



Planning for the Aggregate and Quarry Industry

Background Issues Paper

Prepared for the Aggregate and Quarry Association of New
Zealand and the Ministry for the Environment

May 2009

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Executive summary

The purpose of this report is to discuss the resource management issues facing the quarry industry. It seeks to identify how a range of regional councils and territorial authorities plan for aggregate resources and address the effects of quarry operations in terms of their duties and responsibilities under the Resource Management Act 1991 (RMA). The report is targeted at both officers and politicians within regional councils and territorial authorities and the quarry industry generally.

The Aggregate and Quarry Association of New Zealand (AOA) is working with the Ministry for the Environment (MFE) and Local Government New Zealand (LGNZ) to prepare a 'Planning Guidance Note' for quarrying that can be included on the Quality Planning website. The Quality Planning website is hosted by MFE, in partnership with the New Zealand Planning Institute, Local Government New Zealand, the Resource Management Law Association and the New Zealand Institute of Surveyors. The purpose of the website is to promote best practice in all aspects of RMA practice such as plan development and consent processing.

This report identifies that there are a range of resource management issues facing the quarry industry and that these vary across the country. The issues discussed in this report include:

- Identification and protection of the aggregate resource
- Water quality, water use and extraction
- Earthworks, stockpiling and overburden
- Vegetation removal and ecological effects
- Rehabilitation
- Visual effects
- Dust and air quality effects
- Noise effects
- Vibration effects
- Reverse sensitivity effects
- Other issues, including the national importance of aggregate and the use of existing use rights

This report notes that some of these issues are specific to the quarry industry, as opposed to other extractive industries. It also demonstrates that the planning methods adopted within regional and district plans to address these issues vary between regional councils and territorial authorities.

This report does not recommend a particular planning approach for addressing issues facing the quarry industry or for the particular form or content of any potential Quality Planning Guidance Note. It recognises that elements from each of the approaches discussed in this report and potentially others not covered in this report may be needed to develop a recommended path forward.

This report seeks feedback on approaches currently used, to identify what works and what does not, to assist with further research and consultation towards the development of a Quality Planning Guidance Note for quarrying.

Key questions that require further discussion include:

- What are the main resource management issues facing the quarry industry in your region or district? Are there are others not mentioned in this document?
- Do the examples provided in this paper reflect current practice? How effective are the approaches discussed in this paper? Are there issues associated with their implementation?
- Are there approaches not covered in this paper that should be included as examples of best practice for the quarry industry?
- Is there other case law on resource management issues relevant to the quarry industry that should be addressed?
- How do you think the resource management issues facing the quarry industry are best addressed by regional councils or territorial authorities?

Summary of Examples Included in Background Issues Paper

This table is not intended to be a comprehensive and complete overview of the approaches to address the resource management issues associated with quarries. It provides an overview of the examples discussed in the Background Issues Paper to provide a quick reference and to assist in the identification of additional approaches that should be included in a guidance note for the Quality Planning Website. It is anticipated that these examples and others will be discussed at the planning conference to highlight gaps in the background paper and identify best practice approaches to address resource management issues facing the quarry and aggregate industry.

| Issues | General Approaches to Issues | | | | | | Issue Specific Methods | | | | |
|--------------------------------------|--|--|---|---|--|--|---|---|--|---|--|
| | Objectives, Policies & Methods | Quarry Zones | Assessment Criteria | Activity Status & Conditions | Environment Guidelines | Quarry Management Plan | Best Practicable Option | Identifying Aggregate Resource | Extraction & Flood Protection | Offsetting | |
| Protection of aggregate resources | <ul style="list-style-type: none"> • Auckland RPS • Proposed Wellington RPS • Waikato RPS • Proposed Waikato DP • Hastings DP | <ul style="list-style-type: none"> • Whangarei DP • Papakura DP • Waitakere DP • Franklin DP | | | | | | <ul style="list-style-type: none"> • Proposed Wellington RPS • Waikato RPS • Hastings DP | | | |
| Water quality, use and extraction | <ul style="list-style-type: none"> • Waikato RP | <ul style="list-style-type: none"> • Papakura DP • Whangarei DP | <ul style="list-style-type: none"> • Proposed Auckland ALWP • Proposed Wellington RPS • Waikato RP | <ul style="list-style-type: none"> • Proposed Auckland ALWP • Waikato RP | <ul style="list-style-type: none"> • Waikato RP • Hawke's Bay RP | <ul style="list-style-type: none"> • Waitakere City DP | <ul style="list-style-type: none"> • Franklin DP | | <ul style="list-style-type: none"> • Hawke's Bay RP | | |
| Earthworks, stockpiling & overburden | | <ul style="list-style-type: none"> • Waitakere DP | | <ul style="list-style-type: none"> • Waikato RP • Papakura DP • Franklin DP | | <ul style="list-style-type: none"> • Franklin DP | | | | | |
| Vegetation removal | | | | <ul style="list-style-type: none"> • Waikato RP • Hastings DP | | <ul style="list-style-type: none"> • Waitakere DP • Franklin DP • Wellington DP | | | | <ul style="list-style-type: none"> • Plan Change 13: Papakura DP | |
| Rehabilitation | <ul style="list-style-type: none"> • Auckland RPS • Papakura DP | <ul style="list-style-type: none"> • Whangarei DP | <ul style="list-style-type: none"> • Hurunui DP | <ul style="list-style-type: none"> • Waikato RP • Franklin DP | | <ul style="list-style-type: none"> • Wellington DP • Franklin DP | | | | | |
| Visual effects | | <ul style="list-style-type: none"> • Whangarei DP • Franklin DP | | <ul style="list-style-type: none"> • Tasman RP • Franklin DP • Hastings DP | | | | | | | |
| Dust and air quality effects | <ul style="list-style-type: none"> • Auckland RPS • Proposed Wellington RPS • Canterbury RP | <ul style="list-style-type: none"> • Whangarei DP | <ul style="list-style-type: none"> • Canterbury RP • Whangarei DP | <ul style="list-style-type: none"> • Proposed Auckland ALWP | <ul style="list-style-type: none"> • Hawke's Bay RP | | | | | | |
| Noise effects (incl. transport) | <ul style="list-style-type: none"> • Kapiti Coast DP | <ul style="list-style-type: none"> • Whangarei DP • Papakura DP • Franklin DP | <ul style="list-style-type: none"> • Whangarei DP • Franklin DP | <ul style="list-style-type: none"> • Waitakere DP • Papakura DP • Franklin DP • Waikato DP • Kapiti Coast DP | | | | | | | |
| Vibration effects | | <ul style="list-style-type: none"> • Papakura DP • Franklin DP | | <ul style="list-style-type: none"> • Whangarei DP • Franklin DP • Matamata-Piako DP | | | | | | | |
| Reverse sensitivity | <ul style="list-style-type: none"> • Proposed Wellington RPS • Canterbury RP • Proposed Waikato DP | <ul style="list-style-type: none"> • Papakura DP | <ul style="list-style-type: none"> • Proposed Waikato DP • Franklin DP • Hurunui DP | <ul style="list-style-type: none"> • Nelson RP • Tasman RP | | | | | | | |

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1 Introduction

1.1 Purpose of Report

The purpose of this report is to discuss the resource management issues currently facing the quarry industry, and identify how these issues can be managed under the Resource Management Act 1991 (RMA). This report is focused on both on managing the effects associated with quarrying and effective planning for the aggregate resource. The report is targeted at officers and politicians from local authorities and the aggregate and quarry industry generally.

The resource management issues associated with quarrying are wide and varied. They can include such matters as the impact that an extractive industry can have on natural ecosystems and landscapes through to the effects of noise from truck movements associated with the operation of a quarry on the amenity of the surrounding area. How these issues are addressed varies between regions and districts, as does the nature of the quarry industry and the varying factors affecting it.

The Aggregate and Quarry Association of New Zealand (AQA) and its members take responsibilities regarding the environment seriously. AQA has an Environmental Policy to encourage its members to minimise their impact on the environment whilst encouraging continual improvement in environmental performance.

However, the focus of this report is the approaches used by regional policy statements, regional plans and district plans to address resource management issues facing the quarry industry. Methods used to address resource management issues facing the quarry industry, such as Quarry Management Plans and consent conditions, are only looked at to the extent that they are referred to as methods or approaches in these planning documents.

At this time, no view has been taken as to what form, content or approaches should be recommended for a 'Planning Guidance Note' addressing issues facing the quarry industry. Elements from a range of the approaches discussed in this report and methods not covered in this report may be needed to develop an industry guidance note. Further research and consultation with local government and industry representatives is required.

1.2 Structure

The report is structured as follows:

- Section 1 outlines the purpose of the report and provides a summary of the key resource management issues facing the quarry industry, activity and resource consent type requirements
- Section 2 outlines the some of the approaches used in plans and policy statements to address the resource management issues associated with the quarry industry

- Section 3 outlines useful case law to address particular issues facing the quarry industry
- Section 4 provides a summary of the report and outlines future work.

1.3 Process to develop paper

The New Zealand Aggregate and Quarry Association (AOA) is working with the Ministry for the Environment (MFE) and Local Government New Zealand (LGNZ) to prepare a planning guidance note for quarrying that can be included on the Quality Planning website. This website is hosted by MFE with a purpose of promoting best practice in all aspects of RMA practice including the plan preparation process and the content (topics) of plans. The website is for use by council practitioners, consultants and other people involved in resource management practice under the RMA.

There are a number of steps that need to be completed to have the guidance note accepted for inclusion on the Quality Planning website. These steps are outlined in Table 1.

Table 1: Planning Guidance Note process

| Process | Timeframe |
|---|------------------------|
| Planning Conference for Quarrying <i>Presentation of a background issues paper and workshops to seek feedback on issues and set out development of the Guidance Note.</i> | June 2009 |
| Develop Draft Guidance Note <i>Using feedback received from Planning Conference for Quarrying.</i> | June – August 2009 |
| Planning Workshop for Quarrying <i>Small number of relevant local authority planners with representatives from MFE, LGNZ and quarry operators to review draft Guidance Note.</i> | August 2009 |
| Finalise Industry Guidance Note <i>Quality Planning review process involving an independent review before being placed on the Quality Planning website.</i> | August – November 2009 |

1.4 Background

This report focuses on approaches to address resource management issues facing the quarry industry. Under the RMA there are a number of planning documents that affect the quarry industry and determine whether and what type of resource consent may be required. This includes regional policy statements and regional and district plans. Table 2 provides a summary of the types of resource consents and rule requirements for regional councils, territorial authorities and unitary authorities.

Table 2: Summary of activity and resource consent requirements

| Local Authority | Type of Resource Consent | Type of rules in council plan |
|------------------|--|--|
| Regional Council | Land use consent Water permit Discharge permit Coastal permit | <i>Permitted activity</i> – allowed without a consent provided they comply with standards, terms and conditions in the council plan. <i>Controlled activity</i> – will be granted a consent |

| | | |
|--|---|---|
| Territorial Authority (District or City Council) | Land use consent Subdivision consent | subject to conditions on the matters specified in the council plan. <i>Restricted discretionary activity</i> – may be granted a consent based on council's consideration of specified matters. |
| Unitary Authority | Land use consent Subdivision consent Water permit Discharge permit Coastal permit | <i>Discretionary activity</i> – may be granted a consent based on the council's consideration of the overall application. <i>Non-complying activity</i> – contravenes the plan or is not specifically referred to, but a consent may be granted if adverse effects on the environment are minor, or the activity is not contrary to the objectives and policies of the council plan. <i>Prohibited activity</i> – cannot apply for a consent. |

Regional councils and unitary authorities are also required to prepare a regional policy statement for their region. Regional and district plans are required to give effect to regional policy statements through their objectives, policies and rules.

1.5 Key Issues

The following is a summary of the key resource management issues facing the quarry industry. Approaches on each of these issues are provided in section 2 and also addressed in section 3 on case law.

- Identification and protection of the aggregate resource
- Water quality, water use and extraction
- Earthworks, stockpiling and overburden
- Vegetation removal and ecological effects
- Rehabilitation
- Visual effects
- Dust and air quality effects
- Noise effects
- Vibration effects
- Reverse sensitivity effects
- Other issues, including the national importance of aggregate and the use of existing use rights.

