUE	AMENDMENTS	DATE	Scale: 1 : 1750 (A3)	Job No: 5479	
F	Lot 102/103 Amalgamation Note & Emt F	28/02/17		Plan No: C1212	Drawn: CRH
G	Areas Re-calculated	13/04/17	Datum: - Origin: -	Date: June 2016	
H	Bdys & Areas Adjusted & Net Areas Added	21/04/17			
I	Lots 7-18 & 104, Areas, Dimensions, Notes	19/05/17			
J					



Schedule of Existing Easements in Gross			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
Right to convey water	B	Lot 6	T5011355.7
	D	Lot 7	
	O	Lot 104	
Right to drain sewage and water	G	Lot 100	EI7095612.8
Right to convey sewage	I, K, L, N	Lot 100	T909861.4

Memorandum of Easements in Gross			
PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
Right to drain sewage	A	Lot 5	Queenstown Lakes District Council
Right to convey water	C	Lot 7	Queenstown Lakes District Council
Right of way (public access)	E, F, G, H, I, J, L, M	Lot 100	Queenstown Lakes District Council

NOTES.
 1. Areas AA-AG (hatched blue) are building/fencing restriction and landscaping maintenance areas (to be protected by consent notices).
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 5. Areas and dimensions are subject to survey.
 6. Underlying plans (Arrowsouth Structure Plan & Indicative Subdivision Layout Plan) prepared by Vivian+Espie.
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Proposed Subdivision of Lot 29 DP 369201
 (Sheet 2 - Proposed Subdivision Layout)
 Arrowsouth Properties Ltd
 McDonnell Road

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ISSUE	AMENDMENTS	DATE
F	Lot 102/103 Amalgamation Note & Emt F	28/02/17
G	Areas Re-calculated	13/04/17
H	Bdys & Areas Adjusted & Net Areas Added	21/04/17
I	Lots 7-18 & 104, Areas, Dimensions, Notes	19/05/17
J		

Scale:	1 : 1000 (A3)
Datum:	-
Origin:	-

Job No:	5479
Plan No:	C1212
Drawn:	CRH
Date:	June 2016



NOTE: These plans are relevant to engineering/earthworks matters only.

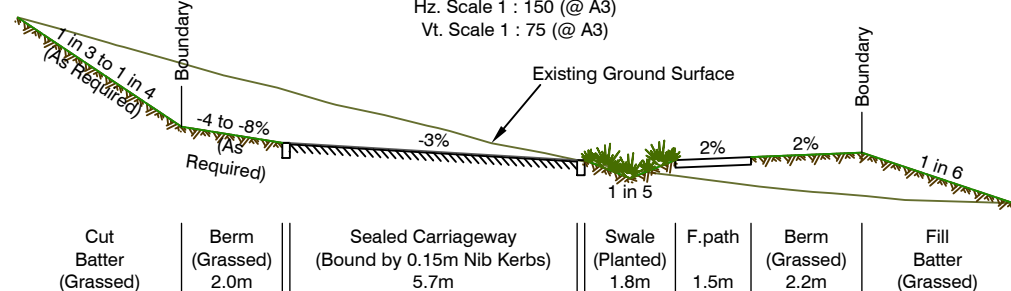
QUEENSTOWN LAKES DISTRICT COUNCIL

APPROVED PLAN:
RM161093

Wednesday, 5 July 2017

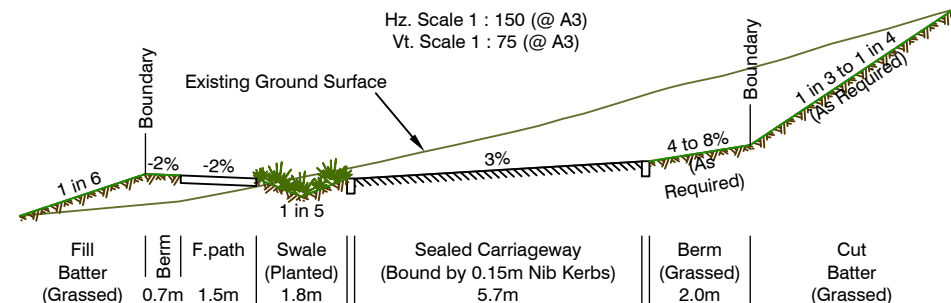
ROAD 01 TYPICAL CROSS SECTION

Hz. Scale 1 : 150 (@ A3)
Vt. Scale 1 : 75 (@ A3)



ROAD 02 TYPICAL CROSS SECTION

Hz. Scale 1 : 150 (@ A3)
Vt. Scale 1 : 75 (@ A3)



NOTES.

