Australian Government
Department of Defence

CONTAMINATION REMEDIATION WORKS

FORMER FIRE TRAINING AREA

RAAF Base Williams, Point Cook, Victoria

Statement of Evidence
to the
Parliamentary Standing Committee
on Public Works

Canberra, ACT
June 2011

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Contamination Remediation Works

Former Fire Training Area, Point Cook

Identification of the need

1. RAAF Base Williams, Point Cook in Victoria covers an area of approximately 344 hectares. The former Fire Training Area (FTA) covers an area of approximately 27 hectares in the south east portion of the Point Cook site, and borders Port Phillip Bay and the Point Cook Coastal Park (map at Attachment A). The contaminated site is not currently used for Defence activities due to the risk to human health.
2. The former FTA was divided into a number of 'pit' areas and was used primarily to ignite (and extinguish) old aircraft using a range of flammable chemicals as part of fire-fighting training activities. The area appears to have been used as a dumping ground for solid waste, liquid waste from aircraft maintenance activities and also a wide range of organic compounds not normally associated with aircraft maintenance or fire training activities. Many of the contaminants present at the site are more likely to have been associated with chemical manufacturing rather than generated by Defence related activities.
3. These activities have resulted in the contamination of soil and groundwater at the site, including the presence of a cocktail of liquid hydrocarbons known as Dense Non-Aqueous Phase Liquid (DNAPL), the volume of which is estimated to be approximately 950,000 litres. Investigations have identified 12 key 'contaminants of concern' in groundwater at the former FTA that are discharging into Port Phillip Bay. Groundwater flowing below the site towards Port Phillip Bay comes into contact with the DNAPL, dissolving a small proportion of it, and then carries those dissolved contaminants into the Bay. Contaminated groundwater from the former FTA has also been detected within five metres of the boundary with the adjacent State owned Coastal Park.
4. The contaminants dissolved in the groundwater are a reflection of the DNAPL contamination. There have actually been several hundred compounds identified in the DNAPL and groundwater below the former FTA, however the 12 'key contaminants of concern' are the principal compounds of interest due to their concentrations, toxicity and mobility.

5. The DNAPL itself has been demonstrated to be relatively immobile and is not discharging into the Bay. Over time the DNAPL has become quite viscous (thick), due to either weathering or reaction between the different compounds. Although the evidence suggests DNAPL has flowed away from the fire pits where it was originally discharged, investigations at the site over the past eight years have not identified any further migration of the DNAPL. At its closest point, the DNAPL is approximately 10 metres from the Bay and contained behind a temporary sheet pile wall installed across the shallow aquifer. There is concern that further erosion of the beach face adjacent to the former FTA could result in DNAPL discharge into the Bay. Stabilisation of this area is being addressed as a matter of priority as part of a separate project.
6. In addition to the estimated 950,000 litres of DNAPL described above, contamination associated with two former fire pits also includes impacts to the soil as well as the groundwater. It is estimated that 34,000m^3 (55,000 tonnes) of contaminated soil and DNAPL will require excavation and treatment.
7. The contamination risks posed by the former FTA have been extensively assessed as part of Defence's Property Disposal Program and the National Contamination Remediation Program. The former FTA, in its current state, is not suitable for any human activities due to the nature and presence of contamination and the near-shore ecosystems of Port Phillip Bay are also at risk.
8. A statutory audit of the remediation works is being undertaken under the Victorian *Environment Protection Act 1970*. The formal environmental audit process, legislated by States and Territories, is not normally conducted on Commonwealth land where there is no intent to dispose of the land. The audit process at Point Cook was instigated as part the normal due diligence process undertaken for the disposal of Defence land when Point Cook was being considered for disposal in the early 2000's.
9. The Victorian Environmental Protection Authority (EPA) has been engaged throughout the investigations and is aware of the risks posed by the site. The Victorian EPA has requested that Defence actively manage the risks and ensure the protection of the environment and human health as required under the *State Environment Protection Policy (Prevention and Management of Contamination of Land) 2002*, the *State Environment Protection Policy (Groundwaters of Victoria) 1997* and the *State Environment Protection Policy (Waters of Victoria) 2003*, Schedule F6 (Waters of Port Phillip Bay). As the land is owned by the Commonwealth and the Commonwealth has relevant legislation, the *Environment Protection and Biodiversity*

Conservation Act 1999 (EPBC Act), it does not fall within the direct jurisdiction of the Victorian legislation; however, Defence considers it is obliged to meet the spirit and intent of State legislation particularly in a case such as this. Defence's own policies and guidelines are based upon both Commonwealth and State legislation.