2 Approaches to Issues

There is no simple solution to addressing the resource management issues affecting the quarry industry. Each council will develop its own response with regard to the characteristics and issues of their region or district. This can result in inconsistent approaches between regional councils and/or territorial authorities.

This report discusses a sample of regional and district objectives, policies and rules that deal with specific issues facing the quarry industry. Note that this range of approaches discussed is not exhaustive and is merely a sample from different regional councils and territorial authorities around New Zealand.

2.1 Identification and protection of aggregate resources

2.1.1 General policies to protect the aggregate resource

Explanation

A common approach is to have general objectives, policies and rules aimed at protecting aggregate resources throughout the entire region or district. These policies often recognise the importance of aggregate to the economy and development of the region or district. This approach may be used generally and as a guide for more specific management methods to identify and protect actual or potential aggregate resources throughout the region or district.

Some local authorities also have specific objectives and policies aimed at protecting access to aggregate resources. This recognises that the economic viability of quarry operations is highly dependent on reasonable access to the resource. This is because aggregate has a low value relative to weight so the costs increase significantly the further or longer they have to travel. In addition to distance, access to aggregate resources is also governed by the location of transport corridors and competing or sensitive neighbouring land-uses.

Approaches

Proposed Regional Policy Statement for the Wellington Region

This proposed Wellington RPS provides a policy that requires particular regard to be given to the social, economic, and environmental benefits from utilising mineral resources within the region. Policy 60 requires particular regard to be given to protect significant mineral resources from incompatible or inappropriate land uses. Examples of methods include the use of buffer areas where sensitive activities may be restricted. This policy applies to all decisions on resource consents, notices of requirement, and changes to regional and district plans.

Waikato Regional Policy Statement

The Waikato Regional Policy Statement identifies access to mineral resources of regional significance as one of the two key resource management issues for minerals. The RPS recognises that the ability to extract mineral resources can be compromised through land uses or developments above or in close proximity to mineral deposits. One objective of the Waikato RPS is that the ability to access and extract mineral resources is not unnecessarily restricted by sensitive activities.

Auckland Regional Policy Statement

One of objectives in the Minerals section of the Auckland Regional Policy Statement is to ensure that mineral extraction activities and mineral deposits which are presently or potentially valuable for development in the Region are not unnecessarily compromised, and the region's need for rock material continues to be met. This objective recognises the high economic cost and environmental impact of transporting aggregate resources from outside the region. This objective is supported by policy 13.4.2 which states:

"The development and use of land in the Region will be managed so as to:

- i. Protect existing mineral extraction sites from activities which would unduly limit their operations, to the detriment of the regional environment, including its economy.*
- ii. Protect areas of minerals which have the potential to provide cost-effectively for the Region's future needs from activities which may compromise the ability to extract, or provide access to, those deposits.*
- iii. Provide the option to extract mineral resources during the development, or redevelopment of urban areas."*

Proposed Waikato District Plan

Section 4.5A¹ of the Proposed Waikato District Plan has policies that recognise that inadequate mineral supplies will inhibit the community's ability to provide for its social and economic well-being. There is a policy for mineral extraction that requires nationally and regionally significant mineral resources to be recognised for their potential contribution to social and economic well-being. The proposed plan also identifies mineral extraction sites on planning maps and states that extraction of mineral resources from these sites should not be compromised by new use or development in areas on or close to those sites. This is supported by policy 4.5A which states:

Activities that are sensitive to the effects of mining or associated mineral haulage should be located and designed to avoid, remedy or mitigate adverse effects on the utilisation of actively exploited mineral resources, so that mineral utilisation is not constrained.

¹ Note that section 4.5A of the Proposed Waikato District Plan is subject to appeal

Hastings District Plan

In the 'mineral, aggregate and hydrocarbon extraction district wide activity' section of the Hastings District Plan there are a number of objectives and policies aimed at protecting mineral resources in the district. One of the objectives is to provide for the efficient and economic utilisation of mineral resources of the Hastings District, in order to meet international, national and district demands for such resources, and to meet the social and economic needs of Hastings District.

Discussion

General policies are a useful method to recognise the importance of aggregate resources and ensure these are considered in RMA decision making. These policies should be supported by an explanation that notes the importance of aggregate supply at the national level and links this to infrastructure provision and development for the district and/or region. General policies that protect aggregate supply often acknowledge that it is not unreasonable to limit the establishment of new sensitive activities near that resource. This approach can be useful to avoid activities located close to existing or potential quarry sites where there is potential to constrain the extraction of the resource.

Protecting access is also important as this is fundamental to the viability of quarry operations and new development has the potential to constrain access to aggregate and extraction. Identifying access routes for aggregate and protecting these may help to avoid zoning changes that may lead to restraint on extraction. Some approaches to this issue are discussed further in the 'Noise' section below.

2.1.2 Identifying the aggregate resource

Explanation

Identifying aggregate resources within the region or district is a method that can be used to protect and plan for the future demand. Existing quarry sites are easily identifiable; however there are areas of aggregate within a region or district that could potentially provide significant aggregate resources that may not be readily identifiable or known. Identifying aggregate resources will generally require some geological survey and an evaluation of the feasibility of extracting aggregate. Where aggregate resources are identified in RMA documents this can be supported by policies aimed at protecting those resources. Key considerations are the significance of the aggregate resource, its proximity to areas of future development or demand and the ability to access and transport the resource.

Approaches

Proposed Regional Policy Statement for the Wellington Region

The Proposed RPS for the Wellington Region states that locating significant mineral resources is a key method to ensure the demand for minerals is met by local sources as much as possible. The proposed RPS defines "significant mineral resources" as deposits of minerals where the extraction is important to meet the current and future mineral needs of the region.

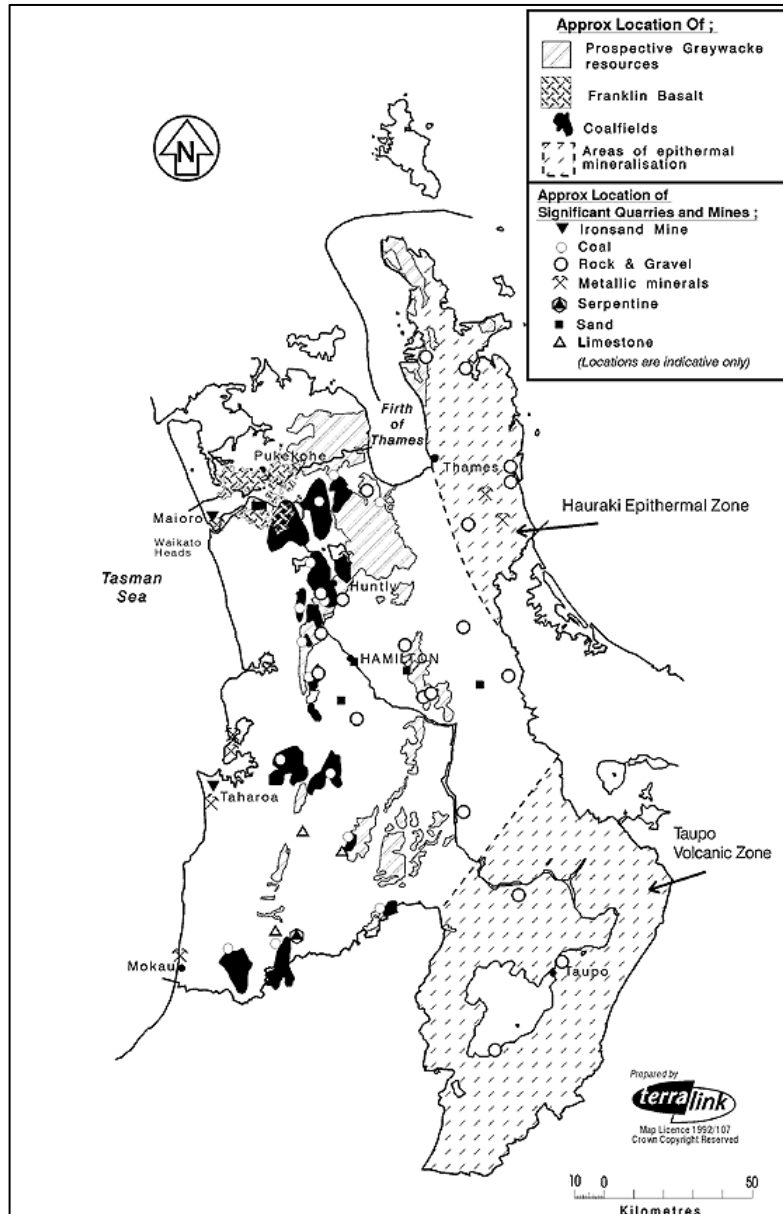
The proposed RPS gives lead responsibility to Wellington Regional Council to identify the location of significant mineral resources in the region through method

51. This method is intended to implement objective 30; that the demand for mineral resources be met from local sources as much as possible. This objective recognises that the importation of minerals from outside the region comes with higher social, economic and environmental costs.

Waikato Regional Policy Statement

The Waikato Regional Policy Statement identifies economic aggregate and mineral resources throughout the region in the map shown in Figure 1 below, and recognises the importance of these resources to the economy and infrastructure of the region. The map, as included in the RPS, includes both the approximate location of prospective mineral resources and the approximate location of existing significant quarries and mines.

Figure 1: Operative Waikato Regional Policy Statement – Map 6: Indicative Map of Mineral Deposits in the Waikato Region



Auckland Regional Policy Statement

To implement the mineral policies in the Auckland Regional Policy Statement, one of the key methods identified is for the Regional Council to prepare an evaluation of the location of actual and known potential mineral resources available and the foreseeable demand for mineral resources of the region. It is understood that this work is currently underway. The RPS requires that on completion of this evaluation, the Auckland Regional Council will review policies and methods to determine the most appropriate mechanism to implement the information from the process.

Hastings District Plan

The 'mineral, aggregate and hydrocarbon extraction district wide activity' section of the Hastings District Plan (section 13.2) provides a number of objectives, policies and methods on the utilisation of mineral resources. One of the methods to achieve the objectives and policies relating to mineral resources is the establishment of a minerals database and progressive mapping of known mineral resources on the council's GIS system, in consultation with interest groups.

Discussion

Identifying aggregate resources with the region or district is a useful method to ensure the supply is known and the demand for aggregate can be planned for to meet current and future needs. Information on the future demand for aggregate and the sources of supply can be used to develop plan provisions that protect key aggregate resources.

Identifying aggregate resources in RMA plans and policy statements may also help to ensure that the effects on aggregate resources are considered in decisions on plans and resource consents. Local authorities vary in terms of how identified aggregate resources are incorporated into their plans. Some resources are identified on maps, others list identification of resources as a future method, while others incorporate these into GIS mapping systems.

Often providing the location of aggregate resources in RMA documents will provide the greatest certainty to the industry and ensure these resources are considered in RMA decision-making. This may also help to reduce reverse sensitivity effects by avoiding the development or the establishment of incompatible land-uses in close proximity to the resource. However, accurately identifying the exact location, nature and extent of the aggregate resource can be an expensive exercise. Another approach is to let the industry identify the resource and ensure there are adequate provisions in plans to protect aggregate resources.

2.1.3 Establishment of aggregate and quarry zones or areas

Explanation

Some local authorities include quarry areas as specific zones within their plan. These zones may relate to existing quarry sites or to aggregate resources that may potentially be quarried in the future. These quarry specific zones will generally have specific policies and rules to provide for quarry activities and limit the establishment of sensitive activities within these zones. Some plans have also established buffer zones around existing quarry operations to limit reverse sensitivity effects and help ensure the quarry is not constrained by other activities.

Approaches

Papakura District Plan

The Papakura District Plan includes a specific Quarry Zone which applies to two areas of established aggregate extraction. The zone is intended to provide for the continuation of quarrying in the area subject to environmental controls on quarry operations and the end-use of the sites. To protect the environmental and amenity of neighbouring properties from the quarry operations there are specific policies relating to environmental controls and the establishment of buffer areas. These policies in 6.13.6 include:

- To adopt controls designed to prevent or reduce vibration, noise and soil and water contamination and degradation.
- To require the establishment and maintenance of buffer areas between quarry operations and adjacent activities.

