

Appendix 1

Planning Assessment

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1. INTRODUCTION

1.1. In September 2010, an application for a major project under Part 3A of the Environmental Planning and Assessment Act, 1979 for a waste and resource recovery facility and continued clay extraction at 123-179 Patons Lane Orchard Hills was refused by the Minister for Planning. The reasons for refusal (see **Appendix 1**) were as follows:

1. *There is no demonstrable need for a proposal of this scale and at this location in terms of landfill capacity given the concentration of landfill capacity in Western Sydney;*
2. *The planning setting of the proposal in close proximity to residential areas would inevitably introduce land use conflicts which would necessitate ongoing and onerous management. The project at this scale is fundamentally and strategically inconsistent with good land use planning;*
3. *There is an unacceptable level of risk associated with the project's ability to meet relevant noise criteria throughout the life of the proposal;*
4. *The proposal is inconsistent with the objectives of key strategic planning instruments in relation to maintaining the scenic qualities and rural landscape character of the area;*
5. *The proposal will result in unacceptable long term visual impacts; and*
6. *The proposal is not in the public interest.*

1.2. The proposed major project has been subject to a number of amendments to address the reasons for refusal. These amendments include the following:

- reduction in the overall landfill capacity at the site by 1.5 million t, from 6.3 million t to 4.8 million t;
- increase in the annual throughput for recycling and re-processing by 150,000 t, from 200,000 t to 350,000 t;
- reduction in the total clay/shale extraction by 1.8 million t, from 5.65 million t to 3.85 million t;
- reduction in the quantity of extraction clay/shale despatched from the site by 650,000 t, from 3.8 million t to 3.15 million t;
- reduction in the maximum number of daily heavy vehicle movements from 280 per day to 250 per day.

- 1.3. The purpose of this Planning Assessment is to describe the modification to the project and to undertake an assessment of the modified project, as amended, in the context of the matters set out in the Director-General's Requirements issued for the project (MP 09-0074) on 20 May 2009 (see **Appendix 2**).
- 1.4. The matters which have been taken into consideration in the preparation of this Assessment, include:
- Modified Preferred Project Report for the Orchard Hills Waste and Resource Management Facility, prepared by R W Corkery & Co., January 2011;
 - Environmental Assessment, Orchard Hills Waste and Resource Management Facility, MP 09-0074, prepared by R W Corkery & Co. Pty Ltd assisted by Design Collaborative Pty Ltd, April 2010 (the EA);
 - Response to Submissions, Orchard Hills Waste and Resource Management Facility, MP 09-0074, prepared by R W Corkery & Co. Pty Ltd, 30 July 2010 (including Preferred Project Report);
 - Director-General's Environmental Assessment Report – Major Project Assessment – Orchard Hills Waste Facility – MP 09-0074, September 2010;
 - Submissions made to the Department of Planning (DOP) by the Department of Environment, Climate Change and Water (DECCW), dated 3 July 2010, NSW Office of Water dated 12 July 2010 and Penrith City Council dated 24 June 2010 in relation to the EA;
 - Orchard Hills Waste and Resource Management Facility Recycling/Resource Recovery Capacity, prepared by Mike Ritchie and Associates, 30 July 2010;
 - Landfilling EIS Guideline, NSW DUAP, 1996;
 - North-West Subregional Strategy (Draft), DOP, 2007;
 - SREP No. 25 – Orchard Hills;
 - Metropolitan Strategy, DOP, 2005;
 - Metropolitan Plan for Sydney 2036, DOP, 2010;
 - Environmental Guidelines: Solid Waste Landfills, EPA, 1996;
 - NSW Waste Avoidance and Resource Recovery Strategy 2007;
 - Visual Assessment undertaken by Richard Lamb & Associates;
 - Noise Assessment undertaken by Wilkinson Murray Pty Ltd; and
 - Inspection of the locality.
- 1.5. This Assessment describes the land and its context. It describes the modifications to the project and undertakes an assessment of the modified project in the context of the Director-General's Requirements for MP 09-0074. Conclusions are drawn and illustrative material attached.

2. THE SITE AND THE SURROUNDING AREA

- 2.1. The site is located at 123-179 Patons Lane, Orchard Hills, and is described as Lot 40 in DP 738126 (see **Plan 1**). It is situated on the northern side of Patons Lane in a location approximately 3km south of the M4 Motorway in western Sydney.
- 2.2. The site has an area of 60 ha. It has a history of use for clay/shale extraction which commenced in 1981. The use of the land for this purpose has been intermittent since that time. The proponent purchased the site in 2008 and since then quarrying activities have been suspended pending determination of the current application.
- 2.3. The quarrying operations on the site have resulted in disturbance across the majority of the site (see **Plan 2**). Only some 8ha of the site, of the total 60 ha, remain undisturbed (generally around the perimeter). The main areas of disturbance are two extraction areas (a clay/shale extraction area in the north-west of the site and a clay extraction area in the south-west of the site), four dams and a sump and perimeter bund walls. The site also includes an internal road network and various buildings. A series of bund walls varying in height from 5m to 19m and having a total length of approximately 1.9km are located around the perimeter of the site.
- 2.4. Access to the site is via Patons Lane which extends to the west off Luddenham Road.
- 2.5. The area surrounding the site is largely rural/rural-residential in character comprising a mix of open grazing land, vegetated areas, and residential development (see **Plan 3**). Immediately to the north and east of the site are rural properties (including “Roughwood Park” and “Glenholme Farm”) containing residences and outbuildings with similar land holdings further to the north-east and south-east of the site. Approximately 500m further to the north of the site is a residential subdivision known as the “The Vines” containing large detached residences. “The Vines” was approved by Penrith Council on 4 July 1988, after the quarry on the project site was in existence. Further to the south-east are rural-residential properties having frontage to Luddenham Road. Adjoining to the west and south of the site is heavily-vegetated land owned by the Commonwealth which is used by the Australian Defence Force.
- 2.6. Further details of the physical characteristics of the site and surrounds are contained in an extract from the EA in **Appendix 3**.

3. THE MODIFIED PROJECT

3.1. As noted above, the proposed major project has been subject to a number of modifications from that described in the Preferred Project Report to address the reasons for refusal. These modifications include the following:

- reduction in the overall landfill capacity at the site by 1.5 million t, from 6.3 million t to 4.8 million t;
- increase in the annual throughput for recycling and re-processing by 150,000 t, from 200,000 t to 350,000 t;
- reduction in the total clay/shale extraction by 1.8 million t, from 5.65 million t to 3.85 million t;
- reduction in the quantity of extracted clay/shale despatched from the site by 650,000 t, from 3.8 million t to 3.15 million t;
- reduction in the maximum number of daily heavy vehicle movements from 280 per day to 250 per day;
- reduction in average final landform height above the 1980 landform by 2 metres from 7 metres (0-10m) to 5 metres (0-7m).

3.2. In addition, to address concerns regarding the visual impact of the project the final landform has been modified. The final landform would have an overall landform similar to the pre-extraction landform with an increased elevation at the northern end which will provide a barrier to noise during the rehabilitation of the site. However, the northern face will be re-contoured during the site establishment stage to create a more natural appearance when the site is viewed from the north; particularly from The Vines. Moreover, this will be achieved within the first 6 months of the project. The existing perimeter bund walls on the southern and south-western sides of the Project Site would be reduced in height to 57-58m AHD so that they will not be visible from the north. The northern face is to be limited to 55m AHD.

3.3. The modified project has aimed to reduce the period required to rehabilitate the existing site and to maximise the economic resource recovery from the incoming waste. To this end, the level of recycling and re-processing incorporated in the project has been increased as part of the proposed modified project which will allow it to make a valuable contribution to the achievement of target levels for recycling and resource recovery in the Waste Avoidance and Resource Recovery Strategy.

3.4. As detailed in the Modified Preferred Project Report (MPPR), the modified project has been designed so that the Project Site will be progressively rehabilitated throughout the life of the project to facilitate the following environmental outcomes:

- achievement of slope and soil stability;
- achievement of acceptable visual impacts;
- assistance in minimising leachate generation volumes; and

- achievement of more effective greenhouse reduction by oxidising the limited greenhouse gas produced from the rehabilitated portions of the Project Site.

4. CONSIDERATION OF PLANNING ISSUES

4.1. In this Section, the modified project is assessed in the context of the matters raised in the Director-General's requirements for the project (see **Appendix 2**).

A. STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007 (THE INFRASTRUCTURE SEPP)

4.2. Division 23 of Part 2 of the Infrastructure SEPP relates to Waste or Resource Management Facilities. Clause 123 contains criteria which a consent authority is required to take into consideration in determining a development application for such proposals. Pursuant to section 75R(2) of the Environmental Planning and Assessment Act 1979, SEPPs apply to Part 3A applications and therefore Clause 123 is to be considered for the subject proposal.

4.3. It is noted that Clause 123 was amended on 9 July 2010, i.e. after the submission of the original project application. As there is no savings provision, the amended version is the applicable controlling provision.

4.4. Clause 123 provides as follows:

- (a) *whether there is a suitable level of recovery of waste, such as by using alternative waste treatment or the composting of food and garden waste, so that the amount of waste is minimised before it is placed in the landfill, and*
- (b) *whether the development:*
 - (i) *adopts best practice landfill design and operation, and*
 - (ii) *reduces the long term impacts of the disposal of waste, such as greenhouse gas emissions or the offsite impact of odours, by maximising landfill gas capture and energy recovery, and*
- (c) *if the development relates to a new or expanded landfill:*
 - (i) *whether the land on which the development is located is degraded land such as a disused mine site, and*
 - (ii) *whether the development is located so as to avoid land use conflicts, including whether it is consistent with any regional planning strategies or locational principles included in the publication EIS Guideline: Landfilling (Department of Planning, 1996), as in force from time to time, and*
- (d) *whether transport links to the landfill are optimised to reduce the environmental and social impacts associated with transporting waste to the landfill.*

4.5. These matters are addressed, in turn, below.

- (a) ***whether there is a suitable level of recovery of waste, such as by using alternative waste treatment or the composting of food and garden waste, so that the amount of waste is minimised before it is placed in the landfill***

4.6. The modified project provides for an increase in the annual throughput for recycling and re-processing of 150,000t, from 200,000t to a total of 350,000t (or 77.8% of total waste receipts of 450,000t). As set out in the MPPR the increased recycling and resource recovery component of the project will make a contribution to the

achievement of resource recovery targets set out in the NSW Waste Avoidance and Resource Recovery Strategy 2007 (WARRS).

