2012

Monitoring Report on the Earthworks Provisions of the District Plan

Policy and Planning

Queenstown Lakes District Council

May 2012

Executive Summary

This report fulfils the requirements of section 35(b) of the Resource Management Act in relation to monitoring the effectiveness and efficiency of the earthworks objectives, policies and rules of the Queenstown Lakes District Plan. The implementation methods, and the number of earthworks related complaints, are also monitored.

The majority of the existing objectives, policies and rules relating to earthworks were created through Variation 8 – Earthworks to the Proposed District Plan. Following resolution of an appeal from Remarkables Park Limited, the provisions became operative in March 2005. Further earthworks provisions have subsequently been inserted as part of plan changes, both public and private.

While a range of earthworks rules exist, in the majority of 'urban zones', the earthworks rules are relatively consistent, the permitted amounts are usually $100m^3$, $200m^2$, with a maximum cut height of 2.4m and a maximum fill height of 2m. A small comparative analysis of five other district councils with similar rainfall and topography to the Queenstown Lakes district suggested the earthworks rules were not unduly restrictive in terms of the basic volumes permitted.

Over 2007 – 2009, at least 15% of all resource consent applications require permission under the earthworks rules. Lakes Environmental also receive approximately 30 complaints a year in relation to earthworks matters.

The effectiveness of all the objectives is limited by the use of 'avoid, remedy or mitigate', which is essentially three different objectives in one. Otherwise, the objectives are relatively effective in that they address the key issues arising from earthworks. One area for which there is no clear objective, is with regard to applications for the deposition of clean fill, and gravel extraction. Both fall within the definition of earthworks.

The majority of policies are effective, however a number could be improved with minor changes. There is an inconsistency between the District Wide policies relating to earthworks and the District Wide policies relating to Takata Whenua. There are no clear policies on earthworks as part of a cleanfill or gravel extraction operation.

In terms of the rules, 16 issues were identified, and these can be considered as part of the district plan review. Ten active construction sites for a range of activities in a range of zones were randomly identified to determine whether consent conditions relating to earthworks, and the Environmental Protection Measures are being implemented. In most instances it appears some effort at compliance is being made. In three instances, it appeared that there were definite breaches of either the earthworks rules or conditions.

1. Introduction

Section 35 of the Resource Management Act states that:

> ***Every local authority shall monitor-***
> ***...[(b)] the efficiency and effectiveness of policies, rules, or other methods....***
>
> ***and take appropriate action (having regard to the methods available to it under this Act) where this is shown to be necessary.***

This report fulfils the requirements of section 35(b) in relation to the efficiency and effectiveness of the earthworks objectives, policies and rules of the Queenstown Lakes District Plan. Findings in this report will assist in informing the review of the Queenstown Lakes District Plan, due to be publicly notified in October 2013.

A range of potential effects can be generated from earthworks. These include:

- Visual effects through changing the form and nature of landscapes;
- Nuisance effects, including dust and noise;
- Effects on water quality resulting from silt and sediment runoff;
- Effects on the overland flow of stormwater;
- Effects on land stability;
- Effects on archaeological sites; and
- Changes in natural ground level, so that determining building height becomes difficult.

2. How were the earthworks provisions created?

When the Proposed District Plan was notified in 1995, it contained few rules relating to earthworks. This led to the Council initiating Variation 8 – Earthworks to the proposed District Plan. A discussion document and a section 32 report were produced. The variation was publicly notified for comment on 20 October 2001, and following a hearing, a range of earthworks provisions were inserted. The decision was appealed by Remarkables Park Limited in relation to the earthworks provisions for the Remarkables Park Special Zone. A number of other parties joined the Remarkables Park appeal, raising more 'district wide' matters with Variation 8, however these fell away once the Remarkables Park appeal was resolved. A consent order was issued by the Environment Court in March 2005.

Further earthworks provisions have subsequently been inserted as part of plan changes, both public and private.

3. How much activity do the earthworks provisions enable?

A summary of what is currently enabled by the earthworks provisions is contained in **Appendix A**. For the majority of 'urban' type zones, resource consent for earthworks is required if the following limits are exceeded over a 12 month period:

- More than 100m^3 in volume
- More than 200m^2 in area
- More than 20m^3 within 7 metres of a water body
- The maximum height of any cut shall not exceed 2.4 metres
- The maximum height of any fill shall not exceed 2 metres.
- Any cut or fill should be its own height away from the boundary, unless retained in which case it may be located up to the boundary if less than 0.5 metres in height.

Importantly, *"any person carrying out earthworks shall:"* implement the following 'Environmental Protection Measures':

a. *Implement erosion and sediment control measures to avoid soil erosion or any sediment entering any water body.*

b. *Ensure that any material associated with the earthworks activity is not positioned on a site within 7m of a water body or where it may dam or divert or contaminate water.*

c. *Implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site* (does not apply in rural zones)

These 'Environmental Protection Measures' apply, regardless of whether the area or volume controls are exceeded.

Special rules for earthworks apply in a number of zones. Some examples include:

- Airport Mixed Use Zone – no earthworks rules
- Ski Area Sub-zones – no earthworks rules
- Remarkables Park Special Zone – no specific limits, require a controlled activity as part of the consent application for a building, otherwise discretionary.
- Mt Cardrona Station zone – doubles the normal volume /area limits set out above.

As **Appendix A** shows, there is now a range of different earthworks rules, ranging from permitted to non-complying, used for the different zones of the District Plan.

3.1 What earthworks are excluded?

The definition of earthworks is set out below:

EARTHWORKS	Means the disturbance of land surfaces by the removal or depositing of material, excavation, filling or the formation of roads, banks, and tracks. Excludes the cultivation of land and the digging of holes for offal pits and the erection of posts or poles or the planting of trees.

This definition excludes certain matters including:

- *cultivation of land*
- *the digging of holes for offal pits,*
- *the erection of posts,*
- *the erection of poles and*
- *the planting of trees:*

In the Rural General zone, the following earthworks are excluded from the rules:

- *earthworks within the Ski Area Sub-Zones*
- *earthworks approved as part of a consented subdivision*
- *earthworks for routine repair and maintenance of operational tracks;*
- *earthworks for utility activities*
- *earthworks approved as part of a resource consent for a residential building platform or a building; and*
- *earthworks approved as part of a resource consent for a farming building except for earthworks associated with access.*

There is no list of exceptions in other zones, however the rule relating to the permitted area of earthworks (m^2) only applies to earthworks that are greater than 0.5m in depth, so this would effectively exclude things like cultivation which are listed as excluded in the Rural General zone.

Case Study – Excluded earthworks – the Mount Field case

In 2008 the earthworks rules in the Queenstown Lakes District Plan went all the way to the High Court in the case Mount Field Ltd vs. Queenstown Lakes DC.

Mount Field Ltd constructed a fence shown in the photographs below on Mt Dewar Station. The fence was located in the Rural General zone, in an area of Outstanding Natural Landscape. Following a complaint from the New Zealand Historic Places Trust, a Council enforcement officer visited the site and determined earthworks had been undertaken without resource consent. Enforcement proceedings were initiated, and the matter was appealed to the Environment Court. Central to the case was the definition of 'earthworks' which specifically excluded:

> *the digging of holes for offal pits and the erection of posts or poles or the planting of trees.*

The Environment Court determined that (underlining added):

- the fence established by Mount Field…is a structure permitted by the [Proposed] District Plan.

- the benching works undertaken by Mount Field to enable establishment of the fence constitute earthworks as defined in the [Proposed] District Plan.

- the earthworks undertaken do not fall into the exclusion from the definition contained in the [Proposed] District Plan.

- in addition to being a permitted structure under the [Proposed] District Plan, the fence also constitutes and existing use for the purposes of section 10 [of the Act].

- the benching works undertaken by Mount Field to enable the replacement or renewal of the fence cannot be demonstrated to have existing use rights pursuant to s 10 [of the Act]

- the benching works undertaken require resource consent.

Mount Field appealed to the High Court, who overturned the Environment Courts decision, stating:

[48]….In my view the proper interpretation of the "earthworks definition" allows a farmer operating within the Rural General zone to erect an internal boundary fence and to do all work reasonably necessary to undertake that task without a resource consent.

