


Arboricultural Assessment

Site Address: Dove Myer Robinson Park – 2 Judges Bay Road, Parnell

Prepared for: Ministry of Culture and Heritage

Purpose of Report: Arboricultural Assessment of the proposed Erebus Memorial Project

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1.0 Introduction

Peers Brown Miller Ltd has been commissioned on behalf of *The Ministry of Culture and Heritage* to prepare this arboricultural assessment in relation to works affecting trees affected by the proposed construction of the new Erebus Memorial within Dove Myer Robinson Park, Parnell.

The new Memorial is to be constructed in a northern portion of the Park, within an open space area surrounded by trees. The proposed site is bordered by a pedestrian pathway to the north and south, with mature trees surrounding the open area on three sides - to the south, east and west.

The new Memorial will be constructed to the west of the main open space area. A new pedestrian pathway would also be built to provide a connection to the existing asphalt pathway to the south. The most significant of these trees includes a Notable Pohutukawa (*Metrosideros excelsa*) tree to the south, semi-mature Totara (*Podocarpus totara*) to the east and west and a mature Coral tree (*Erythrina x Sykesii*) to the southwest. Works are proposed within the root zones of these trees as part of the construction of the Memorial.

A row of three Mexican Fan Palms (*Washingtonia robusta*) which stand to the north of the memorial site are to be removed to facilitate the proposal.

The removal of a Karo (*Pittosporum crassifolium*) on the lower northern cliff section will also be undertaken to improve the outlook from the memorial.

A description of each of the affected trees is provided in Appendix A of this assessment.

Resource Consent is required to alter or remove those trees in excess of 4 metres in height or 400mm in girth which stand within the works area, as the project area is zoned Open Space. Resource Consent is also required for works exceeding permitted standards within the protected root zone of the Notable Pohutukawa tree and for those trees standing with the Significant Ecological Area (SEA) overlay area.



Figure 1 – Open Space area where the Memorial is proposed

In summary, consent is being sought to carry out the following such activities;

Auckland Unitary Plan – Operative in Part 15/11/16

Tree Pruning

- Pruning of a Coral Tree (Tree 1) and Totara tree (Tree 7) growing in an area of Open Space zoned land within the project area - in accordance with Standard E16.6.1 – A Permitted Activity
- Pruning of a Melia Tree and 2x Pohutukawa trees (Trees 9, 10 & 11) growing along the accessway for construction access (Open Space zoned land) in accordance with Standard E16.6.1 – A Permitted Activity under Rule E16.4.1 (A5)
- Pruning of 1x Notable Pohutukawa Tree (Tree 2) and 1x Notable Kanuka Tree (Tree 8) growing with the project area in accordance with Standard D13.6.1 – A Permitted Activity

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- Pruning of a Coral Tree (Tree 1), Notable Pohutukawa Tree (Tree 2), Totara tree (Tree 7), and Pohutukawa Tree (Tree 10) growing within portion of the project area covered by an SEA overlay in accordance with Standard E15.6.9 – A Permitted Activity

Works within the Protected Root Zone

- Works within the protected root zone of 1 x protected Coral tree (Tree 1) growing within the project area that do not comply with Standard E16.6.2 – to be assessed as a Restricted Discretionary Activity under Rule E16.4.1(A8)
- Works within the protected root zone of a Totara tree (Tree 7) growing within the project area that comply with Standard E16.6.2 – to be assessed as a Permitted Activity under Rule E16.4.1 (A7)
- Works within the protected root zone of a Notable Pohutukawa tree (Tree 2) growing within the project area, that does not comply with Standards D13.6 - to be assessed as a Restricted Discretionary Activity under Rule D13.4.1(A9)
- Directional drilling of utility services at a depth in excess of 1.0m beneath Trees 1 & 2 – to be assessed as a Permitted Activity under Rules D13.4.1 (A8) & E16.4.1 (A7)
- Works within the protected root zones of a Coral tree (Tree 1), Totara tree (Tree 7), and a Notable Pohutukawa tree (Tree 2) – to be assessed as a Discretionary Activity under Rule E15.4.2 (A43)

Proposed removal of four protected trees & one non-protected tree

- The removal of 4 x trees (Trees 3, 4, 5, 6) growing on Open Space Zoned land within the project area – to be assessed as a Restricted Discretionary Activity under Rule E16.4.1 (A10)
- Proposed Removal of 1x non-protected tree (Tree 3a) growing on Open Space Zoned land within the project area – to be assessed as a Permitted Activity under Rule E16.4.1 (A9)

2.0 Statutory Framework – Tree Protection

Auckland Unitary Plan – Operative in Part

For this application, the rules in the Auckland Unitary Plan are considered. The trees are located on 2 Judges Bay Road which is zoned Open Space – Informal Recreation. The specific rules applicable to this application are as follows;

D13. Notable Trees Overlay

The following are the relevant AUP (OP) rules for the proposed works within the protected root zone:

- Rule D13.4.1 (A5) Tree trimming or alteration (complying with Standard D13.6.1) – **Permitted Activity**
- Rule D13.4.1 (A8) Works within the protected root zone (complying with Standard D13.6.2) – **Permitted Activity**
- Rule D13.4.1 (A9): Works within the protected root zone not otherwise provided for – **Restricted Discretionary Activity**

E16. Trees in Open Space Zones

Tree Pruning

The following are the relevant AUP (OP) rules for the proposed pruning of protected trees

- Rule E16.4.1. (A5): Tree trimming in open spaces that comply with Standard E16.6.2 – **Permitted Activity**

The works within the protected root zone

The following are the relevant AUP (OP) rules for the proposed works within the protected root zone:

- Rule E16.4.1. (A7): Works within the protected root zone in open spaces that comply with Standard E16.6.2 – **Permitted Activity**
- Rule E16.4.1 (A8): Works within the protected root zone not meeting the permitted standards – **Restricted Discretionary Activity**

Tree Removal

- Rule E16.4.1 (A9) Tree Removal removal of trees less than 4m in height and less than 400mm in girth – **Permitted Activity**
- Rule E16.4.1 (A10): Removal of trees 4m or more in height and/or 400mm or more in girth – **Restricted Discretionary Activity**

E15. Significant Ecological Overlay (SEA)

Selected areas of vegetation within the project area are subject to a SEA overlay.