10. The outcomes of the remediation will be reported to the Victorian EPA by the Statutory Auditor engaged for the project. The Victorian EPA will rely on the auditor's findings to ensure Defence has appropriately managed the contamination risks posed by the site and determine whether it needs to pursue further corrective action from Defence.
11. Defence proposes to excavate contaminated soil and DNAPL within and extending from Pits A and B (see Attachment B) and treating it through an on-site ex situ thermal desorption process using plant transported to the site. A photograph of similar thermal desorption plant equipment is at Attachment C. Following laboratory validation testing to confirm that the soil no longer poses a risk to human health or the environment, the soil will be reused onsite.
12. Three other historical pits (C, D and E), together with two mounds (F and G) containing miscellaneous fill were also investigated. Some contamination has been identified in these areas, however the level of contamination is not considered to be of a similar risk to human health or the environment as that associated with pits A and B. Remediation of pits C, D and E and mounds F & G will be completed under Defence's normal risk assessment processes.

Project objectives

13. In accordance with the Remediation Action Plan developed for the site, the objectives of the contamination remediation works are to address potential risks to human health and the environment arising from soil contamination and to prevent any ongoing contamination of Port Phillip Bay. The works will restore the site to a condition which permits access and use for Defence. This is noteworthy given the Point Cook Redevelopment Project which is currently being developed by Defence (see paras 24-29). The works will also mitigate the potential future risks to users of the adjacent Coastal Park.

Need for the work

14. Defence is committed to ensuring the ongoing protection of the environment; furthermore, Defence has a responsibility to remediate contamination resulting from its activities. Remediation of the former FTA is required to address potential risks to human health and

improve the quality of the groundwater and subsequently protect the adjacent Coastal Park and the Port Phillip Bay marine environment.

15. The former FTA site is surrounded by environmentally sensitive areas protected by International, Commonwealth and State legislation. Port Phillip Bay (western shoreline) and Bellarine Peninsula are located within close proximity to the former FTA site, and are both designated internationally protected Ramsar wetlands with high value habitat for migratory birds.
16. Concerns about the loss of wetlands and waterbirds throughout Europe in the 1960s led to the creation of the first modern international treaty aimed at managing natural resources sustainably. The Convention on Wetlands of International Importance (the Ramsar Convention) was signed in Ramsar, Iran on 2 February 1971. The Ramsar Convention aims to halt the worldwide loss of all wetlands and to conserve, through wise use and management, those that remain. Member countries are obliged to promote the conservation of Ramsar wetlands and work to ensure that Ramsar sites are managed to protect their ecological character. The Ramsar sites located within close proximity of the former FTA are known to host over 76 protected bird species listed under the provisions of the Commonwealth EPBC Act and the Ramsar convention.
17. The adjacent Coastal Park is managed by Parks Victoria on behalf of the State Government and is used by the public for recreational purposes including camping, hiking, fishing and picnicking.
18. The Victorian EPA has requested that Defence actively manage the risks to ensure the protection of human health and the environment. The Victorian EPA accredited Statutory Auditor engaged for the project will report the outcomes of the remediation to the Victorian EPA who will rely on the Auditor's findings to determine whether it needs to pursue further corrective action from Defence.
19. Should the EPA formally pursue corrective action with Defence it is likely such a move would attract adverse public interest as it would be seen that Defence, as a Commonwealth agency, is not meeting its environmental management responsibilities and would not be seen as upholding the principles of being a 'good neighbour'.