[49] It is important that I give some guidance on what I mean by the phrase "reasonably necessary". First, this is not a carte blanche to enable a farmer to do whatever he or she wants to do to erect a fence. What is "reasonably necessary" will be assessed by reference to the minimum disturbance to the adjacent land that can be achieved to construct the fence. Second, what is "reasonably necessary" will be assessed by reference to the need for the middle of the fence to be on the boundary line with the posts required to erect it being placed "on the boundary line or as near thereto as practicable".

4. How do the Queenstown Lakes earthworks controls compare to other councils with similar topography and rainfall?

A simple comparison has been undertaken with the five Councils listed in the table below, which were identified as having similar average annual rainfall, soil types and geography to the Queenstown Lakes district, relevant factors when considering effects from earthworks:

District	***Average Annual Rainfall[1]***	***Soil Type[2]***	***Topography***	***Other***
Queenstown Lakes District Plan	913mm	Brown Soil: occur in places where summer drought is uncommon and which are not waterlogged in winter.	Valleys with high jagged mountains, rocky bluffs, and tussock-covered slopes	Significant development in recent years. Tourist and wine growing area.
Napier City Plan	803mm	Brown Soil and pumice: Sandy and gravelly	Hilly	Tourist area that also produces wine. Chosen for its similar soils and rainfall.
Wairarapa Combined District Plan	979mm	Brown Soil and Ultic Soils are strongly weathered soils that have a well structured, Clay enriched subsoil horizon.	Hilly	This is a relatively new plan, so should reflect current practice. Predominately rural area.
Nelson City Plan	970mm	Brown Soil and Ultic Soils	Flat areas close to the coast with more rugged country inland.	A lot of development during recent years.
Marlborough Sounds Resource Management Plan	655mm	Brown Soil and Ultic Soils	Valleys with steep sides and extensive ridgelines.	A lot of development occurring on steep land close to the coast.
Dunedin City Plan	812mm	Brown Soil	Gentle to rugged slopes with flat land close to the coast.	Development occurs on often steep slopes, and the District has similar rainfall and soils to Queenstown.

[1] Figures obtained from NIWA.
[1] Information obtained from Landcare Research

The table below provides a basic summary of the earthworks provisions for the five councils that are similar to Queenstown Lakes district:

Council	*Summary of earthworks provisions*
Dunedin City Plan	• Relatively simple standards: one set for the Rural Zone and one set for all other zones. • Rural: 200m^3 on sites of 10ha or less and 20m^3 per ha on sites over 10ha. • Urban: 100m^3 on sites of 2ha or less and 200m^3 on sites over 2ha. • Specific provisions on protection of High Class Soils, landscapes and ground water protection.
Napier City Plan	• Earthworks have the same status as the associated activity i.e. if subdivision is a controlled activity, then the associated earthworks are a controlled activity. If a residential unit is a permitted activity then associated earthworks are a permitted activity. • Except that any earthworks that exceed a certain set of criteria i.e. is a cut on a slope greater than 22 degrees above horizontal then it becomes a restricted discretionary activity and requires a specialist geotechnical report and design criteria.
Wairarapa Combined District Plan	• Earthworks are only managed in the Rural Zone for the purpose of protecting outstanding landscapes, water bodies, flood hazard and erosion hazard areas.
Nelson Resource Management Plan (Unitary Authority)	• The rules distinguish between "soil disturbance" as one activity and "earthworks" as a separate activity. 'Soil disturbance' is managed according to slope of the site (25 degrees) and distance from waterways (5m from bank). This applies in residential and rural zones. 'Earthworks' by the maximum height or depth of excavation or fill (1.2m in inner city zone). • There are a number of other controls over matters such as the purpose of the earthworks, protection of rivers and CMA, and re-vegetation of sites.
Marlborough Sounds Resource Management Plan	• Earthworks are managed by volume of cut and/or fill (20m3) as well as gradient of cut. • Number of other controls over matters such as erosion of cut, run-off, stability of batters, ecology, archaeology and water quality. • The Plan was quite deliberate in applying a stringent standard for earthworks given the topography of the region. However development in the main areas of Picton and Blenheim is on flat ground, where earthworks are not generally required.

The basic comparison shows that the existing Queenstown Lakes District Plan limits, i.e. the 100m^3 and 200m^2 that are employed in most 'urban' zones, are not unduly restrictive, at least when compared to the five councils with similar geography and rainfall.

5. How many proposals include an earthworks component?

For the purposes of this monitoring report, the period from to 2007 and 2009 was studied. A list of all consents lodged in each calendar year for that period was examined.

A high proportion of land use consents include an earthworks component, simply because you cannot build a building without scraping top soil, digging foundations, laying drains and sealing driveways, all of which involve earthworks. In many

instances, this earthworks component would not trigger the need for a resource consent, provided the Environmental Protection Measures are employed.

Due to the way data is collected when consents are received, the figures below are indicative only, and likely undercount the actual number of consents that require approval for earthworks. Limitations arise because:

- Lakes Environmental record the 'primary' reason for consent, and often earthworks are not the primary reason for consent, it will be part of a larger proposal, for example to construct a new visitor accommodation building.
- It was not possible to determine in all instances whether subdivision consents also required earthworks.

The following table show the total number of consents and the number of those applications that specifically breached the earthworks rules, or required a specific assessment of earthworks as part of another consent.

Year	***Total Number of Consents Lodged***	***Number of consents specifically requiring consent under earthworks rules, or as a controlled activity***	***% of consents specifically requiring consent under earthworks rules***
2007 – 2009	3845	634	16.5%

A minimum of at least 16% of all consents lodged require resource consent under the earthworks rules. This is a significant proportion of all consents, and is approximately 191 consents per year over 2007 – 2009.

6. How many complaints have been received about earthworks?

A review of the Lakes Environmental complaints database has shown the following in relation to complaints involving earthworks:

Year	***Total Number of Complaints Received***	***Number of complaints relating to earthworks***	***% of complaints relating to earthworks***
2007	132	37	28%
2008	109	18	16.5%
2009	256	42	16.5%
Averages	***166***	***32***	***19%***

For the three year study period, a large proportion of complaints received by Lakes Environmental are related to earthworks. On average there were 32 complaints a year in the 2007 – 2009 period. 19% of all the complaints received related to earthworks / earthworks related activities in that time.

Earthworks complaints vary widely in terms of their topic, with the majority relating to the lawfulness of earthworks being undertaken, and dust / mud on the road as a result of earthworks.

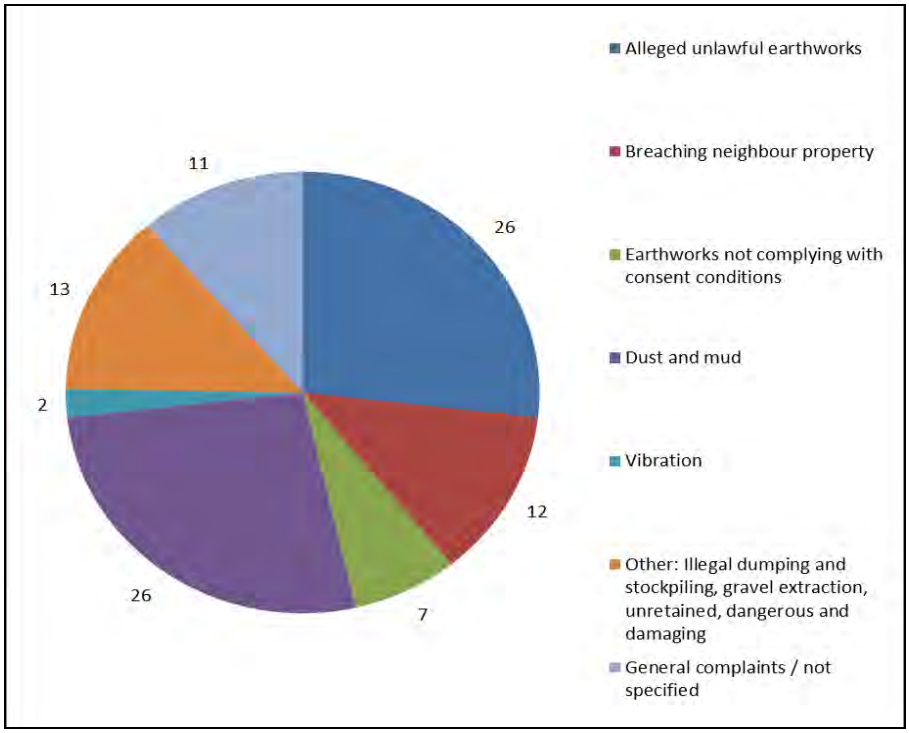


Figure 1. above simply shows the topic of the complaint. It does not show how many of the complaints of alleged unlawful earthworks were correct in terms of no consent having been obtained.

