MANUKAU QUARRIES

# MANAGEMENT PLAN

**This Quarry Management Plan (QMP) is a non-statutory document that has voluntarily been prepared by Manukau Quarries Limited in general accordance with the relevant provisions of the Auckland Council Unitary Plan – Operative**

**Aerial Photograph November 2015**

# REVISION OF TEXT

| DATE OF REVISED TEXT | PERSON WHO REVISED TEXT |
|---|---|
| October 2015 | Bruce Bowie |
| | |
| | |
| | |

**Drawings and Appendices October 2015**

**Introduction**

a) Quarrying is a permitted activity at Manukau Quarry under the Auckland Council Unitary Plan - subject to a range of development controls. The site also has existing use rights for the quarrying activity.

b) Manukau Quarries Limited (referred to as MQL from herein) is formerly required to have a Quarry Management Plan (QMP) for the Auckland Council (AC). MQL has developed this QMP in consultation with representatives of the community and AC to help provide an assurance to the community that potential environmental effects associated with quarrying at the site are appropriately managed and controlled.

c) A Community Liaison Group (MQLG) shall be set up to facilitate improved communication and ongoing good relations between MQL management and the community.

d) This QMP will address all the same matters required by Rule 6.13.8.1 (d) of the PDP It will also address procedures for continued consultation and liaison with the community, a description of the existing quarry operations and any proposed changes to these.

e) MQL will operate its Manukau Quarry in accordance with this QMP.

f) This QMP will be reviewed at least every five years by MQL.

**Glossary**

QMP: Quarry Management Plan

AC: Auckland Council

PDP: Auckland Council Unitary Plan - Operative

MQLG: MQL Community Liaison Group:

Vegetation Management Plan RMA: Resource

Management Act 1991

EMS: MQL Environmental Management System

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# 1. General Introduction

## 1.1. Background to the QMP

a) Quarrying is a permitted activity at Manukau Quarry site under the PDP subject to a range of development controls. The site also has existing use rights for the quarrying activity.

b) MQL has developed this QMP in consultation with representatives of the community, the MQLG and AC to help provide an assurance to the community that potential environmental effects associated with quarrying at the site are appropriately managed and controlled.

c) This QMP will address all the same matters required by Objective 6.13.6.1, Policy 6.13.6.1.2 and Rule 6.13.8.1.1(d) of the PDP. It will also address procedures for continued consultation and liaison with the community, a description of the existing quarry operations and any proposed changes to these.

d) The Objectives, Policies and Rules section for the Quarry Zone in the PDP (6.13.6) state:

***Objective 6.13.6.1***

*"To provide for the careful management and extraction of mineral resources and the restoration of*

*exhausted quarries"; and*

***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"; and*

***Rule 6.13.8.1.1(d)***

The Rules section for the Quarry Zone in the PDP (6.13.8.1.1 (d)) states:

*"…All quarrying and restoration shall be carried out in accordance with the Quarry Management*

*Plan which shall include the following information in plan form and in explanatory material:*

(i) demarcation of the area to be quarried;
(ii) *existing contours;*
(iii) an indication of final contours and floor levels including the proposals for the coordination of final levels of adjoining land;
(iv) proposed ultimate drainage of quarried lands and include any water consents that it may be necessary to obtain;
(v) an indication of the period over which quarrying will continue, and of staged development

(vi) provision for the disposal and/or stockpiling of overburden, waste and quarried material, including the area to be used for stockpiling;

(vii) areas for stockpiling topsoil (where applicable);

(viii) provision for screening unsightly features from public view and fencing dang erous or potentially dangerous features;

(ix) description of methods to be employed to prevent contamination of air or natural water and to
comply with the Noise and Vibration provisions of these rules;

(x) an indication of the route by which quarried material is to be removed from the lot

(xi) provision for the progressive restoration of the lot such that the land will be left in such condition as the Council considers suitable for the establishment of those uses to which that land may subsequently be put; and

(xii) description of methods to be employed to avoid, remedy or mitigate any adverse effects of
quarrying operations on identified significant places and areas."

e) Rule 16.13.8.1.1(d)(xi) requires the QMP to provide for progressive restoration such that subsequent future use of the land will be enabled. This 2015 QMP recognizes that the current Manukau Quarry pit has the potential of approximately 20 years of mineral resource extraction, and restoration by way of backfilling is likely to commence within the first five years to achieve restoration by the end of the consented period.

f) The overall purpose of this QMP is to set out objectives and measures to maintain and enhance environmental performance of MQL's Manukau Quarry while avoiding, remedying and mitigating adverse environmental effects. These objectives and measures will be set in accordance with MQL's Environment Policy (Appendix 1).

### 1.2. Changes or Amendments to the QMP

a) Amendments to the QMP may be made by MQL at any time. The Manukau Quarry MQLG and AC will be notified of any significant changes to the QMP that are likely to impact on the effects of quarrying beyond the boundary.

b) A complete review of the QMP shall be made every five years by MQL. The Manukau Quarry MQLG and AC will be notified of the changes to the QMP resulting from these reviews. At the time of review MQL will consider any changes suggested by the Manukau Quarry MQLG or other resident(s).

## 2. CONSULTATION PROTOCOL

### *2.1. The Manukau Community Liaison Group (MQLG)*

MQL, together with the AC and representatives of the local community shall establish the MQLG. The purpose of this group is to consult on an on-going and regular basis about matters associated with the operation of Manukau Quarry where they affect the community and are of mutual interest to the representative parties.

The quarry manager shall attend other local Liaison group meetings such as The Manukau Pony Club and Pohutakawa Coast Community Association (PCCA) where possible to address and potential community issues from the quarry activities.

### *2.2. Frequency of Meetings*

The MQLG will meet as necessary and no less frequently than every three months unless all representative parties agree that there is no need for a meeting. If meetings are to be held less frequently than three monthly as proposed in the QMP, then the proposed date of the next meeting should be tabled at the MQLG meeting.

### *2.3. Location and Time of Meetings*

a) Meetings will be held at a location agreed to by the majority of representatives of the parties involved in the MQLG.

b) The time of the meetings will be agreed to by the majority of representatives of the parties involved in the MQLG.

## *2.4. Notification of Meetings*

Any proposed meeting shall be notified in writing to all landholders within 500 meters of the Manukau Quarry zone boundary by MQL, at least 14 calendar days prior to the meeting date. Any person who has attended recent meetings of the MQLG will also be sent written notice of the coming meeting.

### *2.5. Meeting Protocol*

Meetings shall be conducted in an orderly and respectful manner. This is consistent with the overarching objective to provide a forum where matters can be discussed with an intention to resolve issues raised and to achieve on-going good relations and mutual trust between MQL and the local community.

## *3. Background to the Quarry*

### *3.1. History and Ownership*

Quarrying commenced in the “Beachlands Quarry” some 50 years prior to Manukau Quarries Ltd ownership. This land was established and zoned for quarry purposes in the late 1950’s by a local owner with the fore sight for the expansion of the area. With naturally occurring Greywacke rock in the surrounding hills, a small scale quarry operation was established with continued growth and family ownership continuing to supply aggregates to the market until late 2015. The land comprises of 9.11Ha of an existing Quarry pit with surrounding rural farm land.

This commercial venture has recently been acquired by Manukau Quarries Ltd in late 2015. Further development of the Quarry activities and for redevelopment of the site are planned with design and earthworks to commence in late 2015.

With development plans well under way, the site shall see major earthworks and expansion of the quarry start in late 2015. Production of aggregates and reshaping the existing quarry land form is set down for the first construction season to form a stable platform for the further expansion of the quarry business

### *3.2. Location*

Manukau Quarry is located in Beachland Auckland, some 23km east of Auckland Central, and 2km East of Beachlands Township. The Quarry is adjacent to the Beachlands Roundabout and is located at #885 Whitford Maraetai Raod. The property lies in proximity to the rapidly expanding Manukau City and adjacent to the current developments taking place in the Beachlands area.

This Quarry incorporates some 9.11ha of land in both the Beachlands - Maraetai catchment. This land area has special “Quarry Zone”status under the proposed Auckland Unitary Plan and lies within the border of “Country Living” Zone.

