

## 22

# Earthworks

### 22.1 Purpose

The majority of earthworks are associated with subdivision and building development. The topography of the Queenstown Lakes District means that land modification through earthworks is typically associated with subdivision and development. Some modification of the natural landscape is inevitable in order to provide for development, including safe and stable building sites and access with a suitable gradient.

Earthworks can be significant and result in long term effects. Earthworks have the potential to alter landforms, landscapes, and natural features, and to have effects on heritage landscapes, to such an extent that the identity, amenity values and character of an area can be changed permanently.

During the construction phase earthworks can generate temporary effects, including visual effects, sediment run-off and erosion, dust, noise and vibration and traffic effects. On most sites these effects can be mitigated through putting in place appropriate environmental protection measures.

The District Plan seeks to encourage an integrated assessment of activities. In many instances the completed subdivision engineering works or building will remedy the effects of the earthworks.

The National Policy Statement for Freshwater Management (2014) sets out objectives and policies that direct local government to manage water in an integrated and sustainable way. This includes

improved integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land and associated ecosystems.

The provisions of this section seek to be consistent with the Otago Regional Policy Statement and Regional Plans. Where the provisions refer to aquifers, reference should be made to the Regional Plan : Water for Otago maps. Four main aquifers are noted - Hawea Basin, Wanaka Basin, Cardrona alluvial ribbon and Wakatipu Basin, and other lesser aquifers also need to be considered.

### 22.2 Objectives and Policies

#### Objective 1

**Enable earthworks that are part of subdivision, development, or access, provided that they are undertaken in a way that avoids, remedies or mitigates adverse effects on communities and the natural environment.**

#### Policies:

- 1.1 Promote earthworks designed to be sympathetic to natural topography where practicable, and that provide safe and stable building sites and access with suitable gradients.
- 1.2 Use environmental protection measures to avoid, remedy or mitigate adverse effects of earthworks.
- 1.3 Require remedial works and re-vegetation to be implemented in a timely manner.

1.4 Avoid, remedy or mitigate the long term adverse effects of unfinished projects.

1.5 Recognise that earthworks associated with infrastructure can positively contribute to the social and economic wellbeing and the health and safety of people and communities within the District.

## Objective 2

**Avoid, remedy or mitigate the adverse effects of earthworks on rural landscapes and visual amenity areas.**

### Policies:

2.1 Avoid, where practicable, or remedy or mitigate adverse effects of earthworks on Outstanding Natural Features and Outstanding Natural Landscapes.

2.2 Avoid, where practicable, or remedy or mitigate adverse visual effects of earthworks on visually prominent slopes, natural landforms and ridgelines.

2.3 Ensure cuts and batters are sympathetic to the line and form of the landscape.

2.4 Ensure remedial works and re-vegetation mitigation are effective, taking into account altitude and the alpine environment.

Note: The objectives and policies in Section 4.2 of the District Plan are also relevant to earthworks.

## Objective 3

**Ensure earthworks do not adversely affect the stability of land, adjoining sites or exacerbate flooding.**

### Policies:

3.1 Ensure earthworks, in particular, - cut, fill and retaining, - do not adversely affect the stability of adjoining sites.

3.2 Ensure earthworks do not cause or exacerbate flooding, and avoid, remedy or mitigate the adverse effects of de-watering.

3.3 Avoid the adverse effects of earthworks on steeply sloping sites, where land is prone to erosion or instability, where practicable. Where these effects cannot be avoided, to ensure techniques are adopted that remedy or mitigate the potential to decrease land stability.

## Objective 4

**Enable earthworks in the Rural General Zone, the Rural Visitor Zone and the Gibbston Character Zone that improve the efficiency, safety and economic viability of farming operations, and public recreation.**

### Policies:

4.1 Provide for earthworks associated with farming activities where they enhance the efficiency of operations, including the maintenance and improvement of track access and fencing.

4.2 Provide for earthworks to create fire breaks.

4.3 Provide for earthworks associated with remedial works necessitated by extreme weather events.

4.4 Provide for earthworks associated with public recreation, where practicable.

## **Objective 5**

**Enable the development and operation of ski-fields within Ski Area Sub-Zones.**

### **Policy:**

5.1 Provide for earthworks that enable the growth, development and consolidation of ski-fields

## **Objective 6**

**Maintain or improve water quality of rivers, lakes and aquifers.**

### **Policies:**

6.1 Avoid the adverse effects of earthworks in close proximity to water bodies, where practicable. Where these cannot be avoided, ensure that sediment control techniques are put in place to avoid, remedy or mitigate sediment run-off.

6.2 Avoid earthworks adversely affecting water aquifers including the Hawea Basin, Manaka Basin, Cardrona alluvial ribbon and Wakatipu Basin aquifers and other lesser aquifers.

## **Objective 7**

**Protect cultural heritage, including wahi tapu, wahi taonga, archaeological sites and Heritage Landscapes from the adverse effects of earthworks.**

### **Policies:**

7.1 Ensure that iwi are consulted regarding earthworks that may affect sites of significance to Maori, including Statutory Acknowledgement Areas.