Description of the proposal

20. Defence proposes to engage a remediation works contractor(s) with relevant experience to undertake the necessary works to remediate the former FTA to a standard that meets the project objectives as described in paragraph 13 above, likely using ex situ thermal desorption technology. This remediation approach involves the excavation of the contaminated material, separation of any hard waste such as drums and timber etc, and the thermal treatment of the soil at a temporary built facility. Heat is applied to the contaminated soil to remove the contaminants under strict emission control protocols. Once treated, and validated, the soil will be returned to the ground and the area rehabilitated.
21. The works will include:
    a. Dewatering to allow excavation of contaminated soil and DNAPL;
    b. Treatment of groundwater extracted during the dewatering process (contaminated groundwater will be contained within appropriate storage facilities prior to treatment);
    c. Removal (excavation) and stockpiling of contaminated soil and DNAPL within and extending from Pits A & B (Attachment B);
    d. Preconditioning of contaminated soil and DNAPL prior to treatment;
    e. Ex situ on-site treatment of the contaminated soil and DNAPL using thermal desorption technology;
    f. Testing and validation of the treated material;
    g. Backfilling of excavations using the treated and validated material;
    h. Importation of clean validated soil (if required); and
    i. Rehabilitation and revegetation of the areas of the site affected by the works.
22. No permanent infrastructure will be constructed as part of the works; however, the following transportable facilities, plant and equipment will need to be installed, operated and maintained to complete the works:
    a. Temporary site fencing around the perimeter of the remediation works area;
    b. Temporary haul roads, stockpile areas and associated hardstand areas;
    c. Ex situ thermal desorption treatment facility and associated plant and equipment (refer to attached photograph at Attachment C);
    d. Temporary site facilities for the remediation contractors workforce including site offices and associated worker amenities;
    e. Sheet piling for the creation of cells to allow the safe extraction of the contaminated soil and DNAPL;

f. Dewatering plant and equipment including a water treatment plant and associated storage, treatment, re-use and disposal infrastructure;

g. Tent structures / enclosures and other similar vapour control systems over the excavations and stockpile areas;

h. Temporary site services including:

    i. Natural gas, LPG, or fuel oil. (Thermal desorption units require an auxiliary fuel supply (e.g., natural gas, LPG, or fuel oil) to heat the waste to effect the separation process);

    ii. Electricity. (Thermal desorption units require electricity to operate the pump, blower, and conveyor motors, instrumentation and lighting. In addition, electricity will be required for the temporary site facilities); and

    iii. Water.

i. Excavators and other similar earthwork equipment.

23. Following completion of the works all areas of the site affected by the remediation works, including temporary roads and site facility apron areas, will be rehabilitated and revegetated using plant species native to the area.

24. Subject to Parliamentary clearance of the proposed works, Defence will engage the remediation contractor(s). Procurement of the works contractor(s) is anticipated to take approximately four months. The remediation works are anticipated to take to take approximately 15 months to complete following the engagement of the works contractor(s).

Related Project

25. In November 2005 the former Government announced that the RAAF Base Williams, Point Cook site was to remain in Defence ownership and management indefinitely. Having decided to retain the base, in August 2007, the former Parliamentary Secretary for Defence Support, the Hon Peter Lindsay, MP stated that the intention was to retain Point Cook as an “open working heritage base”. These events reversed the Government’s earlier decision to dispose of the property and ended uncertainties regarding future management of the site.

26. A project to undertake significant redevelopment works on the site is currently in the planning and development stage. Under this project, extensive site infrastructure and services will be upgraded allowing Defence personnel to relocate, or be co-located, on the site.

27. Defence anticipates taking the redevelopment project to Government for approval in early 2013. If approval is granted a referral to the Parliamentary Standing Committee for Public Works will then be submitted.
28. The former FTA Contamination Remediation Works Project will compliment the Point Cook Redevelopment by increasing the area available for Defence training activities.
29. There are no anticipated impacts of one project on the other due to their differing timelines for works.