7. What do the earthworks provisions seek to achieve?

The objectives and policies relating to earthworks sit in 'Section 4: District Wide' of the District Plan, reflecting the 'district wide' nature of the activity. The primary 'District Wide' objectives relating to earthworks are set out below:

Objectives

To avoid, remedy or mitigate the adverse effects from earthworks on:

(a) Water bodies

(b) The nature and form of existing landscapes and landforms, particularly in areas of Outstanding Natural Landscapes and Outstanding Natural Features.

(c) Land stability and flood potential of the site and neighbouring properties

(d) The amenity values of neighbourhoods

(e) Cultural heritage sites, including waahi tapu and waahi taoka and archaeological sites

(f) The water quality of the aquifers.

The following 'Taka Whenua' objective is also relevant:

Objective 3 - Waahi Tapu and Waahi Taoka

Recognition and protection of places of burial, other waahi tapu, and all waahi taoka, as places of cultural and traditional importance to Kai Tahu.

A number of other objectives from the District Wide chapter are also indirectly relevant to earthworks, for example the objectives below relating to Nature Conservation Values:

The management of the land resources of the District in such a way as to maintain and, where possible, enhance the quality and quantity of water in the lakes, rivers and wetlands.

8. How effective are the earthworks objectives?

It is noted that every objective listed below includes the words 'avoid, remedy or mitigate' adverse effects. Using the three terms 'avoid, remedy or mitigate' in one objective means it is effectively three objectives in one, as an objective of 'avoiding' adverse effects is quite different to an objective of 'mitigating' them. For example if your objective is to avoid adverse effects on an Outstanding Natural Feature, this is quite different to mitigating the effects of earthworks on an Outstanding Natural Feature, which effectively suggests they can occur. Thus all the objectives for earthworks are not entirely clear on what they seek to achieve.

The District Wide objective for earthworks is set out above, and the constituent parts are assessed individually below.

To avoid, remedy or mitigate the adverse effects from earthworks on water bodies

This is a general objective that remains effective (apart from the comment above) provided the Environmental Protection Measures that are required when earthworks are undertaken are implemented. One of the key effects arising from earthworks is the potential to affect water quality through runoff from exposed soil.

To avoid, remedy or mitigate the adverse effects from earthworks on the nature and form of existing landscapes and landforms, particularly in areas of Outstanding Natural Landscapes and Outstanding Natural Features.

This is a general objective that is considered moderately effective (apart from the comment above). The District Plan naturally contains significant provisions relating to landscapes, and as earthworks can physically affect those landscapes, this high

level objective is relevant. However, the permitted volumes and areas for earthworks in the Rural General zone (where the Outstanding Natural Landscapes and Outstanding Natural Features are located) are relatively high, up to 300m^3 and up to 1000m^2. Adverse effects could still arise from the permitted volumes of earthworks.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on land stability and flood potential of the site and neighbouring properties***

This objective is also considered to be moderately effective as there is no specific link in the rules to the Council's hazard information. This link can be established once a consent is required, as the Lakes Environmental planner can check the Council's hazard information. However earthworks that affect land stability and flood potential could occur within the permitted limits.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on the amenity values of neighbourhoods***

This general objective remains relevant and effective (apart from the comment above). Effects on amenity values can of course still arise within the permitted thresholds, such as from dust, if earthworks are done inappropriately or the Environmental Protection Measures are not employed.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on cultural heritage sites, including waahi tapu and waahi taoka and archaeological sites***

This objective is effective (apart from the comment above). However the rule that gives effect to it is limited to those archaeological sites in Appendix 3, which lists just 14 archaeological sites in the entire Queenstown Lakes district. Therefore in most instances the objective relies on the Historic Places Act being implemented to address effects on archaeological sites.

> ***To avoid, remedy or mitigate the adverse effects from earthworks on the water quality of the aquifers.***

This objective relating to the water quality of aquifers remains relevant and effective (apart from the comment above). The objective is supported by rules relating to the exposure of ground water.

8.1 Summary with regard to effectiveness of objectives

The effectiveness of all the objectives is limited by the use of 'avoid, remedy or mitigate', which is effectively three objectives in one. Otherwise, the objectives are relatively effective in that they address the key issues arising from earthworks. One area for which there is no clear objective, is with regard to applications for the deposition of clean fill, and gravel extraction, which both fall within the definition of earthworks. Both of these types of applications can be controversial as discussed in more detail in section 10 of this report.

9. How effective are the earthworks policies?

There are 12 policies relating to earthworks which are set out below:

> ***1. To minimise sediment run-off into water bodies from earthworks activities through the adoption of sediment control techniques.***

This policy is considered to be effective. It suggests that the associated rules should focus on sites within close proximity to water bodies and sloping sites. However as section 10.1 illustrates, at a random selection of ten sites under construction, some of those sites close to water bodies were not taking measures to minimise sediment runoff.

> ***2. To avoid the location of earthworks in close proximity to water bodies. Where this can not be avoided, to ensure that sediment control measures are put in place to minimise sediment run-off.***

The second part of the policy is already covered by Policy 1 as an expectation for all earthworks, and therefore this part of the policy simply provides an easy 'out'. Either the second part of the policy should be removed and the standard strengthened accordingly to achieve the policy "to avoid" (e.g. a zone standard would need to prevent any earthworks within 7m of a water body), or the policy needs to be re-drafted to be clearer (e.g. to avoid earthworks…unless sediment control measures are put in place which will avoid any sediment runoff entering water bodies).

> ***3. To minimise the area of bare soil exposed and the length of time it remains exposed.***

The policy should be amended to clarify what it intends to achieve. If it is to help in reducing runoff, erosion and/ or stability issues then the standard should only apply to steep slopes or those in proximity to a waterbody. Alternatively, if it intends to mitigate dust issues then the following should be considered:

- why the site standard specifies that the exposed earth be of an average depth of 0.5m before a consent is triggered in residential zones as this will not mitigate dust;
- whether the area specified is too low, as that barely enables the creation of a building platform, and
- whether the site standard is needed at all, in that the Environmental Protection Methods (including dust mitigation) are required to be met for all earthworks, regardless of scale.

In regard to the area standard (m^2), it is noted that none of the five other District Plans assessed in section 4 of this report, include an *area* (m^2) control. Furthermore, all of the ten construction sites which were assessed for this report were visited in very dry conditions (albeit still/ not windy) and only one exhibited dust issues despite the fact that few had any real dust mitigation measures in place.

4. To avoid or mitigate adverse visual effects of earthworks on outstanding natural landscapes and outstanding natural features.

This policy relates solely to the Rural General Zone and is effective, although the same issue arises as with the objectives, in that the use of 'avoid or mitigate' means it is two different policies in one. It is unclear why "remedy' is not mentioned in this policy.

Most earthworks in Outstanding Natural Landscape areas and on Outstanding Natural Features relate to a dwelling or subdivision, which once approved are exempt from the earthworks rules and subject to assessment under the more detailed Part 4 landscape policies.

5. To avoid earthworks including tracking on steeply sloping sites and land prone to erosion or instability. Where this can not be avoided, to ensure techniques are adopted that minimise the potential to decrease land stability.

This policy is not considered effective as the rules are not sufficiently strong enough to avoid earthworks on steep sites and there is no trigger relating to slope in the rules. Earthworks up to 100m³/ 200m² in urban areas and up to 300m³/1000m² in the Rural General zone are permitted regardless of how steep the land is.

Case Study 5 provides an example of earthworks on steeply sloping land where there is no evidence of exacerbated erosion and the rock, where necessary, has been stabilised. As part of the District Plan Review, a standard which triggers the requirement for resource consent based on a particular site slope could be considered. Three of the District Plans assessed used site slope as a trigger, using 20º, 22º and 25º respectively.

The policy could be re-drafted to *"to avoid earthworks…on steeply sloping sites… unless…techniques are adopted…".*

6. To protect the existing form and amenity values of residential areas by restricting the magnitude of filling and excavation.