7.2 Consult with Heritage New Zealand where proposed earthworks may affect any archaeological sites.

7.3 Recognise and protect the values of Heritage Landscapes from the adverse effects of earthworks.

7.4 Protect heritage buildings and structures from potential undermining and vibration effects resulting from earthworks on the same site or from sites in close proximity.

## **Objective 8**

**Provide for cleanfill capacity on appropriate sites and promote diversion of cleanfill material from landfills.**

### **Policies:**

8.1 Ensure materials for deposition at cleanfill facilities meet acceptance criteria.

8.2 Ensure that proposals for new cleanfill facilities consider the suitability of the site, in terms of accessibility, landscape, stability, visual amenity and options for long term use.

8.3 Avoid significant water bodies and their margins.

8.4 Avoid sites of cultural heritage and archaeological significance.

8.5 Ensure cleanfill facilities avoid or mitigate the adverse effects of dust, noise and traffic on neighbours and residential areas.

8.6 Ensure cleanfill sites are rehabilitated and remedial restoration works carried out in a timely manner.

## 22.3 Earthworks Rules

### 22.3.1 General Provisions / Cross Referencing

#### i District Wide Rules

(a) Attention is drawn to the following District Wide Rules that may apply in addition to the Section 22 Earthworks Rules. If District Wide Rules are not met then resource consent will be required in respect of that matter.

- (i) Rural Areas (Section 5) and Appendix 5 for Areas of Significant Indigenous Vegetation
- (ii) Heritage (Section 13) and Appendix 10 for Heritage Landscapes
- (iii) Transport (Section 14)
- (iv) Subdivision (Section 15)
- (v) Hazardous Substances (Section 16)
- (vi) Utilities (Section 17)
- (vii) Relocated Buildings and Temporary Activities (Section 19)

#### ii. Regional Plan/Airport Protection

- (a) Some earthworks may also require consents under Regional Plan provisions. Accordingly those who wish to undertake earthworks are advised to consult the relevant Regional Plans.
- (b) Figures 1 to 4 of the District Plan identify the Airport Protection Inner Horizontal and Conical Surfaces for Queenstown and Wanaka Airports and these are further described in Designations D.3 and E.2. Those who wish to

undertake earthworks in the vicinity of Queenstown and Wanaka Airport are advised to consult with the relevant requiring authority and the Civil Aviation Authority.

#### iii Archaeological Sites

(a) All archaeological sites within the District are protected from modification, damage or destruction by the Heritage New Zealand Pouhere Taonga Act 2014. An archaeological authority may need to be obtained from the Heritage New Zealand prior to commencing earthworks.

(b) Any item in the Inventory of Protected Features at Appendix 3 is subject to the rules in Section 13 of this Plan.

#### iv Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The status of some activities will be determined by the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Reference should be made to the Ministry of Environment website for a copy of the regulations, user's guide, and latest version of documents incorporated by reference in the regulations. This regulation will be applicable to earthworks on sites where a "hazardous activity or industry [HALI] has been, is more likely than not to have been or is currently operating".

#### v QLDC Earthworks Guideline

Reference should be made to "A Guide To Earthworks In The Queenstown Lakes District" to assist in the achievement of the following standards and best practice.

### 22.3.2 Activities

## 22.3.2.1 Permitted Activities

- (a) Any earthworks activity which complies with all the relevant Site Standards and is not listed as a **Controlled, Restricted Discretionary, Discretionary, Non-Complying or Prohibited Activity** shall be a **Permitted Activity**.
- (b) The following earthworks activities are exempt from Rule 22.3.3i Volume of Earthworks and Rule 22.3.3ii Height of cut and fill and slope:
  - (i) Earthworks associated with the maintenance of farm track access, fencing, firebreaks and public recreational tracks.
  - (ii) Earthworks associated with the replacement and/or removal of a fuel storage system as defined and controlled in the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.
  - (iii) Earthworks that are necessary to ensure that property and structures are protected from damage during extreme weather events and earthworks of a remedial nature that are necessary following such extreme weather events.
- (c) Earthworks in the **Ski Area Sub-Zones** are exempt from the rules in Section 22 of the District Plan.
- (d) Earthworks in any of the **Special Zones** that are listed in Section 12 of the District Plan except for the **Rural Visitor Zone and Frankton Flats B Activity Area E1 (for volume triggers only)** are

exempt from the rules in Section 22 of the District Plan.

- (e) Earthworks as listed in (i)-(iii) below are also exempt from the rules in Section 22 of the District Plan:
  - (i) That are associated with a subdivision consented under Rule 15.2.20; or
  - (ii) That are associated with a subdivision consented prior to [the date of release of Council decisions on submissions to PC49], or
  - (iii) That are associated with the construction of a house within an approved residential building platform.