1. NOT FOR CONSTRUCTION.
2. Contour Interval: 5.0m Major, 1.0m Minor
3. Cut and fill batters are shown with transparent red and green hatch.
4. Annotated cuts and fills are to finished level (-0.2m to Subgrade)
5. Roding Earthworks Area 6390m² (including McDonnell Road swales and walkways)
Roding Earthworks Volumes (to subgrade after 1170m³ topsoil stripping): 1490m³ Cut and 500m³ Fill.
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Arrowsouth - Prelim. Engineering Design Roding Layout & Typical Cross Sections

Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

ISSUE	AMENDMENTS	DATE
A	Cut/Fill Batters & Earthworks Volumes/Area	12/10/16
B	Lots 101 and 102	28/10/16
C		
D		
E		

Scale:
1 : 750 (A3)

Datum: MSL

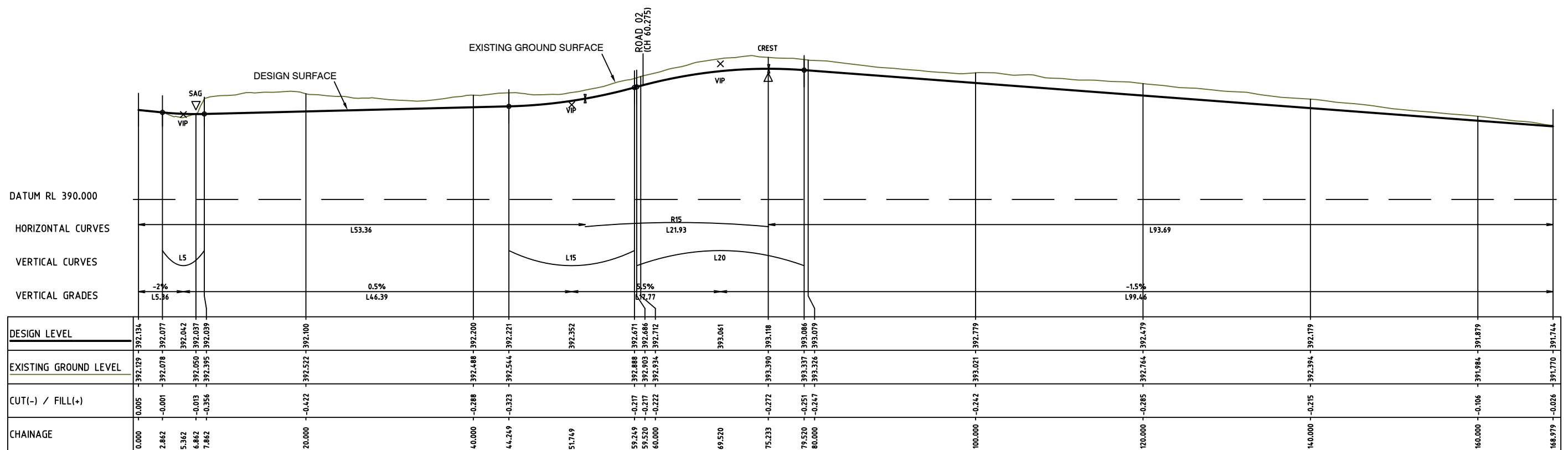
Origin: EFPG

Job No: 5479

Plan No: C1244_01

Date: October 2016

Drawn: CRH

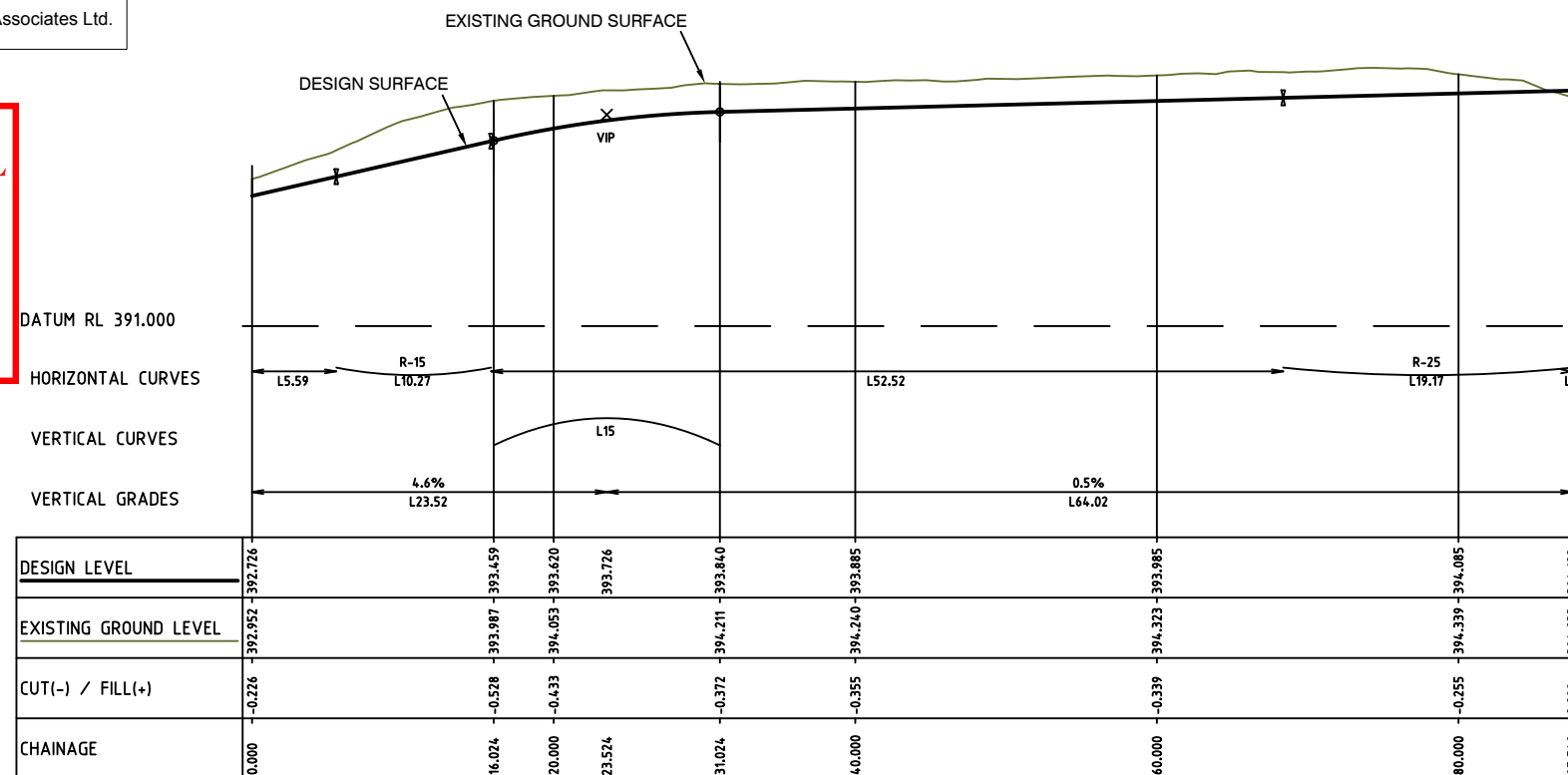


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QUEENSTOWN LAKES DISTRICT COUNCIL

**APPROVED PLAN:
RM161093**

Wednesday, 5 July 2017



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Arrowsouth - Prelim. Engineering Design
Road Longitudinal Sections
Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

ISSUE	AMENDMENTS	DATE
A		
B		
C		
D		
E		

Scale:
AS SHOWN (@ A3)