- 4.7. As detailed in the MPPR, following re-processing, it is anticipated that 70% of the 350,000t of material to be processed, i.e. 245,000t, will be able to be removed from the site for recycling or re-use, with the residual, i.e. 105,000t, being disposed on site as landfill.

(b) whether the development:

- (i) adopts best practice landfill design and operation, and**
- (ii) reduces the long term impacts of the disposal of waste, such as greenhouse gas emissions or the offsite impact of odours, by maximising landfill gas capture and energy recovery, and**

- 4.8. As detailed in the MPPR, the project adopts best practice landfill design and operation in accordance with the EPA's *Environmental Guidelines: Solid Waste Landfills*. In particular, the project utilises best practice design for:

- the generation, control and management of leachate to ensure that neither groundwater nor surface water is polluted. In particular, the project is designed at the outset to minimise the generation of leachate;
- the generation, control and management of land-fill gas. In particular, the proposed facility is expected to generate negligible quantities of land-fill gas. In addition, progressive rehabilitation of the site will allow for the drainage and biofiltration of landfill gas to reduce greenhouse gas emissions;
- the design, construction and operation of the project to ensure appropriate land management and conservation. In particular, the project includes facilities for the re-processing of materials to maximise recycling and re-use and to minimise diversion to landfill as well as providing for the progressive rehabilitation of the site; and
- minimising hazards and amenity impacts. In particular, appropriate measures are proposed to manage dust, odour, noise and litter, to manage noise emissions, to minimise adverse visual impacts and to ensure safety and security for staff and visitors.

(c) if the development relates to a new or expanded landfill:

- (i) whether the land on which the development is located is degraded land such as a disused mine site, and**

- 4.9. As referred to above, the project site has a history of use for clay/shale extraction which commenced in 1981. The quarrying operations on the site have resulted in disturbance across the majority of the site (see **Plan 2**). Only some 8ha of the site, of the total 60 ha, remain undisturbed (generally around the perimeter). The main areas of disturbance are two extraction areas (a clay/shale extraction area in the north-west of the site and a clay extraction area in the south-west of the site), four dams and a sump and perimeter bund walls. The site also includes an internal road network and various buildings. A series of bund walls varying in height from 5m to 19m and having a total length of approximately 1.9km are located around the perimeter of the

site.

- 4.10. Accordingly, the project site is considered to represent “degraded land”. The project will facilitate the rehabilitation of the land as detailed in the MPPR.

(ii) whether the development is located so as to avoid land use conflicts, including whether it is consistent with any regional planning strategies or locational principles included in the publication EIS Guideline: Landfilling (Department of Planning, 1996), as in force from time to time, and

EIS Guideline

- 4.11. The *EIS Guideline: Landfilling* contains principles for site selection for landfill sites which aim to avoid land use conflicts. The application of these principles is directed towards the selection of ‘undeveloped’ sites. In the subject case, a significant factor in the selection of the site of the proposed waste facility is that it is an existing quarry.
- 4.12. The site selection principles contained in the *EIS Guideline* include the avoidance of environmentally sensitive areas and compatibility with nearby uses.
- 4.13. Table 1 to the *EIS Guideline* lists environmentally sensitive areas to be avoided (see **Appendix 4**). The site is consistent with the matters contained in Table 1, with the exception of its proximity to a permanent or intermittent waterbody, being Blaxland Creek, as follows:
- the site is not within 250m of an area of significant environmental or conservation value identified under relevant legislation or environmental planning instruments;
 - the site is not within an identified sensitive location within a drinking water catchment;
 - the site is not within 250m of a residential zone or dwelling, school or hospital not associated with the facility. (There is a separation distance of just less than 500m from the closest dwellings not associated with the facility);
 - the site is not located within a karst region or substrata which is prone to land slip or subsidence; and
 - the site is not located within a floodway.
- 4.14. Blaxland Creek crosses the north-western corner of the site and is therefore within 40m of the site. In this regard, as detailed in the MPPR, the project incorporates measures to ensure that no pollution of either groundwater or surface waters will result from its operations primarily through the measures proposed relating to the generation, control and management of leachate. These measures include cell design, daily operational management of landfill activity to minimise infiltration and progressive rehabilitation of the site.

4.15. Table 2 to the *EIS Guideline* (see **Appendix 4**) contains performance objectives to determine appropriate separation distances for certain land uses. The relevant land uses for the subject project are “residential areas”, “surface waters” and “environmentally sensitive areas” (discussed in the context of Table 1, above). The project is considered to meet the relevant performance objectives contained in Table 2, as it has been designed and will be operated and managed to ensure, as detailed in the MPPR, that:

- residential amenity and health (odour, visual amenity, noise, dust, seepage) is protected;
- surface waters are protected from pollutants in the waste;
- no existing or likely future uses of surface waters are compromised;
- no deterioration in the quality of groundwater will occur;
- no existing or likely future uses of groundwater are compromised; and
- the environmental qualities of the area will not be compromised.

4.16. Accordingly, the modified project is considered satisfactory with regard to the site selection principles in the *EIS Guideline*.

Regional Planning Strategy

4.17. The applicable regional planning strategy is the *Draft Subregional Strategy for the North West Subregion* (DOP, 2007).

4.18. The modified project supports the following relevant Key Directions for the North West Subregion:

- Key Direction 5. Protect rural and resource lands – the site has supported a resource extraction industry over the past 30 years and will continue to do so under the modified project. At the same time, the project will provide for the progressive rehabilitation of the land in a manner consistent with the landscape values of the area which will enable it to be returned to rural (grazing) use;
- Key Direction 6. Promote the environmental and scenic qualities of the region – the project incorporates a range of measures to protect the environment of the locality including rehabilitation of the site, re-contouring the perimeter faces and the provision of mature vegetation.

4.19. The modified project also supports the following Actions identified in the Environment, Heritage and Resources Strategy of the North West Regional Strategy:

- E3.4 Minimise and Recycle Waste:
 - o NW E3.4.1 Department of Environment and Climate Change to regularly update the *Waste Avoidance and Resource Recovery*

Strategy to increase efforts in resource recovery and recycling.

- o NW E3.4.2 Councils should ensure that development does not encroach on waste management facilities and that land use conflicts are minimised through appropriate planning controls.
 - E 4.1 Maintain Rural Activities and Resource Lands
 - o NW E4.1.1 Councils to work with the NSW Department of Primary Industries to identify significant rural and resource lands in preparation of Principal LEPs.
 - o NW E4.1.2 Councils to work with the Department of Planning and Department of Primary Industries to identify mechanisms to achieve protection of significant rural resource lands through Principal LEPs and associated planning controls.
 - o NW E 4.1.3 Department of Planning to establish a rural resource lands working party to identify a Metropolitan wide approach to the ongoing protection and management of rural resource lands.
 - E 4.2 Protect Resource Lands from Incompatible and Inappropriate Uses.
- 4.20. Sydney Regional Environmental Plan No. 25 - Orchard Hills (SREP25) (now a deemed SEPP¹) could also be considered to be a regional planning strategy. It is noted that SREP25 does not apply to the Project Site, but to an area to the north which adjoins the Project Site (see **Appendix 5**).
- 4.21. In general, SREP25 aims to protect prime agricultural land and agricultural uses within the area to which it applies, to protect the landscape scenic quality of the area and to protect land that may be needed in the future for urban development.
- 4.22. The modified project is considered to be consistent with these aims in that it will result in the presently degraded site being rehabilitated to a landform with associated vegetation that is generally consistent with its underlying (pre-quarry) landform and with the landform that characterises the surrounding rural area.
- 4.23. The above *Draft Subregional Strategy for the North West Subregion* was prepared in the context of the *Metropolitan Strategy* (DOP, 2005) which was to guide growth in Sydney to 2031. It is understood that the *Metropolitan Strategy* has now been superseded by the *Metropolitan Plan for Sydney 2036* (DOP, 2010) released in December 2010.
- 4.24. The key directions and actions relevant to the modified project (at the metropolitan-wide level) in the *Metropolitan Plan for Sydney 2036* are similar to those in the previous *Metropolitan Strategy*. In particular, the modified project supports the following objectives and actions contained in the *Metropolitan Plan for Sydney 2036* identified in Strategic Direction F – Balancing Land Uses on the City Fringe and

¹ Pursuant to Division 2 of Part 21 of Schedule 6 to the Environmental Planning and Assessment Act, 1979.

Strategic Direction G – Tackling Climate Change and Protecting Sydney’s Natural Environment:

- Objective F2 To maintain and protect agricultural activities and resource lands
 - o F2.1 Consider development of an agriculture policy for Sydney.
 - o F2.2 Undertake mapping to inform future strategic policymaking with respect to agricultural activities and resource lands.
- Objective F3 To encourage investment in agriculture and resource lands
 - o F3.1 Promote agricultural activities positively in Sydney to reduce land use conflict.
 - o F3.2 Prepare and release guidance on planning for agricultural activities.
 - o F3.3 Plan for the sustainable management of construction materials.
- Objective G1 To reduce Sydney’s Greenhouse gas emissions
 - o G1.1 Reduce emissions from the manufacturing and industrial sectors by encouraging industries to collaborate and co-locate to share materials, energy and by-products.
- Objective G3 To integrate environmental targets into land use planning
 - o G3.1 Integrate environmental targets into infrastructure and land use planning.
- Objective G8 To minimise household exposure to unacceptable noise levels
 - o G8.1 Avoid noise-based land use conflict through strategic planning and the development assessment process.
- Objective G9 To minimise and recycle waste
 - o G9.1 To identify strategically appropriate locations for new waste management technologies in *Subregional Strategies*.