Tree Pruning

The following rule is relevant AUP (OP) rules for the pruning of trees within the SEA overlay area meeting the permitted thresholds of 10% of the live canopy and up to 50mm diameter branches:

- Rule E15.4.2 (A41) – Tree Trimming – **Permitted Activity**

The works within the protected root zone

The following rule is relevant AUP (OP) rules for the proposed works within the protected root zone of trees within the SEA overlay area:

- Rule E15.4.2 (A43) Vegetation Alteration or removal not otherwise provided for – **Discretionary Activity**

Tree Removal

The following rule is relevant AUP (OP) rules for the removal of trees within the SEA overlay area:

- Rule E15.4.2 (A43) Vegetation Alteration or removal not otherwise provided for – **Discretionary Activity**

3.0 Plan References

A number of plans have been produced for the proposal. The specific plans of relevance to this assessment are as follows;

- *Studiopacificarchitecture –National Erebus Memorial- 70% detailed design – Site Plan dated 5 August 2019*
- *Tree Plan – Prepared by Peers Brown Miller Ltd*

4.0 Arboricultural Assessment

4.1 Overview

As outlined in Section 1.0, the construction of the new National Erebus Memorial is to be undertaken within Dove Myer Robinson Park, Parnell. The proposed works will involve tree removal, tree pruning, and works within the root zones of trees growing on Auckland Council land as part of the project. The following sections discuss those works in further detail and identify those specific activities that will impact trees.

4.2 Proposed Works - Memorial

As outlined in Section 1.0, a number of new activities are proposed to be undertaken. Further details of each activity from an arboricultural perspective are outlined below;

4.2.1 Construction of the new Memorial

The main activity for the proposal is the construction of the new memorial. The memorial is to consist of an elevated structure composed of structural stainless steel and concrete. A mounded area is to be formed to support the memorial, with relatively steep battering of fill material proposed at the northern end. The intention of this fill material is to raise the memorial 'skyward' - with the southern end of the memorial to begin at a lower level.

The southern end of the memorial will include a small strip footing. The intention of this section is to have the Memorial appear to rise seamlessly from within the canopy of the Notable Pohutukawa tree (Tree 2).

The proposed strip footing will be located approximately 1.25 metres within the root zone of the Pohutukawa tree - in an open section of the canopy. Minor pruning is proposed to enable these construction works. A small amount of fill (less than 200mm of topsoil) is also proposed to blend the footing into natural ground. The extent of this fill is shown in the layout plan in Appendix B of this report.



Figure 2 – Location of small footing for memorial within the root zone of the Pohutukawa tree (southern end)

In order to construct the northern end of the memorial, fill will be required within the root zone of a semi-mature Totara tree (Tree 7) located to the northeast. It is considered that this fill would not impact more than 20% of that tree's protected root zone.

Protecting fencing is recommended to enclose all trees outside the scope of the works in accordance with the specifications provided in Section 7.0 - with the final location to be confirmed by the appointed works arborist.

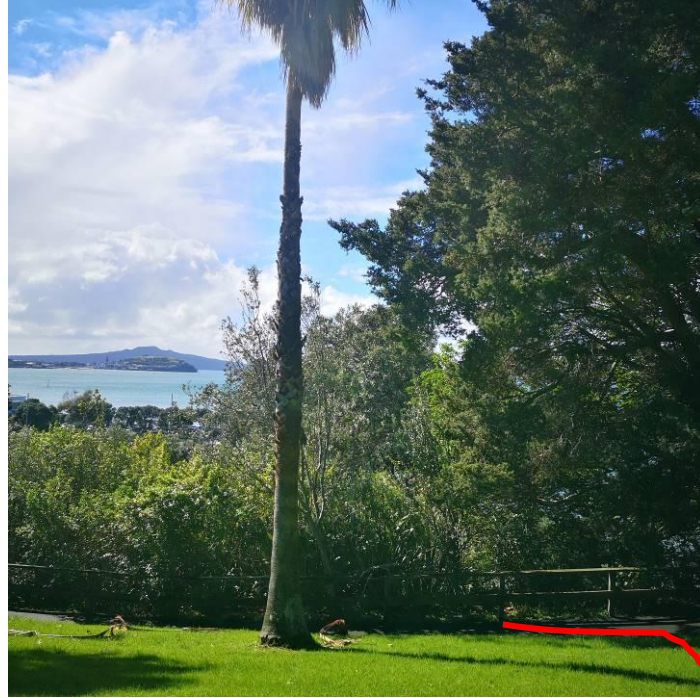


Figure 3 – Approximate location of fill shown by red line

The removal of the three Mexican Fan Palms (Trees 3-5) will also be required to enable the construction of the memorial - along with providing an improved northern outlook from its elevated section.



Figure 4 – 3x Mexican Fan palms proposed for removal

It is proposed to remove a Karo tree (Tree 6) (*Pittosporum crassifolium*) growing in close proximity to the Memorial, on the steep bank section beyond the pathway. The removal of this tree would improve the visual outlook northward from the new Memorial.



Figure 5 – Karo tree proposed for removal

A small recently planted Oak tree sapling (Tree 3a) is also noted as growing in the works area. The tree is non-protected and, as such, a suitable replacement will be sourced and planted in an alternative location.



Figure 6 – Location of Oak sapling

4.2.2 Installation of new services

A new power and water feed will be required for the new Memorial structure. Where practical, the new feeds will be directionally drilled at a minimum depth of 1.0m. This installation method, and the depth at which it will be undertaken, will ensure that there will be no impacts on those trees growing within the vicinity of the new lines.

A connection pit for the power will be required on the periphery of the Notable Pohutukawa tree's dripline, adjacent to the new memorial.