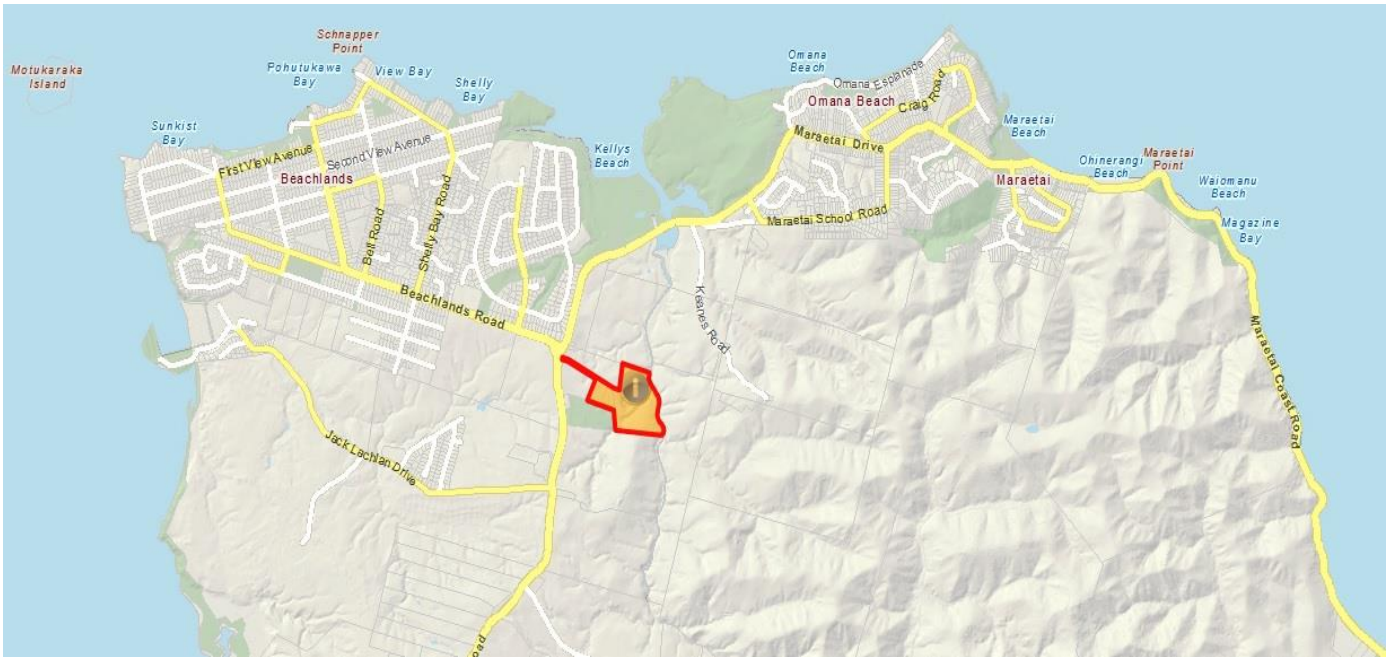


**Figure 1:**
**Location of**
**the Site**

**Figure 2: MQL-owned land #885 Whitford Maraetai Road**

# 4. Description of Site and Operations

## 4.1. Current Site Layout

a) The total quarry property comprises approximately 9.11 ha, which lies within the Beachlands - Maraetai Catchment area. This area contains the existing pit, quarry production facilities, with an area to the East of the pit containing overburden. The balance of the land is currently used as horse grazing paddocks. The site is situated 400m from the main road down an existing driveway. The Eastern boundary is confined by Kelly Creek which runs North from Okororo Drive to the sea. All Other boundaries are adjacent to rural land with two dwelling on either side of the existing driveway

The entrance to the quarry is from Whitford Maraetai Road and has a dedicated slip lane incorporated into the recently installed roundabout intersection for access to the site.

b) The Picture below shows the existing layout of the Manukau Quarry site including features such as the site buildings, entrance/exit and processing plant.


## *4.2. Geology*

a) The basement rocks which comprise the aggregate resource at Manukau Quarry consist of hard, slightly metamorphosed siltstone to sandstone loosely termed “greywacke”. These rocks were formed by deep burial of clay, silt and sand deposited on the ocean floor some 150 million years ago. During and after formation the rock was greatly deformed by earth movements to produce the highly faulted and locally veined rockmass currently exposed in the quarry.

b) Weathering of this greywacke varies from complete reduction of the greywacke to soil, to fresh hard rock with minor limonite staining confined to the major joints.

c) Apart from the currently excavated quarry pit area, the greywacke is generally overlain by a variable thickness of soft sandstones and siltstones of the Waitemata Group and some thin ash beds. This soft rock, along with weathered greywacke, comprises the overburden which must be removed prior to extraction of the rock for aggregate use.

## *4.3 Water Resource*

The site is located within Te Puru Stream valley. The valley is formed by a series of small hills that rise to form a ridge east of Te Puru Stream and by a lower and descending single broad ridge· on its west side. Whitford - Maraetai Road runs along the top of the west boundary ridge which runs

out to the east of Beachlands Village. The valley runs north/south to the narrow coastal plain that lies immediately north of the site.

A combination of round, pasture covered spurs and vegetated gullies give a distinctive pattern and character in this part of the valley. This pattern is stronger on the east side of the valley but is also echoed on the west side.

The lower slopes of Te Puru Valley, and the site, are hidden from outside view while the upper east slopes and the central spur are visible to the west and north-west. The quarry sits at the lowest point of the valley before it opens to the seacoast plain.

Water within the Quarry pit occurs from a natural spring founded in the western face. This spring is groundwater founded from the aquafer below the land. General run off from the land is also captured with this spring water in a sediment holding pond in the east floor of the existing quarry.

Water for amenities is captured from roof run off into a 25,000l storage tank.

## *4.4. Vegetation and topography*

The landscape surrounding and including the applicant site divides into five main areas. These are the East Valley slopes, the Central Spur, North Headland, West Valley slopes and the Quarry.

***East Valley Slopes***

Small hills and spurs gradually rise to form a ridgeline with an average height of 125 metres to the east of Te Puru Stream. The east ridgeline is the dominant landform within the valley and is the backdrop to outside views from north-west, west and south-west. The rounded landforms and vegetated gullies below Keanes Road form the East Slopes.

Grass ·covered spurs· and hilltops alternate with the descending gullies below Keanes Road, which mostly contain swaths of streamside vegetation and give a simple but noticeable pattern to these slopes.

Four farmhouses are located on the slopes but are mostly enclosed by shelter planting or sited adjacent to Keanes Road and away from direct view of the valley below. Agricultural buildings are located on the lower open paddock areas but are scattered and do not dominate the hillside.

A large exotic forest block extends along the tops of this ridge and appears as several blocks when viewed from the west side of the valley.

An area of remnant native forest extends up the slopes of an upper southeast gully and is visually prominent within the valley.
Most of Te Puru Valley is visible from the open slope and spur areas of the east side of the valley but views from the residential properties are limited by shelter planting and the orientation of some houses to the north. Gully and shelter planting also limit views along the slopes in a south to north direction.

Wide panoramic views are available at the south and highest end of Keanes Road (70 metres nom). However these views are not generally available from the remainder of the houses or the road due to shelter and the roadside planting.
The quarry is visible from the land surrounding three residential properties but direct residential views are only available from number 67 Keanes Road.

***Central Spur***

A more sharply profiled spur runs due north through the bottom of Te Puru Valley and divides it to east and west. The spur is a significant visual element within the valley (65 metres nom.) and ends immediately south of the present quarry pit. It rises with a steep grade than the surrounding West Slopes and has a recent house located at its knoll. This residence fs prominent within the surrounding valley area but is screened from the quarry pit by

boundary planting and by the .pit excavation.

The spur is covered in pastureland and bounded to its lower east and west slopes by a small tributary and by Te Puru Steam. The tributary is named as 'Pony Club Creek' in this and other reports included in the Resource Application.

There is extensive streamside vegetation growing along both watercourse margins. Kanuka forms the bulk of the canopy but there are also remnant areas of native forest trees and other sub-canopy shrubs, ferns and grasses. Chinese Privet is established in some parts of this vegetation. A full description of site vegetation is found in the Bioresearches Ltd report.

***North Headland***

A small spur runs west to east from Whitford – Maraetai Road and forms a low headland immediately north of the quarry pit. This headland forms a neck with the slopes to the east side of Te Puru Stream and creates a narrowing of the valley. A farm forest block is established on this spur and ends near its toe with a kanuka block growing between it and the stream edge. This headland and associated planting is visible from the coastal area to the immediate north and prevents views into the valley and quarry area.