Summary – Land Use Conflicts

- 4.25. The proposed modified project is considered to be located so as to avoid land use conflicts. The scale of the project, its best practice design, and the mitigation and management measures proposed for its future operation result in a project which is consistent with the applicable regional land use strategy and, for the most part (see paragraphs 4.11 to 4.16, above), with the locational principles contained in the *EIS Guideline*. It is considered that the modified project is of a scale that is not fundamentally and strategically inconsistent with good land use planning.

(d) whether transport links to the landfill are optimised to reduce the environmental and social impacts associated with transporting waste to the landfill.

- 4.26. As referred to above and as described in the MPPR, the modifications to the project result in a reduction in the maximum number of daily heavy vehicle movements to and from the Project Site from 280 per day to 250 per day. As set out in the MPPR, the location of the Project Site and the nature and origins/destinations of the wastes and clay/shale deliveries dictates that the project is reliant upon road transportation. All vehicles would approach the Project Site via Mamre Road, Luddenham Road and Patons Lane. The land adjoining Luddenham Road between Mamre Road and Patons Lane supports rural dwellings set back from the road. Patons Lane is to be upgraded in accordance with an existing development consent already issued by Penrith City Council in 2005. Vehicles would not travel on local roads between the Project Site and the Western Motorway or Westlink M7 except when materials are being received from/delivered to those areas.

B. OTHER MATTERS RAISED BY THE DIRECTOR-GENERAL'S REQUIREMENTS

- 4.27. The other matters raised in the Director-General's Requirements are addressed having regard to the matters raised in the reasons for refusal.

Noise

- 4.28. The Noise Assessment undertaken by Wilkinson Murray Pty Ltd has addressed the potential acoustic impacts associated with the modified project and concluded, amongst other things, that:

“given the proposed mitigation measures, no exceedances of the relevant noise criteria would occur at neighbouring residences during the construction phase of the Project even under adverse meteorological conditions”..... “these strategies will ensure that no exceedances of the relevant noise criteria will result from the operational phase of the Project under any of the considered scenarios even under adverse meteorological conditions” and that “it is predicted that noise levels from trucks travelling to and from the Project Site would comply with relevant traffic noise criteria.”

- 4.29. Accordingly, it is considered that the modified project would meet relevant noise criteria throughout the life of the project.

Visual Impact

- 4.30. The Visual Assessment undertaken by Richard Lamb & Associates summarised the residual visual impacts of the modified project (in part) as follows:

“It is concluded that there are no unreasonable visual and related amenity impacts of the proposed development. There is an adequate standard of protection and enhancement of the components of the visual setting and visual resources of the Project Site as a result of the strategies employed to further reduce visual impacts.”

and further *“Overall it is considered that the proposal will not be of an appearance or visual character that will significantly detract from the scenic qualities of this part of Orchard Hills or that would be incompatible with the predominantly rural landscapes. Rather it is considered that the project will result in a positive effect on the landscape and scenic qualities of the area.*

- 4.31. Accordingly, the modified project would maintain the scenic qualities and rural landscape character of the area and would not result in any unacceptable long-term visual impacts.

The Public Interest

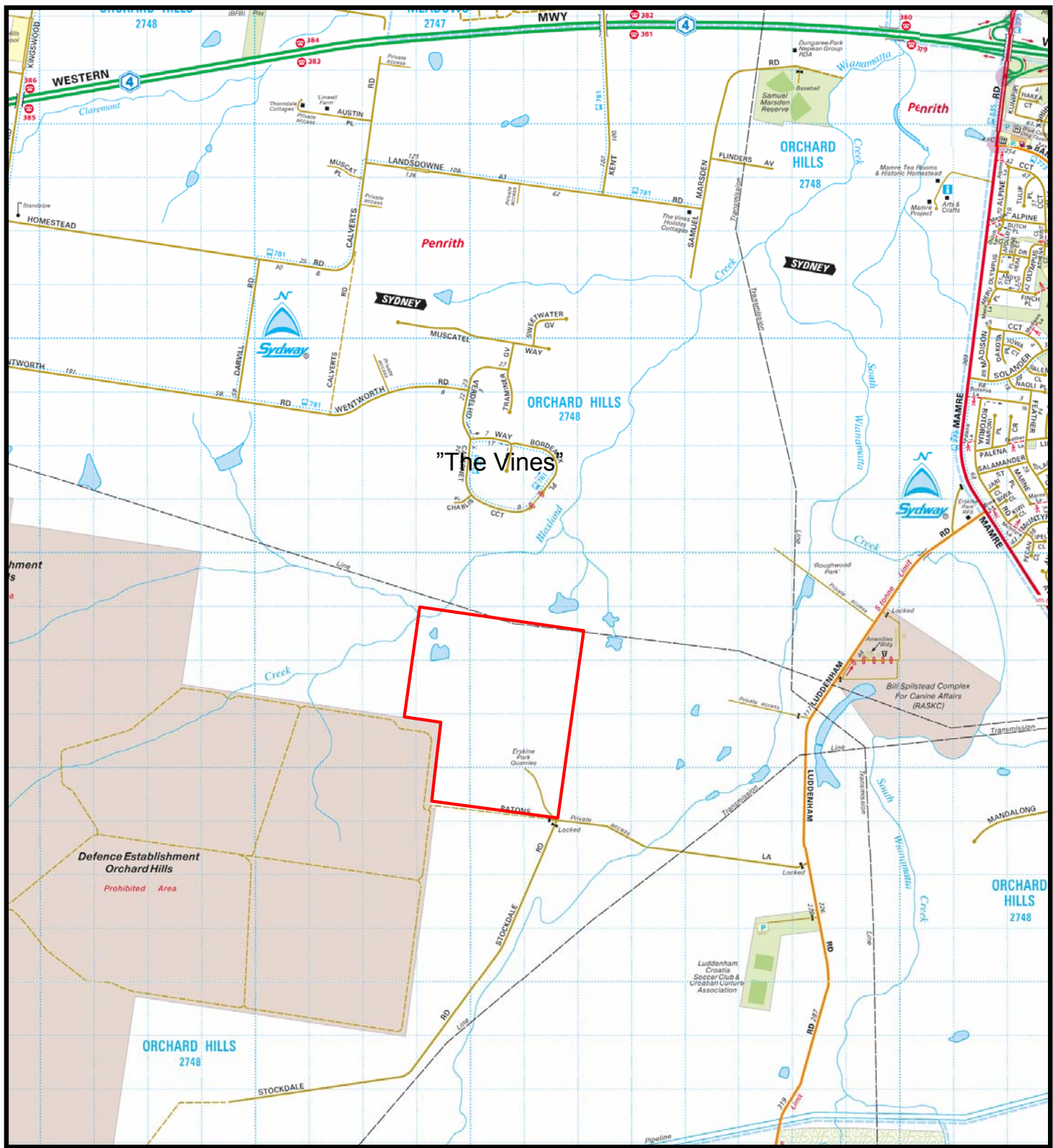
- 4.32. The modified project is considered to be in the public interest as:

- the increased level of recycling and reprocessing proposed will assist in the achievement of target levels for recycling and resource recovery in the *NSW Waste Avoidance and Resource Recovery Strategy 2007*;
- the project adopts best practice design and operation;
- the project incorporates measures to control and manage to appropriate levels potential environmental and amenity impacts;
- the project will facilitate the progressive rehabilitation of the site in a manner consistent with the landscape values of the area; and
- the project provides for the appropriate extraction of the natural resource and the eventual return of the land to rural (grazing) use.

5. CONCLUSION

- 5.1. This Planning Assessment has undertaken an evaluation of the modified project in the context of the matters set out in the Director-General's Requirements for the project.
- 5.2. The modified project is considered to be satisfactory in the context of the requirements of Clause 123 of the Infrastructure SEPP.
- 5.3. The modified project is also considered to be satisfactory in the context of the other matters raised in the Director-General's Requirements, particularly in regard to the matters raised in the reasons for refusal. In particular, the modifications to the project have satisfactorily addressed concerns regarding noise and visual impacts.

PLANS



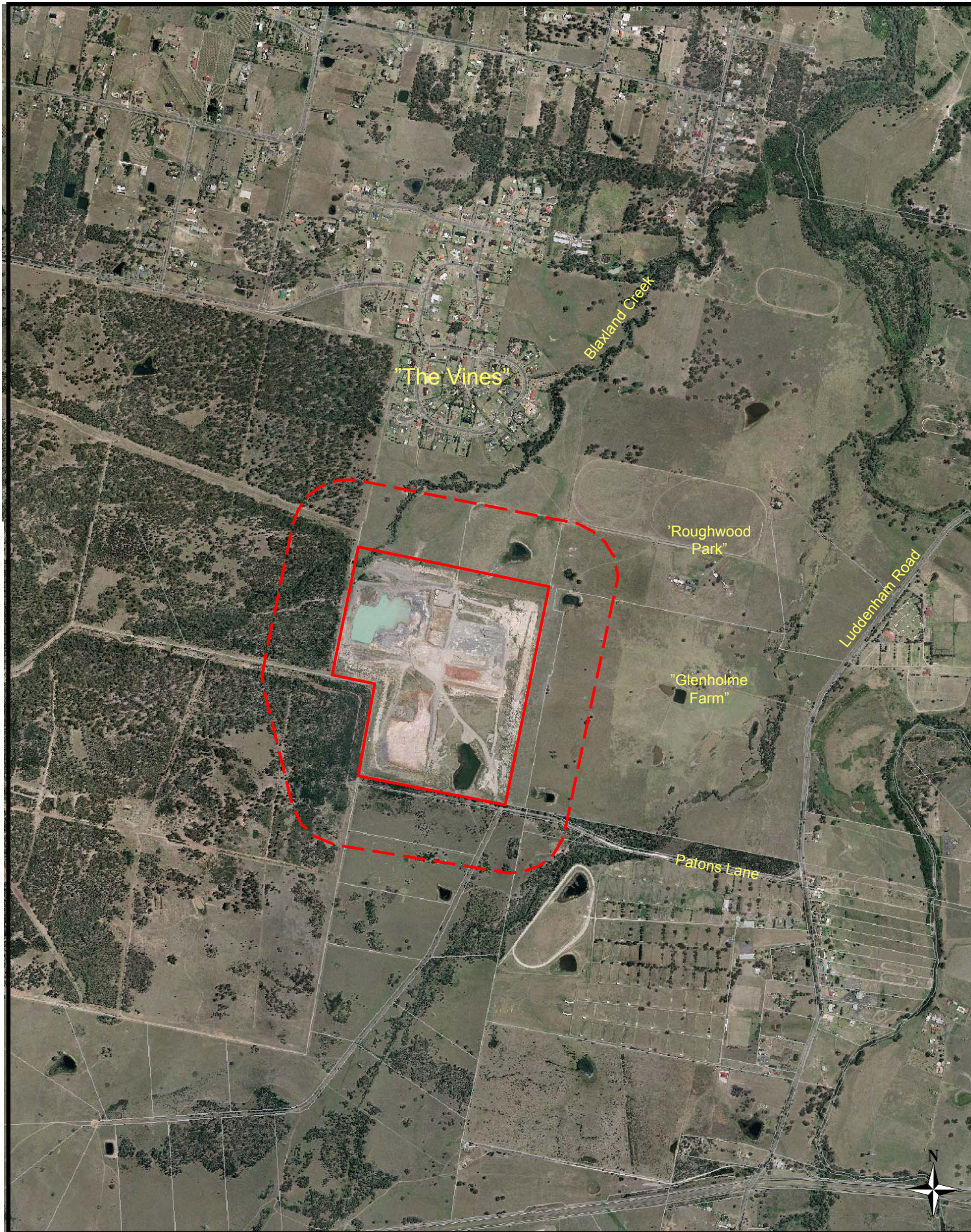
Source: e-way Electronic Street Directory v1.2 2007

