Waikato Regional Council Internal Series 2012/13

Operational and Air Discharge Management Plan - Whangamata Mangrove Consent

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Waikato
REGIONAL COUNCIL

Prepared by:
Roger Spooner, Waikato regional Council
Emily O'Donnell, Waikato Regional Council

For:
Waikato Regional Council
Private Bag 3038
Waikato Mail Centre
HAMILTON 3240

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1 Introduction and Background

1.1 Introduction

The Waikato Regional Council, River and Catchment Services Group (RCS), obtained resource consents 122986 and 122987 in May 2012. The consents authorise the following to RCS respectively:

122986 To remove approximately 22.91 hectares of mangrove trees and mangrove remnants from the Whangamata Harbour including associated disturbance and vehicle use in the coastal marine area, and ongoing hand removal of seedlings.

122987 To stockpile and burn removed mangrove trees on the foreshore of Whangamata Harbour including associated discharge of contaminants to air and land in the coastal marine area

A copy of those consents is included as Appendix A.

Conditions 21, 27 and 28 of resource consent 122986 (mangrove removal) direct the need for an Operational Management Plan (OMP) to be prepared and implemented. Condition 2 and 3 of resource consent 122987 (stockpile and burning) direct the need for an Air Discharge Management Plan (ADMP) to be prepared and implemented.

This document is intended to fulfil both those requirements and is the OMP and ADMP. Stockpiling is part of the operational management of the mangrove removal and the burning of stockpiles is essentially an operational matter. Therefore, it is considered efficient to address all the operational matters in a single document and combine the OMP and ADMP here. This document will also assist in guiding the contractual process and provide an overview for contractors.

1.2 Background

The Whangamata Harbour and Catchment Management Plan (WHCMP) identified the need for mangrove management works as a component of the implementation of the plans. These works are further supported by the Whangamata Community Plan. Those plans were developed in conjunction with iwi, stakeholders and community members and are a reflection of the perceived issues, desired action and outcomes for change.

The desire for active mangrove management extends beyond plan development timeframes as the rapid mangrove expansion within the Whangamata harbour has been an area of concern for many in this community for more than a decade. For this community, mangroves are just one component of their concerns with the general decline in the health of the harbour.

RCS was tasked with seeking resource consents for mangrove removal and associated activities. The Application which resulted in consent 122986 was lodged on 1 July 2011. A decision was made on the consent on 25 November 2011 by commissioners to the original hearing which was subsequently appealed. The appeals were resolved through informal mediation and the consent order and agreed amended conditions were sealed by the Court dated 14 May 2012.

The consent conditions of the consents granted detail the requirements of this document as set out in the next section of this report.

2 Objectives and Requirements

2.1 Objectives

The objective of the OMP, as set out by condition 27 of consent 122986, must be:

> **To identify management practices and procedures to be adopted in order to minimise adverse effects of mangrove removal and to comply with the conditions of consent.**

The objective of the stockpiling and air discharge aspects of the ADMP (which is not specified in any condition) is:

> **To identify management practices and procedures to be adopted in order to minimise adverse effects of mangrove material stockpiling and burning on the foreshore and to comply with the conditions of consent.**

2.2 Minimum Requirements

Condition 28 of consent 122986 sets out the minimum requirements for what is to be included in the OMP as follows:

> *The Operational Management Plan shall include, as a minimum, the following:*
> *(i) Operational parameters, performance standards, procedures and general operating conditions for manual and mechanical removal methods in the coastal marine area;*
> *(ii) Measures to be undertaken to avoid, remedy or mitigate the effects of operating machinery in the coastal marine area;*
> *(iii) Emergency procedures that will be undertaken should an emergency occur in the coastal marine area involving machinery being used to remove mangroves;*
> *(iv) A description of contractor induction and training processes to be completed before commencement of manual or mechanical removal processes to ensure all personnel understand their environmental responsibilities and are fully aware of management practices and procedures and consent conditions; and*
> *(v) A record of contractor responsibilities during the implementation of removal processes.*

Each of the above matters is addressed in this report as follows:

Parts of condition 28 of consent 122986 (see above):	Section(s) of this report that addresses this matter:
(i)	7 and 9
(ii)	9
(iii)	12
(iv)	13.1
(v)	13.2

Condition 2 of consent 122987 sets out the minimum requirements for what is to be included in the ADMP as follows:

> *Prior to the exercise of this consent, the consent holder shall prepare and have approved an Air Discharge Management Plan that includes:*
> *(i) Procedures for stacking and drying of vegetation prior to burning;*
> *(ii) Procedures to ensure adequate separation from roadways and residential dwellings;*
> *(iii) Procedures to assess wind direction prior to each burn event to ensure burning only occurs during favourable conditions;*

(iv) Procedures for dowsing fires should wind direction change and start adversely affecting residents;
(v) Methods to ensure each fire is completely extinguished with water and will not be left to smoulder;
(vi) Timing for burning activity;
(vii) Maximum number of stacks that will be burnt each day;
(ix) Procedures to ensure all relevant details of burns are recorded, including but not limited to wind direction, number and approximate locations of burn piles, and timing;
(x) Names and contact details of those responsible for lighting fires and supervising the burns; and
(xi) Complaint response procedures.
The Plan shall be submitted to the satisfaction of the Group Manager, Resource Use, Waikato Regional Council for approval in a technical certification capacity.

Each of the above matters is addressed in this report as follows:

Parts of condition 2 of consent 122987 (see above):	Section of this report that addresses this matter:
(i)	10
(ii)	10
(iii)	10
(iv)	10
(v)	10
(vi)	10
(vii)	10
(viii)	n/a
(ix)	14.3
(x)	11.2
(xi)	14.1

2.3 Purpose

The purpose of this management plan is to:
- Meet the requirements of conditions 27 and 28 in resource consent 122986;
- Meet the requirements of condition 2 in resource consent 122987;
- Provide a guide to operational staff for the implementation of the consents; and
- Provide a guide and overview for contractors and their staff.

It is anticipated that some parts of this plan will need to be reviewed once the Stage 1 trials are completed and additional information and understanding is gleaned as a result of monitoring and putting theory into practice.

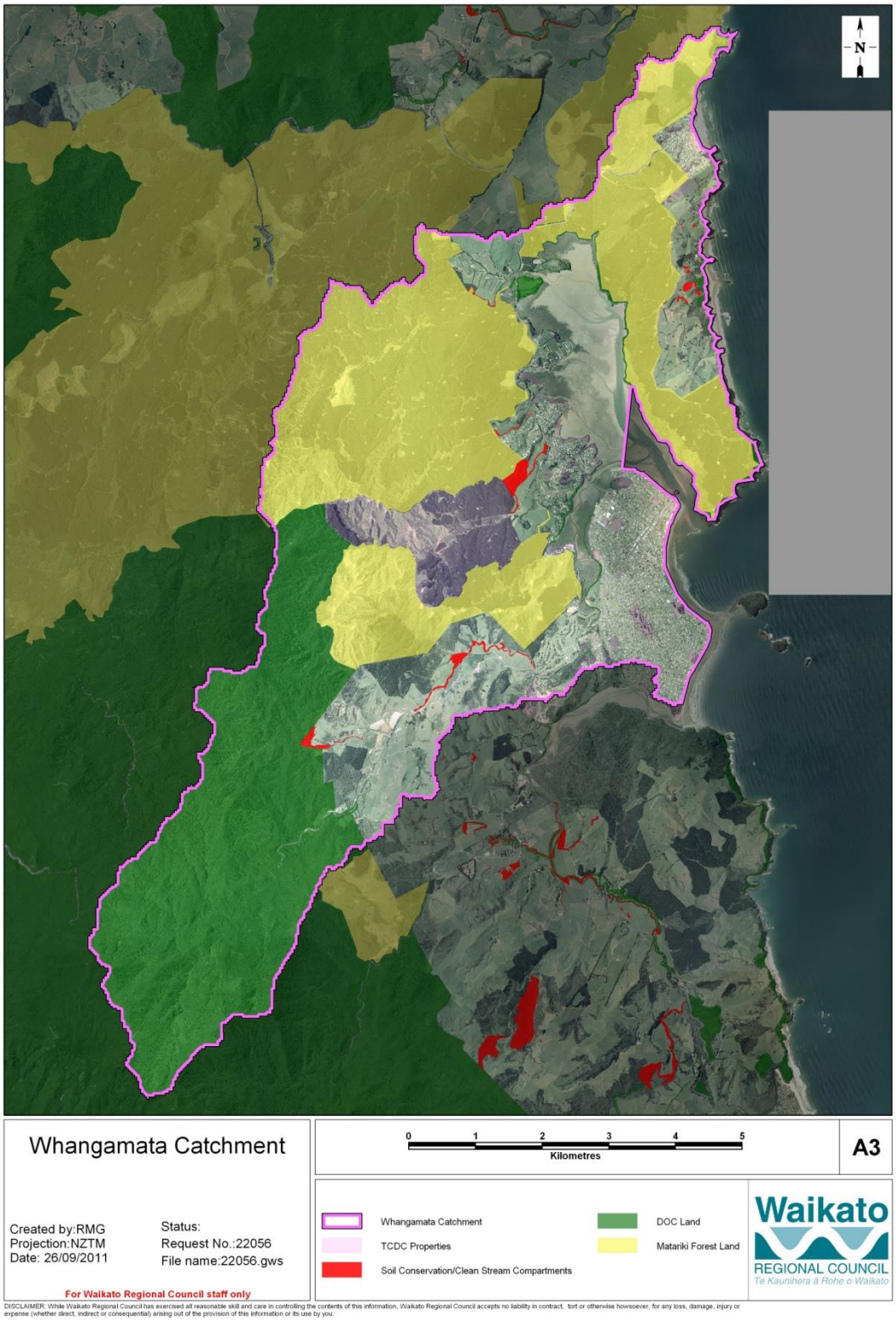
2.4 Key Components

This plan is operational focused and is not intended to cover monitoring requirements. Monitoring details will be addressed in the Environmental Monitoring Management Plan.

The key components of this plan are:
- Provision for access;
- Staging of removal;
- Staging of trials;
- Methods of removal (both hand and mechanical); and
- Disposal.

3 Whangamata Catchment

The Whangamata catchment it is largely vegetated with 40% under plantation forest cover and 30% indigenous. Approximately 10% of the catchment is still managed as primary pastoral. For the purpose of this plan, a modified catchment area is applied, this is an area of 52km² as shown below. The catchment is based on a combination of true hydrological catchment areas and the footprint of the Whangamata community.



The catchment is typical of Coromandel catchments, being short sharp stream systems, prone to intense rainfall periods, highly erodible steep upper catchments with a large proportion of land under Department of Conservation management.

The Whangamata area was deforested some 50-60 years later than most other Coromandel catchments with conversion to pasture occurring in the early 1900's.

Investigation of harbour sedimentation by Swales and Hume (1994) found that approximately 0.25-0.3 mm of sediment had accumulated in upper and middle harbour areas over the last century, representing an infilling rate 10-20 times that prior to human settlement. This reflected exacerbated erosion within the catchment as a consequent of various human land uses. The accelerated sedimentation has raised bed levels, enabling mangroves to establish over large parts of the harbour

Approximately 90% of the harbour (total area of 4.4km^2) is intertidal with mangroves presently occupying about 100 hectares of the harbour. Mangroves have increased at approximately 1 hectare per year for the last 50 years. This expansion rate has halted in the last decade, primarily through human intervention.

Though the Whangamata community has become known for its stance on mangroves it is important to recognise the work of one of the first regional care groups – Wentworth River Care, which was instrumental in retiring streams from stock access and planting large sections of the Wentworth River, the main contributor to the Whangamata Harbour. This work influenced the development of both the harbour plan and catchment management plan which collectively now constitutes the Whangamata Harbour and Catchment Management Plan (WHCMP).

4 River and Catchment Services

RCS is responsible for the management of rivers and their surrounding catchments in partnership with local communities.

Outcomes sought for various works within the catchment include:

- Reducing sediment entering waterways;
- Improved hill slope, stream bank and land stability;
- Improved water quality through restoration of streams, wetlands and coastal margins;
- Enhanced biodiversity;
- Reduced flood risk and impact on infrastructure; and
- Management of natural hazards and associated risks.

Within the Coromandel Zone RCS's responsibilities extend to coastal marine area ('CMA') works and services such as the development and implementation of harbour and catchment management plans, coastal vegetation control (i.e. saltwater paspalum, mangroves and pampas) as well as the restoration of coastal habitats. Animal pest control is also a key component of RCS's works and services in the Coromandel Zone.

Given those responsibilities, RCS was given the task of investigating appropriate areas and methods of removal of mangroves within the Whangamata Harbour in the context of coastal vegetation control. The outcome of this has been for RCS to seek and obtain consents 122986 and 122987. RCS is now also responsible to manage and implement those consents.

5 Proposed Removal Stages

In the Resource Consent 122986, it is identified that the removal of mature mangroves is to be carried out in 3 stages (Stages 2 and 3 are dependent on the outcome of the previous stage).