***Western Slopes***

The west slopes descend in a gentle grade from the Whitford - Maraetai Road to Te Puru Stream via a neck between the central spur and north headland. The character of the slopes is pastoral with a mixed land use overlay that is derived from the accessibility of the land and the easy topography.

Pasture is the predominant land cover. Other vegetation includes shelter and boundary planting, a small farm pine plantation, and streamside vegetation growing along both 'Pony Club Creek' and a small gully that runs down the upper south quarry boundary ('Lamb Pasture').

Native and exotic gully planting is largest continuous area of vegetation and a significant landscape component of the West Slopes.

Exotic tree planting follows field and road boundaries above the gully areas and includes willow, eucalyptus and pine species. This planting is not extensive but prevents views north south across the slopes. Dwellings and buildings are not easily visible from neighbouring houses and longer views tend to be to the east and past the central spur to the upper east slopes. The quarry pit and lower haulage road are located adjacent to the valley area and currently hidden from all direct residential views within the west side of the catchment

***Quarry Pit***

The present quarry pit is located on the west boundary of Te Puru Stream. It is bounded by the haulage road to its south and west boundaries and by the north headland and the west slopes above. The haulage road follows the grade of the surrounding slopes as they descend to Te Puru Stream with the channel of 'Pony Club Creek' tributary running immediately to the south. The quarry has steep faces and a relatively small flat pit floor that contains the crusher and associated stockpiles of materials.

The pit is visible from parts of the east valley slopes but concealed from all views on the west side of Te Puru Valley.

Limited screening is provided to the east by the pine trees, kanuka and remnant forest trees growing on the Te Puru streamside of the lower haulage road. The central spur and 'Pony Club Creek' vegetation provide screening to the southeast and south. Pine shelter planting adjacent to the quarry workshop and upper west pit face further screen the quarry from views to the west.

***Summary***

Te Puru Valley is a managed rural landscape that has a high level of visual amenity. This amenity derives from the distinctive hill landscape of the east valley slopes and the strong vegetation pattern associated with Te Puru Stream and its tributaries in the valley bottom and

associated spurs and gullies.

There are a number of land use activities other than pastoral farming and include the quarrying operation in the base of the valley. Apart from the pine blocks to the east of Keanes Road most non pastoral activity is located on the west side of the valley and, in particular, in the areas to the west of Whitford – Maraetai Road. The mature tree planting, boundary and shelter planting and areas of regenerating native gully vegetation indicate the established pattern of the present landscape and land uses.

Residential occupation is sparse and generally contained on the road boundaries on both sides of the valley. The exception to this residential pattern is the house on the top of the central spur, which is exposed to all outside views. The present quarry pit is exposed to views from the east valley slopes but not from most direct residential views. It is hidden from all views within the west valley slopes.

## *4.5. Archaeology*

An archaeological investigation has been undertaken for the quarry site in 2005, a copy of which is included in Appendix A

As part of this assessment a file search and visual inspection of the area was undertaken. No archaeological sites were identified on the Quarry site or area for the expansion .

## *4.6. General Description of Quarry Operations*

a) The purpose of the quarry operation is to extract the rock from the ground and process it for use as building, construction and roading aggregates. The process of transforming rock from the ground into aggregate products comprises (1) the stripping of vegetation, soil and low quality material overlying the rock resource, (2) loosening and fragmenting the rock from the ground with the use of explosives and/or heavy machinery and then(3) excavation of the rock by heavy machinery to be either stockpiled or transported to the plant for further crushing and screening into various sizes and grades for sale.

b) Once quarrying of the resource from the current Manukau pit (and at some future time, the Southern Zone) is practicably exhausted, quarrying activities will include the progressive restoration and reinstatement of the land. This will be achieved by backfilling operations which are earthworks similar to, but the reverse of, extraction activities.

c) The methods used in future quarry operations on the site are likely to be generally similar to those used at present. However it is expected that specific machinery and methods of extraction will vary in the future as technology develops and machinery and quarrying techniques are replaced. The following sections are intended to provide a more detailed description of these activities.

## *4.7. Vegetation Removal and Site Preparation*

a) This involves removal of vegetation and any structure. See Appendix B for vegetation species on site

b) Vegitation shall be removed via a mulching head to alleviate contamination of the overburden during stripping.

## *4.8. Soil Stripping and Stockpiling*

a) As the quarry pit expands, soils and subsoils are stripped, transported and stockpiled using motor scrapers, bulldozers and/or excavators and trucks. These materials may be used in the construction of bunds for landscape enhancement and noise control or stored for future rehabilitiation.

## *4.9. Overburden Stripping and Disposal*

a) Overburden is unsuitable material lying over the quarries aggregate resource, which cannot be either sold as is, or further processed into a saleable product.

b) As the quarry pit expands, overburden materials are stripped, transported and deposited.

Such materials have insignificant commercial value but are required to be removed to facilitate extraction of the aggregate resources, employing a similar range of machinery as used for soil/subsoil excavation.

## *4.10. Rock Removal*

a) The quarrying of softer aggregate resource types uses excavators and/or bulldozers and loaders to excavate and load materials onto trucks for transport to the processing plant, stockpiles or offsite. The quarrying of harder rock requires drilling and blasting with explosives, followed by loading onto trucks using excavators or loaders for transport to the processing plant, stockpiles or offsite.

b) Manukau Quarry uses drilling and blasting practices typical of New Zealand operations of a similar scale. All blasts are designed and managed by trained and qualified personnel taking into account a variety of factors including PDP requirements.

Typically at Manukau Quarry blasting holes are drilled with 102mm diameter. These holes are loaded with either bulk or bagged ANFO (Ammonium Nitrate and Fuel Oil) and are currently initiated with non-electric detonators to reduce the potential for vibration and air blast.

## *4.11. Processing Rock*

a) Rock is processed into aggregate products, using crushing, screening, washing, blending and conveying machinery. The products are moved by trucks, loaders or conveyor to storage bins or stockpiles.

b) MQL has a modern aggregate processing plant that is capable of producing a full range of aggregates. The plant has been specifically designed to maximise the Manukau rock resource while at the same time minimising the potential for adverse environmental effects such as noise and dust.

c) Special environmental controls include:

- Housing the main processing plant to contain the potential effects of noise and dust;
- Covering all potentially dust generating conveyors;
- Spray bars at potentially dust generating material transfer points; and
- Mist sprays beneath all crushers.

d) The plant has been designed with the capability of washing semi-processed and finished aggregate products and a water control and treatment system has been incorporated into the plant to manage aggregate washings. This system is generally a closed circuit system with only makeup water added to compensate for water lost through evaporation or soaked up the aggregate products themselves.

## *4.12. Landscape Works and Rehabilitation of the Pit*

a) Where appropriate and practicable, excavated and disturbed areas are rehabilitated with the placement of overburden and soils and then re-vegetated with suitable species. The site has a separate VLMP that

illustrates and describes how rehabilitation of different areas of the quarry will occur over time as the quarry develops.

b) As above Rule 16.13.8.1.1(d)(xi) requires the QMP to provide for progressive restoration such that subsequent future use of the land will be enabled. This 2015 revision of the QMP recognizes that the current Manukau Quarry pit is approaching practicable limits of mineral resource extraction in the current pit without significant investment., Restoration by way of backfilling, using cleanfill such as topsoil, is likely to commence in 2016 to start the restoration requirement.

c) The overall purpose of this QMP is to set out objectives and measures to maintain and enhance environmental performance of MQL's Manukau Quarry while avoiding, remedying and mitigating adverse environmental effects. These objectives and measures will be set in accordance with the principles and policies of MQL's Environment Policy

# 5. REGULATORY FRAMEWORK

## *5.1. Planning Context*

a) Use of Manukau Quarry is primarily governed by the provisions of the Resource Management Act 1991 (RMA). Activities in the quarry which are not permitted activities or existing uses require resource consents in terms of the PDP and any relevant Regional Plans of the Auckland Council.

b) At a national level the RMA deals with the management of natural and physical resources and establishes a hierarchy of plans and policy statements. The New Zealand Planning hierarchy is set out at Figure 5 below.