The policy is effective to the extent that rules do indeed restrict the magnitude of filling and excavation. Beyond those limits, resource consent is required, and an assessment can be made of impacts on form and amenity values, and if necessary, affected party approvals required.

The part of the policy relating to "the amenity values of neighbourhoods" would include dust and noise, and therefore overlaps with the following policy.

7. To ensure techniques are adopted to minimise dust and noise effects from earthworks activities.

This policy is appropriately worded and is carried through to the rules with the Environmental Protection Measures requiring dust control measures in urban zones. As the ten case studies in section 10.1 show, ensuring this is actually occurring at the time of construction is critical.

8. As far as practicable, to protect Waahi Tapu, Waahi Taoka, and other archaeological sites from potential disturbance resulting from earthworks.

This policy is not particularly effective because it is unclear due to the inconsistency with Policy 3.1 below. There is also no mention of what to do if encountering Waahi Tapu, Waahi Taoka and other archaeological sites in the 'Guide to Earthworks' document (which is referred to in the site standard). There are specific rules regarding the protection of archaeological sites including waahi tapu and waahi taoka that are identified in Appendix 3 of the District Plan. However only 14 archaeological sites are identified in the entire Queenstown Lakes district.

9. To notify Kai Tahu ki Otago where earthworks are proposed in areas identified in either the District Plan or the Natural Resource Management Plan as significant to iwi.

This policy is effective in that it has been carried through to the rules for earthworks, which normally state that:

> *The activity shall not affect Ngai Tahu's cultural, spiritual and traditional association with land adjacent to or within Statutory Acknowledgement Areas.*

The District Plan identifies the following Statutory Acknowledgement Areas:

1. Lake Hawea
2. Lake Wanaka
3. Lake Wakatipu (Whakatipu-Wai-Maori)
4. Clutha River (Mata-au)
5. Mount Earnslaw (Pikirakatahi)
6. Mount Aspiring (Tittitea)

Lakes Environmental has confirmed that Ngai Tahu is notified of applications within these Statutory Acknowledgement Areas (SAA), and depending on the nature of the application, for proposals adjoining the SAA.

10. To notify the NZ Historic Places Trust where proposed earthworks may affect archaeological sites.

Where the earthworks rule is triggered relating to the modification, damage or destruction of archaeological sites listed in Appendix 3 of the District Plan, New Zealand Historic Places Trust (NZHPT) would definitely be deemed to be an 'affected party' and would be notified of the application. However, as noted earlier, only 14 archaeological sites are listed in Appendix 3 which limits the effectiveness of this policy. Permission from the NZHPT would still be required under the Historic Places Act if a pre-1900 archaeological site is identified. Appendix 3 will also be updated as part of the District Plan review.

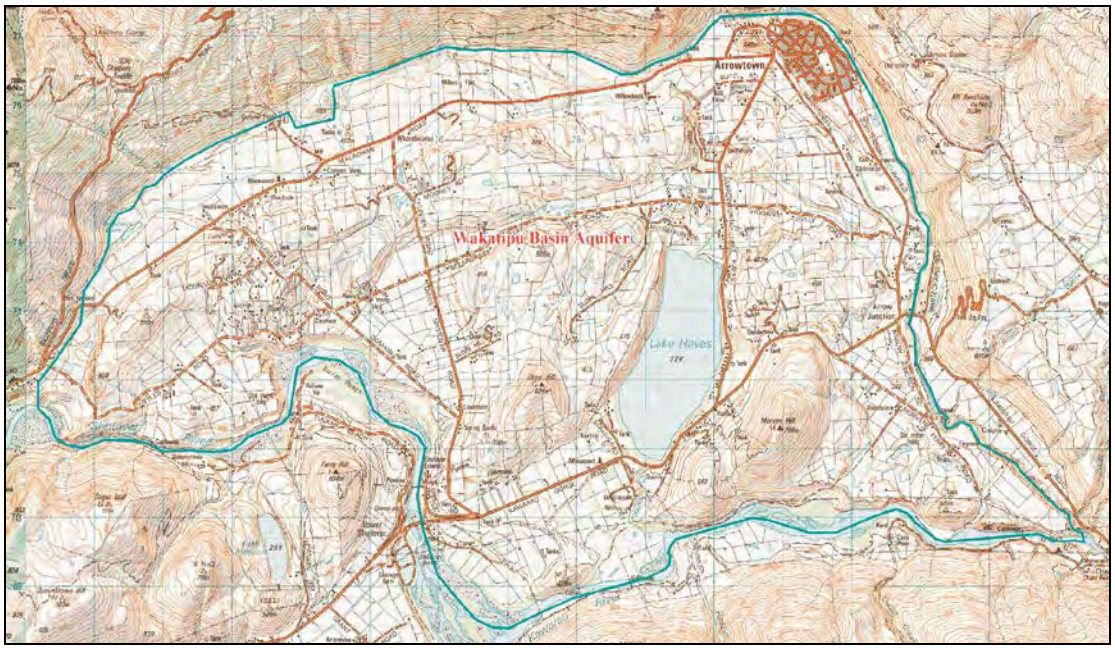
11. To ensure that work is suspended and Kai Tahu ki Otago and the NZ Historic Places Trust are notified when archaeological remains are observed or unearthed during earthworks activities.

This policy is for situations where archaeological sites are discovered during excavations. This does not happen frequently, and the NZHPT representative spoken to could not recall if it had ever happened. The policy is effective in its wording, but its effectiveness in practice is dependent on the cooperation of the digger driver or construction staff who makes the discovery.

12. To avoid contaminating the water aquifers of the Queenstown Lakes District.

This policy is considered appropriate – its effectiveness is largely determined by the Otago Regional Council (ORC), which grants consents for new bores and for discharges that could affect the aquifers. Correspondence with the ORC confirms that at a big picture level, groundwater within the Queenstown Lakes district aquifers is pristine, although some localised contamination has been identified from wastewater discharges. The Regional Plan: Water identifies four aquifers within the Queenstown Lakes located in the Hawea Basin, Wanaka basin, Cardrona alluvial ribbon and the Wakatipu Basin.

Wakatipu Basin Aquifer – From ORC Water Plan



Whilst there is an Environmental Protection Method stating that cut or fill shall not expose the groundwater aquifer (water bearing gravels), such that it causes ponding or artificial drainage of the aquifer, there is no rule relating specifically to the four aquifers identified in the Regional Plan: Water. The limited level of compliance with Environmental Protection Measures found in section 10.1 further suggests that such a standard may be needed in order to ensure compliance and protect ground water.

9.1 Takata Whenua policy relating to earthworks

The following policy is from the Takata Whenua section of the District Wide Issues chapter:

> ***3.1 To recognise waahi tapu and waahi taoka, and protect them from disturbance and interference from modification through earthworks, mining, and other development.***

This policy is related to Policies 8 – 11 above. Policy 8 above, and this policy, are inconsistent which limits its effectiveness. Policy 8 refers to protecting Waahi Tapu, Waahi Taoka, and other sites "as far as practicable", which is a weaker policy than 3.1 above, which requires they be 'recognised and protected' with no reference to whether this is practical or not. This inconsistency could be addressed through the District Plan Review.

9.2 Summary with regard to effectiveness of policies

The majority of the policies are effective. A number could be improved with minor changes. There is an inconsistency between the District Wide policies relating to earthworks and the District Wide policies relating to Takata Whenua.

10. How effective are the earthworks rules?

Monitoring of the District Plan provisions, including meetings and discussions with stakeholders, has identified a number of issues with the rules relating to earthworks:

1. <u>7m setback distance for earthworks near water bodies</u>

The ORC noted that when they submitted on Variation 8 in relation to the proximity of works to a water body, the intent was that the setback rule was 7m from the top of the *bank* of a water body, as this is what is used in the Regional Plan: Water. However the drafting of the rule does not reflect that, it states *"within 7m of a water body".* Lakes Environmental interpret this as being from the 7m edge of the actual water course. This is an inconsistency between the Regional Plan: Water, and the District Plan.