Any quarry activity and ancillary activity within the Quarry Zone is permitted subject to a number of rules. These rules include a requirement for a Quarry Management Plan to be prepared for all land within the zone to outline operational matters and provide an indication of the end state of the quarry. The Quarry Management Plan is required to cover aspects such as provision for stockpiling overburden, methods to reduce contamination of air and water, and provision for the progressive restoration of the lot.

To provide a buffer around the Quarry Zone there is also an Aggregate Resource Protection Zone. The purpose of this zone is to reduce the effect of quarry operations on surrounding activities. To help achieve this, the Plan states any residential, educational, community facility or subdivision located in the Aggregate Resource Protection Area shall be assessed as a discretionary activity.

Waitakere City District Plan

The Waitakere City District Plan identifies a Quarry Special Area similar to a zone. Within this specific area any activity involving the quarrying, crushing, screening and stockpiling of stone is a permitted activity subject to performance standards and the conditions of a Quarry Management Plan.

Franklin District Plan

Within the Aggregate Extraction and Processing Zone of the Franklin District Plan, aggregate extraction activities are permitted under rule 35.1 (with the exception of that zoned area which lies between McDonald Road and Bluff Road/Cole Road, south of Pokeno) provided they comply with the specified conditions, standards and terms.

Aggregate extraction activities that are not permitted are discretionary (restricted assessment) activities under rule 35.3. Any application for consent for any new aggregate extraction activity is required to be accompanied by Management Plans including specified information.

Council's discretion under rule 35.3 is limited to consideration of:

- Site layout
- Landscape treatment and screening
- Natural and cultural heritage
- Traffic safety and movement
- Natural hazards
- Noise, lighting and vibration
- Utility services and hazardous substances
- Monitoring and review
- Financial contributions

Whangarei District Plan

Within the Countryside Environment Zone of the Whangarei District Plan, Mineral Extraction is a permitted activity (rule 38.3.3), subject to meeting specific conditions relating to:

- Less than 500m³ of material on the site is disturbed or removed in any 12 month period; and
- No blasting takes place; and
- Where excavations and processing are undertaken within 200m of a road boundary or an existing residential unit, amenity planting is undertaken along that boundary and thereafter maintained to a minimum width of 5m and a minimum height of 3m.

If an activity does not comply with the specified conditions, the mineral extraction activity is a restricted discretionary activity with discretion restricted to matters including:

- Effects of noise, dust and other nuisances;
- Methods and duration of excavation or processing, and trucking activities;
- Hours of operation of the activity;
- Effects on existing residences and reserves;
- Effects of road traffic on the amenity, health and safety in the locality;
- Effects of increased traffic on road safety, maintenance and efficiency;
- Effects on landscape and conservation values of the site and locality;
- Restoration and rehabilitation of the site;
- Effects of disturbance and stockpiling of topsoil, and measures to conserve and preserve topsoil;
- Effects of excavation, mineral extraction, transport and processing (including the effects of dust) on any water body or indigenous vegetation;
- Effects on coastal land stability and natural coastal processes;
- Quality of storm runoff; and
- Effects of land use on heritage sites, buildings and areas.

Discussion

Establishing a quarry zone within the plan provides certainty as to the established or intended use of area. Such zones give greater certainty to both quarry operators that they will be able to continue their activities and also to other resource users as to the activities that can be expected within the zone. These zones should describe the types of activities that are intended to occur and their associated effects, as well

as appropriate controls or performance standards. These controls may include a requirement to prepare a Quarry Management Plan which allows a more adaptive approach where mitigation measures can be adapted over the life of the quarry.

Where a quarry zone is included in plans it should take into account the potential for future expansion of quarry operations. It is also useful to develop rules and performance standards in the zone so that resource consents are not unnecessarily required for standard activities that form part of the quarry operations (e.g. stockpiling of overburden) and allow for ancillary activities to take place.

2.2 Water quality, water use and extraction from river beds and coastal marine area

2.2.1 Managing the effects of quarry activities on water quality

Explanation

Extraction, processing and transportation of aggregate involves processes which generate suspended sediment that has the potential to be entrained in water and eventually discharged into stormwater, surface water or groundwater. This creates the potential for adverse effects on water quality through an increase in suspended sediment and loss of water clarity, which may impact on aquatic species and other uses of water, such as for recreational purposes. These effects on water quality can be site-specific, on and off site, short and long term and cumulative.

Regional plans and policy statements generally have policies on water quality with regional plans having more specific rules regarding the discharge of contaminants into water. These rules tend to vary depending on the type of water environment being discharged into (i.e. surface water, groundwater, coastal marine area). A common approach is to have standards or environmental guidelines that determine the consent required, and generally some form of stormwater treatment is required to mitigate the adverse effect on water quality.

Approaches

Approach – Assessment Criteria

Proposed Regional Policy Statement for the Wellington Region

The Proposed RPS for the Wellington Region has a policy to minimise contamination in stormwater and identifies regional plans as the most appropriate method to achieve this. The RPS requires regional plans to include policies, rules and/or methods to protect aquatic system health by minimising contaminants in stormwater that discharges into water or into land that may enter water. The RPS includes Policy 41 which seeks to minimise contamination in stormwater generally. This policy applies to all decisions on resource consents, notices of requirement and changes to district plans. It states that the adverse effects of stormwater runoff shall be reduced by having particular regard matters such as:

- using soakpits for the disposal of stormwater, where the soil type is suitable for this purpose, and the groundwater will not be adversely affected;
- using constructed wetland treatment areas; and
- using in situ treatment devices.

Approach – Environmental Guidelines and Activity Status

Waikato Regional Plan

Section 3.2.4.6 of the Water Module of the Waikato Regional Plan has suspended solid standards for the discharge of stormwater into surface water. The Plan states that environmental effects of suspended solid discharges for activities requiring consent will be assessed using the suspended solid standards. These standards must also be met when referring to any permitted activity rules relating to discharges, or activities that may result in a discharge to surface water bodies. The suspended solid standards in the Plan are:

- The activity or discharge shall not increase the concentration of suspended solids in the receiving water by more than 10 percent; and either
- The suspended solids concentration of the discharge shall not exceed 100 grams per cubic metre; or
- The activity or discharge shall not result in any of the following receiving water standards being breached:
 - i. in Indigenous Fisheries and Fish Habitat Class waters - 80 grams per cubic metre suspended solids concentration
 - ii. in Significant Trout Fisheries and Trout Habitat Class waters - 25 grams per cubic metre suspended solids concentration
 - iii. in Contact Recreation Class waters - black disc horizontal visibility greater than 1.6 metres.

For the discharge of stormwater from quarries to be permitted they must have an interceptor in place, comply with the suspended sediment standard and other conditions in section 3.5.11.4. If the discharge does not comply with the permitted activity conditions it becomes a controlled activity and the Regional Council reserves control over a number of matters including the measures to avoid, remedy or mitigate the effects of the discharge on the receiving water bodies.

Hawke's Bay Regional Resource Management Plan

The Hawke's Bay Regional Resource Management Plan provides policies that seek to maintain water quality while still providing access to the water resource. The Plan includes environmental guidelines for suspended solid levels in different catchment areas within the region. Policy 72 of the Plan provides the following guidelines for decisions on resource consents for suspended solids:

- At all times when the suspended solids concentration is less than the specified guideline for a particular water body and location, an activity shall no cause, or contribute to, a breach of the specified guideline. In no case should an activity cause more than a doubling or suspended solids concentration or turbidity of the receiving water body.*

- ii. *At all times when the suspended solids concentration is equal to or greater than the specified guideline, an individual activity should not cause the concentration of suspended solids to increase by more than 10% as determined on a case by case basis.*

This policy is supported by rule 42 and 43 of the Plan which determines whether the discharge is permitted or requires consent as a controlled activity.

Approach – Best Practicable Option

Franklin District Plan

In the Aggregate Extraction and Processing Zone of the Franklin District there are specific conditions, standards and terms that aggregate extraction activities must comply with to be permitted activities. This includes standards to reduce water contamination which require the best practicable option (BPO) or methods to be used to avoid any contamination of water from any aspect of the extraction activity. The standards also require that any vehicle or machinery storage facility or dispensing area be designed and operated in such a way that no contamination of soil or water can occur. If practical, bunding the entire area is seen as an appropriate response.

Approach – Quarry Management Plan

Waitakere City District Plan

The Waitakere City District Plan identifies a Quarry Special Area for Waitakere Quarry, similar to a zone, where an activity meeting the standards of a Quarry Management Plan is a permitted activity. A Quarry Management Plan is attached as an appendix to Rule 13 of the Special Area rules. The Quarry Management Plan includes a condition relating to water quality where:

- A silt trap shall be formed and maintained on the quarry floor and the crusher shall have new bunds built around it when relocated.
- Quarry operations are to be carried out in such a way as to ensure that silt and any hazardous substances from the quarry does not enter the stream, and in accordance with any regional consent.

Discussion

There is a range of approaches that can be used to manage the adverse effects on water quality from quarry activities. Most policy statements and plans provide assessment criteria which provide guidance on how they will determine adverse effects on water quality and the acceptable standards. Providing measurable standards is a particularly useful approach to provide a tangible target to achieve.

Many plans are now identifying methods that are considered appropriate to mitigate adverse effects on water quality. This approach can provide useful guidance to quarry operators and the methods can subsequently be incorporated into a Quarry Management Plan. Listing the appropriate type of treatments will generally provide more certainty to quarry operators than just referring to the best practicable option. Some councils also provide supporting guidelines on stormwater treatment (e.g. Auckland Regional Council: Technical Publication 10).

2.2.2 Managing the use of water by quarries

Explanation

Quarries vary in their water demand depending on site-specific factors and the activities carried out on site. A certain amount of water is generally required for the washing and cleaning of aggregate, although this amount will vary significantly depending on the scale and nature of the quarry operation. Water may also be required as a dust control measure and some councils require quarries to demonstrate access to sufficient water for dust suppression purposes.

Quarries can often be largely non-consumptive in their water use with the majority being used and then returned to the groundwater or stream with little to no loss in actual water quantity. However, this non-consumptive use of water is difficult to demonstrate as measuring the rate of water entering the ground is problematic and dependent on the substrate type. Water use is also more of an issue in catchments when the water is in high demand and largely allocated to other competing uses (or fully allocated).

Approaches

Approach – Regional Policy Statement

Waikato Regional Policy Statement

The Waikato RPS has an objective and policy to use water taken from water bodies in an efficient manner. This policy recognises that water is a finite resource and there are a number of competing demands for freshwater resources in the region. This policy applies to consumptive uses of water, and the primary method to implement the policy is through regional rules and resource consents. However, the RPS recognises that this policy should not apply to non-consumptive uses where water is used either in situ or where it is rapidly returned to the water body in an unchanged state.

Approach – Environmental Guidelines

Hawke's Bay Regional Resource Management Plan

The Regional Plan seeks to maintain a sustainable groundwater resource through environmental guidelines with supporting policies. The policies on groundwater quantity to achieve this objective are:

- a) *To manage the takes of groundwater to ensure abstraction does not exceed the rate of recharge.*
- b) *To manage the availability of groundwater to ensure supplies of good quality groundwater.*
- c) *To manage the groundwater resource in such a manner that existing efficient groundwater takes are not disadvantaged by new takes.*
- d) *To manage takes of groundwater to ensure abstraction does not have an adverse effect on rivers, lakes, springs or wetlands.*

This policy is supported by environmental guidelines for groundwater quantity that apply across the region. These are:

1. Demand: The safe yield identified for an aquifer should not be exceeded.
2. Effects of takes on water quality: Takes should not contribute to the intrusion of salt water into freshwater aquifers.
3. Effects of takes on levels of rivers, springs and wetlands: Takes should not cause a reduction in the flows of rivers, levels of springs or lakes, or ecologically significant wetlands.
4. Effects of new takes on existing authorised users: The takes should not adversely impact on existing efficient groundwater or surface water takes unless written approval from affected persons is obtained.