## 22.3.2.2

### Controlled Activities

- (a) The following shall be **Controlled Activities** provided they are not listed as a **Permitted, Restricted Discretionary, Discretionary, Non-Complying or Prohibited Activity** and they comply with all the relevant Site Standards:
  - In the **Open Space Zones** the formation of cycling and walking trails (including boardwalks and viewing platforms) and associated earthworks, is a **Controlled Activity**, with matters in respect of which Council has reserved control being:
    - (i) The nature and scale of the earthworks
    - (ii) Environmental protection measures
    - (iii) Remedial works and revegetation
    - (iv) The effects on landscape and visual amenity values
    - (v) The effects on land stability and flooding

- (vi) The effects on water bodies
  - (vii) The effects on cultural and archaeological sites
  - (viii) Noise.
  - (ix) The effects of earthworks on the natural character of wetlands, lakes and rivers and their margins
  - (x) The location of trails and viewing platforms.
  - (xi) The size of viewing platforms and boardwalks.
  - (xii) Cumulative effects associated with the number of other trails within the Zone.
- 22.3.2.3 Restricted Discretionary Activities**
- (a) Earthworks that are not listed as a **Permitted, Controlled, Discretionary, Non-Complying** or **Prohibited Activity** and that do not comply with one or more of the Site Standards within Rule 22.3.3 shall be a **Restricted Discretionary Activity**.
  - (b) The matters in respect of which Council has reserved discretion are:
    - (i) The nature and scale of the earthworks
    - (ii) Environmental protection measures
    - (iii) Remedial works and revegetation
    - (iv) The effects on landscape and visual amenity values
    - (v) The effects on land stability and flooding
    - (vi) The effects on water bodies

- (vii) The effects on cultural and archaeological sites
- (viii) Noise.

**22.3.2.4 Discretionary Activities**

The following are **Discretionary Activities**, provided they are not listed as **Permitted, Controlled, Restricted Discretionary, Non-Complying** or **Prohibited Activities**

**Cleanfill Facilities**

- (a) Creation of a new cleanfill facility, providing that the cleanfill material is strictly limited to acceptable materials being the materials listed in the definition of Cleanfill.

**Bulk Earthworks**

- (b) Earthworks with a total volume of over 50,000 cubic metres. The maximum total volume of such earthworks shall be calculated per site, within one consecutive 12 month period.

**22.3.2.5 Non-Complying Activities**

The following are **Non-Complying Activities**, providing that they are not listed as **Permitted, Controlled, Restricted Discretionary, Discretionary** or **Prohibited Activities**.

**Cleanfill Material**

- (a) The introduction of any material other than an acceptable material prescribed in Rule 22.3.2.4(a) into a cleanfill facility or into any other earthworks.

**Open Space Zones**

- (b) Earthworks not associated with the creation of cycling or walking trails (including boardwalks and viewing platforms) and associated earthworks as provided for in Rule 22.3.2.2.

## **Cromwell-Frankton A National Grid Electricity Line**

- (c) Any earthworks, cleanfill or mining activity which does not comply with Rule 22.3.3viii(i)-(iii) with respect to the Cromwell-Frankton A National Grid Electricity Line.

## **22.3.2.6 Non-notification of applications**

Any application for resource consent for the following matters shall not require the written approval of affected parties and shall not be notified or limited-notified:

- (i) Earthworks - except for earthworks involving special circumstances such as blasting, presence of substantial groundwater or earthworks located within any required building setback from an internal or road boundary (unless entirely within an approved residential building platform).
- (ii) A breach of Rule 22.3.3 i Volume of Earthworks in Tier 5 Zones (see Table 22.1), except where the site adjoins a Residential Zone or Open Space Zone.
- Any application for resource consent in respect of Rule 22.3.3 viii Cromwell-Frankton A National Grid Electricity Line with the written approval of the tower owner.

## **22.3.3 Site Standards**

### **i Volume of Earthworks**

The maximum total volume of earthworks (m<sup>3</sup>) shall not exceed that specified in Table 22.1.

- (a) The maximum total volume of earthworks shall be calculated per site, within one consecutive 12 month period.

- (b) Volume shall mean the sum of all earth that is moved within a site and includes any combination of cut and fill, removing fill off-site and replacing fill on site - refer Interpretive Diagrams 5 (a), (b) and (c).

### **ii Height of cut and fill and slope**

- (a) Rural General Zone, Rural Visitor Zone and Gibbston Character Zone:

- (i) No road, track or access way shall have an upslope cut or batter greater than 1 metre in height, measured vertically.
- (ii) All cuts and batters shall be laid back such that their angle from the horizontal is no more than 65 degrees.
- (iii) The maximum height of any fill shall not exceed 2 metres.

- (b) All other Zones:

- (i) The maximum height of any cut shall not exceed 2.4 metres.
- (ii) The maximum height of any fill shall not exceed 2 metres.
- (iii) The vertical height of any cut or fill shall not be greater than the distance of the top of the cut or the toe of the fill from the site boundary (see Interpretive Diagram 6) , except where the cut or fill is retained, in which case it may be located up to the boundary, if less or equal to 0.5 metre in height.

### **iii Fill**



All fill for residential building platforms and associated retaining walls is to be in accordance with the requirements of NZS 4404:2010 and/or NZS 4431:1989 as appropriate.