**Figure 5 – NZ Planning Hierarchy**

c) At a regional level the Regional Policy Statement considers issues of significance to the region and provides policies for the management of land, sea and air resources. The Auckland Regional Policy Statement contains a section on minerals with two objectives:

1. ***To avoid, remedy or mitigate the adverse effects on the environment of mineral prospecting, exploration, extraction, processing and transportation.***

2. ***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.***

d) Regional Plans can be prepared for particular natural resources, however it is not mandatory for Regional Councils to produce these plans, except for the Regional Coastal Plan. Currently Auckland Council's Sediment Control Plan is the only Regional Plan directly relevant to Manukau_Quarry's_operation.

e) At the next tier, District Plans deal with land use issues and the effects of activities on the environment. The PDP contains objectives, policies and rules that control land use activities in the PDP.

f) Section 10 of the RMA also allows activities that have been legally established in the past to continue operating in a similar way (known as 'existing use rights'). Manukau Quarry maintains existing use rights for quarrying activity.

## *5.2. Auckland Council Unitary Plan - Operative Quarry Zone and Adjoining zones*

a) Apart from an eastern block of land owned by MQL, the zoning of the property is Quarry Zone in the PDP. Figure 6 (below) shows the zoning in the district plan. The eastern block (also known as the Hay Paddock) of MQL land mentioned above is in the Rural Papakura zone and is not included in this management plan.

b) The Quarry Zone is intended to provide for the continuation of quarrying and associated uses subject to environmental controls on the operation of the quarry and the ultimate use of the land. The permitted activities in the Quarry Zone are:

*Any quarry activity or industrial activity and any activity ancillary to the quarry activities.*

c) Permitted activities are required to comply with district plan rules which affect:

- Building height.
- Quarrying within 30m of site boundaries.
- Yards for industrial and commercial uses other than quarrying.
- Building coverage.
- Quarry Management Plan for quarry extension outside previous quarry plans.
- Noise received at or within 30m of dwellings.
- Vibration and noise from blasting.
- Dust control

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- Waste and water pollution.
- Topsoil removal.

d) In the Quarry Zone, individual native trees of listed species are protected. Resource consent is required for irreparable damage to tawa, taraire, miro, rewarewa, puriri if the tree is higher than 6m or has a trunk circumference of more than 0.5m when measured 0.5m from the ground.

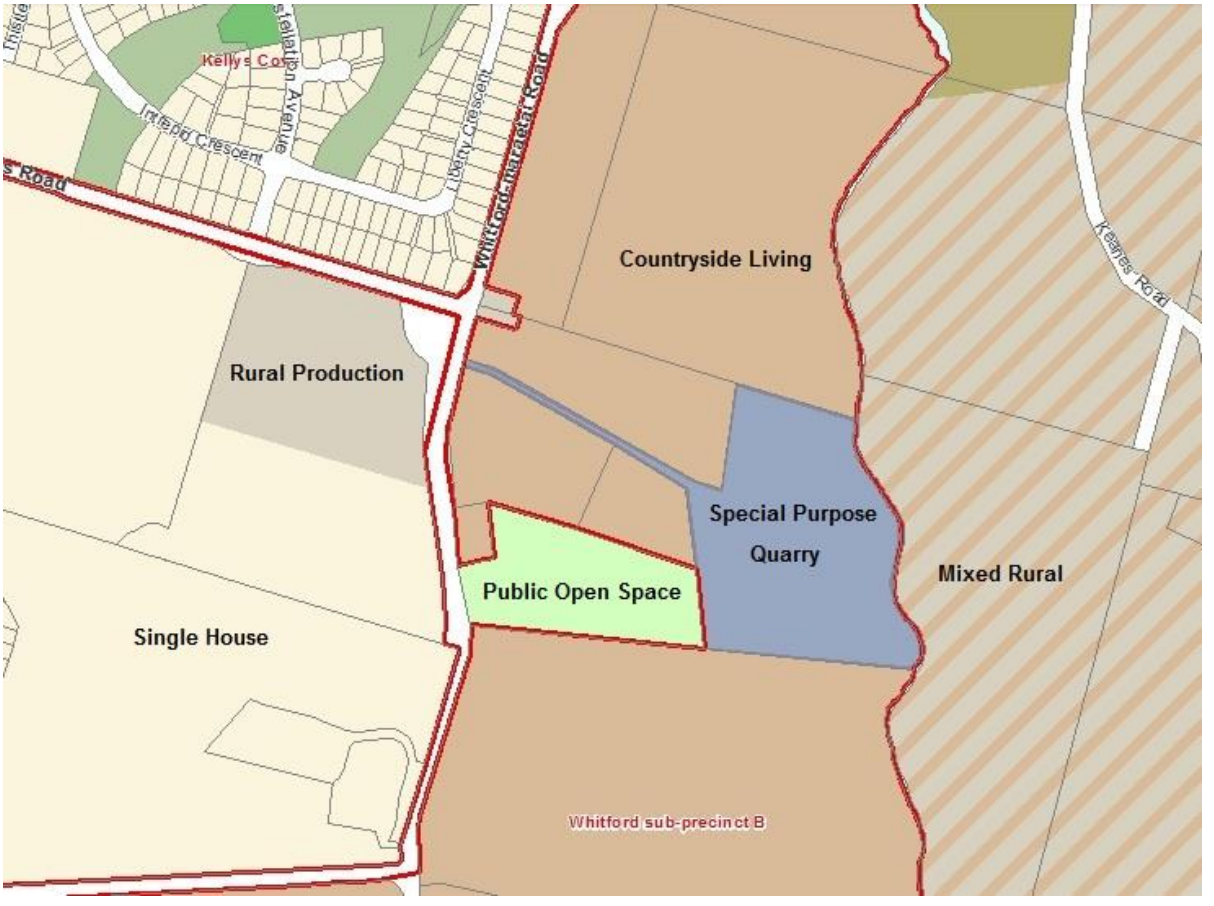

Kelly's Corner
Constellation Avenue
Liberty Crescent
Whitford-Maraetai Road
Countryside Living
Keamies Road
Rural Production
Special Purpose
Quarry
Public Open Space
Mixed Rural
Single House
Whitford sub-precinct B

**Figure 6: Land Zoning in the Auckland Council District Plan – Unitary**

## *5.3. Resource Consents*

Manukau Quarries has consent under the Resource Management Act 1991 to extract resource (namely aggregates) from the land. Zoned for Quarry purposes under the Auckland Unitary Plan allows for extraction and filling of the land for 35 years as issued in early 2012.

These consents can be viewed in Appendix C.

Current consents are;

33121 To authorize works in a watercourse including culverts and the diversion of a watercourse

33120 To authorize the discharge of contaminants into the air, primary dust from associated activities

33685 To authourize the diversion of groundwater to a quarry pit dewatering pond and taking of groundwater

32855 Land Use consent for sediment control of 6.1ha of quarrying

Application to the New Zealand Environment Court in late 2011 by interested parties had seen amendments added to the current consents. All decisions were upheld in favor of the Quarry with some restrictions included.

### 5.3.1. District Land Use

32855 Quarry Operation

### 5.3.2. Water Permits

33685 & 33121 MQL holds consents for the following activities:

i. To authorise the taking of groundwater for quarry dewatering and use in quarry operations in accordance with section 14 of the RMA

ii. To divert and take 30$m^3$/hr and 400$m^3$/day of groundwater for the purposes of dewatering.

iii. The total annual abstraction over the 12 month period commencing 1 June of any year and ending 31 May of the following year under consent 33685 & 20766 shall not exceed 146,000$m^3$

iv. To authorise works in a watercourse involving the diversion of approximately 200 metres of a watercourse being a tributary of Te Puru Stream, in accordance with Sections 13 and 14 of the RMA (Permit No. 34132, Auckland Council).

### 5.3.3. Air Permit

33120 MQL Aggregates currently holds the following air discharge permit:

To authorise the discharge of contaminants into air primarily dust, from activities associated with the operation of the Manukau Quarry, including: vegetation removal: overburden removal; excavating rock; blasting and drilling; crushing, screening storage, and transport of rock;

and the operation of a blending plant, in accordance with Section15(1)(c) of the RMA

### 5.3.4. Regional Landuse - Sediment Control

32855 MQL currently holds the following permits for sediment control;

a) Sediment control for approximately 6.1ha of quarrying, cleanfilling and associated earthworks at “Beachlands Quarry”. In accordance with Section 9(3) of the Resource Management_Act_1991
b) MQL develops an annual Sediment and Erosion Control Plan for the Manukau Quarry. This annual plan outlines site specific sediment control measures carried out on site, in accordance with the company Environmental Management System (TP90 Based). This plan includes a complete evaluation of discharge monitoring results for the previous 12 months together with a full assessment of the effectiveness of erosion and sediment control measures, and of any sediment related effects on the receiving environment.
c) A copy of the Sediment and Erosion Control Plan can be viewed by prior arrangement with the Manukau Quarry Manager.