Other options considered and comparative costs

30. In developing the Remediation Action Plan the environmental consultant assessed potentially suitable technologies to remediate the site. The other options considered included;
    a. **In situ thermal conductive heating:** The remediation involves thermally treating the contaminated material in the ground. This is done by installing wells into the ground and inserting heaters in the wells to increase the temperatures of the surrounding soil. Whilst there are benefits of treating the contamination in the ground from a logistical point of view, previous experience within industry shows there is a risk that the contaminants may not break down upon thermal treatment. Further to this a side effect of the heating action may be mobilisation of the DNAPL and the creation of secondary contaminants that remain in the ground and continue to contaminate the environment. This technological solution is assessed to have a high risk of failure and was not recommended.
    b. **Surfactant enhanced in-situ chemical oxidation:** This involves controlled chemical injections into the ground to break down the contaminants to benign compounds. Although this option provides the cheapest solution, trials of this technology undertaken previously at the site were inconclusive and there remains uncertainty regarding the effectiveness of the treatment. Similar to option a, if treatment is not effective, the contaminants remain in the ground and will continue to harm the environment requiring the implementation of an alternate strategy at additional cost.

Reasons for adopting the proposed course of action

31. The excavation and ex-situ thermal desorption method of remediating the contaminated soil and DNAPL is the preferred option. The cost and time of this approach is broadly comparable with

other proposed methodologies but the method offers a higher degree of certainty in achieving the necessary level of remediation. This method of remediation also has a proven track record in Australia compared with the other options considered and large scale projects have been successfully undertaken by industry in NSW and Victoria.

32. Excavation and ex-situ desorption of the former FTA is expected to remediate the area to a level which reduces Defence's ongoing liability in relation to the site; will satisfy the Victorian EPA that the risks regarding protection of human health and the environment have been addressed and will allow the area to be used for Defence training activities as required.

Environmental impact assessments

33. An Initial Environmental Review prepared in 2008, which remains current for the proposed works, identifies that there will not be any adverse flora and fauna impacts, including any impact on Ramsar sites, as a result of the works and a referral under the EPBC Act will not be required prior to undertaking the proposed works.
34. The proposed works will be managed in accordance with the Defence Environmental Management framework, including compliance with the regional Environmental Management System. The remediation works contractor's environmental procedures for the works will comply with an approved Construction Environmental Management Plan (CEMP). Industry best practices will be adopted to mitigate, manage and monitor potential environmental impacts such as dust, vapour and noise emissions emanating from the works and a Defence Environmental Clearance Certificate outlining the practices to be implemented will be issued prior to commencing the physical remediation activities.

Heritage considerations

35. "Point Cook Airbase" is listed on the Commonwealth Heritage List for its historical heritage values relating to the Base being the oldest continually operating airfield in the world and the central role the Base played in the development of the Royal Australian Air Force.
36. A Heritage Management Plan has been developed for the site which lists nine heritage precincts. The former FTA is located outside of these precincts, however personnel, plant, materials and equipment will have to traverse through three of the precincts; entry, north tarmac and south tarmac, to access the former FTA. All activities through these areas will conform to the Heritage Management Plan and will be continually monitored by Defence.

Details of consultation carried out among relevant stakeholders

37. Extensive consultation has already occurred with EPA Victoria and Defence stakeholders and will remain ongoing throughout the life of the project.
38. Consultation has also occurred, or will occur prior to the commencement of the works and on an ongoing basis throughout the project, with the following key stakeholders:
    a. The Hon Julia Gillard MP, Federal Member for Lalor;
    b. Senator Richard Di Natale, Senator for Vic;
    c. Senator John Madigan, Senator for Vic;
    d. Senator Bridget McKenzie, Senator for Vic;
    e. Civil Aviation Safety Authority;
    f. Department of Sustainability, Environment, Water, Population and Communities;
    g. EPA Victoria;
    h. Parks Victoria;
    i. VicRoads;
    j. Wyndham City Council;
    k. Hobsons Bay City Council;
    l. Metropolitan Fire Brigade;
    m. Country Fire Authority;
    n. Friends of Point Cook Coastal Park;
    o. Point Cook and Cheetham Wetlands Reference Group; and
    p. Bird Observers Club of Australia.
39. Defence will conduct public consultation as part of the Public Works Committee process. Additionally, subject to Parliamentary approval of the works, Defence intends to conduct further consultation prior to the commencement of works onsite and at approximately six monthly intervals until the works are completed. A consultative community forum which meets quarterly has been established by RAAF Base Williams and regular updates will also be provided via those means.