2. <u>No distinction between earthworks and cleanfills / gravel processing</u>

The earthworks rules do not distinguish between earthworks associated with construction of a building, and other quite distinct activities such as clean filling and gravel extraction. Most applications for earthworks are associated with construction or landscaping of a new building. Once complete, the new building and landscaping effectively mitigates the effect of the earthworks. Some of the more controversial applications for earthworks have involved the deposition of large volumes of clean fill or gravel extraction. While low in number, these applications have often been publicly notified and present quite different issues. There are also no objectives or

policies relating to clean fill or gravel processing. Consideration could be given to whether 'clean filling' or 'gravel processing' requires a separate consent category.

3. Gravel extraction and the definition of mining

Related to the above, the definition of 'mining' in the district plan is:

> *MINING: Means the use of land and buildings for the primary purpose of the extraction, winning, quarrying, excavation, taking and associated processing of minerals and includes prospecting and exploration.*

The definition of 'earthworks' is:

> *EARTHWORKS: Means the disturbance of land surfaces by the removal or depositing of material, excavation, filling or the formation of roads, banks, and tracks. Excludes the cultivation of land and the digging of holes for offal pits and the erection of posts or poles or the planting of trees.*

Confusion has arisen with regard to gravel extraction activities, and whether this is 'mining' or 'earthworks'. The two definitions need to be reviewed to clarify what category gravel extraction falls into.

4. No link in rules to site slope

Issues such as sediment runoff are intimately related to the slope of the site, although there are exceptions where solid rock is involved. However there is no link in the earthworks rules to site slope. Consequently flat residential locations like Lake Hayes Estate are sometimes triggering the need for an earthworks consent where there may not be any environmental effects if the Environmental Protection Measures (for dust and runoff) are implemented.

5. The area (m^2) limit for urban zones

Related to the above, the area limit on earthworks in most urban zones is $200m^2$. The small study of 5 other district plans with similar topography and rainfall to the Queenstown Lakes district, indicated that no other Council had an *area* limit (m^2) for earthworks, just *volume* limits (m^3). If the purpose of area limit (m^2) rule is to control dust, this should be controlled in any event under the Environmental Protection Measures. The area limit (m^2) is somewhat curious, as earthworks less than 0.5m are excluded in residential zones. In other words, it would be impossible for an earthworks consent to be required just on the basis of *area*, simply because if you are exceeding $200m^2$ at an average depth greater than 0.5m, that already totals $100m^3$, which is the trigger for the volume limit before an earthworks consent is required. As the area of earthworks (m^2) is intimately linked to the volume (m^3), consideration could be given as to whether the area rule is necessary.

6. Earthworks in the Gibbston Character Zone

The earthworks rule for the Gibbston Character zone is unusual in that the Environmental Protection Measures are not listed, and the range of exceptions listed for the Rural General zone, are not included. This should be considered as part of the District Plan review.

7. Earthworks in the Bendemeer Special Zone

There are two sites standard relating to earthworks (pages 12-60 and 12-61). The first site standard 12.9.5.1iii appears to be an error as it specifies the normal 'urban' limits for earthworks. The second site standard, 12.9.5.1iv, is likely to be the correct one, as it refers specifically to Bendemeer, and contains more 'rural' scale earthworks rules.

8. Farm tracks and fire breaks

The earthworks rules exclude *"routine repair and maintenance of operational tracks"*. Feedback from Federated Farmers supported this current exemption, but noted that what is 'routine' is often debateable, and it is unclear if this includes minor upgrading of a track. Federated Farmers would also prefer to see a non-notification provision for farm tracks, but recognise they can be sensitive activities in the Queenstown Lakes district landscape. Lakes Environmental noted that on occasion, this rule has been 'stretched' to widen farm tracks, which are then used as the basis of a road for subdivision. This is a difficult issue to resolve as it is important for the farming community to enable the genuine repair and maintenance of farm tracks for farming activities. Federated Farmers also noted that constructing firebreaks often requires earthworks. This could be considered for inclusion as an exemption to the definition of earthworks.

9. Link to subdivision rules

Lakes Environmental have noted that while it appears that earthworks associated with subdivision are exempt from the site standard rules for earthworks (and this was likely the intention of Variation 8), the wording of Section 15 (subdivision) does not in fact provide that exemption. As a result, where earthworks are associated with a subdivision and have not been approved by separate land use consent, they are subject to the site standard provisions for earthworks. This means that a subdivision that was otherwise a controlled activity is assessed as a restricted discretionary activity, with discretion reserved over earthworks. This requires further consideration.

10. Link to hazards information

The objectives and policies refer to avoiding, remedying or mitigating the adverse effects of earthworks on land stability and flood potential of the site and neighbouring properties. However, there is no direct link in the District Plan to the hazard information held by Council. This information can be referred to once the area / volume limits are triggered and consent is required, however the small amount of permitted earthworks could occur in unstable or flood prone areas.

11. Earthworks associated with constructing fence lines

As noted in the boxed case study, the High Court overturned a decision on the Environment Court relating to earthworks associated with the construction of a fence line on Mt Dewar Station. Consideration needs to be given to revising the Earthworks definition in light of this decision. Due to the vagueness of the terms 'reasonably necessary' and 'minimum disturbance', this will be challenging in terms of a definition that can be monitored and enforced.

12. Twelve month time limit for earthworks

The District Plan allows a certain amount of permitted earthworks within a 12 month period. Occasionally a situation arises where a person may undertake the permitted amount every 12 months in order to remove a landscape feature or other type of earthwork that might not be approved if a resource consent was lodged. This is a difficult issue to resolve, however, it is noted some Councils have earthworks rules without a permitted annual allowance.

13. Archaeological sites rule

The standard rule for the protection of archaeological sites, waahi tapu and waahi taoka is only triggered if the site that is being 'modified, damaged or destroyed' is listed in Appendix 3 of the District Plan. This appendix contains only 14 entries of major archaeological sites. There is no district plan protection for archaeological sites not listed, but permission would still be required under the Historic Places Act. Appendix 3 will be updated as part of the District Plan review.

14. Link to Heritage landscapes

Related to the above, the earthworks rules do not link to the identified Heritage Landscapes shown in Appendix 10. On a few occasions, the identified Heritage Landscapes have not been considered at the time of earthworks consent.

15. Exclusion of Ski Area Sub-Zones from the earthworks rules

The Ski Area Sub-Zones are exempt from the normal earthworks rules in the Rural General zone. On one hand, this permissive regime has been adopted to enable the development of the ski fields, recognising their importance in contributing to the social and economic well-being of the community. On the other hand, this approach appears inconsistent with other earthworks rules in the District Plan, where volumes as small as $100m^3$ require resource consent, even on flat land zoned for development. Earthworks in steep, elevated locations such as the Ski Area Sub-Zones do have the potential to have environmental effects, and it takes a long time for vegetation to re-establish. Consideration could be given to applying some or all of the Environmental Protection Measures to earthworks in the Ski Area sub-Zones, so that as a minimum, erosion and sediment controls are implemented.

16. Unfinished earthworks

A recurring issue is the visual impact of unfinished earthworks arising from a construction project not being fully completed. Well known local examples are at 5 Mile and Kawarau Falls Station. Bonds can be taken at the time of earthworks consent, and the assessment matters could be strengthened to specifically mention the consideration of a bond when earthworks over a certain scale are proposed. The key would be ensuring smaller scale earthworks are not captured.

10.1 Are the Environmental Protection Measures and consent conditions relating to earthworks being complied with?

The rules for earthworks all require that Environmental Protection Measures be undertaken. Ten active construction sites were randomly identified within the Queenstown Lakes district as case studies in order to determine:

1. whether any consent conditions relate to earthworks;
2. if they have resource consent for earthworks; whether the earthworks conditions are being complied with; and
3. in all circumstances, including if the construction is being undertaken within the permitted limits; whether the Environmental Protection Measures required by the site standard are being undertaken.

The Environmental Protection Measures require that:

> *"any person carrying out earthworks shall:*
>
> *a. Implement erosion and sediment control measures to avoid soil erosion or any sediment entering any water body. Refer to the Queenstown Lakes District Earthworks guideline to assist in the achievement of this standard.*
>
> *b. Ensure that any material associated with the earthworks activity is not positioned on a site within 7m of a water body or where it may dam or divert or contaminate water.*
>
> *c. Implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site.*

Note (c) relating to dust control does not apply in the Rural General zone.