Not to scale



Project Site Boundary





Source: Extract from SIX Viewer, Department of Lands

Not to scale

— Project Site Boundary

- - - 250m radius

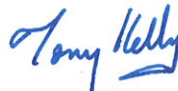
Plan 3 The Locality

APPENDIX 1

Project Refusal

Section 75J of the *Environmental Planning and Assessment Act 1979*

I, the Minister for Planning, determine the project referred to in Schedule 1, by refusing to approve the project pursuant to Section 75J(1) of the Environmental Planning and Assessment Act 1979 for the reasons outlined in Schedule 2.



The Hon Tony Kelly MLC
Minister for Planning

27 SEP 2010

Sydney

2010

SCHEDULE 1

Project Application No.:	09_0074
Proponent:	Dellara Pty Ltd
Land:	Lot 40, DP 738126, Patons Lane, Orchard Hills
Project:	Construction and operation of a waste and resource recovery facility, along with continued clay extraction.

SCHEDULE 2

1. There is no demonstrable need for a proposal of this scale and at this location in terms of landfill capacity given the concentration of landfill capacity in Western Sydney;
2. The planning setting of the proposal in close proximity to residential areas would inevitably introduce land use conflicts which would necessitate ongoing and onerous management. The project at this scale is fundamentally and strategically inconsistent with good land use planning;
3. There is an unacceptable level of risk associated with the project's ability to meet relevant noise criteria throughout the life of the proposal;
4. The proposal is inconsistent with the objectives of key strategic planning instruments in relation to maintaining the scenic qualities and rural landscape character of the area;
5. The proposal will result in unacceptable long term visual impacts; and
6. The proposal is not in the public interest.

APPENDIX 2



NSW GOVERNMENT
Department of Planning

Major Projects Assessment

Industry

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23-33 Bridge Street

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SYDNEY NSW 2001

Mr Scott Hollamby
Environmental Scientist
R.W.Corkery & Co. Pty. Limited
1st Floor, 12 Dangar Road
BROOKLYN NSW 2083

Our ref: S08/01676

Dear Mr Hollamby

The Orchard Hills Waste Project (MP 09_0074)
Director-General's Requirements

I refer to your application for the Orchard Hills Waste Project.

I have attached a copy of the Director-General's requirements for the project. These requirements have been prepared in consultation with the relevant agencies, and are based on the information you have provided to date. I have also attached a copy of the agencies' comments for your information.

Please note that the Director-General may alter these requirements at any time.

If the project is likely to have a significant impact on matters of National Environmental Significance, it will require an approval under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. It is your responsibility to contact the Department of Environment, Water, Heritage and the Arts in Canberra (6274-1111 or <http://www.environment.gov.au>) to determine if the proposal requires an approval under the EPBC Act. The Commonwealth Government has accredited the NSW environmental assessment process so if it is determined that an approval is required under the EPBC Act, please contact the Department immediately as supplementary Director-General's requirements may need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit the Environmental Assessment (EA) for the project. This will enable the Department to determine the:

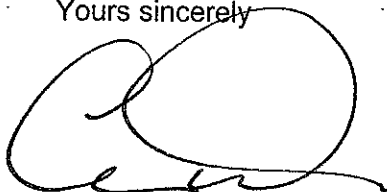
- applicable fee (see Division 1A, Part 15 of the Environmental Planning and Assessment Regulation 2000); and
- number of copies (hard-copy or CD-ROM) of the EA that will be required for exhibition purposes.

Once the Department receives the EA, it will review it in consultation with the relevant agencies to determine if it adequately addresses the Director-General's requirements, and may require you revise it prior to public exhibition.

The Department is required to make all the relevant information associated with the project publicly available on its website. Consequently, I would appreciate it if you would ensure that all the documents you subsequently submit to the Department are in a suitable format for the web, and arrange for an electronic version of the EA to be hosted on a suitable website during the assessment process.

If you have any enquiries about these requirements, please contact Felicity Greenway on 9228-6338.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Chris Wilson', written over a large, loopy circular mark.

20.5.09

Chris Wilson
Executive Director
Major Projects Assessment
As delegate for the Director-General

Director-General's Requirements

Section 75F of the *Environmental Planning and Assessment Act 1979*

Application Number	09_0074
Project	The Orchard Hills Waste Project, which includes: • construction and operation of a waste recycling and re-processing facility and associated infrastructure; • continued clay/shale extraction; • development of a staged waste emplacement non-putrescible landfill; and • staged removal of the existing perimeter bund walls.
Location	Lot 40, DP 738126 at 123-179 Patons Lane, Orchard Hills, Sydney
Proponent	Dellara Pty Ltd
Date of Issue	May 2009
General Requirements	The Environmental Assessment (EA) must include: • an executive summary; • a detailed description of the past, existing and approved operations on the site, including a copy of all relevant statutory approvals; • a detailed description of the project, including: – the need for the project, having particular regard to the requirements in Clause 123 of <i>State Environmental Planning Policy (Infrastructure) 2007</i>; – the alternatives considered, including detailed justification for the preferred alternative (ie. the project); – plans of the proposed building works, both on-site (such as the proposed weighbridges, offices, truck wheel wash and water management structures) and off-site (such as any proposed road upgrade works); – accurate estimates of the quantity and quality of the clay and shale resources on the site that would be extracted during the project; – likely staging of the project identifying milestones for each stage; and – proposed rehabilitation strategy for the site. • a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment; • a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes: – a description of the existing environment, using sufficient baseline data; – an assessment of the potential impacts of all stages of the project, including any cumulative impacts, taking into consideration any relevant laws, policies, guidelines, and plans; and – a description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the project including detailed contingency plans for managing any significant risks to the environment; • a statement of commitments, outlining the proposed environmental management and mitigating measures; • a conclusion justifying the project, taking into consideration: the suitability of the site; the economic, social and environmental impacts of the project as a whole; and whether it is consistent with the objects of the <i>Environmental Planning and Assessment Act 1979</i>; and

	• a signed statement from the author of the environmental assessment certifying that the information contained in the report is neither false nor misleading.
Key Issues	• Noise - including a quantitative assessment of the potential construction, operational and traffic noise impacts of the project, in particular the staged removal of the bund walls. • Traffic and Transport - including: - accurate predictions of the traffic volumes likely to be generated during construction and operation; - a detailed assessment of the potential impacts of this traffic on the capacity, efficiency and safety of the surrounding road network, including modelling of the intersections at Luddenham Road/Patons Lane, and Luddenham Road/Mamre Road; - details of any proposed road upgrade works, and the measures that would be implemented to ensure that the relevant road network is appropriately maintained during the life of the project; and - details of the proposed access and parking arrangements on site. • Waste - including: - the measures that would be implemented to ensure that the project is consistent with the aims, objectives, and guidance in the <i>NSW Waste Avoidance and Resource Recovery Strategy 2007</i>, <i>DECC's Guidelines for Solid Waste Landfills and Composting and Related Organics Processing Facilities</i>; - details of the quantities and classification of waste to be received, processed, recycled, stockpiled and landfilled; - details on the location and size of stockpiles of unprocessed and processed/recycled waste at the premises; and - details on landfill hole design and integrity. • Soil and Water - including: - detailed modelling of the potential surface and groundwater impacts of the project paying particular regard to Blaxland Creek and other nearby watercourses and associated riparian corridors; - a site water balance for the project, including a description of the measures that would be implemented to minimise water use on site and any water licensing requirements for the project; - details of the proposed erosion and sediment controls (during construction), the stormwater and leachate management system (during operations), flooding, potential offsite drainage impacts, and water supply and efficiency measures; and - assessment of potential soil and groundwater contamination. • Rehabilitation and Final Landform - including a detailed description (including plans and RLs) of how the site would be progressively rehabilitated and integrated into the surrounding landscape. • Air - including a quantitative assessment of the potential air quality impacts of the project. • Odour - including a quantitative assessment of the potential odour impacts of the project; • Greenhouse Gas - including: - a quantitative assessment of the scope 1, 2 and 3 greenhouse gas emissions of the project; - a qualitative assessment of the potential impacts of these emissions on the environment; and - an assessment of all reasonable and feasible measures that could be implemented to minimise the generation of greenhouse gas emissions associated with the project. • Biodiversity - including: - an assessment of the potential impacts of the project on threatened species and endangered ecological communities;