Stage 1

Area	Removal Method	Hand Removal Area (ha)	Mechanical Removal Area (ha)
C	Hand	0.17	
D	Hand – clean up	4.20	
E	Hand (at the same time as the mechanical trial in the same area)	0.30	
E	Mechanical trial		0.30
G	Mechanical trial		2.00
I	Hand (at the same time as the mechanical trial in the same area)	0.10	
I	Mechanical trial		1.20
K	Mechanical trial		0.72
Total		**4.77 ha**	**4.22 ha**

Stage 2

Area	Removal Method	Removal Area (ha)
E	To be determined after trials	1.48
F	To be determined after trials	2.33
G	To be determined after trials	2.51
H	To be determined after trials	1.12
I	To be determined after trials	1.20
Total		**8.64 ha**

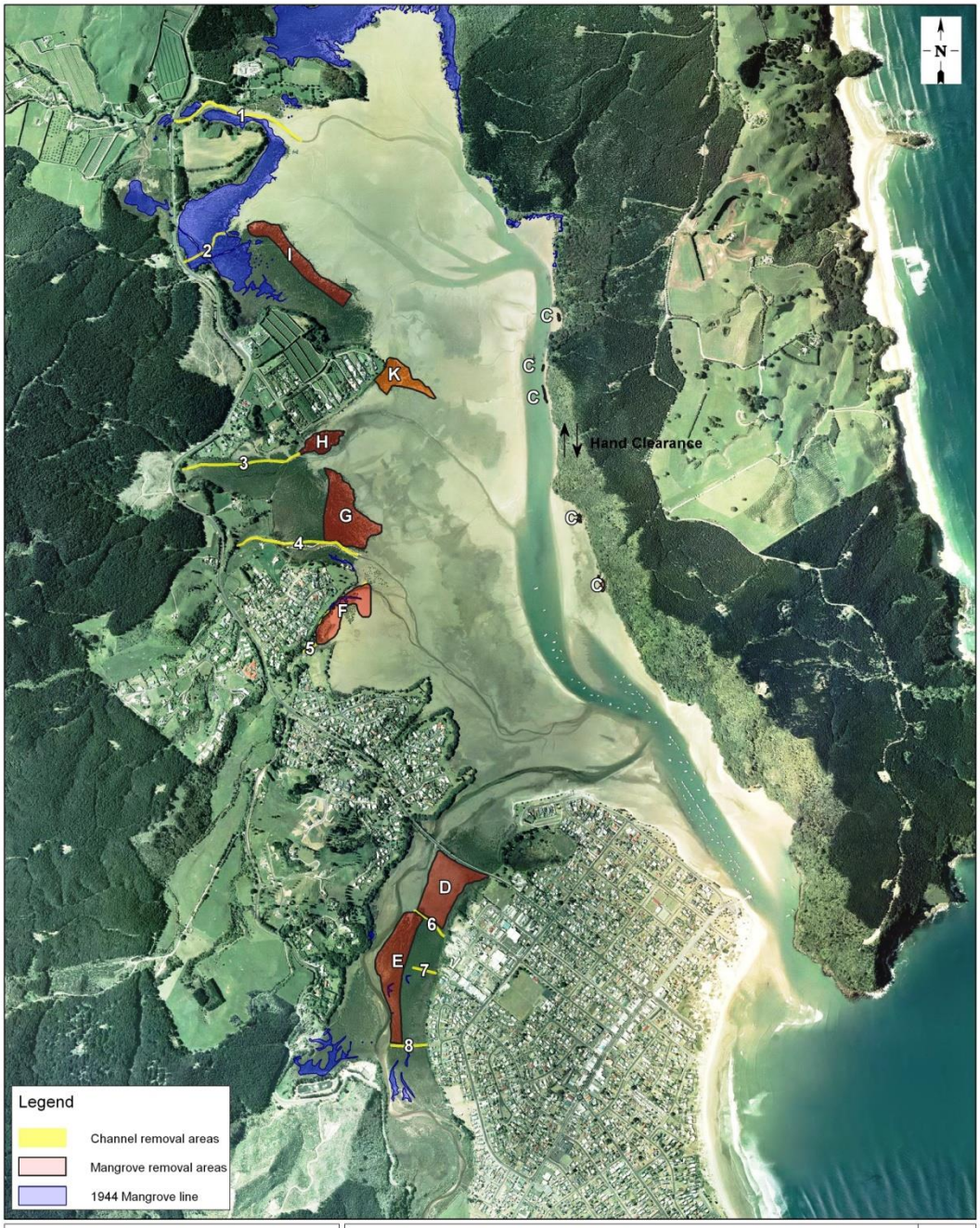
Stage 3

Area	Removal Method	Removal Area (ha)
E	To be determined after trials	3.56
Drainage channels at sites 1 to 8	Mechanical	1.72
Total		**5.28 ha**

6 Mangrove Removal Areas

The following maps show the overall mangrove removal areas as granted by consent 122986 including all the stages provided for under that consent.

Prior to the removal of mangroves for each respective stage, the areas of clearance shall be set out by GPS or some other such suitable method and clearly marked. RUG will be given 2 weeks notice prior to the removal works of each stage and site commencing; and given the opportunity to confirm their agreement to the areas as set out.



Map 1: Whangamata Mature Mangrove Removal Areas – All Stages

Note that areas F, G H, I and K are authorised under consent 122987 to be used for stockpiling and burning.

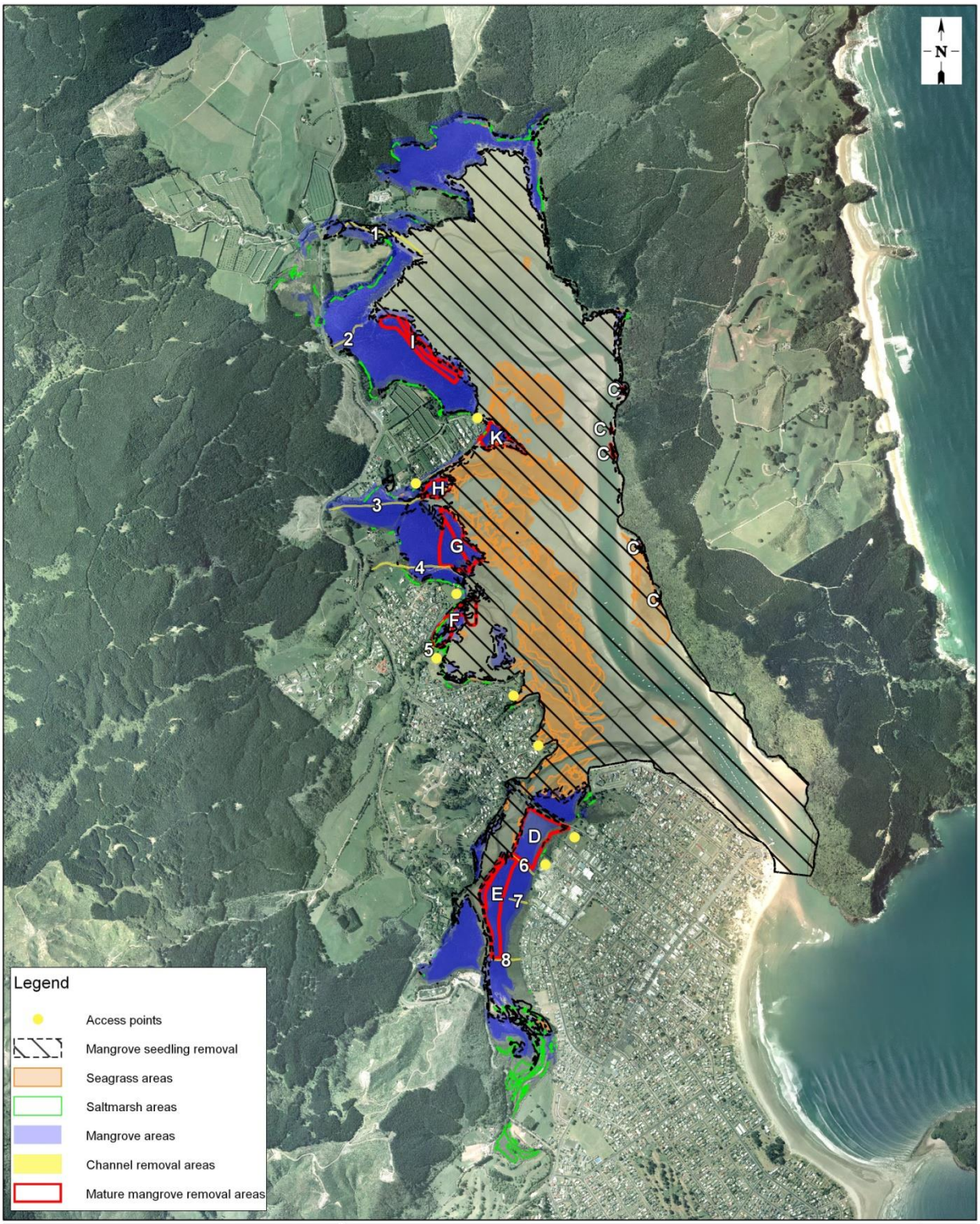


Map 2: Whangamata Mature Mangrove Removal Areas for Stage 1

The areas identified for Stage 1 removal, and differentiated by removal method (hand clean up, hand removal, hand removal trial, mechanical removal trial refer to section 6 for detail. All stage one areas will be GPS'ed prior to works commencing and in conjunction with the Environment Monitoring Management Plan.

Burn locations are in removal areas;

- I
- K
- G
- H
- And if needed in stages 2/3 areas H and F.



Whangamata Mangrove Seedling Removal Areas, Vegetation Areas and Access Points

0 400 800 1200 1600 2000
Metres

A3

Created by:RMG
Projection:NZTM
Date:23/07/2012

Status:
Request No.:23513
File name:23513.gws

Imagery sourced from Terralink International Limited (TIL)~2007 and is the property of TIL and the Waikato Regional Aerial Photography Syndicate (WRAPS) 2007. Copyright Reserved.

Note: These areas are indicative only, the conditions of consent 122986 shall prevail in the event of any inconsistency. Actual boundaries of removal stages will be confirmed by GPS prior to mangrove removal

Channel removal areas idetified as E, F,G,H, I drains in consent 122986

Note: Seedling removal in mature mangrove removal areas will only occur after removal of mature mangroves from thos areas

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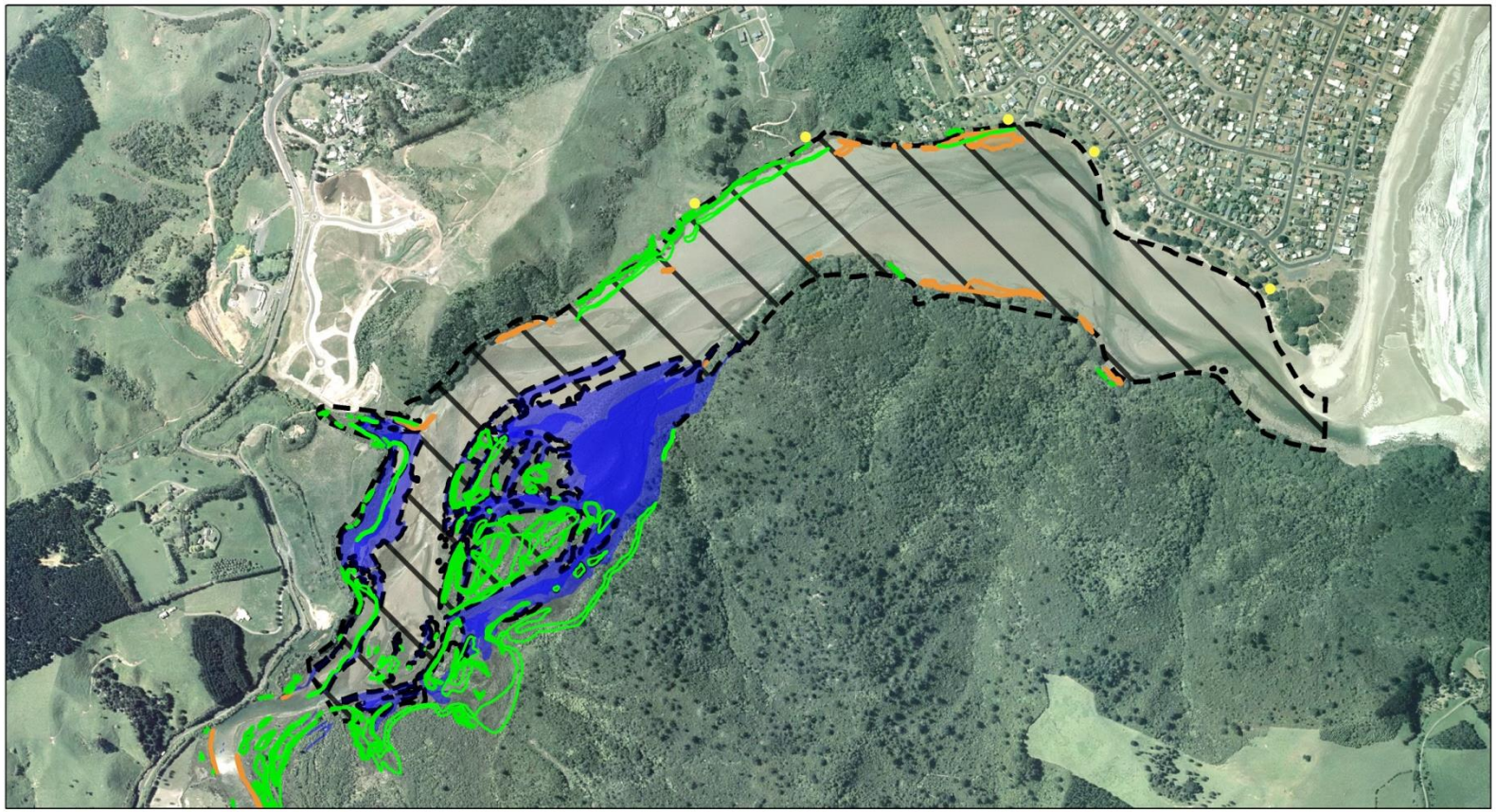

Map 3: Whangamata and Otahu Mangrove Seedling removal Areas

6.1 Area C – Hand Removal

Removal from Area C (0.17Ha) will be by hand, and will be done within the operating parameters outlined later in this report. No mechanical tracking in this area will occur. No stockpiling or burning will be done in these removal locations so mangroves will be removed by barge or something similar, within a week of clearance, and taken off site for land based disposal.

6.2 Area D – Hand Clean Up

The removal of the remnant stumps etc in Area D (4.2Ha) will be by hand, and within the operating parameters outlined later in this report for hand removal. As there is no stockpiling or burning authorised at this removal area, mangroves will be removed by barge or some other low ground pressure vehicle (eg track mounted dumper) within a week of clearance for off site disposal.

6.3 Area E – Hand and Mechanical Trials

For Stage 1, a mechanical removal trial of 0.3Ha will be undertaken alongside a hand removal trial, also of 0.3Ha. The purpose of this is to compare the two methods side by side and enable direct comparisons to be undertaken to accurately assess the respective impacts. The hand removal will operate within the parameters outlined later in cl. 7.2 of this report. Mechanical removal will be undertaken as outlined in Section. 7.1 of this report.

Removal methods will be confirmed on site at trial area E with approved contractor and mapped to determine extent of each technique

As there is no stockpiling or burning authorised at this removal area, mangroves will be removed by barge or some other low ground pressure vehicle (eg track mounted dumper) within a week of clearance. Disposal will be by either off site land based mulching on adjacent land as a trial, or off site disposal.

Removal of the remainder of Area E in Stages 2 and 3 may be undertaken only when and if approved (via the mechanisms outlined in the consent conditions) based on the outcome of monitoring of Stage 1 Areas. The method used to undertake removal in Stages 2 and 3 will also be dependant on the outcome of the Stage 1 trials.