Datum: **MSL**

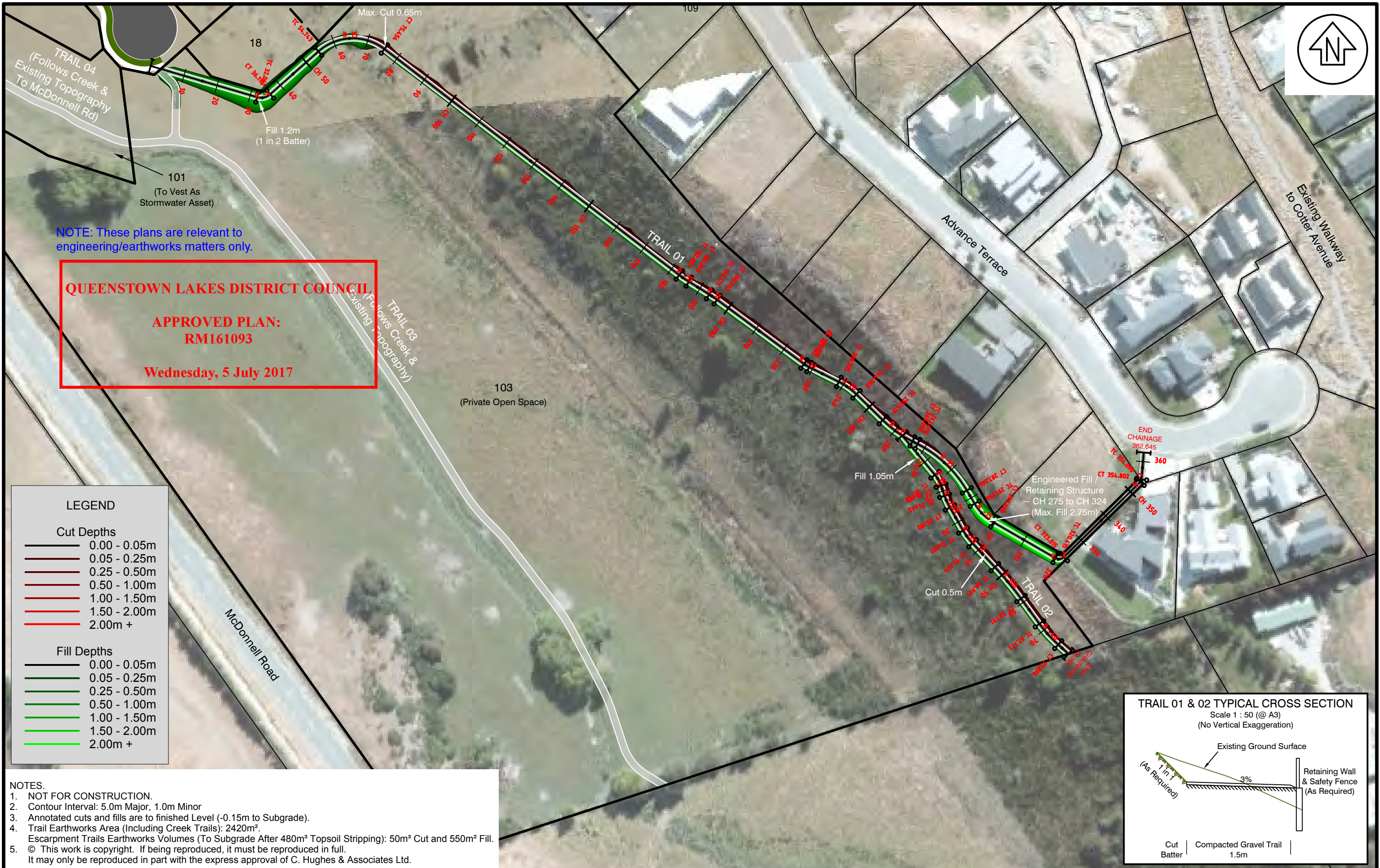
Origin: **EFPG**

Job No: **5479**

Plan No: **C1244_02**

Date: **October 2016**

Drawn: **CRH**



NOTE: These plans are relevant to engineering/earthworks matters only.

QUEENSTOWN LAKES DISTRICT COUNCIL

APPROVED PLAN:
RM161093

Wednesday, 5 July 2017

LEGEND

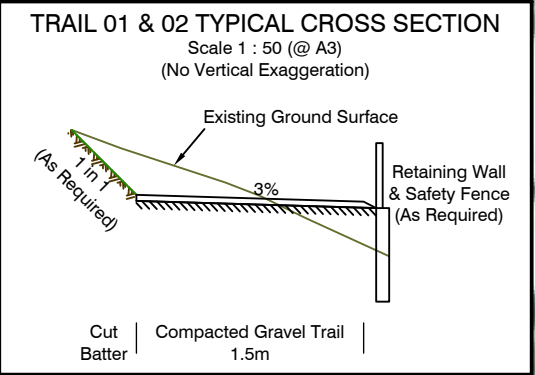
Cut Depths

- 0.00 - 0.05m
- 0.05 - 0.25m
- 0.25 - 0.50m
- 0.50 - 1.00m
- 1.00 - 1.50m
- 1.50 - 2.00m
- 2.00m +

Fill Depths

- 0.00 - 0.05m
- 0.05 - 0.25m
- 0.25 - 0.50m
- 0.50 - 1.00m
- 1.00 - 1.50m
- 1.50 - 2.00m
- 2.00m +

- NOTES.
- NOT FOR CONSTRUCTION.
 - Contour Interval: 5.0m Major, 1.0m Minor
 - Annotated cuts and fills are to finished Level (-0.15m to Subgrade).
 - Trail Earthworks Area (Including Creek Trails): 2420m². Escarpment Trails Earthworks Volumes (To Subgrade After 480m³ Topsoil Stripping): 50m³ Cut and 550m² Fill.
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Arrowsouth - Prelim. Engineering Design Trails Layout & Typical Cross Section

Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

ISSUE	AMENDMENTS	DATE
A	Creek Trails & EW Depths/Volumes/Area	12/10/16
B	Trails 01 & 02 Re-designed, & Labels	28/10/16
C	Trail Basecourse Depth & EW Volumes	4/11/16
D	Trails 01 & 02 Re-designed, & EWs/Labels	28/02/17
E		

Scale:
1 : 1000 (A3)

Datum: **MSL**

Origin: **EFPG**

Job No:
5479

Plan No:
C1244_03

Date: **October 2016**

Drawn:
CRH

110

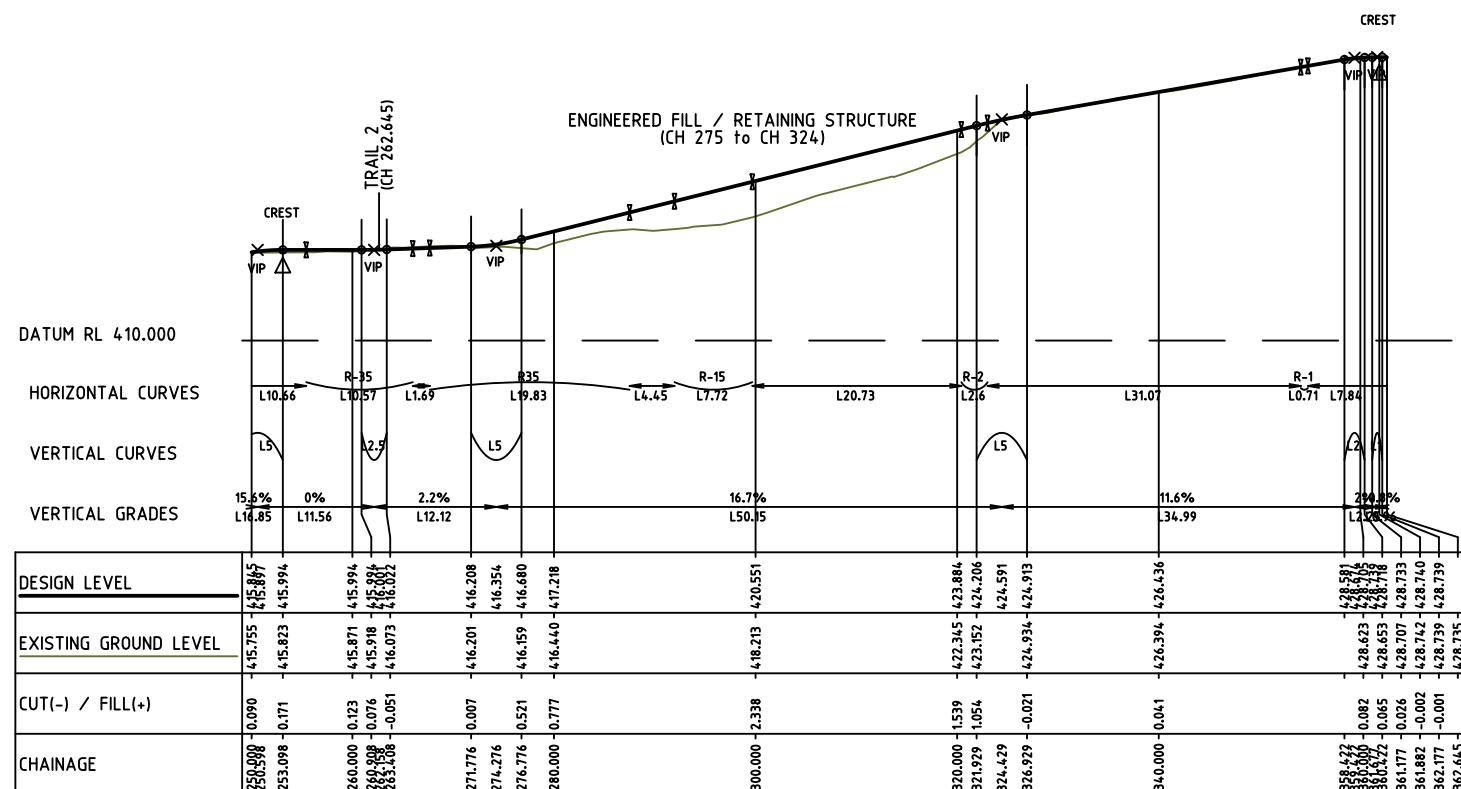
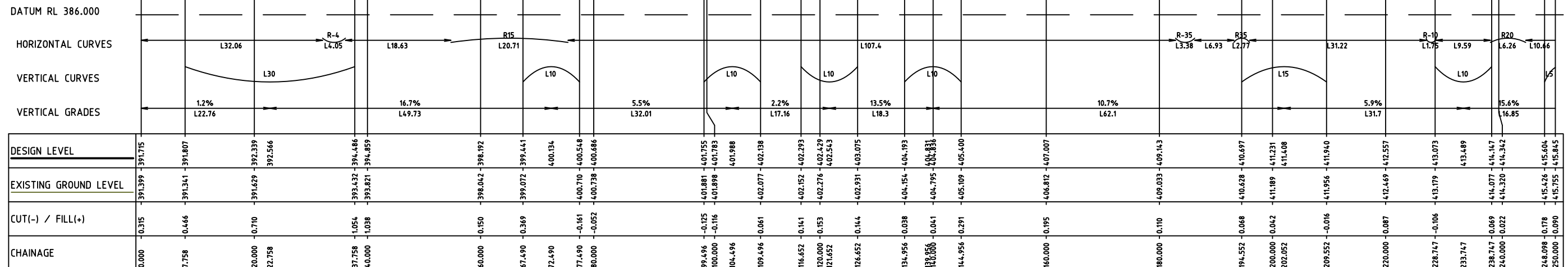
QUEENSTOWN LAKES DISTRICT COUNCIL