### *5.4.* Hazardous Substances and New Organisms

a) In accordance with the Hazardous Substances and New Organisms Act 1996 MQL holds a Stationary Container Test Certificate for the Diesel Tank at Manukau Quarry. This authorises storage of diesel, required to be stored on site. A copy of this test certificate is displayed in the quarry office.

## 6. Site Development

### *6.1. Quarry Pit Development Year 1*

Excavate the southern slopes to reinstate safety benches at a -2.5% grade at 6m wide. The excavated faces shall be no greater than 75% grade and no greater than 10m lifts. This shall achieve an average slope of 60%.

The Northern Batter shall be filled in benches and batters with engineered fill from site and off site as a clean fill operation. This batter shall be compacted in layers to achieve strength and ultimately give rise to a new 8m wide access road to the base of the pit.

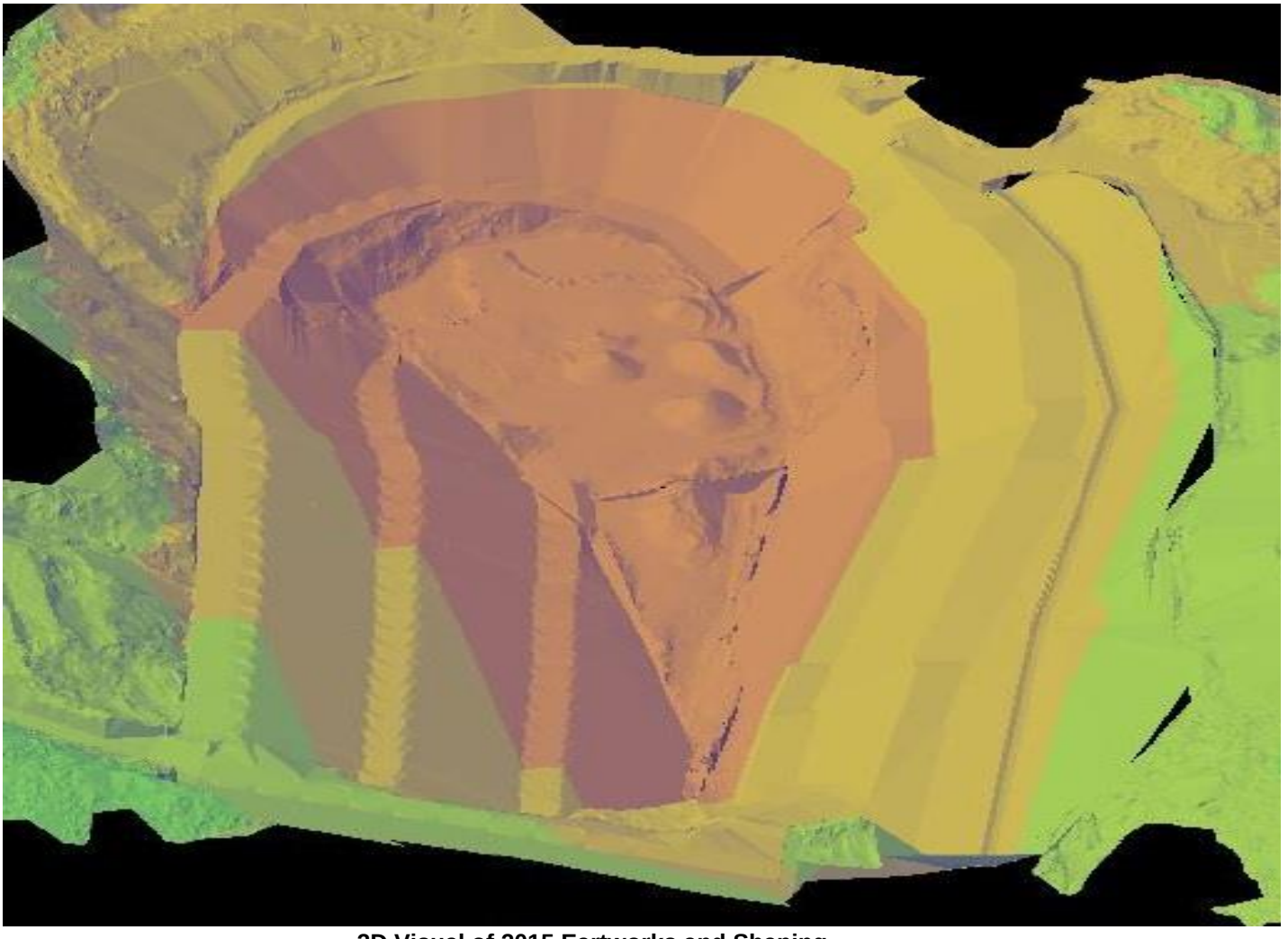
We do not wish to excavate on the northern slope except during the filling process to remove any overhang or shaping issues. We believe this filling programe shall take place over a two year period at a volume of 40,000m3.

The eastern face of the existing quarry shall be shaped only in the future to achieve the above 8m wide access road. This will entail excavation above the existing ponds in the rock face to create a 6m wide entry to the pit. We are mindful of the riparian boundary on this side of the site and do not wish to excavate near "Kelly's Creek".

The western face is also bounded by the boundary with Auckland Council (Pony Club). and only localized shaping is proposed to enable lowering the current access road. This lowering is due to access to the proposed southern face excavation to give access to the upper 6m wide bench. Also the lowering of the current access road shall shield both visual and noise from a close neighbor.

The Southern face as shown in the attached files is the proposed works for this season. This shall yield 54,500m3 of cut. Being 7000 of clay, 8000 of SPR and 39,500 of blue rock. This excavation

leaves the current pony club creek as stated in the consent in place to be relocated at a later date with movement into the south of the property.



**3D Visual of 2015 Eartworks and Shaping**

### *6.2. Overburden Stripping and Disposal*

a) Overburden will continue to be removed from the area immediately adjacent to the current quarry faces as they advance southward. These materials will be transported on internal haul roads to overburden disposal areas where they will be placed and treated according to the relevant design requirements.

b) The overburden disposal area will be designed to take into account the surrounding topography, surface water drainage, geotechnical constraints and proposed end use. The volume of material that can be contained in the site has been balanced with the stripping requirements of the quarry pit.

c) Overburden shall be stripped as required and placed either into stockpile on the southern area or used as fill in the northern rehabilitation face of the existing quarry pit

## 7. General environmental objective for quarry management

### *7.1. General Environmental Objective*

*To manage the extraction and processing of a valuable aggregate resource and site rehabilitation while avoiding, remedying or mitigating adverse effects on the environment and enhancing environmental performance wherever practicable.*

## *7.2. Explanation*

a) The continued and efficient extraction of aggregate resources in the Auckland Region is identified in the PDP as an important resource issue. At the same time, MQL has an obligation to ensure that the environment is not detrimentally affected by the continued operation of the quarry.

## *7.3. Measures to Achieve the General Environmental Objective*

### 7.3.1. Resource Management Framework

a) To achieve the general environmental objective MQL will operate within the bounds of the legislative framework for resource management in New Zealand as summarised above.

### 7.3.2. Management Measures

a) The measures undertaken by MQL's management to implement this general environmental objective are outside the scope of any particular rules for a permitted activity, conditions of permits, licenses or resource consents. These measures are provided in this QMP however in order to give an insight into MQL's current management practices and to indicate how MQL intends to manage this quarry. It can be expected that these management measures will change over time as MQL strives to achieve continuous improvement in environmental performance.

b) The current management measures and procedures reflect the growth of environmental responsibility for MQL. The company recognises the effects its operations may have on the environment and is continually searching for ways in which these effects can be avoided, remedied or mitigated.

### 7.3.3. Environmental Policy

MQL's Environment Policy (Appendix D) sets out the overall goals for the company's environmental performance. In order to make staff and visitors on site aware of the importance of good environmental performance, the Environmental Policy is prominently displayed on-site for the benefit of both onsite personnel and to the public. The Environmental Policy is also used to inform Manukau Quarry annual objectives and targets.

### 7.3.4. Environmental Management System

(a) MQL has in place an Environmental Management System (EMS) that is based upon the framework established by *ISO 14001- Environmental Management Systems - Specification with Guidance for Use*.