6.4 Area F

No works will be undertaken in Area F as part of Stage 1. As authorised by consent 122986, removal of mangroves from Area F will be done as a part of Stage 2. It will be undertaken only when and if approved (via the mechanisms outlined in the consent conditions) based on the outcome of monitoring of Stage 1 Areas. The method used to undertake removal in Area F will also be dependant on the outcome of the Stage 1 trials.

6.5 Area G

A 2.0Ha mechanical removal trial is to be undertaken in Area G as apart of Stage 1. This represents 44% of the proposed area to be cleared in total in Area G. The trial will consist of one of the mechanical options outlined in Section 7.1 of this report.

Stockpiling mangroves in heaps will occur within this area for burning in accordance with the procedures outlined in Section 10 of this report.

Removal of the remaining 2.51 Ha of Area G as a part of Stage 2, will be undertaken only when and if approved (via the mechanisms outlined in the consent conditions) based on the outcome of monitoring of Stage 1 Areas. The method used to undertake removal of the remainder of the mangroves in this area will also be dependant on the outcome of the Stage 1 trials.

6.6 Area H

No works will be undertaken in Area H as part of Stage 1. As authorised by consent 122986, removal of mangroves from Area H will be done as a part of Stage 2. It will be undertaken only when and if approved (via the mechanisms outlined in the consent conditions) based on the outcome of monitoring of Stage 1 Areas. The method used to undertake removal in Area H will also be dependant on the outcome of the Stage 1 trials.

6.7 Area I – Hand and Mechanical Trials

For Stage 1, a mechanical removal trial of 1.2Ha will be undertaken alongside a hand removal trial, of 0.1Ha. The purpose of this is to compare the two methods side by side and enable direct comparisons to be undertaken to accurately assess the respective impacts in this part of the harbour. The hand removal will operate within the parameters outlined in Section 7.2 of this report. Mechanical removal will be undertaken by one of the mechanical options outlined in Section 7.1 of this report.

Removal methods will be confirmed on site at trial area I with approved contractor and mapped to determine extent of each technique

Stockpiling mangroves in heaps will occur within this area for burning in accordance with the procedures outlined in Section 10 of this report.

Removal of the remaining 1.20Ha of Area I as a part of Stage 2, will be undertaken only when and if approved (via the mechanisms outlined in the consent conditions) based on the outcome of monitoring of Stage 1 Areas. The method used to undertake removal of the remainder of the mangroves in this area will also be dependant on the outcome of the Stage 1 trials.

6.8 Area K – Mechanical Trial

The whole of this area (0.72Ha) will be undertaken mechanically, as a part of Stage 1. This clearance will be treated as a part of the trial process. Mechanical removal will consist of one of the mechanical options outlined in Section 7.1 of this report.

Stockpiling mangroves in heaps will occur within this area for burning in accordance with the procedures outlined in Section 10 of this report.

6.9 Drainage Outlets and Stream Channels

It is planned to undertake the removal of mangroves adjacent to the drainage outlets and stream channels at sites 1 to 8 (Map 1) as part of Stage 3. As authorised by consent 122986, removal of mangroves from the channels in Stage 3 may be undertaken only when and if approved (via the mechanisms outlined in the consent conditions) based on the outcome of monitoring of Stage 1 Areas. Mechanical removal is to be used for mangrove removal from these areas.

7 Clearance Methodology

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7.1 Mechanical Clearance

It is proposed to trial various options of mechanical clearance for Stage 1. Whichever method is finally adopted, the performance standards set out in Section 9.2.1 of this report will be used as a minimum baseline.

Machine Size
It is proposed to base the trials using hydraulic diggers in the 12 to 15 tonne range. These are considered to have the most suitable reach to weight ratio; with a reach of some 7.0 metres from the centre of the machine.

Track Configuration
Is it proposed to trial machinery with the following track configurations to undertake the Stage 1 work:

- Flat tracks of standard dimension;
- Flat tracks wider than the normal dimensions (subject to availability); or
- Swamp tracks.

Mangrove Extraction Device (Digger Attachment)
In conjunction to the various digger track configurations, the following range of attachments are proposed to be trialled:

- Single Tyne;
- Multiple Tynes (similar to a root rake or silage forks);
- Hydraulic Clamp (similar to a tree grab); and
- Digging bucket with angle tilt.

Extraction Method
It is proposed to trial lifting the mature mangrove plants out of the ground in one of the following ways:

- Tyne - Inserting the tip of the tyne or tynes into the ground and under the plant, and then prising it upward until it breaks free from the substrate;
- Clamp - Grabbing the plant at the base of the trunk and pulling upwards; or
- Bucket - Tilting bucket so that only 1 edge is into the ground and prising it upwards.

7.2 Hand Clearance

It is proposed to carry out hand clearance using motorised scrub cutters. Chainsaws or some other such method may be experimented with, in the trials. Whichever method is finally adopted at each location, the performance standards set out in Section 9.2.2 of this report will be used as a minimum baseline.

At Areas C, D, and E, the disposal will be away from the clearance site so the material will have to be transported away. It is proposed to transport the material from these areas in the following ways:

- Area C To the boat ramp by barge, load onto a truck and cart off site for disposal.
- Area D Load onto a low ground pressure vehicle and cart to the adjacent reserve for mulching, or burning off site.
- Area E Load onto a low ground pressure vehicle and cart to the adjacent reserve for mulching, or burning off site.

8 Timing and Scheduling of Clearance

Due to the presence of native species and in particular the Banded Rail, no mechanical clearance will take place between August and December inclusive. It is also proposed to avoid the peak recreational use of the harbour being from Christmas to 6 February and public holiday weekends.

Stage 1 2013

Area	Removal Method	Timing	Duration
C	Hand	Late 2012, once all necessary plans are approved	1 week
D	Hand – clean up	March / April 2013	1 week
E	Hand (at the same time as the mechanical trial in the same area)	March 2013	2 weeks
E	Mechanical trial	March 2013	2 weeks
G	Mechanical trial	March / April 2013	3 weeks
I	Hand (at the same time as the mechanical trial in the same area)	March / April 2013	1 week
I	Mechanical trial	March / April 2013	2 weeks
K	Mechanical trial	February / March 2013	1 weeks

Stage 2 2014 (Subject to confirmation after Stage 1)

Area	Removal Method	Anticipated Timing	Duration
E	To be determined after trials	March / April 2014	To be determined
F	To be determined after trials	March / April 2014	To be determined
G	To be determined after trials	March / April 2014	To be determined
H	To be determined after trials	March / April 2014	To be determined
I	To be determined after trials	March / April 2014	To be determined

Stage 3 2015 (Subject to confirmation after Stage 2)

Area	Removal Method	Anticipated Timing	Duration
E	To be determined after trials	March / April 2015	To be determined
Drainage channels at sites 1 to 8	Mechanical	March / April 2015	To be determined

9 Operational Parameters for Removal

This section addresses operational parameters, performance standards, procedures and general operating conditions for manual and mechanical removal methods as required by condition 28(i) of consent 122986. It also includes the measures to be undertaken to avoid, remedy or mitigate the effects of operating machinery in the coastal marine area (as required by condition 28(ii) of consent 122986), which is primarily achieved through the performance standards identified in this section.

9.1 General Operating Parameters

The following are general parameters that the mangrove removal will operate under:

a) Notification

i) The consent holder shall inform the Group Manager, Resource Use, Waikato Regional Council in writing of the expected starting and completion dates of each at least two weeks prior to the works commencing.

b) Marking of Removal Areas

i) Prior to removal commencing, the areas will be pegged and confirmed as being in general accordance with the application. No clearance will be done outside the marked areas except as provided for by other aspects of the application (ie seedling removal)

c) Contingency Management

i) All clearance areas will be walked by the operator prior to machinery operating to ensure substrate is suitable and to assess any risks involved with the operation at each site.

ii) The operator shall ensure that at no time will machinery be at risk of inundation from the sea or rivers and, in the event of breakdown shall, as soon as practicable, remove machinery from the harbour.

iii) The operator shall check daily weather forecasts and shall avoid working when there is a real threat of flooding from catchment run-off. This applies particularly to areas D, E, F, and H where flooding from the adjacent channels is known to be significant.

iv) Mechanical equipment will be stored outside of the CMA at the cessation of each days work.

v) Prior to use in the CMA each day, all equipment will be inspected for fuel or oil/grease leaks. Any leaks found shall be repaired before any further use. Should a leak develop while working in the CMA, it will be removed immediately from the CMA and repaired.

vi) All machinery shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body such that any spillage can be contained so it does not enter surface water or the coastal marine area.

vii) The operator will adhere to Waikato Regional Council best practises for oil spills (Oil Spill Contingency Guidelines – River and Catchment Services Operations). See Appendix B

d) Environmental Considerations

i) The best practicable option will be implemented to take the most direct route, and least damage to the seabed and surrounding environment whilst accessing the removal sites.

ii) Where mangroves are contiguous with saltmarsh or indigenous forest or scrub, a buffer of at least 10 metres width of mangroves from the seaward edge of the saltmarsh or indigenous forest or scrub shall be retained.

iii) Where banded rail are confirmed as being present in mangrove habitats by baseline monitoring, a minimum buffer of 30 metre width of mangroves from the landward edge will be retained.

iv) At clearance Area E, a minimum 50 metre width of mangroves will be retained from the landward edge.

v) Machinery shall avoid, where practicable, crossing saltmarsh and seagrass beds. Where this cannot be completely avoided, the impact to saltmarsh and seagrass will be minimised by accessing across areas that have either been previously disturbed, or crossing through areas where the damage to the ecosystem will be minimal.

e) Clearance Operations

i) No mechanical clearing shall be done when machinery is operating in water (being inundated tidal flats or channels), with the exception of small shallow pools left on the falling tide.

ii) Mechanical removal will not occur if it will be necessary to navigate to or from the clearance site through tide-covered estuarine waters.

iii) Performance standards as detailed in Sections 9.2.1 and 9.2.2 of this report shall be met at all times.

iv) There will be no mechanical removal of mature mangrove during the period August to December inclusive, as outlined in the resource consent conditions. In addition to that it is proposed not to remove any mature mangroves over the peak holiday periods being 1st January to 6th February, and then over public holiday weekends.

v) There will be no removal of seedlings between 1st September and 28th February.

vi) In the event of equipment failing to perform as expected clearance will cease until such time as an acceptable solution is found. It is envisaged that this requirement will only be invoked in the event that prolonged use of equipment in the estuary reveals mechanical issues that require to be overcome.

f) Disposal

Disposal by burning for areas F, G, H, I and K are covered in Section 10 of this document. However, no burning is permitted in the Moanaanuanu estuary; and this relates specifically to Areas D and E.
For these 2 areas disposal will be trialled by carting the material away for land based off site disposal including burning or mulching

For land-based disposal, considerations will include:

- Obtaining any necessary resource consents
- Mitigation for the effects of noise, nuisance and odour; and
- Ensuring requirements of the adjacent landowners are met.

9.2 Performance Standards

This section addresses "performance standards" as required by condition 28(i) of consent 122986 and is primarily in relation to mechanical and hand removal methods (burning is addressed elsewhere in this report, and seedling performance standards are addressed in a separate document).

9.2.1 Mechanical Removal

The performance standards to be met for all mechanical removal options will be:

(a) Machinery used in the clearance areas shall be of low ground pressure. To achieve this, machinery will be track-mounted with either wide flat tracks, swamp tracks or similar to minimise pressure on the substrate and the risk of black anaerobic sediments being exposed to air. Note that the trials undertaken in Stage 1 will determine the most suitable equipment to use for stages 2 and 3;
(b) No more than 10% of the surface area of any tracked or cleared area shall be disturbed to the extent that black anaerobic sediments are exposed to air except in rake or plucking trial areas;
(c) There will be minimal trampling and disturbance of the estuary;
(d) No more than 30% of the total cleared area will be disturbed by tracking;
(e) No more than 30% of the cleared area will be used for stacking Mangrove material to dry;
(f) Personnel and machinery routes will be pegged prior to works commencing. These routes will be determined along the lines of the least impact to the ecosystem. Operational machinery tracks will be no greater than 3.5 metres in width, while personnel tracks will be no greater than 1.5 metres wide;
(g) Residential noise standards at the Notional Boundary of residential dwellings will be achieved;
(h) The time taken for removal will be limited to no longer than 20 hours for machinery to clear one hectare of mangroves in total. The actual duration of the works however may be undertaken over a number of days due to tide, weather and other working restrictions;
(i) Machinery will be capable of plucking or extracting the whole mangrove plant from the substrate with a minimal amount of disturbance to the area immediately surrounding each individual plant;
(j) No more than 10% of the original plant matter will be left visible above the surface (excludes any root material where this is not removed as part of the clearance process);
(k) In areas where burning is not permitted, cut mangrove material will be barged or transported to shore, and removed within a week of clearance.

9.2.2 Hand Removal

The performance standards to be met for all hand removal options will be:

(a) A suitably qualified estuarine ecologist will be present in the first instance to instruct volunteers as to the method of mangrove removal and to advise them of the location of areas where heavy foot-traffic and/or machinery should be avoided (eg. dense seagrass and shellfish beds) to minimise any damage to the existing seagrass vegetation and habitats which the activity seeks to enhance and protect;
(b) Personnel routes will be pegged prior to removal starting.
(c) Mangroves will be cut to a maximum height of 20mm of the estuary bed.
(d) Mangrove cutting will be undertaken at times when the tide is below the mangroves being removed for ease of access and to maximise removal;
(e) No more than 10% of cleared above ground plant matter will be left in situ (excludes any root material where this is not removed as part of the clearance process);
(f) The work will not be undertaken during summer peak recreational season for the harbour, being 20 December to 6 February;

(g) Where burning does not proceed, cut mangrove material will be barged or transported to shore, and removed within a week of clearance.

9.2.3 Seedling Removal Performance Standards

Additional performance standards apply to seedling mangrove removal in the wider harbour and in Otahu Estuary. These are addressed in the Seedling Removal Management Plan.