APPROVED PLAN:
RM161093

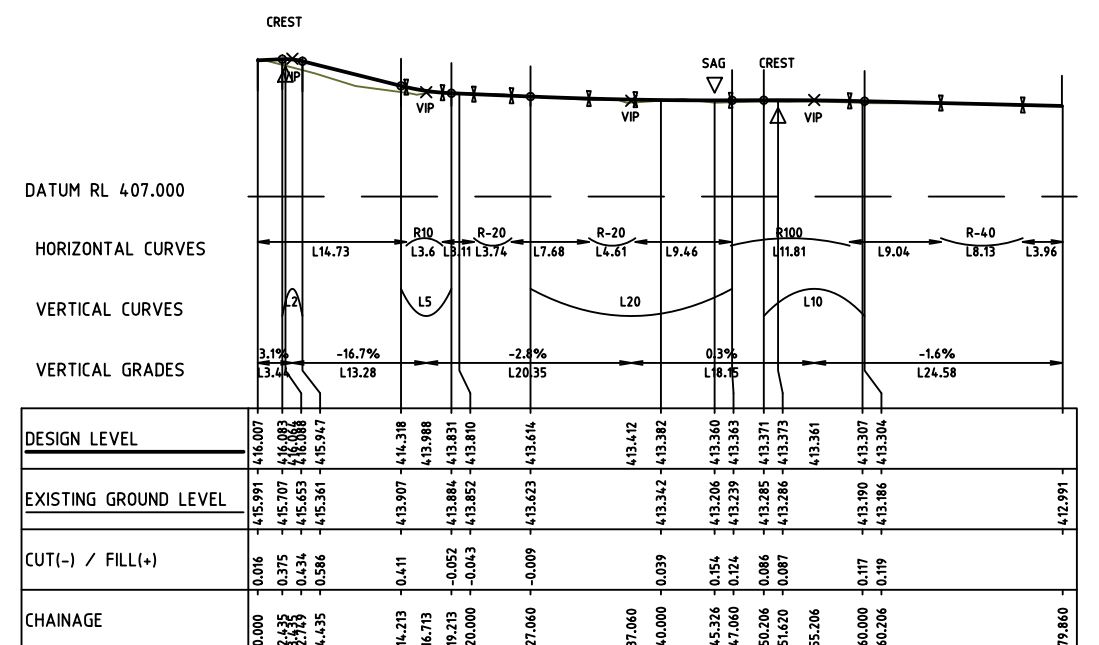
Wednesday, 5 July 2017

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TRAIL 01 - LONGITUDINAL SECTION
HORIZ. 1:750 VERT. 1:500



TRAIL 02 - LONGITUDINAL SECTION
HORIZ. 1:750 VERT. 1:500



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Arrowsouth - Prelim. Engineering Design
Trail Longitudinal Sections

Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

ISSUE	AMENDMENTS	DATE
A	Vertical Geometry Re-designed	28/10/16
B	Vertical Geometry Re-designed	28/02/17
C		
D		
E		

Scale:
AS SHOWN (@ A3)