Approach – Activity Status and Assessment Criteria

Proposed Auckland Regional Plan: Air, Land and Water

This Proposed Auckland Regional Plan has rules on water take that determines the resource consent required based on the volume of take, season and water use management area. Under rule 6.5.8 the taking and use of no more than 5m³/day from a river, stream or spring is a permitted activity subject to conditions. The taking and use of no more than 100m³/day from a river, stream or spring during the six month period from May 1 – October 31 is a controlled activity with the council exercising its control over the following matters:

- a) The maximum rate of abstraction;
- b) The location of the taking of water;
- c) The monitoring and reporting requirements;
- d) The duration of the consent; and
- e) The timing and nature of reviews of consent conditions.

Activities not meeting the above are discretionary activities. For any proposal to take and use water where a resource consent is required, the plan provides a number of assessment criteria. These include:

- That the water quantity taken is consistent with the requirements of the activity to promote efficient use of water resources;
- Where the activity will result in significant adverse effects, there are no practicable alternative water sources;
- Consideration has been given to water conservation and wastewater reuse methods;
- The environmental effects of wastewater have been considered concurrently;
- The taking of water will not adversely affect the water quality of the water body.

Discussion

Most regional plans and policy statements have policies to encourage efficient use of water. Some plans and policy statements distinguish between consumptive and non-consumptive uses of water to help ensure that policies and rules are suited to the actual extent of water use. This approach is useful for the quarry industry as often the use of water is largely non-consumptive with the majority of water returned to the groundwater or waterway.

Regional plans often have different rules for water use depending on where the water is abstracted from. Water take from surface waters, streams or rivers is generally linked to minimum flows to ensure that this does not have an adverse effect on the ecology of the stream. The rules relating to extraction of water from groundwater are often less prescriptive.

2.2.3 Managing quarry operations in river beds and the coastal marine area

Explanation

Many quarry operations involve the extraction of rock from river beds or sand from the coastal marine area. The coastal environment and river beds are often highly valued for a number of reasons such as natural character, ecological or amenity. This can be an issue due to the common perception that quarrying activities will have adverse environmental effects on these environments. To manage the effects of activities within coastal and river bed environments, councils generally have specific policies and rules that limit certain activities or impose more stringent standards and conditions. Additional resource consents are generally required from the relevant regional councils to undertake activities on river beds or in the coastal marine area.

The extraction of gravel from river beds can be a useful method to manage flood risks within the region or district. Some local authorities have specific policies that recognise the potential benefits of river bed extraction for flood protection. This allows quarry operations to be coordinated with council monitoring of river bed levels to apply certain triggers when extraction of aggregate is appropriate, either for flood protection purposes or simply because there is a surplus of the aggregate.

Approaches

Approach – Protection of Valued Environments

Auckland Regional Policy Statement

The Auckland Regional Policy Statement while recognising the importance of protecting aggregate resources states that quarry activities will not be considered appropriate in areas of high natural value, such as the Hauraki Gulf Islands. Policy 13.4.1 states that mineral extraction and processing activities should be avoided in those areas where these activities would have an adverse effect on the natural character of the coastal marine area (including the coastal marine area), wetlands, and lakes and their rivers and margins.

Approach – Activity Status and Assessment Criteria

Waikato Regional Plan

The Waikato Regional Plan manages the extraction of sand and gravel based on the amount being extracted and the location of this extraction. Extraction is permitted in some river catchments for up to 50 cubic metres per year of sand and gravel from a river bed, subject to a number of conditions. The extraction of between 50 and 200 cubic metres per year of sand and gravel in these catchments is a controlled activity subject to conditions. Where conditions cannot be met, extraction becomes a discretionary activity.

The Regional Plan has different rules for extraction in the Coromandel Peninsula rivers. In these rivers, extraction is a restricted discretionary activity with the council reserving its control over a larger number of matters, including:

- The location, timing and frequency of the activity;
- The amount of sand and gravel to be removed and method;
- The use, site and placement of material removed from the bed;
- Measures to control suspended solids discharges;
- Measures to avoid, remedy or mitigate adverse effects on the natural character of the beds of rivers and lakes;
- Measures to ensure consistency with criteria as set out in any applicable Water Management Class in the Plan;
- Measures to control the effect of the activity on areas of significant indigenous vegetation and significant habitats of indigenous fauna.

Approach – Linking Extraction with Flood Management

Hawke's Bay Regional Resource Management Plan

The Hawke's Bay Regional Resource Management Plan has specific objectives for river bed gravel extraction that links extraction to the management of flood risk. Objective 29 is to facilitate gravel extraction from areas where it is desirable to extract excess gravel for river management purposes and the minimisation of flood risk, while ensuring that any adverse effects of gravel extraction are avoided, remedied or mitigated. This objective recognises that the gravel resource is a valuable commodity in the region and that in some areas there is a surplus of gravel which can cause problems for river flood management. Policy 54 seeks to integrate the management of gravel extraction with river control works by:

"...encouraging gravel extraction where there is potential to minimise flooding or the risk of damage to protection or essential structures; undertaking specific works to control erosion and encourage gravel movement where appropriate."

The Regional Plan also provides assessment criteria to help ensure the adverse effects of gravel extraction are avoided, remedied or mitigated. When considering applications for the extraction of river bed gravel, the Regional Plan lists a set of criteria that must be considered, including:

- The avoidance of contaminants from machinery entering water bodies;
- The avoidance of increases in sediment discharge or water turbidity;
- The avoidance of offensive or objectionable discharge of dust;
- The location of, and potential effect on, any downstream water takes;
- The effect of the ecology of the river; and
- The extent to and the time over which natural processes will be capable of returning the river bed to a state of equilibrium following extractive activity.

Discussion

A range of approaches are used to manage extraction of gravel and sand from river beds and the coastal marine area. Most plans recognise that extraction is appropriate in certain circumstances provided the environmental effects are well managed. However, there are often more stringent controls on extraction from river beds or coastal locations that have high natural character or ecological value, and most councils try to avoid extraction taking place where adverse effects will occur. It is useful when plans include assessment criteria to assist in determining what effects to minimise when planning to undertake extraction in these environments.

Some plans recognise the benefits gravel extraction can have for flood management purposes. By developing a relationship whereby gravel is extracted when certain triggers in river bed levels are reached, this can reduce the costs to regional councils and territorial local authorities and also provide benefits to the quarry industry.

2.3 Earthworks, stockpiling and overburden

Explanation

Quarries by their very nature generally involve earthworks of significant scale through the extraction of aggregate. Although a large portion of aggregate is removed from the quarry for use elsewhere, there is also a large amount of material that will not be used as aggregate and needs to be stockpiled or deposited somewhere. The deposition of material not to be used for aggregate is generally referred to as 'overburden' from the quarry site.

Most councils have general policies on earthworks within the region and district and there can be a degree of overlap in the requirements of regional councils and territorial authorities. Regional councils generally have provisions to manage the impact of earthworks on erosion and water quality. Territorial authorities are generally more concerned with the disturbance of land and the deposition of materials. In addition to general earthworks provisions, some plans recognise that earthworks, stockpiling and overburden are activities closely associated with quarrying and manage these collectively as a single activity.

Approaches

Approach – Activity Status and Standards

Waikato Regional Plan

In the Land and Soil Module of the Waikato Regional Plan there are a number of rules around soil disturbance. These rules determine whether a consent is required and, if so, what type, based on the volume and the location with respect to water bodies, high risk erosion areas and valued estuarine environments. For example, soil disturbance is generally a permitted activity, subject to conditions, in areas not identified as having high erosion risk. In High Erosion areas, soil disturbance activities between 250m³ and 1,000m³ are controlled activities and over 1,000m³ is discretionary.

There are a number of standards and terms for earthworks that are permitted and controlled activities including:

- A requirement for all erosion and sediment controls to be installed and maintained for all earthworks during and on the completion of works to avoid the adverse effects of sediment on water bodies;
- All exposed areas of soil to be stabilised against erosion by vegetation cover or other methods as soon as practical following completion of the activity.

Papakura District Plan

In the Quarry Zone of the Papakura District Plan, quarries are permitted activities subject to a number of controls, some of which relate to earthworks, stockpiling and overburden. This includes a requirement for all tailing and overburden to be disposed of to minimise damage to property or disfigurement of landscape, and prevent pollution of any receiving water environment. The Plan also requires a Quarry Management Plan to be prepared for quarries as a general rule and this Management Plan must show and explain provision for the disposal and/or stockpiling of overburden, waste and quarried material, including the area to be used for stockpiling.

Papakura District Plan – Proposed Plan Change 13: The Rural Plan Change

In the earthworks section of the Proposed Plan Change for the Rural Zone earthworks are permitted or restricted discretionary activities depending on the location of the earthworks and the volume. Earthworks that do not expose more than 250m² and have a volume of less than 500m³ are permitted subject to a number of performance standards. These performance standards relate to matters such as:

- sediment and control measures (to be in accordance with ARC TP90);
- stabilisation of earthwork surfaces;
- removal of material from the site; and
- dust.

Earthworks that do not comply with the performance standards, expose an area of earth greater than 250m², or have a volume exceeding 500m³ are restricted discretionary activities.

Approach – Performance Controls and Quarry Management Plan

Franklin District Plan

In the Aggregate Extraction and Processing Zone of the Franklin District there are specific conditions, standards and terms that aggregate extraction activities must comply with to be permitted activities. This includes a standard for fill importation where all material deposited to reclaim 'quarry' areas shall be clean fill and should not include refuse. There is also a condition that land which is excavated or is disturbed by deposition of overburden be rehabilitated as soon as practical.

In addition, the plan requires a Management Plan for any application for new aggregate extraction activities to be approved and included as appropriate under conditions of consent. This plan may show the overburden and waste disposal areas and a land rehabilitation programme including overburden.

Discussion

There are a range of approaches used to manage earthworks, stockpiling and overburden associated with quarries. Most plans have general earthwork provisions and these often vary depending on the location of the earthworks and the scale. Some plans identify all earthworks, clean fill, stockpiling and overburden associated with the quarry as permitted activities subject to performance standards. This approach is sensible as these are ancillary activities to any quarry operation and this reduces the need to obtain additional consents throughout the life of the quarry. This is important in terms of the day-to-day operations and also in relation to the potential rehabilitation of the site, which is likely to involve significant earthworks.

Another approach is to control stockpiling and overburden activities based on a Quarry Management Plan, which may be required as a performance standard. This enables the management of stockpiling and overburden to be tailored to the specific site and adapted over time to suit changes in quarry operations.

2.4 Vegetation removal and ecological effects

Explanation

The establishment or expansion of quarry sites will often require the disturbance of the natural environment and removal of vegetation. This may range from a small area of bush to a significant change in a natural habitat, including the diversion of streams. Many plans have policies regarding the removal of bush or loss of species throughout the region or district, often supported by criteria to assist in determining the actual or potential adverse ecological effects. Areas identified as having high ecological value in plans (e.g. significant natural areas) are often accompanied by objectives and policies that discourage activities that involve vegetation removal. This can be an issue when these areas are also areas of significant mineral resource, creating a barrier to extraction.

An increasingly common approach to manage adverse effects on natural habitats and ecology from quarry operations is to offset this by planting or protecting a natural habitat elsewhere. However, councils vary in how they calculate offset requirements. Some plans also specify requirements for re-vegetation that the quarry must carry out as the site expands or reaches its end life to minimise ecological effects. Rehabilitation is discussed further in the 'Rehabilitation' section below.

Approaches

Approach – Activity Status

Waikato Regional Plan

In the Land and Soil Module of the Waikato Regional Plan, there are a number of rules around vegetation clearance aimed at minimising potential erosion and adverse effects on water quality. The rules determine whether a consent is required and, if so, what type, based on the volume of vegetation clearance, the type of vegetation being cleared and the location of the clearance. For example, vegetation

removal is generally permitted up to an area of 5 hectares and then it becomes a controlled activity. However, this rule excludes planted forests, where vegetation removal of over 5 hectares is still permitted.

Hastings District Plan

In the 'mineral, aggregate and hydrocarbon extraction district wide activity' section of the Hastings District Plan (section 13.2) there are specific performance standards and criteria for mineral extraction and processing, which include specific assessment criteria relating to land disturbance and vegetation clearance as restricted discretionary activities. The plan states the effects of land disturbance and vegetation clearance from quarry operations will be assessed in terms of the effects on:

- The life-supporting capacity of soils;
- Soil erosion and stability;
- Natural landforms and contours;
- Flora and fauna.