The ten case studies are:

1. A residential dwelling in the Wanaka Rural Residential zone;
2. A residential dwelling on Lake Hayes Rural Residential zone;
3. A residential dwelling on Queenstown Hill in the Low Density Residential zone;
4. A residential dwelling at St Andrews Park, Queenstown in the Low Density Residential zone.
5. A residential dwelling in Queenstown (Low Density Residential)
6. An accessory building in Queenstown in the High Density Residential zone;
7. A commercial building in the Wanaka Town Centre zone;
8. An industrial building in Wanaka in the Industrial zone;
9. Earthworks not related to a dwelling in the Wakatipu Basin in the Rural General zone; and
10. A residential dwelling in the Remarkables Park Special Zone (Activity Area 1).

The ten case studies were given an overall rating of green, orange or red, based on the following:

Green	All earthworks related conditions / Environmental Protection Measures being complied with.
Orange	Some earthworks related conditions / Environmental Protection Measures being complied with.
Red	No visible effort at any form of compliance with either earthworks related conditions or Environmental Protection Measures.

It is noted that the above rating is indicative only, as a single site visit cannot accurately determine compliance with matters such as dust, which might require earthworks to be dampened down on a daily basis.

10.1.1 Case study 1 – residential dwelling, Wanaka, Rural Residential zone

Resource consent?	Yes - RM 110824	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Relatively flat	RM110824. Consented 1,874m² of earthworks (45% of the site). Conditions: - Compliance with control/ mitigation techniques outlined in the Earthworks guide[1] prior to commencing - Prevent deposition of material onto roads - Top soiled and re-vegetated within 6 weeks of completing earthworks. Compliance: - Extent – seem to have scraped slightly more than consented. - Some signs of 'dampening down' but other than 1 haybale, no other sign of any runoff control (e.g. bales, silt fence, bunds, or sediment ponds or drainage). NB – there is an existing vegetation buffer of sorts along one road boundary.
Notes	Visited in March/ April in very dry conditions. The building is still under construction (i.e. roof not yet on) and 1-2 m high piles of earth still onsite/ yet to be transported.	

[1] "A guide to Earthworks in the Queenstown Lakes District Council"

		- Roads clean but no 'cattlestop' in place (as per 'General Measure' #1 of the Guide) Some re-contouring looks complete but there is no sign of re-vegetation/ top soil/ grass where there plausibly could be.
Overall rating:	Orange	Some compliance apparent

10.1.2 Case Study 2 - Residential dwelling, Lake Hayes Rural Residential zone

Resource consent?	Yes - RM100663	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Steeply sloping and highly prominent	RM100663 – Bowden. Consent approved approximately 3,800m³ of earthworks, consisting of 2,500m³ of cut and 1,300m³ of fill. Conditions: - Install measures to control and/or mitigate any dust, silt runoff and sedimentation for the duration of the project - Retaining wall along the southeast boundary of the site is to be completed as soon as practicable or if left un-stabilised for more than 8 weeks, temporary retaining or protection measures shall be installed - Prevent deposition of debris on roads - No earthworks, loading and stockpiling of earth beyond the subject site. - Exposed earth to be top-soiled/ grassed /re-vegetated/ otherwise permanently stabilised within 4 weeks. - Obtain a Code of Compliance for retaining walls constructed under the Building Act - Submit a revised driveway, retaining and earthworks design to mitigate adverse effects on the landscape, including proposed finish for retaining walls. Compliance: - Silt fence installed along only half of the downslope boundary and in disrepair. - No obvious measures taken to control dust - A revised driveway, retaining and earthworks design has been approved
Notes	Visited in March/ April in very dry conditions. Landscape effects were a real concern in this case.	

		- Retaining wall along the southeast/ rear boundary of the site is complete as at 31-3-12. - No measures in place to prevent deposition of any debris on surrounding roads. However none noticed. - Possible stockpiling occurring on the adjacent site to the south. - No exposed earth top-soiled/ grassed /re-vegetated/ otherwise permanently stabilised yet – may be too early to be practical.
Overall rating:	Orange	Some compliance apparent

10.1.3 Case Study 3 – Residential dwelling, Queenstown Hill, Low Density Residential zone

Resource consent?	Yes - RM 110098	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Steeply sloping	Consented for 438m³ and over 200m² of earthworks; and a breach of the height to boundary rule (i.e. a 3m cut on the western boundary and 1.8m cut on the road boundary; and a maximum cut of 4.8 metres). Conditions: - A geotechnical engineer to continually assess the excavation and ensure temporary retaining in place where necessary. - Measures to be taken to control/ mitigate dust, silt run-off, and sedimentation. - Earthworks, batter slopes, retaining, earthworks and site management to be in accordance with the engineering report - If there are justifiable complaints regarding vibration then earthworks to cease. - Ground conditions are to be monitored throughout
Notes	Visited in March/ April in very dry conditions. The geotechnical report submitted as part of the application has not been assessed as part of this compliance check.	

		- Retaining walls to be constructed as soon as practicable and if not done within 6 weeks then temporary retaining is needed - No earthworks or stockpiling off-site - A 2 m safety fence to be constructed atop the cut. - Measures to be taken to prevent deposition of material onto roads - Compliance with the control/ mitigation techniques outlined in the Earthworks guide[2] - Top soiled and re-vegetated within 6 weeks of completing earthworks **Compliance:** - No sign of bales, silt fencing, etc. to control sediment runoff. - Extent of compliance regarding geotechnical assessments is unknown. - Most of the exposed earth has been covered with river stones[3] which would mitigate the effects of run off, sedimentation, and dust. - Signs that the area of exposed/ bare earth had been dampened. No dust issues when visited. - The roads were generally clean but there was no cattlestop/ wooden planks, etc. in place (as per #1 of the Guide). - There was no temporary or permanent retaining of the cuts in place as at 20-3-12 but when re-visited on 2-4-12, the cut was permanently retained (see figure above). Unlikely this was constructed within the 6 weeks required by consent.
Overall rating:	Orange	Some compliance apparent

[2] "A guide to Earthworks in the Queenstown Lakes District Council"
[3] Presumably to cover underground services, first and foremost

10.1.4 Case Study 4: A residential dwelling, Queenstown, Low Density Residential zone.

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Gently sloping, down to a water body	No resource consent has been applied for or approved for earthworks, even though the earthworks appears to be well over 200m² in area and 100m³ in volume and definitely involves over 20m³ of earthworks within 7 m of a waterbody. Compliance with the site standards and EPMs: - As outlined above, it seems to exceed the standards relating to area, volume and proximity to a waterbody.
Notes		

		- No measures seem to have been taken to prevent dust or sedimentation. The fact that there is no sediment control and the earthworks is as close as 1m from the waterbody is of concern. - No measures have been taken to prevent debris on roads but no evidence of such debris - Rock retaining wall (approx. 1m) installed along edge adjacent to waterbody. The only other significant 'cut' proposed (in the south-west of the site) is not yet properly formed and not yet retained. - It is too early for top soiling, etc. - No earthworks appear to be breaching the boundaries.
Overall rating	Red	Appears to need resource consent. No visible effort to comply with EPMs.

10.1.5 Case Study 5: Residential dwelling, Low Density Residential, Visitor Accommodation sub-zone.

Resource consent?	Yes – RM100256	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Steeply sloping, large development site	RM100256 - Resource consent approved 4318m³ of earthworks across a total area of 4490m², with a maximum cut depth of 7.2 metres, and a maximum fill depth of 4.4 metres. Nine consents are required in relation to the proposed earthworks. Conditions: - Install measures to control and/or mitigate any dust, silt run-off and sedimentation - Include groundwater and stormwater control measures - Batter slopes, retaining, and site works as per the geotechnical report from Green Being - No rock breaking from 5 pm – 8 am - Prevent debris on roads - No earthworks or stockpiling off site - If justifiable complaints re vibration, then shall cease and reassess. - Temporary safety fences atop the cuts - If excavation left unstabilised for over 6 weeks then temporary retaining is needed. Top soiling etc. to occur within 4 weeks of dwelling being constructed. Compliance: - Aerial photography taken in February 2012 appears to show works encroaching into adjoining reserve. - Silt fence in place along lower boundary of the site - No evidence of sprinklers/ dampening down but the site is almost exclusively rock so dust issues unlikely to be significant. - Rock breaking was undertaken over a short time and within the permitted hours - No mechanism in place to prevent debris on roads but none sighted. - No earthworks or stockpiling occurring off site
Notes	Visited in March/ April in very dry conditions. The application includes extensive landscape plan, to reduce the perceived bulk of the dwelling and conceal the earthworks. The geotechnical report submitted as part of the application has not been assessed as part of this compliance check. Split-zoned Low Density Residential (visitor accommodation subzone) and Rural General	

		- Safety fences in place Excavation/ cuts have been stabilised (as at 2/4/12). It is unknown whether this occurred within the 6 weeks required by conditions.
Overall rating	Orange	Almost fully complies but aerial photography shows some earthworks appear to be encroaching onto adjoining Council reserve.