9.3 Access

The contractor will be responsible to ensure all mechanical and hand access is managed to the satisfaction of the consent authority and in compliance with relevant consent conditions. This is primarily undertaken by adhering to access routes identified in Section 5 of this report. In addition, the contractor will:

a) Minimise disturbance to land-based access sites by:

   i) Avoiding wash-down or maintenance of equipment within Council reserves or public land/estuary. No washdown, refuelling or maintenance will be undertaken within 20m of MHWS or other permanent waterbody;

   ii) Accessing the harbour via existing access points and, where not possible, ensuring disturbance by access is minimised;

   iii) Avoiding access across saltmarsh and, where this cannot be completely avoided, minimise impact to saltmarsh by accessing across areas that have been previously disturbed, such as previously cleared drains; or where the width of the saltmarsh is narrow or poor quality;

   iv) Should crossing saltmarsh be deemed as the option of lowest impact to the ecosystems, planks or some other protective medium shall be placed on the vegetation to minimise damage;

   v) Where access is not well defined or obvious, an access line shall be pegged and all access shall be undertaken via that line. The maximum width of the disturbed tracking shall be 5 metres.

b) Minimise disturbance of the estuary bed by:

   i) Adhering to the tracking plan that shows anticipated tracking routes and demonstrates compliance with the relevant performance standard and avoidance of seagrass and saltmarsh beds.

   ii) Using the same established tracking route for subsequent machinery and personnel movements; and

   iii) Undertaking a mechanical removal technique trial that demonstrates an ability to achieve mechanical removal performance standards listed in Section 9.2.1 of this report.



Whangamata Mangroves

Removal areas under Consent 122986
Machinery and personnel tracking

Created by:RMG
Projection:NZTM
Date:24/07/2012

Status:
Request No.:22146
File name:22146.gws

0 400 800 1200 1600 2000
Metres

A3

Imagery sourced from Terralink International Limited (TIL)~2007 and is the property of TIL and the Waikato Regional Aerial Photography Syndicate (WRAPS) 2007. Copyright Reserved.

Note: These areas are indicative only, the conditions of consent 122986 shall prevail in the event of any inconsistency. Actual boundaries of removal stages will be confirmed by GPS prior to mangrove removal

Channel removal areas idetified as E, F,G,H, I drains in consent 122986

Waikato REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

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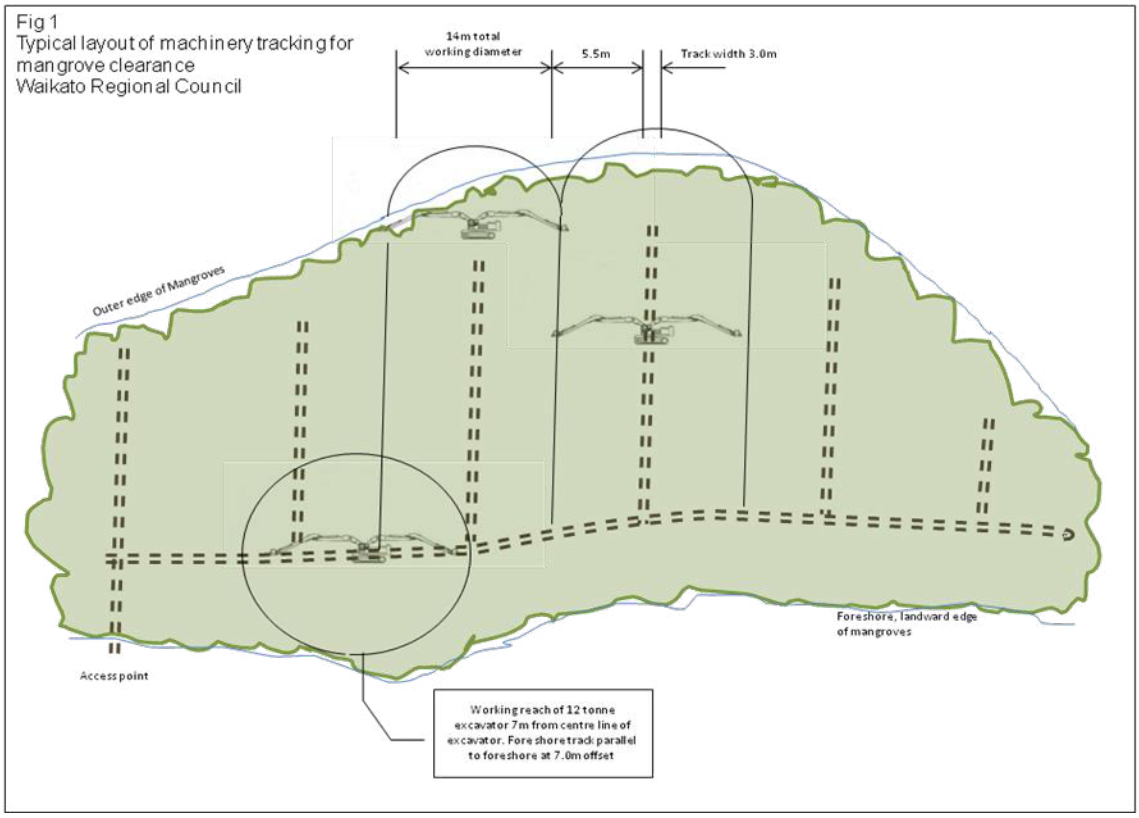
Map 4. Machinery and personnel access routes and machine plant storage and fuelling sites

For coastal vegetation communities please refer to Map 3.

9.4 Machinery Tracking

The use of machinery on the soft substrate found in the CMA is likely to create some surface disturbances. With the trials in Stage 1 using differing track configuration options, we will be able to determine which type is the most suitable to continue with the clearance as a part of Stages 2 and 3.

To minimise the areas of disturbance, the typical tracking layout shown in Figure 1 will be used. Note that the diagram shows separation between each of the laterals as 14 metres which relates to the typical reach of a 12 tonne machine. This may vary depending upon the specific reach of the machinery engaged for the project.



9.5 Requirements for Moanaanuanu

- Cleared mangrove material from Areas D and E will be removed to land, for subsequent disposal.
- All cleared areas within which mangroves will be stacked prior to removal shall include provision for their containment in the event of flood, provided that no such contingency shall be required in the event that materials are to be stacked for less than one week and storm conditions are not forecast in that week.
- Suitable measures may include retaining uncut Mangroves around cleared plants.
- Cleared Mangrove will be removed by Barge, sledge or other low ground pressure mechanical means to the Hetherington Reserve where it will be stacked for mulching or loaded directly onto vehicles for disposal.
- Access and egress will be from the TCDC reserve adjacent to the Causeway or through private property beside this reserve (the latter by landowner consent)

9.6 Timing

Mechanical removal will not occur outside the hours of 7:30am and 7pm and will only occur during daylight hours (after sunrise, before sunset). Removal will also be influenced by the state of the tide (see Section 9.1e of this report).

10 Operational Parameters for Burning

10.1 Stacking and Drying

Burning will not be undertaken on recently cut or "green" Mangroves. In this respect there will be no burning of mangroves that have not been cut and stacked for at least 8 weeks and preferably with at least 3 days of dry weather prior to burning.

It is initially envisaged that mangroves will be stacked into piles of approximately 4m x 4m base area (but that may change as determined by the trials) to ensure adequate drying. They will be stacked to minimise surface contact with the estuary. If the stacking configuration of any pile differs from a 4m x 4m base configuration then a record will be kept of its location and approximate configuration so that if there are any problems identified with burning or smoke nuisance, then identification of stacks configured differently will be able to be identified in the unforeseen circumstance that this may contribute to the cause of any nuisance.

10.2 Stack locations

Stacks will be built adjacent to the tracks established for clearance and will be spaced as appropriate to the amount of vegetation cleared (see Figure 2). The following are essential considerations for the locations of these stacks:

(a) Within cleared areas, to minimise disturbance of the mudflats;

(b) At least 50m, preferably at least 100m, from any residential dwelling;

(c) Where stacks are within 100m of a dwelling, they can only be burned when the wind direction is blowing away from that dwelling;

(d) At least 50m, preferably at least 100m, from any roadway;

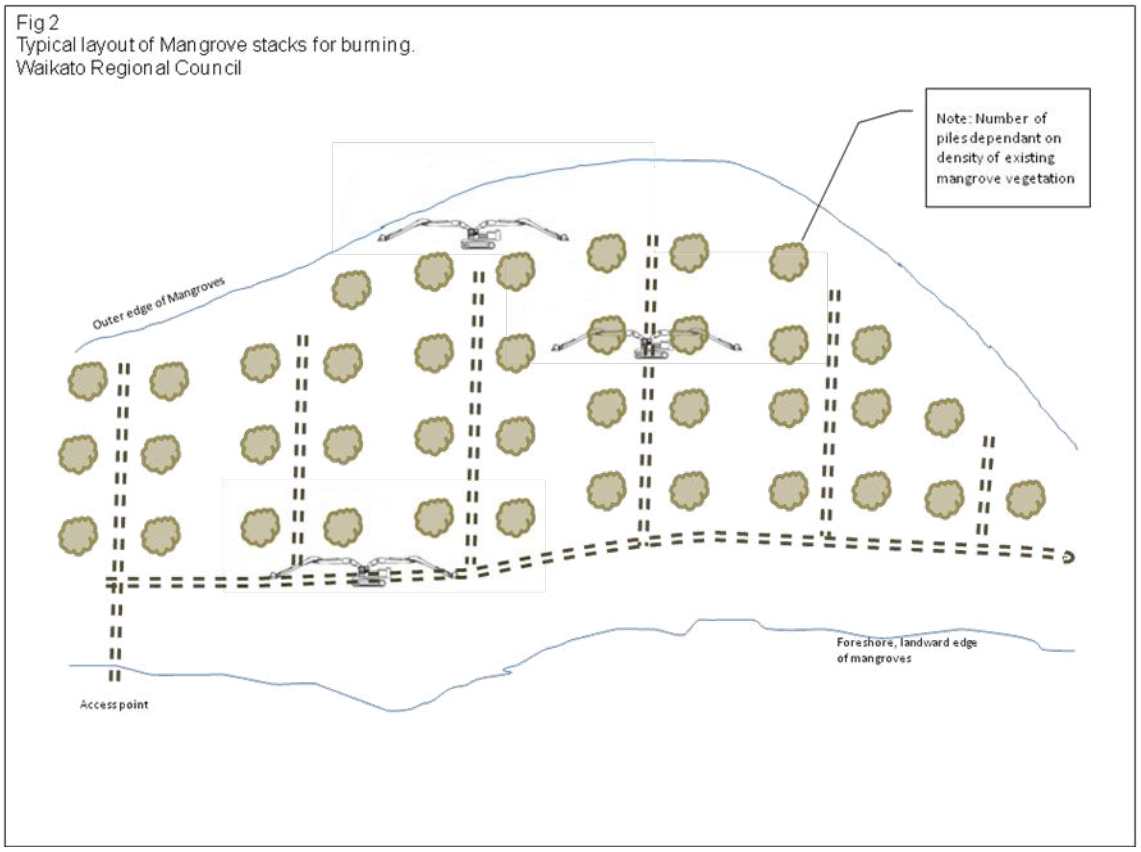
(e) On higher areas of the mudflats (if relevant), to maximise the amount of material that will be above high water levels;

(f) At least 10m spacing between adjacent stacks, to minimise the risk of accidental lighting of adjacent stacks during burning; and

(g) At least 25m from remaining stands of mangroves or terrestrial vegetation, to minimise the effects of heat on uncleared areas.

NOTE: The last two items will require careful management to achieve. The volume of mangroves from the 25m strip from remaining mangroves will have to be put somewhere. This will mean carting or double handling to get it clear of this zone. It may therefore mean stacking on fringes where there has been no clearing done to find enough room.

Fig 2
Typical layout of Mangrove stacks for burning.
Waikato Regional Council



10.3 Access and Tracking

Access and machinery movements for disposal will be restricted to the tracks established for the initial removal operation. No areas of new disturbance will be created except in circumstances where to do so means the use of a more direct route with less disturbance of the bed and vegetation for the burning activity.

The general parameters for access and tracking will be in accordance with Sections 9.3 and 9.4 of this document.

10.4 Fire safety and Permits

A fire permit will be obtained for each fire or set of fires (as required) from the Thames-Coromandel District Council Service Centre, 620 Port Road, Whangamata, 07 865 0060.

- Prior to any burning the TCDC and NZ Fire Service will be advised and any further permits obtained.
- Burning will not occur during any Fire Ban.
- There will be no burning within 25m of any stand of living mangroves. There will be no burning within 50m of stands of living mangroves, where the prevailing or forecast wind will blow towards this vegetation.
- All fires are to be supervised by personnel who have been briefed in appropriate fire safety and management.
- A fire management plan is to be prepared to the satisfaction of the NZFS (if required) and all supervising personnel are to receive a briefing on the contents of the Fire Management Plan.
- No accelerant will be used to facilitate burning.

- The number of stacks that will be burnt in one day will be limited to the individual contractors ability to manage those fires safely. In locations where any stacks are within 100m from any dwelling, the number of fires to be burnt in one day will be limited to 10 fires within 100 metres of a dwelling (applies to burn Areas K, H and F specifically). Should initial burning events in Stage 1 indicate that this is too many then this maximum number will be reduced for subsequent burns.

10.5 Timing

There are a number of factors to be considered when selecting suitable times to burn the stacked mangroves. These include: tide times, whether the stack is dry enough to burn and the weather.

Ideal conditions and acceptable variations are:

- On days when low tide falls between approximately 11am and 3 pm, or earlier if burning is to occur earlier in the day (see below);
- Ideally fires will be lit after 8am and put out before 6pm, however burning could start earlier than 8am subject to the marine forecast being favourable to the relevant site, and particularly if low tide falls earlier in the day;
- The preferred tidal conditions are during neap tides, so that the base of the mangrove stacks have been possibly dry for several days before being burned. Neap tide conditions are preferable but not absolutely necessary. As there are only 2 neap tide periods per month the necessity for this will be considered on a case by case (and site) basis;
- When its not a weekend, this is preferable but optional if limited other opportunities are likely within the initial burning period (the month following 8 weeks drying) due to other factors;
- Not on calm or overcast days;
- When the wind strength is scale 2 or 3 and;
- When the wind is blowing from the right quarter (ie away from roads or dwellings).

When a considerable number of fires are ready to be burnt, these parameters may be restrictive to align; so all opportunities to burn in favourable conditions will be considered. To maximise burn opportunities, machine assisted burning will be trialled as a part of Stage 1. This will consist of:

- A hydraulic digger similar to the machine used for clearing and fitted with forks or some suitable grabbing attachment
- Stoking and stacking the lit fires to make them burn more efficiently. Can include merging a number of semi burnt fires into 1 fire to keep the heat going

Provided suitable conditions for each relevant burn area occur and an appropriate number of suitably briefed personnel are available to supervise the burning (see Section 10.9), the number of stacks burned in a day does not need to be restricted, except that there will be no more than 10 fires burning in any one burn area within 100 metres of dwellings.