Similarly, the new water feed will supply a cleansing basin (Toby) for patrons of the Memorial. This is to be installed in an open portion of the canopy - in a location agreed to on site between the project team and Council Heritage arborist. It is intended that this would be installed via hand excavation - with the basin to be installed on a small pad foundation. The water feed would then be connected via a hand excavated trench, under the direct supervision of the worksite supervisory arborist.

The proposed route of the new power and water feeds is shown on the plan set provided in Appendix B of this assessment.

4.3 Proposed Works – Temporary Activities

4.3.1 Construction of Haul Road

A number of temporary activities are proposed in order to enable the construction of the memorial. These works include the installation of a temporary haul road to the memorial site from the existing driveway adjacent to the café building.

The new road will be constructed on grade, and the route would be selected to minimise potential impacts on the adjacent park trees.

A laydown area at the entrance to the haul road will also be constructed. The image shown below illustrates the new road:



Figure 3 – Proposed haul road

As illustrated in the above image, a section of the new haul road will be constructed within the root zone of the Coral tree (Tree 1) and on the periphery of the Notable Pohutukawa (Tree 2). The haul road would be fenced at the dripline (protected root zone) edge with no material to be within the fenced area.

All trees on the edge of the haul road, but deemed unaffected by the proposed road, are to be fenced off for the duration of the works, as per the specifications outlined in Section 7.0 of this report.

4.3.2 Proposed pruning of entrance trees

In order to facilitate the delivery of the stainless steel sections and form work for the Memorial, minor pruning will be required along the entry road. This will include the pruning of four trees, being; two semi-mature Pohutukawa (Trees 10 & 11), a mature Notable Kanuka (Tree 8) and, a Melia tree (Tree 9).

The proposed pruning works will be minimal - with less than 10% of the canopy pruned, and only branches of diameters no greater than 50mm being removed.

It is considered the extent of pruning would comply with Standard E16.6.1 & Standard D13.4.1, as well as the defined 'Tree trimming' criteria for pruning within an SEA overlay area.



Figure 4 – Proposed pruning of Kanuka tree (Tree 8)



Figure 5 – Proposed pruning of Pohutukawa (Tree 7)

5.0 Assessment of Arboricultural Effects

5.1 Proposed removal of protected trees

The proposed removal of four (4) trees growing on open space zoned land (Trees 3, 4, 5 & 6) is to be assessed in terms of the restricted discretionary activity assessment criteria contained in E16. of the AUP (OP) in table 1 below:

Table 1 Restricted Discretionary Activity Assessment Criteria – Trees in Open Space Zones

E16.8.2 Assessment criteria – Tree in Open Space Zones		
The following is my assessment against the criteria for the proposed removal of protected trees contained in E16.8.2 of the AUP (OP). The criteria are given in the left hand column (red text), with the response in the right hand column (black text)		
(1) trees in roads and open space zones:		Discussion
Item		
(a)	the specific values of the trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards;	The proposed removal of the 3x Mexican Palm trees and Karo tree is proposed to enable the construction of the new memorial. These trees provide a less than minor function in terms of this criterion. However, any loss will be adequately mitigated over time by

		proposed replacement planting with more suitable specimens elsewhere within the reserve.
(b)	the loss of amenity values that tree or trees provided;	The subject trees only provide a low value of amenity. The Palm trees are upright exotic species and provide little value when considering the significant & established native and exotic trees in near proximity. The Karo tree is a self-sown pioneer native species that will not provide a long term function when considering its relatively short life span.
(c)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed as required under health and safety legislation;	These trees present no risk, from an arboricultural perspective, of actual damage to people or property at this point in time.
(d)	any alternative methods that could result in retaining the tree or trees;	It is considered the proposed removals are acceptable when considering the vision and principles associated with the new Memorial. Tree removal has been kept to a minimum while achieving the project outcomes.
(e)	the degree to which any proposed mitigation adequately compensates for the values that trees provide;	It is recommended that the removed trees be replaced with new 45 litre specimens at a ratio of 1:1 in order to adequately mitigate their removal. It is intended that the planting be undertaken in suitable locations within the Park. The final locations will be confirmed and approved in consultation with Community Facilities Arborist Mr Clive Barnes.
(f)	the degree to which the proposal is consistent with best practice guidelines for tree management	Replacement planting of a more suitable tree species in improved locations will be undertaken.
(g)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	No Kauri trees were identified in the works area. Myrtle rust was not identified on any of the Pohutukawa or Kanuka trees in the vicinity of or within the works area.
(h)	the provision of a tree works plan to address the effects of the works on the tree or trees and	The proposed works are to be undertaken in accordance with this report. It adequately sets out the

	outlining the proposed methods to be used, and where applicable: (i) the provision of a landscape plan; or (ii) consistency with any reserve management plan.; (j) the functional and operational needs of infrastructure; and (k) the benefits derived from infrastructure.	proposed methods to be used and a tree protection methodology addressing the requirements for supervision where required.
(i)	the need for the direction and supervision of an on-site monitoring arborist while the works are being carried out	Only applicable for trees being retained
(j)	the functional and operational needs of infrastructure; and	The proposed location has been selected to minimise impacts on surrounding vegetation while providing a suitable location for the Memorial.
(k)	the benefits derived from infrastructure	The erection of the new Memorial is a directive from the Ministry of Culture and Heritage to provide a national memorial for the remembrance of the Erebus Disaster.

5.2 Works to be undertaken with the root zones of protected trees growing within the scope of the project

As previously outlined, works within the protected root zones of a number of trees is proposed as part of the project.

Based on an assessment of the activities to be undertaken, it is assessed that the majority of works could be undertaken as a Permitted activity - with the exception of those works proposed within the protected root zone of Tree 1.

The activities within the protected root zone of Tree 7 can be undertaken in accordance with the parameters outlined in Standard E16.6.2, in terms of actual ground disturbance or indeed root severance - with works to be in accordance with accepted arboricultural practice.

However, this would only be the case if the works are supervised by a suitably qualified arborist, in accordance with the tree protection methodology outlined in Section 7.0 of this report.