#### iv Environmental Protection Measures

- (a) Any person carrying out earthworks shall implement sediment and erosion control measures to avoid sediment effects beyond the boundary of the site.
- (b) Any person carrying out earthworks shall implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site.
- (c) Areas of exposed soil are to be vegetated / re-vegetated within 12 months from the completion of works.

Table 22.1

Tier	Zones	Maximum Total Volume
Tier 1	Residential Arrowtown Historic Management Zone Arrowtown Town Centre Zone Town Centre Zone Special Character Areas Makarora Rural Lifestyle Zone	100m <sup>3</sup>
Tier 2	Open Space Zone Heritage Landscapes	200m <sup>3</sup>
Tier 3	Low Density Residential Zone High Density Residential Zone (Sub-Zone C) Township Zone – Hawea, Luggate, Albert Town, Makarora, Glenorchy, Kingston, Kinloch	300m <sup>3</sup>
Tier 4	High Density Residential Zone (Sub-Zones A and B) Rural Residential Zone Rural Lifestyle Zone (except Makarora)	400m <sup>3</sup>
Tier 5	Business and Industrial Zones Town Centre Zones (except Arrowtown and Special Character Areas) Queenstown Airport Mixed Use Zone Frankton Flats Special Zone B Activity Area E1	500m <sup>3</sup>
Tier 6	Rural General Zone (except in an area containing significant indigenous vegetation (refer Rule 5.3.5.1v) and in Heritage Landscapes) Gibston Character Zone Rural Visitor Zone	1000m <sup>3</sup>
Tier 7	Any zone not listed above in Tier 1 to 6 (except for those subject to Rule 22.3.2.1(c) and (d))	100m <sup>3</sup>

## v Water bodies

- (a) Earthworks within 7m of the bed of any water body shall not exceed 20m<sup>3</sup> in total volume, within one consecutive 12 month period.
- (b) Any material associated with earthworks activity shall not be positioned within 7m of the bed of any water body or where it may dam, divert or contaminate water.
- (c) Earthworks shall not:
  - (i) cause artificial drainage of any groundwater aquifer;
  - (ii) cause temporary ponding of any surface water.

## vi Cultural heritage and archaeological sites

- (a) Earthworks shall not modify, damage or destroy any waahi tapu, waahi taonga or archaeological sites that are identified in Appendix 3 of the Plan.
- (b) In the Rural General Zone, earthworks within areas identified as Ngai Tahu Statutory Acknowledgment Areas shall not exceed 20m<sup>3</sup> in volume.

## vii Construction Noise

- (a) Construction noise arising from earthworks activities shall be subject to the limits in, and shall be measured and assessed in accordance with, NZS 6803:1999 "Acoustics – Construction Noise". This Standard covers sound from construction work which is of a limited duration.

- (b) Where the sound from a construction activity is part of the overall sound emission from an ongoing land use activity, then the overall sound level shall meet the relevant standard within the zone in which the activity is located, or the higher of the two values for the duration of the earthworks activity.

## viii Cromwell-Frankton A National Grid Electricity Line

- Any earthworks, cleanfill or mining activity within 12m of a support structure (tower) or within 12m of the centreline of the Cromwell - Frankton A line shall not:
- (i) Exceed a depth of 300mm within 12m of any National Grid support structure (tower) foundation.
  - (ii) Compromise the stability of a National Grid support structure.
  - (iii) Result in a reduction in the ground to conductor clearance distances below what is required by Table 4 of the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34: 2001).

Provided that the following are exempt from point (i) above:

- Earthworks for a network utility within a transmission corridor, as part of a transmission activity, or for electricity infrastructure (including generation infrastructure); or
- Earthworks undertaken as part of agricultural or domestic cultivation, or repair, sealing or re-sealing of a road, footpath, driveway or farm track; or
- Vertical holes not exceeding 500mm in diameter provided they:
  - i. are more than 1.5m from the outer edge of pole support structure or stay wire; or

- ii. are a post hole for a farm fence or horticulture structure and are more than 5m from the visible outer edge of a tower support structure foundation.

## **22.4 Resource Consents – Assessment Matters**

In considering whether or not to grant consent or impose conditions, the Council shall have regard to, but not be limited by, the following assessment matters:

- i **Nature and scale of the Earthworks**
  - (a) Whether the earthworks are a necessary part of subdivision, development or access construction and the extent to which the subdivision engineering works, building or finished project will remedy the effects of the earthworks.
  - (b) Whether the design of the finished earthworks is sympathetic to natural topography, provides safe and stable building platforms and access with suitable gradient.
  - (c) Whether earthworks will be completed within a short period, reducing the duration of any adverse effects.
  - (d) Whether the mitigation measures proposed, reflect the level of environmental effects from the project.

In addition, in the Rural General Zone, Rural Visitor Zone and Gibbston Character Zone:

- (e) Whether the proposed earthworks are associated with farming activities and will enhance operational efficiency including maintenance and improvement of track access and fencing.

- (f) Whether the earthworks are to create a fire break and whether the area is identified on the Natural Hazards Register as a high fire risk.

- (g) Whether the earthworks are associated with public recreation trails that enhance recreational opportunities and access.