This section of the plan also includes specific performance standards and terms that quarry operators must comply with including site re-vegetation to minimise overall disturbance to vegetation. The standard states that where vegetation clearance occurs, disturbed areas should be re-pastured or re-vegetated as soon as possible within the next growing season.

Approach – Offsetting

Papakura District Plan – Proposed Plan Change 13: The Rural Plan Change

In the Ecology section of the Proposed Rural Plan Change for Papakura there are a number of general policies aimed at identifying and protecting areas of significant ecological resources. There are also policies aimed at providing development incentives to protect these ecological resources to offset the adverse effects from new developments. Two examples of such policies in section 2.4 of the plan change include:

- Providing for development protection as an incentive to protect and manage ecologically significant resources in perpetuity.
- Encouraging the restoration and enhancement of degraded ecologically significant resources and the re-creation of ecological linkages between these resources.

Approach – Quarry Management Plan

Waitakere City District Plan

The Waitakere City District Plan identifies a Quarry Special Area for the Waitakere Quarry, where an activity meeting the standards of the Quarry Management Plan is a permitted activity. The Quarry Management Plan includes a condition to retain certain areas of native vegetation identified in a plan, which shows the areas to be quarried and where the existing areas of vegetation cover should be retained.

Franklin District Plan

The Franklin District Plan requires a Management Plan to accompany any resource consent application for aggregate extraction activities, for approval and inclusion as appropriate as conditions of consent. The Plan states that these Management Plans shall include, as appropriate:

- A landscape plan and details of the maintenance programme to be used to establish and maintain optimum growing conditions;
- An ongoing or staged rehabilitation programme including objectives, re-vegetation programme and techniques;
- An indication of the activities that could take place on the site when the extraction is completed.

Discussion

Quarry operations will inevitably involve disturbance of vegetation and potential adverse effects on ecology. Most local authorities have policies regarding vegetation removal and use rules to determine the activity status of vegetation removal based on the size, location and type of vegetation being removed. This approach is often supported by assessment criteria to help avoid, remedy or mitigate the effects of vegetation removal and a list of appropriate methods. This is a useful approach to provide guidance on the best method to reduce the adverse effects from quarries on ecology, such as site re-vegetation.

Another approach is to provide policies to offset adverse effects on ecology by protecting or enhancing ecological areas in another location. This is a useful approach for quarries to enable them to minimise the overall environmental impact of the operation. However, it is important that plans provide some guidance on the appropriate form and extent of offsetting. Some local authorities also require a Quarry Management Plan to be prepared and include conditions relating to ecology and vegetation removal. This is a useful approach as it allows the management approach to be adapted over time as the site develops.

2.5 Rehabilitation

Explanation

Councils often require proposed quarry operations to detail rehabilitation plans for the end of the quarry life. This can be a useful method to mitigate adverse effects, but it can be difficult for quarry operators, who are often looking at a significant long term timeframe for the project. However, most councils at a minimum require applicants to detail the likelihood of rehabilitation occurring and a likely timeframe for rehabilitation.

Approaches

Approach – Regional Policy Statement

Auckland Regional Policy Statement

The Auckland Regional Policy Statement (chapter 13) identifies that spent extraction sites may present ongoing problems in terms of reduced amenity values, hazards to public safety or health, and damage to natural values. It states that

“early planning for after-use can avoid or mitigate many of these effects and enable some flexibility of long-term use of sites when extraction activities cease. Spent extraction sites offer an opportunity for community amenities to be provided, e.g., Mt Smart and Eden Gardens, or wildlife habitats to be established.”

Policy 13.4.1(2)(iv) states *“Mineral extraction and processing, including remedial measures, and long-term management and use of sites after mineral extraction ceases, will be planned and undertaken in ways which avoid or mitigate adverse effects on the environment”*.

Method 13.4.2(3) states *“District plans and any relevant regional plans will contain provisions requiring mineral extractors to provide for the use of the site after extraction processes cease, so as to minimise present and future adverse effects on the environment. The fulfilment of such rehabilitation and aftercare responsibilities shall be secured by means of bonds or like measures.”*

Approach – Objectives and Policies

Papakura District Plan

Part 6 of the Papakura District Plan, which provides for the Quarry Zone, contains objectives and policies relating to rehabilitation. Objective 6.13.6.1 is to provide for the careful management and extraction of mineral resources and restoration of exhausted quarries. There are a number of policies to implement this objective, including:

Policy 6.13.6.1.2: To require a Quarry Management Plan for all land within the zone and which outlines operational matters and which gives an indication of the proposed end-state of the land once quarrying has ceased.

Policy 6.13.6.1.3: To require all new quarry operations to indicate a potential end-use of the land before operations commence.

Approach – Assessment Criteria

Hurunui District Plan

Policy 1.8 of the Hurunui District Plan is *“To require the rehabilitation of sites where extraction of land resources has occurred”*. Quarrying and mining is a discretionary (unrestricted) activity. Assessment criteria include:

- The likelihood that the land will be restored at a later date and the purpose for which it will be restored;
- The timeframe and management of the rehabilitation process;
- Provision for adequate bonding of rehabilitation work as an assurance to the community and an investment in the future of the site.

Approach – Quarry Management Plan

Wellington City District Plan

The recently approved Plan Change 64 to the Wellington City District Plan relates to the Kiwi Point Quarry in Ngauranga Gorge. The purpose of the plan change included the realignment of the District Plan with the provisions set out in the current Quarry Management Plan.

Objective 6.2.3.3A seeks to provide for the development and site rehabilitation of the Kiwi Point Quarry to the extent specified in the Quarry Management Plan in a way that avoids, mitigates or remedies adverse effects.

The explanation to this objective states that a Quarry Management Plan shall be prepared and regularly updated which sets out, amongst other things, the objectives and principles for the rehabilitation of the site, including:

- A timetable for the rehabilitation of prominent quarry faces;
- Measures to create soil conditions which will support plant growth;
- Measures to create a variety of site conditions to support a range of species;
- Means of controlling runoff to avoid erosion;
- Means of control of plant and animal pests;
- Measures to avoid fire risks;
- Means to assist native vegetation to regenerate on grazing land;
- Rehabilitation which is compatible with Open Space strategy for adjacent areas of land.

The explanation notes that as progressive rehabilitation of the area is an important aspect of quarry management so the Quarry Management Plan includes rehabilitation provisions. As quarrying and clean filling activities are completed on the site, an implementation plan shall be prepared annually in accordance with the Quarry Management Plan. It also notes that it is also important that the rehabilitation of the quarry area should recognise and in the longer term be able to be integrated as appropriate with the Open Space strategy developed by the council for adjacent areas of land.

Discussion

Councils generally seek certainty that a quarry site will be able to be rehabilitated or reused in the future. However, the timeframe for rehabilitation may be significant, making it difficult for quarry operators to be able to provide detailed plans of the end-use of a site. However, approaches which provide parameters within which rehabilitation must occur (e.g. requiring the operator to submit a detailed rehabilitation plan to council for approval no less than 5 years from the end of the quarry's life) provide certainty to the council that the effects of the rehabilitation can be managed to an acceptable level, but also provide quarry operators with flexibility to adapt the end-use depending on market circumstances and available technology.

2.6 Visual effects of quarries

Explanation

Quarrying typically involves large-scale excavation in a rural setting. These activities may be visually inconsistent with the surrounding rural areas. A number of councils have recognised this potential conflict, and provided for it through standards and rules in district plans. Some examples of these are detailed below.

Approaches

Approach – Activity Standards

Franklin District Plan

Within the Aggregate Extraction Zone of the Franklin District Plan under rule 35.5.2, permitted activity conditions include the requirement for a 5m front yard to be landscaped with planting which at maturity will achieve a significant visual screening effect. Plantings are required to be maintained at all times.

Also, rule 35.5.4 states in relation to general amenity planting that where planting trees will achieve visual screening, trees shall be planted and maintained to avoid, remedy or mitigate any visual impacts which are due to the appearance of any aspect or part of the extraction activity or site which is or could become incongruous with the rural or natural character of the surrounding areas. Where agreement with affected adjoining property owners can be obtained and is submitted in writing to the council, such planting may also be on those affected parties' sites, provided that the cost of all such works shall be entirely borne by the owner or occupier of the extraction activity site.

Tasman Resource Management Plan

Within the Quarry Area of the District Plan, rule 18.6.4.1 provides for quarrying as a discretionary activity if it complies with specific standards including condition 18.6.4.1(c). This condition requires that where excavations and processing are undertaken within 150 metres of a road boundary which adjoins a formed road or recreational area, amenity planting must be undertaken along that boundary and thereafter maintained to a minimum width of 5 metres and a minimum height of 3 metres.

Discussion

Providing specific amenity planting requirements provides a minimum standard for quarry operators to meet. However, it is anticipated that these minimum standards would offer little mitigation of the visual effects of a large quarry. It may be that a Quarry Management Plan would offer a better tool to ensure that the visual effects of the quarry are mitigated on an ongoing basis, but can be adapted depending on any changes in the surrounding area or on the site.

2.7 Dust and air quality effects

Explanation

Quarries have the potential to create dust through on and off site activities such as blasting of rock, crushing and screening of aggregate, movement of machinery around the site and transportation in and out of the site. This dust has the potential to cause adverse effects on the amenity of neighbouring properties, which are primarily 'nuisance effects' rather than direct health effects. Nuisance effects may include the soiling of clean surfaces, outdoor living environments and visual impacts. Nuisance effects from dust are largely subjective and can therefore be difficult to manage. Whether the dust discharge is *offensive* or *objectionable* under the RMA is largely dependent on the nature of the source, sensitivity of the receiving environment and on individual perceptions.

The management of air discharges from dust is primarily through regional air management plans. These plans often have general policies regarding the effects of dust on amenity and some have more specific rules for certain dust generating activities that determines whether or what type of consent is required. District plans may also be used to manage air quality, through controlling activities on land that may impact on air quality.

Approaches to reducing reverse sensitivity effects from dust are discussed further in the 'Reverse Sensitivity' section below.

Approaches

Approach - Regional Policy Statement

Proposed Regional Policy Statement for the Wellington Region

The Proposed RPS for the Wellington Region identifies that both regional and district plans are important regulatory tools to manage the adverse effects on amenity values from the discharge of dust. District plans are directed to manage land use activities that emit dust, whereas the regional plans are directed to manage the impact of dust emissions on amenity values and health. Policy 2 of the proposed RPS states that regional plans shall include policies and rules that protect or enhance the amenity values from neighbouring areas from discharges of odour, smoke and dust.

Approach – Activity Status Based on Output

Proposed Auckland Regional Plan: Air, Land and Water

The Proposed Auckland Regional Plan has thresholds for quarry outputs which determine the activity status and standards to comply with. The various thresholds are in the dust generating activities section of the plan as set out below.

Rule 4.5.49 Permitted Activities:

The discharge of contaminants into air from the open-cast extraction, or quarrying, or mining, or crushing, or screening or processing of minerals, ores and/or

aggregates at a rate not exceeding 5 tonnes per hour are a Permitted Activity subject to the conditions (a) to (c) of rule 4.5.1.

Rule 4.5.1² states that activities that discharge contaminants to air are permitted activities, subject to the following conditions:

- a) *That beyond the boundary of the premises where the activity is being undertaken there shall be no noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke or ash; and*
- b) *That there shall be no noxious, dangerous or offensive or objectionable visible emissions...*

The Plan also lists dust suppression measures that should be in place to minimise the discharge of dust from the quarrying activities that are listed as permitted.

Rule 4.5.53 Controlled Activities:

The discharge into air from the open-cast extraction, or quarrying, or mining, or crushing, or screening or processing of minerals, ores and/or aggregates at a rate exceeding 5 tonnes per hour but not exceeding 200 tonnes per hour... is a Controlled Activity, subject to ...standards and terms.