Amount of revenue to be derived from the project

40. No revenue will be derived from the project.

Technical Information

Project location

41. The property comprising RAAF Base Williams, Point Cook occupies approximately 344 hectares and is located off Point Cook Road, Point Cook, Victoria, approximately 27 kilometres south west of the Melbourne CBD. The area proposed for remediation is referred to as the former Fire Training Area (FTA) and is located in the south east portion of RAAF Base Williams, Point Cook. The former FTA comprises an area of approximately 27 hectares of the Base (Attachment A).

Project scope

42. The remediation involves the excavation of contaminated soil and removal of approximately 950,000 litres of DNAPL and the subsequent thermal treatment of the material at a temporary built facility, utilising heat to break down the contaminants to acceptable levels. Once treated, the validated soil will be returned to the ground and the area rehabilitated.
43. The works will include:
    a. Dewatering to allow excavation of contaminated soil and DNAPL;
    b. Treatment of groundwater extracted during the dewatering process;
    c. Removal (excavation) and stockpiling of contaminated soil and DNAPL within and extending from Pits A & B (Attachment B);
    d. Preconditioning of contaminated soil and DNAPL prior to treatment;
    e. Ex situ on-site treatment of the contaminated soil and DNAPL using thermal desorption technology;
    f. Testing and validation of the treated material;
    g. Backfilling of excavations using the treated and validated material;
    h. Importation of clean validated soil (if required); and
    i. Rehabilitation and revegetation of the areas of the site affected by the works.

Site description

44. The site lies within the natural coastal sand dune formations of the region. The topography of the former FTA is undulating with the ground surface elevation ranging from approximately 1.5m to 2.5m Australian Height Datum. Extensive ground disturbance from excavation and backfilling of fire training pits and burial of other wastes is evident.

45. No buildings or permanent infrastructure aside from a small concrete pad constructed for a temporary sea-container exists at the former FTA,
46. The former FTA is bounded by:
    a. Port Phillip Bay to the south;
    b. Point Cook Coastal Park to the north and east;
    c. RAAF Base Williams' runway and southern hangar areas to the west; and
    d. Immediately to the north of the site lies RAAF Lake, with the southern section within the Defence jurisdiction.

Information on zoning and approvals

47. The proposed works are to be undertaken on Commonwealth land and will comply with applicable Commonwealth legislation. A key project objective is also to comply with the intent of applicable Victorian environmental legislation. An Environmental Auditor has been engaged to ensure the works comply, to the extent practicable, with Victorian EPA requirements.
48. An Initial Environmental Review prepared in 2008 indicates that a referral under the EPBC Act will not be required prior to undertaking the proposed works.
49. The remediation works contractor(s) will seek any necessary approvals to undertake their works including approvals associated with transporting plant, materials and equipment to the site and the provision of services (if required) to the site.

Details of applicable codes and standards

50. All works will be constructed and conducted within the designated boundaries of Commonwealth land. The proposed remediation does not require acquisition of additional land or involve land disposal aspects. There will be no change to existing land use conditions.
51. The legislative framework for the planning and approval of works at Point Cook includes:
    a. Commonwealth Legislation;
    b. Defence policy and management frameworks; and
    c. State Legislation, particularly the *Environment Protection Act 1970*.
52. The works will be undertaken in accordance with relevant Australian Standards and codes of practice including but not limited to:
    a. National Environmental Protection (Assessment of Site Contamination) Measure (1999) (NEPM);

b. Australian Standard AS 4482.1 , Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-volatile and Semi-volatile Compounds; and
c. Australian Standard AS4482.2 Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances.