Note: Assessment matters in Rules 5.4.2, 5.8.2 and 12.5.2 may also be relevant in the context of the Rural General Zone, Gibbston Character Zone and Rural Visitor Zone, respectively.

- ii **Environmental Protection Measures**

- (a) Whether, and to what extent proposed sediment and erosion control techniques are adequate to ensure sediment remains on-site.

- (b) Whether appropriate measures to control dust emissions are proposed, including from associated transport on and off the site.

- (c) Whether the earthworks will adversely affect stormwater and overland flows, and create adverse effects off-site.

- (d) Hours of operation, including whether the activity will generate noise and vibration effects, which detract from the amenity values of the surrounding area.

### iii Remedial works and revegetation

- (a) The proposed rehabilitation of the site and to what extent re-vegetation will mitigate any adverse effects.
- (b) The timeframes proposed for remedial works and revegetation.
- (c) The effectiveness of the remedial works and re-vegetation taking into account altitude and the alpine environment.

### iv Effects on rural landscape and visual amenity values, including on Outstanding Natural Features and Outstanding Natural Landscapes.

- (a) Whether and to what extent, the scale and location of any cut and fill will adversely affect:
  - (i) the visual quality and amenity values of the landscape;
  - (ii) the natural landform of any ridgeline or visually prominent area;
  - (iii) the visual amenity values of surrounding sites.
- (b) Whether the earthworks will take into account the sensitivity of the landscape.
- (c) The potential for cumulative effects on the natural form of the existing landscape.
- (d) Whether and to what extent the earthworks create an area that is inconsistent with the character of the surrounding landscape.

- (e) Whether the location and/or design of any new tracking can be modified in order to decrease the effects on the stability, visual quality and amenity values of the landscape.

### v Land Stability and Flooding

- (a) Where earthworks are proposed on a site gradient > 18.5 degrees (1 in 3), whether a geotechnical report has been supplied to assess the stability of the earthworks
- (b) Whether the earthworks will adversely affect the stability of neighbouring sites.
- (c) Whether cut, fill and retaining are done in accordance with engineering standards.
- (d) Whether the earthworks will change surface drainage, and whether the adjoining land will be at a higher risk of inundation, or a raised water table.
- (e) Whether and to what extent earthworks are necessary in order to undertake flood protection works recognising the long-term benefits of effective flood mitigation measures on the surrounding environment.

### vi Water bodies

- (a) The effectiveness of sediment control techniques.
- (b) Whether and to what extent any groundwater is likely to be affected, and if any mitigation measures are proposed to address likely effects.
- (c) The effects of earthworks on the natural character of wetlands, lakes and rivers and their margins.

**vii Impacts on Sites of Cultural Heritage Value:**

- (a) The extent to which the activity modifies or damages waahi tapu or waahi taonga, and whether tangata whenua have been notified.
- (b) The extent to which the activity affects Ngai Tahu's cultural, spiritual, historic and traditional association with a Statutory Acknowledgment Area having regard to the relevant provisions of the Kai Tahu ki Otago and Te Ao Marama Incorporated Natural Resource Management Plans.
- (c) Whether the subject land contains a recorded archaeological site, and if so the extent to which the proposal would affect any such site and whether any necessary archaeological authority has been obtained from Heritage New Zealand.
- (d) The extent to which earthwork activities adversely affect values within Heritage Landscapes of the District.
- (e) The extent to which earthworks activities have the potential to adversely affect heritage buildings or structures located in close proximity to the site of the proposed earthworks and the adequacy of any avoidance or mitigation measures put forward to address such risks or effects.

**Note:** A recorded archaeological site is a site recorded via the New Zealand Archaeological Association's Site Recording Scheme and information is available at [www.archsite.org.nz](http://www.archsite.org.nz).

**viii Bulk Earthworks**

In addition to the assessment matters above:

- (a) Whether and the extent to which the earthworks are an integral part of subdivision and land use.
- (b) Whether the effect of the earthworks will be temporary and the extent to which revegetation and future buildings will mitigate the visual effects.
- (c) Provision of engineering and geotechnical assessments that reflect the scale of the bulk earthworks.
- (d) Whether there will need to be off-site disposal of excess material and assessment of any traffic effects.
- (e) Whether a comprehensive site management plan has been supplied and the adequacy of sediment and erosion control, dust control, vibration and noise, traffic, hours of operation, health and safety and any other measures employed to reduce the impact on residential neighbours and other sensitive receivers such as aircraft operating in the Airport Protection Inner and Conical Surfaces for Queenstown and Wanaka Airports.
- (f) Whether the use of legal instruments, such as a bond to ensure work is completed, are proposed.