(b) The EMS is a tool that ensures accountability for environmental performance, providing a management framework that encourages openness and environmental improvement at all operational sites.

(c) MQL's Environmental Management Manual (EMM) documents the EMS and ensures that the Environment Policy is implemented at operational sites. The EMM covers such things as:

- legal requirements that each site must adhere to;
- setting environmental targets and objectives for individual sites;

- procedures for management of effects on the environment;
- management structure and responsibilities;
- record keeping of each site's environmental effects;
- communication including environmental reporting and information sharing; and
- review processes for the EMS and Environmental Policy.

(d) Environmental Schedules are maintained for each MQL site and contain environmental diaries that are used to record the results of compliance monitoring, complaints, objectives and targets. Regular reporting of compliance to senior management enables appropriate action to be taken. Monthly environmental reports are forwarded to the Business Unit Manager of Auckland Council.

(e) Records of all verbal and written complaints will be maintained in MQL Aggregates database. The records will be kept for no less than five years and will include:

- Name and details of complainant;
- Description of complaint; and
- Any follow-up action.

(f) Internal site inspections by senior management are made regularly for the quarry site. The purpose of these inspections is to reinforce the importance of good environmental performance and continual improvement.

**7.3.5. Quarry Design**

a) To achieve the general environmental objective MQL will design the quarry and restoration of land in a way that maximises the extraction of the aggregate resource within the property boundary in accordance with resource consents, district and regional plans and geotechnical constraints.

b) The operation of Manukau Quarry is regulated under the Health and Safety in Employment (HSE) Act 1992 and more specifically the Mining Administration Regulations 1996. These regulations are administered by Worksafe NZ

# 8. Environmental Effects

## *8.1. Background*

Quarrying has the potential to have a range of adverse environmental effects. This section identifies these effects and sets out the relevant environmental standards that the quarry has to achieve and the measures and methods for how it will achieve these standards.

## *8.2. Noise*

### 8.2.1. Noise Effects

a) Noise is generated by a number of different activities carried out at the quarry including: drilling; blasting; rock breaking; crushing; extraction; mobile plant; machinery, sales operations and restoration activities. If noise is not controlled at the quarry there is the potential for noise to cause a nuisance to people who live near the quarry.

b) It is important to note that blast vibration and noise generated by blasting (air blast overpressure) are treated as separate effects within this document.

### 8.2.2. Noise Objective

*To avoid, remedy or mitigate adverse effects of noise generated by on-site activity on the residents of dwellings and on business activities in the vicinity of the quarry.*

### 8.2.3. Explanation of Noise Objective

Excessive noise of sufficient duration or continuity can be detrimental to public health and to the amenity of adjacent land. The Noise Objective is an intention by MQL to keep noise levels from the quarry site at an acceptable level and to provide the community with an assurance on the level of noise that they can expect from the quarry and its operations.

### 8.2.4. Noise Performance Standards

"Noise from the Quarry and clean fill operations shall be managed to ensure that the following levels are not exceeded at the notional boundary (a line 20 meters from the facade of any rural dwelling, or the legal boundary where this is closer to the dwelling) of the dwellings existing as at October 2007 on 867 and 887 Whitford-Maraetai Road, and in relation to the property at 821 Whitford-Maraetai Road (the McKay property) the notional boundary shall be taken at a point 145 meters from the southern boundary (common with the McKay property) of the site:

| | |
|---|---|
| Monday to Friday 0700 -1800 | 55dBA L10 |
| Saturday 0900-1600 | 55dBA L10 |
| Saturday 0700-0900 & 1600-1800 | 45dBA L10 |

(Advice Note - As at October 2007 the notational boundary applied only in respect of the properties at 867 and 887 Whitford Maraetai Road)."

New Condition 9(d) as follows:

"Upon the request of the owner of 821 Whitford-Maraetai Road (the McKay property). the quarry operator shall construct an acoustic barrier fence along the access road in the location identified on Walker Plan c-300

New Condition 9(e) as follows:

"The acoustic fence to be constructed along "the acçess way (as shown on the Walker SEP Drawing C-300 1 of 2 Rev A) shall be 2m in height above the finished road level or finished ground level (whichever is higher) and shall be constructed from a material with asurface density of not less than 15kg/m2 and shall have no gaps along its length or its base. The fence shall be maintained as an acoustically effective barrier for as long as this consent is given effect to/

The noise levels shall be measured and assessed in accordance with the requirements of New Zealand Standard NZS 6801: 1991 Measurement of Sound and New Zealand Standard NZS 6802: 1991 Assessment of Environmental Sound. The noise shall be measured with a sound level meter complying with the International Standard IEC 651 (1979): Sound Level Meters, Type 1.

~~Any construction work o~~n site will be carried out in compliance with the New Zealand Standard for Construction Noise NZS 6803: 1999.

**8.2.5. Measures to Implement Noise Objective**

To comply with the District Plan and to keep noise to an acceptable level MQL implements a range of operational practices that include the following measures;

i. Managing the time and location of particularly noisy operations around the site to ensure compliance with the performance standards.

ii. The majority of fixed processing plant (excluding conveyors) will be housed within structures that reduce the noise level at the boundary of the quarry.

iii. Machinery will be regularly maintained to ensure that noise produced from machinery is kept to a practicable minimum.

iv. Bunds have been constructed where appropriate on quarry boundaries to reduce the effects of noise beyond the boundary of the quarry.

v. To ensure that the noise performance standards set in the District Plan are met, monitoring on representative occasions will be carried out using appropriate equipment, methods and personnel.

## *8.3. Ground vibration and air overpressure*

**8.3.1. Effects of Blasting**

a) Blasting is used in the quarry as a means of fragmenting rocks prior to processing. Blasting causes noise, vibration and air overpressure (air blast noise). These effects have the potential to have a “startling effect” on people, especially when people are not expecting the blast. Other potential effects of blasting are dealt with in the section on discharges to air.

b) Ground vibration and air overpressure from blasting also have the potential, if not controlled, to adversely affect the structural stability of buildings and potential to adversely affect the amenity value of land in the vicinity of the quarry.

**8.3.2. Vibration and Air Overpressure Objective**

*To avoid, remedy or mitigate adverse effects of vibration and air overpressure (blast noise)*

*from blasting on neighbouring people and buildings.*

### 8.3.3. Explanation of Objective

The uncontrolled use of explosives in terms of noise, intensity and duration would have an unacceptable effect on the amenity values of adjoining residential land. This Vibration and Air Over Pressure Objective is an intention by MQL to keep the effects of vibration and air overpressure to an acceptable level using best practicable means and therefore provide an assurance to the community that the effects of blasting are being controlled.

### 8.3.4. Measures to Implement Vibration and Air Overpressure Objective

a) To keep vibration and air overpressure to an acceptable level MQL implements a range of operational practices that include the following:

i) "1O(a) “Vibration arising from quarrying activities shall not exceed the following limits:

| Time | Average. Weighted Vibration Level (Wb or Wd) | Maximum instantaneous Weighted Vibration Level {Wb or Wd) |
|---|---|---|
| Monday to Saturday 07-00 - 1600 | 0.045ms-2 | 10ms-2 |
| At all other time’s | 0.015ms-2 | 0.05ms-2 |

The. weighted vibration. levels Wb aod Wd shall be measured according to BS6841:1987 when the: average vibration shall be measured over a time period not less than 60 seconds and not longer than 30 rninutes.

The vibration shall be measured at any point where it is-likely to affect comfort or amenity -of persons occupying an adjacent site."

10(b) Short-term vibration from the activity, measured on any foundation or uppermost full story of any building on any other site, shall not exceed the limit’s' set out ln Table 1 of DIN4150;1986 Part 3 Structural Vibration in Buildings for more than% of the events, with a maximum Peak Particle Velocity level of 20mm\s for all events."

ii. If blasting is to occur at an irregular time or for emergency or safety reasons, potentially affected neighbours will be notified whenever possible.

iii. Records will be maintained for each blast including:

- the time of the blast;
- location of the blast;
- weather conditions;
- total charge weight;
- maximum instantaneous charge;
- volume of rock blasted;
- position of any monitoring; and
- distance from blast to monitoring positions.

iv. MQL will undertake monitoring of representative blasts by reliable and appropriate methods to ensure the set limits for vibration and air overpressure are not exceeded. These records shall be made available to Auckland Council on request.

v. Removing rock, where practicable, with an excavator by free digging or ripping instead of blasting.

vi. Each blast will be designed and supervised by an appropriately qualified person and shall take into account:

- general geological conditions;
- cavities and fissures;
- distance to the boundary;
- maximum instantaneous charge;
- direction of initiation;
- orientation of the face; and
- weather conditions

vii. The effects of air overpressure are controlled by:

- use of good quality stemming material;
- maintenance of correct stemming height;
- maintenance of adequate burden on all free faces;
- optimisation of drill patterns to reflect good geometrical design;
- optimisation of the delay sequence to maintain adequate relief;
- minimisation of secondary blasting; and
- close examination of the face for weak seams and clay bands where explosive products may vent to free air.

viii. All the factors above individually or in conjunction with each other can influence the level of effects produced by any one blast. Ensuring that all these factors are taken into consideration when designing a blast will increase the level of certainty into what the potential vibration and air overpressure effects will be.

ix. Records will be maintained of all complaints relating to blasting including:

- name and details of complainant;
- description of complaint; and
- any follow-up action.