Should conditions not be favourable for burning during the month after the 8 week minimum drying period, then a request will be made to RUG outlining the situation and requesting written agreement to allow stockpiles to remain in CMA longer than 3 months in accordance with condition 7 of “Schedule 1 – Common Conditions” of consent 122987.

10.6 Trial

As a component of the Stage One removal and associated trial of techniques for removal, trials will also be undertaken to determine the best burning method. The *Best*

Practice Guide as development in the Bay of Plenty will be used as an initial guide for the process. Trials will include

- Machine assisted burn (digger used to stack/stoke fires)
- Trying different sizes of the piles (say 6m x 6m)
- Lighting 1 fire and feeding it by digger from several adjacent piles

10.7 Meteorology

Burning shall only occur under favourable meteorological conditions which will include:

- The wind should be blowing away from any nearby houses, with little likelihood of a complete wind shift. Some variability in wind direction is acceptable (and will improve the dispersion of smoke and other air pollutants), but the overall direction should be away from houses. This preferred wind direction will be different in different clearance areas:
  - Areas F and H – winds from the west to northwest preferred, light winds from the north would be acceptable;
  - Areas G and I – winds from the westerly quarter preferred;
  - Area K – any direction except easterly;
- Winds should be strong enough to encourage good combustion in the fire – light to moderate winds are ideal (2-6 metres/sec; Beaufort Scale 2 or 3):
  - High winds should be avoided, since these increase the risk of sparks being carried to other areas and causing uncontrolled fires;
  - Winds blowing steadily in one direction increase the risk of adverse effects (both smoke nuisance and health effects) downwind;
- Avoid burning on calm, overcast days, due to the risk of adverse effects on residential areas from smoke and other air pollutants.

Wind direction and strength to determine whether it is suitable to burn will be determined by a combination of visual observation, and either a wind sock or flag used with a compass, on site.

Beaufort Wind Scale

Beaufort scale	Wind speed			Label	Observations on land
	m/s	Knots	km/h		
0	0 - 0.2	<1	<1	Calm	Calm. Smoke rises vertically.
1	0.3-1.5	1-3	1-5	Light Air	Wind motion visible in smoke.
2	1.6-3.3	4-6	6-11	Light Breeze	Wind felt on exposed skin. Leaves rustle.
3	3.4-5.4	7-10	12-19	Gentle Breeze	Leaves and smaller twigs in constant motion.
4	5.5-7.9	11-15	20-28	Moderate Breeze	Dust and loose paper raised. Small branches begin to move.
5	8.0-10.7	16-21	29-38	Fresh Breeze	Branches of a moderate size move. Small trees begin to sway.
6	10.8-13.8	22-27	39-49	Strong Breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.

7	13.9-17.1	28-33	50-61	Near Gale	Whole trees in motion. Effort needed to walk against the wind. Swaying of skyscrapers may be felt, especially by people on upper floors.
8	17.2-20.7	34-40	62-74	Gale	Twigs broken from trees. Cars veer on road.
9	20.8-24.4	41-47	75-88	Severe Gale	Larger branches break off trees, and some small trees blow over. Construction/temporary signs and barricades blow over. Damage to circus tents and canopies.
10	24.5-28.4	48-55	89-102	Storm	Trees are broken off or uprooted, saplings bent and deformed, poorly attached asphalt shingles and shingles in poor condition peel off roofs.
11	28.5-32.6	56-63	103-117	Violent Storm	Widespread vegetation damage. More damage to most roofing surfaces, asphalt tiles that have curled up and/or fractured due to age may break away completely.
12	32.7-36.9	64-71	118-133	Hurricane	Considerable and widespread damage to vegetation, a few windows broken, structural damage to mobile homes and poorly constructed sheds and barns. Debris may be hurled about.

10.8 Controlling and Extinguishing

Suitable machinery (hydraulic digger) should be on site when burning occurs to enable fires to be controlled or put out if required at short notice. Examples of this would be when fires get out of control, unplanned fires ignite, or should wind direction change and start adversely affecting neighbours.

When control or extinguishing is required, mechanical means will be employed, firstly to separate the bulk of the fire to pull burning material apart. This is generally very effective in reducing a fire's intensity very quickly.

Should full extinguishing be required following this initial step, then further separation and/or covering with sufficient damp sand from around the site will be employed to cut off oxygen to the fire by smothering (this will also control smoke). To ensure any fire is not left smouldering, in these instances, it will be monitored until such time as the site is full extinguished with water by the incoming tide,

10.9 Managing Fires

The general parameters around managing fires are:

- Once a stack has been lit, it must be monitored continuously until only ash remains;
- A ratio of 1 person, per 5 stacks with a minimum of two persons on site at any one time. Note that 1 could be a digger operator;
- Actively manage the fire to ensure that all material gets burned;
- Monitor the wind direction every half hour while fires are burning. If it shifts completely, to be blowing smoke towards nearby houses (i.e. houses within 100m), you may need to put the fire out;
- You may also need to put the fire out if there is a risk of it igniting surrounding vegetation or other nearby mangrove stacks;

- Digger to be onsite at all times when fires are burning;
- Machine assisted burning in suitable locations to stack and tend fires. Performance standards for machinery will be consistent with mechanical removal methods;
- On completion of burning, fire sites are to be observed to determine the potential for nuisance from wind blown ash as determined by the volume of loose ash, wind strength and direction, and time until the site will be inundation by tide. Should potential for nuisance be identified it will be minimised by mechanical means by covering ash with a sufficient layer of damp sand from the surrounding area until such time as the tide covers the burn site.

Other methods for managing the fires will include:

- Communication (see Section 11);
- Supervising personnel will be responsible for ensuring each fire is adequately stoked and burns efficiently. To this end, as the fire draws to an end, they shall ensure, so far as practicable, that semi-burnt material is stacked onto existing flames to minimise incomplete burning;
- Following the burning of the stage 1 areas, a report shall be prepared and submitted to the consent authority for its approval, detailing the efficacy of burning and improvements to techniques to be undertaken for subsequent clearance. No further burning shall be undertaken until approval is received.

11 Communications

Key components of the consent will be communicated via a catchment wide newsletter to all ratepayers within the consent area. This will include, amongst other things, key information from the OMP.

Copies of this OMP along with other management plans relating to this consent will be kept at:

- Waikato Regional Council
  - 401 Grey Street, Hamilton
  - 33 Albert Street, Whitianga
- Thames Coromandel District Council Library – Port Road Whangamata
- Whangamata Information Centre (i site)

11.1 Communications Protocol

The following protocols will be used for both mechanical mangrove removal and burning:

(a) The Waikato Regional Council Group Manager, Resource Use shall be advised prior to commencement of all mechanical clearance activities.

(b) Any complaints received by the operator shall be logged and communicated to the Waikato Regional Council Group Manager, Resource Use within two days of being received.

(c) A conspicuous sign shall be placed at the land-based entry to the estuary advising of the works and providing contact details including those of the operator and the Waikato Regional Council Group Manager, Resource Use.

(d) Prior to the commencement of mechanical removal at least one prominent notice will be placed in the local newspaper advising of the intention to undertaken mechanical removal.

(e) At least two weeks prior to Mangrove burning and no more than 4 weeks from burning, one prominent notice will be placed in the local newspaper advising of the intention to burn Mangroves.

(f) News broadcasts in the local radio stations (Cool FM; Coromandel FM) advising of relevant activities taking place.

(g) All notices shall include contact details for the relevant contractor and of the consent holder in case of nuisance or complaint as well as the days and hours of operation.

11.2 Contacts

Who	What
Emily O'Donnell	Consent Process and operations. All queries relating to the consent process are to go through Emily or Julie Beaufill
Kerry Smith	All components of operation plan, management and implementation of removal and disposal (including burning).
Stephen Ward	Communications advisor: Primary contact for media.

All of the above persons can be contacted via the Waikato Regional Council Free Phone number – 0800 800 401

12 Emergency Procedures for Mangrove Removal

This section addresses, as required by condition 28(iii) of consent 122986, emergency procedures that will be implemented should an emergency occur in the coastal marine area involving machinery being used to remove mangroves.

The following procedures will be followed in the instance of an emergency of the following nature:

(a) Tsunami:
- Area Engineer and Work Supervisor to be on the list of personnel that will be warned in case of a tsunami;
- If a warning occurs evacuate all personnel from the area (and machinery but only if appropriate and safe to do so) and do not return until the warning is lifted;

(b) Flood:
- Area Engineer and Work Supervisor to be on weather warning list;
- If a warning occurs evacuate all personnel from the area (and machinery but only if appropriate and safe to do so) and do not return until the warning is lifted;

(c) Spring Tides:
- Contractor to monitor tides times and magnitudes and only enter CMA when conditions of consent can be met;

(d) Soft ground:
- Contractor to monitor and advise as appropriate;
- May result in reassessment of access track locations if necessary;

(e) Burning:
- See Section 10 of this report;

(f) Diesel/Oil spills
- Protocols for refuelling etc to be followed in accordance with best management practice, see Appendix B of this report;
- Contractor and Harbour master to have oil spill kits readily available on hand.

13 Contractors

13.1 Induction and Training

This section addresses, as required by condition 28(iv) of consent 122986, a description of contractor induction and training processes to be completed before commencement of manual or mechanical removal processes. This is to ensure all personnel understand their environmental responsibilities and are fully aware of management practices and procedures and consent conditions.

- A checklist will be developed and will be run through with the contactor by the works supervisor. The checklist will include
    i. Hazard considerations
    ii. Safety considerations
    iii. Hazard identification
    iv. Environmental Considerations
    v. Compliance of the consent.
- A site visit to familiarise contactor and their key staff will be run by works supervisor and project manager.
- All the above considerations will be part of the contactor engagement process.
- Site visit again at commencement of works.

13.2 Contractor Responsibilities

This section addresses, as required by condition 28(v) of consent 122986, a record of contractor responsibilities during the implementation of removal processes.

Contractor responsibilities are to:
- Comply with all conditions of the relevant consents:
- Comply with this plan;
- Monitor weather;
- Comply with all Heath and Safety requirements; and
- Liaise with Work Supervisor and Area Engineer.

13.3 Oversight and Management

The operational component of this activity is the responsibility of the River Works Supervisor and if/when additional technical expertise is required the Coromandel Zone Area Engineer.

For consistency and project over sight the Project Manager will oversee the financial and reporting components of this activity and report through to the Coromandel Zone Manager.

Reporting:
- Coromandel Liaison Subcommittee and Catchment Services Committee (WRC);
- Consenting Authority (WRC);
- Thames Coromandel Community Board and Harbour Committee as required; and
- Local community through print media.

14 Records

14.1 Complaints Register

Any complaints received regarding mangrove removal or burning will be logged and communicated to the Waikato Regional Council Group Manager, Resource Use within two days of being received.

A register of complaints will be completed and retained. Copies of this will be sent to the Operational Project Manager and filed appropriately. An example of this register is included in Appendix C of this report.

14.2 Hazard Register

A register of hazards will be completed and retained in relation to mature mangrove removal and burning. Copies of this will be sent to the Operational Project Manager and filed appropriately.

An example of this register is included in Appendix D of this report.

14.3 Burn Records

On each day that burning occurs a Burning Record form will be filled out by the site manager. Copies of this will be sent to the Operational Project Manager and filed appropriately.

An example of this form is included in Appendix E of this report.

15 Certification

Condition 23

> 23 *Prior to being submitted to the Group Manager, Resource Use, Waikato Regional Council for certification, each management plan (and subsequent reviews of each management plan) shall be certified by a suitably experienced and qualified expert(s) to confirm that activities undertaken in accordance with the management plan will achieve compliance with the relevant consent conditions.*

The technical aspects of this report have been prepared by Roger Spooner and Emily O'Donnell of WRC who are suitably experienced and qualified to confirm that the operational specifications set out in this report will achieve compliance with condition 28 of consent 122986 and condition 2 of consent 122987.

Appendix A
Resource Consent 122986
Resource Consent 122987

Resource Consent Certificate

401 Grey Street
Hamilton East
Hamilton 3216

Private Bag 3038
Waikato Mail Centre
Hamilton 3240

ph +64 7 859 0999
fax +64 7 859 0998
www.waikatoregion.govt.nz

Resource Consent: 122987

File Number: 61 42 85A

Pursuant to the Resource Management Act 1991, the Waikato Regional Council hereby grants consent to:

Waikato Regional Council
Private Bag 3038
Waikato Mail Centre
Hamilton 3240

(hereinafter referred to as the Consent Holder)

Consent Type: Discharge Permit

Consent Subtype: Discharge to air

Activity authorised: To stockpile and burn removed mangrove trees on the foreshore of Whangamata Harbour including associated discharge of contaminants to air and land in the coastal marine area

Location: Whangamata Harbour

Map Reference:

Label	Easting	Northing
F	1853727.491	5880245.034
G	1853751.034	5880692.058
H	1853672.890	5880971.011
I	1853573.096	5881700.769
K	1853978.152	5881242.706

Consent duration: Granted for a period expiring 10 years from the date of commencement of this resource consent.

Subject to the conditions overleaf:

Waikato Regional Council's Freephone 0800 800 401

CONDITIONS

General

1 The exercise of this consent is subject to the conditions listed in Schedule One – Common Conditions.

Air Discharge Management Plan

2 Prior to the exercise of this consent, the consent holder shall prepare and have approved an Air Discharge Management Plan that includes:

(i) Procedures for stacking and drying of vegetation prior to burning;
(ii) Procedures to ensure adequate separation from roadways and residential dwellings;
(iii) Procedures to assess wind direction prior to each burn event to ensure burning only occurs during favourable conditions;
(iv) Procedures for dowsing fires should wind direction change and start adversely affecting residents,
(v) Methods to ensure each fire is completely extinguished with water and will not be left to smoulder,
(vi) Timing for burning activity,
(vii) Maximum number of stacks that will be burnt each day,
(viii) Procedures to ensure all relevant details of burns are recorded, including but not limited to wind direction, number and approximate locations of burn piles, and timing;
(xi) Names and contact details of those responsible for lighting fires and supervising the burns; and
(x) Complaint response procedures.