Planning and design concepts

53. The assessment and delineation of soil and groundwater impacts at the site has been accomplished through a series of iterative investigations undertaken since 2003. Supporting investigations including ecological risk assessments, human health risk assessments, remediation feasibility trials, and a series of groundwater monitoring events have culminated in the production of a Remediation Action Plan. The planning and design of these investigations has been undertaken in general compliance with the NEPM and has also been subject of review by an EPA Victoria accredited Environmental Auditor.

Water and energy conservation measures

54. The adopted approach to conservation measures during site remediation is compliant with the industry accepted principles of waste management hierarchy in that:
    a. It is proposed to remediate the contaminated soil and DNAPL on site and reuse the treated material as backfill material, as a result disposal of materials to landfill will be minimised.
    b. Hard waste will be segregated from the soil and recycled as appropriate.
    c. Energy inputs to the site (electricity, gas), will be high in the short term, but will be ultimately lower than other less aggressive/longer term approaches to site remediation.
    d. The remediation of the source material (DNAPL) will allow groundwater contamination to attenuate (reduce) naturally.

Fire protection and security measures

55. Access to the RAAF Base Williams, Point Cook site is controlled by security staff. In addition, a temporary fence will be constructed around the former FTA site with access to and from the site controlled in accordance with the Construction Occupational Health and Safety

Management Plan. Only authorised personnel will be allowed entry to the site and will only be permitted following a mandatory site induction process.

56. The works will be undertaken with due consideration to the RAAF Base Williams, Bushfire Management Plan. Local fire services (Point Cook CFA and Laverton MFB) will be consulted prior to the works commencing with regard to fire prevention practices and any requirements throughout the works. Adequate fire fighting equipment will be available throughout the duration of the works in accordance with the Construction Emergency Response Management Plan.

Occupational health and safety measures

57. The Australian Government is committed to improving occupational and health and safety outcomes in the building and construction industry. In accordance with Section 35(4) of the Building and Construction Industry Improvement Act 2005 (Commonwealth), the remediation works contractor(s) will be required to hold full occupational health and safety accreditation from the Officer of the Federal Safety Commissioner under the Australian Government Building and Construction Occupational Health and Safety Accreditation Scheme.
58. The proposed works will be undertaken in accordance with the Department of Defence Occupational Health and Safety Manual, relevant Victoria Occupational Health and Safety legislation (*Occupational Health and Safety Act* 2004) and the approved project specific Occupational Health and Safety Plan.
59. The site will be secured to prevent public access during construction. No special or unusual public safety risks have been identified.

Landscaping

60. The proposal will not cause any substantial change to the landscape character of the site. Revegetation works post completion of the remediation activities will restore areas disturbed during construction and provide general ecological improvement to site.

Impact on local community

61. The impact of the remediation works on the local community is likely to be minimal given the location of the former FTA within the secure Point Cook site. Traffic flow to and from the Point Cook site is unlikely to be affected and it is not anticipated that significant heavy vehicle

movements will be required with the exception of machinery and equipment arriving at site during site establishment and leaving site following completion of the works.

62. If clean soil material is required to be imported to the site a Traffic Management Plan will be submitted, by the contractor, to the appropriate authorities prior to importation commencing.
63. The community may notice visual emissions from the thermal desorption unit however these emissions are visually similar to other industrial businesses in the vicinity. The thermal desorption emissions will be closely monitored by the contractor(s) and Project Manager / Contract Administrator to ensure compliance with relevant standards and approvals.

Outline of project costs

64. The estimated cost of this is $27.3m (excluding GST). This cost estimate includes all remediation works costs, laboratory validating costs, management fees and technical expertise costs and contingencies.

Details of project delivery system

65. A Project Manager / Contract Administrator has been appointed by the Commonwealth to manage the proposed works and administration of the Contract(s) for the works.

Construction program / project schedule

66. Subject to Parliamentary clearance of the project the works contractor will be engaged in December 2011 with works expected to occur between February 2012 and April 2013.