(Additional rules apply for works within the root zone of Tree 2 due to its Notable tree protection status. This is assessed in Section 5.3).

It is considered that the proposed works within the root zone of Tree 1 is likely to disturb between 30-40% of the its root zone and, as such, the work proposed would exceed Standard E16.6.1 – thereby being assessed as a Restricted Discretionary Activity. However, this said, the works are deemed acceptable from an arboricultural perspective.

The following table provides an assessment of the proposed works against the relevant AUP (OP) assessment criteria.

E16.8.2 Assessment criteria – Tree in Open Space Zones		
The following is my assessment against the criteria for the proposed removal of protected trees contained in E16.8.2 of the AUP (OP). The criteria are given in the left hand column (red text), with the response in the right hand column (black text)		
The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:		
(a)	the specific values of the trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards;	Tree 1 is identified as a healthy mature specimen. While providing a positive function in the existing environment, it is considered that the current values provided by this tree will be retained.
(b)	the loss of amenity values that tree or trees provided;	No loss of amenity values is envisaged when considering the new proposed environment.
(c)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed	No actual risk is quantified in regards to the Coral tree at this time.
(d)	any alternative methods that could result in retaining the tree or trees;	The tree will be retained
(e)	the degree to which any proposed mitigation adequately compensates for the values that trees provide;	No mitigation is required for this tree.
(f)	the degree to which the proposal is consistent with best practice guidelines for tree management	All works are to be undertaken in accordance with this report in accordance with best arboricultural practice.
(g)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	No Kauri trees were identified in the works area. Myrtle rust was not identified on any of the Pohutukawa or Kanuka trees in the vicinity of or within the works area

(h)	the provision of a tree works plan to address the effects of the works on the tree or trees and outlining the proposed methods to be used, and where applicable: (i) the provision of a landscape plan; or (ii) consistency with any reserve management plan.; (j) the functional and operational needs of infrastructure; and (k) the benefits derived from infrastructure.	The proposed works are to be undertaken in accordance with the recommendations of this report. It adequately sets out the proposed methods to be used and a tree protection methodology addressing the requirements for supervision where required.
(i)	the need for the direction and supervision of an on-site monitoring arborist while the works are being carried out	All works within the root zone of this tree will be supervised where required by a suitably qualified worksite supervisory arborist.
(j)	the functional and operational needs of infrastructure; and	The proposed location has been selected to minimise impacts on surrounding vegetation while providing a suitable location for the access pathway to the Memorial.
(k)	the benefits derived from infrastructure	The erection of the new Memorial is a directive from the Ministry of Culture and Heritage to provide a national memorial for the remembrance of the Erebus Disaster.

5.3 Works impacting the Notable Pohutukawa Tree (Tree 2)

As outlined in Sections 4.2.1 & 4.2.2, two main activities are proposed within the protected root zone of Tree 2. These include the installation of a portion of the memorial structure and cleansing basin. Minor Pruning is also proposed in accordance with Standard D13.6.1 in order to ensure adequate clearance for construction works.

The proposed works are on the outer edge of the canopy and, as such, deemed to be acceptable from an arboricultural perspective, subject to Heritage Arborist input and supervision of the actual works by the appointed worksite supervisory arborist.

As the proposed root zone activities do not meet the criteria of Standard D13.6.1, these activities would be assessed as a Restricted Discretionary Activity under Rule D13.4.1 (A9). An assessment of these activities against the relevant criteria is outlined in the table below:

D13.8.1 Assessment criteria – Notable trees		
The following is my assessment against the criteria for the proposed removal of protected trees contained in D13.8.1 of the AUP (OP). The criteria are given in the left hand column (red text), with the response in the right hand column (black text)		
The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:		
(1)(a)	the extent to which alternative methods that could result in avoiding alteration of the tree or trees have been considered;	Tree 2 is identified as a healthy mature specimen. While providing a positive function in the existing environment, it is considered that the current values provided by this tree will be retained.
(b)	the specific values of the tree or trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards;	The subject tree provides significant values in terms of this criterion. However, it is considered that none of those values would be impacted by the proposal.
(c)	the extent to which effects on the values of the tree or trees including any effects on the natural shape, form and branch habit and the root network can be minimised	The extent of the proposed pruning will comply with Permitted Standards and will have a less than minor impact on current values.
(d)	the extent to which any impact on the immediate or long-term health and stability of the tree or trees is able to be minimised or avoided;	The anticipated impacts will be less than minor provided all works are undertaken in accordance with this assessment.
(e)	the loss of any amenity values that the tree or trees provided;	The works are considered minor and unlikely to adversely impact the current level of positive amenity provided by the tree.
(f)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed;	No risks of damage or injury were identified at the time of the writing of this report. The subject tree is in good health and condition with no significant defects identified.
(g)	the degree to which any proposed mitigation adequately responds to the effects on the tree or trees;	Not applicable. Tree is to be retained and protected.
(h)	the degree to which the proposal is consistent with best arboricultural practice guidelines for tree management;	The proposed works are considered to be in accordance with best arboricultural practice and are to be supervised by the appointed works arborist to ensure compliance with the proposed tree protection methodology in Section 7.0.

(i)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	No Kauri trees were identified in the works area. Myrtle rust was not identified on any of the Pohutukawa or Kanuka trees within the vicinity of or within the works area.
(j)	<p>the provision of a tree works plan, to address:</p> <p>the effects on the tree or trees;</p> <p>the proposed methods to be used;</p> <p>the extent to which the proposed works are consistent with best arboricultural practice;</p> <p>for tree alteration, the methods proposed to reduce any adverse effects and the extent of the alteration of the tree or trees; and</p> <p>for works within the protected root zone, the methods proposed to reduce any adverse effects on the tree or trees, including the depth of the works, and the extent of area of the protected root zone or zones that is affected</p>	<p>The proposed works are to be undertaken in accordance with this report.</p> <p>Where required, changes to the alignments and works extents have been made to adequately protect the Notable tree.</p> <p>The works are considered best arboricultural practice when assessing the impacts on the Notable tree. Design considerations and arboricultural advice has informed the design of the memorial so as to limit disturbance.</p> <p>This assessment adequately sets out the proposed methods to be used and a tree protection methodology addressing the requirements for supervision where required.</p>
(k)	the need for the direction and supervision of a qualified arborist while the works are being carried out;	All works within the root zone of this tree will be supervised where required by a suitably qualified worksite supervisory arborist.
(l)	the functional and operational requirements of infrastructure; and	The proposed location has been selected to minimise impacts on surrounding vegetation while providing a suitable location for the Memorial access pathway.