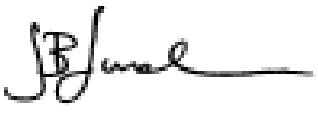
The Plan shall be submitted to the satisfaction of the Group Manager, Resource Use, Waikato Regional Council for approval in a technical certification capacity.

3 The applicant shall implement the Air Discharge Management Plan prepared and approved in accordance with the requirements of condition 2.

In terms of s116 of the Resource Management Act 1991, this consent commences on 14th May 2012

Dated at Hamilton this ***16th*** *day of* ***May 2012***

For and on behalf of the
Waikato Regional Council



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Schedule 1 – Common Conditions

The granting of consents 122986 and 122987 is subject to the following conditions, which shall apply to each individual consent:

General

1 Except as identified by specific consent conditions, the activity shall be undertaken generally in accordance with the application documents for this resource consent including:

- "Whangamata Mangrove Removal Consent Application" dated 27 June 2011 (WRC doc # 1970881), as modified at the hearing commencing 17 October 2011

Should any conflict exist, the conditions of consent will prevail.

2 The consent holder shall be responsible for all sub-contracted operations related to the exercise of this resource consent, and must ensure each sub-contractor is made aware of the conditions of this resource consent and shall ensure compliance with those conditions.

Site Representative

3 All investigations, design and supervision of construction, monitoring and aftercare shall be undertaken by appropriately qualified personnel experienced in such works, or works of a similar nature, to the satisfaction of the Group Manager, Resource Use, Waikato Regional Council.

Notice of Commencement and Timing of Works

4 The consent holder shall inform the Group Manager, Resource Use, Waikato Regional Council in writing of the expected starting and completion dates of each stage of the works at least two weeks prior to the works commencing.

5 The consent holder shall erect notices at each access point to the mangrove clearance and burning activity. These notices shall provide warning of the activities and advice of the period over which these activities will be occurring. The notices shall be erected at least one week prior to the exercise of each stage of this consent, and shall remain in place for the duration of the works.

6 No mechanical clearance works shall be conducted in the coastal marine area in any year during the months of August to December inclusive, unless approved beforehand in writing by the Group Manager, Resource Use, Waikato Regional Council.

Stockpiling

7 Mangrove stockpiles shall not remain in the coastal marine area for a duration exceeding three months, unless as otherwise agreed to in writing by the Group Manager, Resource Use, Waikato Regional Council.

Protection of Tangata Whenua Interests

8 In the event that any archaeological remains are uncovered as a result of the exercise of this consent, the works shall cease immediately and the Group Manager, Resource Use, Waikato Regional Council shall be notified within 48 hours. Works may only recommence with the written approval of the Group Manager, Resource Use, Waikato Regional Council. Such approval will only be provided after the Group Manager, Resource Use, Waikato Regional Council has considered:

(i) Tangata whenua interests and values,
(ii) the consent holder's interests, and
(iii) any archaeological or scientific evidence.

Public Access

9 The consent holder shall ensure that unimpeded access is maintained to and along the foreshore outside of working hours, except through areas where the safety of the public would be endangered as a result of any works in the coastal marine area associated with this resource consent.

Noise

10 The operation of machinery in the coastal marine area shall be carried out in a manner that complies with the noise levels set out in NZS 6803: 1999 "Acoustics - Construction Noise" or any subsequent updated version of that document.

Review

11 The Group Manager, Resource Use, Waikato Regional Council may, within one month either side of each anniversary date of the granting of this consent, serve notice on the consent holder in accordance with the requirements of section 128(1) of the Resource Management Act 1991, of its intention to review the conditions of this resource consent for the following purposes:

(i) to review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects on the environment from the exercise of this resource consent and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or
(ii) if necessary and appropriate, to require the holder of resource consent 122987 to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment due to the effects of the discharge; or
(iii) to review the adequacy of and the necessity for monitoring undertaken by the consent holder; or
(iv) to reduce the extent of authorised mangrove removal.

Note: Costs associated with any review of the conditions of this resource consent will be recovered from the consent holder in accordance with the provisions of section 36 of the Resource Management Act 1991.

Administration

12 The consent holder shall pay to the Waikato Regional Council any administrative charge fixed in accordance with Section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulation made under Section 360 of the Resource Management Act 1991.

Resource Consent Certificate

401 Grey Street
Hamilton East
Hamilton 3216

Private Bag 3038
Waikato Mail Centre
Hamilton 3240

ph +64 7 859 0999
fax +64 7 859 0998
www.waikatoregion.govt.nz

Resource Consent: 122986

File Number: 61 42 85A

Pursuant to the Resource Management Act 1991, the Waikato Regional Council hereby grants consent to:

Waikato Regional Council
Private Bag 3038
Waikato Mail Centre
Hamilton 3240
(hereinafter referred to as the Consent Holder)

Consent Type: Coastal Permit

Consent Subtype: Disturbance

Activity authorised: To remove approximately 22.91 hectares of mangrove trees and mangrove remnants from the Whangamata Harbour including associated disturbance and vehicle use in the coastal marine area, and ongoing hand removal of seedlings.

Location: Whangamata Harbour

Map Reference:

Label	Easting	Northing
C	1854862.867	5880366.300
D	1854189.913	5879079.209
E	1853969.916	5878837.633
F	1853727.491	5880245.034
G	1853751.034	5880692.058
H	1853672.890	5880971.011
I	1853573.096	5881700.769
K	1853978.152	5881242.706

Consent duration: Granted for a period expiring 25 years from the date of commencement of this resource consent.

Subject to the conditions overleaf:

Waikato Regional Council's Freephone 0800 800 401

CONDITIONS

General

1 The exercise of this consent is subject to the conditions listed in Schedule One – Common Conditions.

Staged Removal

2 Manual and mechanical mangrove removal authorised by this consent shall be undertaken in stages, as detailed in Table 1:

Table 1:

Site	Hectares	Removal Method	Stage 1	Stage 2	Stage 3
C	0.17	Hand	0.17ha		
D	4.20	Hand – clean up	4.20ha		
E	5.64	Mechanical trial	0.30ha		
		Hand Trial	0.30ha		
		Depending on outcome of trials		1.48ha	
		Depending on outcome of trials			3.56ha
F	2.33	Depending on outcome of trials		2.33ha	
G	4.51	Mechanical trial	2.0ha		
		Depending on outcome of trials		2.51ha	
H	1.12	Depending on outcome of trials		1.12ha	
I	2.50	Mechanical trial	1.20ha		
		Hand trial	0.10ha		
		Depending on outcome of trials		1.20ha	
K	0.472	Mechanical trial	0.72ha		
D,E, F, G, H, I Drains	1.72	Mechanical			1.72 ha
Total area in each stage			8.99 ha	8.64ha	5.28ha
Total Area			22.91 Hectares		

Notes:
All Areas will be accurately plotted using Differential or Real Time Kinematic GPS before removal activities commence.
Area D consists entirely of rectification of previous clearance activities (prior to this consent) and, accordingly, is not considered new clearance area.
Areas F, H and K incorporate some rectification of previous clearance activities as well as full removal activities.
Storm water and river channel clearance is included in Stage three.

3 Mangrove removal Stages 2 or 3 shall not commence unless and until monitoring results from the immediately preceding removal activities satisfy the Group Manager, Resource Use, Waikato Regional Council that the effects on benthic ecology, avifauna and coastal processes, and after taking into account mitigation and/or remediation actions, are assessed to be no more than minor, based on the requirements of the Environmental Monitoring Management Plan and on the advice of an independent suitably qualified and experience person(s).

4 The assessment by the Group Manager, Resource Use, Waikato Regional Council under condition 3 will alternatively result in one of the following decisions:

(i) The level of effect is considered to be no more than minor as determined by an "expected trend" in monitoring, and removal at subsequent stages in some or all areas may proceed; or

(ii) The level of effect is considered to be more than minor, and restoration or operational modification is required to reduce effects to be no more than minor in some or all areas; or

(iii) The level of understanding of removal effects is considered insufficient, and further removal will be put on hold until and unless additional assessment or investigations provide information suitable to support either decisions (i) or (ii) above; or

(iv) The level of effect of particular methods is considered more than minor, or the level of understanding of removal effects of particular methods is considered insufficient, and removal at subsequent stages in some or all areas may proceed but only by means of a specific removal method. The removal method specified for any particular area may limit the removal to one or more method and may included appropriate removal methods(s) or may limit the removal to hand removal only within specified areas.

Note: For the purposes of this condition an "expected trend" in monitoring shall be defined and determined as set out by the document "Monitoring and Trigger Guidelines", Waikato Regional Council Document #2172750.

Environmental Protection

5 Removal of mangroves authorised by this resource consent is limited to a maximum of 22.91 hectares (including 1.72 Hectares drain/channel clearance) as identified from within areas D ,E, F ,G ,H, I and K shown on the plan titled "Whangamata Mangroves, Removal Areas under consent 122986" (WRC doc 2172747).

6 All mangroves shall be cut to a maximum height of 20 mm above the estuary bed.

7 No machinery shall be operated in water, inundated tidal flats or channels as a result of tidal flows, with the exception of small shallow pools left on a falling tide.

8 The consent holder shall take all practical measures to removal all above ground cleared mangrove material from the coastal marine area, other than that stockpiled for burning in accordance with resource consent 122987.

9 Where mangroves are contiguous with saltmarsh or indigenous forest or scrub, a buffer of at least 10 metres width of mangroves from the seaward edge of the saltmarsh or indigenous forest or scrub shall be retained. Where banded rail are confirmed as being present in mangrove habitats, a minimum buffer of 30 metre width of mangroves from the landward edge shall be retained. At clearance Area E, a minimum 50 metre width of mangroves shall be retained from the landward edge.

Machinery in the CMA

10 All machinery shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body such that any spillage can be contained so it does not enter surface water or the coastal marine area.

11 Operators of machinery shall avoid, where practicable, crossing saltmarsh and seagrass beds. Where this cannot be completely avoided, the consent holder shall minimise impact to saltmarsh and seagrass by accessing across areas that have been previously disturbed.

12 The consent holder shall be responsible for implementing the best practicable option to take the most direct route, and least damage to the seabed and surrounding environment whilst accessing the removal sites.

13 Machinery shall only be operated in the coastal marine area for a maximum period of ten years from the date of commencement of this consent.

Seedling Mangrove Removal

14 Seedling mangroves authorised for removal by this resource consent shall only be single unbranched stems of no greater than 20 cm in height.

15 No seedling mangrove removal shall be undertaken within 10 metres of the landward edge at Area D.

16 Seedling mangrove removal activity shall only take place during the months of 1 March to 31 August inclusive.

17 The consent holder shall ensure all personnel undertaking seedling removal activities under this consent are made aware of the conditions of this consent and the need to comply with them, and are trained in appropriate seedling removal techniques.

18 Mangrove seedling removal activities shall be carried out in accordance with the certified Mangrove Seedling Removal Management Plan required by condition 21 of this consent.

19 The consent holder shall ensure that seedling mangroves are hand cut and that the groups of personnel removing seedlings from a specific seedling removal area in any one day shall be restricted to a maximum of six people per 2,500 m^2 in areas of dense seagrass as advised by a suitably qualified ecologist during the area demarcation and personnel training undertaken pursuant to condition 17 of this consent.

20 Seedling mangrove plant material shall be collected and removed from the coastal marine area.

Note: Subject to compliance with the above conditions, seedling mangrove removal is authorised by this consent within the entire Whangamata Harbour, Moanaanuanu Estuary and Otahu Estuary.

Management Plans

21 Prior to the exercise of this consent, the consent holder shall prepare and submit to the Group Manager, Resource Use, Waikato Regional Council for certification to ensure they satisfy the requirements of this consent, the following management plans for the activity to which this consent relates:

(i) Operational Management Plan;

(ii) Mangrove Seedling Removal Management Plan;

(iii) Environmental Monitoring Management Plan; which shall contain or append the "Monitoring and Triggers Guideline", document #2172750; and

(i) Predator Control Management Plan.

(ii) Vegetation Restoration Management Plan

22 No removal of mangroves shall commence until all the management plans listed in condition 21 have been certified by the Group Manager, Resource Use, Waikato Regional Council for implementation.

23 Prior to being submitted to the Group Manager, Resource Use, Waikato Regional Council for certification, each management plan (and subsequent reviews of each management plan) shall be certified by a suitably experienced and qualified expert to confirm that activities undertaken in accordance with the management plan will achieve compliance with the relevant consent conditions.

24 Following the completion of the process for the certification authorised by condition 22, (and any subsequent review and amendment) of the management plans, the consent holder shall provide to the Group Manager Resource Use, Waikato Regional Council:

(i) The amended management plan;

(ii) The consent holder's review reports on the management plan;

(iii) Any associated expert reports; and

(iv) Any comments made by other consulted parties in accordance with condition 35.

25 A copy of the latest version of each management plan shall be kept at:

(i) The Hamilton office of Waikato Regional Council at 401 Grey Street, Hamilton; and

(ii) The Whangamata Library, Port Road, Whangamata.

26 The copies of the management plans held at the Whangamata Library shall be updated within fifteen (15) working days of any amended management plan being certified by the Group Manager, Resource Use, Waikato Regional Council.

Operational Management Plan

27 The consent holder shall prepare and implement an Operational Management Plan. The objective of the Operational Management Plan shall be to identify management practices and procedures to be adopted in order to minimise adverse effects of mangrove removal and to comply with the conditions of consent.

28 The Operational Management Plan shall include, as a minimum, the following:

(i) Operational parameters, performance standards, procedures and general operating conditions for manual and mechanical removal methods in the coastal marine area;

(ii) Measures to be undertaken to avoid, remedy or mitigate the effects of operating machinery in the coastal marine area;

(iii) Emergency procedures that will be undertaken should an emergency occur in the coastal marine area involving machinery being used to remove mangroves;

(iv) A description of contractor induction and training processes to be completed before commencement of manual or mechanical removal processes to ensure all personnel understand their environmental responsibilities and are fully aware of management practices and procedures and consent conditions; and

(v) A record of contractor responsibilities during the implementation of removal processes.

Mangrove Seedling Removal Management Plan

29 The consent holder shall prepare and implement a Mangrove Seedling Removal Management Plan. The objective of the Mangrove Seedling Removal Management Plan shall be to identify management practices and procedures to be adopted in order to minimise adverse effects of mangrove seedling removal and to comply with the conditions of consent.