	- management of breeding/spread of potential horticultural pests; and - details of the proposed measures to enhance biodiversity conservation value of the site including revegetation of riparian corridors. • Heritage - including both Aboriginal and non-Aboriginal. • Visual - including; - an assessment of the potential visual impacts of the project on the amenity of the surrounding area, including photomontages from sensitive receivers, with particular attention to the adjoining residential areas; - a detailed description of the measures that would be implemented to minimise the potential visual impacts of the project, including the proposed landscaping to screen the proposed works; and - details of proposed lighting and signage. • Hazards - including; - from gases produced by composting and land filling; - from the storage of hazardous materials; - fire risk and management; and - details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials at the site; • Social and economic - including an assessment of the costs and benefits of the project as a whole and whether it would result in a net benefit to the NSW community.
References	The Environmental Assessment must take into account relevant State government technical and policy guidelines. While not exhaustive, guidelines which may be relevant to the project are included in the attached list.
Consultation	During the preparation of the Environmental Assessment, you should consult with the relevant local, State and Commonwealth government authorities, service providers, community groups and affected landowners. In particular you must consult with: • Department of Environment and Climate Change; • Department of Primary Industries; • Department of Water & Energy; • Roads and Traffic Authority; • Penrith City Council; and • Sydney Water.
Deemed Refusal Period	90 days

Guidelines, Policies and Plans

Aspect	Policy /Methodology
Noise	NSW Industrial Noise Policy (DECC) Environmental Criteria for Road Traffic Noise (NSW EPA) Environmental Noise Control Manual (DECC) Draft Construction Noise Guideline 2008 (DECC)
Transport	Guide to Traffic Generating Development (RTA) Road Design Guide (RTA)
Waste	Waste Avoidance and Resource Recovery Strategy 2007 (DECC) Waste Classification Guidelines (DECC) Environmental Guidelines: Solid Waste Landfills 1996 (DECC) Environmental Guidelines: Composting and Related Organics Processing Facilities (2004) Composts, soil conditioners and mulches (Standards Australia, AS 4454) State Environmental Planning Policy (Infrastructure) 2007
Soil and Water	
Soil	Acid Sulfate Soil Manual (ASSMAC) Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC) National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC) State Environmental Planning Policy No. 55 – Remediation of Land Managing Land Contamination - Planning Guidelines SEPP 55 – Remediation of Land (DUAP and EPA) Rural Land Capability Mapping Agricultural Land Classification
Surface Water	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ) National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ) National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC) National Water Quality Management Strategy: Guidelines for Sewerage Systems - Use of Reclaimed Water (ARMCANZ/ANZECC) National Water Quality Management Strategy - Guidelines For Water Recycling: Managing Health And Environmental Risks (Phase1) (EPHC, NRMMC & AHMC) Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC) National Water Quality Management Strategy - Guidelines For Water Recycling: Managing Health And Environmental Risks (Phase1) (EPHC, NRMMC & AHMC) Managing Urban Stormwater: Treatment Techniques (EPA) Managing Urban Stormwater: Source Control. Draft (EPA) Managing Urban Stormwater: Soils & Construction (Landcom)

Groundwater	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	NSW State Wetlands Management Policy (DWE)
	NSW State Floodplain Management Manual (DWE)
	NSW State Farm Dams Policy (DIPNR)
	Floodplain Risk Management Guideline: Practical Consideration of Climate Change (DECC)
	Technical Guidelines: Bunding & Spill Management (DECC)
	Environmental Guidelines: Use of Effluent by Irrigation (DECC)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC)
	NSW State Groundwater Quality Protection Policy (DLWC)
	NSW State Groundwater Quantity Management Policy (DLWC)
	NSW State Groundwater Dependent Ecosystem Policy (DLWC)
	Murray-Darling Basin Commission. Groundwater Flow Modelling Guideline (Aquaterra Consulting Pty Ltd)
	Guidelines for the Assessment and Management of Groundwater Contamination (DECC) Draft
Air Quality	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (DEC)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC)
Odour	
	Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
Greenhouse Gas	
	National Greenhouse Accounts (NGA) Factors 2008
	Guidelines for Energy Savings Action Plans (DEUS)
Biodiversity	
	State Environmental Planning Policy No 44 – Koala Habitat Protection (SEPP 44)
	Draft Guidelines for Threatened Species Assessment under Part 3A of the <i>Environmental Planning and Assessment Act 1979</i> (DEC)
	Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)
	The NSW State Groundwater Dependent Ecosystem Policy (DLWC)
Aboriginal Heritage	
	Part 3A EP&A Act Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2007 (DEC & DoP)
Hazards and Risks	
	State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33)
	Planning Advisory Paper No. 6 – Guidelines for Hazardous Analysis (DUAP)
	AS/NZS 4360:2004 Risk Management (Standards Australia)
	HB 203: 203:2006 Environmental Risk Management – Principles & Process

(Standards Australia)

Social & Economic

Draft Economic Evaluation in Environmental Impact Assessment (DOP)

Techniques for Effective Social Impact Assessment: A Practical Guide (Office of
Social Policy, NSW Government Social Policy Directorate)

APPENDIX 3

4.1 BACKGROUND INFORMATION

4.1.1 The Existing Site

Figure 4.1 displays the existing layout of the Project Site, based on an aerial photograph taken on 4 August 2007. The principal features of the existing site are as follows.

- The Project Site is largely disturbed with only 8ha of the 60ha relatively undisturbed, ie. principally around the perimeter of the Project Site.
- A series of bund walls varying in height from 5m to 19m and totalling approximately 1 900m in length are located around the perimeter of the Project Site.
- Two principal extraction areas are located on site, namely the northwestern clay/shale extraction area and the southwestern clay extraction area.
- Five dams are currently located on the Project Site.
 - Dam 1: A 30ML dam constructed principally to store water pumped for a nearby groundwater bore.
 - Dam 2: A sediment retention dam adjacent to the northwestern extraction area – used principally as a stilling basin for water pumped from the sump in the northwestern extraction area before being discharged to Blaxland Creek.
 - Dam 3: A former farm dam now used as a sediment retention dam adjacent to the northern boundary of the Project Site. This dam previously received runoff from the clay/shale stockpile area discharged via a pipe beneath the northeastern bund wall.
 - Dam 4: A water storage dam for containment of water from the clay/shale stockpile area and overflow from Dam 5. This dam is also used for dosing/flocculating water pumped from the sump in the northwestern extraction area.
 - Dam 5: A water storage dam collecting runoff from the southwestern extraction area. This dam overflows via a channel to Dam 4.
- The site infrastructure remaining on site from the previous owners includes a site office, weighbridge (x2) and equipment compound.
- Various stockpiles of clay/shale products.
- The Project Site is fenced with a standard rural fence and has a locked gate.

Since the Proponent purchased the Project Site on 19 August 2008, the site has been managed on a care-and-maintenance basis. The principal maintenance activities have centred upon upgrading on-site drainage structures to better manage the surface water and to progressively de-water the northwestern extraction area.





4.1.2 Topography

Regionally, the Project Site is located approximately 10.8km east of the Nepean River, which marks the eastern extent of the foothills of the Great Dividing Range and the beginning of the gently undulating topography that characterises the western Sydney Basin. Between the Project Site and the steep slopes of the Nepean Gorge (maximum 243m AHD, approximate slope 1:1.7 (V:H), elevations range from 25m AHD to 60m AHD, with slopes of approximately 1:23 (V:H) or less. To the north, east and south of the Project Site, the topography is similarly flat to gently undulating. The highest point in close proximity to the Project Site is 92m AHD, 4.2km to the southwest. **Figure 4.2** displays the topography surrounding the Project Site.

Within the Project Site itself, the existing topography displays a general grade from southeast to northwest for almost 80% of the Project Site (50m AHD to 35m AHD), with slopes of 1:10 (V:H) in the vicinity of Blaxland Creek. The remaining 20% of the site drains to the southeast with slopes ranging from 1:8 (V:H) to 1:20 (V:H).

Since commencement of clay/shale extraction on the Project Site in 1981, the natural topography has been substantially modified. Contours on the Project Site are superimposed in **Figure 4.1**.

Elevations range from 65m AHD at the top of the southern bund wall to approximately 17m AHD at the base of the northwestern clay/shale extraction area. The maximum slopes occur on the batter slopes of the perimeter bund walls. These slopes typically vary from 24° to 38°.

The eastern and northeastern bund walls vary in height from 50m AHD to 58m AHD in an area where the ground level is approximately 40m AHD to 45m AHD and the clay/shale stockpiles are between 5m and 10m high. The southwestern bund wall is the highest bund wall on site, reaching 19m in the southwestern corner of the Project Site. The void within the northwestern extraction area within the Project Site (in Cell 1) is up to 24m below the natural ground level.

4.1.3 Meteorology

4.1.3.1 Source of Data

Climatic data collected over a 39 year period are available from the Bureau of Meteorology monitoring station located at Orchard Hills Treatment Works (The Chase – Station Number 067084), approximately 3.6km west of the Project Site. Evaporation data was drawn from records collected at Badgerys Creek, 7.9km south of the Project Site.

Table 4.1 presents temperature and rainfall data collected at Orchard Hills Treatment Works. The temperature data covers a period of 19 years between 1970 and 1989 and the rainfall data covers a period of 39 years between 1970 and 2009. Temperature data is presented as monthly averages of 9:00am and 3:00pm readings. Also presented are monthly averages of maximum and minimum temperatures. Rainfall data comprise mean and median monthly rainfall and the average number of raindays per month.