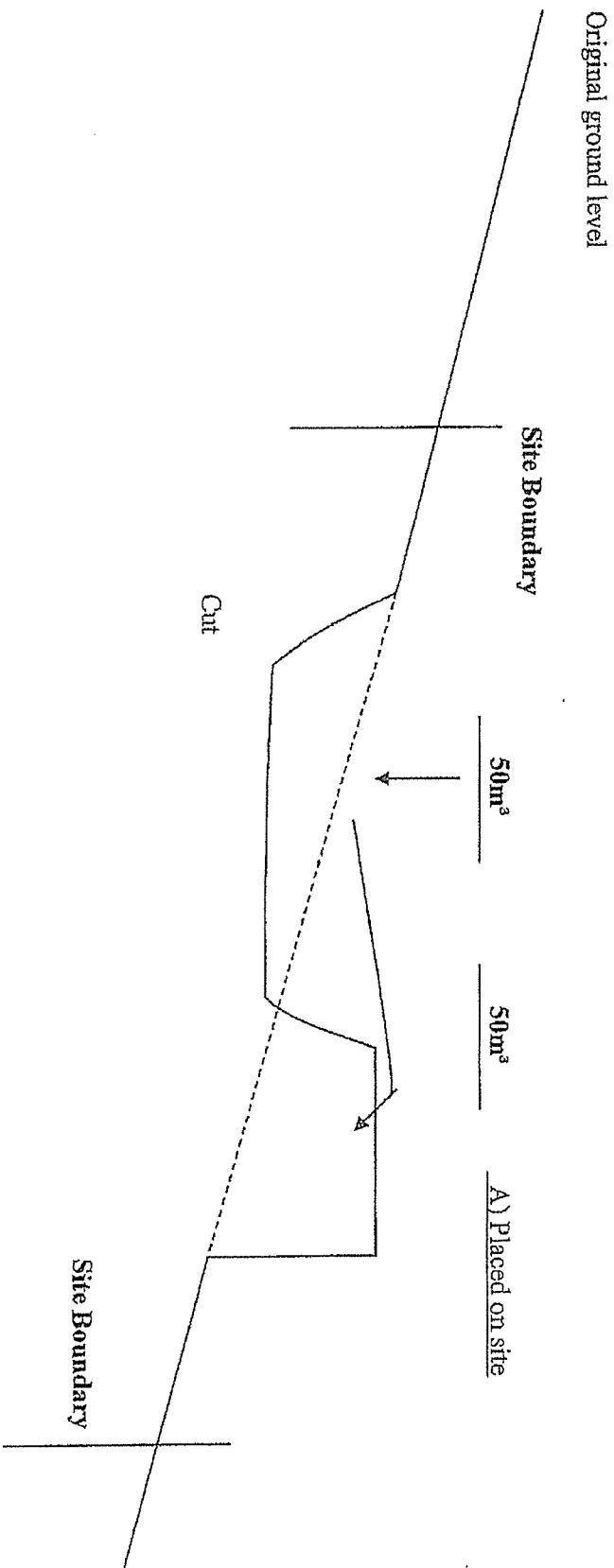
**ix Cleanfill Facilities and Cleanfill Material**

- (a) Whether the source and type of cleanfill material is suitable.
- (b) The suitability of the topography for cleanfill development and whether the site has been demonstrated to be stable.
- (c) Whether the location of a new cleanfill facility meets Policies 8.2 to 8.5

- (d) Whether a comprehensive site management plan has been supplied and the adequacy of sediment and erosion control, dust control, vibration and noise, traffic, hours of operation, health and safety and any other measures employed to reduce the impact on residential neighbours.
- (e) Provision of plans addressing site rehabilitation, remedial restoration works and timeframes.
- (f) Whether the use of legal instruments such as a bond to ensure work is completed is necessary and appropriate.

5(a) The total volume of earthworks means the total volume of all earthworks that is moved within a site as below:

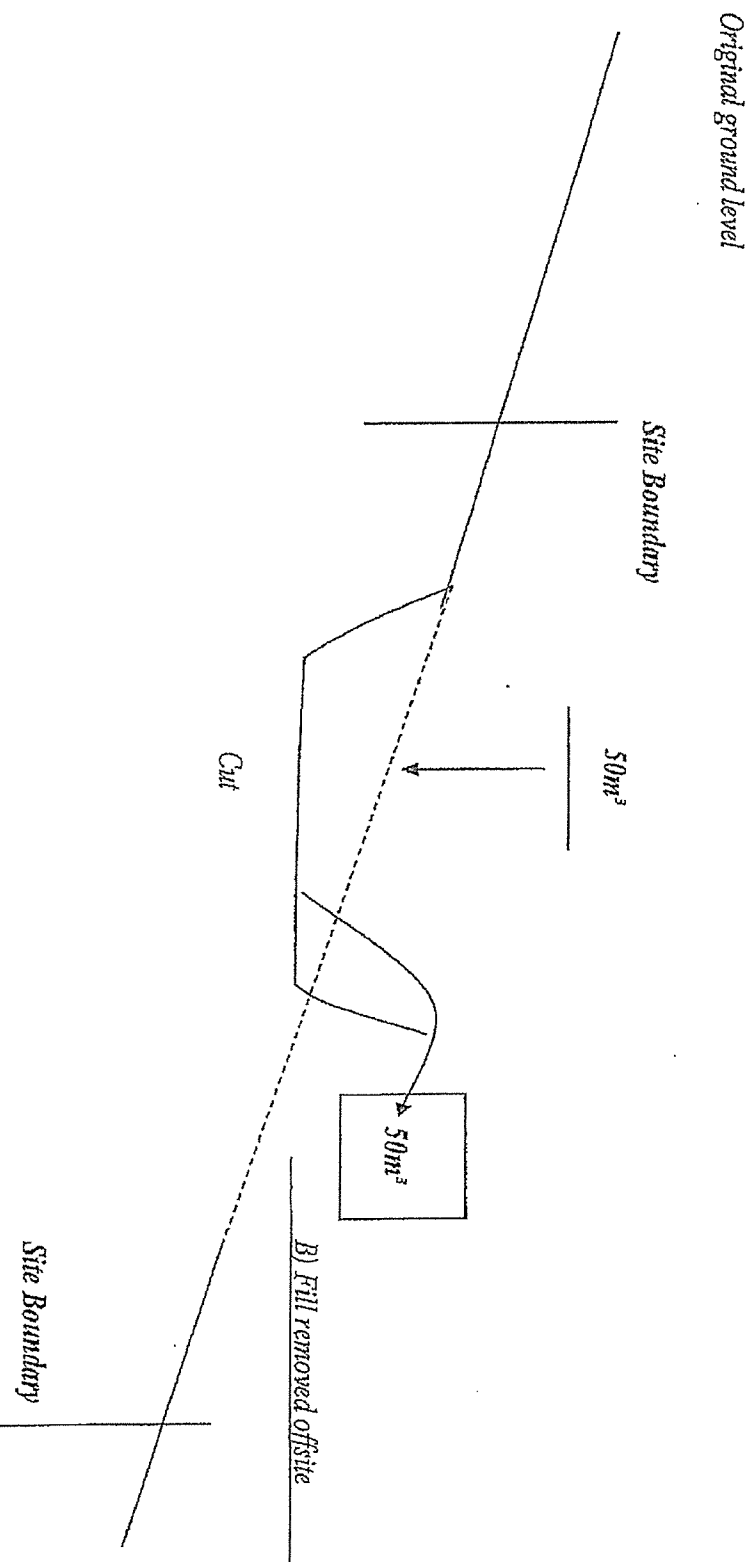
A) Total Volume =  $50\text{m}^3$  (Cut) +  $50\text{m}^3$  (Fill)  
=  $100\text{m}^3$





5 (b) The total volume of earthworks means the total volume of all earthworks that is moved within a site. For Example:

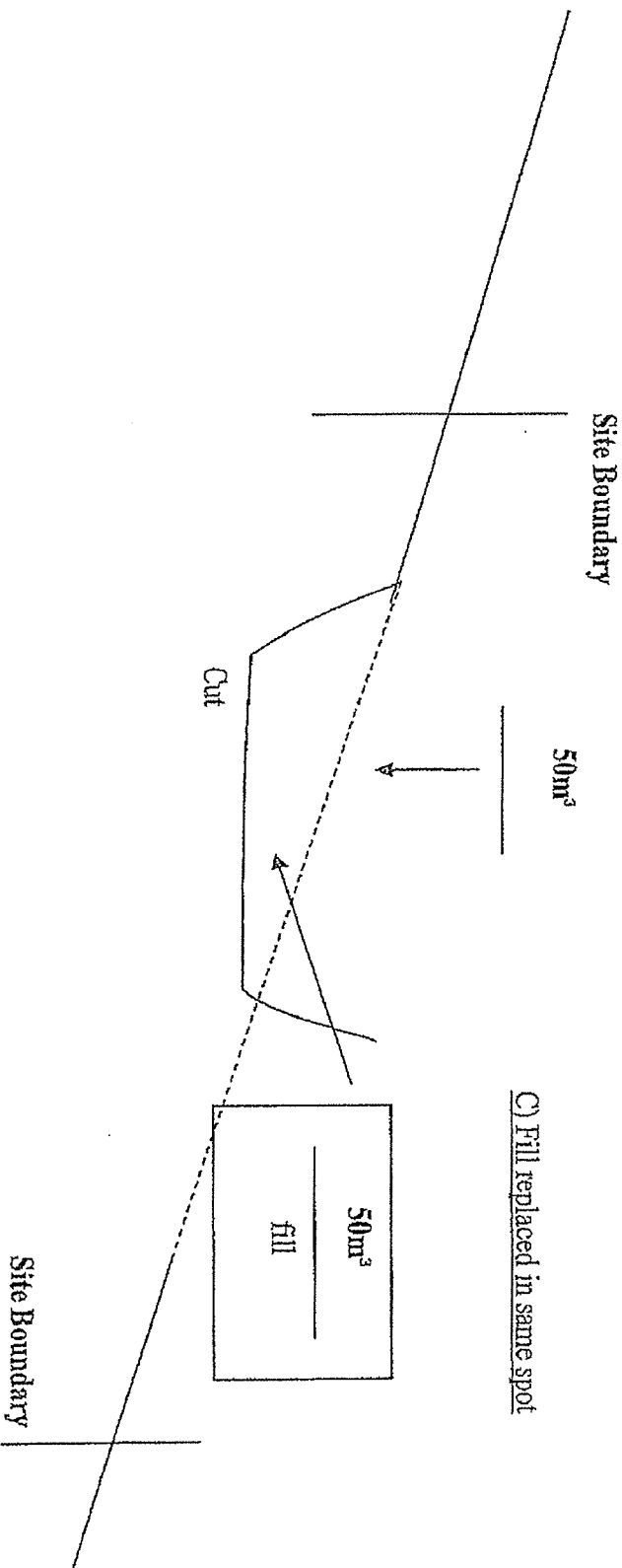
B) Total Volume =  $50m^3$  (Cut) removed off-site  
=  $50m^3$