These standard and terms include:

- The premises are located outside an Urban Air Quality Management Area and are 200m from any dwelling or residentially zoned area;
- Procedure to ensure that the operations are undertaken in such a way as to maintain dust emissions at the minimal practical level;
- There is sufficient water for dust suppression measures;
- Measures to suppress dust through water are adequately provided for;
- A Management Plan that outlines all methods of managing dust emissions, including identification of future areas and the extent of extraction.

The Plan also specifies the matters over which Auckland Regional Council will have control which include methods of discharge, adequacy of control measures for containment and treatments, duration and monitoring of the consent. Any quarry that does not comply with rule 4.5.49 or 4.5.53 is a discretionary activity under rule 4.5.60 which states:

The discharge into air from any process that includes open-cast extraction, or quarrying, or mining, or crushing, or screening or processing of minerals, ores and/or aggregates ...at a rate exceeding 200 tonnes per hour or at a rate that exceeds 5 tonnes per hour but not exceeding 200 tonnes per hour that does not comply with Rule 4.5.53 is a Discretionary Activity.

² Note that rule 4.5.1 of the Proposed Auckland Regional Plan: Air, Land and Water is subject to appeal

Approach – Permitted Activity Standards

Waikato Regional Plan

The Regional Plan provides a permitted activity rule for the discharge of air from mineral extraction, screening and storage (rule 6.1.16.1). Rule 6.1.16.1 lists a number of conditions that mineral operations must comply with to be permitted including:

- a: Where the operation occurs within 1000 meters of a property boundary and there is a discharge of particulate matter beyond the boundary the following measures shall be implemented:*
- i: the use of water sprays to suppress dust from crushing and screening plants, access ways, haul roads, stockpiles, load out areas and access roads...*

If the quarry operation fails to meet this standard and the other standards listed in rule 6.1.16.1 the activity becomes a discretionary activity under rule 6.1.9.2 and a resource consent is required.

Franklin District Plan

In the Aggregate Extraction and Processing Zone of the Franklin District Plan there are specific conditions, standards and terms that aggregate extraction activities must comply with to be permitted activities. This includes a standard for air emissions that any dust or any other airborne contaminant shall not be discharged at a level that is likely to cause a nuisance or affect the amenity values of any property in the area.

Approach – Environmental Guidelines

Hawke's Bay Regional Resource Management Plan

Policy 69 of the Hawke's Bay Regional Resource Management Plan states that activities affecting air quality should be managed in accordance with the environmental guidelines set out in the Plan. The environmental guidelines for air quality include:

- Dust: Any dust deposition should not raise the ambient dust deposition rate by more than 4g/m² per 30 days at any point beyond the boundary or site of the boundary.
- Particulate matter: There should be no objectionable deposition of particulate matter on any land or structure beyond the boundary of the subject property.

To implement this policy the primary tool is regional rules set out in Chapter 6 of the Plan. The air quality environmental guidelines in the plan are also to be used as relevant considerations when making decisions on resource consents.

Approach – Assessment Criteria

Canterbury Natural Resources Regional Plan

Policy AQL6 of the Natural Resources Management Plan relates to the avoidance of nuisance effects from dust. It states that any dust discharge shall not cause objectionable or offensive dispersal or deposition of particles beyond the boundary of the site.

The Plan, in Appendix AQL4³, also provides criteria to determine whether or not the discharge of dust will cause an objectionable or offensive effect. The criteria in the Regional Plan to determine whether the dust discharge has caused an objectionable or offensive effect are:

- The frequency of dust nuisance effects;
- The intensity of dust nuisance events, as indicated by dust quantity and the degree of nuisance;
- The duration of each dust nuisance event;
- The offensiveness of the discharge, having regard to the nature of the dust;
- The location of the dust nuisance, having regard to the sensitivity of the receiving environment.

These criteria are to be used for the purposes of assessing compliance with permitted activity conditions, resource consent conditions or the relevant enforcement provisions of the RMA.

Whangarei District Plan

Within the Mineral Extraction Area of the Whangarei District Plan, a Mineral Extraction Activity is a permitted activity if it does not cause total traffic generation of more than 100 traffic movements in any 24 hour period, amongst other conditions. Where an activity does not comply with the permitted activity standards in relation to traffic movements, a resource consent is required as a restricted discretionary activity. One of the assessment criteria to be considered is the effect of dust from the traffic generation.

Approach – Quarry Management Plan

Waitakere City District Plan

The Waitakere City District Plan identifies a Quarry Special Area for the Waitakere Quarry, similar to a zone, where an activity meeting the standards of the Quarry Management Plan is a permitted activity. A Quarry Management Plan is attached as an appendix to rule 13 of the Special Area rules. The Plan includes conditions for dust control where the quarry operator shall take all measures reasonably necessary to suppress dust generated from the quarry operations including:

- All haul roads from the weighbridge to the road shall be sealed.
- Fixed water sprays on all dust generating sources from crushing or screening plants. The planter shall not be operable when there is no water.
- Avoid overburden stripping in excessively dry and windy conditions.
- Use of dust collection devices on all drilling equipment.
- All haul roads leading between the quarry face, the crusher and the crushed stone stockpile and around the stockpile itself shall be sprayed with water to be kept moist during cartage operations.

³ Appendix AQL4 of the Canterbury Natural Resources Regional Plan is currently subject to appeal

- During overburden stripping operations the haul roads being used and the immediate dump area shall be kept damp.

Discussion

A range of approaches can be used to manage the adverse effects on amenity from dust. Most plans and policy statements recognise that dust effects are primarily nuisance and have general standards or conditions for dust discharge that activities must comply with to be permitted and often these relate to avoiding offensive and objectionable effects. It is useful when plans also provide guidance on what may be considered offensive or objectionable as these effects are quite subjective. Some plans also provide conditions that require some form of dust control mitigation to be implemented.

One approach is to use aggregate output from the quarry to determine the relevant standards to comply with and whether a consent is required, and if so, what type. This approach assumes a direct relationship between quarry output and dust emissions which can be problematic. This is because quarry sites can significantly reduce dust discharge through mitigation measures regardless of aggregate output. This approach also does not consider the actual dust discharge levels on the site boundary which is generally the primary concern for surrounding neighbours.

2.8 Noise

2.8.1 Noise from quarry operations

Explanation

Vehicle noise, blasting and operational machinery are types of noise generated by standard quarry operations. Noise from these operations has the potential to raise complaints from surrounding landowners, which may impact on the ability to undertake day-to-day quarrying operations. Also, under the RMA there is a general duty on all occupiers of land to ensure that the emission of noise does not exceed a reasonable level. While compliance with district plan rules does not necessarily ensure compliance with this duty under the RMA, a number of councils have provided rules and acceptable standards in district plans in an effort to alleviate ongoing problems. A number of councils provide specific standards for noise by quarrying operations, either within a specific quarry zone or as an identified activity within general noise rules. These are detailed below.

Approaches

Approach – Activity Standards

Proposed Waikato District Plan

The Proposed Waikato District Plan states at item 25.19 that any activity in the Rural Zone is permitted if extractive industry noise, measured at the notional boundary of any dwelling not owned or leased by the extractive industry operator existing at 25 September 2004, or at any site in the Living Zone, does not exceed:

- 50dBA (L10), 7 am to 10 pm any day, and

- 45dBA (L10) and 70dBA (Lmax), at all other times.
Any activity not complying with the conditions for a permitted activity is a discretionary activity.

Papakura District Plan

The Papakura District Plan has a Quarry Zone, which under permitted activity standard 6.13.8.1(e) (except for in the Hunua Quarry Aggregate Resource Protection Area) the L10 noise level, as measured at or within 30 metres from any dwelling, shall not exceed the following limits:

| | |
|---|-------|
| Monday to Friday between the hours of 0700 - 1800 and Saturday between the hours of 0700 – 1600 | 55dBA |
| At all other times including Sundays and Public Holidays | 45dBA |

Within the Hunua Quarry Aggregate Resource Protection Area, the L10 noise level measured at or within 30 metres from any occupied dwelling existing at 1 January 2001 shall not exceed the above limits. The L10 noise levels, as measured at any point on the Quarry Effects Line as shown on the District Plan Map (Figure 2) below, shall not exceed:

| | |
|---|-------|
| Monday to Friday between the hours of 0700 – 1800 and Saturday between the hours of 0700 – 1600 | 65dBA |
| At all other times including Sundays and Public Holidays | 45dBA |

The approach for the Hunua Quarry Aggregate Resource Protection Area achieves policy 6.13.6.2.4 which requires the establishment and maintenance of buffer areas between quarry operations and adjacent activities.

Franklin District Plan

The Franklin District Plan notes in section 20.8 that, as site-specific resource extraction activities, quarrying activities need to be buffered from those more sensitive land uses which could, if sited in their immediate environs, unreasonably constrain ongoing extraction operations.

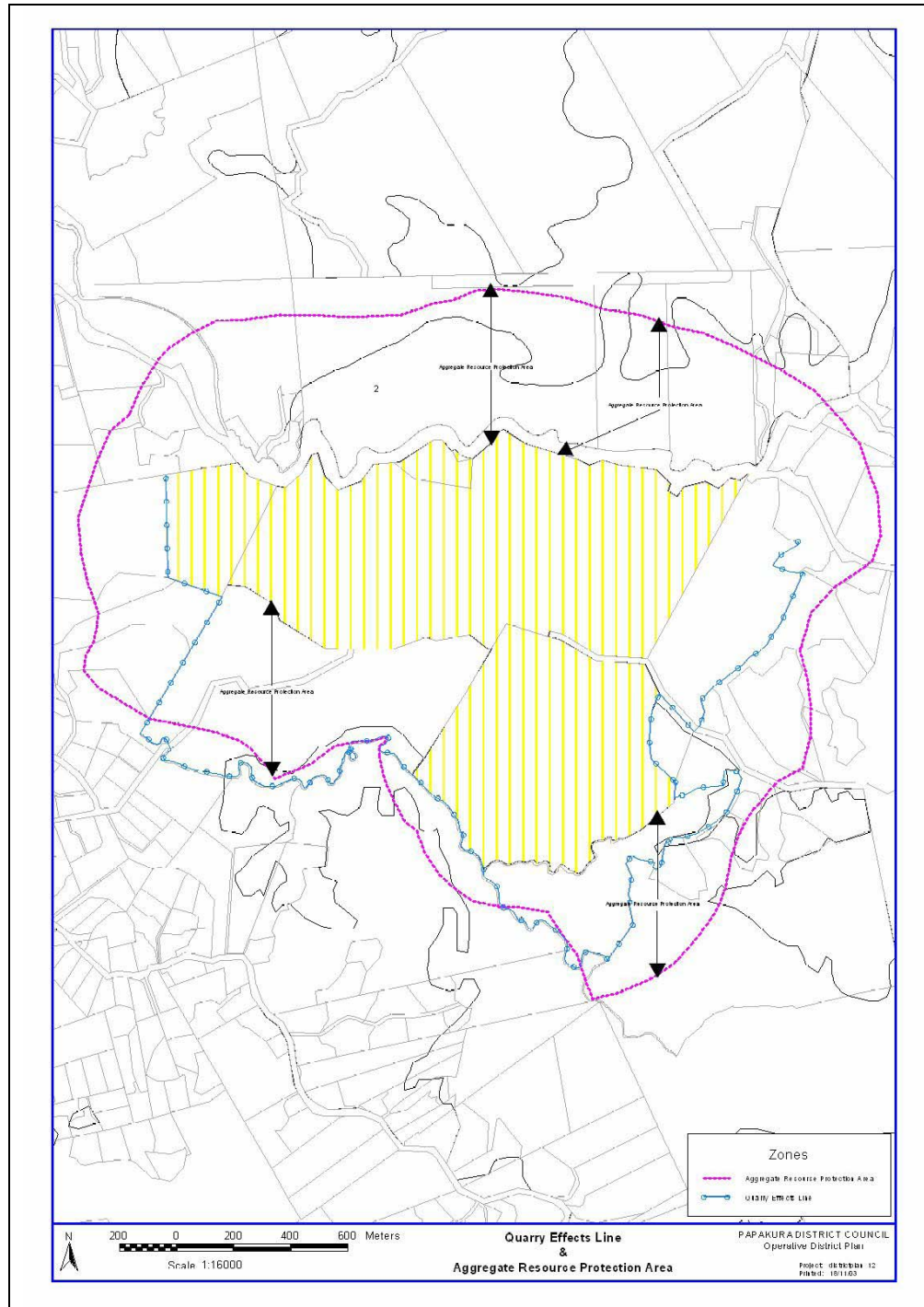
Under rule 35.5.7, within the Aggregate Extraction Zone, activities shall not exceed the following sound levels (L10 dBA) at a notional boundary of 20 metres from any occupied dwelling outside the site:

| | |
|--|-------|
| 0700 – 2200 Monday to Saturday | 55dBA |
| All other times and on public holidays | 40dBA |

Discussion

While it is important for zones within which quarries are operating to have permitted noise standards that provide for the types of operational noise that the activity is likely to generate, the issue many quarry operators are likely to face is the need to comply with the often more restrictive permitted noise standards in adjoining zones, particularly rural-residential zones.