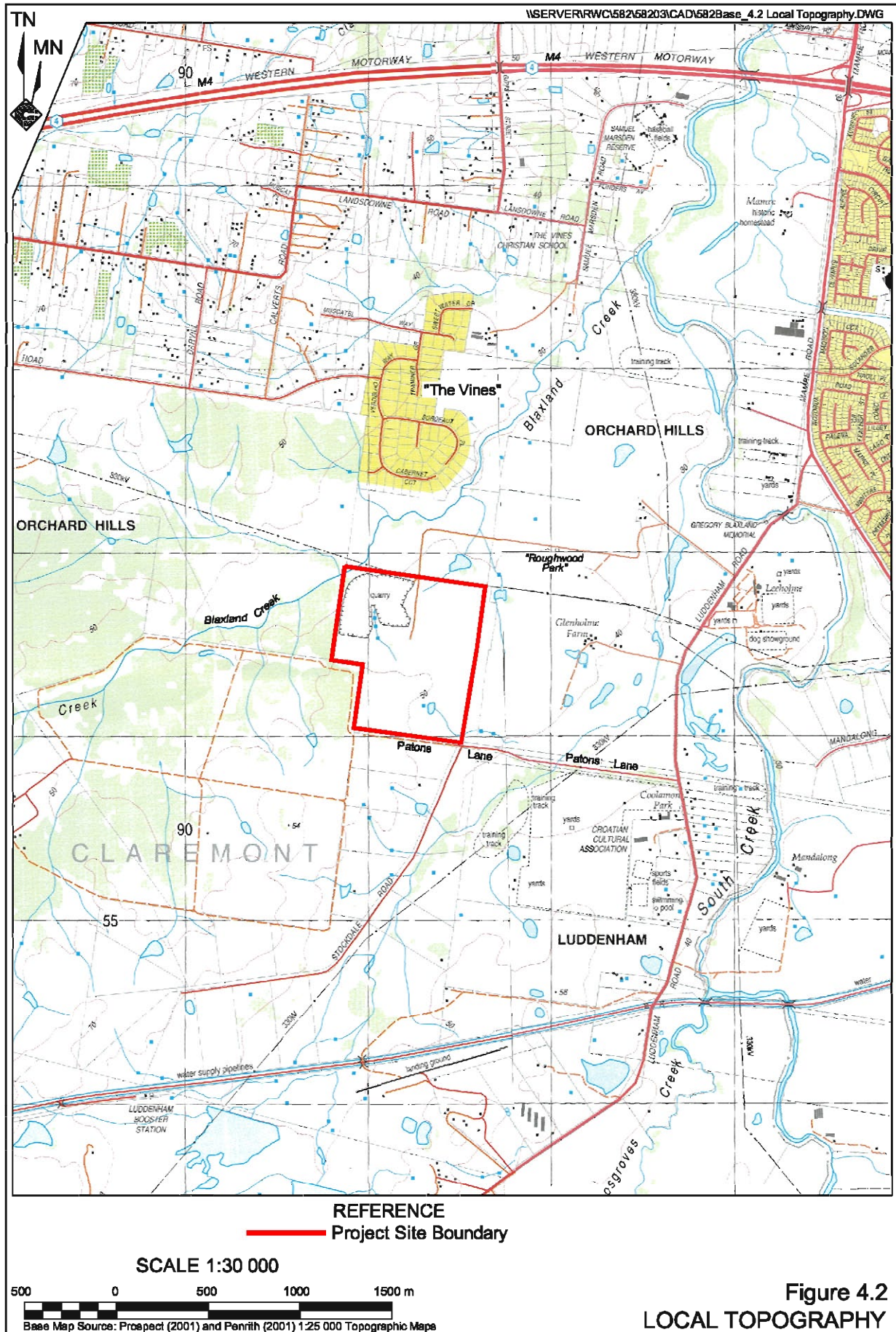


Table 4.1
Temperature, Humidity and Rainfall Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
9am Mean Temperature (°C) – Orchard Hills Treatment Works (The Chase)													
Mean	21.1	20.8	20.2	17.4	13.7	10.4	9.5	11.1	14.7	17.5	18.8	20.9	16.3
3pm Mean Temperature (°C) - Orchard Hills Treatment Works (The Chase)													
Mean	26.8	26.3	25.2	22.5	19.2	16.3	16.0	17.8	20.3	22.1	24.4	26.9	22.0
Daily Maximum Temperature (°C) - Orchard Hills Treatment Works (The Chase)													
Mean	28.3	27.8	26.5	23.8	20.4	17.3	17.2	18.9	21.8	23.9	25.8	28.5	23.4
Daily Minimum Temperature (°C) - Orchard Hills Treatment Works (The Chase)													
Mean	16.9	17.4	16.0	13.0	9.6	7.0	5.3	5.9	8.7	11.1	13.2	15.5	11.6
Rainfall (mm) - Orchard Hills Treatment Works (The Chase)													
Monthly mean -mm	103.6	110.6	90.2	65.7	65.4	51.4	38.3	40.7	38.1	59.0	78.2	70.9	812.8
Median -mm	96.0	99.2	72.9	43.0	46.6	31.8	21.0	17.0	31.9	44.2	61.9	50.0	743.5
Mean -days	8.4	8.7	7.8	6.1	5.9	4.8	4.4	3.8	5.2	6.8	7.8	7.0	76.7
Evaporation (mm) – Badgerys Creek McMasters F. Stn													
Mean monthly -mm	213.9	162	132	99	65.1	51	58.9	89.9	120	142.6	168	195	124.8
Orchard Hills Station number: 067084 Commenced 1970; Last record 2009; Elevation: 93m; Latitude:-33.80; Longitude: 150.71 Badgerys Ck Station number: 067068 Commenced 1936; 31 Dec 1996; Elevation 65m; Latitude: 33.87; Longitude: 150.73 Source: Bureau of Meteorology (2009).													

4.1.3.2 Temperature

The annual average maximum and minimum temperatures experienced at Orchard Hills Treatment Works are 23.4°C and 11.6°C respectively. On average, December is the hottest month with an average maximum temperature of 28.5°C. July is the coldest month, with average minimum temperature of 5.3°C.

4.1.3.3 Rainfall and Evaporation

Rainfall data collected at the Orchard Hills Treatment Works site shows that February is the wettest month, with an average rainfall of 110.6mm. The driest month is September with average monthly rainfall of 38.1mm. The average annual rainfall is 802mm whereas the 90th percentile rainfall year (a wet Year) is 1 147mm and 10th percentile rainfall year (a dry year) is 485mm. The rainfall for the 90th percentile 5 day storm event used to calculate preferred dam sizes across the Project Site is 47.6mm.

Table 4.1 presents the average monthly evaporation data recorded between 1936 and 1996. The highest rate of evaporation (213.9mm) occurs during January and the lowest evaporation in June (51mm). Rainfall and evaporation are comparable in May and June whereas evaporation exceeds rainfall during all other months.



4.1.3.4 Wind

Figure 4.3 shows the annual and seasonal wind roses compiled from the St Marys data for the period January 2007 to December 2007. On an annual basis, the data show a high frequency of winds from the south-southwest and to a lesser extent the south. In the summer, winds are predominantly from the south-southwest and south with a relatively even portion of winds ranging from east-northeast through to the south-southeast. In autumn and winter, the dominant wind occurs from the south-southwest, with minor winds from other directions. Winds during the winter months are from the south and south-southwest. On an annual basis, the mean wind speed for the St Marys site is 1.87m/s and the percentage of calms (wind speeds less than 0.5m/s) is 15.9 percent.

4.1.4 Surrounding Land Ownership, Land Uses and Residences

Figure 4.4 presents the land ownership details surrounding the Project Site. This information has been sourced from the publicly available Land Ownership Register maintained by the Department of Lands.

The Project Site is located largely within a rural landscape comprising open grazing land, pockets of established tree canopy and low density housing. Immediately to the west of the Project Site is land owned by the Commonwealth which is used by the Australian Defence Force. This land is heavily vegetated and represents one of the more significant areas of Cumberland Plain Woodland remaining in Western Sydney.

Located between approximately 0.5km and 1.5km to the north of the Project Site is a relatively recent residential subdivision, referred to as “The Vines”, comprising large detached housing. The Project Site is separated from this residential area by open grazing land and the tree-lined Blaxland Creek. Further, to the north (approximately 2km to 3km), the land also comprises low density residential dwellings on large allotments, with this area extending up to and bounded by the M4 Motorway.

Land to the immediate east of the Project Site consists of open grazing land and ancillary buildings on the “Roughwood Park” and “Glenholme Farm” including rural housing. The owner of “Roughwood Park” maintains and trains race horses on the property. The “Glenholme Park” property is largely used for grazing cattle. Between South Creek and Mamre Road to the east of the Project Site, a new rural-residential subdivision has been developed. Further to the east (approximately 3km) are the established residential suburbs of St Clair and Erskine Park as well as the Erskine Park industrial estate. The Erskine Park industrial estate currently incorporates the Enviroguard Waste Disposal Facility, a facility located on the site of the former Erskine Park hard rock quarry. To the south of the Project Site and Patons Lane, the land accommodates buildings and other facilities associated with an existing horse stud. A small well-established rural-residential subdivision is located adjacent to Luddenham Road, immediately south of Patons Lane.

Table 4.2 lists the distance between a number of components on the Project Site and a range of the residences surrounding the Project Site.