(m)	the benefits derived from infrastructure	The erection of the new Memorial is a directive from the Ministry of Culture and Heritage to provide a national memorial for the remembrance of the Erebus Disaster.
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5.4 Assessment of works against SEA overlay criteria

Trees 1, 2, 6, 7 & 10 are covered by an SEA overlay and as such are subject to an assessment against the relevant criteria. The removal of the Karo tree (Tree 6) and the proposed works within the root zones of the retained trees would be assessed as a Discretionary Activity.

As no Discretionary Assessment Criteria is provided for in the AUP, an assessment of the proposed works are assessed against the objectives and policies outlined in Sections E15.2 (Objectives) & E15.3 (Policies) of Chapter E15 is undertaken.

Chapters D9.2 and D9.3 of the AUP outline the general objectives and policies, respectively, that do apply to all activities that takes place in a SEA – both terrestrial and marine.

<p>Objectives and policies – Sections D9.2 & D 9.3</p> <p>The following is my assessment against selected objectives and policies for the proposed removal and works within the root zones of protected vegetation within the footprint of the works. The objective or policy criteria are given in the left hand column (red text), with the response in the right hand column (black text)</p>		
D9.2 (1)	Areas of significant indigenous biodiversity value in terrestrial, freshwater, and coastal marine areas are protected from the adverse effects of subdivision, use and development.	Dove Myer Robinson Park is a heavily used urban park. The proposed works will not drastically alter the existing modified environment.
(2)	Indigenous biodiversity values of significant ecological areas are enhanced.	Works for the new Memorial largely utilise areas outside the vegetated areas. Only minor incursions involved with the protected vegetation is proposed. The removal of the Karo tree will be immaterial when considering impacts on SEA vegetation.
(3)	The relationship of Mana Whenua and their customs and traditions with	It is not considered that the proposed works would adversely impact Mana

	indigenous vegetation and fauna is recognised and provided for.	Whenua customs and traditions.
D9.3 (1)	Manage the effects of activities on the indigenous biodiversity values of areas identified as significant ecological areas by:	
(a)	avoiding adverse effects on indigenous biodiversity in the coastal environment to the extent stated in Policies D9.3(9) and (10);	The vegetation proposed for removal is largely away from the coast and is considered typical of an urban park. The removal of the Karo tree would not have a less than minor impact on the overall values of the park.
(b)	avoiding other adverse effects as far as practicable, and where avoidance is not practicable, minimising adverse effects on the identified values;	The extent of earthworks is to be managed carefully, so no over-cut or vegetation removal beyond that within the footprint of the works is undertaken.
(c)	remedying adverse effects on the identified values where they cannot be avoided	Replacement planting will be undertaken in order to mitigate any potential long term adverse effect.
(d)	mitigating adverse effects on the identified values where they cannot be avoided or remediated; and	As above
(2)(a)	fragmentation of, or a reduction in the size and extent of, indigenous ecosystems and the habitats of indigenous species;	Only a single tree within the SEA overlay area will be removed. All remaining trees will be retained and protected.
(b)	fragmentation or disruption of connections between ecosystems or habitats;	Existing continuity will be maintained.
(c)	changes which result in increased threats from pests on indigenous biodiversity and ecosystems;	As stated the project area is a heavily modified and high use park. No changes are likely in terms of the status quo.
(d)	loss of buffering of indigenous ecosystems;	As stated the project area is a heavily modified and high use park. No changes are likely in terms of the status quo.

(e)	loss of a rare or threatened individual, species population or habitat;	No rare or threatened plants were identified within the area impacted by the proposal
(f)	loss or degradation of originally rare ecosystems including wetlands, dune systems, lava forests, coastal forests;	The works area is not considered rare in terms of ecosystem typology. The typology is considered to be predominately planted vegetation
(g)	a reduction in the abundance of individuals within a population, or natural diversity of indigenous vegetation and habitats of indigenous fauna;	The proposed plant and tree removals are not considered to adversely impact the localised population. A single Karo tree is proposed for removal
(h)	loss of ecosystem services;	The likely impact on ecosystem services would be less than minor when considering the retained vegetation over the entire site
(I)	effects which contribute to a cumulative loss or degradation of habitats, species populations and ecosystems	It is not considered the proposed vegetation removal is significant in terms of the wider area. The removal is localised and in an area of generic vegetation. The site is already heavily modified.
(3)(a)	Enhance indigenous biodiversity values in significant ecological areas through any of the following: (a) restoration, protection and enhancement of threatened ecosystems and habitats for rare or threatened indigenous species;	Considering the high level of management currently afforded to the park, restoration, protection and enhancement is not deemed applicable for this project
(b)	control, and where possible, eradication of plant and animal pests;	Considering the high level of management currently afforded to the park, restoration, protection and enhancement is not deemed applicable for this project.
(e)	Development and implementation of management plans to address adverse effects	All works are to be undertaken in accordance with best arboricultural practice and in accordance with the tree protection methodology provided in this report
(f)	re-vegetating areas using, where possible, indigenous species sourced from naturally growing plants in the vicinity with the same climactic and environmental conditions; or	It is not considered practical to eco-source from the immediate vicinity. However, it is recommended that plant source be selected from seed banks possessing similar forest

		typologies in the Auckland Area
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6.0 Mitigation for those trees to be removed

The existing site is heavily vegetated with mature trees on two of the three boundaries. Tree removal has been limited to four trees, three of which are considered of low arboricultural value - with the remaining tree considered a relatively short lived pioneer native species.