Attachments

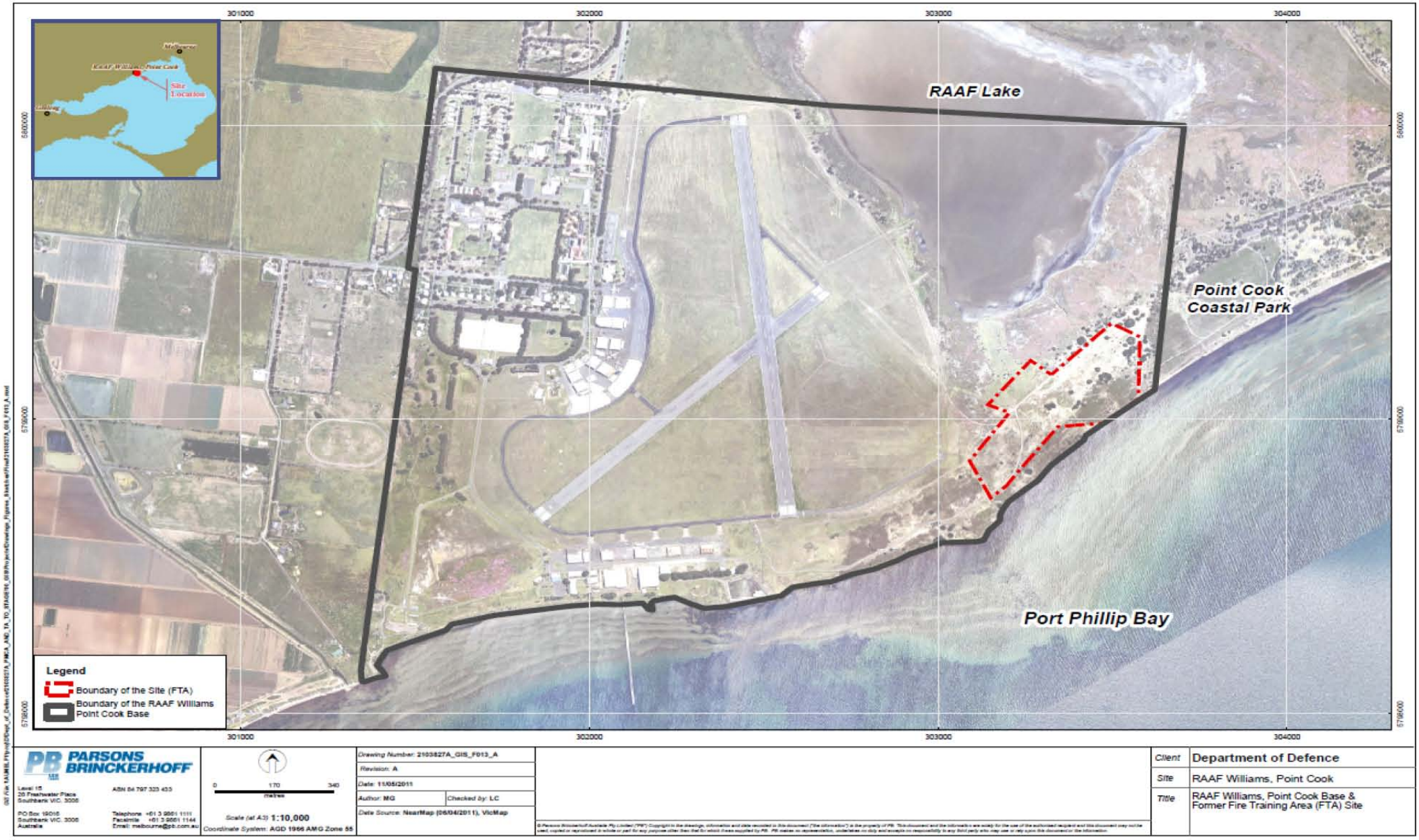
A. Site Maps.