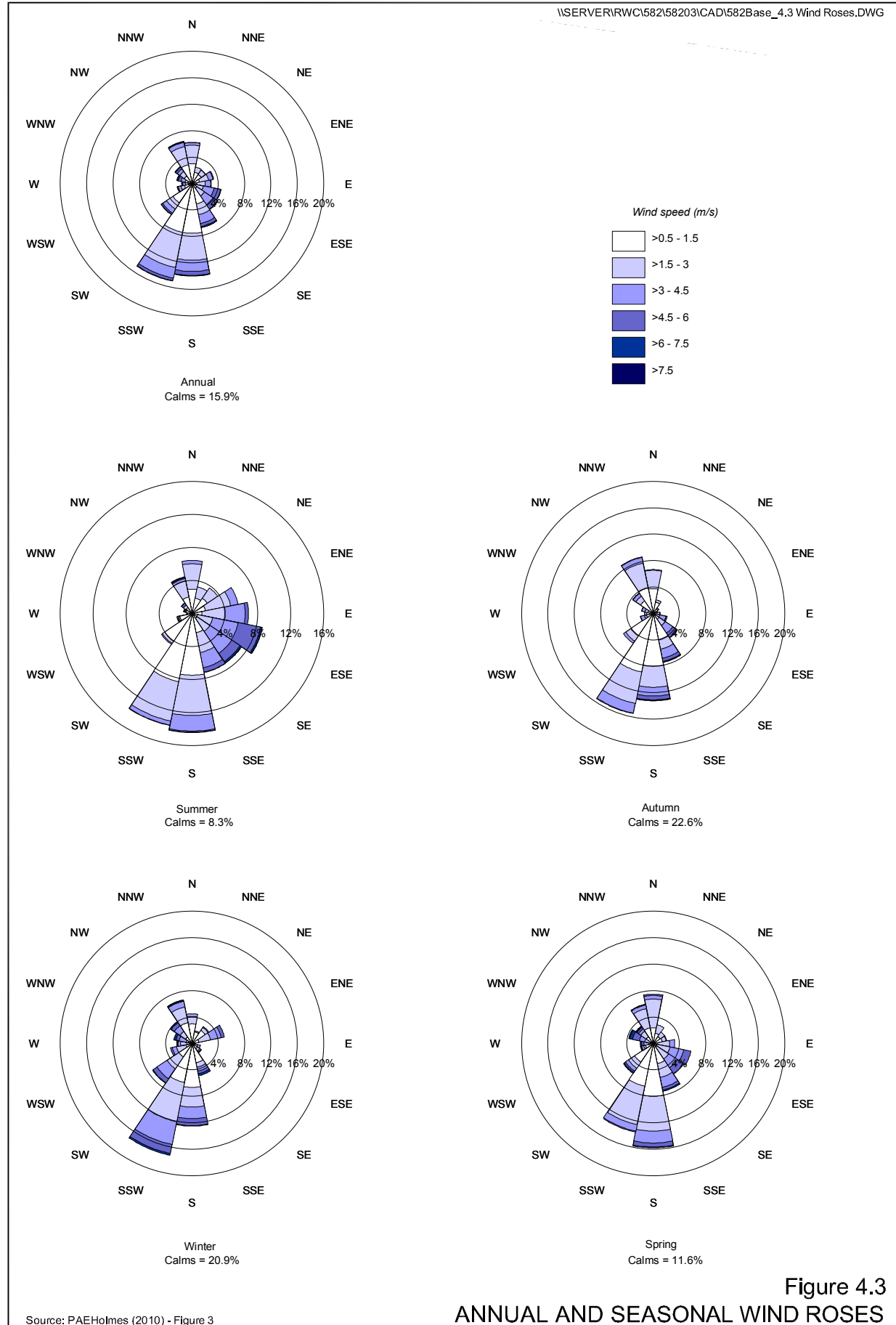


Table 4.2
Distances from Representative Surrounding Residences to Project Site Components

Residence	Distance (m) from		
	Project Site Boundary	Closest Cell	Recycling Area
A	650	720	1 330
B	630	640	1 110
C	1 180	1 260	1 600
G	1 430	1 580	1 860
I	1 540	1 660	1 970
O	1 390	1 470	1 820
T	1 250	1 310	1 680
U	990	1 090	1 670
V	490	590	1 190
W	480	570	1 140
X	660	730	1 320
Y	880	970	1 530
Z	490	570	1 140

4.2 GROUNDWATER

The nature and characteristics of the groundwater beneath and surrounding the Project Site and the assessment of impacts of the Project on the groundwater is drawn from a report prepared by Aquaterra Consulting Pty Ltd. This section provides a summary of the report by Aquaterra Consulting Pty Ltd (2010) which is included in full as Part 2 of the Specialist Consultant Studies Compendium (Volume 1).

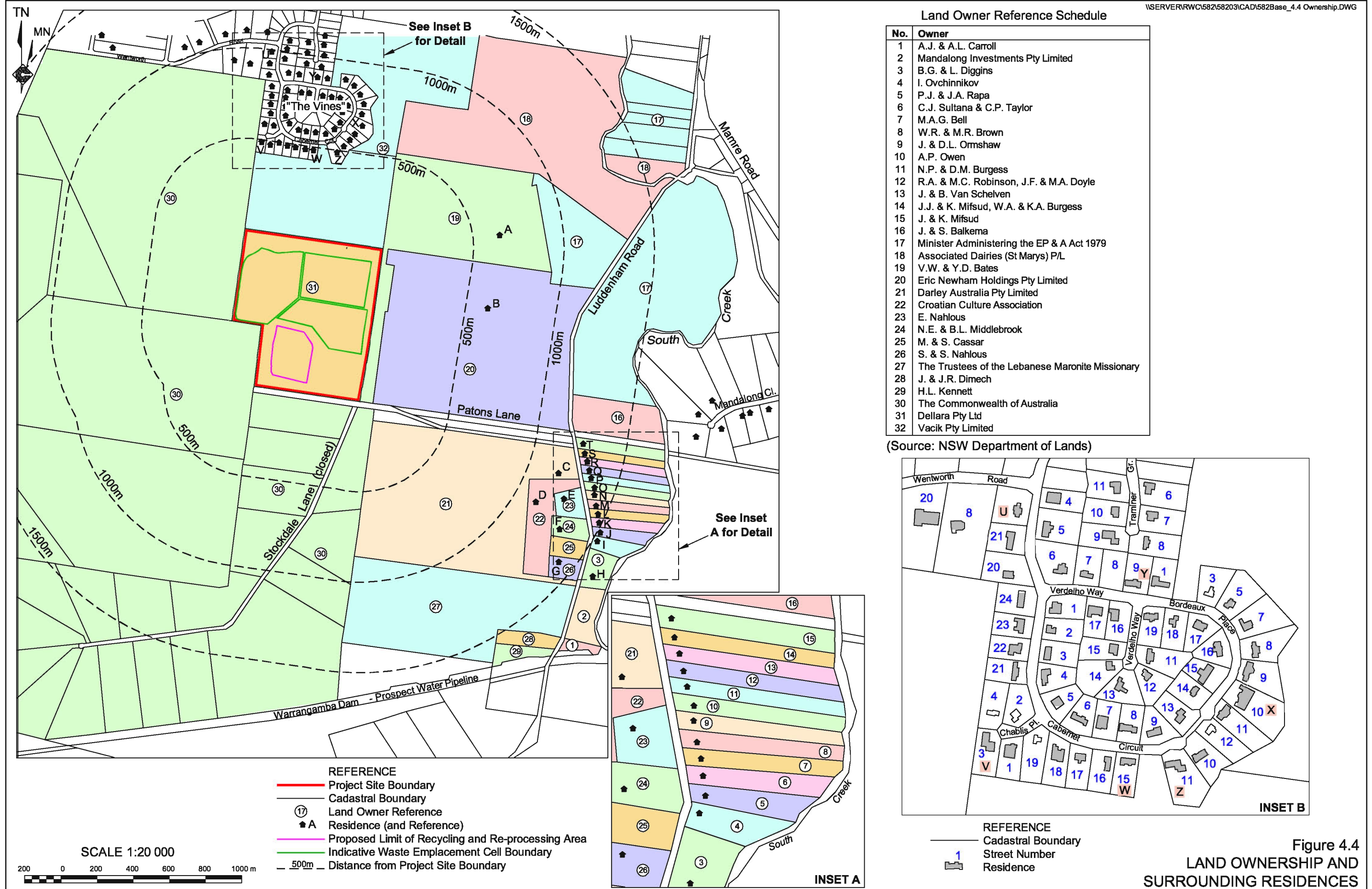
4.2.1 Introduction

Based upon the risk analysis undertaken for the Project (see Section 3.3 and **Table 3.5**), the potential groundwater impacts requiring assessment and their **unmitigated** risk rating are as follows.

- Contamination by leaking /spilt hydrocarbons requiring minor or major recovery works (low risk).
- Reduced groundwater levels with the Bringelly Shale and Hawkesbury Sandstone (low risk).
- Impact on groundwater dependent ecosystems, if present (moderate risk).

It is noted that most groundwater-related issues attract only a low to moderate risk as it is recognised, based upon over 100 years of waste placement (including putrescibles wastes) in former clay/shale quarries in the Sydney area and studies by Dupen (1993), that there is very little groundwater in the clay/shales and what is present is highly saline and of little value.





APPENDIX 4

sites should be excluded from further consideration based on environmental factors.

In addition to assessing the suitability of sites for new facilities, site feasibility studies should be undertaken to assess the acceptability of an existing landfill being extended, or altered from receiving inert waste to receiving solid waste. As a further means of assessing site suitability, investigations for existing landfills should consider any monitoring results.

The level of detail of the initial site investigations should be commensurate with the scale and type of proposal, and the potential environmental sensitivity of the site. Some aspects of site investigations for inert waste landfills could be less rigorous than for solid waste landfills, but should still address all issues necessary to demonstrate site suitability. On the other hand, initial site investigations for any landfill likely to receive any form of hazardous

Table 1. List of Environmentally Sensitive Areas to be Avoided

Area	Objective
A site* within 250 metres of an area of significant environmental or conservation value identified under relevant legislation or environmental planning instruments, including: • national parks, marine national parks • historic and heritage areas, building or sites protected under the Heritage Act or National Parks and Wildlife Act or areas on the register of the National Estate • any reserves for environmental protection, e.g. aquatic, marine, nature, karsts • areas covered by a conservation agreement or identified as a critical habitat under the Threatened Species Conservation Act • wilderness areas identified or declared under the Wilderness Act • world heritage areas • areas mapped under SEPP 14 — Coastal Wetlands, SEPP 26 — Littoral Rainforests • areas zoned under a LEP or REP for environmental protection purposes, e.g. high conservation, scenic, scientific, cultural or heritage • other areas protected under the National Parks and Wildlife (NP&W) Act, Crown Lands Act Fisheries Administration Act or any other legislation	To avoid the risk of damaging areas of high environmental value
Sites within an identified sensitive location within a drinking water catchment, including: • any lands nominated or mapped as 'special areas' under the Sydney Water Regulation • lands within 3 kilometres from the top water level of the following storages: Wingecarribee Reservoir, Fitzroy Falls Reservoir, and the Tallowa Dam • any lands nominated as Special Areas (or similar wording) by local water supply authorities or in the vicinity of a groundwater bore used as drinking water	To avoid the risk of polluting drinking water should failure of the landfill occur
Sites within 250 metres: • of a residential zone • of a dwelling, school or hospital not associated with the facility	To protect the amenity of residential areas
Sites located: • in or within 40 metres of a permanent or intermittent waterbody (including rivers, lakes, bays or wetlands) • in an area overlying an aquifer which contains drinking water quality groundwater which is vulnerable to pollution (consult DLWC for criteria to determine the vulnerability of groundwater)	To protect groundwater and surface water resources
Sites located: • within a karst region (either protected under the NP&W Act or not) • with substrata which are prone to land slip or subsidence	To avoid sites with unsuitable substrata
Sites within a floodway which may be subject to washout during a major flood event. Councils should be consulted for information about local flooding characteristics. A major flood event is considered to be a 1 in 100 year event	To avoid landfill washout risk if a significant flood event was to occur

Note: * The provisions in this table are not intended to preclude the operation of an existing landfill which is ancillary to and an integral component of a national park, reserve or world heritage area

substances should rigorously investigate all hydrogeological aspects of alternative sites.