10.1.6 Case Study 6 - An accessory building in Queenstown in the High Density Residential zone

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Sloping.	No resource consent exists for the site. Earthworks likely close to the volume limits specified in the Plan. Notwithstanding the above, with regard to the EPMs which all earthworks must comply with, it is not complying with (c)(ii)(a) re dust and runoff mitigation Sediment / dirt was running down driveway and onto legal road reserve, not getting on the road much. It is too soon to monitor (c)(i) regarding re-vegetation.
Notes	Visited in March/ April in very dry conditions Building replaces existing carport so excavations not as large as might appear. Estimated to be close to 100m³.	
Overall rating	Red	No obvious efforts at complying with the EPMs

10.1.7 Case Study 7 - A commercial building in the Wanaka Town Centre zone

Resource consent?	Yes – RM110596	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Flat land adjoining the Bullock Creek reserve. The creek is 12 metres from the excavation.	RM110596 approved 400m³ and 1100m² of earthworks. The proposed earthworks involve excavating the site about 0.5m and compaction in order to create a building platform. Conditions: - A geotechnical engineer is to continually assess the excavation and ensure temporary retaining in place where necessary to stop erosion and stability issues. - A site management plan is to be submitted which, as a minimum, includes sprinklers, water carts, etc. to control dust; silt traps (i.e. bales or silt fences/ traps) to stop sediment entering Bullock Creek, site drainage paths to keep any silt laden materials on site and to direct the flow to silt traps (and to maintain and replace such traps). - A vehicle crossing is to be installed to prevent debris being taken onto the road - Various conditions relating to ensuring a 'sound' base for building upon (including the removal of all uncertified fill, confirming the depth of footings, etc. - Topsoiling/ re-vegetation or otherwise permanently stabilising to occur within 4 weeks (of completing the earthworks presumably) and the building cannot be occupied until then.
Notes	The site a flood prone area. Visited in March/ April in very dry conditions. There are 5 further conditions following completion of the earthworks which cannot yet be commented on. Without assessing the site management plan the specific detail regarding management and mitigation cannot be monitored.	

		Compliance: - Regarding sediment control, filter cloth is attached to the fence on the Bullock Creek reserve boundary. - The vehicle crossing had not been designed to ensure against debris on the road (although there appeared to be very little) - There was no evidence of hoses, sprinklers, or water carts on site/ in use but the site was not too dusty and the project manager said that sprinklers are used. Compaction may well mean that dust issues are unlikely to be significant - It is unknown what extent of drainage is in place and whether it includes filters. - As the building has yet to be started, it will be a considerable time before re-vegetation/ top soil, grass or hard surface occurs.
Overall Rating	Orange	Substantial compliance with exception of vehicle crossing. Possibly a green rating.

10.1.8 Case Study 8 – Industrial building, Wanaka, Industrial zone

Resource consent?	Yes – RM110490	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Flat	RM110490 - Minerva Property Limited – approved 194m³ of earthworks. Conditions: - Compliance with control/ mitigation techniques outlined in the Earthworks guide[4] prior to commencing - Wooden planks or similar to prevent damage to the footpath and kerb and to prevent deposition of material onto roads
Notes	Visited in March in very dry conditions	

[4] "A guide to Earthworks in the Queenstown Lakes District Council"

		- Top soiled and re-vegetated within 4 weeks of the building being constructed and building shall not be occupied until this time. Compliance: - Downpipes and some drainage in place (refer above photo) but no filter cloth over drains to prevent sediment entering. - The site was very dusty and there were no signs of 'dampening down' the exposed earth. - Earth had been stockpiled on the road reserve (beyond the site boundaries). Refer above photo. - Regarding sediment runoff, there was no sign of hay bales, silt fences, or bunds - Roads clean but no 'cattlestop' in place (as per the conditions and #1 of the Guide) As the majority of the bare earth will be covered in hard surface (e.g. concrete) re-vegetating, etc. seems to not make sense and has not been done.
Overall rating	Red	No obvious efforts at compliance

10.1.9 Case Study 9 - Earthworks not related to a dwelling, Rural General zone, Wakatipu Basin

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Sloping and adjacent to and runs down to a wetland area and an adjoining irrigation race (not deemed to be a water body under the RMA definition)	No resource consent can be found for this earthworks, which is probably within the permitted Rural General volumes / area limits of 300m^2 and 1000m². In order to meet the site standard, the EPMs which apply to 'any person carrying out earthworks' need to be complied with. Compliance with the EPMs:
Notes	Visited in March/ April in very dry conditions	- There are no erosion or sediment control measures in place, however due to gentle slope of site, unlikely to be

		significant erosion or sedimentation. - It was too early to monitor re-vegetation requirements. - There is no requirement for dust control in the EPMs for the Rural General zone.
Overall rating	Green	Possibly could be an orange rating, but erosion and sediment control probably not required in this instance.

10.1.10 Case Study 10 – Residential dwelling, Remarkables Park Special Zone (AA1).

Resource consent?	No	***Compliance with Consent conditions and / or Environmental Protection Measures***
Site characteristics	Gently sloping, almost flat.	Due to the small size of this house and relatively flat site it would easily fit within the 100m^3 and 200m^2 limits. No resource consent is needed but must comply with the EPMs: Compliance with the EPMs: - There are no erosion or sediment control measures in place, however due to flat nature of site and small house this is probably not needed. - There was no visible dust control on the large pile of topsoil which due to the prolonged construction period could cause dust issues for neighbours. Due to construction stalling for several months, no workers had been on site to control dust. - It was too early to monitor re-vegetation requirements.
Notes	Visited in May following recent rain. Construction had been stalled for several months following the roof being finished.	
Overall rating	Orange	Dust control was not being undertaken on large pile of top soil for several months when construction stalled.

10.1.11 Summary with regard to case studies

Ten active construction sites for a range of activities in a range of zones were randomly identified throughout the Queenstown Lakes district. This provided a useful snapshot of whether consent conditions relating to earthworks, and the Environmental Protection Measures which apply regardless of whether a consent is required, are being implemented.

Category	***Number of Case Study Sites / 10***
All earthworks related conditions / Environmental Protection Measures being complied with.	1
Some earthworks related conditions / environmental protection measures being complied with.	6
No visible effort at any form of compliance with either earthworks related conditions or environmental protection measures.	3

The above assessment is subjective, however in most instances it appears some effort at compliance is being made, but could be improved in some areas. In three instances, it appeared that there were definite breaches of either the earthworks rules (where no consent had been obtained) or where conditions had been specifically breached, for example, earthworks going outside of the site.

11. How effective are the earthworks implementation methods?

The District Plan lists the following Implementation Methods:

Implementation methods

(i) District Plan

(a) The inclusion of rules controlling the effects of earthworks activities in the Residential, Rural Living Areas, Townships, Town Centre, Business and Industrial, and Special Zones.

This implementation method has been adopted, with rules in almost all zones, not just the ones listed above.

(ii) Other methods

(a) The provision of sediment control guidelines, which provide information on sediment control techniques, and best management practices for earthworks activities.

(b) Advise and provide information to local community groups, landholders and organisations

(c) *Coordination with Te Runanga O Ngai Tahu, Kai Tahu ki Otago and the NZ Historic Places Trust in the identification and protection of sites of cultural heritage value.*

(d) *Advise and provide information to all those proposing to undertake earthworks with detailed information of the Wakatipu aquifers and mantle as provided by the Otago Regional Council.*

In terms of implementation method ii(a) above, these are frequently referenced in consent conditions. These guidelines could also fulfil a role under implementation method ii(b). In terms of ii(c), this will need to occur as part of the district plan review in order to update Appendix 3. In terms of ii(d), a review of the ORC website does not indicate this information is specifically available, but it is available in the Regional Plan: Water.