Replacement planting will be undertaken at a 1:1 ratio - with the final locations and species to be determined in consultation with Council's Community Facilities Arborist Mr Clive Barnes.

7.0 Tree Protection Methodology

This section outlines a set of appropriate works methods and tree protection measures that should be adopted and put in place to ensure that adverse effects on the protected trees being retained within the project area are minimised and/or avoided.

(a) Prior to any works commencing on in the vicinity of any of the protected trees, a meeting should be held to discuss all issues pertaining to the protection of the retained trees and to gain a common understanding of the relevant conditions of consent in that regard. Present at the meeting should be;

- The consent holder
- The site foreman or project manager
- The worksite supervisory arborist
- Council Arborist (Parks)
- Council Compliance Officer
- Any other relevant personnel

General Earthworks

(b) The worksite arborist should be present during any excavations through the root zone of any tree to be retained. Any works within the root zone

- of any tree in areas outside those described in this report shall be discussed with and approved by the works arborist, prior to works commencing.
- (c) All removal of soil to be removed from within the vicinity of all trees proposed for retention is to be undertaken under the supervision of the works arborist. Care must be taken to not unnecessarily excavate within the root zone of any tree - with material to be removed by hand if necessary.
 - (d) All root pruning must only be undertaken by or in consultation with the appointed works arborist.
 - (e) If any significant roots are encountered during excavation in the root zone of any protected tree, that root should be accommodated, unless the arborist is satisfied that severance of such a root would not cause a deterioration of the health of the tree. No roots beyond the approved thresholds are to be removed without approval from the works arborist. The works arborist must be comfortable any root severance will not detrimentally affect the tree.
 - (f) No heavy machinery or equipment or materials shall be stored or deposited within the root zone area of any tree within the site. If any materials do need to be deposited temporarily within the dripline of any tree a sheet of plastic or a tarpaulin should be laid down first and removed as soon as possible.
 - (g) When machinery is to be used beneath the protected root zone of any retained tree, track movement must be kept to a minimum - with materials preferably installed progressively from the previously built up surface. Any movement on open ground must be undertaken on track mats or plywood where ground is not to be excavated.
 - (h) Protective fencing shall be installed wherever practicable around the entire dripline (root zone) edge of trees being retained. This fencing shall remain in place for the duration of the project in order to best protect the subject trees. The fencing is to be rent-o-style 1.8 metre steel mesh sections or Waratah standards and orange mesh (at the works arborist's discretion).

The location of this fencing is to be confirmed and approved prior to any works being undertaken with the vicinity of any tree.

- (i) Temporary relocation of the fencing can be undertaken at the point when specific works are to be carried out within the driplines of the subject trees - with the fencing to be re-erected following that specific activity.

Tree Pruning

- (j) Any pruning of protected trees is to be undertaken by a suitably qualified and experienced arborist in accordance with modern arboricultural practice. All pruning is to be undertaken in consultation with the client's appointed works arborist.

Compliance

- (k) Compliance with all conditions of consent relating to tree protection would be monitored by the appointed works arborist - with the detail of each visit and communication being logged. The completed log would be provided to the consent holder at the completion of the project to serve as a compliance report.

8.0 Tree Asset Owner's Approval

A number of discussions and a site visit have been undertaken with Council Community Facilities Arborist Mr Clive Barnes as part of the assessment of this proposal.

Mr Barnes's written approval (TAOA) will be provided following agreement with the proposed works. This approval is a requirement as part of the resource consent process for the project.

9.0 Conclusion

This report has been prepared to accompany the integrated resource consent application to construct the new Erebus Memorial within 2 Judges Bay Road, Parnell. It provides the information that will assist Council to assess the activities that affect protected trees - under the relevant tree protection rules.

All pruning works would be undertaken in accordance with best arboricultural practice. All works would be supervised by the appointed works arborist in order to ensure no adverse effects would arise as a result of the proposed pruning works. All pruning would be less than minor in terms of an overall effect on the health and longevity of the subject trees.

The activities that are proposed to take place within the Protected Root Zone of protected trees as part of this project can be managed such that any adverse effect on any tree can be restricted to being less than minor. This would be especially the case if the tree protection recommendations outlined in Section 7.0 of this report are adopted as contract specifications of the project.

Please feel free to contact the undersigned if any further information is required.



Matthew Paul
Director
Peers Brown Miller Ltd

APPENDIX A

Tree Details

Peers Brown Miller Ltd

P. O. Box 10166 Dominion Road, Auckland 1446
Ph 09 631 7610

Specific details pertaining to each scheduled tree and some more significant trees implicated in the proposal are outlined in the following section:

Description Key

- **Tree No**

Refers to the number assigned to each tree

- **Tree Species – Common Name**

The generally accepted common, or Maori, name of the tree is given.

- **Tree Species – Botanical Name**

The genus and species, and cultivar or variety where known, is given. Where the species is unknown the tree is identified as; (Genus) sp.

- **Protective Status**

This refers to the protective status of the tree as defined by the AUP-OIP (where relevant).

Y = Refers to trees protected as part of the Auckland Unitary Plan rules

SEA = Tree protected by virtue of an Significant Ecological Area (SEA) overlay

N= No Protection.

Protected trees for removal are indicated by **red** text to clearly separate these trees from those to be retained. AUP (Auckland Unitary Plan) relates to their specific protection status.