30 To achieve the objective specified in condition 29, the Mangrove Seedling Removal Management Plan shall include, as a minimum, the following:

(i) An aerial photograph of the Whangamata Harbour that shows the proposed removal areas, and the location of seagrass and saltmarsh beds, and the proposed access pathways to the seedling mangroves to be removed;

(ii) Methods to be used to minimise disturbance of foreshore sediment, and seagrass and saltmarsh beds; and

(iii) The process to train and brief any personnel who will remove mangroves under this consent.

Environmental Monitoring Management Plan

31 The consent holder shall prepare and implement an Environmental Monitoring Management Plan. The objective of the Environmental Monitoring Management Plan shall be to identify management practices and procedures to be adopted in order to establish a baseline and then monitor effects of each stage of mangrove removal authorised by the consents.

32 The consent holder shall retain appropriately experienced person(s) to develop the Environmental Monitoring Management Plan to determine and report on the impact of the activities authorised by this consent and to provide adequate information to the Group Manager, Resource Use, Waikato Regional Council to enable decisions to be made regarding the approval of each subsequent stage of the proposal.

33 The Environmental Monitoring Management Plan shall include, as a minimum, the following:

(i) A baseline monitoring programme, including a pilot survey to define sampling parameters and techniques, and an ongoing operational monitoring programme in mangrove removal areas in order to monitor effects on the environment including:

(A) Sediment character and properties including changes in mud content over time;

(B) Estuary bed level and compaction;

(C) Saltmarsh and bank erosion in areas adjacent to mangrove removal areas;

(D) Mangrove establishment on saltmarsh margins;

(E) Extent and density of seagrass beds adjacent to mangrove removal locations;

(F) Benthic community abundance and composition;

(G) Avifauna use of long-shore strips of mangroves;

(H) Banded rail use of mangrove removal areas and areas of adjacent mangroves that are retained;

(ii) Methodologies to be used for gathering data;

(iii) Provision for Ngati Whanaunga, Whangamata Ratepayers Association, Whangamata Harbour Care and other relevant user groups to participate in the monitoring if the parties wish to participate and undertake the pre-requisite training;

(iv) Reporting requirements;

(v) Environmental performance criteria to assist Group Manager, Resource Use, Waikato Regional Council in its evaluation of monitoring data;

(vi) Descriptions of proposed weed management and restoration planting initiatives which may be undertaken by the Waikato Regional Council River and Catchment Services Group as components of wider Whangamata Harbour and catchment management programmes and which, while beyond the scope of this consent, will assist the Group Manager, Resource Use, Waikato Regional Council to evaluate monitoring data; and

(vii) Public access to data for independent analysis and reporting.

34 The Environmental Monitoring Management Plan required to be prepared in accordance with the requirements of condition 21 shall be submitted to the Group Manager, Resource Use, Waikato Regional Council at least two months prior to the proposed commencement of any mangrove clearance works.

35 Prior to submitting the Environmental Monitoring Management Plan (EMMP) required in accordance with the requirements of conditions 34, 37 and 39 undertaking a review of, or amending the EMMP, the consent holder:

(i) Forward to the Department of Conservation, Ngati Whanaunga, Whanamata Harbour Care, Royal Forest and Bird Protection Society and Whangamata Ratepayers Association, a Draft EMMP (or draft changes the EMMP) requesting their comments in writing within 20 working days;

(ii) Provide at least 10 working days notice of a meeting time to the parties who have commented on the Draft EMMP in which they can meet together with the consent holder (either together or separately) to discuss their comments;

(iii) Consider modifying the Draft EMMP in relation to any comments raised by the parties listed in part (i) of this condition. Where the consent holder determines that some or part of any comments provided by any party listed in part (i) of this condition should not result in a modification to the Draft EMMP commentary justifying this decision shall be provided to the Group Manager, Resource Use Group, Waikato Regional Council when the EMMP is submitted, and

(iv) Provide all feedback received from each party listed in part (i) of this condition to the Group Manager, Resource Use Group, Waikato Regional Council when the EMMP (or changes to the EMMP) is submitted.

36 The consent holder shall implement the Environmental Monitoring Management Plan prepared pursuant to the requirements of condition 31 and shall forward the monitoring results to the Group Manager, Resource Use, Waikato Regional Council at the intervals detailed in the management plan.

37 The Environmental Monitoring Management Plan shall be reviewed prior to the commencement of Stage 2, and, thereafter, every five (5) years by the consent holder and may be amended accordingly, subject to the approval of the Group Manager, Resource Use, Waikato Regional Council.

38 The review of the Environmental Monitoring Management Plan shall assess:

(i) Whether monitoring and management practices recorded in the management plan are resulting in compliance with the conditions of these consents; and

(ii) Whether the objectives of the management plan are being met through the actions and methods undertaken by or on behalf of the consent holder.

39 The review of the Environmental Monitoring Management Plan may result in amendments considered necessary to better achieve the objectives of the management plan.

Predator Control Management Plan

40 Prior to the commencement of any mangrove removal the consent holder shall provide the Predator Control Management Plan for the approval of the Group Manager, Resource Use, Waikato Regional Council, that has been prepared by an appropriately qualified and experienced party. No removal shall commence until the Predator Control Plan has been approved.

41 The objective of the Predator Control Management Plan shall be to identify management practices and procedures to be adopted to protect banded rail and other indigenous fauna. Accordingly the Predator Control Management Plan shall have a particular focus on the upper harbour for the purposes of wildlife management and shall include, as a minimum, the following:

(i) Identification of predators which utilise mangrove habitat and adjacent landward margins and which, in the specific context of mangrove removal to be undertaken pursuant to this consent, require management in order to protect banded rail and other indigenous fauna;

(ii) Identification of the schedule of control methods, including appropriate seasonal timing of predator control, and identification of the aspects of the programme that will be carried out prior to mangrove removal in relation to relevant removal areas;

(iii) Identification of the outcomes and benefits to be achieved through the predator control programme;

(iv) A management control programme for nominated predators to be undertaken on terrestrial margins of mangrove areas including the control methods to be used and the frequency of implementation;

(v) Identification of parties involved, including roles and responsibilities;

(vi) Details of linkages with other predator control works in the Whangamata Catchment;

(vii) Communication plan;

(viii) Risk identification and management; and

(ix) Activity and outcome reporting.

42 The consent holder shall implement the Predator Control Management Plan prepared in accordance with condition 41.

Note: For the avoidance of doubt, this condition does not require or authorise any predator control physical activities (but may include education) on private land or within the urban environment, but shall relate to management activities on public land and reserves on the land margins adjacent to the consent areas.

Vegetation Restoration Management Plan

43 The consent holder shall prepare and implement a Vegetation Restoration Management Plan for the Consent Area, and its immediately adjoining land. The objective of the Vegetation Restoration Management Plan shall be to identify management practices and procedures to be adopted to identify proposed weed management and restoration planting initiatives in the vicinity of areas of wetland, salt marsh and terrestrial indigenous vegetation which is required to offset the loss of habitat by mangrove removal.

44 The Vegetation Restoration Management Plan may also identify the work that may be undertaken by the Waikato Regional Council River & Catchment Services Group as components of wider Whangamata Harbour and catchment management programmes.

45 The Vegetation Restoration Management Plan shall include as a minimum the following:

(i) Identification of weed pests which inhabit salt marsh and mangrove habitats and which, in the specific context of mangrove removal to be undertaken pursuant to this consent, require management in order to enhance the overall ecology and fauna habitat (especially for protection of banded rail);

(ii) Identification of the schedule of vegetation restoration, including appropriate seasonal timing of works, and identification of the aspects of the programme that will be carried out prior to mangrove removal in relation to relevant removal areas

(iii) Identification of the outcomes and benefits to be achieved through the vegetation restoration programme;

(iv) A management control programme for vegetation removal and enhancement to be undertaken on terrestrial margins of land within salt marsh and mangrove areas including the control methods to be used and the frequency of implementation and monitoring;

Note: implementation of some aspects of the management control programme may be subject to resource consent requirements and shall not be undertaken until such time as the required resource consents have been authorised;

(v) Identification of parties involved, including roles and responsibilities;

(vi) Details of linkages with other vegetation management works in the Whangamata Harbour and catchment;

(vii) Communication plan; and

(viii) Risk identification and management.

In terms of s116 of the Resource Management Act 1991, this consent commences on 14th May 2012

Dated at Hamilton this ***16th*** *day of* ***May 2012***

For and on behalf of the
Waikato Regional Council

.....

Schedule 1 – Common Conditions

The granting of consents 122986 and 122987 is subject to the following conditions, which shall apply to each individual consent:

General

1 Except as identified by specific consent conditions, the activity shall be undertaken generally in accordance with the application documents for this resource consent including:

- "Whangamata Mangrove Removal Consent Application" dated 27 June 2011 (WRC doc # 1970681), as modified at the hearing commencing 17 October 2011

Should any conflict exist, the conditions of consent will prevail.

2 The consent holder shall be responsible for all sub-contracted operations related to the exercise of this resource consent, and must ensure each sub-contractor is made aware of the conditions of this resource consent and shall ensure compliance with those conditions.

Site Representative

3 All investigations, design and supervision of construction, monitoring and aftercare shall be undertaken by appropriately qualified personnel experienced in such works, or works of a similar nature, to the satisfaction of the Group Manager, Resource Use, Waikato Regional Council.

Notice of Commencement and Timing of Works

4 The consent holder shall inform the Group Manager, Resource Use, Waikato Regional Council in writing of the expected starting and completion dates of each stage of the works at least two weeks prior to the works commencing.

5 The consent holder shall erect notices at each access point to the mangrove clearance and burning activity. These notices shall provide warning of the activities and advice of the period over which these activities will be occurring. The notices shall be erected at least one week prior to the exercise of each stage of this consent, and shall remain in place for the duration of the works.

6 No mechanical clearance works shall be conducted in the coastal marine area in any year during the months of August to December inclusive, unless approved beforehand in writing by the Group Manager, Resource Use, Waikato Regional Council.

Stockpiling

7 Mangrove stockpiles shall not remain in the coastal marine area for a duration exceeding three months, unless as otherwise agreed to in writing by the Group Manager, Resource Use, Waikato Regional Council.

Protection of Tangata Whenua Interests

8 In the event that any archaeological remains are uncovered as a result of the exercise of this consent, the works shall cease immediately and the Group Manager, Resource Use, Waikato Regional Council shall be notified within 48 hours. Works may only recommence with the written approval of the Group Manager, Resource Use, Waikato Regional Council. Such approval will only be provided after the Group Manager, Resource Use, Waikato Regional Council has considered:

(i) Tangata whenua interests and values,
(ii) the consent holder's interests, and
(iii) any archaeological or scientific evidence.

Public Access

9 The consent holder shall ensure that unimpeded access is maintained to and along the foreshore outside of working hours, except through areas where the safety of the public would be endangered as a result of any works in the coastal marine area associated with this resource consent.

Noise

10 The operation of machinery in the coastal marine area shall be carried out in a manner that complies with the noise levels set out in NZS 6803: 1999 "Acoustics - Construction Noise" or any subsequent updated version of that document.

Review

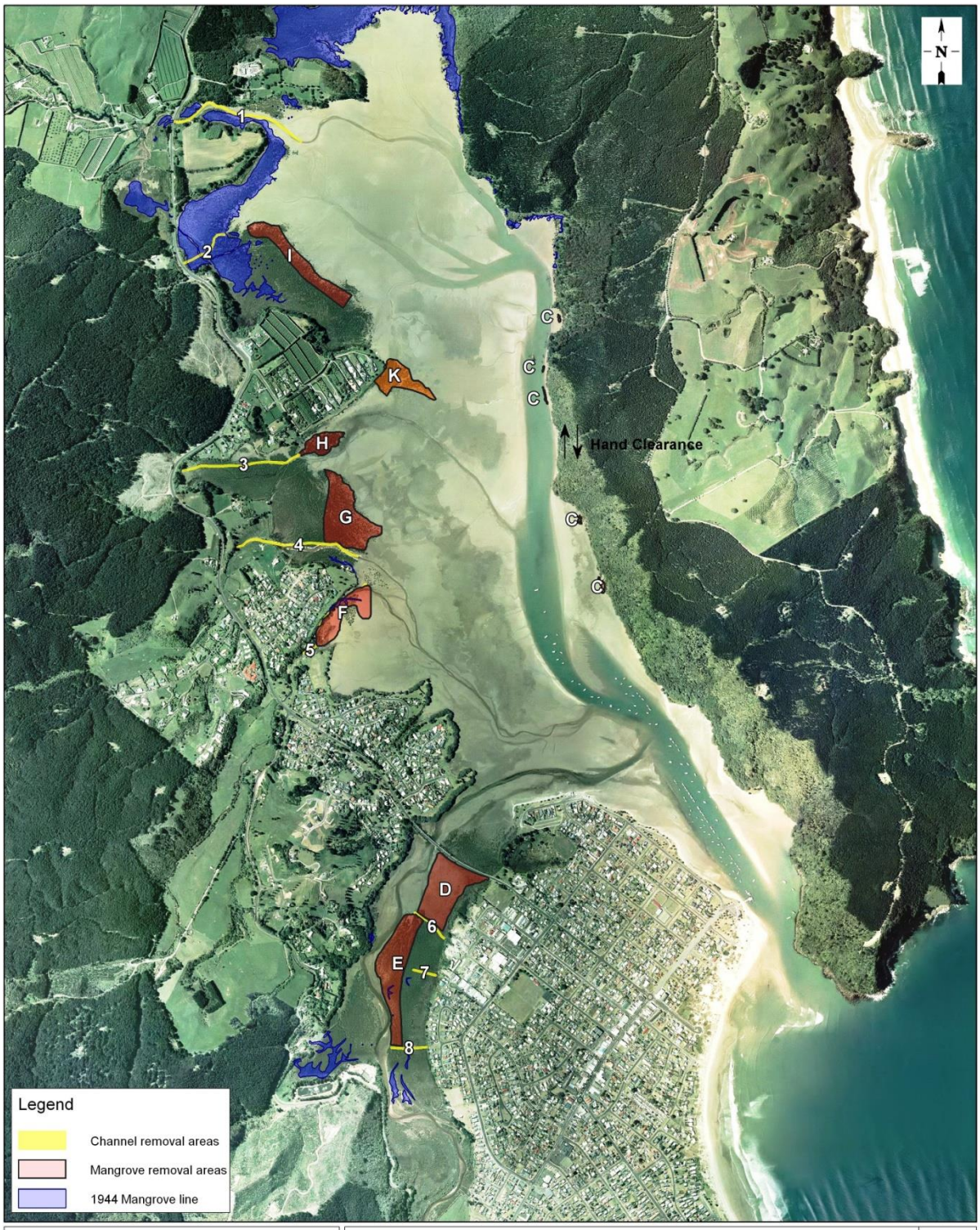
11 The Group Manager, Resource Use, Waikato Regional Council may, within one month either side of each anniversary date of the granting of this consent, serve notice on the consent holder in accordance with the requirements of section 128(1) of the Resource Management Act 1991, of its intention to review the conditions of this resource consent for the following purposes:

(i) to review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects on the environment from the exercise of this resource consent and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or
(ii) if necessary and appropriate, to require the holder of resource consent 122987 to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment due to the effects of the discharge; or
(iii) to review the adequacy of and the necessity for monitoring undertaken by the consent holder; or
(iv) to reduce the extent of authorised mangrove removal.