Datum: **MSL**

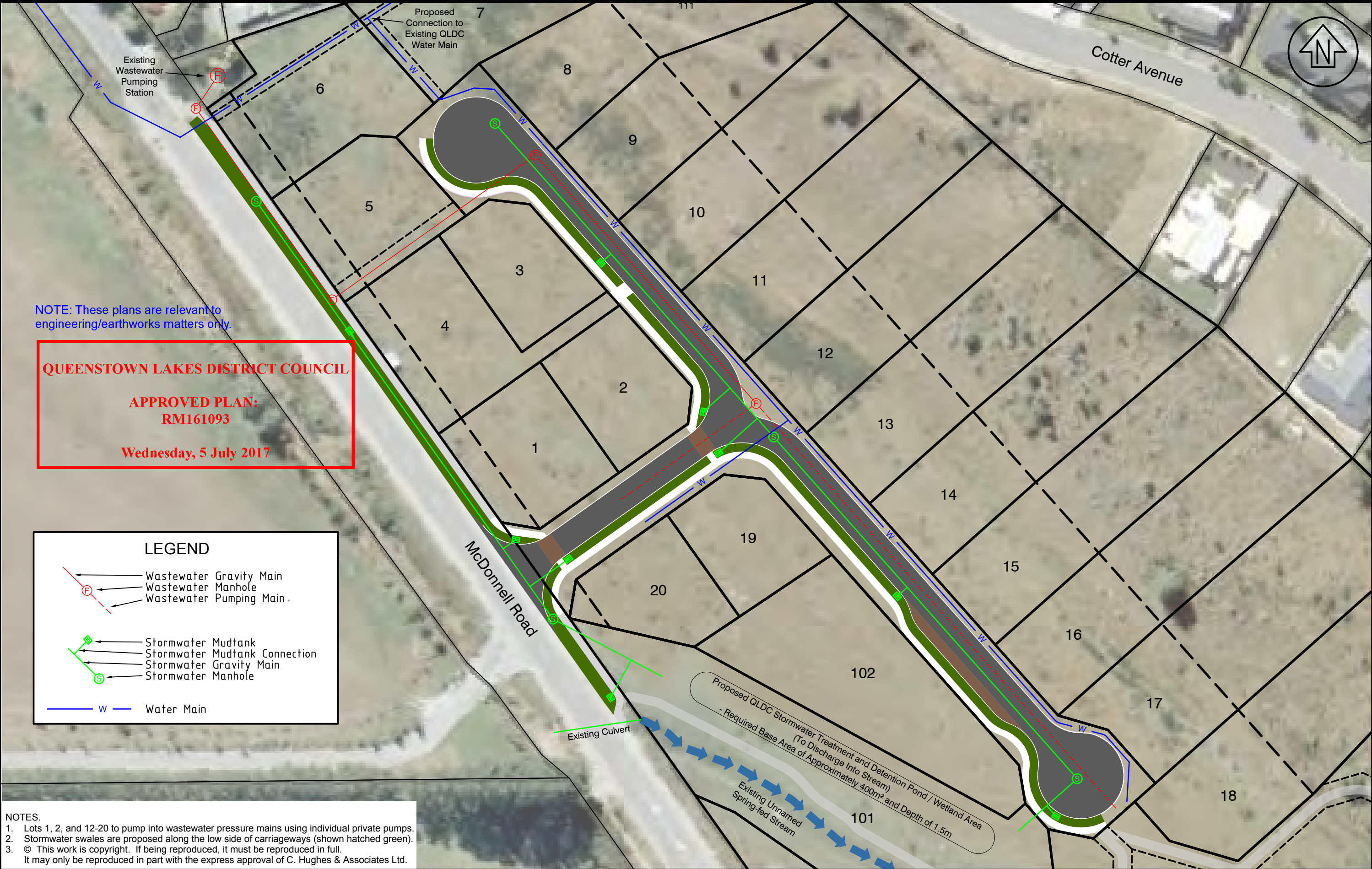
Origin: **EFP**

Job No: **5479**

Plan No: **C1244_04**

Drawn: **CRH**

Date: **October 2016**



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**Arrowsouth - Prelim. Engineering Design
Services Layout**

Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

ISSUE	AMENDMENTS	DATE
A	Water Rider Main Position & Easements	13/10/16
B	Stormwater Main Positions & Lots 101/102	27/10/16
C		
D		
E		

Scale:
1 : 750 (A3)