B. Map of Former Fire Training Area

C. Plant Photograph

ATTACHMENT A

RAAF Base Williams, Point Cook

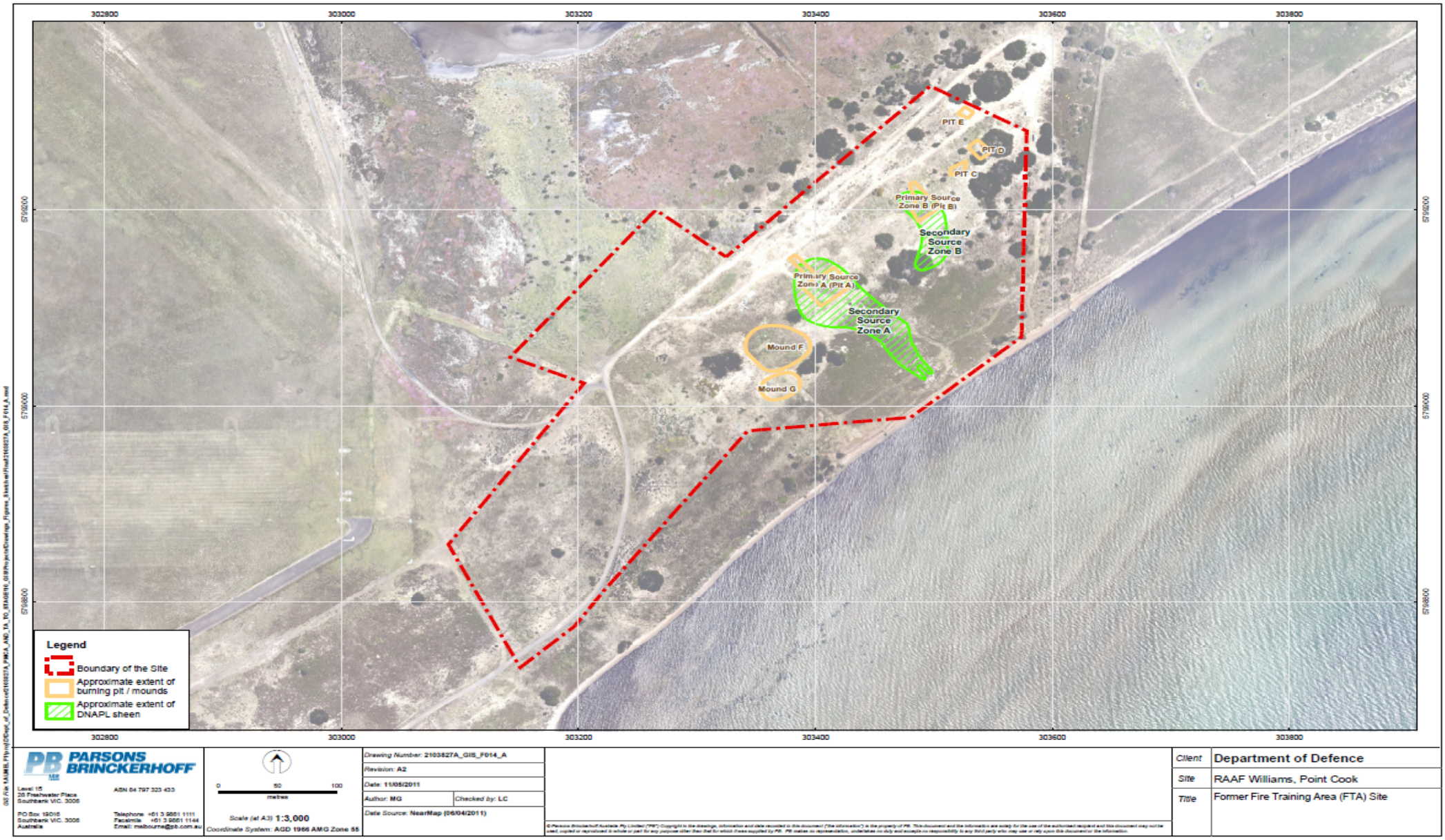


ATTACHMENT A

RAAF Williams, Point Cook – location of the Former Fire Training Area

ATTACHMENT B

Former Fire Training Area, RAAF Williams – Point Cook



Photograph of Similar Thermal Desorption Plant