**8.3.5. Blasting performance Standards**

a) Vibration and Airblast

Affected Neighbors shall be informed of any blasting 48hrs prior to the blast

i. For the Manukau Quarry the noise created by the use of explosives measured at a notional boundary of 20m from any occupied dwelling existing as at 1 January 2001 shall not exceed a peak overall sound pressure of 128dBL peak.

ii. Instruments to measure vibrations and air overpressure and methods of measurement shall comply with the Australian Standard AS2187.2 1993 applying measurement and assessment in a statistical manner. Monitoring shall be sufficient to assess compliance with the Rule at all likely affected sites.

## *8.4. Traffic*

### 8.4.1. Background

The effects of traffic on public roads outside the quarry site are generally beyond the control of MQL and outside the scope of the District Plan. MQL will however take any practicable steps to reduce the effects of traffic directly related to the quarry operation. These effects are associated with noise, dust, safety and congestion.

Appendix D contains the assessment carried out for the consenting process

### 8.4.2. Traffic Objective

*To minimise the adverse effects of traffic, directly generated by quarrying activity, on the environment, where practicable.*

### 8.4.3. Explanation of Traffic Objective

This objective is an intention by MQL to avoid, remedy or mitigate the adverse effects associated with quarry traffic. The traffic objective is an assurance to the community that MQL will control the effects of traffic within its site and where practicable outside the quarry site.

### 8.4.4. Measures to Implement the Traffic Objective

a) "Quarry truck movements shall be restricted to a maximum of 120 quarry truck movements per day Which represents “60 trucks entering and 60 trucks exiting the Quarry, provided that on a maximum of 10 days per year a maximum number of 160 Quarry truck movements (80 Trucks in and 80 trucks out of the Quarry) shall be permitted. There is no restriction on other traffic movements to and from the Quarry. At least two working days before a day when more than 120 quarry truck movements shall take place, the occupiers of 867 and 887 Whitford-Maraetai Road are to be advised.

Note: The reference in this condition to quarry truck movements applies to all heavy trucks entering and leaving the quarry for whatever purpose.

b) The Hours of operation of the Quarry shall be as follows:

- No trucks are to enter the site before 0700
- For load out and associated Quarry or clean fill truck movements:
  Monday to Friday 0730-1730
  except for days with over 120 truck movements when it will be 0715-1730
- For on-site quarry operations
  Monday to Friday 0700 – 1800
  Saturday 0800 – 1500
- For maintenance activities
  Monday to Saturday0630–1730

c) All MQL commissioned vehicles will be regularly maintained and checked to ensure that appropriate noise suppression devices are installed and operating effectively.

d) Any customer whose vehicle is noted as having excessive emissions due to lack of maintenance will be requested to rectify the problem and warned that they may be refused products on their next visit if the problem persists.

e) MQL loader drivers will be appropriately trained to help ensure that customers’ trucks are loaded securely. All trucks leaving the quarry with loads of quarry products will be checked for insecure loads. This will also help reduce the risk of quarry products being spilled on public roads. Ultimately however, the responsibility of the individual truck drivers to make sure their load is secure before they drive on a public road.

f) A wheel wash will be used to spray truck wheels as they leave the quarry site. This will help reduce the risk of dust being carried onto public roads by trucks. Currently a sprinkler system is suppressing the dust on the access road

## *8.5. Dust (Air quality)*

Dust can be generated by a variety of different activities that are carried out at the quarry site including: drilling; blasting; rock breaking; crushing; extraction; mobile plant; machinery, sales operations and restoration activities.

### 8.5.1. Air Quality Objective

*To avoid, remedy or mitigate adverse nuisance or amenity effects of dust from quarry operations beyond the boundaries of the quarry site.*

### 8.5.2. Explanation of Air Quality objective

Of the potential discharges to air, particulate emissions of dust have the greatest potential for off-site effects. However, provided the operation site is well controlled and the activities well managed, particulate emissions can be reduced to a level where any adverse health or nuisance effects or damage to vegetation will be minimal.

### 8.5.3. Measures to Implement Air Quality Objective

a) Locating the fixed processing plant away from quarry boundaries

b) The fixed processing plant is clad in areas where dust generation could become a nuisance.

c) Potential dust generating conveyors are covered where practicable to contain dust.

d) Fitting exposed transfer points with fixed water sprays to suppress dust emissions wherever practicable.

e) Large volumes of water are maintained on site and are available for dust suppression purposes.

f)Areas of exposed material with dust generating potential (e.g. clay banks) are kept to a practicable minimum.

g) Potentially dusty activities are not carried out when weather conditions give rise to offsite dust emissions.

h) Blasting will be restricted if windy conditions are likely to carry visible dust emissions beyond the quarry boundary where they could create a nuisance.

i) Minimising dust emissions from blasting by sequential firing and using minimum force.

j) Revegetating areas that will not be further disturbed as soon as possible.

k) Efficient extraction of dust on drilling equipment.

l) Proper maintenance and tuning of the vehicles and equipment also assists in avoiding any off-site effects.

m) A wheel washing facility is used at the exit to reduce the potential of material from trucks wheels to be deposited on the roadway outside the site.

n) Good blasting practice, including using waterproof explosives in areas where groundwater levels are high, to avoid the degradation of the explosive, will minimise incomplete combustion and any associated NOx emissions.

#### 8.5.4. Air Quality Performance Standards

The air permit for the site states:

a) That the processes shall be operated by MQL in such a manner and the operations supervised and the plant maintained so as to ensure that discharges of contaminants to air are kept to a practicable minimum.

b) That beyond the boundary of the site there shall be no odour, dust or fume caused by discharges from the site which, in the opinion of an enforcement officer, is noxious, offensive or objectionable.

c) That no discharges from any activity shall give rise to visible emissions, other than water vapour and steam, to an extent which, in the opinion of an enforcement officer, is noxious, offensive or objectionable.

d) That over the period 1 November to 30 April each year MQL shall undertake monitoring of total suspended particulate in ambient air in the vicinity of the site.

e) If the monitoring shows that the total suspended particulate in ambient air at or beyond the boundary of the site exceeds 100 micrograms per cubic metre as a 24 hour average, an investigation shall be initiated by MQL as to the probable causes of the exceedence.

f) If the cause of the elevated levels of total suspended particulate is identified as being an activity undertaken on MQL's site, then as far as practicable, action shall be taken by MQL to reduce those discharges to the satisfaction of the Manager.

g) MQL shall continuously record and be able to make available wind speed, wind direction and rainfall data.

The District Plan provisions states that:

*Quarry owners and operators must ensure that adequate measures are taken to control the emission of dust from all parts of the site.*

### *8.6. Landscape and Visual*

Quarrying can change the landscape and subsequently affect the visual amenity of an area.

Activities carried out within the quarry can also have visual effects on neighbouring residents.

#### 8.6.1. Landscape and Visual Objective

*To minimise adverse landscape and visual effects of the quarry operations on the surrounding community.*

#### 8.6.2. Explanation of Landscape and Visual Objective

Quarrying has been an existing activity at Manukau Quarry for a considerable length of time. It is MQL's intention to minimise the landscape and visual effects of the quarry operations on the surrounding community and provide an assurance to neighbours that MQL will take practicable steps to carry this out.