Note: Costs associated with any review of the conditions of this resource consent will be recovered from the consent holder in accordance with the provisions of section 36 of the Resource Management Act 1991.

Administration

12 The consent holder shall pay to the Waikato Regional Council any administrative charge fixed in accordance with Section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulation made under Section 360 of the Resource Management Act 1991.



Whangamata Mangroves

Removal areas under Consent 122986

Created by:RMG
Projection:NZTM
Date:26/04/2012

Status:
Request No.:22146
File name:22146.gws

0 400 800 1200 1600 2000
Metres

A3

Imagery sourced from Terralink International Limited (TIL)~2007 and is the property of TIL and the Waikato Regional Aerial Photography Syndicate (WRAPS) 2007. Copyright Reserved.

Note: These areas are indicative only, the conditions of consent 122986 shall prevail in the event of any inconsistency. Actual boundaries of removal stages will be confirmed by GPS prior to mangrove removal

Channel removal areas idetified as E, F,G,H, I drains in consent 122986

Waikato REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

DISCLAIMER: While Waikato Regional Council has exercised all reasonable skill and care in controlling the contents of this information, Waikato Regional Council accepts no liability in contract, tort or otherwise howsoever, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of this information or its use by you.

Appendix B
Oil Spill Contingency Guidelines – River and Catchment Services Operations

Environment Waikato Technical Report 2006/24

Oil Spill Contingency Guidelines – River and Catchment Services Operations

Final

Doc # 2260025

Peer reviewed by:
David Speirs Signature  Date 10/05/06

Approved for release by:
Scott Fowlds Signature  Date 10/05/06

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Photos

Photo 1 Designated refuelling area contained by an earth bund and lined with impermeable plastic. 2

16 Introduction

Environment Waikato's River and Catchment Services Group undertakes activities on its own behalf and has contractors undertake activities that regularly require machinery to be working in and around waterways. The following document is a Contingency Spill Guideline outlining the activities required to prevent, contain and mitigate the effects of hydrocarbon material in the event of an oil spill.

17 Hydrocarbon spills

Most oil spills associated with construction activities occur during the refuelling of machinery and accidental ruptures of hydraulic hoses during machinery operation.

The most common substances spilt are diesel and hydraulic fluid resulting from:

- spillages during refuelling,
- leaking fuel tank or hoses/lines,
- rupture of high pressure hoses,
- operator error,
- discarded empty containers (eg grease cartridges).

In general any efforts to contain hydrocarbon spills will closely follow the Environment Waikato Marine Oil Spill Contingency Plan protocol for spill response which includes but is not limited to the following options:

- prevent further spillage,
- contain the spill on site,
- recover spilled material,
- divert spill away from sensitive areas,
- disperse spill (if appropriate),
- clean up affected areas,
- monitor spill but take no action (non persistent spills that are not threatening)

18 Spill management procedures

The River and Catchment Services Group considers that the management of hydrocarbon spillages is best dealt with by a two stage approach.

- Prevention
- Operational management.

18.1 Prevention

To reduce the chance of a spill occurring the River and Catchment Services Works Supervisor will ensure that any causes for concern are addressed through clauses in contracts. Contractors will also be required to meet the following best management practices:

- Always use a designated refuelling area. If possible it should be situated away from water bodies so that if accidental spillage does occur it is unlikely to enter a waterway.
- Never refuel machinery in a position where fluid spills could enter a water course.
- Do not leave the machine unattended when refuelling.
- Regularly check fuel lines and tanks for faults.
- In the event of a high pressure hose rupture immediately cease operations and contain any spill. Appendix one of this report details the procedure to follow in the event of a spill.

- If possible fuel should be brought to the site as needed rather than stored there overnight or over the longer term.
- If fuel is to be stored on-site overnight it should be located in a location secure from the public (e.g. out of view from public roads) and well away from any watercourses so that if an accidental spill occurs it is unlikely to enter a waterway. All taps/valves/pumps should be turned off, locked and checked before leaving the site.
- If it is not possible to designate fuel storage or refuelling areas away from waterways then a bund should be constructed around the designated area as illustrated in photo 1, to contain any spillages and prevent them from entering a waterway.



Photo 1 Designated refuelling area contained by an earth bund and lined with impermeable plastic.

18.2 Operational management

During the course of letting contracts to carry out river and vegetation management and erosion protection works, Environment Waikato River and Catchment Services Group may require contractors to submit a site safety plan, including a site specific spill contingency plan. Spill Contingency plans submitted by contractors shall be consistent with these guidelines.

Contractors undertaking works in areas that are remote or difficult to access and/or do not have cell phone or R/T coverage are required to have their own emergency spill kits located on site. Those contractors that are not required to hold a portable spill kit should know where they can obtain one and ensure that it is readily accessible in an emergency.

18.3 Equipment

All Environment Waikato Works Supervisors have access to portable spill kits. Portable spill kits generally contain:

- oil absorbing material, such as pillows or pads (of varying designs and absorptive capacity);
- absorbent booms (of various sizes);
- products that break up the hydrocarbon material, for example, oil dispersants;

- ‘Plug and Dike’ material. This is a useful non-toxic material that can be used to form an immediate seal over holes in tanks to control flammable and/or hazardous leaks and spills.

19 Spill notification

If in the event of a Hydrocarbon spill where there are risks to, or impacts on, people, property, wild life and water fowl, or risk that the spill may enter a marine area, then other agencies/parties may need to be contacted. This will vary from site to site, but may include agencies such as:

- Emergency Services (Fire Service)
- Environment Waikato RCS management
- Environment Waikato Resource Use Group – Ready Response (0800 088 401)
- Department of Conservation
- Fish and Game
- District Council
- Affected landowners.

20 Spill clean-up

In the event of a spillage, contractors and works staff shall follow the spill procedure in Appendix one. All materials used to contain and/or soak up a spill shall be disposed of appropriately in a public landfill. Replacement spill kits can be obtained from Process Lubricants Limited, Auckland.

Appendix 1 Spill procedure & clean up

In the event of a hydrocarbon spill the following procedure shall be used as a guideline for spill control:

If there is a significant risk to you, the public or to property dial 111

Assess the spill for safety.
Can you safely contain and clean up the spill without external help?

Yes

Turn off valves, pumps or source associated with the spill if you can do so safely.

Spills to water can generally only be contained by the use of absorptive booms and pads

Contain the spread of the spill on land as much as possible by forming a temporary bund/containment structure or using a portable spill kit. In some instances a few shovels of earth may be sufficient to block access to a waterway or to contain the substance in a drain.

Report the spill to the appropriate Environment Waikato Staff member on 0800 800 401.

No

Phone the relevant Environment Waikato Works Supervisor for assistance on 0800 800 401.

If the EW works supervisor is unable to contain the spill contact Environment Waikato's ready response team on 0800 088 401.

Clean-up

- Remove contaminated soil or material from the site
- Dispose of any contaminated soil or material in a landfill

Environmental Spills Contingency Plan

(Contractors to complete as part of site safety plan)

1) Location of Works Site: _____

Contract name and number (if relevant) _____

_____

3) Contractors Details

Company Name:	
Contact Person:	
Postal Address:	
Fax:	
Phone:	
Email:	

4) Do you have a portable spill kit that will be located at the site of the works when works are taking place?

Yes ☐ No ☐

5) Will there be a person working on the site who has undertaken a spill containment training course

Yes ☐ No ☐

6) What steps will be undertaken to prevent the chances of an oil of hydrocarbon spill occurring. **(Please read and refer to Environment Waikato "Oil Spill Contingency Guidelines – RCS Operations")**

Question 7 over page

7) Please attach/draw a map of the works site showing the location of waterways, fuel storage areas and machinery refuelling areas

Appendix C
Complaints Record

MANGROVE REMOVAL AND DISPOSAL - COMPLAINTS REGISTER - WHANGAMATA

Date	Staff	Location	Possible Cause	Action Taken	Steps to prevent re occurring	Complainant	Contact Number

Appendix D
Hazard Register

Hazard identification and Control

Work Site Location/Address		*Date*	
Work Description			
Site Controller		*Contact*	

Hazard	Significant Yes/No	Practicable to			Controls Required (Including existing)	Person Responsible	Completed (date/initials)
		Eliminate	Isolate	Minimise			
People - Staff	Yes			Yes	☐ Before start of work each day hold on site meeting with all personnel on site to plan days work. ☐ Ensure all plant is safe and operational prior to starting work. ☐ All staff to be wearing high visibility clothing and appropriate PPE to tasks. ☐ Before approaching any machinery ensure the driver is aware of your presence and has signalled that it is safe to approach.		
People - Public	Yes		Yes		☐ Moving machinery warning signage posted. ☐ Where applicable erect safety barriers/fencing to exclude public. ☐ Strict adherence to a safety exclusion zone shall be applied. Exclusion zone shall be two times the distance of the longest object handled or the excavator reach whichever is the greater.		
People - Principal Staff	Yes		Yes		☐ All staff to be wearing high visibility clothing and appropriate PPE. ☐ Before approaching an excavator ensure the driver is aware of your presence and has signalled that it is safe to approach.		
Underground or Overhead services including Power Lines	Yes			Yes	☐ Obtain plans/location from utility providers. ☐ Check site for underground / overhead services- Locate and mark any on site. ☐ The minimum safe approach distance for mobile plant near overhead lines is specified in NZECP 34: 2001 New Zealand Electrical Code of Practice for Electrical Safety Distances. ☐ Unless permission of the owner of the electric line has been obtained, the distance between any overhead electric line and any part of this vehicle, equipment or load shall not encroach within **4 METRES** of any conductor. This is a requirement of the Electricity Regulations.		
Existing site Hazards (Electric fences, stock, dogs and farm machinery)	Yes		Yes		☐ Hold site meeting with land owner to assess what hazards /services exist in your work area and its access. ☐ Locate and isolate electric fences. Check stock not affected. ☐ Avoid aggressive dogs, bulls and insects etc ☐ Ascertain if bridges, culverts and ford crossings are structurally safe and where stream and drain banks are unstable.		
Loading and unloading Plant	Yes		Yes		☐ Use adequate equipment for loading. Refer to NZ Truck Loading Code. ☐ Choose safe site for unloading, and use proper equipment. If applicable utilise Traffic Management. ☐ Loading and unloading to be carried out on firm and level ground.		

Hydraulic Excavators	Yes		Yes		☐ Operators should not carry loads over workers or other persons. ☐ Ensure excavator has the correct Operator Protection Structure for the work your undertaking. FOPS,COPS etc ☐ When people are approaching the excavator the operator must reduce revs to idle, lower the dipper arm and set the slew control to the lock position and only then should you indicate that it is safe to approach the excavator.		
Fuelling Machinery	Yes	Yes			☐ Carry out refuelling and servicing of machines on clear ground away from water.		
Lifting material/Loading Trucks	Yes		Yes		☐ All persons present while loads are being suspended must wear PPE including head protective equipment approved to AS/NZS 1801. ☐ All lifting tackle shall comply with safety factor ratios specified in the DOL Approved Code of Practice for Load-Lifting Rigging.		
Stream Bed Stability	Yes			Yes	☐ Complete site inspection to access, consult landowner.		
Stream Crossings	Yes			Yes	☐ Complete site inspection to avoid deep holes. Find appropriate location to cross		
Working at stream bank.	Yes			Yes	☐ Follow Department of Labour Code of Practice for River and Stream Operations.		
Land based removal of trees	Yes		Yes		☐ Notify Department of Labour- 24hrs prior to start of works on (Notification of Particular Hazardous Work) form if applicable. ☐ Before start of work each day hold on site meeting with all personnel on site to plan days work. ☐ Ensure all plant is safe and operational prior to starting work. ☐ Ensure all personnel on site are wearing correct P.P.E. ☐ Ensure all personnel on site are appropriately trained for the tasks. ☐ Select suitable site for fires before building heaps. If possible stack fires on secure sites and leave to be burnt when material is dry to minimise smoke emissions. ☐ Clear site as you go and re-erect any fences as soon as practical to minimise disruption to landowner ☐ Check site is clear before felling or hauling trees. ☐ Follow Department of Labour Code of Practice for River and Stream Operations.		
Gravel Management	Yes		Yes		☐ Before start of work each day hold on site meeting with all personnel on site to plan days work. ☐ Ensure all personnel on site are wearing correct P.P.E. ☐ Ensure material is stockpiled safely.		
Site disestablishment	Yes	Yes			☐ Report and hazards left onsite to landowner.		
					☐		
					☐		
					☐		
					☐		

Signatures (Including visitors)

Those of us who sign below agree that we have discussed or have been informed of the hazards, their significance and proposed control methodology and our responsibilities.

Name	Signature	Date	Name	Signature	Date

Appendix E
Burning Record

Burning Record - Whangamata Mangrove Vegetation

Work Site Location/Address		*Date*	
Work Description	*Burning cut, stacked and dried vegetation matter (mangrove vegetation) in the CMA of the Whangamata Harbour*		
Site Controller		*Contact*	
Regional Council Contact		*Contact*	

Environmental Conditions

Wind direction	***Start***		***Finish of burn***	
Weather - general comment				

Burn site details

Burn Site Location			
Burn Pile - Quantity			
Burning Commenced (time)		*Burning ceased (time)*	

Communication Checklist

		Contacted/actioned on	**Phone**
Signage - appropriate signage and or cordons in place			
Has ad been placed in Coastal news prior to burn?			
Contact made to:			
TCDC Whangamata Office			07 868 0200
Fire Chief			07 865 8758
Information Centre			07 865 8340

Complaints (received on site)

From	**Time**	**Nature of complaint**	**Follow up (Y/N)**	**Comment**