11.1 Summary with regard to implementation methods

As the ten case studies in section 10 illustrate, neither the 'District Plan' or 'Other Methods', particularly (a) the sediment control guidelines are particularly effective in terms of sediment control.

12. How efficient are the earthworks provisions?

The financial cost of administering the earthworks provisions / processing resource consents is difficult to evaluate clearly, as earthworks are usually part of another application, for example, to construct a dwelling. The financial cost of the earthworks provisions has been evaluated using the 2007 – 2009 period based on an assessment of:

- Number of resource consents triggered by the earthworks rules
- Number of resource consents triggered by only the earthworks rules
- Notification / non-notification of earthworks related applications
- Number of Environment Court appeals focused on earthworks related matters

12.1 How many resource consents relating to earthworks have been triggered?

As noted in section 5, approximately 16% of the consents lodged between 2007 and 2009 were for or included an earthworks component. The vast majority are for earthworks as part of a building. Over the three years studied, this is some 634 consents. As noted in section 5, this is likely an undercount.

Year	***Total Number of Consents Lodged***	***Number of consents specifically requiring consent under earthworks rules, or as a controlled activity***	***% of consents specifically requiring consent under earthworks rules***
2007 – 2009	3845	634	16.5%

12.2 Average cost of processing resource consents (2003–2011)

Lakes Environmental charge the following fees for earthworks applications:

Earthworks minor (e.g. single dwelling or similar)	*$820.00*
Earthworks other	*$2,500.00*

However, the Lakes Environmental fees are not cumulative, i.e. where an application includes both land-use and earthworks activities or multiple activities, only the higher or highest relevant charge is payable. If the fee for another part of the application is higher than the earthworks fee, the earthworks fee would not be charged.

Determining the cost of the earthworks provisions in the District Plan is very difficult as the cost of the earthworks part of a resource consent is normally tied up with consent for another matter, such as a building.

Lakes Environmental engineers have advised that the time spent on the earthworks component of an application is completely dependent on the quality of information provided by the applicant. If all necessary information is provided up-front, the time spent can be as little as an hour or two, or where information is missing or poor, many hours. Major earthworks applications such as that at Kawarau Falls Station can require many days or weeks of work.

While it would be possible to trawl through the itemised invoices from Lakes Environmental for a selection of consents involving earthworks, to determine what proportion of the total time / cost was associated with assessing the earthworks component, this is unlikely to provide meaningful results. It would rather reflect the quality of information provided with the consent application.

12.3 Notification / Non-notification of applications

Over the 2007 – 2009 study period, of the 3845 consents lodged, approximately 175 were processed on a notified or limited notified basis. This equates to a little over one consent being notified each week over the period 2007 – 2009.

A more detailed examination of these 175 notified applications has revealed that approximately 77 involved an earthworks component. In most instances, earthworks were associated with a building and were not the main purpose of the consent.

Over the period 2007 – 2009, seven applications were publicly notified where the main component of the application related to earthworks:

Consent	***Date lodged***	***Zone***	***Description***	***Status***
RM071162	6/12/2007	RG	Continue a clean fill operation at Littles Road , Wakatipu	Awaiting further information
RM050922	24/07/2008	RG	Consent for stockpiling and processing of gravel and machinery storage on site located at Tucker Beach.	Refused by Commissioner, approved by Consent Order
RM081331	2/10/2008	RG	Extract gravel from the Lower Shotover River delta and to construct an engineered fill being the eastern runway end safety area at Frankton-Ladies Mile and Lucas Place, Wakatipu Basin	Granted consent, confirmed by consent order.
RM081454	12/11/2008	RG	Construction of a training line for flood	Granted consent, confirmed

			protection at Shotover Delta, Frankton-Ladies Mile, Wakatipu Basin	by consent order.
RM081455	12/11/2008	RG	Undertake gravel extraction of 1,200,000m3 for flood	Granted consent, confirmed by consent order.
RM090116	24/02/2009	RG	Extract process gravel from the Lumberbox Quarry at Kingston	Withdrawn at applicants request
RM090262	28/04/2009	RG	Undertake gravel extraction, importing and processing at Riverbank Road, Wanaka	Granted by Commissioner

As the above table illustrates, the earthworks related consents that were processed on a publicly notified basis all related to gravel extraction or cleanfill.

12.4 Summary with regard to efficiency

A large number of applications require consent under the earthworks rules. While the vast majority of these earthworks consents are part of another consent application, e.g. for a new dwelling, and are processed on a non-notified basis, there is a cost associated with having to seek consent under these rules. Plans showing areas of cut and fill are normally required, as are calculations of earthworks areas and volumes. In most instances this would be prepared by an architect or engineer.

Because earthworks consents are normally required as part of consent for another purpose, for example to build a new house which often requires consent in any event, the financial cost of the earthworks component is very difficult to separate out.

13.Conclusion

This report has assessed the effectiveness of the earthworks objectives, policies, rules and assessment matters. The majority of the objectives and policies are effective, but their effectiveness could be enhanced through some minor wording changes. In particular, the use of the words 'avoid, remedy or mitigate' in an objective or policy can be confusing. The absence of any objectives or policies for cleanfill and gravel extraction operations is an omission as these are usually the most controversial form of earthworks applications.

At least 16 issues were noted with the rules, and many of these can be addressed through the District Plan review. The rules also state that any person carrying out earthworks shall comply with the Environmental Protection Measures. Ten case studies of active construction sites in a variety of zones around the Queenstown Lakes district were monitored to see if the consent conditions and Environmental Protection Measures relating to earthworks were being implemented. In most instances it appears some effort at compliance is being made, but compliance could be improved in some areas. In three instances, it appeared that there were definite breaches of either the earthworks rules (where no consent had been obtained) or where conditions had been specifically breached, for example, earthworks going outside of the site.

Appendix A: Basic Summary of Earthworks Provisions – Queenstown Lakes District Plan.

ZONE	*PERMITTED*	*CONTROLLED*	*RESTRICTED DISCRETIONARY*	*NON-COMPLYING*
Rural General	Up to 300m3 Up to 1000m2 Less than 20m3 within 7m of a waterway	300m3 – 1000m3 1000m2 – 2500m2	1000m3 or more 2500m2 or more 20m3 within 7m of a water body	
Ski Area Zone	All permitted			
Airport MUZ	All permitted			
Low Density Residential	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
High Density Residential	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Residential Arrowtown	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Rural Lifestyle	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Rural Living	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Townships	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Town centres	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Business	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Industrial	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Resort – Millbrook	Likely permitted unless zone standard relating to Mill Creek is deemed to be breached.			Zone standard relating to water quality of Mill Creek.
Resort – Waterfall Park	Likely permitted			Zone standard relating to water quality of Mill Creek.
Resort – Jacks Point	Up to 100m3 Up to 200m2	Earthworks are a matter for control in association with buildings. Greater than 1000m3 and / or 2500m2 associated with golf course development	100m3 200m2 20m3 within 7m of a water body	
Rural Visitor	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Penrith Park	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Bendemeer (Note: 2 separate rules for earthworks)	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
	Up to 1000m3 2500m2		1000m3 2500m3	
Remarkables Park		Earthworks associated with a building or subdivision or controlled activity consent	Other earthworks	
Hydro Generation	As part of "operation, maintenance and enhancement of facilities".	As part of the upgrade of existing or new hydro generation facilities		

Quail Rise		As part of consent for buildings	100m3 200m2 20m3 within 7m of a water body	
Meadow Park	Otherwise permitted	As part of consent for buildings		
Frankton Flats A	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Mount Cardrona Station	Up to 200m3 Up to 400m2	Earthworks for access roads, underground car parks, walkways, farm tracks, bridle paths, utilities and mitigatory earthworks as shown on Structure plan.	200m3 400m2 20m3 within 7m of a water body	
Ballantyne Road Mixed Use Zone	Up to 100m3 Up to 200m2		100m3 200m2	
Three Parks	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body (excludes deferred urban subzone)	
Kingston Village	Up to 100m3 Up to 200m2		100m3 200m2 20m3 within 7m of a water body	
Open Space – Landscape Protection		Earthworks associated with cycling or walking trails		Earthworks not associated with cycling or walking trails