#### 8.6.3. Performance Standards

The District Plan states the following with regard to yard in the Quarry Zone:

*No quarrying shall be carried out within 30 metres of each site boundary unless the appropriate resource(s) consent is obtained.*

#### 8.6.4. Measures to Implement the Landscape and Visual Objective

a) Appendix E sets out how the vegetation and landscape will be managed over time at the quarry. This document should be referred to for a comprehensive description of all measures that will be taken on site to achieve the landscape and visual objective.

b) Where appropriate and practicable new buildings will be designed in a way that minimises the visual impact on neighbouring sites. For example colour, height, screening and relationship to the topography of the surrounding area.

c) Install and manage operational and access lights to avoid unnecessary light spill in the locality.

d) Provide earth mounding and vegetation screening to mitigate visual effects of quarry operations and on-site truck routes where practical.

## *8.7. Hazardous Substances*

*a)* This section of the management plan deals with issues relating to the release of hazardous substances from storage facilities or during their use, transport or disposal within the quarry site. The relevant objective is

### 8.7.1. Hazardous Substances Objective

*To avoid, remedy or mitigate the potential for adverse effects on the environment of the storage, use, disposal and transportation of hazardous substances such as fuels, oils or materials used for blasting.*

The significant hazardous substances that are currently stored on the site are diesel, oils, compressed gasses.

### 8.7.2. Measures to Meet the Objective

a) The storage and/or the production of only the necessary quantities of material for the operation of the quarry.

b) Based on experience at other quarries, the storage requirements have been determined such that inventory control and “just in time” delivery will ensure that only the imminent operational requirements are stored on the site.

c) All transport, storage and operating conditions meet the requirements of the Hazardous Substances and New Organisms legislation and the relevant standard for the transportation of hazardous substances NZS 5433.

d) The relevant requirements will be complied with to the satisfaction of inspectors from the

Worksafe NZ and Auckland Council.

e) Explosives and detonators are not stored on site.

f) Fuel, lubricant and waste oil storage, dispensing and operating facilities are designed and operated in such a way that contamination of soil and water is avoided as far as practicable.

g) All bulk liquid storage tanks will be in or adjacent to the Workshop. Heavy tyred vehicles are refueled adjacent to the diesel bulk storage tank. Heavy tracked vehicles are refueled in place in the pit.

h) Drums and smaller containers are stored on bunded pads in the workshop. Drip trays are provided for any in use, in and around the workshop.

i) Compressed gases in the workshop are stored in racks and are suitably restrained when in use.

## *8.8. Tangata Whenua*

### 8.8.1. Tangata Whenua Objective

*To operate the quarry in a manner which recognises and provides for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu and other taonga.*

**8.8.2. Measures to Implement Objective**

a) A letter introducing the Quarry was sent to the following iwi groups:

- Ngai Tai ki Tarnaki Tribal Trust
- Ngai Tai Umupuia
- Ngati Paoa

No response has been received from the Ngai Tai ki Tamaki Tribal Trust and Hariata Gordon from Ngati Paoa responded by phone by requesting that consultation is undertaken with Ngai Tai Umupuia.

On the 11"' of August 2005 a site visit was undertaken with Mr James Brown from Ngai Tai Umupuia. The correspondence from Mr Brown is included in **Appendix F.** As requested an ongoing relationship with Ngai Tai Umupuia will be established if required by Ngai Tai Umupia, and consultation will continue as the process of this project proceeds.

No other consultation with adjoining landowners has been undertaken.

b) Procedures such as the following would be followed should evidence or indications of koiwi or taonga be discovered :

- Immediately koiwi or taonga have been discovered, activity around the area of the discovery will cease;
- An archaeologist will immediately arrange to secure the area to ensure that the suspected koiwi or taonga remain untouched;
- Tangata whenua and the Historic Places Trust will be advised that it is suspected that koiwi or taonga have been uncovered on the site;
- A representative of tangata whenua will be asked to contact relevant kaumatua who are to guide and advise MQL as to the course of action to be followed and to immediately advise the archaeologist of the identity of the kaumatua and such other details as may be appropriate in the circumstances;
- The archaeologist will arrange staff from MQL Aggregates to meet and guide kaumatua, representatives from Auckland Council, police, DOC or Historic Places Trust representatives to the site, and assist with any requests that they may make;
- If the kaumatua are satisfied that the koiwi or taonga are of Maori origin the kaumatua will implement appropriate procedures and will communicate this to MQL, NZ Police and other relevant parties;
- MQL will ensure that the kaumatua are given the opportunity to perform karakia and other religious or cultural ceremonies and activities considered appropriate in accordance with tikanga Maori (Maori custom and protocol); and
- MQL will make available on their property other suitable, secure non working areas for the reburial of koiwi or taonga if tangata whenua so wish.

**8.8.1. Definitions**

- “Koiwi” means human remains such as skeletal material.
- “Taonga” refers to cultural artifacts such as implements, weapons or decorations traditionally and historically utilised by tangata whenua and includes parts and remains thereof

# 9. Rehabilitation, Restoration and End Use Options

## *9.1. Current Rehabilitation and End Use Objective*

*To design and develop landforms which enable effective short-term rehabilitation, longer term restoration of the Manukau pit during the operation of the quarry, and to consider practicable options for end use of the entire quarry site.*

## *9.2. Explanation of Rehabilitation and End Use Objective*

a) As per the Auckland Council District Plan - Operative Papakura Section 1999, mineral extraction is a temporary activity and restoration of a quarry is required to prepare the land for the establishment of subsequent activities. To this end, the provisions of this zone include a comprehensive set of rules for quarrying. The purpose of these rules is to ensure that, during the course of quarrying, adverse effects on amenity are minimised and that site restoration and final levels are properly planned and co-ordinated. Such planning is required through the preparation of QMPs like this one. Provision must also be made for the progressive restoration of the lot such that the land will be left in such condition as the Council considers suitable for the establishment of those uses to which that land may subsequently be put;

b) There are many potential options available for progressive restoration and rehabilitation and end use once quarrying has been completed at the site with the more likely option of a rural subdivision within the newly landscaped area

c) In general terms of the end use of any quarry is typically determined by a number of factors.

These include but are not limited to planning, financial, market demand, land ownership,

interested stakeholder views, technical and environmental considerations. Examples of

potential quarry uses include recreational, residential, commercial or a mix of these land uses.

d) The rock resource at Manukau Quarry is a valuable commodity. In order to maximize the value of this resource it is important to extract all economically available rock subject to control of environmental effects, prior to rehabilitation occurring in any part of the site.

e) MQL is committed to consulting with interested parties, including the community, neighbours, tangata whenua and Auckland Council prior to seeking any plan change or rezoning of the land for final end use purposes.

# 10. Monitoring

## *10.1. General Monitoring*

*a)* The *Environmental Record and Procedures Manual* (ERPM) contains relevant details relating to the carrying out of all required monitoring including:

- when it has been carried out;
- where it is has been carried out;
- how it has been carried out; and
- the monitored results.

*b)* The ERPM shall also contain records of all complaints received relating to environmental effects associated with the quarry operation:

*c)* The record shall include the following information:

- name and details of complainant;
- description of complaint; and
- any follow-up action.

*d)* The ERPM is available for inspection only at the quarry site, following prior arrangement with the Manukau Quarry manager.

***10.2. Dust***

*a)* The quarry manager or their nominee will record:

- visual emission of dust,
- sources of visual emission of dust;
- measures initiated in response to visual emission of dust to prevent recurrence or mitigate effects.
- water cart use (yes/no); and
- weather conditions (wind strength and direction, rainfall).

b) MQL will continuously record and make available wind speed, wind direction and rainfall data

## *10.3. Noise (excluding blasting)*

*a)* To ensure that the noise performance standards set in the District Plan are met, monitoring will be carried out using appropriate equipment, methods and personnel. The noise monitoring regime will include:

- Monitoring on representative occasions.
- Prior to any change in the quarry operations occurring that could result in greater noise effects beyond the boundary, a reassessment of the noise from quarry operations shall be carried out, if the changes have not already been predicted or modeled.

## *10.4. Ground Vibration, Air Overpressure (blast noise) and Fly Rock*

*a)* Records will be maintained for each blast including:

- the time of the blast
- location of the blast;
- total charge weight; and
- maximum instantaneous charge.

MQL will undertake monitoring on representative occasions by reliable and appropriate methods as set out in the District Plan to ensure the set limits for vibration and air overpressure are not exceeded. These records shall be made available to Council on request. Vibration monitoring does not necessarily have to be undertaken on the foundation of adjacent buildings provided that the quarry operator can safely extrapolate the measurements taken from the chosen monitoring point to the foundation of adjacent buildings.