5 (c) The total volume of earthworks means the total volume of all earthworks that is moved within a site for Example:

C) Total Volume =  $50m^3$  (Cut) removed, refilled in the same spot  
=  $100m^3$

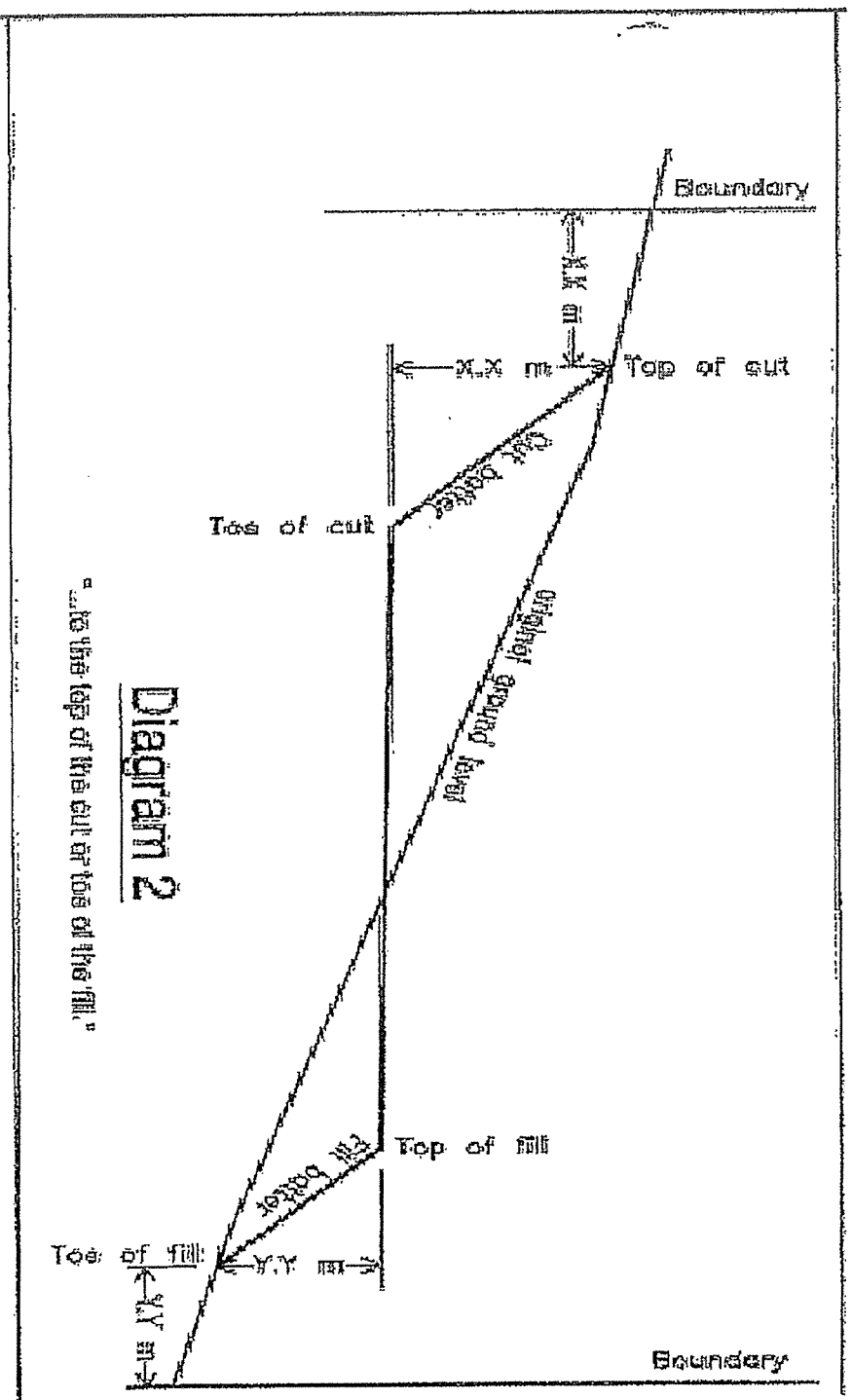
Original ground level



C) Fill replaced in same spot

# EARTHWORKS - RULES

6. The distance between the boundary and the cut or fill shall be at the top of the cut batter/slope/face or to the toe of the fill batter/slope/face (as below)



# EARTHWORKS - RULES