Results of the initial investigations should be assessed to determine if a site is fundamentally suitable or unsuitable for proceeding with a development application. In some circumstances, the acceptability of some sites for landfilling may be still uncertain following an initial site investigation.

Before proceeding with these types of sites, the views of the EPA and any relevant authorities should be sought regarding:

- the nature of the environmental constraint and its significance for the proposal's likely impacts

- the availability of impact mitigation measures
- the comparative merits of alternative sites.

The availability of impact mitigation measures alone should not lead to the conclusion that a site is suitable. A balanced judgment should be made taking account of all environmental factors. If the site is deemed to be suitable, the EIS should include results of the initial investigations and a full explanation of the rationale for selecting the site and for concluding that the site is suitable for landfilling.

The statutory requirements for an EIS are prescribed in Schedule 2 of the EP&A Regulation (Appendix 1).

Table 2. Appropriate Separation Distances from Certain Land Uses

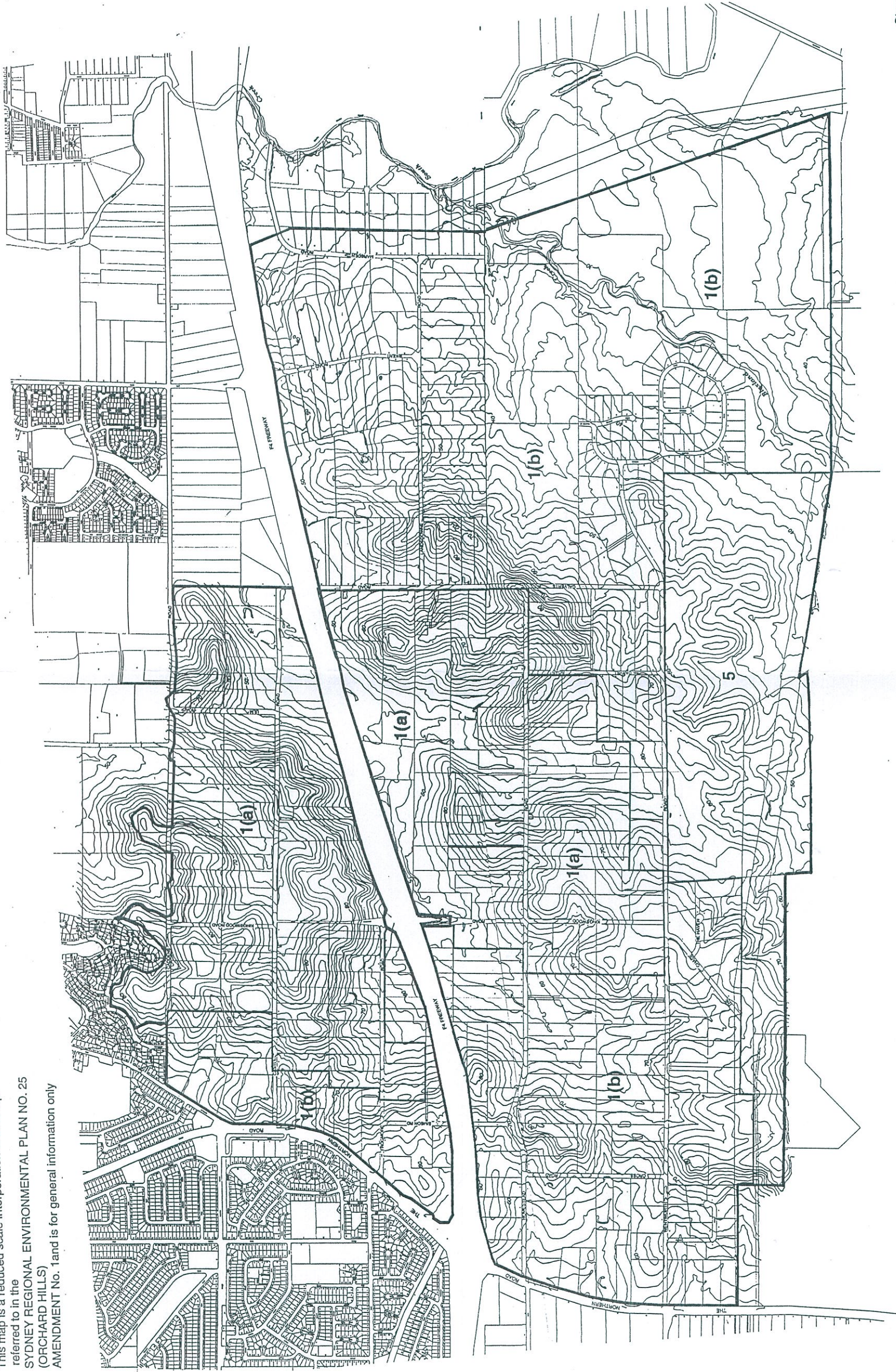
Land use	Performance objectives	Factors for determining appropriate separation distances
Airports*	• Ensure that air traffic is not exposed to bird hazard	• What is the likelihood of the performance objectives being achieved by the mitigation measures alone?
Residential areas	• Protect residential amenity and health: odour, visual amenity, noise, dust, seepage	• What is the likelihood of the mitigation measures failing? • What is the likelihood of an 'incident' (e.g. accident, system failure, natural disaster) which will result in a failure to meet the performance objectives?
Surface waters**	• Ensure that surface waters are protected from pollutants in the waste • Ensure that no existing or likely future uses of surface waters are compromised • Ensure that no significant impacts occur to flora and fauna which use the waters • Ensure that the ecological value of the waters will be maintained	• What backup mitigation measures are available? • What is the likely geographic extent of impacts, taking into consideration the proposed performance of mitigation measures and the local environment (topography, climate)? • What is the likely geographic extent of the impacts if mitigation measures fails or an 'incident' occurs, taking into consideration the local environment (e.g. topography, climate)?
Groundwater recharge zones	• Ensure that there is no deterioration in the quality of the groundwater • Ensure that no existing or likely future uses of groundwater are compromised	• What separation distances are required to achieve the performance objective: — under normal operational and mitigation performance conditions — if mitigation measures fail or an 'incident' occurs?
Environmentally sensitive areas (Table 1)	• Ensure that environmental qualities of the particular area are not compromised by the landfill	• What is the extent of separation distances required by any legislation?

Note: * The Federal Airports Corporation and Civil Aviation Authority both support the separation distances recommended by the International Civil Aviation Organisation (ICAO) publication Land Use and Environmental Control (Second Edition - 1985). The separation distance recommended by this publication is 8 kilometres for a landfill used for food garbage disposal. No separation distances are specified for other types of landfills.

** The EPA advises that pollution reduction by using separation distances is not acceptable for water or air pollution. Therefore, any separation distances in these cases should **not** be seen as a primary means of reducing impacts.

APPENDIX 5

This map is a reduced scale interpretation of the map referred to in the SYDNEY REGIONAL ENVIRONMENTAL PLAN NO. 25 (ORCHARD HILLS) AMENDMENT No. 1 and is for general information only



DEPARTMENT OF URBAN AFFAIRS AND PLANNING
ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979
SYDNEY REGIONAL ENVIRONMENTAL PLAN NO. 25
(ORCHARD HILLS)
AMENDMENT No. 1

ZONES	
1(a)	1(a)
1(b)	1(b)
5	5



LGA	PENRITH COUNCIL	LOCALITY	ORCHARD HILLS
DRAWN BY	JM	COUNTY OF	CUMBERLAND
CHECKED BY	CARTOGRAMPHIC OFFICER	DATE	17/11/1996
MANAGER	PLANNING OFFICER	NOTATIONS	Prepared in accordance with SREP NO. 25 (ORCHARD HILLS) and I.D.O. 83 (PENRITH)
DEPARTMENT FILE NUMBER	191/02/137004	CATALOGUE NUMBER	05 09 9 98 4 2 3 4

Base Map compiled by the Department of Urban Affairs and Planning - 1996
from maps prepared by the City of Sydney at a scale of 1:10,000
Contour lines compiled from SREP NO. 25 map.

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0 100 200 400 600 800 1000 Metres

LEGEND

Items of Environmental Heritage

- 1 Farm House
2 Orchard Hills Uniting Church

AMENDMENT No.1

☐ Drainage Areas/Flood Liabile Lands, Tree Preservation in part and no buildings (clauses 17 and 22)

Subzones of 1(b) zone

- ☐ A - See clause 18
☐ B - See clause 19
☐ C - See clause 19A
☐ D - See clause 20

Base Map compiled by the Department of Urban Affairs and Planning - 1996
from maps supplied by Penrith City Council at Scale of 1:10 000
Contour lines compiled from SREP NO. 25 map.

LGA	PERMITH CHECKPOINT	LOCALITY	CHICKADEE HILLS CARBONLAND
DRAWN BY	JM	DATE	17/1/1996
CHECKED BY	MANAGER CARTOGRAPHIC	NOTATIONS Proposed amendment to SHEP NO. 22 (CHICKADEE HILLS) and I.D.O. 93 PERMITH	
	PLANNING OFFICER		
DEPARTMENT FILE NUMBER	PA162137404	CATALOGUE NUMBER	05 09 9 98 42 35