- **Height (in metres)/ Girth (in metres)**

- **Condition**

This category addresses the physiological condition of the tree as a whole, described as;

Good – Full healthy canopy but possibly including some suppressed or damaged branches

Fair – Slightly reduced leaf cover, minor dead wood or isolated major dead wood

Poor – Overall sparse leafing and/or extensive dieback. Irreversible decline

- **Comments**

Addresses the general location of the trees and/or any specific comments about the tree

ID #	Common Name <i>Botanical name</i>	Location	Protected status (Y / N)	Height m	Girth mm	Condition (P,F,G)	Comments
1	Coral Tree <i>Erythrina x Sykesii</i>	North east portion of reserve	Y (SEA)	15.0	2000+	Good	Retain – Works within the root zone as part of the proposed construction. Pruning of low hanging branches also proposed
2	Pohutukawa <i>Metrosideros excelsa</i>	Southern side of works area	Y (SEA) (Notable)	14.0	3100+	Good	Retain – Works within the root zone as part of the proposed construction. Pruning of low hanging branches also proposed on northern side for footing construction and cleansing basin
3	Mexican Fan Palm <i>Washingtonia robusta</i>	Northern side adjacent to pathway	Y	8.0	1200+	Moderate	Remove - Removal proposed to facilitate new Memorial outlook
3a	Oak tree (<i>Quercus sp.</i>)	Central Western lawn area	N	3.5	150	Good	Remove - Current location unsuitable when considering proposed Memorial placement
4	Mexican Fan Palm <i>Washingtonia robusta</i>	Northern side adjacent to pathway	Y	10.0	1200+	Moderate	Remove - Removal proposed to facilitate new Memorial outlook
5	Mexican Fan Palm <i>Washingtonia robusta</i>	Northern side adjacent to pathway	Y	14.0	1200+	Moderate	Remove - Removal proposed to facilitate new memorial outlook and actual memorial construction
6	Karo <i>Pittosporum crassifolium</i>	Northeast corner of new Memorial	Y (SEA)	6	800	Good	Remove - Removal proposed to facilitate new memorial outlook and actual memorial construction
7	Totara <i>Podocarpus totara</i>	Eastern Corner on beyond path	Y (SEA)	12	>1400	Good	Retain – Works within the root zone as part of the proposed construction. Fill and batter proposed

8	Kanuka <i>Kunzea ericoides</i>	Northern side of Heritage Building	Y (Notable)	9	>1200	Good	Retain – Minor pruning in accordance with Standard D13.4.1 is proposed for construction access. also proposed
9	Melia <i>Melia azedarach</i>	Grassed area near main driveway	Y	9	>1000	Good	Retain – Pruning proposed to allow for construction access in accordance with Standard E16.6.1.
10	Pohutukawa <i>Metrosideros excelsa</i>	Northwest edge of carpark near pathway	Y (SEA)	15	>1800	Good	Retain – Pruning proposed to allow for construction access in accordance with Standard E16.6.1. & 'Tree Trimming' definition (SEA)
11	Pohutukawa <i>Metrosideros excelsa</i>	West of laydown (carpark)	Y	10	>1200	Fair	Retain – Pruning proposed to allow for construction access in accordance with Standard E16.6.1. To be fenced for duration of works.

Appendix B

Layout Plans

Peers Brown Miller Ltd

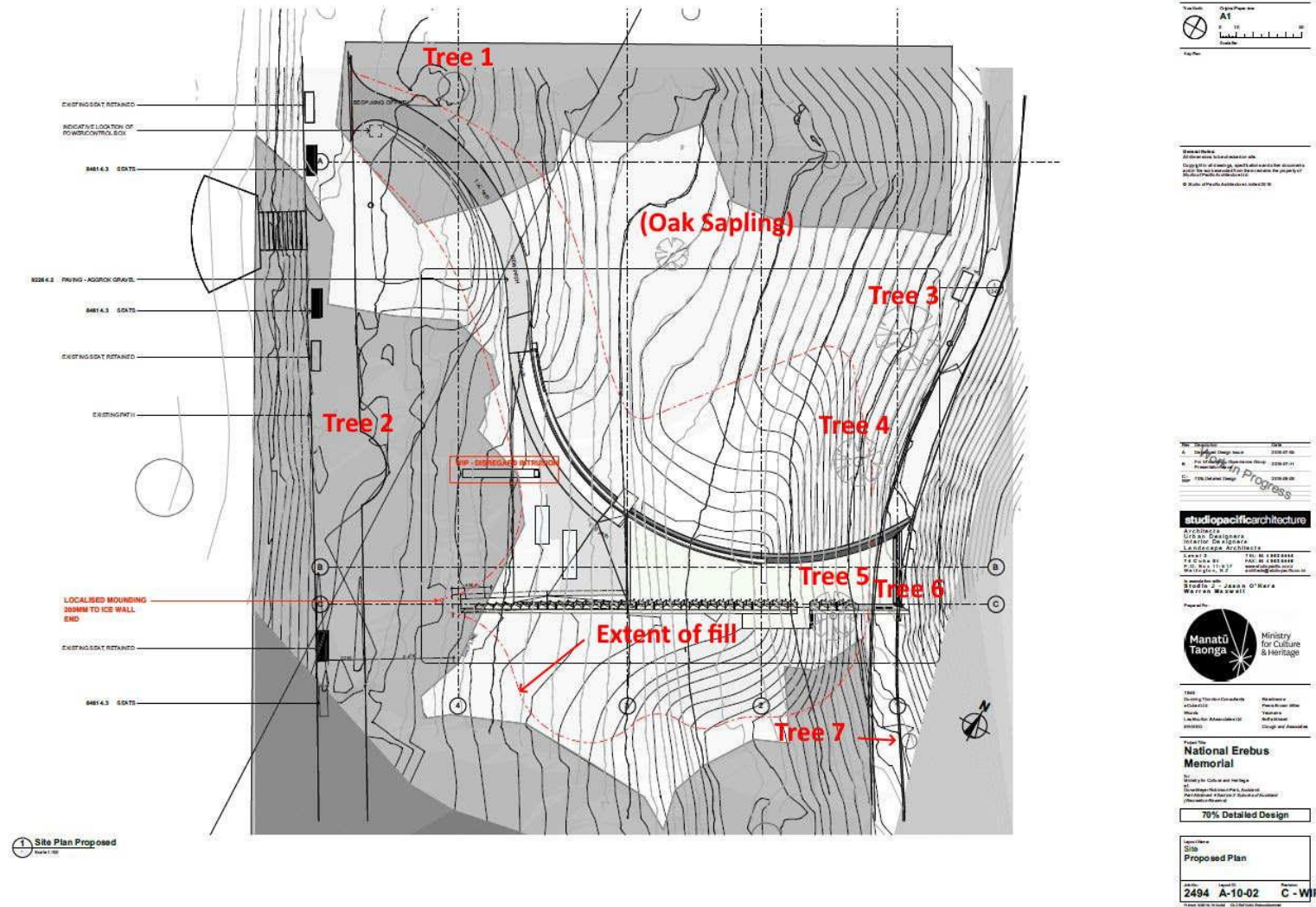
P. O. Box 10166 Dominion Road, Auckland 1446