Figure 2: Papakura District Plan Figure 6.13.9 – Quarry Effects Line



It is noted that the Papakura and Franklin District Plans establish buffer zones to measure noise and do this in relation to occupied dwellings only. This obviously removes the need to comply within a certain distance of vacant dwellings.

Some councils, such as Hastings District Council, encourage the use of alternative approaches, such as 'no complaints covenants' as a method for managing reverse sensitivity effects relating to noise. Hastings District Council also notes on Land

Information Memorandums for residential properties in the rural area that the property is located within a zone that permits noise-generating activities, such as quarries and requires buyers to beware when purchasing such properties. These approaches are aimed at increasing the awareness of prospective purchasers of rural properties of the noise that can be expected within a particular rural setting.

2.8.2 Noise from traffic associated with quarry operations

Explanation

Noise from vehicles associated with quarry operations are often accentuated due to quarries often being located in or adjacent to rural areas, where the background noise levels are generally lower. Further, due to increased traffic congestion in urban areas, it is often increasingly necessary for the transport of product from quarries to be undertaken during night-time hours when traffic volumes are lower. The background noise levels during night-time hours are also lower, further accentuating potential noise issues associated with the distribution of quarry resources. Many councils remain silent on the issue of noise from traffic and do not have specific objectives, policies or rules in relation to traffic noise. However, some councils have adopted approaches to manage this issue. These are detailed below.

Approaches

Approach – Activity Standards

Waitakere City District Plan

The Waitakere City District Plan identifies High Noise Routes, which are defined as any Strategic Arterial road, Regional Arterial road, or District Arterial road as shown on the roading hierarchy map, and contains rules in relation to dwellings constructed adjacent to existing High Noise Routes, and also future High Noise Routes. The explanation for Policy 10.15 notes that there are some areas of the city, particularly around the RNZAF air bases, where noise levels exceed those compatible with human health. In the case of the airbases, the District Plan has adopted a policy that seeks to avoid further settlement in areas where a number of high noise routes have been identified, as a precaution against further harm. However, it recognises that this should be balanced against the possibility that design solutions may offset this effect. Accordingly, the habitable rooms of dwellings on sites adjoining High Noise Routes, or on sites adjoining future High Noise Routes, must be constructed to achieve the stated performance standards and the process is more rigorous.

For example, rule 1.3(b) requires that any new dwelling or building containing Residential Activities, or any additions or alterations to habitable rooms of an existing dwelling erected on a front site adjoining a Future High Noise Route that will reach the predicted traffic flows for a High Noise Route within the 10 years following the application for building consent, shall be a permitted activity where any habitable rooms of the dwelling or Residential Activity meet the permitted acoustic standards.

Kapiti Coast District Plan

The permitted activity standards for the Residential Zone (D.1.2.1), includes the following standards in relation to transportation noise:

- a) Existing Excessive Noise Routes:
Dwellings constructed within 80 metres of State Highway 1 must meet the following requirements:
 - In all habitable rooms an internal L10 (18 hr) level of 45 dBA to be achieved with all opening windows closed.
 - An acoustic design certificate to be provided to show how this level can be met using approved noise abatement measures.

- b) Predicted Future Excessive Noise Routes:
The only future road predicted, at this stage, to become an excessive noise route is the Sandhills Arterial, the route and extent of which is shown by the designation in the planning maps. No dwelling shall be erected within 80 metres of the boundary of the Sandhills Arterial designation except where the following standards can be satisfied:
 - An external L10 (18 hr) level of 60 dBA required at a point 1 metre from the facade of the building.
 - An internal L10 (18 hr) level of 40 dBA in all internal rooms with the windows closed.
 - An acoustic design certificate to be provided to show how this level can be met using approved noise abatement measures.

Approach – Assessment Criteria

Franklin District Plan

Within the Aggregate Extraction Zone of the Franklin District Plan, where a resource consent is required as a discretionary (restricted assessment) activity, amongst the assessment criteria to be considered are the extent to which the adverse effects of noise, lighting and vibration will be avoided, remedied or mitigated. This is stated to include such effects associated with the use of a particular access point to the site.

Whangarei District Plan

Within the Mineral Extraction Area of the Whangarei District Plan, a Mineral Extraction Activity is a permitted activity if it does not cause total traffic generation of more than 100 traffic movements in any 24 hour period, amongst other conditions. Where an activity does not comply with the permitted activity standards a resource consent is required as a restricted discretionary activity. One of the assessment criteria to be considered is the effects on the amenity of the locality, which would include the adverse effects of noise.

Approach – Objectives and Policies

Kapiti Coast District Plan

Within section C.14 of the Kapiti Coast District Plan, objective 2.0 seeks to ensure that the adverse effects of road traffic noise on the amenity values of the residential

environment are avoided, remedied or mitigated. This objective is implemented through a number of policies including:

Policy 1: Ensure that Residential accommodation on an existing or designated excessive traffic noise route shall be located and constructed to avoid, remedy or mitigate the adverse effects of road traffic noise on the inhabitants.

Policy 3: Provide guidelines and information on:

- *Acceptable level of noise emission from new roads*
- *Differing methods of noise mitigation for residential accommodation and road construction.*

Policy 5: Ensure that housing in close proximity to arterial roads and railway corridors contains acoustic insulation to mitigate the effects of traffic noise for the inhabitants.

Discussion

Quarries are typically required to manage the effects associated with traffic movements from the quarry site to the State Highway. Identification of potential quarry sites would allow for identification of potential future High Noise Routes, which would enable the ability to control the location of sensitive land uses adjacent to these routes. This could be the role of Regional Land Transport Plans, then requiring a region wide implementation of rules and standards providing for protection of identified heavy haulage routes from reverse sensitivity effects.

Quarries triggering the need for resource consent are also often required to consider the effects of traffic movements from the quarry site to the State Highway on a council's roading asset, particularly in relation to general wear and tear from heavy vehicle use. Some councils address this by way of a specific financial contribution levied under the RMA, but the way in which this contribution is calculated can vary significantly between different councils. Given that the cost and means of mitigating roading effects is likely to be similar between councils (i.e. the cost of maintaining a road), a consistent method of calculating financial contributions for roading would reduce significant financial variations, and uncertainty, for quarry operators across the country.

2.9 Vibration

Explanation

Blasting, operational machinery and heavy vehicle movements are the main types of vibration generated by standard quarry operations. Vibration from these operations has the potential to raise complaints from surrounding landowners, which may impact on the ability to undertake day-to-day quarrying operations. Many councils do not provide specific rules in their district plans relating to vibration from activities. A number of councils have provided rules and acceptable standards for vibration in district plans in an effort to alleviate ongoing problems, with many councils adopting very similar rule structures and standards. These are detailed below.

Approaches

Approach – Activity Standards

Franklin District Plan

Within the Aggregate Extraction Zone of the Franklin District Plan, the relevant conditions that must be satisfied in relation to vibration state that:

- The measurement of blast noise (airblast) and ground vibration from blasting shall be carried out in accordance with Appendix J of Part 2 of Australian Standard AS 2187.2: 1993.
- The noise created by the use of explosives measured at a notional boundary of 20 metres from occupied dwellings shall not exceed a peak overall sound pressure of 128 dB.
- All blasting shall be restricted to between 1000 and 1600 hours Monday to Saturday except where blasting is necessary because of safety reasons.
- Blasting shall be confined to two occasions per day except where necessary for safety reasons.
- Where blasting is irregular and the occupiers of neighbouring sites could be alarmed, they shall be advised of pending blasts, at least one hour before any such blast.
- When blasting, the limit of particle velocity (peak particle velocity) measured on any foundation of an adjacent occupied building not connected with the site, or suitable location adjacent to the building, shall not exceed 25mm/second for commercial buildings or 10mm/second for dwellings and buildings of similar design.
- Every blast shall be recorded with particular attention to details of charge weight and delay practice. Monitoring using reliable and appropriate methods representative of all blasts, at varying distances and various sites of different sensitivity shall be carried out to ensure that clauses ii and vi above are complied with. Blast records and monitoring results shall be made available to the council on request.

Matamata Piako District Plan

Within Rural and Industrial Zones, mining, quarrying and mineral processing is a discretionary activity, provided it meets matters in rule 4.9 which include:

- The measurement of blast noise (air blast) and ground vibration for blasting shall be carried out in accordance with Appendix J of Part 2 of Australian Standard AS 2187.82 – 1993.
- The noise created by the use of explosives measured in accordance with the noise standards of the District Plan shall not exceed a peak overall sound pressure of 128dB.
- All blasting shall be restricted to between 0900 and 1500 hrs Monday to Saturday except where necessary because of safety reasons.
- Blasting shall be confined to two occasions per day except where necessary for safety reasons.

- When blasting, the limit of particle velocity (peak particle velocity) measured on any foundation of an adjacent occupied building not connected with the site, or suitable location adjacent to the building, shall not exceed 25mm/sec for commercial buildings or 10mm/sec for dwellings and buildings of similar design.
- Every blast shall be recorded with particular attention to details of charge weight and delay practice. Monitoring using reliable and appropriate methods representative of all blasts, at varying distances and various sites of different sensitivity shall be carried out to ensure the limits set out in the condition above are not exceeded. Blast records and monitoring results shall be made available to the council on request.

Whangarei District Plan

Within the Mineral Extraction Area, any activity must comply with specified vibration limits to be a permitted activity. The specified vibration limits include permitted activity standards in relation to human exposure limits and effects on structures. Human exposure limits are classified by the zone in which a site is located in. Effects on structures are classified by the type or use of the structure (e.g. whether an industrial building or a dwelling).

Discussion

Vibration is an issue that district plans either remain silent on, or otherwise address through generally consistent approaches, such as reference to Australian Standards and similar approaches to controlling the hours and frequency of blasting. It is unclear why vibration is able to be managed more consistently across councils than other similar issues, such as noise. However, it suggests that consistency is possible, particularly in areas where councils may have little or no specific expertise.

There is a risk referring to external documents, such as Australian Standards, in the event they become out-of-date. It is noted that the RMA Amendment 2005 introduced a new part 3 to schedule 1 of the Act. The new Part 3 sets out the legal grounds for, and requirements surrounding, the incorporation of external documents into plans via reference. An important aspect of part 3 of schedule 1 is that expired or revoked material continues to have effect as part of the plan unless a variation has merged to become part of the plan, or a plan change, states the material ceases to have effect. Clause 31 of schedule 1 now requires that there has to be a variation or plan change for an amendment to an externally referenced document to have effect through the plan, adding to the time and cost associated with updating a plan to refer to a current standard.

It is noted that where vibration is provided for in district plans in relation to quarrying, these rules often limit consideration to vibration generated by blasting activities. Consideration does not appear to be given to other potential sources of vibration, such as heavy truck movements. Approaches such as that used by Whangarei District Council measure the effect of the vibration on the receiving environment, enabling all vibration generating activities to be considered.

2.10 Reverse sensitivity issues

Explanation

The location of the quarry site and the nature of the surrounding land use create the potential for reverse sensitivity effects to occur. Reverse sensitivity is the sensitivity to complain about environmental impact which can be a particular issue for the quarry industry when nearby residents or activities perceive adverse effects associated with quarry operations. These concerns are commonly in relation to noise, vibration, traffic and dust effects. Councils generally manage each of these individual issues in various ways as discussed in previous sections. However, there are also councils who are actively seeking to reduce reverse sensitivity effects by protecting established quarrying activities and discouraging the establishment of sensitive activities near these sites.