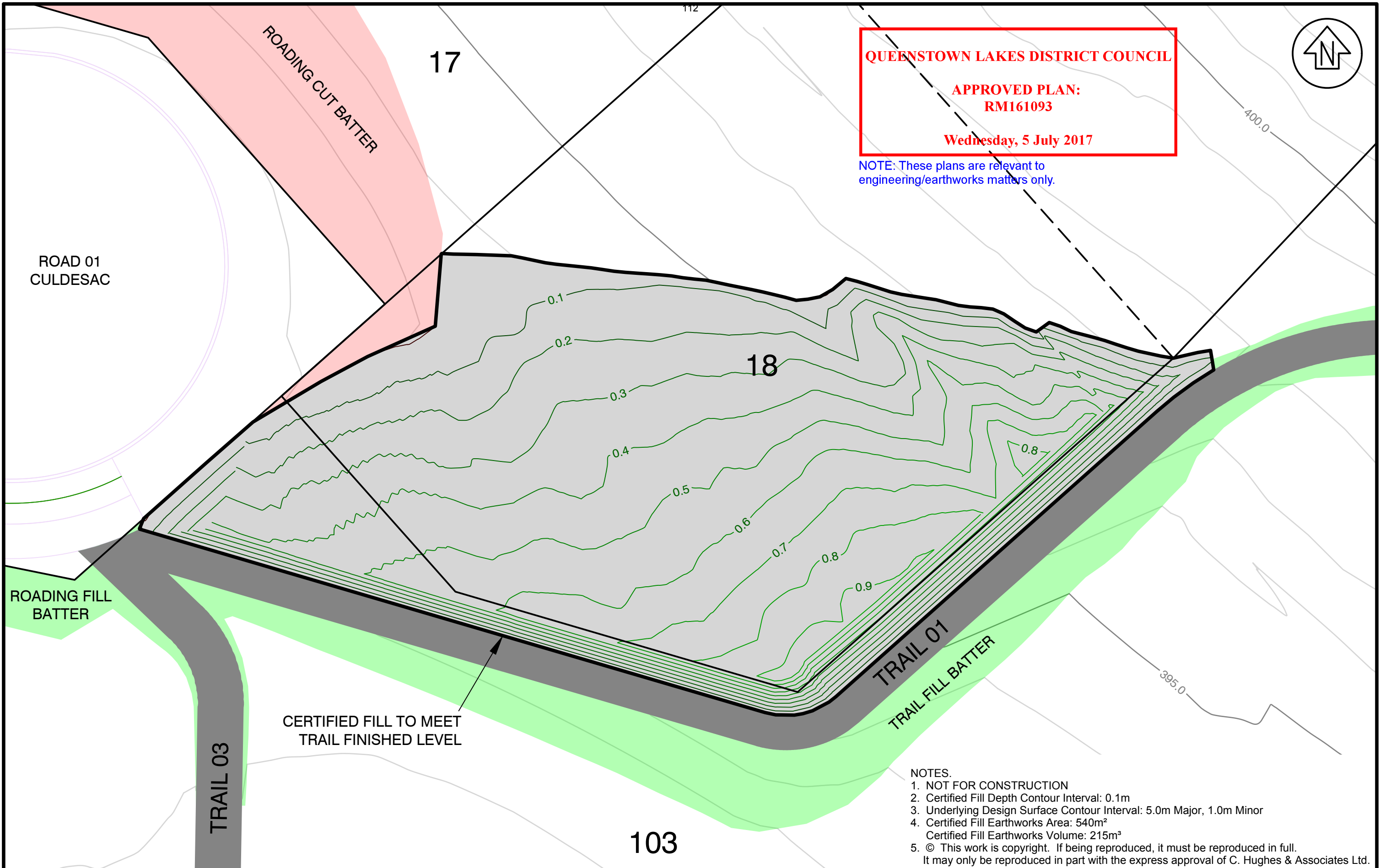
Datum: **MSL**

Origin: **EFPG**

Job No: **5479**

Plan No: **C1244_05** Drawn: **CRH**

Date: **October 2016**



QUEENSTOWN LAKES DISTRICT COUNCIL

APPROVED PLAN:
RM161093

Wednesday, 5 July 2017

NOTE: These plans are relevant to engineering/earthworks matters only.

- NOTES.
- 1. NOT FOR CONSTRUCTION
 - 2. Certified Fill Depth Contour Interval: 0.1m
 - 3. Underlying Design Surface Contour Interval: 5.0m Major, 1.0m Minor
 - 4. Certified Fill Earthworks Area: 540m²
Certified Fill Earthworks Volume: 215m³
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Arrowsouth - Prelim. Engineering Design
Certified Fill Earthworks Layout

Arrowsouth Properties Ltd
McDonnell Road, Arrowtown

ISSUE	AMENDMENTS	DATE	Scale:	Job No:
A			1 : 150 (A3)	5479
B				
C			Datum: MSL	Plan No: C1244_06
D			Origin: EFGP	Drawn: CRH
E				Date: February 2017