Ph 09 631 7610



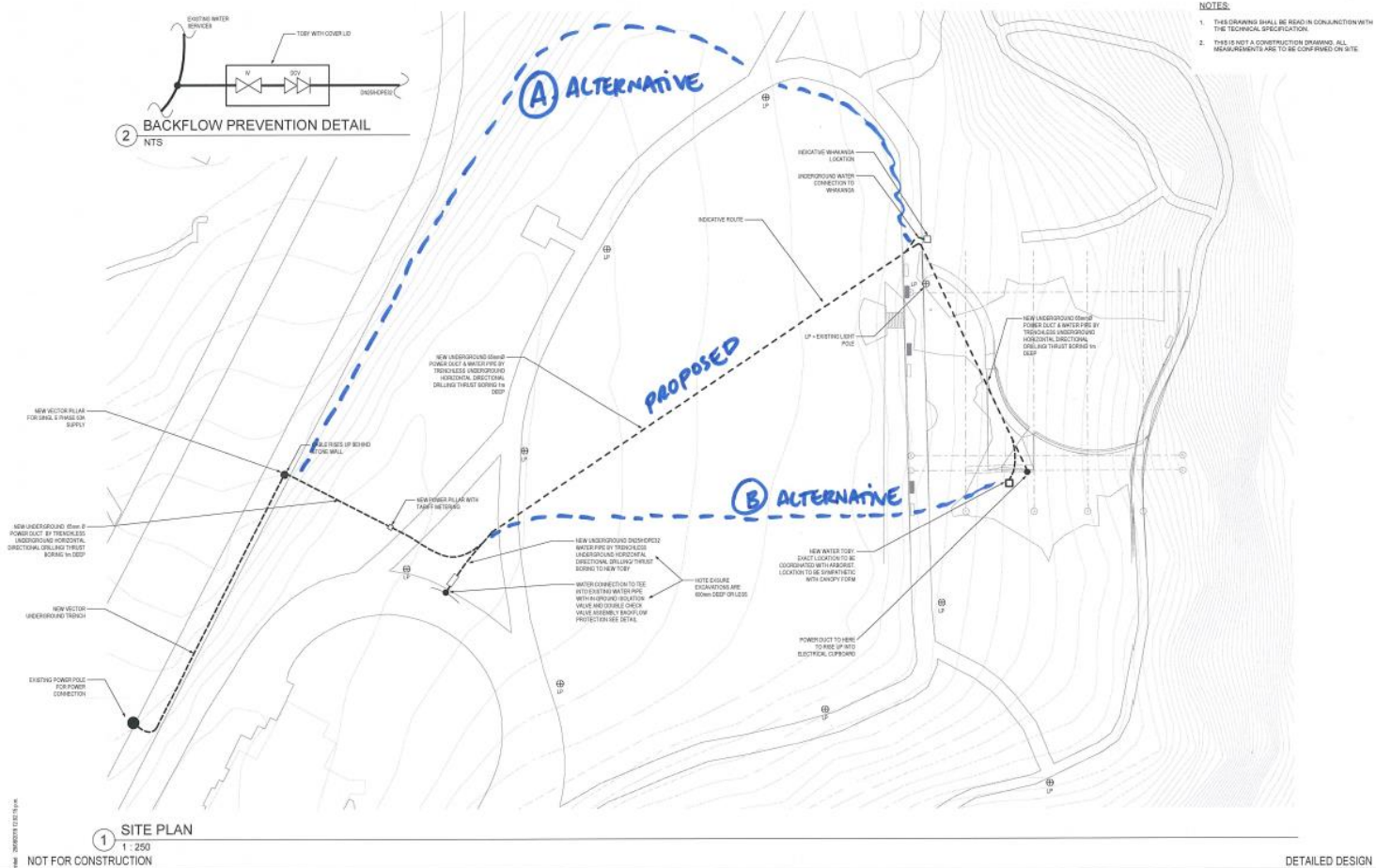
Tree Location Plan

Memorial Layout



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Service Plan



- NOTES:**
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE TECHNICAL SPECIFICATION.
 2. THIS IS NOT A CONSTRUCTION DRAWING. ALL MEASUREMENTS ARE TO BE CONFIRMED ON SITE.

REV	DESCRIPTION OF DETAILS	BY	DATE	CHECKED	OR
A	DETAILED DESIGN	DR	20/04/2019	SMWH	DR
B	UPDATE	DR	21/04/2019	CHECKED	JM
C	SIG. CD	DR	20/05/2019		
D	EG UPDATE	DR	20/06/2019	APPROVED	

GENERAL NOTES:

1. DO NOT SCALE OFF DIMENSIONS. USE PROVIDED DIMENSIONS ONLY.
2. ALL DIMENSIONS SHALL BE READ IN CONJUNCTION WITH THE TECHNICAL SPECIFICATION.
3. REFER TO GENERAL NOTES ON LEISURE SHEET.
4. P IN SQUARE, ASH.

Ministry for Culture & Heritage

PROJECT: EREBUS MEMORIAL
 DRAWING TITLE: COMBINED SERVICES SITE SERVICES LAYOUT
 SCALE: B:1
 As indicated

PROJECT NO: 19030
 DRAWING NO: ZA2-010
 REVISION: D

Haul Road Design