Managing reverse sensitivity effects is generally done through objectives and policies to reduce reverse sensitivity effects associated with noise, vibration, traffic and dust effects that may lead to complaint or conflict between different activities. Another common approach is to use land use planning and controls to discourage potential conflicting activities in certain areas.

Approaches to managing specific effects, such as noise, dust and vibration, are discussed in the previous sections of this report.

Approaches

Approach – Regional Policy Statements

Proposed Regional Policy Statement for the Wellington Region

In the policy section of Proposed RPS for the Wellington Region, district plans are identified as the most appropriate regulatory tool to manage reverse sensitivity effects associated with dust through the separation of dust emitting activities and sensitive activities. Policy 1 of the Proposed RPS states that district plans shall include policies and/or rules that discourage:

- new sensitive activities locating near activities that emit odour, smoke or dust which can affect the health of people and lower amenity standards;
- new land uses or activities that emit odour, smoke or dust and which can affect the health of people and lower amenity value of the surrounding areas, locating near sensitive activities.

Quarries, vegetation disturbance and earthworks are all identified as dust emitting activities in the policy statement.

Approach – Regional Plan

Canterbury Natural Resources Regional Plan

Policy AQL6 of the Natural Resources Management Plan relates to the avoidance of nuisance effects from dust and reverse sensitivity. It states that encroachment of sensitive activities on existing activities discharging dust into air shall be avoided,

unless adverse effects of the discharge can be avoided or mitigated by the encroaching activity. In addition to regional rules and resource consents, the regional plan also identifies district plans as an important method to implement this policy through land use planning that:

- Provides appropriate locations for activities that discharge dust;
- Makes provision to protect established activities that discharge dust from encroachment by sensitive activities.

Approach – Activity Status and Standards

Nelson Resource Management Plan

Within the Rural Zone of the Nelson Resource Management Plan, buildings within 450m of a Potential Quarry Overlay point shown on the Planning Maps are permitted (RUr.73.1) if:

- The building is associated with quarry activities, and
- The building is not a residential unit.

Buildings that contravene this standard are a discretionary activity.

Tasman Resource Management Plan

Within the Quarry Area of the Tasman Resource Management Plan, rule 18.6.3.1 specifically states that the construction of a new residential dwelling or undertaking a new residential activity are non-complying activities.

Hurunui District Plan

Proposed plan change 7, as notified, proposes:

- To change the status of quarrying or mining from discretionary to non-complying activity if the quarrying or mining is located within 500m of a residential area;
- To deem residential activity to be a discretionary activity if locating within 500m of commercial quarry or mine.

Approach – Assessment Criteria

Franklin District Plan

Under the Proposed Rural Plan Change, the Franklin District Plan states that when considering all applications for restricted discretionary activities in the Rural Zone, council will restrict its discretion to matters including the extent to which the potential for mineral extraction activities may be curtailed by sensitive activities (such as dwelling houses) located in the vicinity. In carrying out this assessment, the council will be guided by, in the case of rock extraction sites, the desirable 'buffer' distance of 500 metres between the extraction site and the sensitive activity, and for sand extraction sites, the desirable 'buffer' distance of 200 metres. The extraction sites to which such buffer distances apply are as follows:

- Those specifically zoned, or proposed to be zoned, for such activities by this plan (not including those proposed to be zoned for such activities by a private plan change);

- Those established by a resource consent (land use) which is in force at the time of receipt of the application for the 'sensitive' land use activity;
- Those which hold existing use rights under Section 10 of the Act;
- Those for which a resource consent (land use) application has been received by the council and for which the decision has been made by the council regarding notification or non-notification of the 'extraction' activity application.

Also, within the Aggregate Extraction Zone of the Franklin District Plan, any activity expressly provided for in the Rural Zone, not being a permitted activity in the Aggregate Extraction Zone, is a discretionary activity.

Proposed Waikato District Plan

Under item 25.57 of the Proposed Waikato District Plan, construction of a dwelling is a permitted activity if it is set back at least:

- 200m from the boundary of an Aggregate Extraction Policy Area containing a sand resource, and
- 500m from the boundary of an Aggregate Extraction Policy Area containing a rock resource.

Any activity that does not comply with a condition for a permitted activity is a restricted discretionary activity. Discretion is restricted to:

- distance between dwelling and aggregate extraction policy area, intensive farming activity;
- amenity values;
- effects on other land use activities, including reverse sensitivity effects;
- matters in industry codes of practice.

Approach – Other Methods

Hastings District Plan

In the 'mineral, aggregate and hydrocarbon extraction district wide activity' section of the Hastings District Plan (section 13.2) there are a number of objectives, policies and methods on the utilisation of mineral resources in the District. One of the methods relates to Land Information Memorandums (LIM) requested within 500m of an established quarry site. The plan requires the LIM to identify the activity being undertaken and conditions on use and shall also state that residents moving into the areas need to recognise that the extraction and processing of minerals are accepted activities.

Discussion

The issue of reverse sensitivity can be reduced by discouraging quarrying activities and activities that are sensitive to quarry effects locating near each other. Often this will require the co-ordination of policies and rules in regional and district plans to manage both the effects associated with quarries such as noise and dust emissions and the location of new activities. Regional policy statements can be useful to clarify the best methods and responsibilities within the region to manage reverse sensitivity effects.

In terms of land-use controls, buffer zones around quarries can be a useful approach to mitigate the adverse effects from quarries on sensitive activities located within the surrounding environment. However, buffer zones do not replace the need for on-site measures or a Quarry Management Plan to be implemented on quarry sites to mitigate effects such as dust emissions, noise and vibration as much as practical to do so. On-site measures are likely to reduce the distance to affected areas and help to internalise the adverse effects to the site. Implementing all reasonable measures to internalise adverse effects before a buffer zone will be considered is the approach that has been promoted in case law (e.g. *Winstone Aggregates Ltd v Papakura District Council* (A096/98)).

It is also noted that the majority of councils appear to provide buffer zones only in relation to existing quarries, not potential quarry sites. This could create future issues when a quarry resource is developed, but sensitive land uses have been able to establish in the surrounding area. Identifying potential future quarry sites and imposing appropriate controls on the establishment of sensitive land uses in the surrounding area would reduce the potential for conflict between quarry operations and sensitive land uses in the future.

3 Case law

The following cases directly or indirectly involved issues facing the quarry industry.

3.1 Importance of the aggregate resource

3.1.1 Golden Bay Cement v Whangarei District Council (A15/2005)

This was a decision concerning whether a resident's property, being essentially rural in appearance but having two houses and some rural out-buildings erected on it, should be zoned rural (Countryside Living Environment) or residential (Living 1 Environment). The debate hinged on the extent to which the zoning of the property should reflect reverse sensitivity issues deriving from the presence of a quarry nearby owned by Golden Bay Cement.

The Court considered that it must place particular emphasis on the regional and national importance of the quarry resource. The Court further noted its recognition of the authorised externalisation of quarry effects, and proven reverse sensitivity effects. The Court concluded that while some of the property, notably that portion with existing built elements, could be zoned Living 1 Environment, the land closest to the quarry should be zoned Countryside Living Environment.

3.2 Internalisation of effects

3.2.1 Winstone Aggregates Limited v Papakura District Council (A096/98)

This appeal concerned provision in the proposed Papakura District Plan addressing effects arising from aggregate extraction. The issues were the extent to which the environment should be protected from the adverse effects from quarrying; and the extent to which quarrying and its extraction sites, as natural and physical resources should be protected from the adverse effects of incompatible activities.

The Court stated that *"in controlling undesirable effects, territorial authorities should impose restriction to internalise adverse effects as much as is reasonably possible. It is only where those effects cannot reasonably be controlled by restrictions and controls aimed at internalisation, that the sort of other restriction on other sites (as sought by the appellant) might be appropriate"*.

The interim decision found the evidence inconclusive as to whether it was reasonable in this case to impose a buffer zone with a set of restrictions on properties adjoining the quarry in addition to the quarry site to avoid, remedy and mitigate the adverse effects on the environment. The Court was not opposed to the

buffer site but wanted to be certain that all reasonable measures had first been implemented to internalise adverse effects within the quarry site.

3.2.2 Hill v Matamata-Piako District Council (A065/99)

The Environment Court noted that "*one of the guiding principles of the RMA is the internalisation of effects as a way of avoiding, remedying, or mitigating effects of activities*". The Court accepts the approach "*that the Act follows a polluter pays approach requiring the creator of adverse effects to internalise those effects rather than force the rest of society to bear the burden of dealing with them*".

3.2.3 Winstone Aggregates v Matamata-Piako District Council (W055/04)

In this case the Court cautioned against a view that "reverse sensitivity" consequences should necessarily be avoided by constraint on sensitive new activities. The first principle should be that the activity causing the effects should internalise them. Where long-established activities could not internalise the adverse effects, and the continued presence of the activity in the area was nationally, regionally or locally important, this could result in constraints on neighbouring land uses.

3.3 Reverse sensitivity

3.3.1 Winstone Aggregates Limited v Papakura District Council (A096/98)

In this case, the Court established that local authorities have the jurisdiction to provide a zone to provide for reverse sensitivity and "*the internalisation of the functions of the territorial authority, and in particular section 76(3) does not exclude inter-zonal applications of reverse sensitivity where this is consistent with the overall functions and obligations of the territorial authority*". In this case the Court concluded that "*territorial authorities should impose restrictions to internalise effects as much as reasonably possible*".

3.3.2 Winstone Aggregates Limited v Papakura District Council (A049/02)

In this case the Court considered the concepts of reverse sensitivity and internalisation of effects in the context of a district plan reference relating to the zoning of land surrounding a quarry. After reviewing the case law, the Court concluded that it was a matter of judgement as to whether in a particular case the adverse effects are such that the cost of avoidance should be totally internalised. It is a question of what is appropriate in the circumstances.

3.3.3 South Pacific Tyres NZ Ltd v Powerland (NZ) Ltd (CIV427/08)

This case involved a summary judgement and specific performance against Powerland whose land adjoined South Pacific Tyres who had been operating on the site since 1948. In 2002 the parties entered into a covenant, whereby the tyre company agreed to consent for a residential development subject to a no complaint clause as to the effects of the existing use of the tyre company land. However, immediately after the consent was granted, the developer notified the tyre company

of its intention to cancel the covenant. When a complaint was subsequently laid about noise, the tyre company filed proceedings with the Court to enforce the agreement and the terms of the covenant.

The developer argued that the covenant removed its rights under the enforcement provisions of the RMA. The Court considered that the covenant meant that the developer merely waived its right to complain under the RMA and did not remove the jurisdiction of the Court in a way as to breach the common law. The Court considered that it was apparent from case law that participants could freely waive their rights to participate under the RMA, especially in cases where the developer obtained direct benefit from doing so. The Court also found that such covenants were not contrary to public policy. Therefore the covenant was upheld in favour of South Pacific Tyres as being valid and enforceable and the Court made an order to that effect.

4 Summary

The purpose of this report is to promote debate on the best practice approaches used within regional policy statements and regional and district plans to provide greater direction on how to address resource management issues facing the quarry industry. It is not intended to be comprehensive list of approaches used in New Zealand or a reflection of best practice. The aim is to seek feedback on these approaches to identify what works and what does not, in order to provide a set of best practice guidelines on managing the effects associated with quarrying and effective planning for aggregate resources.

Key questions that require further discussion include:

- What are the main resource management issues facing the quarry industry in your region or district?
- Do the examples provided in this paper reflect current practice? How effective are the approaches discussed in this paper? Are there issues associated with their implementation?
- Are there approaches not covered in this paper that should be included in a set of best practice planning guidelines for the quarry industry?
- Is there other case law discussing resource management issues relevant to the quarry industry that should be addressed?
- How do you think the resource management issues facing the quarry industry are best addressed by regional councils or territorial authorities?

Based on this report, feedback to it, and future discussion, it is intended that a best practice guideline, in the form of a 'Planning Guidance Note', will be formulated to provide future direction to local authorities and the industry when dealing with resource management issues associated with the quarry industry.